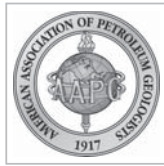


Associated Societies

GSA has a long tradition of collaborating with a wide range of partners in pursuit of our mutual goals to advance the geosciences, enhance the professional growth of society members, and promote the geosciences in the service of humanity. GSA works with other organizations on many programs and services.



AASP - The Palynological Society



American Association of Petroleum Geologists (AAPG)



American Geophysical Union (AGU)



American Institute of Professional Geologists (AIPG)



American Quaternary Association (AMQUA)



American Rock Mechanics Association (ARMA)



Association for the Sciences of Limnology and Oceanography (ASLO)



American Water Resources Association (AWRA)



Asociación Geológica Argentina (AGA)



Association for Women Geoscientists (AWG)



Association of American State Geologists (AASG)



Association of Earth Science Editors (AESE)



Association of Environmental & Engineering Geologists (AEG)



Association of Geoscientists for International Development (AGID)



Blueprint Earth (BE)



The Clay Minerals Society (CMS)



Colorado Scientific Society (CSS)



Council on Undergraduate Research Geosciences Division (CUR)



Cushman Foundation (CF)



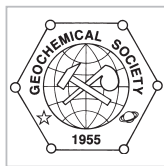
Environmental & Engineering Geophysical Society (EEGS)



European Association of Geoscientists & Engineers (EAGE)



European Geosciences Union (EGU)



Geochemical Society (GS)



Geologica Belgica (GB)



Geological Association of Canada (GAC)



Geological Society of Africa (GSAF)



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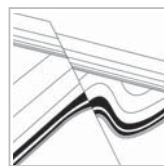
Geological Society of China (GSC)



Geological Society of London (GSL)



Geological Society of South Africa (GSSA)



Geologische Vereinigung (GV)



Geoscience Information Society (GISIS)



Geoscience Society of New Zealand (GSNZ)



Groundwater Resources Association of California (GRA)



History of Earth Sciences Society (HESS)



International Association for Geoscience Diversity (IAGD)



International Association for Promoting Geoethics (IAPG)



International Association of Emergency Managers (IAEM)



International Association of GeoChemistry (IAGC)



International Association of Hydrogeologists (IAH)



International Association of Limnogeology (IAL)



International Medical Geology Association (IMGA)

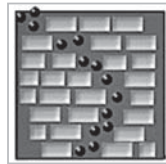
As the Society looks to the future, it aims to build strong, meaningful partnerships with societies and organizations across the country and around the world in service to members and the larger geoscience community. National and international societies with consistent aims and missions of advancing the geosciences and/or science in general are invited to affiliate with GSA as Associated Societies. For further information, or if your organization's contact person has changed, please contact GSA's Executive Director, Vicki McConnell, at vmcconnell@geosociety.org.



International Society for Aeolian Research (ISAR)



Israel Geological Society (IGS)



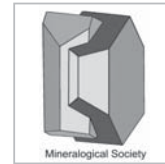
Karst Waters Institute (KWI)



Microanalysis Society (MAS)



Mineralogical Association of Canada (MAC)



Mineralogical Society of America (MSA)



The Mineralogical Society (MS)



Minnesota Ground Water Association (MGWA)



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National Association of State Boards of Geology (ASBOG®)



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National Ground Water Association (NGWA)



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Seismological Society of America (SSA)



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Sociedad Geológica Mexicana, A.C. (SGM)



Società Geologica Italiana (SGI)



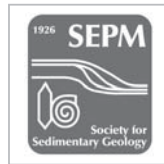
Society for American Archaeology (SAA)



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SEPM (Society for Sedimentary Geology)



Society for the Preservation of Natural History Collections (SPNHC)



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Thanks to the GSA 2017 Organizing Committee

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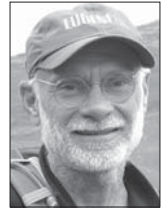
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22-25 October
Seattle, Washington, USA

Session Cosponsor Organizations

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History of the Geoscience Section of the Geological Society
of Italy
IGCP 640 program S4SLIDE (Significance of Modern and
Ancient Submarine Slope Landslides)
IGCP 653: Onset of the Great Ordovician Biodiversification Event
International Association for Geoscience Diversity
International Association of GeoChemistry
International Association of Hydrogeologists
International Association of Limnogeology
International Lithosphere Program
International Medical Geology Association
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Geoscience Education Research
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Division
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SEPM (Society for Sedimentary Geology)
Sigma Gamma Epsilon
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Society of Economic Geologists
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U.S. Forest Service
U.S. Geological Survey—National Cooperative Geologic
Mapping Program
U.S. National Committee-International Quaternary Congress
Volcanic and Magmatic Studies Group
Washington Division of Geology and Earth Resources
Winners Academic Solutions
YES Network

GSA Section Meetings

8



South-Central Section

12–13 March

Little Rock, Arkansas, USA

Meeting Chair: Michael DeAngelis, mtdeangelis@ualr.edu

www.geosociety.org/sc-mtg

Photo by Oliver Beland.

1



Northeastern Section

18–20 March

Location: Burlington, Vermont, USA

Meeting Chairs: Charlotte Mehrtens, cmehrten@uvm.edu;

Andrea Lini, alini@uvm.edu

www.geosociety.org/ne-mtg

Photo by Stephen Wright.

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Southeastern Section

12–13 April

Location: Knoxville, Tennessee, USA

Meeting Chair: Colin D. Sumrall, csumrall@utk.edu

www.geosociety.org/se-mtg

Photo by Bruce McCamish.

2



North-Central Section

16–17 April

Ames, Iowa, USA

Meeting Chair: William Simpkins, bsimp@iastate.edu

www.geosociety.org/nc-mtg

Photo by Bri Gerke.



Rocky Mountain/Cordilleran Joint Section Meeting

15–17 May

Flagstaff, Arizona, USA

Meeting Chair: Paul Umhoefer, paul.umhoefer@nau.edu

www.geosociety.org/rm-mtg

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Sessions by Category

All Technical Sessions will take place either at The Conference Center (TCC) or the Washington State Convention Center (WSCC). To browse the entire meeting schedule, download GSA's app at community.geosociety.org/gsa2017/mobileapp.

NO.	SESSION TITLE	DAY	TIME	LOCATION
Archaeological Geology				
53	T197. No Dates: No Rates—Utilizing Geochronometers to Quantify Rates of Geomorphic Processes or Archaeological Development over a Wide Range of Temporal and Spatial Scales	Sunday	1:30–5:10 p.m.	WSCC, Room 3B
63	T196. Advances in Geoarchaeology (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
64	T197. No Dates: No Rates—Utilizing Geochronometers to Quantify Rates of Geomorphic Processes or Archaeological Development over a Wide Range of Temporal and Spatial Scales (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
112	T196. Advances in Geoarchaeology I	Monday	8–11:30 p.m.	WSCC, Room 3B
145	T196. Advances in Geoarchaeology II	Monday	1:30–5:10 p.m.	WSCC, Room 3B
Economic Geology				
2	D29. Investigations in Economic Geology	Sunday	8–11:45 p.m.	TCC, Skagit 5
65	D30. Investigations in Economic Geology (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
237	T148. System-Scale Zonation of Ore Systems: Insights into 3D Architecture from Lateral and Deep Exposures Due to Mining and Structural Deformation	Tuesday	1:30–5:20 p.m.	TCC, Yakima 1
Energy Geology				
14	T83. Unconventional Energy Resources: Advances and Evolution in Tight Reservoir Assessment and Production	Sunday	8–11:15 p.m.	WSCC, Room 3B
66	T78. Environmental Impact Studies for Energy Geology (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
67	T83. Unconventional Energy Resources: Advances and Evolution in Tight Reservoir Assessment and Production (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
133	T78. Environmental Impact Studies for Energy Geology	Monday	1:30–4:45 p.m.	WSCC, Room 602/603
201	T79. Geologic Energy Research I	Tuesday	8–11:15 p.m.	WSCC, Room 602/603
230	T79. Geologic Energy Research II	Tuesday	1:30–4:30 p.m.	WSCC, Room 602/603
308	T80. Geothermal Energy	Wednesday	8–11:35 a.m.	WSCC, Room 602/603
347	T79. Geologic Energy Research (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
348	T80. Geothermal Energy (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Engineering Geology				
31	T245. Subduction Zone Coseismic Landslides	Sunday	1:30–3:30 p.m.	TCC, Tahoma 2
59	T242. Current Trends in Landslide Monitoring: New Techniques, Methods, Successes, Failures, and Case Studies I	Sunday	1:30–5:15 p.m.	TCC, Skagit 5
68	T243. Environmental and Engineering Division Geology Student Research Competition (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
118	T242. Current Trends in Landslide Monitoring: New Techniques, Methods, Successes, Failures, and Case Studies II	Monday	8 a.m.–noon	TCC, Skagit 5
151	T242. Current Trends in Landslide Monitoring: New Techniques, Methods, Successes, Failures, and Case Studies III	Monday	1:30–4:45 p.m.	TCC, Skagit 5
216	T246. Weather-Induced Landslides, Debris Flows, and Rock Fall	Tuesday	8 a.m.–noon	TCC, Skagit 5
252	T244. Landslide Inventories, Databases, Hazard Maps, Risk Analysis, and Beyond (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF

NO.	SESSION TITLE	DAY	TIME	LOCATION
Environmental Geoscience				
96	T31. GeoCorps and Geoscientists-in-the-Parks Internships on Public Lands: Providing Career Development Opportunities for Students and Recent Graduates	Monday	8–11:25 a.m.	WSCC, Room 612
153	T34. Sigma Gamma Epsilon-Undergraduate Research (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
225	T33. Intersections of Sustainability and Geosciences	Tuesday	1:30–5 p.m.	WSCC, Room 612
301	T35. Urban Geochemistry	Wednesday	8 a.m.–noon	WSCC, Room 612
349	D7. Environmental Geoscience (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
350	T33. Intersections of Sustainability and Geosciences (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Geochemistry				
19	T157. Origin and Evolution of the Continental Crust: A Celebration of the Career of Paul Mueller	Sunday	8 a.m.–noon	TCC, Skagit 2
47	T153. Geochemical and Petrologic Forensics in the study of Earth's Magmatism: A Tribute to the Distinguished Career of Jon Davidson (1959–2016)	Sunday	1:30–5:15 p.m.	TCC, Skagit 2
69	D32. Geochemistry (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
70	T157. Origin and Evolution of the Continental Crust: A Celebration of the Career of Paul Mueller (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
106	T149. Celebrating Dr. John W. Valley's Contributions to Isotope Geochemistry and Beyond, from the Hadean to the Holocene I	Monday	8 a.m.–noon	TCC, Skagit 2
139	T149. Celebrating Dr. John W. Valley's Contributions to Isotope Geochemistry and Beyond, from the Hadean to the Holocene II	Monday	1:30–5:25 p.m.	TCC, Skagit 2
154	T153. Geochemical and Petrologic Forensics in the study of Earth's Magmatism: A Tribute to the Distinguished Career of Jon Davidson (1959–2016) (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
207	T152. Fluids and Melts in Geologic Systems	Tuesday	8–11:50 a.m.	TCC, Skagit 2
238	T150. Chemical Scene Investigations of Large Igneous Provinces II	Tuesday	1:30–5:30 p.m.	TCC, Skagit 2
253	T149. Celebrating Dr. John W. Valley's Contributions to Isotope Geochemistry and Beyond, from the Hadean to the Holocene (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
254	T151. Consequences of Fluids in Subduction Zones: From Grain Scale to Plate Boundary Shear Zone (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
255	T152. Fluids and Melts in Geologic Systems (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
314	T154. Imaging the Rock and Fluid Interactions of Geologic Carbon Sequestration	Wednesday	8–11:15 p.m.	TCC, Skagit 2
351	T150. Chemical Scene Investigations of Large Igneous Provinces II (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
352	T155. Improvements and Challenges in Geochronology: Organizing the Past while Planning for the Future (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Geoinformatics				
71	T145. Geologic Maps and Their Derivatives (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
206	T147. What Can You Do with Geoinformatics?	Tuesday	8–11:50 a.m.	WSCC, Room 3B
236	T143. Curating Physical Samples in a Digital World	Tuesday	1:30–5:30 p.m.	WSCC, Room 3B
353	T143. Curating Physical Samples in a Digital World (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
354	T144. Drones in Geoscience (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
355	T147. What Can You Do with Geoinformatics? (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Geology and Health				
155	D48. Geology and Health (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF

Sessions by Category

All Technical Sessions will take place either at The Conference Center (TCC) or the Washington State Convention Center (WSCC). To browse the entire meeting schedule, download GSA's app at community.geosociety.org/gsa2017/mobileapp.

NO.	SESSION TITLE	DAY	TIME	LOCATION
Geomicrobiology				
30	T249. New Voices in Geobiology I	Sunday	8 a.m.–noon	WSCC, Room 602/603
60	T249. New Voices in Geobiology II	Sunday	1:30–5:30 p.m.	WSCC, Room 602/603
119	T248. Microbialite Textures and Chemical Signatures in Continental Settings: Forging the Link between the Modern and Ancient	Monday	8–11:30 p.m.	WSCC, Room 602/603
156	T248. Microbialite Textures and Chemical Signatures in Continental Settings: Forging the Link between the Modern and Ancient (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
157	T249. New Voices in Geobiology (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
217	T247. Deciphering the Major Paleoenvironmental Crises of the Earth and Their Impact on the Marine Ecosystems and Biogeochemical Cycles	Tuesday	8 a.m.–noon	WSCC, Room 307/308
256	T247. Deciphering the Major Paleoenvironmental Crises of the Earth and Their Impact on the Marine Ecosystems and Biogeochemical Cycles (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Geomorphology				
23	T184. Geologic Research at Mount Rainier and Other Cascade Volcanoes: Ideal Natural Laboratories for Cutting-Edge Research with Implications to Life Safety and Infrastructure Protection in the Pacific Northwest I	Sunday	8–11:30 a.m.	TCC, Chelan 4
24	T194. The Aeolian Realm: Dunes, Dust, and Loess	Sunday	8 a.m.–noon	TCC, Chelan 2
50	T184. Geologic Research at Mount Rainier and Other Cascade Volcanoes: Ideal Natural Laboratories for Cutting-Edge Research with Implications to Life Safety and Infrastructure Protection in the Pacific Northwest II	Sunday	1:30–5 p.m.	TCC, Chelan 4
51	T191. Looking to the Past to Understand the Future: Glacial Chronology and Process	Sunday	1:30–5:30 p.m.	TCC, Chelan 2
52	T195. Undergraduate Research Talks: The Next Step in Student Research Projects	Sunday	1:30–4:45 p.m.	TCC, Chelan 5
72	D39. Surface Processes and Geomorphic Evolution, from the Coastlines to the Glaciers (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
73	T194. The Aeolian Realm: Dunes, Dust, and Loess (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
92	P2. Landscapes in the Anthropocene I	Monday	8 a.m.–noon	WSCC, Ballroom 6A
111	T193. Quantifying Geomorphic Processes and Rates of Landscape Evolution	Monday	8 a.m.–noon	TCC, Chelan 2
125	P2. Landscapes in the Anthropocene II	Monday	1:30–5:10 p.m.	WSCC, Ballroom 6A
144	T185. Geomorphology of Human-Altered Landscapes	Monday	1:30–5:15 p.m.	TCC, Chelan 5
158	T184. Geologic Research at Mount Rainier and Other Cascade Volcanoes: Ideal Natural Laboratories for Cutting-Edge Research with Implications to Life Safety and Infrastructure Protection in the Pacific Northwest (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
159	T191. Looking to the Past to Understand the Future: Glacial Chronology and Process (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
160	T193. Quantifying Geomorphic Processes and Rates of Landscape Evolution (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
212	T187. How, and Under What Conditions, Does Weathering Influence Surface Processes?	Tuesday	8 a.m.–noon	TCC, Chelan 2
242	T188. Interrelationship between Tectonic Uplift and Quaternary Glaciations on the Tibetan Plateau and Its Surrounding Mountains	Tuesday	1:30–5:25 p.m.	TCC, Chelan 2

NO.	SESSION TITLE	DAY	TIME	LOCATION
243	T189. Landscapes in the Anthropocene	Tuesday	1:30–5:10 p.m.	TCC, Chelan 4
257	T185. Geomorphology of Human-Altered Landscapes (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
318	T190. Linking Physical and Ecological Processes from Source-to-Sink to Investigate Multi-Scale Response to Restoration	Wednesday	8 a.m.–noon	TCC, Chelan 5
339	T183. Advances and Challenges in Quantifying Sediment Budgets for River Systems	Wednesday	1:30–5:30 p.m.	TCC, Chelan 4
340	T186. Heterogeneity in Landscape Evolution: Geomorphic Response to Spatially and Temporally Variable Forcings	Wednesday	1:30–5:30 p.m.	TCC, Chelan 2
341	T192. Mountain Glaciation and Climate Change of the Past and Present in the Western Americas	Wednesday	1:30–5:30 p.m.	TCC, Chelan 5
356	T183. Advances and Challenges in Quantifying Sediment Budgets for River Systems (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
357	T186. Heterogeneity in Landscape Evolution: Geomorphic Response to Spatially and Temporally Variable Forcings (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
358	T188. Interrelationship between Tectonic Uplift and Quaternary Glaciations on the Tibetan Plateau and Its Surrounding Mountains (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
359	T189. Landscapes in the Anthropocene (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
360	T190. Linking Physical and Ecological Processes from Source-to-Sink to Investigate Multi-Scale Response to Restoration (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
361	T192. Mountain Glaciation and Climate Change of the Past and Present in the Western Americas (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
Geophysics/Geodynamics				
58	T236. Characterizing Cascadia's Earthquakes—Reexamining Open Questions about Cascadia Seismic and Tsunami Hazards	Sunday	1:30–5 p.m.	TCC, Yakima 1
74	D45. Geophysics/Geodynamics (Posters)	Sunday	9 a.m.–5:30 p.m.	WSSC, Halls 4EF
117	T241. Volcano-Tectonic Evolution of the East African Rift System	Monday	8–11:30 p.m.	TCC, Yakima 1
124	D44. Geophysics to Solve Geological Problems and the Annual George P. Woollard Award Presentation	Monday	1:30–5:15 p.m.	TCC, Yakima 1
161	T236. Characterizing Cascadia's Earthquakes—Reexamining Open Questions about Cascadia Seismic and Tsunami Hazards (Posters)	Monday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
218	T257. Contributions of Rock- and Paleo-magnetism to Understanding Orogenic Processes	Tuesday	8–10:45 a.m.	TCC, Yakima 1
323	T240. Structure and Evolution of the North Atlantic–Arctic Realm	Wednesday	8–11 a.m.	TCC, Yakima 1
325	D51. Geophysics/Geodynamics Session	Wednesday	1:30–5 p.m.	TCC, Yakima 1
Geoscience and Public Policy				
13	T74. Integrating Geohazards Data into Planning and Land-Use Management Decisions	Sunday	8–11:50 a.m.	WSSC, Room 611
61	P1. The Changing Face of Geoscience in the 21st Century: Increasing Diversity and Inclusion to Solve Complex Problems	Sunday	2–5:30 p.m.	WSSC, Ballroom 6A
75	T74. Integrating Geohazards Data into Planning and Land-use Management Decisions (Posters)	Sunday	9 a.m.–5:30 p.m.	WSSC, Halls 4EF
200	T75. Planetary Climate Disruption Demands Urgent Global Policy Action	Tuesday	8–10:45 a.m.	WSSC, Room 611
222	D19. Geoscience and Public Policy: Bringing Our Science to Society	Tuesday	1:30–3:25 p.m.	WSSC, Room 613/614
297	P6. Earth Anatomy Revealed: Geologic Mapping for Our Future	Wednesday	8 a.m.–noon	WSSC, Ballroom 6A
333	T73. Geoscience and the Law: Exploring the Legal and Ethical Issues of Geologic Research and Practice	Wednesday	1:30–3:15 p.m.	WSSC, Room 611

Sessions by Category

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NO.	SESSION TITLE	DAY	TIME	LOCATION
Geoscience Education				
17	T102. Beyond the Road-Cut: Virtual, Local, and Nontraditional "Field" Teaching and Learning Experiences	Sunday	8 a.m.–noon	WSCC, Room 2B
18	T127. Supporting Geoscience Student Transfer Between Institutions and Transitions into the Workforce: Pathways to Success	Sunday	8 a.m.–noon	WSCC, Room 2A
33	D25. Geoscience Education Session: International Field Experiences in the Digital Age and Adapting Mental Models by Using Food for Teaching	Sunday	1:30–5:10 p.m.	WSCC, Room 3A
45	T99. Augmented and Virtual Reality in Geoscience Education	Sunday	1:30–5 p.m.	WSCC, Room 2A
46	T128. Teaching about the Earth Online	Sunday	1:30–5:25 p.m.	WSCC, Room 2B
76	T102. Beyond the Road-Cut: Virtual, Local, and Nontraditional "Field" Teaching and Learning Experiences (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
77	T118. Integration of Field and Laboratory-Based Experience toward Designing Pedagogically Sound Curriculum Enhancement Activities in the Geosciences (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
78	T127. Supporting Geoscience Student Transfer Between Institutions and Transitions into the Workforce: Pathways to Success (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
79	T132. Undergraduate Research Posters Showcasing Research by 2YC and 4YCU Geoscience Students (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
103	T100. Barriers, Misconceptions, and Progress in Improving Climate Literacy and Strategies for Communicating about Climate Change	Monday	8 a.m.–noon	WSCC, Room 3A
104	T122. On the Cutting Edge: Fifteen Years of Impacts on Geoscience Education	Monday	8 a.m.–noon	WSCC, Room 2A
105	T129. The Challenge of Defining Student Success: Broadening Participation, Measuring Success, and Preparing 2YC and 4YC Students for a Variety of Transitions	Monday	8–11:55 a.m.	WSCC, Room 2B
136	T111. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management	Monday	1:30–5:25 p.m.	WSCC, Room 2B
137	T113. Geoscience Education Research: Implications for Undergraduate Geoscience Teaching and Learning	Monday	1:30–5:30 p.m.	WSCC, Room 2A
138	T124. Practical Advice for In-Service and Pre-Service K–12 Earth Science Teacher Preparation and Professional Development	Monday	1:30–5:15 p.m.	WSCC, Room 3A
162	T104. Broader Impacts Activities as Vehicles for Filling the Geoscience Pipeline (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
163	T122. On the Cutting Edge: Fifteen Years of Impacts on Geoscience Education (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
164	T129. The Challenge of Defining Student Success: Broadening Participation, Measuring Success, and Preparing 2YC and 4YC Students for a Variety of Transitions (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
203	T105. Building an Inclusive Geoscience Community Today for Tomorrow I	Tuesday	8 a.m.–noon	WSCC, Room 2A
204	T115. Hands-On Teaching Demonstrations that Combine Geoscience and Societal Issues: Audience Participation Requested!	Tuesday	8–11:50 a.m.	WSCC, Room 3A
205	T120. Making Thinking Visible: Actions and Expressions of Problem Solving and Decision Making in the Geosciences	Tuesday	8 a.m.–noon	WSCC, Room 2B
233	T101. Better Together: Partnerships That Facilitate or Enhance Experiential Learning in Undergraduate Geoscience Education	Tuesday	1:30–5:30 p.m.	WSCC, Room 3A
234	T105. Building an Inclusive Geoscience Community Today for Tomorrow II	Tuesday	1:30–5 p.m.	WSCC, Room 2A

NO.	SESSION TITLE	DAY	TIME	LOCATION
235	T114. Getting It Done: Experiences of Implementing the Framework and NGSS in Earth and Space Science	Tuesday	1:30–5:30 p.m.	WSSC, Room 2B
258	T111. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
259	T113. Geoscience Education Research: Implications for Undergraduate Geoscience Teaching and Learning (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
260	T120. Making Thinking Visible: Actions and Expressions of Problem Solving and Decision Making in the Geosciences (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
261	T121. Natural History Museums in the 21st Century—Programming for the Future While Preserving the Past (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
262	T123. Pedagogical Applications of Point Cloud Collection and Manipulation (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
263	T124. Practical Advice for In-Service and Pre-Service K–12 Earth Science Teacher Preparation and Professional Development (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
310	T121. Natural History Museums in the 21st Century—Programming for the Future While Preserving the Past I	Wednesday	8–11:30 p.m.	WSSC, Room 3A
311	T131. Translating Professional Development Experiences into the Classroom I	Wednesday	8–11:45 p.m.	WSSC, Room 2A
312	T133. Victor Porter Memorial Session—Climbing out of the Fishbowl: Hands-On Public Engagement in the Geosciences	Wednesday	8 a.m.–noon	WSSC, Room 2B
334	T110. Engaging Students through Course-Based Undergraduate Research Experiences (CURE) across the Geoscience Curriculum	Wednesday	1:30–5:05 p.m.	WSSC, Room 2B
335	T121. Natural History Museums in the 21st Century—Programming for the Future While Preserving the Past II	Wednesday	1:30–4:15 p.m.	WSSC, Room 3A
336	T131. Translating Professional Development Experiences into the Classroom II	Wednesday	1:30–5 p.m.	WSSC, Room 2A
362	T101. Better Together: Partnerships That Facilitate or Enhance Experiential Learning in Undergraduate Geoscience Education (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
363	T105. Building an Inclusive Geoscience Community Today for Tomorrow (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
364	T110. Engaging Students through Course-Based Undergraduate Research Experiences (CURE) across the Geoscience Curriculum (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
365	T114. Getting It Done: Experiences of Implementing the Framework and NGSS in Earth and Space Science (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
Geoscience Information/Communication				
80	T137. Geoheritage Matters (Posters)	Sunday	9 a.m.–5:30 p.m.	WSSC, Halls 4EF
81	T140. New Tools in the Geologist’s Toolbelt: Using Technology to Educate and Inspire Others about Geology (Posters)	Sunday	9 a.m.–5:30 p.m.	WSSC, Halls 4EF
165	T135. Comedy in the Geosciences (Posters)	Monday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
166	T138. Geology Rocks! A Musical Session on the Sounds of Science (Posters)	Monday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
264	T141. Use of Geoscience Data and Information Resources in Education and Research (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
313	T136. Discovery and Preservation of Geoscience Data and Information Resources	Wednesday	8–11 a.m.	WSSC, Room 3B
History and Philosophy of Geology				
108	T166. Great Maps in the History of Geology	Monday	8 a.m.–noon	TCC, Skagit 3
141	T167. The History of the Petroleum Industry: Hydraulic Fracturing—The 20th and 21st Century	Monday	1:30–3:45 p.m.	TCC, Skagit 3
167	D55. Great Maps and Other Topics in the History of Geology (Posters)	Monday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF

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NO.	SESSION TITLE	DAY	TIME	LOCATION
Hydrogeology				
4	T5. Arsenic and Other Geogenic Contaminants in Groundwater Resources: Linking Water Quality, Food Security, and Treatment I	Sunday	8–11:30 a.m.	WSCC, Room 618/619/620
5	T13. In Honor of John M. (Jack) Sharp Jr.: Celebrating over 40 Years of Science, Students, and Stewardship I	Sunday	8–11:55 a.m.	WSCC, Room 615/616/617
6	T14. Lead Them to Water: Teaching Innovative Hydrogeology	Sunday	8–11:35 a.m.	WSCC, Room 613/614
7	T17. Polar and Alpine Changes	Sunday	8–11:45 p.m.	WSCC, Room 612
35	T5. Arsenic and Other Geogenic Contaminants in Groundwater Resources: Linking Water Quality, Food Security, and Treatment II	Sunday	1:30–5:25 p.m.	WSCC, Room 618/619/620
36	T8. Fate, Effects, and Mitigation of Chemical and Fuel Releases in Surface and Subsurface Environments	Sunday	1:30–5:30 p.m.	WSCC, Room 613/614
37	T13. In Honor of John M. (Jack) Sharp Jr.: Celebrating over 40 Years of Science, Students, and Stewardship II	Sunday	1:30–5:15 p.m.	WSCC, Room 615/616/617
82	T2. A Showcase of Undergraduate Research in Hydrogeology (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
93	T6. Cross-Border Community Engagement Using Geoscience Research, Education, and Outreach	Monday	8–11:55 a.m.	WSCC, Room 613/614
94	T12. Hydrogeology, Geochemistry, and Wetland Processes I: A Session in Honor of the Career of Donald I. Siegel	Monday	8–11:45 p.m.	WSCC, Room 618/619/620
95	T22. Water Resources and Management in Coastal and Inland Aquifers—Emphasis on Small Island Developing States of the Caribbean	Monday	8–11:45 p.m.	WSCC, Room 615/616/617
121	D1. Recent Advances in Hydrogeology	Monday	1:30–3:45 p.m.	WSCC, Room 615/616/617
126	T12. Hydrogeology, Geochemistry, and Wetland Processes II: A Session in Honor of the Career of Donald I. Siegel	Monday	1:30–4:45 p.m.	WSCC, Room 618/619/620
127	T15. Monitoring the Complex Nature of Water Balances and Solute Transport at the Groundwater–Surface Water Interface	Monday	1:30–5:30 p.m.	WSCC, Room 613/614
152	GSA Hydrogeology Division: Henry Darcy Distinguished Lecture	Monday	4–5 p.m.	WSCC, Room 615/616/617
168	D2. Recent Advances in Hydrogeology (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
169	T5. Arsenic and Other Geogenic Contaminants in Groundwater Resources: Linking Water Quality, Food Security, and Treatment (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
170	T8. Fate, Effects, and Mitigation of Chemical and Fuel Releases in Surface and Subsurface Environments (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
193	T4. Approaches to Applied Modeling for Industry and the Public	Tuesday	8 a.m.–noon	WSCC, Room 613/614
194	T10. Groundwater Influenced Ecosystems: Springs, Gaining Streams, and Terrestrial Ecosystems	Tuesday	8–11:50 a.m.	WSCC, Room 615/616/617
195	T20. The Critical Zone As Heterogeneous Media: Implications for Physical, Chemical, and Biological Processes	Tuesday	8 a.m.–noon	WSCC, Room 618/619/620
251	GSA Hydrogeology Division: Birdsall-Dreiss Distinguished Lecture	Tuesday	4:30–5:30 p.m.	WSCC, Ballroom 6B
298	T9. Groundwater Flow in Coastal and Marine Settings: From the Intertidal Zone to the Deep Seafloor	Wednesday	8 a.m.–noon	WSCC, Room 615/616/617
299	T16. Novel Approaches to Mine Remediation: Addressing the Legacy of Hardrock Mining through Innovative and Practical Methods	Wednesday	8 a.m.–noon	WSCC, Room 618/619/620

NO.	SESSION TITLE	DAY	TIME	LOCATION
300	T19. Springs: Providing Insights on Critical Groundwater Quality and Quantity Issues	Wednesday	8–11:35 a.m.	WSCC, Room 613/614
326	T1. 21st Century Rock Flow Properties and Processes: 3D Printing, Digital Rock Physics, and Hydrogeophysics	Wednesday	1:30–5:30 p.m.	WSCC, Room 613/614
327	T18. Remote Sensing Applications in Hydrology and Geology	Wednesday	1:30–5:20 p.m.	WSCC, Room 615/616/617
328	T21. Using Natural and Anthropogenic Tracers to Determine Recharge and Residence Times within Arid to Semi-Arid Inter-Montane Aquifer Systems	Wednesday	1:30–5:25 p.m.	WSCC, Room 618/619/620
366	T4. Approaches to Applied Modeling for Industry and the Public (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
367	T9. Groundwater Flow in Coastal and Marine Settings: From the Intertidal Zone to the Deep Seafloor (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
368	T10. Groundwater Influenced Ecosystems: Springs, Gaining Streams, and Terrestrial Ecosystems (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
369	T11. Hydrogeology of Island Environments in a Changing Climate (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
370	T12. Hydrogeology, Geochemistry, and Wetland Processes: A Session in Honor of the Career of Donald I. Siegel (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
371	T15. Monitoring the Complex Nature of Water Balances and Solute Transport at the Groundwater–Surface Water Interface (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
372	T18. Remote Sensing Applications in Hydrology and Geology (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
373	T19. Springs: Providing Insights on Critical Groundwater Quality and Quantity Issues (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
374	T20. The Critical Zone As Heterogeneous Media: Implications for Physical, Chemical, and Biological Processes (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Karst				
32	D3. The Geochemistry, Biogeochemistry, and Ecology of Cave and Karst Settings	Sunday	1:30–4:35 p.m.	WSCC, Room 612
122	D4. Paleoclimatology, Sedimentary, and Historical Studies in Caves and Karst Features	Monday	1:30–4:35 p.m.	WSCC, Room 612
171	D6. The Multidisciplinary Faces of Cave and Karst Science (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
189	D5. Cave and Karst Processes, Hazards, and Monitoring	Tuesday	8–11:35 a.m.	WSCC, Room 612
224	T24. How Nick Crawford's Vision Helped Shape Contemporary Karst Science and Education	Tuesday	1:30–5:30 p.m.	WSCC, Room 615/616/617
Limnogeology				
102	T93. Lacustrine Systems across Space and Time I	Monday	8 a.m.–noon	WSCC, Room 307/308
135	T93. Lacustrine Systems across Space and Time II	Monday	1:30–4:55 p.m.	WSCC, Room 307/308
232	T94. Limnogeology—Progress, Challenges, and Opportunities on Earth and Beyond: A Tribute to Beth Gierlowski-Kordesch	Tuesday	1:30–5:30 p.m.	WSCC, Room 307/308
265	T93. Lacustrine Systems across Space and Time (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
266	T94. Limnogeology—Progress, Challenges, and Opportunities on Earth and Beyond: A Tribute to Beth Gierlowski-Kordesch (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
309	T96. Understanding African Environmental History through Continental Scientific Drilling: Past Successes and Future Opportunities	Wednesday	8 a.m.–noon	WSCC, Room 307/308
375	T96. Understanding African Environmental History through Continental Scientific Drilling: Past Successes and Future Opportunities (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF

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Marine/Coastal Science				
34	D46. Marine/Coastal Science Session	Sunday	1:30–3:45 p.m.	WSCC, Room 604
248	T251. Tsunami Hazards: Innovations in Mapping, Modeling, and Outreach	Tuesday	1:30–4 p.m.	WSCC, Room 618/619/620
376	D47. Marine/Coastal Science (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
377	T251. Tsunami Hazards: Innovations in Mapping, Modeling, and Outreach (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Mineralogy/Crystallography				
20	T158. Gemological Research in the 21st Century—Characterization, Exploration, and Geological Significance of Diamonds and other Gem Minerals	Sunday	8–11:50 a.m.	TCC, Skagit 3
48	T159. Teasing New Information out of (Old) Zircon: In Honor of Dustin Trail, 2017 MSA Recipient	Sunday	1:30–5:30 p.m.	TCC, Skagit 3
172	T158. Gemological Research in the 21st Century—Characterization, Exploration, and Geological Significance of Diamonds and other Gem Minerals (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
250	Mineralogical Society of America (MSA) Awards Lectures, Presidential Address, and Annual Business Meeting	Tuesday	3–5:30 p.m.	TCC, Skagit 4
267	D33. Mineralogy/Crystallography (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Paleoclimatology/Paleoceanography				
8	T42. Glacier and Ice Sheet Grounding Lines: Contemporary and Past Observations of Grounding Line Processes, Behavior, and Landforms	Sunday	8–10:35 a.m.	TCC, Yakima 1
9	T45. Miocene–Pliocene Terrestrial Ecosystem Response to the Climate System I	Sunday	8 a.m.–noon	WSCC, Room 609
38	T43. High-Resolution Investigations of the Permian-Triassic Transition	Sunday	1:30–5 p.m.	WSCC, Room 611
39	T45. Miocene–Pliocene Terrestrial Ecosystem Response to the Climate System II	Sunday	1:30–4:45 p.m.	WSCC, Room 609
97	T38. Cenozoic Paleoclimates and Ecosystems I	Monday	8 a.m.–noon	WSCC, Room 609
98	T40. Earth Life Transitions and Major Continental Biological Events of the Phanerozoic	Monday	8–11:30 a.m.	WSCC, Room 611
128	T38. Cenozoic Paleoclimates and Ecosystems II	Monday	1:30–5:05 p.m.	WSCC, Room 609
129	T47. Recent Developments in Cyclostratigraphy	Monday	1:30–5:15 p.m.	WSCC, Room 611
173	T43. High-Resolution Investigations of the Permian-Triassic Transition (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
196	T46. North Pacific Environment and Paleoclimate from the Late Pleistocene to Present I	Tuesday	8–11:50 a.m.	WSCC, Room 609
226	T39. Cushman Foundation Symposium: Microfossil Mayhem—Murder, Misfortune, and More	Tuesday	1:30–5:20 p.m.	WSCC, Room 611
227	T46. North Pacific Environment and Paleoclimate from the Late Pleistocene to Present II	Tuesday	1:30–5:25 p.m.	WSCC, Room 609
268	T38. Cenozoic Paleoclimates and Ecosystems (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
269	T45. Miocene–Pliocene Terrestrial Ecosystem Response to the Climate System (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
270	T47. Recent Developments in Cyclostratigraphy (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
302	T44. Insights from Microfossils, from Traditional to Novel Approaches	Wednesday	8 a.m.–noon	WSCC, Room 609

NO.	SESSION TITLE	DAY	TIME	LOCATION
303	T48. The Timing and Causes of Jurassic–Cretaceous Biological, Climatic, and Tectonic Transitions in North America	Wednesday	8–11:35 a.m.	WSCC, Room 611
329	T36. Asthenosphere to Atmosphere: Tectonics, Topography, and Climate	Wednesday	1:30–4:45 p.m.	WSCC, Room 609
378	T44. Insights from Microfossils, from Traditional to Novel Approaches (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
379	T46. North Pacific Environment and Paleoclimate from the Late Pleistocene to Present (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Paleontology, Biogeography/Biostratigraphy				
174	D15. Paleontology, Biogeography/Biostratigraphy (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
220	D8. Paleontology, Macroevolution/Biogeography	Tuesday	1:30–5 p.m.	WSCC, Room 606
Paleontology, Diversity, Extinction, Origination				
10	T51. Biodiversity Dynamics in the Face of Environmental Change: Integrating Paleontological and Neontological Approaches to Macroevolution I	Sunday	8 a.m.–noon	WSCC, Room 608
11	T58. Oxygen and Ecosystems from the Proterozoic to the Paleozoic	Sunday	8–11:30 p.m.	WSCC, Room 607
40	T51. Biodiversity Dynamics in the Face of Environmental Change: Integrating Paleontological and Neontological Approaches to Macroevolution II	Sunday	1:30–3:55 p.m.	WSCC, Room 608
41	T55. Life and Times in the Early Paleozoic	Sunday	1:30–5 p.m.	WSCC, Room 607
83	T55. Life and Times in the Early Paleozoic (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
99	T49. Advances in Computational Paleobiology: Reshaping Our Understanding of the Fossil Record	Monday	8 a.m.–noon	WSCC, Room 608
100	T59. Studies in Paleobiology and Paleoecology I: In Honor of Professor David J. Bottjer	Monday	8 a.m.–noon	WSCC, Room 607
130	T53. Digital, Digital Get Down: Frontiers in Virtual Paleontology	Monday	1:30–4:45 p.m.	WSCC, Room 606
131	T59. Studies in Paleobiology and Paleoecology II: In Honor of Professor David J. Bottjer	Monday	1:30–4:30 p.m.	WSCC, Room 607
132	T60. The Onset of the Great Ordovician Biodiversity Event (GOBE): Testing Hypotheses with Diverse Data Sets	Monday	1:30–4:30 p.m.	WSCC, Room 608
175	T60. The Onset of the Great Ordovician Biodiversity Event (GOBE): Testing Hypotheses with Diverse Data Sets (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
197	T56. Mass Extinctions I: Past, Present, and Future?	Tuesday	8 a.m.–noon	WSCC, Room 608
228	T56. Mass Extinctions II: Past, Present, and Future?	Tuesday	1:30–4:30 p.m.	WSCC, Room 608
271	T56. Mass Extinctions: Past, Present, and Future? (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
304	T52. Biotic Revolutions Recorded in the Trace Fossil Record, Neoproterozoic to Recent I	Wednesday	8–11:15 p.m.	WSCC, Room 606
305	T54. Impact of Extinction Events on the Ecological and Geochemical Functioning of Marine Ecosystems	Wednesday	8 a.m.–noon	WSCC, Room 608
330	T52. Biotic Revolutions Recorded in the Trace Fossil Record, Neoproterozoic to Recent II	Wednesday	1:30–4:30 p.m.	WSCC, Room 606
331	T57. Mercury in the Geologic Record	Wednesday	1:30–4:45 p.m.	WSCC, Room 607
Paleontology, Paleoecology/Taphonomy				
12	T64. Citizen Science in Paleontology: Harnessing Public Interest to Advance Research and STEM Education I	Sunday	8–11:45 p.m.	WSCC, Room 606
42	T64. Citizen Science in Paleontology: Harnessing Public Interest to Advance Research and STEM Education II	Sunday	1:30–4:15 p.m.	WSCC, Room 606
91	D11. Paleontology, Paleoecology/Taphonomy	Monday	8 a.m.–noon	WSCC, Room 606
123	D10. Paleontology, Paleoecology/Paleobotany	Monday	1:30–4:30 p.m.	WSCC, Room 604
190	D9. Paleontology, Conservation Paleobiology	Tuesday	8 a.m.–noon	WSCC, Room 604
198	T66. Exceptionally Preserved Proterozoic–Early Paleozoic Fossils	Tuesday	8 a.m.–noon	WSCC, Room 607

Sessions by Category

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NO.	SESSION TITLE	DAY	TIME	LOCATION
199	T69. The Role of Silica in the Earth System: From Organisms to Global Biogeochemical Cycles	Tuesday	8–11:50 a.m.	WSCC, Room 606
272	D17. Paleontology, Paleocology/Taphonomy (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
273	T69. The Role of Silica in the Earth System: From Organisms to Global Biogeochemical Cycles (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
306	T62. Ancient Environments of South America	Wednesday	8–11:30 p.m.	WSCC, Room 604
307	T63. Cephalopod Paleobiology and Paleocology: A Tribute to Royal H. Mapes	Wednesday	8 a.m.–noon	WSCC, Room 607
332	T65. Eco-Evolutionary Dynamics in the Fossil Record	Wednesday	1:30–5:30 p.m.	WSCC, Room 608
380	T63. Cephalopod Paleobiology and Paleocology: A Tribute to Royal H. Mapes (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Paleontology, Phylogenetic/Morphological Patterns				
1	D13. Paleontology, Phylogenetic/Morphological Patterns: Invertebrates	Sunday	8 a.m.–noon	WSCC, Room 604
84	D18. Paleontology, Phylogenetic/Morphological Patterns (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
221	D14. Paleontology, Phylogenetic/Morphological Patterns: Vertebrates	Tuesday	1:30–4 p.m.	WSCC, Room 604
229	T70. Paleogenomics and Geobiology	Tuesday	1:30–4:30 p.m.	WSCC, Room 607
Petrology, Igneous				
107	T162. The Dance of Arcs: Causes of Arc Migrations, Flare-Ups, and Magmatic Focusing I	Monday	8–11:50 a.m.	TCC, Skagit 4
140	T162. The Dance of Arcs: Causes of Arc Migrations, Flare-Ups, and Magmatic Focusing II	Monday	1:30–5:05 p.m.	TCC, Skagit 4
208	T161. Petrology across the Inner Solar System: In Honor of Roebling Medalist Ed Stolper	Tuesday	8 a.m.–noon	TCC, Skagit 4
274	D35. Petrology, Igneous (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
275	T162. The Dance of Arcs: Causes of Arc Migrations, Flare-Ups, and Magmatic Focusing (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
296	D34. Magma to Volcano	Wednesday	8 a.m.–noon	TCC, Skagit 4
337	T160. Coupled Evolution of Magmatic and Sedimentary Systems	Wednesday	1:30–5:30 p.m.	TCC, Skagit 4
381	T161. Petrology Across the Inner Solar System: In Honor of Roebling Medalist Ed Stolper (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Petrology, Metamorphic				
21	T163. Petrochronology: Advances and Applications to Petrogenesis and Tectonics I	Sunday	8 a.m.–noon	TCC, Skagit 4
49	T163. Petrochronology: Advances and Applications to Petrogenesis and Tectonics II	Sunday	1:30–5:30 p.m.	TCC, Skagit 4
85	D52. Petrology, Metamorphic (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
176	T163. Petrochronology: Advances and Applications to Petrogenesis and Tectonics (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Planetary Geology				
25	T207. Volcanism and Tectonism across the Solar System	Sunday	8–11:30 a.m.	TCC, Tahoma 1
54	T202. Experimental Planetary Geology: Using Laboratory and Other Experiments to Advance Our Understanding of Geology on Planetary Bodies	Sunday	1:30–5:35 p.m.	TCC, Tahoma 1
113	T205. Impact Cratering: From Fire to Ice—Cratering across the Solar System	Monday	8 a.m.–noon	TCC, Tahoma 1
146	T204. Friends of Hoth: Episode II—Icy Bodies of the Solar System	Monday	1:30–5:30 p.m.	TCC, Tahoma 1
177	D54. Planetary Potpourri (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF

NO.	SESSION TITLE	DAY	TIME	LOCATION
178	T204. Friends of Hoth: Episode II—Icy Bodies of the Solar System (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
179	T205. Impact Cratering: From Fire to Ice—Cratering across the Solar System (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
180	T207. Volcanism and Tectonism across the Solar System (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
192	P3. IODP-ICDP Expedition 364 to the Chicxulub Impact Crater	Tuesday	8–11:55 a.m.	WSCC, Ballroom 6A
244	T206. Geomorphology and Landscape Evolution of Mars: The G.K. Gilbert Award Session I	Tuesday	1:30–4:55 p.m.	TCC, Tahoma 1
276	T199. Basalt Weathering on Earth and Mars (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
277	T206. Geomorphology and Landscape Evolution of Mars: The G.K. Gilbert Award Session (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
319	T206. Geomorphology and Landscape Evolution of Mars: The G.K. Gilbert Award Session II	Wednesday	8–11:30 p.m.	TCC, Tahoma 1
342	T199. Basalt Weathering on Earth and Mars	Wednesday	1:30–5:30 p.m.	TCC, Tahoma 1
Precambrian Geology				
3	D49. Recent Advances in Precambrian Geology	Sunday	8–10:15 a.m.	WSCC, Room 3A
120	T252. Cratonic Assembly in the Precambrian: Forming the Core of Modern and Ancient Landmasses	Monday	8 a.m.–noon	WSCC, Room 604
181	T252. Cratonic Assembly in the Precambrian: Forming the Core of Modern and Ancient Landmasses (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
249	T256. The Co-Evolution of Life and Its Environment during the Precambrian: The Rise of Oxygenic Photosynthesis and the Great Oxidation Event	Tuesday	1:30–5:15 p.m.	TCC, Skagit 5
278	D50. Precambrian Geology (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
279	T254. The Co-Evolution of Life and Its Environment during the Precambrian: The “Boring Billion” and Mid-Proterozoic Emergence of Complex Life (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
280	T255. The Co-Evolution of Life and Its Environment during the Precambrian: The Late Proterozoic Rise of Animals; Climate, Tectonic, and Environmental Dynamics, and the Transition into the Early Paleozoic (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
324	T254. The Co-Evolution of Life and Its Environment during the Precambrian: The “Boring Billion” and Mid-Proterozoic Emergence of Complex Life	Wednesday	8–11:30 p.m.	TCC, Skagit 5
346	T255. The Co-Evolution of Life and Its Environment during the Precambrian: The Late Proterozoic Rise of Animals; Climate, Tectonic, and Environmental Dynamics, and the Transition into the Early Paleozoic	Wednesday	1:30–5:15 p.m.	TCC, Skagit 5
Quaternary Geology				
22	T174. Cordilleran Ice Sheet Outburst Floods: From Glacial Lake Missoula to the Hubbard Glacier	Sunday	8 a.m.–noon	TCC, Chelan 5
109	T172. A Call to Arms: Applying Quaternary Science in the 21st Century	Monday	8 a.m.–noon	TCC, Chelan 5
110	T176. Glacier-Landscape Interactions, Loess Paleoclimatology, and Interdisciplinary Quaternary Science I: In Memory of Stephen C. Porter	Monday	8–11:30 a.m.	TCC, Chelan 4
142	T176. Glacier-Landscape Interactions, Loess Paleoclimatology, and Interdisciplinary Quaternary Science II: In Memory of Stephen C. Porter	Monday	1:30–5:15 p.m.	TCC, Chelan 4
143	T177. Ice Streams of North American Ice Sheets and Their Stratigraphic and Sedimentary Record	Monday	1:30–5 p.m.	TCC, Chelan 2
210	T175. Earthquakes, Faults, and Fault Systems in the Pacific Northwest	Tuesday	8–11:35 a.m.	TCC, Chelan 4
211	T181. The Geological Signature of Natural Hazard Events I	Tuesday	8 a.m.–noon	TCC, Chelan 5
219	P4. Speed Dating!: Advice on Sampling and Applications Through the Lens of the Geochronologist (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
241	T181. The Geological Signature of Natural Hazard Events II	Tuesday	1:30–5 p.m.	TCC, Chelan 5
281	T175. Earthquakes, Faults, and Fault Systems in the Pacific Northwest (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF

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NO.	SESSION TITLE	DAY	TIME	LOCATION
282	T176. Glacier-Landscape Interactions, Loess Paleoclimatology, and Interdisciplinary Quaternary Science: In Memory of Stephen C. Porter (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
283	T177. Ice Streams of North American Ice Sheets and Their Stratigraphic and Sedimentary Record (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
316	T173. Change Detection Photogrammetry in Earth Science	Wednesday	8 a.m.–noon	TCC, Chelan 4
317	T179. New Concepts in Glaciation of the Western Cordillera of North America	Wednesday	8 a.m.–noon	TCC, Chelan 2
382	T173. Change Detection Photogrammetry in Earth Science (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
383	T179. New Concepts in Glaciation of the Western Cordillera of North America (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
384	T181. The Geological Signature of Natural Hazard Events (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Sediments, Carbonates				
86	D53. Sediments, Carbonates (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
182	T84. The Dynamics of Stratigraphy and Sedimentation (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Sediments, Clastic				
15	T89. The Dynamics of Tectono-Sedimentary Systems During Basin Formation and Fill I	Sunday	8–11:50 a.m.	WSCC, Ballroom 6C
43	T89. The Dynamics of Tectono-Sedimentary Systems During Basin Formation and Fill II	Sunday	1:30–4 p.m.	WSCC, Ballroom 6C
87	D23. Sediments, Clastic (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
101	T87. Fluvio-Deltaic Processes and Their Stratigraphic Record	Monday	8–10 a.m.	WSCC, Ballroom 6C
134	T85. Clear as Mud: Stratigraphic, Diagenetic, Sedimentologic, Geomechanical Analyses, and Modern Analogs of Ancient Mudrock Systems	Monday	1:30–5:30 p.m.	WSCC, Ballroom 6C
183	T87. Fluvio-Deltaic Processes and Their Stratigraphic Record (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
184	T89. The Dynamics of Tectono-Sedimentary Systems During Basin Formation and Fill (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
202	T86. Controls, Geomorphology, and Depositional Architecture of Fluvial-Tidal Sediments through Space and Time	Tuesday	8–11:25 a.m.	WSCC, Ballroom 6C
231	T88. Mudstone Facts: Deposition, Diagenesis, and Source of Basin Fluids	Tuesday	1:30–5:05 p.m.	WSCC, Ballroom 6C
295	D22. From Processes to Stratigraphy	Wednesday	8–11:45 p.m.	WSCC, Ballroom 6C
Soils				
209	T168. Advances in Terrestrial Paleoclimate Reconstructions Using Paleosols	Tuesday	8 a.m.–noon	TCC, Skagit 3
240	T171. Terroir	Tuesday	1:30–4:35 p.m.	TCC, Skagit 3
284	T168. Advances in Terrestrial Paleoclimate Reconstructions Using Paleosols (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
285	T169. Deciphering Climate Change and Climate Variability in the Geologic Record Using Palaeosols, Loess, Palaeoweathering Profiles, Pedosedimentary Sequences, and Polygenetic Soils: Their Applications and Limitations as Terrestrial Proxies in Understanding Impacts of Climatic Changes (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
286	T170. Rock Transforming to Soil—The Weathering Engine Intersects with the Carbon Cycle (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF

NO.	SESSION TITLE	DAY	TIME	LOCATION
315	T169. Deciphering Climate Change and Climate Variability in the Geologic Record Using Palaeosols, Loess, Palaeoweathering Profiles, Pedosedimentary Sequences, and Polygenetic Soils: Their Applications and Limitations as Terrestrial Proxies in Understanding Impacts of Climatic Changes	Wednesday	8 a.m.–noon	TCC, Skagit 3
338	T170. Rock Transforming to Soil—The Weathering Engine Intersects with the Carbon Cycle	Wednesday	1:30–5:15 p.m.	TCC, Skagit 3
Stratigraphy				
16	T90. Advancing Seismic and Sequence Stratigraphy: Insights from Testing the Fundamentals	Sunday	8–11:55 a.m.	WSSC, Room 307/308
44	T92. Tectonics and Sedimentation, Avulsion, and Experimental Stratigraphy, and History of Western North America: A Celebration of Paul Heller's Career	Sunday	1:30–5:30 p.m.	WSSC, Room 307/308
88	D24. Stratigraphy (Posters)	Sunday	9 a.m.–5:30 p.m.	WSSC, Halls 4EF
185	T90. Advancing Seismic and Sequence Stratigraphy: Insights from Testing the Fundamentals (Posters)	Monday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
186	T91. Chemostratigraphy: Environments, Correlation, and Time (Posters)	Monday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
187	T92. Tectonics and Sedimentation, Avulsion, and Experimental Stratigraphy, and History of Western North America: A Celebration of Paul Heller's Career (Posters)	Monday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
Structural Geology				
26	T216. Spatiotemporal Variations and the Role of Fluids in Fault-Zone Hydromechanical Processes	Sunday	8 a.m.–noon	TCC, Tahoma 2
62	T217. Challenges in Tectonics: Synergies between Meeting Societal Needs and Advancing Interdisciplinary Research in Tectonics and Structural Geology	Sunday	3:45–5:25 p.m.	TCC, Tahoma 2
89	T216. Spatiotemporal Variations and the Role of Fluids in Fault-Zone Hydromechanical Processes (Posters)	Sunday	9 a.m.–5:30 p.m.	WSSC, Halls 4EF
114	T209. Challenges in Tectonics: Fault Zone Behavior through Time, from Earth's Surface to the Upper Mantle I	Monday	8–11:50 a.m.	TCC, Tahoma 2
147	T209. Challenges in Tectonics: Fault Zone Behavior through Time, from Earth's Surface to the Upper Mantle II	Monday	1:30–5 p.m.	TCC, Tahoma 2
148	T213. Integrated Approaches to Deciphering Major Crustal Boundaries in Polyphase Orogenic Settings	Monday	1:30–5 p.m.	TCC, Tahoma 3
191	D40. Structural Geology and Tectonics: Advances in Understanding Fault Systems, Plate Boundaries and Deformation: Observations and Experiments	Tuesday	8–11:50 a.m.	TCC, Tahoma 3
213	T218. Understanding the Interplay of Structural, Metamorphic, and Magmatic Processes in the Evolution of Convergent Margins: Lessons from the Proterozoic to Present-Day South American Andean Margin	Tuesday	8 a.m.–noon	TCC, Tahoma 2
245	T212. Geologic Mapping in the Pacific Northwest and Beyond: Recent Maps, Advances, and New Insights: In Memory of Russell C. Everts and his Extensive Contributions to Pacific Northwest Geologic Mapping	Tuesday	1:30–4:30 p.m.	TCC, Tahoma 2
287	T208. Best Student Geologic Map Competition (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
288	T209. Challenges in Tectonics: Fault Zone Behavior through Time, from Earth's Surface to the Upper Mantle (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
289	T211. Folds: Causes and Consequences (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
290	T213. Integrated Approaches to Deciphering Major Crustal Boundaries in Polyphase Orogenic Settings (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
291	T218. Understanding the Interplay of Structural, Metamorphic, and Magmatic Processes in the Evolution of Convergent Margins: Lessons from the Proterozoic to Present-Day South American Andean Margin (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
320	T210. Challenges in Tectonics: Beyond Steady State: New Developments in Understanding Strain Localization Processes and the Rheology of the Lithosphere	Wednesday	8 a.m.–noon	TCC, Tahoma 2

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NO.	SESSION TITLE	DAY	TIME	LOCATION
343	T214. Late Paleozoic and Early Mesozoic Tectono-Stratigraphy and Biostratigraphy of the NW Pangea Margin: In Dedication to Jim Trexler	Wednesday	1:30–5 p.m.	TCC, Tahoma 2
385	D41. Structural Geology (Posters): Analysis of Faulting, Deformation and Flow	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
386	T210. Challenges in Tectonics: Beyond Steady State: New Developments in Understanding Strain Localization Processes and the Rheology of the Lithosphere (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
387	T212. Geologic Mapping in the Pacific Northwest and Beyond: Recent Maps, Advances, and New Insights: In Memory of Russell C. Evarts and his Extensive Contributions to Pacific Northwest Geologic Mapping (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
Tectonics/Tectonophysics				
27	T220. Challenges in Tectonics: Planetary Evolution in Four Dimensions—The New Global Tectonics	Sunday	8–11:30 p.m.	TCC, Tahoma 4
28	T221. Circum-Arctic Structural Events: Tectonic Evolution of the Arctic Margins and Trans-Arctic Links with Adjacent Orogens	Sunday	8 a.m.–noon	TCC, Tahoma 3
29	T223. Intraplate Earthquake Sources, Processes, and Hazards in Central and Eastern North America	Sunday	8 a.m.–noon	TCC, Tahoma 5
55	T224. Multi-Proxy Records for Large-Scale Translation and Vertical Strain along Active and Ancient Strike-Slip Fault Systems	Sunday	1:30–5:20 p.m.	TCC, Tahoma 3
56	T226. New Perspectives on Processes of Subduction Initiation and Termination	Sunday	1:30–5 p.m.	TCC, Tahoma 5
57	T228. Origin, Accretion, and Translation of Mesozoic-Cenozoic Terranes along the Pacific Margin of North America	Sunday	1:30–5:15 p.m.	TCC, Tahoma 4
90	T221. Circum-Arctic Structural Events: Tectonic Evolution of the Arctic Margins and Trans-Arctic Links with Adjacent Orogens (Posters)	Sunday	9 a.m.–5:30 p.m.	WSCC, Halls 4EF
115	T227. Ophiolite and Ocean Plate Stratigraphy Records in Modern and Ancient Accretionary and Collisional Orogenic Belts in the Circum Pacific Region I	Monday	8–11:45 p.m.	TCC, Tahoma 4
116	T234. What Are the Conditions That Lead to Detachment Faulting?	Monday	8–11:45 p.m.	TCC, Tahoma 3
149	T227. Ophiolite and Ocean Plate Stratigraphy Records in Modern and Ancient Accretionary and Collisional Orogenic Belts in the Circum Pacific Region II	Monday	1:30–5:25 p.m.	TCC, Tahoma 4
150	T231. Subduction Top to Bottom 2 (ST2B-2), Cascadia and Beyond	Monday	1:30–4:30 p.m.	TCC, Tahoma 5
188	T234. What Are the Conditions That Lead to Detachment Faulting? (Posters)	Monday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
214	T219. Challenges in Tectonics: Dynamic Interactions among Earth-Surface Processes, Landscape Evolution, and Tectonics I	Tuesday	8–11:50 a.m.	TCC, Tahoma 4
215	T232. Subduction Zone Response to Ridge and Plateau Collision: Perspectives from the Archean to the Cenozoic	Tuesday	8 a.m.–noon	TCC, Tahoma 5
223	P5. Origin, Accretion, and Translation of Mesozoic-Cenozoic Terranes along the Pacific Margin of North America	Tuesday	1:30–5:30 p.m.	WSCC, Ballroom 6A
246	T219. Challenges in Tectonics: Dynamic Interactions among Earth-Surface Processes, Landscape Evolution, and Tectonics II	Tuesday	1:30–5:25 p.m.	TCC, Tahoma 4
247	T222. Decadal to Millennial Strain Accumulation at Subduction Zones	Tuesday	1:30–5:30 p.m.	TCC, Tahoma 5
292	D43. Tectonics I (Posters): Advances in Tectonics from Mineralogy and Geochronology	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
293	D56. Tectonics II (Posters): Advances in Tectonics from Crust/Mantle Structure	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
294	T231. Subduction Top to Bottom 2 (ST2B-2), Cascadia and Beyond (Posters)	Tuesday	9 a.m.–6:30 p.m.	WSCC, Halls 4EF
321	T229. Paleocene-Eocene Tectonic and Magmatic Evolution of the Pacific Northwest	Wednesday	8–11:55 a.m.	TCC, Tahoma 4

NO.	SESSION TITLE	DAY	TIME	LOCATION
322	T230. Polygenetic Mélanges: A Glimpse on Tectono-Sedimentary Recycling in Convergent Margins	Wednesday	8 a.m.–noon	TCC, Tahoma 5
344	T225. New Perspectives on Cordilleran Tectonics, Paleogeography, and Metallogeny	Wednesday	1:30–5:30 p.m.	TCC, Tahoma 5
345	T233. Tectonics, Geohazards, and Morphodynamics from High-Resolution Topography and Imagery	Wednesday	1:30–5:30 p.m.	TCC, Tahoma 4
388	T219. Challenges in Tectonics: Dynamic Interactions among Earth-Surface Processes, Landscape Evolution, and Tectonics (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
389	T225. New Perspectives on Cordilleran Tectonics, Paleogeography, and Metallogeny (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
390	T229. Paleocene-Eocene Tectonic and Magmatic Evolution of the Pacific Northwest (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
391	T233. Tectonics, Geohazards, and Morphodynamics from High-Resolution Topography and Imagery (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
Volcanology				
239	T165. Recent Advances in Understanding Volcanism of the Yellowstone Hotspot	Tuesday	1:30–5:30 p.m.	TCC, Tahoma 3
392	D37. Volcanology (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF
393	T165. Recent Advances in Understanding Volcanism of the Yellowstone Hotspot (Posters)	Wednesday	9 a.m.–6:30 p.m.	WSSC, Halls 4EF

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NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
Sunday, 22 October			
1	8 a.m.	D13. Paleontology, Phylogenetic/Morphological Patterns: Invertebrates	WSCC, Room 604
2	8 a.m.	D29. Investigations in Economic Geology	TCC, Skagit 5
3	8 a.m.	D49. Recent Advances in Precambrian Geology	WSCC, Room 3A
4	8 a.m.	T5. Arsenic and Other Geogenic Contaminants in Groundwater Resources: Linking Water Quality, Food Security, and Treatment I (<i>GSA Hydrogeology Division; GSA Geology and Health Division; GSA International/International Interdisciplinary Interest Group; International Society of Groundwater for Sustainable Development [ISGSD]; International Medical Geology Association; GSA Environmental and Engineering Geology Division; GSA Geobiology & Geomicrobiology Division</i>)	WSCC, Room 618/619/620
5	8 a.m.	T13. In Honor of John M. (Jack) Sharp Jr.: Celebrating over 40 Years of Science, Students, and Stewardship I (<i>GSA Hydrogeology Division; International Association of Hydrogeologists</i>)	WSCC, Room 615/616/617
6	8 a.m.	T14. Lead Them to Water: Teaching Innovative Hydrogeology (<i>GSA Hydrogeology Division; GSA Geoscience Education Division</i>)	WSCC, Room 613/614
7	8 a.m.	T17. Polar and Alpine Changes (<i>GSA Hydrogeology Division; GSA Geobiology & Geomicrobiology Division; GSA Limnogeology Division</i>)	WSCC, Room 612
8	8 a.m.	T42. Glacier and Ice Sheet Grounding Lines: Contemporary and Past Observations of Grounding Line Processes, Behavior, and Landforms	TCC, Yakima 1
9	8 a.m.	T45. Miocene–Pliocene Terrestrial Ecosystem Response to the Climate System I (<i>Paleontological Society; GSA Limnogeology Division</i>)	WSCC, Room 609
10	8 a.m.	T51. Biodiversity Dynamics in the Face of Environmental Change: Integrating Paleontological and Neontological Approaches to Macroevolution I (<i>Paleontological Society; Paleontological Research Institution</i>)	WSCC, Room 608
11	8 a.m.	T58. Oxygen and Ecosystems from the Proterozoic to the Paleozoic (<i>Paleontological Research Institution; Paleontological Society; GSA Geobiology & Geomicrobiology Division</i>)	WSCC, Room 607
12	8 a.m.	T64. Citizen Science in Paleontology: Harnessing Public Interest to Advance Research and STEM Education I (<i>Paleontological Society; GSA Geology and Society Division; GSA Geoscience Education Division</i>)	WSCC, Room 606
13	8 a.m.	T74. Integrating Geohazards Data into Planning and Land-use Management Decisions (<i>GSA Environmental and Engineering Geology Division; Washington Division of Geology and Earth Resources; GSA Geology and Society Division; GSA Geoinformatics Division; GSA Karst Division</i>)	WSCC, Room 611
14	8 a.m.	T83. Unconventional Energy Resources: Advances and Evolution in Tight Reservoir Assessment and Production (<i>GSA Energy Geology Division; GSA Sedimentary Geology Division</i>)	WSCC, Room 3B
15	8 a.m.	T89. The Dynamics of Tectono-Sedimentary Systems During Basin Formation and Fill I (<i>GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; SEPM [Society for Sedimentary Geology]</i>)	WSCC, WSCC, Ballroom 6C
16	8 a.m.	T90. Advancing Seismic and Sequence Stratigraphy: Insights from Testing the Fundamentals (<i>GSA Environmental and Engineering Geology Division; GSA Energy Geology Division; GSA Sedimentary Geology Division</i>)	WSCC, Room 307/308
17	8 a.m.	T102. Beyond the Road-Cut: Virtual, Local, and Nontraditional “Field” Teaching and Learning Experiences	WSCC, Room 2B
18	8 a.m.	T127. Supporting Geoscience Student Transfer Between Institutions and Transitions into the Workforce: Pathways to Success (<i>GSA Geology and Society Division; GSA Geoscience Education Division; National Association of Geoscience Teachers; National Association of Geoscience Teachers Geo2YC Division</i>)	WSCC, Room 2A
19	8 a.m.	T157. Origin and Evolution of the Continental Crust: A Celebration of the Career of Paul Mueller (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i>)	TCC, Skagit 2

NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
20	8 a.m.	T158. Gemological Research in the 21st Century—Characterization, Exploration, and Geological Significance of Diamonds and other Gem Minerals (<i>Gemological Institute of America</i>)	TCC, Skagit 3
21	8 a.m.	T163. Petrochronology: Advances and Applications to Petrogenesis and Tectonics I (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; Mineralogical Society of America; Geochemical Society</i>)	TCC, Skagit 4
22	8 a.m.	T174. Cordilleran Ice Sheet Outburst Floods: From Glacial Lake Missoula to the Hubbard Glacier (<i>GSA Sedimentary Geology Division</i>)	TCC, Chelan 5
23	8 a.m.	T184. Geologic Research at Mount Rainier and Other Cascade Volcanoes: Ideal Natural Laboratories for Cutting-Edge Research with Implications to Life Safety and Infrastructure Protection in the Pacific Northwest I (<i>GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division; National Park Service; GSA Environmental and Engineering Geology Division</i>)	TCC, Chelan 4
24	8 a.m.	T194. The Aeolian Realm: Dunes, Dust, and Loess (<i>GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division</i>)	TCC, Chelan 2
25	8 a.m.	T207. Volcanism and Tectonism across the Solar System (<i>GSA Planetary Geology Division</i>)	TCC, Tahoma 1
26	8 a.m.	T216. Spatiotemporal Variations and the Role of Fluids in Fault-Zone Hydromechanical Processes (<i>GSA Structural Geology and Tectonics Division; GSA Hydrogeology Division; GSA Energy Geology Division; Future of Tectonics Initiative</i>)	TCC, Tahoma 2
27	8 a.m.	T220. Challenges in Tectonics: Planetary Evolution in Four Dimensions—The New Global Tectonics (<i>GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	TCC, Tahoma 4
28	8 a.m.	T221. Circum-Arctic Structural Events: Tectonic Evolution of the Arctic Margins and Trans-Arctic Links with Adjacent Orogens (<i>GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA International/International Interdisciplinary Interest Group</i>)	TCC, Tahoma 3
29	8 a.m.	T223. Intraplate Earthquake Sources, Processes, and Hazards in Central and Eastern North America (<i>GSA Structural Geology and Tectonics Division; GSA Geophysics Division; GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; EarthScope National Office</i>)	TCC, Tahoma 5
30	8 a.m.	T249. New Voices in Geobiology I (<i>GSA Geobiology & Geomicrobiology Division; GSA Karst Division</i>)	WSCC, Room 602/603
31	1:30 p.m.	T245. Subduction Zone Coseismic Landslides (<i>GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division</i>)	TCC, Tahoma 2
32	1:30 p.m.	D3. The Geochemistry, Biogeochemistry, and Ecology of Cave and Karst Settings	WSCC, Room 612
33	1:30 p.m.	D25. Geoscience Education Session: International Field Experiences in the Digital Age and Adapting Mental Models by Using Food for Teaching	WSCC, Room 3A
34	1:30 p.m.	D46. Marine/Coastal Science Session	WSCC, Room 604
35	1:30 p.m.	T5. Arsenic and Other Geogenic Contaminants in Groundwater Resources: Linking Water Quality, Food Security, and Treatment II (<i>GSA Hydrogeology Division; GSA Geology and Health Division; GSA International/International Interdisciplinary Interest Group; International Society of Groundwater for Sustainable Development [ISGSD]; International Medical Geology Association; GSA Environmental and Engineering Geology Division; GSA Geobiology & Geomicrobiology Division</i>)	WSCC, Room 618/619/620
36	1:30 p.m.	T8. Fate, Effects, and Mitigation of Chemical and Fuel Releases in Surface and Subsurface Environments (<i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Energy Geology Division</i>)	WSCC, Room 613/614
37	1:30 p.m.	T13. In Honor of John M. (Jack) Sharp Jr.: Celebrating over 40 Years of Science, Students, and Stewardship II (<i>GSA Hydrogeology Division; International Association of Hydrogeologists</i>)	WSCC, Room 615/616/617
38	1:30 p.m.	T43. High-Resolution Investigations of the Permian-Triassic Transition (<i>GSA Sedimentary Geology Division; SEPM [Society for Sedimentary Geology]; Paleontological Society; Paleontological Research Institution</i>)	WSCC, Room 611
39	1:30 p.m.	T45. Miocene–Pliocene Terrestrial Ecosystem Response to the Climate System II (<i>Paleontological Society; GSA Limnogeology Division</i>)	WSCC, Room 609
40	1:30 p.m.	T51. Biodiversity Dynamics in the Face of Environmental Change: Integrating Paleontological and Neontological Approaches to Macroevolution II (<i>Paleontological Society; Paleontological Research Institution</i>)	WSCC, Room 608

Sessions Calendar

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NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
41	1:30 p.m.	T55. Life and Times in the Early Paleozoic (<i>Paleontological Society</i>)	WSCC, Room 607
42	1:30 p.m.	T64. Citizen Science in Paleontology: Harnessing Public Interest to Advance Research and STEM Education II (<i>Paleontological Society; GSA Geology and Society Division; GSA Geoscience Education Division</i>)	WSCC, Room 606
43	1:30 p.m.	T89. The Dynamics of Tectono-Sedimentary Systems During Basin Formation and Fill II (<i>GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; SEPM [Society for Sedimentary Geology]</i>)	WSCC, WSCC, Ballroom 6C
44	1:30 p.m.	T92. Tectonics and Sedimentation, Avulsion, and Experimental Stratigraphy, and History of Western North America: A Celebration of Paul Heller's Career (<i>GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division; SEPM [Society for Sedimentary Geology]</i>)	WSCC, Room 307/308
45	1:30 p.m.	T99. Augmented and Virtual Reality in Geoscience Education (<i>GSA Geoscience Education Division; National Association of Geoscience Teachers; GSA Geoinformatics Division</i>)	WSCC, Room 2A
46	1:30 p.m.	T128. Teaching about the Earth Online	WSCC, Room 2B
47	1:30 p.m.	T153. Geochemical and Petrologic Forensics in the study of Earth's Magmatism: A Tribute to the Distinguished Career of Jon Davidson (1959–2016) (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i>)	TCC, Skagit 2
48	1:30 p.m.	T159. Teasing New Information out of (Old) Zircon: In Honor of Dustin Trail, 2017 MSA Recipient (<i>Mineralogical Society of America; Collaborative for Research in Origins [CRiO], the John Templeton Foundation–FfAME Origins Program</i>)	TCC, Skagit 3
49	1:30 p.m.	T163. Petrochronology: Advances and Applications to Petrogenesis and Tectonics II (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; Mineralogical Society of America; Geochemical Society</i>)	TCC, Skagit 4
50	1:30 p.m.	T184. Geologic Research at Mount Rainier and Other Cascade Volcanoes: Ideal Natural Laboratories for Cutting-Edge Research with Implications to Life Safety and Infrastructure Protection in the Pacific Northwest II (<i>GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division; National Park Service; GSA Environmental and Engineering Geology Division</i>)	TCC, Chelan 4
51	1:30 p.m.	T191. Looking to the Past to Understand the Future: Glacial Chronology and Process (<i>GSA Quaternary Geology and Geomorphology Division</i>)	TCC, Chelan 2
52	1:30 p.m.	T195. Undergraduate Research Talks: The Next Step in Student Research Projects (<i>GSA Geoscience Education Division; GSA Geoinformatics Division; GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Hydrogeology Division; GSA Limnogeology Division; GSA Archaeological Geology Division; GSA Karst Division</i>)	TCC, Chelan 5
53	1:30 p.m.	T197. No Dates: No Rates—Utilizing Geochronometers to Quantify Rates of Geomorphic Processes or Archaeological Development over a Wide Range of Temporal and Spatial Scales (<i>GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Karst Division</i>)	WSCC, Room 3B
54	1:30 p.m.	T202. Experimental Planetary Geology: Using Laboratory and Other Experiments to Advance Our Understanding of Geology on Planetary Bodies (<i>GSA Planetary Geology Division; GSA Geophysics Division; GSA Sedimentary Geology Division</i>)	TCC, Tahoma 1
55	1:30 p.m.	T224. Multi-Proxy Records for Large-Scale Translation and Vertical Strain along Active and Ancient Strike-Slip Fault Systems (<i>GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative; GSA Sedimentary Geology Division</i>)	TCC, Tahoma 3
56	1:30 p.m.	T226. New Perspectives on Processes of Subduction Initiation and Termination (<i>GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geophysics Division</i>)	TCC, Tahoma 5
57	1:30 p.m.	T228. Origin, Accretion, and Translation of Mesozoic-Cenozoic Terranes along the Pacific Margin of North America (<i>GSA Structural Geology and Tectonics Division</i>)	TCC, Tahoma 4

NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
58	1:30 p.m.	T236. Characterizing Cascadia's Earthquakes—Reexamining Open Questions about Cascadia Seismic and Tsunami Hazards (<i>GSA Geophysics Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division</i>)	TCC, Yakima 1
59	1:30 p.m.	T242. Current Trends in Landslide Monitoring: New Techniques, Methods, Successes, Failures, and Case Studies I (<i>GSA Environmental and Engineering Geology Division</i>)	TCC, Skagit 5
60	1:30 p.m.	T249. New Voices in Geobiology II (<i>GSA Geobiology & Geomicrobiology Division; GSA Karst Division</i>)	WSCC, Room 602/603
61	2 p.m.	P1. The Changing Face of Geoscience in the 21st Century: Increasing Diversity and Inclusion to Solve Complex Problems (<i>GSA Geology and Society Division; GSA Committee on Diversity in the Geosciences; Earth Science Women's Network; International Association for Geoscience Diversity; Geoscience Alliance; Association for Women Geoscientists</i>)	WSCC, Ballroom 6A
62	3:45 p.m.	T217. Challenges in Tectonics: Synergies between Meeting Societal Needs and Advancing Interdisciplinary Research in Tectonics and Structural Geology (<i>GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	TCC, Tahoma 2
63	9 a.m.	T196. Advances in Geoarchaeology (Posters) (<i>GSA Archaeological Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
64	9 a.m.	T197. No Dates: No Rates—Utilizing Geochronometers to Quantify Rates of Geomorphic Processes or Archaeological Development over a Wide Range of Temporal and Spatial Scales (Posters) (<i>GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Karst Division</i>)	WSCC, Halls 4EF
65	9 a.m.	D30. Investigations in Economic Geology (Posters)	WSCC, Halls 4EF
66	9 a.m.	T78. Environmental Impact Studies for Energy Geology (Posters) (<i>GSA Energy Geology Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
67	9 a.m.	T83. Unconventional Energy Resources: Advances and Evolution in Tight Reservoir Assessment and Production (Posters) (<i>GSA Energy Geology Division; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
68	9 a.m.	T243. Environmental and Engineering Division Geology Student Research Competition (Posters) (<i>GSA Environmental and Engineering Geology Division; Association of Environmental & Engineering Geologists</i>)	WSCC, Halls 4EF
69	9 a.m.	D32. Geochemistry (Posters)	WSCC, Halls 4EF
70	9 a.m.	T157. Origin and Evolution of the Continental Crust: A Celebration of the Career of Paul Mueller (Posters) (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
71	9 a.m.	T145. Geologic Maps and Their Derivatives (Posters) (<i>Association of American State Geologists; GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
72	9 a.m.	D39. Surface Processes and Geomorphic Evolution, from the Coastlines to the Glaciers (Posters)	WSCC, Halls 4EF
73	9 a.m.	T194. The Aeolian Realm: Dunes, Dust, and Loess (Posters) (<i>GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
74	9 a.m.	D45. Geophysics/Geodynamics (Posters)	WSCC, Halls 4EF
75	9 a.m.	T74. Integrating Geohazards Data into Planning and Land-use Management Decisions (Posters) (<i>GSA Environmental and Engineering Geology Division; Washington Division of Geology and Earth Resources; GSA Geology and Society Division; GSA Geoinformatics Division; GSA Karst Division</i>)	WSCC, Halls 4EF
76	9 a.m.	T102. Beyond the Road-Cut: Virtual, Local, and Nontraditional “Field” Teaching and Learning Experiences (Posters)	WSCC, Halls 4EF
77	9 a.m.	T118. Integration of Field and Laboratory-Based Experience toward Designing Pedagogically Sound Curriculum Enhancement Activities in the Geosciences (Posters) (<i>GSA Hydrogeology Division; GSA Sedimentary Geology Division; National Association of Geoscience Teachers; American Institute of Professional Geologists; GSA Environmental and Engineering Geology Division; GSA Geoscience Education Division; National Earth Science Teachers Association; GSA Quaternary Geology and Geomorphology Division; Council on Undergraduate Research Geosciences Division; GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
78	9 a.m.	T127. Supporting Geoscience Student Transfer Between Institutions and Transitions into the Workforce: Pathways to Success (Posters) (<i>GSA Geology and Society Division; GSA Geoscience Education Division; National Association of Geoscience Teachers; National Association of Geoscience Teachers Geo2YC Division</i>)	WSCC, Halls 4EF

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NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
79	9 a.m.	T132. Undergraduate Research Posters Showcasing Research by 2YC and 4YCU Geoscience Students (Posters) (<i>GSA Geoscience Education Division; National Association of Geoscience Teachers; National Association of Geoscience Teachers Geo2YC Division; International Association for Geoscience Diversity</i>)	WSCC, Halls 4EF
80	9 a.m.	T137. Geoheritage Matters (Posters) (<i>GSA Geology and Society Division</i>)	WSCC, Halls 4EF
81	9 a.m.	T140. New Tools in the Geologist's Toolbelt: Using Technology to Educate and Inspire Others about Geology (Posters) (<i>Washington Division of Geology and Earth Resources; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
82	9 a.m.	T2. A Showcase of Undergraduate Research in Hydrogeology (Posters) (<i>GSA Hydrogeology Division; Council on Undergraduate Research Geosciences Division</i>)	WSCC, Halls 4EF
83	9 a.m.	T55. Life and Times in the Early Paleozoic (Posters) (<i>Paleontological Society</i>)	WSCC, Halls 4EF
84	9 a.m.	D18. Paleontology, Phylogenetic/Morphological Patterns (Posters)	WSCC, Halls 4EF
85	9 a.m.	D52. Petrology, Metamorphic (Posters)	WSCC, Halls 4EF
86	9 a.m.	D53. Sediments, Carbonates (Posters)	WSCC, Halls 4EF
87	9 a.m.	D23. Sediments, Clastic (Posters)	WSCC, Halls 4EF
88	9 a.m.	D24. Stratigraphy (Posters)	WSCC, Halls 4EF
89	9 a.m.	T216. Spatiotemporal Variations and the Role of Fluids in Fault-Zone Hydromechanical Processes (Posters) (<i>GSA Structural Geology and Tectonics Division; GSA Hydrogeology Division; GSA Energy Geology Division; Future of Tectonics Initiative</i>)	WSCC, Halls 4EF
90	9 a.m.	T221. Circum-Arctic Structural Events: Tectonic Evolution of the Arctic Margins and Trans-Arctic Links with Adjacent Orogens (Posters) (<i>GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA International/International Interdisciplinary Interest Group</i>)	WSCC, Halls 4EF
Monday, 23 October			
91	8 a.m.	D11. Paleontology, Paleoecology/Taphonomy	WSCC, Room 606
92	8 a.m.	P2. Landscapes in the Anthropocene I (<i>GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division; GSA Hydrogeology Division; GSA Geology and Public Policy Committee; Geology [journal]</i>)	WSCC, Ballroom 6A
93	8 a.m.	T6. Cross-Border Community Engagement Using Geoscience Research, Education, and Outreach (<i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Karst Division</i>)	WSCC, Room 613/614
94	8 a.m.	T12. Hydrogeology, Geochemistry, and Wetland Processes I: A Session in Honor of the Career of Donald I. Siegel (<i>GSA Hydrogeology Division</i>)	WSCC, Room 618/619/620
95	8 a.m.	T22. Water Resources and Management in Coastal and Inland Aquifers—Emphasis on Small Island Developing States of the Caribbean (<i>GSA Hydrogeology Division; GSA International/International Interdisciplinary Interest Group; GSA Geology and Health Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Room 615/616/617
96	8 a.m.	T31. GeoCorps and Geoscientists-in-the-Parks Internships on Public Lands: Providing Career Development Opportunities for Students and Recent Graduates (<i>GSA Geology and Society Division; U.S. Forest Service; National Park Service</i>)	WSCC, Room 612
97	8 a.m.	T38. Cenozoic Paleoclimates and Ecosystems I (<i>Paleontological Society; Geochemical Society; Paleontological Research Institution; Cushman Foundation for Foraminiferal Research; GSA Sedimentary Geology Division; GSA Limnogeology Division</i>)	WSCC, Room 609
98	8 a.m.	T40. Earth Life Transitions and Major Continental Biological Events of the Phanerozoic (<i>GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division; Geochemical Society; Paleontological Society; SEPM [Society for Sedimentary Geology]</i>)	WSCC, Room 611
99	8 a.m.	T49. Advances in Computational Paleobiology: Reshaping Our Understanding of the Fossil Record (<i>Palaeontological Association; Paleontological Society</i>)	WSCC, Room 608

NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
100	8 a.m.	T59. Studies in Paleobiology and Paleoecology I: In Honor of Professor David J. Bottjer (GSA <i>Geobiology & Geomicrobiology Division; Paleontological Society; SEPM [Society for Sedimentary Geology]; Paleontological Research Institution</i>)	WSCC, Room 607
101	8 a.m.	T87. Fluvio-Deltaic Processes and Their Stratigraphic Record (GSA <i>Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; SEPM [Society for Sedimentary Geology]</i>)	WSCC, WSCC, Ballroom 6C
102	8 a.m.	T93. Lacustrine Systems across Space and Time I (GSA <i>Limnogeology Division; GSA Sedimentary Geology Division; Paleontological Society; SEPM [Society for Sedimentary Geology]</i>)	WSCC, Room 307/308
103	8 a.m.	T100. Barriers, Misconceptions, and Progress in Improving Climate Literacy and Strategies for Communicating about Climate Change (GSA <i>Geoscience Education Division; National Association of Geoscience Teachers, Division of Geoscience Education Research; National Association of Geoscience Teachers; Climate Literacy Network [CLEAN]; GSA Geology and Society Division</i>)	WSCC, Room 3A
104	8 a.m.	T122. On the Cutting Edge: Fifteen Years of Impacts on Geoscience Education (GSA <i>Geoscience Education Division; National Association of Geoscience Teachers</i>)	WSCC, Room 2A
105	8 a.m.	T129. The Challenge of Defining Student Success: Broadening Participation, Measuring Success, and Preparing 2YC and 4YC Students for a Variety of Transitions (GSA <i>Geoscience Education Division; GSA Geology and Society Division; International Association for Geoscience Diversity; National Association of Geoscience Teachers; National Association of Geoscience Teachers Geo2YC Division; National Earth Science Teachers Association</i>)	WSCC, Room 2B
106	8 a.m.	T149. Celebrating Dr. John W. Valley's Contributions to Isotope Geochemistry and Beyond, from the Hadean to the Holocene I (GSA <i>Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; Mineralogical Society of America; Geochemical Society; Microanalysis Society; GSA Sedimentary Geology Division</i>)	TCC, Skagit 2
107	8 a.m.	T162. The Dance of Arcs: Causes of Arc Migrations, Flare-Ups, and Magmatic Focusing I (GSA <i>Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i>)	TCC, Skagit 4
108	8 a.m.	T166. Great Maps in the History of Geology (GSA <i>History and Philosophy of Geology Division; GSA Planetary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Structural Geology and Tectonics Division; History of Earth Sciences Society [HESS]</i>)	TCC, Skagit 3
109	8 a.m.	T172. A Call to Arms: Applying Quaternary Science in the 21st Century (GSA <i>Quaternary Geology and Geomorphology Division; U.S. National Committee-International Quaternary Congress; GSA Geology and Society Division; American Quaternary Association [AMQUA]; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Limnogeology Division</i>)	TCC, Chelan 5
110	8 a.m.	T176. Glacier-Landscape Interactions, Loess Paleoclimatology, and Interdisciplinary Quaternary Science I: In Memory of Stephen C. Porter (GSA <i>Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division</i>)	TCC, Chelan 4
111	8 a.m.	T193. Quantifying Geomorphic Processes and Rates of Landscape Evolution (GSA <i>Quaternary Geology and Geomorphology Division</i>)	TCC, Chelan 2
112	8 a.m.	T196. Advances in Geoarchaeology I (GSA <i>Archaeological Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division</i>)	WSCC, Room 3B
113	8 a.m.	T205. Impact Cratering: From Fire to Ice—Cratering across the Solar System (GSA <i>Planetary Geology Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i>)	TCC, Tahoma 1
114	8 a.m.	T209. Challenges in Tectonics: Fault Zone Behavior through Time, from Earth's Surface to the Upper Mantle I (GSA <i>Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	TCC, Tahoma 2
115	8 a.m.	T227. Ophiolite and Ocean Plate Stratigraphy Records in Modern and Ancient Accretionary and Collisional Orogenic Belts in the Circum Pacific Region I (GSA <i>Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geophysics Division; Geological Society of China; GSA Sedimentary Geology Division</i>)	TCC, Tahoma 4
116	8 a.m.	T234. What Are the Conditions That Lead to Detachment Faulting? (GSA <i>Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i>)	TCC, Tahoma 3
117	8 a.m.	T241. Volcano-Tectonic Evolution of the East African Rift System (GSA <i>International/International Interdisciplinary Interest Group; GSA Geophysics Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i>)	TCC, Yakima 1

Sessions Calendar

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NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
118	8 a.m.	T242. Current Trends in Landslide Monitoring: New Techniques, Methods, Successes, Failures, and Case Studies II (<i>GSA Environmental and Engineering Geology Division</i>)	TCC, Skagit 5
119	8 a.m.	T248. Microbialite Textures and Chemical Signatures in Continental Settings: Forging the Link between the Modern and Ancient (<i>GSA Geobiology & Geomicrobiology Division; GSA Limnogeology Division; GSA Karst Division</i>)	WSCC, Room 602/603
120	8 a.m.	T252. Cratonic Assembly in the Precambrian: Forming the Core of Modern and Ancient Landmasses (<i>GSA Structural Geology and Tectonics Division</i>)	WSCC, Room 604
121	1:30 p.m.	D1. Recent Advances in Hydrogeology	WSCC, Room 615/616/617
122	1:30 p.m.	D4. Paleoclimatology, Sedimentary, and Historical Studies in Caves and Karst Features	WSCC, Room 612
123	1:30 p.m.	D10. Paleontology, Paleoecology/Paleobotany	WSCC, Room 604
124	1:30 p.m.	D44. Geophysics to Solve Geological Problems and the Annual George P. Woollard Award Presentation	TCC, Yakima 1
125	1:30 p.m.	P2. Landscapes in the Anthropocene II (<i>GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division; GSA Hydrogeology Division; GSA Geology and Public Policy Committee; Geology [journal]</i>)	WSCC, Ballroom 6A
126	1:30 p.m.	T12. Hydrogeology, Geochemistry, and Wetland Processes II: A Session in Honor of the Career of Donald I. Siegel (<i>GSA Hydrogeology Division</i>)	WSCC, Room 618/619/620
127	1:30 p.m.	T15. Monitoring the Complex Nature of Water Balances and Solute Transport at the Groundwater–Surface Water Interface (<i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Room 613/614
128	1:30 p.m.	T38. Cenozoic Paleoclimates and Ecosystems II (<i>Paleontological Society; Geochemical Society; Paleontological Research Institution; Cushman Foundation for Foraminiferal Research; GSA Sedimentary Geology Division; GSA Limnogeology Division</i>)	WSCC, Room 609
129	1:30 p.m.	T47. Recent Developments in Cyclostratigraphy (<i>Cushman Foundation for Foraminiferal Research; Geochemical Society; Geologic TimeScale Foundation; Winners Academic Solutions; YES Network; GSA Sedimentary Geology Division</i>)	WSCC, Room 611
130	1:30 p.m.	T53. Digital, Digital Get Down: Frontiers in Virtual Paleontology (<i>Paleontological Society; Paleontological Research Institution; GSA Geoinformatics Division</i>)	WSCC, Room 606
131	1:30 p.m.	T59. Studies in Paleobiology and Paleoecology II: In Honor of Professor David J. Bottjer (<i>GSA Geobiology & Geomicrobiology Division; Paleontological Society; SEPM [Society for Sedimentary Geology]; Paleontological Research Institution</i>)	WSCC, Room 607
132	1:30 p.m.	T60. The Onset of the Great Ordovician Biodiversity Event (GOBE): Testing Hypotheses with Diverse Data Sets (<i>Paleontological Society; GSA Geobiology & Geomicrobiology Division; GSA Sedimentary Geology Division; SEPM [Society for Sedimentary Geology]; IGCP 653: Onset of the Great Ordovician Biodiversification Event; Paleontological Research Institution</i>)	WSCC, Room 608
133	1:30 p.m.	T78. Environmental Impact Studies for Energy Geology (<i>GSA Energy Geology Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Room 602/603
134	1:30 p.m.	T85. Clear as Mud: Stratigraphic, Diagenetic, Sedimentologic, Geomechanical Analyses, and Modern Analogs of Ancient Mudrock Systems (<i>GSA Sedimentary Geology Division; GSA Energy Geology Division; GSA Limnogeology Division</i>)	WSCC, WSCC, Ballroom 6C
135	1:30 p.m.	T93. Lacustrine Systems across Space and Time II (<i>GSA Limnogeology Division; GSA Sedimentary Geology Division; Paleontological Society; SEPM [Society for Sedimentary Geology]</i>)	WSCC, Room 307/308
136	1:30 p.m.	T111. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management (<i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Limnogeology Division</i>)	WSCC, Room 2B

NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
137	1:30 p.m.	T113. Geoscience Education Research: Implications for Undergraduate Geoscience Teaching and Learning (<i>National Association of Geoscience Teachers; GSA Geoscience Education Division; National Association of Geoscience Teachers, Division of Geoscience Education Research</i>)	WSCC, Room 2A
138	1:30 p.m.	T124. Practical Advice for In-Service and Pre-Service K–12 Earth Science Teacher Preparation and Professional Development (<i>National Earth Science Teachers Association; National Association of Geoscience Teachers, Teacher Education Division</i>)	WSCC, Room 3A
139	1:30 p.m.	T149. Celebrating Dr. John W. Valley's Contributions to Isotope Geochemistry and Beyond, from the Hadean to the Holocene II (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; Mineralogical Society of America; Geochemical Society; Microanalysis Society; GSA Sedimentary Geology Division</i>)	TCC, Skagit 2
140	1:30 p.m.	T162. The Dance of Arcs: Causes of Arc Migrations, Flare-Ups, and Magmatic Focusing II (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i>)	TCC, Skagit 4
141	1:30 p.m.	T167. The History of the Petroleum Industry: Hydraulic Fracturing—The 20th and 21st Century (<i>GSA History and Philosophy of Geology Division; GSA Energy Geology Division; History of Earth Sciences Society (HESS); GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; History of the Geoscience Section of the Geological Society of Italy</i>)	TCC, Skagit 3
142	1:30 p.m.	T176. Glacier-Landscape Interactions, Loess Paleoclimatology, and Interdisciplinary Quaternary Science II: In Memory of Stephen C. Porter (<i>GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division</i>)	TCC, Chelan 4
143	1:30 p.m.	T177. Ice Streams of North American Ice Sheets and Their Stratigraphic and Sedimentary Record (<i>GSA Quaternary Geology and Geomorphology Division</i>)	TCC, Chelan 2
144	1:30 p.m.	T185. Geomorphology of Human-Altered Landscapes (<i>GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Environmental and Engineering Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group</i>)	TCC, Chelan 5
145	1:30 p.m.	T196. Advances in Geoarchaeology II (<i>GSA Archaeological Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division</i>)	WSCC, Room 3B
146	1:30 p.m.	T204. Friends of Hoth: Episode II—Icy Bodies of the Solar System (<i>GSA Planetary Geology Division</i>)	TCC, Tahoma 1
147	1:30 p.m.	T209. Challenges in Tectonics: Fault Zone Behavior through Time, from Earth's Surface to the Upper Mantle II (<i>GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	TCC, Tahoma 2
148	1:30 p.m.	T213. Integrated Approaches to Deciphering Major Crustal Boundaries in Polyphase Orogenic Settings (<i>GSA Structural Geology and Tectonics Division; Society of Economic Geologists; GSA Geophysics Division</i>)	TCC, Tahoma 3
149	1:30 p.m.	T227. Ophiolite and Ocean Plate Stratigraphy Records in Modern and Ancient Accretionary and Collisional Orogenic Belts in the Circum Pacific Region II (<i>GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geophysics Division; Geological Society of China; GSA Sedimentary Geology Division</i>)	TCC, Tahoma 4
150	1:30 p.m.	T231. Subduction Top to Bottom 2 (ST2B-2), Cascadia and Beyond (<i>GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	TCC, Tahoma 5
151	1:30 p.m.	T242. Current Trends in Landslide Monitoring: New Techniques, Methods, Successes, Failures, and Case Studies III (<i>GSA Environmental and Engineering Geology Division</i>)	TCC, Skagit 5
152	4 p.m.	GSA Hydrogeology Division: Henry Darcy Distinguished Lecture	WSCC, Room 615/616/617
153	9 a.m.	T34. Sigma Gamma Epsilon-Undergraduate Research (Posters) (<i>Sigma Gamma Epsilon; GSA Karst Division</i>)	WSCC, Halls 4EF
154	9 a.m.	T153. Geochemical and Petrologic Forensics in the study of Earth's Magmatism: A Tribute to the Distinguished Career of Jon Davidson (1959–2016) (Posters) (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i>)	WSCC, Halls 4EF
155	9 a.m.	D48. Geology and Health (Posters)	WSCC, Halls 4EF
156	9 a.m.	T248. Microbialite Textures and Chemical Signatures in Continental Settings: Forging the Link between the Modern and Ancient (Posters) (<i>GSA Geobiology & Geomicrobiology Division; GSA Limnogeology Division; GSA Karst Division</i>)	WSCC, Halls 4EF

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NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
157	9 a.m.	T249. New Voices in Geobiology (Posters) (<i>GSA Geobiology & Geomicrobiology Division; GSA Karst Division</i>)	WSCC, Halls 4EF
158	9 a.m.	T184. Geologic Research at Mount Rainier and Other Cascade Volcanoes: Ideal Natural Laboratories for Cutting-Edge Research with Implications to Life Safety and Infrastructure Protection in the Pacific Northwest (Posters) (<i>GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division; National Park Service; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
159	9 a.m.	T191. Looking to the Past to Understand the Future: Glacial Chronology and Process (Posters) (<i>GSA Quaternary Geology and Geomorphology Division</i>)	WSCC, Halls 4EF
160	9 a.m.	T193. Quantifying Geomorphic Processes and Rates of Landscape Evolution (Posters) (<i>GSA Quaternary Geology and Geomorphology Division</i>)	WSCC, Halls 4EF
161	9 a.m.	T236. Characterizing Cascadia's Earthquakes—Reexamining Open Questions about Cascadia Seismic and Tsunami Hazards (Posters) (<i>GSA Geophysics Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
162	9 a.m.	T104. Broader Impacts Activities as Vehicles for Filling the Geoscience Pipeline (Posters) (<i>GSA Geoscience Education Division</i>)	WSCC, Halls 4EF
163	9 a.m.	T122. On the Cutting Edge: Fifteen Years of Impacts on Geoscience Education (Posters) (<i>GSA Geoscience Education Division; National Association of Geoscience Teachers</i>)	WSCC, Halls 4EF
164	9 a.m.	T129. The Challenge of Defining Student Success: Broadening Participation, Measuring Success, and Preparing 2YC and 4YC Students for a Variety of Transitions (Posters) (<i>GSA Geoscience Education Division; GSA Geology and Society Division; International Association for Geoscience Diversity; National Association of Geoscience Teachers; National Association of Geoscience Teachers Geo2YC Division; National Earth Science Teachers Association</i>)	WSCC, Halls 4EF
165	9 a.m.	T135. Comedy in the Geosciences (Posters) (<i>GSA Geology and Society Division</i>)	WSCC, Halls 4EF
166	9 a.m.	T138. Geology Rocks! A Musical Session on the Sounds of Science (Posters) (<i>GSA Geology and Society Division; GSA Geoscience Education Division</i>)	WSCC, Halls 4EF
167	9 a.m.	D55. Great Maps and Other Topics in the History of Geology (Posters)	WSCC, Halls 4EF
168	9 a.m.	D2. Recent Advances in Hydrogeology (Posters)	WSCC, Halls 4EF
169	9 a.m.	T5. Arsenic and Other Geogenic Contaminants in Groundwater Resources: Linking Water Quality, Food Security, and Treatment (Posters) (<i>GSA Hydrogeology Division; GSA Geology and Health Division; GSA International/International Interdisciplinary Interest Group; International Society of Groundwater for Sustainable Development [ISGSD]; International Medical Geology Association; GSA Environmental and Engineering Geology Division; GSA Geobiology & Geomicrobiology Division</i>)	WSCC, Halls 4EF
170	9 a.m.	T8. Fate, Effects, and Mitigation of Chemical and Fuel Releases in Surface and Subsurface Environments (Posters) (<i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Energy Geology Division</i>)	WSCC, Halls 4EF
171	9 a.m.	D6. The Multidisciplinary Faces of Cave and Karst Science (Posters)	WSCC, Halls 4EF
172	9 a.m.	T158. Gemological Research in the 21st Century—Characterization, Exploration, and Geological Significance of Diamonds and other Gem Minerals (Posters) (<i>Gemological Institute of America</i>)	WSCC, Halls 4EF
173	9 a.m.	T43. High-Resolution Investigations of the Permian-Triassic Transition (Posters) (<i>GSA Sedimentary Geology Division; SEPM [Society for Sedimentary Geology]; Paleontological Society; Paleontological Research Institution</i>)	WSCC, Halls 4EF
174	9 a.m.	D15. Paleontology, Biogeography/Biostratigraphy (Posters)	WSCC, Halls 4EF
175	9 a.m.	T60. The Onset of the Great Ordovician Biodiversity Event (GOBE): Testing Hypotheses with Diverse Data Sets (Posters) (<i>Paleontological Society; GSA Geobiology & Geomicrobiology Division; GSA Sedimentary Geology Division; SEPM [Society for Sedimentary Geology]; IGCP 653: Onset of the Great Ordovician Biodiversification Event; Paleontological Research Institution</i>)	WSCC, Halls 4EF

NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
176	9 a.m.	T163. Petrochronology: Advances and Applications to Petrogenesis and Tectonics (Posters) (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; Mineralogical Society of America; Geochemical Society</i>)	WSCC, Halls 4EF
177	9 a.m.	D54. Planetary Potpourri (Posters)	WSCC, Halls 4EF
178	9 a.m.	T204. Friends of Hoth: Episode II—Icy Bodies of the Solar System (Posters) (<i>GSA Planetary Geology Division</i>)	WSCC, Halls 4EF
179	9 a.m.	T205. Impact Cratering: From Fire to Ice—Cratering across the Solar System (Posters) (<i>GSA Planetary Geology Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
180	9 a.m.	T207. Volcanism and Tectonism across the Solar System (Posters) (<i>GSA Planetary Geology Division</i>)	WSCC, Halls 4EF
181	9 a.m.	T252. Cratonic Assembly in the Precambrian: Forming the Core of Modern and Ancient Landmasses (Posters) (<i>GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
182	9 a.m.	T84. The Dynamics of Stratigraphy and Sedimentation (Posters) (<i>GSA Sedimentary Geology Division; SEPM [Society for Sedimentary Geology]</i>)	WSCC, Halls 4EF
183	9 a.m.	T87. Fluvio-Deltaic Processes and Their Stratigraphic Record (Posters) (<i>GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; SEPM [Society for Sedimentary Geology]</i>)	WSCC, Halls 4EF
184	9 a.m.	T89. The Dynamics of Tectono-Sedimentary Systems During Basin Formation and Fill (Posters) (<i>GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; SEPM [Society for Sedimentary Geology]</i>)	WSCC, Halls 4EF
185	9 a.m.	T90. Advancing Seismic and Sequence Stratigraphy: Insights from Testing the Fundamentals (Posters) (<i>GSA Environmental and Engineering Geology Division; GSA Energy Geology Division; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
186	9 a.m.	T91. Chemostratigraphy: Environments, Correlation, and Time (Posters) (<i>North American Commission on Stratigraphic Nomenclature; SEPM [Society for Sedimentary Geology]; International Subcommittee on Stratigraphic Classification; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
187	9 a.m.	T92. Tectonics and Sedimentation, Avulsion, and Experimental Stratigraphy, and History of Western North America: A Celebration of Paul Heller's Career (Posters) (<i>GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division; SEPM [Society for Sedimentary Geology]</i>)	WSCC, Halls 4EF
188	9 a.m.	T234. What Are the Conditions That Lead to Detachment Faulting? (Posters) (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
Tuesday, 24 October			
189	8 a.m.	D5. Cave and Karst Processes, Hazards, and Monitoring	WSCC, Room 612
190	8 a.m.	D9. Paleontology, Conservation Paleobiology	WSCC, Room 604
191	8 a.m.	D40. Structural Geology and Tectonics: Advances in Understanding Fault Systems, Plate Boundaries and Deformation: Observations and Experiments	TCC, Tahoma 3
192	8 a.m.	P3. IODP-ICDP Expedition 364 to the Chicxulub Impact Crater (<i>GSA Planetary Geology Division; GSA Geophysics Division; International Continental Scientific Drilling Program [ICDP]; European Consortium for Ocean Research Drilling [IODP-ECORD]; Lunar and Planetary Institute [LPI]</i>)	WSCC, Ballroom 6A
193	8 a.m.	T4. Approaches to Applied Modeling for Industry and the Public (<i>GSA Hydrogeology Division; GSA Geology and Society Division; National Ground Water Association [NGWA]; GSA Environmental and Engineering Geology Division</i>)	WSCC, Room 613/614
194	8 a.m.	T10. Groundwater Influenced Ecosystems: Springs, Gaining Streams, and Terrestrial Ecosystems (<i>GSA Hydrogeology Division; GSA Karst Division; GSA Geobiology & Geomicrobiology Division</i>)	WSCC, Room 615/616/617
195	8 a.m.	T20. The Critical Zone As Heterogeneous Media: Implications for Physical, Chemical, and Biological Processes (<i>GSA Hydrogeology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Geobiology & Geomicrobiology Division; GSA Karst Division</i>)	WSCC, Room 618/619/620
196	8 a.m.	T46. North Pacific Environment and Paleoclimate from the Late Pleistocene to Present I (<i>GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Limnogeology Division</i>)	WSCC, Room 609

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NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
197	8 a.m.	T56. Mass Extinctions I: Past, Present, and Future? (<i>Paleontological Research Institution; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Cushman Foundation for Foraminiferal Research; Paleontological Society; Volcanic and Magmatic Studies Group</i>)	WCC, Room 608
198	8 a.m.	T66. Exceptionally Preserved Proterozoic–Early Paleozoic Fossils (<i>Paleontological Society; GSA Geobiology & Geomicrobiology Division; Paleontological Research Institution</i>)	WCC, Room 607
199	8 a.m.	T69. The Role of Silica in the Earth System: From Organisms to Global Biogeochemical Cycles (<i>GSA Geobiology & Geomicrobiology Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Paleontological Society; GSA Limnogeology Division</i>)	WCC, Room 606
200	8 a.m.	T75. Planetary Climate Disruption Demands Urgent Global Policy Action (<i>GSA Quaternary Geology and Geomorphology Division; GSA Energy Geology Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division; GSA Hydrogeology Division</i>)	WCC, Room 611
201	8 a.m.	T79. Geologic Energy Research I (<i>GSA Energy Geology Division; GSA Environmental and Engineering Geology Division</i>)	WCC, Room 602/603
202	8 a.m.	T86. Controls, Geomorphology, and Depositional Architecture of Fluvial-Tidal Sediments through Space and Time (<i>GSA Sedimentary Geology Division; SEPM [Society for Sedimentary Geology]</i>)	WCC, WCC, Ballroom 6C
203	8 a.m.	T105. Building an Inclusive Geoscience Community Today for Tomorrow I (<i>GSA Geoscience Education Division; GSA Diversity in the Geosciences Committee; GSA Geology and Society Division; National Association of Black Geoscientists</i>)	WCC, Room 2A
204	8 a.m.	T115. Hands-On Teaching Demonstrations that Combine Geoscience and Societal Issues: Audience Participation Requested! (<i>National Association of Geoscience Teachers; GSA Geoscience Education Division</i>)	WCC, Room 3A
205	8 a.m.	T120. Making Thinking Visible: Actions and Expressions of Problem Solving and Decision Making in the Geosciences (<i>GSA Geoscience Education Division; National Association of Geoscience Teachers, Division of Geoscience Education Research</i>)	WCC, Room 2B
206	8 a.m.	T147. What Can You Do with Geoinformatics? (<i>GSA Geoinformatics Division; Geoscience Information Society; American Geosciences Institute; American Geophysical Union; GSA Environmental and Engineering Geology Division; GSA Geoscience Education Division; Association of American State Geologists; GSA Karst Division</i>)	WCC, Room 3B
207	8 a.m.	T152. Fluids and Melts in Geologic Systems	TCC, Skagit 2
208	8 a.m.	T161. Petrology across the Inner Solar System: In Honor of Roebling Medalist Ed Stolper (<i>Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division</i>)	TCC, Skagit 4
209	8 a.m.	T168. Advances in Terrestrial Paleoclimate Reconstructions Using Paleosols (<i>GSA Sedimentary Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group</i>)	TCC, Skagit 3
210	8 a.m.	T175. Earthquakes, Faults, and Fault Systems in the Pacific Northwest (<i>Washington Division of Geology and Earth Resources; GSA Structural Geology and Tectonics Division</i>)	TCC, Chelan 4
211	8 a.m.	T181. The Geological Signature of Natural Hazard Events I (<i>GSA Environmental and Engineering Geology Division; GSA Sedimentary Geology Division</i>)	TCC, Chelan 5
212	8 a.m.	T187. How, and Under What Conditions, Does Weathering Influence Surface Processes? (<i>GSA Quaternary Geology and Geomorphology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group</i>)	TCC, Chelan 2
213	8 a.m.	T218. Understanding the Interplay of Structural, Metamorphic, and Magmatic Processes in the Evolution of Convergent Margins: Lessons from the Proterozoic to Present-Day South American Andean Margin (<i>GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA International/International Interdisciplinary Interest Group</i>)	TCC, Tahoma 2

NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
214	8 a.m.	T219. Challenges in Tectonics: Dynamic Interactions among Earth-Surface Processes, Landscape Evolution, and Tectonics I (<i>GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; SEPM [Society for Sedimentary Geology]; Future of Tectonics Initiative</i>)	TCC, Tahoma 4
215	8 a.m.	T232. Subduction Zone Response to Ridge and Plateau Collision: Perspectives from the Archean to the Cenozoic (<i>GSA Structural Geology and Tectonics Division</i>)	TCC, Tahoma 5
216	8 a.m.	T246. Weather-Induced Landslides, Debris Flows, and Rock Fall (<i>GSA Environmental and Engineering Geology Division; GSA Hydrogeology Division</i>)	TCC, Skagit 5
217	8 a.m.	T247. Deciphering the Major Paleoenvironmental Crises of the Earth and Their Impact on the Marine Ecosystems and Biogeochemical Cycles (<i>Paleontological Research Institution; GSA Sedimentary Geology Division; Paleontological Society</i>)	WSCC, Room 307/308
218	8 a.m.	T257. Contributions of Rock- and Paleo-Magnetism to Understanding Orogenic Processes	TCC, Yakima 1
219	9 a.m.	P4. Speed Dating!: Advice on Sampling and Applications Through the Lens of the Geochronologist (Posters) (<i>GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Karst Division; GSA Limnogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
220	1:30 p.m.	D8. Paleontology, Macroevolution/Biogeography	WSCC, Room 606
221	1:30 p.m.	D14. Paleontology, Phylogenetic/Morphological Patterns: Vertebrates	WSCC, Room 604
222	1:30 p.m.	D19. Geoscience and Public Policy: Bringing Our Science to Society	WSCC, Room 613/614
223	1:30 p.m.	P5. Origin, Accretion, and Translation of Mesozoic-Cenozoic Terranes along the Pacific Margin of North America (<i>GSA Structural Geology and Tectonics Division</i>)	WSCC, Ballroom 6A
224	1:30 p.m.	T24. How Nick Crawford's Vision Helped Shape Contemporary Karst Science and Education (<i>GSA Karst Division; National Cave and Karst Research Institute; GSA Hydrogeology Division; GSA History and Philosophy of Geology Division</i>)	WSCC, Room 615/616/617
225	1:30 p.m.	T33. Intersections of Sustainability and Geosciences (<i>GSA Geology and Society Division; GSA Karst Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Room 612
226	1:30 p.m.	T39. Cushman Foundation Symposium: Microfossil Mayhem—Murder, Misfortune, and More (<i>Cushman Foundation for Foraminiferal Research; Paleontological Research Institution; GSA Limnogeology Division; Paleontological Society; Geochemical Society; GSA Archaeological Geology Division</i>)	WSCC, Room 611
227	1:30 p.m.	T46. North Pacific Environment and Paleoclimate from the Late Pleistocene to Present II (<i>GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Limnogeology Division</i>)	WSCC, Room 609
228	1:30 p.m.	T56. Mass Extinctions II: Past, Present, and Future? (<i>Paleontological Research Institution; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Cushman Foundation for Foraminiferal Research; Paleontological Society; Volcanic and Magmatic Studies Group</i>)	WSCC, Room 608
229	1:30 p.m.	T70. Paleogenomics and Geobiology (<i>Paleontological Society; Paleontological Research Institution; GSA Geobiology & Geomicrobiology Division</i>)	WSCC, Room 607
230	1:30 p.m.	T79. Geologic Energy Research II (<i>GSA Energy Geology Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Room 602/603
231	1:30 p.m.	T88. Mudstone Facts: Deposition, Diagenesis, and Source of Basin Fluids (<i>GSA Sedimentary Geology Division; GSA Energy Geology Division; GSA Limnogeology Division</i>)	WSCC, Ballroom 6C
232	1:30 p.m.	T94. Limnogeology—Progress, Challenges, and Opportunities on Earth and Beyond: A Tribute to Beth Gierlowski-Kordesch (<i>GSA Limnogeology Division; SEPM [Society for Sedimentary Geology]; Paleontological Society; International Association of Limnogeology; GSA Sedimentary Geology Division; GSA Geobiology & Geomicrobiology Division</i>)	WSCC, Room 307/308
233	1:30 p.m.	T101. Better Together: Partnerships That Facilitate or Enhance Experiential Learning in Undergraduate Geoscience Education (<i>GSA Geoscience Education Division; National Association of Geoscience Teachers</i>)	WSCC, Room 3A
234	1:30 p.m.	T105. Building an Inclusive Geoscience Community Today for Tomorrow II (<i>GSA Geoscience Education Division; GSA Diversity in the Geosciences Committee; GSA Geology and Society Division; National Association of Black Geoscientists</i>)	WSCC, Room 2A

Sessions Calendar

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NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
235	1:30 p.m.	T114. Getting It Done: Experiences of Implementing the Framework and NGSS in Earth and Space Science	WSCC, Room 2B
236	1:30 p.m.	T143. Curating Physical Samples in a Digital World (<i>GSA Geoinformatics Division; Paleontological Society; Society for the Preservation of Natural History Collections; Paleontological Research Institution; Cushman Foundation; GSA Geobiology & Geomicrobiology Division; Association of American State Geologists</i>)	WSCC, Room 3B
237	1:30 p.m.	T148. System-Scale Zonation of Ore Systems: Insights into 3D Architecture from Lateral and Deep Exposures Due to Mining and Structural Deformation (<i>GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Society of Economic Geologists</i>)	TCC, Yakima 1
238	1:30 p.m.	T150. Chemical Scene Investigations of Large Igneous Provinces II (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i>)	TCC, Skagit 2
239	1:30 p.m.	T165. Recent Advances in Understanding Volcanism of the Yellowstone Hotspot	TCC, Tahoma 3
240	1:30 p.m.	T171. Terroir (<i>GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division</i>)	TCC, Skagit 3
241	1:30 p.m.	T181. The Geological Signature of Natural Hazard Events II (<i>GSA Environmental and Engineering Geology Division; GSA Sedimentary Geology Division</i>)	TCC, Chelan 5
242	1:30 p.m.	T188. Interrelationship between Tectonic Uplift and Quaternary Glaciations on the Tibetan Plateau and Its Surrounding Mountains	TCC, Chelan 2
243	1:30 p.m.	T189. Landscapes in the Anthropocene (<i>GSA Quaternary Geology and Geomorphology Division; GSA Hydrogeology Division; GSA Sedimentary Geology Division; GSA Limnogeology Division</i>)	TCC, Chelan 4
244	1:30 p.m.	T206. Geomorphology and Landscape Evolution of Mars: The G.K. Gilbert Award Session I (<i>GSA Planetary Geology Division</i>)	TCC, Tahoma 1
245	1:30 p.m.	T212. Geologic Mapping in the Pacific Northwest and Beyond: Recent Maps, Advances, and New Insights: In Memory of Russell C. Everts and His Extensive Contributions to Pacific Northwest Geologic Mapping (<i>Washington Division of Geology and Earth Resources; GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i>)	TCC, Tahoma 2
246	1:30 p.m.	T219. Challenges in Tectonics: Dynamic Interactions among Earth-Surface Processes, Landscape Evolution, and Tectonics II (<i>GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; SEPM [Society for Sedimentary Geology]; Future of Tectonics Initiative</i>)	TCC, Tahoma 4
247	1:30 p.m.	T222. Decadal to Millennial Strain Accumulation at Subduction Zones (<i>GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	TCC, Tahoma 5
248	1:30 p.m.	T251. Tsunami Hazards: Innovations in Mapping, Modeling, and Outreach (<i>GSA Environmental and Engineering Geology Division; Washington Division of Geology and Earth Resources; GSA Geoinformatics Division</i>)	WSCC, Room 618/619/620
249	1:30 p.m.	T256. The Co-Evolution of Life and Its Environment during the Precambrian: The Rise of Oxygenic Photosynthesis and the Great Oxidation Event (<i>GSA Geobiology & Geomicrobiology Division</i>)	TCC, Skagit 5
250	3 p.m.	Mineralogical Society of America (MSA) Awards Lectures, Presidential Address, and Annual Business Meeting	TCC, Skagit 4
251	4:30 p.m.	GSA Hydrogeology Division: Birdsall-Dreiss Distinguished Lecture	WSCC, Ballroom 6B
252	9 a.m.	T244. Landslide Inventories, Databases, Hazard Maps, Risk Analysis, and Beyond (Posters) (<i>GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Geoinformatics Division</i>)	WSCC, Halls 4EF

NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
253	9 a.m.	T149. Celebrating Dr. John W. Valley's Contributions to Isotope Geochemistry and Beyond, from the Hadean to the Holocene (Posters) (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; Mineralogical Society of America; Geochemical Society; Microanalysis Society; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
254	9 a.m.	T151. Consequences of Fluids in Subduction Zones: From Grain Scale to Plate Boundary Shear Zone (Posters) (<i>GSA Hydrogeology Division</i>)	WSCC, Halls 4EF
255	9 a.m.	T152. Fluids and Melts in Geologic Systems (Posters)	WSCC, Halls 4EF
256	9 a.m.	T247. Deciphering the Major Paleoenvironmental Crises of the Earth and Their Impact on the Marine Ecosystems and Biogeochemical Cycles (Posters) (<i>Paleontological Research Institution; GSA Sedimentary Geology Division; Paleontological Society</i>)	WSCC, Halls 4EF
257	9 a.m.	T185. Geomorphology of Human-Altered Landscapes (Posters) (<i>GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Environmental and Engineering Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group</i>)	WSCC, Halls 4EF
258	9 a.m.	T111. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management (Posters) (<i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Limnogeology Division</i>)	WSCC, Halls 4EF
259	9 a.m.	T113. Geoscience Education Research: Implications for Undergraduate Geoscience Teaching and Learning (Posters) (<i>National Association of Geoscience Teachers; GSA Geoscience Education Division; National Association of Geoscience Teachers, Division of Geoscience Education Research</i>)	WSCC, Halls 4EF
260	9 a.m.	T120. Making Thinking Visible: Actions and Expressions of Problem Solving and Decision Making in the Geosciences (Posters) (<i>GSA Geoscience Education Division; National Association of Geoscience Teachers, Division of Geoscience Education Research</i>)	WSCC, Halls 4EF
261	9 a.m.	T121. Natural History Museums in the 21st Century—Programming for the Future While Preserving the Past (Posters) (<i>GSA Geoscience Education Division; Paleontological Society; GSA Geoinformatics Division</i>)	WSCC, Halls 4EF
262	9 a.m.	T123. Pedagogical Applications of Point Cloud Collection and Manipulation (Posters) (<i>GSA Geoscience Education Division; UNAVCO; GSA Geoinformatics Division</i>)	WSCC, Halls 4EF
263	9 a.m.	T124. Practical Advice for In-Service and Pre-Service K–12 Earth Science Teacher Preparation and Professional Development (Posters) (<i>National Earth Science Teachers Association; National Association of Geoscience Teachers, Teacher Education Division</i>)	WSCC, Halls 4EF
264	9 a.m.	T141. Use of Geoscience Data and Information Resources in Education and Research (Posters) (<i>Geoscience Information Society; GSA Geoinformatics Division</i>)	WSCC, Halls 4EF
265	9 a.m.	T93. Lacustrine Systems across Space and Time (Posters) (<i>GSA Limnogeology Division; GSA Sedimentary Geology Division; Paleontological Society; SEPM [Society for Sedimentary Geology]</i>)	WSCC, Halls 4EF
266	9 a.m.	T94. Limnogeology—Progress, Challenges, and Opportunities on Earth and Beyond: A Tribute to Beth Gierlowski-Kordesch (Posters) (<i>GSA Limnogeology Division; SEPM [Society for Sedimentary Geology]; Paleontological Society; International Association of Limnogeology; GSA Sedimentary Geology Division; GSA Geobiology & Geomicrobiology Division</i>)	WSCC, Halls 4EF
267	9 a.m.	D33. Mineralogy/Crystallography (Posters)	WSCC, Halls 4EF
268	9 a.m.	T38. Cenozoic Paleoclimates and Ecosystems (Posters) (<i>Paleontological Society; Geochemical Society; Paleontological Research Institution; Cushman Foundation for Foraminiferal Research; GSA Sedimentary Geology Division; GSA Limnogeology Division</i>)	WSCC, Halls 4EF
269	9 a.m.	T45. Miocene–Pliocene Terrestrial Ecosystem Response to the Climate System (Posters) (<i>Paleontological Society; GSA Limnogeology Division</i>)	WSCC, Halls 4EF
270	9 a.m.	T47. Recent Developments in Cyclostratigraphy (Posters) (<i>Cushman Foundation for Foraminiferal Research; Geochemical Society; Geologic TimeScale Foundation; Winners Academic Solutions; YES Network; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
271	9 a.m.	T56. Mass Extinctions: Past, Present, and Future? (Posters) (<i>Paleontological Research Institution; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Cushman Foundation for Foraminiferal Research; Paleontological Society; Volcanic and Magmatic Studies Group</i>)	WSCC, Halls 4EF
272	9 a.m.	D17. Paleontology, Paleoecology/Taphonomy (Posters)	WSCC, Halls 4EF

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NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
273	9 a.m.	T69. The Role of Silica in the Earth System: From Organisms to Global Biogeochemical Cycles (Posters) (<i>GSA Geobiology & Geomicrobiology Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Paleontological Society; GSA Limnogeology Division</i>)	WSCC, Halls 4EF
274	9 a.m.	D35. Petrology, Igneous (Posters)	WSCC, Halls 4EF
275	9 a.m.	T162. The Dance of Arcs: Causes of Arc Migrations, Flare-Ups, and Magmatic Focusing (Posters) (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
276	9 a.m.	T199. Basalt Weathering on Earth and Mars (Posters) (<i>GSA Planetary Geology Division</i>)	WSCC, Halls 4EF
277	9 a.m.	T206. Geomorphology and Landscape Evolution of Mars: The G.K. Gilbert Award Session (Posters) (<i>GSA Planetary Geology Division</i>)	WSCC, Halls 4EF
278	9 a.m.	D50. Precambrian Geology (Posters)	WSCC, Halls 4EF
279	9 a.m.	T254. The Co-Evolution of Life and Its Environment during the Precambrian: The "Boring Billion" and Mid-Proterozoic Emergence of Complex Life (Posters) (<i>Paleontological Society; GSA Geobiology & Geomicrobiology Division</i>)	WSCC, Halls 4EF
280	9 a.m.	T255. The Co-Evolution of Life and Its Environment during the Precambrian: The Late Proterozoic Rise of Animals; Climate, Tectonic, and Environmental Dynamics, and the Transition into the Early Paleozoic (Posters) (<i>Paleontological Society; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
281	9 a.m.	T175. Earthquakes, Faults, and Fault Systems in the Pacific Northwest (Posters) (<i>Washington Division of Geology and Earth Resources; GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
282	9 a.m.	T176. Glacier-Landscape Interactions, Loess Paleoclimatology, and Interdisciplinary Quaternary Science: In Memory of Stephen C. Porter (Posters) (<i>GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
283	9 a.m.	T177. Ice Streams of North American Ice Sheets and Their Stratigraphic and Sedimentary Record (Posters) (<i>GSA Quaternary Geology and Geomorphology Division</i>)	WSCC, Halls 4EF
284	9 a.m.	T168. Advances in Terrestrial Paleoclimate Reconstructions Using Paleosols (Posters) (<i>GSA Sedimentary Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group</i>)	WSCC, Halls 4EF
285	9 a.m.	T169. Deciphering Climate Change and Climate Variability in the Geologic Record Using Palaeosols, Loess, Palaeoweathering Profiles, Pedosedimentary Sequences, and Polygenetic Soils: Their Applications and Limitations as Terrestrial Proxies in Understanding Impacts of Climatic Changes (Posters) (<i>GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
286	9 a.m.	T170. Rock Transforming to Soil—The Weathering Engine Intersects with the Carbon Cycle (Posters) (<i>GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Geobiology & Geomicrobiology Division; Paleoclimatology/Paleoceanography</i>)	WSCC, Halls 4EF
287	9 a.m.	T208. Best Student Geologic Map Competition (Posters) (<i>U.S. Geological Survey—National Cooperative Geologic Mapping Program; Association of American State Geologists; GSA Foundation; American Geosciences Institute; American Institute of Professional Geologists; Journal of Maps; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
288	9 a.m.	T209. Challenges in Tectonics: Fault Zone Behavior through Time, from Earth's Surface to the Upper Mantle (Posters) (<i>GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	WSCC, Halls 4EF
289	9 a.m.	T211. Folds: Causes and Consequences (Posters) (<i>GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
290	9 a.m.	T213. Integrated Approaches to Deciphering Major Crustal Boundaries in Polyphase Orogenic Settings (Posters) (<i>GSA Structural Geology and Tectonics Division; Society of Economic Geologists; GSA Geophysics Division</i>)	WSCC, Halls 4EF

NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
291	9 a.m.	T218. Understanding the Interplay of Structural, Metamorphic, and Magmatic Processes in the Evolution of Convergent Margins: Lessons from the Proterozoic to Present-Day South American Andean Margin (Posters) (<i>GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA International/International Interdisciplinary Interest Group</i>)	WSCC, Halls 4EF
292	9 a.m.	D43. Tectonics I (Posters): Advances in Tectonics from Mineralogy and Geochronology	WSCC, Halls 4EF
293	9 a.m.	D56. Tectonics II (Posters): Advances in Tectonics from Crust/Mantle Structure	WSCC, Halls 4EF
294	9 a.m.	T231. Subduction Top to Bottom 2 (ST2B-2), Cascadia and Beyond (Posters) (<i>GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	WSCC, Halls 4EF
Wednesday, 25 October			
295	8 a.m.	D22. From Processes to Stratigraphy	WSCC, Ballroom 6C
296	8 a.m.	D34. Magma to Volcano	TCC, Skagit 4
297	8 a.m.	P6. Earth Anatomy Revealed: Geologic Mapping for Our Future (<i>GSA Geology and Society Division; GSA Geology and Public Policy Committee; GSA Geoinformatics Division; Association of American State Geologists; American Geosciences Institute; American Institute of Professional Geologists; American Geophysical Union; U.S. Geological Survey</i>)	WSCC, Ballroom 6A
298	8 a.m.	T9. Groundwater Flow in Coastal and Marine Settings: From the Intertidal Zone to the Deep Seafloor (<i>GSA Hydrogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geobiology & Geomicrobiology Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Room 615/616/617
299	8 a.m.	T16. Novel Approaches to Mine Remediation: Addressing the Legacy of Hardrock Mining through Innovative and Practical Methods (<i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Room 618/619/620
300	8 a.m.	T19. Springs: Providing Insights on Critical Groundwater Quality and Quantity Issues (<i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Geobiology & Geomicrobiology Division; GSA Karst Division</i>)	WSCC, Room 613/614
301	8 a.m.	T35. Urban Geochemistry (<i>International Association of GeoChemistry; GSA Hydrogeology Division; GSA Karst Division</i>)	WSCC, Room 612
302	8 a.m.	T44. Insights from Microfossils, from Traditional to Novel Approaches (<i>Cushman Foundation for Foraminiferal Research; Paleontological Research Institution; Paleontological Society; GSA Limnogeology Division; Geochemical Society</i>)	WSCC, Room 609
303	8 a.m.	T48. The Timing and Causes of Jurassic–Cretaceous Biological, Climatic, and Tectonic Transitions in North America (<i>GSA Sedimentary Geology Division; Paleontological Research Institution</i>)	WSCC, Room 611
304	8 a.m.	T52. Biotic Revolutions Recorded in the Trace Fossil Record, Neoproterozoic to Recent I (<i>Paleontological Society; Paleontological Research Institution</i>)	WSCC, Room 606
305	8 a.m.	T54. Impact of Extinction Events on the Ecological and Geochemical Functioning of Marine Ecosystems (<i>Paleontological Society</i>)	WSCC, Room 608
306	8 a.m.	T62. Ancient Environments of South America (<i>Paleontological Research Institution; Paleontological Society; GSA Sedimentary Geology Division</i>)	WSCC, Room 604
307	8 a.m.	T63. Cephalopod Paleobiology and Paleocology: A Tribute to Royal H. Mapes (<i>Paleontological Society; SEPM [Society for Sedimentary Geology]; Paleontological Research Institution</i>)	WSCC, Room 607
308	8 a.m.	T80. Geothermal Energy (<i>Washington Division of Geology and Earth Resources; GSA Environmental and Engineering Geology Division; GSA Structural Geology and Tectonics Division</i>)	WSCC, Room 602/603
309	8 a.m.	T96. Understanding African Environmental History through Continental Scientific Drilling: Past Successes and Future Opportunities (<i>GSA Limnogeology Division; GSA Sedimentary Geology Division</i>)	WSCC, Room 307/308
310	8 a.m.	T121. Natural History Museums in the 21st Century—Programming for the Future While Preserving the Past I (<i>GSA Geoscience Education Division; Paleontological Society; GSA Geoinformatics Division</i>)	WSCC, Room 3A
311	8 a.m.	T131. Translating Professional Development Experiences into the Classroom I (<i>GSA Geoscience Education Division; National Association of Geoscience Teachers</i>)	WSCC, Room 2A
312	8 a.m.	T133. Victor Porter Memorial Session—Climbing out of the Fishbowl: Hands-On Public Engagement in the Geosciences (<i>GSA Geoscience Education Division</i>)	WSCC, Room 2B
313	8 a.m.	T136. Discovery and Preservation of Geoscience Data and Information Resources (<i>Geoscience Information Society; GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division; GSA Energy Geology Division</i>)	WSCC, Room 3B

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NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
314	8 a.m.	T154. Imaging the Rock and Fluid Interactions of Geologic Carbon Sequestration (<i>GSA Hydrogeology Division; GSA Energy Geology Division; GSA Environmental and Engineering Geology Division</i>)	TCC, Skagit 2
315	8 a.m.	T169. Deciphering Climate Change and Climate Variability in the Geologic Record Using Palaeosols, Loess, Palaeoweathering Profiles, Pedosedimentary Sequences, and Polygenetic Soils: Their Applications and Limitations as Terrestrial Proxies in Understanding Impacts of Climatic Changes (<i>GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division</i>)	TCC, Skagit 3
316	8 a.m.	T173. Change Detection Photogrammetry in Earth Science (<i>GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division</i>)	TCC, Chelan 4
317	8 a.m.	T179. New Concepts in Glaciation of the Western Cordillera of North America (<i>GSA Quaternary Geology and Geomorphology Division</i>)	TCC, Chelan 2
318	8 a.m.	T190. Linking Physical and Ecological Processes from Source-to-Sink to Investigate Multi-Scale Response to Restoration (<i>GSA Quaternary Geology and Geomorphology Division; GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Limnogeology Division</i>)	TCC, Chelan 5
319	8 a.m.	T206. Geomorphology and Landscape Evolution of Mars: The G.K. Gilbert Award Session II (<i>GSA Planetary Geology Division</i>)	TCC, Tahoma 1
320	8 a.m.	T210. Challenges in Tectonics: Beyond Steady State: New Developments in Understanding Strain Localization Processes and the Rheology of the Lithosphere (<i>GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	TCC, Tahoma 2
321	8 a.m.	T229. Paleocene-Eocene Tectonic and Magmatic Evolution of the Pacific Northwest (<i>GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i>)	TCC, Tahoma 4
322	8 a.m.	T230. Polygenetic Mélanges: A Glimpse on Tectono-Sedimentary Recycling in Convergent Margins (<i>GSA International/International Interdisciplinary Interest Group; IGCP 640 program S4SLIDE [Significance of Modern and Ancient Submarine Slope Landslides]; GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division</i>)	TCC, Tahoma 5
323	8 a.m.	T240. Structure and Evolution of the North Atlantic–Arctic Realm (<i>International Lithosphere Program</i>)	TCC, Yakima 1
324	8 a.m.	T254. The Co-Evolution of Life and Its Environment during the Precambrian: The “Boring Billion” and Mid-Proterozoic Emergence of Complex Life (<i>Paleontological Society; GSA Geobiology & Geomicrobiology Division</i>)	TCC, Skagit 5
325	1:30 p.m.	D51. Geophysics/Geodynamics Session	TCC, Yakima 1
326	1:30 p.m.	T1. 21st Century Rock Flow Properties and Processes: 3D Printing, Digital Rock Physics, and Hydrogeophysics (<i>GSA Hydrogeology Division; GSA Geoinformatics Division; GSA Karst Division</i>)	WSCC, Room 613/614
327	1:30 p.m.	T18. Remote Sensing Applications in Hydrology and Geology (<i>GSA Hydrogeology Division; GSA Geoinformatics Division; GSA Geophysics Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Room 615/616/617
328	1:30 p.m.	T21. Using Natural and Anthropogenic Tracers to Determine Recharge and Residence Times within Arid to Semi-Arid Inter-Montane Aquifer Systems (<i>GSA Hydrogeology Division</i>)	WSCC, Room 618/619/620
329	1:30 p.m.	T36. Asthenosphere to Atmosphere: Tectonics, Topography, and Climate (<i>GSA Structural Geology and Tectonics Division</i>)	WSCC, Room 609
330	1:30 p.m.	T52. Biotic Revolutions Recorded in the Trace Fossil Record, Neoproterozoic to Recent II (<i>Paleontological Society; Paleontological Research Institution</i>)	WSCC, Room 606
331	1:30 p.m.	T57. Mercury in the Geologic Record (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i>)	WSCC, Room 607
332	1:30 p.m.	T65. Eco-Evolutionary Dynamics in the Fossil Record (<i>Paleontological Research Institution; Paleontological Society</i>)	WSCC, Room 608

NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
333	1:30 p.m.	T73. Geoscience and the Law: Exploring the Legal and Ethical Issues of Geologic Research and Practice (<i>GSA Geology and Society Division; GSA Academic and Applied Geoscience Relations Committee; GSA Environmental and Engineering Geology Division</i>)	WSCC, Room 611
334	1:30 p.m.	T110. Engaging Students through Course-Based Undergraduate Research Experiences (CURE) across the Geoscience Curriculum (<i>GSA Geoscience Education Division; Council on Undergraduate Research Geosciences Division</i>)	WSCC, Room 2B
335	1:30 p.m.	T121. Natural History Museums in the 21st Century—Programming for the Future While Preserving the Past II (<i>GSA Geoscience Education Division; Paleontological Society; GSA Geoinformatics Division</i>)	WSCC, Room 3A
336	1:30 p.m.	T131. Translating Professional Development Experiences into the Classroom II (<i>GSA Geoscience Education Division; National Association of Geoscience Teachers</i>)	WSCC, Room 2A
337	1:30 p.m.	T160. Coupled Evolution of Magmatic and Sedimentary Systems (<i>GSA Sedimentary Geology Division</i>)	TCC, Skagit 4
338	1:30 p.m.	T170. Rock Transforming to Soil—The Weathering Engine Intersects with the Carbon Cycle (<i>GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Geobiology & Geomicrobiology Division; Paleoclimatology/Paleoceanography</i>)	TCC, Skagit 3
339	1:30 p.m.	T183. Advances and Challenges in Quantifying Sediment Budgets for River Systems (<i>GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division</i>)	TCC, Chelan 4
340	1:30 p.m.	T186. Heterogeneity in Landscape Evolution: Geomorphic Response to Spatially and Temporally Variable Forcings (<i>GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	TCC, Chelan 2
341	1:30 p.m.	T192. Mountain Glaciation and Climate Change of the Past and Present in the Western Americas (<i>GSA Quaternary Geology and Geomorphology Division</i>)	TCC, Chelan 5
342	1:30 p.m.	T199. Basalt Weathering on Earth and Mars (<i>GSA Planetary Geology Division</i>)	TCC, Tahoma 1
343	1:30 p.m.	T214. Late Paleozoic and Early Mesozoic Tectono-Stratigraphy and Biostratigraphy of the NW Pangea Margin: In Dedication to Jim Trexler (<i>GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division</i>)	TCC, Tahoma 2
344	1:30 p.m.	T225. New Perspectives on Cordilleran Tectonics, Paleogeography, and Metallogeny (<i>GSA Sedimentary Geology Division; SEPM [Society for Sedimentary Geology]; Society of Economic Geologists; GSA Structural Geology and Tectonics Division</i>)	TCC, Tahoma 5
345	1:30 p.m.	T233. Tectonics, Geohazards, and Morphodynamics from High-Resolution Topography and Imagery (<i>GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; GSA Structural Geology and Tectonics Division</i>)	TCC, Tahoma 4
346	1:30 p.m.	T255. The Co-Evolution of Life and Its Environment during the Precambrian: The Late Proterozoic Rise of Animals; Climate, Tectonic, and Environmental Dynamics, and the Transition into the Early Paleozoic (<i>Paleontological Society; GSA Sedimentary Geology Division</i>)	TCC, Skagit 5
347	9 a.m.	T79. Geologic Energy Research (Posters) (<i>GSA Energy Geology Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
348	9 a.m.	T80. Geothermal Energy (Posters) (<i>Washington Division of Geology and Earth Resources; GSA Environmental and Engineering Geology Division; GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
349	9 a.m.	D7. Environmental Geoscience (Posters)	WSCC, Halls 4EF
350	9 a.m.	T33. Intersections of Sustainability and Geosciences (Posters) (<i>GSA Geology and Society Division; GSA Karst Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
351	9 a.m.	T150. Chemical Scene Investigations of Large Igneous Provinces II (Posters) (<i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i>)	WSCC, Halls 4EF
352	9 a.m.	T155. Improvements and Challenges in Geochronology: Organizing the Past while Planning for the Future (Posters)	WSCC, Halls 4EF
353	9 a.m.	T143. Curating Physical Samples in a Digital World (Posters) (<i>GSA Geoinformatics Division; Paleontological Society; Society for the Preservation of Natural History Collections; Paleontological Research Institution; Cushman Foundation; GSA Geobiology & Geomicrobiology Division; Association of American State Geologists</i>)	WSCC, Halls 4EF
354	9 a.m.	T144. Drones in Geoscience (Posters) (<i>GSA Environmental and Engineering Geology Division; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF

Sessions Calendar

All Technical Sessions will take place either at The Conference Center (TCC) or the Washington State Convention Center (WSCC). To browse the entire meetings schedule, download GSA's app at community.geosociety.org/gsa2017/mobileapp.

NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
355	9 a.m.	T147. What Can You Do with Geoinformatics? (Posters) (<i>GSA Geoinformatics Division; Geoscience Information Society; American Geosciences Institute; American Geophysical Union; GSA Environmental and Engineering Geology Division; GSA Geoscience Education Division; Association of American State Geologists; GSA Karst Division</i>)	WSCC, Halls 4EF
356	9 a.m.	T183. Advances and Challenges in Quantifying Sediment Budgets for River Systems (Posters) (<i>GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
357	9 a.m.	T186. Heterogeneity in Landscape Evolution: Geomorphic Response to Spatially and Temporally Variable Forcings (Posters) (<i>GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	WSCC, Halls 4EF
358	9 a.m.	T188. Interrelationship between Tectonic Uplift and Quaternary Glaciations on the Tibetan Plateau and Its Surrounding Mountains (Posters)	WSCC, Halls 4EF
359	9 a.m.	T189. Landscapes in the Anthropocene (Posters) (<i>GSA Quaternary Geology and Geomorphology Division; GSA Hydrogeology Division; GSA Sedimentary Geology Division; GSA Limnogeology Division</i>)	WSCC, Halls 4EF
360	9 a.m.	T190. Linking Physical and Ecological Processes from Source-to-Sink to Investigate Multi-Scale Response to Restoration (Posters) (<i>GSA Quaternary Geology and Geomorphology Division; GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Limnogeology Division</i>)	WSCC, Halls 4EF
361	9 a.m.	T192. Mountain Glaciation and Climate Change of the Past and Present in the Western Americas (Posters) (<i>GSA Quaternary Geology and Geomorphology Division</i>)	WSCC, Halls 4EF
362	9 a.m.	T101. Better Together: Partnerships That Facilitate or Enhance Experiential Learning in Undergraduate Geoscience Education (Posters) (<i>GSA Geoscience Education Division; National Association of Geoscience Teachers</i>)	WSCC, Halls 4EF
363	9 a.m.	T105. Building an Inclusive Geoscience Community Today for Tomorrow (Posters) (<i>GSA Geoscience Education Division; GSA Diversity in the Geosciences Committee; GSA Geology and Society Division; National Association of Black Geoscientists</i>)	WSCC, Halls 4EF
364	9 a.m.	T110. Engaging Students through Course-Based Undergraduate Research Experiences (CURE) across the Geoscience Curriculum (Posters) (<i>GSA Geoscience Education Division; Council on Undergraduate Research Geosciences Division</i>)	WSCC, Halls 4EF
365	9 a.m.	T114. Getting It Done: Experiences of Implementing the Framework and NGSS in Earth and Space Science (Posters)	WSCC, Halls 4EF
366	9 a.m.	T4. Approaches to Applied Modeling for Industry and the Public (Posters) (<i>GSA Hydrogeology Division; GSA Geology and Society Division; National Ground Water Association (NGWA); GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
367	9 a.m.	T9. Groundwater Flow in Coastal and Marine Settings: From the Intertidal Zone to the Deep Seafloor (Posters) (<i>GSA Hydrogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geobiology & Geomicrobiology Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
368	9 a.m.	T10. Groundwater Influenced Ecosystems: Springs, Gaining Streams, and Terrestrial Ecosystems (Posters) (<i>GSA Hydrogeology Division; GSA Karst Division; GSA Geobiology & Geomicrobiology Division</i>)	WSCC, Halls 4EF
369	9 a.m.	T11. Hydrogeology of Island Environments in a Changing Climate (Posters) (<i>GSA Hydrogeology Division</i>)	WSCC, Halls 4EF
370	9 a.m.	T12. Hydrogeology, Geochemistry, and Wetland Processes: A Session in Honor of the Career of Donald I. Siegel (Posters) (<i>GSA Hydrogeology Division</i>)	WSCC, Halls 4EF
371	9 a.m.	T15. Monitoring the Complex Nature of Water Balances and Solute Transport at the Groundwater–Surface Water Interface (Posters) (<i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF

NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
372	9 a.m.	T18. Remote Sensing Applications in Hydrology and Geology (Posters) (<i>GSA Hydrogeology Division; GSA Geoinformatics Division; GSA Geophysics Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
373	9 a.m.	T19. Springs: Providing Insights on Critical Groundwater Quality and Quantity Issues (Posters) (<i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Geobiology & Geomicrobiology Division; GSA Karst Division</i>)	WSCC, Halls 4EF
374	9 a.m.	T20. The Critical Zone As Heterogeneous Media: Implications for Physical, Chemical, and Biological Processes (Posters) (<i>GSA Hydrogeology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Geobiology & Geomicrobiology Division; GSA Karst Division</i>)	WSCC, Halls 4EF
375	9 a.m.	T96. Understanding African Environmental History through Continental Scientific Drilling: Past Successes and Future Opportunities (Posters) (<i>GSA Limnogeology Division; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
376	9 a.m.	D47. Marine/Coastal Science (Posters)	WSCC, Halls 4EF
377	9 a.m.	T251. Tsunami Hazards: Innovations in Mapping, Modeling, and Outreach (Posters) (<i>GSA Environmental and Engineering Geology Division; Washington Division of Geology and Earth Resources; GSA Geoinformatics Division</i>)	WSCC, Halls 4EF
378	9 a.m.	T44. Insights from Microfossils, from Traditional to Novel Approaches (Posters) (<i>Cushman Foundation for Foraminiferal Research; Paleontological Research Institution; Paleontological Society; GSA Limnogeology Division; Geochemical Society</i>)	WSCC, Halls 4EF
379	9 a.m.	T46. North Pacific Environment and Paleoclimate from the Late Pleistocene to Present (Posters) (<i>GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Limnogeology Division</i>)	WSCC, Halls 4EF
380	9 a.m.	T63. Cephalopod Paleobiology and Paleoecology: A Tribute to Royal H. Mapes (Posters) (<i>Paleontological Society; SEPM [Society for Sedimentary Geology]; Paleontological Research Institution</i>)	WSCC, Halls 4EF
381	9 a.m.	T161. Petrology Across the Inner Solar System: In Honor of Roebling Medalist Ed Stolper (Posters) (<i>Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division</i>)	WSCC, Halls 4EF
382	9 a.m.	T173. Change Detection Photogrammetry in Earth Science (Posters) (<i>GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division</i>)	WSCC, Halls 4EF
383	9 a.m.	T179. New Concepts in Glaciation of the Western Cordillera of North America (Posters) (<i>GSA Quaternary Geology and Geomorphology Division</i>)	WSCC, Halls 4EF
384	9 a.m.	T181. The Geological Signature of Natural Hazard Events (Posters) (<i>GSA Environmental and Engineering Geology Division; GSA Sedimentary Geology Division</i>)	WSCC, Halls 4EF
385	9 a.m.	D41. Structural Geology (Posters): Analysis of Faulting, Deformation and Flow	WSCC, Halls 4EF
386	9 a.m.	T210. Challenges in Tectonics: Beyond Steady State: New Developments in Understanding Strain Localization Processes and the Rheology of the Lithosphere (Posters) (<i>GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative</i>)	WSCC, Halls 4EF
387	9 a.m.	T212. Geologic Mapping in the Pacific Northwest and Beyond: Recent Maps, Advances, and New Insights: In Memory of Russell C. Everts and his Extensive Contributions to Pacific Northwest Geologic Mapping (Posters) (<i>Washington Division of Geology and Earth Resources; GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
388	9 a.m.	T219. Challenges in Tectonics: Dynamic Interactions among Earth-Surface Processes, Landscape Evolution, and Tectonics (Posters) (<i>GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; SEPM [Society for Sedimentary Geology]; Future of Tectonics Initiative</i>)	WSCC, Halls 4EF
389	9 a.m.	T225. New Perspectives on Cordilleran Tectonics, Paleogeography, and Metallogeny (Posters) (<i>GSA Sedimentary Geology Division; SEPM [Society for Sedimentary Geology]; Society of Economic Geologists; GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF

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NO.	TIME	SPONSOR/DESCRIPTION	LOCATION
390	9 a.m.	T229. Paleocene-Eocene Tectonic and Magmatic Evolution of the Pacific Northwest (Posters) (<i>GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i>)	WSCC, Halls 4EF
391	9 a.m.	T233. Tectonics, Geohazards, and Morphodynamics from High-Resolution Topography and Imagery (Posters) (<i>GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; GSA Structural Geology and Tectonics Division</i>)	WSCC, Halls 4EF
392	9 a.m.	D37. Volcanology (Posters)	WSCC, Halls 4EF
393	9 a.m.	T165. Recent Advances in Understanding Volcanism of the Yellowstone Hotspot (Posters)	WSCC, Halls 4EF

Technical Sessions

Meeting policy prohibits the use of cameras or sound-recording equipment at technical sessions and poster sessions.



A no-smoking policy has been established by the Program Committee and will be followed in all meeting rooms for technical sessions.

AM

SUNDAY

NOTICE

In the interest of public information, the Geological Society of America provides a forum for the presentation of diverse opinions and positions. The opinions (views) expressed by speakers and exhibitors at these sessions are their own and do not necessarily represent the views or policies of the Geological Society of America.



NOTE INDEX SYSTEM

Numbers (3-4, 15-4) indicate session and order of presentation within that session.

* denotes speaker

* Industry Tracks

Look for these icons to identify sessions relevant to applied geoscientists:

\$ Economic Geology

⏻ Energy

⚙ Engineering Geology

💧 Hydrogeology & Environmental Geology

SUNDAY, 22 OCTOBER 2017

ORAL TECHNICAL SESSIONS

SESSION NO. 1

D13. Paleontology, Phylogenetic/Morphological Patterns: Invertebrates

8:00 AM, Washington State Convention Center, Room 604

James C. Lamsdell and Melanie J. Hopkins, Presiding

- | | | | | | |
|-----|---------|---|------|----------|--|
| 1-1 | 8:00 AM | Hopkins, Melanie J.*; Lamsdell, James C.: NO CHANGE IN MORPHOLOGICAL DISPARITY IN LICHID TRILOBITES ACROSS THE END-ORDOVICIAN EXTINCTION | 1-7 | 9:30 AM | Robins, Cristina M.*; Klompaker, Adiel A.: THE MOST DIVERSE FOSSIL SQUAT LOBSTER ASSEMBLAGE IN THE WORLD |
| 1-2 | 8:15 AM | Lamsdell, James C.*; Hopkins, Melanie J.: PHYLOGENY AND EVOLUTIONARY HISTORY OF LICHID TRILOBITES | | 9:45 AM | BREAK |
| 1-3 | 8:30 AM | Roberson, R. Philip*; Casey, Michelle M.: MORPHOMETRIC VARIABILITY WITHIN ASTARTE FROM THE PLIOCENE OF THE ATLANTIC COASTAL PLAIN | 1-8 | 10:00 AM | Garcia, Elvira A.*; Molinaro, Darrin J.; Leighton, Lindsey R.: TESTING THE FUNCTION OF PRODUCTIDE BRACHIOPOD SPINES ON ARENACEOUS SUBSTRATES USING 3D PRINTED MODELS |
| 1-4 | 8:45 AM | Jacobs, Gabriel*; Carlucci, Jesse R.: GEOMETRIC MORPHOMETRIC ONTOGENY OF CALYPTAULAX: PATTERNS OF PHYSIOLOGICAL CHANGE AT THE MERASPID-HOLASPID TRANSITION IN PHACOPIIDS | 1-9 | 10:15 AM | Carlson, Sandra J.*; Bapst, David W.; Robinson, Jeffrey H.; Rudman, Eli A.; Lopez-Carranza, Natalia: TEREBRATULINA: IS 81 SPECIES TOO MANY? |
| 1-5 | 9:00 AM | LaVine, Rhiannon J.*; Webster, Mark: ASSESSING THE STRUCTURE OF INTEGRATION IN THE CEPHALON OF THE MIDDLE CAMBRIAN AGNOSTINE ARTHROPOD PERONOPSIS BRIGHAMENSIS | 1-10 | 10:30 AM | Plotnick, Roy E.*; Hagadorn, James W.; Young, Graham A.: THE MAZON CREEK CNIDARIAN ESSEXELLA: THE WORLD TURNED UPSIDE DOWN |
| 1-6 | 9:15 AM | Schwimmer, David R.*; Montante, William M.: A CAMBRIAN MERASPID CLUSTER: EVIDENCE OF TRILOBITE EGG DEPOSITION | 1-11 | 10:45 AM | Sprinkle, James*; Guensburg, Thomas E.: THE CONVOLUTED HISTORY OF PARACRINOIDS AND RHIPIDOCYSTIDS (BLASTOZOAN ECHINODERMS) DURING THE ORDOVICIAN RADIATION |
| | | | 1-12 | 11:00 AM | Smith, Nicholas S.*; Nardin, Elise; Nohejlová, Martina; Deline, Bradley: THE EVOLUTION OF BLASTOZOAN MORPHOLOGY: EXPLORING THE DISPARITY OF EOCHRINOIDS |
| | | | 1-13 | 11:15 AM | Swisher, Robert*; Webster, Mark: MORPHOLOGICAL VARIATION, ONTOGENY, AND ORIGIN OF ZACANTHOIDID TRILOBITES: A GEOMETRIC MORPHOMETRIC ANALYSIS OF THE EARLY CAMBRIAN GENUS ZACANTHOPSIS |
| | | | 1-14 | 11:30 AM | Anderson, Brendan M.*; Allmon, Warren D.: THE EVOLUTION AND DIVERSIFICATION OF THE "VERMICULARIINAE" (GASTROPODA: TURRITELLIDAE) |

1-15 11:45 AM Moore, John L.*; Porter, Susannah M.: **EARLY ONTOGENY OF THE SHELLS OF PELAGIELLID MOLLUSCS AND HYOLITHS FROM THE CAMBRIAN (DYERAN) PIOCHE FORMATION, SOUTHEASTERN NEVADA**

SESSION NO. 2

D29. Investigations in Economic Geology

8:00 AM, The Conference Center, Skagit 5

Jeffrey L. Mauk and Niki E. Wintzer, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 2-2 8:15 AM Burke, Michelle*; Krekeler, Mark P.S.; Rakovan, John: **AN ELECTRON MICROSCOPY STUDY OF GOLD FROM ROUND MOUNTAIN**
- 2-3 8:30 AM Mauk, Jeffrey L.*; Menzies, Andrew; Koenig, Alan E.; Scheller, Samuel; Gosselin, Manon; Barraza, Monserrat; Tagle, Roald; Gloy, Gerda: **QEMSCAN AND MICRO-XRF ANALYSES REVEAL THE LOCATION OF AU IN BANDED EPITHERMAL VEINS**
- 2-4 8:45 AM Haroldson, Erik*; Brown, Philip; Ishida, Akizumi; Valley, John: **PHANEROZOIC FLUIDS PERMEATING A PRECAMBRIAN GOLD DEPOSIT EXAMINED BY SIMS: IMPLICATIONS FOR REMOBILIZATION OF GOLD**
- 2-5 9:00 AM Mering, John*; Barker, Shaun L.L.: **APPLYING LASER SPECTROSCOPY TO MEASURE D/H IN PHYLLOSILICATES: A NEW TOOL FOR EXPLORING HYDROGEN ISOTOPE VARIATION IN GEOLOGIC SYSTEMS**
- 2-6 9:15 AM Wang, Yicun*; WANG, Keyong; Campbell, Clay: **N₂-RICH FLUID IN THE VEIN-TYPE YANGJINGOU SCHEELITE DEPOSIT, YANBIAN, NE CHINA**
- 2-7 9:30 AM Wintzer, Niki E.*; Gillerman, Virginia S.; Schmitz, Mark D.: **U-PB SCHEELITE LA-ICP-MS DATES FROM THE HISTORIC YELLOW PINE PIT, YELLOW PINE AU-SB-W MINING AREA, CENTRAL IDAHO, USA**
- 9:45 AM **BREAK**
- 2-8 10:00 AM Covington, James Howard*: **PALEO-TOPOGRAPHY IN THE CRETACEOUS/TERTIARY ANGULAR UNCONFORMITY AND ITS INFLUENCE ON URANIUM MINERALIZATION IN SHIRLEY BASIN, WYOMING**
- 2-9 10:15 AM DeDecker, John*; Monecke, Thomas: **CHLORITE ALTERATION OF PRE-ORE PYRITE AT THE MCARTHUR RIVER URANIUM DEPOSIT, ATHABASCA BASIN: POSSIBLE IMPLICATIONS TO ORE DEPOSITION**
- 2-10 10:30 AM Khadka, Dharma Raj*: **CHARACTERIZATION OF STRATABOUND POLYMETALLIC SULFIDE DEPOSIT OF ERAUTAR-ILAM IN THE LESSER HIMALAYA OF EASTERN NEPAL**
- 2-11 10:45 AM Sack, Richard O.*: **FAHLORE THERMOCHEMISTRY: GAPS INSIDE THE (CU,AG)₁₀(FE,ZN)₂(SB,AS)₄S₁₃ CUBE**
- 2-12 11:00 AM Keith, Jeffrey D.*; Christiansen, Eric H.; Biek, Robert F.; Thompson, Timothy J.; McBride, John; Harris, Ron A.; Thayn, Scott; Harrison, Cameron; Jensen, Collin; Chadburn, Ryan: **PROPOSED MEGA-LANDSLIDE ORIGIN FOR THE EAST TRAVERSE MOUNTAINS, UTAH – EVIDENCE FROM PEBBLE DIKES**
- 2-13 11:15 AM Pires, Fernando Roberto M.*; Fonseca, Marco Antonio: **BRAZILIAN EMERALD DEPOSITS – MINERALOGICAL AND PETROLOGICAL CONTROL**
- 2-14 11:30 AM Smith, Steven M.*; Boulemlia, Salim; Zouai, Messaoud; Moussaoui, Abdallah; Belanteur, Nadjib; Taylor, Cliff D.: **COOPERATION, COMPROMISE, AND CREATIVITY: EXPLORING FOR DIAMONDS IN THE SAHARA DESERT OF ALGERIA**

SESSION NO. 3

D49. Recent Advances in Precambrian Geology

8:00 AM, Washington State Convention Center, Room 3A

Ross Mitchell and C. Brenhin Keller, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 3-1 8:15 AM Liu, Chao*; Knoll, Andrew H.; Hazen, Robert M.: **WHAT'S UP WITH RODINIA?**
- 3-2 8:30 AM Mitchell, Ross*; Collins, William Joseph; Cox, Grant M.; Martin, Erin; Murphy, J. Brendan; Spencer, Christopher J.; Raub, Timothy D.; Li, Zheng-Xiang: **A TALE OF TWO ARCS: STARTING AND STOPPING SNOWBALL EARTH**
- 3-3 8:45 AM Zakharov, David*; Bindeman, Ilya N.; Friðleifsson, Guðmundur Ó.; Reed, Mark: **TRIPLE OXYGEN AND HYDROGEN ISOTOPES IN SYN-GLACIAL HYDROTHERMALLY ALTERED ROCKS: COMPARISON BETWEEN MODERN ROCKS OF ICELAND AND SNOWBALL EARTH AGE ROCKS FROM THE BALTIC SHIELD**
- 3-4 9:00 AM Bekker, Andrey*; Berni, Gabriel Valentim; Cabrial, Alexandre R.; Davis, Donald; Karhu, Juha: **LOMAGUNDI CARBON-ISOTOPE EXCURSION ON THE AMAZONIAN CRATON**
- 9:15 AM **BREAK**
- 3-5 9:30 AM Keller, C. Brenhin*; Schoene, Blair: **RAPID CHANGES IN CRUSTAL DIFFERENTIATION ACROSS THE ARCHEAN-PROTEROZOIC BOUNDARY**
- 3-6 9:45 AM Brengman, Latisha Ashley*; Fedo, Christopher M.; Whitehouse, Martin J.: **SILICON ISOTOPE STRATIGRAPHY OF 2.728 TO 2.722 GA IRON FORMATION AND ASSOCIATED SILICIFIED ROCKS FROM THE ABITIBI GREENSTONE BELT, CANADA**
- 3-7 10:00 AM Rosière, Carlos*; Bekker, Andrey; Rolim, Vassily K.; Santos, João O.S.: **POST-GOE IRON FORMATIONS OF THE SÃO FRANCISCO CRATON: FILLING THE GAP IN IRON FORMATION RECORDS**

SESSION NO. 4

T5. Arsenic and Other Geogenic Contaminants in Groundwater Resources: Linking Water Quality, Food Security, and Treatment I (GSA Hydrogeology Division; GSA Geology and Health Division; GSA International/International Interdisciplinary Interest Group; International Society of Groundwater for Sustainable Development (ISGSD); International Medical Geology Association; GSA Environmental and Engineering Geology Division; GSA Geobiology & Geomicrobiology Division)

8:00 AM, Washington State Convention Center, Room 618/619/620

Prosun Bhattacharya, Abhijit Mukherjee, Saugata Datta, Mohammad Alauddin, Karen Johannesson, Jochen Bundschuh and Arslan Ahmad, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 4-1 8:05 AM Carling, Gregory T.*; Selck, Brian J.; Kirby, Stefan; Hansen, Neil C.; Bickmore, Barry R.; Rey, Kevin A.; Tingey, David G.; Wallace, Janae; Jordan, J. Lucy: **NATURAL AND ANTHROPOGENIC SOURCES OF ARSENIC AND NITRATE IN A SEMI-ARID ALLUVIAL BASIN; GOSHEN VALLEY, UTAH, USA**
- 4-2 8:20 AM Erickson, Melinda L.; Berquist, Emily*; Malenda, Helen F.: **ARSENIC CONCENTRATION VARIABILITY IN NEWLY CONSTRUCTED DRINKING WATER WELLS IN MINNESOTA, USA**
- 4-3 8:40 AM Olson, Joshua C.*; Bahr, Jean M.; Gotkowitz, Madeline B.; Roden, Eric E.: **LONG-TERM ALTERATIONS IN GROUNDWATER CHEMISTRY INDUCED BY MUNICIPAL WELL PUMPING**
- 4-4 8:55 AM Zhang, Liwei*; Parthasarathy, Hariprasad; Wang, Yan; Li, Xiaochun; Karamalidis, Athanasios K.: **A NUMERICAL SIMULATION STUDY OF SUBSURFACE ARSENOPYRITE**

- DISSOLUTION AND ARSENIC MIGRATION UNDER GEOLOGIC CARBON STORAGE CONDITIONS**
- 4-5 9:10 AM Ramsey, Ashley*; Szykiewicz, Anna: **ASSESSMENT OF ARSENIC AND TRACE METAL CONTAMINATIONS IN RIVERINE WATER AND SEDIMENTS RESULTED FROM THE COAL ASH SPILL IN KINGSTON, TENNESSEE**
- 4-6 9:25 AM Shepherd, Forest*; Knappett, Peter; Hettiarachchi, Ganga; Li, Yanmei; Rodriguez, Rodrigo; Gonzalez, Viridiana; Torres, Dulce; Jasso, Manuel; Thurston, William; Datta, Saugata: **GEOCHEMICAL MECHANISMS EXPLAINING TOXIC CONCENTRATIONS OF DISSOLVED ARSENIC AND FLUORIDE IN THE INDEPENDENCE AQUIFER**
- 9:40 AM **BREAK**
- 4-7 9:55 AM Harkness, Jennifer S.*; Mathewson, Paul; Cook, Tyson; Darrah, Thomas; Moore, Myles T.; Whyte, Colin; Vengosh, Avner: **THE ORIGIN OF ELEVATED MOLYBDENUM IN SOUTHEAST WISCONSIN GROUNDWATER**
- 4-8 10:15 AM Sherif, M.I.*; Sturchio, N.C.: **GEOLOGICAL AND HYDROGEOCHEMICAL CONTROLS ON RADIUM AND URANIUM ISOTOPES IN GROUNDWATER OF THE EASTERN DESERT OF EGYPT**
- 4-9 10:30 AM Aguilar-Carrillo, Javier*; Herrera García, Lidya: **THALLIUM(I) SEQUESTRATION BY MN- AND FE-BEARING SECONDARY MINERALS: STRUCTURAL INCORPORATION VS SURFACE SORPTION**
- 4-10 10:45 AM Avsar, Ozgur; Arslan, Sebnem*: **HEAVY METAL POLLUTION IN KOYCEGIZ-DALYAN COASTAL LAGOON WATERSHED (MUGLA) SW TURKEY: AN INDEXING APPROACH**
- 4-11 11:00 AM Ijumulana, Julian*; Bhattacharya, Prosun; Mtalo, Felix: **SPATIAL STATISTICS: A TOOL FOR SPATIAL ANALYSIS OF GEOCONTAMINANTS IN GROUNDWATER**
- 4-12 11:15 AM Ijumulana, Julian; Lucca, Enrico*; Bhattacharya, Prosun; Mtalo, Felix: **MINERAL SOLUBILITY CONTROLS ON DRINKING WATER QUALITY IN THE AREAS OF GOLD MINING IN GEITA AND MARA REGIONS OF NORTHERN TANZANIA**
- 11:30 AM **DISCUSSION**

SESSION NO. 5

T13. In Honor of John M. (Jack) Sharp Jr.: Celebrating over 40 Years of Science, Students, and Stewardship I (GSA Hydrogeology Division; International Association of Hydrogeologists)

8:00 AM, Washington State Convention Center, Room 615/616/617
 Marcus O. Gary, Wendy M. Robertson, Brad David Wolaver and Todd Halihan, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 5-1 8:15 AM Halihan, Todd*; Sharp, Carol E.: **GROUNDWATER STUDENT INTERACTIONS: THE FLOWPATH OF JOHN M. SHARP, JR**
- 5-2 8:30 AM McKenna, Thomas E.*: **JACK SHARP'S MEINZER AND MISSOURI YEARS (1974-1982) AND THE ADVENT OF NUMERICAL SEDIMENTARY BASIN MODELING**
- 5-3 8:45 AM Bahr, Jean M.*; Gellasch, Christopher A.; Sellwood, Stephen M.; Olson, Joshua C.: **URBAN HYDROGEOLOGY OF THE UPPER MIDWESTERN CAMBRIAN-ORDOVICIAN SANDSTONE AQUIFER (Invited Presentation)**
- 5-4 9:05 AM Gellasch, Christopher A.*; Cintron, Nicole M.; Honey, Jonathan; Fisher, Andmorgan: **EVALUATING SOURCES OF SURFACE WATER CONTAMINATION IN A MIXED-USE WATERSHED NEAR WASHINGTON, D.C**
- 5-5 9:20 AM Carsillo, Vince*; Nyquist, Jonathan; Wong, Tyler; Toran, Laura: **MAPPING WATER INFILTRATION OF URBAN SOILS USING ELECTROMAGNETIC INDUCTION AND TIME-LAPSE ELECTRICAL RESISTIVITY TOMOGRAPHY**

- 5-6 9:35 AM Rogers, Daniel T.*: **ADVANCEMENTS IN URBAN HYDROGEOLOGICAL INVESTIGATIONS**
- 9:50 AM **BREAK**
- 5-7 10:05 AM Bobeck, Patricia Ann*: **PARAMELLE, DARCY, AND THEIR APPROACHES TO HYDROGEOLOGY**
- 5-8 10:20 AM Simmons, Craig T.*: **VARIABLE DENSITY GROUNDWATER FLOW: HISTORICAL ACHIEVEMENTS AND FUTURE CHALLENGES (Invited Presentation)**
- 5-9 10:40 AM Setlur, Neeraja*; Valdez, Bianca; De Luna, Amy; Craycroft, Roger; Houpt, Hayden; Rempe, Daniella M.; Cardenas, M. Bayani; O'Connor, Michael T.; Kaufman, Matthew H.; Carlson, Peter E.; Ferencz, Stephen B.; Roback, Robert; Perkins, George; Gomez-Velez, Jesus D.: **INVESTIGATING MORPHOLOGICAL CONTROLS ON HYPORHEIC EXCHANGE IN A MEANDERING RIVER**
- 5-10 10:55 AM Grannemann, Norman G*: **GROUNDWATER FROM GLASGOW TO THE GREAT LAKES**
- 5-11 11:10 AM Brock-Hon, Amy L.*; Hon, Kevin D.: **A GEOPHYSICAL INVESTIGATION OF THREE CLOSED TOPOGRAPHIC DEPRESSIONS ATOP THE CUMBERLAND PLATEAU, TENNESSEE**
- 5-12 11:25 AM Tagne, G.*; Dowling, Carolyn B.: **INFERRING GROUNDWATER FLOW AND RECHARGE FROM STORM RESPONSES IN THE CUMBERLAND PLATEAU SINKHOLE PLAIN OF SOUTHEASTERN KENTUCKY**
- 11:40 AM **DISCUSSION**

SESSION NO. 6

T14. Lead Them to Water: Teaching Innovative Hydrogeology (GSA Hydrogeology Division; GSA Geoscience Education Division)

8:00 AM, Washington State Convention Center, Room 613/614
 Peter E. Riemersma, Laura S. Ruhl and Thomas Darrah, Presiding

- 6-1 8:00 AM Arthurs, Leilani*: **DRAWING ON STUDENTS' PRIOR KNOWLEDGE OR (MIS)CONCEPTIONS DURING CLASSROOM INSTRUCTION TO FACILITATE THEIR DEVELOPMENT OF DEEPER UNDERSTANDINGS ABOUT GROUNDWATER AND AQUIFERS**
- 6-2 8:15 AM Larson, Erik B.*: **TEACHING GROUNDWATER HYDROLOGY PRINCIPLES INEXPENSIVELY: PERMEAMETERS AND DARCY'S LAW**
- 6-3 8:30 AM Ruhl, Laura S.; Shroat-Lewis, René A.*: **INCORPORATING SERVICE LEARNING INTO A HYDROGEOLOGY COURSE**
- 6-4 8:45 AM Ward, James W.*; Lagmanson, Markus; Lehto, Heather: **INCLUDING STAKEHOLDERS IN HYDRO-GEOPHYSICS EDUCATION: ASU INDUSTRY APPRECIATION DAYS 2016**
- 6-5 9:00 AM Riemersma, Peter E.*: **EXPLORING HYDROGEOLOGICAL ENVIRONMENTS USING THE UNITED STATES GEOLOGICAL SURVEY'S HYDROLOGIC INVESTIGATIONS ATLASES**
- 6-6 9:15 AM Lee, David Robert*: **USING SEEPAGE METERS AND MINI-PIEZOMETERS TO TEACH HYDROGEOLOGY**
- 9:30 AM **BREAK**
- 6-7 9:45 AM Isiorho, K. Solomon A.*: **IMMERSING STUDENTS INTO WATER RESEARCH: UTILIZING OVER A DECADE WELL FIELD DATA**
- 6-8 10:00 AM Vulava, Vijay M.*; Callahan, Timothy J.: **EXPLORING WATER RESOURCES IN A FIELD EXPERIENCES SETTING: A STUDY ABROAD COURSE IN NORTHERN INDIA**
- 6-9 10:15 AM Knappett, P.S.K.*: **FIELD-BASED RESEARCH AND INFORMAL COMMUNITY ENGAGEMENT IN DEVELOPING COUNTRIES**
- 6-10 10:35 AM Reeves, Donald M.*; Hampton, Duane R.; Howe, Thomas; Greene, Daniel G.: **APPLIED HYDROGEOLOGY FIELD**

TRAINING: AN EXAMPLE FROM THE WMU AQUIFER TESTING MODULE

6-11 10:50 AM Kneeshaw, Tara*; Howe, Thomas: **AN ALL-INCLUSIVE FIELD-BASED APPROACH TO TEACHING GROUNDWATER SAMPLING AND MONITORING**

6-12 11:05 AM Brame, Scott*; Murdoch, Lawrence C.: **AN ON-LINE, HANDS-ON HYDROGEOLOGY FIELD CAMP**

11:20 AM **DISCUSSION**

SESSION NO. 7 

T17. Polar and Alpine Changes (GSA Hydrogeology Division; GSA Geobiology & Geomicrobiology Division; GSA Limnogeology Division)

8:00 AM, Washington State Convention Center, Room 612

W. Berry Lyons, Presiding

8:00 AM **BREAK**

7-1 8:15 AM Melton, Sierra M.*; Natali, Susan M.; Schade, John D.; Holmes, Robert Max; Mann, Paul James; Fiske, Gregory J.: **RESPONSE OF CARBON FLUXES TO SOIL MOISTURE VARIABILITY ACROSS AN ALASKAN TUNDRA LANDSCAPE**

7-2 8:30 AM DeFranco, Karyn*: **RADIONUCLIDE PROFILES AND CARBON ACCRUAL IN PERMAFROST SOIL AT TOOLIK LAKE, ALASKA**

7-3 8:45 AM Zipper, Samuel C.*; Lamontagne-Halle, Pierrick; Rocha, Adrian V.; McKenzie, Jeffrey M.: **GROUNDWATER-PERMAFROST INTERACTIONS FOLLOWING FIRE: WATER AND ENERGY BALANCE EFFECTS**

7-4 9:00 AM Loisel, Julie*; Yu, Zicheng; Beilman, David W.; Kaiser, Karl; Parnikoza, Ivan: **PAST AND PRESENT PEATLAND DEVELOPMENT IN ANTARCTICA UNDER WARM CLIMATES**

7-5 9:15 AM Gooseff, Michael*; Cozzetto, Karen; McKnight, Diane M.; Hawes, Ian; Howard-Williams, Clive; Castendyk, Devin; Rajagopalan, Balaji; Lyons, W. Berry: **WHAT DOES THE NEARLY 50-YEAR RECORD OF STREAMFLOW ON THE ONYX RIVER, ANTARCTICA TELL US ABOUT RECENT CLIMATE DYNAMICS?**

7-6 9:30 AM Lyons, W. Berry*; Welch, Kathleen A.; Priscu, John C.; Doran, Peter: **PHYSICAL AND GEOCHEMICAL CHANGES IN TWO ANTARCTIC FRESHWATER LAKES THROUGH TIME**

9:45 AM **BREAK**

7-7 10:00 AM Evans, Sarah G.*; Ge, Shemin; Voss, Clifford I.; Molotch, Noah P.: **POTENTIAL SHIFTS IN GROUNDWATER DISCHARGE AS SNOWMELT-DOMINATED WATERSHEDS WARM**

7-8 10:15 AM Fields, Jordan*; Dethier, David P.; Williams, Noah N.: **FROM ON HIGH: THE GEOCHEMISTRY OF ALPINE SPRINGS, NIWOT RIDGE, COLORADO FRONT RANGE**

7-9 10:30 AM Glade, Rachel C.*; Lanka, Dylan J.; Anderson, Suzanne P.; Anderson, Robert S.: **LEGIONS OF LOBES: SELF-ORGANIZATION AND MOVEMENT OF SOLIFLUCTION FEATURES AT NIWOT RIDGE**

7-10 10:45 AM Trombotto Liaudat, Dario*; Bottegai, Estefanía; Sileo, Noelia; Dapeña, Cristina: **THAWING AND INCREASED RUNOFF IN THE ANDEAN ROCK GLACIERS DURING THE GLOBAL WARMING OF THE PAST DECADE**

7-11 11:00 AM All, John*; All, John; Balgord, Elizabeth; Sofield, Ruth; Pratt, Jeff; Patel, Daksha; Bain, Ed; Wallis, Lindsay: **HYDROLOGIC IMPACTS OF RAPID GLACIAL RETREAT IN THE CORDILLERA BLANCA, PERU**

7-12 11:15 AM Kochel, R. Craig*; Jacob, Robert W.; Trop, Jeffrey M.; Lapzynski, Kim; Logan, Sandra: **CRITICAL LIFELINES FOR ALPINE GLACIERS DECOUPLED FROM ICECAPS:**

MASS FLOW CONTRIBUTION FROM ICY DEBRIS FANS IN ALASKA AND NEW ZEALAND

11:30 AM **CONCLUDING REMARKS AND DISCUSSION**

SESSION NO. 8

T42. Glacier and Ice Sheet Grounding Lines: Contemporary and Past Observations of Grounding Line Processes, Behavior, and Landforms

8:00 AM, The Conference Center, Yakima 1

Nicholas D. Holschuh, Lauren M. Simkins, Alexander Robel and John B. Anderson, Presiding

8:00 AM **INTRODUCTORY REMARKS**

8-1 8:05 AM Seroussi, Helene*: **GROUNDING LINE PROCESSES AND ICE SHEET MODELS (Invited Presentation)**

8-2 8:25 AM Damsgaard, Anders*: **DISCRETE-ELEMENT SIMULATION OF SUBGLACIAL SEDIMENTS: GROUNDING-LINE PROXIMATE TILL MECHANICS AND SOFT-BED CHANNEL DYNAMICS (Invited Presentation)**

8-3 8:45 AM Dowdeswell, Julian A.*: **THE GEOMORPHIC SIGNATURE OF PAST ICE-SHEET GROUNDING LINES IN THE MARINE RECORD (Invited Presentation)**

9:05 AM **BREAK**

8-4 9:20 AM Christ, Andrew J.*; Marchant, David R.: **A TERRESTRIAL PERSPECTIVE OF THE LGM IN MCMURDO SOUND, ANTARCTICA: IMPLICATIONS FOR MARINE ICE SHEET DYNAMICS, ICE FLOW, AND DEGLACIATION OF THE ROSS SEA EMBAYMENT**

8-5 9:35 AM Anderson, John B.*; Simkins, Lauren; Greenwood, Sarah; Demet, Brian; Halberstadt, Anna Ruth; Prothro, Lindsay: **ROLE OF GROUNDING ZONE WEDGES IN GROUNDING LINE STABILIZATION: CASE STUDY FROM ROSS SEA**

8-6 9:50 AM Prothro, Lindsay O.*; Simkins, Lauren M.; Majewski, Wojciech; Anderson, John B.: **SEDIMENTARY PROCESSES AT PALEO-GROUNDING LINES: GLACIAL AND OCEANOGRAPHIC INTERACTIONS DURING ICE-SHEET RETREAT**

8-7 10:05 AM Cowan, Ellen A.*; Zellers, Sarah D.; Gulick, Sean S.P.; Müller, Juliane; Caissie, Beth E.: **AUTOGENIC CONTROLS PROLONGED LAST GLACIAL MAXIMUM GROUNDING LINE RETREAT OF THE BERING ICE STREAM**

8-8 10:20 AM Demet, Brian P.*; Nittrouer, Jeffrey A.; Anderson, John B.; Simkins, Lauren M.: **SEDIMENTARY PROCESSES AT ICE SHEET GROUNDING-ZONE WEDGES: EXAMPLES FROM ANTARCTICA AND WASHINGTON STATE (U.S.A.)**

SESSION NO. 9

T45. Miocene–Pliocene Terrestrial Ecosystem Response to the Climate System I (Paleontological Society; GSA Limnogeology Division)

8:00 AM, Washington State Convention Center, Room 609

Kevin Uno and Tammo Reichgelt, Presiding

8:00 AM **INTRODUCTORY REMARKS**

9-1 8:10 AM Warny, Sophie*; Askin, Rosemary: **EVOLUTION OF ANTARCTIC VEGETATION COVER IN THE MIO-PLIocene: A REVIEW OF CASE STUDIES FROM THE ANTARCTIC PENINSULA, THE ROSS SEA AND THE DRY VALLEYS (Invited Presentation)**

9-2 8:30 AM Dalton, Colleen A.; Herbert, Timothy D.*; Carchedi, Christopher: **LATE MIOCENE GLOBAL COOLING DRIVEN BY A DECLINE IN PLATE TECTONIC CO2 RELEASE**

9-3 8:45 AM Burls, Natalie*; Fedorov, Alexey V.: **WETTER SUBTROPICS IN A WARMER WORLD: CONTRASTING PAST AND FUTURE HYDROLOGICAL CYCLES**

9-4 9:00 AM Ao, Hong*: **MIOCENE–PLIOCENE CLIMATE TRANSITION IN EAST ASIA LINKED TO MOUNTAIN UPLIFT**

- 9-5 9:15 AM Romero, Ingrid*; Escobar, Jaime H.; Jaramillo, Carlos; Bayona, German; Zavada, Michael S.; Punyasena, Surangi W.: **DETERMINING THE TIMING OF NEOTROPICAL GRASSLAND EXPANSION USING MIOCENE SEDIMENTS FROM THE LLANOS BASIN, COLOMBIA**
- 9-6 9:30 AM Andrae, Jake W.*; McInerney, Francesca A.; Polissar, Pratigya J.; Hall, Tony; Tyler, Jonathan J.: **THE NEOGENE EXPANSION OF C4 DOMINATED ECOSYSTEMS: AN AUSTRALIAN PERSPECTIVE**
- 9-7 9:45 AM Karp, Allison T.*; Behrensmeyer, Anna K.; Freeman, Katherine H.: **MOLECULAR EVIDENCE SUGGESTS AN ACTIVE FIRE-FEEDBACK TRIGGERED LATE MIOCENE C₄ GRASSLAND EXPANSION ON THE INDIAN SUBCONTINENT**
- 10:00 AM **BREAK**
- 9-8 10:15 AM Thomas, Brian C.*: **POSSIBLE LINKAGE BETWEEN SUPERNOVAE, INCREASED TERRESTRIAL LIGHTNING, AND WILDFIRE ACTIVITY IN THE LATE MIOCENE AND EARLY PLEISTOCENE**
- 9-9 10:30 AM Fletcher, Tamara*; Feng, Ran; Brown, Kendrick; Warden, Lisa; Csank, Adam; Higuera, Phillip; Rybczynski, Natalia; Otto-Bleisner, Bette; Ballantyne, Ashley: **VEGETATION AND FIRE: FEEDBACKS TO PLIOCENE ARCTIC CLIMATE**
- 9-10 10:45 AM Grant, George W.*; Barker, Joel D.: **ARCTIC CLIMATIC RECONSTRUCTION USING A PLIOCENE FOREST DEPOSIT, ELLESMERE ISLAND, CANADA**
- 9-11 11:00 AM Otiniano, Gerard A.*; Porter, Trevor J.; Feakins, Sarah J.; Benowitz, Jeff A.; Bakkelund, Aleesha M.P.; Bond, Jeffrey D.; Froese, Duane G.: **PRECIPITATION ISOTOPE-BASED RECONSTRUCTION OF PLIOCENE TEMPERATURES IN ALASKA AND YUKON FROM FOSSIL PLANT N-ALKANOIC ACIDS**
- 9-12 11:15 AM Reichgelt, Tammo*; Kennedy, Elizabeth; Conran, John; Lee, Daphne: **PALEOBOTANICAL EVIDENCE FOR MIOCENE SUMMER MOISTURE DEFICITS IN SOUTHERN NEW ZEALAND**
- 9-13 11:30 AM Kay, Richard F.*; Spradley, Jackson P.; Glazer, Bryan: **MAMMALIAN FAUNAS, ECOLOGICAL INDICES, AND MACHINE-LEARNING REGRESSION FOR THE PURPOSE OF PALEOENVIRONMENT RECONSTRUCTION IN THE MIOCENE OF SOUTH AMERICA**
- 9-14 11:45 AM Uno, Kevin T.*; Hill, Andrew; Bibi, Faysal; Kraatz, Brian P.; Beech, Mark: **PALEOECOLOGY OF THE ARABIAN PENINSULA DURING THE LATE MIOCENE FROM FOSSIL TOOTH ENAMEL AND PLANT WAX BIOMARKERS**
- 10-4 8:45 AM Liow, Lee Hsiang*; Di Martino, Emanuela; Reitan, Trond; Voje, Kjetil Lysne; Taylor, Paul D.: **HOW DOES A WINNER EQUIP ITSELF? A TRAIT-BASED ANALYSIS OF COMPETITIVE OUTCOMES OVER 2 MILLION YEARS**
- 10-5 9:00 AM Fenton, Isabel S.*; Pearson, Paul N.; Ezard, Thomas H.G.; Purvis, Andy: **TESTING THE CONCEPT OF SIMPSONIAN ADAPTIVE ZONES IN NEOGENE PLANKTONIC FORAMINIFERA**
- 10-6 9:15 AM Ahrens, Heather E*: **DIRECTIONAL SELECTION, MACROEVOLUTIONARY RATCHET, AND THE DIVERSIFICATION AND EXTINCTION OF NORTH AMERICAN CREODONTA (MAMMALIA)**
- 10-7 9:30 AM Price, Samantha A.*; Barrett, Paul Z.; Perdue, Genevieve; Hopkins, Samantha S.B.: **THE TOOTH OF THE MATTER: ECOMORPHOLOGY ELUCIDATES COMPLEX EVOLUTIONARY DYNAMICS ACROSS FOSSIL AND LIVING CARNIVORA (Invited Presentation)**
- 9:50 AM **DISCUSSION**
- 10-8 10:00 AM Rolland, Jonathan*; Silvestro, Daniele; Schluter, Dolph; Guisan, Antoine; Broennimann, Olivier; Salamin, Nicolas: **ENDOTHERMY, THERMAL NICHE EVOLUTION AND THE DISTRIBUTION OF VERTEBRATE DIVERSITY**
- 10-9 10:15 AM Saulsbury, James*; Finnegan, Seth; Lindberg, David R.; Moss, David K.; Ivany, Linda C.; Gilooly, James F.; Goodwin, David; Heim, Noel A.; Kowalewski, Michal; McClain, Craig R.; Payne, Jonathan L.; Roopnarine, Peter D.; Schoene, Bernd R.: **EVALUATING THE INFLUENCES OF TEMPERATURE, PRODUCTIVITY, AND PHYLOGENETIC CONSTRAINT ON BIVALVE GROWTH RATES**
- 10-10 10:30 AM Gearty, William*; McClain, Craig R.; Payne, Jonathan L.: **ENERGETICS BOTH PROMOTE AND LIMIT AQUATIC MAMMAL GIGANTISM**
- 10-11 10:45 AM Ordonez, Alejandro*; Svenning, Jens-Christian: **HISTORY SUPPLEMENTS CURRENT ENVIRONMENT IN DRIVING FUNCTIONAL DIVERSITY PATTERNS (Invited Presentation)**
- 11:05 AM **DISCUSSION**
- 10-12 11:15 AM Carrier, Agathe*; Myers, Corinne: **INVESTIGATING MOLLUSCAN SPECIES RESPONSES TO ENVIRONMENTAL CHANGE IN THE LATE CRETACEOUS USING PALEOENM**
- 10-13 11:30 AM Davis, Katie E.*; Hill, Jon; de Graves, Sammy; Astrop, Tim; Delmer, Cyrille; Wills, Matthew: **CLIMATE CHANGE AND EXTINCTION RISK IN AN IMPORTANT GROUP OF MARINE INVERTEBRATES (DECAPODA): INFERENCES FROM THE GEOLOGICAL PAST**
- 10-14 11:45 AM Wang, Yue; Porter, Warren; Mathewson, Paul; Miller, Paul; Graham, Russell W.; Williams, John W.*: **MECHANISTIC MODELING OF ENVIRONMENTAL DRIVERS OF WOOLLY MAMMOTH CARRYING CAPACITY AND EXTINCTION ON ST. PAUL ISLAND, AK**

SESSION NO. 10

T51. Biodiversity Dynamics in the Face of Environmental Change: Integrating Paleontological and Neontological Approaches to Macroevolution I (Paleontological Society; Paleontological Research Institution)

8:00 AM, Washington State Convention Center, Room 608

Shan Huang, Paul G. Harnik and Lee Hsiang Liow, Presiding

- 10-1 8:00 AM Harnik, Paul G.*; Serb, Jeanne M.; Adams, Dean C.; Sherratt, Emma: **MORPHOLOGICAL EVOLUTION FOLLOWING THE CLOSURE OF THE CENTRAL AMERICAN SEAWAY**
- 10-2 8:15 AM Collins, Katie S.*; Edie, Stewart M.; Bieler, Rudiger; Roy, Kaustuv; Jablonski, David: **COSMOPOLITAN COMPROMISES AND TROPICAL TRADE-OFFS – THE RELATIONSHIP BETWEEN LATITUDINAL AND MORPHOLOGICAL “RANGE” IN A DIVERSE BIVALVE FAUNA**
- 10-3 8:30 AM Brombacher, Anieke*; Wilson, Paul A.; Bailey, Ian; Ezard, Thomas H.G.: **VARIATION ACROSS SPACE DOES NOT PREDICT EVOLUTIONARY CHANGE THROUGH TIME**

SESSION NO. 11

T58. Oxygen and Ecosystems from the Proterozoic to the Paleozoic (Paleontological Research Institution; Paleontological Society; GSA Geobiology & Geomicrobiology Division)

8:00 AM, Washington State Convention Center, Room 607

Noah J. Planavsky, Devon B. Cole and Christopher T. Reinhard, Presiding

- 11-1 8:00 AM Li, Fangbing*; Lang, Xianguo; Pei, Haoxiang; Shen, Bing: **HYDROTHERMAL ACTIVITIES AFFECTING P/FE RATIO OF IRONSTONE**
- 11-2 8:15 AM Babos, Heidi B.*; Chappaz, Anthony: **EXPLORING CHROMIUM SPECIATION IN ANCIENT SEDIMENTARY RECORDS**
- 11-3 8:30 AM Sperling, Erik A.*; Strauss, Justin V.; Fraser, Tiffani; Miller, Austin; Farrell, Úna C.; Planavsky, Noah J.; Cole, Devon B.; Bhajan, Liam; Torres Plaza, Stephanie; Malinowski, Joseph;

- Loydell, David K.; Lenz, Alfred: **AN EXCEPTIONAL RECORD OF EARLY- TO MID-PALEOZOIC REDOX CHANGE FROM THE ROAD RIVER GROUP, YUKON, CANADA (Invited Presentation)**
- 11-4 8:50 AM LeRoy, Matthew A.*; Gill, Benjamin C.; Them, Theodore R.; Owens, Jeremy D.: **A THALLIUM ISOTOPIC RECORD OF THE CAMBRIAN SPICE EVENT FROM THE ALUM SHALE, ANDRARUM, SWEDEN**
- 11-5 9:05 AM Erwin, Douglas H.*: **ENVIRONMENTAL DETERMINANTS OF EDIACARAN-CAMBRIAN DIVERSIFICATION (Invited Presentation)**
- 9:25 AM **BREAK**
- 11-6 9:40 AM White, David A.*; Elrick, Maya; Romaniello, Stephen J.; Zhang, Feifei: **TRACKING GLOBAL SEAWATER REDOX TRENDS DURING THE LATE DEVONIAN EXTINCTION USING U ISOTOPES OF UPPER DEVONIAN MARINE CARBONATES**
- 11-7 9:55 AM Porter, Susannah M.*: **A VIEW OF MICROBIAL ECOSYSTEMS AND OXYGEN FROM THE MID-NEOPROTEROZOIC (780–730 MA) CHUAR GROUP, GRAND CANYON SUPERGROUP, ARIZONA (Invited Presentation)**
- 11-8 10:15 AM Doyle, Katherine A.*; Poulton, Simon W.; Newton, Robert J.; Podkovyrov, Victor; Bekker, Andrey: **THE EMERGENCE OF SHALLOW BIOTURBATION DURING THE EDIACARAN: INFLUENCE ON P BURIAL MECHANISMS**
- 11-9 10:30 AM Lang, Xianguo*; Zhou, Chuanming; Shen, Bing: **LOW SULFATE CONCENTRATION IN THE EARLY NEOPROTEROZOIC OCEAN**
- 11-10 10:45 AM Mills, Daniel B.*; Francis, Warren R.; Vargas, Sergio; Canfield, Donald E.; Wörheide, Gert: **LATE ORIGIN OF OXYGEN REGULATION IN ANIMALS**
- 11-11 11:00 AM Marshall, Madeline S.*: **PALEOECOLOGICAL AND PHYSICAL EVIDENCE OF A COMPLEX MOSAIC OF OXYGEN CONDITIONS IN THE PHOSPHORIA SEA, PERMIAN OF SOUTHEASTERN IDAHO**
- 11-12 11:15 AM Maharjan, Dev K.; Jiang, Ganqing*; Peng, Yongbo: **THE DYNAMIC SULFUR CYCLE ACROSS THE EARLY MISSISSIPPIAN K-O (KINDERHOOKIAN-OSAGEAN) CARBON ISOTOPE EXCURSION**
- 11-13 11:30 AM Cole, Devon B.*; Wilkes, Daniel J.; Longley, Martha; Wang, Xiangli; Sperling, Erik A.; Knudsen, Andrew; Planavsky, Noah J.: **A PALEOZOIC RECORD OF URANIUM ISOTOPES CONSTRAINING FRACTIONATION FACTORS IN FERRUGINOUS SETTINGS**

SESSION NO. 12

T64. Citizen Science in Paleontology: Harnessing Public Interest to Advance Research and STEM Education I (Paleontological Society; GSA Geology and Society Division; GSA Geoscience Education Division)

8:00 AM, Washington State Convention Center, Room 606

Laura C. Soul, Terry A. Gates and Eleanor E. Gardner, Presiding

- 12-1 8:00 AM Soul, Laura C.*; Barclay, Richard S.; Wing, Scott L.; Bolton, Amy; Megonigal, J. Patrick: **FOSSIL ATMOSPHERES: PALEOBOTANICAL RESEARCH AND CLIMATE EDUCATION ON THE ZOONIVERSE**
- 12-2 8:15 AM Westgaard, John*; Korf, Jason J.; Willging, Steve: **HILL ANNEX PALEONTOLOGY PROJECT: YEAR FOUR**
- 12-3 8:30 AM Boessenecker, Robert W.*; Boessenecker, Sarah J.: **CITIZEN PALEONTOLOGY IN THE CAROLINA LOWCOUNTRY: A NEW MUSEUM EXHIBIT CELEBRATING SCIENTIFIC CONTRIBUTIONS BY NONSCIENTISTS**
- 12-4 8:45 AM McCall, Linda J.*; Chandler, Richard: **CITIZEN SCIENTIST PUBLISHING. HARNESSING PALEONTOLOGICAL KNOWLEDGE – NORTH CAROLINA FOSSIL CLUB'S FOUR PART SERIES**

- 12-5 9:00 AM Pankowski, Michael J.*; Pankowski, Mary K.: **CASE STUDY: HOW A FAMILY OF CITIZEN SCIENTISTS IS UNEARTHING SPECIMENS ONLINE, DONATING THEM TO MUSEUMS, AND HELPING PALEONTOLOGISTS DISCOVER NEW SPECIES**
- 12-6 9:15 AM Shell, Leonora K.*; Gates, Terry A.: **TEN KEYS TO SUCCESSFUL PUBLIC INVOLVEMENT IN YOUR SCIENCE**
- 9:30 AM **DISCUSSION: APPROACHES TO BUILDING A PALEO CITIZEN SCIENCE PROJECT**
- 9:45 AM **BREAK**
- 12-7 10:00 AM Twitchett, Richard J.*; Scriven, Sam; Kerr, Guy; Hughes, Zoe: **CITIZEN SCIENCE, PUBLIC ENGAGEMENT AND GEOCONSERVATION IN THE JURASSIC COAST WORLD HERITAGE SITE OF SOUTHERN ENGLAND (Invited Presentation)**
- 12-8 10:15 AM MacFadden, Bruce J.*; Bohaska, David J.; McCall, Linda J.; Pirl, Jeanette; Niederkorn, Julie: **THE FOSSIL PROJECT AND CITIZEN SCIENCE: EARLY MIOCENE LAND MAMMALS FROM BELGRADE, NORTH CAROLINA**
- 12-9 10:30 AM Perez, Victor J.*; Marks, Kenneth W.: **THE PLIO-PLEISTOCENE VERTEBRATE FAUNA OF COOKIECUTTER CREEK (SARASOTA COUNTY, FLORIDA), INCLUDING TWO NEW CHONDRICHTHYAN TAXA FOR THE FLORIDA FOSSIL RECORD**
- 12-10 10:45 AM Matthews, Neffra A.*; Breithaupt, Brent H.; Hunt-Foster, Rebecca: **CITIZEN SCIENTISTS AND DINOSAUR TRACKS: DISCOVERY, DOCUMENTATION, AND STEWARDSHIP**
- 12-11 11:00 AM Button, Khai*; Cross, Lynn; Rende, Kathryn; Weaver, Patricia G.; Van Veldhuizen, Jacob A.; Herzog, Lisa L.; Zanno, Lindsay: **TURNING TEENS INTO FOSSILPHILES: CITIZEN SCIENCE AND ADVANCED VISUALIZATION OF PALEONTOLOGY COLLECTIONS**
- 12-12 11:15 AM Gardner, Eleanor E.*; MacFadden, Bruce J.; Crippen, Kent J.: **BEST PRACTICES AND LESSONS LEARNED IN DEVELOPING A COMMUNITY OF CITIZEN SCIENTISTS VIA THE FOSSIL PROJECT**
- 11:30 AM **DISCUSSION: RESEARCH AND COLLECTIONS MANAGEMENT WITH CITIZEN SCIENTISTS**

SESSION NO. 13 

T74. Integrating Geohazards Data into Planning and Land-use Management Decisions (GSA Environmental and Engineering Geology Division; Washington Division of Geology and Earth Resources; GSA Geology and Society Division; GSA Geoinformatics Division; GSA Karst Division)

8:00 AM, Washington State Convention Center, Room 611

Katherine A. Mickelson, Dave Norman, Gregory R. Wessel and Stephen L. Slaughter, Presiding

- 13-1 8:00 AM Grimm, William E.*; Troost, Kathy Goetz; Llamas, Leah: **LANDSLIDE HAZARD STUDY OF MERCER ISLAND, WA**
- 13-2 8:15 AM Bethel, John P.*; Bilir, Sevin: **MAPPING OF POTENTIAL LANDSLIDE HAZARDS ALONG THE RIVER CORRIDORS OF KING COUNTY, WASHINGTON**
- 13-3 8:30 AM Davis, Elizabeth*; Chang, Susan; Hou, Steve; Cowell, Kevin; Teal, Tammy: **KNOWN SLIDE AREAS: UPDATING THE CITY OF SEATTLE'S CENTURY-OLD LANDSLIDE DATABASE**
- 13-4 8:45 AM McDonald, Terrence Joseph*: **SEATTLE'S PARTNERSHIP BETWEEN EMERGENCY MANAGEMENT AND GEOSCIENCE (Invited Presentation)**
- 13-5 9:05 AM Corominas, Jordi*: **CHALLENGES IN THE MANAGEMENT OF ROCKFALL RISK: THE ANDORRAN EXPERIENCE**
- 13-6 9:20 AM Burns, William J.*; McCarley, Justin; Lahav, Marian; Sears, Tricia: **THREE RECOMMENDATIONS FOR INCREASING WILLINGNESS OF COMMUNITIES TO WORK ON**

- LANDSLIDE RISK REDUCTION IN OREGON (Invited Presentation)**
- 9:40 AM **BREAK**
- 13-7 9:55 AM Ahmed, Shamsuzzaman*: **MORPHODYNAMIC CHANGES INDUCED HUMAN DISPLACEMENT AND ITS CONSEQUENCES OF BHAGIRATHI RIVER AT INDO-BANGLADESH BORDER DISTRICT MALDA AND MURSHIDABAD USING GEOINFORMATICS**
- 13-8 10:10 AM Levine, Norman*; Rubin, Nicholas; Agudelo, Luz: **INTEGRATING NUISANCE AND STORM FLOOD MODELING INTO LAND-USE MANAGEMENT IN CHARLESTON, SC**
- 13-9 10:25 AM Knorr, Paul O.*; Waldner, Jeffrey S.; Turner, Lora; Brandt, Leighann; Reidenauer, Jeffrey: **STEWARDS OF THE SAND: THE ROLE OF THE MARINE MINERALS PROGRAM IN DISASTER PREPAREDNESS AND RESPONSE**
- 13-10 10:40 AM Rubin, Jeffrey*: **APPLYING EVIDENCE TO CASCADIA RISK COMMUNICATION (Invited Presentation)**
- 13-11 11:00 AM Appleby, Christina A.*; Williams, Matt: **MULTI-HAZARD RISK ASSESSMENTS IN OREGON**
- 13-12 11:15 AM Dixon, Maximilian*: **CASCADIA RISING: LESSONS LEARNED**
- 13-13 11:30 AM Anderson, Scott*: **GSA ENGINEERING GEOLOGY DIVISION'S RICHARD H. JAHNS DISTINGUISHED LECTURER: SOLID AS A ROCK—HOW ENGINEERING GEOLOGY RELATES TO TRANSPORTATION ASSET MANAGEMENT**

SESSION NO. 14 ⏻ \$

T83. Unconventional Energy Resources: Advances and Evolution in Tight Reservoir Assessment and Production (GSA Energy Geology Division; GSA Sedimentary Geology Division)

8:00 AM, Washington State Convention Center, Room 3B

J. Fred Mclaughlin, Marc L. Buursink, Laura Ruhl and Brett J. Valentine, Presiding

- 14-1 8:00 AM Viswanathan, Hari*; Carey, J. William; Frash, Luke; Karra, Satish; Hyman, Jeffrey; Kang, Qinjun; Rougier, Esteban; Srinivasan, Gowri: **A MULTI-SCALE EXPERIMENTAL AND SIMULATION APPROACH FOR IMPROVING HYDRAULIC FRACTURING**
- 14-2 8:15 AM Tamulonis, Kathryn*: **OPTIMIZING MARCELLUS FORMATION FIELD DEVELOPMENT, WELL PERFORMANCE, AND OPERATIONS BY INTEGRATING GEOLOGIC AND ENGINEERING DATA INTO A VOLUMETRIC GEOLOGIC MODEL**
- 14-3 8:30 AM Xiong, Fengyang*; Amooie, Mohammad Amin; Soltanian, Mohamad Reza; Jiang, Zhenxue; Moortgat, Joachim: **EFFECT OF PORE STRUCTURE AND COMPOSITION ON GAS SORPTION CAPACITY OF TRANSITIONAL SHALES, NW CHINA**
- 14-4 8:45 AM Pappajohn, Steve*; Hampton, George: **NATURAL GAS FROM TERTIARY-AGE COALBEDS IN THE PACIFIC NORTHWEST: RENEWED OPPORTUNITIES FOR ENVIRONMENTALLY FAVORABLE ENERGY OPTIONS FROM COOS COUNTY, OREGON**
- 14-5 9:00 AM Liu, Bei*; Schieber, Juergen; Mastalerz, Maria: **COMBINED SEM AND REFLECTED LIGHT PETROGRAPHY OF ORGANIC MATTER IN THE NEW ALBANY SHALE (DEVONIAN-MISSISSIPPIAN) IN THE ILLINOIS BASIN: A PERSPECTIVE ON ORGANIC POROSITY DEVELOPMENT WITH THERMAL MATURATION**
- 14-6 9:15 AM Pashin, Jack C.*; Cecil, Kyrsti A.: **ORIGIN, SOURCE-ROCK, AND RESERVOIR CHARACTERISTICS OF NOVACULITIC CHERT (DEVONIAN-MISSISSIPPIAN) IN THE SOUTHERN MIDCONTINENT**
- 9:30 AM **BREAK**

- 14-7 9:45 AM Cemen, Ibrahim*; Pashin, Jack C.; Puckette, James: **DEVONIAN-MISSISSIPPIAN GAS SHALE PLAYS IN SOUTHERN USA**
- 14-8 10:00 AM Skoreyko, Daniel; Rostron, Benjamin J.*: **REGIONAL HYDROGEOLOGY AND HYDROCHEMISTRY OF THE BAKKEN FORMATION IN THE WILLISTON BASIN**
- 14-9 10:15 AM Zhang, Hualing*; Fu, Qilong; Janson, Xavier: **LITHOFACIES, DIAGENESIS, AND RESERVOIR QUALITY OF THE UNCONVENTIONAL WOLFCAMPAN SUCCESION IN THE SOUTHEAST MIDLAND BASIN, WEST TEXAS**
- 14-10 10:30 AM Reed, Robert M.*; Ruppel, Stephen C.; Sivil, Evan; Rowe, Harry: **HETEROGENEITY OF MICROLITHOLOGY IN A CRETACEOUS EAGLE FORD GROUP HORIZONTAL CORE**
- 14-11 10:45 AM Ahmad, Faizan*: **GEOCHEMICAL CHARACTERIZATION OF THE CAMBRIAN-EOCENE HYDROCARBON SOURCE ROCKS IN THE INDUS BASIN, PAKISTAN**
- 14-12 11:00 AM Ritzer, Samantha R.*; Farrell, Úna C.; Mwinde, Chiza N.; Patch, Austin; Bussian, Isabella; Junyao, Kang; Sperling, Erik A.: **ARE ALL SHALES CREATED EQUAL?: A COMPARATIVE, MULTI-PROXY GEOCHEMICAL STUDY OF PALEOZOIC AND MESOZOIC PRODUCING SHALE BASINS IN NORTH AMERICA**

SESSION NO. 15

T89. The Dynamics of Tectono-Sedimentary Systems During Basin Formation and Fill I (GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; SEPM (Society for Sedimentary Geology))

8:00 AM, Washington State Convention Center, Ballroom 6C

Eugene Szymanski, Jacob A. Covault and Daniel F. Stockli, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 15-1 8:05 AM Lawton, Timothy F.*: **SOME OTHER SINKS AND THEIR IMPLICATIONS FOR SEDIMENT ROUTING (Invited Presentation)**
- 15-2 8:25 AM Englert, Rebecca G.*; Hubbard, Stephen M.; Matthews, William A.; Coutts, Daniel S.; Bain, Heather A.; Covault, Jacob A.: **DRAINAGE EVOLUTION CONTROL ON SUBMARINE-CHANNEL DEPOSITION, CRETACEOUS NANAIMO FOREARC BASIN, BC, CANADA**
- 15-3 8:40 AM Armandola, Sonia*: **CRUSTAL EVOLUTION OF THE CAPRICORN OROGEN (WA): INSIGHT FROM A PROVENANCE STUDY OF ITS MAJOR MESOPROTEROZOIC SEDIMENTARY BASINS**
- 15-4 8:55 AM Schultz, Sarah K.*; MacEachern, James A.; Gibson, H. Daniel: **REACTIVATION OF PRECAMBRIAN BASEMENT STRUCTURES AND ITS EFFECTS ON THE REGIONAL STRATIGRAPHY OF THE EARLY CRETACEOUS (LATE ALBIAN) VIKING FORMATION, CENTRAL ALBERTA, CANADA**
- 9:10 AM **BREAK**
- 15-5 9:25 AM Gehrels, George E.*; McClelland, William C.: **HF ISOTOPIC SIGNATURE OF NORTHERN CORDILLERAN TERRANES: IMPLICATIONS FOR TECTONIC HISTORY AND DZ METHODOLOGY (Invited Presentation)**
- 15-6 9:45 AM Szymanski, Eugene*; Gehrels, George E.: **HAFNIUM ISOTOPE DATA FROM THE UNITED STATES GULF OF MEXICO BASIN REVEAL CORDILLERAN TECTONIC INFLUENCES ON PALEOGENE DEPOSITIONAL SYSTEMS**
- 15-7 10:00 AM Stockli, Daniel F.*; Stockli, Lisa D.; Lawton, Timothy F.; Covault, Jacob A.; Kortyna, Cullen D.: **IMPROVED DETRITAL ZIRCON U-PB PROVENANCE BY LA-ICP-MS DEPTH PROFILE ANALYSIS**
- 15-8 10:15 AM Sundell, Kurt E.*; Saylor, Joel E.: **UNMIXING DETRITAL ZIRCON U-PB AGE DISTRIBUTIONS**
- 10:30 AM **DISCUSSION**

- 15-9 10:45 AM Karabinos, Paul*; Crowley, James L.; Stamp, Laura K.; Jean-Michel, Didier; Barker, Henry C.; Macdonald, Francis A.: **STRATIGRAPHY OF THE CONNECTICUT VALLEY-GASPE TROUGH IN MASSACHUSETTS AND VERMONT: CONSTRAINTS FROM LA-ICPMS DATES FROM DETRITAL ZIRCON AND CA-IDTIMS DATES FROM VOLCANIC ROCKS**
- 15-10 11:00 AM Tye, Alexander*; Niemi, Nathan A.; Safarov, Rafiq; Kadirov, Fakhraddin: **DETRITAL ZIRCON AGES REVEAL POST 15 MA CONVERGENCE AND PLEISTOCENE-QUATERNARY BASEMENT UNROOFING IN THE CAUCASUS**
- 15-11 11:15 AM Barber, Douglas E.*; Stockli, Daniel F.; Galster, Federico: **INTEGRATING COMPLIMENTARY ACCESSORY PHASES (APATITE, RUTILE, ZIRCON) IN ISOTOPIC AND TRACE-ELEMENTAL PROVENANCE STUDIES: RECONSTRUCTING THE PROTO-ZAGROS OROGENY, NW IRAN**
- 15-12 11:30 AM Reat, Ellen Jayne*; Johnson, Cari; Stearns, Michael: **COMMON MINERALS AND COMMON PB ISOTOPES: UNCOMMON APPLICATIONS AND NEW METHOD DEVELOPMENT FOR DETRITAL K-FELDSPAR PROVENANCE ANALYSIS**
- 11:45 AM **CONCLUDING REMARKS**

SESSION NO. 16

T90. Advancing Seismic and Sequence Stratigraphy: Insights from Testing the Fundamentals (GSA Environmental and Engineering Geology Division; GSA Energy Geology Division; GSA Sedimentary Geology Division)

8:00 AM, Washington State Convention Center, Room 307/308

Andrew Madof, Ashley D. Harris and Fabien J. Laugier, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 16-1 8:10 AM Holbrook, John*: **40 YEARS OF CHANGING VIEWS ON THE SEQUENCE-STRATIGRAPHIC PARADIGM**
- 16-2 8:25 AM Miller, Kenneth G.*; Browning, James V.; Schmelz, W. John; Gallegos, Gabriel E.; Mountain, Gregory S.; Baldwin, Kimberly E.: **BACK TO BASICS OF SEQUENCE STRATIGRAPHY: EARLY MIOCENE AND MID-CRETACEOUS EXAMPLES FROM THE NEW JERSEY PALEOSHELF**
- 16-3 8:40 AM Christie-Blick, Nicholas*; Badr, Raed; El-Barkooky, Ahmed N.; Goldstein, Steven L.; Cai, Yue: **SEQUENCE BOUNDARY DEVELOPMENT: FUNDAMENTAL ASSUMPTIONS AND TESTS, WITH AN EXAMPLE FROM THE LATE OLIGOCENE-MIDDLE MIOCENE OF THE GULF OF SUEZ, EGYPT (Invited Presentation)**
- 16-4 9:00 AM Plink-Bjorklund, Piret*; Jones, Evan: **ACCOMMODATION – NOT A SIGNIFICANT CONTROL ON RIVERINE STRATIGRAPHY? (Invited Presentation)**
- 16-5 9:20 AM Schmelz, W. John*; Miller, Kenneth G.; Mountain, Gregory S.; Browning, James V.: **SEQUENCE STRATIGRAPHIC ANALYSIS OF CRETACEOUS STRATA IN THE SOUTHERN BALTIMORE CANYON TROUGH: AN INTEGRATION OF GEOLOGICAL AND GEOPHYSICAL DATA**
- 16-6 9:35 AM Hodgson, David M.; Browning, James V.*; Miller, Kenneth G.; Hesselbo, Stephen P.; Poyatos-More, Miquel; Mountain, Gregory S.; Proust, Jean-Noel: **SEDIMENTOLOGY, STRATIGRAPHIC CONTEXT, AND IMPLICATIONS OF MIOCENE INTRASHelf BOTTOMSET DEPOSITS, OFFSHORE NEW JERSEY**
- 9:50 AM **BREAK**
- 16-7 10:05 AM McLaughlin, Win N.F.*; Hopkins, Samantha S.B.; Weldon, Ray J.: **GEOCHRONOLOGICAL EVALUATION OF NEOGENE SYNTECTONIC SEDIMENTS FROM THE KOCHKOR BASIN, KYRGYZSTAN**
- 16-8 10:20 AM Minzoni, Marcello*; Lehrmann, Daniel J.; Enos, Paul; Wei, Jiayong; Yu, Meiyi; Payne, Jonathan L.; Kelley, Brian M.; Li,

- Xiaowei: **CONTROLS ON SEISMIC-SCALE SEQUENCE-STRATIGRAPHIC ARCHITECTURE OF TRIASSIC MIXED CARBONATE-SILICICLASTIC SYSTEMS: NANPANJIANG BASIN, SOUTH CHINA**
- 16-9 10:35 AM Dyer, Blake*; Maloof, Adam C.; Purkis, Sam J.; Harris, Paul M.: **EXTRACTING WATER DEPTH CHANGE FROM CARBONATE STRATIGRAPHY WITH HIDDEN MARKOV MODELS**
- 16-10 10:55 AM Goggin, Lisa Renee*; Sun, Tao; Amaru, Maisha; Harris, Ashley D.: **TESTING SEISMIC SEQUENCE STRATIGRAPHY ASSUMPTIONS USING COMPUTATIONAL STRATIGRAPHY MODELS**
- 16-11 11:10 AM Harris, Ashley*; Covault, Jacob A.; Madof, Andrew; Baumgardner, Sarah; Sun, Tao; Sylvester, Zoltán; Granjeon, Didier: **EQUIFINALITY IN DEEP-WATER SAND DELIVERY: INSIGHTS FROM 3-D STRATIGRAPHIC FORWARD MODELS**
- 16-12 11:25 AM Madof, Andrew*; Harris, Ashley; Christie-Blick, Nicholas; Laugier, Fabien J.: **STRATIGRAPHIC ALIASING AND THE TRANSIENT NATURE OF DEPOSITIONAL CYCLICTY: DOES THE DEEP-WATER SEQUENCE MODEL NEED REVISION?**
- 11:40 AM **CONCLUDING REMARKS**

SESSION NO. 17

T102. Beyond the Road-Cut: Virtual, Local, and Nontraditional “Field” Teaching and Learning Experiences

8:00 AM, Washington State Convention Center, Room 2B

Lauren Neitzke Adamo, Matthew Dawson, Kelsey S. Bitting, Patricia Irizarry-Barreto and Charles W. Carrigan, Presiding

- 17-1 8:00 AM Ruberto, Thomas*; Mead, Chris; Semken, Steven; Bruce, Geoffrey; Buxner, Sanlyn; Anbar, Ariel D.: **CONTRASTING, COMPLEMENTARY LEARNING OUTCOMES OF IN-PERSON AND VIRTUAL FIELD-BASED GEOSCIENCE INSTRUCTION AT GRAND CANYON NATIONAL PARK**
- 17-2 8:15 AM Petcovic, Heather L.*; Tinigin, Laura; Pope, Allen; Bursztyn, Natalie; Ormand, Carol J.; LaDue, Nicole: **PIXELS: HOW CLASSROOM-BASED AND FIELD-BASED LEARNING IMPACT STUDENTS’ SENSE OF SCALE AND UNDERSTANDING OF REMOTE SENSING IMAGERY**
- 17-3 8:30 AM Carrigan, Charles W.*: **USING EARTHCACHES AS A GEOSCIENCE EDUCATIONAL OUTREACH TOOL**
- 17-4 8:45 AM Bracey, Georgia*; Locke, Sharon: **OPTIMIZING EARTHCACHE SITE SELECTION TO ENGAGE STUDENTS AND THE PUBLIC**
- 17-5 9:00 AM Locke, Sharon*; Bracey, Georgia; Foster, Tom; Hu, Shunfu; Wilson, Colin: **EARTHCACHING IN PRESERVICE ELEMENTARY TEACHER EDUCATION (Invited Presentation)**
- 17-6 9:20 AM Lazar, Kelly Best*; Moysey, Stephen M.: **INTEGRATING GEOCACHING AND IMMERSIVE TECHNOLOGIES TO ENCOURAGE GREATER GEOSCIENCE EXPLORATION AND ENGAGEMENT (Invited Presentation)**
- 17-7 9:40 AM Needle, Mattathias D.*: **LINKING SCIENCE TO CULTURAL HERITAGE WITH DRAWING EXERCISES IN A PALEOART LECTURE (Invited Presentation)**
- 17-8 10:00 AM Irizarry-Barreto, Patricia*; Neitzke Adamo, Lauren: **CHANGING PERCEPTIONS: HOW TO ENGAGE DIVERSE COMMUNITIES IN GEOSCIENCES**
- 10:15 AM **BREAK**
- 17-9 10:30 AM Shinneman, Avery L.C.*; Myrbo, Amy; Loeffler, Shane: **SELF-GUIDED CLASS FIELD TRIPS USING THE FLYOVER COUNTRY MOBILE APP AS AN AVENUE TO REACH UNDER-REPRESENTED AND NON-TRADITIONAL STUDENTS WITH FIELD EXPERIENCES**
- 17-10 10:45 AM Marshall, Anita M.*; Atchison, Christopher L.; Collins, Trevor; Crompton, Helen; Pyle, Eric J.; Whitmeyer, Steven;

		Carabajal, Ivan G.: HISTORICAL CONTEXT AND EVALUATION OF ENGAGEMENT IN TECHNOLOGY-BASED APPROACHES TO ACCESSIBLE GEOSCIENCE FIELD LEARNING
17-11	11:00 AM	Cho, Youngwoo*; Clary, Renee M.: CREATING A VIRTUAL FIELD TRIP USING A 3D GAME ENGINE AND PHOTOGRAPHIC 3D MODELS FROM THE REAL WORLD
17-12	11:15 AM	Rueger, Bruce F.*; Shailer, Mandy: BOOTS ON THE GROUND: DEVELOPING "VIRTUAL" FIELD GUIDES OF THE NATIONAL PARKS AND NATURE AREAS OF BERMUDA
17-13	11:30 AM	Grysen, Taylor*; Hayes, Emily Blythe; Nicholson, Kirsten N.; Recker, Brandon; Wocjik, Jake: EXPLORING FIELD-BASED GEOSCIENCE EDUCATION BY UTILIZING MOBILE GEOSPATIAL APPLICATIONS AND THE ESRI STORY MAP PLATFORM
17-14	11:45 AM	Dolphin, Glenn*; Dutchak, Alex R.; Karchewski, Brandon; Cooper, Jonathan: DEVELOPING VIRTUAL FIELD EXPERIENCES FOR UNDERGRADUATE GEOLOGY: HELPING STUDENTS "SEE WHAT A GEOLOGIST SEES"

SESSION NO. 18

T127. Supporting Geoscience Student Transfer Between Institutions and Transitions into the Workforce: Pathways to Success (GSA Geology and Society Division; GSA Geoscience Education Division; National Association of Geoscience Teachers; National Association of Geoscience Teachers Geo2YC Division)

8:00 AM, Washington State Convention Center, Room 2A

Norlene R. Emerson, Eric M.D. Baer, Allan Ludman and Katrien J. van der Hoeven Kraft, Presiding

18-1	8:00 AM	Jones, M. Brandon*; Patino, Lina; Suiter, Marilyn J.: NSF'S IUSE:GEOPATHS PROGRAM - IMPROVING UNDERGRADUATE GEOSCIENCE EDUCATION (Invited Presentation)
18-2	8:15 AM	Stofer, Kathryn*; Lannon, Heidi; Matyas, Corene; Judge, Jasmeet; Lanman, Brandon: MULTIPLE PATHWAYS: UNDERGRADUATE RESEARCH, COURSEWORK, AND ENGAGEMENT WITH THE PUBLIC ALL SUPPORT GEOSCIENCE CAREER PURSUIT
18-3	8:30 AM	Chigbu, Paulinus*; Ishaque, Ali B.; Abazinge, Michael; Khanbilvardi, Reza; Morris, Vernon; Zettler, Erik: GP-IMPACT: STRENGTHENING PATHWAYS INTO GEOSCIENCES THROUGH LINKAGES BETWEEN SUMMER BRIDGE AND UNDERGRADUATE TRAINING PROGRAMS
18-4	8:45 AM	Nyquist, Jonathan; Kanaley, Chelsea; Burrell, Shondricka*; Toran, Laura; Davatzes, Alexandra K.; Brandt, Carol: A GEOPATH-FUNDED MATH MENTORING INITIATIVE FOR RETENTION
18-5	9:00 AM	Tvelia, Sean*: ONE YEAR IN—AN UPDATE ON GEOPATHS EXTRA: GEOSCIENCE EDUCATIONAL OPPORTUNITIES & CAREER ORIENTED RESEARCH EXPERIENCES
18-6	9:15 AM	Blake, Reginald*; Liou-Mark, Janet; Norouzi, Hamidreza; Vladutescu, Viviana; Yuen-Lau, Laura: UNDERGRADUATE CAREER DEVELOPMENT AND PREPARATION TO REPLENISH THE GEOSCIENCE WORKFORCE
18-7	9:30 AM	Hannula, Kimberly A.*; van der Hoeven Kraft, Katrien J.; Evans, Veronica: FROM RESEARCH-BASED BEST PRACTICES TO REALITY IN SUPPORTING TRANSFER STUDENTS (Invited Presentation)
	9:45 AM	BREAK
18-8	10:00 AM	Murkowski, Ann J.*; Halverson, Marina: A YEARLONG, SKILL-FOCUSED, REU EXPERIENCE FOR COMMUNITY COLLEGE STUDENTS (Invited Presentation)
18-9	10:15 AM	Walker, Becca; Mrofka, David D.*: DEVELOPMENT OF A GEOTECHNICIAN CERTIFICATE PROGRAM FOR COMMUNITY COLLEGE STUDENTS: A POTENTIAL

		PATHWAY FOR THE RECRUITMENT AND RETENTION OF A DIVERSE GEOSCIENCE WORKFORCE
18-10	10:30 AM	Bisquera, Rosemarie*; Droser, Mary L.; Dahl, Robyn M.; Phelps, William; Hughes, Nigel C.: GEOSCIENTIST DEVELOPMENT (GEODE): RECRUITING AND ENGAGING THE FUTURE GEOSCIENCE WORKFORCE
18-11	10:45 AM	Dahl, Robyn Miekko*; Hancock, Leanne G.; Coyne, Gary; Droser, Mary L.: GROWING GEOSCIENTISTS IN THE DESERT: A GEOLOGY FIELD CAMP FOR HIGH SCHOOL STUDENTS IN DEATH VALLEY NATIONAL PARK
18-12	11:00 AM	Walker, Becca*; Hall, Sarah R.; Schmidt, Calla M.; Paul, John R.: DEVELOPMENT, IMPLEMENTATION, AND ASSESSMENT OF A MULTI-INSTITUTIONAL UNDERGRADUATE ENVIRONMENTAL SCIENCE FIELD AND CAREER PREPARATION PROGRAM: A REPORT FROM YEAR 1 OF THE ESTEM PROJECT
18-13	11:15 AM	Ricchezza, Victor J.*; Vacher, H.L.: "COMPUTATIONAL GEOLOGY" AT THE UNIVERSITY OF SOUTH FLORIDA PREPARES OUR GEOLOGY MAJORS FOR THE TRANSITION TO THE WORKFORCE: HOW OUR COURSE DOES IT AND HOW WE KNOW THAT IT DOES
18-14	11:30 AM	Asher, Pranoti M.*; Marasco, Leslie; Hurtado, Cecilia; Ambrogio, Olivia; Hanlon, Shane: AGU'S MENTORING PROGRAMS: LEADING THE WAY ACROSS CAREER PATHS
18-15	11:45 AM	Harwell, David*; Asher, Pranoti M.; Hankin, Erik R.; Janick, Nathaniel; Marasco, Leslie: AGU WEBINARS: A RESOURCE FOR EDUCATORS AND STUDENTS IN THE EARTH AND SPACE SCIENCES

SESSION NO. 19

T157. Origin and Evolution of the Continental Crust: A Celebration of the Career of Paul Mueller (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division)

8:00 AM, The Conference Center, Skagit 2

David W. Mogk, David A. Foster and Robert Stern, Presiding

	8:00 AM	INTRODUCTORY REMARKS
19-1	8:05 AM	Wooden, Joseph L.*; Mogk, David W.; Henry, Darrell J.: FROM DIABASE DIKES AND RB-SR TO ION PROBES AND HF ISOTOPES: A TRIBUTE TO P.A. MUELLER AND 50 YEARS OF COLLABORATIVE RESEARCH IN THE WYOMING PROVINCE (Invited Presentation)
19-2	8:25 AM	Mogk, David W.*; Mueller, Paul A.; Wooden, Joseph L.; Henry, Darrell J.: DIORITES AND TONALITES AND GRANITES! OH MY! 1.5 GA OF GROWTH AND RECYCLING OF ARCHEAN CONTINENTAL CRUST IN THE NORTHERN WYOMING PROVINCE (NWP)
19-3	8:40 AM	Frost, Carol D.*; Swapp, Susan M.; Vincent, Stephanie A.; McFarlane, Christopher R.M.; Frost, B. Ronald: ~2.6 GA TECTONISM IN THE SOUTHERN WYOMING PROVINCE: RECORD OF ACCRETIONARY OROGENESIS OR SUPERCONTINENT BREAKUP? (Invited Presentation)
19-4	9:00 AM	Henry, Darrell J.*; Mogk, David W.; Wayt, Madison; Hall, Samantha: THE ROLE OF LATE FLUIDS IN THE TEXTURAL AND CHEMICAL EVOLUTION OF THE MESO- TO PALEOARCHEAN ROCKS OF THE BEARTOOTH MTNS, NORTHERN WYOMING PROVINCE, USA
19-5	9:15 AM	Grew, Edward S.*: BORON AND BERYLLIUM MINERAL DIVERSITY AND BORON ISOTOPES: WHAT CAN THEY TELL US ABOUT RECYCLING OF EARTH'S CRUST AND CRUSTAL EVOLUTION?
19-6	9:30 AM	Johnson, Simon P.*; Korhonen, Fawna J.; Kirkland, Christopher L.; Cliff, John B.; Belousova, Elena; Sheppard, Stephen: AN ISOTOPIC PERSPECTIVE ON GROWTH AND DIFFERENTIATION OF PROTEROZOIC OROGENIC CRUST: FROM SUBDUCTION MAGMATISM TO CRATONIZATION

AM
SUNDAY

- 19-7 9:45 AM Sreejith, C.*; Ravindra Kumar, G.R.: **MULTI-STAGE CRUSTAL MELTING AND MELT EXTRACTION IN ARC-CONTINENT COLLISION ZONES OF SOUTHERN INDIA: IMPLICATIONS FOR THE EVOLUTION AND DIFFERENTIATION OF CONTINENTAL CRUST**
- 10:00 AM **BREAK**
- 19-8 10:15 AM Wang, Da*; Vervoort, Jeff D.; Fisher, Christopher M.; Lewis, Reed S.; Buddington, Andrew M.: **CRYSTALLINE BASEMENT ROCKS OF NORTHERN IDAHO: A DISTINCT ARCHEAN TERRANE IN NW LAURENTIA?**
- 19-9 10:30 AM Buddington, A.M.*; Rogers, Chris; Doughty, P.T.: **BASEMENT AMPHIBOLITES FROM THE SOUTHERN PRIEST RIVER COMPLEX NEAR COEUR D'ALENE, IDAHO**
- 19-10 10:45 AM Baldwin, Julia A.*; Harms, Tekla A.; Vervoort, Jeffrey D.; Baker, Peter L.; Stotter, Sara V.: **THE NATURE OF ARCHEAN TERRANE BOUNDARIES REVISITED: EVIDENCE FOR TWO PALEOPROTEROZOIC THERMOTECTONIC EVENTS RECORDING CRUSTAL ASSEMBLY, MELT PRODUCTION, AND MODIFICATION IN THE RUBY RANGE, SOUTHWESTERN MONTANA**
- 19-11 11:00 AM Möller, Andreas*; Premo, Wayne R.; Baumgartner, Lukas; Siron, Guillaume; Kooijman, Ellen; Kelly, Nigel M.: **PALEOPROTEROZOIC CRUSTAL GROWTH IN THE CENTRAL US: HF AND OXYGEN ISOTOPE EVIDENCE FROM MAGMATIC ZIRCON IN THE YAVAPAI PROVINCE OF NORTH-CENTRAL COLORADO**
- 19-12 11:15 AM Bickford, M.E.*; Condie, Kent C.; Hanan, Barry B.; Mueller, Paul A.; Kamenov, G.D.; Meijer, Arend: **CRUSTAL EVOLUTION OF SOUTHERN LAURENTIA DURING THE MAZATZAL OROGENY: NEW EVIDENCE FROM HF ISOTOPIC COMPOSITIONS OF PLUTONIC AND DETRITAL ZIRCONS AND SM-ND COMPOSITIONS OF THE PINAL SCHIST (Invited Presentation)**
- 19-13 11:35 AM Marshall, Edward W.*; Lassiter, John C.; Barnes, Jaime D.: **NEW RE-OS AND SM-ND ISOTOPIC CONSTRAINTS ON THE TECTONIC SETTING OF THE 1.4 GA LAURENTIAN MAGMATIC EVENT**
- 11:50 AM **DISCUSSION**

SESSION NO. 20 \$

T158. Gemological Research in the 21st Century— Characterization, Exploration, and Geological Significance of Diamonds and other Gem Minerals

8:00 AM, The Conference Center, Skagit 3

Caroline Nelms, James E. Shigley, Dona Dirlam, Wuyi Wang, Barbara L. Dutrow, Rodney C. Ewing, Jeffrey E. Post, Steven B. Shirey, William B. Simmons, John Valley and Lee A. Groat, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 20-1 8:05 AM Smith, Evan M.*; Shirey, Steven B.; Nestola, Fabrizio; Richardson, Stephen H.; Wang, Wuyi: **TYPE IIB BORON-BEARING DIAMONDS ARE SUPERDEEP DIAMONDS (Invited Presentation)**
- 20-2 8:25 AM McManus, Catherine E.; McMillan, Nancy J.*: **DIAMOND PROVENANCE DETERMINED BY MULTIVARIATE ANALYSIS OF LIBS SPECTRA: NEW INSIGHTS TO DIAMOND CHEMISTRY**
- 20-3 8:40 AM Eaton-Magana, Sally*; Ardon, Troy: **SPATIAL MAPPING OF TEMPERATURE AND IRRADIATION EFFECTS IN NATURAL TYPE IIB DIAMOND**
- 20-4 8:55 AM Krebs, Mandy Y.*; Pearson, D. Graham; Stachel, Thomas; Woodland, Sarah J.; Chinn, Ingrid; Kong, Julie: **TRACE ELEMENTS IN GEM-QUALITY DIAMONDS – ORIGIN AND EVOLUTION OF DIAMOND-FORMING FLUIDS**
- 20-5 9:10 AM Strawson, Melissa; Stone, Rebecca*; Luth, Robert: **DIAMOND GROWTH IN ALKALI BRINES**
- 20-6 9:25 AM Luth, Robert*: **DIAMOND FORMATION DURING PARTIAL MELTING IN THE EARTH'S MANTLE**

- 9:40 AM **BREAK**
- 20-7 9:55 AM Henry, Darrell J.*; Dutrow, Barbara L.: **THE GEOLOGIC NARRATIVES OF GEM TOURMALINES: IMPRINTS OF CRUSTAL EVOLUTION (Invited Presentation)**
- 20-8 10:15 AM Palke, Aaron*; Rossman, George R.: **HEAT TREATMENT OF GEM QUALITY ANDRADITE (VAR. DEMANTOID): IS INTERVALENCE CHARGE TRANSFER NECESSARY FOR BROWN COLORATION IN ANDRADITE?**
- 20-9 10:30 AM Belley, Philippe M.*; Groat, Lee A.: **THE ROLE OF METAMORPHIC AND GEOCHEMICAL FACTORS IN GEM SPINEL GENESIS**
- 20-10 10:45 AM Lake, Donald J.*; Groat, Lee A.: **ARE THERE "COLOMBIAN-TYPE" EMERALDS IN CANADA'S NORTHERN CORDILLERA?**
- 20-11 11:00 AM Turnier, Rachelle B.*; Katzir, Yaron; Kitajima, Kouki; Orland, Ian J.; Spicuzza, Michael J.; Valley, John W.: **EMPIRICAL CALIBRATION OF OXYGEN ISOTOPE FRACTIONATION IN CORUNDUM**
- 20-12 11:15 AM Stone-Sundberg, Jennifer*; Sun, Ziyin; Guan, Yunbin; Cole, Zachary; Emmett, John: **MATRIX-MATCHED CORUNDUM STANDARDS FOR KEY TRACE ELEMENTS IN RUBY AND SAPPHIRE**
- 11:30 AM **DISCUSSION**
- 11:45 AM **CONCLUDING REMARKS**

SESSION NO. 21 \$

T163. Petrochronology: Advances and Applications to Petrogenesis and Tectonics I (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; Mineralogical Society of America; Geochemical Society)

8:00 AM, The Conference Center, Skagit 4

Matthew J. Kohn, Pierre Lanari and Martin Engi, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 21-1 8:05 AM Hansman, Reuben Johannes*; Ring, Uwe; Thomson, Stuart N.; Albert, Richard; Gerdes, Axel; den Brok, Bas; Stübner, Konstanze: **LATE EOCENE UPLIFT OF THE AL HAJAR MOUNTAINS, OMAN, RECORDED BY LOW-TEMPERATURE THERMOCHRONOLOGY AND ABSOLUTE AGES OF BRITTLE STRUCTURES BY U-PB DATING OF CALCITE FIBERS**
- 21-2 8:20 AM Wang, Yu*; Zwingmann, Horst; Zhou, Liyun; Li, Guowu; Hao, Jinhua: **⁴⁰AR/³⁹AR DATING ON BRITTLE DEFORMATION: ANOTHER NEW APPROACH**
- 21-3 8:35 AM Gonzalez, Joseph P.*; Baldwin, Suzanne L.: **RE-EVALUATION OF PHENGITE PETROLOGIC DATA AND ⁴⁰AR/³⁹AR AGE SPECTRA TO DETERMINE PRESSURE-TEMPERATURE-TIME PATHS**
- 21-4 8:50 AM Süssenberger, Annette*; Wemmer, Klaus; Schmidt, Susanne T.: **THE ZONE OF INCipient ⁴⁰AR* LOSS: INTRODUCING A NEW CONCEPT OF AR DEGASSING BEHAVIOR IN A CONTACT METAMORPHIC SETTING**
- 21-5 9:05 AM Cutts, Jamie*; Smit, Matthijs A.: **SLOW BURIAL OF CONTINENTAL CRUST IN COLLISIONAL OROGENS; INSIGHTS FROM SPATIALLY-RESOLVED LU-HF GARNET CHRONOLOGY IN THE WESTERN GNEISS COMPLEX, NORWAY**
- 21-6 9:20 AM Padget, Colin D.W.*; Pattison, David R.M.; Moynihan, David P.: **UPPER MANTLE AND LOWER CRUSTAL XENOLITHS FROM THE UPPER HYLAND RIVER REGION, SOUTHEAST YUKON TERRITORY**
- 21-7 9:35 AM Hacker, Bradley R.*; Shaffer, Madeline; Ratschbacher, Lothar; Kylander-Clark, Andrew R.C.: **RECYCLING OF CONTINENTAL CRUST CAPTURED IN XENOLITHS**
- 9:50 AM **DISCUSSION**
- 10:00 AM **BREAK**

- 21-8** 10:15 AM Yakymchuk, Chris*; Kirkland, Chris; Clark, Chris: **METAMORPHIC ZIRCON TH/U REFINED (Invited Presentation)**
- 21-9** 10:35 AM Cottle, John M.*; Larson, Kyle P.; Yakymchuk, Chris: **CONTRASTING ACCESSORY MINERAL BEHAVIOR IN MINIMUM-TEMPERATURE MELTS: EMPIRICAL CONSTRAINTS FROM THE HIMALAYAN METAMORPHIC CORE**
- 21-10** 10:50 AM Imayama, Takeshi*; Takeshita, Toru; Yi, Keewook; Fukuyama, Mayuko: **EARLY OLIGOCENE PARTIAL MELTING AND PROLONGED LOW P/T ANATEXIS OF THE UPPER HIGH HIMALAYA CRYSTALLINE SEQUENCES IN FAR-EASTERN NEPAL**
- 21-11** 11:05 AM Braden, Zoe*; Godin, Laurent; Cottle, John M.; Yakymchuk, Chris; Davis, W.J.: **DEFORMATION AND MELT CRYSTALLIZATION IN LESSER HIMALAYAN SEQUENCE ROCKS AT 7 MA REVEALED BY U-TH/PB ZIRCON GEOCHRONOLOGY AND IN SITU MONAZITE PETROCHRONOLOGY**
- 21-12** 11:20 AM Walters, Jesse*; Spreitzer, Steven; Grew, Edward S.; Williams, M.L.; Yates, Martin; Jercinovic, M.J.; Carson, Christopher J.; Cruz-Urbe, Alicia M.: **CAMBRIAN GRANULITE-FACIES METAMORPHISM OF THE LARSEMANN HILLS, PRYDZ BAY, ANTARCTICA: USING THERMODYNAMIC MODELING TO INFORM MONAZITE PETROCHRONOLOGY**
- 21-13** 11:35 AM Baird, Graham B.*; Williams, Michael L.; Regan, Sean P.: **GEOCHRONOLOGY AND CHEMISTRY OF MONAZITE IN A MIGMATITIC PARAGNEISS IN THE EASTERN ADIRONDACK HIGHLANDS ADJACENT TO TICONDEROGA, NEW YORK**
- 11:50 AM **CONCLUDING REMARKS**
- 22-8** 10:00 AM **BREAK**
- 22-8** 10:15 AM Bjornstad, Bruce N.*: **EXPLORING ICE AGE MEGAFLOODS VIA DRONE**
- 22-9** 10:30 AM Young, Robert R.*: **COMPARING LANDFORMS AND LANDSCAPES BETWEEN THE CHanneled SCABLANDS AND CANADA'S WESTERN INTERIOR**
- 22-10** 10:45 AM Cripps, Jonathan E.*; Brennand, Tracy A.; Denlinger, Roger P.; George, David L.: **GEOMORPHOLOGICAL EVIDENCE AND NUMERICAL MODELLING OF A LATE-GLACIAL MEGAFLOOD, SOUTH-CENTRAL BRITISH COLUMBIA**
- 22-11** 11:00 AM Bergman, Nathaniel*; Van De Wiel, Marco J.; Hicock, Stephen R.; Rousseau, Yannick Y.: **DRAINAGE OF THE LAST GLACIAL LAKE LONDON, ONTARIO: MAPPING AND HYDRAULIC MODELING**
- 22-12** 11:15 AM Carson, Eric C.*; Attig, John W.; Rawling, J. Elmo: **NEW STRATIGRAPHIC AND CHRONOLOGIC CONTROLS ON THE FORMATION AND DRAINAGE OF GLACIAL LAKE WISCONSIN**
- 22-13** 11:30 AM Shoemaker, Kurt A.*: **AN OUTRAGEOUS HYPOTHESIS FOR THE ORIGIN OF PLEISTOCENE "DUNES" IN THE OHIO VALLEY AT SANDY SPRINGS, OHIO, AND VANCEBURG, KENTUCKY**
- 22-14** 11:45 AM Wells, Greta H.*: **GEOMORPHOLOGIC EVIDENCE AND TIMELINE RECONSTRUCTION OF HOLOCENE JOKULHLAUPS ALONG THE HVÍTÁ RIVER AND GULLFOSS, ICELAND**

AM
SUNDAY

SESSION NO. 22

T174. Cordilleran Ice Sheet Outburst Floods: From Glacial Lake Missoula to the Hubbard Glacier (GSA Sedimentary Geology Division)

8:00 AM, The Conference Center, Chelan 5

Ingrid Hendy and Joel H. Gombiner, Presiding

- 22-1** 8:00 AM Smith, Larry N.*; Sohbaty, Reza; Buylaert, Jan-Pieter; Murray, Andrew; Jain, Mayank; Welk, Emily: **CHRONOLOGY OF MONTANA'S GLACIAL LAKE MISSOULA: CURRENT STATUS (Invited Presentation)**
- 22-2** 8:20 AM Balbas, Andrea*; Barth, Aaron M.; Clark, Peter U.; Clark, Jorie; Caffee, Marc W.; O'Connor, Jim; Baker, Victor R.; Konrad, Kevin; Bjornstad, Bruce N.: **NEW INSIGHTS INTO THE TIMESCALES AND ROUTING HISTORY OF THE LATE PLEISTOCENE MEGAFLOODS IN THE PACIFIC NORTHWEST (Invited Presentation)**
- 22-3** 8:40 AM Larsen, Isaac J.*; Lamb, Michael P.: **DISCHARGE RECONSTRUCTION OF CANYON-CARVING OUTBURST FLOODS FROM THE CORDILLERAN ICE SHEET (Invited Presentation)**
- 22-4** 9:00 AM Gombiner, Joel H.*; Stone, John O.; Lemmon, Danielle: **SURFACE EXPOSURE DATING OF LATE PLEISTOCENE MISSOULA FLOOD DEPOSITS IN THE WESTERN CHanneled SCABLAND REGION, WASHINGTON**
- 22-5** 9:15 AM McCollum, Linda B.*; McCollum, Michael B.: **FINALLY, IDENTIFICATION OF FLOOD DEPOSITS WITHIN GLACIAL LAKE COLUMBIA THAT ARE OF A MAGNITUDE WORTHY TO BE ATTRIBUTED TO GLACIAL LAKE MISSOULA OUTBURST MEGAFLOODS**
- 22-6** 9:30 AM Hendy, Ingrid*; Bervid, Heather D.; Carlson, Anders E.: **GLACIAL LAKE MISSOULA OUTBURST FLOODS AND THE SOUTHWESTERN CORDILLERAN ICE SHEET**
- 22-7** 9:45 AM Walczak, Maureen H.*; Bervid, Heather D.; Carlson, Anders E.; Churchill, Alyson N.; Du, Jianghui; Freiberg, Benjamin; Glueder, Anna; Lavoie, Nicholas R.; Lopes,

SESSION NO. 23

T184. Geologic Research at Mount Rainier and Other Cascade Volcanoes: Ideal Natural Laboratories for Cutting-Edge Research with Implications to Life Safety and Infrastructure Protection in the Pacific Northwest I (GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division; National Park Service; GSA Environmental and Engineering Geology Division)

8:00 AM, The Conference Center, Chelan 4

Scott R. Beason, Paul Kennard and Claire E. Todd, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 23-1** 8:05 AM Shean, David*; Whorton, Erin; Riedel, Jon; Arendt, Anthony; Fountain, Andrew G.: **A HIGH-RESOLUTION DEM RECORD FOR MT. RAINIER AND CONUS GLACIERS: GEODETIC MASS BALANCE, GLACIER DYNAMICS, SNOW DEPTH, AND NATURAL HAZARDS (Invited Presentation)**
- 23-2** 8:25 AM Riedel, Jon; Larrabee, Michael*: **GLACIAL MASS BALANCE 2003-2016 ON MOUNT RAINIER**
- 23-3** 8:40 AM Stevens, C. Max*; Conway, Howard; Rasmussen, L.A.; Koutnik, Michelle; Greenberg, Harvey; Kennard, Paul: **MODELING NISQUALLY GLACIER SURFACE-ELEVATION AND LENGTH CHANGES USING A MASS-BALANCE RECORD DERIVED FROM REANALYSIS AND WEATHER-STATION DATA**
- 23-4** 8:55 AM Fountain, Andrew G.*; Glenn, Bryce; Basagic, Hassan: **GLACIER CHANGE ON MOUNT RAINIER IN THE CONTEXT OF OTHER VOLCANOES IN THE CASCADE RANGE OF THE PACIFIC NORTHWEST**
- 23-5** 9:10 AM Whorton, Erin*; Shean, David; O'Neel, Shad; Fagre, Daniel; McNeil, Christopher; Clark, Adam; Sass, Louis; Headman, Alex; Peitzsch, Erich; McGrath, Daniel; Baker, Emily H.: **ASSESSING MASS BALANCE CHANGE AT SOUTH**

- CASCADE GLACIER: IS IT REPRESENTATIVE OF REGIONAL GLACIERS?**
- 23-6 9:25 AM Headman, Alex*; Whorton, Erin; Shean, David; McCann, Evan: **A SEMI-AUTOMATED METHODOLOGY FOR USING HISTORICAL AERIAL PHOTOGRAPHY TO CREATE HIGH-RESOLUTION ELEVATION AND ORTHOIMAGERY PRODUCTS OF SOUTH CASCADE GLACIER, WASHINGTON, USA**
- 9:40 AM **BREAK**
- 23-7 9:55 AM Moore, Peter*; Nelson, Leah; Dits, Theresa: **SUPRAGLACIAL DEBRIS EXTENT AND MASS-BALANCE IMPACTS ON EMMONS GLACIER, MOUNT RAINIER**
- 23-8 10:10 AM Todd, Claire*: **WHAT CAN WE LEARN FROM ANALYSIS OF GLACIAL MELTWATER ON MOUNT RAINIER?**
- 23-9 10:25 AM Wasklewicz, Thad A.*: **QUANTIFYING SEDIMENT INTENSITY FROM THE NISQUALLY GLACIER AND NONGLACIAL SOURCES TO THE NISQUALLY RIVER, MOUNT RAINIER NATIONAL PARK**
- 23-10 10:40 AM Legg, Nicholas T.*: **FORECASTING RAIN-INDUCED DEBRIS FLOWS ON MOUNT RAINIER, WASHINGTON**
- 23-11 10:55 AM Wokosin, Kevin A.*; Kennard, Paul; Edmiston, Paul: **GEOCHEMICAL MONITORING OF STAGNANT ICE FOR GLACIER OUTBURST FLOOD HAZARD ASSESSMENT, MOUNT RAINIER NATIONAL PARK**
- 23-12 11:10 AM Kenyon, Taylor Robert*: **ASSESSMENT, RESTORATION, AND ADAPTIVE MANAGEMENT OF THE N PUYALLUP TRAIL, MOUNT RAINIER NATIONAL PARK**
- 11:25 AM **DISCUSSION**

SESSION NO. 24

T194. The Aeolian Realm: Dunes, Dust, and Loess (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division)

8:00 AM, The Conference Center, Chelan 2

Nick Lancaster, William Johnson and Mark Sweeney, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 24-1 8:05 AM Tsoar, Haim*: **GSA QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION FAROUK EL-BAZ AWARD FOR DESERT RESEARCH: ECO-GEOMORPHIC PROCESSES ACTING ON DESERT SAND DUNES**
- 24-2 8:35 AM Day, Mackenzie D.*; Kocurek, Gary: **HOW PERFECT IS PERFECT IN A DUNE-FIELD PATTERN?**
- 24-3 8:50 AM Nield, Joanna M.*; Wiggs, Giles F.S.; Baddock, Matthew C.; Hipondoka, Martin H.T.: **GRAINFALL AND GRAINFLOW DYNAMICS ON AEOLIAN DUNES (Invited Presentation)**
- 24-4 9:10 AM Ewing, Ryan C.*; Lapotre, Mathieu G.A.; Lewis, Kevin; Day, Mackenzie D.; Stein, Nathaniel T.; Rubin, David M.; Sullivan, R.; Banham, Steven G.; Lamb, Michael P.; Bridges, Nathan T.; Gupta, Sanjeev; Fischer, Woodward W.: **RELATING SEDIMENTARY PROCESSES IN THE BAGNOLD DUNES TO THE DEVELOPMENT OF CRATER BASIN AEOLIAN STRATIFICATION (Invited Presentation)**
- 24-5 9:30 AM Bowen, Mark W.*; Johnson, W.C.; Goldade, Melissa: **DISTRIBUTION AND GEOMORPHOLOGY OF LUNETTE DUNES ON THE KANSAS HIGH PLAINS**
- 24-6 9:45 AM Gaylord, David R.*; Rittenour, Tammy M.; Link, Paul K.; Kuntz, Mel A.; Grant, Caleb A.; Gunnell, Nathan V.; Coleman, Angela J.: **GHOST DUNE HOLLOW: MID-LATE PLEISTOCENE TO HOLOCENE CLIMATE FLUCTUATIONS AND LANDSCAPE EVOLUTION ON THE EASTERN SNAKE RIVER PLAIN, IDAHO, USA**
- 10:00 AM **BREAK**
- 24-7 10:15 AM Ellerton, Daniel*; Shulmeister, James; Rittenour, Tammy M.; Gontz, Allen; Welsh, Kevin; Hesp, Patrick A.; Miot da Silva, Graziela; Santini, Talitha: **OSL AGES AND FORMATION**

MECHANISMS OF A MAJOR COASTAL DUNEFIELD, THE COOLOOLA SAND MASS, SOUTHEASTERN QUEENSLAND, AUSTRALIA

- 24-8 10:30 AM Sweeney, Mark R.*; McDonald, Eric V.: **DUST EMISSION POTENTIAL ALONG THE INTERSTATE 8 CORRIDOR, SOUTHERN CALIFORNIA AND ARIZONA**
- 24-9 10:45 AM McDonald, Eric V.*; Sweeney, Mark R.: **BLOWING DUST AND A DANGEROUS HIGHWAY: EVALUATING THE SOURCES OF DUST ALONG INTERSTATE 10 BETWEEN PHOENIX AND TUCSON, ARIZONA**
- 24-10 11:00 AM Diaz, Melisa A.*; Adams, Byron J.; Khan, Alia L.; Welch, Kathleen A.; Welch, Susan A.; McKnight, Diane M.; Cary, S. Craig; Lyons, W. Berry: **SOLUBLE AND BULK GEOCHEMICAL ANALYSIS OF AEOLIAN MATERIAL FROM THE MCMURDO DRY VALLEYS, ANTARCTICA**
- 24-11 11:15 AM Mason, Joseph A.*: **ORIGIN OF HOLOCENE LOESS IN THE CENTRAL GREAT PLAINS: A RECONSIDERATION**
- 24-12 11:30 AM Schaetzl, Randall*: **SYSTEMS OF LOESS TRANSPORTATION AND DEPOSITION: EXAMPLES FROM WESTERN WISCONSIN**
- 24-13 11:45 AM Muhs, Daniel R.*; Pigati, Jeffrey S.; Budahn, James R.; Skipp, Gary L.; Bettis, E. Arthur; Jensen, Britta J.L.: **ORIGIN OF LAST-GLACIAL LOESS IN THE WESTERN YUKON-TANANA UPLAND, CENTRAL ALASKA, USA**

SESSION NO. 25

T207. Volcanism and Tectonism across the Solar System (GSA Planetary Geology Division)

8:00 AM, The Conference Center, Tahoma 1

Paul K. Byrne and Christian Klimczak, Presiding

- 25-1 8:00 AM Sehlke, Alexander*; Kobs Nawotniak, Shannon; Hughes, Scott; Sears, Derek; Downs, Michael; Whittington, Alan G.; Lim, Darlene S.S.; Heldmann, Jennifer: **THE ANATOMY OF THE BLUE DRAGON: CHANGES IN LAVA FLOW MORPHOLOGY AND PHYSICAL PROPERTIES OBSERVED IN AN OPEN CHANNEL LAVA FLOW AS A PLANETARY ANALOGUE (Invited Presentation)**
- 25-2 8:20 AM Jozwiak, Lauren M.*; Izenberg, Noam R.; Head, James W.; Olson, Caroline L.: **EXPLORING THE DURATION OF EXPLOSIVE VOLCANISM ON MERCURY (Invited Presentation)**
- 25-3 8:40 AM Klimczak, Christian*; Crane, Kelsey T.; Habermann, Mya A.; Byrne, Paul K.: **A STATISTICAL INVESTIGATION INTO THE SPATIAL DISTRIBUTION OF MERCURY'S PYROCLASTIC ACTIVITY**
- 25-4 8:55 AM Needham, Debra H.*; Kring, David A.: **VOLATILES RELEASED DURING EMPLACEMENT OF MARE BASALTS: IMPLICATIONS FOR A LUNAR ATMOSPHERE**
- 25-5 9:10 AM Harrison, Tanya N.*: **EVIDENCE FOR VOLCANISM IN MARTIAN FLOOR-FRACTURED CRATERS FROM THE MARS RECONNAISSANCE ORBITER CONTEXT CAMERA**
- 25-6 9:25 AM Heineman, Rachel*; Pollock, Meagen; Edwards, Ben; Page, F. Zeb; Lembo, Cara; Orden, Michelle; Wallace, Chloe: **GLACIOVOLCANIC MEGAPILLOWS OF UNDIRHLITHAR, REYKJANES PENINSULA, SOUTHWESTERN ICELAND**
- 25-7 9:40 AM Thomson, Bradley*; Lang, Nicholas P.: **DETECTION OF ANISTOPHY IN THE SPATIAL DISTRIBUTION OF TERRESTRIAL VOLCANIC FIELDS: EVIDENCE OF TECTONIC CONTROL**
- 25-8 9:55 AM Crane, Kelsey T.*; Klimczak, Christian: **TECTONIC PATTERNS OF SHORTENING LANDFORMS IN MERCURY'S NORTHERN SMOOTH PLAINS**
- 25-9 10:10 AM Callihan, Melanie B.*; Klimczak, Christian: **GROWTH STRATEGIES AND FAULT ROCK EVOLUTION OF LUNAR GRABEN**

- 25-10 10:25 AM Stubblefield, Rashonda K.*; Byrne, Paul K.; Wegmann, Karl W.; Mitasova, Helena; Kling, Corbin L.: **EXTENSIONAL TECTONICS AT ALBA MONS: A CASE STUDY FOR REGIONAL AND LOCAL STRESS FIELDS**
- 25-11 10:40 AM Kling, Corbin L.*; Byrne, Paul K.; Wyrick, Danielle Y.; Wegmann, Karl W.; Mitasova, Helena: **THE FORMATION OF PIT CRATERS WITHIN NOCTIS LABYRINTHUS, MARS**
- 25-12 10:55 AM Ojha, Lujendra*; Lewis, Kevin; Karunatilake, Suniti: **THE DENSITY OF THE MEDUSAE FOSSAE FORMATION: IMPLICATIONS FOR ITS COMPOSITION, ORIGIN, AND IMPORTANCE IN MARTIAN HISTORY**
- 25-13 11:10 AM Buczkowski, Debra L.*; Scully, Jennifer E.C.; Raymond, Carol A.; Russell, Christopher T.: **THE TECTONICS OF VESTA AND CERES**
- 25-14 11:25 AM Schoenfeld, Ashley*; Yin, An: **STRESSING OUT: A LOOK AT THE STRESS REGIME OF ENCELADUS' SOUTH POLE**

SESSION NO. 26 \$

T216. Spatiotemporal Variations and the Role of Fluids in Fault-Zone Hydromechanical Processes (GSA Structural Geology and Tectonics Division; GSA Hydrogeology Division; GSA Energy Geology Division; Future of Tectonics Initiative)

8:00 AM, The Conference Center, Tahoma 2

Keith R. Hodson, Elizabeth S. Petrie and Randolph T. Williams, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 26-1 8:05 AM Siler, Drew L.*; Hinz, Nicholas H.; Faulds, James E.: **PERMEABILITY GENERATION AND MAINTENANCE AT STRUCTURAL DISCONTINUITIES: A PERSPECTIVE FROM GEOTHERMAL FIELDS (Invited Presentation)**
- 26-2 8:25 AM Callahan, Owen A.*; Eichhubl, Peter; Olson, Jon E.; Davatzes, Nicholas C.: **CHEMICALLY ASSISTED FRACTURE GROWTH IN HYDROTHERMAL SYSTEMS: EXPERIMENTAL RESULTS**
- 26-3 8:40 AM Montoya, Leslie Marie*; Waters-Tormey, Cheryl; Casale, Gabriele: **REPEATED HYDRAULIC (AND COSEISMIC?) FRACTURING FORMING M-SCALE DILATIONAL STRUCTURES: A PILOT STUDY FROM THE JERVOIS RANGE REGION, CENTRAL AUSTRALIA**
- 26-4 8:55 AM Otsubo, Makoto*; Hardebeck, Jeanne; Miyakawa, Ayumu; Yamaguchi, Asuka; Kimura, Gaku: **TENSION VEINS AS EVIDENCES OF LOCALIZED FLUID DISCHARGE IN SUBDUCTION ZONES: AN EXAMPLE OF NOBEOKA THRUST, SOUTHWESTERN JAPAN**
- 26-5 9:10 AM Eckstein, Yoram*: **GROUNDWATER LEVEL RESPONSE TO FRACTURING ASSOCIATED WITH COAL MINE SUBSIDENCE AND METHANE GAS EXPLOSION**
- 26-6 9:25 AM Randolph-Flagg, N.G.*; Hurwitz, Shaul; Manga, Michael; Clor, Laura: **CHANGES IN WELL WATER LEVELS AND TRIGGERED EARTHQUAKES AFTER PASSAGE OF TELESEISMIC WAVES IN LONG VALLEY CALDERA, 2000-2017**
- 9:40 AM **BREAK**
- 26-7 9:55 AM Laubach, Stephen E.*: **STRUCTURAL DIAGENESIS OF FAULTS IN SANDSTONE (Invited Presentation)**
- 26-8 10:15 AM Major, Jonathan R*; Eichhubl, Peter: **EFFECT OF FLUIDS CHEMISTRY AND DIAGENESIS ON FRACTURE PROCESSES IN A FAULT ZONE**
- 26-9 10:30 AM Newell, Dennis L.*; Jessup, Micah J.; Koger, Jace; Scott, Brandt: **ISOTOPIC RECORD OF FLUID-FAULT INTERACTION IN MODERN AND ANCIENT EXTENSIONAL SYSTEMS (Invited Presentation)**
- 26-10 10:50 AM Hodson, Keith R.*; Crider, Juliet G.; Huntington, Katharine W.: **DIAGENETIC CONDITIONS AND SOURCE FLUID COMPOSITIONS ASSOCIATED WITH MULTIPLE**

- EPISODES OF CEMENTATION ALONG THE MOAB FAULT, UT**
- 26-11 11:05 AM Williams, Randolph T.*; Goodwin, Laurel B.; Sharp, Warren D.; Mozley, Peter S.; Beard, Brian; Johnson, Clark M.: **RADIOGENIC ISOTOPE ANALYSES REFINE CONSTRAINTS ON THE SEISMIC CYCLE OF AN INTRAPLATE NORMAL FAULT**
- 26-12 11:20 AM Brink-Roby, David*; Mitra, Gautam; Yonkee, Adolph; Evans, Mark A.: **FLUID SOURCES, PATHWAYS, AND DRIVING FORCES WITHIN FOLD-THRUST BELTS: THE CENTRAL WYOMING SALIENT OF THE SEVIER OROGEN**
- 11:35 AM **POSTER PREVIEW**
- 11:50 AM **DISCUSSION**

SESSION NO. 27

T220. Challenges in Tectonics: Planetary Evolution in Four Dimensions—The New Global Tectonics (GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)

8:00 AM, The Conference Center, Tahoma 4

John A. Hole, Andrew Laskowski and Robert Moucha, Presiding

- 27-1 8:00 AM Currie, Claire A.*; Schaeffer, Andrew J.; Mallyon, Deirdre; Chen, Yunfeng; Gu, Yu Jeffrey; Audet, Pascal: **THE 4D STRUCTURE OF THE CORDILLERA-CRATON TRANSITION IN WESTERN CANADA (Invited Presentation)**
- 27-2 8:20 AM Guenther, William R.*; DeLucia, Michael S.; Marshak, Stephen; Reiners, Peter W.; Drake, Henrik; Thomson, Stuart N.; Ault, Alexis K.; Tillberg, Mikael: **ZIRCON (U-TH)/HE DATA REVEALS DEEP-TIME THERMAL HISTORIES OF CRATONS AND THE GREAT UNCONFORMITY SURFACE**
- 27-3 8:35 AM Thacker, Jacob O.*; Karlstrom, Karl E.; Kendall, Jerry; Kelley, Shari A.; Crow, Ryan S.; Schmandt, Brandon: **ELUCIDATING THE REGIONAL SPATIOTEMPORAL CHARACTERISTICS OF LARAMIDE DEFORMATION THROUGH LOW-TEMPERATURE THERMOCHRONOLOGY**
- 27-4 8:50 AM Orme, Devon A.*; Graham, Stephan A.: **A FOUR-DIMENSIONAL MODEL OF CRETACEOUS DEPOSITIONAL GEOMETRY AND SEDIMENT FLUX IN THE NORTHERN GREAT VALLEY FOREARC, CALIFORNIA**
- 27-5 9:05 AM Williams, Michael L.*; Jercinovic, Michael J.: **CONSTRAINING THE 4D CHARACTER AND EVOLUTION OF CONTINENTAL CRUST (Invited Presentation)**
- 27-6 9:25 AM Friedrich, Anke M.*: **STRATIGRAPHIC FRAMEWORK FOR THE PLUME MODE OF MANTLE CONVECTION**
- 27-7 9:40 AM Lom, Nalan*; Sunal, Gursel; Sağdıç, Nurbike G.; Şengör, A.M. Celâl: **THE PROTOGONOS: A LONG LIVED MAGMATIC ARC ALONG THE NORTHERN MARGIN OF GONDWANA-LAND AND ITS DISRUPTION DURING THE HERCYNIAN OROGENY**
- 27-8 9:55 AM Davidson, Peter*; Koppers, Anthony A.P.: **HIGH PRECISION ⁴⁰AR/³⁹AR AGES OF BASALTIC BASEMENT FROM IODP HOLE U1365E NEAR OSBOURN TROUGH: IMPLICATIONS FOR THE BREAKUP OF ONTONG JAVA NUI**
- 10:10 AM **BREAK**
- 27-9 10:25 AM Long, Sean P.*; McQuarrie, Nadine: **INTEGRATION OF GEOMETRY, KINEMATICS, BURIAL TIMING, AND EXHUMATION TIMING TO UNDERSTAND 4-D THRUST BELT EVOLUTION: AN EXAMPLE FROM THE HIMALAYAN OROGEN IN BHUTAN (Invited Presentation)**
- 27-10 10:45 AM He, John*; Chapman, James B.; Kapp, Paul; Gadoev, Mustafo; Dimahmadov, Ilhomjon: **DETRITAL ZIRCON GEOCHRONOLOGY OF THE PALEOZOIC TO**

- PALEOGENE STRATA OF THE CENTRAL PAMIR UPPER CRUST**
- 27-11 11:00 AM Chatterjee, Sankar*; Scotese, Christopher R.: **THE BALLET OF INDIAN PLATE DURING THE ASSEMBLY AND BREAKUP OF THE PROTEROZOIC SUPERCONTINENTS**
- 27-12 11:15 AM Pavlis, Terry L.*: **INTEGRATION OF 3D VISUALIZATION AND GEOCHRONOLOGY AS A FOUNDATION TO 4D EARTH MODELS**

SESSION NO. 28

T221. Circum-Arctic Structural Events: Tectonic Evolution of the Arctic Margins and Trans-Arctic Links with Adjacent Orogens (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA International/International Interdisciplinary Interest Group)

8:00 AM, The Conference Center, Tahoma 3

Karsten Piepjohn, Justin V. Strauss, Shawn J. Malone and William C. McClelland, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 28-1 8:05 AM Majka, Jaroslaw; Kosminska, Karolina*: **MAGMATIC AND METAMORPHIC EVENTS RECOGNIZED WITHIN SOUTHWESTERN SVALBARD'S CRYSTALLINE BASEMENT – A REVIEW**
- 28-2 8:20 AM Malone, Shawn J.*; McClelland, William C.; von Gosen, Werner; Piepjohn, Karsten; Ward, William P.: **PROTEROZOIC ORIGINS, PALEOZOIC TECTONICS: THE CASE 11 STORY OF THE PEARYA TERRANE AND INSIGHTS INTO ITS PLACE IN THE CANADIAN HIGH ARCTIC**
- 28-3 8:35 AM Beranek, Luke P.*; Pease, Victoria: **NEW PERSPECTIVES ON THE ORDOVICIAN-SILURIAN STRATIGRAPHY OF THE CLEMENTS MARKHAM AND NORTHERN HEIBERG FOLD BELTS, CANADIAN ARCTIC ARCHIPELAGO (Invited Presentation)**
- 28-4 8:55 AM Alonso-Torres, Daniel*; Beauchamp, Benoit; Matthews, William A.; Hadlari, Thomas: **A BACKARC TO RETROARC REGIME FOR THE SVERDRUP BASIN DURING THE LATE PALEOZOIC**
- 28-5 9:10 AM Reinhardt, Lutz*; von Gosen, Werner; Piepjohn, Karsten; Lückge, Andreas; Schmitz, Mark D.: **IDENTIFICATION OF THE EOCENE THERMAL MAXIMUM 2 (ETM-2) IN A TERRESTRIAL SECTION OF THE HIGH ARCTIC BASED ON NEW U-PB ZIRCON AGES AND CARBON ISOTOPE RECORDS (STENKUL FIORD, ELLESMERE ISLAND, CANADA)**
- 28-6 9:25 AM Piepjohn, Karsten*; Dewing, Keith; Galloway, Jennifer; Smith, Rod: **STRUCTURAL GEOLOGY OF BANKS ISLAND - IMPLICATIONS TO THE STRUCTURE OF THE NORTH AMERICAN CONTINENTAL MARGIN**
- 9:40 AM **BREAK**
- 28-7 9:55 AM von Gosen, Werner*; Piepjohn, Karsten; Gilotti, Jane A.; McClelland, William C.; Reinhardt, Lutz: **EVIDENCE FOR A SOUTHERN EXTENSION OF THE WEGENER FAULT IN NARES STRAIT, ARCTIC CANADA (Invited Presentation)**
- 28-8 10:15 AM Johnson, Benjamin*; Strauss, Justin V.; Taylor, John F.; Ward, William P.; Colpron, Maurice; McClelland, William C.; Toro, Jaime: **THE WHALE MOUNTAIN ALLOCHTHON OF THE NORTHEASTERN BROOKS RANGE, ALASKA: AN ARCTIC VESTIGE OF THE IAPETUS OCEAN**
- 28-9 10:30 AM Colpron, Maurice*; McClelland, William C.; Strauss, Justin V.: **DETRITAL ZIRCON U-PB GEOCHRONOLOGICAL AND HF ISOTOPIC CONSTRAINTS ON THE GEOLOGICAL EVOLUTION OF NORTH YUKON**
- 28-10 10:45 AM McClelland, William C.*; Strauss, Justin V.; Colpron, Maurice; Faehnrich, Karol: **THE PORCUPINE SHEAR ZONE: A FUNDAMENTAL LINK BETWEEN THE ARCTIC AND CORDILLERAN MARGINS OF LAURENTIA**

- 28-11 11:00 AM Ershova, Victoria*; Prokopiev, Andrei; Khudoley, Andrei: **DEVONIAN PALEOGEOGRAPHY AND TECTONICS OF RUSSIAN ARCTIC**
- 28-12 11:15 AM Dumoulin, Julie A.*; Amato, Jeffrey M.: **PETROLOGIC, FOSSIL, AND DETRITAL ZIRCON DATA FROM DEVONIAN-TRIASSIC STRATA ON ST. LAWRENCE ISLAND, ALASKA: LINKS TO NORTHWESTERN ALASKA AND EASTERN RUSSIA**
- 28-13 11:30 AM Prokopiev, Andrei*; Khudoley, Andrei; Ershova, Victoria; Vasiliev, Dmitry: **TECTONICS OF THE NORTHERN PART OF VERKHUYANSK AND OLENEK FOLD BELTS: IMPLICATION FOR LATE MESOZOIC – EARLY CENOZOIC EVOLUTION OF LAPTEV SEA REGION**
- 28-14 11:45 AM Till, Alison B.*: **WERE ARCTIC ALASKA AND CHUKOTKA ONE MICROPLATE OR TWO DURING EARLY CRETACEOUS OPENING OF THE CANADA BASIN?**

SESSION NO. 29

T223. Intraplate Earthquake Sources, Processes, and Hazards in Central and Eastern North America (GSA Structural Geology and Tectonics Division; GSA Geophysics Division; GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; EarthScope National Office)

8:00 AM, The Conference Center, Tahoma 5

J. Wright Horton Jr., Christine A. Powell and Robert A. Williams, Presiding

- 29-1 8:00 AM Marshak, Stephen*; Pavlis, Gary; Hamburger, Michael W.; Gilbert, Hersh; Yang, Xiaotao; Chen, Chen; DeLucia, Michael S.; Larson, Timothy; Rupp, John: **INSIGHTS INTO MIDCONTINENT (USA) TECTONICS AND SEISMICITY FROM THE OIINK EARTHSCOPE FLEXARRAY EXPERIMENT (Invited Presentation)**
- 29-2 8:20 AM Liu, Lin; Gao, Stephen S.*; Liu, Kelly H.; Mickus, Kevin L.; Song, Jianguo; Yu, Youqiang: **CRUSTAL STRUCTURE AND VERTICAL MOVEMENTS OF THE UPPER MISSISSIPPI EMBAYMENT AND OZARK UPLIFT**
- 29-3 8:35 AM Van Arsdale, Roy B.*: **GEOLOGY OF THE NEW MADRID SEISMIC ZONE REGION OF THE CENTRAL UNITED STATES REVEALS SLEEPING GIANTS**
- 29-4 8:50 AM Powell, Christine*; Saxena, Arushi; Choi, Eunseo: **POSSIBLE CAUSES OF LOW VELOCITY IN THE UPPER MANTLE BENEATH THE MISSISSIPPI EMBAYMENT**
- 29-5 9:05 AM Searls, Mindi*; Filina, Irina; Burberry, Caroline M.; Quartoroli, Evan: **MIDCONTINENT RIFT STRUCTURES IN SE NEBRASKA**
- 29-6 9:20 AM Shah, Anjana K.*; Crain, Keivn: **NEW AIRBORNE MAGNETIC AND GROUND GRAVITY DATA USED TO IMAGE FAULTS AND CONTACTS IN THE CRYSTALLINE BASEMENT OF NORTH-CENTRAL OKLAHOMA**
- 29-7 9:35 AM Thomas, William A.*; Powell, Christine A.: **CONCENTRATED CRUSTAL DEFORMATION AND THE DISTRIBUTION OF INTRAPLATE EARTHQUAKES**
- 9:50 AM **BREAK**
- 29-8 10:05 AM Long, Maureen D.*; Benoit, Margaret H.: **STRUCTURE OF THE CRUST AND MANTLE LITHOSPHERE BENEATH THE CENTRAL APPALACHIANS: RESULTS FROM THE MAGIC EXPERIMENT (Invited Presentation)**
- 29-9 10:25 AM Horton, J. Wright*; Carter, Mark W.; Chapman, Martin C.; Wu, Qimin; Shah, Anjana K.; Witt, Anne C.: **INFLUENCE OF BEDROCK STRUCTURE ON SHALLOW AFTERSHOCKS IN THE CENTRAL VIRGINIA SEISMIC ZONE**
- 29-10 10:40 AM Gates, Alexander E.*; Kalczynski, Michael J.: **EARTHQUAKE CYCLICITY IN THE NEW YORK METROPOLITAN AREA**
- 29-11 10:55 AM Calais, Eric*; Camelbeec, Thierry; Stein, Seth; Liu, Mian; Craig, Timothy: **A NEW PARADIGM FOR LARGE**

EARTHQUAKES IN STABLE CONTINENTAL PLATE INTERIORS (Invited Presentation)

- 29-12 11:15 AM Şengör, A.M. Celâl*; Lom, Nalan; Sağdıç, Nurbike G.: **THE EUROPEAN PLATE BOUNDARY ZONE: HOW RELIABLE ARE THE EUROPEAN SEISMIC HAZARD MAPS?**
- 29-13 11:30 AM Stein, Seth*; Vanneste, Kris; Camelbeeck, Thierry; Vleminckx, Bart: **HOW GOOD SHOULD WE EXPECT EARTHQUAKE HAZARD MAPS FOR CONTINENTAL INTERIORS TO BE?**
- 29-14 11:45 AM Brooks, Edward M*; Stein, Seth; Spencer, Bruce D.; Salditch, Leah: **PERFORMANCE OF USGS ONE-YEAR EARTHQUAKE HAZARD MAP FOR NATURAL AND INDUCED SEISMICITY IN THE CENTRAL AND EASTERN UNITED STATES**

SESSION NO. 30

T249. New Voices in Geobiology I (GSA Geobiology & Geomicrobiology Division; GSA Karst Division)

8:00 AM, Washington State Convention Center, Room 602/603

Victoria A. Petryshyn, Marc Laflamme, Lydia S. Tackett, Rowan C. Martindale, Simon A.F. Darroch and Carie M. Frantz, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 30-1 8:05 AM Reinhard, Christopher T.*: **THE EVOLUTIONARY GEOBIOLOGY OF EARTH'S OXYGEN CYCLE (Invited Presentation)**
- 30-2 8:25 AM Eiloart, Kate*; Wacey, David; Saunders, Martin: **NANOSCALE CHARACTERISATION OF THE 1.9 GA GUNFLINT CHERT MICROFOSSIL ASSEMBLAGE**
- 30-3 8:40 AM Bernau, Jeremiah A.*; Benison, Kathleen C.: **MICROORGANISMS IN THE NEOPROTEROZOIC BROWNE FORMATION HALITE OF AUSTRALIA?**
- 30-4 8:55 AM Anderson, Ross P.*; Macdonald, Francis A.; Jones, David S.; McMahon, Sean; Briggs, Derek E.G.: **A LATEST EDIACARAN DOUSHANTUO-TYPE LAGERSTÄTTE FROM NORTHERN MONGOLIAN PHOSPHORITES**
- 30-5 9:10 AM Keith, Stanley B.*; Johnston, Paul A.; Johnston, Kimberley J.: **A SERPENTINITE "SMOKING GUN" IN THE BURGESS SHALE: EVIDENCE FOR DEEP-SOURCED MAGNESIUM-CHARGED HYDROTHERMAL BRINES AND MUD VOLCANISM THAT FUELLED THE BURGESS BIOSYSTEM**
- 30-6 9:25 AM Johnston, Paul A.*; Johnston, Kimberley J.; Keith, Stanley B.: **DEPOSITIONAL ENVIRONMENT AND PALEOECOLOGY OF THE MIDDLE CAMBRIAN BURGESS SHALE RECONSIDERED—MUD VOLCANISM, SYNGENETIC FAULTING, AND PALEOBATHYMETRY**
- 30-7 9:40 AM Lau, Kimberly V.*; Hancock, Leanne G.; Maher, Kate; Severmann, Silke; Kuzminov, Amy; Behl, Richard J.; Lyons, Timothy W.: **CONSTRAINTS ON URANIUM ISOTOPE FRACTIONATION AND RELATED RECONSTRUCTIONS OF PAST MARINE REDOX CONDITIONS FROM THE MIOCENE MONTEREY FORMATION (Invited Presentation)**
- 10:00 AM **BREAK**
- 30-8 10:15 AM Junium, Christopher K.*; Uveges, Benjamin Thornton Iglar; Ivany, Linda C.; Martindale, Rowan C.; Cohen, Phoebe; Das, Shibajyoti; Hickey, Alaina N.; King Phillips, Ezekiel J.: **NEW APPROACHES TO ACCESSING HIGH-RESOLUTION BIOGEOCHEMICAL SIGNALS FROM ANCIENT ORGANIC MATERIALS**
- 30-9 10:30 AM Tornabene, Chiara; Martindale, Rowan C.*; Wang, Xingchen T.; Schaller, Morgan F.: **NITROGEN ISOTOPES IN FOSSIL SCLERACTINIAN CORALS: EVIDENCE OF PHOTOSYMBIOSIS AND NUTRIENT CYCLING IN DEEP TIME**

- 30-10 10:45 AM Myers, Corinne*; Bergmann, Kristin; Sun, Chang-Yu; Tamre, Erik; Marcus, Matthew; Boekelheide, Nicholas; Knoll, Andrew H.; Gilbert, P.U.P.A.: **EXCEPTIONAL PRESERVATION OF GLYCINE-RICH PROTEINS AND SHELL ULTRASTRUCTURE IN PINNID BIVALVES**
- 30-11 11:00 AM Plaza-Torres, Stephanie*; Davidheiser-Kroll, Brett; Chin, Karen; Wing, Boswell: **UNTANGLING THE DIET OF HERBIVOROUS DINOSAURS FROM THE MINERALIZATION OF THEIR DUNG: A STABLE ISOTOPE ANALYSIS OF COPROLITES**
- 30-12 11:15 AM Gray, Katelyn E.*; Pagani, Mark; Henkes, Gregory A.; Blake, Ruth E.: **A CARBONATE CLUMPED ISOTOPE CALIBRATION OF GAR SCALE APATITE**
- 30-13 11:30 AM Kokesh, Broc S.*; Anderson, Laurie C.; Engel, Annette Summers: **GEOMETRIC MORPHOMETRIC ANALYSES OF CTENA ORBICULATA (LUCINIDAE:BIVALVIA) FROM MARINE LAKES OF SAN SALVADOR ISLAND, THE BAHAMAS, AND SURROUNDING COASTAL ENVIRONMENTS**
- 30-14 11:45 AM Oakes, Rosie L.*; Peck, Victoria L.; Manno, Clara; Bralower, Timothy J.: **DEGRADATION OF INTERNAL ORGANIC MATTER IS A MAJOR CONTROL ON PTEROPOD SHELL DISSOLUTION AFTER DEATH**

AFTERNOON ORAL TECHNICAL SESSIONS

SESSION NO. 31

T245. Subduction Zone Coseismic Landslides (GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division)

1:30 PM, The Conference Center, Tahoma 2

William J. Burns, Joshua Roering, Alison R. Duvall and Kevin M. Schmidt, Presiding

- 31-1 1:30 PM Burns, William J.*; Calhoun, Nancy; Roering, Joshua; Struble, William: **INVESTIGATION OF CASCADIA EARTHQUAKE TRIGGERED LANDSLIDES**
- 31-2 1:45 PM Jibson, Randall W.*: **LANDSLIDE HAZARDS ASSOCIATED WITH SUBDUCTION-ZONE EARTHQUAKES (Invited Presentation)**
- 31-3 2:05 PM Clark, Marin K.*; Zekkos, Dimitrios; Medwedeff, William; Townsend, Kirk F.; Gallen, Sean Francis: **RECENT INSIGHTS ON THE RELATIONSHIP BETWEEN LANDSCAPE FORM AND LANDSLIDING DURING EARTHQUAKES (Invited Presentation)**
- 31-4 2:25 PM Wartman, Joseph*; Grant, Alex R.: **COSEISMIC LANDSLIDES IN SUBDUCTION EVENTS: INSIGHTS FROM THE 2011 M9 TOHOKU, JAPAN INVENTORY (Invited Presentation)**
- 31-5 2:45 PM Malick, Geoffrey*; Clark, Douglas H.: **GEOLOGIC DEVELOPMENT AND ONGOING ACTIVITY OF THE VAN ZANDT LANDSLIDE COMPLEX, NORTHWEST WASHINGTON**
- 31-6 3:00 PM Zhiqiang, Yin*: **DISTRIBUTION CHARACTERISTICS OF GEOHAZARDS INDUCED BY THE LUDIAN EARTHQUAKE ON 3 AUGUST, 2014 AND A COMPARISON TO THE JINGGU AND YINGJIANG EARTHQUAKES**
- 31-7 3:15 PM Medwedeff, William*; Clark, Marin K.: **LANDSLIDES ARE SCALE SPECIFIC**

SESSION NO. 32

D3. The Geochemistry, Biogeochemistry, and Ecology of Cave and Karst Settings

1:30 PM, Washington State Convention Center, Room 612

James R. Garey, Joseph Asante and Skyler Sorsby, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 32-1 1:35 PM Makhubela, Tebogo V.*; Kramers, J.D.; Scherler, D.; Wittmann, H.; Dirks, P.H.G.M.; Winkler, S.R.: **COSMOGENIC ¹⁰BE AND ²⁶AL STUDIES OF THE RISING STAR SITE, CRADLE OF HUMANKIND, SOUTH AFRICA: MYSTERY OF THE TRUE DENUDATION RATES**
- 32-2 1:50 PM Garey, James*; Menning, Damian M.; Wynn, Jonathan G.; Scharping, Robert J.: **DOUBLE KEYHOLE: AN ACTIVE SPRING-FED KARST ESTUARY IN THE GULF OF MEXICO**
- 32-3 2:05 PM Moss, Christina J.*; Petralia, Salvatore; Messina, Marianna; Garey, James R.: **MICROBIAL TEMPORAL DYNAMICS OF A NOVEL GYPSUM KARST SULFIDIC SPRING**
- 32-4 2:20 PM Turner, Autumn B.*: **MEASURING INORGANIC CARBON FLUXES FROM CARBONATE MINERAL WEATHERING FROM LARGE RIVER BASINS: THE OHIO RIVER BASIN**
- 32-5 2:35 PM Méndez-Pérez, Roberto; Rosales Lagarde, Laura*; Gómez-Cruz, Rodolfo; Boston, Penelope J.: **CHARACTERIZATION OF THE AIR SPACE AT CUEVA DE VILLA LUZ, TABASCO, MEXICO**
- 32-6 2:50 PM Asante, Joseph*; Dotson, Samuel; Hart, Evan; Kreamer, David K.: **WATER CIRCULATION IN KARST AQUIFERS: COMPARING PHYSICO-CHEMICAL AND ENVIRONMENTAL ISOTOPIC DATA INTERPRETATION**
- 3:05 PM **BREAK**
- 32-7 3:20 PM Jackson, Leah*; Polk, Jason: **EPIKARST HYDROGEOCHEMICAL CHANGES AND CARBON SOURCING IN TEOGENETIC KARST SYSTEMS IN SOUTH-CENTRAL KENTUCKY**
- 32-8 3:35 PM Gouzie, Douglas*: **EVALUATING BARIUM CONCENTRATIONS IN CAVE SEDIMENTS - INTERPRETING AND UNDERSTANDING THE BARIUM DATABASES**
- 32-9 3:50 PM Paylor, Randall*: **EVALUATING SIGNIFICANCE OF PARTICULATE CARBONATE TRANSPORT TO THE KARST CARBON SINK AND COMPARISON OF KARST LANDSCAPE DENUDATION RATES USING DISSOLVED LOAD VS. TOTAL LOAD CALCULATIONS**
- 32-10 4:05 PM Carey, Anne E.*; Zorn, Matija; Tičar, Jure; Lipar, Matej; Welch, Susan A.; Lyons, W. Berry: **CHEMOSTRATIGRAPHY OF KARST ICE, PARADANA CAVE, SLOVENIA**
- 32-11 4:20 PM Çalli, Süleyman Selim*; Arslan, Şebnem; Karakaş, Zehra Semra; Çelik, Mehmet: **AN APPROACH TO IDENTIFY KARSTIFICATION BASEMENT: ANALYSIS OF SPRING SEDIMENTS MINERALOGY**

SESSION NO. 33

D25. Geoscience Education Session: International Field Experiences in the Digital Age and Adapting Mental Models by Using Food for Teaching

1:30 PM, Washington State Convention Center, Room 3A

Mindy A. Kimball, Anita M. Marshall and Ivan G. Carabajal, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 33-1 1:35 PM Feely, Martin*: **US GEOLOGY FIELD CAMPS IN AN IRISH SETTING: A TWENTY-YEAR RETROSPECTIVE OF TRANS-ATLANTIC TEACHING COLLABORATIONS IN THE WEST OF IRELAND**
- 33-2 1:50 PM Pitts, Alan*; Kysar-Mattiotti, Giuseppina; McBride, Randolph A.; Di Celma, Claudio; Tondi, Emanuele: **GEOLOGY FIELD CAMP IN ITALY: A NEW**

INTERNATIONAL FIELD EXPERIENCE IN GEOLOGIC MAPPING AND GEOLOGIC HAZARDS

- 33-3 2:05 PM McMillan, Margaret E.*; Connelly, Jeffrey B.: **AN ALTERNATE FIELD CAMP EXPERIENCE AT THE UNIVERSITY OF ARKANSAS AT LITTLE ROCK THAT INCORPORATES DIGITAL TECHNIQUES AND LOCAL, NATIONAL, AND INTERNATIONAL SITES**
- 33-4 2:20 PM Simpson, Carol; De Paor, Declan; Whitmeyer, Steven*: **TWENTY YEARS OF TECHNOLOGICAL INNOVATION IN AN INTERNATIONAL CAPSTONE FIELD COURSE**
- 33-5 2:35 PM Malinconico, Lawrence L.*; Sunderlin, David: **TWENTY FIVE YEARS OF SHORT TERM OFF-CAMPUS GEOLOGICAL FIELD COURSES AT LAFAYETTE COLLEGE**
- 33-6 2:50 PM Pyle, Eric J.; Paylor, Alison*: **WHAT FIELD COURSES HATH WROUGHT: THE USE OF FIELD CAMP STRUCTURES FOR BROADER AUDIENCES**
- 33-7 3:05 PM Henson, Harvey*; Subramanian, Rajvee; Mumba, Frackson: **EARTHQUAKE HAZARD EDUCATION TO MIDDLE SCHOOL STUDENTS NEAR THE NEW MADRID SEISMIC ZONE**
- 3:20 PM **BREAK**
- 33-8 3:25 PM Neitzke Adamo, Lauren*: **MAGMA, MOUNDS, AND MILKSHAKES: EXPLORING CONCEPTS IN VISCOSITY AND VOLCANIC ERUPTIONS**
- 33-9 3:40 PM Foley, Duncan*: **COOKING OVER A HOT SPOT – USING FOOD TO ILLUSTRATE GEOLOGY FOR NON-SCIENTISTS IN YELLOWSTONE**
- 33-10 3:55 PM Nagy, Robin M.*: **STRING CHEESE: A PERFECT ANALOGUE FOR PERFECT CLEAVAGE IN TWO DIRECTIONS**
- 33-11 4:10 PM Gregg, Tracy K.P.*: **CHOCOLATE IS MY MUSE: SUGARCOATING GEOSCIENCE CONCEPTS IN INTRODUCTORY AND UPPER-LEVEL CLASSES**
- 33-12 4:25 PM Soja, Constance M.*: **STUDENTS' ASSESSMENTS OF AN IN-CLASS DISSECTION INSPIRE GENERAL PRINCIPLES FOR DESIGNING FOOD-BASED EXERCISES IN INTRODUCTORY GEOLOGY COURSES**
- 33-13 4:40 PM Fleming, Erik H.*: **CASE STUDY IN USING FOOD AS AN ANALOGUE MODEL IN A TITLE 1 HIGH SCHOOL**
- 4:55 PM **DISCUSSION**

SESSION NO. 34

D46. Marine/Coastal Science Session

1:30 PM, Washington State Convention Center, Room 604

J. Andrew G. Cooper and David Mallinson, Presiding

- 34-1 1:30 PM Mallinson, David J.*; Culver, Stephen J.; Leorri, Eduardo; Mulligan, Ryan: **WHAT COMES NEXT? THE FINAL PUSH TO THE FUTURE LATE HOLOCENE SEA-LEVEL HIGHSTAND**
- 34-2 1:45 PM Wernette, Phillipe A.*; Houser, Chris; Weymer, Bradley Allen; Everett, Mark E.; Reece, Robert S.; Bishop, Michael P.: **DEVELOPING A MULTIDISCIPLINARY UNDERSTANDING OF BARRIER ISLAND EVOLUTION**
- 34-3 2:00 PM Oakley, Bryan A.*; Murphy, Cody J.; Hollis, Robert J.: **SPATIAL EXTENT AND VOLUME OF SAND ON THE UPPER SHOREFACE OF THE GLACIATED RHODE ISLAND SOUTH SHORE; RELATIONSHIP TO DECADAL SCALE SHORELINE CHANGE AND LONGSHORE SEDIMENT TRANSPORT**
- 34-4 2:15 PM Borrelli, Mark*; Love, Heath; Giese, Graham: **UPDRIFT INLET MIGRATION OR SHIFTING NODAL POINT? RECENT AND ONGOING TIDAL INLET EVOLUTION AT NAUSET INLET, CAPE COD, MASSACHUSETTS USA**
- 34-5 2:30 PM Cooper, J. Andrew G.*: **SEISMIC STRATIGRAPHY AND EVOLUTION OF SANTA CATARINA ISLAND AND FLORIANOPOLIS BAY, BRAZIL IN THE CONTEXT**

OF LATE QUATERNARY SEA LEVEL CHANGE AND NEOTECTONICS

- 34-6 2:45 PM Mickelson, David M.*; Hochschild, Jason; Wolters, Caitlin; Stone, Jeff: **BLUFF PROFILE CHANGES OVER 40 YEARS ON WISCONSIN'S LAKE MICHIGAN SHORELINE**
- 34-7 3:00 PM Alessio, Paul*; Keller, Edward A.: **RATES, PATTERNS, AND PROCESSES OF SEACLIFF EROSION IN SANTA BARBARA, CALIFORNIA**
- 34-8 3:15 PM McDowell, Conor*; Sommerfield, Christopher K.; Guiteras, Susan; Kirby, James T.: **MARSH SEDIMENT ACCUMULATION AND ACCRETION IN A RAPIDLY FRAGMENTING WETLAND COMPLEX**
- 34-9 3:30 PM Kane, Haunani H.*; Fletcher, Charles H.; Habel, Shellie L.; McDonald, Kristian; Tavares, Kammie-Dominique A.: **THE EVOLUTION OF MAJURO ATOLL IN RESPONSE TO SEA-LEVEL CHANGE DURING THE MID-HOLOCENE**

SESSION NO. 35

T5. Arsenic and Other Geogenic Contaminants in Groundwater Resources: Linking Water Quality, Food Security, and Treatment II (GSA Hydrogeology Division; GSA Geology and Health Division; GSA International/International Interdisciplinary Interest Group; International Society of Groundwater for Sustainable Development (ISGSD); International Medical Geology Association; GSA Environmental and Engineering Geology Division; GSA Geobiology & Geomicrobiology Division)

1:30 PM, Washington State Convention Center, Room 618/619/620

Prosun Bhattacharya, Abhijit Mukherjee, Saugata Datta, Mohammad Alauddin, Karen Johannesson, Jochen Bundschuh and Arslan Ahmad, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 35-1 1:35 PM Van de Wetering, Stephan*; Ahmad, Arslan: **HOW TO REMOVE METALS FROM GROUNDWATER FOR HIGH QUALITY DRINKING WATER PRODUCTION: PRINCIPLES, PRACTICES AND DRIVERS FOR RESEARCH (Invited Presentation)**
- 35-2 1:55 PM Ahmad, Arslan*; Bhattacharya, Prosun: **GROUNDWATER TREATMENT FOR ARSENIC REMOVAL**
- 35-3 2:10 PM Ling, Florence T.*; Hunter, Heather A.; Fitts, Jeffrey P.; Lanzirotti, Antonio; Acerbo, Alvin; Peters, Catherine A.: **ARSENIC REMOVAL FROM HIGH SALINITY WASTEWATER THROUGH BARITE CO-PRECIPIATION**
- 35-4 2:25 PM Batool, Shehla*; Ali, Naveed; Farooqi, Abida: **MODIFIED HYBRID LOW COST WATER TREATMENT SYSTEM FOR SIMULTANEOUS REMOVAL OF ARSENIC AND FLUORIDE**
- 35-5 2:40 PM Perry, Eric F.*; Nezat, Carmen A.: **ANALYZING DISCOLORED TAP WATER FOR ELEMENTS LEACHED FROM AGING PIPES**
- 35-6 2:55 PM Saha, Indranil*; Bhattacharya, Prosun; Ghosh, Abir; Ghosh, Uday Chand; Chatterjee, Debashis: **TARGETED SYNTHESIS, IN-DEPTH CHARACTERIZATION AND POTENTIAL APPLICATION OF BETA CYCLODEXTRIN FUNCTIONALIZED HYDROUS IRON-ZIRCONIUM HYBRID OXIDE FOR ARSENIC (III) REMOVAL FROM AQUEOUS SOLUTION**
- 35-7 3:10 PM Xiong, Yongliang*: **A PITZER MODEL FOR HYDROLYSIS OF LEAD TO HIGH IONIC STRENGTH: APPLICATIONS TO LOW TEMPERATURE GEOCHEMICAL PROCESSES**
- 3:25 PM **BREAK**
- 35-8 3:40 PM Chakraborty, Madhumita*; Mukherjee, Abhijit; Ahmed, Kazi Matin: **UNDERSTANDING THE INFLUENCE OF HYDROSTRATIGRAPHY ON GROUNDWATER ARSENIC DISTRIBUTION IN THE GANGETIC DELTA AQUIFERS OF BANGLADESH AND INDIA**
- 35-9 3:55 PM Bhattacharya, Prosun*; Ahmed, Kazi Matin; von Brömssen, Mattias; Jacks, Gunnar: **TUBEWELL INSTALLATION FOR ACCELERATING SAFE DRINKING WATER ACCESS**

IN BANGLADESH - HARNESSING LOCAL DRILLERS' KNOWLEDGE

- 35-10 4:10 PM Mushtaq, Nisbah*; Khattak, Junaid Ali; Hussain, Ishtiaque; Farooqi, Abida; van Geen, Alexander: **ARSENIC IN GROUNDWATER OF UPPER INDUS BASIN, PUNJAB, PAKISTAN: GEOGRAPHICAL AND GEOCHEMICAL VARIATION**
- 35-11 4:25 PM Jewell, Katrina*; Myers, Kimberly D.; Knappett, P.S.K.; Berube, Michelle; Datta, Saugata; Hossain, Saddam; Aitkenhead-Peterson, Jacqueline Ann; Gentry, Terry; Ahmed, Kazi Matin: **BIOGEOCHEMISTRY OF ARSENIC CYCLING IN A TIDALLY INFLUENCED RIVER-BANK AQUIFER IN BANGLADESH**
- 35-12 4:40 PM Kumar, Manish*; Patel, Arbind Kumar; Das, Aparna; Das, Nilotpal; Goswami, Ritusmita: **COMPARATIVE UNDERSTANDING OF ARSENIC ENRICHMENT AND MOBILIZATION IN THE AQUIFERS OF THE RIVER GANGES AND BRAHMAPUTRA: A PROVENANCE, PREVALENCE AND HEALTH PERSPECTIVE**
- 35-13 4:55 PM Chatterjee, Debashis*; Adhikari, Jishnu; Mandal, Ujjal; Halder, Dipti; Antaneel, Auruddha; Kundu, Amit K.; Barman, Sandipan; Ghosh, Pinaki; Das, Ayan: **VARIABILITY OF ARSENIC IN DIFFERENT VARIETY OF RICE AND ASSOCIATED HEALTH RISKS**
- 5:10 PM **CONCLUDING REMARKS**

SESSION NO. 36

T8. Fate, Effects, and Mitigation of Chemical and Fuel Releases in Surface and Subsurface Environments (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Energy Geology Division)

1:30 PM, Washington State Convention Center, Room 613/614

Michelle M. Lorah, Isabelle M. Cozzarelli and Madeline E. Schreiber, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 36-1 1:35 PM Bekins, Barbara A.*; Baedecker, Mary Jo; Cozzarelli, Isabelle M.; Eganhouse, Robert P.; Ng, G.-H. Crystal; Trost, Jared J.; Ostertag, Sarah A.; Podgorski, David C.; Zito, Phoebe: **THE LEGACY OF SPILLED OIL AND FUEL IN GROUNDWATER: SOURCE ZONE PERSISTENCE AND PLUME GROWTH (Invited Presentation)**
- 36-2 1:55 PM Ziegler, Brady A.*; Schreiber, Madeline E.; Ng, G.-H. Crystal; Cozzarelli, Isabelle M.; Dunshee, Aubrey: **REACTIVE TRANSPORT MODELING OF ARSENIC CYCLING IN A PETROLEUM-CONTAMINATED AQUIFER**
- 36-3 2:10 PM Hassan, Ali*; Salih, Ranjdar; Salih, Namam Muhammed: **TRANSPARENCY AND STEWARDSHIP IN EXPLORING OIL AND GAS, KURDISTAN REGION-IRAQ**
- 36-4 2:25 PM Gherasim, Janelle E.*; Sanjinez Guzman, Victor A.; Tebbs, Kyle C.; Emerman, Steven H.: **MODELING THE ENVIRONMENTAL IMPACTS OF POTENTIAL OIL PIPELINE LEAKS IN THE PÁRAMO REGION UPON THE WATER SUPPLY FOR QUITO, ECUADOR**
- 36-5 2:40 PM Mohsen, Mohammad*: **REVERSE PARTICLE TRACKING FOR LIABILITY ALLOCATION**
- 36-6 2:55 PM Roussel, Stephanie A.*: **A METAL SORPTION SIEVE PROCESS IN THE ALBERTA OIL SANDS (Invited Presentation)**
- 36-7 3:10 PM Kanno, Cynthia*; McCray, John E.: **EVALUATING CONTAMINATION POTENTIAL OF SURFACE SPILLS ASSOCIATED WITH UNCONVENTIONAL OIL AND GAS DEVELOPMENT ABOVE AN ALLUVIAL AQUIFER**
- 36-8 3:25 PM Lorah, Michelle M.*; Cozzarelli, Isabelle M.; Akob, Denise M.: **EFFECT OF INCREASED INUNDATION ON BIOGEOCHEMICAL PROCESSES AND FATE OF CHLOROBENZENES IN A FRESHWATER WETLAND**
- 3:40 PM **BREAK**

- 36-9** 3:55 PM Allen-King, Richelle M.*; Kiekhaefer, Rebecca L.; Brotsch, Jonathan; Pugnetti, Michele: **FIELD MEASUREMENTS TO QUANTIFY TRICHLOROETHENE DIFFUSION, DEGRADATION, AND SORPTION IN FRACTURED SEDIMENTARY ROCK**
- 36-10** 4:10 PM Pickens, Cullen*; Halihan, Todd: **FIELD EVALUATION OF CONTAMINANT MASS REMOVAL IN DOLOMITE KARST**
- 36-11** 4:25 PM Weber, Andrea K.*; Barber, Larry B.; LeBlanc, Denis R.; Sunderland, Elsie M.; Vecitis, Chad D.: **POLY- AND PERFLUOROALKYL SUBSTANCES (PFAS) IN GROUNDWATER FROM TWO LEGACY SOURCES ON CAPE COD, MA – WHAT ARE THE NATIONAL IMPLICATIONS? (Invited Presentation)**
- 36-12** 4:45 PM Mitra, Siddhartha*; Benfield, Beau: **SORPTION OF IBUPROFEN TO COASTAL PLAIN SOILS**
- 36-13** 5:00 PM Frederick, Logan*; Fernandez, Diego P.; Cerling, Thure; Johnson, William P.: **SOURCE IDENTIFICATION FOR PARTICLE-BOUND METALS IN THE SAN JUAN RIVER SYSTEM**
- 36-14** 5:15 PM Schreiber, Madeline E.*; Fernandez, Ricardo P.; Shockley, Caleb: **TRACE ELEMENTS IN DAN RIVER SEDIMENTS AFTER THE 2014 COAL ASH SPILL**

SESSION NO. 37 

T13. In Honor of John M. (Jack) Sharp Jr.: Celebrating over 40 Years of Science, Students, and Stewardship II (GSA Hydrogeology Division; International Association of Hydrogeologists)

1:30 PM, Washington State Convention Center, Room 615/616/617

Marcus O. Gary, Wendy M. Robertson, Brad David Wolaver and Todd Halihan, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 37-1** 1:40 PM Smith, Brian A.*; Hunt, Brian B.: **JACK SHARP AND THE AQUIFERS OF CENTRAL TEXAS**
- 37-2** 1:55 PM Sharp, John M.*: **EVOLUTION OF EDWARDS AQUIFER MODELS (Invited Presentation)**
- 37-3** 2:15 PM Green, Ronald T.*; Fratesi, Beth; Toll, Nathaniel; Nunu, Rebecca: **PARSING OUT SMALLER HYDRAULIC PROVINCES FROM REGIONAL AQUIFER SYSTEMS**
- 37-4** 2:30 PM Mace, Robert E.*: **DOES RECHARGE MATTER? HOW GROUNDWATER RESOURCES IN TEXAS RESPONDED TO THE STATEWIDE DROUGHT OF 2011–2015**
- 37-5** 2:45 PM Budge, Trevor*: **DELINEATING CONTRIBUTING AREAS TO KARST SPRINGS USING NEXRAD PRECIPITATION ESTIMATES AND CROSS-CORRELATION ANALYSIS**
- 37-6** 3:00 PM Green, Ronald T.*; Gary, Marcus O.; Bertetti, F. Paul; Fratesi, Beth; Toll, Nathaniel J.: **USE OF FIELD MEASUREMENT, FIELD-SCALE EXPERIMENTS, AND WATER-BUDGET ANALYSES TO DETERMINE DIFFUSE RECHARGE AND INFILTRATION ON KARST TERRAINS**
- 3:15 PM **BREAK**
- 37-7** 3:30 PM Gary, Marcus*; Smith, David V.: **CORRELATION OF AIRBORNE ELECTROMAGNETIC GEOPHYSICAL DATA WITH KARST VADOSE PERMEABILITY**
- 37-8** 3:45 PM Caldwell, Todd G.*; Bongiovanni, Tara; Young, Michael H.; Gary, Marcus: **QUANTIFYING DIFFUSE RECHARGE TO THE EDWARDS AQUIFER USING MICRO-METEOROLOGY AND REMOTE SENSING**
- 37-9** 4:00 PM Schwartz, Benjamin F.*; Schwinning, Susan; Hiller, Mark: **RECHARGE AND WATER BALANCE STUDIES AT CAVE WITHOUT A NAME, TEXAS: WHAT WE LEARN FROM INTERDISCIPLINARY METHODS**
- 37-10** 4:15 PM Hackett, Caroline Croft*; Gary, Marcus; Rempe, Daniella M.: **QUANTIFYING ALLUVIUM EFFECTS ON KARST AQUIFER RECHARGE: SHALLOW GROUNDWATER AND SURFACE WATER EXCHANGE IN THE UPPER NUECES RIVER, TEXAS**

- 37-11** 4:30 PM Wong, Stephanie S.*; Yelderman, Joe C.; Byars, Bruce: **SPATIAL VARIABILITY IN PRECIPITATION: CLUES TO DIFFUSE RECHARGE IN SHALLOW KARST AQUIFERS**
- 37-12** 4:45 PM Darling, Bruce K.*; Hibbs, Barry J.; Sharp, John M.: **INTEGRATION OF CARBON-14 AND OXYGEN-18 AS A BASIS FOR DIFFERENTIATING BETWEEN LATE PLEISTOCENE AND POST-PLEISTOCENE GROUNDWATER AGES ALONG FLOW PATHS OF TWO WEST TEXAS BOLSON AQUIFERS**
- 5:00 PM **CONCLUDING REMARKS**

SESSION NO. 38

T43. High-Resolution Investigations of the Permian-Triassic Transition (GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology); Paleontological Society; Paleontological Research Institution)

1:30 PM, Washington State Convention Center, Room 611

Thomas J. Algeo, Hugo Bucher and Kimberly V. Lau, Presiding

- 38-1** 1:30 PM Algeo, Thomas J.*: **THE PERMIAN-TRIASSIC BOUNDARY CRISIS: CURRENT STATE OF KNOWLEDGE AND FUTURE RESEARCH DIRECTIONS**
- 38-2** 1:45 PM Bernardi, Massimo; Petti, Fabio Massimo*; Kustatscher, Evelyn; Franz, Matthias; Hartkopf-Fröder, Christoph; Labandeira, Conrad C.; Wappler, Torsten; van Konijnenburg-van Cittert, Johanna H.A.; Peacock, Brandon R.; Angielczyk, Kenneth D.: **LATE PERMIAN (LOPINGIAN) TERRESTRIAL ECOSYSTEMS: A GLOBAL COMPARISON WITH NEW DATA FROM THE LOW LATITUDE BLETTERBACH BIOTA**
- 38-3** 2:00 PM Hautmann, Michael*: **ECOLOGY OF THE EARLY TRIASSIC POST-EXTINCTION WORLD (Invited Presentation)**
- 2:20 PM **DISCUSSION**
- 38-4** 2:25 PM Penn, Justin Leonard*; Deutsch, Curtis; Payne, Jonathan L.; Sperling, Erik A.: **TEMPERATURE-DEPENDENT HYPOXIA EXPLAINS END-PERMIAN MASS EXTINCTION IN THE OCEANS**
- 38-5** 2:40 PM Shen, Jun*; Algeo, Thomas J.; Planavsky, Noah J.; Feng, Qinglai; Chen, Zhong Qiang; Yu, Jianxin; Chen, Jiubin; Yuan, Shengliu; Zhou, Lian: **MERCURY ENRICHMENT PROVIDES EVIDENCE OF GLOBAL VOLCANIC EFFECTS DURING THE PERMIAN-TRIASSIC BOUNDARY CRISIS (Invited Presentation)**
- 3:00 PM **DISCUSSION**
- 38-6** 3:05 PM Zhang, Feifei*; Algeo, Thomas J.; Romaniello, Stephen; Anbar, Ariel D.: **QUANTITATIVE CONSTRAINTS ON END-PERMIAN AND EARLY TRIASSIC OCEANIC ANOXIA USING HIGH-RESOLUTION $\Delta^{238}\text{U}$ RECORDS (Invited Presentation)**
- 3:25 PM **DISCUSSION**
- 3:30 PM **BREAK**
- 38-7** 3:45 PM Pommer, Maxwell*: **PALEOENVIRONMENTAL DYNAMICS IN THE MIDDLE PERMIAN PHOSPHORIA SEAWAY: A RECORD FROM ISOTOPIC AND BIOCHEMICAL TRENDS, ROCKY MOUNTAIN REGION, USA**
- 38-8** 4:00 PM Liu, Dongdong*; Zhang, Chen: **GEOCHEMISTRY AND PROVENANCE OF THE MID-PERMIAN SUCCESIONS IN THE SOUTHERN JUNGGAR BASIN AND TURPAN BASIN: IMPLICATIONS FOR THE PALEOCLIMATE AND PALEO GEOGRAPHY**
- 38-9** 4:15 PM Spieth, Volker*: **KUPFERSCHIEFER UPPER PERMIAN BLACK SHALE - HOT HYDROTHERMAL HIGH ENERGY GENESIS AND GEOMETALLURGY AT THE SOUTHERN RIM OF THE KUPFERSCHIEFER SEA**
- 38-10** 4:30 PM Gastaldo, Robert A.*; Neveling, Johann; Geissman, John W.; Kamo, Sandra L.: **A LITHOSTRATIGRAPHIC AND MAGNETOSTRATIGRAPHIC FRAMEWORK IN A GEOCHRONOLOGIC CONTEXT FOR A PURPORTED**

PERMIAN–TRIASSIC BOUNDARY SECTION AT OLD (WEST) LOOTSBERG PASS, KAROO BASIN, SOUTH AFRICA

- 38-11 4:45 PM Rowinski, Kyle William*: **VARIANCE IN DOLOMITE MINERALOGY WITHIN THE PERMIAN-TRIASSIC LYKINS FORMATION, NORTHERN COLORADO: IMPLICATIONS FOR CONSTRAINING REGIONAL DEPOSITIONAL PROCESSES THROUGHOUT THE LATE PERMIAN**

SESSION NO. 39

T45. Miocene–Pliocene Terrestrial Ecosystem Response to the Climate System II (Paleontological Society; GSA Limnogeology Division)

1:30 PM, Washington State Convention Center, Room 609

Kevin Uno and Tammo Reichgelt, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 39-1 1:35 PM Novello, Alice*; Strömberg, Caroline A.E.; Jacobs, Bonnie F.; McNulty, Kieran P.; Michel, Lauren A.: **PHYTOLITH EVIDENCE FOR THE ROLE OF GRASSES IN EARLY MIOCENE VEGETATION OF EAST AFRICA (Invited Presentation)**
- 39-2 1:55 PM Kinyanjui, Rahab N.*; Peppe, Daniel J.; MacLachy, Laura M.; Kingston, John D.; Cote, Susanne; Driese, Steven G.; Fox, David L.; Jacobs, Bonnie F.; Lehmann, Thomas; Lukens, William E.; Rossie, James B.; McNulty, Kieran P.: **EARLY MIOCENE VEGETATION ACROSS EASTERN AFRICA AS RECONSTRUCTED FROM PHYTOLITH DATA (Invited Presentation)**
- 39-3 2:15 PM Driese, Steven G.*; Peppe, Daniel J.; Kingston, John D.; Fox, David L.; Lukens, William E.; Deino, Alan; MacLachy, Laura: **PALEOPEDELOGY AND PALEOCLIMATE SIGNIFICANCE OF EARLY MIOCENE FLUVIO-LACUSTRINE PALEOSOLS FROM MOROTO II SITE IN UGANDA**
- 39-4 2:30 PM Michel, Lauren A.*; Cheng, Kimberly; Lehmann, Thomas; McNulty, Kieran P.; Driese, Steven G.; Fox, David L.; Peppe, Daniel J.: **PALEOCLIMATIC VARIABILITY AND THE ROLE OF SEASONALITY FROM THE EARLY MIOCENE DEPOSITS ON RUSINGA AND MFANGANO ISLANDS, LAKE VICTORIA, KENYA**
- 39-5 2:45 PM Peppe, Daniel J.*; Deino, Alan L.; Driese, Steven G.; Fox, David L.; Kingston, John D.; Kinyanjui, Rahab N.; Lukens, William E.; Lutz, James A.; Michel, Lauren A.; Oginga, Kennedy Ogonada; Cote, Susanne; Lehmann, Thomas; MacLachy, Laura; McNulty, Kieran P.; Miller, Ellen; Nengo, Isaiah; Rossie, James B.: **EARLY MIOCENE PALEOCLIMATE AND PALEOENVIRONMENTS ACROSS EAST AFRICA**
- 3:00 PM **BREAK**
- 39-6 3:15 PM Currano, Ellen D.*; Jacobs, Bonnie F.: **ECOLOGICAL PERSISTENCE IN A CLOSED FOREST ECOSYSTEM FROM THE EARLY NEOGENE MUSH VALLEY LAGERSTÄTTE, NORTH-CENTRAL ETHIOPIA**
- 39-7 3:30 PM Jacobs, Bonnie F.*; Currano, Ellen D.; Pan, Aaron D.: **AFRICA'S MIOCENE TECTONIC, PHYSIOGRAPHIC, AND CLIMATE EVOLUTION LED TO ITS LOW SPECIES RICHNESS AND ITS STATUS AS THE "ODD MAN OUT" AMONG THE WORLD'S TROPICAL REGIONS**
- 39-8 3:45 PM Beck, Catherine C.*; Langworthy, Mary; Feibel, Craig S.; Beverly, Emily J.; Horgan, Julianna S.: **LOWER MIOCENE PALEOENVIRONMENT AND PALEOCLIMATE AS RECORDED BY THE LOCHERANGAN FORMATION, TURKANA BASIN, KENYA**
- 39-9 4:00 PM Hock, Devra*; Secord, Ross: **VERTEBRATE SPECIES RICHNESS CHANGE FROM THE LATE MIOCENE TO EARLY PLIOCENE OF LOTHAGAM, TURKANA BASIN, KENYA**

- 39-10 4:15 PM Habermann, Jörg M.*; Alberti, Matthias; Alemseged, Zeray; Aldeias, Vera; Archer, William; Bamford, Marion K.; Biro, Dora; Bobe, Rene L.; Braun, David R.; Capelli, Cristian; Ferreira da Silva, Joana; Luedeck, Tina; Madiquida, Hilário; Cunha, Eugénia; Martinez, Felipe; Negash, Enquye W.; Paulo, Luis M.; Pinto, Maria; Stalmans, Marc; Tatá, Frederico; Wynn, Jonathan G.; Carvalho, Susana: **NEOGENE COASTAL-PLAIN ESTUARINE RECORD IN THE GORONGOSA AREA, CENTRAL MOZAMBIQUE: PALEOENVIRONMENTAL AND PALEOECOLOGICAL IMPLICATIONS FOR THE ANCIENT EAST AFRICAN MARGIN AND ITS PRIMATE LAND USE POTENTIAL**
- 4:30 PM **DISCUSSION**

SESSION NO. 40

T51. Biodiversity Dynamics in the Face of Environmental Change: Integrating Paleontological and Neontological Approaches to Macroevolution II (Paleontological Society; Paleontological Research Institution)

1:30 PM, Washington State Convention Center, Room 608

Shan Huang, Paul G. Harnik and Lee Hsiang Liow, Presiding

- 40-1 1:30 PM Marshall, Charles R.*: **FIVE PALEOBIOLOGICAL LAWS NEEDED TO UNDERSTAND THE EVOLUTION OF THE LIVING BIOTA: TRYING TO GET BIOLOGISTS TO APPRECIATE THE PERVASIVENESS OF EXTINCTION AND ITS IMPLICATIONS**
- 40-2 1:45 PM Cole, Selina R.*: **HIERARCHICAL CONTROLS ON EXTINCTION SELECTIVITY: TESTING THE EFFECT OF ENVIRONMENTAL AND ECOLOGICAL FACTORS ACROSS THE DIPLOBATHRID CRINOID PHYLOGENY**
- 40-3 2:00 PM Edie, Stewart M.*; Huang, Shan; Roy, Kaustuv; Jablonski, David: **DIVERSIFICATION THROUGH GLOBAL COOLING: DECOUPLED RESPONSES OF MARINE BIVALVE ORIGIN AND EXTINCTION TO CHANGES IN CENOZOIC TEMPERATURE**
- 40-4 2:15 PM Strotz, Luke C.*; Saupe, Erin E.; Kimmig, Julien; Lieberman, Bruce S.: **RELATING ECOLOGY TO MACROEVOLUTION USING METABOLIC RATES OF NEOGENE MOLLUSC COMMUNITIES**
- 40-5 2:30 PM Jablonski, David*; Edie, Stewart M.; Valentine, James W.: **CONTRASTING RESPONSES OF FUNCTIONAL DIVERSITY TO DROPS IN TAXONOMIC DIVERSITY: MODERN CLIMATE GRADIENTS VS PAST MASS EXTINCTIONS**
- 2:45 PM **DISCUSSION**
- 40-6 2:55 PM Di Martino, Emanuela; Jackson, Jeremy B.C.*; Taylor, Paul D.; Johnson, Kenneth G.: **DIFFERENCES IN EXTINCTION RATES EXPLAIN CONTRASTING REGIONAL DIVERSITY PATTERNS IN MODERN TROPICAL BRYOZOANS**
- 40-7 3:10 PM Zaffos, Andrew*; Peters, Shanan E.: **REASSESSING OUR EXPECTATIONS FOR MARINE LATITUDINAL BIODIVERSITY GRADIENTS IN MODERN AND ANCIENT SYSTEMS**
- 40-8 3:25 PM Spalding, Christopher*; Doering, Charles R.; Flierl, Glenn R.: **A MINIMUM POPULATION EXTINCTION TIME DRIVEN BY STOCHASTIC ENVIRONMENTAL FORCING**
- 40-9 3:40 PM Silvestro, Daniele; Warnock, Rachel C.M.*; Gavryushkina, Alexandra; Stadler, Tanja: **CLOSING THE GAP BETWEEN PALEONTOLOGICAL AND NEONTOLOGICAL SPECIATION AND EXTINCTION RATE ESTIMATES**

SESSION NO. 41

T55. Life and Times in the Early Paleozoic (Paleontological Society)

1:30 PM, Washington State Convention Center, Room 607

Erik A. Sperling, Stephen Leslie and Matt Saltzman, Presiding

- 41-1 1:30 PM Ng, Tin-Wai*; Huang, Kuo-Fang; Liu, Hou-Chun; You, Chen-Feng; Lin, Wei-Chen: **THE UPPER CAMBRIAN NORTH CHINA SPICE EVENT: NEW STRONTIUM ISOTOPE DATA AND ITS IMPLICATIONS**
- 41-2 1:45 PM Taylor, John F.*; Strauss, Justin V.; Repetski, John E.: **A NEW TRILOBITE FAUNA AND ASSOCIATED CARBON ISOTOPIC EXCURSION AT THE TOP OF THE PTYCHASPID BIOMERE IN EASTERN ALASKA: WHITTLING DOWN A GAP IN THE LATE CAMBRIAN TIME SCALE**
- 41-3 2:00 PM Gill, Benjamin C.*; LeRoy, Matthew A.; Gerhardt, Angela; Them, Theodore R.; Owens, Jeremy D.: **DECIPHERING THE RECORD OF BIOLOGIC AND ENVIRONMENTAL CHANGE DURING THE LATER CAMBRIAN STEPTOEAN POSITIVE CARBON ISOTOPE EXCURSION (Invited Presentation)**
- 41-4 2:20 PM Herrmann, Achim D.*; Quinton, Page C.; Martin, Ellen E.; Leslie, S.A.; MacLeod, Kenneth G.; Robinet, Richard M.: **"GICE GICE BABY" - BUT WAS THERE ICE? (Invited Presentation)**
- 41-5 2:40 PM Ahm, Anne-Sofie C.*; Jones, David S.; Fike, David A.; Bjerrum, Christian J.; Higgins, John A.: **QUANTIFYING EARLY MARINE DIAGENESIS IN SHALLOW-WATER CARBONATE SEDIMENTS DURING THE LATEST ORDOVICIAN GLACIATION (Invited Presentation)**
- 3:00 PM **BREAK**
- 41-6 3:15 PM Mikulic, Donald G.*; Kluessendorf, Joanne: **SEQUENCES, EXTINCTIONS AND $\delta^{13}C$ EXCURSIONS IN THE SILURIAN THORNTON REEF OF ILLINOIS**
- 41-7 3:30 PM Bowman, Chelsie N.*; Young, Seth A.; Owens, Jeremy D.; Kaljo, Dimitri; Hints, Olle; Martma, Tonu: **OCEANOGRAPHIC REDOX CHANGES ASSOCIATED WITH THE LATE SILURIAN LAU EXTINCTION EVENT: NEW GEOCHEMICAL EVIDENCE FROM THE PRIEKULE-20 DRILL CORE, LATVIA**
- 41-8 3:45 PM Lan, Tian*; Wang, Mingkun: **PRECISE TISSUE BOUNDARY FORMATION AND THE GROWTH PATTERN OF THE EARLY ANIMALS**
- 41-9 4:00 PM Letsch, Dominik*; Large, Simon; von Quadt, Albrecht; Winkler, Wilfried; Bernasconi, Stefano M.; Klug, Christian: **NW AFRICA'S OLDEST KNOWN SKELETAL FOSSILS: A NEW CAMBRIAN SMALL SHELLY FOSSIL FAUNA FROM SOUTH MOROCCO**
- 41-10 4:15 PM Parsley, Ronald L.*; Zhao, Yuanlong; Sumrall, Colin D.: **EARLY GOGIID (ECHINODERMATA) EVOLUTION IN CAMBRIAN STAGES 4 AND 5 ON THE SOUTH CHINA (YANGTZE) PLATE COMPARED TO THAT IN WESTERN LAURENTIA**
- 41-11 4:30 PM Wittmer, Jacalyn M.*; Guensburg, Thomas E.; Stock, Carl W.; Darrrough, Guy; Brett, Carlton E.: **EXTRAORDINARY STROMATOPOROID-ECHINODERM BUILDUPS IN THE LATE ORDOVICIAN (KATIAN) KIMMSWICK LIMESTONE OF EAST-CENTRAL MISSOURI**
- 41-12 4:45 PM Li, Qijian*; Kershaw, Steve; Li, Yue; Yu, Shenyang: **FIRST REEF RECOVERY AFTER THE END-ORDOVICIAN EXTINCTION IN SOUTH CHINA: MID-AERONIAN CORAL-STROMATOPOROID REEFS FROM NORTHERN GUIZHOU**

SESSION NO. 42

T64. Citizen Science in Paleontology: Harnessing Public Interest to Advance Research and STEM Education II (Paleontological Society; GSA Geology and Society Division; GSA Geoscience Education Division)

1:30 PM, Washington State Convention Center, Room 606

Laura C. Soul, Terry A. Gates and Eleanor E. Gardner, Presiding

- 42-1 1:30 PM Gates, Terry A.*: **SHARK TOOTH FORENSICS: A PALEONTOLOGY CITIZEN SCIENCE PROJECT DESIGNED FOR K-12 CLASSROOMS**
- 42-2 1:45 PM Bourne, Nathaniel W.*; Gates, Terry A.: **DIGGING SCIENCE EDUCATION: SHARK TOOTH FORENSICS AS A CASE STUDY FOR STUDENTS DOING REAL SCIENCE (Invited Presentation)**
- 42-3 2:00 PM Ryder, Erik*; Hairston, Neal; Simpson, Jamila; Gates, Terry A.: **COMBATING STEREOTYPE THREAT AND INTERNALIZED SCIENTIFIC PHOBIAS IN UNDERREPRESENTED STUDENT POPULATIONS USING GEOSCIENCE EDUCATION AND CITIZEN SCIENCE**
- 42-4 2:15 PM Kleinknecht, Gary C*: **EDUCATIONAL OUTREACH 2008-2017: LESSONS FROM A DECADE OF SHARING SCIENCE WITH K-12 STUDENTS AND TEACHERS AT THE COYOTE CANYON MAMMOTH SITE, BENTON COUNTY, WASHINGTON**
- 2:30 PM **BREAK**
- 42-5 2:45 PM Drumheller, Stephanie K.*; Sumrall, Colin D.; Gates, Terry A.; Steen, Andrew D.; Horn, Sally P.; McKay, Larry D.: **INCLUDING CITIZEN AND STUDENT SCIENTISTS IN ACTUALISTIC TAPHONOMIC RESEARCH: THE GOOD, THE BAD, AND THE SMELLY (Invited Presentation)**
- 42-6 3:00 PM Hovatter, Brody*; Wilson, Gregory P.: **THE DISCOVERIES IN GEOSCIENCES (DIG) FIELD SCHOOL: TEACHER AND STUDENT INVOLVEMENT WITH REAL RESEARCH IN THE CLASSROOM**
- 42-7 3:15 PM Santos, Gabriel-Philip*; Schmitz, Lars: **CITIZEN SCIENCE AT THE RAYMOND M. ALF MUSEUM OF PALEONTOLOGY: PROVIDING ENGAGING STEM OPPORTUNITIES FOR HIGH SCHOOL STUDENTS, COLLEGE STUDENTS, AND THE GREATER COMMUNITY**
- 42-8 3:30 PM Estes-Smargiassi, Kathryn*; Hendy, Austin J.W.; Villalobos, Margarete; Ellwood, Elizabeth; Lindsey, Emily; Novie, Agnes: **PROJECT PALEO: CITIZEN CURATION AT THE NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY**
- 3:45 PM **DISCUSSION: PALEO CITIZEN SCIENCE IN FORMAL EDUCATION**
- 4:00 PM **SPEAKER Q&A AND CONCLUDING REMARKS**

SESSION NO. 43

T89. The Dynamics of Tectono-Sedimentary Systems During Basin Formation and Fill II (GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; SEPM (Society for Sedimentary Geology))

1:30 PM, Washington State Convention Center, Ballroom 6C

Eugene Szymanski, Jacob A. Covault and Daniel F. Stockli, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 43-1 1:35 PM Sharman, Glenn R.*; Covault, Jacob A.; Stockli, Daniel F.; Sickmann, Zachary; Malkowski, Matthew A.; Johnstone, Sam: **UNMIXING EUSTATIC AND TECTONIC SIGNALS IN SEDIMENTARY SYSTEMS FROM DETRITAL GEOCHRONOLOGY (Invited Presentation)**
- 43-2 1:55 PM Malkowski, Matthew A.*; Barth, Ginger A.; Scheirer, Daniel S.; Sliter, Ray W.; Scholl, David W.; Chaytor, Jason D.: **DETRITAL ZIRCON GEOCHRONOLOGY OF THE BERING**

SEA, SHELF TO DEEP BASIN: CLIMATIC AND EUSTATIC INFLUENCE ON SEDIMENT TRANSPORT PATHWAYS

- 43-3 2:10 PM Bartschi, Nicolas; Saylor, Joel E.*; Lapen, Thomas J.; Blum, Mike D.; Pettit, Bridget S.; Andrea, Ross A.: **TECTONIC CONTROLS ON LATE CRETACEOUS SEDIMENT PROVENANCE AND STRATIGRAPHIC ARCHITECTURE IN THE BOOK CLIFFS, UTAH**
- 43-4 2:25 PM Thacker, Jacob O.*; Cassidy, Colleen E.; Karlstrom, Karl E.; Crossey, Laura J.; Crow, Ryan S.; Beard, L. Sue; Dorsey, Rebecca J.: **POST-MIOCENE DISTRIBUTED DEFORMATION OF THE LOWER COLORADO RIVER REGION: IMPLICATIONS FOR STRUCTURE, TECTONICS, AND EVOLUTION OF THE COLORADO RIVER SYSTEM**
- 2:40 PM **DISCUSSION**
- 43-5 2:55 PM Bonar, Alicia L.*; Hampton, Brian A.; Mack, Greg H.; Amato, Jeffrey M.: **PROVENANCE AND SEDIMENT DISPERSAL TRENDS FROM EARLY PERMIAN STRATA OF THE ABO FORMATION: IMPLICATIONS FOR DRAINAGE NETWORKS AND BASIN FILL DURING THE FINAL PHASE OF THE ANCESTRAL ROCKY MOUNTAIN OROGENY IN NEW MEXICO**
- 43-6 3:10 PM Smith, Tyson Michael*; Sundell, Kurt E.; Johnston, Shelby; Guilherme, Carlos; Andrade, Ross A.; Dickinson, Jordan; Liu, Yiduo A.; Murphy, Michael A.; Lapen, Thomas J.; Saylor, Joel E.: **LARAMIDE-DRIVEN EROSION, INTERMONTANE BASIN FILL, AND DRAINAGE REORGANIZATION IN NORTH-CENTRAL NEW MEXICO**
- 43-7 3:25 PM Kortyna, Cullen D.*; Stockli, Daniel F.; Sharman, Glenn R.; Covault, Jacob A.: **TECTONOMORPHIC INFLUENCE ON SEDIMENT SOURCES AND PATHWAYS THROUGH WEST TEXAS: DETRITAL ZIRCON GEOCHRONOLOGY OF THE LATE CRETACEOUS-PALEOGENE TORNILLO BASIN, BIG BEND NATIONAL PARK**
- 43-8 3:40 PM Selkin, Peter A.*; Bergmann, Fenna; Brainard, Melissa; Dekens, Petra; Galy, Valier V.; Lantzsich, Hendrik; Manzueta, Miguel; Meynadier, Laure; Reilly, Brendan; Ruiz, Victor; Savian, Jairo; Weber, Michael; France-Lanord, Christian; Spiess, Volkhard; Klaus, Adam; Expedition 354 Science Party, IODP: **MAGNETIC FABRIC AND CHANNEL MIGRATION IN THE ACTIVE LEVEE OF THE BENGAL FAN, IODP SITE U1454**
- 3:55 PM **CONCLUDING REMARKS**

SESSION NO. 44

T92. Tectonics and Sedimentation, Avulsion, and Experimental Stratigraphy, and History of Western North America: A Celebration of Paul Heller's Career (GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division; SEPM (Society for Sedimentary Geology))

1:30 PM, Washington State Convention Center, Room 307/308

Brady Z. Foreman, Majie Fan and Elizabeth Hajek, Presiding

- 44-1 1:30 PM Paola, Chris*: **PAUL HELLER AND THE GROWTH OF ANALYTICAL STRATIGRAPHY**
- 44-2 1:50 PM Chang, Ching; Liu, Lijun*: **REPRODUCING THE CRETACEOUS WESTERN INTERIOR SEAWAY USING COUPLED MANTLE-LANDSCAPE EVOLUTION MODELING**
- 44-3 2:05 PM Li, Lin*; Fan, Majie; Hanneman, Debra L.: **STABLE ISOTOPE EVIDENCE ($\delta^{18}O$ AND δD) FOR LATE EOCENE-LATE MIOCENE TOPOGRAPHY AND CLIMATE IN THE NORTHERN ROCKY MOUNTAINS, SOUTHWESTERN MONTANA**
- 44-4 2:20 PM Noda, Atsushi*: **INTERACTIONS BETWEEN FOREARC BASIN STRATIGRAPHY AND ACCRETIONARY WEDGE GROWTH UNDER THE CRITICAL TAPER THEORY**
- 44-5 2:35 PM Sturmer, Daniel M.*: **USING GEOHISTORY ANALYSIS TO UNRAVEL THE COMPLEX HISTORY OF**

LATE PALEOZOIC BASINS AND TECTONICS IN SOUTHWESTERN LAURENTIA

- 44-6 2:50 PM Aslan, Andres*; Boraas-Connors, Marisa; Sprinkel, Douglas A.; Becker, Thomas P.; Lynds, Ranie; Karlstrom, Karl E.; Heizler, Matthew T.: **CENOZOIC COLLAPSE OF THE EASTERN UINTA MOUNTAINS AND DRAINAGE EVOLUTION OF THE UINTA MOUNTAIN REGION**
- 44-7 3:05 PM Dorsey, Rebecca J.*; Wells, Ray E.; Grove, Marty; Brutzkus, Pamela; Mortimer-Lamb, Megan; Humphreys, Eugene D.: **CRUSTAL DEFORMATION, BASIN SUBSIDENCE, AND PALEO-RIVER RESPONSE TO EOCENE ACCRETION OF SILETZIA, SW OREGON (Invited Presentation)**
- 3:25 PM **BREAK**
- 44-8 3:40 PM Chamberlin, Ellen P.*; Spranger, Annabel; Hajek, Elizabeth: **FINE-GRAINED SEDIMENT STORAGE IN ANCIENT DEPOSITS: AN EXAMPLE FROM THE BLACKHAWK-CASTLEGATE FORMATION BOUNDARY (CRETACEOUS, UTAH, USA)**
- 44-9 3:55 PM Sutherland, Grace M.*; Foreman, Brady Z.; Lai, Steven; Limaye, Ajay; Grimaud, Jean-Louis; Komatsu, Yuhei: **BRAIDING MECHANISMS AND BAR GEOMETRIES IN RIVERS AND SUBMARINE DENSITY CURRENT CHANNELS**
- 44-10 4:10 PM Rasmussen, Dirk*; Foreman, Brady Z.; Fricke, Henry: **EARLY PALEOGENE SHIFTS IN FLUVIAL DEPOSITION WITHIN THE HUERFANO BASIN, COLORADO, USA: EVALUATION OF TECTONIC AND CLIMATIC CONTROL**
- 44-11 4:25 PM Hajek, Elizabeth*; Greenberg, Evan; Chamberlin, Ellen P.; Baisden, Tramond: **RECONSTRUCTING PALEOCHANNEL MOBILITY CHANGES IN RESPONSE TO THE PALEOCENE EOCENE THERMAL MAXIMUM**
- 44-12 4:40 PM Trampush, Sheila*; Hajek, Elizabeth; Straub, Kyle; Chamberlin, Ellen P.: **ADVANCES IN MEASURING AUTOGENIC DYNAMICS IN FLUVIO-DELTAIC STRATIGRAPHY**
- 44-13 4:55 PM McElroy, Brandon*: **ARCHITECTURAL BIMODALITY IN FLUVIAL STRATIGRAPHY OF THE MORRISON FORMATION, USA**
- 44-14 5:10 PM Mohrig, David*; Swartz, John M.: **RIO GRANDE SHELF-EDGE DELTA AND SUBMARINE SLOPE SYSTEM, OFFSHORE TEXAS, USA: TARANTIAN – EARLY HOLOCENE SEDIMENTATION OVERWHELMS TECTONICS (Invited Presentation)**

SESSION NO. 45

T99. Augmented and Virtual Reality in Geoscience Education (GSA Geoscience Education Division; National Association of Geoscience Teachers; GSA Geoinformatics Division)

1:30 PM, Washington State Convention Center, Room 2A

Rachel M. Atkins, Christine M. Clark and Shelley J. Whitmeyer, Presiding

- 45-1 1:30 PM McNeal, Karen*: **UTILIZING AUGMENTED REALITY AND VIRTUAL REALITY IN GEOSCIENCE EDUCATION: AN OVERVIEW (Invited Presentation)**
- 45-2 1:45 PM Turner, Derek*; Green, Arthur; Brown, Loch; Dyanatkar, Saeed: **CHALLENGES AND EMERGING BEST PRACTICES FOR USING VIRTUAL AND AUGMENTED REALITY IN GEOSCIENCE CLASSROOMS**
- 45-3 2:00 PM Sellers, Victoria*; Smith, Emerson; Thompkins, Andrew; Moysey, Stephen M.; Boyer, D. Matthew; Mobley, Catherine: **HOW TO CREATE VIRTUAL REALITY EXPERIENCES FOR THE GEOSCIENCES: THREE IMPLEMENTATION EXAMPLES CONTRASTING ACCESSIBILITY, REALISM, AND INTERACTIVITY**
- 45-4 2:15 PM Low, P.C.*; Pfaff, David: **VIRTUAL REALITY AS A TOOL FOR UNDERSTANDING HOW THE EARTH WORKS**
- 45-5 2:30 PM Hollister, Ryan J*: **USING PHOTOSPHERES, PHOTOGRAMMETRIC MODELS & GUIDING QUESTIONS**

- TO CREATE AN IMMERSIVE VIRTUAL FIELD EXPERIENCE**
- 45-6 2:45 PM Urbanski, Tara L.*; Aiken, Carlos L.V.: **VIRTUAL GEOLOGIC ENVIRONMENTS: DEVELOPING AN INTERFACE TO INCORPORATE VISUALIZATION AND ANALYSES OF 3-D MODELS IN GEOSCIENCE EDUCATION AND RESEARCH**
- 3:00 PM **BREAK**
- 45-7 3:15 PM Crompton, Helen*: **MOBILE LEARNING IN THE SCIENCES: TRANSFORMING FIELD TRIPS WITH VIRTUAL AND AUGMENTED REALITY (Invited Presentation)**
- 45-8 3:30 PM Maas, Benjamin J.*; Ryker, Katherine; Gomby, Gary; Jones, Zachary; Kirkpatrick, Cody: **THE DEVELOPMENT OF MENTAL MAPS USING POKEMON GO AS A TWIST ON GEOCACHING**
- 45-9 3:45 PM Bursztyn, Natalie*; Jackson, Danielle Omara; Walker, Andrew; Shelton, Brett; Pederson, Joel: **FROM FIELD TRIPS TO SANDBOXES: ENGAGING INTRODUCTORY-LEVEL STUDENTS THROUGH INTERACTIVE AUGMENTED REALITY CLASSROOM EXPERIENCES (Invited Presentation)**
- 45-10 4:00 PM Richards, Bill D.*: **VIRTUAL- AND AUGMENTED-REALITY PLATFORMS FOR STUDENT LEARNING OPPORTUNITIES**
- 45-11 4:15 PM Houghton, Jacqueline J.*; Gordon, Clare E.; Robinson, Annabeth; Craven, Ben; Morgan, Daniel J.; Lloyd, Geoff E.: **"WHERE'S THE DEAD SHEEP?" MAKING VIRTUAL LANDSCAPES REAL**
- 45-12 4:30 PM Ryker, Katherine*; McNeal, Karen S.; Giorgis, Scott; Whitmeyer, Shelley J.; LaDue, Nicole; Atkins, Rachel M.; Clark, Christine M.: **A MULTI-INSTITUTIONAL STUDY OF LAB ACTIVITIES USING THE AUGMENTED REALITY SANDBOX: IMPACTS ON LEARNING**
- 45-13 4:45 PM Soltis, Nicholas A.*; McNeal, Karen S.; Atkins, Rachel M.; Maudlin, Lindsay C.: **UNDERSTANDING STUDENT ENGAGEMENT WHILE USING AN AUGMENTED REALITY SANDBOX**

SESSION NO. 46

T128. Teaching about the Earth Online

1:30 PM, Washington State Convention Center, Room 2B

Timothy J. Bralower, Ariel D. Anbar and Jonathan H. Tomkin, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 46-1 1:45 PM Tomkin, Jonathan H.*: **THE SOCIAL NETWORK AND GEOSCIENCE EDUCATION: WHY WHO YOU KNOW IS JUST AS IMPORTANT AS WHAT YOU KNOW WHEN IT COMES TO INNOVATIVE TEACHING (Invited Presentation)**
- 46-2 2:05 PM Jones, Francis*; Longridge, Louise; Sutherland, Stuart; Harris, Sara: **ADAPTING FACE-TO-FACE BEST PRACTICES FOR LARGE, ONLINE GEOSCIENCE COURSES: DESIGN, IMPLEMENTATION AND EVALUATION OF EFFECTIVENESS**
- 46-3 2:20 PM Bralower, Timothy J.*; Bice, David M.; Millet, April: **ADAPTING AN ONLINE COURSE FOR A LARGE STUDENT COHORT**
- 46-4 2:35 PM Lederman, Jerusha Isabel*; Armour, Mary-Helen: **INVESTIGATING STUDENT PERSPECTIVE AND EXPERIENCE WITH ONLINE GEOSCIENCE FIRST YEAR GENERAL EDUCATION SCIENCE COURSES**
- 46-5 2:50 PM Metlay, Suzanne T.*; Sims, Rachel: **REDEVELOPING ONLINE (GEO)SCIENCE PEDAGOGY AT WESTERN GOVERNORS UNIVERSITY**
- 46-6 3:05 PM Bravo, Tammy K.*; Gardine, Lea; Taber, John; West, Michael E.: **DEVELOPING AN ONLINE SEISMOLOGY COURSE FOR ALASKA**

- 3:20 PM **BREAK**
- 46-7 3:35 PM Anbar, Ariel D.*; Bentley, Callan; Semken, Steven: **PROPOSING A DIGITAL TEACHING NETWORK FOR VIRTUAL FIELD EXPERIENCES**
- 46-8 3:50 PM Bentley, Callan*: **DIGITAL SAMPLES FOR ONLINE LABS AND VIRTUAL FIELD EXPERIENCE**
- 46-9 4:10 PM Cooper, Gene*; Bentley, Callan; Rohrbach, Robin: **NEW EMERGING HIGH RESOLUTION IMAGING CURRICULUM CONTENT AND PRACTICES**
- 46-10 4:25 PM Wilson, Merry*; Proctor, Sian H.: **USING STUDENT VIDEOS TO INCREASE ACCOUNTABILITY, MEASURE SUCCESS, AND DRIVE INTEREST IN HYBRID AND ONLINE ENVIRONMENTS**
- 46-11 4:40 PM Armour, Mary-Helen*; Lederman, Jerusha Isabel: **EBOOKS AS A MANDATORY TEXT IN LARGE FIRST YEAR GENERAL EDUCATION GEOSCIENCE COURSE**
- 46-12 4:55 PM McDaris, John R.*; Bralower, Timothy; Anbar, Ariel; Leinbach, Adrienne A.: **BEST PRACTICES IN TEACHING ONLINE: FACULTY-SOURCED GUIDANCE FROM INTEGRATE**
- 5:10 PM **CONCLUDING REMARKS**

SESSION NO. 47

T153. Geochemical and Petrologic Forensics in the study of Earth's Magmatism: A Tribute to the Distinguished Career of Jon Davidson (1959–2016) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)

1:30 PM, The Conference Center, Skagit 2

Shanaka de Silva, James Beard, Marjorie Wilson, Valbone Memeti and John A. Wolff, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 47-1 1:45 PM Garrison, Jennifer M.*; Sims, Kenneth W.W.; Yagodzinski, Gene; Hall, Minard L.; Mothes, Patricia A.; Sandiford, Mike: **GEOCHEMISTRY OF LAVAS FROM SUMACO VOLCANO: A STEP TOWARD RESOLVING THE SLAB-MELTING DEBATE IN ECUADOR (Invited Presentation)**
- 47-2 2:05 PM Dungan, Michael A.*: **THE NEAR-UBIQUITY OF OPEN-SYSTEM MAGMATIC PROCESSES (Invited Presentation)**
- 47-3 2:25 PM Tepley, Frank*: **THE DEVELOPMENT OF COMPONENTRY ISOTOPIC MICROSAMPLING: THE DAVIDSON YEARS (Invited Presentation)**
- 47-4 2:45 PM Beard, James S.*; Scott, Sean Ross: **A MODEL FOR THE HIGH-TEMPERATURE ORIGIN AND PARADOXICAL DISTRIBUTION OF PEGMATITES IN MAFIC PLUTONS, SMARTVILLE COMPLEX, CALIFORNIA**
- 47-5 3:00 PM Memeti, Vali*; Oppenheim, Louis; Werts, Kevin; Williams, Dustin; Barnes, Calvin G.; Paterson, Scott R.; Barnes, Melanie A.: **TRACKING STAGES OF MAGMATIC EVOLUTION BY COMPARISON OF TRACE ELEMENTS AND ISOTOPES IN DIFFERENT MINERAL POPULATIONS IN THE TUOLUMNE INTRUSIVE COMPLEX**
- 3:15 PM **JON DAVIDSON GSA CITATION**
- 3:45 PM **BREAK**
- 47-6 4:00 PM Zou, Haibo*; Fan, Qi-Cheng; Zhang, Hongfu; Schmitt, Axel K.: **URANIUM-SERIES DATING OF ZIRCONS FROM MULTIPLE ERUPTIONS OF THE CHANGBAI VOLCANO, CHINA/NORTH KOREA BORDER**
- 47-7 4:15 PM Varekamp, Johan C.*; Camfield, Lauren M.: **EXCESS VOLATILES AT COPAHUE VOLCANO, ARGENTINA**
- 47-8 4:30 PM Barnes, Calvin G.*; Werts, Kevin; Barnes, Melanie A.: **COMPLEX MAGMA MIXING IN THE LOWER CRUST RECORDED BY MAJOR AND TRACE ELEMENT ZONING IN HIGH-PRESSURE AMPHIBOLE: KLAMATH MOUNTAIN PROVINCE, NORTHERN CALIFORNIA**
- 4:45 PM **TOM SHEA CITATION**

47-9 4:55 PM Shea, Thomas*: **THE MEANING OF CHEMICAL ZONING IN OLIVINE: PERSPECTIVES FROM CRYSTALLIZATION EXPERIMENTS**

SESSION NO. 48

T159. Teasing New Information out of (Old) Zircon: In Honor of Dustin Trail, 2017 MSA Recipient (Mineralogical Society of America; Collaborative for Research in Origins (CRIO), the John Templeton Foundation–FFAME Origins Program)

1:30 PM, The Conference Center, Skagit 3

Stephen J. Mojzsis, E. Bruce Watson, Calvin F. Miller and T. Mark Harrison, Presiding

- 48-1 1:30 PM Carley, Tamara L.*; Miller, Calvin F.; Claiborne, Lily L.: **ESTIMATING HADEAN MAGMA COMPOSITIONS USING IMPROVED ZIRCON/MELT KDS: COOL PETROGENESIS, ARCHEAN CONNECTIONS?** (Invited Presentation)
- 48-2 1:50 PM Kelly, Nigel M.*; Metcalf, James R.; Flowers, Rebecca M.; Mojzsis, Stephen: **NEW INFORMATION FROM OLD LUNAR ZIRCON – INTEGRATING U-PB AND (U-TH)/HE CHRONOMETRY**
- 48-3 2:05 PM Bauer, Ann*; Horstwood, Matthew: **SMALL-VOLUME LU-HF AND U-PB ISOTOPE DETERMINATION OF COMPLEX ZIRCONS BY SOLUTION AND LASER ABLATION MC-ICP-MS**
- 48-4 2:20 PM Bell, Elizabeth Ann*; Boehnke, Patrick; Harrison, Mark; Wielicki, Matthew: **MINERAL INCLUSION ASSEMBLAGE AND COMPOSITION FOR DETRITAL ZIRCON PROVENANCE** (Invited Presentation)
- 2:40 PM **BREAK**
- 2:55 PM **DISCUSSION**
- 48-5 3:10 PM Kohn, Matthew J.*; Kelly, Nigel M.: **ON THE TRAIL OF METAMORPHIC ZIRCON GROWTH** (Invited Presentation)
- 48-6 3:30 PM Mojzsis, Stephen*; Greer, Jennika; Kelly, Nigel M.; Caro, Guillaume; Bleeker, W.: **COMBINED ZIRCON MINERAL CHEMISTRY AND U-PB GEOCHRONOLOGY OF ARCHEAN GRANITOID GNEISSES AND SUPRACRUSTAL ENCLAVES OF THE SOUTHERN INUKJUAK DOMAIN, QUEBEC (CANADA)**
- 48-7 3:45 PM Kent, Adam J.R.*; Cooper, Kari M.: **CAN ZIRCONS REALLY RECORD THE THERMAL HISTORY OF MAGMAS?**
- 48-8 4:00 PM Aleinikoff, John N.*; Walsh, Gregory J.; McAleer, Ryan J.: **ZIRCONOLOGY IN THE MARCY ANORTHOSITE, ADIRONDACK MOUNTAINS, NY: DISTINGUISHING INHERITED, IGNEOUS, AND METAMORPHIC COMPONENTS**
- 48-9 4:15 PM Robinson, Paul T.*; Yang, Jingsui; Li, Jianwei; Duan, Zhang; Tian, Yazhou; Huang, Zhu; Xiong, Fahui: **THE TECTONIC SIGNIFICANCE OF (OLD) ZIRCON IN OCEANIC MANTLE PERIDOTITES AND CHROMITITES**
- 4:30 PM **BREAK**
- 48-10 4:45 PM Frey, Holli M.*; Manon, Matthew R.F.; Kittross, Sarah; Brehm, Sarah; Babiak, Rebecca; Pope, Mollie: **THE ZIRCON RECORD IN DOMINICA: FROM SOUTH AMERICA TO EXPLOSIVE ERUPTIONS**
- 48-11 5:00 PM Ayers, John C.*; Wang, Xiaomei; Katsiaficas, Nathan J.; Liu, Xiaoming: **USE OF ZIRCON U-PB AGES AND BULK TRACE ELEMENT AND ND AND HF ISOTOPE COMPOSITIONS TO DETERMINE SOIL PROVENANCE IN A LIMESTONE TERRANE, MIDDLE TN, USA**
- 48-12 5:15 PM Ackerson, Michael*; Mysen, Bjorn; Watson, E. Bruce: **LOW-TEMPERATURE CRYSTALLIZATION OF QUARTZ IN GRANITIC ROCKS FROM THE TUOLUMNE INTRUSIVE SUITE**

SESSION NO. 49 \$

T163. Petrochronology: Advances and Applications to Petrogenesis and Tectonics II (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; Mineralogical Society of America; Geochemical Society)

1:30 PM, The Conference Center, Skagit 4

Matthew J. Kohn, Pierre Lanari and Martin Engi, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 49-1 1:35 PM Spear, Frank S.*; Wolfe, Oliver M.; Castro, Adrian E.: **OVERSTEPPING OF GARNET NUCLEATION AND IMPLICATIONS FOR TECTONIC INTERPRETATION OF GARNET AGES** (Invited Presentation)
- 49-2 1:55 PM Hoisch, Thomas D.*; Craddock, Suzanne D.; Kelly, Eric D.: **EXCESS GARNET GROWTH IN METAMORPHIC ROCKS DRIVEN BY REACTION AFFINITY ASSOCIATED WITH OVERSTEPPED REACTIONS**
- 49-3 2:10 PM Lanari, Pierre*; Airaghi, Laura; Hermann, Jörg: **IMPACTS OF FLUIDS ON THE MINERALOGICAL RECORD IN SUBDUCTION ZONES; IMPLICATIONS FOR PRESSURE-TEMPERATURE-TIME-DEFORMATION RECONSTRUCTIONS**
- 49-4 2:25 PM Martin, Celine*; Bigge, Nils: **P-T CONDITIONS OF SYMPLECTITE FORMATION IN THE ECLOGITES FROM THE WESTERN GNEISS REGION (NORWAY)**
- 49-5 2:40 PM Harvey, Kayleigh M.*; Penniston-Dorland, Sarah C.; Kohn, Matthew J.: **ORIGIN OF EXOTIC BLOCKS IN THE CATALINA SCHIST: IMPLICATIONS FOR MOVEMENT ALONG THE SUBDUCTION INTERFACE**
- 49-6 2:55 PM Engi, Martin*; Giuntoli, Francesco; Lanari, Pierre; Burn, Marco; Kunz, Barbara E.: **SUBDUCTION OF CONTINENTAL BASEMENT: SCALES OF BRITTLE DEFORMATION, (RE-)HYDRATION, AND DENSITY FILTERING**
- 3:10 PM **DISCUSSION**
- 3:25 PM **BREAK**
- 49-7 3:40 PM Baxter, Ethan F.*: **GARNET PETROCHRONOLOGY: THE CONTEXT OF THE OTHER POINT(S) ON THE ISOCHRON** (Invited Presentation)
- 49-8 4:00 PM Elisha, Bar*; Katzir, Yaron; Kylander-Clark, Andrew: **CONTEMPORANEOUS MIGMATIZATION AND GRANITE EMPLACEMENT DURING REGIONAL METAMORPHISM: EVIDENCE FOR MID-CRUSTAL CONTRIBUTION TO THE BATHOLITHS OF THE ARABIAN-NUBIAN SHIELD**
- 49-9 4:15 PM Ren, Liudong*: **GEOLOGY AND ZIRCON U-PB AGES OF THE JIAMUSI-KHANKA AND ADJACENT BLOCKS IN THE CENTRAL ASIAN OROGENIC BELT**
- 49-10 4:30 PM Larson, Kyle P.*; Shrestha, Sudip; Ali, Asghar; Cottle, John M.; Ahmad, Rafique: **TIMING OF METAMORPHISM AND DEFORMATION IN THE FOOTWALL OF THE MAIN MANTLE THRUST, SWAT VALLEY, PAKISTAN**
- 49-11 4:45 PM Dienesch, Timothy F.*; Jessup, Micah J.; Cottle, John M.; Zeng, Linseng: **TIMING OF METAMORPHISM, DUCTILE DEFORMATION, AND EXHUMATION IN THE LHAGOI KANGRI DOME, SOUTH-CENTRAL TIBET**
- 49-12 5:00 PM Williams, Michael L.*; Jercinovic, Michael J.; Grover, Timothy W.: **ELECTRON MICROPROBE PETROCHRONOLOGY: NEW DATA AND NEW CHALLENGES FROM THE ADIRONDACK MOUNTAINS, NEW YORK**
- 5:15 PM **CONCLUDING REMARKS**

SUNDAY
PM

SESSION NO. 50

T184. Geologic Research at Mount Rainier and Other Cascade Volcanoes: Ideal Natural Laboratories for Cutting-Edge Research with Implications to Life Safety and Infrastructure Protection in the Pacific Northwest II (GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division; National Park Service; GSA Environmental and Engineering Geology Division)

1:30 PM, The Conference Center, Chelan 4

Scott R. Beason, Paul Kennard and Claire E. Todd, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 50-1 1:35 PM Driedger, Carolyn L.*; Schroedel, Richard; Lokey, William: **HAZARD-MITIGATION PARTNERSHIPS EMERGE FIRST AT MOUNT RAINIER**
- 50-2 1:50 PM Cartaya, Eduardo; Riggs, David; Cavendish, Tabbatha*; Florea, Lee J.; Pflitsch, Andreas; Boston, Penelope J.: **EXPLORATION AND STUDY OF THE GLACIER FUMAROLE CAVES IN THE SUMMIT CRATER OF MOUNT RAINIER, WASHINGTON STATE, U.S.A**
- 50-3 2:05 PM Beyeler, Jonathan D.*; Montgomery, David R.: **COARSE SEDIMENT AGGRADATION EXACERBATED BY IN-CHANNEL WOOD ACCUMULATIONS ALONG HEADWATER REACHES OF THE CARBON AND NISQUALLY RIVERS WITHIN MOUNT RAINIER NATIONAL PARK, WA**
- 50-4 2:20 PM Hinshaw, Sarah*; Kennard, Paul; Mauch, James; Beyeler, Jonathan: **LOCATION, EVOLUTION, AND MOVEMENT OF SEDIMENT BULGES IN THE MUDDY FORK OF THE COWLITZ RIVER, MOUNT RAINIER NATIONAL PARK**
- 50-5 2:35 PM Magirl, Christopher S.*; Czuba, Jonathan A.; Czuba, Christiana R.; Curran, Chris A.: **SEDIMENT FROM MOUNT RAINIER, WASHINGTON, USA: GENERATION, TRANSPORT, AND IMPACT ON DOWNSTREAM RIVERS**
- 50-6 2:50 PM Czuba, Jonathan A.*; Czuba, Christiana R.; Magirl, Christopher S.; Cui, Yantao: **SIMULATED SPATIAL AND TEMPORAL EVOLUTION AND DOWNSTREAM EFFECT OF SEDIMENT PULSES IN RIVERS DRAINING MOUNT RAINIER, WASHINGTON (Invited Presentation)**
- 3:10 PM **BREAK**
- 50-7 3:25 PM Anderson, Scott W.*; Konrad, Christopher P.: **TRANSLATING BED WAVES IN RESPONSE TO CLIMATE-DRIVEN VARIABILITY IN SEDIMENT SUPPLY FROM MOUNT BAKER, WASHINGTON STATE**
- 50-8 3:40 PM Bard, Joseph A.*: **FINDING HIGH GROUND: SIMULATING AN EVACUATION UNDER THE THREAT FROM A LARGE LAHAR**
- 50-9 4:00 PM George, David L.*; Iverson, Richard M.; Cannon, Charles M.: **MODELING THE DYNAMICS OF DEBRIS-AVALANCHE LAHARS THAT ORIGINATE ON CASCADE VOLCANOES**
- 50-10 4:15 PM Abbe, Tim*: **CONVEX VALLEY CROSS-SECTIONS OF MOUNT RAINIER RIVERS AND THE ROLE OF FORESTS AND LOGJAMS AS LIMITATIONS TO CHANNEL MIGRATION**
- 50-11 4:30 PM Kelly, April*; Kennard, Paul; Diaz, Benjamin: **GEOMORPHIC STUDY OF THE OHANAPECOSH RIVER: ESTIMATING ANADROMOUS FISH DISTRIBUTION UP TO 8,000 YA TO AID ARCHAEOLOGICAL INVESTIGATIONS, MOUNT RAINIER NATIONAL PARK**
- 4:45 PM **DISCUSSION**

SESSION NO. 51

T191. Looking to the Past to Understand the Future: Glacial Chronology and Process (GSA Quaternary Geology and Geomorphology Division)

1:30 PM, The Conference Center, Chelan 2

Lee B. Corbett, Paul R. Bierman and P. Thompson Davis, Presiding

- 51-1 1:30 PM Shakun, Jeremy D.*; Corbett, Lee B.; Bierman, Paul R.; Zimmerman, Susan H.: **PLIOCENE GREENLAND ICE SHEET GROWTH RECORDED BY *IN SITU* ¹⁰BE DECREASE IN MULTIPLE MARINE SEDIMENT CORES (Invited Presentation)**
- 51-2 1:50 PM Spector, Perry*; Stone, John O.; Hillebrand, Trevor R.; Gombiner, Joel H.: **SELECTING ANTARCTIC SITES FOR SUBGLACIAL BEDROCK RECOVERY TO TEST FOR PAST ICE SHEET COLLAPSE, AN EXAMPLE FROM THE PIRRIIT HILLS**
- 51-3 2:05 PM Corbett, Lee B.*; Bierman, Paul R.; Neumann, Thomas A.; Graly, Joseph A.; Shakun, Jeremy D.; Caffee, Marc W.; Dunai, Tibor; Zimmerman, Susan H.: **ANALYSIS OF THREE COSMOGENIC ISOTOPES IN SUBGLACIAL COBBLES HELPS UNRAVEL GREENLAND'S EXPOSURE AND EROSION HISTORY**
- 51-4 2:20 PM Nair, Jennifer N.; Hoke, Gregory D.*; Corbett, Lee B.; Bierman, Paul R.: **THE COSMOGENIC ISOTOPE CONCENTRATION OF A DEVONIAN SANDSTONE AS MEASURE OF GLACIAL EROSION ON THE NORTHERN EDGE OF THE APPALACHIAN BASIN**
- 51-5 2:35 PM Barth, Aaron M.*; Marcott, Shaun A.; Horvath, Alex; Shakun, Jeremy D.; Licciardi, Joseph M.: **EARLY DEGLACIAL THINNING OF THE LAURENTIDE ICE SHEET FOLLOWED BY RAPID REGIONAL DEGLACIATION**
- 51-6 2:50 PM Koester, Alexandria J.*; Shakun, Jeremy D.; Bierman, Paul R.; Davis, P. Thompson; Corbett, Lee B.; Goehring, Brent M.; Vickers, Anthony; Zimmerman, Susan H.: **RAPID THINNING OF THE LAURENTIDE ICE SHEET AT MT. WASHINGTON, NH, DURING THE BØLLING WARMING, CONSTRAINED BY ANALYSIS OF COSMOGENIC ¹⁴C AND ¹⁰BE**
- 51-7 3:05 PM Young, Nicolás E.*; Miller, Gifford; Briner, Jason P.; Schaefer, Joerg M.; Crump, Sarah E.; Lesnek, Alia J.; Pendleton, Simon L.: **EARLY HOLOCENE EVOLUTION OF THE LAURENTIDE AND GREENLAND ICE SHEETS**
- 3:20 PM **BREAK**
- 51-8 3:35 PM Balter, Alexandra*; Bromley, Gordon; Balco, Greg; Thomas, Holly; Jackson, Margaret: **A MIDDLE PLEISTOCENE THROUGH MIDDLE MIOCENE MORaine SEQUENCE IN THE CENTRAL TRANSANTARCTIC MOUNTAINS, ANTARCTICA**
- 51-9 3:50 PM Ceperley, Elizabeth G.*; Marcott, Shaun A.; Reusche, Melissa M.; Barth, Aaron M.; Brook, Edward J.; Mix, Alan C.; Caffee, Marc W.: **DEGLACIATION OF NARES STRAIT AND WASHINGTON LAND, NORTHWEST GREENLAND**
- 51-10 4:05 PM Stansell, Nathan D.*; Licciardi, Joseph M.; Rodbell, Donald T.; Mark, Bryan G.: **OCEAN-ATMOSPHERIC FORCING OF LATE GLACIAL AND HOLOCENE GLACIER FLUCTUATIONS IN THE EASTERN AND WESTERN CORDILLERA OF THE TROPICAL PERUVIAN ANDES**
- 51-11 4:20 PM Miller, Gifford H.*; Pendleton, Simon L.; Lifton, Nathaniel A.; Lehman, Scott; Southon, John: **THE DEAD SPEAK: TRACKING THE CRYOSPHERIC RESPONSE TO CONTEMPORARY WARMING IN ARCTIC CANADA WITH ENTOMBED VEGETATION AND *IN SITU* ¹⁴C IN ADJACENT ROCKS (Invited Presentation)**
- 51-12 4:40 PM Flowers, Gwenn E.*; Gilbert, Adrien; Miller, Gifford H.: **REMNANT OF THE ICE AGE MEETS 21ST CENTURY CLIMATE: MODELING OF THE FORM, FLOW, AND**

FUTURE OF BARNES ICE CAP, BAFFIN ISLAND, CANADA (Invited Presentation)

- 51-13 5:00 PM Curry, B.Brandon*; Lowell, Thomas V.: **RADIOCARBON AGE-BASED PHASES OF THE LAKE MICHIGAN LOBE, ILLINOIS, USA**
- 51-14 5:15 PM Minzoni, Rebecca Totten*; Anderson, John B.; Wellner, Julia S.; Fernandez, Rodrigo: **ANTARCTIC PENINSULA GLACIER SYNCHRONICITY INCREASED DURING THE HOLOCENE: IMPLICATIONS FOR THE MODERN RECESSION**

SESSION NO. 52

T195. Undergraduate Research Talks: The Next Step in Student Research Projects (GSA Geoscience Education Division; GSA Geoinformatics Division; GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Hydrogeology Division; GSA Limnogeology Division; GSA Archaeological Geology Division; GSA Karst Division)

1:30 PM, The Conference Center, Chelan 5

Jacqueline A. Smith, Bradley G. Johnson and Edward C. Hansen, Presiding

- 52-1 1:30 PM Samuelson, Willa Jean*; Whitney, Donna L.: **CRYSTALLIZATION SEQUENCE AND TECTONIC SIGNIFICANCE OF ANDALUSITE, KYANITE, AND SILLIMANITE "TRIPLE POINT" LOCALITIES (Invited Presentation)**
- 52-2 1:45 PM Young, Pinkie L.*; Rusmore, Margaret E.; Woodsworth, Glenn J.; Cecil, M. Robinson; Stowell, Harold H.: **NEW AL-IN-HORNBLENDE CRYSTALLIZATION PRESSURES FROM THE SOUTHERN COAST MOUNTAINS BATHOLITH, BRITISH COLUMBIA**
- 52-3 2:00 PM Roy, Derick*; Whittington, Alan G.; Hofmeister, Anne; Merriman, Jesse: **NON-MAGMATIC THERMAL EFFECTS OF INTRUSIONS**
- 52-4 2:15 PM Brock, Jonathan E.*; Holmes, Ann E.: **EVIDENCE FOR A REINSTATEMENT OF THE DIXON HILL MEMBER TO THE GROTTO BEACH FORMATION, SAN SALVADOR, BAHAMAS**
- 52-5 2:30 PM Smith, Everett*; Daniller-Varghese, Max; Mohrig, David; Myrow, Paul; Buttles, James; Prokocki, Eric; Kim, Junwoo: **DEPOSITING COMBINED-FLOW TURBIDITES BELOW WAVE BASE: EXPERIMENTAL EVIDENCE FOR TELECONNECTION OF SURFACE WAVES AND THE DEEP SEAFLOOR BY TURBIDITY CURRENTS**
- 52-6 2:45 PM Zhang, Tianran*; Williams, Shaun P.; Chagué, Catherine; Hampton, Samuel J.; Borella, Josh W.: **GEOCHEMICAL CHARACTERISTICS OF DEPOSITS LAID DOWN BY THE 2016 KAIKOURA TSUNAMI AT LITTLE PIGEON BAY, NEW ZEALAND**
- 3:00 PM **BREAK**
- 52-7 3:15 PM Dolcimascolo, Alexander*; Hollocher, Kurt; Frey, Holli M.: **UNION COLLEGE TESTS FOR HEAVY METAL CONTAMINANTS IN DRINKING WATER (Invited Presentation)**
- 52-8 3:30 PM Thatcher, Sean*: **COASTAL STABILITY ON THE EASTERN AND SOUTHERN COASTLINES OF STATEN ISLAND, NEW YORK**
- 52-9 3:45 PM Speir, Laura E.*; Bassett, Damon J.: **HIGH-RESOLUTION CONODONT BIOSTRATIGRAPHY OF THE EARLY CARBONIFEROUS, TOURNAISIAN STAGE, CHESTNUT RIDGE SECTION IN SOUTHWEST MISSOURI**
- 52-10 4:00 PM Miles, Maraina*; Burkhart, Patrick; Baldauf, Paul: **A SYNTHESIS OF HOLOCENE CLIMATE PROXY RECORDS, NORTHERN AND CENTRAL GREAT PLAINS, USA**
- 52-11 4:15 PM Voorheis, Brennan M.*; Farthing, Dori J.: **UTILIZING REFLECTANCE SPECTROMETRY TO DEFINE THE HUE, VALUE, AND CHROMA OF COLORS**

- 52-12 4:30 PM Elmore, Stephanie Nicole*: **THE ALPINE, TEXAS EARTHQUAKE OF 1995**

SESSION NO. 53

T197. No Dates: No Rates—Utilizing Geochronometers to Quantify Rates of Geomorphic Processes or Archaeological Development over a Wide Range of Temporal and Spatial Scales (GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Karst Division)

1:30 PM, Washington State Convention Center, Room 3B

Shannon A. Mahan, Ronald Counts, James K. Feathers, Amanda Keen-Zebert, Kenneth Lepper, Michelle Summa Nelson, Christina Neudorf and Joel Q.G. Spencer, Presiding

- 53-1 1:30 PM Morgan, Daniel*; Balco, Greg; Cribb, Alison; Cribb, J. Warner; Doane, Tyler; Sams, Sarah E.; Furbish, David J.; Roering, Joshua: **SEDIMENT ACCUMULATION RATES QUANTIFIED WITH COSMOGENIC NEON-21 ON A GLACIAL MORaine, BLOODY CANYON, CA**
- 53-2 1:45 PM Schmidt, Amanda H.*; Bierman, Paul R.; Sosa-Gonzalez, Veronica; Neilson, Thomas B.; Rood, Dylan H.; Campbell, Mary K.; Hill, Marcus: **TRACERS DERIVED *IN SITU* REPLICATE AND MIX BETTER THAN FALLOUT TRACERS INCORPORATED INTO GRAIN COATINGS (Invited Presentation)**
- 53-3 2:05 PM Paces, James B.*; Holen, Steven R.; Deméré, Thomas A.: **DATING THE CERUTTI MASTODON: U-TH ISOTOPE ANALYSES OF BONE TO DERIVE A 130-KA AGE SUPPORTING AN EARLY HOMININ SITE IN THE AMERICAS**
- 53-4 2:20 PM Loewy, Staci L.*; Valdes, Jessica; Yanny, Sierra J.W.; De La Cruz, Karla; Banner, Jay L.; Kappelman, John; Todd, Lawrence: **MORE ACCURATE U-TH AGES OF OSTRICH EGGSHELLS (OES) WITH IMPROVED SAMPLE PROCESSING**
- 53-5 2:35 PM Feathers, James K.*; Moore, Christopher R.: **LUMINESCENCE DATING ON THE ATLANTIC COASTAL PLAIN OF THE SOUTHEASTERN UNITED STATES**
- 53-6 2:50 PM Garcia, Antonio F.*; Dean, Daniel; Mahan, Shannon A.: **DEDUCING GEOMORPHIC PROCESS AND THE CHARACTER OF PALEOCLIMATE FROM SURFICIAL GEOLOGY AND GEOCHRONOLOGY BASED ON OPTICALLY STIMULATED LUMINESCENCE (OSL) DATING (Invited Presentation)**
- 3:10 PM **BREAK**
- 53-7 3:25 PM Neudorf, Christina M.*; Lian, Olav B.; Biln, Libby C.M.; Bryce, Jordan K.; Eamer, Jordan B.R.; Smith, Nicole; Shugar, Dan H.; Walker, Ian J.; Clague, John: **OPTICAL DATING SEDIMENTS FROM COASTAL BRITISH COLUMBIA: SUCCESSES, CHALLENGES, AND PLANS FOR THE FUTURE**
- 53-8 3:40 PM Rader, Mikaela A.*; Spencer, Joel Q.G.; Fitzgerald, Victoria T.: **INVESTIGATION OF PHYTOLITHS AS AN OSL CHRONOMETER: CAN PHYTOLITHS BE USED AS A VIABLE TOOL TO DETERMINE SEDIMENTARY DEPOSITIONAL AGE?**
- 53-9 3:55 PM Rodrigues, Kathleen*; Keen-Zebert, Amanda; Huot, Sebastien; Adams, Ken: **TESTING THE POTENTIAL OF THERMOLUMINESCENCE DATING OF VOLCANIC GLASS WITH KNOWN-AGE SAMPLES**
- 53-10 4:10 PM Ideker, Carlie J.*; Finley, Judson Byrd; Rittenour, Tammy; Nelson, Michelle: **ILLUMINATING THE PAST: UTILIZING SINGLE-GRAIN OSL TO DATE PREHISTORIC INTERMOUNTAIN WARE CERAMICS FROM NORTHWESTERN WYOMING, USA**
- 53-11 4:25 PM Fitzgerald, Victoria T.*; Spencer, Joel Q.G.; Oviatt, Charles G.; Rader, Mikaela A.: **DEVELOPMENT OF GYPSUM OSL DATING METHODS: INVESTIGATING THE TIMELINES OF PUNCTUATED CLIMATE EVENTS**

- IN LATEST PLEISTOCENE-TO-HOLOCENE LAKE BONNEVILLE GYPSUM DUNES**
- 53-12 4:40 PM Wisehart, Susan M.: **AN ANALYSIS OF RADIOCARBON SAMPLING METHODS ON LANDSLIDES IN THE NORTH FORK STILLAGUAMISH RIVER VALLEY, WASHINGTON, USA**
- 53-13 4:55 PM Holmes, Charles W.: **²¹⁰Pb AND ¹³⁷Cs CHRONOLOGIES: WHEN IT IS GOOD, IT IS VERY GOOD, WHEN IT IS BAD IT IS HORRID**

SESSION NO. 54

T202. Experimental Planetary Geology: Using Laboratory and Other Experiments to Advance Our Understanding of Geology on Planetary Bodies (GSA Planetary Geology Division; GSA Geophysics Division; GSA Sedimentary Geology Division)

1:30 PM, The Conference Center, Tahoma 1

Devon M. Burr and Danielle Wyrick, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 54-1 1:35 PM Dyar, M. Darby*; Helbert, Jörn; Maturilli, Alessandro; Ferrari, Sabrina; Müller, Nils; Smrekar, Suzanne: **EMISSIVITY MEASUREMENTS FOR HOT PLANETARY SURFACES**
- 54-2 1:50 PM McCubbin, Francis M.*; Barnes, Jessica J.; Vander Kaaden, Kathleen E.; Boyce, Jeremy W.; Ustunisik, Gokce; Whitson, Eric S.: **EXPERIMENTAL CONSTRAINTS ON THE PARTITIONING BEHAVIOR OF F, CL, AND OH BETWEEN APATITE AND BASALTIC MELT**
- 54-3 2:05 PM Barnes, Jessica J.*; Thompson, Michelle; McCubbin, Francis M.; Boyce, Jeremy W.; Messenger, Scott R.; Rahman, Zia; Keller, Lindsay P.; Zega, Tom: **COORDINATED MICROANALYSIS OF THE CHEMICAL COMPOSITION, MICROSTRUCTURE, AND VOLATILE INVENTORY OF APATITE IN HIGH-TI MARE BASALTS FROM THE MOON**
- 54-4 2:20 PM Hsu, Leslie*: **THE SEDIMENT EXPERIMENTALIST NETWORK (SEN): ADVANCING THE TRANSPARENCY AND REPRODUCIBILITY OF LABORATORY EXPERIMENTS (Invited Presentation)**
- 54-5 2:40 PM Wyrick, Danielle Y.*; Patterson, Ruby V.; Murphy, Ashley; Baillie, Rachel: **THE ROLE OF GRAIN SHAPE IN REGOLITH PROCESSES: EXPERIMENTAL RESULTS**
- 54-6 2:55 PM Patterson, Ruby V.*; Wyrick, Danielle Y.; Murphy, Ashley; Baillie, Rachel: **GEOCHEMICAL TESTING OF REGOLITH SIMULANTS**
- 3:10 PM **BREAK**
- 54-7 3:25 PM Byrne, Paul K.*; Wyrick, Danielle Y.: **SCALED ANALOG MODELING AS A POWERFUL TOOL FOR EXPERIMENTAL PLANETARY GEOLOGY (Invited Presentation)**
- 54-8 3:45 PM Gross, Juliane*; Klaser, Michael; Tindall, Sarah: **JUPITER'S MOON EUROPA: NEW INSIGHTS INTO GLOBAL RESURFACING PROCESSES AND PLANETARY ICE TECTONICS FROM PHYSICAL EXPERIMENTS (Invited Presentation)**
- 54-9 4:00 PM Hanley, Jennifer*: **SPECTRAL, GEOCHEMICAL, AND GEOPHYSICAL LABORATORY STUDIES RELEVANT TO PLANETARY GEOLOGY (Invited Presentation)**
- 54-10 4:20 PM Theiling, Bethany P.*; Major, Jonathan D.: **ISOTOPIC MIXING MODELS OF EUROPA SEAWATER BRINES FROM LABORATORY SIMULATIONS**
- 54-11 4:35 PM Levy, Joseph; Burr, Devon M.*; Maue, Anthony D.: **THE TITAN TUMBLER: INITIAL RESULTS FROM LABORATORY SIMULATION OF ICY SEDIMENT COMMINUTION AND ROUNDING**
- 54-12 4:50 PM Schultz, Peter H.*: **DETERMINING IMPACTOR CONDITIONS FROM OBLIQUE IMPACTS: INSIGHTS FROM EXPERIMENTS**

- 54-13 5:05 PM Keszthelyi, Laszlo P.*; Ridley, W. Ian; Trilling, David; Meinert, Lawrence D.; Hagerly, Justin J.; King, Trude: **USGS ASTEROID RESOURCE ASSESSMENTS ARE FEASIBLE**
- 54-14 5:20 PM Powell, Kathryn E.*; Arvidson, Raymond E.; He, Linyun; O'Sullivan, Joseph A.: **APPROACHES TO MODELING THERMAL EMISSION AND REFLECTANCE IN CRISM AND OMEGA OBSERVATIONS FROM 1-5 μM**

SESSION NO. 55

T224. Multi-Proxy Records for Large-Scale Translation and Vertical Strain along Active and Ancient Strike-Slip Fault Systems (GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative; GSA Sedimentary Geology Division)

1:30 PM, The Conference Center, Tahoma 3

Jeff Benowitz, Jeremy Hourigan and Paul J. Umhoefer, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 55-1 1:35 PM Modermott, Robert G.*; Ault, Alexis K.; Caine, Jonathan Saul; Reiners, Peter W.; Thomson, Stuart N.: **EVOLUTION OF EXHUMATION FROM MULTI-METHOD THERMOCHRONOMETRY IN THE EASTERN KLUANE RANGES, YUKON, CANADA**
- 55-2 1:50 PM Schartman, Anna*; Enkelmann, Eva; Garver, John I.; Davidson, C.: **TEMPORAL AND SPATIAL PATTERN OF DEFORMATION AT THE NORTHERN END OF THE FAIRWEATHER TRANSFORM BOUNDARY, SOUTHEAST ALASKA**
- 55-3 2:05 PM Fitzgerald, Paul G.*; Benowitz, Jeffrey A.; Ridgway, Kenneth D.; Warfel, Thomas S.; Allen, Wai K.: **THE ROLE OF TERRANE RHEOLOGY VS FAULT GEOMETRY FOR MOUNTAIN FORMATION AND EXHUMATION ALONG THE DENALI FAULT OF SOUTH-CENTRAL ALASKA**
- 55-4 2:20 PM Benowitz, Jeff A.*; Terhune, Patrick; O'Sullivan, Paul B.; Trop, Jeffrey M.: **THERMOCHRONOLOGY OF THE TALKEETNA MOUNTAINS OF SOUTHERN ALASKA: THE CENTER OF THE RESURRECTION-KULA TRIPLE JUNCTION CONTROVERSY?**
- 55-5 2:35 PM Reitman, Nadine G.*; Wang, Yu; Lin, Nina; Lindsey, Eric; Mueller, Karl: **INSAR TIME SERIES ANALYSIS OF DEXTRAL STRAIN PARTITIONING ACROSS THE BURMA PLATE**
- 55-6 2:50 PM Sharman, Glenn R.*; Graham, Stephan A.; Grove, Marty J.; Hourigan, Jeremy; Colgan, Joseph P.; Stanley, Richard G.: **LONG-TERM OFFSET HISTORY OF THE CENTRAL SAN ANDREAS FAULT SYSTEM: NEW INSIGHTS INTO OLD QUESTIONS USING SEDIMENTARY SYSTEMS ANALYSIS (Invited Presentation)**
- 55-7 3:10 PM Blisniuk, Kimberly*; Fosdick, Julie C.; Balco, Greg; Stone, John O.: **RE-EVALUATING FAULT ZONE EVOLUTION, GEOMETRY, AND SLIP RATE ALONG THE RESTRAINING BEND OF THE SOUTHERN SAN ANDREAS FAULT ZONE (Invited Presentation)**
- 3:30 PM **BREAK**
- 55-8 3:45 PM Duvall, Alison R.*; Cowan, Darrel S.; Casale, Gabriele; Chinn, Logan; Fendick, Anne M.; Blythe, Ann E.; Reinert, Erik: **DEFORMATION HISTORY AT THE EASTERN END OF THE GARLOCK FAULT, CA FROM AVAWATZ MOUNTAINS LOW-TEMPERATURE THERMOCHRONOLOGY (Invited Presentation)**
- 55-9 4:05 PM Bar, Neta*; Steely, Alex N.; Brandon, Mark T.; Hourigan, Jeremy: **MODE OF DEFORMATION ASSOCIATED WITH RISE OF THE SANTA LUCIA RANGE, AS CONSTRAINED BY NEW THERMOCHRONOLOGIC DATA AND THERMOKINEMATIC MODELING**
- 55-10 4:20 PM Steely, Alexander N.*; Hourigan, Jeremy: **RAPID AND PUNCTUATED VERTICAL STRAIN ALONG THE LEADING EDGE OF THE CENTRAL CALIFORNIA COAST RANGE: A MULTI-PROXY APPROACH**

- 55-11 4:35 PM Cochran, William J.*; Spotila, James A.: **INCIPIENT EVOLUTION OF THE EASTERN CALIFORNIA SHEAR ZONE THROUGH A TRANSPRESSIONAL ZONE ALONG THE SAN ANDREAS FAULT IN THE SAN BERNARDINO MOUNTAINS, CALIFORNIA**
- 55-12 4:50 PM Hourigan, Jeremy*; Steely, Alexander N.; Beeson, Jeffrey W.; Johnson, Samuel Y.; Hilley, George E.: **THE EVOLUTION OF THE COASTAL ZONE OF THE PACIFIC - NORTH AMERICA PLATE BOUNDARY IN CENTRAL AND NORTHERN CALIFORNIA: INSIGHTS FROM GEOMORPHIC, GEOLOGIC AND THERMOCHRONOLOGIC RECORDS**
- 55-13 5:05 PM Morel, Daniel L.*; Keller, Edward A.: **QUATERNARY CHRONOLOGY AND UPLIFT OF GAVIOTA COAST MARINE TERRACES, SOUTHERN CALIFORNIA**

SESSION NO. 56

T226. New Perspectives on Processes of Subduction Initiation and Termination (GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geophysics Division)

1:30 PM, The Conference Center, Tahoma 5

Sarah Roeske, Nancy Riggs, Susanne Buitter and Douwe van Hinsenberg, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 56-1 1:35 PM Billen, Magali I.*: **A SYNTHESIS OF RECENT RESULTS FROM GEODYNAMIC MODELS OF SUBDUCTION INITIATION AND TERMINATION (Invited Presentation)**
- 56-2 1:55 PM Stern, Robert J.*: **EOCENE INITIATION OF THE CASCADIA SUBDUCTION ZONE: A SECOND EXAMPLE OF PLUME-INDUCED SUBDUCTION INITIATION? (Invited Presentation)**
- 2:15 PM **DISCUSSION**
- 56-3 2:25 PM Encarnacion, John*; Keenan, Timothy E.: **CONSTRAINTS ON SUBDUCTION INITIATION FROM PROTOLITH AND METAMORPHIC AGES OF METAMORPHIC SOLES**
- 56-4 2:40 PM Stewart, Eric D.; Newman, Julie*; Tikoff, Basil; Miller, Brent; Lamb, William M.; German, Lindsey: **MANTLE DEFORMATION RECORDING SUBDUCTION INITIATION, RED HILLS, NEW ZEALAND**
- 56-5 2:55 PM Coulthard, Daniel A.*; Reagan, Mark K.; Almeev, Renat; Pearce, Julian A.; Ryan, Jeffrey; Sakuyama, Tetsuya; Shervais, J.W.; Shimizu, Kenji: **FORE-ARC BASALT TO BONINITE MAGMATISM: CHARACTERIZING THE TRANSITION FROM DECOMPRESSION TO FLUID FLUX MELTING AFTER SUBDUCTION INITIATION**
- 3:10 PM **COFFEE BREAK**
- 56-6 3:25 PM Cecil, M. Robinson*; Ferrer, Mary Ann; Riggs, Nancy R.; Marsaglia, Kathleen: **PERMIAN MAGMATISM IN THE NORTHERN MOJAVE REGION AND CONSTRAINTS ON THE TIMING AND TECTONICS OF SUBDUCTION INITIATION ALONG THE SOUTHWEST LAURENTIAN MARGIN (Invited Presentation)**
- 56-7 3:45 PM Lodes, Emma*; Riggs, Nancy; Stone, Paul; Reynolds, Stephen J.: **SEDIMENTATION AND GEOCHRONOLOGY OF PERMIAN STRATA, INYO MOUNTAINS, CA, AND RELATION TO ONSET OF SUBDUCTION**
- 56-8 4:00 PM Riggs, Nancy R.*; Reynolds, Stephen J.; Cecil, M. Robinson; Sanchez, Taylor B.; Barth, Andrew P.: **SOUTHWEST LAURENTIAN LOWER-MIDDLE TRIASSIC SEDIMENTARY STRATA AND THE RECORD OF EARLIEST CORDILLERAN ARC MAGMATISM**
- 56-9 4:15 PM Fowler, Gary D.*; Farris, David W.: **MANTLE INFLUENCES ON MIOCENE MAGMATISM IN CENTRAL PANAMA**
- 56-10 4:30 PM Tate, Garrett W.*; McQuarrie, Nadine; Tiranda, Herwin; van Hinsbergen, Douwe J.J.; Harris, Ron; Zachariasse, Willem Jan; Fellin, Maria Giuditta; Reiners, Peter W.;

Willet, Sean D.: **SYNCHRONOUS LATE MIOCENE ARC-CONTINENT COLLISION ACROSS TIMOR: FIELD CONSTRAINTS ON PLATE BOUNDARY REORGANIZATION**

- 56-11 4:45 PM Chapman, James B.*; Scoggin, Shane; Kapp, Paul; Carrapa, Barbara; Ducea, Mihai N.; Worthington, James; Oimahmadov, Ilhomjon; Gadoev, Mustaf: **MAGMATIC EVIDENCE FOR LOCALIZED LITHOSPHERIC DELAMINATION RESULTING FROM CONTINENTAL COLLISION IN THE PAMIR-TIBET OROGEN**

SESSION NO. 57 \$

T228. Origin, Accretion, and Translation of Mesozoic-Cenozoic Terranes along the Pacific Margin of North America (GSA Structural Geology and Tectonics Division)

1:30 PM, The Conference Center, Tahoma 4

David T. Katopody, Mark T. Brandon and Bernard Housen, Presiding

- 57-1 1:30 PM Mihalynuk, Mitchell G.*; Sigloch, Karin: **TOMOTECTONIC CONSTRAINTS ON ASSEMBLY OF CORDILLERAN NORTH AMERICA SINCE PANGEA BREAKUP (Invited Presentation)**
- 57-2 1:45 PM Barefoot, John*; Nadin, Elisabeth S.; Newberry, Rainer: **ROCK AND AGE RELATIONSHIPS OF THE TALKEETNA FOREARC SUBDUCTION COMPLEX IN THE NELCHINA AREA, SOUTHERN ALASKA**
- 57-3 2:00 PM Mitchell, Ross*; Ward, Peter D.: **INTRAFORMATIONAL CLASTIC DIKES OF THE UPPER CRETACEOUS NANAIMO GROUP (BRITISH COLUMBIA, CANADA): EVIDENCE FOR TERRANE DOCKING**
- 57-4 2:15 PM Boivin, Marie-Pier*; Matthews, William A.; Guest, Bernard; Hubbard, Stephen M.: **REFINING THE PROVENANCE OF THE NANAIMO BASIN, BRITISH COLUMBIA, CANADA BY LA-ICP-MS DEPTH PROFILING**
- 57-5 2:30 PM Katopody, David T.*; Oldow, John S.: **CENOZOIC STRUCTURAL JUXTAPOSITION OF THE SAN JUAN ISLANDS – WRANGELLIA AND THE NORTHWEST CASCADES – COAST PLUTONIC COMPLEX, NORTHWESTERN WASHINGTON AND SOUTHWEST BRITISH COLUMBIA**
- 57-6 2:45 PM Cordova, Jeremy L.*; Schermer, Elizabeth; Mulcahy, Sean R.; Webb, Laura E.: **INITIATION AND EARLY EVOLUTION OF A SUBDUCTION ZONE: T-T-D HISTORY OF THE EASTON METAMORPHIC SUITE, NORTHWEST WASHINGTON STATE**
- 3:00 PM **BREAK**
- 57-7 3:15 PM Dorsey, Malcolm S.*; Matthews, William A.; Guest, Bernard: **TESTING THE CORRELATION OF ROCKS EAST AND WEST OF THE HARRISON LAKE SHEAR ZONE USING DETRITAL ZIRCON GEOCHRONOLOGY**
- 57-8 3:30 PM Davis, Peter*; Stubbs, Michael: **PERSPECTIVE ON LATERAL TERRANE TRANSLATION FROM SYNTECTONIC EMPLACEMENT OF THE HICKS BUTTE PLUTON IN THE CENTRAL CASCADES OF WASHINGTON STATE**
- 57-9 3:45 PM Surpless, Kathleen D.*; Gulliver, Kirk D.H.; Housen, Bernard A.; Vervoort, Jeff D.: **A WINDOW INTO THE LATE CRETACEOUS PALEOGEOGRAPHY OF THE U. S. CORDILLERA: PROVENANCE ANALYSIS OF THE OCHOCO BASIN, CENTRAL OREGON (Invited Presentation)**
- 57-10 4:00 PM Johnston, Scott M.*; Jacobson, C.E.; Chapman, Alan D.; Kylander-Clark, Andrew: **NEW CONSTRAINTS ON MODELS FOR FOREARC SHORTENING ALONG THE SUR-NACIMIENTO FAULT, CENTRAL CALIFORNIA COAST**
- 4:15 PM **BREAK**
- 57-11 4:30 PM Attia, Snir*; Paterson, Scott R.; Saleeby, Jason; Chapman, Alan D.: **NATIVE MESOZOIC SIERRA NEVADA ARC**

- INDICATED BY DETRITAL ZIRCON GEOCHRONOLOGY OF PREBATHOLITHIC FRAMEWORK AND INTRA-ARC STRATA**
- 57-12 4:45 PM Shulaker, Danielle Ziva*; Grove, Marty; Hourigan, Jeremy K.; Van Buer, Nicholas J.; Sharman, Glenn R.: **LATEST CRETACEOUS THROUGH CENOZOIC EXHUMATION HISTORY OF THE SOUTHERN SIERRA NEVADA AND NORTHWESTERN MOJAVE DESERT REGION USING BASEMENT AND DETRITAL THERMOCHRONOLOGY**
- 57-13 5:00 PM Shields, Jessie E.*; Chapman, Alan D.; Ducea, Mihai N.: **TECTONIC TRAUMA AND HEALING OF SUB-CONTINENTAL MANTLE LITHOSPHERE BENEATH THE SW NORTH AMERICAN CORDILLERA: INSIGHTS FROM U-PB ZIRCON AND SM-ND GARNET AGES FROM COLORADO PLATEAU TRANSITION ZONE XENOLITHS (Invited Presentation)**

SESSION NO. 58

T236. Characterizing Cascadia's Earthquakes—Reexamining Open Questions about Cascadia Seismic and Tsunami Hazards (GSA Geophysics Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division)

1:30 PM, The Conference Center, Yakima 1

Robert C. Witter, Lydia Staisch and Joan Gomberg, Presiding

- 58-1 1:30 PM Engelhart, Simon E.*; Cahill, Niamh; Hawkes, Andrea; Horton, Benjamin P.; Kemp, Andrew C.; Milker, Yvonne; Nelson, Alan R.; Padgett, J. Scott; Wang, Kelin; Witter, Robert C.: **THE TIMING AND DEFORMATION OF CASCADIA SUBDUCTION ZONE EARTHQUAKES FROM COASTAL MARSH RECORDS OF OREGON (Invited Presentation)**
- 58-2 1:50 PM O'Donnell, Robert J.*; Hawkes, Andrea D.; Lane, Chad S.; Engelhart, Simon E.; Horton, Benjamin P.; Bobrowsky, Peter; Sawai, Yuki; Witter, Robert C.; Nelson, Alan R.; Tanigawa, Koichiro: **ASSESSING THE UTILITY OF $\delta^{13}C$ AND BULK GEOCHEMISTRY IN ESTUARIES ALONG THE CASCADIA SUBDUCTION ZONE FOR COASTAL PALEOSEISMOLOGY**
- 58-3 2:05 PM Garrison-Laney, Carrie*: **THE CASCADIA SUBDUCTION ZONE EARTHQUAKE(S) FROM ABOUT 600 CAL YR BP: A FULL SUBDUCTION ZONE RUPTURE, A SERIES OF RUPTURES, OR A NORTHERN SEGMENT RUPTURE?**
- 58-4 2:20 PM Dura, Tina*; Horton, Benjamin P.; Milker, Yvonne; Wang, Kelin; Bridgeland, W.T.; Brophy, Laura; Ewald, M.; Khan, Nicole S.; Engelhart, Simon E.; Nelson, Alan R.; Witter, Robert C.: **MICROFOSSIL MEASURES OF SUBSIDENCE DURING PAST PLATE-BOUNDARY EARTHQUAKES: THEIR ACCURACY REVEALED BY A SUDDEN TIDAL-FLOODING EXPERIMENT IN CASCADIA**
- 58-5 2:35 PM Padgett, J. Scott*; Engelhart, Simon E.; Kelsey, Harvey; Witter, Robert C.: **INTER- AND INTRA-SITE VARIABILITY OF COSEISMIC SUBSIDENCE ESTIMATES FROM NORTHERN HUMBOLDT BAY, CALIFORNIA**
- 58-6 2:50 PM Patton, Jason Robert*; Leroy, Thomas H.; Williams, Todd Brian; Hemphill-Haley, Mark A.; McPherson, Robert; Anderson, Jeffrey K.: **PERPLEXING RECORDS OF COSEISMIC SUBSIDENCE: EVALUATION OF SOURCES FOR COSEISMIC SUBSIDENCE IN THE SOUTHERN CASCADIA SUBDUCTION ZONE, NORTHERN CALIFORNIA**
- 3:05 PM **BREAK**
- 58-7 3:20 PM Struble, William*; Roering, Joshua; Burns, William J.; Black, Bryan; Calhoun, Nancy; Wetherell, Logan R.: **PROPENSITY FOR DEEP-SEATED LANDSLIDES IN THE OREGON COASTAL RANGES DURING CASCADIA MEGATHRUST EARTHQUAKES THROUGH DENDROCHRONOLOGICAL DATING OF LANDSLIDE-DAMMED LAKES (Invited Presentation)**

- 58-8 3:40 PM Maurer, Brett W.*: **A PRIMER ON PALEOLIQUEFACTION INVERSE-ANALYSIS AND ITS RESEARCH POTENTIAL IN CASCADIA**
- 58-9 3:55 PM Salditch, Leah*; Brooks, Edward; Stein, Seth; Spencer, Bruce D.; Campbell, Michael: **MODELING THE CASCADIA PALEOSEISMIC RECORD OF LARGE EARTHQUAKE CLUSTERS USING LONG-TERM FAULT MEMORY**
- 58-10 4:10 PM Meigs, Andrew*; Kirby, Eric; Mason, H. Benjamin; Wilson, Greg; Armstrong, Emma; Marcelli, Marina; Spruell, John: **RETRODICTING CASCADIA SUBDUCTION ZONE GREAT EARTHQUAKE SOURCE CHARACTERISTICS FROM TSUNAMI INUNDATION ALONG THE OREGON COAST**
- 58-11 4:25 PM Cubas, Nadaya*; Souloumiac, Pauline: **LANDWARD VERGENCE IN ACCRETIONARY WEDGES: EVIDENCE FOR PAST SEAFLOOR RUPTURES?**
- 58-12 4:40 PM Watt, Janet T.*; Brothers, Daniel S.; Bennett, Scott E.K.; Kluesner, Jared W.; Roland, Emily; Conrad, James E.; Sliter, Ray W.; Dartnell, Peter; Goldfinger, Chris; Patton, Jason R.; Michalak, Melanie J.; Sherrod, Brian L.; Gomberg, Joan; Wells, Ray E.: **TOWARDS A SYSTEMATIC CHARACTERIZATION OF CASCADIA UPPER PLATE MORPHOLOGY, STRUCTURE, AND QUATERNARY DEFORMATION HISTORY: AN INTEGRATED ONSHORE-OFFSHORE APPROACH (Invited Presentation)**

SESSION NO. 59

T242. Current Trends in Landslide Monitoring: New Techniques, Methods, Successes, Failures, and Case Studies I (GSA Environmental and Engineering Geology Division)

1:30 PM, The Conference Center, Skagit 5

Peter Bobrowsky, David H. Huntley, Michael Hendry and Renato Macciotta, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 59-1 1:45 PM Falorni, Giacomo*; Baldeon, Geidy; Rucci, Alessio: **ADVANCES IN INSAR LEADING TO CONTINUOUSLY UPDATED GROUND DEFORMATION MEASUREMENTS**
- 59-2 2:00 PM Macciotta, Renato*; Martin, Derek; Stewart, Tom; Marsh, Julia: **CHALLENGES OF DEPLOYING GROUND-BASED INSAR IN NORTHERN REMOTE AREAS IN CANADA**
- 59-3 2:15 PM Casagli, Nicola*: **LANDSLIDE SURVEILLANCE AT REGIONAL AND LOCAL SCALE**
- 59-4 2:30 PM Bouali, El Hachemi Y.*; Oommen, Thomas; Escobar Wolf, Rüdiger: **SLOW LANDSLIDE IDENTIFICATION USING INSAR TO UPDATE THE CALIFORNIA LANDSLIDE INVENTORY ON THE PALOS VERDES PENINSULA**
- 59-5 2:45 PM Giordan, Daniele*; Lollino, Giorgio; Allasia, Paolo; Wrzesniak, Aleksandra: **RECENT ADVANCES IN LANDSLIDE MONITORING: FROM TERRESTRIAL REMOTE SENSING APPLICATIONS TO MONITORING RESULTS DISSEMINATION**
- 3:00 PM **DISCUSSION**
- 3:15 PM **BREAK**
- 59-6 3:30 PM Tofani, Veronica*; Catani, Filippo; Casagli, Nicola: **FIELD PARAMETRIZATION FOR REGIONAL PHYSICALLY BASED LANDSLIDE EARLY WARNING MODELS**
- 59-7 3:45 PM Keaton, Jeffrey R.*; Roth, Richard J.: **WHAT IS NEEDED FOR SLOPE MONITORING TO INFORM LOSS MODELS IN MEANINGFUL TERMS?**
- 59-8 4:00 PM De Graff, Jerome V.*: **REAL-TIME MONITORING FOR EMERGENCY RESPONSE: THE CONUNDRUM OF ACTION THRESHOLDS**
- 59-9 4:15 PM Legorreta Paulin, Gabriel*; Bursik, Marcus I.; Contreras, Trevor; Polenz, Michael: **AN OVERVIEW OF A GIS METHOD FOR LANDSLIDE MAPPING, ASSESSING LANDSLIDE SUSCEPTIBILITY, AND ESTIMATION OF**

LANDSLIDE SEDIMENT YIELDS ON THE SE FLANK OF PICO DE ORIZABA VOLCANO, MEXICO

- 59-10 4:30 PM Donnelly, Laurance John*; Boddy, Jason: **AN OVERVIEW OF LANDSLIDES IN THE UNITED KINGDOM AND THE INVESTIGATION AND REMEDIATION OF THE CHIPPING CAMPDEN LANDSLIDE**
- 59-11 4:45 PM Capparelli, Giovanna*; Spolverino, Gennaro; Versace, Pasquale: **INTEGRATED STUDY OF THE INFILTRATION PROCESSES IN THE VESUVIO PYROCLASTIC SOILS SUBJECT TO INSTABILITY**
- 5:00 PM **DISCUSSION**

MEASUREMENT ELUCIDATES CHANGES IN DOMINANT GEOCHEMICAL PROCESSES

- 60-13 4:50 PM Johnson, Claire M*; Bottjer, David J.: **EFFECTS OF METAZOAN GRAZING ON MODERN HYPERSALINE LAKE MICROBIALITE MORPHOLOGY USING BULK SAMPLING AND PHOTOGRAMMETRY, STORR'S LAKE, SAN SALVADOR ISLAND, THE BAHAMAS**
- 60-14 5:05 PM Wood, R. Seth*; Pracheil, Brenda M.; Chakoumakos, Bryan C.; Kah, Linda C.: **EFFECTS OF ORGANIC COMPOUNDS ON THE PRECIPITATION AND STABILIZATION OF VATERITE**
- 5:20 PM **CONCLUDING REMARKS**

SESSION NO. 60

T249. New Voices in Geobiology II (GSA Geobiology & Geomicrobiology Division; GSA Karst Division)

1:30 PM, Washington State Convention Center, Room 602/603

Victoria A. Petryshyn, Marc Laflamme, Lydia S. Tackett, Rowan C. Martindale, Simon A.F. Darroch and Carrie M. Frantz, Presiding

- 60-1 1:30 PM Huang, Tianzheng*; Sun, Yuanlin; Zhao, Zhouqiao; Li, Chao; Zhao, Hong; Nie, Ting; Xue, Jinzhuang; Shen, Bing: **RECONSTRUCTION THE WEATHERING INTENSITY DURING THE EARLY EVOLUTION OF VASCULAR LAND PLANTS**
- 60-2 1:45 PM Barclay, Richard S.*; Soul, Laura C.; Bolton, Amy; Wilson, Jonathan P.; Megonigal, J. Patrick; Wing, S.L.: **FOSSIL ATMOSPHERES: AN ELEVATED CO2 EXPERIMENT UTILIZING OPEN-TOP CHAMBERS TO EVALUATE THE GINKGO PALEO-CO2 BAROMETER**
- 60-3 2:00 PM Telus, Rose G.*; Schubert, Brian A.: **IDENTIFICATION OF EXTREME RAINFALL EVENTS USING HIGH-RESOLUTION CARBON ISOTOPE MEASUREMENTS ACROSS TREE-RINGS**
- 60-4 2:15 PM Srivastava, Shreya*; Dong, Hailiang; Briggs, Brandon R.: **EFFECT OF MOLYBDENUM AND ENVIRONMENTAL FACTORS ON ABUNDANCE AND TAXONOMIC AFFILIATION OF GENES THAT TRANSPORT OR USE MO**
- 60-5 2:30 PM Wittkop, Chad*; Swanner, Elizabeth; Lambrecht, Nicholas; Katsev, Sergei; Grengs, Ashley; Widman, Duncan: **CONTROLS ON IRON- AND MANGANESE-MINERAL SOLUBILITY IN FERRUGINOUS LAKES**
- 60-6 2:45 PM Fournier, Gregory P.*: **ESTABLISHING STRATIGRAPHIC PRINCIPLES OF MICROBIAL GENOME EVOLUTIONARY HISTORY**
- 60-7 3:00 PM Silverman, Shaelyn N.*; Kopf, Sebastian; Som, Sanjoy; Bebout, Brad M.; Gordon, Richard: **MEASURING N2 PRESSURE USING CYANOBACTERIA**
- 60-8 3:15 PM Masiello, Caroline A.*; Silberg, Jonathan J.; Cheng, Hsiao-Ying; Del Valle, Ilene; Fulk, Emily; Gao, Xiaodong; Bennett, George: **SPIES AND BLOGGERS: NEW SYNTHETIC BIOLOGY TOOLS TO UNDERSTAND MICROBIAL PROCESSES IN THE EARTH SYSTEM**
- 3:30 PM **BREAK**
- 60-9 3:45 PM Dekas, Anne E.*: **NITROGEN FIXATION IN DEEP-SEA SEDIMENTS (Invited Presentation)**
- 60-10 4:05 PM Wawrousek, Karen*; Drogos, Donna; Urynowicz, Michael; Nye, Charles; Quillinan, Scott: **MICROBIAL COMMUNITIES IN OIL AND GAS PRODUCED WATER OF THE POWDER RIVER AND GREEN RIVER BASINS IN WYOMING**
- 60-11 4:20 PM Som, Sanjoy*; Rempfert, Kaitlin; Hoehler, Tori M.; Templeton, Alexis S.: **SIMULATED HYDROGEN CONCENTRATIONS IN LOW-TEMPERATURE TYPE I AND TYPE II SERPENTINIZED FLUIDS PREDICTED FROM MEASURED SOURCE WATERS AT THE OMANI OPHIOLITE**
- 60-12 4:35 PM Enright, Allison*; Parsons, Chris; Glamoclija, Mihaela: **LONG-RANGE TIME DOMAIN CORRELATION: AN EMERGING BIOGEOCHEMICAL SYSTEM**

SESSION NO. 61

P1. The Changing Face of Geoscience in the 21st Century: Increasing Diversity and Inclusion to Solve Complex Problems (GSA Geology and Society Division; GSA Committee on Diversity in the Geosciences; Earth Science Women's Network; International Association for Geoscience Diversity; Geoscience Alliance; Association for Women Geoscientists)

2:00 PM, Washington State Convention Center, Ballroom 6A

Barbara P. Nash and Carol B. de Wet, Presiding

- 2:00 PM **WELCOME AND INTRODUCTION BY GSA PRESIDENT ISABEL MONTANEZ**
- 61-1 2:10 PM Taylor, Dorecta*: **WHY DIVERSITY? KEYNOTE PRESENTATION**
- 2:45 PM **WHY DIVERSITY? MODERATOR SAM MUKASA: PANELISTS INCLUDE ARADHNA TRIPATI; WENDY SMYTHE; WES WARD**
- 3:25 PM **TAKE HOME MESSAGE**
- 3:35 PM **BREAK**
- 61-2 3:50 PM Gates, Alexander E.*: **HOW DIVERSITY? KEYNOTE PRESENTATION**
- 4:25 PM **HOW DIVERSITY? MODERATOR MARILYN SUITER: PANELISTS INCLUDE SUZANNE O'CONNELL; LISA WHITE; CHRISTOPHER ATCHISON**
- 5:05 PM **TAKE HOME MESSAGE**
- 5:15 PM **CONCLUDING REMARKS**

SESSION NO. 62

T217. Challenges in Tectonics: Synergies between Meeting Societal Needs and Advancing Interdisciplinary Research in Tectonics and Structural Geology (GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)

3:45 PM, The Conference Center, Tahoma 2

Kim Blisniuk, Richard W. Briggs, Frederick M. Chester, Alison R. Duvall, Peter Eichhubl and Katharine Huntington, Presiding

- 3:45 PM **INTRODUCTORY REMARKS**
- 62-1 3:50 PM Eichhubl, Peter*; Laubach, Stephen E.: **STRUCTURAL DIAGENESIS OF NATURAL FRACTURES: IMPLICATIONS FOR WATER, ENERGY, ENVIRONMENT, AND HAZARDS**
- 62-2 4:05 PM Osmond, Johnathon L.*; Hennings, Peter H.: **DIGITAL FAULT DATA COLLECTION METHODS AND 3D SUBSURFACE MODELING WORKFLOWS USED FOR INDUCED SEISMICITY RESEARCH IN THE FORT WORTH BASIN, TEXAS**
- 62-3 4:20 PM Bilham, Roger*; Bendick, Rebecca: **A FIVE YEAR FORECAST FOR INCREASED GLOBAL SEISMIC HAZARD (Invited Presentation)**
- 62-4 4:40 PM Witter, Robert C.*; Butler, Robert F.; Suleimani, Elena; Nicolsky, Dmitry; West, Michael E.; Witter, Jennifer P.; Belanger, Dan; Freymueller, Jeffrey; Kelly, Laura; Pratt-Sitaula, Beth; Smith, Ted; Wood, Nathan J.: **SYNERGY IN TSUNAMI SCIENCE AND OUTREACH TO BUILD RESILIENT COMMUNITIES IN ALASKA (Invited Presentation)**

- 5:00 PM **INTRODUCTION OF PENROSE MEDALIST, BY PETER HAEUSSLER**
- 62-5 5:05 PM Plafker, George*: **PENROSE MEDAL: ROCKS AND SHOCKS: CONTINENTAL MARGIN TECTONICS, GIANT ARC MEGATHRUST EVENTS, TSUNAMI GENERATION, AND PALEOSEISMOLOGY**

POSTER TECHNICAL SESSIONS

SESSION NO. 63

T196. Advances in Geoarchaeology (Posters) (GSA Archaeological Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 3:30 to 5:30 PM

- | Booth # | Author(s) | Title |
|---------|--|--|
| 63-1 | 1 Fadem, Cynthia M.; Dongol, Anisha*; Egeland, Charles; Domínguez Rodrigo, Manuel; | ONGOING TOPPP GEOARCHAEOLOGICAL INVESTIGATIONS AT OLDUVAI GORGE, TANZANIA |
| 63-2 | 2 Murray, Bridget M.*; Ranhorn, Kathryn L.; Colarossi, Debra; Mavuso, Silindokhule S.; Dogandžić, Tamara; Ziegler, Michael J.; Warren, Shannon L.; Braun, David R.; Harris, John W.K.; | MULTISCALAR APPROACH TO ARCHAEOLOGICAL SITE FORMATION AT GAJJ17, EAST TURKANA, KENYA |
| 63-3 | 3 Buck, Paul E.*; Sabol, Donald Edwin; | SUB PIXEL DETECTION OF OBSIDIAN AND POTTERY BY NASA SATELLITE AND AIRCRAFT DATA |
| 63-4 | 4 Day, Stephanie S.*; | UNSUPERVISED CLASSIFICATION TO IDENTIFY SETTLEMENT AREAS IN AMERICAN SAMOA |
| 63-5 | 5 Gates, David J.*; | GEOPHYSICAL AND GEOLOGICAL SURVEY OF TEL SHIMRON, ISRAEL |
| 63-6 | 6 Kopcznski, Karen A.*; Buynevich, Ilya V.; Rankin, Jennifer; Perry, Gabrielle; Stewart, Michael; Wiest, Logan A.; Sparacio, Christopher A.; Choi, Chong Seok; Ranere, Anthony J.; Hansell, Patricia K.; | MULTI-MODE GPR SURVEYS INFORM AND BENEFIT FROM ARCHAEOLOGICAL EXCAVATIONS: DELAWARE RIVER MARGIN, NEW JERSEY |
| 63-7 | 7 Sica, Chelsea*; | GROUND PENETRATING RADAR INVESTIGATION OF TYUONYI PUEBLO IN BANDELIER NATIONAL MONUMENT, NEW MEXICO |
| 63-8 | 8 Burds, Luke Thomas*; Jol, Harry M.; Mataitis, Richard James; Beck, Joseph D.; Freund, Richard A.; Bauman, Paul; McClymont, Alastair F.; Reeder, Philip P.; | THE MASS GRAVE AT KAUNAS FORT VII, LITHUANIA |
| 63-9 | 9 Shurr, George*; Henning, Dale R.; | GEOSCIENCE ASPECTS OF BLOOD RUN NATIONAL HISTORIC LANDMARK (NHL), IOWA AND SOUTH DAKOTA |
| 63-10 | 10 Silverman, Shari*; | CO-SEISMIC ACTIVITY AND ARCHAEOLOGY IN SOUTHERN BIRCH BAY, WASHINGTON |
| 63-11 | 11 Dickey, Caroline E.*; Nicolaysen, Kirsten P.; Loopesko, Lydia L.; Deacon, Emily M.; Hatfield, Virginia; Savinetsky, Arkady; West, Dixie L.; Persico, Lyman P.; Krylovich, Olga; Bader, Nick E.; Okuno, Mitsuru; | REVEALING UNANGAX HISTORY AND RESILIENCE IN THE ISLANDS OF FOUR MOUNTAINS, ALASKA USING GEOCHEMICAL AND GRAIN SIZE ANALYSES |
| 63-12 | 12 Perry, Gabrielle*; Rankin, Jennifer; Buynevich, Ilya V.; Stewart, Michael; | ANALYSIS OF SITE STABILITY USING MAGNETIC SUSCEPTIBILITY AND GRANULOMETRY, CENTRAL DELAWARE RIVER BASIN |
| 63-13 | 13 Feldman, Howard R.*; | A UNIQUE PETROGLYPH CARVING ON THE SHAWANGUNK RIDGE, LOWER HUDSON VALLEY, NEW YORK |

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| 63-14 | 14 Howard, Susannah*; Reyes Beattie, Sydney; Glumac, Bosiljka; Peraza Lope, Carlos; Masson, Marilyn A.; Russell, Bradley; | PRACTICAL CLASSIFICATION OF STONE USED BY PRE-COLUMBIAN MAYA PEOPLE IN AND AROUND THE CITY OF MAYAPAN, YUCATAN PENINSULA, MEXICO |
| 63-15 | 15 Brooks, William E.*; | PRE-COLUMBIAN GOLD ASSAY SPOONS FROM EL BRUJO, PERU |
| 63-16 | 16 Crabb, Sarah*; Pike, Scott; Card, Nick; Bates, Richard; Wickham-Jones, Caroline; | A LOCH'S LITHOLOGY: A PRELIMINARY STUDY OF THE STONE RESOURCES FROM LOCH OF STENNESS AND THEIR RELATIONSHIP TO THE NESS OF BRODGAR AND OTHER SITES WITHIN THE UNESCO'S HEART OF NEOLITHIC WORLD HERITAGE |
| 63-17 | 17 Shinsato, Lara M.*; Pike, Scott; Card, Nick; | FOLLOW THE YELLOW CLAY FLOORS: A RECONSTRUCTION OF THE NEOLITHIC FLOORS AT THE NESS OF BRODGAR |
| 63-18 | 18 Starratt, Scott W.*; McGann, Mary; Powell, Charles L.; Bieling, D.G.; | MUSSEL CASTS AS INDICATORS OF PAST CLIMATES: AN EXAMPLE FROM AN ARCHAEOLOGICAL SITE IN NORTHERN SAN FRANCISCO BAY, CALIFORNIA, USA |
| 63-19 | 19 Soto, Nora*; Yanes, Yurena; Lubell, David; | HOLOCENE LAND SNAIL BODY SIZE CHANGE IN ALGERIA, NW AFRICA, AND ITS POSSIBLE CAUSES |
| 63-20 | 20 Adelsberger, Katherine A.*; Lewis, Jonathan; Hill, Danika N.; Dodd, Justin P.; Smith, Jennifer R.; Garcea, Elena A.A.; | GEOARCHAEOLOGICAL EVIDENCE OF MID-TO LATE-HOLOCENE ENVIRONMENTS AT SAI ISLAND, SUDAN |
| 63-21 | 21 Cajigas, Rachel*; Rittenour, Tammy; Nelson, Michelle; | OPTICALLY STIMULATED LUMINESCENCE DATING ON ANCIENT IRRIGATION CANALS IN SONORA, MEXICO |
| 63-22 | 22 Taormina, Rebecca A.*; Nordt, Lee C.; | PREDICTIVE SITE MODEL FOR PRE-CLOVIS BURIES MATERIALS IN CENTRAL TEXAS |
| 63-23 | 23 Scholl, Nathan C.*; | GEOARCHAEOLOGICAL INVESTIGATION WITHIN THE CONNECTICUT RIVER VALLEY BELOW TURNERS FALLS: A GEOMORPHIC RECONSTRUCTION OF THE POST-GLACIAL ALLUVIAL HISTORY OF THE VALLEY |

SESSION NO. 64

T197. No Dates: No Rates—Utilizing Geochronometers to Quantify Rates of Geomorphic Processes or Archaeological Development over a Wide Range of Temporal and Spatial Scales (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Karst Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 3:30 to 5:30 PM

- | Booth # | Author(s) | Title |
|---------|--|--|
| 64-1 | 24 Curley, Allison*; Thibodeau, Alyson M.; Kaplan, Emily; Howe, Ellen; | LEAD ISOTOPES AS CHRONOLOGICAL MARKERS FOR COLONIAL-PERIOD CEREMONIAL DRINKING VESSELS IN THE ANDES |
| 64-2 | 25 Pober, Rachel*; Huot, Sebastien; Davis, Loren G.; Keen-Zebert, Amanda; | COMPARISON OF CORRECTIONS FOR ANOMALOUS FADING IN POTASSIUM FELDSPAR: A LUMINESCENCE DATING CASE STUDY |
| 64-3 | 26 Softa, Mustafa*; Spencer, Joel Q.G.; Emre, Tahir; Sözbilir, Hasan; Turan, Mehmet; | LATE QUATERNARY RAPID UPLIFT DEDUCED FROM MARINE TERRACES IN EASTERN PONTIDES, TURKEY |
| 64-4 | 27 Ataee, Nina*; Spencer, Joel Q.G.; Huot, Sebastien; Martin, Loic; Alghamdi, Abdulaziz; Presley, DeAnn; | MODELING ACCUMULATION IN BETA AND GAMMA DOSE RATE FOR VERY THIN LAYERS: IMPLICATIONS FOR LUMINESCENCE DATING OF DUST DEPOSITS |
| 64-5 | 28 Gray, Harrison*; Mahan, Shannon A.; | TESTING AGE PREDICTIONS MADE WITH PORTABLE OSL MEASUREMENTS IN SOUTHERN NEVADA |
| 64-6 | 29 Mahan, Shannon A.*; Sammeth, David; Rasmussen, Craig; Gray, Harrison; | VALLES CALDERA, NEW MEXICO, USA: DATING |

- AND DEFINING THE RATE OF FORMATION OF SOILS AND WILDFIRE ACTIVITY USING LUMINESCENCE**
- 64-7 30 Last, George V.; Amara, Mark S.*; Foit, Franklin F.; Neill, Owen K.; Rittenour, Tammy; Dodd, Jessica L.; Tonnenmaker, Kole; Tonnenmaker, Luke: **TEPHRA AND OSL RESULTS FROM THE FRENCHMAN HILLS – TONNEMAKER MAMMOTH SITE, ROYAL CITY, GRANT COUNTY, WASHINGTON**
- 64-8 31 Stahlecker, Tara E.*; Persico, Lyman P.: **DATING DUST: USING OSL TO CONSTRAIN THE TIMING OF SEDIMENT ACCUMULATION ON HILLSLOPES IN THE MOJAVE DESERT**
- 64-9 32 Tremblay, Tommy*; Hardy, Francois; Forget-Brisson, Laurence; Lamothe, Michel: **DEGLACIAL CHRONOLOGY IN COLD-BASED TERRAIN WITH IRSL SINGLE GRAIN DATING OF GLACIOLACUSTRINE DELTAIC SEDIMENTS ON BAFFIN ISLAND**
- 64-10 33 Lepper, Kenneth*: **GETTING BACK TO BASICS: REAFFIRMING TWO IMPORTANT THEORETICAL UNDERPINNINGS RELEVANT TO OSL DATA ANALYSIS**
- 64-11 34 Tunno, Irene*; Zimmerman, Susan H.; Brown, Tom; Hassel, Christiane A.: **RADIOCARBON DATING POLLEN GRAINS SORTED BY FLOW CYTOMETRY FROM LAKE SEDIMENTS OF MONO LAKE (CALIFORNIA)**
- 64-12 35 Schmuck, Nicholas*; Baichtal, James F.: **QUANTIFYING THE MARINE RESERVOIR EFFECT FOR EARLY HOLOCENE SOUTHEAST ALASKA**
- 64-13 36 Pringle, Patrick T.*: **SUBFOSSIL FORESTS AS RECORDS OF PAST EARTHQUAKES, VOLCANIC ERUPTIONS, AND LANDSLIDES IN THE PACIFIC NORTHWEST—AN OVERVIEW OF DATING TECHNIQUES, SELECTED SITES, AND RECENT RESEARCH**
- 64-14 37 Benedetti, Michael M.*; Haws, Jonathan A.: **CORRELATING CAVE SEDIMENT PROPERTIES AND LATE PLEISTOCENE PALEOCLIMATE AT LAPA DO PICAREIRO, PORTUGAL**
- 64-15 38 Muhs, Daniel R.*; Simmons, Kathleen R.: **TAPHONOMIC PROBLEMS IN RECONSTRUCTING SEA-LEVEL HISTORY FROM THE LATE QUATERNARY MARINE TERRACES OF BARBADOS**
- 64-16 39 Gold, Peter*; Behr, Whitney M.: **ASSESSING THE RELIABILITY OF QUATERNARY GEOCHRONOMETERS BY COMPARING INDEPENDENT DATES FROM ALLUVIAL AND FLUVIAL SURFACES**
- 64-17 40 Blackwell, Bonnie A.B.; Korobar, Ljiljana S.; Huang, Clara L.C.*; Zhuo, Jialin; Kitanovski, Blagoja; Vasilevski, Sasko; Blickstein, Joel; Florentin, Jonathan A.: **ESR DATING TEETH FROM GOLEMA PEŠT: ABSOLUTE DATES FOR MACEDONIA'S ONLY MIDDLE PALEOLITHIC SITE**
- 64-18 41 Williams, John W.*; Grimm, Eric; Goring, Simon; Singer, Brad S.: **THE NEOTOMA PALEOECOLOGY DATABASE: REPRESENTATIONS OF GEOLOGICAL TIME AND GEOCHRONOLOGICAL DATA HOLDINGS**
- 65-4 45 Peterson, Joshua R.*; Arnold, Gail Lee; Brunner, Benjamin; Goodell, Philip C.: **MOLYBDENUM-SULFUR ISOTOPE RELATIONSHIPS IN A PORPHYRY COPPER MOLYBDENUM DEPOSIT (SIERRITA MINE, AZ)**
- 65-5 46 Chadburn, Ryan*; Stearns, Michael A.; Christiansen, Eric H.; Keith, Jeffrey D.; Jensen, Collin; Burr, Spencer; Young, Bret; Pallo, Gage; Jordan, Lars: **TESTING THE HYPOTHESIS OF A MEGASCALE LANDSLIDE ORIGIN FOR THE EAST TRAVERSE MOUNTAINS, UTAH - EVIDENCE FROM MINERALS**
- 65-6 47 Doyle, Liam F.*; Frieauf, Kurt: **DETECTING HYDROTHERMAL ALTERATION OF COARSE-GRAINED IGNEOUS ROCK IN DRILL CORE WITH PORTABLE XRF: A CASE STUDY IN THE ERTSBERG PORPHYRY DISTRICT, INDONESIA**
- 65-7 48 Wang, Yicun*; Zhang, Chi; Mackey, Benjamin; Horton, Trent; WANG, Keyong: **INDUCED POLARIZATION RESPONSE ON CU-MO MINERAL DEPOSITS**
- 65-8 49 Drivenes, Kristian*; Snook, Ben; Aasly, Kurt: **SULFIDE MINERALOGY OF THE LOKI'S CASTLE HYDROTHERMAL VENT, ARCTIC MID OCEAN RIDGE**
- 65-9 50 Trepp, Kaya*; Flores, Gabriella Vianne; Helprin, Olivia; Murowchick, James B.; Salgado Muñoz, Valente; Niemi, Tina M.: **AMPHIBOLE LEACHING AS A METAL SOURCE, LUCIFER CU-ZN-CO-MN DISTRICT, BCS, MEXICO**
- 65-10 51 Yalcin, Cihan; Hanilci, Nurullah; Kumral, Mustafa*; Tanc, Beril; Kaya, Mustafa: **PRELIMINARY FINDINGS ON FORMATION OF THE GÖKÇEDOGAN REGION CU-ZN METAL MINERALIZATION, KARGI-ÇORUM, TURKEY**
- 65-11 52 Meszaros, Nicholas*; Magnin, Benjamin P.; Kile, Bethany L.; Brake, Sandra; Unger, Derick; Latimer, Jennifer C.: **IMPLICATION OF SPHALERITE COMPOSITION AT A CENTRAL TENNESSEE MISSISSIPPI VALLEY TYPE DEPOSIT**
- 65-12 53 Smith, Sarah Elisabeth*; Appold, Martin S.; Klyukin, Yury I.: **POTENTIAL FOR THE PREDICTION OF ZN CONCENTRATIONS IN MISSISSIPPI VALLEY-TYPE ORE FLUIDS FROM SOLID SOLUTION ZN CONCENTRATIONS IN GALENA**
- 65-13 54 Bagdonas, Davin A.*; Mclaughlin, J. Fred: **MINERAL DIVERSITY AND ALTERNATIVE RESOURCE POTENTIAL OF WYOMING COAL BY-PRODUCTS**
- 65-14 55 Maguire, Sara E.*; Frieauf, Kurt: **REACTION PATH MODELING OF SULFUR ISOTOPE FRACTIONATION DURING PROGRESSIVE PYRITE REPLACEMENT OF HEMATITE, SUPERIOR C-BED CU-AU ORE BODY, ARIZONA**
- 65-15 56 Fifer, Caleb R.*; Burke, Michelle; Nicholson, Kirsten N.; Krekeler, Mark P.S.: **REFLECTIVE SPECTRAL ANALYSIS OF GARNIERITES AS A METHOD OF IDENTIFYING POSSIBLE NICKEL ORE DEPOSITS THROUGH REMOTE SENSING TECHNIQUES**
- 65-16 57 Koerber, Alexander J.*; Thakurta, Joyashish: **GEOCHEMICAL AND PETROLOGICAL INVESTIGATION OF THE PROSPECTIVE NI-CU-PGE MINERALIZATION AT THE ECHO LAKE INTRUSION IN THE UPPER PENINSULA OF MICHIGAN, USA**
- 65-17 58 Chaumba, Jeff B.*; Musa, Caston T.: **HYDROTHERMAL ALTERATION IN THE SHURUGWI SUBCHAMBER OF THE GREAT DYKE, ZIMBABWE: EVIDENCE FROM THE MAIN SULFIDE ZONE AT UNKI MINE**
- 65-18 59 Ilsemann, Lara*; Sulthaus, Danielle Shannon; Frieauf, Kurt: **COMPARISON OF CARBONATE VEIN/DIKE WITH EAST ORE BODY CARBONATE, BAYAN OBO REE MINING DISTRICT, INNER MONGOLIA, CHINA**
- 65-19 60 Lederer, Graham W.*; Jaskula, Brian W.; Foley, Nora K.; Ayuso, Robert A.: **GLOBAL BERYLLIUM SUPPLY CHAIN AND MATERIALS FLOW ANALYSIS**
- 65-20 61 Wraich, Aman*: **THE FEASIBILITY OF SCANDIUM AS AN EXPANDING COMMODITY**
- 65-21 62 Hayes, Keith A.; Stillings, Lisa L.*; Mack, Thomas J.; Chornack, Michael P.; Kalaly, Siddiq S.: **A HYDROGEOCHEMICAL**

SESSION NO. 65

D30. Investigations in Economic Geology (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 3:30 to 5:30 PM

Booth #

- 65-1 42 Taksavas, Tadsuda*: **PETROGRAPHIC ANALYSIS OF BONANZA EPITHERMAL VEIN TEXTURES AT BUCKSKIN NATIONAL AND FIRE CREEK DEPOSITS, NORTHERN NEVADA**
- 65-2 43 Espoir, Mugisho Birhenjira*; Mukungilwa Myango, Louis-pasteur: **STRUCTURAL SETTING, GEOLOGY AND THE GOLD MINERALIZATION OF THE TWANGIZA GOLD DEPOSIT, SOUTH KIVU, EASTERN DR-CONGO**
- 65-3 44 Pugh, Andrew*; Ressel, Michael W.: **EXAMINING THE SPATIAL AND TEMPORAL RELATIONSHIPS BETWEEN IGNIMBRITE-RELATED INTRUSIONS THROUGH TIME AND SEDIMENT-HOSTED GOLD OCCURRENCES IN NEVADA**

COMPARISON OF A POTENTIAL LITHIUM BRINE RESOURCE AT DASHT-E-NAWAR, AFGHANISTAN, TO THE LITHIUM BRINE RESOURCE AT CLAYTON VALLEY, NEVADA

65-22 63 Lewis, Keaton A.*; Lacroix, Brice; Kempton, Pamela; Prinsloo, Martin: **MAJOR ELEMENT AND RAMAN SPECTROSCOPY DATA ON GARNET XENOCRYSTS FROM A NEW KIMBERLITE LOCALITY IN TANZANIA**

SESSION NO. 66 Ⓞ

T78. Environmental Impact Studies for Energy Geology (Posters) (GSA Energy Geology Division; GSA Environmental and Engineering Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 66-1 64 Chandra, Avinash*; Pashin, Jack C.; Meng, Jingyao: **GEOLOGICAL CHARACTERIZATION OF CRETACEOUS SANDSTONE ON THE EASTERN GULF OF MEXICO CONTINENT SHELF: CO₂ SEQUESTRATION POTENTIAL OF CRETACEOUS FORMATIONS**
- 66-2 65 Medina, Cristian R.*; Mastalerz, Maria D.; Rupp, John A.: **PETROFACIES AND RESIDUAL SATURATION IN A CAMBRIAN-ORDOVICIAN CARBONATE RESERVOIR FOR GEOLOGICAL SEQUESTRATION USING MERCURY POROSIMETRY**
- 66-3 66 Wu, Hao*; Pollyea, Ryan M.: **A PARAMETRIC ANALYSIS OF CAPILLARY PRESSURE EFFECTS DURING THE CARBON SEQUESTRATION INJECTION PROCESS IN A SANDSTONE RESERVOIR**
- 66-4 67 Campbell, Amanda*; Lautz, Laura K.; Hoke, Gregory D.; Chien, Nathaniel Patrick; Burgess, Crystal S.: **TEMPORAL VARIABILITY OF NATURALLY OCCURRING METHANE IN SHALLOW GROUNDWATER WELLS IN THE MARCELLUS SHALE REGION**
- 66-5 68 Plechacek, Amy K.*; Schreiber, Madeline E.; Chermak, John A.; Bank, Tracy L.: **TRACE ELEMENT ANALYSIS OF PYRITES IN GAS SHALES BY LASER ABLATION ICP-MS: IMPLICATIONS FOR MOBILITY**
- 66-6 69 Wang, Wenfeng*; Sang, Shuxun; Duan, Piaopiao: **PARTITIONING OF TOXIC TRACE ELEMENTS DURING HIGH-SULFUR COAL PREPARATION FROM SOUTHWEST CHINA**
- 66-7 70 McManus, Brittany Jane*; Hakala, J. Alexandra; Phan, Thai T.; Moore, Johnathan: **GEOCHEMICAL CHARACTERIZATION OF HYDRAULIC FRACTURING FLUID AND UNCONVENTIONAL RESERVOIR ROCK: A STUDY OF TEMPORAL EFFECTS ON FLUID STABILITY**
- 66-8 71 Gianoutsos, Nicholas J.*; Haines, Seth S.; Varela, Brian; Whidden, Katherine: **EXAMINING WATER AND PROPPANT DEMANDS ASSOCIATED WITH PETROLEUM PRODUCTION FROM THE EAGLE FORD SHALE, GULF COAST, TEXAS**
- 66-9 72 Meng, Jingyao*; Pashin, Jack C.; Chandra, Avinash: **IN-SITU STRESS IN THE DESOTO CANYON SALT BASIN, EASTERN GULF OF MEXICO**
- 66-10 73 Al Musawi, Hashim Mustafa*; Al-Mashhur, Abdullah Abu bakr; Al Melhem, Mohammed Fahad; Alsaleh, Mohammed Hussain; Kaka, SanLinn I.: **ASSESSMENT OF AVAILABLE TECHNOLOGIES TO REDUCE WATER USAGE IN THE DEVELOPMENT OF UNCONVENTIONAL RESOURCES IN THE KINGDOM OF SAUDI ARABIA**
- 66-11 74 Um, Wooyong*; Ahn, Jinmo: **SYNTHESIS OF GEOPOLYMER WASTE FORM TO SOLIDIFY RADIOACTIVE WASTES FROM DECONTAMINATION OF PRIMARY SYSTEM IN NUCLEAR POWER PLANT**

SESSION NO. 67 Ⓞ \$

T83. Unconventional Energy Resources: Advances and Evolution in Tight Reservoir Assessment and Production (Posters) (GSA Energy Geology Division; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 67-1 75 Linol, Bastien*; de Wit, Maarten J.; Schulz, Hans-Martin: **UNCONVENTIONAL SHALE GAS DEVELOPMENT IN SOUTH AFRICA: POSSIBLE TECHNICALLY RECOVERABLE VOLUMES IN THE SOUTHERN KAROO BASIN**
- 67-2 76 Liu, Bei*; Mastalerz, Maria; Schieber, Juergen: **PETROGRAPHIC STUDY OF ORGANIC MATTER IN THE NEW ALBANY SHALE (DEVONIAN-MISSISSIPPIAN) WITH THERMAL MATURATION: IMPLICATIONS FOR OIL-PRONE KEROGEN TRANSFORMATION AND PRIMARY MIGRATION**
- 67-3 77 Onwumelu, Chioma*: **OIL GENERATION RATE PREDICTION USING ARRHENIUS EQUATION FOR BAKKEN FORMATION**
- 67-4 78 Sliwinski, Maciej*; Ishida, Akizumi; Kitajima, Kouki; Schreiber, B. Charlotte; Denny, Adam; Barnes, Benjamin; Spicuzza, Michael J.; Peters, Shanan E.; Valley, John W.: **BEYOND CONVENTIONAL: GLEANING DEEPER INSIGHTS INTO DOLOMITIZATION OF THE BAKKEN PETROLEUM SYSTEM THROUGH IN-SITU C- AND O-ISOTOPE MICROANALYSIS**
- 67-5 79 Liu, Chuang*; Zhong, Jianhua; Wu, Jianguang; Zhang, Shouren; Wu, Xiang; Sun, Ningliang; Cao, Mengchun; Yang, Guanqun: **PETROLOGY CHARACTERISTICS AND THEIR INFLUENCES ON TIGHT SANDSTONE RESERVOIR IN COAL MEASURES OF LINXING AREA**
- 67-6 80 Shu, Yi*; Zhang, Jingyu; Mao, Huawu; Lei, Dingkun: **DISTRIBUTION CHARACTERISTICS OF BENTONITE IN THE WUFENG-LONGMAXI SHALES AND ITS EFFECT ON SHALE RESERVOIR QUALITY**
- 67-7 81 Wu, Jianguang; Liu, Chuang*; Zhong, Jianhua; Zhang, Shouren; Wu, Xiang; Sun, Ningliang; Cao, Mengchun; Yang, Guanqun: **CHARACTERISTICS OF RESERVOIRS IN THE UPPER PALEOZOIC TIGHT SANDSTONE, LINXING BLOCK, ORDOS BASIN**
- 67-8 82 Li, Xinjing*; Li, Danyong; Sun, Liang; Wang, Yuman: **APPLICATION OF ROCK PHYSICS TEMPLATES TO SHALE GAS PLAYS IN SOUTH CHINA**
- 67-9 83 Zhang, Yuxiang*; Hu, Qinhong; Barber, Troy J.; Bleuel, Markus: **APPLICATION OF NEUTRON SCATTERING TO QUANTIFY THE INFLUENCE OF WETTABILITY ON SHALE PORE CONNECTIVITY**
- 67-10 84 Gao, Zhiye*; Hu, Qinhong; Jiang, Zhenxue: **INVESTIGATE THE SPONTANEOUS IMBIBITION CHARACTERISTICS OF MARINE AND CONTINENTAL SHALES AND THEIR CONTROLLING FACTORS**
- 67-11 85 Taylor, Cameron Z.; Alseben, Helge*; Enderlin, Milton: **MICRO-MECHANICAL ROCK STRENGTH TESTS AND THE EFFECTS OF SAMPLE VOLUME – AN EXAMPLE FROM THE BARNETT SHALE, FORT WORTH BASIN, TEXAS**
- 67-12 86 Jin, Guohai*: **NEW STOCHASTIC ASSESSMENT OF FRACTURE INTERCONNECTIVITY AND IMPLICATION FOR HYDRAULIC FRACTURING OPTIMIZATION FOR UNCONVENTIONAL FRACTURED RESERVOIRS**
- 67-13 87 Wang, Qiqi*; Gale, Julia F.W.: **CHARACTERIZATION OF BEDDING-PARALLEL FRACTURES IN SHALE - MORPHOLOGY, SIZE DISTRIBUTION AND SPATIAL ORGANIZATION**

SESSION NO. 68 **T243. Environmental and Engineering Division Geology Student Research Competition (Posters) (GSA Environmental and Engineering Geology Division; Association of Environmental & Engineering Geologists)**

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 3:30 to 5:30 PM

Booth #

- 68-1 88 Wampler, Peter J.; Molla, Azizur R.; Cain, Connor J.*: **GEOSPATIAL ANALYSIS OF HOUSEHOLD RADON LEVELS, BEDROCK, AND SURFICIAL GEOLOGY IN MICHIGAN**
- 68-2 89 Pinzon, Gerardo J.*; Ren, Jianhong: **IMPROVING THE IMPACT ANALYSIS OF SHALE OIL AND NATURAL GAS PRODUCTION IN THE CITY OF COTULLA USING INDUSTRIAL AND ENVIRONMENTAL ENGINEERING TECHNIQUES**
- 68-3 90 Rihl, Grace*; Franklin, Andrew; Odhiambo, Ben K.; Giancarlo, Leanna; Clark, Elyse: **SEDIMENT ACCUMULATION RATES AND TRACE METAL INPUT HISTORY IN LAKE MANASSAS AND THE OCCOQUAN RESERVOIR, VIRGINIA, USA**
- 68-4 91 Grant, Alex R.*; Wartman, Joseph; Duvall, Alison R.; LaHusen, Sean Richard: **CASCADIA SUBDUCTION ZONE LANDSLIDE HAZARD FORECASTING**
- 68-5 92 Ritterskamp, Megan M.*; Durbin, James M.; Maria, Anton H.: **XRF ANALYSIS OF TRACE ELEMENTS IN SOILS SURROUNDING A COAL-FIRED POWER PLANT, POSEY COUNTY, SOUTHWESTERN INDIANA**
- 68-6 93 Riggs, Tyler J.; Earman, Sam*: **VOID DETECTION VIA MAGNETOMETRY AT A HISTORICAL SILVER MINE SITE**
- 68-7 94 Rosen, Madison Lilith*; Villeneuve, Marlene C.; Hampton, Samuel J.: **THE INFLUENCE OF MEGACRYSTS WITHIN GRANITES ON ROCK STRENGTH AND PHYSICAL PROPERTIES**
- 68-8 95 Westrop, Jeffrey P.*; Nolan, Jason P.; Healy, Olivia M.; Bone, Sharon; Bargar, John R.; Kohtz, Anthony; Weber, Karrie A.: **MOBILIZATION OF NATURALLY OCCURRING URANIUM IN RESPONSE TO THE INFLUX OF NITRATE INPUTS INTO SUBSURFACE SEDIMENTS**
- 68-9 96 Bender, Will M.*; Becker, Udo: **COMPUTATIONAL INVESTIGATION OF THE KINETICS OF AQUEOUS PLUTONYL (PuO_2^{2+}) REDOX REACTIONS WITH HYDROXYL RADICAL**
- 68-10 97 McCarley, Justin*; Booth, Adam M.; Shaw, Susan: **USING TERRESTRIAL LIDAR AND PHOTOGRAMMETRY TO MEASURE DISPLACEMENT OF A WESTERN CASCADE COMPLEX LANDSLIDE**
- 68-11 98 Martin, Katherine*; Harris, Lora; Heyes, Andrew; Gonsior, Michael: **SEPTIC IMPACT ON STREAM WATER QUALITY: EVALUATING EMERGING CONTAMINANTS AS EFFLUENT TRACERS**
- 68-12 99 Balogun, Fatai O.*; Tchokossa, Pascal: **POTENTIAL OCCUPATIONAL RADIATION EXPOSURE DUE TO NATURALLY OCCURRING RADIOACTIVE MATERIALS (NORM) ARISING FROM EXPLOITATION OF RARE-METAL PEGMATITES OF THE IBADAN-OSHOGBO FIELDS, OLODE, IBADAN, SOUTHWESTERN NIGERIA**

SESSION NO. 69

D32. Geochemistry (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 69-1 100 Collins, William J.*; Martin, Erin; Murphy, J. Brendan; Mitchell, Ross N.; Spencer, Christopher J.: **GIGAYEAR REPETITION OF MANTLE CONVECTION MODES AND ITS RELATION TO SUPERCONTINENT CYCLES**
- 69-2 101 Tappa, Michael J.*; Baxter, Ethan F.: **THE DETERMINATION OF REPRESENTATIVE OXYGEN ISOTOPE COMPOSITIONS FOR NEODYMIUM OXIDE TIMS MEASUREMENTS**

- 69-3 102 Steenberg, Luke*; Boroughs, Scott; Knaack, Charles: **ESTIMATION OF ACCURACY AND PRECISION FOR TRACE ELEMENTS ANALYZED BY INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (ICP-MS) AT THE PETER HOOPER GEOANALYTICAL LABORATORY, WASHINGTON STATE UNIVERSITY**
- 69-4 103 Kelly, Daniel*; Boroughs, Scott; Knaack, Charles: **ESTIMATION OF THE MAXIMUM INFLUENCE OF SAMPLE PREPERATION ON LONG TERM ANALYTICAL PRECISION, PETER HOOPER GEOANALYTICAL LAB**
- 69-5 104 Evert, Lucas L.*; Pritchard, Chad J.; Drake, B. Lee: **CONSTRAINING ERRORS IN FIELD AND LAB GEOCHEMICAL ANALYSES USING A PXRF CALIBRATION FOR COLUMBIA RIVER FLOOD BASALT**
- 69-6 105 Stauffer, Eric A.*; Cassel, Elizabeth J.: **GLASS-WATER HYDROGEN ISOTOPE FRACTIONATION IN RECENT VOLCANIC GLASSES**
- 69-7 106 Jesmok, Greg*; Upadhyay, Deepshikha; Davila, Nathaniel; Clough, Cassie; Bricker, Hayley; Mitsunaga, Bryce A.; Defliese, William F.; Elliott, Ben; Tripathi, Aradhna K.: **LONG-TERM REPRODUCIBILITY OF STANDARDS FOR CLUMPED ISOTOPE MEASUREMENTS**
- 69-8 107 Birdwell, Justin E.*; Wilson, Stephen A.: **DEVELOPMENT OF NEW SHALE GEOCHEMICAL REFERENCE MATERIALS: RESULTS FROM BOQUILLAS SHALE INTERLABORATORY TESTING AND OTHER STATUS UPDATES**
- 69-9 108 Mitsunaga, Bryce A.*; Mosenfelder, Jed L.; Tripathi, Aradhna K.: **QUANTIFYING THE $\Delta_{69} - \Delta_{47}$ OFFSET: DETERMINING MINERAL AND TEMPERATURE-DEPENDENT ACID FRACTIONATION FACTORS THROUGH MASS SPECTROMETRIC ANALYSES OF STOCHASTICALLY-REORDERED CARBONATES**
- 69-10 109 Phillips, Niomi J.*; Key, Marcus M.; Smith, Abigail M.; Forrester, Jeffrey S.: **TO PRETREAT OR NOT TO PRETREAT: REMOVAL OF ORGANIC MATERIAL FOR STABLE ISOTOPE ANALYSIS IN TEMPERATE SKELETAL CARBONATE**
- 69-11 110 Limbeck, Maggie R.*; Szykiewicz, Anna; Faiia, Anthony M.; Sumrall, Colin D.: **CARBON AND OXYGEN ISOTOPIC VARIABILITY WITHIN THE SKELETON OF THE SEA URCHIN *ECHINOMETRA LUCUNTER***
- 69-12 111 Pilewski, John D.*; Sharma, Shikha; Agrawal, Vikas: **ANALYSIS OF ORGANIC COMPOUNDS PRODUCED FROM HIGH TEMPERATURE AND PRESSURE FLUID-ROCK REACTIONS**
- 69-13 112 Wei, Lin*: **CATALYTIC GENERATION OF METHANE AT 60 TO 100 °C AND 0.1 TO 300 MPA FROM SOURCE ROCKS CONTAINING KEROGEN TYPES I, II, AND III**
- 69-14 113 Zhang, Tianjiao*; Zhang, Shanwen: **CAUSATION OF CARBONATE CEMENTS IN SANDSTONES NEAR THE OVERPRESSURED TOP SEAL IN NIUZHUANG SAG OF BOHAI BAY BASIN, CHINA**
- 69-15 114 Hunt, Andrew*; Dhar, Upasana: **DIAGENETICALLY FORMED VIVIANITE ($\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$) PRESENT IN URBAN POND SEDIMENT: A POTENTIAL MARKER OF ANTHROPOGENIC CONTAMINATION**
- 69-16 115 Herleman, Katherine C.*: **GEOCHEMICAL VARIABILITY WITHIN THE MARCELLUS FORMATION OF THE NORTHERN APPALACHIAN BASIN AND ITS IMPLICATIONS FOR PRODUCED WATER COMPOSITION OF UNCONVENTIONAL NATURAL GAS WELLS**
- 69-17 116 Yin, Runsheng*; Xu, Lingang; Lehmann, Bernd; Lepak, Ryan F.; Hurley, James P.; Mao, Jingwen; Feng, Xinbin; Hu, Ruizhong: **ANOMALOUS MERCURY ENRICHMENT IN EARLY CAMBRIAN BLACK SHALES OF SOUTH CHINA: MERCURY ISOTOPES INDICATE A SEAWATER SOURCE**
- 69-18 117 Smith, Benjamin Paul*; Kerans, Charles: **GUADALUPIAN/LOPINGIAN CHEMOSTRATIGRAPHY OF THE DELAWARE BASIN: UNRAVELLING REGIONAL VERSUS GLOBAL FACTORS**

- 69-19 118 Wang, Wei*: **CARBON, SULFUR AND NITROGEN ISOTOPE CHEMOSTRATIGRAPHY OF EARLY-TO-MIDDLE EDIACARAN IN SOUTH CHINA**
- 69-20 119 Hendricks, Stacy R.*; Macpherson, G.L.; Stotler, Randy L.: **LITHIUM IN SEQUENTIAL EXTRACTIONS OF ALKALINE LAKE SEDIMENT CORES, WESTERN NEBRASKA; IMPLICATIONS FOR CHEMICAL WEATHERING**
- 69-21 120 Carter, Amber Marie*; Goldsmith, Steven T.; Rodrigues, Lisa J.; Moyer, Ryan P.: **DETERMINATION OF SEDIMENT PROVENANCE AND CONTAMINANT SOURCES IN THE GUANICA WATERSHED OF PUERTO RICO**
- 69-22 121 Peterson, William A.*; Saloky, Emma G.; McGuire, Molly M.; Herman, Ellen K.: **FLUME SIMULATIONS TO DETERMINE Fe^{2+} AND Fe^{3+} KINETICS OF THE COLLOIDAL AND DISSOLVED FRACTIONS IN ABANDONED MINE DRAINAGE**
- 69-23 122 Abongwa, Pride*; Atekwana, Eliot; Puckette, James: **KINETIC AND ISOTOPIC EQUILIBRATION OF A NEUTRAL MINE DISCHARGE WITH ATMOSPHERIC $CO_{2(g)}$; CASE STUDY OF A GOLD MINE DISCHARGE AT THE CRIPPLE CREEK MINING DISTRICT, COLORADO, USA**
- 69-24 123 Mattson, Brooke D.*; Shiel, Alyssa E.; Neitlich, Peter N.: **IDENTIFYING SOURCES OF ELEVATED HEAVY METALS IN MOSS ALONG A MINING HAUL ROAD IN NW ALASKA USING PB ISOTOPES AND CONCENTRATIONS OF IN AND BI**
- 69-25 124 Miller, Anna J.*; Shiel, Alyssa E.; McCune, Bruce: **EVALUATING MOSS AS BIOMONITORS OF HEAVY METAL DEPOSITION USING HIERARCHICAL SAMPLING AND RAIN LEACHING EXPERIMENTS**
- 69-26 125 Petralia, Joseph C.*: **STABLE ISOTOPIC VARIATION OF HYDROGEN AND OXYGEN IN THE OKAVANGO RIVER DELTA**
- 69-27 126 Dix, Jamie*; Dixit, Yama; Doss, Whitney C.; Dill, Ryan; Chang, Fengming; Tripathi, Aradhna K.: **CONSTRAINING THE OUTFLOW OF THE AMAZON RIVER FOR THE PAST ~40 KA USING BA/CA**
- 69-28 127 Mader, Zachary Jordan*; Lussenhop, Carolyn E.; Lewis, Timothy L.; Moriarty, John J.; McGuire, Jennifer T.: **ASSESSMENT OF THE POTENTIAL IMPACT OF WATER QUALITY ON TURTLE HABITAT SELECTION IN AN URBAN LAKE IN PLYMOUTH, MN, USA**
- 69-29 128 Vangala, Sunitha*; Krekeler, Mark P.S.: **GEOGENIC CONTAMINATION OF FLUORIDE IN GROUNDWATER OF URAVAKONDA, ANANTAPUR DISTRICT, ANDHRA PRADESH, INDIA**
- 69-30 129 Vangala, Sunitha*; Bandi, Muralidhar Reddy; Krekeler, Mark P.S.: **NITRATE CONTAMINATION IN GROUNDWATER IN SOME RURAL AREAS OF ANANTAPUR DISTRICT, A.P SOUTH INDIA**
- 69-31 130 Gutierrez, Melida*: **NITRATE: AN ESCALATING CONTAMINANT IN AQUIFERS OF SEMIARID AREAS**
- 69-32 131 Jacob, Clinton L.*: **IN SITU BIOREMEDIATION OF A DNAPL SOURCE AND PLUME - 8 YEARS OF PERFORMANCE DATA**
- 69-33 132 Lockmiller, Kayla A.*; Hasenmueller, Elizabeth A.; Fike, David A.: **USING A MULTI-TRACER APPROACH TO DETERMINE MUNICIPAL DRINKING WATER AND WASTEWATER INPUTS TO URBAN STREAMS**
- 69-34 133 Wagh, Gajanan*: **VARIATIONS IN THE GROUND WATER QUALITY FORM THE AREA SURROUNDING THE SOLID WASTE DISPOSAL SITE PUNE, MAHARASHTRA, (INDIA)**
- 69-35 134 Asefa, Saba Rose*; Housen, Bernard: **BIOMONITORING IN SEATTLE: SPATIAL VARIATION OF AIRBORNE PM CONCENTRATIONS IN INDUSTRIAL AND HIGH-TRAFFIC AREAS**
- 69-36 135 Krekeler, Mark P.S.*; Dietrich, Matthew; Vangala, Sunitha; Tully, Jennifer; LeGalley, Erin; Argyilan, Erin P.; Burke, Michelle; Wolfe, Amy: **ENVIRONMENTAL PROPERTIES AND IMPACTS OF NANOPARTICLES IN URBAN LANDSCAPES OF THE MIDWEST: MICROSCOPY STUDIES OF STREET SEDIMENT DEMONSTRATE CAUSE FOR CONCERN**
- 69-37 136 WITHDRAWN

- 69-38 137 Deeba, Emily Ann*; Shaughnessy, Andrew R.; Hasenmueller, Elizabeth A.: **LAND USE CONTROLS ON GROUNDWATER INPUTS AND WATER QUALITY FOR SUBURBAN STREAMS**
- 69-39 138 Murray, Kent S.*: **REMIEDIATING SOIL PB CONTAMINATION, ADDRESSING A SERIOUS HEALTH RISK PROBLEM, SOUTHWEST DETROIT, MICHIGAN USA**
- 69-40 139 Smith, Devin F.*; Saelens, Elsa; Leselie, Deborah; Liston, Marcus; Welch, Sue A.; Carey, Anne E.: **STABLE ISOTOPE AND MAJOR ION GEOCHEMISTRY OF URBAN PRECIPITATION**
- 69-41 140 James, Richard*; Brachfeld, Stefanie A.: **HEAVY METAL ACCUMULATION ALONG THE PALISADES INTERSTATE PARKWAY, NJ**
- 69-42 141 Soto Perez, Jeniffer*; Vulava, Vijay M.: **COMPETITIVE SORPTION AND TRANSPORT OF CETIRIZINE AND DIPHENHYDRAMINE IN NATURAL SOILS**
- 69-43 142 Jensen, Dallin P.*; Gazis, Carey A.: **STUDY OF NITRATE IN SOILS AND AGRICULTURAL DRAINS OF THE LOWER YAKIMA VALLEY**

SESSION NO. 70

T157. Origin and Evolution of the Continental Crust: A Celebration of the Career of Paul Mueller (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 70-1 143 Miller, Scott R.*; Mueller, Paul A.; Meert, Joseph G.; Kamenov, George D.: **DETRITAL ZIRCONS REVEAL EVIDENCE OF HADEAN CRUST IN THE SINGHBHUM CRATON, INDIA**
- 70-2 144 Mitra, Aniruddha*: **GENERATION OF PALEOARCHAean TTG UNDER CHANGING TECTONIC CONDITION: EVIDENCE FROM SINGHBHUM CRATON, EASTERN INDIA**
- 70-3 145 Emo, Robert B.*; Smit, Matthijs A.; Schmitt, Melanie; Kooijman, Ellen; Scherer, Erik E.; Sprung, Peter; Bleeker, Wouter; Mezger, Klaus: **EVOLUTION OF THE ACASTA GNEISS COMPLEX THROUGH SR ISOTOPE ANALYSIS OF APATITE INCLUSIONS IN ZIRCON**
- 70-4 146 Mueller, Paul A.*: **PLUMES, PLATES, AND PROTOCONTINENTS: A PLUMBIOLOGICAL PERSPECTIVE**
- 70-5 147 Wilhelmi, Ryan M.*; Foster, David A.; Mueller, Paul A.; Mogk, D.W.: **A NEW CHAPTER IN THE PRECAMBRIAN HISTORY OF THE NORTHERN WYOMING PROVINCE: WHOLE ROCK GEOCHEMISTRY COMBINED WITH U-PB AND LU-HF ISOTOPIC ANALYSIS OF ZIRCONS FROM BASEMENT ROCKS IN THE BLACKTAILS MOUNTAINS (DILLON, MT)**
- 70-6 148 Leier, Andrew*; Heinze, Cody; Barbeau, David L.: **HAFNIUM ISOTOPE SYSTEMATICS OF GRENVILLE DETRITAL ZIRCONS IN THE APPALACHIAN FORELAND BASIN**
- 70-7 149 Spurgeon, Derek L.*; McKay, Matthew P.; Fosdick, Julie C.; Jackson, William T.: **ASSESSING THE AGE AND SEQUENCE OF THRUST FAULTING IN THE SOUTHERN APPALACHIANS**
- 70-8 150 Fox, Nicholas R.*; Mogk, David W.; Mueller, Paul A.; Bowen, David W.; Lageson, David R.: **SEDIMENTARY TECTONICS OF THE MESOPROTEROZOIC LAHOOD FORMATION, EASTERN BELT BASIN, SOUTHWEST MONTANA**
- 70-9 151 Yang, Ning*; Tang, Shuheng; Zhang, Songhang: **GEOCHEMISTRY OF THE LATE PAOLAEZOIC DARK SHALES FROM EASTERN ORDOS BASIN, CHINA: IMPLICATION FOR PALEOENVIRONMENT**
- 70-10 152 Möller, Andreas*; Rocholl, Alexander; Kamenov, George D.; Mueller, Paul A.: **TIMING AND NATURE OF CRUST FORMATION IN THE EAST AFRICAN OROGEN DURING THE ASSEMBLAGE OF GONDWANA: CLUES FROM ZIRCON U-PB, HF AND OXYGEN ISOTOPES**
- 70-11 153 Rader, Mikaela*; Kempton, Pamela; Möller, Andreas: **EVIDENCE FOR THE TIMING OF POST-LARAMIDE MAGMATIC**

UNDERPLATING IN THE SOUTHERN BASIN AND RANGE: NEW ZIRCON GEOCHRONOLOGY OF GRANULITE XENOLITHS FROM THE GERONIMO VOLCANIC FIELD, SE ARIZONA

SESSION NO. 71 \$

T145. Geologic Maps and Their Derivatives (Posters) (Association of American State Geologists; GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 3:30 to 5:30 PM

Booth #

- 71-1 154 Cox, Simon; Siddoway, Christine S.; Millikin, Alexie*; Smith-Lytle, Belinda: **DIGITAL GEOLOGICAL DATASET FOR THE ROSS SEA REGION, ANTARCTICA, AND OTHER MAPPING INITIATIVES OF THE ANTARCTIC GEOMAP PROJECT**
- 71-2 155 Asch, Kristine E.Ch.*: **BUILDING THE GIS OF THE INTERNATIONAL QUATERNARY MAP OF EUROPE (IQUAME 2500): SUMMARY OF THE CURRENT STATUS OF EUROPEAN QUATERNARY GEOLOGICAL RESEARCH**
- 71-3 156 Rosensaft, Marcelo*; Katz, Oded: **LANDSLIDE HAZARD MAPPING IN THE SOUTH OF ISRAEL**
- 71-4 157 Rauch, Anna*; Sartori, Mario; Castellort, Sebastien: **A TOOL TO ANALYSE THE DISTRIBUTION AND CONSISTENCY OF STRUCTURAL AND BEDROCK DATA IN GEOLOGICAL MAPS**
- 71-5 158 Stoll, Emily J.*; Cook, Rachel L.; Austin, Robert: **SPATIALLY CLASSIFYING SOILS AND INFLUENTIAL GEOLOGY FOR FORESTRY MANAGEMENT**
- 71-6 159 Haugerud, Ralph A.*; Soller, David R.: **ANNOUNCING GEMS—A STANDARD FORMAT FOR DIGITAL PUBLICATION OF GEOLOGIC MAPS, VERSION 2.0**
- 71-7 160 Soller, David R.*; Stamm, Nancy R.: **THE NATIONAL GEOLOGIC MAP DATABASE -- RESOURCE FOR MAPPERS AND THE PUBLIC**
- 71-8 161 Belitz, Kenneth*; Johnson, Tyler D.; Watson, Elise: **MINOR AQUIFER REGIONS OF THE CONTIGUOUS UNITED STATES: A HYDROGEOLOGIC FRAMEWORK FOR ASSESSING GROUNDWATER RESOURCES IN AREAS OUTSIDE OF PRINCIPAL AQUIFERS**
- 71-9 162 Webb, Brian M.*; McClaughry, Jason D.; Hairston-Porter, Robert; Madin, Ian P.: **STRUCTURE-FROM-MOTION PHOTOGRAMMETRY TECHNIQUES AND DIGITAL SURFACE MODEL CREATION FOR GEOSCIENCE APPLICATIONS**
- 71-10 163 Yager, Richard M.*; Soller, David; Haj, Adel; Kauffman, Leon J.; Reddy, James: **MAPS OF PROPERTIES OF QUATERNARY SEDIMENTS AND AQUIFERS IN THE GLACIATED CONTERMINOUS UNITED STATES**
- 71-11 164 Keith, Mackenzie K.*; Burns, Erick; Sherrod, David R.; Gannett, Marshall W.; Siler, Drew L.: **AN UPDATED GEOLOGIC MAP TO IDENTIFY GROUNDWATER FLOW PATTERNS IN THE CENOZOIC VOLCANIC ROCKS OF THE PACIFIC NORTHWEST VOLCANIC AQUIFER SYSTEM STUDY AREA**
- 71-12 165 Brady, Sharon Marie*; Roberts, Philip; Riedel, Jon: **RESULTS OF A SOILS INVENTORY AND LANDFORM MAPPING AT MOUNT RAINIER NATIONAL PARK**
- 71-13 166 Langenheim, V.E.*; Sweetkind, D.S.; Taylor, E.M.; Greene, T.J.: **MULTI-LAYERED MAPS OF THE GEOLOGY OF NORTHERN SACRAMENTO VALLEY, CALIFORNIA: GIS FOR THE GIS-CHALLENGED**
- 71-14 167 Johnson, Samuel Y.*; Watt, Janet; Davenport, Clifton W.; Wills, Christopher J.; Hartwell, Stephen R.: **SEAMLESS ONSHORE-OFFSHORE GEOLOGIC MAPPING FOR THE CALIFORNIA SEAFLOOR AND COASTAL MAPPING PROGRAM**
- 71-15 168 Mnich, Marissa E.*; Condit, Christopher D.: **BASALTIC MAGMATIC MAPPING: A SUGGESTED METHODOLOGY AND RESULTS FROM THE SPRINGVILLE VOLCANIC FIELD**
- 71-16 169 Coyan, Joshua A.*; Zientek, Michael L.; Mihalasky, Mark J.: **SPATIOTEMPORAL ANALYSIS OF LODGE MINING ACTIVITY**

AROUND THE MCDERMITT CALDERA, NORTHERN NEVADA, USA

- 71-17 170 House, P. Kyle*; Crow, Ryan S.; Felger, Tracey J.; Beard, L. Sue; Howard, Keith A.; Block, Debra; McDougall, Kristin: **INNOVATION IN NEW GEOLOGIC MAPPING OF THE LOWER COLORADO RIVER CORRIDOR, SOUTHWEST USA**
- 71-18 171 Rolstad, Nicholas L.*: **CREATING AN INTERACTIVE GEOLOGIC MAP: WAH WAH MOUNTAINS NORTH AND TULE VALLEY, UTAH**
- 71-19 172 Evans, Stacey*; Chang, Jefferson C.: **EXPANDING THE OKLAHOMA FAULT DATABASE**
- 71-20 173 Baugh, Christopher A.*; Price, Jonathan D.: **MAPPING AND SECTION ASSESSMENT AT THE DALQUEST DESERT RESEARCH STATION, BIG BEND, TEXAS**
- 71-21 174 Massey, Matthew A.*; Curl, Douglas C.; Andrews, William: **IMPLEMENTATION OF A TEAM-BASED WORKFLOW AND MULTIUSER ARCSDE GEODATABASE FOR INTERNALLY CONSISTENT 1:24,000-SCALE GEOLOGIC MAPPING OF BOONE, KENTON, AND CAMPBELL COUNTIES, NORTHERN KENTUCKY**
- 71-22 175 Boling, Kenneth S.*; Hatcher, Robert D.; Bible, Gary; Lemiszki, Peter J.; Wunderlich, Andrew L.; Strissel, Morgan Marie: **REGIONAL POLYPHASE DEFORMATION ON THE NASHVILLE AND JESSAMINE DOMES, TENNESSEE AND KENTUCKY II: EXTENSIVE DATABASE FOR RESOLUTION OF FAR-FIELD EFFECTS OF THE ACADIAN AND ALLEGHANIS OROGENIES**
- 71-23 176 Thompson, M.D.*: **BEDROCK GEOLOGIC MAP OF THE BOSTON SOUTH 7.5' QUADRANGLE, MIDDLESEX, NORFOLK AND SUFFOLK COUNTIES, MASSACHUSETTS**

SESSION NO. 72

D39. Surface Processes and Geomorphic Evolution, from the Coastlines to the Glaciers (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 72-1 177 Adojoh, Onema C.*; Oboh-Ikuenobe, Francisca E.; Marret-Davies, Fabienne; Zobia, Mohamed K.; Osterloff, Peter L.; Jaramillo, Carlos A.; Cardenas, Damian L.: **CONTROLS ON FLUVIAL PALEODISCHARGE AND SEDIMENT INFLUX: CURRENT PARADIGMS AND POTENTIAL FUTURE SCENARIOS FROM PASSIVE (GULF OF GUINEA) AND ACTIVE (CENTRAL AMERICA) MARGINS**
- 72-2 178 Osleger, Dillon J.*; Simms, Alexander R.: **ESTUARINE RESPONSE TO DISTURBANCES: A HOLOCENE RECORD OF STORM EPISODES, TECTONICS, AND CLIMATIC SHIFTS AS PRESERVED IN COASTAL SYSTEMS IN SOUTHERN CALIFORNIA**
- 72-3 179 Smart, Nicholas Hunter*; Tuttle, Larry; Taylor, Dawan; Ferguson, Bri; Lehner, Jacob; Wernette, Phillippe A.: **INTERACTIONS BETWEEN VEGETATION AND GEOLOGIC FRAMEWORK IN BARRIER ISLAND EVOLUTION**
- 72-4 180 El-ashkar, Shadya*; Hubeny, J. Bradford; Knudstrup, Renee; Ebel, John E.: **ASSESSMENT OF A HOLOCENE HIGH ENERGY DEPOSIT AND ITS IMPACT ON CARBON SEQUESTRATION WITHIN A NEW ENGLAND SALT MARSH**
- 72-5 181 Seidman, Gabriel L.*; Hampton, Samuel J.; Borella, Josh W.: **GEOMORPHIC EVOLUTION OF A PROGRADATIONAL POCKET BEACH AND ESTUARY SYSTEM, OKAINS BAY, BANKS PENINSULA, NEW ZEALAND**
- 72-6 182 Tuttle, Larry*; Mohkami, Cassie; Wernette, Phillippe A.; Houser, Chris: **INVESTIGATING BARRIER ISLAND EVOLUTION THROUGH SEDIMENT CORE ANALYSIS AND GEOPHYSICAL SURVEYS**
- 72-7 183 Bergman, Nathaniel*; Greenbaum, Noam; Be'eri-Shlevin, Yaron; Rimmer, Alon; Glazman, Hillel: **THE MORPHOLOGICAL AND**

SUNDAY

POSTERS

SEDIMENTOLOGICAL CHARACTERISTICS OF THE SEA OF GALILEE NORTHERN DELTA, NE ISRAEL

OREGON CONTINENTAL MARGIN SINCE THE LAST GLACIAL MAXIMUM

- 72-8 184 Scott, Kaily A.*; Gani, Nahid D.: **NEOTECTONICS RECORDS IN THE GREEN RIVER BASIN: A NEW MORPHO-TECTONIC ANALYSIS OF TRANSIENT CHANNELS DRAINING ACROSS THE ROUGH CREEK GRABEN, WESTERN KENTUCKY**
- 72-9 185 Andrews, William*: **MODERN ANALOGS OF PLEISTOCENE LACUSTRINE SHORELINE DEPOSITS IN NORTHERN AND WESTERN KENTUCKY**
- 72-10 186 Boyd, Rebecca*; Leesburg, Jessica N.; Shoemaker, Kurt A.: **STREAM PIRACY IN THE TEAYS RIVER SYSTEM PRIOR TO THE IMPOUNDMENT OF PLEISTOCENE LAKE TIGHT: THE EVOLUTION OF THE TYGARTS CREEK AND LITTLE SANDY RIVER DRAINAGE BASINS OF NORTHEAST KENTUCKY**
- 72-11 187 Dillon, Jeremy S.*; Stolze, Susann; Larsen, Ashley K.: **LAST GLACIAL MAXIMUM POLLEN AND PLANT MACROFOSSILS FROM THE PLATTE RIVER VALLEY IN SOUTH-CENTRAL NEBRASKA, USA**
- 72-12 188 Henderson, Stacy*; Rivera, Tiffany A.; Lippert, Peter C.; Jicha, Brian R.: **A QUATERNARY RECORD OF VOLCANISM, LAKES, AND SEISMICITY IN SWAN VALLEY, IDAHO**
- 72-13 189 Spangle, Chynna J.*; Haschenburger, J.K.: **EXTENT OF ARMOR LAYER DEVELOPMENT IN THE SAND-DOMINATED SAN ANTONIO RIVER**
- 72-14 190 Hempel, Laura A.*; Grant, Gordon; Lewis, Sarah L.: **CHANNEL MORPHOLOGY AND WOODY DEBRIS ARCHITECTURE IN MOUNTAIN STREAMS REFLECT DIFFERENCES IN HYDROLOGIC REGIME**
- 72-15 191 Ouchi, Shunji*: **EFFECTS OF PERMEABILITY ON THE COMBINATION OF FLUVIAL EROSION AND SLOPE FAILURES AS THE MAIN PROCESS OF EROSION IN THE DEVELOPMENT OF EXPERIMENTAL LANDFORM**
- 72-16 192 Oldham, Steven Shay*; Burns, Diane M.; Riley, James D.: **INVESTIGATING THE EFFECTS OF BRIDGE PIERS ON STREAM MORPHOLOGY USING A STREAM TABLE**
- 72-17 193 Landry, Kameko R*; Harbor, David Jorgensen: **FLOW IN FRACTURED BEDROCK CRACK NETWORK AND ITS ROLE IN PLUCKING**
- 72-18 194 Haake, Sade*; Guo, Junhua; Krugh, William C.: **BURN SEVERITY AND ITS IMPACT ON SOIL PROPERTIES: 2016 ERSKINE FIRE IN THE SOUTHERN SIERRA NEVADA**
- 72-19 195 Kamal, Smit*; Mackenzie-Helwein, Peter; Hallet, Bernard: **EXAMINING THE ORIENTATION OF SOLAR-INDUCED STRESSES IN BOULDERS USING 3D NUMERICAL SIMULATIONS**
- 72-20 196 Easterbrook, Don J.*: **CAUSE OF THE ICE AGES AND CLIMATE CHANGES: EVIDENCE FROM GLOBAL TEMPERATURES, SUNSPOTS, SOLAR IRRADIANCE, SOLAR MAGNETISM, COSMIC RAYS, AND ¹⁴C AND ¹⁰B PRODUCTION RATES**
- 72-21 197 Cripps, Jonathan E.*; Brennand, Tracy A.: **LATE-GLACIAL GROUNDING LINE PROCESSES, LAKE-ICE INTERACTIONS AND MARGIN DYNAMICS OF THE LAST CORDILLERAN ICE SHEET, SOUTH CENTRAL BRITISH COLUMBIA**
- 72-22 198 Lehnigk, Karin E.*; Larsen, Isaac J.: **CONSTRAINTS ON MEGAFLOOD DISCHARGE THROUGH UPPER GRAND COULEE IN THE CHANNLED SCABLAND OF EASTERN WASHINGTON**
- 72-23 199 McCollum, Michael B.*; McCollum, Linda B.: **HYDRODYNAMIC FLOW REGIME BEDFORMS WITHIN THE IMMENSE MEGAFLOOD HYPERPYCNAL DEPOSITS FILLING THE UPPER REACHES OF GLACIAL LAKE COLUMBIA BETWEEN 17 AND 16 KA**
- 72-24 200 Churchill, Alyson N.*; Carlson, Anders E.; Bervid, Heather D.; Walczak, Maureen H.; Mix, Alan C.; Stoner, Joseph S.; Praetorius, Summer K.: **VARIATION IN ERODED MATERIAL AND ACCUMULATION OF COLUMBIA RIVER SEDIMENTS OFF THE**

SESSION NO. 73

T194. The Aeolian Realm: Dunes, Dust, and Loess (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

- | Booth # | Author(s) | Title |
|-----------|--|---|
| 73-1 201 | Lancaster, Nicholas*; Hesse, Paul; Telfer, Matt: | MAPPING THE WORLD'S INLAND SAND DUNES – A PROGRESS REPORT |
| 73-2 202 | Johnson, W.C.*; Hanson, P.R.; Halfen, A.F.: | DUNE SYSTEMS OF THE CENTRAL AND SOUTHERN GREAT PLAINS, USA |
| 73-3 203 | McCarter, Ross; Kohfeld, Karen E.*; Gill, Thomas E.; Schepanski, Kerstin: | COMPARATIVE ANALYSIS OF SURFACE WINDS IN THE MID-CONTINENTAL UNITED STATES DURING SEVERE DROUGHTS IN THE 1950S AND 2010S |
| 73-4 204 | Baldauf, Paul*; Burkhart, Patrick; Hanson, P.R.; Miles, Maraina; Larsen, Ashley K.; Libonatti, Lucca: | EPISODIC REACTIVATION OF QUATERNARY AEOLIAN DEPOSITS, WHITE RIVER BADLANDS, SOUTH DAKOTA, NORTHERN GREAT PLAINS |
| 73-5 205 | Spuller, Kerri E.*; Wilkins, David; Rittenour, Tammy; Pierce, Jennifer L.; Ford, Richard L.: | PRELIMINARY GEOCHRONOLOGY OF SAND RAMPS, CORAL PINK SAND DUNES, UTAH |
| 73-6 206 | Cornachione, Harriet S.*; Rittenour, Tammy M.; Nelson, Michelle S.: | HOLOCENE CHRONOSTRATIGRAPHY AND PALEOCLIMATE IMPLICATIONS OF DUNE FIELDS ACROSS SOUTHERN UTAH |
| 73-7 207 | Roskin, Joel*; Bookman, Revital; Freisem, David; Vardi, Jacob: | A TERMINAL PLEISTOCENE LINEAR DUNE DAM RECORD OF AEOLIAN-FLUVIAL DYNAMICS AT THE FRINGES OF THE NORTHWESTERN NEGEV DUNEFIELD |
| 73-8 208 | Zimbelman, James R.*; Valdez, Andrew D.: | MONITORING MOVEMENT OF ACTIVE SAND DUNES WITHIN GREAT SAND DUNES NATIONAL PARK AND PRESERVE |
| 73-9 209 | Carson, Robert J.*; Haggen, Rachael; Mazzoleni, Caitlin: | TEPHRA AS A MARKER FOR DUNE MIGRATION |
| 73-10 210 | Ellerton, Daniel*; Shulmeister, James; Gontz, Allen: | THE TRUTH IS IN HERE - APPLICATIONS OF HIGH RESOLUTION LIDAR, GROUND PENETRATING RADAR AND GIS FOR GEOMORPHIC MAPPING OF THE COOLOOLA SAND MASS DUNE UNITS |
| 73-11 211 | Gontz, Allen*; Ellerton, Daniel; Shulmeister, James; Kelly, Joshua T.; McCallum, Adrian; Hesp, Patrick A.; Minot da Silva, Graziela; Santini, Talitha; Welsh, Kevin; Rittenour, Tammy: | STRATIGRAPHIC ARCHITECTURE OF THE FRASER ISLAND DUNE COMPLEX, SOUTHEAST QUEENSLAND, AUSTRALIA USING HIGH-RESOLUTION GROUND PENETRATING RADAR |
| 73-12 212 | Shulmeister, James*; Ellerton, Daniel; Welsh, Kevin; Santini, Talitha; Moss, Patrick; Bowyer, Helen; Macalalad, Joan; Hesp, Patrick A.; Miot da Silva, Graziela; Rittenour, Tammy; Gontz, Allen; Kelly, Joshua T.; McCallum, Adrian: | THE SANDS OF TIME. MAPPING FRASER ISLAND; ONE OF THE OLDEST COASTAL DUNEFIELDS IN THE WORLD |
| 73-13 213 | Smith, Shane V.*: | DIFFICULTIES DETERMINING PALEOWIND DIRECTION FROM EOLIANITES ON AN ISLAND: AN EXAMPLE FROM PLEISTOCENE AND HOLOCENE EOLIANITES ON SAN SALVADOR, BAHAMAS |
| 73-14 214 | Gorgenson, Ian*; Yurk, Brian; DeVries-Zimmerman, Suzanne J.; Hansen, Edward: | DUNE DISTRIBUTION ALONG THE LAURENTIAN GREAT LAKES: THE EFFECTS OF WIND AND WAVES |
| 73-15 215 | Nielsen, Pål Ringkjøb*; Dahl, Svein Olaf; Jansen, Henrik Løseth; Lysne, Eirik Skjerdal: | HOLOCENE AEOLIAN ACTIVITY AND STORMINESS ON ANDØYA, NORTHERN NORWAY |

- 73-16 216 Adams, Steven*; Soreghan, Gerilyn S.: **MEASURING THE RELATIVE CONTRIBUTION OF AEOLIAN SALTATION TO DESERT SILT PRODUCTION**
- 73-17 217 Roehner, Clayton*; Pierce, Jennifer L.; Pierson, Fred; Vega, Samantha: **POST-FIRE AEOLIAN DEPOSITION AND CARBON FLUX IN WESTERN RANGELANDS**
- 73-18 218 Sinclair, Samantha N.*; LeGrand, Sandra L.: **UNCERTAINTY QUANTIFICATION OF DUST SOURCE MAPPING**
- 73-19 219 Jeong, Gi Young*: **MINERALOGICAL PROPERTIES AND INTERNAL STRUCTURES OF FINE INDIVIDUAL PARTICLES OF ASIAN DUST**
- 73-20 220 Newton, Elisabeth*; Ahmad, Khaldoun; Davies, Caroline: **GRAIN-SIZE, MINERALOGICAL, AND GEOCHEMICAL CHARACTERIZATIONS OF LOESS DEPOSITS IN NORTHWESTERN MISSOURI, USA**

SESSION NO. 74

D45. Geophysics/Geodynamics (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 3:30 to 5:30 PM

Booth #

- 74-1 221 Chen, Kuang-Jung*: **USING COMPLEX DEMODULATION TO RESOLVE P WAVE ACCELERATION SOURCE TIME FUNCTION**
- 74-2 222 Tew, Kalyan*; Goodliffe, Andrew M.: **IS THINNING OF THE LITHOSPHERE PREFERENTIAL DURING THE RIFTING PHASE WITHIN THE WOODLARK BASIN?**
- 74-3 223 Akay, Gozde*; Dare, Peter; Langley, Richard B.: **NOISE CHARACTERISTICS OF GPS COORDINATES IN A VOLCANIC REGION**
- 74-4 224 Gochenour, Jacob Alexander*; Suranovic, Ben S.; Gosselin, Greg; McGary, R. Shane: **CHARACTERIZING SUBSURFACE VOID SPACES AND WATER DISTRIBUTION AND FLOW PATTERNS IN CAVE HILL KARST USING RESISTIVITY**
- 74-5 225 Foroutan, Marzieh*; Marshall, Shawn J.; Menounos, Brian: **LIDAR-BASED CREVASSE MAPPING, HAIG GLACIER, CANADIAN ROCKIES**
- 74-6 226 Ziwu, Felix*; Mickus, Kevin L.; Doser, Diane I.: **INVESTIGATING SERPENTINIZATION WITHIN THE COOK INLET BASIN, ALASKA FROM THE INVERSION OF MAGNETIC DATA**
- 74-7 227 Duba, Kinzang*; Mickus, Kevin L.: **GRAVITY MODELING FOR CRUSTAL STRUCTURE WITHIN THE BHUTANESE HIMALAYAS**
- 74-8 228 Nandi, Sourav Krishna*; Mickus, Kevin L.; McKay, Matthew P.: **GRAVITY TRANSECTS ACROSS THE SALMON RIVER SUTURE ZONE, WESTERN IDAHO**
- 74-9 229 Frifita, Nesrine*; Mickus, Kevin L.; Zargouni, Faoud: **GRAVITY CONTRIBUTION TO THE GEOLOGICAL STUDY OF GRABENS IN THE NORTHWEST REGION OF TUNISIA INCLUDING THE KEF BASIN REGION**
- 74-10 230 Park, Iseul; KIM, Ki Young*; Byun, Joongmoo: **VARIATION IN THICKNESS OF THE LITHOSPHERE IN SOUTHERN KORAN PENINSULA INFERRED FROM TELESEISMIC P-WAVE TRAVELTIMES**
- 74-11 231 Mcfarland, Phillip K.*; Bennett, Richard A.: **THE UTILITY OF 2D ELASTIC SCREW AND EDGE DISLOCATIONS FOR MODELING CRUSTAL DEFORMATION ASSOCIATED WITH SHEAR ZONES**
- 74-12 232 Guthrie, Kris*; Filina, Irina; Searls, Mindi; Burberry, Caroline: **IMPROVED MAP OF SUBSURFACE STRUCTURES IN SOUTHEASTERN NEBRASKA FROM INTEGRATED ANALYSIS OF EARTHQUAKE AND POTENTIAL FIELDS DATASETS**
- 74-13 233 Rodriguez Padilla, Alba M.*; Onwuemeka, John; Liu, Yajing; Harrington, Rebecca: **EARTHQUAKE SOURCE PARAMETER AND FOCAL MECHANISM ESTIMATES FOR THE WESTERN QUEBEC SEISMIC ZONE IN EASTERN CANADA**

- 74-14 234 Steedman, David W.*; Schultz-Fellenz, Emily S.; Bradley, Christopher R.; Mercadante, Jennifer: **EFFECT OF GEOLOGIC SETTING ON LOCAL RESPONSE TO CHEMICAL EXPLOSIVE**

SESSION NO. 75  

T74. Integrating Geohazards Data into Planning and Land-use Management Decisions (Posters) (GSA Environmental and Engineering Geology Division; Washington Division of Geology and Earth Resources; GSA Geology and Society Division; GSA Geoinformatics Division; GSA Karst Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 75-1 235 Andrews, William*: **COUNTY-SCALE SOIL MAPS FOR SEISMIC-MITIGATION AND SEISMIC-HAZARD PLANNING IN KENTUCKY**
- 75-2 236 Kress, Michael; Benimoff, Alan I.*; Fritz, William J.; Gordon, Cameron: **GO TO HIGH GROUND: A COASTAL EVACUATION PLAN FOR STATEN ISLAND, NY**
- 75-3 237 Cowell, Kevin James*; Davis, Elizabeth; Chang, Susan; Hou, Steve: **CITY OF SEATTLE: UPDATE OF THE ECA CODE "KNOWN LANDSLIDE AREAS" GEOSPATIAL LAYER**
- 75-4 238 Tunnelle, Alyssa*; Troost, Kathy Goetz; Chang, Susan: **EVALUATING LIQUEFACTION SUSCEPTIBILITY OF QUATERNARY DEPOSITS IN SEATTLE, WASHINGTON**

SESSION NO. 76

T102. Beyond the Road-Cut: Virtual, Local, and Nontraditional "Field" Teaching and Learning Experiences (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 76-1 239 Smith, Matthew*; Olcott-Marshall, Alison: **PEDAGOGICAL EFFICACY AND STUDENT SPATIAL ABILITY CONCERNING THE AR SANDBOX: A STUDY DESIGN**
- 76-2 240 Hups, Kent Michael*: **USING AUGMENTED REALITY IN HIGH SCHOOL CLASSROOMS TO COMPREHEND SURFACE GEOLOGICAL MAP FEATURES**
- 76-3 241 Houghton, Jacqueline J.*; Gordon, Clare E.; Robinson, Annabeth; Morgan, Daniel J.; Lloyd, Geoffrey E.: **ASSESSING THE EFFECTIVENESS OF VIRTUAL LANDSCAPES IN FIELD SKILLS TRAINING**
- 76-4 242 Garcia, William J.*: **A FIELD-BASED METHOD FOR TEACHING THE SCIENTIFIC METHOD AND UNIFORMITARIAN PRINCIPLES USING TRACKWAY RECONSTRUCTIONS**
- 76-5 243 Wurtz, Michael J.*; Jones, Allison D.; Burmeister, Kurtis C.; Rademacher, Laura K.: **USING JOHN MUIR'S ARCHIVES IN THE FIELD TO ENHANCE OBSERVATIONAL SKILLS AND ESTABLISH A SENSE OF PLACE**
- 76-6 244 Michelfelder, Gary S.*; Sundell, Tyler; Benz, Brooke E.; Zerilli, Matthew: **FIELD VOLCANOLOGY IN THE CENTRAL ANDES: A CAPSTONE VOLCANOLOGY AND IGNEOUS PETROLOGY FIELD COURSE**
- 76-7 245 Neitzke Adamo, Lauren*; Irizarry-Barreto, Patricia: **FROM BASIC OBSERVATIONS INTO MODERN TECHNOLOGY: A HANDS-ON APPROACH TO TEACHING TAXONOMIC CLASSIFICATION**

SESSION NO. 77

T118. Integration of Field and Laboratory-Based Experience toward Designing Pedagogically Sound Curriculum Enhancement Activities in the Geosciences (Posters) (GSA Hydrogeology Division; GSA Sedimentary Geology Division; National Association of Geoscience Teachers; American Institute of Professional Geologists; GSA Environmental and Engineering Geology Division; GSA Geoscience Education Division; National Earth Science Teachers Association; GSA Quaternary Geology and Geomorphology Division; Council on Undergraduate Research Geosciences Division; GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 3:30 to 5:30 PM

- | Booth # | | |
|---------|-----|---|
| 77-1 | 246 | Hassan, Muhammad Qumrul*: GLOBAL CLIMATE CHANGE AND BANGLADESH ENVIRONMENTAL ISSUES: CHALLENGES AND OPPORTUNITIES |
| 77-2 | 247 | Kroeger, Timothy J.*; Livingston, Colleen: A SIMPLE STOKES LAW LABORATORY ACTIVITY FOR USE IN MULTIPLE STEM DISCIPLINE COURSES |
| 77-3 | 248 | Wheatley, David Fairchild*; Chan, Marjorie A.: INTEGRATION OF FIELD AND "SYNTHETIC" DATA FOR A SIMULATED RESERVOIR CHARACTERIZATION STUDENT TEAM COMPETITION |
| 77-4 | 249 | Carlson, Charles*; Georgen, Jennifer: TEACHING COASTAL GEOLOGY USING INTERACTIVE GOOGLE TECHNOLOGY |
| 77-5 | 250 | Khandaker, Nazrul I.*; Sikder, Arif M.; Alvey, Robert; Schleifer, Stanley; Liu, Xin-Chen; Londono, Carlos E. Castano; Turner, Joseph B. McGee: RARITAN FORMATION (UPPER CRETACEOUS), LONG ISLAND, NEW YORK: SEDIMENTOLOGICAL AND GEOCHEMICAL ASSESSMENT |
| 77-6 | 251 | Aghedo, Ality*; Dhar, Ratan; Schleifer, Stanley: ASSESSING THE SOURCE AND FATE OF NITRATE IN GROUNDWATER ASSOCIATED WITH UPPER GLACIAL AQUIFER, SOUTH-EAST QUEENS, NEW YORK CITY |
| 77-7 | 252 | Escobar-Burciaga, Ricardo Daniel*; Wolin, Jeff; Meyer, Herbert W.: DESIGNING A CURRICULUM-BASED K-12 (4TH AND 5TH GRADE) GEOLOGY/PALEONTOLOGY CAMP FOR FLORISSANT FOSSIL BEDS NATIONAL MONUMENT, COLORADO |
| 77-8 | 253 | Khandaker, Nazrul I.*; Khargie, Matthew; Siddique, Shuayb; De Leon, Sol; Singh, Katina; Wills, Newrence; Mahabir, Krishna: EXPERIENTIAL LEARNING OPPORTUNITY (ELO) AND UTILIZATION OF FIELD-AND-DATA- BASED INFORMATION OBTAINED THROUGH THE INFUSION OF TECHNOLOGY: HIGHLIGHTS ON NASA STEM AND EARTH SCIENCE CURRICULA |
| 77-9 | 254 | Bevis, Kenneth A.*; Neace, Sydney D.; Redmon, Meagan; Slover, Hannah: IN THE PLAYGROUND OF GIANTS; A GEOEDUCATIONAL WEBSITE FOR ANY AUDIENCE |
| 77-10 | 255 | McGary, R. Shane*; Baedke, Steve J.; Henry, Tiernan: BUILDING A TIME-DISTRIBUTED GEOPHYSICAL RESEARCH COMPONENT INTO THE HYDROGEOLOGY PROJECT AT JAMES MADISON UNIVERSITY'S SUMMER FIELD COURSE IN IRELAND |
| 77-11 | 256 | Soldati, Arianna*: SCIENCE ON WHEELS: SOWING INTEREST IN SCIENCE IN RURAL MISSOURI |
| 77-12 | 257 | Niemi, Tina M.*; Busby, Cathy J.: THE BAJA BASINS RESEARCH EXPERIENCE FOR UNDERGRADUATES: SPLITTING FIELDWORK AND LABORATORY COMPONENTS IN AN INTERNATIONAL REU |
| 77-13 | 258 | Schleifer, Stanley*; Khandaker, Nazrul I.: FURTHER STUDY OF GARNET XENOCRYSTS IN NEW YORK CITY MIGMATITES |
| 77-14 | 259 | Uglesich, Jessica; Gay, Robert J.*: BRINGING ANCIENT BEASTS INTO THE CLASSROOM AND THE CLASSROOM TO THE ANCIENT BEASTS |

SESSION NO. 78

T127. Supporting Geoscience Student Transfer Between Institutions and Transitions into the Workforce: Pathways to Success (Posters) (GSA Geology and Society Division; GSA Geoscience Education Division; National Association of Geoscience Teachers; National Association of Geoscience Teachers Geo2YC Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

- | Booth # | | |
|---------|-----|--|
| 78-1 | 260 | Wilson, Carolyn*; Keane, Christopher: A PRELIMINARY INVESTIGATION OF THE TRANSITION INTO THE WORKFORCE BY EARLY-CAREER GEOSCIENTISTS |
| 78-2 | 261 | McCay, Deanna H.*; Lautz, Laura K.; Driscoll, Charles T.; Kahan, Tara F.; Scholz, Christopher A.; Torrance, Donald; Johnson, Chris E.; Junium, Christopher K.; Siegel, Donald I.; Wilcoxon, Peter J.; Fiorenza, Patrick: CAREER DEVELOPMENT AT THE WATER-ENERGY NEXUS: PREPARING GRADUATES FOR MULTIPLE CAREER PATHS |
| 78-3 | 262 | Halling, Marc C.*; Blount, Karen: SUCCESSFULLY TRANSITIONING STUDENTS FROM HIGH SCHOOL TO COLLEGE |
| 78-4 | 263 | Hoppe, Kathryn A.*; DeMar, David G.; Wilson, Gregory P.: USING VERTEBRATE MICROFOSSIL SAMPLES FROM THE UPPER CRETACEOUS HELL CREEK FORMATION TO INVOLVE INTRODUCTORY (100-LEVEL) EARTH SCIENCE STUDENTS IN ORIGINAL SCIENTIFIC RESEARCH |
| 78-5 | 264 | Rosser, Suzanne*; Sparks, David W.; Newman, Julie: A FIRST-SEMESTER SEMINAR HELPS TRANSFER STUDENTS THRIVE |
| 78-6 | 265 | Guidry, Michael*: USING CURRICULAR APPROACHES TO SUPPORT TRANSFER STUDENT SUCCESS IN UNDERGRADUATE RESEARCH |
| 78-7 | 266 | Gonzalez, Juan L.; Cheng, Chu-Lin*; Kang, Jihoon; Cintra-Buenostro, Carlos; Benavides, Jude; Heise, Elizabeth A.; Hinthorne, James; Dirrigl, Frank: STIMULATING HISPANIC PARTICIPATION IN THE GEOSCIENCES (SHIP-GEO) AT RIO GRANDE VALLEY IN SOUTH TEXAS: FINDINGS FROM YEAR ONE |
| 78-8 | 267 | Kortz, Karen M.*; Cardace, Dawn; Savage, Brian; Rieger, Duayne: FACTORS DURING FIELD RESEARCH THAT AFFECT STUDENTS' DECISIONS TO BECOME OR REMAIN GEOSCIENCE MAJORS |
| 78-9 | 268 | Billilign, Solomon*; Schimmel, Keith A.; Mekonnen, Ademe; Lin, Yuh-Lang; Zhang, Jing; Burt, Melissa; Denning, Scott; Jha, Manoj; Banks, Bahby: GP-EXTRA: PATHWAYS TO ATMOSPHERIC SCIENCE THROUGH IMMERSION IN GEOSCIENCES RESEARCH |
| 78-10 | 269 | Smith, Lesley; Gold, Anne U.*; Anderson, Suzanne P.; Taylor, Jennifer L.; Luna, Lorena Medina; Batchelor, Rebecca: RESEARCH EXPERIENCE FOR COMMUNITY COLLEGE STUDENTS IN CRITICAL ZONE SCIENCE: SMOOTHING THE PIPELINE FOR 2YC STUDENTS INTO GEOSCIENCE PROGRAMS AT 4YCS |
| 78-11 | 270 | Carter, Deron T.*; de Silva, Shanaka; Eriksson, Susan C.: LBOS GEOBRIDGE: AN EXTRA-CURRICULAR PROGRAM BRIDGING GEOSCIENCE STUDENTS FROM LINN-BENTON COMMUNITY COLLEGE TO OREGON STATE UNIVERSITY |
| 78-12 | 271 | Schmidt, Nancy*; Fay, Noah P.; Flessa, Karl W.; Bellavance, Bailey; Cowles, Ashlee; Dougherty, Patrick; Patterson, Sarah; Purdy, Sean; Shiratori, Yu; Speaks, Natalie; Widener, Brandon; Zech, Stephanie: GEOPATHWAYS - A UNIVERSITY OF ARIZONA - PIMA COMMUNITY COLLEGE PARTNERSHIP AND INTERNSHIP PROGRAM FOR TRANSFER STUDENTS: YEAR 2 |
| 78-13 | 272 | Garza, Edgar*; Ellins, Katherine K.; Hofer, Matthew; Mote, Alison; Wright, Vashan; Arratia, Michael; Oefinger, Lauren; Maye, Cynthia; Reyes, Enrique; Gomez, Kiara; Hibbits, Marla: A COMPARISON OF TWO PEDAGOGICAL APPROACHES, |

TRADITIONAL LECTURE VS. PROJECT-BASED, AND HOW THEIR APPROACH AFFECTS STUDENT ENGAGEMENT

SESSION NO. 79

T132. Undergraduate Research Posters Showcasing Research by 2YC and 4YCU Geoscience Students (Posters) (GSA Geoscience Education Division; National Association of Geoscience Teachers; National Association of Geoscience Teachers Geo2YC Division; International Association for Geoscience Diversity)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 3:30 to 5:30 PM

Booth #

- 79-1 273 Fuentes, Adam Ernesto*; Mrofka, David D.: **SURVEY OF NONPOINT SOURCE AGRICULTURAL AND URBAN RUNOFF POLLUTION INFLOW ONTO THE SALTON SEA FROM MAJOR TRIBUTARIES**
- 79-2 274 Brower, Katelyn*; Weer, Christine; Dahl, Robyn Mieke: **DIGITIZING THE NATURAL HISTORY COLLECTIONS OF WESTERN WASHINGTON UNIVERSITY**
- 79-3 275 Nordin, Alexandra*; van der Hoeven Kraft, Katrien J.; Dahl, Robyn M.: **POTENTIAL CORRELATION BETWEEN NATURE INTERACTION IN YOUTH AND UNDERSTANDING OF EARTH PROCESSES LATER IN LIFE**
- 79-4 276 Robertson, Westan A*; McConkie, Spencer: **VOLCANICLASTIC DIKE OF THE SOUTHEASTERN UINTA BASIN**
- 79-5 277 Proulx, Michelle*; McGary, R. Shane: **RECLAIMING HISTORY WITH GEOPHYSICS: USING GROUND-PENETRATING RADAR TO CONFIRM THE LOCATIONS OF ANTEBELLUM AFRICAN-AMERICAN CEMETERIES**
- 79-6 278 Hall, Lauren*; Sanchez, Veronica: **COMPASS COMPARISON IN THE FIELD**
- 79-7 279 Malone, John E.*; Wolf, Michael B.: **ARCHEAN GEOCHRONOLOGICAL AND DEFORMATIONAL FRAMEWORK OF THE SOUTHERN MARGIN OF THE BIGHORN BATHOLITH, WYOMING: SUCCESSIVE SYNPLUTONIC SHEARING BETWEEN 2960 AND 2840 MA**
- 79-8 280 Roberts, Benjamin Steven*; Michalak, Melanie J.: **PROVENANCE ANALYSIS OF THE PLIO-PLEISTOCENE PRAIRIE CREEK FORMATION, HUMBOLDT COUNTY, CA**
- 79-9 281 Christensen, Dana J.*; Chandler, Elijah J.; Michalak, Melanie J.: **USING QUALITATIVE CLAST, SAND, AND SOIL DESCRIPTIONS TO INVESTIGATE TERTIARY GRAVELS OF THE KLAMATH PENEPLAIN EROSIONAL SURFACE IN HUMBOLDT COUNTY, NORTHWESTERN CALIFORNIA**
- 79-10 282 Otilio, Desiree*; Michalak, Melanie: **NEW PETROLOGY AND GEOCHRONOLOGY OF THE WEST CHINA PEAK COMPLEX OF THE IRONSIDE MOUNTAIN BATHOLITH, KLAMATH MOUNTAINS, CA**
- 79-11 283 Sabo, Michelle N.*; Hughes, Christopher G.: **CAN YOU USE SPACEBORNE THERMAL INFRARED SENSORS TO PREDICT EARTHQUAKES?**
- 79-12 284 St. Denny, John Russell*; Toraman, Erkan: **DECIPHERING DEFORMATION CONDITIONS ALONG THE CARTHAGE-COLTON MYLONITE ZONE, NW ADIRONDACKS, BASED ON FELDSPAR MICROSTRUCTURES**
- 79-13 285 Berry, Katherine G.*; King, M. Ryan; Smith, Joshua A.; Zanno, Lindsay: **CLOSING THE TURONIAN-CONIACIAN GAP IN THE GLOBAL RECORD OF IGUANODONTIPODIDAE: NEW SPECIMENS FROM THE CREVASSE CANYON FORMATION, MCKINLEY COUNTY, NEW MEXICO**
- 79-14 286 Smart, Holley Elane*; King, M. Ryan; Smith, Joshua A.; Zanno, Lindsay: **THE INFLUENCE OF HYDRODYNAMIC FORCES ON TRACK MORPHOLOGY: TURTLE TRACKS FROM THE LATE CRETACEOUS CREVASSE CANYON FORMATION, NEW MEXICO**
- 79-15 287 Mongovin, Daniel D.*: **CALCULATING VERTICAL OFFSET OF THE BORAH PEAK FAULT SCARP USING CONTEMPORARY DIGITAL METHODS**

- 79-16 288 Scholz, A.R.*; Davies, N.; Lehmbecker, T.; Boyette, R.; Steiner, S.: **AN IN-HOUSE DIGITAL ADVANCEMENT OF GEOLOGY 100 LAB**
- 79-17 289 Newchurch, Steven P.*; Bolla, Joseph M.; Lee, Adam; Travels, Dustin: **BEAVER INFLUENCES ON CHANNEL PROFILE AND ECOSYSTEM HEALTH WITHIN THE NORTH CAROLINA PIEDMONT**
- 79-18 290 Krnavek, Joshua*; Sanchez, Veronica: **DEFORMATION IN THE CHRISTMAS MOUNTAIN LACCOLLERA AND ITS ASSOCIATION WITH THE TASCOTAL MESA FAULT**
- 79-19 291 Gackstatter, Emily J.*; Cronin, Vincent S.: **INVESTIGATING THE CAUSE(S) OF NORMAL FAULTS IN THE LEHIGH QUARRY NEAR WACO, TEXAS**
- 79-20 292 Velazquez Santana, Liannie Coral*; Hudgins, Thomas: **PETROGRAPHY OF THE MAFIC ENCLAVES WITHIN THE UTUADO PLUTON, PUERTO RICO**
- 79-21 293 Waian, Jonathon M.*; Ricketts, Jason W.: **INVESTIGATING POST EMPLACEMENT COOLING HISTORIES AND TECTONIC CAUSE OF EXHUMATION OF IGNOUS INTRUSIONS IN EL PASO, TX USING APATITE (U-Th)/He DATA**
- 79-22 294 Kurak, Ethan*; Jennings, Carrie: **A SLIPPERY SLOPE: THE FIRST STEPS TO ESTABLISHING A STATEWIDE LANDSLIDE DATABASE IN MINNESOTA**
- 79-23 295 Albright, Brandon*; St. John, Kristen: **PLANKTIC FORAMINIFERA BIOSTRATIGRAPHY OF CORE MD02-2555, GULF OF MEXICO**
- 79-24 296 Hung, Caroline*; Gilbert, Lisa A.; McCauley, Emma Q.; Suslovic, Meghan R.; Swartz, Jason L.; Weiner, Molly E.: **AN INTEGRATED APPROACH TO EROSIONAL PROCESSES AT A NEW ENGLAND SALT MARSH**
- 79-25 297 Galochkina, Mariya*; Miller, Kenneth G.; Makarova, Maria; Browning, James V.; Wright, James D.: **NORTH ATLANTIC SEA SURFACE AND THERMOCLINE TEMPERATURE VARIATIONS DURING THE MIDDLE-LATE MIOCENE (16-8 MA)**

SESSION NO. 80

T137. Geoheritage Matters (Posters) (GSA Geology and Society Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 80-1 298 Calder, John H.*: **GEOHERITAGE IN NOVA SCOTIA: A SUCCESS STORY IN PUBLIC ENGAGEMENT AND ECONOMIC DEVELOPMENT**
- 80-2 299 Chan, Marjorie A.*; Kamola, Diane L.: **GEOHERITAGE OF CLASSIC GEOLOGIC LOCALITIES: PRESERVATION AND FUTURE ACCESSIBILITY**
- 80-3 300 Carttar, Sally P.*; Hampton, Samuel J.: **CONSTRUCTING AN ACCESSIBILITY FRAMEWORK FOR A DEVELOPING GEOPARK: TOURISM, IMPACT, AND PRESERVATION**
- 80-4 301 Robbins, Liesel, Sue*; Hampton, Samuel: **THE FORTITUDE OF FORTIFIED MAORI SETTLEMENT EARTHWORKS: ANALYSIS OF Pā SITE PRESERVATION**
- 80-5 302 Crider, Juliet G.*; Gray, Mary Beth; Needle, Mattathias D.; Weil, Arlo Brandon: **ENHANCING SCIENTIFIC AND EDUCATIONAL RESOURCES AT THE WHALEBACK ANTICLINE, BEAR VALLEY, PENNSYLVANIA**
- 80-6 303 Matthews, Jack J.*; McMahon, Sean: **EXOGEOCOONSERVATION: PROTECTING GEOLOGICAL HERITAGE ON CELESTIAL BODIES**
- 80-7 304 Meyer, Herbert W.*: **MANAGING GEOHERITAGE ASSETS FOR RESEARCH, CONSERVATION, AND EDUCATION AT FLORISSANT FOSSIL BEDS NATIONAL MONUMENT, COLORADO: A TEXTBOOK EXAMPLE FOR NORTH AMERICA**

SESSION NO. 81

T140. New Tools in the Geologist's Toolbelt: Using Technology to Educate and Inspire Others about Geology (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 81-1 305 Drobniak, Agnieszka*; Mastalerz, Maria; Johnson, Matthew; Meyer, Rebecca: **ILLUSTRATING GEOLOGY OF INDIANA WITH ESRI STORY MAPS**
- 81-2 306 Proctor, Sian H.*; Wilson, Merry: **STUDENT SCREENCAST VIDEOS: A NEW WAY TO INCREASE ENGAGEMENT, UNLEASH CREATIVITY, AND COMMUNICATE UNDERSTANDING**
- 81-3 307 Davies, N.*: **INTRODUCTORY VIDEO PROJECT: FRESHENING THE SYLLABUS SINCE EARLY 2017**
- 81-4 308 Rose, Cassandra A.*; Mandler, Benjamin; Gonzales, Leila M.; Boland, Maeve A.: **A NOVEL WAY TO ACHIEVE BROADER IMPACTS WITH LARGE AUDIENCES: AGI'S CRITICAL ISSUES WEBINARS**
- 81-5 309 Saltus, Richard*; Morine, Anjelique; Nair, Manoj: **CROWDMAG AS AN INTRODUCTION TO GEOPHYSICAL DATA COLLECTION AND ANALYSIS**
- 81-6 310 Roberts, Lauren C.*; Pyle, Eric J.; Whitmeyer, Steven; Pavlis, Terry L.: **THE ADVENT OF DIGITAL COMPASSES: STATISTICAL EVALUATION AND COMPARISON WITH ANALOGUE COMPASSES**
- 81-7 311 Pritchard, Caroline E.*; Berti, Claudio; Anastasio, David: **CREATING A MODULAR SYSTEM TO INCREASE ACCESSIBILITY OF DIGITAL EDUCATIONAL ASSETS AT GEOLOGIC SITES OF INTEREST**
- 81-8 312 Triantafyllou, Antoine*; Watlet, Arnaud; Ba, Antoine: **COMMUNICATE YOUR GEOSCIENCE WITH SMARTPHONE-BASED VIRTUAL REALITY**
- 81-9 313 Piatek, Jennifer L.*; Whitmeyer, Steven; Atchison, Christopher; Marshall, Anita M.; Pyle, Eric J.; Eriksson, Susan C.; Crompton, Helen; Collins, Trevor; Carabajal, Ivan G.: **FOSTERING INCLUSION AND INTEREST IN GEOSCIENCE COURSES USING PANORAMIC AND 3D VISUALIZATIONS**
- 81-10 314 Martin, Anthony J.*; Page, Michael; Bransford, Stephen; Knuppel, Anandi Silva; Tullos, Allen: **"BIRDSEYE VIEWS" AND OTHER MULTIMEDIA TOOLS FOR COMMUNICATING AND TEACHING ABOUT COASTAL GEOLOGY: THE GEORGIA COAST ATLAS PROJECT**
- 81-11 315 McClellan, Elizabeth*; Watts, Chester F.: **ENGAGING STUDENTS AND COLLEAGUES IN GEOLOGIC MAPPING USING COMPACT UNMANNED AERIAL SYSTEMS - (TINY DRONES)**
- 81-12 316 Kish, Stephen*; Dominguez, Daniel: **AN INEXPENSIVE TERRESTRIAL LASER SCANNER FOR CAVE AND MINE MAPPING**
- 81-13 317 Schuyler, Andrew J.*; Farthing, Dori J.: **BRINGING GEOLOGICAL COLLECTIONS INTO THE ONLINE WORLD**

SESSION NO. 82

T2. A Showcase of Undergraduate Research in Hydrogeology (Posters) (GSA Hydrogeology Division; Council on Undergraduate Research Geosciences Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 82-1 318 Witek, Maximilian M.*; Granados-Aguilar, Raquel; Giardino, John R.; Everett, Mark E.; Ramsey, Cameron E.; Mmasa, Dennis; Rodriguez, Rodrigo; Pondthai, Potpreecha: **GEOMORPHOLOGICAL CHARACTERIZATION OF THE UPPER CAMP BIRD III ROCK GLACIER IN THE SAN JUAN MOUNTAINS, COLORADO**

- 82-2 319 Denham, Samantha M.*; Wilcox, Tarka: **POTENTIAL EXTENTS AND VOLUME SCENARIOS OF LANDSLIDE INDUCED IMPOUNDMENT LAKES WITHIN DEER CREEK DRAINAGE, WASHINGTON**
- 82-3 320 Mindich, Amelia D.*; Obidi, Ifunanya B.; Howes, Riley M.; Richter-Sanchez, Andrea; Paola, Chris; Ito, Emi: **ASSESSMENT OF WAVE PROCESSES AFFECTING THE EROSION OF SPIRIT ISLAND**
- 82-4 321 Cole, Adam*; Taaffee, Patrick; Kaufman, Quinn; Kraal, Erin; Sewall, Jacob: **QUANTIFYING SEDIMENT TRANSPORT IN A SMALL STREAM SETTING**
- 82-5 322 Spangler, Ellis Y.*; Macpherson, G.L.: **TESTING DUST COLLECTION AND RECOVERY METHODS FOR GEOCHEMICAL ANALYSIS: IMPLICATIONS TO LANDSCAPE EVOLUTION AND GROUNDWATER CHEMISTRY**
- 82-6 323 DeWeerd, Danielle J.*; Wampler, Peter J.; Vannier, Ryan G.; Beelen, Maria P.; Kraft, Mackenzie: **COMMUNITY OUTREACH, WATER RESOURCES ASSESSMENT, AND SAWYER FILTER EVALUATION NEAR DESCHAPELLES, HAITI**
- 82-7 324 Brady, Allyson*: **GROUNDWATER CONTAMINATION CAUSED BY SERENDIPITOUS EVENTS AT ELKHART, INDIANA**
- 82-8 325 Shaughnessy, Andrew R.*; Lockmiller, Kayla A.; Deebea, Emily Ann; Buckley, Camille E.; Hasenmueller, Elizabeth A.: **GROUNDWATER INPUTS AND WATER QUALITY DURING A RECORD-SETTING FLOOD ON THE MERAMEC RIVER, EAST-CENTRAL MISSOURI**
- 82-9 326 Suess, Timothy G.*; Riemersma, Peter E.: **THE EFFECT OF ROAD SALT ON THE HYDROLOGIC SYSTEM IN 2017 AT ALLENDALE MIDDLE SCHOOL, MICHIGAN**
- 82-10 327 Tiemeyer, Amy E.*; Kneeshaw, Tara A.; Driver, Erin M.: **USING MICROCOSMS TO EVALUATE IRON AND SULFATE REDUCTION RATES UNDER VARYING BIOGEOCHEMICAL CONDITIONS**
- 82-11 328 Cistaro, Virginia L.*; Kiekhaefer, Rebecca L.; Allen-King, Richelle M.: **QUANTIFYING THE RELATIVE REACTION RATES AND PATHWAYS OF TRICHLOROFLUOROETHENE DEGRADATION BY PYRITE IN COMPARISON TO TRICHLOROETHENE**
- 82-12 329 Dishman, Rory*; Kimmey, Cassandra; Brotsch, Jonathan; Allen-King, Richelle M.: **TRICHLOROETHYLENE ADSORPTION IN SEDIMENTS FROM THE NEW JERSEY NAVAL AIR WARFARE CENTER**
- 82-13 330 Soonthornrangsang, Jenny*; Lowry, Christopher S.; Allen-King, Richelle M.; Glose, Thomas J.; daSilva, Alexander; Dishman, Rory; Beck, Melanie: **TRACKING NUTRIENT FLUXES IN GROUNDWATER AND SURFACE WATER ON THE EASTERN SHORE OF LAKE ERIE**
- 82-14 331 Goodin, John*; Robertson, Wendy: **DOES EMERALD ASH BORER RELATED WHITE ASH MORTALITY DRIVE NITROGEN CYCLING AND CHANGES IN SOIL ORGANIC CARBON?**
- 82-15 332 Whitman, Loren*; Voglesonger, Kenneth; Lenczewski, Melissa; Leal Bautista, Rosamaria; Olson, Breanna: **CENOTES OF THE YUCATÁN PENINSULA: AN AQUEOUS GEOCHEMICAL STUDY**
- 82-16 333 Thielman, Rebekah*; Madsen, Andrew; Smidt, Samuel J.: **A CONDUCTIVITY AND DISSOLVED OXYGEN SUITE FOR IDENTIFYING SURFACE WATER-GROUNDWATER INTERACTIONS**
- 82-17 334 Shonnard, Christine*; Swanson, Susan: **CONDUCTIVITY OF SPRING WATER AS AN INDICATOR OF LAND USE AND GEOLOGIC CONDITIONS IN WISCONSIN**
- 82-18 335 Krahn, Ava*; Swanson, Susan: **AN EXPLORATION OF SPRING FLUXES TO CLASSIFY WISCONSIN'S SPRINGS**
- 82-19 336 Warix, Sara R.*; Meyers, Zachary P.; Box, Carolyn; Friel, Ariel; Hedlund, Brian; Frisbee, Marty D.; Rademacher, Laura K.: **MINERAL WEATHERING AND GROUNDWATER FLOW IN OWENS VALLEY SPRINGS**

- 82-20** 337 Kipple, Micah John*: **TEMPERATURE PATTERNS AND INCREASE OF SURFACE ACTIVITY AT MICKEY HOT SPRINGS, OREGON**
- 82-21** 338 Boggs, Bethanie*; Hart, Evan: **MONITORING DISCHARGE, WATER QUALITY, AND HYDROGRAPH RESPONSE TIME OF A LARGE KARST SPRING IN MIDDLE TENNESSEE**
- 82-22** 339 Cox, Kayla H*; Boutt, David F.: **USING HEAT AS A GROUNDWATER TRACER TO CONSTRAIN GROUNDWATER DISCHARGE TO LAGOON COMPLEXES IN SALAR DE ATACAMA, NORTHERN CHILE**
- 82-23** 340 Davis, Chantelle*; Macpherson, G.L.: **HEADWATER STREAM DISCHARGE CHARACTERIZATION IN THE KONZA PRAIRIE'S MEROKARST ENVIRONMENT USING A PITOT TUBE**
- 82-24** 341 Dena, Gabrielle D.*; Yelderman, Joe C.; Hamilton, Wayne: **HYDROGEOLOGICAL ASSESSMENT ON TONKAWA FALLS, CRAWFORD, TEXAS**
- 82-25** 342 Magee, Lauren Elizabeth*; Ritz, Robert W.; Bottomley, Michael: **DO ENSO EVENTS SIGNIFICANTLY AFFECT HYDROLOGY IN SOUTHWESTERN OHIO WATERSHEDS?**
- 82-26** 343 Gates, David J.*; Smidt, Samuel J.: **ESTIMATING IRRIGATION ENHANCEMENT ACROSS THE CONUS**
- 82-27** 344 Litwin, David*; Meira, Antonio; Troch, Peter: **EVALUATING THE EFFECTIVENESS OF ERT FOR ASSESSING SUBSURFACE STRUCTURE AT THE LANDSCAPE EVOLUTION OBSERVATORY**
- 82-28** 345 Naegeli, Kara Mckenzie*; Kintzel, Matthew Cody; Ramon, Isaac Alexander; Lehto, Heather L.: **INVESTIGATION OF LONGITUDINAL CRACKS ALONG KICKAPOO DAM, BRONTE, TX USING RESISTIVITY SURVEYS**

SESSION NO. 83

T55. Life and Times in the Early Paleozoic (Posters) (Paleontological Society)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 83-1** 346 Kono, Sena*; Isozaki, Yukio; Sato, Tomohiko; Zhang, Xingliang; Liu, Wei: **THE LOWERMOST CAMBRIAN AND SSFS OF THE XIAOLANTIAN SECTION IN THE CHENGJIANG AREA, YUNNAN, SOUTH CHINA**
- 83-2** 347 Zhang, Ziqiu*; Tosca, Nicholas; Pruss, Sara B.: **FOSSILS PRESERVED BY IRON-BEARING MINERALS IN THE LOWER-MIDDLE CAMBRIAN CARRARA FORMATION**
- 83-3** 348 Hildenbrand, Anne*; Austermann, Gregor; Bengtson, Peter: **AGNOSTID TRILOBITES AND SMALL SHELLY FOSSILS (SSFS) FROM THE DRUMIAN (MIDDLE CAMBRIAN) MANUELS RIVER FORMATION, CONCEPTION BAY SOUTH, NEWFOUNDLAND, CANADA - IMPLICATIONS FOR BIOSTRATIGRAPHY, PALEOBIOGEOGRAPHY AND PALEOGEOGRAPHY**
- 83-4** 349 Stockey, Richard G.*; Loydell, David K.; Fryda, Jiri; Sperling, Erik A.: **A TRANSIENT REDOX PERTURBATION IN THE EARLY SILURIAN**
- 83-5** 350 Benayoun, Emily*; Young, Seth A.; Owens, Jeremy D.; Eriksson, Mats E.; Hints, Olle; Martma, Tonu: **EXPANSION OF ANOXIA/EUXINIA AS DRIVER FOR EARLY SILURIAN EXTINCTION EVENTS: NEW SEDIMENTARY AND GEOCHEMICAL PROXY DATA FROM BALTICA**
- 83-6** 351 Funderburk, Randall*; Young, Seth A.: **DOUBLE TROUBLE: TRACKING (LATE WENLOCK) SILURIAN SULFUR AND CARBON CYCLE PERTURBATIONS ASSOCIATED WITH THE MULDE EVENT FROM TENNESSEE AND NEVADA**
- 83-7** 352 Richbourg, Claudia Gail*; Bowman, Chelsie N.; Young, Seth A.: **NEW LATE SILURIAN (LUDFORDIAN) $\delta^{13}\text{C}$ AND $\delta^{34}\text{S}$ ANALYSES FROM WESTERN TENNESSEE: AN OUTER RAMP PERSPECTIVE ON THE LAU CIE AND EXTINCTION EVENT**

SESSION NO. 84

D18. Paleontology, Phylogenetic/Morphological Patterns (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 3:30 to 5:30 PM
Booth #

- 84-1** 353 Chin, Courtney T.*: **BIOINVENTORY OF *DIADEMA ANTILLARUM* IN SAN SALVADOR, THE BAHAMAS**
- 84-2** 354 Qualls, Logan M.*; Bauer, Jennifer E.; Sumrall, Colin D.: **REASSESSMENT OF BLASTOID (ECHINODERMATA) PHYLOGENY WITH INTERNAL CHARACTER DATA**
- 84-3** 355 Lester, Rachel*; Hanson, Kathryn E.; Deline, Bradley: **THE CONTRIBUTION OF CRINOIDS TO EARLY PALEOZOIC ECHINODERM MORPHOLOGIC DIVERSITY**
- 84-4** 356 Ausich, William I.*; Cole, Selina R.; Wright, David F.: **DESCRIPTIVE VERSUS HOMOLOGOUS TERMINOLOGY: DESCRIBING THE CRINOID**
- 84-5** 357 Veitch, Margaret A.*: **INVESTIGATING ONTOGENY IN THE EOCENE CRINOID *CONOCRINUS THORENTI***
- 84-6** 358 Alley, Heather N.*; Rahman, Imran A.; Kallmeyer, Jack W.; Deline, Bradley: **FUNCTIONAL MORPHOLOGY OF COILED ANAL SACS IN LATE ORDOVICIAN CRINOIDS**
- 84-7** 359 Thompson, Jeffrey R.*; Bottjer, David J.: **SUBSTRATE AFFINITY IN CARBONIFEROUS ECHINOIDS**
- 84-8** 360 Grun, Tobias B.*; von Scheven, Malte; Bischoff, Manfred; Nebelsick, James H.: **CLYPEASTER UNDER PRESSURE: STRENGTHENING STRUCTURES AND VIRTUAL MODULATIONS OF AN ECHINOID'S TEST**
- 84-9** 361 Sheffield, Sarah L.*; Sumrall, Colin D.: **THE PHYLOGENY OF THE DIPLOPORITA**
- 84-10** 362 Khameiss, Belkasim*; Fluegeman, Richard; Moore, Elizabeth; Hastings, Alexander: **FOSSIL CORALS FROM THE LOWER-UPPER MIOCENE FROM ATLANTIC DEPOSITS IN DELAWARE AND FLORIDA, USA**
- 84-11** 363 Pidel, Martin A.*; Bartholomew, Alex J.: **A NEW CYSTITHALYSITES SPECIES IDENTIFIED IN THE ROSENDALE/KINGSTON, NY AREA**
- 84-12** 364 Selly, Tara*; Smith, Emily F.; Nelson, Lyle L.; Thater, Casey A.; Schiffbauer, James D.: **TAXONOMY OF THE TERMINAL EDIACARAN VERMIFORM BIOTA, WOOD CANYON AND DEEP SPRING FORMATIONS, NEVADA**
- 84-13** 365 Dorward, Rebecca Ashley*; Selden, Paul A.: **ELDONIIDS AND ASSOCIATED TRACE FOSSILS FROM THE MIDDLE CAMBRIAN SPENCE SHALE, UTAH**
- 84-14** 366 Ritterbush, Linda Anita*: **AGNOSTID TEST VOLUME INCREASES IN THE LATE CAMBRIAN PRELUDE TO THE GOBE**
- 84-15** 367 Losso, Sarah R.*; Adrain, Jonathan M.: **NEW GENERA OF DIMEROPYGID TRILOBITES FROM THE EARLY ORDOVICIAN OF THE WESTERN UNITED STATES AND THE PHYLOGENETIC STRUCTURE OF THE FAMILY**
- 84-16** 368 Shirley, Bryan*; Jarochowska, Emilia: **TESTING EUCONODONT GROWTH MODELS USING A COLLECTION OF PATHOLOGICAL SPECIMENS**
- 84-17** 369 **WITHDRAWN**
- 84-18** 370 Overly, Adrian S.*; Klompaker, Adiël A.; Finnegan, Seth: **ARE THERE TRENDS IN BIVALVE ORNAMENTATION THROUGHOUT THE CRETACEOUS?**
- 84-19** 371 Pietsch, Carlisle*; Anderson, Brendan M.; Maistros, Lauren M.; Agelvis, Mariana; Allmon, Warren D.: **EVALUATING ECOLOGICAL FUNCTION AND CONVERGENT EVOLUTION OF EXTREME PARIETAL CALLUS IN MARINE GASTROPODS**
- 84-20** 372 Zimmerman, Alexander N.*; Johnson, Claudia C.; Phillips, George E.; Ehret, Dana J.: **TAXONOMY OF RUDIST BIVALVES FROM UPPER CRETACEOUS STRATA, MISSISSIPPI EMBAYMENT, USA**

- 84-21 373 Aziz, Javaria*; Hendy, Austin J.W.; Estes-Smargiassi, Kathryn: **BIODIVERSITY AND PALEOECOLOGY OF PLIO-PLISTOCENE MARINE MOLLUSCS, CARPINTERIA, SANTA BARBARA COUNTY, CALIFORNIA**
- 84-22 374 Conrad, Macy A.*; Taylor, Paul D.; Wilson, Mark A.: **ENCRUSTING SCLEROBIOT PALEOECOLOGY IN THE TYPE CAMPANIAN (UPPER CRETACEOUS) OF SOUTHWESTERN FRANCE**
- 84-23 375 Phillipi, Daniel*; Schweitzer, Carrie E.; Feldmann, Rodney M.: **UTILITY OF NODEXL IN INVESTIGATING PALEOECOLOGY AND PALEOBIOGEOGRAPHY OF FOSSIL DECAPOD CRUSTACEANS**
- 84-24 376 Langley, Cortney B.; Kimmig, Julien*; Legg, David Alexander; Bader, Kenneth S.: **ONTOGENY OF THE PENNSYLVANIAN HORSESHOE CRAB *PALEOLIMULUS SIGNATUS* (BEECHER) FROM THE PONY CREEK SHALE KONSERVAT-LAGERSTÄTTE, EASTERN KANSAS**
- 84-25 377 Downen, Matthew R.*; Selden, Paul A.: **FOSSIL SPIDERS IN PALEOGENE LACUSTRINE DEPOSITS**
- 84-26 378 Ransom, Steven A.*; Hunt, A.M.: **SURFACE FIELD RECONNAISSANCE FOR BURIED LARGE VERTEBRATE FOSSILS AND DETERMINATION OF PETROPHYSICAL CHARACTERISTICS DIFFERENTIATED BY GEOPHYSICAL INSTRUMENTS SUCH AS A MAGNETOMETER: EXAMPLES FROM THE LANCE FORMATION OF EASTERN WYOMING**
- 84-27 379 Liming, Scott*; Hunt, A.M.: **FIELD AND LABORATORY ANALYSES AND DESCRIPTIONS OF PARTIALLY ARTICULATED HADROSAUR FOOT BONES AND SURROUNDING SEDIMENTARY MATRIX AS EXCAVATED FROM A NEWLY EXPOSED BONE BED: LANCE FORMATION EASTERN WYOMING**
- 84-28 380 Zobaa, Mohamed K.*; Oboh-Ikuenobe, Francisca E.: **TAXONOMY OF STRATIGRAPHICALLY IMPORTANT MID-CRETACEOUS TERRESTRIAL PALYNOFLORAL SPECIES IN THE NORTH WESTERN DESERT, EGYPT**
- 84-29 381 Moretti, John A.*; Johnson, Eileen: **THE LATEST PLEISTOCENE VERTEBRATE FAUNA AND STRATIGRAPHY OF MACY LOCALITY 100 FROM THE SOUTHERN HIGH PLAINS, TEXAS**
- 84-30 382 Villegas-Garin, Franco Aaron*: **ENVIRONMENTAL DISTRIBUTION OF MESOZOIC PARAVIALIANS**
- 84-31 383 Moretti, John A.*; Johnson, Eileen: **LATE BLANCAN GAZELLE-HORSE *NANNIPPUS PENINSULATUS* (MAMMALIA, EQUIDAE) FROM SCURRY COUNTY, TEXAS, WITH IMPLICATIONS FOR BIOCHRONOLOGY**
- 84-32 384 Adams, Betty L.*; Barton, Bax R.; Kleinknecht, Gary C.; Last, George V.; Mauldin, Bill; Mauldin, Kim; Austin, Curtis J.; Detrick, King; Mara, Neil: **A LATE ICE AGE CAMEL FROM THE COYOTE CANYON/SOUTH HILL-MAULDIN SITE, BENTON COUNTY, WASHINGTON**
- 84-33 385 OConnor, Jingmai*: **THE TROPHIC HABITS OF EARLY BIRDS**
- 84-34 386 Biedron, Eva M.*; DeSantis, Larisa R.G.: **STABLE ISOTOPE ECOLOGY OF EXTANT MOUNTAIN AND COMMON BRUSHTAIL POSSUMS**
- 84-35 387 George, Christian O.*: **EVALUATING THE GEOGRAPHIC DISTRIBUTION OF QUATERNARY SHREWS: THE POTENTIAL FOR PALEOECOLOGIC INTERPRETATIONS ABOVE THE SPECIES LEVEL**
- 84-36 388 Lehrmann, Asmara*; Blake, Elliot; Sun, Kexin; Welch, Bailey; Ray, Christopher J.; Suarez, Marina B.; Godet, Alexis; Adams, Thomas; Lehrmann, Daniel: **GEOCHEMISTRY AND ENVIRONMENTAL ANALYSIS OF A LOWER CRETACEOUS DINOSAUR TRACK SITE, HERITAGE MUSEUM OF THE TEXAS HILL COUNTRY, COMAL COUNTY, CENTRAL TEXAS**
- 84-37 389 Hunt, Adrian P.*; Lucas, Spencer G.: **ON THE PROBABLE RARITY OF SMALL DINOSAUR COPROLITES**
- 84-38 390 Smith, Gregory J.*; Gibson, Michael A.; Gibson, Brandt M.: **SEASONALITY OF *MAMMUT AMERICANUM* FROM THE LATE PLEISTOCENE OF WEST TENNESSEE**
- 84-39 391 Rowland, Stephen M.*; Parry, Lauren E.: **A NEW MAMMOTH SITE IN AMARGOSA VALLEY, NEVADA**
- 84-40 392 Delplanche, Rémy A.*; Orcutt, John D.: **LARGE MAMMALS FROM THE HEMPHILLIAN OF MCKAY RESERVOIR, OREGON**
- 84-41 393 Lichtig, Asher*; Lucas, Spencer G.: **A REVISED VIEW OF THE TURTLE FAUNA OF THE UPPER CRETACEOUS FRUITLAND-KIRTLAND SUCCESSION IN NEW MEXICO**
- 84-42 394 Kuo, Pei-Chen*; Wang, Chun-Chieh; Chiang, Cheng-Cheng; Song, Sheng-Rong; Löwemark, Ludvig; Song, Yen-Fang: **APPLICATION OF NANO-TRANSMISSION X-RAY IN PALEONTOLOGY: A CASE STUDY ON MOSASAURS TEETH**
- 84-43 395 Vietri, Claire Belén*; Pratt, Emilie C.; Orcutt, John D.: **RECENT DISCOVERIES OF SMALL VERTEBRATE FOSSILS FROM MCKAY RESERVOIR**
- 84-44 396 Toews, Natalie J.; Peng, Amanda W.*: **AN ONTOGENETIC INVESTIGATION OF A CRETACEOUS NORTH AMERICAN MAMMAL, *DIDELPHODON VORAX* (METATHERIA: MARSUPIALIFORMES: STAGODONTIDAE), THROUGH QUANTITATIVE AND DESCRIPTIVE ANALYSIS OF THE DENTARY**
- 84-45 397 Forst, Tyler*; Vasylenko, Klavdiya; Buynevich, Ilya V.: **HIGH-ACTION LAKE FLOOR: A VERTEBRATE ICHNOASSEMBLAGE ON A MOBILE SUBSTRATE, LOCKATONG FORMATION, SE PENNSYLVANIA**
- 84-46 398 Lippincott, Jessica L.*; Wahl, William R.; D'Souza, Ian: **EVIDENCE OF OSTEOMYELITIS IN A SAUROPOD RIB CAUSED BY A POTENTIAL BITE**
- 84-47 399 Lakeram, Scott*; Bennington, J. Bret; Radcliffe, Dennis: **GEOCHEMICAL AND SEM ANALYSES REVEAL NO CONCLUSIVE EVIDENCE THAT MORRISON FORMATION SILICIFIED MASSES ARE HERBIVORE COPROLITES**
- 84-48 400 Snyder, Keith; McLain, Matthew A.*; Chadwick, Arthur V.: **DISCOVERY OF A UNIQUE MULTITAXIC DINOSAUR BONEBED FROM THE LANCE FORMATION (MAASTRICHTIAN) OF WYOMING**
- 84-49 401 Siviero, Bethania T.*; McLain, Matthew A.; Nelsen, David; Brand, Leonard R.; Chadwick, Arthur V.: **REFINEMENT OF TOOTH TRACE CRITERIA THROUGH EXPERIMENTATION AND LITERATURE REVIEW**
- 84-50 402 Wallace, Jenelle*; Crowley, Brooke; Miller, Joshua H.: **RECONSTRUCTING EQUID MOBILITY IN MIOCENE FLORIDA**
- 84-51 403 Haupt, Ryan J.*; Clementz, Mark T.: **DENTAL MICROWEAR TEXTURE COMPARISONS OF EXTINCT CARNIVORANS TO EXTANT SOCIAL HYPERCARNIVORES, SOLITARY CARNIVORES, AND SOLITARY HYPOCARNIVORES**
- 84-52 404 Prothero, Donald*: **REVIEW OF THE PLIOCENE PECCARIES (ARTIODACTYLA: TAYASSUIDAE) OF NORTH AMERICA**
- 84-53 405 Rodwell, Ben W.*; Nichols, Kimberly A.: **DENTAL TOPOGRAPHIC ANALYSIS OF DIETARY ADAPTATIONS IN EARLY EOCENE EUPRIMATES**
- 84-54 406 Scarpetta, Simon George*: **A NEW MIOCENE GERRHONOTINE FROM THE CALIENTE FORMATION, CALIFORNIA**
- 84-55 407 Beightol, Charles V.*; Gee, Bryan M.; Parker, William G.: **HISTOLOGICAL COMPARISON OF TEMNOSPONDYL TEETH TO TAXONOMICALLY PLACE NOVEL TEMNOSPONDYL TEETH FROM THE LATE TRIASSIC CHINLE FORMATION AT PETRIFIED FOREST NATIONAL PARK, ARIZONA**
- 84-56 408 Birlenbach, David M.*; Keller, Jonathan S.; Fox, David L.: **PREDICTING BODY MASS IN RODENTS USING NON-TRADITIONAL 3D DENTAL SHAPE DESCRIPTORS**
- 84-57 409 Belock, Jacquelyn Y.*: **PHYLOGENETIC SUPPORT FOR NEW PEDIOMYIDAE (MAMMALIA: METATHERIA) SPECIES FROM THE UPPER CRETACEOUS FOX HILLS OF SOUTH DAKOTA**
- 84-58 410 Abbott, Caroline P.*; Sues, Hans-Dieter; Lockwood, Rowan: **THE *DIMETRODON* DILEMMA: REASSESSING POSTURE IN SPHENACODONTS**

- 84-59 411 Jones, Lila*; Johnson, Eileen: **THREE DIMENSIONAL GEOMETRIC MORPHOMETRICS AS A METHOD TO IDENTIFY THE SPECIES OF *CANIS* SPP. SPECIMEN AT A HISTORIC SITE IN WESTERN TEXAS**
- 84-60 412 Annoor, Tahsin*; Prothero, Donald; Syverson, V.J.P.: **HOW DID LA BREA COLTS GROW UP? A STUDY OF POSTNATAL ALLOMETRIC GROWTH IN THE LIMB BONES OF *EQUUS OCCIDENTALIS***
- 84-61 413 Galvez, Saul*; Prothero, Donald; Syverson, Valerie J.P.: **HOW DID BISON CALVES GROW UP? POSTNATAL LIMB ALLOMETRY IN BISONANTIQUEUS FROM LA BREA TAR PITS**
- 84-62 414 Htun, Thein*; Prothero, Donald: **POSTNATAL ALLOMETRIC LIMB GROWTH IN JUVENILE CAMELS FROM THE PLEISTOCENE OF RANCHO LA BREA TAR PITS**
- 84-63 415 Madan, Meena A.*; Prothero, Donald; Syverson, V.J.P.: **HOW DID SMALL OWLS FROM THE LA BREA TAR PITS RESPOND TO THE LATE PLEISTOCENE CLIMATE CHANGE?**
- 84-64 416 Gillespy, Patrick*; Prothero, Donald; Syverson, V.J.P.: **STASIS IN TERATORNS FROM THE LA BREA TAR PITS DURING THE LAST GLACIAL-INTERGLACIAL CYCLE**
- 84-65 417 Badgley, Catherine*; Davis, Edward; Finarelli, John A.; Riddle, Brett R.; Smiley, T.M.; Terry, Rebecca; Yanites, Brian J.: **MAMMAL DIVERSIFICATION ACROSS DYNAMIC LANDSCAPES—A CASE STUDY WITH NORTH AMERICAN RODENTS**
- 84-66 418 Widrig, Klara E.*; Famoso, Nicholas A.: **NICHE PARTITIONING IN AN OLIGOCENE CARNIVORE GUILD**
- 84-67 419 Reuter, Dana M.*; Hopkins, Samantha S.B.; Famoso, Nicholas A.; Davis, Edward Byrd: **MAMMALIAN COMMUNITY STRUCTURE THROUGH TIME: OREGON MIOCENE COMMUNITY CHANGE**

SESSION NO. 85***D52. Petrology, Metamorphic (Posters)***

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 3:30 to 5:30 PM

Booth #

- 85-1 420 Wolfe, Oliver M.*; Spear, Frank S.: **TEXTURAL CONSTRAINTS ON THE P-T CONDITIONS OF GARNET NUCLEATION AND APPEARANCE OF RUTILE IN CONNECTICUT VALLEY SYNCLINORIUM, VT METAPELITES, AND COOLING RATES FROM PEAK T**
- 85-2 421 Tuazon, Veronica O.*; Webster, James D.; Verbeek, Earl R.: **ZN-RICH MINERALS OF THE STERLING HILL AND FRANKLIN ORE DEPOSITS, NEW JERSEY**
- 85-3 422 Kerrigan, Ryan J.*: **PETROGENESIS OF ULTRAMAFIC BODIES IN THE PENNSYLVANIAN PIEDMONT**
- 85-4 423 Rodemer, Franklin E.*; Smith, Michael S.: **A PETROGRAPHIC AND GEOCHEMICAL EAST VERSUS WEST ANALYSIS OF THE NEOPROTEROZOIC CATOCTIN FORMATION IN THE BLUE RIDGE ANTICLINORIUM, CENTRAL VIRGINIA**
- 85-5 424 Tjapkes, Daniel J.*; Peterson, Virginia L.: **PRESERVED LARGE GARNET ZONING, PSEUDOSECTION THERMOBAROMETRY, AND LOCALIZED DEFORMATION CONSTRAIN P-T PATH AND EXTEND GRANULITE FACIES REGION IN THE SOUTHERN APPALACHIAN CENTRAL BLUE RIDGE, NORTH CAROLINA**
- 85-6 425 Smith, Douglas*: **TRACE ELEMENTS IN CR-PYROPE FROM THE NAVAJO FIELD OF THE COLORADO PLATEAU: EVIDENCE FOR MIXING IN THE MANTLE WEDGE DURING LOW-ANGLE SUBDUCTION**
- 85-7 426 Patton, Jake C.*; Lazar, Codi: **PETROLOGICAL ANALYSES OF OPAQUE MINERAL ASSEMBLAGES TO CONSTRAIN THE FORMATION CONDITIONS OF SERPENTINIZED PORTIONS OF THE JOSEPHINE PERIDOTITE**
- 85-8 427 Lehman, Miranda R.*; Mattinson, Chris G.; Hernández-Uribe, David: **MULTISTAGE HISTORY RECORDED BY ZIRCONS FROM A KYANITE ELCOGITE, NORTH Qaidam UHP TERRANE, CHINA**

- 85-9 428 Stearn, Madelaine*; Mattinson, Christopher G.: **DEFORMATION AND PETROLOGY OF ORTHOGNEISS BODIES IN THE DULAN AREA OF THE NORTH Qaidam ULTRA-HIGH PRESSURE TERRANE OF WESTERN CHINA**
- 85-10 429 Lin, Abing*; Zheng, Jianping; Pan, Shaokui; Wang, Baixuan: **COMPOSITION AND EVOLUTION OF LITHOSPHERIC MANTLE BENEATH THE NORTHEASTERN NORTH CHINA CRATON**
- 85-11 430 Taguchi, Tomoki*; Miyake, Akira; Igami, Yohei; Enami, Masaki: **AMORPHOUS SiO_2 PHASE IN A PSEUDOMORPH AFTER COESITE IN A GARNET OF THE SU-LU UHP ECLOGITE: AN INTEGRATED FIB, TEM AND RAMAN SPECTROSCOPIC STUDY**
- 85-12 431 Pease, E.C.*; Dygert, Nick; Catlos, E.J.; Brookfield, Michael: **TIMING OF OBDUCTION, TECTONIC AFFINITY, AND COOLING HISTORY OF THE SPONGTANG OPHIOLITE, NORTHWEST INDIA, HIMALAYA**
- 85-13 432 Peterman, Emily M.*; Jercinovic, Michael J.; de Wet, Cameron B.: **CATHODOLUMINESCENCE DOMAINS CORRELATE WITH COMPOSITIONAL ZONING IN KYANITE**

SESSION NO. 86***D53. Sediments, Carbonates (Posters)***

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 86-1 433 Salih, Namam Muhammed*; Kolo, Kamal; Mansurbeg, Howri; Gerdes, Axel; Othman, Rushdy; Pr eat, Alain: **DIRECT DATING OF CALCRETIZATION AND MICROBIAL DIAGENETIC EVENTS IN THE UPPER CRETACEOUS BEKHME FORMATION, KURDISTAN REGION OF IRAQ, BY THE U-PB SMALL SCALE ISOCHRON METHOD**
- 86-2 434 Vicens, Estefania*; Hughes, K. Stephen; Joyce, James; Ramirez, Wilson: **THE ONSET OF EXTENSIONAL FAULTING IN WESTERN PUERTO RICO AT 15 MA**
- 86-3 435 O'Malley, Katherine E.*; Whalen, Michael T.; Morgan, Joanna; Gulick, Sean S.P.; Lowery, Christopher; Bralower, Timothy; Jones, Heather L.; Smit, Jan; Rodriguez-Tovar, Francisco J.: **POST-IMPACT EVOLUTION OF CHICXULUB CRATER: SEDIMENTOLOGICAL ANALYSIS OF THE CRETACEOUS-PALEOGENE IMPACT, MEXICO**
- 86-4 436 Broussard, Joshua*; Testa, Maurice P.; Garner, Brittany M.; Kirkland, Brenda L.: **USING CONFOCAL MICROSCOPY TO ATTEMPT TO IMAGE AND UNDERSTAND PORE SPACE NETWORKS**
- 86-5 437 Griffing, David H.*; Glumac, Bosiljka; Curran, H. Allen; Kortright, Skylar; Beckham, Abigail: **DEPOSITIONAL HISTORY OF EEMIAN REEF DEPOSITS (COCKBURN TOWN MEMBER, GROTTO BEACH FORMATION) ON SAN SALVADOR ISLAND, BAHAMAS**
- 86-6 438 Grisi, Kate C.*; Giles, Katherine A.; Deatrick, Kyle T.: **A COMPARISON OF THE FISHER VALLEY AND GYPSUM VALLEY MEGAFLAPS, PARADOX BASIN, UTAH/COLORADO: IMPLICATIONS FOR MODE OF FORMATION**
- 86-7 439 Holly, Cody D.*; Bershaw, John; Bachtel, Steven L.: **ASSESSING THE IMPACT OF DIAGENESIS ON ISOTOPIC COMPOSITION OF PALEOSOL CARBONATES FROM THE CHU BASIN, KYRGYZSTAN**
- 86-8 440 O'Connell, Laura G.*; Potter-McIntyre, Sally L.; Williams, Jason; Knuth, Jordan M.: **FACIES ANALYSIS AND COMPARISON OF JURASSIC, QUATERNARY, AND MODERN CARBONATE LAKE AND SPRING DEPOSITS OF TEN MILE GRABEN, EAST CENTRAL UTAH**
- 86-9 441 Haines, Forest*: **STUDIES IN THE BRANSON HOUSE SPRING AREA OF MISSOURI SHOW LOWER MISSISSIPPIAN STRATOTYPE OF THE COMPTON, PIERSON, ROSALEA, AND FERN GLEN MEMBERS MATCH THOSE IN EXSHAW, AB, MINGUS MT, AZ AND BOWDEN, W. VA**

86-10 442 Borucki, Elizabeth A.*; Bowles, Julie A.; Ulbricht, Jenny B.; Isbell, John L.: **PRELIMINARY RESULTS OF A PROTEROZOIC ENVIRONMENTAL MAGNETISM STUDY: QUANTIFICATION AND ANALYSIS OF THE COPPER HARBOR CONGLOMERATE MAGNETIC MINERALOGY FROM THE NORTH AMERICAN, MID-CONTINENT RIFT**

SESSION NO. 87

D23. Sediments, Clastic (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

87-1 443 Knight, John A.*; Suarez, Marina B.; Ludvigson, Greg A.: **QUANTIFYING CLIMATE CHANGE OVER THE EARLY CRETACEOUS RUBY RANCH MEMBER OF THE CEDAR MOUNTAIN FORMATION, EAST-CENTRAL UTAH**

87-2 444 Rinke-Hardekopf, Lucian*; Dashtgard, Shahin E.; MacEachern, James A.: **STRATIGRAPHIC SIGNIFICANCE OF LOWER MCMURRAY COAL DEPOSITS: ATHABASCA OILSANDS, ALBERTA, CANADA**

87-3 445 Ames, Carsyn*; Finzel, Emily S.; Enkelmann, Eva; Thomson, Stuart N.: **INSIGHTS FOR PROVENANCE ANALYSIS FROM U/PB GEOCHRONOLOGY APPLIED TO MODERN WATERSHEDS – TALKEETNA MOUNTAINS, SOUTHCENTRAL ALASKA**

87-4 446 Ma, Baoquan*: **NEW IDENTIFICATION METHOD OF LOW-PERMEABILITY RESERVOIR DIAGENETIC FACIES — A CASE STUDY OF YANWU AREA YANCHANG 8¹ IN ORDOS BASIN**

87-5 447 Sun, Ningliang*; Zhong, Jianhua; Liu, Chuang; Cao, Mengchun; Yang, Guanqun; Hao, Bing: **DIAGENESIS AND PHYSICAL PROPERTIES EVOLUTION OF GRAVITY FLOW TIGHT RESERVOIR OF YANCHANG FORMATION IN THE SOUTHERN ORDOS BASIN**

87-6 448 Wesolowski, Lindsey John-Nicholas*; Buatois, Luis A.; Mangano, Maria Gabriela; Ponce, Juan Jose; Carmona, Noelia B.: **TRACE FOSSILS, SEDIMENTARY FACIES AND PARASEQUENCE ARCHITECTURE FROM THE LOWER CRETACEOUS MULICHINCO FORMATION OF ARGENTINA: THE ROLE OF FAIR-WEATHER WAVES IN SHOREFACE DEPOSITS**

87-7 449 Brand, Leonard R.*; Maithe, Sarah A.: **SOFT-SEDIMENT DEFORMATION FEATURES IN THE PERMIAN COCONINO SANDSTONE, ARIZONA, POSSIBLY PRODUCED BY SEISMIC ACTIVITY**

87-8 450 Hannon, Jeffrey S.*: **STRONTIUM ISOTOPIC ANALYSIS OF TEPHRA: A CASE STUDY FROM THE WESTERN INTERIOR SEAWAY**

87-9 451 Asai, Hitomi*; Saneyoshi, Mototaka; Nishido, Hirotsugu; Toyoda, Shin; Tsogtbaatar, Khishigjav: **STRATIGRAPHIC ASSIGNMENT OF EOLIAN AND FLUVIAL SEDIMENTS IN UDYN SAYR, GOBI DESERT, MONGOLIA USING AN INDICATOR OF DEFECT CENTERS IN QUARTZ COMPOSED OF SAND PARTICLE**

87-10 452 Elick, Jennifer M.*: **POSSIBLE MECHANISMS FOR ROCK FALL EVENTS ALONG PA STATE ROUTE 11/15, SOUTH OF LIVERPOOL, PA**

87-11 453 Juntunen, Kristopher Lee*; Morgan, Ryan: **THE LION MOUNTAIN SANDSTONE AS AN EXEMPLAR OF COMPLEXITY IN TRANSITIONAL ENVIRONMENTS**

87-12 454 Scott, Ashley Brooke*; Morgan, Ryan; Ronck, Catherine: **TROPICAL POOLS AND COLD-WATER SEEPS: FORMATION AND DIAGENESIS OF A SHORELINE-TO-LAGOON SYSTEM IN THE CRETACEOUS**

87-13 455 Scott, Ashley Brooke*; Juntunen, Kristopher Lee; Morgan, Ryan: **PENNSYLVANIAN PLACID SHALE: TRANSITIONAL MEMBER OF THE BRAD FORMATION**

87-14 456 Heydari, Ezat*; Calef, Fred J.; Schroeder, Jeffrey F.; Van Beek, Jason; Parker, Timothy; Rowland, Scott; Fairen, Alberto G.; Hallet,

Bernard: **A MAGNIFICENT OUTCROP IN THE KIMBERLEY REGION OF GALE CRATER, MARS**

87-15 457 Miller, D.E.*; Montejo, Carlos; Gallagher, Tony; Scanlon, Darby P.; Sarti, Ethan; Moreno, Jesus; Rodriguez, Virginia; Spriester, Jacob: **USING MULTI-CYCLIC QUARTZITES IN FLUVIAL CONGLOMERATES TO TRACK LATE CRETACEOUS-CENOZOIC PALEODRAINAGE EVOLUTION IN THE MOJAVE DESERT, SOUTHERN SAN JOAQUIN VALLEY, AND COAST RANGES, CALIFORNIA**

87-16 458 Klopfenstein, Trey*; Nadon, Gregory C.: **HIGH FREQUENCY SEQUENCES WITHIN THE UPPER MISSISSIPPIAN ALLENSVILLE MEMBER, LOGAN FORMATION, SOUTH-CENTRAL OHIO**

87-17 459 James, Robert N.*; Miller, D.E.; Sarti, Ethan; Watson, Kenneth; Buehler, Jeff; McKinney, Sam; Rodriguez, Virginia; Spriester, Jacob; Jackson, Jake: **EVIDENCE FOR EARLY MIOCENE SYNEXTENSIONAL CONGLOMERATE SEDIMENTATION IN THE TUNIS HALF-GRABEN, SOUTHERN SAN JOAQUIN VALLEY, CALIFORNIA**

87-18 460 Stubbs, Dreadnaught G.*; Nadon, Gregory C.: **A SEQUENCE STRATIGRAPHIC INTERPRETATION OF THE ALLEGHENY GROUP (LATE MOSCOVIAN) IN THE DISTAL APPALACHIAN BASIN**

87-19 461 Monami, Shifat*; Uddin, Ashraf: **SEDIMENTATION AND TECTONICS OF LOWER PENNSYLVANIAN POTTSVILLE FORMATION FROM WESTERN BITUMINOUS FIELD OF PENNSYLVANIA**

87-20 462 McKinney, Samuel*; Buehler, Jeffrey; Watson, Kenneth; Miller, D.E.; James, Robert N.; Moreno, Jesus; Sarti, Ethan: **DIFFERENTIATING BEACH AND FLUVIAL CONGLOMERATES BY SIZE AND SHAPE CHARACTERISTICS OF QUARTZITE CLASTS IN THE CENOZOIC TECUYA AND KERN RIVER FORMATIONS, SOUTHERN SAN JOAQUIN VALLEY, CA**

87-21 463 McCarthy, Andrew L.*: **COMPARATIVE GEOCELLULAR MODELING OF FLUVIAL POINT BARS: LEVERAGING OUTCROP STATISTICS TO ENHANCE GEOLOGIC REALISM**

87-22 464 Sarti, Ethan*; Moreno, Jesus; Miller, D.E.; James, Robert N.; Jackson, Jake; Rodriguez, Virginia; Epuna, Favour; Herrera, Peyton: **PROVENANCE OF FLUVIAL AND SHALLOW MARINE CONGLOMERATES IN THE LATE EOCENE(?) -EARLY MIOCENE TECUYA FORMATION, SOUTHERN SAN JOAQUIN VALLEY, CALIFORNIA**

87-23 465 Maithe, Sarah A.*; Brand, Leonard R.; Whitmore, John H.: **ALONG-DIP TEXTURAL TRENDS IN THE PERMIAN COCONINO SANDSTONE FROM THIN SECTION AND LASER DIFFRACTION PARTICLE ANALYSIS**

87-24 466 Mery, Augusta*; Thornburg, Jesse D.; Seminack, Christopher T.; Oest, Christopher; Kopczanski, Karen A.; Peterson, Stephen; Davis, Timothy: **PETROGRAPHIC AND GEOCHEMICAL EVALUATION OF THE UPPER ORDOVICIAN JUNIATA FORMATION IN CENTRAL PENNSYLVANIA: IMPLICATIONS FOR CHANGES IN SEDIMENTATION RATE**

87-25 467 Griffis, Neil*; Montañez, Isabel P.; Fedorchuk, Nicholas D.; Isbell, John L.; Mundil, Roland; Vesely, Fernando; Weinshultz, Luiz; Iannuzzi, Roberto; Gulbranson, Erik L.; Taboada, Arturo César; Pagani, M. Alejandra; Sanborn, Matthew E.; Huyskens, Magda; Wimpenny, Josh; Linol, Bastien; Yin, Qing-zhu: **ISOTOPES TO ICE: CONSTRAINING PROVENANCE OF GLACIAL DEPOSITS AND ICE CENTERS IN WEST-CENTRAL GONDWANA**

87-26 468 Provow, Ashley W.*; Newell, Dennis L.; Mahan, Kevin H.; Yonkee, Adolph; Pulsipher, Mikaela A.; Ault, Alexis K.; Dehler, Carol M.: **DOCUMENTING THE NATURE AND TIMING OF FLUID-ROCK INTERACTION IN NEOPROTEROZOIC SILICICLASTIC ROCKS OF NORTHERN UTAH**

SESSION NO. 88

D24. Stratigraphy (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 3:30 to 5:30 PM

- | Booth # | Author(s) | Title |
|---------|---|---|
| 88-1 | 469 Steele, Peter A.* | STRATIGRAPHIC EVOLUTION OF THE JURASSIC NAVAJO SANDSTONE ERG, SAN RAFAEL SWELL, CENTRAL UTAH |
| 88-2 | 470 Kupfer, Kate L.*; Shimer, Grant; Kaiser, Jason F.; Gardner, Kevin | PETROGRAPHIC ANALYSIS OF SANDSTONES AND CONGLOMERATES FROM THE NANUSHUK AND TOROK FORMATIONS, SLOPE MOUNTAIN, ALASKA |
| 88-3 | 471 Fenton, Nicole C.*; Kimbrough, David L.; Behl, Richard J.; Nelson, Demain | LASER ABLATION ICP-MS ZIRCON U-PB DATING OF MONTEREY FORMATION TUFF IN THE LOS ANGELES AND SANTA BARBARA BASINS |
| 88-4 | 472 Nunez, Carlos E.* | SAND PETROLOGY AS A PROXY FOR EXTREME WAVE EVENTS, A CASE STUDY FROM ANEGADA, BRITISH VIRGIN ISLANDS |
| 88-5 | 473 Bush, John H.*; Dunlap, Pamela; Reidel, Stephen P. | GEOLOGIC CROSS-SECTION FROM MOSCOW, IDAHO, TO WEST OF PULLMAN, WASHINGTON |
| 88-6 | 474 Bush, John H.*; Dunlap, Pamela | MIOCENE EVOLUTION OF THE MOSCOW-PULLMAN BASIN, IDAHO AND WASHINGTON |
| 88-7 | 475 Lynds, Ranie; Slatery, Joshua S.* | A NEW SPATIAL AND TEMPORAL CORRELATION OF WYOMING'S UPPER CRETACEOUS STRATIGRAPHY |
| 88-8 | 476 Collins, Joe D.*; Miller, Trinity A.; Gill, Thomas E.; Langford, Richard P. | STRATIGRAPHIC RELATIONSHIP AND HISTORY OF TWO LATE PLEISTOCENE AND HOLOCENE PLAYAS IN THE HARNEY BASIN, EASTERN OREGON, USA |
| 88-9 | 477 Fulton, Michael*; McLaughlin, Peter P. | STRATIGRAPHIC CORRELATION OF THE POTOMAC AND WASTE GATE FORMATIONS IN DELAWARE, POTENTIAL TARGETS FOR CARBON SEQUESTRATION |
| 88-10 | 478 Lucas, Spencer G.*; Tanner, Lawrence H. | THE LATE TRIASSIC CARNIAN WET EPISODE IN THE WESTERN USA AND THE DURATION OF THE NORIAN STAGE |
| 88-11 | 479 Martinez-Sacristan, Hernando* | JURASSIC & CRETACEOUS BOUNDARY AN UNCONFORMITY IN NORTH & SOUTH AMERICA: FAR FROM RHETORIC, CLOSER TO REALITY |
| 88-12 | 480 Traylor, Robin B.*; Schmitz, Mark D.; Bargo, Susana; Cuitiño, José I.; Kay, Richard F.; Kohn, Matthew J.; Strömberg, Caroline A.E.; Vizcaino, Sergio F. | A NEW APPROACH FOR DEVELOPING CONTINUOUS AGE-DEPTH MODELS FROM DISPERSED CHRONOLOGIC DATA: APPLICATIONS TO THE MIOCENE SANTA CRUZ FORMATION, ARGENTINA |
| 88-13 | 481 Buckley, Gregory A.*; Hartman, Joseph H. | CONSTRAINING CHRONOSTRATIGRAPHIC BOUNDARIES WITHIN THE CRETACEOUS AND PALEOCENE FORMATIONS OF THE EASTERN CRAZY MOUNTAINS BASIN, MONTANA |
| 88-14 | 482 Aguirre-Palafox, Luis Erick*; Alvarez, Walter; Schmitz, Birger | U-PB AGES OF DETRITAL ZIRCONS FROM PELAGIC LIMESTONES: APENNINE SAMPLES AND PROVENANCE ANALYSIS |
| 88-15 | 483 Daniels, K. Sean* | THE PROVENANCE, SEDIMENTOLOGY, AND STRATIGRAPHY OF THE TABLE MOUNTAIN FORMATION |
| 88-16 | 484 Wiercigroch, Monica*; Bhattacharya, Janok P. | REGIONAL HIGH-FREQUENCY STRATIGRAPHIC CYCLICITY ANALYSIS OF THE UPPER CRETACEOUS JUANA LOPEZ MEMBER OF THE MANCOS SHALE, NEW MEXICO |
| 88-17 | 485 Naujokaityte, Jone*; Garb, Matthew P.; Landman, Neil H.; Brophy, Shannon K.; Phillips, George E. | STRATIGRAPHIC IMPLICATIONS OF RHYTHMITES WITHIN THE UPPER MAASTRICHTIAN PRAIRIE BLUFF CHALK ALONG THE EASTERN MISSISSIPPI EMBAYMENT |

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|-------|---|--|
| 88-18 | 486 McCann, Kieran A.*; Dorsey, Rebecca J.; Niemi, Tina M.; Jaime-Geraldo, Aldo Javier | STRATIGRAPHIC ANALYSIS OF THE LATE MIOCENE BOLEO FORMATION, SANTA ROSALIA BASIN, BAJA CALIFORNIA SUR, MEXICO |
| 88-19 | 487 Correia, Emily*; Bartholomew, Alex J.; da Silva, Anne-Christine; Brett, Carlton E.; Ver Straeten, Charles | OUTSTANDING LOWER DEVONIAN MILANKOVITCH CYCLICITIES EXPOSED IN THE HUDSON VALLEY, NEW YORK STATE |
| 88-20 | 488 Buchanan, Tyler J.*; McLaughlin, Peter P. | STRATIGRAPHIC ANALYSIS OF A DEEP CORE RECORD THROUGH MIOCENE-AGE SANDY SHALLOW-MARINE DEPOSITS IN SOUTHERN DELAWARE |
| 88-21 | 489 Wolfman, Ariel*; Mulligan, Suzanne R.; Wells, Michael | RESOLVING STRATIGRAPHIC COMPLEXITIES OF THE PAHRUMP GROUP AND MIGMATITE PROTOLITH IN THE FUNERAL MOUNTAINS METAMORPHIC CORE COMPLEX USING U-PB DZ GEOCHRONOLOGY |
| 88-22 | 490 Brooks, Nicole*; Danilova, Anastasia; Garb, Matthew P.; Rodriguez, Stephanie C. | STRATIGRAPHIC INTERPRETATION OF THE TRANSITION FROM THE PRECAMBRIAN STERLING QUARTZITE TO LOWER WOOD CANYON FORMATION, EMIGRANT PASS, CALIFORNIA |
| 88-23 | 491 Harris, R. Scott*; Schultz, Peter H.; Zarate, Marcelo Aristides | IMPACTS AS AN AGENT OF ENVIRONMENTAL UPHEAVAL IN THE ARGENTINE PAMPAS |
| 88-24 | 492 Smith, Kyson Raymond*; Shimer, Grant | SOUTHERN UTAH ONLINE ROCK DATABASE |

SESSION NO. 89 \$

T216. Spatiotemporal Variations and the Role of Fluids in Fault-Zone Hydromechanical Processes (Posters) (GSA Structural Geology and Tectonics Division; GSA Hydrogeology Division; GSA Energy Geology Division; Future of Tectonics Initiative)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

- | Booth # | Author(s) | Title |
|---------|--|--|
| 89-1 | 493 Borhara, Krishna*; Bradbury, Kelly K.; Evans, James P. | CARBONACEOUS FAULT-RELATED ROCKS IN SAFOD PHASE III CORE: INDICATORS OF FLUID-ROCK INTERACTION AND STRUCTURAL DIAGENESIS DURING SLIP |
| 89-2 | 494 Evans, James P.*; Lindvall, Scott; Kerwin, Scott; Ballard, Christopher; Williams, Randolph T.; Bradbury, Kelly K.; Tyson, Jeffrey; Rowe, Christie D.; Savage, Heather M. | THE COMPOSITION AND STRUCTURE FROM DRILL CORE OF THE SHALLOW PORTION OF THE SAN ANDREAS FAULT, LAKE ELIZABETH TUNNEL, SOUTHERN CALIFORNIA |
| 89-3 | 495 Moore, Diane E.*; Bradbury, Kelly K.; Evans, James P. | CHEMICAL CHARACTERIZATION OF SAFOD PHASE 3 CORE |
| 89-4 | 496 Han, GiDon*; Han, WeonShik; Jeon, SoDam; Piao, Jize; Kim, ChanYeong; Yun, TaeKwon; Park, JongGil | NUMERICAL SIMULATION FOR CO₂ MIGRATION, DISTRIBUTION, AND GEYSERING PROCESSES AT LITTLE GRAND WASH AND SALT WASH FAULTS IN UTAH |
| 89-5 | 497 Wang, Jordan W.*; Agosta, Fabrizio; Hodson, Keith R.; Crider, Juliet G.; Huntington, Katharine W. | CHARACTERIZING FAULT ZONE FLUIDS FROM CARBONATES USING STABLE ISOTOPES AND CLUMPED ISOTOPE PALEOTHERMOMETRY IN NORMAL FAULTS OF CENTRAL ITALY |
| 89-6 | 498 Lynch, Erin*; Lacroix, Brice; van der Pluijm, Ben; Vennemann, Torsten | CHARACTERIZING AND DATING SYNDEFORMATIONAL FLUIDS IN FAULTS OF THE SPANISH PYRENEES FOLD-THRUST BELT USING STABLE AND RADIOGENIC ISOTOPES |
| 89-7 | 499 Brikowski, Tom H.* | EVIDENCE FOR FLUID PATHWAYS ALONG DETACHMENT FAULTS FROM INFRARED SPECTRA OF GOUGE, DEATH VALLEY, CA |

- 89-8 500 Stephenson, Sheryl*; Czeck, Dyanna M.; Diaz-Azpiroz, Manuel; Fernandez Rodriguez, Carlos: **CHARACTERIZING THE GEOCHEMICAL CHANGES ACROSS A STRAIN GRADIENT IN THE BEJA-ACEBUCHES METABASITES DUE TO RETROGRADE METAMORPHISM AND FLUID FLOW ALONG THE SOUTHERN IBERIAN SHEAR ZONE**

SESSION NO. 90

T221. Circum-Arctic Structural Events: Tectonic Evolution of the Arctic Margins and Trans-Arctic Links with Adjacent Orogens (Posters) (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA International/International Interdisciplinary Interest Group)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 3:30 to 5:30 PM

Booth #

- 90-1 501 Allen, Tyler J.*; Cornish Morales, Ivan M.; Wallace, Vivian C.; Piepjohn, Karsten; Bergmann, Kristin; Halverson, Galen P.; Tosca, Nicholas J.; McClelland, William C.; Strauss, Justin V.: **DETRITAL ZIRCON GEOCHRONOLOGY AND PROVENANCE OF THE HECLA HOEK SUCCESSION OF NORTHEASTERN SVALBARD, NORWAY**
- 90-2 502 Wala, Virginia T.*; Ceaser, Iniko M.; Ziemniak, Grzegorz; Faehnrich, Karol; Meyer, Edward E.; Czerny, Jerzy; Majka, Jaroslaw; McClelland, William C.; Strauss, Justin V.: **NEOPROTEROZOIC STRATIGRAPHY AND PROVENANCE OF WEDEL JARLSBERG LAND, SVALBARD: NEW INSIGHTS INTO THE ORIGIN AND TRANSPORT HISTORY OF THE SOUTHWESTERN PROVINCE**
- 90-3 503 Kroeger, Emma D.L.*; McClelland, William C.; Beranek, Luke P.: **DETRITAL ZIRCON SIGNATURE OF THE MESOPROTEROZOIC SMITH SOUND GROUP AND CAMBRIAN DALLAS BUGT FORMATION, ARCTIC PLATFORM, EAST CENTRAL ELLESMERE ISLAND**
- 90-4 504 Faehnrich, Karol*; Majka, Jaroslaw; Schneider, David; Strauss, Justin V.; Ziemniak, Grzegorz; Manecki, Maciej; Wala, Virginia T.; Czerny, Jerzy: **LATE CALEDONIAN SHEARING IN SW SPITSBERGEN – NEW AGE CONSTRAINTS FROM ⁴⁰AR/³⁹AR MUSCOVITE GEOCHRONOLOGY**
- 90-5 505 Schiffer, William Joel*: **STRUCTURAL AND METAMORPHIC IMPLICATIONS OF THE FINAL EMPLACEMENT OF THE LYNGEN NAPPE**
- 90-6 506 Zhang, Xiaojing*; Pease, Victoria; Carter, Andrew: **PALAEOZOIC & MESOZOIC TECTONIC EVOLUTION OF NOVAYA ZEMLYA: FROM GEOCHRONOLOGICAL AND THERMOCHRONOLOGICAL EVIDENCE**
- 90-7 507 Robinson, Frank; Pease, Victoria*; Toro, Jaime: **U-PB AND O ISOTOPE CHARACTERISTICS OF TIMANIAN- AND CALEDONIAN-AGED DETRITAL ZIRCONS FROM THE BROOKS RANGE, ARCTIC ALASKA**
- 90-8 508 Titus, Jason*; Vogl, James J.; Brandt, Collin: **PRELIMINARY MAPPING AND DETRITAL ZIRCON GEOCHRONOLOGY FROM THE ERNIE LAKE REGION, CENTRAL BROOKS RANGE, ALASKA: IMPLICATIONS FOR PRE-MISSISSIPPIAN BASEMENT AND BROOKS RANGE ARCHITECTURE**
- 90-9 509 O'Brien, Tim M.*; Miller, Elizabeth L.: **EXHUMATION OF HP/LT METASEDIMENTARY ROCKS OF THE SCHIST BELT, SOUTHERN BROOKS RANGE AS REVEALED BY THERMOBAROMETRY AND ⁴⁰AR/³⁹AR THERMOCHRONOLOGY**
- 90-10 510 Skarupa, Karol; Piepjohn, Karsten*; von Goosen, Werner; Gaedicke, Christoph: **STRUCTURAL RESTORATION OF GEOLOGICAL CROSS-SECTIONS OF NORTH-EASTERN ELLESMERE ISLAND (CANADIAN ARCTIC): INSIGHT INTO THE ELLESMERIAN AND EUREKAN DEFORMATIONS**

- 90-11 511 Gilotti, Jane A.*; McClelland, William C.; Piepjohn, Karsten; von Gosen, Werner: **USING A PRECAMBRIAN TERRANE BOUNDARY TO ESTIMATE SLIP ON THE WEGENER FAULT, NARES STRAIT**

MONDAY, 23 OCTOBER 2017

MORNING ORAL TECHNICAL SESSIONS

SESSION NO. 91

D11. Paleontology, Paleoecology/Taphonomy

8:00 AM, Washington State Convention Center, Room 606

Lindsey R. Leighton and Gregory P. Dietl, Presiding

- 91-1 8:00 AM Orzechowski, Emily A.*; Finnegan, Seth: **SPECIES INVASIONS DURING THE LAST INTERGLACIAL PERIOD & PREDICTIONS FOR TODAY IN CALIFORNIA'S SHALLOW MARINE ENVIRONMENTS**
- 91-2 8:15 AM Pruden, Matthew J.*; Mendonca, Steven E.; Leighton, Lindsey R.: **THE EFFECTS OF PREDATION ON THE PRESERVATION OF ONTOGENETICALLY YOUNG INDIVIDUALS**
- 91-3 8:30 AM Mendonca, Steven E.*; Pruden, Matthew J.; Leighton, Lindsey R.: **IS HALF ENOUGH? THE VALIDITY OF USING SINGLE VALVES IN STUDIES OF PREDATION ON BRACHIOPODS**
- 91-4 8:45 AM Smith, Jansen A.*; Handley, John C.; Dietl, Gregory P.: **A COMMUNITY CONTEXT FOR NATICID PREDATION IN THE PRE-DAM ERA COLORADO RIVER ESTUARY USING MANLY'S ALPHA**
- 91-5 9:00 AM Beech, James D.*: **RELATIONSHIPS BETWEEN BODY SIZE AND TAPHONOMIC SIGNAL IN THE PREDATOR-PREY INTERACTIONS OF LAND CRABS AND SNAILS ON SAN SALVADOR ISLAND, THE BAHAMAS**
- 91-6 9:15 AM Castro, Ian O.*; Kempf, Hannah L.; Tyler, Carrie L.; Dineen, Ashley A.; Roopnarine, Peter D.: **ASSESSMENT OF DATA RESOURCES FOR THE CONSTRUCTION OF LATE ORDOVICIAN SHALLOW MARINE FOOD WEBS: DATA COMPILATIONS VERSUS MUSEUM COLLECTIONS**
- 91-7 9:30 AM Forcino, Frank L.*; Stafford, Emily S.: **COMPARING COMMUNITY COMPOSITION AND DYNAMICS BETWEEN IN-PLACE AND SURFACE-COLLECTED SAMPLES**
- 9:45 AM **BREAK**
- 91-8 10:00 AM Terry, Rebecca*; Laney, Jesse; Hay-Roe, Samuel: **QUANTIFYING THE DIGESTIVE FINGERPRINTS OF PREDATORS ON THE BONES OF THEIR PREY USING SCANNING ELECTRON MICROSCOPY**
- 91-9 10:15 AM Loughney, Katharine M.*; Badgley, Catherine: **TAPHONOMY OF MAMMAL FOSSILS IN THE BARSTOW FORMATION (MIDDLE MIOCENE), SOUTHERN CALIFORNIA, IN RELATION TO FACIES AND PALEOENVIRONMENTS**
- 91-10 10:30 AM Calede, Jonathan*; Famoso, Nicholas A.; Hopkins, Samantha S.B.: **DO CHANGES IN THE TOOTH MORPHOLOGY OF MYLAGAULID RODENTS REFLECT ADAPTATIONS TO A CHANGING ENVIRONMENT?**
- 91-11 10:45 AM Chen, Meng*; Wilson, Gregory P.; Stromberg, Caroline A.E.: **INFERRING MESOZOIC TERRESTRIAL ENVIRONMENTS USING ECOLOGICAL STRUCTURE OF EXTANT SMALL-BODIED MAMMALIAN COMMUNITIES**
- 91-12 11:00 AM Miller, Joshua H.*; Crowley, Brooke E.; Fisher, Daniel C.; Secord, Ross: **ISOTOPICALLY RECONSTRUCTING LATE PLEISTOCENE LANDSCAPE USE BY AN AMERICAN MASTODON**

- 91-13 11:15 AM Smith, Gregory J.*; DeSantis, Larisa R.G.: **GOMPHOTHERE PALEOECOLOGY IN NORTH AMERICA AS INFERRED FROM STABLE ISOTOPE ANALYSIS**
- 91-14 11:30 AM Taylor, Larry D.*; Finnegan, Seth: **ISOTOPIC ANALYSIS OF FOSSIL CORONULID BARNACLES AS A MEANS OF UNDERSTANDING PREHISTORIC WHALE MIGRATION PATTERNS: PRELIMINARY RESULTS**
- 91-15 11:45 AM Vlahović, Igor*; Cvetko Tešović, Blanka; Martinuš, Maja: **PROBABLE CONNECTIONS OF THE MESOZOIC ADRIATIC CARBONATE PLATFORM WITH SURROUNDING CONTINENTAL AREAS AS INDICATED BY DINOSAUR TRACKWAYS**
- 93-3 8:40 AM Siegel, Malcolm*: **PEACEBUILDING ACROSS THE ISRAELI/PALESTINIAN BORDER THROUGH ENVIRONMENTAL EDUCATION**
- 93-4 8:55 AM Wampler, Peter J.*: **POTHOLES AND PITFALLS ALONG THE ROAD TO RESEARCH AND STUDYING ABROAD IN HAITI**
- 93-5 9:10 AM Sanquini, Anne*: **INCREASING GEOHAZARD AWARENESS AND REDUCING RISK IN SOUTH ASIA VIA CROSS-BORDER INITIATIVES (Invited Presentation)**
- 9:30 AM **BREAK**
- 93-6 9:45 AM Burns, Robert C.*; Cardozo Moreira, Jasmine; Robison, Daniel; Schaney, Mitzy: **US GEOPARK HERITAGE: RIVERS, RAIL, KARST, COAL AND PEOPLE AT THE APPALACHIAN GEOPARK OF WEST VIRGINIA**
- 93-7 10:00 AM Karnawati, Dwikorita*; Fathani, Teuku Faisal; Wilopo, Wahyu: **TOTAL QUALITY CAPACITY DEVELOPMENT FOR LANDSLIDE DISASTER RISK REDUCTION**
- 93-8 10:15 AM Mukhopadhyay, Kankan*; Sasikumar, Palani; Ghosh, Uday Chand: **SYNTHESIS AND CHARACTERISATION OF CERIUM(IV) INCORPORATED HYDROUS IRON (III) OXIDE: A PROMISING NANO-ADSORBENT FOR FLUORIDEREMOVAL FROM GROUNDWATER**
- 93-9 10:30 AM LeRoy, Jessica*; Murphy, Elizabeth: **MITIGATION OF THE UPSTREAM MOVEMENT OF BIGHEADED CARPS IN ILLINOIS (Invited Presentation)**
- 93-10 10:50 AM Barkdull, Natalie*; Carling, Gregory T.; Yudiantoro, Dwi Fitri; Harris, Ron: **MERCURY CONTAMINATION IN FOUR INDONESIAN WATERSHEDS AFFECTED BY ARTISANAL AND SMALL SCALE GOLD MINING**
- 93-11 11:05 AM Levy, Jonathan*; Hay, Cameron; Chandipo, Rodwell; Nyambe, Imasiku; Mutiti, Samuel; Meiman, Joe: **DRINKING WATER QUALITY AND PROVISION IN LOW-INCOME, PERI-URBAN COMMUNITIES OF LUSAKA, ZAMBIA**
- 93-12 11:20 AM Patel, Daksha*; Balgord, Elizabeth; All, John: **BEDROCK GEOCHEMISTRY AND ITS CONTROL ON WATER QUALITY DURING RAPID GLACIAL RETREAT IN THE CORDILLERA BLANCA, PERU**
- 93-13 11:35 AM Mori, Hiroko*; Ibaraki, Motomu; Schwartz, Franklin W.: **HOW HYDROLOGICAL DATA COULD PROTECT YOU FROM WEST NILE VIRUS**
- 11:50 AM **CONCLUDING REMARKS**

SESSION NO. 92

P2. Landscapes in the Anthropocene I (GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division; GSA Hydrogeology Division; GSA Geology and Public Policy Committee; Geology (journal))

8:00 AM, Washington State Convention Center, Ballroom 6A

José Antonio Constantine, J. Wesley Lauer and Rónadh Cox, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 92-1 8:05 AM Bierman, Paul R.*; Corbett, Lee B.; Shakun, Jeremy D.; Schmidt, Amanda H.: **COUNTING ATOMS TO PLACE HUMAN IMPACTS IN A GEOLOGIC CONTEXT**
- 92-2 8:35 AM Wuebbles, Donald J.*: **THE SCIENCE OF CLIMATE CHANGE: A LOOK AT OUR CHANGING LANDSCAPE**
- 92-3 9:05 AM Lettenmaier, Dennis*: **THE CHANGING DYNAMICS OF SNOW PROCESSES IN THE MOUNTAINOUS WESTERN US**
- 92-4 9:35 AM Lundquist, Jessica D.*: **DO FOREST-SNOW FEEDBACKS MITIGATE OR EXACERBATE A MOUNTAIN'S HYDROLOGIC RESPONSE TO A WARMING WORLD?**
- 10:05 AM **DISCUSSION AND BREAK**
- 92-5 10:20 AM Montgomery, David R.*: **BRINGING OUR SOIL BACK TO LIFE: SOLVING OUR OLDEST AND MOST RECENT PROBLEMS**
- 92-6 10:50 AM Fofoula-Georgiou, Efi*: **TIME IS RUNNING OUT TO MEET WATER QUALITY OBJECTIVES IN MIDWESTERN AGRICULTURAL LANDSCAPES UNDERGOING RAPID ENVIRONMENTAL CHANGE: SOUND SCIENCE IS FUNDAMENTAL TO SOUND POLICY**
- 92-7 11:20 AM Vorosmarty, Charles*: **THE STATE AND TRAJECTORY OF GLOBAL FRESH WATER: THE CASE FOR CAUTIOUS PESSIMISM**
- 11:50 AM **CONCLUDING REMARKS AND DISCUSSION**

SESSION NO. 93

T6. Cross-Border Community Engagement Using Geoscience Research, Education, and Outreach (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Karst Division)

8:00 AM, Washington State Convention Center, Room 613/614

Peter S.K. Knappett, Kory Konsoer, Sarah Nagorsen and Peter J. Wampler, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 93-1 8:05 AM Zhan, Hongbin*: **CROSS-COUNTRY ENGAGEMENT IN HYDROGEOLOGY RESEARCH AND EDUCATION: EXPERIENCES IN CHINA AND USA (Invited Presentation)**
- 93-2 8:25 AM Mullins, Melissa L.*; Nesmith, Doug M.; Nesmith, Suzanne M.; Wong, Stephanie S.; Yelderman, Joe C.: **FOCUSING ON THE FUTURE IN UGANDA AND TEXAS; HOW ON-GOING COMMUNITY COLLABORATION COMBINED WITH INTERDISCIPLINARY EDUCATION AND RESEARCH MAY ENHANCE STEWARDSHIP ACROSS CONTINENTS**

SESSION NO. 94

T12. Hydrogeology, Geochemistry, and Wetland Processes I: A Session in Honor of the Career of Donald I. Siegel (GSA Hydrogeology Division)

8:00 AM, Washington State Convention Center, Room 618/619/620

Jeffrey M. McKenzie and Laura K. Lautz, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 94-1 8:15 AM Fairfax, Emily*; Small, Eric E.: **THE ROLE OF BEAVER PONDS IN MAINTAINING RIPARIAN VEGETATION HEALTH DURING DROUGHTS: A CASE STUDY AT SUSIE CREEK AND MAGGIE CREEK, NV**
- 94-2 8:30 AM Briggs, Martin A.*; Day-Lewis, Frederick D.; Mahmood Poor Dehkordy, Farzaneh; Zarnetske, Jay; Singha, Kamini; Harvey, Judson W.; Rosenberry, Donald O.; Boutt, David F.; Hare, Danielle K.; Lane, John W.: **EVALUATING THE ECOLOGICAL AND BIOGEOCHEMICAL IMPLICATIONS OF PREFERENTIAL FLOW PROCESSES AT THE GROUNDWATER/SURFACE WATER INTERFACE**
- 94-3 8:45 AM Andersen, C. Brannon*; Lewis, Gregory P.: **PAVEMENT, PASTURE, PONDS, AND POOP: NITROGEN BIOGEOCHEMISTRY IN HUMAN TRANSFORMED LANDSCAPES OF THE SOUTHEASTERN PIEDMONT**
- 94-4 9:00 AM Harvey, Charles F.*; Hoyt, Alison; Cobb, Alexander R.; Gandois, Laure; Pangala, Sunitha: **LATERAL ADVECTION**

AM

MONDAY

		LIMITS METHANE EMISSIONS FROM TROPICAL PEATLANDS
94-5	9:15 AM	Kifner, Lydia H.*; Amirbahman, Aria; Calhoun, Aram; Norton, Stephen A.: IDENTIFYING ENVIRONMENTAL PREDICTORS AND QUANTIFYING METHANE AND CARBON DIOXIDE FLUX FROM FOUR VERNAL POOLS, MAINE USA
94-6	9:30 AM	Boult, David F.*: EXTREME PRECIPITATION EVENTS AND SUBSURFACE WATER STORAGE DYNAMICS OF GLACIATED LANDSCAPES
94-7	9:45 AM	Gutchess, Kristina M.*; Jin, Li; Ledesma, José L.J.; Crossman, Jill; Kelleher, Christa; Lautz, Laura K.; Lu, Zunli: LONG-TERM INCA SIMULATIONS FAVOR CLIMATIC OVER ANTHROPOGENIC IMPACTS ON A REDUCTION OF STREAM WATER SALINITY IN NEW YORK STATE
	10:00 AM	BREAK
	10:15 AM	LIGHTNING TALKS
94-8	10:30 AM	Smith, Jacqueline A.*; Hodge, James L.; Kurtz, Bradley H.; Garver, John I.: PERVASIVE MICROPLASTIC POLLUTION FOUND IN THE MOHAWK RIVER, NEW YORK STATE
94-9	10:45 AM	Glas, Robin*; Burns, Douglas A.; Lautz, Laura K.: CHANGING STREAMFLOW REGIMES IN NEW YORK STATE: TRENDS, PATTERNS, AND ATTRIBUTION
94-10	11:00 AM	Parizek, Richard R.*; Parizek, Katarin A.: GROUNDWATER DEVELOPMENT WITHIN HIGH VALUE TRIBUTARIES, ARE THESE COMPATIBLE?
94-11	11:15 AM	Hart, Dave*; Streiff, Carolyn M.: APPLICATION OF GEOPHYSICS TO BETTER UNDERSTAND WETLAND HYDROGEOLOGY
94-12	11:30 AM	Alexander, Scott C.*; Tipping, Robert G.: HIGH RESOLUTION MAPPING OF GLACIAL HYDROSTRATIGRAPHY USING LIDAR-BASED HILLSHADE IMAGES, ROTOSONIC CORE, AND GAMMA LOGS

SESSION NO. 95 

T22. Water Resources and Management in Coastal and Inland Aquifers—Emphasis on Small Island Developing States of the Caribbean (GSA Hydrogeology Division; GSA International/International Interdisciplinary Interest Group; GSA Geology and Health Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division)

8:00 AM, Washington State Convention Center, Room 615/616/617

Arpita Mandal, Debbie Ann Gordon Smith, Saugata Datta and Katherine K. Ellins, Presiding

	8:00 AM	INTRODUCTORY REMARKS
95-1	8:05 AM	Datta, Saugata*; Mandal, Arpita: CHALLENGES IN WATER RESOURCES AND IMPACT ON POPULATION IN THE KINGSTON BASIN
95-2	8:20 AM	Mandal, Arpita*; Donk, Peter; Curtis, Melissa; Sidial, Johann: EXTREME EVENTS AFFECTING WATER RESOURCES IN THE HOPE RIVER WATERSHED IN JAMAICA: USE OF WETSPRO FOR BASEFLOW SEPARATION AND ITS LONG TERM TREND
95-3	8:35 AM	Shahin, Michael George*; Ali, K. Adem: COMPARATIVE ANALYSIS BETWEEN NASA'S LANDSAT 8 OLI AND ESA'S SENTINEL-2A MSI SATELLITE SENSORS IN ESTIMATING CHLOROPHYLL A CONCENTRATIONS IN THE COASTAL WATERS OF THE US VIRGIN ISLANDS (USVI)
95-4	8:50 AM	Adamson, James K.*; LaVanchy, G. Thomas; Miner, William Javan; Stone, Brandon: HYDROGEOLOGICAL ASSESSMENT OF THE BRITO FORMATION, NICARAGUA
95-5	9:05 AM	Christie, Mario O'Shane*; Rattray, Vaughn Robin; Mandal, Arpita: ASSESSING THE IMPACT OF WEATHER AND

ANTHROPOGENIC FACTORS ON WATER QUALITY IN THE HOPE RIVER, JAMAICA (Invited Presentation)

95-6	9:20 AM	Miner, Javan*; Adamson, James K.: MODELING THE SPATIAL DISTRIBUTION OF GROUNDWATER RECHARGE IN HAITI USING A GIS APPROACH
	9:35 AM	BREAK
95-7	9:50 AM	Gordon-Smith, Debbie-Ann D.S.*; Peterson, Richard N.; Peterson, Leigha E.; Paulino, Stivaly; Bokuniewicz, Henry: SUBMARINE GROUNDWATER DISCHARGE AND ASSOCIATED NUTRIENT FLUXES TO THE NORTH COAST OF JAMAICA (Invited Presentation)
95-8	10:10 AM	Curtis, Melissa*; Mandal, Arpita: WATER RESOURCES OF THE RIO COBRE BASIN OF JAMAICA USING WEAP: IMPACT OF CLIMATE VARIABILITY
95-9	10:25 AM	Stewart, Che Anthony*: A HYDROLOGICAL ANALYSIS OF THE RIO COBRE WATERSHED, JAMAICA
95-10	10:40 AM	Rodrigues, Lisa J.*; Blemker, Samantha R.; Frangos, Sean; Goldsmith, Steven T.: METAL CONTAMINATION IN TWO OYSTER SPECIES FROM SOUTHWEST PUERTO RICO
95-11	10:55 AM	Korman, Laura B.*; Wagner, Eric J.; Goldsmith, Steven T.; Rodrigues, Lisa J.: USING THE SOIL AND WATER ASSESSMENT TOOL (SWAT) TO MODEL DRY AND WET SEASON SEDIMENT YIELDS TO CORAL REEFS IN THE LOWER RIO LOCO WATERSHED
95-12	11:10 AM	Paulino, Stivaly*; Bokuniewicz, Henry: THERMAL INFRARED INDICATIONS OF SUBMARINE GROUNDWATER DISCHARGE (SGD) IN THE NORTHERN COAST OF JAMAICA
95-13	11:25 AM	Prusty, Pintu*; Farooq, S.H.; Zimik, Horthing V.: GEOMORPHIC CONTROL ON OCCURRENCE OF FRESH GROUNDWATER IN A SALTWATER INTRUDED COASTAL AQUIFER
	11:40 AM	CONCLUDING REMARKS

SESSION NO. 96 

T31. GeoCorps and Geoscientists-in-the-Parks Internships on Public Lands: Providing Career Development Opportunities for Students and Recent Graduates (GSA Geology and Society Division; US Forest Service; National Park Service)

8:00 AM, Washington State Convention Center, Room 612

Johanna L. Kovarik, Lisa Norby and Matthew Dawson, Presiding

	8:00 AM	INTRODUCTION/OPENING REMARKS
96-1	8:10 AM	Olson, Erikka R.*; Meyer, Herbert W.; Slovacek, Mariah; Thorpe, Emily D.; Escobar- Burciaga, Ricardo Daniel; Allen, Sarah E.; Lowe, Alexander J.; O'Connor, Conni J.: DEVELOPING NEW GEOLOGIC TRAIL EXHIBITS AT FLORISSANT FOSSIL BEDS NATIONAL MONUMENT: A COLLABORATIVE PROJECT BY GIPS
96-2	8:25 AM	Anderson, Evan P.*; Allen, Sarah E.; O'Connor, Conni J.; Meyer, Herbert W.; Karim, Talia S.: OUT OF THE SPECIMEN CABINET: BRINGING FLORISSANT SPECIMENS TO STUDENTS, TEACHERS, AND THE PUBLIC
96-3	8:40 AM	Lanik, Amanda*; Hults, Chad P.; Kurtz, Deborah; Baker, Emily H.: MANAGING PALEONTOLOGICAL RESOURCES IN ALASKA'S NATIONAL PARKS: CHALLENGES, NEW TOOLS, AND THE DISCOVERY OF PALEOZOIC FOSSILS IN KENAI FJORDS NATIONAL PARK
96-4	8:55 AM	Krupnik, Diana*; Seifert, Daniel: IMPACT OF GEOCORPS INTERNSHIP AT THE CUSTER GALLATIN NATIONAL FOREST: KARST INVENTORY, MINE RECLAMATION, AND PUBLIC OUTREACH
96-5	9:10 AM	Wempner, Jenelle*; Pike, James Daniel; Baichtal, James F.: THE SPELUNKER'S STRETCH: 500 FEET OF INTERPRETIVE KARST EXPLORATION IN EL CAPITAN CAVE, SE ALASKA
96-6	9:25 AM	Whitenack, Henry; Langstaff, John*; Hobbs, Trevor: HIGH RESOLUTION AERIAL LIDAR MAPPING OF FOREST

COVER FOR AMERICAN MARTEN HABITAT IN THE OLGA LAKE AREA, HURON-MANISTEE NATIONAL FORESTS, MICHIGAN

- 9:40 AM **BREAK**
- 96-7 9:55 AM King, Courtney*; Merrens, Sam; Duncan, Keenan; Cowles, Ashlee; Kramer, Lauren; Swann, Don: **IDENTIFYING HIGH ELEVATION RELIABLE WATER SOURCES IN THE RINCON MOUNTAIN DISTRICT OF SAGUARO NATIONAL PARK THROUGH SYSTEMATIC MAPPING**
- 96-8 10:10 AM Lambert, Crystal A.*; Bilderback, Eric L.; Armstrong, Andy: **UNSTABLE SLOPE MANAGEMENT WHERE ROCKFALL IS FREQUENT, TIMPANOGOS CAVE NATIONAL MONUMENT**
- 96-9 10:25 AM Hartman, Taylor Venae*: **INTERPRETING ELWHA RIVER RESTORATION**
- 96-10 10:40 AM Jackson, Danielle Omara*: **AN AUGMENTED REALITY SANDBOX INTERACTIVE LESSON PLAN FOR HIGH SCHOOL STUDENTS**
- 96-11 10:55 AM Linneman, Charles C.*; Hults, Chad P.; Myers, Kathryn: **APPLYING STRUCTURE FROM MOTION (SFM) TO ALASKA REGION NPS NATURAL RESOURCES ON MULTIPLE SCALES**
- 96-12 11:10 AM Cornachione, Egan*; Butts, Sally: **AN ANALYSIS OF THE ECONOMIC EFFECTS OF THE NATIONAL CONSERVATION LANDS**

SESSION NO. 97

T38. Cenozoic Paleoclimates and Ecosystems I (Paleontological Society; Geochemical Society; Paleontological Research Institution; Cushman Foundation for Foraminiferal Research; GSA Sedimentary Geology Division; GSA Limnogeology Division)

8:00 AM, Washington State Convention Center, Room 609

Alexis Licht, Caroline Stromberg, Gerard H. Roe, Guillaume Dupont-Nivet, Yannick Donnadieu and K. Christopher Beard, Presiding

- 97-1 8:00 AM Yann, Lindsey T.*; DeSantis, Larisa R.G.: **DEER AS POTENTIAL CLIMATIC RECORDERS THROUGH TIME**
- 97-2 8:15 AM Gannon, Michelle*; Velinsky, David: **STABLE CARBONATE ISOTOPES IN GIANT CLAM SHELLS**
- 97-3 8:30 AM Yanes, Yurena*; Pigati, Jeffrey S.; Rech, Jason A.; Nekola, Jeffrey C.: **SPATIAL PATTERNS OF THE OXYGEN STABLE ISOTOPE COMPOSITION OF LAND SNAIL SHELLS ACROSS NORTH AMERICA**
- 97-4 8:45 AM Ranasinghe, P.N.*; Nanayakkara, N.U.; Rathnayake, K.M.; Hewawasam, A.L.T.; Galappaththi, R.; Siriwardana, S.: **A 30 KA SUMMER MONSOON DRIVEN TERRESTRIAL RAINFALL VARIABILITY RECORD FROM CENTRAL HIGHLANDS OF SRI LANKA**
- 97-5 9:00 AM Sheldon, Nathan D.*; Smith, Selena Y.: **EVOLUTIONARY ISOTOPE ECOLOGY OF MODERN GYMNASPERMS WITH EXTENSIVE FOSSIL RECORDS CONSTRAINS PALEOCLIMATIC AND PALEOENVIRONMENTAL APPLICATIONS**
- 97-6 9:15 AM Hurley, John V.*; Konecky, Bronwen L.; Noone, David C.: **MECHANISMS FOR LAND-ATMOSPHERE MOISTURE RECYCLING AT THE OKAVANGO DELTA, BOTSWANA, AND IMPLICATIONS FOR PALEO-MEGA-LAKE MAKGADIKGADI**
- 97-7 9:30 AM Reid, Rachel E.B.*; Jones, Mica; Marshall, Fiona; Brandt, Steven: **HOLOCENE TERRESTRIAL CLIMATE CHANGE IN SOMALIA REVEALED THROUGH BULK AND INTRA-TOOTH OXYGEN ISOTOPE ANALYSIS OF WARTHOG AND DIK-DIK TOOTH ENAMEL**
- 9:45 AM **BREAK**
- 97-8 10:00 AM Hill, Christopher L.; Blackwell, Bonnie A.B.*; Skinner, Anne R.; Blickstein, Joel; Florentin, Jonathan A.: **ESR DATED STRATIGRAPHIC SEQUENCES AT BIR TARFAWI (SOUTHERN EGYPT): PLEISTOCENE**

ARCHAEOLOGICAL AND PALEONTOLOGICAL OCCURRENCES ASSOCIATED WITH WET CLIMATE CONDITIONS DURING ISOTOPE STAGES 7 AND 5

- 97-9 10:15 AM Singh, Vartika*: **OCCURRENCE OF HALODINIUM: AN INDICATOR OF GLACIAL RUNOFF FROM THE LATE PLEISTOCENE SEDIMENTS OF SVALBARD**
- 97-10 10:30 AM Kohfeld, Karen E.*; Chase, Zanna: **MECHANISMS CONTROLLING OCEAN CARBON UPTAKE AS THE EARTH ENTERED THE LAST ICE AGE**
- 97-11 10:45 AM Ambillapitiya, L.H.M.T.M.B.*; Ranasinghe, P.N.; Siriwardena, C.H.E.R.; Jayaratne, Y.N.; Cheih, L.S.; Shen, Chuan-Chou: **A CORAL BASED QUATERNARY SEA LEVEL VARIABILITY RECORD IN THE PALK STRAIT OF THE INDIAN OCEAN**
- 97-12 11:00 AM Reimi, Maria*; Marcantonio, Franco; Lynch-Stieglitz, Jean: **AN EQUATORIAL EXCURSION OF THE ITCZ DURING TERMINATION II IN THE CEP**
- 97-13 11:15 AM Centeno, Eduardo*; Hollyday, Andrew; Lloyd, Forrest W.; LaPan, Mark; OConnell, Suzanne; Ortiz, J.D.; Ptacek, Sophia; Spriggs, Noah: **PRELIMINARY RESULTS FROM PLIOCENE SEDIMENTS (ODP SITE 697), JANE BASIN, ANTARCTICA AND CIRCUM-ANTARCTIC WELL LOGS SHOW A STRONG OBLIQUITY SIGNAL**
- 97-14 11:30 AM Pullen, Alex*; Kapp, Paul; Chen, Ninghua: **LATE CENOZOIC WIND EROSION IN THE HAMI BASIN, NORTHWESTERN CHINA**
- 97-15 11:45 AM Yang, Wei*; Spiro, Baruch; Guo, Zhaojie; Liu, Dongdong: **CENOZOIC LACUSTRINE STROMATOLITES FROM THE SOUTHERN MARGIN OF THE JUNGGAR BASIN, NW CHINA AND ADJACENT AREAS: INDICATORS FOR PALAEOCLIMATIC AND TECTONIC EVOLUTION**

SESSION NO. 98

T40. Earth Life Transitions and Major Continental Biological Events of the Phanerozoic (GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division; Geochemical Society; Paleontological Society; SEPM (Society for Sedimentary Geology))

8:00 AM, Washington State Convention Center, Room 611

Lauren A. Michel, Erik L. Gulbranson and Neil J. Tabor, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 98-1 8:05 AM Woods, Adam; Poncelet, Austin Philippe*: **A DETERMINATION OF THE TIMING AND CONSEQUENCES OF THE LATE ORDOVICIAN GLACIATION USING THE ELY SPRINGS DOLOMITE OF EAST CENTRAL CALIFORNIA**
- 98-2 8:20 AM Jimenez, Marie Y.*; Ivany, Linda C.: **HIGH-RESOLUTION ISOTOPIC RECORDS OF PENNSYLVANIAN APPALACHIAN BASIN MOLLUSK SHELLS**
- 98-3 8:35 AM Chen, Jitao*; Montañez, Isabel P.; Qi, Yuping; Wang, Xiangdong: **LATE PALEOZOIC GLOBAL SEAWATER ⁸⁷SR/⁸⁶SR AND $\delta^{13}C$ RECORDED IN SOUTH CHINA PROVIDE INSIGHTS INTO EARTH'S PENULTIMATE ICEHOUSE**
- 98-4 8:50 AM Schoepfer, Shane D.*: **DID NITROGEN LIMITATION CONTROL PRIMARY PRODUCTIVITY DURING GREENHOUSE CLIMATES? HOW CAN WE TELL? (Invited Presentation)**
- 98-5 9:10 AM Richey, Jon D.*; Montanez, Isabel P.; Looy, Cindy V.; Dimichele, William A.; White, Joseph D.: **REVISITING EARLY PERMIAN CO₂ VIA IMPROVED INPUT PARAMETERS AND MODELS**
- 98-6 9:25 AM Fielding, Christopher R.*; Frank, Tracy D.: **AN INTEGRATED PALAEOENVIRONMENTAL ANALYSIS OF THE PERMO-TRIASSIC BOUNDARY SUCCESSION IN EASTERN AUSTRALIA**
- 98-7 9:40 AM Kimbrough, David L.*; Mahoney, J. Brian; Mescua, José F.; Giambiagi, Laura; Grove, Marty: **THE CHOIYOI SILICIC**

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MONDAY

- LARGE IGNEOUS PROVINCE OF ARGENTINA AND CHILE AND A THREE PHASE VOLCANISM-MASS EXTINCTION MODEL FOR THE END-PALEOZOIC BIOTIC CRISIS**
- 9:55 AM **BREAK**
- 10:10 AM **INTRODUCTION OF THE YOUNG SCIENTIST AWARD (DONATH MEDAL), BY SHUHAI XIAO**
- 98-8 10:15 AM Nesbitt, Sterling*: **YOUNG SCIENTIST AWARD (DONATH MEDAL): RETHINKING THE RISE OF DINOSAURS AND THEIR KIN: NEW FOSSILS HAVE RESHAPED HOW WE CHARACTERIZE THE ORIGIN OF DINOSAURS**
- 98-9 10:35 AM Stocker, Michelle R.*: **THE TRIASSIC RISE OF REPTILES AND THE EVOLUTION OF THE PHYTOSAURIA (Invited Presentation)**
- 98-10 10:55 AM Stromberg, Caroline A.E.*; Fredrickson, Erik K.; Harris, Elisha B.; Calede, Jonathan; Ibanez-Mejia, Mauricio; Rasmussen, Donald L.; Sheldon, Nathan D.; Smith, Selena Y.: **REFINING THE TIMING FOR THE MID-CENOZOIC GRASSLAND EXPANSION IN THE CONTINENTAL INTERIOR OF THE U.S (Invited Presentation)**
- 98-11 11:15 AM Restrepo-Moreno, Sergio A.*; O'Dea, Aaron; Coates, Anthony G.; Farris, David W.: **RECENT PERSPECTIVES ON THE FORMATION OF THE ISTHMUS OF PANAMA**

SESSION NO. 99

T49. Advances in Computational Paleobiology: Reshaping Our Understanding of the Fossil Record

8:00 AM, Washington State Convention Center, Room 608

Rachel C.M. Warnock, Alexander M. Dunhill and Erin E. Saupe, Presiding

- 99-1 8:00 AM Wright, David F.*: **QUANTIFYING THE ECOLOGICAL COMPONENTS OF PHENOTYPIC DIVERSIFICATION DURING THE "AGE OF CRINOIDS" WITH PHYLOGENETIC COMPARATIVE METHODS**
- 99-2 8:15 AM Wagner, Peter*: **THE EFFECT OF STRATIGRAPHIC DATABASES ON PHYLOGENY-BASED TESTS OF MACROEVOLUTIONARY HYPOTHESES**
- 99-3 8:30 AM Wang, Steve C.*; Lin, Jason Z.; Ngo Quy, Lan Anh: **ACCOUNTING FOR DATING UNCERTAINTY IN PALEONTOLOGICAL ANALYSES**
- 99-4 8:45 AM Landis, Michael James*; Freyman, Will; Baldwin, Bruce G.: **DATING THE HAWAIIAN SILVERWORD RADIATION IN THE FACE OF PHYLOGENETIC, BIOGEOGRAPHIC, AND PALEOGEOGRAPHIC UNCERTAINTY**
- 99-5 9:00 AM Muscente, A. Drew*; Bykova, Natalia; Boag, Thomas H.; Buatois, Luis A.; Eleish, Ahmed; Prabhu, Anirudh; Meyer, Michael; Schiffbauer, James D.; Fox, Peter; Hazen, Robert M.; Knoll, Andrew H.: **NETWORK ANALYSIS OF FOSSIL CO-OCCURRENCE IN THE EDIACARAN AND PALEOZOIC**
- 99-6 9:15 AM Klompmaker, Adiel A.*; Finnegan, Seth: **CO-OCCURRENCE PATTERNS SUGGEST THAT COMPETITIVE EXCLUSION IS RARE IN FOSSIL AND MODERN MARINE BENTHIC ECOSYSTEMS**
- 99-7 9:30 AM Smits, Peter D.*: **MODELING CHANGES TO THE FUNCTIONAL COMPOSITION OF NORTH AMERICAN MAMMAL DIVERSITY: MULTI-LEVEL DYNAMICS OF A REGIONAL SPECIES POOL**
- 99-8 9:45 AM Dick, Daniel*; Laflamme, Marc: **ANNA – A FUZZY LOGIC-BASED MACHINE LEARNING APPROACH TO FUNCTIONAL ECOLOGICAL MACROEVOLUTION**
- 99-9 10:00 AM Sclafani, Judith A.*; Roselle, Brooke; Christie, Max: **STRUCTURE FROM MOTION AS A TOOL FOR 3D MORPHOMETRICS: A NEW PALEOBIOLOGICAL APPLICATION FOR A YOUNG GEOLOGICAL METHOD**

- 99-10 10:15 AM Liow, Lee Hsiang*: **TACKLING CAUSALITY IN PALEONTOLOGY WITHOUT A TIME MACHINE (Invited Presentation)**
- 99-11 10:30 AM Boyle, James T.*: **MINIMUM SPANNING TREE DISTANCE AND OTHER GEOGRAPHIC RANGE MEASURES AS PROxies OF EXTINCTION RISK**
- 99-12 10:45 AM Peters, Shanan E.*; Syverson, V.J.P.; Zaffos, Andrew; Husson, Jon; Ross, Ian; Czaplowski, John: **EXTENDING THE REACH AND RESOLUTION OF THE PALEOBIOLOGY DATABASE WITH COMPUTATIONAL AND DATA INFRASTRUCTURES**
- 99-13 11:00 AM Syverson, V.J.P.*; Peters, Shanan E.: **THE QUANTITATIVE FOOTPRINT OF NATURAL HISTORY COLLECTIONS AND SPECIMENS IN THE SCIENTIFIC LITERATURE**
- 99-14 11:15 AM Holland, Steven M.*: **RECONSIDERING THE PREDICTED EFFECTS OF PLATE TECTONIC PROCESSES ON REGIONAL AND GLOBAL DIVERSITY: NEW INSIGHTS FROM NEUTRAL THEORY**
- 99-15 11:30 AM Lidgard, Scott*; Love, Alan C.: **LIVING FOSSILS AS A RESEARCH PROGRAM**
- 99-16 11:45 AM Urban, Michael A.*; Nye, Nigel; Mio, Washington; Punyasena, Surangi W.: **RECONSTRUCTING FOSSIL GRASS POLLEN DIVERSITY USING SUPERRESOLUTION MICROSCOPY AND MACHINE LEARNING**

SESSION NO. 100

T59. Studies in Paleobiology and Paleocology I: In Honor of Professor David J. Bottjer (GSA Geobiology & Geomicrobiology Division; Paleontological Society; SEPM (Society for Sedimentary Geology); Paleontological Research Institution)

8:00 AM, Washington State Convention Center, Room 607

Thomas J. Algeo, Pedro J. Marenco, Margaret L. Fraiser and Matthew E. Clapham, Presiding

- 100-1 8:00 AM Droser, Mary L.*; Gehling, James G.; Evans, Scott D.; Tarhan, Lidya G.; Hall, Christine M.S.; Dzaugis, Mary E.; Dzaugis, Matthew P.; Dzaugis, Peter; Hughes, Ian Vincent; Hughes, Emily B.; Rice, Dennis: **SNAPSHOTS AND LONG EXPOSURES: PICTURING LIFE IN THE EDIACARAN**
- 100-2 8:15 AM Dececchi, Thomas Alexander*; Narbonne, Guy M.; Greentree, Carolyn: **WHO ARE YOU?: INVESTIGATING THE PHYLOGENETIC RELATIONSHIPS AMONG BILATERAL EDIACARAN TAXA**
- 100-3 8:30 AM Oji, Tatsuo; Dornbos, Stephen Q.*; Yada, Keigo; Hasegawa, Hitoshi; Gonchigdorj, Sersmaa; Mochizuki, Takafumi; Takayanagi, Hideko; Iryu, Yasufumi: **PENETRATIVE TRACE FOSSILS FROM THE LATE EDIACARAN OF MONGOLIA: EARLY ONSET OF THE AGRONOMIC REVOLUTION**
- 100-4 8:45 AM Marenco, Pedro J.*; Oji, Tatsuo; Dornbos, Stephen Q.; Gonchigdorj, Sersmaa: **TH/U IN CARBONATES AS A TOOL FOR INTERPRETING CARBON ISOTOPIC EXCURSIONS: INSIGHTS FROM THE EDIACARAN-CAMBRIAN TRANSITION IN MONGOLIA**
- 100-5 9:00 AM Cordie, David R.*; Dornbos, Stephen Q.; Marenco, Pedro J.: **PALEOECOLOGY AND GEOCHEMISTRY OF EARLY CAMBRIAN CALCIMICROBIAL-ARCHAEOCYATHAN REEFS FROM THE WESTERN BASIN AND RANGE, USA**
- 100-6 9:15 AM Pratt, Brian R.*; Kimmig, Julien: **MIDDLE CAMBRIAN COPROLITES FROM NORTHWESTERN CANADA: THE POOP ON BENTHIC PALEOBIOLOGY AND PALEOECOLOGY**
- 100-7 9:30 AM McAdams, Neo E.B.*; Cramer, Bradley D.; Bancroft, Alyssa M.; Waid, Christopher B.: **WHAT'S IN A NAME? CONODONT DIVERSITY DYNAMICS AND IMPORTANCE OF A STANDARDIZED TAXONOMIC NOMENCLATURE**
- 100-8 9:45 AM Thomka, James R.*; Brett, Carlton E.; Bissett, Donald L.: **PARASITIC EMBEDMENT STRUCTURES (*TREMICHNUS* ISPP.) IN HEMICOSMITID RHOMBIFERANS:**

IMPLICATIONS FOR HOST-SPECIFICITY AND ECHINODERM PALEOECOLOGY10:00 AM **BREAK**100-9 10:15 AM Whalen, Christopher D.*; Briggs, Derek E.G.: **PALEOZOIC PELAGIC AND BENTHOPELAGIC MACROECOLOGY: WAS THERE A DEVONIAN NEKTON REVOLUTION?**100-10 10:30 AM Yao, Le*; Aretz, Markus; Wang, Xiangdong: **EVOLUTIONARY PATTERN OF MISSISSIPPIAN REEFS AFTER THE LATE DEVONIAN MASS EXTINCTIONS: EVIDENCE FROM THE SHELVES AROUND SOUTH CHINA AND NORTH CHINA BLOCKS**100-11 10:45 AM Gigstad, Kate M.*; Fraiser, Margaret L.; Isbell, John L.; Albright, Lydia T.; Pagani, M. Alejandra; Taboada, Arturo C.: **CARBONIFEROUS HIGH PALEO-LATITUDE INVERTEBRATE PALEOECOLOGY OF PATAGONIA DURING THE LATE PALEOZOIC ICE AGE**100-12 11:00 AM Hood, Seana C.*; Ritterbush, Kathleen A.: **PALEOECOLOGY OF GLASS RAMPS: NON-ACTUALISTIC SHALLOW-MARINE SPICULITES FROM THE PERMIAN OF NORTHWESTERN UTAH**100-13 11:15 AM Isozaki, Yukio*; Sevais, Thomas: **THE HIRNANTIAN (LATE ORDOVICIAN) AND END-GUADALUPIAN (MIDDLE PERMIAN) MASS EXTINCTION EVENTS COMPARED**100-14 11:30 AM Foster, William J.*; Lehrmann, Daniel J.; Yu, Meiyl; Martindale, Rowan C.: **HIGH-RESOLUTION INVESTIGATION OF INVERTEBRATE MARINE COMMUNITIES FROM GUIZHOU, CHINA FOLLOWING THE LATEST PERMIAN MASS EXTINCTION EVENT**100-15 11:45 AM Bush, Andrew M.*; Wang, Steve C.; Payne, Jonathan L.: **A UNIFIED QUANTITATIVE FRAMEWORK LINKING EXTINCTION MAGNITUDE, SELECTIVITY, AND EFFECT ON BIOTIC COMPOSITION****SESSION NO. 101****T87. Fluvio-Deltaic Processes and Their Stratigraphic Record (GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; SEPM (Society for Sedimentary Geology))**

8:00 AM, Washington State Convention Center, Ballroom 6C

Brandon McElroy and Jeffrey A. Nittrouer, Presiding

101-1 8:00 AM Chateau, Chloe C.F.*; Dashtgard, Shahin E.; MacEachern, James A.: **CHARACTERIZATION AND MAPPING OF PARASEQUENCES AND PARASEQUENCE SETS OF THE LOWER CRETACEOUS MCMURRAY FORMATION, ALBERTA, CANADA**101-2 8:15 AM Muhlbauer, Jason G.*; Fedo, Christopher M.; Moersch, Jeffrey E.: **FLUVIAL ARCHITECTURE AND CYCLICITY IN CAMBRIAN BRAIDPLAIN STRATIGRAPHY, MIDDLE MEMBER WOOD CANYON FORMATION, MARBLE MOUNTAINS, SOUTHEASTERN CA, USA**101-3 8:30 AM Czapiga, Matthew*; Fernandez, Roberto; Prokocki, Eric; Parker, Gary: **DELTA ISLAND CONSTRUCTION – MATCHING GENERIC MORPHOLOGY METRICS TO SEDIMENTOLOGICAL REGIMES (Invited Presentation)**101-4 8:45 AM Fernandes, Anjali M.*; Martin, John; Pickering, Jennifer; Howes, Nick: **THE IMPACT OF PERSISTENT BACKWATER DYNAMICS ON THE LITHOLOGY AND ARCHITECTURE OF FLUVIO-DELTAIC CHANNEL BELTS (Invited Presentation)**101-5 9:00 AM Zhang, Xin*; Lin, Changsong; Zhang, Zhongtao: **SEQUENCE ARCHITECTURE AND DEPOSITIONAL EVOLUTION OF THE EARLY-MIDDLE MIOCENE SHELF DELTAS IN THE NORTHEASTERN SHELF-MARGIN OF SOUTH CHINA SEA: IMPLICATIONS FOR RELATIVE SEA-LEVEL CHANGES**101-6 9:15 AM Davis, Jr, Richard A.*: **SEA-LEVEL CHANGE IN THE GULF OF MEXICO**101-7 9:30 AM Lumsden, David N.*; Van Arsdale, Roy B.: **MISSISSIPPI RIVER SAND PETROLOGY: COMPARISON AMONG MODERN, MID-HOLOCENE, AND PLEISTOCENE DEPOSITS IN THE NORTHERN MISSISSIPPI EMBAYMENT**101-8 9:45 AM Trampush, Sheila*; Hajek, Elizabeth: **UNDERSTANDING HOW DELTA DYNAMICS INFLUENCE PALEOENVIRONMENTAL PROXY RECORDS (Invited Presentation)****SESSION NO. 102****T93. Lacustrine Systems across Space and Time I (GSA Limnogeology Division; GSA Sedimentary Geology Division; Paleontological Society; SEPM (Society for Sedimentary Geology))**

8:00 AM, Washington State Convention Center, Room 307/308

Scott W. Starratt and Michelle F. Goman, Presiding

8:00 AM **INTRODUCTORY REMARKS**102-1 8:05 AM Zanzazi, Alessandro*; Peterson, Hannah; Sutterfield, David R.; Rakotoarisaona, Henintsoa; Andreini, Jeremy; Wang, Weihong: **A STABLE ISOTOPE STUDY OF UTAH LAKE (UTAH, USA)**102-2 8:20 AM Leonard-Pingel, Jill S.*; Michelson, Andrew; Dannehl, John; Waheed, Alexander; Conaway, Andrew: **ENVIRONMENTAL HISTORIES OF TWO WISCONSIN LAKES RECONSTRUCTED FROM GEOCHEMICAL AND GEOLOGICAL PROXIES**102-3 8:35 AM Campbell, Seth*; Nesbitt, Ian; Arcone, Steven; Smith, Sean M.: **NEW ENGLAND LAKE BOTTOM GEOLOGY AND SEDIMENTATION RATES DERIVED FROM GROUND-PENETRATING RADAR**102-4 8:50 AM Lo, Edward L.*; McGlue, Michael M.; Silva, Aguinardo; Bergier, Ivan; Yeager, Kevin M.; Macedo, Hudson de Azevedo; O'Dell, Meredith: **THE LIMNOGEOLOGY OF LAKE UBERABA: FLUVIO-LACUSTRINE SEDIMENTARY PROCESSES ALONG THE DISTAL PARAGUAY MEGAFAN (PANTANAL WETLANDS, BRAZIL)**102-5 9:05 AM Doran, Peter*: **LAKE BONNEY NARROWS: OVER A CENTURY OF DATA CREATES THE LONGEST DIRECT RECORD OF ENVIRONMENTAL CHANGE IN ANTARCTICA**102-6 9:20 AM Hatchett, Benjamin J.*: **LATE HOLOCENE CLIMATE INFERENCES FROM A CLOSED BASIN LAKE IN THE LEE OF THE SIERRA NEVADA, USA (Invited Presentation)**102-7 9:40 AM Theissen, Kevin M.*; Brundrett, Ashley L.; Horns, Sarah E.; Hickson, Thomas A.: **A 5600-YEAR RECORD OF PALEOHYDROCLIMATE FROM LOWER PAHRANAGAT LAKE, SOUTHERN GREAT BASIN**9:55 AM **BREAK**102-8 10:10 AM Starratt, Scott W.*; Wan, Elmira; Kusler, Jennifer; Briles, Christy E.: **HOBART LAKE: A NEW DIATOM RECORD FROM SOUTHWESTERN OREGON, USA**102-9 10:25 AM Mihindukulasooriya, Lorita*; Ortiz, Joseph D.; Steinman, Byron A.; Abbott, Mark B.: **IMPACT OF MID HOLOCENE MOUNT MAZAMA ERUPTION ON LAKE PALEOPRODUCTIVITY AND SEDIMENTOLOGY: A CASE STUDY FROM A CLOSED BASIN LAKE IN SOUTHWESTERN BRITISH COLUMBIA**102-10 10:40 AM Porinchu, David*; MacDonald, Glen M.; Rolland, Nicolas; Kremenetski, Kostantin; Moser, Katrina A.; Seppä, Heikki; Rühland, Kathleen: **EVIDENCE OF ABRUPT CLIMATE CHANGE AT 9.3 KA AND 8.2 KA IN THE CENTRAL CANADIAN ARCTIC: CONNECTION TO THE NORTH ATLANTIC AND ATLANTIC MERIDIONAL OVERTURNING CIRCULATION**

102-11 10:55 AM Stansell, Nathan D.*; Steinman, Byron A.; Lachniet, Matthew S.; Harvey, William; Feller, Jacob; Perdziola,

AM

MONDAY

- Stephen; Mortensen, Peter: **LAKE SEDIMENT RECORDS OF HOLOCENE HYDROCLIMATE VARIABILITY ACROSS THE NORTHERN TROPICAL AMERICAS (Invited Presentation)**
- 102-12** 11:15 AM Hillman, Aubrey L.*; Abbott, Mark B.; Finkenbinder, Matthew S.; Yu, JunQing: **AN 8,600 YEAR LACUSTRINE RECORD OF SUMMER MONSOON VARIABILITY FROM YUNNAN, CHINA**
- 102-13** 11:30 AM Price, Jason R.*; Szymanski, David W.; Oleksy, Isabella; Bricker, Suzanne B.; Burden, Brady; Cronister, Kyle; Nunez, Jacob; Schippert, Logan; Devine, T.J.: **MECHANISMS FOR INCREASED PHOSPHORUS INPUTS AND CONSEQUENT ENHANCED LACUSTRINE PRODUCTIVITY DURING THE YOUNGER DRYAS CHRONOZONE IN THE LOCH, ROCKY MOUNTAIN NATIONAL PARK, COLORADO, USA**
- 102-14** 11:45 AM Goldsmith, Yonaton*; Xu, Hai; Polissar, Pratigya J.; Broecker, Wallace; deMenocal, Peter; Lan, Jianghu; Cheng, Peng; Zhou, Weijian; An, Zhisheng: **THE OSCILLATING FRINGE OF THE EAST ASIAN MONSOON**

SESSION NO. 103

T100. Barriers, Misconceptions, and Progress in Improving Climate Literacy and Strategies for Communicating about Climate Change (GSA Geoscience Education Division; National Association of Geoscience Teachers, Division of Geoscience Education Research; National Association of Geoscience Teachers; Climate Literacy Network (CLEAN); GSA Geology and Society Division)

8:00 AM, Washington State Convention Center, Room 3A

Anne U. Gold, Mona Behl, Bonnie Murray, Don Duggan-Haas and Carey Stanton, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 103-1** 8:05 AM Bentley, Andrew Phillip Keller*; Eklund, Peter R.; Petcovic, Heather L.: **BELIEF IN DISSENTER MESSAGES VS. ANTHROPOGENIC CLIMATE CHANGE ACCEPTANCE: A HARD LESSON IN CLIMATE EDUCATION**
- 103-2** 8:20 AM Kirby, Caitlin K.*; Libarkin, Julie C.: **UNDERSTANDING CLIMATE CHANGE BEHAVIORS USING A MODIFIED THEORY OF PLANNED BEHAVIOR**
- 103-3** 8:35 AM Herleman, Katherine C.*; Anderson, Brendan M.; Duggan-Haas, Don: **TEACHING TECHNIQUES IN CLIMATE SCIENCE TELEVISION PROGRAMMING: EVALUATING THE QUALITY OF LEARNING OUTCOMES IN "EDUTAINMENT"**
- 103-4** 8:50 AM Trevizo, Ivy G.*; Pennington, Deana: **ACTIVE LEARNING EFFECT ON THE PUBLIC'S PERCEPTION OF ANTHROPOGENIC GLOBAL CLIMATE CHANGE**
- 103-5** 9:05 AM Bean, Jessica R.*; Zoehfeld, Kathleen; Mitchell, Kristen; Oshry, Aleeza; Menicucci, Anthony Joseph; Roque, Trish; White, Lisa D.; Marshall, Charles R.: **UNDERSTANDING GLOBAL CHANGE: FRAMEWORKS AND SYSTEM MODELS FOR TEACHING, LEARNING, AND COMMUNICATING CLIMATE CHANGE**
- 103-6** 9:20 AM Harris, Sara E.*; Roll, Ido: **IMPACTS OF DISPERSED PLACE-BASED ASSIGNMENTS, SEEDED FORUMS, AND MODIFIED PEER INSTRUCTION IN AN OPEN, ONLINE CLIMATE SCIENCE COURSE (Invited Presentation)**
- 103-7** 9:35 AM Libarkin, Julie C.*; Gold, Anne U.; Harris, Sara E.; McNeal, Karen S.; Bowles, Ryan: **RELATING UNDERSTANDING AND RISK PERCEPTION WITH A VALIDATED MEASURE OF CLIMATE CHANGE CONCEPTIONS (Invited Presentation)**
- 9:50 AM **DISCUSSION**
- 103-8** 10:05 AM Ross, Robert M.*; Duggan-Haas, Don; Moore, Alexandra; Zabel, Ingrid H.H.: **AT THE INTERSECTION OF INFORMAL AND FORMAL EDUCATION: THE TEACHER-FRIENDLY GUIDE TO CLIMATE CHANGE**

- 103-9** 10:20 AM Lepore, Taormina*: **CLIMATE CHANGE INQUIRY: TECHNOLOGY APPLICATIONS IN THE HIGH SCHOOL CLASSROOM**
- 103-10** 10:35 AM Murray, Bonnie*: **NASA EARTH SYSTEMS, TECHNOLOGY AND ENERGY EDUCATION FOR MINORITY UNIVERSITY AND RESEARCH EDUCATION PROGRAM PROMOTES CLIMATE LITERACY BY ENGAGING STUDENTS AT MINORITY SERVING INSTITUTIONS IN STEM**
- 103-11** 10:50 AM Blue, Stacie*: **WORKING WITH K-12 TEACHERS TO INTEGRATE TRADITIONAL KNOWLEDGE OF THE LOCAL ECOSYSTEM AS A TOOL TO UNDERSTAND CLIMATE CHANGE**
- 103-12** 11:05 AM Kowalczak, Courtney C.*: **EVALUATION OF INDIGENOUS CLIMATE LITERACY STEM CAMP AND MEASURING STUDENT IMPACT (Invited Presentation)**
- 103-13** 11:20 AM Phillips, Michael A.*; Duggan-Haas, Don: **NAGT ADVOCACY: GROWING AN ORGANIZATION'S OUTREACH PROGRAM**
- 103-14** 11:35 AM Jay, Alexa*; Reidmiller, David; Lewis, Kristin; Reeves, Katie: **THE FOURTH NATIONAL CLIMATE ASSESSMENT AND BEYOND: COMMUNICATING THE SCIENCE AND RISKS OF GLOBAL CHANGE**
- 11:50 AM **CONCLUDING DISCUSSION**

SESSION NO. 104

T122. On the Cutting Edge: Fifteen Years of Impacts on Geoscience Education (GSA Geoscience Education Division; National Association of Geoscience Teachers)

8:00 AM, Washington State Convention Center, Room 2A

David W. Mogk, Heather Macdonald and Michael E. Wyssession, Presiding

- 104-1** 8:00 AM Manduca, Cathryn A.*; Macdonald, R. Heather; Mogk, David; Tewksbury, Barbara J.; Beane, Rachel J.; McConnell, David; Wiese, Katryn; Wyssession, Michael E.: **ON THE CUTTING EDGE: ENDURING LEARNING OPPORTUNITIES FOR GEOSCIENCE FACULTY (Invited Presentation)**
- 104-2** 8:20 AM Beane, Rachel J.*; Macdonald, R. Heather; Allen-King, Richelle M.; Hill, Tessa M.; Ormand, Carol J.; Penniston-Dorland, Sarah; Tewksbury, Barbara J.; Yuretich, Richard F.: **WORKSHOP FOR EARLY CAREER GEOSCIENCE FACULTY: TEACHING, RESEARCH, AND MANAGING ONE'S CAREER**
- 104-3** 8:35 AM LeMay, Lynsey E.; Dunbar, Robyn Wright; Ebanks, Sue C.; Gilbert, Lisa A.; Macdonald, R. Heather; Ormand, Carol J.; Riihimaki, Catherine*; Weissmann, Gary S.: **PREPARING FOR AN ACADEMIC CAREER IN THE GEOSCIENCES WORKSHOP: A SUCCESS OF THE ON THE CUTTING EDGE PROGRAM**
- 104-4** 8:50 AM Tewksbury, Barbara J.*; Macdonald, R. Heather: **COURSE DESIGN AND ON THE CUTTING EDGE: CHANGING FACULTY APPROACHES TO COURSE DEVELOPMENT TO MAKE COURSES INNOVATIVE AND MORE EFFECTIVE**
- 104-5** 9:05 AM Mogk, David W.*; Kastens, Kim A.; Fox, Sean P.; Fredrick, Kyle C.; Tewksbury, Barbara J.; Wyssession, Michael E.: **ON THE CUTTING EDGE: DEVELOPMENT OF A GEOSCIENCES COMMUNITY-GENERATED, PEER-REVIEWED TEACHING ACTIVITY COLLECTION**
- 104-6** 9:20 AM Wyssession, Michael E.*; Mogk, David W.; Manduca, Cathryn A.; Macdonald, Heather; Tewksbury, Barbara J.: **ON THE CUTTING EDGE EMERGING THEME WORKSHOPS: A PATHWAY FOR GEOEDUCATION INNOVATION**
- 104-7** 9:35 AM McFadden, Rory R.*; Viskupic, Karen; Manduca, Cathryn A.; Egger, Anne E.; Iverson, Ellen: **UNDERSTANDING THE USE OF QUANTITATIVE SKILLS AND DATA ANALYSIS IN THE TEACHING OF UNDERGRADUATE GEOSCIENCES**
- 9:50 AM **BREAK**

- 104-8 10:05 AM Viskupic, Karen*; Teasdale, Rachel; Ryker, Katherine; McFadden, Rory R.; Farthing, Dori J.; Iverson, Ellen; Bruckner, Monica Z.; Manduca, Cathryn; McConnell, David: **THE EFFECTS OF DISCIPLINE-BASED PROFESSIONAL DEVELOPMENT ON TEACHING PRACTICES OBSERVED IN UNDERGRADUATE GEOSCIENCE CLASSROOMS**
- 104-9 10:20 AM Glazner, Allen F.*: **REBUILDING PETROLOGY FROM THE GROUND UP**
- 104-10 10:35 AM Richardson, Randall M.*: **REFLECTIONS ON MORE THAN A DECADE'S INVOLVEMENT WITH THE EARLY CAREER FACULTY WORKSHOPS**
- 104-11 10:50 AM Smaglik, Suzanne M.*: **HOW ONE LONE WOLF FOUND HER PACK: REFLECTIONS ON THE CUTTING EDGE**
- 104-12 11:05 AM Baer, Eric M.D.*; Blodgett, Robert H.; Emerson, Norlene R.; Hodder, Jan; McDaris, John R.; Macdonald, R. Heather; Ormand, Carol J.: **ADAPTING AND EXTENDING THE ON THE CUTTING EDGE MODEL OF PROFESSIONAL DEVELOPMENT TO BRING WORKSHOPS TO TWO-YEAR COLLEGE FACULTY**
- 104-13 11:20 AM Kastens, Kim A.*; Manduca, Cathryn A.: **WHY IS THE GEOSCIENCE EDUCATION COMMUNITY OF PRACTICE SO EFFECTIVE? (Invited Presentation)**
- 104-14 11:40 AM Sverdrup, Keith A.*; Singer, Jill; Ryan, Jeffrey; Matty, David J.; Lea, Peter D.: **ON THE CUTTING EDGE: PERSPECTIVES FROM NSF DIVISION OF UNDERGRADUATE EDUCATION GEOSCIENCE PROGRAM OFFICERS (Invited Presentation)**

SESSION NO. 105

T129. The Challenge of Defining Student Success: Broadening Participation, Measuring Success, and Preparing 2YC and 4YC Students for a Variety of Transitions (GSA Geoscience Education Division; GSA Geology and Society Division; International Association for Geoscience Diversity; National Association of Geoscience Teachers; National Association of Geoscience Teachers Geo2YC Division; National Earth Science Teachers Association)

8:00 AM, Washington State Convention Center, Room 2B

Brett S. Dooley, Callan Bentley, Wendi J.W. Williams, Katrien J. van der Hoeven Kraft, Peter J. Berquist and Joshua Villalobos, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 105-1 8:05 AM Macdonald, R. Heather*; Baer, Eric M.D.; Bragg, Debra; Eddy, Pamela; Emerson, Norlene R.; Hao, Yi; Hodder, Jan; Iverson, Ellen; McDaris, John R.; Ormand, Carol J.: **STUDENT SUCCESS IN GEOSCIENCE: A SAGE 2YC PERSPECTIVE**
- 105-2 8:20 AM Miller, Gretchen L.*: **BUILDING STRONG PARTNERSHIPS TO SUPPORT 2YC GEOSCIENCE STUDENT SUCCESS (Invited Presentation)**
- 105-3 8:35 AM Pawloski, Jamie L.*; Shabram, Patrick L.; Charlevoix, Donna; Smith, Heidi; Morris, Aisha R.: **BUILDING PATHWAYS TO STEM CAREERS THROUGH COMMUNITY COLLEGES**
- 105-4 8:50 AM Voorhees, David H.*: **FLIPPING OR FLOPPING IN A GENERAL EDUCATION EARTH SCIENCE CLASS**
- 105-5 9:05 AM van der Hoeven Kraft, Katrien J.*; David, Diana M.; Chugg, Katie; Erickson, Justin: **"BABEL"ING ABOUT STUDENT SUCCESS: IMPLICATIONS FOR WORKING WITH GEOSCIENCE STUDENTS AT TWO-YEAR COLLEGES**
- 105-6 9:20 AM Bell, Alyssa*; Smith, Nathan; Chiappe, Luis M.: **PROYECTO DINOSAURIOS: HOW ONE-ON-ONE MENTORING, FIELD WORK, AND TRAVEL PROVIDE MINORITY UNDERGRADUATES WITH THE SKILLS NEEDED TO SUCCEED IN THE EARTH SCIENCES**
- 105-7 9:35 AM Schmidt, Susanne T.*; Perroud, Pierre; Süssenberger, Annette: **OPTICMIN®: AN ONLINE TEACHING TOOL FOR MINERAL IDENTIFICATION IN THIN SECTION**

9:50 AM **BREAK**

- 105-8 10:05 AM Villalobos, Joshua*; Doser, Diane I.: **BRIDGING THE GAPS BETWEEN 2YC AND 4YC: STRATEGIES IMPLEMENTED BY EL PASO COMMUNITY COLLEGE AND THE UNIVERSITY OF TEXAS AT EL PASO (Invited Presentation)**
- 105-9 10:20 AM Kling, Jennifer*: **UNDERGRADUATE RESEARCH AT A TWO-YEAR COMMUNITY COLLEGE? YES, IT CAN BE A SUCCESS!**
- 105-10 10:35 AM Thomas, Robert C.*; Levine, Rebekah; Roberts, Sheila M.; Schoenemann, Spruce W.: **EXPERIENCE ONE: ANALYSIS OF A DECADE OF IMMERSION SCHEDULING AND EXPERIENTIAL LEARNING AT THE UNIVERSITY OF MONTANA WESTERN**
- 105-11 10:50 AM Rohrbaugh, Rob*; Doser, Diane I.; Villalobos, Joshua: **RESEARCH EXPERIENCE AS AN ENHANCED PLATFORM FOR ACCELERATED 2YC UNDERGRADUATE DEVELOPMENT**
- 105-12 11:05 AM Johnson, Christopher*; Inkenbrandt, Paul C.; Affolter, Matt; Mosher, Cam: **OPENGEOLOGY.ORG: A FREE TEXTBOOK FOR COLLEGE-LEVEL INTRODUCTORY GEOLOGY CLASSES (Invited Presentation)**
- 105-13 11:20 AM Doser, Diane I.*; Hussein, Musa; Ma, Lin; Jin, Lixin; Barnes, Brenda E.; Zarei, Maryam: **EXTENDING INTEGRATE MATERIALS ACROSS THE UNIVERSITY OF TEXAS AT EL PASO (UTEP) SCIENCE AND ENGINEERING CURRICULUM**
- 11:35 AM **DISCUSSION**
- 11:50 AM **CONCLUDING REMARKS**

SESSION NO. 106

T149. Celebrating Dr. John W. Valley's Contributions to Isotope Geochemistry and Beyond, from the Hadean to the Holocene I (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; Mineralogical Society of America; Geochemical Society; Microanalysis Society; GSA Sedimentary Geology Division)

8:00 AM, The Conference Center, Skagit 2

Aaron J. Cavosie, Jade Star Lackey and William H. Peck, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 106-1 8:05 AM Mora, Claudia I.*: **THE CAREER WISDOM OF JWV: BE INNOVATIVE, BE CAREFUL, BE PRODUCTIVE, BE HAPPY (Invited Presentation)**
- 106-2 8:25 AM Peck, William H.*; Selleck, Bruce W.; Valley, John W.; Spicuzza, Michael J.; Taylor, Alexander T.: **EMPLACEMENT AND METAMORPHISM OF THE MARCY ANORTHOSITE: NEW CONSTRAINTS FROM GEOCHRONOLOGY AND OXYGEN ISOTOPES**
- 106-3 8:40 AM Morse, Stearns A.*; Hart, S.R.; Jercinovic, Michael J.; Hamilton, Michael A.; Brady, John B.: **PARTITIONING OF STRONTIUM ISOTOPES IN FELDSPARS FROM A PROTEROZOIC SYENITIC MAGMA**
- 106-4 8:55 AM Samson, Scott D.*; Moecher, David P.: **RECYCLED AND REUSED OR HOT AND BOTHERED? EXPLORING THE EXTREME ZIRCON FERTILITY OF GRENVILLE (1.2 – 1.0 GA) GRANITES**
- 106-5 9:10 AM Moecher, David P.*; Burk, Samantha R.; Samson, Scott D.: **TESTING THE "HOT GRANITE" HYPOTHESIS FOR HIGH-ZR GRENVILLE GRANITES FROM EASTERN LAURENTIA USING ZIRCON THERMOMETERS**
- 106-6 9:25 AM Andico, S.*; Schwartz, Joshua J.; Tulloch, Andy; Turnbull, Rose; Klepeis, Keith; Miranda, Elena A.; Kitajima, Kouki; Ringwood, M.F.: **OXYGEN ISOTOPE MAPPING REVEALS A CRUSTAL-SCALE STRUCTURE WITHIN THE MEDIAN BATHOLITH, FIORDLAND, NEW ZEALAND**
- 106-7 9:40 AM Price, Jason B.*; Cardello, Giovanni L.; Eiler, John M.: **MODERATE CARBONATE CRYSTALLIZATION**

AM

MONDAY

- TEMPERATURES ON THE LOUTRAKI FAULT, GREECE: WHERE IS THE EVIDENCE FOR SHEAR HEATING?**
- 9:55 AM **BREAK**
- 106-8** 10:10 AM Bowman, John R.*; Stearns, Michael A.; Bartley, John M.: **EVOLVING PERSPECTIVES ON THE THERMAL BUDGETS AND TIMESCALES OF CONTACT METAMORPHISM (Invited Presentation)**
- 106-9** 10:30 AM Beno, Carl J.*; Stearns, Michael A.; Bowman, John R.; Bartley, John M.: **U/TH-PB MONAZITE AGE CONSTRAINTS ON THE TIMING AND DURATION OF CONTACT METAMORPHISM IN THE ALTA, UTAH, CONTACT AUREOLE**
- 106-10** 10:45 AM Clark, Chris*; Reddy, Steven; Taylor, Rich; Hand, Martin: **THE BEHAVIOUR OF MONAZITE AT HIGH TEMPERATURE AND HIGH STRESS IN THE LOWER CRUST**
- 106-11** 11:00 AM Buzon, Marian E.*; Gunter, Mickey E.; Larson, Peter B.: **STABLE O AND H ISOTOPE APPLICATIONS FOR SOURCING COMMERCIAL TALC AND UNDERSTANDING ENVIRONMENTS OF TALC FORMATION**
- 106-12** 11:15 AM Mergelsberg, Sebastian T.*; Ulrich, Robert N.; Michel, F. Marc; Dove, Patricia M.: **THE SOLUBILITY AND STRUCTURE OF AMORPHOUS CALCIUM CARBONATE(S) (ACC): TOWARD AN UNDERSTANDING OF CHEMICAL AND STRUCTURAL EVOLUTION DURING MINERALIZATION**
- 106-13** 11:30 AM Dutrow, Barbara L.*; Marger, Katharina; Putlitz, Benita; Henry, Darrell J.; Baumgartner, Lukas; Siron, Guillaume; Bouvier, Anne-Sophie: **IN-SITU OXYGEN ISOTOPE STUDY OF TOURMALINE AND QUARTZ: INSIGHTS INTO THE PROGRADE TEMPERATURE HISTORY**
- 106-14** 11:45 AM Xu, Huiyang*; Lee, Seungyeol; Xu, Hongwu; Jacobs, Ryan; Morgan, Dane: **VALLEYITE: A NEW MAGNETIC MINERAL IN BASALTIC ROCKS**

SESSION NO. 107 \$

T162. The Dance of Arcs: Causes of Arc Migrations, Flare-Ups, and Magmatic Focusing I (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division)

8:00 AM, The Conference Center, Skagit 4

Scott R. Paterson, Vali Memeti, Joshua Schwartz, Katie E. Ardill and Anita Grunder, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 107-1** 8:05 AM Triantafyllou, Antoine*; Berger, Julien: **MAGMATIC FLARE-UPS IN A NEOPROTEROZOIC OCEANIC ARC SYSTEM (ANTI-ATLAS, MOROCCO)**
- 107-2** 8:20 AM Erickson, Elizabeth A.*; Cottle, John M.: **ROSS OROGENY MAGMATISM IN NORTHERN VICTORIA LAND, ANTARCTICA: INSIGHT INTO ALONG-STRIKE ARC VARIATION AND COMPARISON TO THE DETRITAL ZIRCON RECORD**
- 107-3** 8:35 AM Burton-Johnson, Alex*; Riley, Teal; Harrison, Richard J.; Mac Niocaill, Conall: **A TECTONIC CONTROL ON THE TIMING, CHEMISTRY AND SCALE OF VOLUMINOUS PULSED INTRUSIVE MAGMATISM: EVIDENCE FROM THE LASSITER COAST INTRUSIVE SUITE, ANTARCTICA**
- 107-4** 8:50 AM Farris, David W.*; Fowler, Gary D.; Munsey, Keith R.: **TECTONIC FORCING OF MAGMATIC PROCESSES IN PANAMA: COLLISION, INTRA-ARC EXTENSION AND SLAB-DETACHMENT**
- 107-5** 9:05 AM Ardill, Katie E.*; Paterson, Scott R.; Memeti, Vali: **THE DYNAMICS OF SYNCHRONOUS FLARE-UPS, MIGRATION, AND FOCUSING IN THE MESOZOIC SIERRA NEVADA ARC**
- 107-6** 9:20 AM Hirt, William H.*; Polon, Casey K.; Pluhar, Chris J.; Gledhill, Trevor A.: **EIGHT MILLION YEARS OF FOCUSED**

- MAGMATISM: THE STRUCTURAL SETTING AND INTRUSIVE HISTORY OF THE MOUNT WHITNEY INTRUSIVE SUITE, SIERRA NEVADA, CALIFORNIA**
- 107-7** 9:35 AM Field, Derek*; Riggs, Nancy; Barth, Andrew: **EPISODIC SIERRAN ARC MAGMATISM EXPRESSED IN VOLCANIC STRATA OF THE MOUNT MORRISON PENDANT, EAST-CENTRAL SIERRA NEVADA, CALIFORNIA**
- 9:50 AM **DISCUSSION**
- 107-8** 10:05 AM Miller, Elizabeth L.*; Akinin, Vyacheslav V.: **EPISODICITY AND THE DANCE OF MAGMATISM AND DEFORMATION ALONG THE NORTHERN CIRCUM-PACIFIC MARGIN: NE RUSSIA TO THE CORDILLERA (Invited Presentation)**
- 107-9** 10:20 AM Todd, Erin*; Jones, James V.: **DISTINCT MAGMATIC STAGES ASSOCIATED WITH CRETACEOUS THROUGH PALEOGENE CRUSTAL FORMATION AND EVOLUTION OF THE SOUTHERN ALASKA MARGIN**
- 107-10** 10:35 AM Davis, Kailyn N.*; Benowitz, Jeff; Layer, Paul W.; Trop, Jeffrey M.; Brueseke, Matthew E.: **DATING THE LOST ARC OF ALASKA: CONSTRAINING THE TIMING OF INITIATION OF THE WRANGELL ARC WITH A NEW ⁴⁰AR/³⁹AR DETRITAL GEOCHRONOLOGY APPROACH ON MODERN RIVER LITHIC GRAINS**
- 107-11** 10:50 AM Berkelhammer, Samuel E.*; Brueseke, Matthew E.; Benowitz, Jeff A.; Trop, Jeffrey M.; Davis, Kailyn N.; Layer, Paul W.; Mertzman, Stanley A.: **INITIATION OF THE WRANGELL ARC: A RECORD OF TECTONIC CHANGES IN AN ARC-TRANSFORM JUNCTION REVEALED BY NEW GEOCHEMISTRY AND GEOCHRONOLOGY OF THE ~29-18 MA SONYA CREEK VOLCANIC FIELD, ALASKA**
- 107-12** 11:05 AM Benowitz, Jeff A.*; Trop, Jeffrey M.; Brueseke, Matthew; Davis, Kailyn N.; Layer, Paul; Berkelhammer, Samuel E.; Bliss, Ben; Morter, Bethany K.: **INVESTIGATING THE LOST ARC: GEOLOGIC CONSTRAINTS ON ~29 MILLION YEARS OF CONTINUOUS MAGMATISM ALONG AN ARC-TRANSFORM JUNCTION, WRANGELL ARC, ALASKA**
- 107-13** 11:20 AM Trim, Charelle S.*; Perfit, Michael; Mueller, Paul A.: **GEOCHEMICAL VARIABILITY AND U-PB DATING OF COEVAL PLUTONIC AND VOLCANIC ROCKS FROM UNALASKA ISLAND, ALASKA**
- 11:35 AM **DISCUSSION**

SESSION NO. 108

T166. Great Maps in the History of Geology (GSA History and Philosophy of Geology Division; GSA Planetary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Structural Geology and Tectonics Division; History of Earth Sciences Society (HESS))

8:00 AM, The Conference Center, Skagit 3

Dorothy Sack and Renee M. Clary, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 108-1** 8:05 AM Torrens, Hugh*: **HOW DID WILLIAM SMITH CARRY OUT HIS PIONEERING GEOLOGICAL MAPPING? (Invited Presentation)**
- 108-2** 8:25 AM Wesson, Robert L.*: **MAPS, CROSS-SECTIONS AND THE GEOLOGY OF CHARLES DARWIN**
- 108-3** 8:40 AM Aalto, K.R.*: **PHILIP TYSON'S 1849 STUDY OF CALIFORNIA GOLD PROSPECTS**
- 108-4** 8:55 AM Brice, William R.*: **MAPS OF THE EARLY PENNSYLVANIA OIL REGION**
- 108-5** 9:10 AM Mikulic, Donald G.; Kluessendorf, Joanne*: **FIRST GEOLOGIC MAP OF MILWAUKEE AND ITS ROLE IN THE DISCOVERY OF FOSSIL REEFS**
- 9:25 AM **DISCUSSION**
- 108-6** 9:35 AM Meyer, Herbert W.*: **ARTHUR LAKES' 1878 MAP OF THE FLORISSANT FOSSIL BEDS, COLORADO**

- 108-7 9:50 AM Sack, Dorothy*: **LAKE BONNEVILLE MAPPED**
- 108-8 10:05 AM Greene, Mott T.*: **WLADIMIR KÖPPEN'S 1901 MAP OF GLOBAL CLIMATE ZONES**
- 108-9 10:25 AM Şengör, A.M. Celâl*: **THE TECTONIC MAP OF EURASIA BY ARGAND AND ITS INFLUENCE ON THE INTERPRETATION OF CONTINENTAL DEFORMATION (Invited Presentation)**
- 10:40 AM **DISCUSSION**
- 108-10 10:50 AM VanHorn, Jason E.*; Stearley, Ralph: **FOUNDATIONAL CONTRIBUTIONS BY ERWIN RAISZ TO GEOLOGICAL UNDERSTANDING**
- 108-11 11:05 AM Spanagel, David I.*: **HAROLD N. FISK'S (1944) MAPS OF THE MEANDERING MISSISSIPPI RIVER**
- 108-12 11:20 AM Moores, Eldridge M.*: **TECTONIC MAPS IN REVOLUTIONS: VINE'S (1966) REINTERPRETATION OF RAFF'S AND MASON'S MAGNETIC MAP OF THE NE PACIFIC, AND SIGOCH'S AND MIHALYNUK'S (2017) AUSTRALIA-INDONESIA ANALOGUE FOR LATE MESOZOIC WESTERN NORTH AMERICA**
- 108-13 11:35 AM Nelson, Frederick E.*; Nyland, Kelsey E.: **GREAT MAPS (NOT): THE 1984 CIA MAP PERMAFROST REGIONS IN THE SOVIET UNION**
- 11:55 AM **CONCLUDING REMARKS**

SESSION NO. 109

T172. A Call to Arms: Applying Quaternary Science in the 21st Century (GSA Quaternary Geology and Geomorphology Division; US National Committee-International Quaternary Congress; GSA Geology and Society Division; American Quaternary Association (AMQUA); GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Limnogeology Division)

8:00 AM, The Conference Center, Chelan 5

Julio Betancourt and Rolfe D. Mandel, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 109-1 8:15 AM Betancourt, Julio L.*: **ANTICIPATORY SCIENCE FOR CHANGING LANDSCAPES: DOES QUATERNARY HISTORY MATTER?**
- 109-2 8:30 AM Ely, Lisa L.*; Wesson, Robert L.; Cisternas, Marco: **A CONTINUING AND EVOLVING ROLE FOR QUATERNARY SCIENCE IN RECOGNIZING AND EVALUATING NATURAL HAZARDS DURING THE 21ST CENTURY (Invited Presentation)**
- 109-3 8:50 AM Wingard, G. Lynn*: **QUATERNARY CONTRIBUTIONS TO 21ST CENTURY RESTORATION PROJECTS: AN EXAMPLE FROM THE EVERGLADES**
- 109-4 9:10 AM Woodhouse, Connie*: **MAKING THE CONNECTION BETWEEN QUATERNARY SCIENCE AND DECISION MAKING (Invited Presentation)**
- 109-5 9:30 AM Horton, Benjamin P.*; Shennan, Ian; Bradley, Sarah L.; Cahill, Niamh; Kirwan, Matthew L.; Kopp, Robert E.; Shaw, Timothy A.: **PREDICTING 21ST CENTURY TIDAL MARSH VULNERABILITY TO SEA-LEVEL RISE USING HOLOCENE RELATIVE SEA-LEVEL DATA**
- 109-6 9:45 AM Brown, Lauren N.*; Thorne, Karen; Ambrose, Richard; MacDonald, Glen M.: **QUATERNARY HISTORIES OF SALT MARSHES IN CALIFORNIA PROVIDE ENVIRONMENTAL BASELINES**
- 109-7 10:00 AM Powell, Eric N.*; Kuykendall, Kelsey; Moreno, Paula; Pace, Sara: **DEATH ASSEMBLAGES AS RECORDERS OF RECENT CLIMATE CHANGE ON THE CONTINENTAL SHELF**
- 10:15 AM **BREAK**
- 109-8 10:30 AM Devlin, J.F.*: **A TALE OF TWO AQUIFERS: HOW QUATERNARY GEOLOGY AFFECTED THE HYDROGEOLOGY OF REMEDIATION AT TWO ONTARIO SITES**

- 109-9 10:45 AM Rittenour, Tammy*: **DYNAMIC FLUVIAL AND EOLIAN SYSTEMS IN SOUTHERN UTAH. LOOKING INTO THE PAST, WITH AN EYE TOWARD THE FUTURE**
- 109-10 11:00 AM Redsteer, Margaret H.*: **AN APPRAISAL OF MODERN AND ANCIENT SAND DUNES ON SOUTHERN COLORADO PLATEAU TRIBAL LANDS, SOUTHWESTERN USA**
- 109-11 11:15 AM Beach, Timothy*; Luzzadder-Beach, Sheryl; Dunning, Nicholas P.; Valdez, Fred: **ANCIENT MAYA GEOARCHAEOLOGY OF REDISCOVERED LANDESQUE CAPITAL AND APPLIED QUATERNARY SCIENCE**
- 109-12 11:30 AM Parker, Wesley G.*; Yanes, Yurena; Mesa-Hernández, Eduardo; Hernández-Marrero, Juan Carlos; Pais, Jorge; Surge, Donna; Soto, Nora: **ASSESSING THE SEASONALITY AND INTENSITY OF SHELLFISH EXPLOITATION IN THREE WESTERN CANARY ISLANDS OVER THE LAST ~2000 YEARS**
- 109-13 11:45 AM Mandel, Rolfe*: **THE APPLICATION OF QUATERNARY SCIENCE IN CULTURAL RESOURCE MANAGEMENT: NEW CHALLENGES IN THE 21ST CENTURY**

SESSION NO. 110

T176. Glacier-Landscape Interactions, Loess Paleoclimatology, and Interdisciplinary Quaternary Science I: In Memory of Stephen C. Porter (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division)

8:00 AM, The Conference Center, Chelan 4

Glenn D. Thackray, Richard B. Waitt and Zhisheng An, Presiding

- 8:00 AM **RETROSPECTIVE ON STEPHEN PORTER'S LIFE AND CAREER**
- 110-1 8:20 AM An, Zhisheng*; Zhou, Weijian; Li, Li; Cai, Yanjun: **THE SCIENTIFIC LEGACY OF STEPHEN C. PORTER: FUTURE DIRECTIONS FOR RESEARCH ON CLIMATE DYNAMICS THROUGH REGIONAL AND GLOBAL CORRELATIONS**
- 110-2 8:40 AM Conroy, Jessica L.*; Grimley, Dave A.; Nash, Thomas Andrew; Guenther, William R.; Curry, B.B.: **LOESS ACCUMULATION AND HYDROCLIMATE VARIABILITY IN ASSOCIATION WITH LAKE MICHIGAN LOBE FLUCTUATIONS DURING THE LAST GLACIAL MAXIMUM**
- 110-3 8:55 AM Kehew, Alan E.*; Esch, John M.; Curry, B. Brandon; Huot, Sebastien; Caron, Olivier J.; Yellich, John A.; Karki, Sita: **MELT WATER SOURCE FOR THE KANKAKEE TORRENT**
- 110-4 9:10 AM Clague, John*; Roberts, Nicholas J.; Menounos, Brian; Goehring, Brent: **GEOMORPHIC AND GEOLOGIC EVIDENCE FOR A TERMINAL PLEISTOCENE MEGAFLOOD IN SOUTHWEST BRITISH COLUMBIA**
- 110-5 9:25 AM Denlinger, Roger P.*; George, David L.; Cannon, Charles M.; Waitt, Richard B.; O'Connor, James E.: **MODELING CATAclysmic Outburst Floods from Pleistocene Glacial Lake Missoula**
- 110-6 9:40 AM Waitt, Richard, B.*: **MISSOULA MEGAFLOODS AND PRE-WISCONSIN AGE OF MOSES AND UPPER GRAND COULEES**
- 9:55 AM **BREAK**
- 110-7 10:10 AM Sletten, Ronald S.*; Stone, John O.; Hallet, Bernard: **CONSTRAINING MATERIAL PROPERTIES AND AGE OF MIMA MOUNDS**
- 110-8 10:25 AM Cai, Yanjun*; An, Zhisheng; Edwards, R. Lawrence; Cheng, Hai; Fung, Inez; Tan, Liangcheng; Wang, Xianfeng; Zhang, Haiwei: **THE SPELEOTHEM RECORDS FROM ASIAN SUMMER MONSOON MARGINAL ZONE AND THEIR CLIMATIC IMPLICATIONS**
- 110-9 10:40 AM Zhou, Weijian*; Wu, Zhenkun; Xian, Feng; Cheng, Peng; Lu, Xuefeng; Kong, Xianghui; Du, Yajuan; Xie, Xingjun: **PROGRESS OF ENVIRONMENTAL TRACING USING**

AM

MONDAY

- MULTI-NUCLIDES IN IECCAS: A MEMORY FOR OUR FOREVER FRIEND PROF. S. PORTER**
- 110-10 10:55 AM Stine, Jonathan*; Sweet, D.E.; Geissman, J.W.: **ROCK MAGNETIC CYCLOSTRATIGRAPHY AND MAGNETIC POLARITY STRATIGRAPHY OF THE QUATERNARY BLACKWATER DRAW FORMATION, WEST TEXAS**
- 110-11 11:10 AM Sweet, Dustin E.*; Stine, Jonathan; Geissman, J.W.: **THE EFFECT OF THE MID-PLEISTOCENE TRANSITION ON THE CHARACTER OF SEDIMENTATION ON THE SOUTHERN HIGH PLAINS**
- 110-12 11:25 AM Mann, Daniel H.*; Meltzer, David J.: **PLEISTOCENE PATHWAYS OF HUMAN DISPERSAL INTO AMERICA**

SESSION NO. 111

T193. Quantifying Geomorphic Processes and Rates of Landscape Evolution (GSA Quaternary Geology and Geomorphology Division)

8:00 AM, The Conference Center, Chelan 2

Arjun M. Heimsath and Paul R. Bierman, Presiding

- 111-1 8:00 AM Ben-Israel, Michal*; Matmon, Ari; Haviv, Itai; Niedermann, Samuel: **QUANTIFYING RATES OF SURFACE PROCESSES IN THE DEEP GEOLOGICAL PAST (>10⁷ YR) USING STABLE COSMOGENIC NUCLIDES (³HE AND ²¹NE) – POSSIBILITIES AND LIMITATIONS**
- 111-2 8:15 AM Stuewe, Kurt*; Dertnig, Florian; Wagner, Thomas; Stuart, Fin; Spoettl, Christoph: **THE ENIGMATIC AUGENSTEIN LANDSCAPE OF THE EUROPEAN ALPS. THE KEY TO DECIPHERING THE LANDSCAPE EVOLUTION OF THE WORLDS MOST STUDIED MOUNTAIN RANGE?**
- 111-3 8:30 AM Heimsath, Arjun M.*; Jungers, Matthew Cross; Whipple, Kelin X.; Foster, Marina Bravo: **EVOLVING A SKY ISLAND: SOIL PRODUCTION, CATCHMENT MEAN EROSION RATES, AND PROCESSES IN THE PINALENO MOUNTAINS, SE ARIZONA**
- 111-4 8:45 AM Jungers, Matthew Cross*; Heimsath, Arjun M.; Amundson, Ronald; Balco, Greg; Shuster, David L.: **CONFOUNDINGLY COMPLEX EXPOSURE HISTORIES REVEALED BY ²¹NE AND ¹⁰BE ABUNDANCES IN ALLUVIAL DEPOSITS OF THE ATACAMA DESERT, NORTHERN CHILE (Invited Presentation)**
- 111-5 9:05 AM Sion, Brad D.*; Phillips, Fred M.; Axen, Gary: **INTERROGATING CLIMATE RESPONSE MODELS OF TERRACE FORMATION IN THE RIO GRANDE RIFT USING ³⁶CL AND ¹⁴C DATING**
- 111-6 9:20 AM Odom, William E.*; Granger, Darryl E.: **DATING TERRACE DEPOSITS ALONG THE TENNESSEE RIVER USING COSMOGENIC ²⁶AL AND ¹⁰BE**
- 111-7 9:35 AM Francis, Sarah W.*; Clark, Doug; Farley, Ken A.; Amos, Colin B.; Bierman, Paul R.: **QUANTIFYING THE MAGNITUDE AND SPATIAL VARIABILITY OF BEDROCK EROSION BENEATH THE SISTERS GLACIER, WASHINGTON, USING COSMOGENIC ³HE CONCENTRATIONS**
- 111-8 9:50 AM Dethier, David P.*; Ouimet, William B.: **GSA QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION DISTINGUISHED CAREER AWARD: ERODING THE SOUTHERN ROCKY MOUNTAINS—WEATHERING AND FLUID FLOW IN SLOW MOTION IN THE CRITICAL ZONE**
- 111-9 10:20 AM Willett, Chelsea D.*; Ma, Keith; Shuster, David L.; Christeleit, Elizabeth; Brandon, Mark T.; Hourigan, Jeremy: **ONSET OF GLACIATION CAUSES RAPID INCREASE IN EXHUMATION RATE BEFORE RELAXATION TOWARDS STEADY-STATE: DETRITAL APATITE (U-TH)/HE RECORD 6 MA TO PRESENT IN CENTRAL PATAGONIA**
- 111-10 10:35 AM Brown, Nathan D.*; Moon, Seulgi; Rhodes, Edward J.: **USING LUMINESCENCE SIGNALS FROM BEDROCK FELDSPARS TO QUANTIFY RAPID COOLING IN**

THE SAN BERNARDINO MOUNTAINS, SOUTHERN CALIFORNIA

- 111-11 10:50 AM Horne, A.M.*; Hodges, K.V.; van Soest, Matthijs C.: **DETRITAL THERMOCHRONOLOGIC STUDIES OF STEEP FLUVIAL CATCHMENTS: EXAMPLES FROM THE SOUTHEASTERN SIERRA NEVADA, CALIFORNIA**
- 111-12 11:05 AM Crow, Ryan S.*; Pearthree, Philip A.; House, P. Kyle; Stelten, Mark; Heizler, Matthew; Schwing, Jonathan E.: **NEW CONSTRAINTS ON THE TIMING OF COLORADO RIVER INTEGRATION FROM THE DATING OF AXIAL-BASIN DEPOSITS IN COTTONWOOD VALLEY, AZ**
- 111-13 11:20 AM Moon, Seulgi*; Goodfellow, Bradley W.; Perron, J. Taylor; Martel, Stephen J.; Caffee, Marc W.; Ebert, Karin; Hall, Adrian; Hättestrand, Clas; Heyman, Jakob; Mas Ivars, Diego; Näslund, Jens-Ove; Stroeven, Arjen: **INTERACTION OF STRONG COMPRESSIVE STRESSES WITH TOPOGRAPHY: IMPLICATIONS FOR BEDROCK FRACTURES IN FORSMARK, SWEDEN (Invited Presentation)**
- 111-14 11:40 AM West, Nicole*; Ferrier, Ken L.: **TESTING THE RELATIONSHIP BETWEEN MINERAL SUPPLY RATES AND CHEMICAL EROSION IN THE KLAMATH MOUNTAINS (Invited Presentation)**

SESSION NO. 112

T196. Advances in Geoarchaeology I (GSA Archaeological Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division)

8:00 AM, Washington State Convention Center, Room 3B

Laura R. Murphy and Kathleen Nicoll, Presiding

- 112-1 8:00 AM Murphy, Laura R.*: **ADVANCES IN GEOARCHAEOLOGY**
- 112-2 8:15 AM Cordova, Carlos E.*: **GEOARCHAEOLOGY OF THE CONTEMPORARY PAST: APPLICABILITY AND INTELLECTUAL MERIT**
- 112-3 8:30 AM Kelley, Alice R.*; Spiess, Arthur; Kelley, Joseph T.; Miller, Jacquelynn F.: **CULTURAL (GEOLOGICAL) RESOURCE HERITAGE: IT'S NOT JUST ARCHAEOLOGY ANYMORE!**
- 112-4 8:45 AM Miller, Jacquelynn F.*; Kelley, Alice R.; Kelley, Joseph T.; Belknap, Daniel F.; Spiess, Arthur: **MAKING RAPID CULTURAL RESOURCE MANAGEMENT DECISIONS USING GROUND-PENETRATING RADAR**
- 9:00 AM **BREAK**
- 112-5 9:15 AM McCloy, John*; Clarke, Jack; Abusamha, Mahmood; Pearce, Carolyn; Weaver, Jamie; Sjöblom, Rolf; Hjarthner-Holder, Eva; Ogenhall, Erik; Vicenzi, Edward P.; Lam, Thomas; Feinberg, Joshua; Schweiger, Michael; Peeler, David; Kruger, Albert: **RECONSTRUCTING VITRIFIED WALLBUILDING TECHNOLOGY FOR BROBORG HILLFORT SITE, SWEDEN**
- 112-6 9:30 AM Pike, Scott*; Card, Nick; Anderson-Whymark, Hugo: **ASSESSING PORTABLE XRF DATA ANALYSES WITHIN A NEOLITHIC CONTEXT: COMPARING SEMI-QUANTITATIVE AND QUANTITATIVE XRF SPECTRAL DATA ANALYSIS OF YELLOW-CLAY FLOOR SAMPLES FROM STRUCTURE 14, NESS OF BRODGAR, SCOTLAND**
- 112-7 9:45 AM Cruse, Steffanie R.*; Powell, Wayne; Huska, Andrea; Bankoff, H. Arthur; Filipovic, Vojislav: **GEOCHEMICAL PROSPECTING AT MT. PROSARA AND MOTAJICA, NORTHERN BOSNIA: EXAMINING POTENTIAL SITES OF BRONZE AGE PLACER TIN ORE MINING**
- 112-8 10:00 AM Renson, Virginie*; Neff, Hector; Cheetham, David; Blomster, Jeffrey; Guthrie, James; Glascock, Michael D.: **ABOUT THE USE OF LEAD AND STRONTIUM ISOTOPES AS TRACERS IN POTTERY PROVENANCE STUDIES**
- 10:15 AM **BREAK**

- 112-9 10:30 AM Brooks, William E.*: **ICP ANALYSES FROM THE CINNABAR-MERCURY OCCURRENCE AT LOMA GUASHON (AZOGUES), ECUADOR**
- 112-10 10:45 AM Glumac, Bosiljka*; Howard, Susannah; Reyes Beattie, Sydney; Peraza Lope, Carlos; Masson, Marilyn A.; Russell, Bradley: **LOCAL STONE UTILIZATION BY PRE-COLUMBIAN MAYA PEOPLE ON THE YUCATAN PENINSULA IN AND AROUND THE CITY OF MAYAPAN, MEXICO**
- 112-11 11:00 AM Nicoll, Kathleen*: **SOURCING RIVER ROCK AND MIDDLE STONE AGE ARTEFACTS DISCOVERED ALONG THE CUNENE RIVER, ANGOLA-NAMIBIA BORDER, SOUTHERN AFRICA**
- 112-12 11:15 AM Blackwell, Bonnie A.B.; Qi, Justin K.*; Mihailović, Bojana; Mihailović, Dusan; Plavsić, Senka; Blickstein, Joel I.B.; Skinner, Anne R.; Daković, Gligor: **ESR DATING TEETH FROM ŠALITRENA, SERBIA: IMPLICATIONS FOR THE FIRST “EUROPEAN HANDOVER” FROM NEANDERTHALS TO ANATOMICALLY MODERN HOMO SAPIENS**

SESSION NO. 113

T205. Impact Cratering: From Fire to Ice—Cratering across the Solar System (GSA Planetary Geology Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division)

8:00 AM, The Conference Center, Tahoma 1

Christian Koeberl, Jeffrey B. Plescia, Philippe Claeys and David A. Kring, Presiding

- 113-1 8:00 AM Minton, David A.*; Fassett, Caleb I.; Hirabayashi, Masatoshi; Howl, Bryan A.; Richardson, James E.: **TOPOGRAPHIC DEGRADATION BY IMPACT CRATERING ON AIRLESS BODIES IS DOMINATED BY DIFFUSIVE EROSION FROM DISTAL EJECTA (Invited Presentation)**
- 113-2 8:15 AM Runyon, Kirby D.*; Barnouin, Olivier S.: **PRELIMINARY LABORATORY INVESTIGATIONS OF EJECTA EMPLACEMENT DYNAMICS AND MORPHOLOGY WITH PLANETARY APPLICATIONS (Invited Presentation)**
- 113-3 8:30 AM Huang, Ya-Huei*; Minton, David A.; Zellner, Nicolle E.B.; Hirabayashi, Masatoshi; Richardson, James E.; Fassett, Caleb I.: **NO CHANGE IN THE LUNAR IMPACT FLUX THROUGH THE COPERNICAN PERIOD FROM MODELING IMPACT GLASS SPHERULE AGE DISTRIBUTION IN LUNAR REGOLITH**
- 113-4 8:45 AM Plescia, Jeffrey*: **IMPACT CRATER MELT RHEOLOGY**
- 113-5 9:00 AM Stickle, Angela M.*; Patterson, G. Wesley; Cahill, Joshua T.S.: **EXAMINING EJECTA PROPERTIES FOR YOUNG LUNAR CRATERS USING MINI-RF BISTATIC OBSERVATIONS**
- 113-6 9:15 AM Snape, Joshua F.*; Nemchin, A.A.; Thiessen, Fiona; Bellucci, Jeremy; Whitehouse, Martin J.: **HOW MUCH CAN PHOSPHATES IN LUNAR BRECCIAS TELL US ABOUT THE IMPACT HISTORY OF THE MOON?**
- 113-7 9:30 AM Kieffer, Susan W.*; Boyce, Joseph; Mougini-Mark, Peter J.; Best, James L.; Meiburg, Eckart; Austin, Joanna M.: **FORMATION OF LINEAR GROOVES ON MARTIAN DOUBLE LAYERED EJECTA IMPACT CRATERS BY EROSION VORTICES**
- 113-8 9:45 AM Schmitt, Harrison H.*: **DID LARGE IMPACTS SEED THE FIRST CONTINENTS?**
- 113-9 10:00 AM Weisz, David G.*; Jacobsen, Benjamin; Weber, Peter; Koeberl, Christian: **SEARCH FOR IMPACTOR REMNANTS PRESERVED IN MICRO-SCALE DEPOSITION LAYERS IN AUSTRALASIAN MICROTERTILES (Invited Presentation)**
- 113-10 10:15 AM Koeberl, Christian*; Montanari, Alessandro; Schulz, Toni; Mougél, Berengere; Moynier, Frederic: **LATE EOCENE IMPACT EJECTA IN ITALY: ATTEMPTS TO CONSTRAIN**

- THE IMPACTOR COMPOSITION FROM ISOTOPIC ANALYSES OF SPINEL-RICH SAMPLES**
- 113-11 10:30 AM de Graaff, Sietze J.*; Jansen, Max N.; Smit, Jan; Kyte, Frank T.: **THE END-TRIASSIC EXTINCTION EVENT: THE CASE FOR AN EXTRATERRESTRIAL RATHER THAN TERRESTRIAL CAUSE**
- 113-12 10:45 AM Harris, R. Scott*; Jaret, Steven J.: **MARE-STYLE IMPACT-ASSISTED VOLCANISM AT THE TRIASSIC-JURASSIC BOUNDARY?**
- 113-13 11:00 AM Renne, Paul R.*; Arenillas, Ignacio; Arz, José Antonio; Gilabert, Vicente; Bermúdez, Hermann D.: **NEW ⁴⁰AR/³⁹AR AND PLANKTONIC FORAMINIFERAL DATA INDICATE A KPB AGE FOR THE CHICXULUB-LINKED SPHERULE BED AT GORGONILLA ISLAND, PACIFIC OF COLOMBIA**
- 113-14 11:15 AM Bermúdez, Hermann D.*; Arz, José Antonio; Renne, Paul R.; Arenillas, Ignacio; Gilabert, Vicente; Rodríguez, Jose Vicente; Bolívar, Liliana; Bolívar, Luz Stella: **EVIDENCE FOR CHICXULUB IMPACT SEISMICITY AT GORGONILLA ISLAND K/Pg SECTION, PACIFIC OF COLOMBIA**
- 113-15 11:30 AM Smit, Jan*; DePalma, Robert A.; Richards, Mark; Alvarez, Walter; Burnham, David A.; Manning, Phillip L.: **TANIS, A MIXED MARINE-CONTINENTAL EVENT DEPOSIT AT THE KPG BOUNDARY IN NORTH DAKOTA CAUSED BY A SEICHE TRIGGERED BY SEISMIC WAVES OF THE CHICXULUB IMPACT**
- 113-16 11:45 AM DePalma, Robert A.*; Burnham, David A.; Smit, Jan; Schmerge, Joshua; Manning, Phillip Lars; Larson, Peter L.; Gurche, Loren; Richards, Mark; Alvarez, Walter: **LIFE AFTER IMPACT: A REMARKABLE MAMMAL BURROW FROM THE CHICXULUB AFTERMATH IN THE HELL CREEK FORMATION, NORTH DAKOTA**

SESSION NO. 114

T209. Challenges in Tectonics: Fault Zone Behavior through Time, from Earth's Surface to the Upper Mantle I (GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)

8:00 AM, The Conference Center, Tahoma 2

Randolph T. Williams, Alexis K. Ault and James F. Dolan, Presiding

- 114-1 8:00 AM Frieman, Ben M.*; Kuiper, Yvette D.; Monecke, Thomas; Kelly, Nigel M.: **FIELD-BASED EVIDENCE FOR DILATIONAL BRECCIATION PRIOR TO DUCTILE LOCALIZATION AND FAULT-VALVE BEHAVIOR ALONG A GOLD-BEARING SPLAY OF THE ARCHEAN LARDER LAKE-CADILLAC DEFORMATION ZONE, ONTARIO, CANADA**
- 114-2 8:15 AM Evans, James P.*; Borhara, Krishna; Webb, Samuel M.: **EARTHQUAKE PETROLOGY: INSIGHTS INTO FAULT SLIP LOCALIZATION AND FAULT HEATING VIA MICRO X-RAY FLUORESCENCE MAPPING AND X-RAY ABSORPTION NEAR EDGE SPECTROSCOPY**
- 114-3 8:30 AM Klepeis, Keith*; Webb, Laura E.; Blatchford, Hannah J.; Schwartz, Joshua J.; Turnbull, Rose; Jongens, Richard: **UNRAVELING A HISTORY OF REPEATED FAULT REACTIVATIONS AND DIFFERENTIAL UPLIFT ABOVE A YOUNG SUBDUCTION ZONE IN SW NEW ZEALAND**
- 114-4 8:45 AM Toke, Nathan A.*; Phillips, Joseph: **PRELIMINARY INVESTIGATION OF THE THOUSAND LAKES FAULT FROM THE MID MIOCENE TO LATE PLEISTOCENE: AN APPROACH FOR CHARACTERIZING LOW SLIP RATE NORMAL FAULTS USING GEOMORPHOLOGY AND PALEOSEISMOLOGY**
- 114-5 9:00 AM Duvall, Alison R.*; Collett, Camille; Flowers, Rebecca M.; Tucker, Gregory E.; Upton, Phaedra: **TIMING AND STYLE OF KAIKOURA RANGE DEVELOPMENT AND MARLBOROUGH FAULTING, SOUTH ISLAND, NEW ZEALAND, FROM LOW-TEMPERATURE THERMOCHRONOLOGY (Invited Presentation)**

AM

MONDAY

- 114-6 9:20 AM Calzolari, Gabriele*; Ault, Alexis K.; Rossetti, Federico; Lucci, Federico; Olivetti, Valerio: **HEMATITE (U-TH)/ HE THERMOCHRONOMETRY CONSTRAINTS ON INTRAPLATE STRIKE-SLIP TECTONICS, THE KUH-E-FAGHAN FAULT, CENTRAL IRAN**
- 114-7 9:35 AM Hubbard, Mary S.*; Lageson, David; Bhattarai, Roshan Raj: **MIGRATING EXHUMATION OF MID-CRUSTAL ROCKS IN COLLISIONAL OROGENS: PROPOSAL OF A NEW FAULT MODEL FROM THE SOLUKHUMBU HIMALAYA**
- 114-8 9:50 AM Mukul, Malay*; Srivastava, Vinee: **NO UNIQUE MAIN FRONTAL THRUST IN THE HIMALAYA?**
- 10:05 AM **BREAK**
- 114-9 10:20 AM Lynch, Erin*; Mulch, Andreas; van der Pluijm, Ben; Yonkee, Adolph: **SYN-DEFORMATIONAL INFILTRATION OF SURFACE-DERIVED FLUIDS ALONG FAULT ZONES IN THE IDAHO-WYOMING SALIENT, SEVIER FOLD-THRUST BELT: CONSTRAINTS FROM PAIRED RADIOGENIC AND STABLE ISOTOPIC ANALYSIS OF AUTHIGENIC CLAYS**
- 114-10 10:35 AM Hoar, Rachel M.*; Thigpen, J. Ryan; Brown, Summer J.; Parks, Ryan D.: **LOW-T THERMOCHRONOLOGIC CONSTRAINTS FOR THE ONSET TIMING AND SLIP HISTORY OF THE SOUTHERNMOST PART OF THE TETON FAULT, WYOMING**
- 114-11 10:50 AM Ma, Debo*; He, Dengfa: **STRIKE-SLIP FAULTS IN HALAHATANG AREA, NORTH TARIM BASIN, NW CHINA: INSIGHTS FROM 3D SEISMIC IMAGERY**
- 114-12 11:05 AM Titus, Sarah*; Chapman, William; Horst, Andrew J.; Brown, Maxwell: **USING STATISTICAL TOOLS TO UNRAVEL THE DEVELOPMENT OF THE HÚSAVÍK-FLATEY FAULT, NORTHERN ICELAND**
- 114-13 11:20 AM Washington, Paul A.*: **STRESS FIELD EVOLUTION IN THE FRONTAL PORTION OF FOLD-AND-THRUST BELTS: EVIDENCE FROM VEIN SYSTEMS**
- 11:35 AM **DISCUSSION**
- 115-7 9:45 AM Kawamura, Kiichiro*; Kuranaga, Mebae; Mochizuki, Kenta; Scientists, IODP Expedition362: **EARLY DIAGENESIS OF DEEP-SEA SEDIMENTS ON INCOMING PLATES: EXAMPLES FROM THE IZU-BONIN TRENCH AND THE SUNDA TRENCH**
- 10:00 AM **BREAK**
- 115-8 10:15 AM Ernst, W. Gary*: **MID-MESOZOIC-PALEOGENE EVOLUTION OF THE NORTHERN AND CENTRAL CALIFORNIAN ACCRETIONARY MARGIN**
- 115-9 10:30 AM DeBari, Susan M.*; Morris, Rebecca; Busby, Cathy J.; Medynski, Sarah: **THE LIFE AND TIMES OF AN ACCRETED CRETACEOUS EXTENSIONAL ARC (ROSARIO SEGMENT OF THE ALISITOS ARC); AN OUTSTANDING ANALOG TO ACTIVE WESTERN PACIFIC EXTENSIONAL ARCS**
- 115-10 10:45 AM Dilek, Yildirim*: **ORIGIN AND EMPLACEMENT OF MAFIC-ULTRAMAFIC ROCK ASSEMBLAGES FROM DOWNGOING SLABS AT SUBDUCTION-ACCRETION COMPLEXES: PACIFIC RIM EXAMPLES AND ANCIENT ANALOGUES IN COLLISION ZONES**
- 115-11 11:00 AM Tang, Limei*; Chen, Ling; Dilek, Yildirim: **ORIGIN AND GEOCHEMICAL-ISOTOPIC FINGERPRINTING OF MARIANA TRENCH-PROXIMAL SEAMOUNT CLUSTERS IN THE WEST PACIFIC SEAMOUNT PROVINCE, 20°N LATITUDE**
- 11:15 AM **DISCUSSION**
- 11:30 AM **CONCLUDING REMARKS**

SESSION NO. 116

T234. What Are the Conditions That Lead to Detachment Faulting? (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division)

8:00 AM, The Conference Center, Tahoma 3

Thomas Hoisch, Michael L. Wells and John S. Singleton, Presiding

SESSION NO. 115

T227. Ophiolite and Ocean Plate Stratigraphy Records in Modern and Ancient Accretionary and Collisional Orogenic Belts in the Circum Pacific Region I (GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geophysics Division; Geological Society of China; GSA Sedimentary Geology Division)

8:00 AM, The Conference Center, Tahoma 4

Yildirim Dilek and Jingsui Yang, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 115-1 8:05 AM Scholl, David William*: **PACIFIC RIM ACCRETION, PAST AND UNDERWAY—THE IMPORTANCE OF FOREARC CRUSTAL UNDERPLATING (Invited Presentation)**
- 115-2 8:25 AM Kay, Suzanne Mahlburg*: **FOREARC SUBDUCTION EROSION AND CONTRACTION IN THE EVOLUTION OF ACCRETIONARY AND NON-ACCRETIONARY STAGES IN THE CENTRAL ALEUTIAN AND CENTRAL ANDEAN ARCS (Invited Presentation)**
- 115-3 8:45 AM Ogawa, Yujiro*; Dilek, Yildirim: **VARIATIONS OF DEFORMATION AND EMPLACEMENT TYPES IN ACCRETIONARY PRISMS: COMPARISON BETWEEN THE FRANCISCAN AND JAPANESE ON LAND AND SUBMERSIBLE EXAMPLES**
- 115-4 9:00 AM Wakita, Koji*: **MISSING OCEAN PLATE STRATIGRAPHY: A KEY TO UNDERSTANDING CONTINUOUS VERSUS DISCONTINUOUS ACCRETIONARY COMPLEX FORMATION IN THE PALEOZOIC AND MESOZOIC RECORD OF SOUTHWEST JAPAN**
- 115-5 9:15 AM Raymond, Loren A.*: **OPS CHERT CONUNDRUM IN FRANCISCAN COMPLEX ACCRETIONARY UNITS**
- 115-6 9:30 AM Hirano, Naoto*: **ACCRETIONARY RECORDS OF THE JAPANESE ARCHIPELAGO, NW PACIFIC RIM**
- 116-1 8:00 AM Lavier, Luc*; Biemiller, James: **MECHANICAL CONSTRAINTS ON LOW ANGLE NORMAL FAULT STRENGTH: LONG-TERM AND SECULAR NUMERICAL MODELING OF CORE COMPLEXES (Invited Presentation)**
- 116-2 8:20 AM Fletcher, John M.*; Oskin, Michael E.; Teran, Orlando: **WHAT DO MULTIFAUULT EARTHQUAKE RUPTURES TEACH US ABOUT THE MECHANICS OF DETACHMENT FAULTING?**
- 116-3 8:35 AM Anderson, Ernie*: **MAGMATIC CONDITIONS LED TO DEVELOPMENT OF THE WATERMAN HILLS DETACHMENT FAULT, CENTRAL MOJAVE DESERT, CALIFORNIA**
- 116-4 8:50 AM Wooden, J.L.; Wright, J.E.; Howard, K.; Barth, A.P.; Anderson, J.L.*: **IMPLICATIONS OF NEW SIMS ZIRCON AGES FOR MAGMATIC EVOLUTION OF THE WHIPPLE MOUNTAINS METAMORPHIC CORE COMPLEX**
- 116-5 9:05 AM Robinson, Peter*; Hollocher, Kurt; Lucas, Benjamin; Tucker, Robert D.; Schumacher, John C.; McEnroe, Suzanne A.: **A MAJOR EARLIEST SILURIAN LOW-ANGLE DETACHMENT IN THE BRUNSON HILL MAGMATIC ARC, MASSACHUSETTS AND SW NEW HAMPSHIRE**
- 116-6 9:20 AM John, Barbara E.*; Grimes, Craig; LaForge, Justin: **WHAT ROLE DO FLUIDS PLAY AT INITIATION OF LOW-ANGLE NORMAL FAULTING? (Invited Presentation)**
- 116-7 9:40 AM Holk, Gregory J.*; Grove, Marty J.; Jacobson, C.E.; Haxel, Gordon B.: **A TWO-STAGE FLUID HISTORY FOR THE OROCOPIA SCHIST AND ASSOCIATED ROCKS RELATED TO FLAT SUBDUCTION AND EXHUMATION, SOUTHEASTERN CALIFORNIA: A COLD AND DRY METAMORPHIC CORE COMPLEX**
- 9:55 AM **BREAK**

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| <p>116-8 10:10 AM Whitney, Donna L.*; Teyssier, Christian; Rey, Patrice F.; Korchinski, Megan: DETACHMENT FAULTS AS DYNAMIC LINKS BETWEEN DEEP AND SHALLOW LITHOSPHERE (Invited Presentation)</p> <p>116-9 10:30 AM Craddock, Suzanne D.*; Hoisch, Thomas D.; Wells, Michael; Sauer, Katrina M.; Beyene, Mengesha A.; Vervoort, Jeffrey D.: NEW PRESSURE-TEMPERATURE-TIME PATHS FROM THE FUNERAL MOUNTAINS, CALIFORNIA, RECORDING LATE JURASSIC BURIAL AND EXHUMATION DURING EARLY SEVIER OROGENESIS</p> <p>116-10 10:45 AM Craig, Taylor D.*; Wells, Michael L.; Hoisch, Thomas D.: STRUCTURAL AND KINEMATIC HISTORY OF THE CHLORIDE CLIFF REGION: IMPLICATIONS FOR TECTONIC INHERITANCE IN THE FORMATION OF THE FUNERAL MOUNTAINS METAMORPHIC CORE COMPLEX, DEATH VALLEY, CA</p> <p>116-11 11:00 AM Singleton, John S.*; Wong, Martin S.; Johnston, Scott M.: CALC-MYLONITES IN THE BUCKSKIN-RAWHIDE METAMORPHIC CORE COMPLEX, ARIZONA: LOCALIZATION OF DETACHMENT FAULT STRAIN IN RHEOLOGICALLY WEAK ZONES INHERITED FROM CRETACEOUS THRUST FAULTING</p> <p>116-12 11:15 AM Liu, Junlai*; Shi, Xiaoxiao; Yuan, Fengjie; Ni, Jinlong: EARLY CRETACEOUS METAMORPHIC CORE COMPLEXES AND EXTENSIONAL DOMES AS A RESULT OF PARALLEL EXTENSION TECTONICS IN EASTERN EURASIAN CONTINENT</p> <p>116-13 11:30 AM Baran, Zeynep*; Dilek, Yildirim; Stockli, Daniel F.: INGREDIENTS OF RAPID EXHUMATION AND DETACHMENT FAULTING: A CASE STUDY FROM MENDERES CORE COMPLEX, WESTERN TURKEY</p> | <p>EARTHQUAKES IN MAGMATIC AND AMAGMATIC RIFT SECTORS, EAST AFRICA</p> <p>117-8 10:00 AM Heilman, Erin K.*; Kolawole, Folarin; Mayle, Micah; Atekwana, Estella A.; Abdelsalam, Mohamed G.: PRE-EXISTING LITHOSPHERIC SCALE STRUCTURES FACILITATE OBLIQUE RIFTING: EVIDENCE FROM THE RUKWA-MALAWI SEGMENT OF THE EAST AFRICAN RIFT SYSTEM</p> <p>117-9 10:15 AM Fagereng, Ake*; Hodge, Michael S.; Biggs, Juliet; Huang, Leslie; Hellebrekers, Nina; Mdala, Hassan; Diener, Johann F.A.; Niemeijer, André R.: PERSPECTIVES ON THE EFFECT OF PRE-EXISTING WEAKNESSES IN THE MALAWI RIFT, EAST AFRICA</p> <p>117-10 10:30 AM Gao, Stephen S.*; Liu, Kelly H.; Yu, Youqiang; Reed, Cory A.; Mickus, Kevin L.; Moidaki, Moikwathai: CRUSTAL AND MANTLE STRUCTURE AND ANISOTROPY BENEATH THE YOUNG AND INCIPIENT SEGMENTS OF THE EAST AFRICAN RIFT SYSTEM (Invited Presentation)</p> <p>117-11 10:45 AM Hogan, John P.*; Alvarez Naranjo, Angelica: THE ROLE OF CRUSTAL STRENGTH ANISOTROPIES IN STRAIN LOCALIZATION DURING INCIPIENT CONTINENTAL RIFTING: AN EXAMPLE FROM THE OKAVANGO RIFT ZONE, BOTSWANA</p> <p>117-12 11:00 AM Abdelsalam, Mohamed G.*; Atekwana, Estella A.; Evans, Rob L.; Mickus, Kevin L.: THE TRI-TECTONIC DANCE OF SOUTH-CENTRAL AFRICA: CRATONS, OROGENIC BELTS, AND CONTINENTAL RIFT SYSTEMS</p> <p>117-13 11:15 AM Liu, Kelly H.*; Reed, Cory A.; Yu, Youqiang; Sun, Muchen; Gao, Stephen S.: THE MANTLE TRANSITION ZONE BENEATH THE EAST AFRICAN RIFT SYSTEM: FROM AFAR TO OKAVANGO</p> |
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SESSION NO. 117

T241. Volcano-Tectonic Evolution of the East African Rift System (GSA International/International Interdisciplinary Interest Group; GSA Geophysics Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)

8:00 AM, The Conference Center, Yakima 1

Kevin L. Mickus and Cynthia J. Ebinger, Presiding

- 117-1** 8:00 AM Mickus, Kevin L.*; Bridges, David L.: **CURIE DEPTH ANALYSIS OF THE AFAR REGION, ETHIOPIA**
- 117-2** 8:15 AM Demissie, Zelalem S.*; Mickus, Kevin L.; Abdelsalam, Mohamed G.; Bridges, David L.; Atekwana, Estella A.: **MAGNETIC AND GRAVITY IMAGING OF THE LITHOSPHERIC STRUCTURE BENEATH THE DOBI GRABEN, AFAR DEPRESSION**
- 117-3** 8:30 AM Polun, Sean G.*; Horrell, David; Tesfaye, Samson; Gomez, Francisco: **NEW KINEMATIC CONSTRAINTS ON THE QUATERNARY TECTONIC EVOLUTION OF THE AFAR TRIPLE JUNCTION**
- 117-4** 8:45 AM Mwangi, Anna*; Mickus, Kevin L.; Serpa, Laura: **MAGNETOTELLURIC ANALYSIS OF THE OLKARIA AND EBURRU GEOTHERMAL FIELDS -KENYAN RIFT, EAST AFRICAN RIFT SYSTEM**
- 117-5** 9:00 AM Xue, Liang*: **TITLE: VOLCANISM, TECTONIC UPLIFT AND DRAINAGE INCISION OF THE KENYA RIFT, EAST AFRICAN RIFT SYSTEM: MORPHO-TECTONIC ANALYSIS APPROACH**
- 117-6** 9:15 AM Henderson, S.T.*; Pritchard, M.E.; Zheng, W.; Oliva, S.J.; Ebinger, C.J.; Elliott, J.; Saria, E.; Ntambila, D.; Chindandali, P.R.N.: **SENTINEL-1 INSAR OBSERVATIONS OF GROUND DEFORMATION IN THE EARLY-STAGE NORTHERN NYASA RIFT**
- 9:30 AM **BREAK**
- 117-7** 9:45 AM Ebinger, C.J.*; Oliva, S.J.; Drooff, Connor; Keir, Derek; Lavayssiere, Aude; Weinstein, Alexander; Shillington, Donna J.; Gaherty, James B.: **LOWER CRUSTAL**

SESSION NO. 118

T242. Current Trends in Landslide Monitoring: New Techniques, Methods, Successes, Failures, and Case Studies II (GSA Environmental and Engineering Geology Division)

8:00 AM, The Conference Center, Skagit 5

Peter Bobrowsky, David H. Huntley, Michael Hendry and Renato Macciotta, Presiding

- 118-1** 8:00 AM Bayrd, Garrett*; Gile, Josh; Clark, Rob: **DATA ACQUISITION, DATA PREPARATION, NETWORKING, DATA PATH AUTOMATION, AND INSTRUMENT INSTALLATION FOR HILLSLOPE MONITORING IN THE CASCADE MOUNTAINS**
- 118-2** 8:15 AM Rutledge, F. Alex*; Cannon, Robert; Gagnon, J. Hawkins; Pate, Kimberly; Snider, Fred: **STABILIZATION OF A POTENTIAL ROCKSLIDE AT BOUNDARY DAM, WA**
- 118-3** 8:30 AM Bobrowsky, Peter*; Huntley, David H.; Neelands, Peter; MacLeod, Roger; Mariampillai, Danial; Hendry, Michael; Macciotta, Renato; Reeves, Helen J.; Chambers, Jonathan E.: **RIPLEY LANDSLIDE – CANADA’S PREMIER LANDSLIDE FIELD LABORATORY**
- 118-4** 8:45 AM Crawford, Matthew M.*: **USING ELECTRICAL RESISTIVITY TO ASSESS LANDSLIDES: EXAMPLES FROM KENTUCKY AND PENNSYLVANIA**
- 118-5** 9:00 AM Mirus, Benjamin B.*; Becker, Rachel; Smith, Joel B.; Baum, Rex L.: **REAL-TIME SUBSURFACE HYDROLOGIC MONITORING FOR IMPROVED LANDSLIDE EARLY WARNING ALONG SEATTLE-EVERETT RAILWAY CORRIDOR**
- 118-6** 9:15 AM Vilímek, Vít*; Smolíková, Jana; Blahút, Jan: **ANALYSIS OF RAINFALL THRESHOLDS OF DEBRIS FLOWS ON THE SMEDAVSKA HORA MT., JIZERSKE HORY MTS., CZECH REPUBLIC**
- 118-7** 9:30 AM Rodriguez, Jorge L.*; Hendry, Michael: **IMPLEMENTATION OF LOW-COST DIFFERENTIAL GPS NETWORKS TO MONITOR DISPLACEMENTS OF A LANDSLIDE**
- 9:45 AM **DISCUSSION**

AM

MONDAY

- 10:00 AM **BREAK**
- 118-8 10:15 AM Jacobacci, Kara E.*: **BEYOND LIDAR: ALTERNATIVE TECHNOLOGIES FOR LANDSLIDE CHARACTERIZATION IN THE FIELD**
- 118-9 10:30 AM Roberts, Nicholas J.*; Rabus, Bernhard; Guzmán, Marco-Antonio; Clague, John; Minaya, Estela; Hermanns, Reginald L.; Fernandez, Gonzalo A.: **PREDICTING RAPID URBAN LANDSLIDES IN LA PAZ, BOLIVIA, FROM LOCALIZED, MILLIMETRE-SCALE DEFORMATION DETECTED WITH ADVANCED SPACEBORNE INSAR (Invited Presentation)**
- 118-10 10:50 AM Corominas, Jordi*; Moya, José; Gili, Josep A.: **GAINING UNDERSTANDING OF LANDSLIDES BY MONITORING (Invited Presentation)**
- 118-11 11:10 AM Baum, Rex L.*; Smith, Joel B.; Mirus, Benjamin B.; Michel, Abigail: **DYNAMIC EARTH-PRESSURE CHANGES ASSOCIATED WITH MOVEMENT OF A SLOW LANDSLIDE (Invited Presentation)**
- 118-12 11:30 AM Gbadebo, Adewole M.*; Adediji, Oludare H.; Akinlabi, I.; Adeyemi, Moyosoluwa; Akinrimisi, Oluwatobiloba, E.; Fabunmi, A. Michael; Edogbo, Ajogwu S.; Badejo, A.: **DETAILED INVESTIGATION OF LANDSLIDE HAZARD USING GEOLOGICAL, GEOPHYSICAL, GEOTECHNICAL AND GIS TECHNIQUES IN EYINOKO HILLY AREA OF OKEIGBO, SOUTHWESTERN NIGERIA**
- 11:45 AM **DISCUSSION**

SESSION NO. 119

T248. Microbialite Textures and Chemical Signatures in Continental Settings: Forging the Link between the Modern and Ancient (GSA Geobiology & Geomicrobiology Division; GSA Limnogeology Division; GSA Karst Division)

8:00 AM, Washington State Convention Center, Room 602/603

Thomas A. Hickson and Julie K. Bartley, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 119-1 8:10 AM Hickson, Thomas A.*; Bartley, Julie K.: **MICROBIALITE TEXTURES AND CHEMICAL SIGNATURES IN CONTINENTAL SETTINGS: SOME THOUGHTS ON DATA NEEDS**
- 119-2 8:25 AM Sumner, Dawn Y.*; Krusor, Megan; Jungblut, Anne; Mackey, Tyler J.; Mizzi, Jessica; Hawes, Ian: **AN ANALOG TO ARCHEAN CYANOBACTERIAL CONTINENTAL COMMUNITIES IN MODERN LAKE FRYXELL, ANTARCTICA (Invited Presentation)**
- 119-3 8:45 AM Vanden Berg, Michael D.*; Lindsay, Melody R.; Boyd, Eric S.; Chidsey, Thomas C.; Eby, David E.: **THE MICROBIALITES OF UTAH'S GREAT SALT LAKE: GEOLOGY VS. BIOLOGY**
- 119-4 9:00 AM Paradis, Olivia P.*; Corsetti, Frank A.; Bardsley, Audra; Hammond, Douglas E.; Xu, Xiaomei; Stamps, Blake W.; Stevenson, Bradley S.; Walker, Jennifer; Berelson, William M.: **UNRAVELING RADIAL OOID FORMATION IN GREAT SALT LAKE (UTAH): INSIGHTS FROM RADIOCARBON CHRONOLOGY AND MOLECULAR BIOLOGY**
- 119-5 9:15 AM Bernhard, Joan M.*; Fisher, Luke; Reilly, Megan; Bucklin, Ann; Questel, Jennifer; Le Roux, Veronique; Visscher, Pieter: **CAN FRESHWATER FORAMINIFERA IMPACT STROMATOLITE FABRIC?**
- 119-6 9:30 AM Melim, Leslie A.*; Spilde, Michael N.: **ON THE ORIGIN OF 'MICRITIC' LAYERS IN SPELEOTHEMS: NOT OBVIOUS AND NOT SIMPLE**
- 9:45 AM **BREAK**
- 10:00 AM **LIGHTNING TALKS: POSTER PREVIEWS**
- 119-7 10:10 AM Tice, Michael*; Zeng, Zhirui: **MICROBIAL PROMOTION OF CARBONATE MINERAL PRECIPITATION IN**

MICROBIALITES: A CASE FOR THE IMPORTANCE OF IRON REDUCTION (Invited Presentation)

- 119-8 10:30 AM Thompson, Katharine J.*; Simister, Rachel L.; Lliros, Marc; Hallam, Steven J.; Crowe, Sean A.: **NETWORKED MICROBIAL INTERACTIONS AND BIOGEOCHEMICAL CYCLING IN MODERN AND ANCIENT FERRUGINOUS ENVIRONMENTS**
- 119-9 10:45 AM Dave, Kanchi*; Thompson, Katharine J.; Crowe, Sean A.: **BIOMASS DEGRADATION UNDER FERRUGINOUS CONDITIONS**
- 119-10 11:00 AM Frantz, Carie M.*; Corsetti, Frank A.; Petryshyn, Victoria A.; Wagner, Max; Mahseredjian, Taleen; Wilmeth, Dylan T.; Piazza, Olivia: **STROMATOLITE FORMATION DURING PERIODS OF DRAMATIC HYDROLOGIC CHANGE IN THE EOCENE GREEN RIVER FORMATION REVEALED FROM TRENDS IN PETROGRAPHY AND HIGH-RESOLUTION STABLE ISOTOPE MEASUREMENTS**
- 119-11 11:15 AM Bartley, Julie K.*; Hickson, Thomas A.: **CONTINENTAL MICROBIALITES THROUGH TIME: THE PROBLEM OF LIMITED ANALOGUES AND A POSSIBLE SOLUTION**

SESSION NO. 120 \$

T252. Cratonic Assembly in the Precambrian: Forming the Core of Modern and Ancient Landmasses (GSA Structural Geology and Tectonics Division)

8:00 AM, Washington State Convention Center, Room 604

Anthony F. Pivarunas, Joseph G. Meert and Scott R. Miller, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 120-1 8:15 AM Salerno, Ross*; Goodge, John W.; Vervoort, Jeff D.: **THE GENERATION AND RAPID EVOLUTION OF NEOARCHEAN CRUST IN THE VERMILION GRANITIC COMPLEX, SUPERIOR PROVINCE OF NORTHERN MINNESOTA**
- 120-2 8:30 AM Gong, Zheng*; Evans, David: **NEW PALEOMAGNETIC RESULTS FROM THE PALEOPROTEROZOIC KILOHIGOK BASIN, SLAVE CRATON, CANADA: IMPLICATIONS FOR THE INITIAL ASSEMBLY OF LAURENTIA**
- 120-3 8:45 AM Eyster, Athena E.*; Weiss, Benjamin P.; Karlstrom, Karl E.; Kremers, Jacob; Macdonald, Francis A.: **RIDDLE OF RODINIA: PALEOMAGNETISM OF THE CHUAR GROUP AND EVALUATION OF THE 780-720 MA LAURENTIAN APPARENT POLAR WANDER PATH**
- 120-4 9:00 AM Stein, Carol A.*; Stein, Seth; Elling, Reece; Keller, G. Randy; Kley, Jonas: **SHOULD THE "GRENVILLE FRONT" IN THE CENTRAL U.S. BE ERASED FROM GEOLOGIC MAPS?**
- 120-5 9:15 AM Swanson-Hysell, Nicholas L.*; Fairchild, Luke M.; Ramezani, Jahandar; Rose, Ian: **LATE MESOPROTEROZOIC TECTONIC HISTORY OF LAURENTIA AND THE ASSEMBLY OF RODINIA (Invited Presentation)**
- 9:35 AM **BREAK**
- 120-6 9:50 AM Geissman, John W.*: **PRECAMBRIAN PALEOMAGNETISM; STILL A DAUNTING, BUT OFTEN A HIGHLY REWARDING ENDEAVOR (Invited Presentation)**
- 120-7 10:10 AM Pivarunas, Anthony F.*; Pandit, M.K.; Meert, Joseph G.: **ANCIENT HIT-AND-RUN: A TRANSIENT PALEOPROTEROZOIC PALEOMAGNETIC CONNECTION BETWEEN THE VESTFOLD HILLS AND PROTO-INDIA**
- 120-8 10:25 AM Zhao, Yue*; Wang, Wei-(RZ); Liu, Jian; Zhang, Shuanhong; Liu, Xiaochun: **A PALEOARCHAEOAN CRATONIC NUCLEI NEIGHBORING THE ARCHAEOAN VESTFOLD BLOCK, EAST ANTARCTICA: IMPLICATION FOR RECONSTRUCTIONS OF COLUMBIA AND RODINIA**
- 120-9 10:40 AM Goodge, John W.; Fanning, C. Mark*; Fisher, Christopher M.; Vervoort, Jeff D.: **AGE AND ISOTOPIC CONSTRAINTS FOR THE PROTEROZOIC EVOLUTION OF CENTRAL EAST ANTARCTICA AND RELATIONSHIP TO**

AUSTRALIA AND LAURENTIA IN THE COLUMBIA AND RODINIA SUPERCONTINENTS

- 120-10** 10:55 AM Bold, Uyanga*; Isozaki, Yukio; Macdonald, Francis A.: **PROTEROZOIC CRATONIC FRAGMENTS IN MONGOLIA: SIGNIFICANCE IN THE INITIATION OF FORMATION OF THE CENTRAL ASIAN OROGENIC BELT**
- 120-11** 11:10 AM Miller, Scott R.*; Meert, Joseph G.; Pivarunas, Anthony F.; Sinha, Anup K.; Pandit, M.K.: **PALEOMAGNETISM AND GEOCHRONOLOGY IN THE EASTERN DHARWAR CRATON**
- 120-12** 11:25 AM Meert, Joseph G.*; Pivarunas, Anthony F.; Miller, Scott R.; Pandit, M.K.; Sinha, Anup K.; Katusin, Karastin Daun: **5 EASY PIECES: THE ASSEMBLY OF PENINSULAR INDIA**
- 11:40 AM **DISCUSSION**
- 11:55 AM **CONCLUDING REMARKS**

AFTERNOON ORAL TECHNICAL SESSIONS

SESSION NO. 121**D1. Recent Advances in Hydrogeology**

1:30 PM, Washington State Convention Center, Room 615/616/617

Lee J. Florea and Sarah A. Vitale, Presiding

- 121-1** 1:30 PM Long, Andrew J.*; Welch, Wendy: **COMPLEX STRATIGRAPHY NEAR PUGET SOUND: BUILDING A 3D FRAMEWORK FOR GROUNDWATER FLOW**
- 121-2** 1:45 PM Vitale, Sarah A.*; Robbins, Gary A.: **APPLYING THE DISSOLVED OXYGEN ALTERATION METHOD WITH HYDRAULIC ISOLATION TO MEASURE WATER QUALITY IN INDIVIDUAL FRACTURES IN OPEN WELLBORES**
- 121-3** 2:00 PM Lupton, Daniel M.*: **USING BOREHOLE GEOPHYSICS TO IDENTIFY POTENTIAL BRACKISH PRODUCTION AREAS IN THE RUSTLER AQUIFER, WEST TEXAS**
- 121-4** 2:15 PM Udy, Nicholas D.*; Ostraff, Ashley A.; Allen, Sarah M.; Rakotoarisaona, Henintsoa; Gherasim, Janelle E.; Stallings, Alison M.; Saldivar, Jeremy N.; Larsen, Kenneth L.; Abbott, Morgan S.; Emerman, Steven H.: **USE OF THE MANNING EQUATION FOR ESTIMATING THE DISCHARGE OF HIGH-GRADIENT CANALS AND NATURAL STREAMS**
- 121-5** 2:30 PM Harp, Dylan R.*; Stauffer, Philip H.; Viswanathan, Hari; Bourret, Michelle; Kwicklis, Edward Michael; Anderson, Dale; Bradley, Christopher R.: **ANALYSIS OF ENHANCED GAS TRANSPORT IN EXPLOSION DAMAGED ROCK DUE TO BAROMETRIC PRESSURE VARIATIONS**
- 121-6** 2:45 PM Simco, William A.*; Larsen, Daniel; Waldron, Brian; Schoefnacker, Scott R.; Smith, Spencer; Eason, James: **RECHARGE OF THE MEMPHIS AQUIFER IN AN INCISED URBAN WATERSHED**
- 121-7** 3:00 PM Wendland, Edson; Lin, Yu-Feng Forrest*; Lowry, Christopher S.; Rosa, David Maycon Schimitt; Alcántara, Gabriel de Miranda: **MONITORING TEMPERATURE AS A TRACER AT THE GUARANI AQUIFER SYSTEM OUTCROP ZONE**
- 121-8** 3:15 PM Timms, Wendy*; David, Katarina; Barbour, Lee: **IN SITU SPECIFIC STORAGE VALUES TO IMPROVE MODELLING OF GROUNDWATER DRAWDOWN**
- 121-9** 3:30 PM Aftab, Syed Mobasher*: **HYDROGEOLOGY OF NIKSAR BASIN, TOKAT, TURKEY**

SESSION NO. 122**D4. Paleoclimatology, Sedimentary, and Historical Studies in Caves and Karst Features**

1:30 PM, Washington State Convention Center, Room 612

Joshua Feinberg, Monica Arienzo and Brendan Fenerty, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 122-1** 1:35 PM Arienzo, Monica*; Mehterian, Sevag; Swart, Peter K.; Broad, Kenneth; Clement, Amy; Pourmand, Ali; Kakuk, Brian: **MULTI-PROXY EVIDENCE OF MILLENNIAL CLIMATE VARIABILITY FROM FOUR BAHAMIAN STALAGMITES**
- 122-2** 1:50 PM Batchelor, Cameron J.*; Orland, I.J.; Marcott, Shaun A.; Slaughter, Richard; Edwards, Lawrence: **A HIGH-PRECISION U-TH CHRONOLOGY OF CALCITE DEPOSITION AT CAVE OF THE MOUNDS, WISCONSIN, AND ITS IMPLICATIONS FOR CLIMATE AND PERMAFROST IN THE LATE PLEISTOCENE**
- 122-3** 2:05 PM van Hengstum, Peter J.*; Maale, Gerhard E.; Sullivan, Richard M.; Winkler, Tyler S.; Kelley, Kevin; Donnelly, Jeffrey P.; Albury, Nancy A.; Onac, Bogdan P.: **EVIDENCE FOR HOLOCENE HYDROCLIMATE VARIABILITY IN THE NORTHERN BAHAMAS (ABACO ISLAND) BASED ON SINKHOLE LAKE SEDIMENT RECORDS**
- 122-4** 2:20 PM Kite, J. Steven*; Tudek, John: **MANY SIMILARITIES AND SOME NOTEWORTHY DIFFERENCES IN COLD-AIR TRAPPING MECHANISMS AT ALGIFIC TALUS SLOPES, ROCK CITIES, AND CAVE PASSAGES IN THE CENTRAL APPALACHIANS**
- 122-5** 2:35 PM Fenerty, B.*; Bourne, M.; Feinberg, J.; Halligan, J.; Waters, M.: **INTEGRATED SURFACE DRAINAGE IN NORTHWEST FLORIDA'S KARSTIC GULF COASTAL LOWLANDS LINKED TO SHIFTING SUBTROPICAL STORM TRACKS IN RESPONSE TO HIGH-LATITUDE POST-GLACIAL CLIMATE CHANGE**
- 122-6** 2:50 PM Jenson, Aubri*; Schwartz, Benjamin F.; Li, Yunxia; Gao, Yongli: **RE-EVALUATING PLEISTOCENE SEA LEVEL HISTORY AND SPELEOGENESIS IN THE YUCATAN PENINSULA: U-TH DATING OF POS FROM QUINTANA ROO, MEXICO**
- 3:05 PM **BREAK**
- 122-7** 3:20 PM van Hengstum, Peter J.*; Cresswell, Jacque N.; Iliife, Thomas M.: **STRATIGRAPHIC EVIDENCE FOR HOLOCENE ENVIRONMENTAL CHANGE IN A BERMUDIAN COASTAL UNDERWATER CAVE (PALM CAVE SYSTEM): IMPLICATIONS FOR BERMUDA'S SEA LEVEL HISTORY**
- 122-8** 3:35 PM Carlson, Peter E.*; Banner, Jay; Breecker, Dan O.: **HYDROLOGIC CONDITIONS AND CARBON CYCLING DYNAMICS RECORDED IN THE CARBON-ISOTOPE VARIATIONS OF A NEAR-ENTRANCE SPELEOTHEM**
- 122-9** 3:50 PM Hart, Evan*: **A 200-YEAR RECORD OF CAVE SEDIMENTATION AND FLOODING, CAPSHAW CAVE, TENNESSEE, USA**
- 122-10** 4:05 PM Cao, Mengchun*; Zhong, Jianhua; Liu, Chuang; Sun, Ningliang: **THE CHARACTERISTICS AND SIGNIFICANCE OF COATED GRAVEL OF THE ORDOVICIAN KARST CAVE IN NORTHERN TARIM BASIN, CHINA**
- 122-11** 4:20 PM Feinberg, Joshua M.*: **ENVIRONMENTAL MAGNETISM OF CAVE DEPOSITS**

SESSION NO. 123**D10. Paleontology, Paleoecology/Paleobotany**

1:30 PM, Washington State Convention Center, Room 604

Victoria E. McCoy and Cindy V. Looy, Presiding

- 123-1** 1:30 PM Ullmann, Paul Victor*; Lacovara, Kenneth J.: **ACTUALISTIC TESTING OF THE INFLUENCE OF GROUNDWATER CHEMISTRY ON DEGRADATION OF COLLAGEN I IN BONE**

- 123-2** 1:45 PM Rosbach, Stephanie A.*; Selly, Tara; Schiffbauer, James D.: **INFLUENCE OF IONIC STRENGTH ON THE PRESERVATION POTENTIAL OF THE BLACK-BACKED LAND CRAB, *GECARCINUS LATERALIS*, SAN SALVADOR, BAHAMAS**
- 123-3** 2:00 PM McCoy, Victoria E.*; Penkman, Kirsty; Preslee, Samantha; Collins, Matthew; Gabbott, Sarah E.: **EXPERIMENTAL DEGRADATION OF CHICKEN FEATHER PROTEINS IN RESIN**
- 123-4** 2:15 PM Solórzano Kraemer, Mónica M.*; Peñalver, Enrique; Delclòs, Xavier: **STICKY TRAPS VS RESIN: AN ACTUALISTIC APPROACH TO UNDERSTAND THE TAPHONOMY OF AMBER**
- 123-5** 2:30 PM Wang, Bo*: **CRETACEOUS BURMESE AMBER BIOTA**
- 123-6** 2:45 PM Fang, Hui*; Labandeira, Conrad C.; Wang, Yongjie; Ren, Dong: **INSIGHTS INTO MID-MESOZOIC POLLINATING INSECTS**
- 123-7** 3:00 PM Hastings, Alexander K.*; Treado, Lucy E.; James, Aryanna L.: **POTENTIAL HABITAT DIFFERENCES BASED ON INSECT FAUNAS WITHIN FOSSIL LAGERSTÄTTEN OF THE LATE TRIASSIC NEWARK SUPERGROUP (VIRGINIA-NORTH CAROLINA BORDER, USA)**
- 123-8** 3:15 PM Bush, Rosemary T.*; Currano, Ellen D.; Jacobs, Bonnie F.; McInerney, Francesca A.; Dunn, Regan E.; Tabor, Neil J.: **BRINGING LEAF SHADE PROXIES INTO THE LIGHT: WHAT DO UNDULATION INDEX AND LEAF $\delta^{13}C$ MEAN IN A FOSSIL FOREST?**
- 123-9** 3:30 PM McInerney, Francesca A.*; Hill, Robert S.; Birch, Benjamin; Tarran, Myall: **CANOPY CLOSURE IN CENOZOIC FORESTS OF AUSTRALIA USING CARBON ISOTOPE RATIOS OF FOSSIL CUTICLE**
- 123-10** 3:45 PM Romero, Ingrid; Kong, Shu; Fowlkes, Charless C.; Urban, Michael A.; D'Apolito, Carlos; Jaramillo, Carlos; Oboh-Ikuenobe, Francisca E.; Punyasena, Surangi W.*: **NOVEL MORPHOLOGICAL ANALYSIS OF A FOSSIL FABACEAE POLLEN TYPE, *STRIATOPOLLIS CATATUMBUS* (TRIBE DETARIAE)**
- 123-11** 4:00 PM Senske, Ashly*; Marvet, Claire; Akbar, Sultan; Wong, Silishia; Hsu, Tingting; Jessett, Kari; Gallaher, Timothy J.; Strömberg, Caroline A.E.: **3D SHAPE EVOLUTION IN GRASS SILICA SHORT CELL PHYTOLITHS: TAXONOMIC PATTERNS IN BAMBUSOIDEAE AND OTHER LINEAGES**
- 123-12** 4:15 PM Looy, Cindy V.*; Duijnste, Ivo A.P.; Chaney, Dan S.; Lucas, Spencer G.; Dimichele, William A.: **A NEW CLUE FOR THE ORIGIN OF CONIFERS FROM THE BEEMAN FORMATION (KASIMOVIAN, NEW MEXICO)**

SESSION NO. 124

D44. Geophysics to Solve Geological Problems and the Annual George P. Woollard Award Presentation

1:30 PM, The Conference Center, Yakima 1

Benjamin Drenth and Kevin L. Mickus, Presiding

- 124-1** 1:30 PM Magnani, M. Beatrice*; Harder, Steven; Lizarralde, Daniel; Luckie, Thomas W.; Worthington, Lindsay Lowe: **CRUSTAL SCALE SEISMIC IMAGING IN DENSELY POPULATED REGIONS: THE ENAM-CSE**
- 124-2** 1:45 PM Ducellier, Ariane*; Creager, Kenneth: **SEISMIC WAVE VELOCITY IN THE SUBDUCTED OCEANIC CRUST FROM AUTOCORRELATION OF TECTONIC TREMOR SIGNALS**
- 124-3** 2:00 PM Young, Dylan W.*: **ARE CALIBRATIONS NEEDED FOR THE FUTURE DUNE DETECTOR? BACKGROUND RADIOACTIVITY AND GEONEUTRINO FLUX ESTIMATION, SURROUNDING THE HOMESTAKE GOLD MINE, IN LEAD, SOUTH DAKOTA, USA**
- 124-4** 2:15 PM Alamooti, Moones*; Aydin, Adnan: **A COMPARATIVE CASE STUDY OF REFLECTION SEISMIC IMAGING METHOD**

- 124-5** 2:30 PM Moerdyk, David*: **DID SUBDUCTION PLATE TECTONICS START WITH A BANG?**
- 124-6** 2:45 PM Catchings, R.D.*; Hernandez, Janis L.; Sickler, Robert R.; Goldman, M.R.; Chan, Joanne H.; Criley, Coy J.: **FAULT-ZONE EXPLORATION IN HIGHLY URBANIZED SETTINGS USING GUIDED WAVES: AN EXAMPLE FROM THE RAYMOND FAULT, LOS ANGELES, CALIFORNIA**
- 3:00 PM **BREAK**
- 124-7** 3:15 PM Liu, Mei*; Filina, Irina: **DELINEATION OF CRUSTAL DOMAINS IN THE NORTHEASTERN GULF OF MEXICO FROM INTEGRATED GEOPHYSICAL ANALYSIS**
- 124-8** 3:30 PM Jha, Sumant*; Harry, Dennis L.; Wenman, Christopher P.: **FLEXURAL RIGIDITY AND LOAD DISTRIBUTION IN THE ROSS ISLAND FLEXURE BASIN, WEST ANTARCTICA**
- 124-9** 3:45 PM Potter, Christopher J.*; Saltus, Richard W.; Lewis, Kristen A.; Haeussler, Peter J.; Stanley, Richard G.; Shah, Anjana K.; Phillips, Jeffrey D.: **STRUCTURAL AND GEOPHYSICAL MODELING OF THE BELUGA MOUNTAIN FAULT, SOUTHERN ALASKA**
- 124-10** 4:00 PM Julian, Bruce*; Foulger, Gillian: **DERIVING RELIABLE GEOLOGICAL INFORMATION FROM SEISMIC TOMOGRAPHY**
- 4:15 PM **INTRODUCTION OF WOOLLARD SPEAKER**
- 124-11** 4:25 PM Beck, Susan L.*; Zandt, George; Wagner, Lara S.; Ward, Kevin M.; Delph, Jonathan R.; Lynner, Colton; Portner, Daniel E.; Bishop, Brandon T.; Alvarado, Patricia A.; Porter, Ryan C.; Scire, Alissa; Linkimer, Lepolt; Koch, Clint: **GSA GEOPHYSICS DIVISION GEORGE P. WOOLLARD LECTURE: CONTRIBUTIONS OF MODERN SEISMIC IMAGING TO UNDERSTANDING THE FORMATION OF THE ANDES**

SESSION NO. 125

P2. Landscapes in the Anthropocene II (GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division; GSA Hydrogeology Division; GSA Geology and Public Policy Committee; Geology (journal))

1:30 PM, Washington State Convention Center, Ballroom 6A

José Antonio Constantine, J. Wesley Lauer and Rónadh Cox, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 125-1** 1:40 PM Coulthard, Tom J.*: **MODELING THE HUMAN IMPACT ON DRAINAGE BASIN EROSION, DEPOSITION AND SEDIMENT YIELD**
- 125-2** 2:10 PM James, L. Allan*: **LONG-TERM STORAGE AND REMOBILIZATION OF LEGACY SEDIMENT: CONCEPTUAL MODELS OF ANTHROPOGENIC SEDIMENT REDISTRIBUTION**
- 125-3** 2:40 PM Rasmussen, James*: **PUBLIC ENGAGEMENT BY THE DUWAMISH RIVER CLEANUP COALITION AS PART OF THE DUWAMISH RIVER SUPERFUND PROCESS**
- 3:10 PM **DISCUSSION AND BREAK**
- 125-4** 3:25 PM Cleetus, Rachel*; Spanger-Siegfried, Erika; Dahl, Kristina; Caldas, Astrid; Udvardy, Shana: **CHRONIC INUNDATION ALONG THE US COASTLINE: WHERE, WHEN AND HOW TO RESPOND**
- 125-5** 3:55 PM Parfait-Dardar, Shirell; Cox, Rónadh*: **RISING WATERS AND SINKING LANDS: THE PLIGHT OF NATIVE AMERICAN GROUPS IN SOUTHERN LOUISIANA**
- 125-6** 4:25 PM Syvitski, James*: **DELTA ARE "AT RISK" ANTHROPOCENE LANDSCAPES**
- 4:55 PM **CONCLUDING REMARKS AND DISCUSSION**

SESSION NO. 126**T12. Hydrogeology, Geochemistry, and Wetland Processes II: A Session in Honor of the Career of Donald I. Siegel (GSA Hydrogeology Division)**

1:30 PM, Washington State Convention Center, Room 618/619/620

Jeffrey M. McKenzie and Laura K. Lutz, Presiding

- 126-1** 1:30 PM Jin, Li*; Edmunds, W. Mike; Lu, Zunli; Ma, Jinzhu: **GROUNDWATER RECHARGE AND WATER-ROCK INTERACTION FROM UNSATURATED ZONE OF BADAIN JARAN DESERT**
- 126-2** 1:45 PM McKenzie, Jeffrey M.*; Siegel, Donald I.: **GROUNDWATER FLOW AND PERMAFROST THAW; RECENT ADVANCES IN NUMERICAL MODELING IN CRYOHYDROGEOLOGY**
- 126-3** 2:00 PM Levy, Zeno F.*: **CLIMATIC CONTROLS ON THE POREWATER CHEMISTRY OF MID-CONTINENTAL WETLANDS: DON SIEGEL'S LAST DISSERTATION**
- 126-4** 2:15 PM Reeve, Andrew S.*; Slater, Lee; Comas, Xavier; Terry, Niel; Wright, William: **TWO DECADES OF HYDROGEOLOGICAL MEASUREMENTS IN CARIBOU BOG (MAINE, USA) INVESTIGATING GROUNDWATER FLOW AND FREE-PHASE (METHANE) GAS**
- 126-5** 2:30 PM Lipson, David S.*: **OF TERNARY DIAGRAMS AND CONTAMINANT HYDROGEOLOGY: ONE PILLAR IN THE VAST LEGACY OF DON SIEGEL**
- 126-6** 2:45 PM Lutz, Laura K.*; Siegel, Donald I.; Hoke, Gregory D.; Lu, Zunli: **DIVING INTO THE DEEP END: REFLECTIONS ON DON SIEGEL'S RESEARCH, THE DEBATE AROUND HYDRAULIC FRACTURING OF THE MARCELLUS, AND METHANE IN GROUNDWATER**
- 3:00 PM **BREAK**
- 126-7** 3:15 PM Bennett, Philip C.*: **PEAT BOGS AND OIL SPILLS: SILICATE WEATHERING RESEARCH IN THE SIEGEL LAB**
- 126-8** 3:30 PM Pfannkuch, Hans-Olaf*: **ORIGINAL IDEAS, INNOVATIVE METHODS, SCIENTIFIC RIGOR, AND PERSISTENCE ARE THE BASIS FOR THE EARLY CONTRIBUTIONS OF DONALD I. SIEGEL TO HYDROGEOLOGY, GEOCHEMISTRY AND SURFACE HYDROLOGY DURING HIS MINNESOTA YEARS, 1974 TO 1982**
- 126-9** 3:45 PM Rosenberry, Donald O.*; Glaser, Paul H.: **DON SIEGEL'S EARLY YEARS AS A GROUNDWATER-FLOW MODELER**
- 126-10** 4:00 PM Glaser, Paul H.*; Chanton, Jeffrey; Reeve, Andrew S.; Rosenberry, Donald O.: **DONALD SIEGEL AS A PIONEER IN PEATLAND HYDROLOGY**
- 126-11** 4:15 PM Siegel, Donald I.*: **OUTLIERS: THE DRIVERS OF MY 40 YEARS OF BASIC RESEARCH IN HYDROGEOLOGY**
- 4:35 PM **CONCLUDING REMARKS**

SESSION NO. 127**T15. Monitoring the Complex Nature of Water Balances and Solute Transport at the Groundwater-Surface Water Interface (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division)**

1:30 PM, Washington State Convention Center, Room 613/614

Mackenzie Cremeans and J.F. Devlin, Presiding

- 127-1** 1:30 PM Rosenberry, Donald O.*: **EXPECT THE UNEXPECTED WHEN QUANTIFYING EXCHANGE BETWEEN GROUNDWATER AND SURFACE WATER (Invited Presentation)**
- 127-2** 1:50 PM Hayashi, Masaki*; Vogt, Tobias; Schirmer, Mario; Mächler, Lars: **DIURNAL FLUCTUATIONS OF STREAM WATER CHEMISTRY CONTROLLED BY PHOTOSYNTHESIS AND GROUNDWATER EXCHANGE**
- 127-3** 2:05 PM Jones, Perry M.*; Trost, Jared J.; Rosenberry, Donald O.: **CHARACTERIZING GROUNDWATER AND SURFACE-WATER EXCHANGES IN WHITE BEAR LAKE,**

MINNESOTA, USA, USING HYDROLOGIC, GEOPHYSICAL, AND WATER-QUALITY TECHNIQUES

- 127-4** 2:20 PM Sun, Xiaoling*: **ANALYSIS OF THE EFFECTS OF URBANIZATION ON RIVER AND GROUNDWATER INTERACTIONS USING THE SWAT-LUD MODEL**
- 127-5** 2:35 PM Cey, Edwin E.*; Felske, Alanna; Hayashi, Masaki: **WATER AND CHLORIDE MASS BUDGETS OF A PERMANENTLY FLOODED, SEASONALLY FROZEN WETLAND IN THE CANADIAN PRAIRIES**
- 127-6** 2:50 PM Bjerg, Poul L.*; Rønde, Vinni; Balbarini, Nicola; Sonne, Anne Th.; Devlin, J.F.; Cremeans, Mackenzie; Annable, Michael; Binning, Philip J.; Mcknight, Ursula S.: **ASSESSING THE IMPACT OF GROUNDWATER CONTAMINATION ON STREAM WATER QUALITY BY MULTIPLE APPROACHES AT THE GROUNDWATER-SURFACE WATER INTERFACE (Invited Presentation)**
- 127-7** 3:10 PM Cremeans, Mackenzie*; Devlin, J.F.; Mcknight, Ursula S.; Bjerg, Poul L.: **APPLICATION OF A NEW POINT MEASUREMENT TO ESTIMATE GROUNDWATER-SURFACE WATER EXCHANGE**
- 127-8** 3:25 PM Harvey, Ronald W.*; Underwood, Jennifer C.; Metge, David W.; LeBlanc, Denis; McCobb, Timothy: **MONITORING MICROBIAL AND SOLUTE TRANSPORT ACROSS THE SURFACE WATER-GROUNDWATER INTERFACE INTO AN AQUIFER WITHIN THE LAKE SHADOW OF A KETTLE POND IN CAPE COD, MASSACHUSETTS**
- 3:40 PM **BREAK**
- 127-9** 3:55 PM Rudolph, David L.*; Frey, Steven K.: **SEASONAL CLIMATIC INFLUENCES ON TILE DRAIN FLOW DYNAMICS AND IMPLICATIONS FOR AGRICULTURAL BMPs (Invited Presentation)**
- 127-10** 4:15 PM Wallace, Janae*; Jordan, J. Lucy; Hardwick, Christian; Hurlow, Hugh: **DETERMINING SALINITY SOURCES VIA HYDROLOGIC MEASUREMENTS, GEOLOGIC MAPPING, AND TEM ANALYSIS IN THE LOWER SAN PITCH RIVER DRAINAGE, SANPETE COUNTY, UTAH**
- 127-11** 4:30 PM Newman, Connor P.*; McCrear, Karl W.; Anderson, Salt; Zimmerman, Joshua; Burke, George: **EFFLORESCENT SULFATE SALTS AND IMPACTS ON METAL LOADING FROM MINE-IMPACTED GROUNDWATER TO SURFACE WATERS**
- 127-12** 4:45 PM Kipnis, Evan L.*; Bowen, Brenda B.; Liu, Tianqi; Harman, Ciaran J.: **FRESHWATER TRACER INJECTIONS IN SHALLOW BRINE WELLS AT THE BONNEVILLE SALT FLATS, UTAH**
- 127-13** 5:00 PM King, Tyler V.*; Neilson, Bethany T.: **INVESTIGATING THE THERMAL IMPACTS OF HYPORHEIC EXCHANGE IN AN ALLUVIAL ARCTIC RIVER**
- 127-14** 5:15 PM Maharjan, Madan*; Donovan, Joseph J.: **TEMPERATURE VARIATIONS IN INTERMITTENTLY-PUMPED WELLS WITHIN UNCONFINED ALLUVIAL AQUIFERS**

SESSION NO. 128**T38. Cenozoic Paleoclimates and Ecosystems II (Paleontological Society; Geochemical Society; Paleontological Research Institution; Cushman Foundation for Foraminiferal Research; GSA Sedimentary Geology Division; GSA Limnogeology Division)**

1:30 PM, Washington State Convention Center, Room 609

Alexis Licht, Caroline Stromberg, Gerard H. Roe, Guillaume Dupont-Nivet, Yannick Donnadiou and K. Christopher Beard, Presiding

- 128-1** 1:30 PM Stidham, Thomas A.*: **THE FOSSIL RECORD AND AVIAN INTERCONTINENTAL DISPERSALS DURING PERIODS OF CLIMATE CHANGE IN THE CENOZOIC**
- 128-2** 1:45 PM Zeebe, Richard*: **ORBITAL FORCING OF EARLY CENOZOIC CLIMATE AND NEW ASTRONOMICAL SOLUTIONS**

MONDAY

PM

- 128-3** 2:00 PM Miller, Kenneth G.*; Wright, James D.; Browning, James V.: **CHANGES IN GLOBAL MEAN SEA LEVEL DETERMINED FROM DEEP-SEA BENTHIC FORAMINIFERAL $\delta^{18}\text{O}$ AND MG/CA RECORDS OVER THE PAST 40 MYR: IMPLICATIONS FOR MARGIN AND PLATFORM DEPOSITION**
- 128-4** 2:15 PM Piller, Werner E.*; Harzhauser, Mathias; Richoz, Sylvain; Baldermann, Andre; Erbajeva, Margarita A.; Daxner-Hoeck, Gudrun: **STEPWISE ONSET OF THE ICEHOUSE WORLD AND ITS IMPACT ON OLIGO- MIOCENE CENTRAL ASIAN MAMMALS**
- 128-5** 2:30 PM Fraass, Andrew Jeffrey*; Leckie, R. Mark; Lowery, Christopher M.; DeConto, Robert: **FLOW REVERSAL IN THE CENTRAL AMERICAN SEAWAY DURING OR AFTER THE OLIGOCENE MIOCENE TRANSITION**
- 128-6** 2:45 PM Allen, Sarah E.*; Lowe, Alexander J.; Peppe, Daniel J.; Meyer, Herbert W.: **PALEOCLIMATE AND PALEOECOLOGY OF THE LATE EOCENE FLORISSANT FLORA USING DIGITAL LEAF PHYSIOGNOMY**
- 128-7** 3:00 PM Beard, K. Christopher*; Métais, Grégoire; Coster, Pauline; Ocakoğlu, Faruk; Licht, Alexis; Taylor, Michael H.: **ASSEMBLY OF AN ENDEMIC ISLAND BIOTA ON THE EOCENE PONTIDE TERRANE (NORTHERN ANATOLIA): PALEOGEOGRAPHIC AND PALEOCLIMATIC IMPLICATIONS**
- 3:15 PM **BREAK**
- 128-8** 3:30 PM Keller, Allison L.*; Kirtland Turner, Sandra; Penman, Donald; Sexton, Philip F.; Norris, Richard D.; Paytan, Adina: **MARINE BIOTIC RESPONSE OF THE NORTHERN ATLANTIC OCEAN DURING GRADUAL AND ABRUPT WARMING EVENTS FROM THE LATE PALEOCENE TO THE EARLY-MIDDLE EOCENE**
- 128-9** 3:45 PM Khanolkar, Sonal*; Sharma, Jyoti: **AN INTEGRATED STUDY OF PALYNOMORPHS AND FORAMINIFERA TO RECORD THE CHANGES IN PALAEOVEGETATION AND PALAEODEPOSITIONAL CONDITIONS FROM EOCENE LIGNITE MINE SECTIONS IN WESTERN INDIA**
- 128-10** 4:00 PM Meilijson, Aaron; Makovsky, Yizhaq; Waldmann, Nicolas; Bialik, Or M.; Benjamini, Chaim*: **CARBON PRESERVATION IN DEEP MARINE SETTINGS: THE ROLE OF SEDIMENT TRANSPORT IN THE DEPOSITION OF ORGANIC-RICH CARBONATES IN THE EOCENE OF THE LEVANT BASIN**
- 128-11** 4:15 PM Lowe, Alexander J.*; West, Christopher K.; Sudermann, Markus; Greenwood, David R.: **MILLENNIAL-SCALE PLANT COMMUNITY AND CLIMATE DYNAMICS AT THE ONSET OF THE EARLY EOCENE CLIMATIC OPTIMUM, MCABEE FOSSIL BEDS, BRITISH COLUMBIA, CANADA**
- 128-12** 4:30 PM McDougall, Kristin*; John, Cedric M.: **LODO FORMATION AND THE PALEOCENE-EOCENE THERMAL MAXIMUM IN CENTRAL CALIFORNIA**
- 128-13** 4:45 PM McInerney, Francesca A.*; Bush, Rosemary T.; Baczynski, Allison A.; Andrae, Jake W.; Bunney, Ellyse; Howard, Sian: **WHY DO LEAF WAX *n*-ALKANE DISTRIBUTIONS CHANGE DURING THE PALEOCENE-EOCENE THERMAL MAXIMUM? (Invited Presentation)**
- 129-2** 2:00 PM Sageman, Bradley B.*; Jones, Matthew M.; Selby, David: **INTEGRATED CYCLOSTRATIGRAPHIC AND CHEMOSTRATIGRAPHIC ANALYSIS OF CENOMANIAN-TURONIAN DEPOSITS OF THE WESTERN INTERIOR BASIN**
- 129-3** 2:15 PM Husinec, Antun*; Read, J.F.: **EARLY CRETACEOUS CARBON-ISOTOPE EXCURSIONS, OAES, AND ~9 M.Y. AND ~400 K.Y. SEA LEVEL CHANGES, ADRIATIC PLATFORM, CROATIA**
- 129-4** 2:30 PM Li, Mingsong*; Zhang, Yang Wendy; Ogg, James G.; Huang, Chunju; Hinnov, Linda A.; Chen, ZhongQiang: **TRIASSIC TIME SCALE FROM ASTRONOMICAL-TUNED MAGNETOSTRATIGRAPHY**
- 129-5** 2:45 PM Chen, Yan*; Zhang, Yang Wendy; Ogg, James G.; Li, Mingsong; Chen, Zhong Qiang; Tu, Chenyi; Chu, Dao liang: **MAGNETOSTRATIGRAPHY OF THE CONTINENTAL REFERENCE SECTION FOR LATEST PERMIAN THROUGH EARLY TRIASSIC OF NORTH CHINA AT DAYULIN (HENAN PROVINCE)**
- 129-6** 3:00 PM Hinnov, Linda A.*: **A SURVEY OF PALEOZOIC CYCLOSTRATIGRAPHY (Invited Presentation)**
- 3:20 PM **BREAK**
- 129-7** 3:35 PM Griffin, Julie M.*; Montanez, Isabel P.; Holterhoff, Peter F.: **MULTI-PROXY RECORD OF THE PENNSYLVANIAN-AGE SWOPE CYCLOTHEM: GLACIAL TO INTERGLACIAL CHANGES IN MIDCONTINENT SEAWATER CHEMISTRY**
- 129-8** 3:50 PM Kodama, Kenneth P.*: **ROCK MAGNETIC CYCLOSTRATIGRAPHY OF THE MISSISSIPPIAN MAUCH CHUNK FORMATION, POTTSVILLE, PENNSYLVANIA (Invited Presentation)**
- 129-9** 4:10 PM Pas, Damien*; Hinnov, Linda A.; Day, James; Kodama, Kenneth P.; Sinnesael, Matthias; Liu, Wei: **ASTRONOMICAL CALIBRATION OF THE FAMENNIAN (UPPER DEVONIAN) TIME SCALE**
- 129-10** 4:25 PM Ma, Chao*; Meyers, Stephen R.; Sageman, Bradley B.: **CONSTRAINING ORBITAL SOLUTIONS USING THE CRETACEOUS GEOLOGICAL RECORD**
- 129-11** 4:40 PM Meyers, Stephen R.*; Malinverno, Alberto: **A BAYESIAN INVERSION APPROACH FOR RECONSTRUCTING SOLAR SYSTEM BEHAVIOR AND EARTH-MOON HISTORY (Invited Presentation)**
- 129-12** 5:00 PM Sinnesael, Matthias*; De Vleeschouwer, David; Zeeden, Christian; Claeys, Philippe: **REPRODUCIBILITY IN CYCLOSTRATIGRAPHY: INITIATING AN INTERCOMPARISON PROJECT**

SESSION NO. 130

T53. Digital, Digital Get Down: Frontiers in Virtual Paleontology (Paleontological Society; Paleontological Research Institution; GSA Geoinformatics Division)

1:30 PM, Washington State Convention Center, Room 606

Jennifer E. Bauer and Johnny A. Waters, Presiding

- 130-1** 1:30 PM Rahman, Imran Alexander*: **COMPUTATIONAL FLUID DYNAMICS AS A TOOL FOR TESTING FUNCTIONAL AND ECOLOGICAL HYPOTHESES IN FOSSIL TAXA (Invited Presentation)**
- 130-2** 1:45 PM Waters, Johnny*; Nguyen, Bonnie K.; White, Lyndsie Elizabeth: **CONSTRUCTIONAL MORPHOLOGY OF BLASTOID FEEDING**
- 130-3** 2:00 PM Sheffield, Sarah L.*; Bauer, Jennifer E.; Sumrall, Colin D.; Rahman, Imran Alexander: **SYNCHROTRON-BASED TOMOGRAPHIC EVALUATION OF EUMORPHOCYSTIS (DIPLOPORITA: ECHINODERMATA) AND ITS USE IN UNDERSTANDING MORPHOLOGY AND ONTOGENY**
- 130-4** 2:15 PM Grun, Tobias B.*; Nebelsick, James H.: **ECHINOIDS IN 3D: UNDERSTANDING MECHANISMS THAT STRENGTHEN LIGHT-WEIGHT SKELETONS**

SESSION NO. 129

T47. Recent Developments in Cyclostratigraphy

1:30 PM, Washington State Convention Center, Room 611

Chao Ma, Mingsong Li and M'bark Baddouh, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 129-1** 1:45 PM Ma, Pengfei*; Ma, Chao; Wang, Chengshan; Zhao, Xixi; Li, Yalin: **LATE OLIGOCENE-EARLY MIOCENE LACUSTRINE RECORDS FOR THE TECTONIC, CLIMATIC, AND LAKE BASIN EVOLUTION IN CENTRAL TIBET**

- 130-5 2:30 PM Clark, Elizabeth G.*; Briggs, Derek E.G.: **DIGITAL MODELING OF THE FUNCTIONAL EVOLUTION OF THE OPHUROID ARM**
- 130-6 2:45 PM Banker, Roxanne*: **PRELIMINARY CHARACTERIZATION OF OYSTER CHALKY DEPOSITS USING X-RAY COMPUTED TOMOGRAPHY**
- 130-7 3:00 PM Smith, Selena Y.*; Benedict, John C.; Matsunaga, Kelly: **UNLOCKING THE FOSSIL RECORD WITH MICRO-COMPUTED TOMOGRAPHIC 3D DATASETS OF MODERN AND FOSSIL PLANTS**
- 3:15 PM **BREAK**
- 130-8 3:30 PM Schiffbauer, James D.*; Selly, Tara: **PROSPECTS IN MICROANALYTICAL PALEOBIOLOGY: APPLICATIONS OF SCANNING ELECTRON MICROSCOPY IN THE STUDY OF ANCIENT LIFE**
- 130-9 3:45 PM Hughes, Zoe*; Johnson, Kenneth G.; Belben, Rachel; Hughes, Chris; Twitchett, Richard J.: **USING MUSEUM COLLECTIONS TO STUDY BRACHIOPOD SIZE CHANGE ACROSS EXTINCTION BOUNDARIES - TAKING ADVANTAGE OF MASS DIGITISATION**
- 130-10 4:00 PM Winchester, Julie M.*; Boyer, Doug M.; Frank, Lawrence; Maga, Murat: **INTEGRATING MORPHOSOURCE, A COMMUNITY DIGITAL REPOSITORY FOR 3D SPECIMEN DATA, WITH MORPHOMETRIC ANALYSIS PIPELINES**
- 130-11 4:15 PM Goodwin, Mark B.*; Nirody, Jasmine A.; Huynh, Tony; Parkinson, Dilworth Y.; Evans, David C.: **VISUALIZING CRANIAL AND SUTURAL MORPHOLOGY OF PACHYCEPHALOSAUR DOMES USING COMPUTED TOMOGRAPHY**
- 130-12 4:30 PM Kaskes, Pim*; Brunke, Luca; Emaus, Roeland; Bastiaans, Dylan; Schulp, Anne: **A NOVEL 3D VISUALIZATION OF DINOSAUR BONEBEDS: INTEGRATING GEOLOGY, PALEONTOLOGY AND ARCHEOLOGY**
- 3:00 PM **BREAK**
- 131-7 3:15 PM Clapham, Matthew E.*; Manojlovic, Marko: **BIOTURBATORS AND THE MID-MESOZOIC DECLINE OF BRACHIOPODS**
- 131-8 3:30 PM Stanley, Steven M.*: **EVIDENCE THAT THE ARMS OF TYRANNOSAURUS REX WERE NOT FUNCTIONLESS BUT ADAPTED FOR VICIOUS SLASHING**
- 131-9 3:45 PM Johnson, Claudia C.*; Elswick, Erika R.; Davis, Allicia: **CRETACEOUS CARBONATE SEQUENCES IN THE CENTRAL IGNEOUS PROVINCE OF PUERTO RICO: FURTHERING AN UNDERSTANDING OF EVOLUTIONARY PALEOECOLOGY IN THE TROPICS**
- 131-10 4:00 PM Nebelsick, James H.*; Thompson, Jeffrey R.: **PALEOECOLOGY AND BIOTIC CONTROLS OF MIXED CARBONATE-SILICICLASTIC SEDIMENTS: A CASE STUDY FROM THE ECHINOID DOMINATED MIOCENE BUTTON BEDS OF CENTRAL CALIFORNIA**
- 131-11 4:15 PM Savrda, Charles E.*: **BIOEROSION OF A BEDROCK STREAM BED BY MODERN CHIRONOMID AND TRICHOPTERAN LARVAE (CONECUH RIVER, ALABAMA): ICHNOTAXONOMIC, ICHNOFACIES, AND GEOMORPHOLOGIC IMPLICATIONS (Invited Presentation)**

SESSION NO. 132

T60. The Onset of the Great Ordovician Biodiversity Event (GOBE): Testing Hypotheses with Diverse Data Sets (Paleontological Society; GSA Geobiology & Geomicrobiology Division; GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology); IGCP 653: Onset of the Great Ordovician Biodiversification Event; Paleontological Research Institution)

1:30 PM, Washington State Convention Center, Room 608

Rebecca L. Freeman and Alycia L. Stigall, Presiding

- 132-1 1:30 PM Graham, Linda*; Graham, James M.; Knack, Jennifer J.; Trest, Marie; Piotrowski, Michael; Arancibia, Patricia: **BIOGEOCHEMICAL FEATURES OF ORDOVICIAN TERRESTRIAL ECOSYSTEMS INFERRED FROM A MICROBIOME FOR EARLIEST-DIVERGING MODERN PLANT LINEAGE SAMPLED FROM A REMOTE LOCALE MODELING ORDOVICIAN CONDITIONS**
- 132-2 1:45 PM Young, Seth A.*; Kozik, Nevin P.: **SEDIMENTARY GEOCHEMICAL INSIGHTS INTO MIDDLE-LATE ORDOVICIAN SEAS OF LAURENTIA: IMPLICATIONS FOR MARINE REDOX STATE, WEATHERING, AND BIODIVERSIFICATION (Invited Presentation)**
- 132-3 2:00 PM Henderson, Miles A.*; Kah, Linda C.; Albanesi, Guillermo L.; Feltes, Nicolás A.; Serra, Fernanda; Polyak, Victor J.; Asmerom, Yemane: **$^{87}\text{SR}/^{86}\text{SR}$ AND ϵ_{ND} STRATIGRAPHY OF MIDDLE ORDOVICIAN CARBONATE SEDIMENTS IN ARGENTINA: A POTENTIAL LINK BETWEEN BIOGEOCHEMICAL AND PHYSIOCHEMICAL CHANGES IN OCEAN CHEMISTRY**
- 132-4 2:15 PM Zhang, Junpeng*; Zhang, Yuandong; Fang, Xiang; Li, Wenjie; Zhang, Zhao: **PALAEO-MARINE ENVIRONMENT ASSOCIATED WITH THE DISTINCT ECOSYSTEMS FOLLOWING THE END-ORDOVICIAN CRISIS IN SOUTH CHINA**
- 132-5 2:30 PM Freeman, Rebecca L.*; Miller, James F.; Evans, Kevin R.; Bassett, Damon J.: **LINGULIFORM BRACHIOPODS ACROSS THE STEPTOEAN/SUNWAPTAN (LATE CAMBRIAN) "BIOMERE" BOUNDARY IN THE GREAT BASIN, USA**
- 2:45 PM **BREAK**
- 132-6 3:00 PM Carlucci, Jesse R.*: **VARIATION IN TAPHONOMIC SIGNATURES BETWEEN BIOFACIES AND SYSTEMS TRACTS: IMPLICATIONS FOR ORDOVICIAN BIODIVERSITY ESTIMATES (Invited Presentation)**
- 132-7 3:15 PM Marengo, Katherine N.*: **REEF-BUILDING AT THE DAWN OF THE GOBE: THE RISE OF METAZOAN FRAMEWORK**

SESSION NO. 131

T59. Studies in Paleobiology and Paleocology II: In Honor of Professor David J. Bottjer (GSA Geobiology & Geomicrobiology Division; Paleontological Society; SEPM (Society for Sedimentary Geology); Paleontological Research Institution)

1:30 PM, Washington State Convention Center, Room 607

Thomas J. Algeo, Pedro J. Marengo, Margaret L. Fraiser and Matthew E. Clapham, Presiding

- 131-1 1:30 PM Jiang, Da-yong*; Motani, Ryosuke; Tintori, Andrea; Sun, Zuoyu; Fu, Wan-lu; Zhou, Min; LU, Hao: **FAST RADIATION OF EARLY TRIASSIC MARINE REPTILES IN THE WAKE OF THE END-PERMIAN EXTINCTION**
- 131-2 1:45 PM Woods, Adam D.*; Alms, Paul D.; Monarrez, Pedro M.; Mata, Scott: **THE INTERACTION OF RECOVERY AND ENVIRONMENTAL CONDITIONS: AN ANALYSIS OF THE OUTER SHELF EDGE OF WESTERN NORTH AMERICA DURING THE EARLY TRIASSIC**
- 131-3 2:00 PM Pruss, Sara B.*; Westacott, Sophie; Stark, Courcelle; Tosca, Nicholas: **I CAN'T QUIT YOU, DAVE: NEW TAPHONOMIC INSIGHTS FROM THE LOWER TRIASSIC VIRGIN LIMESTONE FORMATION, WESTERN UNITED STATES**
- 131-4 2:15 PM Tackett, Lydia S.*; Tintori, Andrea: **DRILLING AND CRUSHING PREDATION OF BENTHIC INVERTEBRATES DURING THE LATE TRIASSIC IN TETHYS**
- 131-5 2:30 PM Ritterbush, Kathleen A.*; Hebdon, Nicholas; Jenkins, Olivia: **AMMONITES WERE SUCCESSFUL SLACKERS AFTER THE TRIASSIC/JURASSIC MASS EXTINCTION**
- 131-6 2:45 PM Brame, Hannah-Maria*; Ettinger, Nicholas P.; Bodin, Stéphane; Danische, Jan; Kabiri, Lahcen; Martindale, Rowan C.: **OCCURRENCE AND PALEOENVIRONMENTAL SIGNIFICANCE OF EARLY JURASSIC (PLIENSCHACHIAN-TOARCIAN) LITHIOTID-CORAL REEFAL DEPOSITS FROM THE HIGH ATLAS OF MOROCCO**

- CONSTITUENTS IN LOWER-MIDDLE ORDOVICIAN REEFS, WESTERN UTAH, USA (Invited Presentation)**
- 132-8** 3:30 PM Stigall, Alycia L.*: **HOW IS BIODIVERSITY PRODUCED? MOVING FROM BIODIVERSITY PATTERNS TO SPECIATION PROCESSES DURING THE GREAT ORDOVICIAN BIODIVERSIFICATION EVENT**
- 132-9** 3:45 PM Franeck, Franziska*: **CAPTURE-MARK-RECAPTURE ANALYSIS OF DIVERSIFICATION RATES IN LAURENTIA AND BALTICA DURING THE GREAT ORDOVICIAN BIODIVERSIFICATION EVENT**
- 132-10** 4:00 PM Congreve, Curtis R.*; Wagner, Peter J.; Patzkowsky, Mark E.: **SHORT OR LONG FUSE: TIMING THE ORDOVICIAN RADIATION USING THE FOSSILIZED BIRTH DEATH MODEL**
- 132-11** 4:15 PM Foote, Michael*; Cooper, Roger A.; Crampton, James S.; Sadler, Peter M.: **DIVERSITY-DEPENDENT DIVERSIFICATION IN ORDOVICIAN-SILURIAN GRAPTOLIDS**

SESSION NO. 133 Ⓞ

T78. Environmental Impact Studies for Energy Geology (GSA Energy Geology Division; GSA Environmental and Engineering Geology Division)

1:30 PM, Washington State Convention Center, Room 602/603

Marc L. Buursink, Laura Ruhl, J. Fred McLaughlin and Brett J. Valentine, Presiding

- 133-1** 1:30 PM Sang, Shuxun*; Liu, Shiqi; Wang, Wenfeng; Cao, Liwen; Liu, Huihu; Liu, Changjiang; Xu, Hongjie; Jia, Jinlong: **EXPERIMENTAL RESEARCH PROGRESS ON EFFECTIVENESS OF CO₂-ECBM FOR ANTHRACITE OF QINSHUI BASIN, CHINA**
- 133-2** 1:45 PM Buursink, Marc L.*: **MAPPING AND INVESTIGATING GEOLOGIC SOURCES OF CARBON DIOXIDE IN CALIFORNIA**
- 133-3** 2:00 PM Eymold, William K.*; Miller, Jodie A.; Swana, Kelley; Vengosh, Avner; Murray, Ricky; Whyte, Colin; Harkness, Jennifer S.; Darrah, Thomas H.: **THE WATER AND GAS GEOCHEMISTRY OF HYDROCARBON-RICH SEEPS FROM THE KAROO BASIN**
- 133-4** 2:15 PM Preston, Todd M.*; Martinez, Cericia: **SPATIAL AND TEMPORAL TRENDS IN THE FOOTPRINT OF OIL AND GAS DEVELOPMENT IN THE PICEANCE BASIN, WESTERN COLORADO**
- 133-5** 2:30 PM Masterson, Megan; Perkins, Robert B.; Palmer, Carl D.*: **HYDROGEOCHEMISTRY OF THE UINTA AND GREEN RIVER FORMATIONS, PICEANCE CREEK BASIN, NORTHWESTERN COLORADO, USA**
- 133-6** 2:45 PM Darrah, Thomas H.*: **AN EVALUATION OF STANDARD AND NEW SAMPLING METHODOLOGIES FOR SAMPLING HYDROCARBON AND OTHER DISSOLVED GAS CONCENTRATIONS IN GROUNDWATER SAMPLES**
- 3:00 PM **BREAK**
- 133-7** 3:15 PM Stuckman, Mengling Y.*; Lopano, Christina L.; Berry, Samantha; Hakala, J. Alexandra: **GEOCHEMICAL FACTORS CONTROLLING TRACE METAL AND BARIUM RELEASE IN DRILL CUTTINGS FROM MARCELLUS SHALE ENERGY DEVELOPMENT**
- 133-8** 3:30 PM Pinzon, Gerardo J.*; Ren, Jianhong: **SYSTEM DYNAMICS MODEL TO HELP IMPROVE THE IMPACT ANALYSIS CAUSED BY FRACING IN THE EAGLE FORD SHALE**
- 133-9** 3:45 PM Baumer, Teresa M.; Moore, Nicole A.; Said, Meena; Sadergaski, Luke R.*; Sigmon, Ginger E.; Hixon, Amy E.; Simonetti, Antonio; Burns, Peter C.: **ELEVATED URANIUM AND LEAD LEVELS IN THE NAVAJO NATION AT CLAIM 28**
- 133-10** 4:00 PM Gregory, Robert T.*; Magnani, M. Beatrice: **WHAT DO EXPOSED FAULTS IN THE LLANO INLIER HAVE TO DO**

WITH INDUCED EARTHQUAKES IN NORTH CENTRAL TEXAS?

- 133-11** 4:15 PM Bourg, Ian C.*: **MINERALOGICAL CONTROLS ON THE CORE SCALE PROPERTIES AND REGIONAL SCALE ENERGY USES OF FINE-GRAINED SEDIMENTARY ROCKS**
- 133-12** 4:30 PM Butler, Brian F.*; Heavey, Edward J.: **GEOLOGIC CONTRIBUTIONS TO DESIGN, TIDAL TURBINE PILOT PROJECT, SNOHOMISH COUNTY PUD, ADMIRALTY INLET, WASHINGTON**

SESSION NO. 134

T85. Clear as Mud: Stratigraphic, Diagenetic, Sedimentologic, Geomechanical Analyses, and Modern Analogs of Ancient Mudrock Systems (GSA Sedimentary Geology Division; GSA Energy Geology Division; GSA Limnogeology Division)

1:30 PM, Washington State Convention Center, Ballroom 6C

Bryan W. Turner and Shannon A. Dulin, Presiding

- 134-1** 1:30 PM Sun, Bin*; Yang, Wan; Yu, Qiuwan; Lei, Yuhong; Luo, Xiaorong: **QUARTZ-ALBITE CORRELATION AS A SHALE PROVENANCE INDICATOR, UPPER TRIASSIC ZHANGJIATAN SHALE, ORDOS BASIN, CHINA**
- 134-2** 1:45 PM Podrecca, Luca G.*; Miller, Kenneth G.; Wright, James D.; Browning, James V.; Emge, Thomas J.: **CLEAR AS MUD: CHANGES IN PALEOSHELF ENVIRONMENTS AND DEPOSITION RATES AT MEDFORD, NEW JERSEY DURING THE PALEOCENE-EOCENE THERMAL MAXIMUM**
- 134-3** 2:00 PM Hlohowskyj, Stephan R*; Chappaz, Anthony; Haeri Ardakani, Omid; Sanei, Hamed: **DETERMINING MOLYBDENUM SPECIATION TO UNDERSTAND THE DEPOSITIONAL HISTORY OF BLACK SHALES**
- 134-4** 2:15 PM Rossman, Britt*; Li, Zhiyang; Schieber, Juergen: **SEDIMENTOLOGICAL CHARACTERIZATION OF THE TUNUNK SHALE: PETROGRAPHIC AND CHEMICAL INTERPRETATION OF DEPOSITIONAL SYSTEMS FOR CRETACEOUS MUDSTONE PARASEQUENCES**
- 134-5** 2:30 PM Li, Zhiyang*; Schieber, Juergen: **SEQUENCE STRATIGRAPHIC ANALYSIS OF LATE CRETACEOUS (TURONIAN) TUNUNK SHALE MEMBER OF THE MANCOS SHALE FORMATION, SOUTH-CENTRAL UTAH: PARASEQUENCE STYLES IN SHELFAL MUDSTONE STRATA**
- 134-6** 2:45 PM Mills, N. Tanner*; Reece, Julia S.; Tice, Michael M.: **THE INFLUENCE OF CLAY MINERALS ON THE EVOLUTION OF MUDSTONE PORE FLUIDS DURING MICROBIAL IRON REDUCTION**
- 134-7** 3:00 PM Salih, Namam*; Mansurbeg, Howri; Kolo, Kamal; Konhauser, Kurt; Gerdes, Axel; Muchez, Philippe; Pr at, Alain: **TECTONIC MODELING AND DIRECT DATING OF HYDROTHERMAL CARBONATES IN THE UPPER CRETACEOUS BEKHME FORMATION, SPELEK-SULAUK AREAS, KURDISTAN REGION OF IRAQ**
- 134-8** 3:15 PM Farooqui, Muhammad Ahmed*; Umar, Muhammad; Syed, Mobasher Aftab: **GEOCHEMISTRY, PROVENANCE AND PALEOGEOGRAPHY OF MIOCENE-PLIOCENE TALAR FORMATION OF MAKRAN ACCRETIONARY PRISM, PAKISTAN**
- 3:30 PM **BREAK**
- 134-9** 3:45 PM Harris, Nicholas*; Ayranci, Korhan; Knapp, Levi J.; Dong, Tian; McMillan, Julia M.: **PETROPHYSICAL AND GEOMECHANICAL RESERVOIR MODELS FOR DEVONIAN SHALE RESERVOIRS IN WESTERN CANADA FROM DETAILED FACIES ANALYSIS (Invited Presentation)**
- 134-10** 4:05 PM Austermann, Gregor*; Hildenbrand, Anne; Ifrim, Christina; Bengtson, Peter: **IMPLICATIONS OF LITHOLOGY, GEOCHEMISTRY AND MICROFACIES FOR CAMBRIAN**

PALEOENVIRONMENTS, PALEOCLIMATE, AND PALEO GEOGRAPHY OF EASTERN NEWFOUNDLAND, CANADA

- 134-11 4:20 PM Ma, Xiaoxiao*; Li, Maowen; Ma, Yuanyuan; Cao, Tingting; Li, Zhiming; Tao, Guoliang; Jiang, Qigui; Wu, Shiqiang; Pang, Xiongqi: **GEOCHEMICAL CONSTRAINTS FOR DEPOSITIONAL ENVIRONMENT OF THE HYPERHALINE LACUSTRINE QIANJIANG SHALES, JIANGHAN BASIN, CHINA**
- 134-12 4:35 PM Rowe, Harry*; Morrell, Austin; Nieto, Michael A.; Prather, Timothy; Hart, Nicole R.; Nikirk, Robert; Mainali, Pukar; Torrez, Gerardo: **CHEMOFACIES, CORE-SCALE ELEMENT MAPPING, AND THE LINKAGES BETWEEN MINERALOGY, ROCK FABRIC, AND ESTIMATED ROCK STRENGTH IN TWO MUDSTONE SUCCESSIONS (Invited Presentation)**
- 134-13 4:55 PM Rushing, Madeleine*; Bentley, Callan; Rohrbach, Robin: **A NEW OUTCROP OF LATEST-DEVONIAN GLACIOGENIC SEDIMENTS IN THE APPALACHIAN MOUNTAINS: THE VIEW THROUGH DIGITAL CHARACTERIZATION AS A SUPPLEMENT TO TRADITIONAL FIELD WORK**
- 134-14 5:10 PM Bakker, Robert T.*; Flis, Chris J.: **BOOMERANG-HEADS AND TIGER SHARK MANDERS: EMPLOYING TEXAS RED BEDS AMPHIBIA TO DOCUMENT BOTTOM MUD IN THE EARLY PERMIAN (Invited Presentation)**

SESSION NO. 135

T93. Lacustrine Systems across Space and Time II (GSA Limnogeology Division; GSA Sedimentary Geology Division; Paleontological Society; SEPM (Society for Sedimentary Geology))

1:30 PM, Washington State Convention Center, Room 307/308

Scott W. Starratt and Michelle F. Goman, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 135-1 1:35 PM Van Daele, Maarten*; Moernaut, Jasper; De Batist, Marc: **QUANTITATIVE PALEOSEISMOLOGY FROM CHILEAN LAKES: A SOUTH AMERICAN PERSPECTIVE (Invited Presentation)**
- 135-2 1:55 PM Leithold, Elana L.*; Wegmann, Karl W.; Bohnenstiehl, DelWayne R.: **A HOLOCENE EARTHQUAKE RECORD FROM LAKE CRESCENT, OLYMPIC PENINSULA, WASHINGTON**
- 135-3 2:10 PM Morey, Ann E.*: **UNIQUE DEPOSIT CHARACTERISTICS FROM LOWER SQUAW LAKE, OREGON DATED TO 1680-1730 AD SUGGEST A LINK TO SUSTAINED GROUND MOTIONS FROM A CASCADIA EARTHQUAKE**
- 135-4 2:25 PM Shapley, Mark D.*; Thackray, Glenn D.; Finney, Bruce P.; Johnson, Eric M.: **SEISMOGENIC SEDIMENT REDISTRIBUTION AND EXPORT AT REDFISH LAKE, IDAHO, DRIVEN BY HOLOCENE FAULTING**
- 135-5 2:40 PM Larsen, Darren*; Crump, Sarah E.; Abbott, Mark B.; Harbert, William; Fasulo, Cooper: **LAKE SEDIMENT RECORDS OF DEGLACIATION AND POSTGLACIAL TECTONIC ACTIVITY IN THE TETON RANGE, WY**
- 2:55 PM **BREAK**
- 135-6 3:10 PM Birdwell, Justin E.*; Johnson, Ronald C.; Mercier, Tracey J.: **ORGANIC MATTER DISTRIBUTIONS IN OIL SHALE ZONES OF THE GREEN RIVER FORMATION, PICEANCE BASIN**
- 135-7 3:25 PM Pope, Michael C.*; Gresh, Sarah; Yates, Julia; Neumann, Landon; Harbers, Blake: **SEDIMENTOLOGY, STRATIGRAPHY, AND DIAGENESIS OF LATE CRETACEOUS KOOTENAI FORMATION LACUSTRINE DEPOSITS, SOUTHWESTERN MONTANA**
- 135-8 3:40 PM Tutolo, Benjamin M.*; Tosca, Nicholas J.: **EXPERIMENTAL EXAMINATION OF THE MG-SILICATE SYSTEM AT AMBIENT TEMPERATURE: IMPLICATIONS FOR**

ALKALINE CHEMICAL SEDIMENTATION AND LACUSTRINE CARBONATE FORMATION

- 135-9 3:55 PM Parrish, Judith Totman*; Hasiotis, Stephen T.; Chan, Marjorie A.: **INTERDUNE LAKES OF THE LOWER JURASSIC NAVAJO SANDSTONE, UTAH, USA**
- 135-10 4:10 PM Zhang, Tianshu*; Wu, Yinye; Tao, Shizhen: **MIGRATION TRAJECTORY, MICROFACIES AND RESERVOIR OF LACUSTRINE CARBONATE SHOALS—A CASE FROM LOWER JURASSIC, CENTRAL SICHUAN BASIN**
- 135-11 4:25 PM Yang, Wan*: **THREE-ORDER FLUVIAL-LACUSTRINE CYCLOSTRATIGRAPHY AND TECTONIC AND CLIMATIC SIGNALS IN PERMIAN-LOWER TRIASSIC TERRESTRIAL SEDIMENTARY SUCCESSIONS, BOGDA MOUNTAINS, NW CHINA**
- 135-12 4:40 PM Yu, Kuanhong*; Cao, Yingchang; Qiu, Longwei: **CHARACTERISTICS OF SODIUM CARBONATE-BEARING RHYTHMS AND PALEOCLIMATES VARIATIONS IN CLOSED EVAPORATE BASIN: THE CASE OF THE EARLY PERMIAN FENGCHENG FORMATION IN THE MAHU SAG, JUNGGAR BASIN IN NORTHWESTERN CHINA**

SESSION NO. 136

T111. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Limnogeology Division)

1:30 PM, Washington State Convention Center, Room 2B

Jason P. Kenworthy and F. Edwin Harvey, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 136-1 1:35 PM Hausner, Mark B.*; Wilson, Kevin P.; Brown, Kevin C.: **BEST AVAILABLE SCIENCE AND MANAGING THREATENED ECOSYSTEMS**
- 136-2 1:50 PM Schott, Amy M.*: **USING SOIL AND GEOMORPHOLOGY STUDIES TO UNDERSTAND PREHISTORIC LAND USE IN PETRIFIED FOREST NATIONAL PARK: IMPLICATIONS FOR LANDSCAPE HISTORY AND RESOURCE MANAGEMENT**
- 136-3 2:05 PM Kovarik, Johanna L.*: **PROPOSED ROYAL JOHN MINE TAILINGS REPOSITORY: GROUNDWATER AND CAVE ASSESSMENT**
- 136-4 2:20 PM Spears, Kyle Wayne*; Halihan, Todd; Neel, Christopher Robin: **HYDROGEOLOGICAL EVALUATION OF THE WASHITA ALLUVIUM AND TERRACE AQUIFER**
- 136-5 2:35 PM Bradbury, Kenneth*; Fehling, Anna; Hunt, Randall J.; Pruitt, Aaron H.; Leaf, Andrew T.; Juckem, Paul F.; Knight, Gregory A.; Thompson, Troy R.; Higgins, Dale; Somer, Sara: **DOCUMENTING GROUNDWATER RESOURCES IN WISCONSIN'S CHEQUAMEGON-NICOLET NATIONAL FOREST: SUCCESSES AND CHALLENGES**
- 136-6 2:50 PM Schmitz, Darrel W.*: **EVIDENCE OF STREAM MIGRATION AND PIRACY NEAR TUPELO, MISSISSIPPI (Invited Presentation)**
- 136-7 3:10 PM Hults, Chad P.*; Jones, Tahzay; Venator, Sarah C.; Laker, Mark; Linneman, Charles C.; Lanik, Amanda: **STRUCTURE FROM MOTION (SFM) APPLICATIONS TO ALASKA REGION NPS NATURAL RESOURCES SCIENCE AND OUTREACH**
- 136-8 3:25 PM Molnia, Bruce F.*: **KEEPING THE BAY IN GLACIER BAY NATIONAL PARK – INTRODUCING GLACIER SCIENCE TO THE UNITED STATES SUPREME COURT**
- 3:40 PM **BREAK**
- 136-9 3:55 PM Ferlicchi, Matthew*; Nyborg, Torrey; Santucci, Vincent L.: **PALEONTOLOGICAL INVENTORIES EXPAND THE FOSSIL RECORD AT DEATH VALLEY NATIONAL PARK, CALIFORNIA**

- 136-10** 4:10 PM Nyborg, Torrey*; Nyborg, Brant; Fairfield, Hal; Jansen, Birgitta: **FOSSIL FISHES OF DEATH VALLEY NATIONAL PARK, CALIFORNIA: RECONSTRUCTING THE ORIGINS AND GEOGRAPHICAL DISTRIBUTION OF THE INDIGENOUS ICHTHYOFAUNA OF SOUTHEASTERN CALIFORNIA**
- 136-11** 4:25 PM Prassack, Kari A.*; Walkup, Laura C.; Hart, William K.; Wan, Elmira: **GETTING OUR DUCKS (AND OTTERS, BEAVERS, AND PECCARIES) IN A ROW: NEW RESEARCH BY THE HAGERMAN PALEONTOLOGY, ENVIRONMENTS AND TEPHROCHRONOLOGY (PET) PROJECT AT HAGERMAN FOSSIL BEDS NATIONAL MONUMENT, IDAHO**
- 136-12** 4:40 PM Rowland, Stephen M.*: **TRACKWAY OF A SIDEWAYS-WALKING PELYCOSAUR IN THE CARBONIFEROUS MANAKACHA FORMATION IN GRAND CANYON NATIONAL PARK**
- 4:55 PM "LIGHTNING ROUND" OF POSTER PREVIEWS
- 5:10 PM DISCUSSION

SESSION NO. 137

T113. Geoscience Education Research: Implications for Undergraduate Geoscience Teaching and Learning (National Association of Geoscience Teachers; GSA Geoscience Education Division; National Association of Geoscience Teachers, Division of Geoscience Education Research)

1:30 PM, Washington State Convention Center, Room 2A

Kristen St. John, Karen McNeal, Anne Gold and Katherine Ryker, Presiding

- 137-1** 1:30 PM Kreager, Bailey Zo*; LaDue, Nicole: **PREDICT-OBSERVE-EXPLAIN: A PROMISING ACTIVE LEARNING PEDAGOGY FOR PROMOTING CONCEPTUAL UNDERSTANDING, SELF-EFFICACY, AND INTEREST IN GEOSCIENCE IN INTRODUCTORY GEOLOGY**
- 137-2** 1:45 PM McConnell, David A.*; Ryker, Katherine; Czajka, C. Doug; Chapman, LeeAnna Young; Jones, Jason P.; Wigger, Jennifer: **ASSESSING THE INSTRUCTIONAL UTILITY AND LEARNING EFFICACY OF COMMON ACTIVE LEARNING STRATEGIES (Invited Presentation)**
- 137-3** 2:00 PM Wright, Carrie L.*: **WRITING TO LEARN FOR SCIENTIFIC LITERACY: EVALUATION AND RESEARCH IMPLICATIONS OF A CURRICULUM FOR HISTORICAL GEOLOGY**
- 137-4** 2:15 PM Roberts, Jennifer A.*; Marshall, Alison Olcott; McLean, Noah; Baker, Gregory; Möller, Andreas: **POSITIVE IMPACT OF CLASSROOM TRANSFORMATION ON INEQUALITY IN DFW RATES ("D" OR "F" GRADE, OR WITHDRAW) FOR FIRST-TIME FRESHMAN, FEMALES, AND UNDERREPRESENTED MINORITIES IN TWO INTRODUCTORY GEOLOGY COURSES**
- 137-5** 2:30 PM Bruno, Barbara C.*; Engels, Jennifer; Ito, Garrett; Gillis-Davis, Jeffrey J.; Dulai, Henrietta; Carter, Glenn; Fletcher, Charles H.; Bottjer-Wilson, Daniela: **TWO-STAGE EXAMS REDUCE THE ACHIEVEMENT GAP IN UNDERGRADUATE OCEANOGRAPHY AND GEOLOGY CLASSES**
- 137-6** 2:45 PM Berg, Christopher A.*: **INTEGRATE IMPLEMENTATION IN A LARGE-LECTURE COURSE: ASSESSMENT OF IMPACTS ON STUDENT ATTITUDES AND ACHIEVEMENT OF LEARNING GOALS**
- 137-7** 3:00 PM Bitting, Kelsey S.*; Ryker, Katherine; Teasdale, Rachel: **GRADUATE TEACHING ASSISTANT PEDAGOGICAL PREPARATION IN THE GEOSCIENCES: COMMUNITY VALUES AND PRIORITIES, GUIDING RESEARCH, AND NEXT STEPS**
- 3:15 PM BREAK
- 137-8** 3:30 PM Dolan, Erin L.*: **BEYOND THE DISCIPLINES IN DISCIPLINE-BASED EDUCATION RESEARCH (Invited Presentation)**

- 137-9** 3:45 PM Pelch, Michael*: **HOW DO STUDENTS DEFINE AND DESCRIBE SUSTAINABILITY, AND WHAT CAN WE DO TO BETTER CONVEY THE IMPORTANCE OF GEOLOGY IN SUSTAINABILITY?**
- 137-10** 4:00 PM Tinigin, Laura*; Petcovic, Heather L.; LaDue, Nicole: **HOW TINY IS A PROTON? UNDERGRADUATE STUDENT FAMILIARITY WITH SUB-METER METRIC SCALE**
- 137-11** 4:15 PM Hamilton, Wayne*; Yelderman, Joe C.: **CLASSROOM LESSONS FROM GEOSCIENCE UNDERGRADUATE RESEARCH AND PRESENTATIONS**
- 137-12** 4:30 PM Czajka, C. Doug*; McConnell, David A.: **AN EXPLORATORY STUDY EXAMINING THE EVOLUTION OF GEOLOGY STUDENTS' UNDERSTANDING OF EARTH HISTORY AND GEOLOGIC TIME**
- 137-13** 4:45 PM Holmgren, Camille A.*; Teed, Rebecca E.: **FROM MASS EXTINCTIONS TO MODERN EXTINCTIONS: TEACHING WITH INTEGRATE'S ONLINE CHANGING BIOSPHERE MODULE**
- 137-14** 5:00 PM LaDue, Nicole*; Callahan, Caitlin N.; Baber, Lorenzo; Sexton, Julie M.; van der Hoeven Kraft, Katrien J.; Zamani-Gallaher, Eboni M.: **APPLYING THEORETICAL FRAMEWORKS TO THE RECRUITMENT AND RETENTION OF UNDERREPRESENTED STUDENTS IN THE GEOSCIENCES (Invited Presentation)**
- 5:15 PM DISCUSSION

SESSION NO. 138

T124. Practical Advice for In-Service and Pre-Service K-12 Earth Science Teacher Preparation and Professional Development (National Earth Science Teachers Association; National Association of Geoscience Teachers, Teacher Education Division)

1:30 PM, Washington State Convention Center, Room 3A

Suzanne T. Metlay, Belinda E. Jacobs, Carla McAuliffe, Sadredin C. Moosavi, Heather Petcovic and Katherine Ryker, Presiding

- 138-1** 1:30 PM Egger, Anne E.*: **HOW WELL DO INTRODUCTORY GEOSCIENCE COURSES PREPARE FUTURE TEACHERS? RESULTS FROM THE NATIONAL GEOSCIENCE FACULTY SURVEY (Invited Presentation)**
- 138-2** 1:45 PM Teed, Rebecca*: **DO BETTER-PREPARED STUDENTS LEARN MORE FROM COLLABORATIVE TESTS?**
- 138-3** 2:00 PM Pyle, Eric J.*; Reisner, Barbara; Higdon, Robbie; Paulson, Scott; Cresawn, Kerry: **PRESERVICE TEACHERS' DUAL IDENTITIES: EARTH SCIENTIST AND EARTH SCIENCE TEACHER (Invited Presentation)**
- 138-4** 2:15 PM Gold, Anne U.*; Morrison, Ariel; Soltis, Nicholas A.; McNeal, Karen; Kay, Jennifer E.: **MEASURING ENGAGEMENT AND LEARNING OUTCOMES DURING A TEACHER PROFESSIONAL DEVELOPMENT WORKSHOP ABOUT CREATIVE CLIMATE COMMUNICATION**
- 138-5** 2:30 PM D'Errico, Megan E.*; Stewart, Lauren N.; Ross, Donna L.; Vaughn, Meredith H.: **CHARACTERIZING TEACHERS' PROFESSIONAL NOTICING OF STUDENTS' SCIENTIFIC IDEAS AND EXTENDING IT TO EARTH SCIENCE TEACHING**
- 138-6** 2:45 PM Chapman, LeeAnna Young*; McConnell, David A.: **WHAT? WHEN? HOW? CASE STUDIES EXPLORING EXPERIENCES MOTIVATING THE DEVELOPMENT OF REFORMED TEACHING BELIEFS AMONG FUTURE GEOSCIENCE FACULTY (Invited Presentation)**
- 3:00 PM DISCUSSION
- 138-7** 3:15 PM Panzik, Joseph E.*; Borden, Rose M.; Roberts, Sarah E.; Muhlbauer, Jason G.; Gwizd, Samantha: **GRADUATE STUDENT GUIDED PHYSICAL GEOLOGY LABORATORY DESIGN AT THE UNIVERSITY OF TENNESSEE AT KNOXVILLE**

- 138-8** 3:30 PM Passow, Michael J.*: **NGSS-ALIGNED PROFESSIONAL DEVELOPMENT FOR NEW YORK STATE TEACHERS USING THE EARTH2CLASS MODEL**
- 138-9** 3:45 PM Shuster, Robert D.*; Dere, Ashlee Laura Denton; Cutucache, Christine; Grandgenett, Nealy F.; Tappich, William; Rodie, Steve: **PROFESSIONAL DEVELOPMENT OF SCIENCE TEACHERS IN OMAHA, NEBRASKA USING AUTHENTIC RESEARCH EXPERIENCES**
- 138-10** 4:00 PM Thomas, Jeff D.*; Drew, Sally; Balsciano, Nicholas; Oyewumi, Oluyinka; Evans, Mark A.; Larsen, Kristine; Bednarski, Marsha: **NEXT-GEN EARTH AND SPACE SCIENCE LITERACY INSTRUCTION AND EXPERTISE (NESSLIE): A PROFESSIONAL DEVELOPMENT PROJECT TO IMPROVE MIDDLE SCHOOL SCIENCE TEACHERS' UNDERSTANDING AND EFFICACY OF NGSS EARTH SCIENCE CONTENT AND PEDAGOGY**
- 138-11** 4:15 PM Ellins, Katherine K.*; Stocks, Eric: **CREATING EARTH SCIENCE TEACHER LEADERS WITHIN AND BEYOND THE CLASSROOM: EXAMPLES FROM TEXAS (Invited Presentation)**
- 138-12** 4:30 PM Fowell, Sarah J.*; Kaden, Ute; Druckenmiller, Patrick: **PREPARING STEM TEACHERS FOR RURAL ARCTIC CLASSROOMS THROUGH MENTORED TEACHING INTERNSHIPS AND PLACE-BASED INSTRUCTION**
- 138-13** 4:45 PM Duggan-Haas, Don*; Ross, Robert M.; White, Tim; Moore, Alexandra; Derry, Louis A.: **CRITICAL ZONE SCIENCE IS TO SCIENCE AS THE NEXT GENERATION SCIENCE STANDARDS ARE TO SCIENCE EDUCATION**
- 138-14** 5:00 PM Mulvey, Bridget K.*: **MAPS AND MAPPING TECHNOLOGIES IN K-12 SCIENCE EDUCATION: SHOW-AND-TELL OR GAME CHANGERS?**
- 139-8** 3:25 PM Ushikubo, Takayuki*; Tani, Kenichiro; Georg, R.Bastian: **OXYGEN AND SILICON ISOTOPE RATIOS OF ZIRCONS OF SILICIC ROCKS FROM THE IZU-BONIN-MARIANA (IBM) INTRA-OCEANIC ARC AND ARC COLLISION ZONE**
- 139-9** 3:40 PM Katzir, Yaron*; Morag, Navot; Golan, Tzahi; Coble, Matthew A.; Grimes, Craig B.; Kitajima, Kouki; Valley, John W.: **THE ORIGIN OF OCEANIC PLAGIOGRANITES: COUPLED SIMS O AND U-PB ISOTOPE STUDY OF ZIRCON FROM THE TROODOS OPHIOLITE, CYPRUS**
- 139-10** 3:55 PM Reddy, Steven M.*; Saxey, David W.; Rickard, William D.A.; Fougereuse, Denis; Bain, Samuel; Montalvo, Stephanie D.; Verberne, Rick: **PROGRESS IN THE ATOM PROBE ANALYSIS OF GEOLOGICAL MATERIALS**
- 139-11** 4:10 PM Blum, Tyler B.*; Nasdala, Lutz; Spicuzza, Michael J.; Coble, Matthew A.; Chanmuang, Chutimun; Valley, John W.: **RESOLVING LARGE MAGNITUDE AND WIDESPREAD ANNEALING OF LUNAR ZIRCON THROUGH CORRELATIVE SIMS, EBSD AND RAMAN SPECTROSCOPY**
- 139-12** 4:25 PM Cameron, Evan D.*; Valley, John W.; Kitajima, Kouki; Blum, Tyler B.; Cavosie, Aaron J.; Kita, Noriko T.: **ASSESSING THE RELIABILITY OF OXYGEN ISOTOPE MEASUREMENTS OF HADEAN ZIRCONS**
- 139-13** 4:40 PM Crowley, James L.*; Schmitz, Mark D.; Myers, John S.; Walters, Jesse B.: **CA-TIMS U-PB DATES FROM HADEAN ZIRCON FROM THE JACK HILLS, AUSTRALIA: IMPROVING THE ACCURACY OF AGES OF METAMORPHOSED DETRITAL ZIRCON**
- 139-14** 4:55 PM Cavosie, Aaron J.*; Erickson, Timmons M.; Thomson, Olivia A.; Montalvo, Stephanie D.; Montalvo, Pedro; Pincus, Maya R.; COX, Morgan A.; Bland, Phil A.; Timms, Nick; Reddy, Steven M.; Wilde, Simon; Valley, John W.: **SHOCKED ZIRCON SEEMS TO BE FOREVER, SO WHERE IS THE HADEAN RECORD...?**
- 139-15** 5:10 PM Cox, Morgan A.*; Cavosie, Aaron J.; Bland, Phil A.; Erickson, Timmons M.; Ferrière, Ludovic; Timms, Nick: **CONFIRMATION OF A NEW IMPACT CRATER IN WESTERN AUSTRALIA: SHOCKED QUARTZ AT THE YALLALIE STRUCTURE**

SESSION NO. 139

T149. Celebrating Dr. John W. Valley's Contributions to Isotope Geochemistry and Beyond, from the Hadean to the Holocene II (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; Mineralogical Society of America; Geochemical Society; Microanalysis Society; GSA Sedimentary Geology Division)

1:30 PM, The Conference Center, Skagit 2

Aaron J. Cavosie, Jade Star Lackey and William H. Peck, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 139-1** 1:35 PM Eiler, John*: **THE EMERGING FIELD OF 'ISOTOMICS', AND THE POWER OF GEAR-HEAD INNOVATION IN GEOCHEMISTRY (Invited Presentation)**
- 139-2** 1:55 PM Steig, Eric J.*: **CONTINUOUS, HIGH-RESOLUTION MEASUREMENTS OF $\Delta^{17}\text{O}$ OF H_2O**
- 139-3** 2:10 PM Bindeman, Ilya N.*; Zakharov, David; Palandri, James; Greber, Nicholas; Dauphas, Nicolas; Retallack, Gregory J.; Lackey, Jade Star; Hoffman, Axel; Bekker, Andrey: **SHIFT IN THE HYDROLOGIC CYCLE AND RAPID GROWTH OF SUBAERIAL CONTINENTAL CRUST AT ~2.5 GA BASED ON TRIPLE OXYGEN ISOTOPE SYSTEMATICS OF SHALES**
- 139-4** 2:25 PM Cui, Huan*; Kitajima, Kouki; Spicuzza, Michael J.; Fournelle, John H.; Ishida, Akizumi; Denny, Adam; Zhang, Feifei; Valley, John W.: **PRIMARY OR SECONDARY? TESTING THE NEOPROTEROZOIC SUPERHEAVY PYRITE BY SIMS**
- 139-5** 2:40 PM Teng, Fang-Zhen*: **TRACING SUBDUCTION ZONE PROCESSES BY USING MG ISOTOPES**
- 139-6** 2:55 PM Lamb, William M.*; Hunt, Lindsey: **H_2O IN THE UPPER MANTLE: INSIGHTS FROM MINERAL EQUILIBRIA**
- 139-7** 3:10 PM Spencer, Christopher J.*; Murphy, J. Brendan; Hoiland, Carl W.; Johnston, Stephen; Collins, William J.; Mitchell, Ross N.: **CORDILLERAN ARC MOBILITY AND ACCRETIONARY TECTONICS DUE TO DEGREE-2 MANTLE CONVECTION**

SESSION NO. 140 \$

T162. The Dance of Arcs: Causes of Arc Migrations, Flare-Ups, and Magmatic Focusing II (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division)

1:30 PM, The Conference Center, Skagit 4

Scott R. Paterson, Vali Memeti, Joshua Schwartz, Katie E. Ardill and Anita Grunder, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 140-1** 1:35 PM Karlstrom, Leif*; Paterson, Scott R.; Jellinek, A. Mark: **A REVERSE ENERGY CASCADE FOR CRUSTAL MAGMA TRANSPORT (Invited Presentation)**
- 140-2** 1:55 PM Yang, Jiaming*; Rudolph, Maxwell L.; Karlstrom, Leif: **OVER-RIDING PLATE CONTROLS ON MANTLE WEDGE MELTING**
- 140-3** 2:10 PM Billen, Magali I.*: **HOT SLAB MELTS FROM OLD SUBDUCTING LITHOSPHERE: SPONTANEOUS ARC RIFTING CAUSED BY TIME-DEPENDENT EVOLUTION OF THE MANTLE WEDGE CORNER**
- 140-4** 2:25 PM Ward, Kevin M.*; Cao, Wenrong: **MAGMATIC EVOLUTION OF AN ACTIVE CORDILLERAN MAGMATIC FLARE-UP EPISODE (Invited Presentation)**
- 2:45 PM **DISCUSSION**
- 140-5** 3:00 PM Chapman, Alan D.*: **THE PELONA-OROCOPIA-RAND AND RELATED SCHISTS OF SOUTHERN CALIFORNIA: A REVIEW OF THE BEST-KNOWN ARCHIVE OF SHALLOW-ANGLE SUBDUCTION ON THE PLANET**

- 140-6 3:20 PM Klein, Benjamin Z.*; Jagoutz, Oliver; VanTongeren, Jill; Setera, Jacob: **EVIDENCE FOR THREE DISTINCT METASEDIMENT EMPLACEMENT MECHANISMS IN AN ARC CRUST SECTION, SOUTHERN SIERRA NEVADA, CALIFORNIA**
- 140-7 3:35 PM Gammel, Elizabeth M.*; Nabelek, Peter: **LITHOSPHERIC STRUCTURE CONTROL ON CHANGES IN MAGMA SOURCE OVER TWO MAGMATIC PULSES IN THE WHITE-INYO RANGE, CA**
- 140-8 3:50 PM Gordon, Stacia M.*; Sauer, Kirsten B.; Miller, Robert B.; Vervoort, Jeff D.; Fisher, Christopher M.: **CONTRIBUTION OF METASEDIMENTARY ROCKS TO SMALL SCALE MELTS WITHIN THE DEEP LEVELS OF CONTINENTAL ARCS: INSIGHT FROM THE SWAKANE AND SKAGIT METASEDIMENTARY ROCKS AND ASSOCIATED MELT GENERATIONS**
- 140-9 4:05 PM Shea, Erin K.*; Miller, Jonathan S.; Miller, Robert B.; Chan, Christine F.; Kent, Adam J.R.: **GEOCHEMICAL EVIDENCE FOR THE DEVELOPMENT OF A GARNET-BEARING CRUSTAL ROOT IN THE CRETACEOUS NORTH CASCADES MAGMATIC ARC, WA**
- 140-10 4:20 PM Schwartz, Joshua J.*; Tulloch, Andrew J.; Andico, S.; Stowell, Harold H.; Klepeis, Keith A.; Kitajima, Kouki; Valley, John: **DO MID-CRUSTAL CORDILLERAN BATHOLITHS RECORD ARC FLARE-UP TRIGGERING PROCESSES?**
- 140-11 4:35 PM Pang, Kwan-Nang*; Chung, Sun-Lin; Zarrinkoub, Mohammad Hossein; Chiu, Han-Yi; Lee, Hao-Yang; Lin, Te-Hsien: **ALONG ARC GEOCHRONOLOGIC AND GEOCHEMICAL VARIATION OF THE URUMIEH-DOKHTAR BELT, IRAN: IMPLICATIONS FOR MAGMATIC FLARE-UP AND CRUSTAL GROWTH**
- 4:50 PM **DISCUSSION**

SESSION NO. 141 

T167. The History of the Petroleum Industry: Hydraulic Fracturing—The 20th and 21st Century (GSA History and Philosophy of Geology Division; GSA Energy Geology Division; History of Earth Sciences Society (HESS); GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; History of the Geoscience Section of the Geological Society of Italy)

1:30 PM, The Conference Center, Skagit 3

Francesco Gerali and William R. Brice, Presiding

- 141-1 1:30 PM Brice, William R.*: **THE EARLY OIL INDUSTRY AND THE FIRST “FRACKING” (Invited Presentation)**
- 141-2 1:45 PM Testa, Stephen M.*: **HISTORICAL DEVELOPMENT OF WELL STIMULATION TECHNOLOGIES VIA HYDRAULIC FRACTURING**
- 141-3 2:00 PM Gerali, Francesco*: **THE UNCONVENTIONAL DRILLER. THE DEVELOPMENT OF NEW PARADIGMS IN OIL EXPLORATION IN THE 20TH CENTURY**
- 141-4 2:15 PM Valencius, Conevery Bolton*: **HISTORY OF TECHNOLOGY, HISTORY OF PEOPLE (Invited Presentation)**
- 141-5 2:30 PM Soeder, Daniel J.*: **OVERCOMING THE TECHNICAL CHALLENGES OF SHALE GAS AND TIGHT OIL PRODUCTION**
- 141-6 2:45 PM Engelder, Terry*: **A BRIEF HISTORY OF HYDRAULIC FRACTURING IN THE APPALACHIAN BASIN (Invited Presentation)**
- 141-7 3:00 PM Oldaker, Paul*: **HISTORY OF COAL BED METHANE IN THE SAN JUAN BASIN, COLORADO AND NEW MEXICO**
- 141-8 3:15 PM Ryder, Stacia*: **COMPARING AND CONTRASTING REGULATION AND GOVERNANCE APPROACHES TO UNCONVENTIONAL OIL AND GAS DEVELOPMENT: THE CASE OF ARGENTINA AND THE U.S**
- 141-9 3:30 PM Otoy, Natascha*: **OIL, POLITICS AND SCIENCE: THE DEVELOPMENT OF PETROLEUM GEOLOGY IN BRAZIL**

SESSION NO. 142

T176. Glacier-Landscape Interactions, Loess Paleoclimatology, and Interdisciplinary Quaternary Science II: In Memory of Stephen C. Porter (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division)

1:30 PM, The Conference Center, Chelan 4

Glenn D. Thackray, Richard B. Waitt and Zhisheng An, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 142-1 1:35 PM Jaffrey, Marc*; Hallet, Bernard: **THE INFLUENCE OF CLIMATE AND TOPOGRAPHY ON GLACIER EROSION RATES**
- 142-2 1:50 PM Batbaatar, J.*; Gillespie, Alan R.; Fink, David; Matmon, Ari; Lai, Zhongping; Koppes, Michele: **RELATIVE EQUILIBRIUM-LINE ALTITUDE AS AN INDICATOR OF GLACIER SENSITIVITY TO TEMPERATURE AND PRECIPITATION**
- 142-3 2:05 PM Jaeger, John M.*; Salinas, Joe Kendall; Penkrot, Michelle L.; Bruand, Emilie: **PERSISTENCE OF THE PLEISTOCENE GLACIAL BUZZSAW IN THE ST. ELIAS MOUNTAINS, ALASKA**
- 142-4 2:20 PM Doughty, Alice Marie*: **EQUILIBRIUM LINE ALTITUDE CHANGES IN THE TROPICS AND MID-LATITUDES DURING THE LAST GLACIAL MAXIMUM**
- 142-5 2:35 PM Olson, Erikka R.*; Constantine, José Antonio: **MID LATITUDE GLACIAL RESPONSES TO ENSO IN THE EASTERN PACIFIC: A TALE OF TWO HEMISPHERES**
- 142-6 2:50 PM Brachfeld, Stefanie A.*; Cirone, Ashley; Williams, Trevor; Licht, Kathy; Hemming, Sidney R.: **GEOCHEMICAL AND MINERALOGICAL SIGNATURES OF THREE ICE STREAMS IN THE WEDDELL SEA EMBAYMENT, ANTARCTICA**
- 3:05 PM **BREAK**
- 3:20 PM **POSTER LIGHTNING TALKS**
- 142-7 3:35 PM Wysznytzky, Cianna Elizabeth*: **DIGGING DEEPER IN QUATERNARY SCIENCE: THE IMPORTANCE OF PAIRING SEDIMENTOLOGICAL AND GEOMORPHOLOGICAL OBSERVATIONS IN UNDERSTANDING GLACIAL LANDSCAPE EVOLUTION**
- 142-8 3:50 PM Shulmeister, James*; Thackray, Glenn D.; Rittenour, Tammy; Fink, David; Rother, Henrik; Hyatt, Olivia M.: **THE TIMING AND NATURE OF THE LAST GLACIAL CYCLE IN NEW ZEALAND**
- 142-9 4:05 PM Grau Galofre, Anna*; Jellinek, A. Mark; Osinski, Gordon R.: **MORPHOLOGY AND FIELD OBSERVATIONS OF TUNNEL VALLEYS IN DEVON ISLAND, ARCTIC ARCHIPELAGO: EXPLORING THE FINGERPRINTS OF SUBGLACIAL DRAINAGE**
- 142-10 4:20 PM Farnsworth, Wesley R.*; Ingólfsson, Ólafur; Retelle, Michael J.; Allaart, Lis; Håkansson, Lena; Schomacker, Anders: **ADVANCES IN DEGLACIATION ON SVALBARD**
- 142-11 4:35 PM Haugerud, Ralph A.*: **LATE LAST-GLACIAL SHORELINES IN NORTHWEST WASHINGTON STATE**
- 142-12 4:50 PM Thackray, Glenn D.*; Shulmeister, James; Marshall, Katherine J.; Staley, Amie E.: **PORTER’S CIRQUE FLOOR ALTITUDES AND THE EXTENSIVE MIS 5-3 GLACIATION OF THE OLYMPIC PENINSULA, WASHINGTON**
- 5:05 PM **CONCLUDING REMARKS**

SESSION NO. 143

T177. Ice Streams of North American Ice Sheets and Their Stratigraphic and Sedimentary Record (GSA Quaternary Geology and Geomorphology Division)

1:30 PM, The Conference Center, Chelan 2

Michel Parent, Martin Ross and Richard Berg, Presiding

- 1:30 PM **INTRODUCTION OF ARTHUR L. DAY MEDALIST, BY PETER L. MOORE**

- 143-1 1:35 PM Iverson, Neal R.*: **ARTHUR L. DAY MEDAL: BASAL SLIP OF GLACIERS: CREEPING TOWARD BETTER PARAMETERIZATIONS**
- 143-2 1:55 PM Wright, Stephen F.*: **ICE STREAMING IN THE SOUTHERN CHAMPLAIN AND NORTHERN HUDSON RIVER VALLEYS, VERMONT AND NEW YORK**
- 143-3 2:10 PM Parent, Michel*: **FLOW PATTERNS AND GLACIAL DISPERSAL PATTERNS IN THE EASTERN LAURENTIDE ICE SHEET - IMPLICATIONS FOR SUBGLACIAL PROCESSES AND ICE STREAM DEVELOPMENT**
- 143-4 2:25 PM Norris, Sophie Louise*; Margold, Martin; Froese, Duane: **LATE WISCONSINAN ICE FLOW DYNAMICS IN NORTHEASTERN ALBERTA AND NORTHWESTERN SASKATCHEWAN, CANADA**
- 143-5 2:40 PM Young, Joseph M*; Froese, Duane G.: **QUATERNARY STRATIGRAPHY OF THE LOWER ATHABASCA VALLEY AND IMPLICATIONS FOR DEGLACIAL LAURENTIDE ICE SHEET DYNAMICS AND GLACIAL LAKE AGASSIZ MELTWATER DRAINAGE**
- 143-6 2:55 PM Breckenridge, Andy J.*; Lowell, Thomas V.: **SAWTOOTH VARVE THICKNESS PATTERNS RECORD RE-ORGANIZATION OF MELTWATER PATHWAYS ALONG THE LAURENTIDE ICE SHEET**
- 3:10 PM **BREAK**
- 143-7 3:25 PM Margold, Martin*; Stokes, Chris R.; Clark, Chris D.: **THE EVOLUTION OF THE ICE STREAM NETWORK IN THE LAURENTIDE ICE SHEET DURING THE LAST DEGLACIATION (Invited Presentation)**
- 143-8 3:45 PM Ross, Martin*: **MULTI-FACETED ANALYSIS OF THE UPSTREAM PORTION OF SELECTED LAURENTIDE ICE SHEET PALEO-ICE STREAMS; INSIGHTS INTO THEIR LONG-TERM BEHAVIOR**
- 143-9 4:00 PM Zoet, Lucas*; Muto, Atsuhiko; Rawling, J. Elmo: **THE EFFECT OF TUNNEL CHANNELS ON LAURENTIDE ICE SHEET DYNAMICS**
- 143-10 4:15 PM Miranda, Evan J.*; Morgan, Daniel; Putkonen, Jaakko; Balco, Greg: **THE PROVENANCE OF GLACIAL TILL FROM THE HARBOR HILL MORaine ON LONG ISLAND, NY DETERMINED BY LA-ICP-MS OF DETRITAL ZIRCON**
- 143-11 4:30 PM Hermanowski, Piotr*; Piotrowski, Jan A.: **PALAEO-ICE STREAM DYNAMICS DERIVED FROM GEOMORPHOLOGICAL AND GEOLOGICAL CHARACTERISTICS OF DRUMLINS IN THE STARGARD DRUMLIN FIELD, NW POLAND**
- 143-12 4:45 PM Tremblay, Tommy*: **FROM LATE TERTIARY FLUVIAL LANDSCAPE TO PRESENT: A GENERAL THEORY ON WARM-BASED AND COLD-BASED GLACIATED TERRAINS SEDIMENTOLOGY AND GEOMORPHOLOGY IN THE NORTHEASTERN CANADIAN SHIELD**
- 144-3 2:05 PM Nichols, Mary*; Shaw, Jeremy: **THE GEOMORPHIC LEGACY OF RANGELAND WATER AND EROSION CONTROL STRUCTURES**
- 144-4 2:20 PM Gran, Karen B.*; Treat, Ian H.; Targos, Courtney: **WHAT'S MISSING? WHAT'S LEFT BEHIND? HOW HUMAN ALTERATIONS TO LAND USE AND DRAINAGE ARE RECORDED IN DIFFERENT FLUVIAL ENVIRONMENTS IN AN INCISING AGRICULTURAL LANDSCAPE OF THE UPPER MIDWEST, USA (Invited Presentation)**
- 144-5 2:40 PM Blau, Emmett*; Constantine, José Antonio: **THE ROLE OF THE FLOODPLAIN IN THE STORAGE OF CONTAMINANTS ALONG MEANDERING RIVERS**
- 144-6 2:55 PM Blauch, Garrett A.*; Jefferson, Anne J.: **ABUNDANCE AND GEOMORPHIC FUNCTION OF WOOD IN URBAN STREAM SYSTEMS**
- 3:10 PM **BREAK**
- 144-7 3:25 PM Schmidt, Amanda H.*; Bierman, Paul R.; Collins, Brian D.; Harrell, Stevan; Hinckley, Thomas; Tang, Ya; Rood, Dylan H.: **THE GEOMORPHIC HISTORY OF HUMAN ACTIVITY IN SOUTHWESTERN CHINA (Invited Presentation)**
- 144-8 3:45 PM Kang, Ranbir Singh*; Chacko, Elizabeth; Kaur, Dhian; Viadero, Roger C.: **PATTERNS OF SILTING IN THE RESERVOIRS OF SMALL- AND MEDIUM-SIZED EARTHEN CHECK DAMS IN THE SHIWALIK FOOT HILLS OF THE HIMALAYAS**
- 144-9 4:00 PM Donn, Leila*; Beach, Timothy; Luzzadder-Beach, Sheryl; Yaeger, Jason: **LIDAR-BASED HUMAN-ENVIRONMENTAL CONTRIBUTIONS TO LONG-TERM FLOODING AND LANDSCAPE CHANGE IN THE BELIZE-GUATEMALA TRANSBOUNDARY AREA**
- 144-10 4:15 PM Davis, George H.*: **LATE BRONZE AGE THROUGH CLASSICAL-PERIOD UTILIZATION OF GEOMORPHOLOGY, STRATIGRAPHY, AND GEOLOGIC STRUCTURE, SANCTUARY OF ZEUS, MT. LYKAION, PELOPONNESE, GREECE**
- 144-11 4:30 PM Reed, Miles Mark Langly*; Kite, J. Steven: **OBSERVATIONS OF EROSION ON VALLEY FILLS PRODUCED BY MOUNTAINTOP REMOVAL COAL MINING**
- 144-12 4:45 PM Keck, Jeffrey W.*: **FLUVIAL CONNECTIVITY OF A DEEP-SEATED LANDSLIDE TO UPSTREAM TREE HARVESTS**
- 5:00 PM **LIGHTNING TALKS**

SESSION NO. 145

T196. Advances in Geoarchaeology II (GSA Archaeological Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division)

1:30 PM, Washington State Convention Center, Room 3B

Laura R. Murphy and Kathleen Nicoll, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 145-1 1:45 PM Sanjinez Guzman, Victor A.*; Langevin, Christopher P.; Richards, Rachel; Stockfleth, Camille T.; Ulibarri, Michael J.; Emerman, Steven H.: **HYDROLOGY OF BIG SPRING, FAIRFIELD, UTAH: A PRELUDE TO NATIVE AMERICAN ARCHAEOLOGY**
- 145-2 2:00 PM Abbott, Morgan S.*; Nofchissey, Samuel I.; Bushman, Paul G.; Flo, Dustin C.; Gherasim, Janelle E.; Campbell, Stephen R.; Tulley, Skyler K.; Emerman, Steven H.; Hungerford, Hilary B.; Santos, Lori J.: **THE HISTORY OF WATER IN BEARS EARS NATIONAL MONUMENT, SOUTHEASTERN UTAH: TOWARDS A SYNTHESIS OF GEOCHRONOLOGY, NATIVE AMERICAN ORAL HISTORY AND ROCK ART**
- 145-3 2:15 PM Roskin, Joel*; Taxel, Itamar: **INTER-SETTLEMENT PLOT AND BERM AGROECOSYSTEMS IN COASTAL SAND, YAVNEH DUNEFIELD, ISRAEL, AT THE END OF THE EARLY ISLAMIC PERIOD**

SESSION NO. 144

T185. Geomorphology of Human-Altered Landscapes (GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Environmental and Engineering Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group)

1:30 PM, The Conference Center, Chelan 5

Anne J. Jefferson and Stephanie S. Day, Presiding

- 144-1 1:30 PM Chin, Anne*: **FINGERPRINTING DECISIONS IN CO-EVOLVING HUMAN-LANDSCAPE SYSTEMS (Invited Presentation)**
- 144-2 1:50 PM Tanski, Natalie*; Schenk, Edward R.; Tobin, Benjamin W.: **POTENTIAL KNICKPOINT RETREAT ON THE COLORADO RIVER DUE TO HISTORICALLY LOW LAKE MEAD LEVELS, GRAND CANYON NATIONAL PARK**

- 145-4** 2:30 PM Wiebe, Matthea*: **SOIL MICROMORPHOLOGY ANALYSIS OF AREA D AT MANOT CAVE, ISRAEL: INSIGHTS INTO SITE FORMATION PROCESSES**
- 145-5** 2:45 PM McCool, Jon-Paul P.*: **CARBONATES AT ARCHAEOLOGICAL SITES AND ENVIRONMENTS PROXIMATE TO THE NILE RIVER DURING THE EARLY TO MID HOLOCENE IN CENTRAL AND NORTHERN SUDAN**
- 3:00 PM **BREAK**
- 145-6** 3:15 PM Hill, Christopher L.*: **THE USE OF SEDIMENTARY SEQUENCES FROM ARCHAEOLOGICAL AND PALEONTOLOGICAL LOCALITIES TO EXAMINE CLIMATE CHANGE AND LATE QUATERNARY LANDSCAPE EVOLUTION (Invited Presentation)**
- 145-7** 3:35 PM Beeton, Jared M.*: **LATE-PLEISTOCENE AND HOLOCENE GEOMORPHOLOGY IN THE SAN LUIS VALLEY, COLORADO: IMPLICATIONS FOR ARCHAEOLOGICAL RESEARCH**
- 145-8** 3:50 PM Heiser, Patricia A.*; Travis, Lauri; Gildner, Katherine: **FIRE HISTORY, LANDSCAPE CHANGE, AND HUMAN RESPONSE TO HOLOCENE CLIMATE CHANGE IN BIG BELT MOUNTAINS, CENTRAL MONTANA**
- 145-9** 4:05 PM Herrmann, Edward W.*; Monaghan, G. William: **POST-GLACIAL DRAINAGE BASIN EVOLUTION IN CENTRAL INDIANA: IMPLICATIONS FOR PREHISTORIC HUMAN SETTLEMENT PATTERNS**
- 145-10** 4:20 PM Seramur, Keith*; Cowan, Ellen A.: **GEOMORPHIC CONTEXT OF ARCHAEOLOGY SITES ON THE CUMBERLAND RIVER AND SITE DISTURBANCE BY SEISMICITY**
- 145-11** 4:35 PM Matheson, Teresa*: **MICROSTRATIGRAPHIC INVESTIGATION OF A DEEP SHELL DEPOSIT**
- 145-12** 4:50 PM Wallace, Peter T.*: **LIME PLASTER USE AT LATE BRONZE AGE KALAVASOS-AYIOS DHIMITRIOS (CYPRUS): EVIDENCE FOR APPLICATION-SPECIFIC RECIPES AND THE CREATION OF SOCIAL SPACE**
- 5:05 PM **CONCLUDING REMARKS**

SESSION NO. 146

T204. Friends of Hoth: Episode II—Icy Bodies of the Solar System (GSA Planetary Geology Division)

1:30 PM, The Conference Center, Tahoma 1

D. Alex Patthoff and Emily S. Martin, Presiding

- 146-1** 1:30 PM McCord, Thomas B.*: **VESTA AND CERES EVOLUTION BEFORE AND AFTER DAWN CONTROLLED BY GEOCHEMISTRY**
- 146-2** 1:45 PM Raymond, Carol A.*; Castillo-Rogez, Julie C.; Russell, Christopher T.; McSween, Harry Y.: **GEOPHYSICAL EVOLUTION OF VESTA AND CERES**
- 146-3** 2:00 PM Mest, Scott C.*; Crown, David A.; Yingst, R. Aileen; Berman, Daniel C.; Williams, David A.; Buczkowski, Debra L.; Scully, Jennifer E.C.; Platz, Thomas; Hiesinger, Harald; Pasckert, Jan Hendrik; Neesemann, Adrian; Marchi, Simone; Jaumann, Ralf; Roatsch, Thomas; Preusker, Frank; Nathues, Andreas; Raymond, Carol A.; Russell, Christopher T.: **THE HAMO-BASED GLOBAL GEOLOGIC MAP OF CERES FROM NASA'S DAWN MISSION**
- 146-4** 2:15 PM Scully, Jennifer E.C.*; Bowling, Timothy; Bu, Caixia; Buczkowski, Debra L.; Jaumann, Ralf; Longobardo, Andrea; Nathues, Andreas; Neesemann, Adrian; Palomba, Ernesto; Platz, Thomas; Quick, Lynnae C.; Raponi, Andrea; Ruesch, Ottaviano; Schenk, Paul M.; Stein, Nathaniel; Russell, Christopher T.; Raymond, Carol A.: **THE FORMATION AND EVOLUTION OF CERES' OCCATOR CRATER AND ITS FACULAE**
- 146-5** 2:30 PM Stein, Nathaniel*; Ehlmann, Bethany L.; Palomba, Ernesto; De Sanctis, Maria Cristina; Nathues, Andreas; Hiesinger, Harald; Ammannito, Eleonora; Russell, Christopher T.;

- Raymond, Carol A.; Jaumann, Ralf; Longobardo, Andrea: **THE FORMATION AND EVOLUTION OF BRIGHT SPOTS ON CERES (Invited Presentation)**
- 146-6** 2:45 PM Chilton, Heather*; Schmidt, Britney E.; Ferrier, Ken L.; Duarte, Kayla; Hughson, Kynan H.G.; Scully, Jennifer E.C.; Sizemore, Hanna G.; Nathues, A.; Platz, Thomas; Russell, Christopher T.; Raymond, Carol A.; Wray, James J.: **CERES' NEAR SURFACE PROPERTIES FROM LANDSLIDES**
- 146-7** 3:00 PM Patthoff, D. Alex*; Leonard, Erin; Senske, David; Collins, Geoffrey C.: **NEW GLOBAL GEOLOGIC MAP OF EUROPA**
- 146-8** 3:15 PM Cooper, Catherine M.*: **PRELIMINARY RESULTS FROM SIMULATIONS MAPPING MOBILE LID CONVECTIVE REGIME IN ICY SHELLS: USE THE FORCE (TO AVOID STAGNANT LID)**
- 146-9** 3:30 PM Howell, Samuel M.*; Pappalardo, Robert T.: **EXTENSIONAL TERRAIN FORMATION IN ICY SATELLITES: IMPLICATIONS FOR OCEAN-SURFACE INTERACTION**
- 146-10** 3:45 PM Hemingway, Douglas J.*: **ISOSTASY ON A SMALL ICY MOON: IMPLICATIONS FOR ENCELADUS'S ICE SHELL STRUCTURE (Invited Presentation)**
- 146-11** 4:00 PM Leonard, Erin*; Yin, An; Pappalardo, Robert T.: **THE FORMATION AND IMPLICATIONS OF CRATERED ISLANDS ON ENCELADUS**
- 146-12** 4:15 PM Cameron, Marissa E.*; Smith-Konter, Bridget R.; Burkhard, Liliane; Patthoff, D. Alex; Pappalardo, Robert T.; Collins, Geoffrey C.: **STRIKE-SLIP TECTONISM ON GANYMEDE: INVESTIGATING COULOMB FAILURE AT A GLOBAL SCALE (Invited Presentation)**
- 146-13** 4:30 PM Martin, Emily S.*; Patthoff, D. Alex; Watters, Thomas R.: **EXPLORING DIONE'S GEOPHYSICAL EVOLUTION**
- 146-14** 4:45 PM Dhingra, Deepak*; Hedman, Matthew M.: **CONTRASTING ALTITUDINAL TRENDS IN LAUNCH VELOCITIES OF ENCELADUS' PLUME PARTICLES**
- 146-15** 5:00 PM Byrne, Paul K.*; Regensburger, Paul V.; Klimczak, Christian; Bohnenstiehl, DelWayne R.; Dombard, Andrew J.; Hauck, Steven A.: **AN ASSESSMENT OF GEOLOGICAL CONDITIONS AT ICY SATELLITE OCEAN FLOORS**
- 146-16** 5:15 PM Mitchell, Karl L.*; Mastrogiuseppe, Marco; Hayes, Alexander G.; Hofgartner, Jason; Lorenz, Ralph; Le Gall, Alice; Janssen, Michael; Lopes, Rosaly; Radebaugh, Jani; Lunine, Jonathan: **THIRTEEN YEARS OF CASSINI RADAR OBSERVATIONS OF SATURN'S MOON TITAN, AND ONE LAST HURRAH!**

SESSION NO. 147

T209. Challenges in Tectonics: Fault Zone Behavior through Time, from Earth's Surface to the Upper Mantle II (GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)

1:30 PM, The Conference Center, Tahoma 2

Randolph T. Williams, Alexis K. Ault and James F. Dolan, Presiding

- 147-1** 1:30 PM Resor, Phillip G.*; Cooke, Michele L.; Marshall, Scott T.; Madden, Elizabeth H.: **ACCOUNTING FOR FAULT GEOMETRY'S IMPACT ON THE SLIP BUDGET**
- 147-2** 1:45 PM Dolan, James F.*: **ON THE CONSTANCY (OR NOT) OF FAULT SLIP: POTENTIAL CONTROLS, IMPLICATIONS FOR SEISMIC HAZARD AND PLATE BOUNDARY MECHANICS, AND THE NEED FOR SYSTEM-LEVEL ANALYSIS**
- 147-3** 2:00 PM Scharer, Katherine M.*; Cowgill, Eric; Gold, Ryan D.; Weldon, Ray J.: **WRIGHTWOOD REVISITED: WHAT WE CAN AND CANNOT SAY ABOUT HOW FAULTS WORK (Invited Presentation)**
- 147-4** 2:20 PM Nissen, Edwin*: **CASCADING, COMPOUND, MULTI-FAULT RUPTURES: A NEW CLASS OF EARTHQUAKE**
- 147-5** 2:35 PM Baden, Curtis William*; Hilley, George E.; Shuster, David L.; Hourigan, Jeremy: **RELATING GEOLOGIC STRUCTURE TO GEODETIC MEASUREMENTS WITHIN THE SANTA**

- CRUZ MOUNTAINS, NORTHERN CALIFORNIA, THROUGH OFF-FAULT PLASTIC FAILURE**
- 147-6 2:50 PM Burgette, Reed J.*; Scharer, Katherine M.; Lifton, Nathaniel A.; Hanson, Austin; McPhillips, Devin; Rittenour, Tammy M.: **SLIP RATE VARIATION OF THE CENTRAL SIERRA MADRE FAULT, SOUTHERN CALIFORNIA OVER THE PAST 200 KA**
- 3:05 PM **BREAK**
- 147-7 3:20 PM Hirth, Greg*; Behn, Mark; Shinevar, William: **CRUSTAL SHEAR ZONES AND THE VISCOSITY OF THE LOWER CRUST (Invited Presentation)**
- 147-8 3:40 PM Chatzaras, Vasileios*; van der Werf, Thomas; Kriegsmann, Leo M.; Kronenberg, Andreas K.; Tikoff, Basil; Drury, Martyn: **RHEOLOGY OF THE LOWER CRUST AND UPPER MANTLE IN THE ACTIVE BOUNDARY BETWEEN THE PACIFIC PLATE AND BAJA CALIFORNIA MICROPLATE**
- 147-9 3:55 PM Carlson, Chad W.*; Faulds, James E.: **STRAIN ACCOMMODATION AND TRANSFER ACROSS THE NORTHERN AND CENTRAL WALKER LANE TRANSITION: KINEMATIC LINKING OF ROTATING AND TRANSLATING CRUST IN AN EVOLVING PLATE BOUNDARY**
- 147-10 4:10 PM Cooke, Michele L.*; McBeck, Jessica A.; Hatem, Alex E.; Toeneboehn, Kevin; Beyer, Jennifer L.: **TRACKING EFFICIENCY ASSOCIATED WITH FAULT SYSTEM REORGANIZATION IN LABORATORY AND NUMERICAL EXPERIMENTS**
- 147-11 4:25 PM Riegel, Hannah*; Zambrano, Miller; Jablonska, Danica; Tondi, Emanuele; Agosta, Fabrizio; Mattioni, Luca; Rustichelli, Andrea: **IMPACT OF FAULTING IN SILICICLASTICS: A CASE STUDY IN A TURBIDITE SUCCESSION**
- 147-12 4:40 PM Perfilli, Christopher M.*; Keith, Jeffrey D.; Ritter, Scott M.; Misuraca, Tia; Jordan, Lars; Martin, Samuel; Kindred, Thane; Hood, Steven; Dunkley, Riley; Pallo, Gage: **NEW PSEUDOTACHYLYTE OCCURRENCES FOUND ON THE LITTLE COTTONWOOD STOCK -- PRODUCED FROM A MEGA-SCALE LANDSLIDE EVENT**
- 4:55 PM **DISCUSSION**
- FAR-FIELD EFFECTS OF THE ACADIAN-NEOACADIAN AND ALLEGHANIAN OROGENIES**
- 148-5 2:35 PM Levine, Jamie S.F.*; Merschat, Arthur; Casale, Gabriele; McAleer, Ryan J.; Quillan, Kevin, Reid: **DEFORMATION CONDITIONS, KINEMATICS, AND THERMOCHRONOMETRIC CONSTRAINTS ALONG THE GOSSAN LEAD FAULT, THE BOUNDARY BETWEEN THE WESTERN AND EASTERN BLUE RIDGE IN NORTHWEST NORTH CAROLINA**
- 148-6 2:50 PM Toraman, Erkan*; Chiarenzelli, Jeffrey R.: **NEW ZIRCON AND APATITE U-PB GEOCHRONOLOGY FROM THE CARTHAGE-COLTON SHEAR ZONE: CONSTRAINING THE TIMING OF DEFORMATION IN A MAJOR CRUSTAL BOUNDARY IN THE NORTHWEST ADIRONDACKS**
- 3:05 PM **BREAK**
- 148-7 3:20 PM Gibson, H. Dan*: **MAJOR CRUSTAL BOUNDARIES IN OROGENIC SYSTEMS – HIDDEN TREASURES, MISUNDERSTOOD FEATURES AND PROGRESS MADE (Invited Presentation)**
- 148-8 3:40 PM Ryan, James J.*; Zagorevski, Alexandre; Joyce, Nancy L.; Staples, Reid D.; Jones, James V.; Gibson, H. Daniel: **MID-CRETACEOUS CORE COMPLEXES IN THE NORTHERN CORDILLERA: EXPOSING THE PARAUTOCHTHON THROUGH A THIN FLAP OF ALLOCHTHONOUS YUKON-TANANA TERRANE IN WESTERN YUKON**
- 148-9 3:55 PM Jones, James V.*; Caine, Jonathan S.; Holm-Denoma, Christopher S.; Ryan, James J.; Benowitz, Jeff A.; Drenth, Benjamin J.: **UNRAVELING THE BOUNDARY BETWEEN THE YUKON-TANANA TERRANE AND PARAUTOCHTHONOUS NORTH AMERICA IN EASTERN ALASKA**
- 148-10 4:10 PM Drenth, Benjamin J.*; Jones, James V.; Caine, Jonathan Saul; Saltus, Richard W.: **THE TAYLOR MOUNTAIN BATHOLITH: AEROMAGNETIC EXPRESSION, GEOMETRY, AND IMPLICATIONS FOR TECTONIC MODELS, EAST-CENTRAL ALASKA**
- 148-11 4:25 PM Waldien, Trevor S.*; Roeske, Sarah M.; Benowitz, Jeffrey A.; Stockli, Daniel F.: **CENOZOIC REACTIVATION OF CRETACEOUS TERRANE ACCRETIONARY STRUCTURES IN THE EASTERN ALASKA RANGE, ALASKA**
- 148-12 4:40 PM Roeske, Sarah M.*; Till, Alison B.; Miller, Meghan S.; Saltus, Richard W.; McClelland, William C.: **LARGE VERTICAL OFFSETS OF MOHO COINCIDE WITH MAJOR MESOZOIC TRANSFORM FAULTS IN NORTHERN ALASKA (Invited Presentation)**

SESSION NO. 148 \$

T213. Integrated Approaches to Deciphering Major Crustal Boundaries in Polyphase Orogenic Settings (GSA Structural Geology and Tectonics Division; Society of Economic Geologists; GSA Geophysics Division)

1:30 PM, The Conference Center, Tahoma 3

James V. Jones III, James J. Ryan, Jonathan S. Caine and Benjamin J. Drenth, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 148-1 1:35 PM Siddoway, Christine S.*; Tinto, Kirsteen; Bell, Robin E.; Lockett, Alec: **NEW TECTONIC BOUNDARY AND GONDWANA MARGIN INHERITANCE REVEALED IN CRUST BENEATH ROSS ICE SHELF, ANTARCTICA, THROUGH ROSETTA-ICE PROJECT INTEGRATION OF AEROGEOPHYSICS, GEOLOGY, AND OCEAN DATA**
- 148-2 1:50 PM Fielding, Imogen O.H.*; Johnson, Simon P.; Zi, Jian-wei; Sheppard, Stephen; Rasmussen, Birger: **LINKING MULTIPLE GOLD MINERALIZING EVENTS TO REACTIVATION OF CRUSTAL-SCALE FAULTS**
- 148-3 2:05 PM Yuan, Wanming*: **THE ZIRCON FISSION TRACK THERMOCHRONOLOGIC EVIDENCES ON THE TECTONOGENESIS AND MINERALIZATION IN THE GANZI-LITANG GOLD BELT, EASTERN QINGHAI-TIBET PLATEAU**
- 148-4 2:20 PM Hatcher, Robert D.*; Bible, Gary G.; Wunderlich, Andrew L.; Strissel, Morgan Marie; Boling, Kenneth S.: **REGIONAL POLYPHASE DEFORMATION ON THE NASHVILLE AND JESSAMINE DOMES, TENNESSEE AND KENTUCKY I:**

SESSION NO. 149

T227. Ophiolite and Ocean Plate Stratigraphy Records in Modern and Ancient Accretionary and Collisional Orogenic Belts in the Circum Pacific Region II (GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geophysics Division; Geological Society of China; GSA Sedimentary Geology Division)

1:30 PM, The Conference Center, Tahoma 4

Yildirim Dilek and Jingsui Yang, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 149-1 1:35 PM Maruyama, Shigenori*; Dilek, Yildirim: **OPHIOLITES THROUGH GEOLOGICAL TIME**
- 149-2 1:50 PM Yang, Jingsui*; Robinson, Paul T.; Dilek, Yildirim: **OPHIOLITES: A NEW SCIENTIFIC WINDOW FOR TRACING DEEPLY SUBDUCTED AND RECYCLED OCEANIC-CONTINENTAL CRUST**
- 149-3 2:05 PM Wang, Qin*: **EFFECTS OF COMPOSITION AND SERPENTINIZATION ON SEISMIC PROPERTIES OF THE OCEANIC LITHOSPHERE**
- 149-4 2:20 PM Xu, Zhiqin*; Ma, Xuxuan: **TECTONIC EVOLUTION OF THE LHASA TERRANE, SOUTH TIBET SINCE MIDDLE**

- TRASSIC: TRANSITION FROM OCEAN-CONTINENT MULTIPLE SUBDUCTION TO CONTINENT-CONTINENT COLLISION (Invited Presentation)**
- 149-5 2:40 PM Ma, Xuxuan*; Xu, Zhiqin: **MESOZOIC MULTIPLE INTRA-OCEANIC SUBDUCTION SYSTEMS OF THE NEOTETHYS WITHIN THE INDUS-YARLUNG TSANGPO SUTURE AND GANGDESE BELT, SOUTHERN TIBET**
- 149-6 2:55 PM Liu, Fei*; Dilek, Yildirim; Yang, Jingsui; Lian, Dongyang; Xie, Yanxue: **A MIDDLE TRIASSIC RIFTED CONTINENTAL MARGIN SEQUENCE WITHIN THE WESTERN YARLUNG ZANGBO SUTURE ZONE, TIBET: RECORD OF DIACHRONOUS OPENING OF NEOTETHYS**
- 149-7 3:10 PM Feng, Guangying*; Yang, Jingsui; Dilek, Yildirim; Liu, Fei; Xiong, Fahui: **PETROLOGICAL AND RE-OS ISOTOPIC CONSTRAINTS ON THE ORIGIN AND TECTONIC SETTING OF THE CUOBUZHA PERIDOTITE, YARLUNG ZANGBO SUTURE ZONE, WESTERN TIBET, CHINA**
- 3:25 PM **BREAK**
- 149-8 3:40 PM Xiao, Wenjiao*; Aouizerat, Arthur; Ao, Songjian; Zhou, Jianbo; Zhang, Jinjiang: **DEXTRAL TRANSPRESSIONAL DEFORMATION OF MESOZOIC HEILONGJIANG ACCRETIONARY COMPLEX OF NE CHINA: AN OBLIQUE SUBDUCTION OF PACIFIC OCEAN**
- 149-9 3:55 PM Dong, Hanwen*: **KINEMATICS AND GEOCHRONOLOGY STUDIES OF THE MÉDOG SHEAR ZONE: INSIGHTS INTO EXHUMATION OF THE EASTERN HIMALAYAN SYNTAXIS**
- 149-10 4:10 PM Niu, Xiaolu*; Liu, Fei; Yang, Jingsui; Dilek, Yildirim; Xu, Zhiqin: **KALAYMYO PERIDOTITE MASSIF IN THE INDO-MYANMAR RANGES (WESTERN MYANMAR): ITS MINERALOGY, GEOCHEMISTRY AND TECTONIC IMPLICATIONS**
- 149-11 4:25 PM Ao, Songjian*; Khalatbari Jafari, Morteza; Xiao, Wenjiao: **U-PB ZIRCON AGE OF THE PIRANSHAHR OPHIOLITE IN NW IRAN: ENIGMATIC RELICT OF AN ARC IN NEO-TETHYS BEFORE THE ARABIA AND EURASIA COLLISION**
- 149-12 4:40 PM Kusky, Timothy M.*; Windley, Brian F.; Polat, Ali: **FOUR BILLION YEAR RECORD OF OCEAN PLATE STRATIGRAPHY IN ACCRETIONARY OROGENS PRESERVE A RECORD OF SEA FLOOR SPREADING, SUBDUCTION, AND ACCRETION THROUGHOUT EARTH HISTORY**
- 4:55 PM **DISCUSSION**
- 5:10 PM **CONCLUDING REMARKS**
- 150-4 2:15 PM Webb, Susanna I.; Tobin, Harold J.*: **LIMITED SEDIMENT UNDERTHRUSTING AND A STRONG, DRAINED CENTRAL CASCADIA ACCRETIONARY WEDGE: ANALYSIS OF SEISMIC REFLECTION IMAGING OFF WASHINGTON**
- 150-5 2:30 PM Lucero, Angela C*; Spinelli, Glenn A.; He, Jiangheng: **THE THERMAL EFFECTS OF PLATE-BENDING-RELATED THICKENING OF THE OCEANIC CRUSTAL AQUIFER IN THE JAPAN TRENCH AND NANKAI TROUGH SUBDUCTION ZONES**
- 2:45 PM **BREAK**
- 150-6 3:00 PM Spinelli, Glenn A.*; Underwood, Michael B.: **DIAGENETIC REACTION PROGRESS CONSTRAINS THE THERMAL HISTORY OF THE NANKAI MARGIN**
- 150-7 3:15 PM Edwards, Joel H.*; Kluesner, Jared W.; Silver, Eli; Brodsky, Emily E.; Brothers, Daniel S.; Bangs, Nathan L.B.; Wood, Ruby; Okamoto, Kristina: **CORRUGATIONS ALONG THE SHALLOW COSTA RICAN SUBDUCTION MEGATHRUST**
- 150-8 3:30 PM Castro, Adrian E.*; Spear, Frank S.: **LAWSONITE REVISITED: INSIGHTS FROM INTEGRATED QUIG RAMAN BAROMETRY, TRACE ELEMENT THERMOMETRY, AND OS THERMODYNAMIC MODELLING OF GARNET INCLUSIONS IN LAWSONITE PSEUDOMORPHS FROM SYROS, GREECE**
- 150-9 3:45 PM Poland, Michael P.*; Lisowski, Michael; Dzurisin, Daniel; Kramer, Rebecca; McLay, Megan; Pauk, Benjamin: **THE GEODETIC CHARACTER OF THE CASCADE ARC (THERE'S MORE HERE THAN YOU MIGHT THINK)**
- 150-10 4:00 PM Van Eaton, Alexa*; Vallance, James W.; Mastin, Larry G.: **EXPLOSIVE VOLCANIC PROCESSES AND HAZARDS IN THE CASCADES AND ALASKA, USA (Invited Presentation)**
- 150-11 4:15 PM Nokleberg, Warren J.*; Bundtzen, Thomas K.; Price, Raymond A.; Scholl, David W.; Stone, David B.: **E-BOOK PUBLICATION ON DYNAMIC GEOLOGY OF THE NORTHERN CORDILLERA (ALASKA AND WESTERN CANADA)**

SESSION NO. 151

T242. Current Trends in Landslide Monitoring: New Techniques, Methods, Successes, Failures, and Case Studies III (GSA Environmental and Engineering Geology Division)

1:30 PM, The Conference Center, Skagit 5

Peter Bobrowsky, David H. Huntley, Michael Hendry and Renato Macciotta, Presiding

- 151-1 1:30 PM Stock, Greg M.*; Guerin, Antoine; Matasci, Battista; Jaboyedoff, Michel; Derron, Marc-Henri; Collins, Brian D.: **QUANTIFYING 40 YEARS OF ROCKFALL ACTIVITY IN YOSEMITE VALLEY WITH STRUCTURE-FROM-MOTION AND TERRESTRIAL LIDAR ANALYSES**
- 151-2 1:45 PM Booth, Adam M.*; McCarley, Justin; Nelson, Joann; Shaw, Susan; Hinkle, Jason; Ampuero, Jean-Paul; Lamb, Michael P.: **INFERRING CONTROLS ON DEEP-SEATED LANDSLIDE MOTION WITH HIGH-RESOLUTION, THREE-DIMENSIONAL IMAGE CORRELATION OF REPEAT AIRBORNE LIDAR**
- 151-3 2:00 PM Shaw, Susan*; Justice, Tiffany; Hinkle, Jason; Turner, Ted: **QUANTITATIVE METHODS FOR DETECTING, MAPPING, AND MONITORING LANDSLIDE-SUSCEPTIBLE LANDFORMS AT LANDSCAPE SCALES USING AN AUTOMATED, OBJECT-BASED-IMAGE-ANALYSIS APPROACH**
- 151-4 2:15 PM Haneberg, William C.*; Johnson, Sarah: **DOUBLE GAUSSIAN FILTERING TO SUPPRESS NOISE AND IMPROVE IDENTIFICATION OF NEW LANDSLIDES ON DEM DIFFERENCE MAPS**
- 151-5 2:30 PM Mitchell, Andrew D.*; Lato, Matthew; McDougall, Scott; Porter, Michael; Bale, Stephanie; Watson, Andrew:

SESSION NO. 150

T231. Subduction Top to Bottom 2 (ST2B-2), Cascadia and Beyond (GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)

1:30 PM, The Conference Center, Tahoma 5

Gray E. Bebout, David W. Scholl, Robert Stern, Anne Trehu, Joan Gomberg and Thomas W. Sisson, Presiding

- 150-1 1:30 PM Scholl, David William*; Bebout, Gray E.: **SUBDUCTION TOP TO BOTTOM (ST2B-2) CONCEPT AND ONLINE, GSA GEOSPHERE PUBLICATION VENUE**
- 150-2 1:45 PM Roland, Emily*; Fredrickson, Erik K.; MacCready, Parker; Myers, Emma; Schmidt, David; Stone, Ian; Vidale, John E.; Wilcock, William: **FOCUSING THE LENS OFFSHORE CASCADIA – RECENT AND EMERGING EFFORTS TO EXPLORE PLATE BOUNDARY BEHAVIOR AND UNDERSTAND OFFSHORE HAZARDS (Invited Presentation)**
- 150-3 2:00 PM Wells, Ray E.*; Blakely, Richard J.; Wech, Aaron; McCrory, Patricia A.; Michael, Andrew: **CASCADIA SUBDUCTION TREMOR MODULATED BY UPPER PLATE STRUCTURE AND COMPOSITION (Invited Presentation)**

- REGIONAL-SCALE LANDSLIDE AND EROSION MONITORING UTILIZING AIRBORNE LIDAR CHANGE DETECTION ANALYSIS**
- 151-6 2:45 PM Ghirotti, Monica*; Borgatti, Lisa: **INTACT ROCK FRACTURING VS OPEN DISCONTINUITIES IN THE ONSET AND EVOLUTION OF FAILURE IN WEAK ROCK MASSES**
- 3:00 PM **DISCUSSION**
- 3:15 PM **BREAK**
- 151-7 3:30 PM Haddon, Elizabeth K.*; Schmidt, Kevin M.; Reid, Mark E.; Ritchie, Andrew C.; Warrick, Jonathan A.: **TRACKING BIG SUR LANDSLIDE DISPLACEMENTS IN 4D WITH SFM-BUILT TOPOGRAPHY**
- 151-8 3:45 PM Gauthier, David*; Christiansen, Cole: **ROCKFALLS AND SMALL PRECURSOR DEFORMATION DETECTED USING OBLIQUE AERIAL SFM PHOTOGRAMMETRY: CASE HISTORY FROM TENNESSEE PASS, CO**
- 151-9 4:00 PM Monsieurs, Elise G.M.*; Maki Mateso, Jean-Claude; Jacobs, Liesbet; Michellier, Caroline; Kervyn, Matthieu; Demoulin, Alain; Dewitte, Olivier: **LANDSLIDE INVENTORY APPROACH FOR REGIONAL-SCALE HAZARD ASSESSMENT IN A DATA-POOR CONTEXT IN TROPICAL AFRICA**
- 151-10 4:15 PM Watts, Chester F.*; Stephenson, George C.: **PLANNING AND EXECUTING UNMANNED AERIAL SYSTEMS (UAS) MISSIONS FOR LANDSLIDE INVESTIGATIONS**
- 4:30 PM **DISCUSSION**
- SPILL IN THE RÍO SONORA BASIN, NORTHWESTERN MEXICO: INSIGHTS FROM PB-ISOTOPE SYSTEMATICS**
- 153-5 5 Peña-Ortega, M.*; Del Rio-Salas, R.; Valencia-Sauceda, J.; Mendivil-Quijada, H.; Moreno-Rodríguez, V.; Romero, Francisco: **ENVIRONMENTAL ASSESSMENT OF ABANDONED MINE TAILINGS FROM NACOZARI DE GARCÍA, NORTHWESTERN MEXICO: INSIGHTS FROM GEOCHEMISTRY AND UNMANNED AERIAL VEHICLES**
- 153-6 6 Romo-Morales, D.*; Coimbra, R.; Del Rio-Salas, R.; Moreno-Rodríguez, V.; Sotelo-Cruz, N.; Grutter, M.; Torres-Jardón, R.: **AIR POLLUTANTS AND INCIDENCE OF ACUTE RESPIRATORY AND GASTRO-INTESTINAL INFECTIONS IN A CITY SITUATED ON A SEMI-ARID REGION OF NORTHWESTERN MEXICO**
- 153-7 7 Kaptein, Elizabeth*; Fisher, Robert; Kaptein, Victoria R.; Noll, Mark R.: **GEOCHEMICAL CHARACTERIZATION OF STREAM WATER AND SEDIMENT QUALITY IN THE RIO BLANCO WATERSHED, PUERTO RICO**
- 153-8 8 Cunningham, Emily*; Cribb, Warner: **PETROLOGIC INVESTIGATION OF MAGMA MIXING BENEATH SMALL QUATERNARY VOLCANIC CENTERS, NORTHERN OREGON CASCADE RANGE**
- 153-9 9 Xu, Xiaohui*: **PETROGRAPHIC INVESTIGATION OF MAGMA BATCHES AND CYCLING OF THE AKAROA VOLCANIC COMPLEX**
- 153-10 10 Cruzan, Jordan D.*; Michelfelder, Gary S.; Salings, Emily E.; Sundell, Tyler; Quick, James D.; Benz, Brooke E.: **WHAT'S THE DIFFERENCE? A PETROGRAPHIC AND GEOCHEMICAL COMPARISON OF THE BLOODGOOD CANYON TUFF AND THE TUFF OF TRIANGLE C RANCH**
- 153-11 11 Quick, James D.*; Sundell, Tyler; Michelfelder, Gary S.; Cruzan, Jordan D.; O'Dowd, Conor L.; Benz, Brooke E.: **THE PETROLOGY AND GEOCHEMISTRY OF THE KNEELING NUN TUFF, MOGOLLON-DATIL VOLCANIC FIELD, NEW MEXICO**
- 153-12 12 Zerilli, Matthew*; Salings, Emily E.; Michelfelder, Gary S.: **THE PRE-ERUPTIVE MAGMATIC CONDITIONS OF THE BLOODGOOD CANYON TUFF: INSIGHTS FROM ALKALI FELDSPAR AND QUARTZ CRYSTAL SIZE DISTRIBUTIONS AND MINERAL CHEMISTRY**
- 153-13 13 Benz, Brooke E.*; Michelfelder, Gary S.; Quick, James D.; Sundell, Tyler: **PETROLOGY AND GEOCHEMISTRY OF RHYOLITE TUFFS OF THE BELL TOP FORMATION, DONA ANA COUNTY, NEW MEXICO**
- 153-14 14 Oehring, Brandie*; Michelfelder, Gary S.; Jackson, Rachel A.: **INTERMEDIATE VOLCANIC ROCKS OF THE WESTERN MOGOLLON-DATIL VOLCANIC FIELD, SOUTHERN NEW MEXICO: A CHANGE IN MAGMATIC SOURCE AFTER IGNIMBRITE FLARE-UP**
- 153-15 15 Jones, Allison D.; Arnold, Victoria A.*; Robinson, Jessica M.; Severson, Allison R.; Burmeister, Kurtis C.; Vollmer, Frederick W.: **ANALYSIS OF PETROFABRICS IN THE JURASSIC TUTTLE LAKE FORMATION NEAR GRASS LAKE; MOUNT TALLAC ROOF PENDANT, EL DORADO COUNTY, CA**
- 153-16 16 Hankins, Robin*; Shimabukuro, David H.; Skinner, Steven; Sample, Bret: **GEOBAROMETRY OF GRANITOIDS AND U-PB DETRITAL ZIRCON GEOCHRONOLOGY OF OVERLYING SEDIMENTARY COVER IN THE NORTHERN SALINIAN BLOCK, CALIFORNIA**
- 153-17 17 Nelson, Jennifer*; Hoinville, Alex; McRivette, Michael W.; Menold, Carrie A.: **COMBINING REMOTE SENSING AND PETROLOGY DATA IN THE NORTH QIADAM UHP TERRANE, CHINA**
- 153-18 18 Enriquez, Olivia R.*; Urbanczyk, Kevin M.: **A STUDY OF LUECOBANDS IN THE WAX FACTORY LACCOLITH, BIG BEND RANCH STATE PARK, TX**
- 153-19 19 Navarrete, Gabriela Marie*; Camacho, Daniel; Martinez Gutierrez, Genaro; Antinao, José Luis; Tjarks, Dulaney: **ASSESSING QUATERNARY TECTONIC UPLIFT IN THE ARROYO INFIERNO,**

SESSION NO. 152**GSA Hydrogeology Division: Henry Darcy Distinguished Lecture**

4:00 PM, Washington State Convention Center, Room 615/616/617

Abe Springer, Presiding

- 152-1 4:00 PM Singha, Kamini*: **A TALE OF TWO POROSITIES: EXPLORING WHY CONTAMINANT TRANSPORT DOESN'T ALWAYS BEHAVE THE WAY IT SHOULD**

POSTER TECHNICAL SESSIONS

SESSION NO. 153**T34. Sigma Gamma Epsilon-Undergraduate Research (Posters) (Sigma Gamma Epsilon; GSA Karst Division)**

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 153-1 1 Briseño-Beltrán, A.*; Moreno-Rodríguez, V.; De la O-Villanueva, M.; Loredó-Portales, R.; Del Rio-Salas, R.; Leyva-Haro, A.; Camacho-Cañez, F.: **ARSENIC LEVELS IN RURAL DUST OF A SETTLEMENT SURROUNDED BY AGRICULTURAL FIELDS IN A SEMIARID REGION OF NORTHWESTERN MEXICO**
- 153-2 2 Moreno-Rodríguez, V.*; Ayala-Ramírez, Y.; Del Rio-Salas, R.; Romero, Francisco; Molina-Freaner, F.; Ochoa-Landín, Lucas; Martínez Rodríguez, J.F.: **GEOCHEMISTRY OF ABANDONED MINE TAILINGS AND RURAL DUST FROM A NEARBY TOWN: A CASE OF IGNORED POLLUTION IN SEMI-ARID ZONES OF NORTHWESTERN MEXICO**
- 153-3 3 Leyva-Haro, A.*; Del Rio-Salas, R.; Moreno-Rodríguez, V.; Camacho-Cañez, F.; Briseño-Beltrán, A.: **METAL CONCENTRATIONS OF DUST IN RURAL AREAS FROM ARID REGIONS OF THE SONORAN DESERT**
- 153-4 4 Cruz-Martínez, E.*; Del Rio-Salas, R.; Valencia-Moreno, M.; Calmus, T.; Mendivil-Quijada, H.; Ochoa-Landín, Lucas; Romero, Francisco: **TRACING OF THE COPPER SULFATE SOLUTION**

- SANTA ROSALIA BASIN, MEXICO, USING FIELD MAPPING AND MORPHOMETRIC INDICES**
- 153-20 20 Johnson, Luke*; Michels, Abby; Niemi, Tina M.: **KINEMATIC ANALYSIS OF NEOGENE AND QUATERNARY FAULTS IN THE SANTA ROSALIA BASIN ALONG THE MARGIN OF THE GULF OF CALIFORNIA, BAJA CALIFORNIA SUR, MEXICO**
- 153-21 21 Anderson, Ian*; Malone, David H.; Craddock, John P.: **DETRITAL ZIRCON U-PB GEOCHRONOLOGY OF THE WASATCH FORMATION, POWDER RIVER BASIN, WYOMING**
- 153-22 22 Allard, John B.*; Hutchinson, Sonny; Acuña, Naomi: **GEOLOGIC EVOLUTION OF THE GULF OF CALIFORNIA NEAR MULEGÉ, BAJA CALIFORNIA SUR: RESULTS FROM BAJA BASINS NSF-REU (RESEARCH EXPERIENCE FOR UNDERGRADUATES)**
- 153-23 23 Martin, Claire P.*; Levine, Jamie S.F.; Casale, Gabriele; Powell, Nicholas E.: **DEFORMATION AND KINEMATICS IN THE TOXAWAY DOME, EASTERN BLUE RIDGE**
- 153-24 24 Milton, Jacob*; Malone, David H.; Hampton, Brian A.: **DETRITAL ZIRCON GEOCHRONOLOGY OF THE PERMIAN ABO FORMATION AND PERMIAN LABORCITA FORMATION, SACRAMENTO MOUNTAINS, NEW MEXICO, USA**
- 153-25 25 Hartwig, Melissa*; Herbert, Lauren A.; Giorgis, Scott; Burmeister, Kurtis C.; Hayman, Nicholas W.; Anma, Ryo: **PRELIMINARY ANALYSIS OF ANISOTROPY OF MAGNETIC SUSCEPTIBILITY AND PALEOMAGNETIC FABRICS WITHIN EXHUMED PORTIONS OF THE NANKAI ACCRETIONARY COMPLEX, KII PENINSULA, JAPAN**
- 153-26 26 McLane, Leanna*; Giorgis, Scott; Gran, Karen B.: **CONSTRAINTS ON UPLIFT FROM GEOMORPHIC ANALYSIS OF A DIGITAL ELEVATION MODEL OF THE CENTRAL RANGE MOUNTAINS, TRINIDAD**
- 153-27 27 Wallenberg, Alexandra*; Craddock, John P.; Malone, David H.; Jackson, Mike: **PALEOMAGNETISM OF AN ARCHEAN HARZBURGITE, BIGHORN MOUNTAINS, WYOMING, USA**
- 153-28 28 Patzkowsky, Samuel*; Randall, Emily; Rosen, Madison Lilith; Thompson, Addison; Moua, Pa Nhia; Schantz, Krysdén; Pollock, Meagen; Judge, Shelley A.; Williams, Michael; Matesich, Cameron: **NEW COSMOGENIC AND VML DATES AND REVISED EMPLACEMENT HISTORY OF THE ICE SPRINGS VOLCANIC FIELD IN THE BLACK ROCK DESERT, UTAH**
- 153-29 29 Herbert, Lauren A.*; Perpall, Brandon A.; Giorgis, Scott D.; Burmeister, Kurtis C.: **EXPLORING PALEOMAGNETISM AS A TOOL FOR RESOLVING THE TIMING OF IGNEOUS INTRUSIONS IN THE MOUNT TALLAC METAMORPHIC ROOF PENDANT; DESOLATION WILDERNESS AREA, EL DORADO NATIONAL FOREST, CA**
- 153-30 30 Lopez, Alexis R.*; Herbert, Lauren A.; Wu, Chenliang; Sacklett, Hannah L.; Giorgis, Scott D.; Burmeister, Kurtis C.; Nittrouer, Jeffrey: **A COMPARISON OF RF/PHI AND AMS FABRICS WITHIN STRATA INVOLVED IN THE VARISCAN FOLD-THRUST BELT; WESTERN IRISH NAMURIAN BASIN, COUNTY CLAIRE, IRELAND**
- 153-31 31 Reeder, Adrienne*; Morgan, Sara; McClellan, Elizabeth: **DIFFERENTIATING THE UNDIFFERENTIATED: MAPPING COMPLEX NEOPROTEROZOIC VOLCANIC AND GLACIOGENIC STRATIGRAPHY IN THE MOUNT ROGERS AREA, SW VA**
- 153-32 32 Gerik, Ashley M.*; Breeding, Dalton R.; Spurgeon, Derek L.; McKay, Matthew P.: **A TRAVERSE GEOLOGIC MAP IN THE GLACIER PEAK WILDERNESS: FROM NORTH FORK SAUK RIVER TO GLACIER GAP**
- 153-33 33 Brownson, Cindy*; Noll, Mark R.: **MAJOR ELEMENT AND NUTRIENT CHEMISTRY OF GREEN AND ROUND LAKES, NY**
- 153-34 34 Dobinski, Meg*; Noll, Mark R.: **VARIATIONS IN SEDIMENT PHOSPHORUS FRACTIONATION ALONG AN ANTHROPOGENIC GRADIENT: EAST BRANCH CAZENOVIA CREEK, NY**
- 153-35 35 Gale, Chesley Philip*; Kaiser, Jason F.: **ASSESSING GEOTHERMAL ENERGY POTENTIAL IN SOUTHERN UTAH USING THE TRACE ELEMENT CHEMISTRY OF GRANITIC INTRUSIONS**
- 153-36 36 Shaughnessy, Andrew R.*; Venkata, Aneesh; Hasenmueller, Elizabeth A.; Sloan, John J.; Murtaugh, Rachael A.; Corcoran, Miles J.: **CAN REDOX CHANGES IN LAKEBED SEDIMENTS TRIGGER ALGAL BLOOMS? A CASE STUDY OF CARLYLE LAKE, ILLINOIS**
- 153-37 37 Blocho, Reilly*; Noll, Mark R.: **GEOCHEMICAL VARIATIONS IN BLACK SHALES OF NEW YORK STATE**
- 153-38 38 Gurnicz, Katie*; Argyilan, Erin P.; Peller, Julie; Kelly, Daniel; Krekeler, Mark P.S.; Morris, Charles C.: **AN ANALYSIS OF POTENTIAL REGIONAL SOURCES OF ATMOSPHERIC CA²⁺ AND MG²⁺ SUSPECTED TO CONTRIBUTE TO THE FORMATION OF DECOMPOSITION CHIMNEYS IN MOUNT BALDY DUNE AT INDIANA DUNES NATIONAL LAKESHORE**
- 153-39 39 Colligan, Lisa K.*; Venzke, Alexander C.; Rougvié, James R.: **MINERAL CONTROLS OF ELEMENT MOBILITY DURING SODIC-CALCIC ALTERATION**
- 153-40 40 Neundorff, Jeremy A.*; Banik, Tenley J.; Carley, Tamara L.: **EVALUATING THE SOURCE: USING DETRITAL ZIRCON TO INVESTIGATE PETROGENESIS IN SUBGLACIAL MAGMAS FROM VATNAJÖKULL, ICELAND**
- 153-41 41 Kling, Melanie*; Austermann, Gregor; Hildenbrand, Anne; Bahr, André; Ifrim, Christina: **CYCLOSTRATIGRAPHY OF MICROBIALITES IN BACON COVE, NEWFOUNDLAND, CANADA AND THEIR IMPLICATION FOR DEPOSITIONAL ENVIRONMENTS AND PALEOCURRENTS OF THE LOWER CAMBRIAN**
- 153-42 42 Helprin, Olivia L.*; Flores, Gabriella Vianne; Trepp, Kaya; Murowchick, James B.; Salgado Munoz, Valente O.: **STRATIGRAPHIC AND MINERALOGICAL CHARACTERISTICS OF CU-ZN-CO-MN MANTOS AT MINERA BOLEO, SANTA ROSALÍA, BCS, MEXICO**
- 153-43 43 Winkle, Garrett T.*; Blaylock, Hannah E.; Wolak, Jeannette M.: **PETROPHYSICAL PROPERTIES OF THE FORT PAYNE FORMATION (MISSISSIPPIAN), TENNESSEE AND KENTUCKY**
- 153-44 44 Harvey, Lukas A.*; Husinec, Antun: **FACIES, DEPOSITIONAL ENVIRONMENTS AND SEA-LEVEL TRENDS WITHIN THE UPPER ORDOVICIAN STONY MOUNTAIN FORMATION, WESTERN NORTH DAKOTA**
- 153-45 45 Giggy, Lauren C.*; Gianniny, Gary L.: **INVESTIGATION OF THE DOLORES SALT ANTICLINE AND POTENTIAL EVAPORITE DISSOLUTION**
- 153-46 46 Leesburg, J.N.*; Larson, E.B.; Gauvey, K.L.; Sumrall, J.B.; Hahn, M.S.: **STRATIGRAPHIC RECONNAISSANCE OF THE BUSH BAY FORMATION, ENGADINE GROUP, HIAWATHA NATIONAL FOREST, UPPER PENINSULA, MI**
- 153-47 47 Stolfus, Brittany M.*; Clark, Ryan J.; Tassier-Surine, Stephanie A.; Day, James; Witzke, Brian J.; Cramer, Bradley D.: **REVISED CONODONT BIOSTRATIGRAPHY OF THE KINDERHOOKIAN (LOWER TOURNAISIAN) STRATA IN SOUTHEAST IOWA**
- 153-48 48 Garcia, Cesar A.*; Kilibarda, Zoran: **MICROPLASTICS IN BEACH SEDIMENT ALONG SOUTHERN SHORES OF LAKE MICHIGAN**
- 153-49 49 Addis, Samantha*; Lobegeier, Melissa K.: **ANALYSIS OF THECAMOEBIAN ASSEMBLAGES IN FALL CREEK FALLS STATE PARK**
- 153-50 50 Charlton, Joshua*; Cruz, Alora Josephin; Lummus, Myron Malisse; Loadholt, Kerensa; Messerich, Christopher; Wiles, Gregory; Buma, Brian; Krapek, John: **YELLOW CEDAR GROWTH RESPONSE TO DECADAL CLIMATIC SHIFTS AT CEDAR LAKE, JUNEAU, ALASKA**
- 153-51 51 Cheng, Kimberly*; Michel, Lauren A.; Lehmann, Thomas; McNulty, Kieran P.; Fox, David L.; Driese, Steven G.; Peppe, Daniel J.: **PALEOCLIMATE AND PALEOENVIRONMENTAL RECONSTRUCTIONS FROM STRATIGRAPHIC ANALYSIS AND**

- PALEOSOL DESCRIPTIONS FROM THE EARLY MIOCENE, KIAHERA FORMATION, RUSINGA ISLAND, LAKE VICTORIA, KENYA**
- 153-52 52 Trembath, Matthew*; Cramer, Bradley D.: **SEARCHING FOR GEOCHEMICAL SIGNATURES OF STEP-WISE EXTINCTION LEVELS DURING THE IREVIKEN (SILURIAN) EXTINCTION EVENT**
- 153-53 53 Donahoo, Michaela Ashley*; Baumgartner, Kyrie A.; Peppe, Daniel J.: **APPLYING PALEOBOTANICAL PALEOCLIMATE PROXIES: A CASE STUDY OF TROPICAL AFRICAN FLORAS**
- 153-54 54 Oefinger, Jordan*; Weiss, Anna M.; Košir, Adrijan; Martindale, Rowan C.: **EVIDENCE OF LATE PALEOCENE-EARLY EOCENE POSSIBLE OCEAN ACIDIFICATION RECORDED IN THE ADRIATIC CARBONATE PLATFORM**
- 153-55 55 Musser, Margaret*; Stewart, Alexander K.: **KETTLE-HOLE DEVELOPMENT FOLLOWING THE 2010 GLACIAL OUTBURST FLOOD AT GIGJOKULL, EYJAFJALLAJOKULL, ICELAND: AN ESTIMATION OF ICE LOSS?**
- 153-56 56 Eifert, Helen*; Stewart, Alexander K.: **INFRASTRUCTURE PROJECTS AND THEIR IMPACT ON MASS MOVEMENTS: DENDROGEOMORPHIC EVIDENCE FROM THE TRANS-ALASKAN PIPELINE, TONSINA, ALASKA**
- 153-57 57 Allen, Elliott F.*; McDermott, Jeni A.; Abrahamson, Jenna N.; Redfield, T.F.: **GEOMORPHIC AND SEDIMENTOLOGICAL EVIDENCE FOR DRAINAGE REORGANIZATION IN SOUTHWEST NORWAY'S DRIVA RIVER**
- 153-58 58 Abrahamson, Jenna N.*; McDermott, Jeni A.; Allen, Elliott F.; Redfield, Tim F.: **USING DRAINAGE AREA POWER-LAW RELATIONSHIPS AS A METHOD TO TEST FOR POINTS OF RIVER CAPTURE**
- 153-59 59 Siddon, Hanna*; Noll, Mark R.: **COMPARISON OF WATER QUALITY OF TWO PARALLEL WATERSHEDS IN THE ADIRONDACKS OF NEW YORK STATE**
- 153-60 60 Barnett, Angel V.*; Light, Jennifer: **HELLS CANYON WATER QUALITY MONITORING**
- 153-61 61 Anderson, Jasmine*; Lobegeier, Melissa; Elkadiri, Racha; Paladino, Brielle; O'Toole, Kevin; Robinson, Christopher; Cribb, Warner: **EFFECTS OF A RAPIDLY URBANIZING ENVIRONMENT ON WATER QUALITY: A CASE STUDY FROM MURFREESBORO, TN**
- 153-62 62 Tavares, Kammie-Dominique A.*; Fletcher, Charles H.; Barbee, Matthew; Anderson, Tiffany; Burstein, Jacob T.: **WILL SEAWALLS DAMAGE CRITICAL HABITAT FOR ENDANGERED SPECIES IN HAWAII AS SEA LEVEL RISES?**
- 153-63 63 Hedges, Rebecca Jean*; McDermid, Stevie; Kaiser, Jason F.; Maxwell, David J.: **USING GIS TO CREATE HAZARD MAPS AND ASSES EVACUATION ROUTES AROUND "THE GATE TO HELL"; MASAYA VOLCANO, NICARAGUA**
- 153-64 64 Williams, Maya E.*; Crocker, Emlyn R.; Barthelmeß, Erika L.; Stewart, Alexander K.: **NATURE UP NORTH, A COMMUNITY-BASED ENVIRONMENTAL EDUCATION PROGRAM FOR NORTHERN NEW YORK: INTRODUCING GEOSCIENCE ENGAGEMENT IN RURAL COMMUNITIES**
- 154-2 66 Glenister, Chase T.*; Cameron, Barry I.: **THE 122 BC PLINIAN ERUPTION OF MT. ETNA, SICILY: INSIGHTS INTO EXPLOSIVE ERUPTIVE BEHAVIOR IN BASALTIC SYSTEMS**
- 154-3 67 Miliđragovic, Dejan*; Zagorevski, Alexandre; Weis, Dominique: **UNRAVELLING ARC MANTLE USING TRACE ELEMENT AND ISOTOPIC "INTELLIGENCE" FROM THE MIDDLE-LATE TRIASSIC STIKINE ARC**
- 154-4 68 Andersen, Nathan L.*; Singer, Brad S.; Dufek, Josef: **CONCURRENT GROWTH OF TWO CHEMICALLY DISTINCT SILICIC MAGMA RESERVOIRS BENEATH THE LAGUNA DEL MAULE VOLCANIC FIELD, CENTRAL CHILE**
- 154-5 69 Fourny, Anais*; Weis, Dominique; Scoates, James S.; Amini, Marghalera; **IN SITU LEAD ISOTOPE GEOCHEMISTRY BY LA-ICP-MS OF CUMULUS AND INTERSTITIAL MINERALS FROM THE KIGLAPAIT LAYERED INTRUSION**
- 154-6 70 Smith, Diane R.*; Leeman, William P.: **BASALTIC LAVAS OF MOUNT ST. HELENS: EVIDENCE FOR DIVERSE MANTLE SOURCES AND INPUTS FROM MORE EVOLVED MAGMAS**
- 154-7 71 Golia, Rebecca Lynne*; Hampton, Samuel: **PXRF: PACKED WITH POTENTIAL - PROTOCOLS FOR BASALTIC SAMPLES**
- 154-8 72 Gürsu, Semih*; Möller, Andreas: **PETROGENETIC FEATURES OF LATE NEOPROTEROZOIC ECLOGITES, META-GABBROIC AND GARNET AMPHIBOLITE DIKES IN THE MENDERES MASSIF, WESTERN TURKEY: IMPLICATIONS FOR CADOMIAN CRUSTAL EVOLUTION WITHIN THE PAN-AFRICAN MEGA-CYCLE**
- 154-9 73 Haley, Maureen Y.*; McLeod, Claire; Brydon, R.J.; Wolfe, Amy; Shaulis, Barry; Tronnes, Reidar: **CONSTRUCTING CONTINENTAL CRUST: TRACKING PETROGENESIS OF GRANITIC BATHOLITHS OF THE OSLO RIFT, NORWAY**
- 154-10 74 Oppenheim, Louis F.*; Memeti, Vali; Werts, Kevin; Barnes, Calvin G.; Barnes, Melanie A.; Esposito, Rosario; Paterson, Scott R.: **ZONING IN FELDSPARS AS TRACERS OF LENGTH SCALES OF MAGMA MIXING AND MAGMA CHAMBER SIZE IN THE TUOLUMNE INTRUSIVE COMPLEX, YOSEMITE NATIONAL PARK, CA**
- 154-11 75 Chambers, Melissa*; Memeti, Vali; Oppenheim, Louis F.: **INVESTIGATING THE EXTENT OF CRYSTAL MIXING IN THE NORTHERN TUOLUMNE INTRUSIVE COMPLEX WITH MINERAL INCLUSION PATTERNS IN K-FELDSPAR**
- 154-12 76 Ardill, Katie E.*; Paterson, Scott R.; Barnes, Calvin G.; Stanback, Jon F.; Alasino, Pablo H.; Werts, Kevin; Memeti, Vali; Teruya, LeAnne; King, James; Crosbie, Simon: **MAGMATIC STRUCTURES IN THE TUOLUMNE INTRUSIVE COMPLEX RECORD PHYSICAL DIFFERENTIATION OF MAGMAS AT THE EMPLACEMENT LEVEL**
- 154-13 77 Werts, Kevin*; Barnes, Calvin G.; Memeti, Vali; Williams, Dustin R.: **WHERE'S THE RHYOLITE? EVIDENCE FOR MELT LOSS AND CRYSTAL ACCUMULATION IN THE TUOLUMNE INTRUSIVE COMPLEX**
- 154-14 78 Kempton, Pamela*; Downes, Hilary; Lustrino, Michele: **A WINDOW INTO LOWER CRUST AND UPPER MANTLE INTERACTIONS IN THE PETROGENESIS OF OROGENIC MAGMAS: THE EXAMPLE OF MONTE ARCUENTU, SOUTHERN SARDINIA, ITALY**
- 154-15 79 Edmond, Jemila A.*; Klemetti, Erik W.: **CORRELATING THE ERUPTIVE PRODUCTS OF THE TUMALO VOLCANIC FIELD IN THE OREGON CASCADES AND EXAMINING THE ZIRCON FROM THE TUMALO TUFF**
- 154-16 80 Xu, Yingkui*; Dan, Zhu: **MG ISOTOPE FRACTIONATION IN BASALTIC MELT UNDER THERMAL GRADIENT IN NATURAL SETTINGS**
- 154-17 81 Foley, Michelle L.*; Miller, Calvin F.; Gualda, Guilherme A.R.: **HETEROGENEOUS GLASSES PRESERVE CHEMICAL AND DYNAMIC PROCESSES IN PARTIALLY REMELTED AND REMOBILIZED CUMULATE OF THE PEACH SPRING TUFF (CA-NV-AZ), USA**

SESSION NO. 154

T153. Geochemical and Petrologic Forensics in the study of Earth's Magmatism: A Tribute to the Distinguished Career of Jon Davidson (1959–2016) (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 154-1 65 Bowers, Jade Marie*; de Silva, Shanaka; Tepley, Frank; Pratomo, Indyo; Putra, Armen; Mucek, Adonara: **PETROLOGICAL FORENSICS OF MAGMA MINGLING DURING 2013 TO PRESENT ERUPTIONS OF SINABUNG VOLCANO, SUMATRA**

- 154-18 82 Teasdale, Rachel*; Wenner, Jennifer M.: **PLAGIOCLASE COMPOSITIONS OF POISON LAKE CHAIN PRIMITIVE BASALTS, LASSEN REGION, SOUTHERN CASCADES**
- 154-19 83 Teeter, Elizabeth*; Bertolett, Elisabeth; Beane, Rachel J.; Gravley, Darren M.: **PLUTONIC LITHICS RECORD VARIATIONS IN THE MAGMATIC SYSTEM BENEATH THE AKAROA VOLCANIC COMPLEX, SOUTH ISLAND, NEW ZEALAND**

SESSION NO. 155

D48. Geology and Health (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 155-1 84 Zhang, Yiding*: **WHAT ARE THE EVOLUTION PATTERNS OF RESEARCH STRANDS IN WATERBORNE DISEASE TRANSMISSION IN GROUNDWATER?**
- 155-2 85 Turner, Ashley E.*; Vulava, Vijay: **GEOCHEMICAL SORPTION AND TRANSPORT OF SILDENAFIL AND VARDENAFIL IN NATURAL SOILS**
- 155-3 86 Tarp, Cleveland E.*; Peterson, Jonas M.; Donahoe, Owen M.; Wade, Randall D.; Brokus, Sarah A.; Pikaart, Michael J.; Best, Aaron A.; Peterson, Jonathan W.: **GLOBAL SURVEY OF SUSPENDED LOAD MINERALOGY, HEAVY METAL CONTENT, AND ANTIBIOTIC RESIDUES IN RURAL DRINKING WATER SOURCES USING POINT-OF-USE WATER FILTER KITS**
- 155-4 87 Smith, Melinda*; Sanders, Laura L.; Hemzacek, Jean M.; Gonzalez, Javier M.: **SORPTION AND DESORPTION OF ATRAZINE IN AUTOMOBILE TIRE CHIPS**
- 155-5 88 Galinskaya, Karina*; Williams, Spencer; Wang, Jida; Hettiarachchi, Ganga; Kempton, Pamela; Vero, Sara; Datta, Saugata: **GEOSPATIAL ANALYSIS OF RISK COMPONENTS FOR ELEVATED BLOOD LEAD LEVELS: GEOLOGIC AND ANTHROPOGENIC FACTORS**
- 155-6 89 Ombati, Dominic*; Nick, Kevin E.: **TRANSPORT MECHANISM OF THE ANTHROPOGENIC LEAD ALONG I40 NEAR BARSTOW, CALIFORNIA**
- 155-7 90 Sherman, Amanda R.*; Merrick, Jason; Zhu, Junfeng; Fryar, Alan; Lee, Brian: **GIS ARCMAP COST DISTANCE TOOL USED TO DETERMINE PUBLIC WATER SUPPLY RELATIVE RISK METALS SAMPLING SITES IN LEXINGTON, KENTUCKY**
- 155-8 91 Jackson, Robert A.*; Sedillo, Isaiah; Wegweiser, M.D.; Bestram, B.S.: **ERIONITE, AN ELUSIVE MINERAL: NEWLY IDENTIFIED ERIONITE BEARING STRATA IN CENTRAL AND NORTHWESTERN WYOMING**
- 155-9 92 Neumann, Klaus*; Nicholson, Kirsten N.; Dowling, Carolyn B.; Wood, Leah; Sharma, Subodh: **INDICATIONS OF SURFACE WATER CONTAMINATION OF DRINKING WATER IN THE SAGARMATHA NATIONAL PARK, NEPAL**
- 155-10 93 Buck, Brenda J.*; Wolfe, Christopher; Miller, Aubrey; Lockey, James E.; Weis, Christopher P.; Weissman, David; Jones, Alexander; Ryan, Patrick H.: **EXPOSURE TO NATURALLY OCCURRING ASBESTOS DUE TO OFF-ROAD VEHICLE USE**
- 155-11 94 Pfau, Jean C.*; Keil, Deborah E.; Buck, Brenda J.; Metcalf, Rodney V.: **PARADIGM SHIFTS IN EVALUATING HEALTH EFFECTS OF ASBESTOS: NON-CANCER OUTCOMES**
- 155-12 95 Haag, Beau J.*; Friehtauf, Kurt: **PYRITE-INDUCED REDOX PRECIPITATION OF URANIUM IN A DOLOMITE BRECCIA, EPLER FM., ALLENTOWN, PA**
- 155-13 96 Miller, Aubrey*: **HEALTH IMPLICATIONS OF OCCUPATIONAL AND ENVIRONMENTAL ASBESTOS AND OTHER ELONGATE MINERAL FIBER EXPOSURES**
- 155-14 97 Metcalf, Rodney V.*; Buck, Brenda J.; McLaurin, Brett T.; Pfau, Jean C.: **IN DEFENSE OF THE TERM "NATURALLY-OCCURRING ASBESTOS"**
- 155-15 98 Crnosija, Natalie*; Meliker, Jaymie: **FLUORIDATION AND COUNTY-LEVEL SECONDARY BONE CANCER AMONG CANCER PATIENTS**

- 155-16 99 Leach, Nicole M.*; Shurette, Gary Ryan; Bhuta, Arvind A.: **SPATIAL REPRESENTATION AND ANALYSIS OF BREEDING BIRD COUNT ON THE NATIONAL FORESTS IN ALABAMA**

SESSION NO. 156

T248. Microbialite Textures and Chemical Signatures in Continental Settings: Forging the Link between the Modern and Ancient (Posters) (GSA Geobiology & Geomicrobiology Division; GSA Limnogeology Division; GSA Karst Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 156-1 100 Loveall, Lucas Jerome*; Hickson, Thomas A.; Stevens, Eric: **INSIGHTS INTO LACUSTRINE THROMBOLITE TEXTURES AND MINERALOGY FROM THE MIOCENE HORSE SPRING FORMATION**
- 156-2 101 Stevens, Eric*; Bjorkman, Erika D.; Thole, Jeffrey T.; Hickson, Thomas A.: **GEOCHEMICAL VARIATION WITHIN LACUSTRINE STROMATOLITES AND THROMBOLITES FROM THE SAME STRATIGRAPHIC INTERVAL: IMPLICATIONS FOR THE INTERPRETATION OF MICROBIALITE FORMATION AND PALEOENVIRONMENTAL INTERPRETATION**
- 156-3 102 Bruhler, Sarah*; Reiners, Lindsey; Eischen, Tanner; Bartley, Julie K.: **RELATIONSHIPS BETWEEN MICROSTRUCTURE AND MORPHOLOGY IN LACUSTRINE STROMATOLITES**
- 156-4 103 Mahseredjian, Taleen*; Wilmeth, Dylan T.; Corsetti, Frank A.; Piazza, Olivia; Frantz, Carrie M.: **INTRA-LAMINATION ISOTOPIC VARIABILITY IN GREEN RIVER FORMATION STROMATOLITES: SIGNIFICANCE FOR STROMATOLITE-BASED PALEOCLIMATE MODELING OF THE EARLY EOCENE CLIMATIC OPTIMUM**
- 156-5 104 Brake, Sandra*; Hasiotis, Stephen T.; Magnin, Benjamin P.: **MICROFABRICS OF MACROFABRICS OF BIOLAMINATES PRODUCED BY EUKARYOTE-DOMINATED BIOFILMS FROM AN ACID MINE DRAINAGE SYSTEM: IMPLICATIONS FOR EVIDENCE OF LIFE ON EXTRATERRESTRIAL PLANETARY BODIES**

SESSION NO. 157

T249. New Voices in Geobiology (Posters) (GSA Geobiology & Geomicrobiology Division; GSA Karst Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 157-1 105 Barno, A.R.*; Cobián Güemes, A.G.; Silveira, C.B.; Little, M.; Rohwer, F.: **CHARACTERIZATION OF VIRAL COMMUNITIES WITHIN SUBSURFACE ENVIRONMENTS**
- 157-2 106 Meyer-Dombard, D'Arcy*; Cardace, Dawn; Woycheese, Kristin M.; Vallalar, Bharathi; Simon, Alexander; Arcilla, Carlo: **WHAT CAN SURFACE SEEPS TELL US ABOUT TERRESTRIAL SUBSURFACE ECOSYSTEMS IN OPHIOLITE-HOSTED SERPENTINIZING FLUIDS?**
- 157-3 107 Strang, Lilja Caitlin*; Moyer, Craig: **INSIGHTS INTO THE PANGENOMICS OF DEEP SUBSURFACE THERMOCOCCUS ISOLATES**
- 157-4 108 DeVera, Christina A.*; Shelton, Jenna L.; Akob, Denise M.; Doolan, Colin A.; Lohr, Celeste D.; Slucher, Ernie R.; Warwick, Peter D.: **MICROBIAL COMMUNITY CHARACTERIZATION IN WATERS ASSOCIATED WITH NATURAL CO₂ ACCUMULATIONS IN THE SOUTHERN PERMIAN BASIN**
- 157-5 109 Martinez, Aaron M.*; Tischer, Jana; Warter, Viola; Stamps, Blake W.; Fischer, Woodward W.; Geobiology Course 2017, Agouron: **TAR SEEPS AND SULFIDE SPRINGS: SULFUR CYCLING WITHIN AN EXTREME (STREAM) ENVIRONMENT, SANTA PAULA CREEK, VENTURA, CA**
- 157-6 110 Rahman, Aleksandra*; Finke, Niko; Blumberg, Kai; Simister, Rachel L.; Michiels, Celine; Hawley, Alyse; Crowe, Sean A.; Hallam, Steven J.: **NOVEL EPSILONPROTEOBACTERIA FROM**

SAANICH INLET COUPLES BIOGEOCHEMICAL CYCLES IN ANOXIC MARINE ENVIRONMENTS

- 157-7 111 Malaska, Michael J.*; Willis, Madelyn; Bhartia, Rohit; Wanger, Greg; Priscu, John C.; Eshelman, Evan; Abbey, William: **DEEP UV-FLUORESCENCE MAPPING OF A GLACIAL ICE CORE**
- 157-8 112 Perryman, Clarice R.*; Kashi, Natalie N.; McCalley, Carmody K.; Malhotra, Avni; Varner, Ruth K.: **METHANE OXIDATION KINETICS PROVIDE INSIGHT TO METHANOTROPHY IN A THAWING PERMAFROST PEATLAND**
- 157-9 113 Ross, Stella C.*; Klasek, Scott; Hong, Wei-Li; Torres, Marta E.; Andreassen, Karin; Colwell, Frederick S.: **MICROBIAL COMMUNITIES AND DIFFERENTIAL METHANE FLUX IN ARCTIC GAS HYDRATE MOUNDS**
- 157-10 114 Davis, Madison C.*: **MICROBIAL COMMUNITY STRUCTURE OF A STRATIFIED ANCHIALINE SINKHOLE**
- 157-11 115 Gaines, Emma*: **CONTROLS ON GROWTH RATE OF MODERN STROMATOLITES IN A HYPERSALINE BAHAMIAN LAKE**
- 157-12 116 Almatar, Mohammed*; Sumner, Dawn Y.: **METAZOAN INTERACTIONS WITH MICROBIAL COMMUNITIES IN CAMBRIAN THROMBOLITES**
- 157-13 117 Godbold, Amanda Lynn*: **THE RESILIENCE OF CORAL REEF ECOSYSTEMS THROUGH TIME**
- 157-14 118 Mergelsberg, Sebastian T.*; Ulrich, Robert N.; Rimstidt, J. Donald; Dove, Patricia M.: **DISTRIBUTION OF MAGNESIUM AND PHOSPHOROUS IN THE H. AMERICANUS EXOSKELETON: INSIGHTS FOR CHEMICAL SIGNATURES IN BIOMINERALS**
- 157-15 119 Smith, Christopher W.*; Goldstein, Susan T.: **EFFECT OF SELECTED HEAVY METAL ELEMENTS ON SHALLOW-WATER BENTHIC FORAMINIFERAL ASSEMBLAGES FROM SAPELO ISLAND, GEORGIA AND LITTLE DUCK KEY, FLORIDA: AN INVESTIGATION USING THE PROPAGULE METHOD**
- 157-16 120 Johnson, Jamie*; Williams, Angus; Meyer, Katja M.: **SEPARATION AND ISOTOPIC ANALYSIS OF FRAMBOIDAL PYRITES FROM MEROMICTIC FAYETTEVILLE GREEN LAKE, NY**

SESSION NO. 158

T184. Geologic Research at Mount Rainier and Other Cascade Volcanoes: Ideal Natural Laboratories for Cutting-Edge Research with Implications to Life Safety and Infrastructure Protection in the Pacific Northwest (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division; National Park Service; GSA Environmental and Engineering Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 158-1 121 Benson, Victoria*; Todd, Claire: **IDENTIFYING INFLUENCES ON GLACIAL MELT-WATER HYDROCHEMISTRY USING LABORATORY SIMULATIONS OF SUBGLACIAL CHEMICAL EROSION**
- 158-2 122 Krehbiel, Logan*; Todd, Claire; Koutnik, Michelle: **ASSESSING THE RISK OF GLACIAL OUTBURST FLOODS FROM EMMONS GLACIER, MT. RAINIER, WASHINGTON**
- 158-3 123 Basehart, Aerin*; Altenberger, Samuel; Todd, Claire; Koutnik, Michelle: **MAPPING SUPRAGLACIAL DEBRIS ON EMMONS GLACIER, MOUNT RAINIER, WA**
- 158-4 124 Yannello, Alex*; Todd, Claire: **INVESTIGATING SUBGLACIAL HYDROTHERMAL INFLUENCE ON MOUNT RAINIER, WA THROUGH HYDROCHEMICAL ANALYSES OF GLACIAL MELT-WATER**
- 158-5 125 Bortel, Hannah*; Todd, Claire: **SEASONAL AND DIURNAL FLUCTUATIONS IN SUSPENDED SEDIMENT CONCENTRATIONS IN GLACIAL MELT-WATER ON MOUNT RAINIER, WASHINGTON**
- 158-6 126 Beason, Scott R.; George, Joseph L.*: **DRAMATIC CHANGES TO GLACIAL VOLUME AND EXTENT SINCE THE LATE**

19TH CENTURY AT MOUNT RAINIER NATIONAL PARK, WASHINGTON, USA

- 158-7 127 Moran, Ariel Q.*; Pringle, Patrick T.; Luke, Beverly K.: **USE OF DENDROCHRONOLOGY TO STUDY A SUBFOSSIL FOREST AT KENT, WASHINGTON USA THAT WAS BURIED BY LAHAR-DERIVED SEDIMENTS FROM MOUNT RAINIER ABOUT 530 CE**

SESSION NO. 159

T191. Looking to the Past to Understand the Future: Glacial Chronology and Process (Posters) (GSA Quaternary Geology and Geomorphology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 159-1 128 Lesnek, Alia J.*; Briner, Jason P.; Baichtal, James F.; Sbarra, Christopher M.: **LATEST PLEISTOCENE DEGLACIATION OF THE CORDILLERAN ICE SHEET IN SOUTHEASTERN ALASKA**
- 159-2 129 Hodgdon, Taylor S.; Licciardi, Joseph M.*: **COSMOGENIC ¹⁰BE CHRONOLOGY FOR THINNING OF THE LAURENTIDE ICE SHEET IN NEW HAMPSHIRE DURING THE LAST DEGLACIATION**
- 159-3 130 Prothro, Lindsay O.*; Yokoyama, Yusuke; Simkins, Lauren M.; Anderson, John B.; Majewski, Wojciech; Yamane, Masako; Ohkouchi, Naohiko: **TIMING AND SEA LEVEL CONTRIBUTIONS OF THE DECONVOLVING ANTARCTIC ICE SHEET DURING POST-LGM RETREAT OF THE ROSS SEA SECTOR**
- 159-4 131 McKenzie, Marion A.; Principato, Sarah M.*; Benediktsson, Ívar Örn: **GEOMORPHIC EVIDENCE FOR A PALEO-ICE STREAM NEAR BÁRÐARDALUR, NORTH ICELAND**
- 159-5 132 Santos, Joao*; Santos-González, Javier; Redondo-Vega, José Maria; Irwin, Jeffrey: **TILL MACROFABRIC ANALYSIS OF GLACIAL DEPOSITS IN THE SOUTHERN SERRA DO GERES MOUNTAINS, NW IBERIAN PENINSULA**
- 159-6 133 Narloch, Wlodzimierz*: **STRAIN MAGNITUDE IN TILLS ASSOCIATED WITH THE VARIABLE SUBGLACIAL DRAINAGE CONDITIONS UNDER THE SCANDINAVIAN ICE SHEET**

SESSION NO. 160

T193. Quantifying Geomorphic Processes and Rates of Landscape Evolution (Posters) (GSA Quaternary Geology and Geomorphology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 160-1 134 Hofmann, Florian*; McPhillips, Devin; Kendrick, Katherine J.; Farley, Kenneth A.: **THE POTENTIAL OF FINE-GRAINED PEDOGENIC IRON-OXIDES FOR COSMOGENIC ³HE DATING**
- 160-2 135 Bender, Adrian*; Lease, Richard O.; Corbett, Lee B.; Bierman, Paul R.: **TRANSIENT BEDROCK INCISION OF THE FORTYMILE RIVER IN EASTERN ALASKA AND YUKON, CANADA: SLOW RESPONSE TO YUKON RIVER HEADWATER CAPTURE?**
- 160-3 136 Dix, Monica*; Hill, Marcus; Sussman, Franklin; Schmidt, Amanda H.: **TEMPORAL AND SPATIAL VARIABILITY IN SEDIMENT SOURCE IN PLUM CREEK, OBERLIN, OH**
- 160-4 137 Johnsen, Justin*; Wilcox, Tarka: **CALIBRATING VEGETATIVE REGENERATION WITHIN A LANDSLIDE DENUDED ZONE USING CONSUMER GRADE DRONE PHOTOGRAMMETRY TECHNIQUES**
- 160-5 138 Hidy, Alan J.*; Gosse, John; Sanborn, Paul; Froese, Duane G.: **AGE-EROSION CONSTRAINTS ON AN EARLY PLEISTOCENE PALEOSOL IN YUKON, CANADA, WITH PROFILES OF ¹⁰BE AND ²⁶AL: EVIDENCE FOR A SIGNIFICANT LOESS COVER EFFECT ON COSMOGENIC NUCLIDE PRODUCTION RATES**
- 160-6 139 Dunne, Kieran Bernard; Jiamin*; Jerolmack, Douglas J.: **EVIDENCE OF, AND A PROPOSED EXPLANATION FOR, BIMODAL TRANSPORT STATES IN ALLUVIAL RIVERS**

- 160-7 140 Opalka, Catherine E.*; Eppes, Martha C.; Edwards, Brian; Allison, Nick; Young, Spencer: **SOILS AND STRATIGRAPHY OF TRIBUTARY ALLUVIAL FANS IN THE UWHARRIE NATIONAL FOREST, NC, USA**
- 160-8 141 Regmi, Netra*; Dieu, Julie; Stewart, Greg; Turner, Ted; Miller, Dan; Johnson, Angela; Haemmerle, Howard: **CHARACTERIZING LANDFORMS AND ASSOCIATED MASS MOVEMENT PROCESSES USING AN OBJECT-BASED MAPPING APPROACH**
- 160-9 142 Guarín Estrada, Daniel*; Cala Pérez, Andrés; Fernandez Jimenez, Alejandro: **HYPSOMETRIC AND DRAINAGE NETWORK ANALYSIS OF THE EASTERN CORDILLERA OF THE COLOMBIAN ANDES: EVIDENCE FOR VARIABLE SPATIAL - TEMPORAL UPLIFT INFERRED THROUGH GEOMORPHOLOGICAL PARAMETERS**
- 160-10 143 Short, Alexander K.*; Rittenour, Tammy: **LATE PLEISTOCENE ALLUVIAL RECORDS IN THE GRAND STAIRCASE REGION, SOUTHERN UTAH**
- 160-11 144 Zawacki, Emily E.*; Arrowsmith, J Ramón; Campisano, Christopher J.; Strecker, Manfred R.; Deino, Alan L.; Feibel, Craig S.; Kingston, John D.; Roberts, Helen M.; Hspdp, Team Members: **MODELING POST-DEPOSITIONAL ACCUMULATION OF ¹⁰BE IN SANDSTONES FROM THE HOMININ SITES AND PALEOLAKES DRILLING PROJECT (HSPDP) CORES FOR IN SITU COSMOGENIC RADIONUCLIDE PALEOEROSION RATE ANALYSES**
- 160-12 145 Ruleman, Chester A.*; Sorter, Rachel; Goehring, Brent M.; Capps, Denny M.; Bemis, Sean P.; Bender, Adrian; Frothingham, Michael G.; Patton, Annette I.; Rathburn, Sara: **NEW GEOLOGIC MAPPING, CLASSIC CONCEPTS: GAINING INSIGHT TO THE GEOMORPHIC EVOLUTION AND ASSOCIATED HAZARDS, DENALI REGION, AK**
- 160-13 146 Caton, Summer*: **ROLE OF HILLSLOPE AND GLACIAL PROCESSES IN FORMATION OF HIGH ELEVATION BOULDER FIELDS IN THE SOUTH-CENTRAL APPALACHIAN MOUNTAINS: AN INVESTIGATION OF THE DEVIL'S MARBLEYARD DEPOSIT, VIRGINIA**
- 160-14 147 Steelquist, Aaron T.*; Seixas, Gustav; Hilley, George E.: **FLUVIAL INCISION RATES OF THE SAN JUAN RIVER USING IN-SITU ¹⁰BE, MEXICAN HAT, UTAH**
- 160-15 148 Al Abri, Amani Humaid*: **USING COSMOGENIC ²⁶AL AND ³⁶CL BASIN-AVERAGED EROSION RATES IN CARBONATES TO QUANTIFY RATES OF TECTONIC PROCESSES AND THE VARIATIONS OF PROPORTIONS OF CHEMICAL WEATHERING AND MECHANICAL DENUDATION IN LONG-TERM DENUDATION PROCESS: A CASE STUDY IN OMAN**
- 160-16 149 Fame, Michelle*; Spotila, James A.; Owen, Lewis A.: **CONSISTENT SLOW EXHUMATION IN A LATE CENOZOIC GLACIATED LANDSCAPE, THE PRESIDENTIAL AND CARTER RANGES OF THE WHITE MOUNTAINS IN NEW HAMPSHIRE, USA**
- 160-17 150 Sorensen, Clayton Steven*; Yanites, Brian J.: **LATITUDINAL TRENDS IN MODERN FLUVIAL EROSIONAL EFFICIENCY ALONG THE ANDES**

SESSION NO. 161

T236. Characterizing Cascadia's Earthquakes—Reexamining Open Questions about Cascadia Seismic and Tsunami Hazards (Posters) (GSA Geophysics Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 161-1 151 McLaughlin, Robert*; Wilson, Douglas S.; Barth, Ginger A.; Scheirer, Daniel S.; Stanley, Richard G.; McCrory, Patricia A.; Trehu, Anne M.: **THE KING RANGE TERRANE OF THE FRANCISCAN COMPLEX, CAPE MENDOCINO REGION, NORTHERN CALIFORNIA: PRODUCT OF MIOCENE AND**

YOUNGER INTERACTION OF EVOLVING, MULTI-STRAND MENDOCINO TRANSFORM WITH PACIFIC AND NORTH AMERICAN PLATES

- 161-2 152 Nelson, Alan R.*; Sawai, Yuki; Hawkes, Andrea D.; Engelhart, Simon E.; Witter, Robert C.; Dura, Tina; Horton, Benjamin P.; DuRoss, Christopher B.: **AN INCOMPLETE HISTORY OF LATE HOLOCENE GREAT EARTHQUAKES AT THE NEHALEM RIVER ESTUARY, CENTRAL CASCADIA SUBDUCTION ZONE**
- 161-3 153 Gao, Dawei; Sypus, Matthew C.R.*; Wang, Kelin; Insua, Tania L.; Riedel, Michael: **CASCADIA MEGATHRUST TSUNAMI SOURCE SCENARIOS FOR HAZARD ASSESSMENT AND EARLY WARNING**
- 161-4 154 Milker, Yvonne; Dura, Tina; Horton, Benjamin P.*; Brophy, Laura; Bridgeland, W.T.; Khan, Nicole S.; Engelhart, Simon E.; Nelson, Alan R.; Witter, Robert C.: **THE RESPONSE OF FORAMINIFERA TO THE TIDAL RESTORATION OF THE BANDON MARSH (OREGON) - IMPLICATIONS FOR SUBSIDENCE ESTIMATES DURING PAST EARTHQUAKES**
- 161-5 155 Hong, Isabel*; Horton, Benjamin P.; Engelhart, Simon E.; Padgett, J. Scott; Hawkes, Andrea D.; Dura, Tina; Nelson, Alan R.; Witter, Robert C.: **DIATOM VARIABILITY IN TIDAL-MARSH ENVIRONMENTS: IMPLICATIONS FOR CONSTRAINING LAND-LEVEL CHANGE FROM CASCADIA SUBDUCTION ZONE EARTHQUAKES**
- 161-6 156 Bates, Jasmine Laurel*; De La Vergne, Clairissa Nicolle; Olden, Sarah; MacInnes, Breanyn; Tang, Hui: **IDENTIFYING THE SOURCE OF ANOMALOUS SAND DEPOSITS IN JOSEPH WHIDBEY STATE PARK, WHIDBEY ISLAND, WA**
- 161-7 157 Hartshorn, Evan J.*; Hemphill-Haley, Mark; Michalak, Melanie; Crawford, Brandon: **MARINE TERRACE FORMATION ASSOCIATED WITH NORTHERN MIGRATION OF THE MENDOCINO TRIPLE JUNCTION AT CAPE MENDOCINO, CALIFORNIA**

SESSION NO. 162

T104. Broader Impacts Activities as Vehicles for Filling the Geoscience Pipeline (Posters) (GSA Geoscience Education Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 162-1 158 Glesener, Gary*: **MEDL: CREATING A BROADER IMPACTS RESOURCE IN THE DEPARTMENT OF GEOSCIENCES AT VIRGINIA TECH**
- 162-2 159 Hall, Michelle K.*; Mayhew, Michael: **TEEN SCIENCE CAFÉS: A MODEL FOR ADDRESSING BROADER IMPACTS, DIVERSITY, AND RECRUITMENT**
- 162-3 160 Harwell, David*; Asher, Pranoti M.; Hankin, Erik R.; Janick, Nathaniel; Marasco, Leslie: **AGU PATHFINDER RESOURCES: ADVANCE YOURSELF**
- 162-4 161 Lin, Yi-Ching*; Crompton, Helen; Asija, John Paul; St. John, Kristen; Elgaoui, Omar: **COLLEGE STUDENTS' GEOSCIENCE COURSE ENGAGEMENT AND SATISFACTION ASSOCIATED WITH CHOOSING GEOSCIENCE MAJORS**
- 162-5 162 Tierney Cramer, Kate*; Kosloski, Mary Elizabeth; Neal, Ted; Tassier-Surine, Stephanie A.; Witzke, Brian J.; Cramer, Bradley D.: **INTEGRATING LEVELLED 'NON-FIELD CAMP' FIELD COURSES INTO DEPARTMENTAL CURRICULA TO ACHIEVE AWARENESS, ENGAGEMENT, AND PROFESSIONAL PREPARATION: EXPANDING THE GEOSCIENCE STUDENT PIPELINE**
- 162-6 163 Soeder, Daniel J.*; Sawyer, J. Foster; Benning, Jennifer L.; Tinant, C. Jason; Sanovia, James J.: **ENGAGING NATIVE AMERICAN STUDENTS IN RELEVANT GEOSCIENCE PROJECTS**
- 162-7 164 Burrell, Shondricka*: **TOWARDS A GEOSCIENCE PEDAGOGY: A SOCIO-COGNITIVE MODEL**

- 162-8 165 DeAngelis, Michael T.*; Shroat-Lewis, René A.: **GEOLOGY SUMMER CAMP: CREATING TRANSFORMATIVE EXPERIENCES FOR ASPIRING HIGH SCHOOL STUDENTS**
- 162-9 166 Balgord, Elizabeth*; Matyjasik, Marek; Davis, Gary; Ford, Richard L.: **INCREASED RECRUITMENT OF STUDENTS FROM UNDERREPRESENTED GROUPS IN STEM FIELDS USING A COMBINATION OF GEOSCIENCE CONCURRENT ENROLLMENT AND SUMMER BRIDGE PROGRAM**
- 162-10 167 Kiouses, Stephan*; Baron, Dirk: **CONNECTING WITH UNDERSERVED HIGH SCHOOL STUDENTS THROUGH A DUAL-CREDIT GEOLOGY CLASS EMPHASIZING OUTDOOR EDUCATION**
- 162-11 168 Dooley, Julia; Glancy, Sarah Elizabeth; Dunkle, Kallina M.*; Courville, Zoe: **"LIFE CORES": USING PERSONAL EXPERIENCES TO TEACH ABOUT CLIMATE CHANGE AND GEOLOGIC PRINCIPLES**

SESSION NO. 163

T122. On the Cutting Edge: Fifteen Years of Impacts on Geoscience Education (Posters) (GSA Geoscience Education Division; National Association of Geoscience Teachers)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 163-1 169 Orr, Cailin Huyck*; Fox, Sean P.; Egger, Anne E.; Wenner, Jennifer M.: **TEACH THE EARTH: NEWLY ENVISIONED PORTAL FOR GEOSCIENCE EDUCATION RESOURCES**
- 163-2 170 Iverson, Ellen*: **ON THE CUTTING EDGE EARLY CAREER FACULTY WORKSHOPS: ENDURING INFLUENCE ON IMPROVED TEACHING IN DEPARTMENTS**
- 163-3 171 Singer, Jill*: **FROM WINGSPREAD TO WIDER: MY JOURNEY LEARNING ABOUT EVALUATION**
- 163-4 172 Aird, Hannah*; Teasdale, Rachel: **DETERMINING THE FACTORS THAT AFFECT THE EFFECTIVE INCORPORATION OF ACTIVE-LEARNING TECHNIQUES INTO A LARGE INTRODUCTORY GEOLOGY CLASS**
- 163-5 173 Srogi, LeeAnn; Lutz, Tim; Bosbyshell, Howell*; Nikitina, Daria; Hall, Cynthia; Helmke, Martin F.: **DEPARTMENT-WIDE IMPACTS OF ON THE CUTTING EDGE PROGRAMS ON TEACHING, LEARNING, PROFESSIONAL DEVELOPMENT, AND DEPARTMENTAL GROWTH**
- 163-6 174 Cronin, Vincent S.*: **ON THE CUTTING EDGE AS THE SOURCE OF AN EXPANDING WAVE OF BENEFIT**
- 163-7 175 Henry, Darrell J.*; Dutrow, Barbara L.: **COURSE-EMBEDDED RESEARCH AND SCIENTIFIC COMMUNICATIONS IN UNDERGRADUATE GEOLOGY MAJORS COURSES: EXAMPLES FROM THE MINERALOGY – IGNEOUS/METAMORPHIC PETROLOGY SEQUENCE AT LSU**
- 163-8 176 Dutrow, Barbara L.*: **TEACHING MINERALOGY IN CONTEXT: FROM THE CORE TO THE CRUST**
- 163-9 177 Fox, Lydia K.*: **LESS IS MORE: THE TRANSFORMATIVE IMPACT OF THE 2003 "TEACHING PETROLOGY IN THE 21ST CENTURY" ON THE CUTTING EDGE WORKSHOP**
- 163-10 178 Koziol, Andrea M.*: **ON THE CUTTING EDGE: TEACHING PHASE EQUILIBRIA**
- 163-11 179 Bulinski, Katherine V.*: **DESIGNING AN ENVIRONMENTAL GEOLOGY COURSE USING EXPERIENTIAL CAREER PREPARATION AND ROLE PLAYING**
- 163-12 180 Yelderman, Joe C.*; Hamilton, Wayne: **TEACHING A SUBSURFACE, SIMULATED SUBJECT OUTDOORS: HOW TO LEVERAGE TIME FOR FIELD HYDROGEOLOGY**

SESSION NO. 164

T129. The Challenge of Defining Student Success: Broadening Participation, Measuring Success, and Preparing 2YC and 4YC Students for a Variety of Transitions (Posters) (GSA Geoscience Education Division; GSA Geology and Society Division; International Association for Geoscience Diversity; National Association of Geoscience Teachers; National Association of Geoscience Teachers Geo2YC Division; National Earth Science Teachers Association)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 164-1 181 McDaris, John R.*; Baer, Eric M.D.; Macdonald, R. Heather; Ormand, Carol J.; Hodder, Jan; Emerson, Norlene R.: **THE SAGE 2YC WEBSITE: UPDATED CONTENT TO SUPPORT 2YC FACULTY AS AGENTS OF CHANGE**
- 164-2 182 Marton, Fred*; Schott, Lynn: **THE WRITE STUFF: USING SCAFFOLDED WRITING ASSIGNMENTS TO MEET GEN-ED GOALS IN INTRO-LEVEL SCIENCE COURSES AT A TWO-YEAR COLLEGE**
- 164-3 183 Haddock, Amanda*; Thatcher, Sean; O'Brien, Mathew; Vinson, Grant; Todd, Anna C.; Pritchard, Caroline E.; Sullivan, Betty; Miller, Leah Z.; Thomas, Christian; Kilpack, Will; Morris, Malea; Whitmeyer, Steven; Atchison, Christopher L.: **DIFFERENCES BETWEEN TRADITIONAL AND DIGITAL FIELD NOTEBOOKS FOR INCLUSIVE GEOSCIENCE COURSES**
- 164-4 184 Goldsmith, David W.*; Rivera, Tiffany A.: **GEOLITERACY: TEACHING EARLY CAREER STUDENTS TO READ, WRITE, AND THINK LIKE GEOLOGISTS**
- 164-5 185 Jones, Jason P.*; McConnell, David: **BETTER LEARNING THROUGH FEEDBACK: IMPROVING STUDENT PERFORMANCE AND JUDGMENT ACCURACY IN AN INTRODUCTORY GEOSCIENCE COURSE**
- 164-6 186 Faust, Megan Thackeray Scott*: **ENGAGING INTRODUCTORY GEOSCIENCE STUDENTS IN RESEARCH WITH AN ACTIVITY EXAMINING STOMATAL CELLS IN FOSSIL LEAVES**
- 164-7 187 Beck, Mary A.*: **EVALUATING ODP SANDS AT A 2-YEAR COLLEGE USING A REMOTELY-ACCESSED SCANNING ELECTRON MICROSCOPE**
- 164-8 188 Phillips, C. Dianne; Sorey, Nathan*; Bender, Gary; Bartholomew, Charles: **DEVELOPING AUGMENTED REALITY (AR) RESOURCES FOR GEOSCIENCE EXPLORATION, USING LOW COST RESOURCES AND OPEN SOURCE SOFTWARE: 2Y COLLEGE LEARNING COMMUNITY**
- 164-9 189 Ormand, Carol J.*; Baer, Eric M.D.; Bragg, Debra; Eddy, Pamela; Emerson, Norlene R.; Hao, Yi; Hodder, Jan; Iverson, Ellen; Macdonald, R. Heather: **THE INVENTORY OF EDUCATIONAL PRACTICES AND THE INVENTORY OF GEOSCIENCE DEPARTMENT AND PROGRAM PRACTICES: TWO NEW INSTRUMENTS IN DEVELOPMENT FROM THE SAGE 2YC PROJECT**
- 164-10 190 Dooley, Brett S.*; Dooley, Alton C.; Ozolins, Erik: **WHEN TWO AND TWO MAKE MORE THAN FOUR: LESSONS LEARNED DURING A 2YC-MUSEUM COLLABORATION**

SESSION NO. 165

T135. Comedy in the Geosciences (Posters) (GSA Geology and Society Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 4:30 to 6:30 PM

Booth #

- 165-1 191 Feig, Anthony D.*; Bennett-Huxtable, Timothy A.: **INTRODUCTION TO THE SESSION: MONOLOGUES AND REMARKS**
- 165-2 192 Stein, Seth*; Elling, Reece; Salaree, Amir; Wysession, Michael: **UNINTENTIONAL COMEDY - ERRORS IN MOVIES AND EDUCATIONAL MATERIAL - AS A TEACHING TOOL**

- 165-3 193 Coyan, Joshua A.*; Coyan, Melanie M.; Johnson, Julia K.; Reynolds, Stephen J.: **USING COMICAL ONLINE VIDEOS WITH POP-CULTURE REFERENCES TO TEACH INTRODUCTORY GEOLOGY**
- 165-4 194 Feig, Anthony D.*; Bennett-Huxtable, Timothy A.: **GEOCOMEDY FOR TEACHING & LEARNING**
- 165-5 195 Gill, Thomas E.*; Dickson, Paul: **THE OFFICIAL RULES OF GEOLOGY: MURPHY'S LAWS OF THE GEOSCIENCES (Invited Presentation)**
- 165-6 196 Bennett-Huxtable, Timothy A.*; Feig, Anthony D.: **GEOCOMEDY IN POLITICS, CURRENT EVENTS & "CONTROVERSIAL" TOPICS**
- 165-7 197 Bennett-Huxtable, Timothy A.*; Feig, Anthony D.: **DISCIPLINARY & INSTITUTIONAL GEOCOMEDY FOR PRACTITIONERS**

SESSION NO. 166

T138. Geology Rocks! A Musical Session on the Sounds of Science (Posters) (GSA Geology and Society Division; GSA Geoscience Education Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 4:30 to 6:30 PM

Booth #

- 166-1 198 Reheis, Marith C.*: **SONGS OF THE FRIENDS OF THE PLEISTOCENE: OR, ONE MORE BEER AND I'LL SING ALONG... (Invited Presentation)**
- 166-2 199 Saltus, Richard*: **THESE ARE SOME COOL GEOLOGICAL THINGS**
- 166-3 200 Roehner, Clayton*: **SONGS IN THE KEY OF GEOMORPHOLOGY**
- 166-4 201 Sutfin, Nicholas A.*: **WAIT, THOSE AREN'T THE LYRICS, BUT I LIKE IT BETTER THAT WAY: WORDSMITHING AS A FUN AND EFFECTIVE WAY TO COMMUNICATE, EDUCATE, AND ENTERTAIN**
- 166-5 202 Howard, Keith A.*; Melosh, Benjamin L.; Watts, Kathryn E.: **RISING FROM THE ASHES—PICK AND HAMMER SONG TRADITIONS IN THE BAY AREA**
- 166-6 203 Miller, Marli B.*: **SINGING TO A LARGE CLASS –ABOUT A SAND GRAIN**
- 166-7 204 Burr, Devon M.*: **GEOSCIENCES POETRY: FUN AND (PEDAGOGICALLY) FRUITFUL!**
- 166-8 205 Pittlick, John*: **OUT WITH THE TRUCKERS AND THE KICKERS AND THE COWBOY ANGELS (Invited Presentation)**
- 166-9 206 James, L. Allan*: **GONNA BE THE FIRES AND THE FLOOD NEXT TIME**
- 166-10 207 Pierce, Jennifer L.*; Roehner, Clayton: **IN SPITE OF OURSELVES: THE CLIMATE SCIENTIST AND THE DENIER**
- 166-11 208 Montgomery, David R.*: **GEOLOGY AND MUSIC: EVERY ROADCUT TELLS A STORY**

SESSION NO. 167

D55. Great Maps and Other Topics in the History of Geology (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 167-1 209 Mann, Audra N.*; Parcell, William C.: **DISASSOCIATING EARTH FROM MORALITY: RENE DESCARTES' UNDERSTANDING OF EARTH'S INTERIOR**
- 167-2 210 Clary, Renee M.*: **RECORDING THE FACTS: HENRY DE LA BECHE'S MAPS AS DATA REPOSITORIES**
- 167-3 211 Smith, Michael S.*; Witt, Anne C.: **DENISON OLMSTED AND THE 1825 GEOLOGIC MAP OF NORTH CAROLINA**
- 167-4 212 Diemer, John A.*: **PLATE 6 OF THE GEOLOGY OF RUSSIA (1845): A FINE EXAMPLE OF A HAND-COLORED GEOLOGIC MAP**

- 167-5 213 Aalto, K.R.*: **PACIFIC RAILROAD SURVEYS (1853–1854): GEOLOGIC INVESTIGATIONS OF WILLIAM PHIPPS BLAKE, THOMAS ANTISELL AND JULES MARCOU IN THE AMERICAN SOUTHWEST**
- 167-6 214 Hippensteel, Scott P.*: **DIABASE WEATHERING AND THE INTERPRETATION OF AMERICAN CIVIL WAR COMBAT PHOTOGRAPHY**
- 167-7 215 Hartman, Joseph H.*: **ROUTING F.V. HAYDEN IN RELATION TO HIS COLLECTIONS OF 1853-1866 ON HIS 1869 GEOLOGIC MAP OF THE MISSOURI-YELLOWSTONE RIVER DRAINAGE SYSTEM: PLACING LOCALITIES IN TIME AND SPACE BASED ON EXPLORATION AND MUSEUM RECORDS**
- 167-8 216 Pritchett, Brittany N.; Anderson, James H.; Evans, Stacey*: **HISTORIC OKLAHOMA GEOLOGIC MAP AND ITS INFLUENCE ON EARLY STATE HISTORY**
- 167-9 217 Bourgeois, Joanne*: **HISTORICAL CHALLENGES FOR WOMEN MAKING GEOLOGICAL MAPS, AND THE LEGACY OF FLORENCE BASCOM**
- 167-10 218 Bell, Brandon Blake*; Wilson, Mark A.; Ng, Margaret: **GEOLOGISTS WITH BORDERS: AMERICAN SCIENTIFIC AND CULTURAL INTERACTION WITH JAPAN AND EUROPE AFTER THE 1906 EARTHQUAKE**
- 167-11 219 Hasuke, Syunsake*; Hughes, Richard O.: **THE SAINT FRANCIS DAM: WILLIAM MULHOLLAND'S CAREER ENDING DISASTER**
- 167-12 220 Smith, Jeff*: **THE BOY THE EARTH TALKS TO: GEOLOGY AS DIVINATION IN THE MYTHOLOGY OF THE AMERICAN WEST**

SESSION NO. 168

D2. Recent Advances in Hydrogeology (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 168-1 221 Groover, Krishangi Devi*; Izbicki, John; Pappas, Katherine L.; Johnson, Carole D.: **ESTIMATION OF HYDRAULIC CONDUCTIVITY IN FORMERLY SATURATED ALLUVIUM USING NUCLEAR MAGNETIC RESONANCE**
- 168-2 222 Johnson, Mason*; Gilmore, Troy; Briggs, Martin A.; Corcoran, Sydney: **A COMPARISON OF INFORMED AND UNINFORMED SAMPLING USING HEAT AS A PRELIMINARY INDICATOR OF FOCUSED GROUNDWATER DISCHARGE**
- 168-3 223 Moran, Brendan*; Boutt, David F.; Munk, LeeAnn; Hynek, Scott: **LONG-TERM DRAINAGE OF STORED GROUNDWATER RESOLVES THE HYDROLOGIC BUDGET DISCREPANCIES OF ARID CATCHMENTS**
- 168-4 224 Swick, Melanie*: **PARTITIONING THE CONTRIBUTION OF LIGHT ABSORBING AEROSOLS TO SNOW AND GLACIER MELT USING A NOVEL HYPERSPECTRAL MICROSCOPY METHOD**
- 168-5 225 Kim, Dahye*; Yeo, In Wook: **MICRO-PIV TECHNIQUE FOR DIRECT MEASUREMENT OF FLUID FLOW VELOCITY IN ROUGH-WALLED FRACTURES AT HIGH REYNOLDS NUMBER**
- 168-6 226 Campbell, Anna Christmann*; Boutt, David F.: **HYDROLOGIC RESPONSE OF THE SALAR DE ATACAMA TRANSITION ZONE TO THE EXTREME MARCH 2015 PLUVIAL FLOOD**
- 168-7 227 Zohbe, Noah M.*: **INTERPRETING DISSOLVED METHANE IN SHALLOW AQUIFERS ACROSS SIX OIL AND GAS PRODUCING BASINS OF THE UNITED STATES**
- 168-8 228 Scanlon, Bridget R.*; Reedy, Robert C.; Weingarten, Matthew; Murray, Kyle E.: **HOW CAN WE MANAGE PRODUCED WATER ASSOCIATED WITH UNCONVENTIONAL OIL TO REDUCE POTENTIAL HAZARDS?**
- 168-9 229 Miller, Joseph*; Peterson, Eric; Twait, Richard: **DIURNAL AND SEASONAL VARIATION IN GROUNDWATER NITRATE-N CONCENTRATION IN A SATURATED BUFFER ZONE**
- 168-10 230 Sherman, Amanda R.*; Fryar, Alan; Walles, Grant; Marshall, Colin; Moumouni, Ali: **TEMPORAL AND SPATIAL VARIABILITY**

- IN GROUNDWATER FLOW AND CHEMISTRY ALONG THE CUMBERLAND RIVER, ARTEMUS, KENTUCKY**
- 168-11 231 Oretsky, Zachary L.*; Lehrmann, Daniel; Schindel, Geary M.: **REPRODUCIBILITY OF GRANULAR ACTIVATED CARBON FOR DYE TRACER DETECTION**
- 168-12 232 Babin, Jeremy T.*; Heath, Victoria E.; O'Reilly, Catherine M.; Twait, Richard; Lampo, Luke W.; Gregorich, Holly; Hanlin, Allyson: **A COMPARISON OF NUTRIENT CONCENTRATION AND STREAM CONDITIONS: SIX MILE CREEK AND MONEY CREEK, ILLINOIS**
- 168-13 233 Brewer, Will*; Yelderman, Joe C.: **ANALYZING DISSOLVED CARBON IN SHALLOW GROUNDWATER**
- 168-14 234 Jabbar, Fadhil K.*; Grote, Katherine; Mohamad, Majid S.; Havens, Victoria: **SIMPLE PREDICTIONS OF NON-POINT SOURCE POLLUTION IN AGRICULTURAL WATERSHEDS USING GIS TECHNIQUES**
- 168-15 235 Chowdhury, Shafiul H.; Springston, Haley C.*: **DEVELOPMENT OF A CONCEPTUAL MODEL TO EVALUATE THE POTENTIAL FOR AN ON-CAMPUS GROUNDWATER SUPPLY WELLFIELD TO FULFILL THE WATER NEEDS OF SUNY NEW PALTZ**
- 168-16 236 Hsu, Kuo-chin*; Sung, Ming-Hung; Lin, Cheng-Wei: **THE ROLES OF HYDROGEOLOGY AND DRIVING FORCES ON SUBSIDENCE OF CHOUHUI RIVER ALLUVIAL FAN, TAIWAN**
- 168-17 237 Jarvis, Jacob*; Byars, B.W.; Wong, Stephanie S.; Hamilton, Wayne; Yelderman, Joe C.: **ASSESSING RECHARGE IN ALLUVIAL AQUIFER SYSTEMS: AN INNOVATIVE APPROACH**
- 168-18 238 Shang-Ying, Chen*: **UNCERTAINTY REDUCTION OF SUBSURFACE FLOW BY CONDITIONING HYDROGEOLOGICAL DATA**
- 168-19 239 Mohamad, Majid S.*; Grote, Katherine; Jabbar, Fadhil K.; Rogers, J. David: **EVALUATION OF THE TEMPORAL ACCURACY OF DIFFERENT SATELLITE-BASED ESTIMATES OF PRECIPITATION IN ANAHEIM, CALIFORNIA**

SESSION NO. 169

T5. Arsenic and Other Geogenic Contaminants in Groundwater Resources: Linking Water Quality, Food Security, and Treatment (Posters) (GSA Hydrogeology Division; GSA Geology and Health Division; GSA International/International Interdisciplinary Interest Group; International Society of Groundwater for Sustainable Development (ISGSD); International Medical Geology Association; GSA Environmental and Engineering Geology Division; GSA Geobiology & Geomicrobiology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 169-1 240 Horn, Jackie D.*; Brikowski, Tom: **LANDFILL-PROMOTED DISSOLUTION OF PYRITE/MARCASITE (SULFIDES) IN CRETACEOUS CHALK**
- 169-2 241 Zhao, Ruirui*; Xie, Xianjun; Wang, Yanxin; Ge, Shemin; Su, Chunli; Yu, Qian; Li, Junxia; Wu, Ya: **EFFECTS OF SURFACE WATER AND GROUNDWATER INTERACTION ON ARSENIC CYCLING IN THE DATONG BASIN, CHINA: RESULTS FROM ONE-YEAR MONITORING**
- 169-3 242 Starbuck, Nicholas C.; Adhikari, Jishnu*; Kulp, Thomas R.: **ARSC GENE EXPRESSION DURING MICROBIOLOGICAL SB(V) REDUCTION IN A HIGHLY SB- AND AS-RESISTANT BACTERIAL ISOLATE**
- 169-4 243 Wilson, Theodore Jeffrey*; Levitt, Eric; Ghandehari, Shahrzad S.; Lee, Ming-Kuo; Saunders, James A.; Redwine, Jim; Marks, Justin; Billor, M. Zeki; Hames, Willis E.; Brueckner, Stefanie; Uddin, Ashraf: **PYRITE BIOMINERALIZATION AND ARSENIC SEQUESTRATION AT A FLORIDA INDUSTRIAL SITE: IMAGING AND GEOCHEMICAL ANALYSIS**
- 169-5 244 Huang, Kun*; Liu, Chongxuan: **IDENTIFICATION OF HYDRO-BIOGEOCHEMICAL PROCESSES CONTROLLING SEASONAL VARIATIONS IN ARSENIC CONCENTRATIONS AT JIANGHAN PLAIN, CHINA**

- 169-6 245 Chung, Sang Yong*; Senapathi, Venkatramanan; Park, Kye-Hun; Sekar, Selvam; Elzain, Hussam Eldin; Son, JooHyeong; Khakimov, Elyorbek: **EVALUATION OF GROUNDWATER CONTAMINATION USING GEOCHEMICAL ANALYSES AND FUZZY TECHNIQUE**
- 169-7 246 Yucel, Cigdem*; Arslan, Sebnem; Celik, Mehmet: **GEOGENIC TRACE ELEMENT ENRICHMENT IN THE NORTHERN DEVELOPED CLOSED BASIN (KAYSERI, TURKEY)**

SESSION NO. 170

T8. Fate, Effects, and Mitigation of Chemical and Fuel Releases in Surface and Subsurface Environments (Posters) (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Energy Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 170-1 247 Link, Hannah N.*; McGuire, Jennifer T.; Cozzarelli, Isabelle M.; Bekins, Barbara A.; Martinovic-Weigelt, Dalma: **TOXICITY ASSESSMENT OF CRUDE OIL CONSTITUENTS AND BREAKDOWN PRODUCTS IN THE PETROLEUM-IMPACTED GROUNDWATERS AT A BIODEGRADATION AND NATURAL ATTENUATION LEGACY SITE NEAR BEMIDJI MINNESOTA**
- 170-2 248 Cozzarelli, Isabelle M.*; Baedecker, Mary Jo; Bekins, Barbara A.; Trost, Jared J.; Spencer, Tracey; Jaeschke, Jeanne B.: **UNDERSTANDING THE EVOLUTION OF GROUNDWATER CONTAMINANT PLUME CHEMISTRY EMANATING FROM RESIDUAL CONTAMINANT SOURCES, AN EXAMPLE FROM A LONG-TERM CRUDE OIL SPILL**
- 170-3 249 Kneeshaw, Tara*; Lockmiller, Kayla A.: **EVALUATION OF RESIDUAL POLYCYCLIC AROMATIC HYDROCARBONS IN SEDIMENTS FOLLOWING A SPILL OF DILUTED BITUMEN**
- 170-4 250 Garvin, Shannon R.*; Gutches, Kristina M.; Lu, Wanyi; Kappel, William M.; Lutz, Laura K.; Lu, Zunli: **GROUNDWATER IODINE ACROSS NEW YORK STATE: POTENTIAL LINKAGE TO METHANE?**
- 170-5 251 Nadas, Alexander*; Lee, Eung Seok: **CHARACTERIZING DNAPL CONTAMINATION AND VAPOR INTRUSION IN DAYTON, OHIO**
- 170-6 252 Klein, Hannah*; Davies, Gareth J.: **BRING YOUR TOWEL, AND DON'T PANIC: THERE COULD BE LONG, DEEP FLOW PATHS BENEATH APPALACHIAN BRINES**
- 170-7 253 Pandey, Sachin*; Karra, Satish; Vesselinov, Velimir: **A MULTICOMPONENT REACTIVE TRANSPORT MODEL OF IN SITU REDOX MANIPULATION FOR REMEDIATION OF CHROMIUM CONTAMINATED GROUNDWATER**
- 170-8 254 Lee, Segun*; Yeo, In Wook: **FIELD APPLICATION OF REACTIVE TRANSPORT MODEL FOR NITRATE-BIOREMEDIATION USING FUMARATE IN GROUNDWATER SYSTEM**

SESSION NO. 171

D6. The Multidisciplinary Faces of Cave and Karst Science (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 171-1 255 Frazier, Victoria E.*; Garey, James R.: **LIMESTONE DISSOLUTION IN A COASTAL KARST SYSTEM**
- 171-2 256 Scharping, Robert J.*; Garey, James R.: **IMPACTS OF GROUNDWATER EXTRACTION AND SEAWATER INFILTRATION ON A SUBMERGED CAVE ECOSYSTEM**
- 171-3 257 Stepchinski, Leanne M.*; Bertetti, F. Paul; Green, Ronald T.; Nunu, Rebecca R.; Gulliver, Kirk D.H.; Onac, Bogdan P.; Toll, Nathaniel J.; Flores, Mauricio E.: **INVESTIGATION OF DROUGHT INTENSITY AND PERIODICITY IN SOUTH TEXAS USING CHEMICAL AND BIOLOGICAL RECORDS IN BAT GUANO CORES**
- 171-4 258 Fink, Madison S.*; Fisher, Emily; Barna, Joshua; Edenborn, Harry M.; Toran, Laura; Herman, Ellen K.: **IDENTIFYING**

**HYSTERESIS PATTERNS BY DETECTING TRENDS
IN CALCULATED AND DIRECTLY MEASURED CO₂
CONCENTRATIONS**

- 171-5 259 Daniel, Timothy J.*; Richendfer, John; Lin, Henry; Gall, Heather; Darnault, Christophe: **SPATIAL DISTRIBUTION AND MORPHOMETRIC ANALYSIS OF DOLINES OVER TIME IN A WASTEWATER SPRAY IRRIGATED LANDSCAPE**
- 171-6 260 Luhmann, Andrew J.*; Bilek, Susan L.; Grapenthin, Ronni; Martin, Jonathan B.: **GEOPHYSICAL CHARACTERIZATION OF KARST AQUIFERS USING DYNAMIC RECHARGE EVENTS**
- 171-7 261 Hiller, Mark D.*; Schwartz, Benjamin F.; Schindel, Geary M.: **SPRINGSHEDED DELINEATION AT CAVE WITHOUT A NAME, TX, USA: DYE TRACING IN THE LOWER GLEN ROSE LIMESTONE**
- 171-8 262 Kaiser, Rachel*; Polk, Jason; Shelley, Adam; Powell, Matt: **ASSESSING STORMWATER IMPACTS AND HYDROGEOLOGICAL INFLUENCES ON WATER QUALITY IN AN URBAN KARST LAKE**
- 171-9 263 Barry, Emily R.*; Macpherson, G.L.: **CHARACTERIZATION OF GROUNDWATER FLOW PATHS THROUGH MEROKARST IN THE N04D SECTION OF THE KONZA PRAIRIE LONG-TERM ECOLOGICAL RESEARCH SITE IN NORTHEASTERN KANSAS, USA**
- 171-10 264 Kambesis, Patricia N.; Despain, Joel*: **CAVE GENESIS IN THE EASTERN GREAT BASIN OF NEVADA AND UTAH, USA**
- 171-11 265 Tewksbury, Barbara J.*; Holmwood, Alexander P.; Ratino, Mia E.; Tarabees, Elhamy A.; Mehrtens, Charlotte J.: **QUASI-POLYGONAL RIDGE NETWORK ASSOCIATED WITH NON-TECTONIC SAG SYNCLINES IN THE EOCENE DRUNKA FORMATION, WESTERN DESERT, EGYPT: EVIDENCE FOR HYPOGENE KARST?**
- 171-12 266 Sumrall, Jonathan B.*; Larson, Erik B.; Burton, M. Isaac; Quiroga, Allison; Vega, Jordan; Gauvey, K.L.; Leesburg, J.N.: **RELATIONSHIP OF BEDROCK GEOLOGY AND KARST FEATURES IN THE ST. IGNACE DISTRICT OF THE HIAWATHA NATIONAL FOREST, UP MICHIGAN**
- 171-13 267 Weary, David J.*; Doctor, Daniel H.: **A PRELIMINARY MAP SHOWING THE DISTRIBUTION OF SOLUTION CAVES IN CARBONATE AND EVAPORITE-BEARING GEOLOGIC UNITS IN THE CONTIGUOUS UNITED STATES**
- 171-14 268 Morris, Katherine A.*; Murgulet, Valeriu: **HURRICANE AND TROPICAL STORM EVENTS IN THE CARIBBEAN SEA AND THE GULF OF MEXICO REGIONS**
- 171-15 269 Decker, David D.*; Spilde, Michael N.; Polyak, Victor J.; Lachniet, Matthew S.: **ELEMENTAL AND ISOTOPIC ANALYSIS OF MAMMILLARY CALCITE – LAKE OF THE CLOUDS, CARLSBAD CAVERNS, NEW MEXICO: A MISSISSIPPI VALLEY-TYPE DEPOSIT?**
- 171-16 270 Solleiro-Rebolledo, Elizabeth*; López-Martínez, Rafael; Valera-Fernández, Daisy; Griset, Sara: **DE-CODIFYING THE QUATERNARY PALEO(EPI)KARST SYSTEM IN QUINTANA ROO, MEXICO BY USING THE PALEOPEDOLOGICAL AND SEDIMENTOLOGICAL RECORD**
- 171-17 271 Martínez-Sacristán, Hernando*: **CAVES AS NON-RENEWABLE RESOURCES NEED PUBLIC POLICIES FOR PROTECTION IN SOME LATIN AMERICAN COUNTRIES: FAR FROM RHETORIC, CLOSER TO REALITY**
- 171-18 272 Derf, Cassandra K.*: **EXPERIMENTAL ANALYSIS OF THE MORPHODYNAMICS OF CONDUIT FLOW**
- 171-19 273 Sorsby, Skyler*; Lachmar, Thomas E.: **STABLE ISOTOPE GEOCHEMISTRY OF RECHARGE IN AN ALPINE KARST AQUIFER, BEAR RIVER RANGE, UTAH**
- 171-20 274 Elkins, Joe T.*; Fryar, Alan E.; Mosher, Michael D.: **GEOCHEMICAL AND PHYSIOGRAPHIC INFLUENCE ON THE LOCATION OF KENTUCKY BOURBON AND TENNESSEE WHISKEY DISTILLERIES**

SESSION NO. 172 \$

***T158. Gemological Research in the 21st Century—
Characterization, Exploration, and Geological Significance of
Diamonds and other Gem Minerals (Posters)***

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 172-1 275 Howell, Daniel; Weiss, Yakov; Smit, Karen V.; Loudin, Lorne*; Nestola, Fabrizio: **DIAMAP: NEW APPLICATIONS FOR PROCESSING IR SPECTRA OF FLUID-RICH DIAMONDS AND MAPPING DIAMONDS CONTAINING ISOLATED NITROGEN (TYPE IB) AND BORON (TYPE IIB)**
- 172-2 276 Johnson, Paul*; Moe, Kyaw Soe; Myagkaya, Elina; Loudin, Lorne: **NICKEL RELATED ABSORPTION CAUSING GREEN COLOR IN HPHT GROWN SYNTHETIC DIAMOND**
- 172-3 277 Lum, Jullieta Enone*; Viljoen, Fanus; Cairncross, Bruce; Frei, Dirk: **THE CORRELATION OF COLOUR, CHEMISTRY AND CRYSTALLOCHEMISTRY OF EMERALD: A CASE STUDY FROM THE LEYDSORP AREA**
- 172-4 278 Dirlam, Dona Mary*; Tozer, Rose; Jonathan, Cathleen; Rucinski, Paula; Elen, Sheryl; Rogers, Chris: **JOHN SINKANKAS AND GEMOLOGY: AN ANNOTATED BIBLIOGRAPHY**
- 172-5 279 Sun, Ziyin*; Renfro, Nathan D.; Palke, Aaron: **BLUE-GREEN PYROPE-SPESSARINE GARNET WITHOUT A COLOR CHANGE PHENOMENON: THE ROLE OF VANADIUM IN THE COLOR OF GARNETS**
- 172-6 280 Gu, Tingting*; Wang, Wuyi; Ohfuji, Hiroaki: **MICRO- AND NANO- SIZED INCLUSIONS IN IAB DIAMONDS AND THEIR GEOLOGICAL IMPLICATIONS**
- 172-7 281 Moe, Kyaw Soe*; Johnson, Paul; Wang, Wuyi: **IRRADIATED AND ANNEALED NATURAL PINK DIAMONDS**
- 172-8 282 Levy, Elizabeth*; Roy, Amitava; Henry, Darrell J.; Dutrow, Barbara L.: **SYNCHROTRON XANES: AN ALTERNATIVE TECHNIQUE FOR MEASURING FE³⁺ CONTENT IN TOURMALINE**
- 172-9 283 D'Haenens-Johansson, Ulrika F.S.*; Smith, Evan M.; Smit, Karen V.; Moses, Thomas M.: **THE 812-CARAT PURE TYPE IAB CONSTELLATION DIAMOND FROM KAROWE – PART OF AN EVEN LARGER ROUGH?**
- 172-10 284 Mount, Cole*; McMillan, Nancy J.; Dutrow, Barbara L.; Henry, Darrell J.: **CHEMICAL ZONING HAS INSIGNIFICANT EFFECT ON PREDICTION OF HOST LITHOLOGY OF TOURMALINE USING MULTIVARIATE ANALYSIS OF LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS) SPECTRA**
- 172-11 285 Breeding, Christopher M.*: **OBSERVATIONS ON MAGNESITE INCLUSIONS IN NATURAL SILICON-VACANCY GEM DIAMONDS**
- 172-12 286 Turnier, Rachelle B.; Harlow, George E.*: **SYENITE-HOSTED SAPPHIRES—PROBABLE CRUSTAL SAMPLING**
- 172-13 287 Schmidt, Susanne T*; Elmaleh, Emilie; Karampelas, Stefanos; Link, Klemens; Kiefert, Lore; Süssenberger, Annette; Paul, André: **U-PB AGES OF ZIRCON INCLUSIONS IN SAPPHIRES FROM RATNAPURA AND BALANGODA (SRI LANKA)**
- 172-14 288 Brinza, Eric M.*; Fitzpatrick, William A.; Ihinger, Phillip D.: **THE DISTRIBUTION OF HYDROXYL SPECIES IN HYDROTHERMAL QUARTZ CRYSTALS: THE DOMINANT ROLE OF POST-CRYSTALLIZATION DIFFUSION**
- 172-15 289 Sundell, Tyler*; Michelfelder, Gary S.: **DIAMOND INTRAGRANULAR δ¹³C VARIABILITY MEASURED BY TOF-SIMS**
- 172-16 290 Smit, Karen V.; Stachel, Thomas; Stern, Richard A.; Shirey, Steven B.; Steele, Andrew; Wang, Wuyi*: **DIAMOND FORMATION THROUGH ISOCHEMICAL COOLING OF CHO FLUIDS VS REDOX BUFFERING: EXAMPLES FROM MARANGE PERIDOTITIC AND ZIMMI ECLOGITIC DIAMONDS**

- 172-17 291 Ardon, Troy*; Eaton-Magana, Sally: **STUDY OF SPATIAL CORRELATION OF POINT DEFECTS IN NATURAL DIAMOND WITH BROWN COLORATION**
- 172-18 292 Tollefson, Kyle T.*; Ihinger, Phillip D.: **THE CAUSE OF COLOR VARIATION IN WATERMELON TOURMALINE: INSIGHTS FROM INFRARED SPECTROSCOPY**

SESSION NO. 173

T43. High-Resolution Investigations of the Permian-Triassic Transition (Posters) (GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology); Paleontological Society; Paleontological Research Institution)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 173-1 293 Yuan, Dongxun*; Henderson, Charles M.; Shen, Shuzhong: **REVISED CLARKINA TAXONOMY BASED ON CONODONT SAMPLE-POPULATION APPROACH**
- 173-2 294 Kus, Kaci*; Gastaldo, Robert A.; Neveling, Johann; Geissman, John W.; Looy, Cindy V.: **CALCISOLS, PALYNOFLORAS, AND RARE CHARCOAL FROM QUAGGASFONTEIN, EASTERN CAPE PROVINCE, SOUTH AFRICA: CORRELATIONS IN THE WAPADSBURG PASS AREA AND IMPLICATIONS FOR LATE PERMIAN CLIMATE**
- 173-3 295 Sinkler, Samuel*; Gastaldo, Robert A.; Neveling, Johann; Geissman, John W.: **SANDSTONES, SILTSTONES, AND TRACE FOSSILS IN A SUCCESSION OF LOWERMOST TRIASSIC ROCKS NEAR LOOTSBERG PASS, EASTERN CAPE PROVINCE, SOUTH AFRICA**
- 173-4 296 Macias, Anthony A*; Woods, Adam D.; Henderson, Charles: **PALEOCEANOGRAPHIC CHANGES ACROSS THE PERMIAN-TRIASSIC INTERVAL ALONG THE NORTHWESTERN MARGIN OF PANGEA: A CASE STUDY FROM OPAL CREEK, ALBERTA, CANADA**
- 173-5 297 Mwinde, Chiza N.*; Ritzer, Samantha R.; Farrell, Úna C.; Schoepfer, Shane D.; Henderson, Charles M.; Sperling, Erik A.: **SEDIMENTARY GEOCHEMISTRY OF THE LOWER TRIASSIC MONTNEY FORMATION, BRITISH COLUMBIA**

SESSION NO. 174

D15. Paleontology, Biogeography/Biostratigraphy (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 174-1 298 Hawkins, Andrew D.*: **EVALUATING DIFFERENT METHODOLOGIES FOR SURFACTANT-BASED SHALE DISAGGREGATION FOR MICROFOSSIL RECOVERY: TOWARDS A STREAMLINED APPROACH**
- 174-2 299 Awad, Walaa K.; Oboh-Ikuenobe, Francisca E.*: **LATE PALEOGENE-EARLY NEOGENE DINOFLAGELLATE CYST BIOSTRATIGRAPHY IN ODP HOLE 959A, WEST AFRICA**
- 174-3 300 Pratscher, Kristin Marie*: **RADIOLARIAN CHERTS FROM THE IZMIR-ANKARA-ERZINCAN SUTURE ZONE, SARIYAR, TURKEY**
- 174-4 301 Hardy, Fabian*; Bonde, Joshua W.: **A GREAT BASIN MIOCENE BIOTA FROM THE ESMERALDA FORMATION OF NEVADA AS AN ECOLOGICAL CONSTRAINT ON THE TIMING OF SIERRAN UPLIFT**
- 174-5 302 Chiarello, Josephine*; Hauf, Emily; Over, Jin-Si R.; Over, D. Jeffrey; Algeo, Thomas J.: **BIOSTRATIGRAPHY, SEA LEVEL CHANGE, AND DISCONFORMITIES IN THE UPPER DEVONIAN CHATTANOOGA SHALE OF WESTERN TENNESSEE BASED ON CONODONTS AND MAGNETIC SUSCEPTIBILITY**
- 174-6 303 Over, Jin-Si R.*; Valenzuela-Ríos, J. Ignacio; Liao, Jau Chyn; Martínez-Pérez, Carlos; Over, D. Jeffrey: **UPPER DEVONIAN CONODONTS FROM THE PI SECTION IN THE SERRA DEL CADÍ, SPANISH PYRENEES**
- 174-7 304 Mann, Keith O.*: **CONODONT FAUNA CONSTRAINS THE DEPOSITION OF THE DELAWARE LIMESTONE FROM THE MIDDLE OF THE AUSTRALIS ZONE INTO THE UPPER PORTION OF THE KOCKELIANUS ZONE**
- 174-8 305 Rice, Beverly J.*; Grader, George W.; Doughty, P. Ted; di Pasquo, Mercedes M.; Isaacson, Peter E.: **REVISION OF THE TYPE SIPHONODELLA PRAESULCATA CONODONT LOCALITY AT LICK CREEK, MONTANA**
- 174-9 306 Sato, Tomohiko*; Sawaki, Yusuke; Saitoh, Masafumi; Matsui, Yohei; Maruyama, Shigenori; Bakakas, Karen; Ligna, Cédric; Moussavou, Mathieu; Edou-Minko, Ambroise: **PALEOPROTEROZOIC ORGANIC CARBON AND NITROGEN ISOTOPIC STRATIGRAPHY ACROSS THE APPEARANCE OF MACROFOSSILS IN THE FRANCEVILLIAN BASINS, GABON**
- 174-10 307 New, Evan*; Yanes, Yurena; Cameron, Robert A.D.; Teixeira, Dinarte; Kaufman, Darrell S.: **AMINOCHRONOLOGY AND TIME-AVERAGING IN QUATERNARY LAND SNAIL ASSEMBLAGES FROM THE MADEIRA ARCHIPELAGO**
- 174-11 308 Yeh, Chung-ping*: **THE OBJECTIVE MORPHOLOGICAL CRITERIA OF TRACE FOSSIL OPHIOMORPHA ISP. IN THE NANGANG FORMATION, NORTHEAST COAST OF TAIWAN**
- 174-12 309 Wilbert, Greg A.*; Frederickson, Joseph; Cohen, Joshua E.; Cifelli, Richard L.: **NEW ADDITIONS TO THE ICHTHYOFAUNA OF THE ANTLERS FORMATION (APTIAN-ALBIAN) OF SOUTHEASTERN OKLAHOMA**
- 174-13 310 Cribb, Alison*; Darroch, Simon A.F.; Laflamme, Marc: **QUANTIFYING ICHNOGENERA DIVERSITY AND BIOTURBATION INTENSITY IN THE TERMINAL NEOPROTEROZOIC NAMA GROUP, NAMIBIA**
- 174-14 311 Salenbien, Wout*; Gonzales, Lauren; Kern, Andrea K.; Bejar, Gustavo; Valdivia, Luis Angel; Ortega, Miguel; Kay, Richard F.; Martinez, Jean-Noel; Rigsby, Catherine A.; Baker, Paul A.: **A CENOZOIC FOSSIL RECORD FROM SOUTHEAST PERU IN A REVISED CHRONOSTRATIGRAPHICAL AND PALEOENVIRONMENTAL FRAMEWORK: EVIDENCE FOR CROSS-CONTINENT BIOGEOGRAPHIC PATHWAYS**
- 174-15 312 Cole, Selina R.*; Wright, David F.: **INVESTIGATION OF LOWER MISSISSIPPIAN STRATA FROM THE NORTHCENTRAL BROOKS RANGE OF ALASKA: PRELIMINARY STRATIGRAPHIC AND PALEONTOLOGIC CHARACTERIZATION**
- 174-16 313 Owens, Hayden L.*; Hunt, A.M.: **GEOCHEMICAL AND STRATIGRAPHIC ANALYSIS OF PYRITIC DECOMPOSITION WITH RESPECT TO BONE PRESERVATION QUALITY: EXAMPLES FROM THE LANCE FORMATION OF EASTERN WYOMING**
- 174-17 314 Farron, Thomas D.*; Hunt, A.M.: **GEOCHEMICAL AND PHYSICAL DETERMINATION OF DIAGNOSTIC K-PG BOUNDARY FEATURES USING NITON XRF T3GOLDD+ FOR CORRELATION OF SELECTED LOCATIONS IN WYOMING AND COLORADO**
- 174-18 315 Aubery, Rose*; Urban, Michael A.; Dunn, Regan E.; Barclay, Richard S.; Punyasena, Surangi W.: **RESPONSE OF LEAF EPIDERMAL CELL ARCHITECTURE TO CLIMATE - A POTENTIAL PALEOPROXY**
- 174-19 316 Ng, Molly*; Smith, Selena Y.: **MORPHOLOGICAL VARIABILITY ALONG A CLIMATE GRADIENT IN TAXODIUM DISTICHUM (CUPRESSACEAE): IMPLICATIONS FOR PALEOENVIRONMENTAL RECONSTRUCTION**
- 174-20 317 Richmond, Dean R.*; Lupia, Richard; Klimek, Jason: **FIRST NORTH AMERICAN OCCURRENCES OF THE FOSSIL WOOD XENOXYLON MEISTERI FROM THE UPPER JURASSIC MORRISON FORMATION OF CENTRAL MONTANA**
- 174-21 318 Hartman, Julian D.; Duijnste, Ivo A.P.*; Kustatscher, Evelyn; van Konijnenburg-van Cittert, Johanna H.A.; Looy, Cindy V.: **DISENTANGLING LATE PERMIAN CONIFER LEAF CUTICLES: QUANTITATIVE ANALYSIS OF EPIDERMAL CHARACTERS AND TAXONOMIC CONSEQUENCES**

- 174-22 319 Wan, Mingli*; Yang, Wan; Liu, Lujun; Wang, Jun: **SILICIFIED GYMNOSPERMOUS ROOT FROM THE UPPER WUTONGGOU LOW ORDER CYCLE (CHANGHSINGIAN-INDUAN) IN BOGDA MOUNTAINS, NORTHWESTERN CHINA**
- 174-23 320 Cook, Todd D.*; Case, Gerard R.; Kightlinger, Taylor A.: **A DESCRIPTION OF A MIDDLE CAMPANIAN EUSELACHIAN ASSEMBLAGE FROM THE BLADEN FORMATION OF NORTH CAROLINA, USA**
- 174-24 321 Smith, Selena Y.*; Samant, Bandana; Manchester, Steven; Kapgate, Dashrath; Srivastava, Rashmi; Matsunaga, Kelly; Wheeler, Elisabeth: **PLANT DIVERSITY OF THE CRETACEOUS-PALEOGENE DECCAN INTERTRAPPEAN BEDS: A COMPARISON OF MACROFOSSIL AND PALYNOLOGICAL DATA**
- 174-25 322 Crystal, Victoria*; Miller, Ian: **A NEW EARLIEST PALEOCENE, MOUNTAIN PROXIMAL, MATURE FOREST FLOOR FOSSIL LEAF SITE IN THE DENVER BASIN, COLORADO, USA: IMPLICATIONS FOR THE ORIGINS OF RAINFORESTS**
- 174-26 323 Nuñez Otaño, Noelia B.; Marriner, Emma C.*; Gardner, Kristina F.; di Pasquo, Mercedes M.; Bianchinotti, M. Virginia; O'Keefe, Jennifer M.K.: **PRELIMINARY RESULTS FROM POLLEN AND FUNGAL SPORES IN HOLOCENE TERRACE DEPOSITS: EVIDENCE FOR ECOSYSTEM CHANGE FOLLOWING THE MEDIEVAL WARM PERIOD**
- 174-27 324 Muñoz, Nadia E.; Nuñez Otaño, Noelia B.*; di Pasquo, Mercedes M.; O'Keefe, Jennifer M.K.: **PRELIMINARY PALYNOLOGICAL ANALYSIS OF A CORE FROM THE LIA INTERVAL IN EASTERN ARGENTINA**
- 174-28 325 Gardner, Kristina F.*; O'Keefe, Jennifer M.K.; Demchuk, Thomas D.; Denison, Christopher N.: **FUNGAL PALYNOMORPHS ACROSS THE PETM IN WILCOX GROUP SEDIMENTS, CENTRAL TEXAS, PRELIMINARY RESULTS**
- 174-29 326 Grant, Claire Allison*; Crifó, Camilla; Strömberg, Caroline A.E.: **RECONSTRUCTING A MODERN TROPICAL RAINFOREST USING SOIL PHYTOLITH ASSEMBLAGES: IMPLICATIONS FOR PHYTOLITH STUDIES IN PALEOECOLOGY**
- 174-30 327 Thorpe, Emily D.*: **PALEONTOLOGY OF SALINAS PUEBLO MISSIONS NATIONAL MONUMENT**
- 174-31 328 Whitaker, Anna F.*; Christie, Max; Patzkowsky, Mark E.: **ENVIRONMENTAL GRADIENT ANALYSIS IN THE UPPER ORDOVICIAN TACONIC FORELAND BASIN, CENTRAL APPALACHIANS, USA**
- 174-32 329 Medema, Jayson*; Bonde, Joshua W.; McDonald, H. Gregory; Foss, Scott E.: **ASSESSING POTENTIAL FOSSIL YIELD FOR THE STATE OF NEVADA**
- 174-33 330 Humphrey, Rebecca*; Rafferty, Kevin C.; Bonde, Joshua W.: **REVISED FAUNA OF THE LOWER CRETACEOUS NEWARK CANYON FORMATION OF THE FISH CREEK RANGE OF EAST-CENTRAL NEVADA**
- 174-34 331 Frauhofer, Mason J.*; Stebing, Joanna; Carlson, John; Dattilo, Benjamin F.; Aucoin, Christopher D.; Freeman, Rebecca L.; Brett, Carlton E.: **CYCLIC ALTERNATION OF UPPER ORDOVICIAN LIMESTONE AND MUDSTONE STRATA FROM THE MADISON, INDIANA AREA**
- 174-35 332 Walker, Lindsay J.*; Henty, Austin J.W.: **CRETACEOUS SEAS OF CALIFORNIA: OLD FOSSILS, NEW TRICKS**
- 174-36 333 Marsh, Finnegan*; Labandeira, Conrad C.: **FROM BURIED DEAD TO ALIVE IN YOUR POCKET: MOVING FOSSIL DATA FROM SPREADSHEET TO DATABASE TO PRINT TO MOBILE PHONE KEY APP**
- 174-37 334 Treado, Lucy E.*; Hastings, Alexander K.; James, Aryanna L.: **HOW TO DIGITIZE A FOSSIL INSECT COLLECTION: DIGITIZATION PROTOCOLS AT THE VIRGINIA MUSEUM OF NATURAL HISTORY**
- 174-38 335 Sperling, Erik A.*; Farrell, Úna C.; Planavsky, Noah J.; Johnston, David T.; SGP Collaborative Team, The: **THE SEDIMENTARY GEOCHEMISTRY AND PALEOENVIRONMENTS PROJECT:**

A COMMUNITY-ORIENTED, DATABASE-DRIVEN EFFORT TO TRACK PALEOENVIRONMENTAL CHANGE IN DEEP TIME

- 174-39 336 Rahman, Imran Alexander*; Davies, Thomas G.; Lautenschlager, Stephan; Cunningham, John A.; Rayfield, Emily J.; Donoghue, Philip C.J.: **SETTING STANDARDS FOR THE PUBLICATION OF VIRTUAL FOSSILS**
- 174-40 337 Mehra, Akshay*; Maloof, Adam: **USING SERIAL GRINDING AND IMAGING TECHNIQUES TO PRODUCE THREE-DIMENSIONAL MODELS OF SAMPLES WITH WEAK DENSITY CONTRAST**

SESSION NO. 175

T60. The Onset of the Great Ordovician Biodiversity Event (GOBE): Testing Hypotheses with Diverse Data Sets (Posters) (Paleontological Society; GSA Geobiology & Geomicrobiology Division; GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology); IGCP 653: Onset of the Great Ordovician Biodiversification Event; Paleontological Research Institution)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM
Booth #

- 175-1 338 Calner, Mikael*; Calner, Hanna; Lehnert, Oliver: **THE HIRNANTIAN ISOTOPE CARBON EXCURSION (HICE) IN SOUTHERN NORWAY**
- 175-2 339 Yang, Yezi*; Marengo, Katherine N.; Marengo, Pedro J.: **INVESTIGATING THE ROLE OF AMORPHOUS FABRICS ASSOCIATED WITH *CALATHIUM* IN THE LOWER ORDOVICIAN FILLMORE FORMATION, UTAH, USA, USING PETROGRAPHY AND GEOCHEMISTRY**
- 175-3 340 Paton, Timothy*; Freeman, Rebecca L.; Dattilo, Benjamin F.: **ENCRUSTING ON A CORAL GRAVEYARD: A REWORKED CORAL BED FROM THE UPPER ORDOVICIAN (CINCINNATIAN, RICHMONDIAN) OF CENTRAL KENTUCKY**
- 175-4 341 Wright, David F.*; Toom, Ursula: **NEW CRINOIDS FROM THE EARLY PALEOZOIC OF BALTICA (ESTONIA) CONSTRAIN THE ORIGIN AND ORDOVICIAN-SILURIAN DIVERSIFICATION OF FLEXIBLE CRINOIDS**
- 175-5 342 Pruden, Matthew J.*; Garcia, Elvira A.; Molinaro, Darrin J.; Leighton, Lindsey R.: **SHAPE ANALYSIS OF THE ORDER ORTHIDA (PHYLUM BRACHIOPODA) DURING THE ORDOVICIAN RADIATION**
- 175-6 343 Kozik, Nevin P.*; Young, Seth A.: **SEQUENCE STRATIGRAPHIC ANALYSIS OF THE EVAN'S FERRY ROAD CUT, TN: A NEW PROSPECTIVE FOR LATE ORDOVICIAN (SANDBIAN) SEA LEVEL FROM THE APPALACHIAN BASIN**
- 175-7 344 Aucoin, Christopher D.*; Brett, Carlton E.; Paton, Timothy; Schwalbach, Cameron E.; Dattilo, Benjamin F.: **REVISED LATE ORDOVICIAN CORRELATIONS AND THE RICHMONDIAN INVASION IN THE NASHVILLE DOME, TN**
- 175-8 345 Sinnesael, Matthias*; Mauviel, Alain; Desrochers, André; McLaughlin, Patrick I.; De Weirtd, Julie; Vandenbroucke, Thijs R.A.; Claeys, Philippe: **CYCLOSTRATIGRAPHY OF THE UPPER ORDOVICIAN VAURÉAL FORMATION, ANTICOSTI ISLAND, EASTERN CANADA**

SESSION NO. 176 \$

T163. Petrochronology: Advances and Applications to Petrogenesis and Tectonics (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; Mineralogical Society of America; Geochemical Society)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 176-1 346 Webb, Laura E.*: **STRANGE RESULTS OR: HOW I LEARNED TO STOP WORRYING AND LOVE COMPLICATED ⁴⁰AR/³⁹AR APPARENT AGE SPECTRA**
- 176-2 347 Smit, Matthijs A.*; Scherer, Erik E.; Cutts, Jamie: **DATING PETROLOGICAL PROCESSES: A GARNET PERSPECTIVE**

- 176-3 348 Osborne, Z.R.*; Thomas, J.B.: **TITANIUM SOLUBILITY IN COESITE**
- 176-4 349 Hernández-Urbe, David*; Mattinson, Chris G.; Neill, Owen K.; Kylander-Clark, Andrew; Lehman, Miranda R.: **A COMPARISON BETWEEN ZIRCON-RUTILE THERMOMETRY OF ECLOGITES: IMPLICATIONS FOR TEMPERATURE-TIME EVOLUTION OF THE NORTH QAIDAM UHP TERRANE, CHINA**
- 176-5 350 Hyde, Brendt C.*; Moser, Desmond E.; Tait, Kimberly; Barker, Ivan: **WHEN CRUST MEETS CHONDRULES; ZIRCON RESPONSE WITHIN A SMALL-SCALE IMPACTOR IN THE METEORITE NORTHWEST AFRICA 869**
- 176-6 351 Banerjee, Meenakshi*; Dutta, Upama: **DIFFUSION TO DISSOLUTION PRECIPITATION - EVIDENCE OF TRANSITION OF THE TWO PROCESSES DURING TWO STAGE CORONA GROWTH: A CASE STUDY FROM NAMAKKAL, TAMIL NADU, INDIA**
- 176-7 352 Li, Yipeng*; Robinson, Alexander C.; Lapen, Thomas J.; Righter, Minako: **METAMORPHIC P-T-T PATHS RECORD THE LOWER CRUSTAL REWORKING OF THE MUZTAGHATA DOME, NORTHEASTERN PAMIR**
- 176-8 353 Weisberg, Wesley*; Mattinson, Christopher G.; Stubbs, Katie; Stearn, Madelaine; Hernández-Urbe, David: **ASSESSING TRACE ELEMENT DISTRIBUTION TO AID IN CONSTRUCTION OF P-T-T PATHS FOR UHP ECLOGITE AND HP GRANULITE SAMPLES FROM THE DULAN AREA, NORTH QAIDAM TERRANE, CHINA**
- 176-9 354 Stubbs, Katie*; Lehman, Miranda R.; Gilmore, Vaughan Michael; Hernandez-Urbe, David; Halfpenny, Angela; Mattinson, Christopher G.: **MINERAL INCLUSIONS IN ZIRCONS FROM UHP ECLOGITE AND HP GRANULITE AND CONSTRAINTS ON THE P-T CONDITIONS OF ZIRCON GROWTH, NORTH QAIDAM TERRANE, CHINA**
- 176-10 355 Bollen, Elizabeth M.*; Stowell, Harold H.; Rusmore, Margaret E.; Woodsworth, Glenn J.: **DURATION OF GARNET GROWTH AND P-T-T PATHS FROM SM-ND DATING AND ISOCHEMICAL PHASE DIAGRAMS: COAST MOUNTAINS BATHOLITH, BRITISH COLUMBIA, CANADA**
- 176-11 356 Team, Taylor Charles*; Michalak, Melanie J.: **PETROGRAPHIC AND GEOCHRONOLOGIC STUDY ACROSS A 10KM TRANSECT OF THE CANYON CREEK PLUTON, KLAMATH MOUNTAIN PROVINCE, NW CALIFORNIA**
- 176-12 357 Cavazos Tovar, José Guadalupe*; Gómez-Tuena, Arturo; Parolari, Mattia: **ORIGIN AND EVOLUTION OF THE SW-MEXICAN CONTINENTAL CRUST: EVIDENCES FROM DETRITAL ZIRCON U-PB AGES AND HF ISOTOPIC EVOLUTION**
- 176-13 358 McKay, Matthew P.*; Jackson, William T.: **TECTONIC STRESS REGIME RECORDED IN ZIRCON TH/U**
- 176-14 359 Suarez, Kaitlyn*; Williams, M.L.; Grover, T.W.; Pless, Claire R.: **CONSTRAINING THE TIMING OF MELTING IN THE EASTERN ADIRONDACK MOUNTAINS, NY USING A COMBINATION OF IN-SITU MONAZITE AND ZIRCON U/PB DATING TECHNIQUES**
- 176-15 360 Regan, Sean P.*; Lupulescu, Marian; Jercinovic, Michael J.; Williams, M.L.; Chiarenzelli, J.: **MONAZITE-ALLANITE-FLUORAPATITE RELATIONSHIPS FROM THE CHEEVER FE-OXIDE APATITE (IOA) DEPOSIT, EASTERN ADIRONDACK MOUNTAINS, NY**
- 176-16 361 Grover, T.W.*; Williams, M.L.; Regan, Sean P.; Pless, Claire R.; Jercinovic, M.J.: **CONSTRAINTS FROM MONAZITE GEOCHEMISTRY AND LA-ICP-MS ZIRCON ANALYSES ON THE NATURE AND TIMING OF METAMORPHISM IN THE DRESDEN STATION AREA, EASTERN ADIRONDACKS**
- 176-17 362 Mandl, Magdalena; Kurz, Walter*; Hauzenberger, Christoph; Fritz, Harald; Klötzli, Urs: **PRE-ALPINE EVOLUTION OF THE AUSTRALPINE BASEMENT (EASTERN ALPS): CONSTRAINTS FROM IN-SITU LA-ICP-MS U-PB ZIRCON GEOCHRONOLOGY WITHIN THE SECKAU NAPPE SYSTEM**
- 176-18 363 Bosbyshell, Howell*; Ford, Andrew C.: **INVERTED METAMORPHISM BELOW THE EMBREEVILLE THRUST IN THE CENTRAL APPALACHIANS: THERMOBAROMETRY AND MONAZITE GEOCHRONOLOGY**
- 176-19 364 Mako, Calvin A.*; Law, Richard D.; Mazza, Sarah E.; Ashley, Kyle; Thigpen, J. Ryan; Cottle, John; Kylander-Clark, Andrew: **MONAZITE AND TITANITE CONSTRAINTS ON THE PRECAMBRIAN METAMORPHIC EVOLUTION OF THE NW HIGHLANDS TERRANE, SCOTLAND**
- 176-20 365 Kendall, Jamie*; Gorce, Jennifer S.; Baxter, Ethan F.; Caddick, Mark: **SM/ND GARNET GEOCHRONOLOGY AND PRESSURE-TEMPERATURE PATHS OF ECLOGITES FROM SYROS, GREECE: IMPLICATIONS FOR SUBDUCTION ZONE PROCESSES AND WATER LOSS FROM THE SUBDUCTING SLAB**
- 176-21 366 Martin, Celine*; Bonnet, Guillaume; Flores, Kennet E.; Barrickman, Mattison; Harlow, George E.: **UNRAVELING THE HISTORY OF COMPLEX ZONED GARNETS IN RETROGRADE ECLOGITES: INSIGHTS FROM THE NORTH MOTAGUA MÉLANGE IN CENTRAL GUATEMALA**
- 176-22 367 Seman, Spencer Mark*; Smye, Andrew J.: **ECLOGITE CLASTS OF THE TERTIARY PIEDMONT BASIN, LIGURIAN ALPS, ITALY: RB-SR GEO/THERMOCHRONOLOGIC CONSTRAINTS ON EXHUMATION RATES**
- 176-23 368 Coleman, Drew S.*; Glazner, Allen F.; Bartley, John M.: **MELTAMORPHISM**

SESSION NO. 177

D54. Planetary Potpourri (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 177-1 369 O'Hara, Emma Jane*; Dunn, Tasha: **DETERMINING 3D CHONDRULE SIZES FROM 2D THIN SECTIONS: LOST IN TRANSLATION**
- 177-2 370 DeFelice, Dominic*; Ebel, Denton: **MODAL ANALYSIS: PIXEL COUNTING VS. POINT COUNTING USING DATA FROM THE TIESCHITZ H/L3.6 METEORITE**
- 177-3 371 Covley, Margaret T.*; Rogers, KayLeigh; Lang, Nicholas P.: **CONSTRAINTS ON THE ORIGIN OF MAHUEA THOLUS, VENUS: IS IT RELATED TO DIANA-DALI CHASMA?**
- 177-4 372 Beltran, Jonathan*; Rogers, KayLeigh; Lang, Nicholas P.: **CHARACTERISTICS OF IMPACT CRATERS IN THE MAHUEA THOLUS QUADRANGLE (V-49), VENUS**
- 177-5 373 Treiman, Allan H.*; Harrington, Elise: **APATITE ON VENUS: SURFACE-ATMOSPHERE REACTION, CRYSTAL CHEMISTRY, AND RADAR REMOTE SENSING**
- 177-6 374 Torres Celis, Jorge Andres*; Ochoa Gutierrez, Luis Hernan; Saavedra Daza, Fabian: **EXPERIMENTAL MODELS USING DRY ICE AS ACTIVE AGENT IN DIFFERENT GEOLOGICAL PROCESSES FOR THE SURFACE OF THE PLANET MARS**
- 177-7 375 Anderson, Robert C.*; Hodges, Kip; Burdick, Joel; Lester, Dan: **DESTINATION MARS: RESULT OF A KISS STUDY ON UNRAVELING THE BENEFITS OF EXPLORATION TELEPRESENCE**

SESSION NO. 178

T204. Friends of Hoth: Episode II—Icy Bodies of the Solar System (Posters) (GSA Planetary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 178-1 376 Leonard, Erin*; Patthoff, D. Alex; Senske, David; Collins, Geoffrey C.: **GLOBAL GEOLOGIC MAP OF EUROPA: USGS SCIENTIFIC INVESTIGATION MAP (SIM)**
- 178-2 377 Nelson, Robert M.; Boryta, Mark*; Hapke, Bruce W.; Manatt, Kenneth S.; Shkuratov, Yuriy; Psarev, Vladimir; Vandervoort, Kurt; Kroner, Desiree; Nebedum, Adaeze; Vides, Christina; Quiñones, John: **UNDERSTANDING REGOLITH PHYSICAL PROPERTIES**

OF ATMOSPHERELESS SOLAR SYSTEM BODIES USING REMOTE SENSING PHOTOPOLARIMETRIC OBSERVATIONS: PLANETARY SURFACE ANALOGS

- 178-3 378 Schoenfeld, Ashley*; Lopes, Rosaly; Malaska, Michael J.; Solomonidou, Anezina: **GEOMORPHOLOGICAL MAP OF THE SOUTH BELET REGION OF TITAN: AN EXPLORATION OF MID-LATITUDE-TO-POLE TRANSITION ZONES**
- 178-4 379 Hughson, Kynan H.G.*; Russell, Christopher T.; Schmidt, Britney E.; Chilton, Heather; Scully, Jennifer E.C.; Sizemore, Hanna G.; Byrne, Shane; Platz, Thomas; Raymond, Carol A.: **INFERRING THE COMPOSITION AND MECHANICAL PROPERTIES OF THE NEAR-SURFACE OF CERES FROM EMPLACEMENT MODELING OF LAYERED/PANCAKE-LIKE EJECTA DEPOSITS**
- 178-5 380 Scully, Jennifer E.C.*; Buczkowski, Debra L.; Raymond, Carol A.; Neesemann, Adrian; Bowling, Timothy; Schenk, Paul M.; Williams, David A.; Castillo-Rogez, Julie C.; Russell, Christopher T.: **CERES' OCCATOR CRATER AND ITS FACULAE REVEALED THROUGH GEOLOGIC MAPPING**
- 178-6 381 Duarte, Kayla*; Schmidt, Britney E.; Chilton, Heather; Ferrier, Ken L.; Hughson, Kynan H.G.; Scully, Jennifer E.C.; Sizemore, Hanna G.; Nathues, Andreas; Platz, Thomas; Russell, C.T.; Raymond, Carol A.; Wray, James J.: **DETERMINING CERES' SUBSURFACE ICE CONTENT THROUGH THE PROPERTIES OF INTERMEDIATE LANDSLIDES**
- 178-7 382 Gosselin, Greg*; McGary, R. Shane: **NUMERICAL MODELING OF CERES' THERMAL HISTORY AND EVOLUTION USING DAWN MISSION DATA AND ANALYSIS TO CONSTRAIN POSSIBLE EVOLUTIONARY PATHWAYS**

SESSION NO. 179

T205. Impact Cratering: From Fire to Ice—Cratering across the Solar System (Posters) (GSA Planetary Geology Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 179-1 383 King, David T.*; Petruny, Lucille W.; Leiphart, Dan: **PLANAR DEFORMATION FEATURES IN QUARTZ GRAINS FROM A DEEPLY BURIED, CANDIDATE IMPACT STRUCTURE, CENTRAL NEW YORK**
- 179-2 384 King, David T.*; Petruny, Lucille W.; de Marchi, Leticia; Adrian, David R.; Ormo, Jens: **CROSS-SECTION OF FLYNN CREEK IMPACT STRUCTURE, TENNESSEE**
- 179-3 385 Evans, Kevin*; McKay, Matthew P.; Sakidja, Ridwan: **MATRIX IN CARBONATE IMPACT BRECCIAS: COMMUNITION AND PRECIPITATION FROM SUPERCRITICAL WATER (SCW)?**
- 179-4 386 Jaret, Steven J.*; Adrian, David R.; de Marchi, Leticia; King, David T.; Rasbury, Troy: **MELT-PRODUCTS AT THE FLYNN CREEK IMPACT STRUCTURE, TENNESSEE**
- 179-5 387 Armour, Mary-Helen*; Boyce, Joseph I.; Zilkey, David: **GEOPHYSICAL SIGNATURE OF SUSPECTED AND CONFIRMED IMPACT STRUCTURES, ONTARIO, CANADA**
- 179-6 388 Anderson, Jennifer L.B.*; Cintala, Mark J.; Plescia, Jeffrey B.; Dechant, Leah E.: **EXPERIMENTAL IMPACTS INTO SLOPED TARGETS – A FIRST LOOK**
- 179-7 389 Dhingra, Deepak*: **GEOLOGICAL MAPPING AND MINERALOGICAL CHARACTERIZATION OF IMPACT MELT DEPOSITS AT LUNAR CRATER COPERNICUS: PEEKING INTO THE CRATERING PROCESS AND TARGET PROPERTIES**
- 179-8 390 Irizarry, Kayla M.*; Garb, Matthew P.; Witts, James D.; Landman, Neil H.; Danilova, Anastasia: **FAUNAL ANALYSIS AT THE CRETACEOUS - PALEOGENE MASS EXTINCTION BOUNDARY, BRAZOS RIVER, TEXAS**
- 179-9 391 Montanari, Alessandro*; Sinnesael, Matthias; Koeberl, Christian; Wegner, Wencke; Claeys, Philippe: **MULTI-**

PROXY CRETACEOUS-PALEOGENE BOUNDARY EVENT STRATIGRAPHY: THE GUBBIO AND OTHER UMBRIA-MARCHE BASIN SECTIONS

- 179-10 392 Melancon, Caleb N.*; Gulick, Sean S.P.; Christeson, Gail L.; McCall, Naoma; Lowery, Christopher; Whalen, Michael T.; Morgan, Joanna; Parr, Penelope; Schmitt, Douglas R.; Lofi, Johanna; Nixon, Chris; Snedden, John; Expedition 364 Scientists, IODP-ICDP: **CORE-LOG-SEISMIC INTEGRATION IN THE CHICXULUB IMPACT BASIN: PRELIMINARY RESULTS FROM IODP-ICDP EXPEDITION 364**
- 179-11 393 Rathbun, Kathryn*; Ukstins, Ingrid; Drop, Stephen: **A NEW GEOLOGIC INTERPRETATION OF MONTURAQUI METEORITE IMPACT CRATER, CHILE**
- 179-12 394 Sleep, Norman H.*; Olds, Eric Peter: **INDUCED INTRAPLATE EARTHQUAKES IN COLORADO FROM EXTREME SEISMIC WAVES FROM THE END-CRETACEOUS ASTEROID OR COMET IMPACT**
- 179-13 395 Olds, Eric Peter*; Sleep, Norman H.: **REGARDING THE OCEANIC CRUST/UPPER MANTLE GEOCHEMICAL SIGNATURE AT THE K-PG BOUNDARY: IF NOT FROM CHICXULUB CRATER, THEN WHERE DID IT ORIGINATE?**
- 179-14 396 Connelly, Daniel P.*; Sikder, Arif M.; Brum, Jose; Hill, Tina R.; Liu, Xin-Cheng: **IRIDIUM ANOMALY ASSOCIATED WITH MAPCIS?**

SESSION NO. 180

T207. Volcanism and Tectonism across the Solar System (Posters) (GSA Planetary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 180-1 397 Hiesinger, Harald*; Roggon, Lars; Hetzel, Ralf; Clark, Jaclyn D.; Hampel, Andrea; van der Bogert, Carolyn H.: **LENGTH-DISPLACEMENT SCALING AND THE FORMATION OF UPHILL-FACING LUNAR THRUST FAULTS**
- 180-2 398 van der Bogert, Carolyn H.*; Clark, Jaclyn D.; Hiesinger, Harald; Banks, Maria E.; Watters, Thomas R.; Robinson, Mark S.: **SEISMIC RESETTING OF THE CRATER RECORD AROUND LUNAR LOBATE-SCARP THRUST FAULTS**
- 180-3 399 Anderson, Robert C.*; Dohm, James M.; Siwabessy, Andrew G.: **DECIPHERING THE COMPLEX FAULT HISTORY OF THE CLARITAS REGION; MARS**
- 180-4 400 Borden, Rose M.*; Burr, Devon M.: **SMALL-SCALE WRINKLE RIDGES ON THE MARTIAN DICHOTOMY BOUNDARY: EVIDENCE FOR CHANGE IN PRINCIPAL STRESS DIRECTION**

SESSION NO. 181 \$

T252. Cratonic Assembly in the Precambrian: Forming the Core of Modern and Ancient Landmasses (Posters) (GSA Structural Geology and Tectonics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 181-1 401 Wintzer, Niki E.*; Baker, Peter L.; Buddington, Andrew M.; Doughty, P. Ted: **U-PB ZIRCON AND GEOCHEMICAL DATA REVEAL PALEOPROTEROZOIC ORTHOGNEISS AND AN EAST KOOTENAY OROGENY MESOPROTEROZOIC DIKE AT TUBBS HILL, COEUR D'ALENE, IDAHO, SOUTHEAST PRIEST RIVER COMPLEX**
- 181-2 402 Kusky, Timothy M.*; Polat, Ali; Wang, Junpeng; Deng, Hao; Windley, Brian F.; Burke, Kevin; Dewey, John F.; Kidd, William S.F.: **GROWTH OF THE NORTH CHINA CRATON BY ARCHEAN THROUGH PALEOPROTEROZOIC ACCRETIONARY OROGENESIS**
- 181-3 403 Baker, Peter L.*; Vervoort, Jeff D.; Baldwin, Julia A.; Harms, Tekla A.: **GARNET LU-HF AND ZIRCON U-PB DATING CONSTRAINS EARLIEST PALEOPROTEROZOIC (2.43 GA) THERMAL EVENT IN THE RUBY RANGE, SW MONTANA**

- 181-4** 404 Park, Kye-Hun*; Song, Yong-Sun: **PREDOMINANTLY MESOPROTEROZOIC U-PB DETRITAL ZIRCON AGES OF THE SEOCHANGNI FORMATION FROM THE NORTHEASTERN OKCHEON METAMORPHIC BELT, SOUTH KOREA**
- 181-5** 405 Dafov, Michelle Nikolay*; Malone, David H.; Craddock, John P.: **U-PB GEOCHRONOLOGY OF AN ARCHEAN SERPENTINIZED HARZBURGITE, SOUTHERN BIGHORN MOUNTAINS, WYOMING**
- 181-6** 406 Deporter, Kelsey*; Sequeira, Nicole; Marchitto, Thomas M.; Bhattacharya, Atreyee; Bhattacharya, Abhijit: **DATING THE MAGMATO-METAMORPHIC EVENTS IN THE CHOTTANAGPUR GNEISS COMPLEX, EASTERN INDIA**
- 181-7** 407 Chatterjee, Sadhana M.*; Roy Choudhury, Manideepa; Das, Subhrajyoti; Roy, Alip: **PHULAD SHEAR ZONE, RAJASTHAN, NW INDIA: THE PROPOSED MID-NEOPROTEROZOIC SUTURE FOR THE GREATER INDIA LANDMASS**
- 182-11** 418 Jablonska, Danica*: **INTERNAL ARCHITECTURE OF MASS-TRANSPORT DEPOSITS IN BASINAL CARBONATES: A CASE STUDY FROM SOUTHERN ITALY**
- 182-12** 419 Alemu, Tadesse B.*; Abdelsalam, Mohamed G.: **OUTCROP ANALOG FOR INTRACONTINENTAL SAGS (ICONS): A CASE OF THE MEKELE BASIN IN NORTHERN ETHIOPIA**
- 182-13** 420 Parkes, Aedan C.*; Clarey, Timothy L.: **CHARACTERIZING THE CONTINENTAL-SCALE STRATIGRAPHIC ARCHITECTURE OF AFRICA AND THE MIDDLE EAST USING SLOSS-TYPE SEQUENCES**
- 182-14** 421 Washburn, Hudson A.*: **SIEVE DEPOSITION ON STEEP ALLUVIAL FANS**
- 182-15** 422 West, Logan M.*; Steel, Ronald J.; Olariu, Cornel: **LONG-LIVED DEEPWATER ANTIDUNES: OUTCROP DESCRIPTION OF LOW-ANGLE UNDULATING, SYMMETRIC, UPFLOW ACCRETING BEDFORMS WITHIN SUPERCRITICAL DOMINATED SLOPE DEPOSITS IN THE FISH CREEK-VALLECITO BASIN, LATE MIOCENE GULF OF CALIFORNIA**
- 182-16** 423 Andeskie, Anna Sofia*; Benison, Kathleen C.; Eichenlaub, Lynnette A.: **THICK PERMO-TRIASSIC REDBEDS AND EVAPORITES IN PANGEA: BUILDING CONCEPTUAL BRIDGES FROM NORTHERN IRELAND TO KANSAS**
- 182-17** 424 Nair, Kajal*; Singleton, John S.; Holm-Denoma, Christopher S.; Egenhoff, Sven O.: **DETRITAL ZIRCON GEOCHRONOLOGY OF THE PENNSYLVANIAN-PERMIAN INGLESIDE FORMATION IN NORTHERN COLORADO: EVIDENCE FOR THE ARRIVAL OF APPALACHIAN ZIRCONS AT THE ANCESTRAL ROCKIES**
- 182-18** 425 Ejembi, John Idoko*; Potter-McIntyre, Sally L.: **DETRITAL ZIRCON U-PB GEOCHRONOLOGY OF MIDDLE TO UPPER JURASSIC STRATA IN THE PARADOX BASIN: INSIGHTS INTO TECTONIC UPLIFT OF THE WET MOUNTAINS AND SOUTHERN FRONT RANGE, COLORADO, U.S.A**
- 182-19** 426 Lord, Elaine L.*; Harris, Nicholas B.: **SUBSURFACE MAPPING OF THE PRAIRIE EVAPORITE GROUP SALT DEPOSITS: ASSESSING SALT CAVERN QUALITY FOR COMPRESSED AIR ENERGY STORAGE**
- 182-20** 427 Bailey, Claire H.*; Langford, Richard P.; Giles, Katherine A.: **STRATAL ARCHITECTURE OF "THE HAT" PROTO-DROP-IN BASIN; JURASSIC SALT WASH MEMBER OF THE MORRISON FORMATION GYPSUM VALLEY, COLORADO**
- 182-21** 428 Bruce, David*; Parcell, William C.: **CHEMOSTRATIGRAPHY OF A MIXED CARBONATE-EVAPORITE-CLASTIC SYSTEM: ELEMENTAL AND MINERALOGICAL PATTERNS IN THE MIDDLE JURASSIC GYPSUM SPRING FORMATION, BIGHORN BASIN, WYOMING**
- 182-22** 429 Wright, Sarah N.*; Holland, Steven M.: **ALTERNATING PROGRADATIONAL AND DEGRADATIONAL REGIMES IN AN OPEN-COAST TIDAL FLAT: THE JURASSIC REDWATER-WINDY HILL-MORRISON TRANSITION, WYOMING, USA**
- 182-23** 430 Ahern, Justin P.*; Fielding, Christopher R.: **SEDIMENTOLOGIC AND STRATIGRAPHIC INVESTIGATION OF THE HEATH FORMATION, CENTRAL MONTANA AND MANNING CANYON FORMATION, UTAH: IMPLICATIONS FOR LATE PALEOZOIC CLIMATE CHANGE**
- 182-24** 431 Parrish, Judith Totman*; Hyland, Ethan G.; Chan, Marjorie A.; Hasiotis, Stephen T.; Dorney, Liam J.: **CONSTRUCTION OF A SPRING-LAKE SYSTEM IN THE JURASSIC NAVAJO SANDSTONE, UTAH—EVIDENCE FROM STABLE ISOTOPES OF OXYGEN AND CARBON**
- 182-25** 432 Singer, Amy*; Stanley, George D.; Hinman, Nancy W.: **THE BEAR GULCH CONGLOMERATE (SERPUKHOVIAN) BEAR GULCH LIMESTONE, CENTRAL MONTANA: INFORMING A STRATIGRAPHIC DEBATE**
- 182-26** 433 Johnson, Shawn A.*; Castonguay, Sammy R.: **LACUSTRINE-FLUVIAL DYNAMICS OF THE WESTERN LAKE IDAHO**
- 182-27** 434 Brotherton, John L.*; Sweet, Dustin E.: **UNROOFING SEQUENCE IN THE OROGRANDE BASIN: PRELIMINARY ASSESSMENT**

SESSION NO. 182**T84. The Dynamics of Stratigraphy and Sedimentation (Posters) (GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology))**

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM
Booth #

- 182-1** 408 Howard, Susannah*; Chang, Jessica; Eastman, Elsie; Glumac, Bosiljka; Curran, H. Allen; Savarese, Michael: **IMPACT OF HURRICANE MATTHEW (OCTOBER 2016) ON SEDIMENT-STARVED SOUTHERN COAST OF LITTLE EXUMA ISLAND, BAHAMAS**
- 182-2** 409 Hsia, Scarlett*; Kerans, Charles; Manfrino, Carrie: **REFINEMENT OF STRATIGRAPHIC FRAMEWORK AND VARIATIONS IN DEPOSITIONAL FACIES FROM THE LAST INTERGLACIAL HIGHSTAND, LITTLE CAYMAN ISLAND**
- 182-3** 410 Burke, Brandon Glenn*; McNeill, Donald F.; Klaus, James S.; Swart, Peter K.: **SEDIMENTATION AND DIAGENESIS OF A MIOCENE-PLIOCENE NARROW SHELF MIXED-SYSTEM: CIBAO BASIN, DOMINICAN REPUBLIC**
- 182-4** 411 Kenning, Brett*; Evans, Kevin: **GEOLOGY OF THE COASTAL GROUP, WESTERN ST. ELIZABETH PARISH, JAMAICA**
- 182-5** 412 Beckham, Abigail*; Glumac, Bosiljka; Curran, H. Allen; Kortright, Skylar; Griffing, David H.: **PETROGRAPHIC ANALYSIS OF ENCRUSTERS ON CORALS FROM PLEISTOCENE REEFS ON SAN SALVADOR ISLAND, BAHAMAS**
- 182-6** 413 Widodo, Robert W.*; Laya-Pereira, Juan Carlos: **PORE SYSTEM EVOLUTION AND FLOW UNIT OF MIOCENE CARBONATE RESERVOIR, NORTHWEST JAVA BASIN, INDONESIA: A SIGNIFICANT EFFECT OF DOLOMITE AND DOLOMITIZATION IN A WARM BASIN**
- 182-7** 414 Pauls, Kathryn N.*; Isbell, John L.; Moxness, Levi D.; Limarino, C. Oscar; Schencman, L. Jazmin: **LATE PALEOZOIC PALEOCLIMATIC COMPARISONS OF MID-LATITUDE BASINS IN WESTERN ARGENTINA: CONTROLS ON EARLY PENNSYLVANIAN DEGLACIATION IN WESTERN GONDWANA**
- 182-8** 415 Fedorchuk, Nicholas D.*; Isbell, John L.; Griffis, Neil; Montanez, Isabel P.; Vesely, Fernando; Iannuzzi, Roberto; Rosa, Eduardo L.M.; Roesler, Guilherme A.: **CARBONIFEROUS GLACIOTECTONIZED SEDIMENTS ON THE WESTERN RIO GRANDE DO SUL SHIELD, PARANÁ BASIN, SOUTHERNMOST BRAZIL**
- 182-9** 416 Ryang, Woo Hun*: **SEASONAL VARIATIONS OF TOPOGRAPHY AND SURFACE SEDIMENTS DURING 2014 TO 2016 ON OPEN-COAST INTERTIDAL FLAT OF THE GOCHANG, SOUTHWESTERN COAST OF KOREA**
- 182-10** 417 Sun, Ke*; Chen, Qinghua; Wang, Guanming; Zhang, Jingjing: **CHARACTERISTICS, DISTRIBUTION AND EVALUATION OF REEF-SHOAL RESERVOIRS: A CASE STUDY OF PERMIAN-CARBONIFEROUS IN THE NORTHWEST OF TARIM BASIN, CHINA**

- OF THE RATE OF DENUDATION OF THE PEDERNAL UPLIFT, SOUTHERN NEW MEXICO**
- 182-28** 435 Helfrich, Autumn L.*; McLaurin, Brett T.: **LACUSTRINE CARBONATE DEPOSITION AND FACIES DISTRIBUTION WITHIN THE MUDDY CREEK FORMATION (MIOCENE-PLIOCENE), NELLIS BASIN, SOUTHERN NEVADA**
- 182-29** 436 Byron, Alex*; Norris, Gage; Gianniny, Gary L.: **THE LAST GASP OF THE EARLY MISSISSIPPIAN SEAWAY; SEQUENCE STRATIGRAPHY OF HORSESHOE MESA MEMBER OF THE REDWALL LIMESTONE, GRAND CANYON, AZ**
- 182-30** 437 Dohm, Paul W.*; Gianniny, Gary L.; Weber, Jake R.; Tobin, Benjamin W.: **HOLIER THAN THOU? DOLOMITES IN PARADISE: MATRIX POROSITY DEVELOPMENT IN THE REDWALL LIMESTONE, GRAND CANYON**
- 182-31** 438 Zheng, Charlie Y.C.*; Mangano, Maria Gabriela; Buatois, Luis A.: **ICHOLOGY AND DEPOSITIONAL ENVIRONMENTS OF THE UPPER ORDOVICIAN STONY MOUNTAIN FORMATION IN THE WILLISTON BASIN, CANADA: REFINING ICHNOFACIES AND ICHNOFABRIC MODELS FOR EPEIRIC SEA CARBONATES**
- 182-32** 439 Zhou, Kai*; Pratt, Brian R.: **SEDIMENTOLOGY OF TWO MUD MOUND REEFS ON AN UPPER DEVONIAN (FRANSIAN) RAMP, WESTERN ALBERTA, CANADA**
- 182-33** 440 Somchat, Kittipong*; Reece, Bobby; Gulick, Sean; Ridgway, Kenneth: **CORE-LOG-SEISMIC STUDY ON THE PRE-GLACIAL HISTORY OF THE SURVEYOR FAN DEEP-SEA SEDIMENTARY SYSTEM, GULF OF ALASKA**
- 182-34** 441 Jeffrey, Matthew Jarrell*; Huntley, John Warren; Schiffbauer, James D.; Fike, David A.; Shelton, Kevin L.: **INFLUENCES OF ENVIRONMENTAL VARIATION AND SEDIMENTATION RATE ON THE RECORDING OF THE STEPTOEAN POSITIVE CARBON ISOTOPE EXCURSION (SPICE) IN MISSOURI**
- 182-35** 442 Haidar, Zachariya*; Abatan, Oluwasegun; Weislogel, Amy L.: **SEDIMENTOLOGICAL ANALYSIS OF HAMPSHIRE FORMATION CORES FROM RANDOLPH CO., WV**
- 182-36** 443 Abbott, Dallas H.*; Hutson, Dionne; Marrero, Alyssa; Block, Karin A.; Chang, Clara; Cai, Yue: **REPLICATION OF ANNUAL CYCLES IN MN IN HUDSON RIVER CORES: MN PEAKS DURING HIGH WATER FLOW**
- 182-37** 444 Hutson, D.C.*; Abbott, Dallas H.; Block, Karin A.; Marrero, Alyssa; Abdul, Barakat; Herzberger, Kyrah: **TO WHAT EXTENT ARE CATASTROPHIC AND ENVIRONMENTAL EVENTS USEFUL STRATIGRAPHIC MARKERS FOR DATING THE HUDSON RIVER: THE IMPACT OF MANGANESE CYCLING, THE PEEKSKILL METEORITE AND ZEBRA MUSSELS?**
- 182-38** 445 Hughes, Matthew*; Harris, M. Scott; Luciano, Katherine; Alexander, Clark: **INVESTIGATIONS INTO SOUTH CAROLINA AND GEORGIA'S OUTER CONTINENTAL SHELF (OCS) RESOURCES: IDENTIFICATION AND MAPPING OF PALEOLANDSCAPES AND MODEL CREATION FOR LOCATION OF SAND RESOURCES**
- 182-39** 446 Gauvey, K.L.*; Sumrall, J.B.; Leesburg, J.N.; Larson, E.B.; Hahn, M.S.: **STRATIGRAPHIC FRAMEWORK OF SILICIFICATION IN THE MIDDLE SILURIAN CARBONATES OF THE ST. IGNACE DISTRICT OF THE HIAWATHA NATIONAL FOREST, UP MICHIGAN**
- 182-40** 447 Ulbricht, Jenny B.*; Isbell, John L.: **PALEOENVIRONMENTAL ANALYSIS OF MESOPROTEROZOIC MICROBIAL MATS FROM THE COPPER HARBOR CONGLOMERATE, MICHIGAN: CONDITIONS THAT FAVORED THE DEVELOPMENT OF MICROBIAL COLONIZATION OF NON-MARINE ECOSYSTEMS**
- 182-41** 448 Blake, Elliot*; Lehrmann, Asmara; Welch, Bailey; Ray, Christopher J.; Sun, Kexin; Suarez, Marina B.; Godet, Alexis; Adams, Thomas; Lehrmann, Daniel: **SEDIMENTOLOGY AND STRATIGRAPHY OF A LOWER CRETACEOUS DINOSAUR TRACK SITE, HERITAGE MUSEUM OF THE TEXAS HILL COUNTRY, COMAL COUNTY, CENTRAL TEXAS**
- 182-42** 449 Chrpá, Michelle E.*; Raymond, Anne: **ECHINODERM OSSICLES IN PENNSYLVANIAN COAL BALLS: A PROXY FOR SEAWATER MG/CA RATIOS**
- 182-43** 450 Eckert, Andreas; Zhao, Wenyu*: **NUMERICAL SIMULATION OF OVERPRESSURE DURING SEDIMENTATION**
- 182-44** 451 Lowe, James B.*; Ahern, Justin P.; Fielding, Christopher R.: **STRATIGRAPHIC AND SEDIMENTOLOGIC CORRELATIONS BETWEEN SURFACE EXPOSURES AND SUBSURFACE INTERSECTIONS USING BULK AND SPECTRAL GAMMA RADIATION**
- 182-45** 452 Yu, Jiayi*; Eckert, Andreas: **NUMERICAL SIMULATION OF BASIN GEOMETRY INFLUENCE ON THE RESULTING STRESS PATH**
- 182-46** 453 Cohen, Hanna Fay*; Kaczmarek, Stephen: **EVALUATING THE EFFECTS OF FLUID NaCl AND KCl CONCENTRATIONS ON REACTION RATE, MAJOR CATION COMPOSITION, AND CATION ORDERING DURING HIGH-TEMPERATURE DOLOMITIZATION EXPERIMENTS**
- 182-47** 454 Denomme, Kathryn C.; Harazim, Dario*; Bentley, Samuel J.; Macquaker, Joe: **SEDIMENTOLOGICAL RECOGNITION CRITERIA FOR CURRENT-WAVE-ENHANCED SEDIMENT GRAVITY FLOWS (CWESGFS)**

SESSION NO. 183

T87. Fluvio-Deltaic Processes and Their Stratigraphic Record (Posters) (GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; SEPM (Society for Sedimentary Geology))

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 183-1** 455 King, M. Ryan*; Botterill, Scott E.; Gingras, Murray K.; Pemberton, S. George: **STRATIGRAPHIC PARTITIONING OF WAVE- AND RIVER-INFLUENCED DELTAIC FACIES UTILIZING ICHNOLOGY, FERRON SANDSTONE, UTAH**
- 183-2** 456 Bertoch, Austin*; Steeves, Blake; Hudson, Sam: **RESERVOIR ARCHITECTURE AND CONNECTIVITY OF THE TRAIL MEMBER FLUVIAL SANDSTONES, ERICSON SANDSTONE, MESAVERDE GROUP**
- 183-3** 457 Kaufman, Shaelynn N.*; Riebe, Clifford S.; McElroy, Brandon: **COSMOGENIC NUCLIDE DATING OF THE DELTAIC TERRACES ON THE SELENGA RIVER DELTA, LAKE BAIKAL, SIBERIA**
- 183-4** 458 McElroy, Brandon*; Shaw, John; Miller, Kim: **FORMATION OF ISLANDS ON DELTAS FROM RADIALY SYMMETRIC FLOW EXPANSION**
- 183-5** 459 Wu, Chenliang*; Nittrouer, Jeffrey A.; Burmeister, Kurtis C.: **IMPACTS OF VARIABLE CHANNEL HYDRAULICS ON THE STRATIGRAPHIC RECORD: AN EXAMPLE PROVIDED FROM THE TULLIG SANDSTONE, WESTERN IRISH NAMURIAN BASIN**
- 183-6** 460 Fitzgerald, Bailey L.*; Rodriguez, Sophia; Chamberlin, Ellen P.: **EVIDENCE FOR COMPLEX FLOODPLAIN MORPHODYNAMICS IN THE STRATIGRAPHIC RECORD: CHARACTERIZING FLOODPLAIN CHANNELS IN THE WASATCH FORMATION (PALEOCENE-EOCENE, COLORADO, USA)**
- 183-7** 461 Moore, Samantha*; Heise, Elizabeth A.; Grove, Marty J.: **LONGITUDINAL AND TEMPORAL COMPARISON OF BEACH SAND ON THE RIO GRANDE DELTA SYSTEM**
- 183-8** 462 Frederick, Bruce C.*; Blum, Mike D.; Roberts, Harry H.; Fillon, Richard H.: **LOWER MISSISSIPPI RIVER DELTA DEEP-SEATED SUBSIDENCE RATE DYNAMICS, BIAS, AND SPATIAL-TEMPORAL DEPOCENTER COMPLEXITIES THROUGH THE NEOGENE**
- 183-9** 463 Shaw, Ashok*; Wakefield, Oliver J.W.; Layek, Mrinal Kanti; Das, Prerona; Mukherjee, Abhijit; Sengupta, Probal; Finlayson, Andrew; Kumar, Mohit; Kumar, Ankur; Sen, Joy; Smith, Martin:

SUBSURFACE FLUVIAL DEPOSITIONAL ENVIRONMENT CHARACTERIZATION USING SEDIMENTOLOGICAL AND GEOPHYSICAL LOGS: A STUDY FROM THE ANCIENT CITY OF VARANASI, CENTRAL GANGETIC BASIN, INDIA

SESSION NO. 184

T89. The Dynamics of Tectono-Sedimentary Systems During Basin Formation and Fill (Posters) (GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; SEPM (Society for Sedimentary Geology))

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 184-1** 464 Osorio-Granada, Edward*; Restrepo-Moreno, Sergio A.; Muñoz-Valencia, Jaime; Trejos, Raul; Barbosa-Espitia, Ángel A.; Pardo-Trujillo, Andres: **DETRITAL ZIRCON TYPOLOGY AND U/PB GEOCHRONOLOGY FOR THE MIOCENE LADRILLEROS-JUANCHACO SEDIMENTARY SEQUENCE, EQUATORIAL PACIFIC (COLOMBIA): NEW CONSTRAINTS ON PROVENANCE AND PALEOGEOGRAPHY IN NORTHWESTERN SOUTH AMERICA**
- 184-2** 465 Cassidy, Colleen E.*; Crow, Ryan S.; Cohen, Andrew S.; Beard, L. Sue; Thacker, Jacob O.; Felger, Tracey J.; Pearthree, Philip A.; Howard, Keith A.; Gootee, Brian F.: **THE SUBSURFACE EXTENT OF THE BOUSE FORMATION IN THE LOWER COLORADO RIVER CORRIDOR AND POSSIBLE TECTONIC IMPLICATIONS**
- 184-3** 466 Di Fiori, Russell V.*; Long, Sean P.; Rafferty, Kevin C.; Snell, Kathryn E.; Bonde, Joshua W.; Vervoort, Jeff D.: **APTIAN-ALBIAN DEPOSITION WITHIN AN AXIALLY-DRAINED SYNTECTONIC BASIN IN THE SEVIER HINTERLAND IN NORTH-CENTRAL NEVADA: INSIGHTS FROM MAPPING AND U-PB GEOCHRONOLOGY FROM THE NEWARK CANYON FORMATION IN THE CORTEZ MOUNTAINS**
- 184-4** 467 Juárez-Arriaga, Edgar*; Lawton, Timothy F.; Stockli, Daniel F.; Ocampo Diaz, Yam Zul E.: **HIGH-FLUX VOLCANIC EVENTS OF SOUTHERN CORDILLERAN MAGMATIC ARC RECORDED IN FOREBULGE AND BACK-BULGE DEPOSITS OF THE NORTH MEXICAN FORELAND BASIN (LATE CRETACEOUS), NORTHEASTERN MEXICO**
- 184-5** 468 Loope, David B.*; Schmitt, James G.: **A PALEOGENE ANTECEDENT STREAM THAT BEVELED RISING, STEEPLY TILTED, CRETACEOUS STRATA ALONG THE EASTERN EDGE OF THE HANNA BASIN DURING LARAMIDE DEFORMATION**
- 184-6** 469 Mueller, Megan A.*; Licht, Alexis; Campbell, Clay; Oçakoğlu, Faruk; Taylor, Michael; Burch, Lauren; Coster, Pauline; Métais, Grégoire; Beard, K. Christopher: **CHRONOLOGY OF SUTURING AND POST-COLLISIONAL DEFORMATION OF THE ANATOLIAN OROGENY, TURKEY: INSIGHTS FROM GEOCHRONOLOGY AND SEDIMENTOLOGY OF THE SARICAKAYA BASIN, WESTERN ANATOLIA**
- 184-7** 470 Lease, Richard O.*; Houseknecht, David W.; Kylander-Clark, Andrew R.C.: **RAPID PROGRADATION AND 400 K.Y. PACING OF THE WORLD'S LARGEST FORELAND CLINOTHEM, CRETACEOUS ARCTIC ALASKA**
- 184-8** 471 Sample, Bret D.*; Cecil, M. Robinson; Heermance, Richard V.; Flowers, Michael: **DETRITAL ZIRCON ANALYSIS OF MIOCENE STRATA OF THE EL PASO BASIN, SOUTHERN CALIFORNIA, AND NEW CONSTRAINTS ON UPLIFT OF THE SOUTHERN SIERRA NEVADA**
- 184-9** 472 Santonja, Camila; Suriano, Julieta*; Bechis, Florencia; Encinas, Alfonso: **TECTONO-STRATIGRAPHIC EVOLUTION OF THE ÑIRIHUAU BASIN, NORTH PATAGONIAN ANDES**
- 184-10** 473 Suriano, Julieta*; Mahoney, Brian J.; Giambiagi, Laura B.; Aguilar, Andrea; Mescua, José; Lossada, Ana Clara; Buelow, Ellen K.; Kimbrough, David L.; Hoke, Gregory D.; Mazzitelli, Manuela Amelia; Gomez, Gustavo A.: **MULTIDISCIPLINARY STUDIES OF ANDEAN SYNOROGENIC DEPOSITS, UNRAVELING THE UPLIFT SEQUENCES IN THE TRANSITION ZONE BETWEEN FLAT AND NORMAL SUBDUCTION**

- 184-11** 474 Noda, Atsushi*; Sato, Daisuke: **FORMATION AND FILLING PROCESSES OF A FOREARC BASIN IN RESPONSE TO MIGRATION OF A TRIPLE JUNCTION: THE UPPER CRETACEOUS IZUMI GROUP, SOUTHWESTERN JAPAN**
- 184-12** 475 Zhang, Jingyu*; Wei, Wei; Liu, Xiaochen; Yu, Qi; Zhu, Xueying; Lei, Dingkun; Mao, Huawu: **CHARACTERISTICS OF LITHOFACIES PALAEOGEOGRAPHY AND SEDIMENTARY FILLING RESPONSE OF TRIASSIC IN TARIM BASIN**

SESSION NO. 185

T90. Advancing Seismic and Sequence Stratigraphy: Insights from Testing the Fundamentals (Posters) (GSA Environmental and Engineering Geology Division; GSA Energy Geology Division; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 185-1** 476 Zhang, Jingyu*; Wei, Wei; Shu, Yi; Zhu, Xueying; He, Ju: **ARCHITECTURE STYLES AND SEQUENCE STRATIGRAPHIC MODELS OF NIUBAO FORMATION SLOPE BREAK BELT IN LUNPOLA BASIN, CENTRAL TIBET**
- 185-2** 477 Henry, Candise L.*; Pratom, Lincoln: **UNDERSTANDING THE IMPACTS OF AUTOGENIC PROCESSES ON STRATAL ARCHITECTURE USING A 2D DIFFUSIVE SEDIMENT TRANSPORT MODEL**
- 185-3** 478 Matecha, Rebecca Miriam*: **3D SEISMIC REFLECTION INTERPRETATION OF IGNEOUS FEATURES IN PARIHAKA-3D, TARANAKI BASIN, NEW ZEALAND**
- 185-4** 479 Zhang, Chengcheng; Scholz, Christopher A.*; Harris, Ashley: **DEEP LACUSTRINE SEDIMENTARY FILLS IN MULTI-SEGMENT RIFT BASINS: INSIGHTS FROM 3D FORWARD MODELING**
- 185-5** 480 Baldwin, Kimberly E.*; Miller, Kenneth G.; Mountain, Gregory S.: **DELINEATING MID-CRETACEOUS SEISMIC AND WELL-LOG SEQUENCES TO ASSESS CARBON STORAGE POTENTIAL IN THE NORTHERN BALTIMORE CANYON TROUGH**
- 185-6** 481 Yang, Wan*: **APPLICATION OF THE "STANDARD" DEPOSITIONAL SEQUENCE MODEL AT A LACUSTRINE-FLUVIAL SETTING, UPPER-TRIASSIC ZHANGJIATAN SHALE, ORDOS FORELAND BASIN, CHINA**

SESSION NO. 186

T91. Chemostratigraphy: Environments, Correlation, and Time (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 186-1** 482 Fluegeman, Richard H.*; Brett, Carlton E.; Pratt, Brian R.: **CHEMOSTRATIGRAPHY AND THE NORTH AMERICAN STRATIGRAPHIC CODE: IS THERE A REASON FOR FORMAL UNITS?**
- 186-2** 483 McLaughlin, Patrick I.*; Brett, Carlton E.; Emsbo, Poul; Bancroft, Alyssa M.: **CHEMOSTRATIGRAPHIC CALIBRATION OF TIME-ROCK CORRELATION: A NEW LEVEL OF ACCURACY FOR SEQUENCE STRATIGRAPHY**
- 186-3** 484 Barnes, B. Davis*; Zambito, James; Peters, Shanan E.: **A MULTI-PROXY GEOCHEMICAL APPROACH TO IDENTIFYING THE HANGENBERG CRISIS IN THE BAKKEN FORMATION, WILLISTON BASIN, USA**
- 186-4** 485 Zambito, James J.*; McLaughlin, Patrick I.; Haas, Lisa D.; Niemisto, Erin N.; Stewart, Esther K.: **OH WHERE, OH WHERE IS THE EAU CLAIRE? USING PXRF ELEMENTAL ANALYSIS TO IDENTIFY CHEMOSTRATIGRAPHIC UNITS IN A VISUALLY MONOTONOUS QUARTZ SANDSTONE SUCCESSION**
- 186-5** 486 Rust, Tyler J.*; Miserendino, Daniel R.; Pietras, Jeffrey T.; Graney, Joseph R.: **CHARACTERIZING UTICA SHALE DEPOSITIONAL PROCESSES USING PORTABLE XRF ANALYSES AND POSITIVE MATRIX FACTORIZATION**

- 186-6** 487 Oborny, Stephan C.*; Bancroft, Alyssa M.; Brett, Carlton E.; Cramer, Bradley D.: **USING HIGH-RESOLUTION EVENT STRATIGRAPHY (HIRES) TO REVISE THE CHRONOSTRATIGRAPHIC CORRELATION OF WENLOCK-PRIDOLI (SILURIAN) STRATA OF THE CENTRAL AND WESTERN APPALACHIAN FORELAND BASIN (OHIO, WEST VIRGINIA, VIRGINIA)**
- 186-7** 488 Danielsen, Erika M.*; Cramer, Bradley D.; Kleffner, Mark A.: **HIGH-RESOLUTION CHRONOSTRATIGRAPHIC CORRELATION OF UPPER HOMERIAN (SILURIAN) STRATA DURING THE MULDE EVENT, MIDCONTINENT, USA**
- 186-8** 489 Frýda, Jiří*; Frýdová, Barbora: **SILURIAN CARBON ISOTOPE CHEMOSTRATIGRAPHY: NEW DATA FROM MID PALAEO-LATITUDES OF NORTHERN PERI-GONDWANA**
- 186-9** 490 Frýda, Jiří*; Frýdová, Barbora: **FIRST PAIRED CARBONATE-CARBON AND ORGANIC CARBON ISOTOPE RECORDS ACROSS THE LUDFORDIAN (LATE SILURIAN) SUGGEST ELEVATED PCO₂ BEFORE THE LARGEST PHANEROZOIC CARBON ISOTOPE ANOMALY**
- 186-10** 491 LaBounty, Deirdre*; Whalen, Michael T.: **MICROFACIES AND TRACE ELEMENT VARIATION ACROSS THE FRASNIAN PUNCTATA EVENT WITHIN THE BEAR BILTMORE DRILL CORE (ALBERTA, CANADA)**
- 186-11** 492 Koons, Rachel C.*; Stebbins, Alan G.; Darrah, Thomas; Williams, Jeremy C.: **UTILIZING DOP TO UNDERSTAND DISCREPANCIES IN TOTAL ORGANIC CONTENT IN THE MARCELLUS FORMATION**
- 186-12** 493 Clark, Ryan J.*; Stofius, Brittany M.; Cramer, Bradley D.; Day, James E.; Witzke, Brian J.; Tassier-Surine, Stepanie: **REVISITING THE DEVONIAN-CARBONIFEROUS BOUNDARY INTERVAL IN THE U.S. MIDCONTINENT: TYPE KINDERHOOKIAN AREA OF ILLINOIS, MISSOURI, AND IOWA**
- 186-13** 494 Gill, Karena*; King, David T.: **SEDIMENTARY PETROLOGY AND STRONTIUM ISOTOPE STRATIGRAPHY WITHIN THE COROZAL BASIN, NORTHERN BELIZE**
- 186-14** 495 Scott, Robert W.*: **METHODOLOGY TO CALIBRATE NUMERICAL AGES FOR CARBON ISOTOPE EVENTS: BARREMIAN-ALBIAN**
- 186-15** 496 Valencia, Daniel*; Basu, Asish: **GEOCHEMICAL AND GEOCHRONOLOGICAL ANALYSIS OF THE CENOMANIAN-TURONIAN OCEANIC ANOXIC EVENT (OAE-2), IN MUDROCKS OF SUBSURFACE SOUTH TEXAS**
- 186-16** 497 Washburn, Alex M.*; Hudson, Samuel M.: **APPLICATION OF CHEMOSTRATIGRAPHY AND RE-OS GEOCHRONOLOGY TO THE MAIKOP SERIES OF EASTERN AZERBAIJAN: CONSTRAINING KURA AND SOUTH CASPIAN BASIN EVOLUTION**
- 186-17** 498 Kawamura, Kiichiro*: **MICROPLASTICS: DIFFUSION INTO OCEAN FLOORS AND METHODOLOGY FOR AGE DETERMINATION**

SESSION NO. 187

T92. Tectonics and Sedimentation, Avulsion, and Experimental Stratigraphy, and History of Western North America: A Celebration of Paul Heller's Career (Posters) (GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division; SEPM (Society for Sedimentary Geology))

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 187-1** 499 Leier, Andrew*; Leckie, Dale A.; Currie, Lisel; Rubino, Erica; Barbeau, David L.; Drayton, Devyn; Henrick, Jayne: **POST-OROGENIC GRAVEL TRANSPORT AND THE DETRITAL ZIRCON PROVENANCE OF CENOZOIC FLUVIAL CONGLOMERATES ON THE CANADIAN PLAINS**

- 187-2** 500 Dechesne, Marieke*; Trexler, James H.; Cole, James C.; Cashman, Patricia H.; West, Jenna M.: **TECTONIC AND CLIMATIC INFLUENCES AND REGIONAL PALEOGEOGRAPHY SPANNING THE PALEOCENE – EOCENE BOUNDARY IN THE NORTH PARK – MIDDLE PARK BASIN, COLORADO**
- 187-3** 501 Baykut, Tanyel*; Koral, Hayrettin; Öngen, İzver Özkar: **HOW CAN CONTINENTAL COLLISION AFFECT TO DEPOSITIONAL SETTINGS: A REVIEW FOR GEOLOGICAL EVOLUTION OF THE SOUTHERN SAKARYA BASIN, NW TURKEY**
- 187-4** 502 Lamb, Melissa A.*; Beard, L. Sue; Dragos, Malia; Hanson, Andrew D.; Hickson, Thomas A.; Umhoefer, Paul J.; Karlstrom, Karl E.; Sitton, Mark E.; Dunbar, Nelia; McIntosh, William: **PROVENANCE AND PALEOGEOGRAPHY OF THE RAINBOW GARDEN FORMATION AND COEVAL DEPOSITS: STRATIGRAPHIC EVIDENCE FOR TECTONIC ACTIVITY AT -19 MA AND INTERNAL DRAINAGE INSTEAD OF THROUGHGOING PALEORIVERS ON THE SOUTHWESTERN COLORADO PLATEAU**
- 187-5** 503 King, Meghan E.*; Sutfin, Nicholas A.; Rowland, Joel C.: **STRATIGRAPHY OF ABANDONED CHANNELS: INFERRING RATES AND FLOW CONDITIONS USING DEPOSITIONAL SEQUENCES OF CHANNEL FILL ALONG THE FLOODPLAIN OF THE EAST RIVER, CO**
- 187-6** 504 Kent, Bryan A.P.; Huang, Chuqiao*; Dashtgard, Shahin E.; Gibson, H. Daniel: **A SEQUENCE STRATIGRAPHIC FRAMEWORK FOR TERRESTRIAL TO SHALLOW MARINE STRATA OF THE LOWER NANAIMO GROUP, VANCOUVER ISLAND, CANADA**

SESSION NO. 188

T234. What Are the Conditions That Lead to Detachment Faulting? (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM
Booth #

- 188-1** 505 Sizemore, Travis M.*; Cemen, Ibrahim; Wielicki, Matthew; Stockli, Daniel F.; Heizler, Matthew; Lutz, Brandon: **THERMOKINEMATIC HISTORY OF THE BADWATER TURTLEBACK IN DEATH VALLEY, CALIFORNIA**
- 188-2** 506 Qiu, Liang*; Yan, Dan-Ping; Tang, Shuang-Li; Zhang, Yi-Xi; Song, Zhi-Dong; Chen, Feng: **CARBONIFEROUS FORMATION OF THE MOTIANLING EXTENSIONAL DOME (SW CHINA): STRUCTURAL AND THERMOCHRONOLOGICAL CONSTRAINTS**
- 188-3** 507 Borel, Megan*; Gottardi, Raphael; Casale, Gabriele: **A GEOTHERMOCHRONOLOGIC INVESTIGATION OF THE COYOTE MOUNTAINS METAMORPHIC CORE COMPLEX (AZ)**
- 188-4** 508 Prior, Michael G.*; Stockli, Daniel F.; Singleton, John S.: **A SYNTHESIS OF THE YOUNGEST DETACHMENT FAULT-RELATED COOLING AGES IN THE LOWER COLORADO RIVER EXTENSIONAL CORRIDOR: SIMILARITIES AND DIFFERENCES BETWEEN THE THERMAL HISTORY OF METAMORPHIC CORE COMPLEXES**
- 188-5** 509 Ellsworth, G. Graham*; Bartholomew, Mervin J.: **JOINTS RELATIONSHIPS: ASSESSMENT OF ROTATION WHILE SLIDING OF THE HEART MOUNTAIN DETACHMENT AND DEVELOPMENT OF RELIEF AT DEAD INDIAN HILL, WYOMING**
- 188-6** 510 Koppens, Kohl M.*; Gottardi, Raphael: **PETROLOGIC CONSTRAINTS ON THE EXHUMATION OF THE SIERRA BLANCA METAMORPHIC CORE COMPLEX (AZ)**
- 188-7** 511 Prior, Michael G.*; Hayman, Nicholas W.; Lima, Rodrigo; Stockli, Daniel F.: **MULTIPLE ZIRCON CRYSTALLIZATION EVENTS WITHIN THE BLACK MOUNTAINS, DEATH VALLEY CALIFORNIA; NEW INSIGHTS FROM LA-ICPMS U-PB DEPTH-PROFILING**

TUESDAY, 24 OCTOBER 2017

**MORNING
ORAL TECHNICAL SESSIONS**

SESSION NO. 189

D5. Cave and Karst Processes, Hazards, and Monitoring

8:00 AM, Washington State Convention Center, Room 612

R. Laurence Davis, Suleyman Selim Calli and Jacob Alexander Gochenour, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 189-1 8:05 AM Ford, Derek C.*: **MAHONY AND TUNAGO, ADJOINING BUT CONTRASTED KARST PLATEAUS IN THE NORTHWEST TERRITORIES OF CANADA**
- 189-2 8:20 AM Steinmann, Hali J.*: **KARST GEOMORPHOLOGY OF THE UPPER-MISSISSIPPIAN PENNINGTON FORMATION, SAVAGE GULF STATE NATURAL AREA, TENNESSEE**
- 189-3 8:35 AM Ramsey, Carol L.*; Griffiths, Paul A.; Stokes, Tim R.: **LAND USE DISTURBANCE PATTERNS IN A BINARY RECHARGE KARST CATCHMENT: THE EXAMPLE OF NORTHERN VANCOUVER ISLAND'S KINMAN KARST UNIT**
- 189-4 8:50 AM Panno, Samuel V.*; Luman, Donald E.: **CHARACTERIZATION OF COVER-COLLAPSE SINKHOLE MORPHOLOGY ON A GROUNDWATER BASIN-WIDE SCALE USING LIDAR ELEVATION DATA: A NEW CONCEPTUAL MODEL FOR SINKHOLE EVOLUTION**
- 189-5 9:05 AM Kromhout, Clint*: **THE FAVORABILITY OF FLORIDA'S GEOLOGY TO SINKHOLE FORMATION**
- 189-6 9:20 AM Malaska, Michael J.*; Mitchell, Karl L.: **PREDICTING CAVE FORMATIONS IN SATURN'S MOON TITAN**
- 9:35 AM **BREAK**
- 189-7 9:50 AM Kidanu, Shishay*; Torgashov, Evgeniy; Anderson, Neil: **3D ERT IMAGING OF SUBSURFACE STRUCTURE OF A SINKHOLE IN GREENE COUNTY, MISSOURI**
- 189-8 10:05 AM Gochenour, Jacob Alexander*; Admassu, Yonathan: **APPLYING DISCRIMINANT ANALYSIS TOWARDS AUTOMATED SINKHOLE MAPPING METHODS**
- 189-9 10:20 AM Land, Lewis*: **SINKHOLES AS TRANSPORTATION GEOHAZARDS IN MIXED EVAPORITE-SILICICLASTIC BEDROCK, SOUTHEASTERN NEW MEXICO**
- 189-10 10:35 AM Davis, R. Laurence*: **KARST HYDROLOGY ON SAN SALVADOR ISLAND, BAHAMAS: A SUMMARY OF THE RESULTS OF 31 YEARS OF RESEARCH**
- 189-11 10:50 AM Ferrari, José Antonio*; Calux, Allan; Hiruma, Silvio Takashi; Armani, Gustavo; Karmann, Ivo: **PRELIMINARY CHARACTERIZATION OF BINARY KARST AQUIFERS WITH TRACER TESTS AND TIME SERIES ANALYSIS**
- 189-12 11:05 AM Donovan, Joseph J.*; Rega, Kevin: **GROUNDWATER POTENTIAL IN THE HELDERBERG-TONOLOWAY LIMESTONE, KNOBLEY MOUNTAIN, WILLS CREEK ANTICLINE, WEST VIRGINIA**
- 189-13 11:20 AM Muldoon, Maureen A.*; Hunt, Randall J.; Owens, David; Borchardt, Mark; Firnstahl, Aaron; Stokdyk, Joel; Spencer, Susan K.: **USING AUTOSAMPLER MONITORING TO DETERMINE THE TIMING OF ENTERIC PATHOGEN CONTAMINATION OF THE FRACTURED SILURIAN AQUIFER, NORTHEASTERN WI**

SESSION NO. 190

D9. Paleontology, Conservation Paleobiology

8:00 AM, Washington State Convention Center, Room 604

Kristopher M. Kusnerik and Rowan Lockwood, Presiding

- 190-1 8:00 AM Kusnerik, Kristopher M.*; Means, Guy; Portell, Roger W.; Kowalewski, Michal: **TRACKING CHANGES IN THE HISTORICAL ECOLOGY OF FLORIDA'S RIVERS USING RECENT AND FOSSIL FRESHWATER MOLLUSKS**
- 190-2 8:15 AM Kowalewski, Michal*; Kusnerik, Kristopher M.; Bemis, Amanda; Slapcinsky, John D.; Paulay, Gustav: **RECONSTRUCTING HISTORICAL ECOLOGY OF KANE'OHE BAY (HAWAII) USING SURFICIAL MOLLUSK-DOMINATED SHELL ACCUMULATIONS**
- 190-3 8:30 AM Zuschin, Martin*; Gallmetzer, Ivo; Haselmaier, Alexandra; Stachowitsch, Michael; Tomasovych, Adam: **NATURAL ENVIRONMENTAL CHANGES VERSUS ANTHROPOGENIC IMPACT IN THE NORTHERN ADRIATIC SEA DURING THE HOLOCENE TRANSGRESSION**
- 190-4 8:45 AM Brown, Garrett M.*; Larina, Ekaterina: **BEYOND WATER DEPTH: ENVIRONMENTAL CONTROLS ON SHALLOW SUBTIDAL MOLLUSCAN DEATH ASSEMBLAGE COMPOSITIONS ON SAN SALVADOR ISLAND, THE BAHAMAS**
- 9:00 AM **BREAK**
- 190-5 9:15 AM Khan, Tasnuva Ming*; Anderson, Brendan M.; Allmon, Warren; Stilwell, Jeffrey D.: **PALEOENVIRONMENTAL INTERPRETATION OF TURRITELLINE GASTROPOD-DOMINATED ASSEMBLAGES FROM THE LA MESETA FORMATION (UPPER EOCENE), SEYMOUR ISLAND, ANTARCTICA**
- 190-6 9:30 AM Thompson, Carmi Milagros; Lockwood, Rowan*; Ramsey, Kelvin W.: **MOLLUSCAN PALEOECOLOGY AND SUBSTRATE AFFINITIES ON THE MID-ATLANTIC CONTINENTAL SHELF**
- 190-7 9:45 AM Killam, Daniel*; Clapham, Matthew E.: **POLLUTION, GROWTH RATES, AND CONSERVATION OF RED SEA GIANT CLAMS USING ISOTOPE SCLEROCHRONOLOGY**
- 190-8 10:00 AM Ruga, Mikaela R.*; Huntley, John Warren: **CONCH FRITTERS THROUGH TIME: HUMAN PREDATION AND POPULATION DEMOGRAPHICS OF STROMBUS GIGAS, SAN SALVADOR ISLAND, THE BAHAMAS**
- 190-9 10:15 AM Edelman-Furstenberg, Yael*; Kidwell, Susan M.; Gilad, Ehud; Benayahu, Yehuda: **UNSUSPECTED LOSS OF SEAGRASS COMMUNITIES BASED ON MOLLUSCAN DEATH ASSEMBLAGES: HISTORIC BASELINE SHIFT IN THE TROPICAL GULF OF EILAT (AQABA), RED SEA**
- 10:30 AM **BREAK**
- 190-10 10:45 AM Tennakoon, Shamindri Dinusha*; Lindberg, William; Kowalewski, Michal: **MOLLUSK DEATH ASSEMBLAGES AS A BASELINE FOR ASSESSING COMMUNITY SHIFTS IN ARTIFICIAL REEFS: A COMPARISON OF DEAD AND LIVING MOLLUSK ASSEMBLAGES IN THE SUWANNEE REGIONAL REEF SYSTEM, FLORIDA**
- 190-11 11:00 AM Kidwell, Susan M.*; Meadows, Caitlin A.; Lowe, Christopher J.; Lyons, Shirley; Macdonald, Tara A.; Esquivel, Kenzo; Haraldsdottir, Eva; Vishny, David: **USING BIVALVE LIVE-DEAD MISMATCH TO EVALUATE THE FOOTPRINT OF MUNICIPAL WASTEWATER IN MARINE WATERS, VICTORIA, BRITISH COLUMBIA**
- 190-12 11:15 AM Meadows, Caitlin A.*: **HIGH-LATITUDE, BIOMASS, AND RECENT CLIMATE CHANGE: TESTING THE POWER OF LIVE DEAD DISCORDANCE IN THE PACIFIC ARCTIC**
- 190-13 11:30 AM Zimmt, Joshua B.*; Kidwell, Susan M.; Lockwood, Rowan; Thirlwall, Matthew: **ESTIMATING THE DURATION OF STRATIGRAPHICALLY CONDENSED MIOCENE MARINE SHELL BEDS USING STRONTIUM ISOTOPE**

AM
TUESDAY

STRATIGRAPHY (CALVERT CLIFFS, MD): IMPLICATIONS FOR PALEOECOLOGICAL ANALYSIS

190-14 11:45 AM Kelley, Patricia H.*; Dietl, Gregory P.; Visaggi, Christy C.: **TRAINING TOMORROW'S CONSERVATION PALEOBIOLOGISTS TO FUNCTION EFFECTIVELY IN THE CONSERVATION WORLD**

SESSION NO. 191

D40. Structural Geology and Tectonics: Advances in Understanding Fault Systems, Plate Boundaries and Deformation: Observations and Experiments

8:00 AM, The Conference Center, Tahoma 3

Mattathias D. Needle and Veronica Sanchez, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 191-1 8:05 AM Subia, Tai Antonia*; Pavlis, Terry L.; Brunner, Benjamin: **CARBONATE UNITS IN SURPRISE CANYON – A KEY TO UNDERSTANDING THE TECTONIC PAST OF THE PANAMINT MOUNTAINS**
- 191-2 8:20 AM Hamilton, Matt*; Evans, Stacey; Engel, Michael; Elmore, Douglas: **EVIDENCE FOR DEEP FLUID PENETRATION INTO THE PRECAMBRIAN BASEMENT, OKLAHOMA**
- 191-3 8:35 AM Moskalenko, Artem*: **PALEOSTRESS ESTIMATION BY FAULT KINEMATIC ANALYSIS BASED ON 3D SEISMIC DATA**
- 191-4 8:50 AM Sanchez, Veronica*; Quisenberry, James; Alarcon-Canto, Felipe; Krnavek, Joshua: **STRUCTURAL ANALYSES OF THE TASCOTAL MESA FAULT, CHRISTMAS MTS., WEST TEXAS**
- 191-5 9:05 AM Sun, Ke*; Chen, Qinghua; Liu, Yin; Zhang, Jingjing: **3D GEOMETRIC AND KINEMATICS CHARACTERISTICS OF A SEGMENTED NORMAL FAULT ZONE: A CASE STUDY FROM THE GAOQING-PINGNAN FAULT ZONE OF WESTERN DONGYING DEPRESSION, BOHAI BAY BASIN, CHINA**
- 191-6 9:20 AM Liu, Yiduo A.*; Murphy, Michael A.; van Wijk, Jolante; Andrea, Ross A.: **RIFT INITIATION AND EVOLUTION RECORDED IN THE OBLIQUE TUSAS-ABIQUIU SEGMENT OF THE RIO GRANDE RIFT, NORTH-CENTRAL NEW MEXICO**
- 191-7 9:35 AM Eling, Reece P.*; Stein, Carol A.; Stein, Seth; Kley, Jonas; Keller, G. Randy; Wysession, Michael: **THE MIDCONTINENT RIFT: A RIFT-LIP HYBRID**
- 9:50 AM **BREAK**
- 191-8 10:05 AM Wilkinson, Bruce*; McElroy, Brandon; Drummond, Carl: **BROKEN SHEETS – ON THE NUMBERS AND AREAS OF TECTONIC PLATES AND OTHER TILES**
- 191-9 10:20 AM Bahadori, Alireza*; Holt, William E.; Rasbury, Troy: **MODELING THE DEFORMATION EVOLUTION OF THE WESTERN U.S. BASIN AND RANGE PROVINCE WITHIN THE PACIFIC-NORTH AMERICA PLATE BOUNDARY ZONE SINCE 36 MILLION YEARS AGO**
- 191-10 10:35 AM Hatem, Alexandra Elise*; Dolan, James F.: **A MODEL FOR THE INITIATION, EVOLUTION, AND CONTINUED ACTIVITY OF THE GARLOCK FAULT, CALIFORNIA**
- 191-11 10:50 AM Cooke, Michele L.*; Toeneboehn, Kevin; Beyer, Jennifer L.: **DEVELOPMENT OF NON-STEADY STATE SLIP PARTITIONING UNDER OBLIQUE CONVERGENCE (Invited Presentation)**
- 191-12 11:10 AM Burberry, Caroline M.*; Lathrop, Bailey A.; Richardson, Claire R.: **USING PENETRATIVE STRAIN AND STRAIN PARTITIONING TO RESOLVE THE “MISSING SHORTENING” PROBLEM: INSIGHTS FROM ANALOG MODELS (Invited Presentation)**
- 191-13 11:30 AM Birren, Thomas*; Reber, Jacqueline E.: **EXPERIMENTAL ANALYSIS OF SEMI-BRITTLE RHEOLOGY: IMPLICATIONS FOR STRAIN TRANSIENTS**
- 11:45 AM **CONCLUDING REMARKS**

SESSION NO. 192

P3. IODP-ICDP Expedition 364 to the Chicxulub Impact Crater (GSA Planetary Geology Division; GSA Geophysics Division; International Continental Scientific Drilling Program (ICDP); European Consortium for Ocean Research Drilling (IODP-ECORD); Lunar and Planetary Institute (LPI))

8:00 AM, Washington State Convention Center, Ballroom 6A

David A. Kring and Philippe Claeys, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 192-1 8:05 AM Rae, Auriol S.P.*; Poelchau, Michael H.; Riller, Ulrich; Lofi, Johanna; Diaw, Abdoulaye; Collins, Gareth S.; Grieve, Richard A.F.; Osinski, Gordon R.; Morgan, Joanna V.; Expedition 364 Scientists, IODP-ICDP: **THE HISTORY OF DEFORMATION DURING PEAK-RING EMPLACEMENT: LINKING OBSERVATIONS WITH MODELS**
- 192-2 8:25 AM Kring, David A.*; Schmieder, Martin; Riller, Ulrich; Simpson, Sarah L.; Osinski, Gordon R.; Cockell, Charles; Coolen, Marco J.L.; Expedition 364 Scientists, IODP-ICDP: **PROBING A POST-IMPACT HYDROTHERMAL SYSTEM IN THE CHICXULUB CRATER WITH CORE RECOVERED BY IODP-ICDP EXPEDITION 364**
- 192-3 8:45 AM Morgan, Joanna*; Artemieva, Natalia; Gulick, Sean S.P.; Collins, Gareth: **THE RELEASE OF CLIMATIC GASES BY THE CHICXULUB IMPACT**
- 192-4 9:05 AM Claeys, Philippe*; de Winter, Niels J.; Goderis, Steven; Sinnesael, Matthias; Wittmann, Axel; Smit, Jan: **THE UPPER PART OF THE SUEVITE AND INTERMEDIATE LAYER AT SITE M0077A, IODP-ICDP EXPEDITION 364 INTO THE PEAK RING OF THE CHICXULUB CRATER (YUCATAN, MEXICO)**
- 192-5 9:25 AM Gulick, Sean*; Hall, Brendon; Rae, Auriol S.P.; Ormo, Jens; Morgan, Joanna V.; Bralower, Timothy J.; Lowery, Christopher; Christeson, Gail L.; Whalen, Michael T.; Claeys, Philippe; Goto, Kazuhisa; Scientists, Expedition 364: **FIRST DAY OF THE CENOZOIC: PROCESSES RECORDED WITHIN THE CHICXULUB CRATER AT IODP-ICDP SITE M0077**
- 192-6 9:45 AM Whalen, Michael T.*; Bralower, Timothy; Gulick, Sean S.P.; Morgan, Joanna V.; Lowery, Christopher M.; Rodríguez-Tovar, Francisco; IODP Expedition 364, Science Party Members: **SEDIMENTOLOGIC AND STABLE ISOTOPIC EVIDENCE FOR RAPID POST-IMPACT SEDIMENTATION IN THE CHICXULUB IMPACT CRATER**
- 192-7 10:05 AM Bralower, Timothy J.*; Whalen, Michael T.; Lowery, Christopher M.; Gulick, Sean; Jones, Heather; Morgan, Joanna V.; Rodríguez-Tovar, Francisco J.; Smit, Jan; Vajda, Vivi; Wittmann, Axel; Farley, Kenneth A.; Passey, Benjamin H.; Zachos, James C.; Science Party Members, Leg 364: **THE “TRANSITIONAL LAYER”: AN EVENT BED THAT REPRESENTS THE IMMEDIATE AFTERMATH OF THE CHICXULUB IMPACT**
- 192-8 10:25 AM Smit, Jan*; Claeys, Philippe; Lowery, Christopher: **ISOLATED DEEP-WATER MAASTRICHTIAN PLANKTONIC FORAMINIFERS OF THE RESURGE BRECCIA AND SETTLING LAYER OF IODP-ICDP EXP364 HOLE M0077A IN THE CHICXULUB CRATER**
- 192-9 10:45 AM Jones, Heather L.*; Bralower, Timothy J.; Lowery, Christopher M.; Smit, Jan; IODP-ICDP, Expedition 364 Scientists: **DELAYED CALCAREOUS NANNOPLANKTON RECOVERY IN THE K/PG IMPACT CRATER: PRELIMINARY RESULTS FROM IODP-ICDP EXPEDITION 364**
- 192-10 11:05 AM Vellekoop, Johan*; Smit, Jan; Sluijs, Appy; Claeys, Philippe; Expedition 364 Scientists, IODP-ICDP: **SYN- OR POSTDEPOSITIONAL DEGRADATION OF PALYNOMORPHS IN THE CHICXULUB POST-IMPACT CRATER FILL, A CONSEQUENCE OF HYDROTHERMAL VENTING?**

192-11 11:25 AM Lowery, Christopher*; Jones, Heather L.; Bralower, Timothy J.; Smit, Jan; Rodriguez-Tovar, Francisco J.; Whalen, Michael T.; Owens, Jeremy D.; Expedition 364 Scientists, IODP-ICDP: **THE RECOVERY OF LIFE AT GROUND ZERO**

11:45 AM CONCLUDING REMARKS

SESSION NO. 193 

T4. Approaches to Applied Modeling for Industry and the Public (GSA Hydrogeology Division; GSA Geology and Society Division; National Ground Water Association (NGWA); GSA Environmental and Engineering Geology Division)

8:00 AM, Washington State Convention Center, Room 613/614

Randy Hunt, Henk Haitjema and Jordan Read, Presiding

8:00 AM **INTRODUCTORY REMARKS**

193-1 8:15 AM Pierce, Suzanne A.*: **THE MODEL IS NOT THE DESTINATION: A 10 POINT CHECKLIST FOR GETTING MODELS OFF THE SHELF AND INTO PRACTICE WITH PARTICIPATORY PROCESSES AND ARTIFICIAL INTELLIGENCE (Invited Presentation)**

193-2 8:35 AM Habel, Shellie L.*; Fletcher, Charles H.; Rotzoll, Kolja; El-Kadi, Aly: **COMPARISON OF BATHTUB MODELING WITH SIMULATION OF SEA LEVEL RISE INDUCED GROUNDWATER INUNDATION**

193-3 8:50 AM Sukop, Michael C.*; Rogers, Martina; Gaunel, Greg; Infanti, Johanna; Hagemann, Katherine: **HIGH TEMPORAL RESOLUTION MODELING OF THE IMPACT OF RAIN, TIDES, AND SEA LEVEL RISE ON WATER TABLE FLOODING IN THE ARCH CREEK BASIN, MIAMI-DADE COUNTY FLORIDA USA**

193-4 9:05 AM Liu, Yue*; Weisbrod, Noam; Yakirevich, Alexander: **COMPARATIVE STUDY OF METHODS FOR DELINEATING WELLHEAD PROTECTION AREA IN UNCONFINED COASTAL AQUIFER**

193-5 9:20 AM McConville, Marlena R.*; Murray, Kyle E.: **CALIBRATED MODELING OF PRESSURE PROPAGATION IN THE ARBUCKLE GROUP FROM SALTWATER DISPOSAL IN OKLAHOMA**

193-6 9:35 AM Whittemore, Donald O.*; Butler, James J.; Wilson, B. Brownie: **SIMPLE WATER-BALANCE MODELING APPROACH FOR HIGH PLAINS AQUIFER MANAGEMENT**

9:50 AM **BREAK**

193-7 10:05 AM Zwart, Jacob Aaron*: **SPATIALLY-EXPLICIT SCALING OF REGIONAL LAKE CARBON FLUXES (Invited Presentation)**

193-8 10:25 AM Erickson, Melinda L.*; Elliott, Sarah M.; Christenson, Catherine A.: **PREDICTING ARSENIC IN DRINKING WATER WELLS IN GLACIAL AQUIFERS IN WESTERN AND CENTRAL MINNESOTA, USA**

193-9 10:40 AM Johnson, Peter*; Stauffer, Philip H.; Bourret, Michelle; Zvyoloski, George A.: **IMPLEMENTATION OF A DYNAMIC CAPILLARY SUCTION MODEL FOR NUMERICAL MODELING OF UNSATURATED SYSTEMS WITH CHANGING POROSITY**

193-10 10:55 AM Wahi, Arun K.*; Senger, Rainer; Hasan, Nazmul; Lee, Kearn P.: **REDISTRIBUTION OF INFILTRATION BY A LARGE LANDFILL IN A SEMIARID ENVIRONMENT AND EFFECT ON WATER AND CONTAMINANT MIGRATION IN A THICK VADOSE ZONE**

193-11 11:10 AM Egenolf, Evan*: **MODELING NOVEL PLUME MANIPULATIONS STRATEGIES: ENGINEERED FLUID BARRIERS UTILIZING DENSE BRINE WASTE STREAMS, FLUE GAS, AND PURE CO₂ INJECTANTS**

193-12 11:25 AM Andrews, Charles B.*: **COUNTING ANGELS ON THE HEAD OF A PIN -- GROUNDWATER MODELING IN THE TRENCHES (Invited Presentation)**

11:45 AM **DISCUSSION**

SESSION NO. 194 

T10. Groundwater Influenced Ecosystems: Springs, Gaining Streams, and Terrestrial Ecosystems (GSA Hydrogeology Division; GSA Karst Division; GSA Geobiology & Geomicrobiology Division)

8:00 AM, Washington State Convention Center, Room 615/616/617

Brad David Wolaver, Laura J. Crossey, Rebecca J. Frus and Steven P. Loheide II, Presiding

8:00 AM **INTRODUCTORY REMARKS**

194-1 8:10 AM Zhu, Yonghui*; Zhan, Hongbin; Burns, Erick; Jin, Menggui; Manga, Michael; Ingebritsen, Steven E.: **UNDERSTANDING TRANSPORT IN DIFFUSION-LIMITED SYSTEMS**

194-2 8:25 AM Stewart-Maddox, Noah*; Frisbee, Marty D.; Andronicos, Christopher L.; Genevoux, David P.; Meyers, Zachary P.: **USING THE GEOCHEMICAL KINETICS AND ⁸⁷SR/⁸⁶SR RATIOS OF A COMPLEX REWORKED AQUIFER TO IDENTIFY THE REGIONAL EXTENT OF INTERBASIN GROUNDWATER FLOW AND ITS IMPACT ON REGIONAL BASEFLOW GENERATION**

194-3 8:40 AM Belcher, Wayne R.*; Sweetkind, Donald S.; Hopkins, Candice; Poff, Megan E.: **HYDROGEOLOGIC CONCEPTUALIZATION OF THE GROUNDWATER SYSTEM OF TECOPA BASIN, CALIFORNIA**

194-4 8:55 AM McGibbon, Chris*; Crossey, Laura J.; Karlstrom, Karl; Person, Mark: **BASELINE MONITORING AND USE OF NATURAL TRACERS IN GRAND CANYON SPRINGS**

194-5 9:10 AM Robertson, Wendy M.*; Allen, John; Wolaver, Brad David; Hewett, Brent; Sharp, John M.: **RESPONSE OF WATER QUALITY IN SAN SOLOMON SPRINGS TO MESOSCALE PRECIPITATION EVENTS: IMPLICATIONS FOR GROUNDWATER SUSTAINABILITY AND HEALTH OF AQUATIC ECOSYSTEMS IN TRANS-PECOS, TX, USA**

194-6 9:25 AM French, Larry*; Anaya, Roberto; Weinberg, Andrew: **GROUNDWATER MANAGEMENT IN TEXAS: CONSIDERING FLOWS TO SPRINGS AND STREAMS**

194-7 9:40 AM Urbanczyk, Kevin*; Bennett, Jeffery: **THE RIO GRANDE WILD AND SCENIC RIVER - A GROUNDWATER DEPENDENT ECOSYSTEM**

9:55 AM **BREAK**

194-8 10:10 AM Springer, Abraham E.*; Stevens, Lawrence E.; Ledbetter, Jeri: **THE IMPORTANCE OF SPRINGS AS ECOSYSTEMS AND IN LANDSCAPE CONSERVATION PLANNING (Invited Presentation)**

194-9 10:30 AM Miller, Gretchen R.*; Saville, Cody; Gou, Si; Swilley, Jackson: **MODELING GROUNDWATER USE BY PHREATOPHYTES: FROM SIMPLE TO COMPLEX APPROACHES (Invited Presentation)**

194-10 10:50 AM Feinstein, Daniel T.; Hunt, Randall J.*; Hart, David J.; Gatzke, Sarah: **USING GROUNDWATER MODELS TO FORECAST EFFECTS TO FENS IN HUMID TEMPERATE CLIMATES**

194-11 11:05 AM Malzone, Jonathan M.*: **MORPHOLOGICAL CONTROL OF SEASONAL AND SUB-SEASONAL GROUNDWATER FLOW IN GEOGRAPHICALLY ISOLATED WETLANDS**

194-12 11:20 AM Stroope, Timothy L.*; Gurrieri, Joseph T.; Dwire, Kathleen A.: **INVENTORY AND MONITORING OF GROUNDWATER DEPENDENT ECOSYSTEMS: PROTOCOL IMPLEMENTATION AND RESULTS FOR NATIONAL FORESTS AND GRASSLANDS**

11:35 AM **DISCUSSION**

AM
TUESDAY

SESSION NO. 195

T20. The Critical Zone As Heterogeneous Media: Implications for Physical, Chemical, and Biological Processes (GSA Hydrogeology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Geobiology & Geomicrobiology Division; GSA Karst Division)

8:00 AM, Washington State Convention Center, Room 618/619/620

Wendy M. Robertson, Nicole West, Zsuzsanna Balogh-Brunstad and Michael H. Young, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 195-1 8:05 AM Sullivan, Pamela L.*; Stops, Marvin Wes; Macpherson, G.L.; Li, Li; Dodds, Walter K.: **UNRAVELING HOW LANDSCAPE HETEROGENEITY ALTERS CONCENTRATION DISCHARGE BEHAVIOR IN CARBONATE HEADWATER STREAMS (Invited Presentation)**
- 195-2 8:25 AM Anderson, Suzanne P.*; Wlostowski, Adam; Murphy, Sheila; Rock, Nathan D.; Hoffman, Claire: **RUNOFF RESPONSE IN A SEMI-ARID HEADWATER DRIVEN BY CATCHMENT-SCALE WATER MOVEMENT**
- 195-3 8:40 AM Lukenbach, Maxwell C.*; Spencer, Christopher S; Mendoza, Carl; Devito, Kevin J.; Landhausser, Simon M.; Carey, Sean K.: **RESOLVING THE NEED FOR GROUNDWATER RECHARGE VERSUS FOREST PRODUCTIVITY IN A RECLAIMED WATERSHED USING NUMERICAL MODELLING**
- 195-4 8:55 AM Tune, Alison K.*; Cargill, Samantha; Murphy, Colleen; Hahm, W. Jesse; Dietrich, William E.; Rempe, Daniella M.: **PREFERENTIAL FLOW IN THE CRITICAL ZONE: DIRECT OBSERVATIONS OF THE SPATIAL AND TEMPORAL PATTERNS OF FLUID COMPOSITION IN VARIABLY SATURATED WEATHERED BEDROCK**
- 195-5 9:10 AM Patton, Erik M.*; Adam, Claudia; Steward, David R.; Datta, Saugata: **MODELING THE EFFECT OF LOW-PERMEABILITY LAYERS ON VADOSE WELL RECHARGE RATES**
- 195-6 9:25 AM Pfeiffer, Marco*; Howard, Alan D.; Heimsath, Arjun M.; Morgan, Alexander M.; Amundson, Ronald: **LANDSCAPE RESPONSE TO A CENTURY SCALE RAINFALL IN THE ATACAMA DESERT, CHILE**
- 9:40 AM **BREAK**
- 195-7 9:55 AM Keller, C. Kent*: **CARBON EXPORTS FROM THE CRITICAL ZONE**
- 195-8 10:10 AM Rempe, Daniella M.*; Druhan, Jennifer L.; Wang, Jia J.; Cargill, Samantha; Murphy, Colleen; Schmidt, Logan; Hahm, W. Jesse; Crutchfield-Peters, Kelsey L.; Dawson, Todd E.; Dietrich, William E.: **INVESTIGATING COUPLED HYDROLOGIC AND BIOGEOCHEMICAL FLUXES IN THE CRITICAL ZONE VIA DISTRIBUTED SENSING AND SAMPLING IN VARIABLY SATURATED, WEATHERED BEDROCK (Invited Presentation)**
- 195-9 10:30 AM Roman-Sanchez, Andrea*; Laguna, Ana; Giraldez, Juan Vicente; Reimann, Tony; Peña, Adolfo; Wallinga, Jakob; Vanwallegghem, Tom: **THE POTENTIAL OF LUMINESCENCE TECHNIQUES IN GEOMORPHOLOGICAL PROCESSES**
- 195-10 10:45 AM Wood, Stephen E*: **A MECHANISTIC, MICROPHYSICAL MODEL FOR THE EFFECTIVE THERMAL CONDUCTIVITY OF SOILS**
- 195-11 11:00 AM Chojna, Sara Irena*; Sikder, Arif M.; Brum, Jose; Liu, Xin-Chen; Kelly, Elizabeth; Clifford, Dustin M.; Londono, Carlos E. Castano: **GEOCHEMICAL ANALYSIS OF FE-ENRICHED SOIL OF MEHERRIN, VIRGINIA**
- 195-12 11:15 AM Palmes, John*: **SAND ON THE WEST SHORE OF GLACIAL MENDENHALL LAKE APPEARS TO BE PETRIFIED PEAT, SILICATES AND MAGNETITE REPLACE ORGANIC CARBON**

- 195-13 11:30 AM Lybrand, Rebecca*; Austin, Jason; Schroeder, Paul A.; Zaharescu, Dragos; Gallery, Rachel: **CROSS-SCALE PERSPECTIVES ON MINERAL WEATHERING IN THE CRITICAL ZONE (Invited Presentation)**
- 11:50 AM **DISCUSSION**

SESSION NO. 196

T46. North Pacific Environment and Paleoclimate from the Late Pleistocene to Present I (GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Limnogeology Division)

8:00 AM, Washington State Convention Center, Room 609

Lesleigh Anderson and Miriam C. Jones, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 196-1 8:15 AM Loisel, Julie*; MacDonald, Glen M.; Thomson, Marcus: **THE FUTURE 'WARM LIA' SCENARIO ACROSS THE AMERICAN SOUTHWEST**
- 196-2 8:30 AM Goman, Michelle F.*; Ingram, Lynn; Malamud-Roam, Frances: **A LARGE FLOOD EVENT AT ~1410 C.E. RECORDED IN PETALUMA MARSH, CALIFORNIA**
- 196-3 8:45 AM Zimmerman, Susan Herrgesell*; Hemming, Sidney R.; Starratt, Scott W.: **HOLOCENE FLUCTUATIONS OF MONO LAKE, CALIFORNIA IN THE CONTEXT OF REGIONAL PALEOCLIMATIC CHANGE**
- 196-4 9:00 AM Wortham, Barbara E.*; Montanez, Isabel P.; Swart, Peter K.: **FOSSILIZED DRIP-WATER FROM A SIERRA NEVADA CAVE REVEALS CHANGING CONDITIONS OVER THE NORTH PACIFIC DURING THE LAST DEGLACIATION**
- 196-5 9:15 AM Oster, Jessica L.*; Weisman, Isabelle E.; Sharp, Warren: **GLACIAL TO HOLOCENE CALIFORNIA CLIMATE INFERRED FROM TWO MULTI-PROXY SPELEOTHEM RECORDS**
- 196-6 9:30 AM Myhre, Sarah E.*; Hill, Tessa M.; Yasuhara, Moriaki; Kennett, James; Deutsch, Curtis: **LATE PLEISTOCENE OSTRACOD RESPONSES TO MILLENNIAL CLIMATE EVENTS OF DEOXYGENATION AND SEA LEVEL RISE IN THE CALIFORNIA BORDERLAND**
- 9:45 AM **BREAK**
- 196-7 10:00 AM Kawahata, Hodaka*: **THE COLDEST CLIMATE IN THE WESTERN NORTH PACIFIC DURING THE LAST 27KYR -THE FIRST APPEARANCE OF THE WORLD OLDEST STONE ARROWHEADS AND POTTERY IN HEINRICH EVENT I-**
- 196-8 10:15 AM Lechler, Alex R.*; Huntington, Katharine; Breecker, Dan O.; Sweeney, Mark R.; Schauer, Andrew J.: **CARBONATE CLUMPED ISOTOPE RECORD OF LGM-HOLOCENE CLIMATE CHANGE ACROSS THE PACIFIC NORTHWEST US: INSIGHTS FROM LOESS-PALEOSOLS AND PLUVIAL LAKES**
- 196-9 10:30 AM Praetorius, Summer*; Mix, Alan; Walczak, Maureen; McKay, Jennifer L.; Du, Jianghui: **NORTHEAST PACIFIC COOLING AND FRESHENING EVENTS DURING EARLY HEINRICH STADIAL 1 AND THE YOUNGER DRYAS: LINKS TO THE MISSOULA MEGAFLOODS? (Invited Presentation)**
- 196-10 10:50 AM Beilman, David*; Massa, Charly; Nichols, Jonathan; Elison Timm, Oliver: **HOLOCENE HYDROCLIMATE CHANGE EVIDENCE FROM THE NORTH CENTRAL PACIFIC: WINDWARD MONTANE MOLOKAI, HAWAII**
- 196-11 11:05 AM Yesner, David R.*: **HOLOCENE PALEOENVIRONMENTAL HISTORY OF THE NORTHERN SEA OF JAPAN IN RELATION TO HUMAN OCCUPATION OF SOUTHERN PRIMORIE (RUSSIA) AND NORTHERN HOKKAIDO (JAPAN)**
- 196-12 11:20 AM Feng, Zhaodong*: **HOLOCENE CLIMATE VARIATIONS IN THE CORE AREA OF CENTRAL ASIA DRY LANDS**
- 11:35 AM **DISCUSSION**

SESSION NO. 197

T56. Mass Extinctions I: Past, Present, and Future?
(Paleontological Research Institution; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Cushman Foundation for Foraminiferal Research; Paleontological Society; Volcanic and Magmatic Studies Group)

8:00 AM, Washington State Convention Center, Room 608

David P.G. Bond, Thierry Adatte, Gerta Keller and Dougal A. Jerram, Presiding

- 197-1 8:00 AM Padian, Kevin*: **THE PAUCITY OF "MASS EXTINCTION" THEORY: AN ANALYSIS OF DIVERSITY CRISES**
- 197-2 8:15 AM Buynevich, Ilya V.*; Hasiotis, Stephen T.; Wiest, Logan A.; Flaig, Peter P.: **VANISHED WITH A TRACE: ICHNOLOGICAL APPLICATIONS TO EXTINCTION-RECOVERY RESEARCH**
- 197-3 8:30 AM Rovelli, Remy*; Moore, Jason R.; Myers, Corinne: **THE EFFECTS OF GEOGRAPHIC RANGE SIZE ON PATTERNS OF EXTINCTION RECOVERY ACROSS THE K-PG BOUNDARY**
- 197-4 8:45 AM Matsunaga, Kelly*; Smith, Selena Y.; Manchester, Steven; Srivastava, Rashmi; Bonde, Suresh D.: **EVALUATING THE ROLE OF INDIA IN PLANT BIOGEOGRAPHY: EXAMPLES FROM FOSSIL PALM FRUITS FROM THE DECCAN INTERTRAPPEAN BEDS**
- 197-5 9:00 AM Witts, James D.*; Landman, Neil H.; Garb, Matthew P.; Thibault, Nicolas; Jones, David S.; Larina, Ekaterina; Yancey, Thomas E.: **NEW RECORD OF AN ABUNDANT AMMONITE ASSEMBLAGE FROM THE LATEST CRETACEOUS CORSICANA FORMATION, BRAZOS RIVER, TEXAS. IMPLICATIONS FOR THE CRETACEOUS-PALEOGENE (K-PG) MASS EXTINCTION EVENT IN THE GULF OF MEXICO**
- 197-6 9:15 AM Wheeler, Elisabeth*; Srivastava, Rashmi; Manchester, Steven; Baas, Pieter: **REVISITING THE DECCAN TRAP WOODS – AFFINITIES AND FUNCTIONAL TRAITS**
- 197-7 9:30 AM Dzombak, Rebecca M.*; Sheldon, Nathan D.; Mohabey, Dhananjay; Samant, Bandana; Matsunaga, Kelly: **PALEOSOLS INDICATE STABLE WET FOREST ENVIRONMENTS IN CENTRAL INDIA ACROSS THE K-PG**
- 197-8 9:45 AM Smith, Stephanie M.*; Sprain, Courtney J.; Wilson, Gregory P.; Clemens, William A.; Renne, Paul R.: **EARLY MAMMALIAN FAUNAL RECOVERY FOLLOWING THE CRETACEOUS-PALEOGENE MASS EXTINCTION EVENT IN MCGUIRE CREEK, MONTANA, USA**
- 10:00 AM **BREAK**
- 197-9 10:15 AM Schoene, Blair*; Samperton, Kyle Michael; Eddy, Michael P.; Keller, Gerta; Adatte, Thierry; Khadri, Syed F.R.: **TOWARD A HIGH-RESOLUTION AGE MODEL FOR THE DECCAN TRAPS BY U-PB ZIRCON GEOCHRONOLOGY (Invited Presentation)**
- 197-10 10:30 AM Vanderkluisen, Loyc*; Barber, Nicholas; Woloszynek, Stephen; O'Connor, Michael P.; Mittal, Tushar; Sealing, Christine R.; Sprain, Courtney J.; Renne, Paul R.: **A MODERN LOOK AT THE DECCAN CHEMOSTRATIGRAPHIC SCHEME**
- 197-11 10:45 AM Kale, Vivek*; Pande, Kanchan: **POLYCENTRIC MULTI-PHASE DECCAN VOLCANISM: IS CAUSATIVE LINKAGE TO K-PG BOUNDARY VALID?**
- 197-12 11:00 AM Adatte, Thierry*; Keller, Gerta; Font, Eric; Mbabi Bitchong, André; Schoene, Blair; Samperton, Kyle; Eddy, Michael P.: **NEAR COINCIDENCE OF MAXIMUM DECCAN VOLCANISM WITH THE CRETACEOUS-PALEOGENE BOUNDARY REVEALED BY MERCURY ANOMALIES**
- 197-13 11:15 AM Keller, Gerta*; Adatte, Thierry; Spangenberg, Jorge E.; Mateo, Paula; Punekar, Jahnavi; Schoene, Blair; Samperton, Kyle Michael; Eddy, Michael Patterson: **MERCURY STRATIGRAPHY OF DECCAN TRAP VOLCANISM IN MARINE SEDIMENTS LINKED TO CLIMATE CHANGE,**

BIOTIC TURNOVER, END-CRETACEOUS MASS EXTINCTION AND DELAYED RECOVERY

- 197-14 11:30 AM Mateo, Paula*; Keller, Gerta; Tandy, Hannah; Adatte, Thierry; Khozyem, Hassan: **DELAYED FAUNAL RECOVERY IN THE AFTERMATH OF THE END-CRETACEOUS MASS EXTINCTION: LINKS TO DECCAN VOLCANISM AND DAN-C2 WARMING?**
- 197-15 11:45 AM Punekar, Jahnavi*; Keller, Gerta; Adatte, Thierry; Font, Eric: **HIGHLIGHTS OF THE LATE MAASTRICHTIAN GRAND FINALE IN WESTERN TETHYS**

SESSION NO. 198

T66. Exceptionally Preserved Proterozoic–Early Paleozoic Fossils
(Paleontological Society; GSA Geobiology & Geomicrobiology Division; Paleontological Research Institution)

8:00 AM, Washington State Convention Center, Room 607

Ross P. Anderson, Lidya G. Tarhan and Sean McMahon, Presiding

- 198-1 8:00 AM Ye, Qin*; Tong, Jinnan; Xiao, Shuhai; An, Zhihui; Hu, Jun; Tian, Li: **NEW LOCALITIES AND MATERIAL OF THE UPPER EDIACARAN MIAOHE BIOTA IN SOUTH CHINA**
- 198-2 8:15 AM Pang, Ke*; Chen, Zhe; Zhou, Chuanming; Yuan, Xunlai; Xiao, Shuhai: **NEW OBSERVATIONS OF BRANCHING MACROFOSSILS FROM THE EDIACARAN DENGYING FORMATION IN THE YANGTZE GORGES AREA, SOUTH CHINA**
- 198-3 8:30 AM Evans, Scott D.*; Droser, Mary L.; Gehling, James G.: **SLIME TRAVELERS: EARLY EVIDENCE OF ANIMAL MOBILITY IN THE EDIACARA BIOTA OF SOUTH AUSTRALIA**
- 198-4 8:45 AM Gibson, Brandt M.*; Schiffbauer, James D.; Darroch, Simon A.F.: **EDIACARAN-STYLE DECAY EXPERIMENTS WITH ANEMONES AND SEA HARES**
- 198-5 9:00 AM Tarhan, Lidya G.*; Hood, Ashleigh v.S.; Droser, Mary L.; Gehling, James G.; Briggs, Derek E. G.: **A SILICA DRIVER OF EDIACARA-STYLE FOSSILIZATION**
- 198-6 9:15 AM Xiao, Shuhai*; Hochella, Michael F.: **WHY AND HOW DO PHOSPHATIC MINERALS REPLICATE SOFT TISSUES AT THE HIGHEST RESOLUTION? (Invited Presentation)**
- 198-7 9:30 AM Strange, Michael A.*; Schiffbauer, James D.; Ren, Minghua; Rowland, Stephen M.: **ORGANO-MINERAL STRUCTURES, BIOMINERALS, AND EXCEPTIONAL FOSSIL PRESERVATION—A MICROCOSM OF THE INFLUENCE OF IRON OXIDIZING MICROBES ON THE FOSSIL RECORD**
- 9:45 AM **BREAK**
- 198-8 10:00 AM Smith, Emily F.*; Nelson, Lyle L.: **THE BASINAL AND PALEOENVIRONMENTAL SETTING OF LATE EDIACARAN TAPHONOMIC WINDOWS IN THE SOUTHWEST USA**
- 198-9 10:15 AM Wood, Rachel A.*; Bowyer, Fred; Penny, Amelia M.: **DID UNSTABLE REDOX STRUCTURE EDIACARAN METAZOAN COMMUNITIES?: THE USE OF EARLY MARINE CARBONATE CEMENTS (Invited Presentation)**
- 198-10 10:30 AM Tang, Qing*; Xiao, Shuhai; Wan, Bin; Yuan, Xunlai: **EARLY EVOLUTION OF SPONGE ANIMALS: SPICULOGENESIS AND BIOMINERALIZATION**
- 198-11 10:45 AM Jacquet, Sarah M.*; Betts, Marissa J.; Brock, Glenn A.: **FACIES CONTROLS ON CAMBRIAN MOLLUSCAN FAUNAS**
- 198-12 11:00 AM Bath Enright, Orla G.*; Minter, Nic J.; Sumner, Esther J.; Mangano, Maria Gabriela; Buatois, Luis A.: **NAVIGATING MUDDY WATERS: EXPERIMENTAL MODELLING OF BURGESS SHALE FLOW TYPE AND ITS IMPLICATIONS FOR THE PRESERVATION OF SOFT-BODIED ORGANISMS**

AM
TUESDAY

- 198-13** 11:15 AM Broce, Jesse S.*; Schiffbauer, James D.: **PUTATIVE ELDONIOIDS FROM THE CAMBRIAN GIBSON JACK FORMATION, IDAHO**
- 198-14** 11:30 AM Topper, Timothy P.*; Greco, Francesco; Hofmann, Axel; Beeby, Andrew; Zhang, Zhifei; Harper, David A.T.: **CARBON CHARACTERIZATION IN THE SIRIUS PASSET BIOTA AND A GEOTHERMAL GRADIENT THROUGH CAMBRIAN LAGERSTÄTTEN**
- 198-15** 11:45 AM Vinther, Jakob*; Park, Tae-Yoon S.; Nielsen, Arne; Woo, Jusun; Harper, David A.T.: **SIRIUS PASSET - NEW DATA FROM AN EXCEPTIONAL FOSSIL LAGERSTÄTTE (Invited Presentation)**

SESSION NO. 199

T69. The Role of Silica in the Earth System: From Organisms to Global Biogeochemical Cycles (GSA Geobiology & Geomicrobiology Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Paleontological Society; GSA Limnogeology Division)

8:00 AM, Washington State Convention Center, Room 606

Jonathan P. Wilson, Caroline A.E. Strömberg and Patrick J. Frings, Presiding

- 199-1** 8:00 AM Michalopoulos, Panagiotis*; Krause, Jeffrey W.; Pickering, Rebecca A.; Rouselaki, Eleni; Taillefert, Martial; Rabouille, Christophe; Ragueneau, Olivier; Corvaisier, Rudolph: **MICROBIAL EFFECTS ON EARLY DIAGENETIC SI CYCLING IN DEEP-SEA AND DELTAIC SEDIMENTS**
- 199-2** 8:15 AM Manning-Berg, Ashley R.*; Tuite, Michael L.; Williford, Kenneth H.; Kah, Linda C.: **ORGANIC MATTER PRESERVATION IN CHERT: MESOPROTEROZOIC ANGMAAT FORMATION, BAFFIN ISLAND, CANADA**
- 199-3** 8:30 AM Moynihan, William C.*; Tapanila, Leif: **SPONGES, CONCRETIONS AND CHERT IN THE PHOSPHORIA FORMATION, WYOMING**
- 199-4** 8:45 AM Trower, Elizabeth J.*; Fischer, Woodward W.: **THE ROLE OF SILICA AS A CHEMICAL SEDIMENT PRIOR TO THE ADVENT OF METAZOAN BIOMINERALIZATION (Invited Presentation)**
- 9:05 AM **DISCUSSION**
- 199-5** 9:15 AM Johnson, Clark M.*; Zheng, Xin-Yuan; Beard, Brian L.: **NEW INSIGHTS INTO LOW-TEMPERATURE SI ISOTOPE EXCHANGE KINETICS AND FRACTIONATION USING LABORATORY EXPERIMENTS**
- 199-6** 9:30 AM Hayles, Justin A.*; Cao, Xiaobin; Gao, Caihong; Liu, Yun; Bao, Huiming; Homann, Martin; Yeung, Laurence Y.: **THEORETICAL CALIBRATION OF THE QUARTZ-WATER TRIPLE OXYGEN ISOTOPE THERMOMETER**
- 199-7** 9:45 AM Chen, Xinyang*; Chafetz, Henry S.; Lapen, Thomas J.: **SILICON ISOTOPE VARIATIONS IN SILICEOUS SINTER DEPOSITS IN HOT SPRINGS: EXAMPLES FROM YELLOWSTONE NATIONAL PARK, WYOMING, U.S.A**
- 199-8** 10:00 AM Frings, Patrick J.*; Fontorbe, Guillaume; Conley, Daniel J.: **INTERPRETATION OF SILICON ISOTOPE RECORDS IN MARINE SEDIMENTS**
- 199-9** 10:15 AM Cooke, Julia*: **PLANTS AND SILICON: A MODERN ECOLOGICAL PERSPECTIVE (Invited Presentation)**
- 10:35 AM **DISCUSSION**
- 199-10** 10:45 AM Wilson, Jonathan P.*; Trembath-Reichert, Elizabeth; McGlynn, Shawn E.; Fischer, Woodward W.: **A GEOBIOLOGICAL PERSPECTIVE ON THE EVOLUTION OF SILICA BIOMINERALIZATION IN PLANTS**
- 199-11** 11:00 AM Stromberg, Caroline A.E.*; Brightly, William H.; Di Stilio, Verónica; Song, Zhaoliang; Thummel, Ryan: **EVOLUTION OF SILICA ACCUMULATION STRATEGIES IN LAND PLANTS AND THE ADAPTIVE VALUE OF PHYTOLITHS**
- 199-12** 11:15 AM Thummel, Ryan*; Stromberg, Caroline A.E.; Brightly, Will: **EVOLUTION OF PHYTOLITH DEPOSITION IN MODERN**

BRYOPHYTES—IMPLICATIONS FOR EARLY LAND PLANTS

- 199-13** 11:30 AM Brightly, William H.*; Hartley, Sue; Osborn, Colin; Stromberg, Caroline A.E.: **ENVIRONMENTAL IMPACTS ON THE PRODUCTION OF SILICA PHYTOLITHS IN GRASSES—POTENTIAL IMPLICATIONS FOR GLOBAL SILICA CYCLING**
- 11:45 AM **DISCUSSION**

SESSION NO. 200

T75. Planetary Climate Disruption Demands Urgent Global Policy Action (GSA Quaternary Geology and Geomorphology Division; GSA Energy Geology Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division; GSA Hydrogeology Division)

8:00 AM, Washington State Convention Center, Room 611

George T. Stone and Jennifer L. Pierce, Presiding

- 200-1** 8:00 AM Steig, Eric J.*: **ANTARCTICA AND FUTURE SEA LEVEL RISE**
- 200-2** 8:15 AM Horton, Benjamin P.*; Engelhart, Simon E.; Little, Christopher M.; Kemp, Andrew C.; Kopp, Robert E.; Mitrovica, Jerry X.: **COMMON ERA CONSTRAINTS ON FUTURE SEA-LEVEL RISE (Invited Presentation)**
- 200-3** 8:35 AM Thompson, Lonnie G.*: **ACCELERATING LOSS OF GLACIERS ON THE WORLD'S HIGHEST MOUNTAINS AND SOCIETAL CONSEQUENCES**
- 200-4** 8:55 AM Pierce, Jennifer L.*; Gibble, Katie; Stallings, Kensie; Wilkins, David; Matson, Samuel: **"TAG. YOU'RE IT!" ENGAGING K-6 STUDENTS TO CLOSE THE CLIMATE SCIENCE KNOWLEDGE GAP**
- 200-5** 9:10 AM Bean, Jessica R.*; Oshry, Aleeza; Marshall, Charles R.: **SYSTEMIC METHODS FOR TEACHING AND COMMUNICATING CLIMATE CHANGE: NEW PEDAGOGICAL TOOLS FOR SCIENTISTS AND EDUCATORS**
- 200-6** 9:25 AM Schweitzer, Alex*: **STUDENT-LED LOCAL AND INTERNATIONAL COLLABORATION ON CLIMATE MONITORING UTILIZING ARDUINO TECHNOLOGY AND OPEN SOURCE PROGRAMMING**
- 200-7** 9:40 AM Stone, George T.: **IMPACTS OF CLIMATE CHANGE: PROFESSIONAL RESPONSIBILITIES TO REPORT, TO WARN AND TO RECOMMEND**
- 200-8** 9:55 AM White, Kasey S.*: **GSA INSIDE THE BELTWAY: AN INSIDE PERSPECTIVE ON INTERSECTIONS BETWEEN CLIMATE SCIENCE AND CLIMATE POLICY**
- 200-9** 10:10 AM Mann, Michael E.*; Schurer, Andrew; Hawkins, Edward; Tett, Simon; Hegerl, Gabrielle: **IMPORTANCE OF THE PRE-INDUSTRIAL BASELINE IN DETERMINING THE LIKELIHOOD OF EXCEEDING THE PARIS LIMITS (Invited Presentation)**
- 10:30 AM **DISCUSSION**

SESSION NO. 201 ⏻ \$

T79. Geologic Energy Research I (GSA Energy Geology Division; GSA Environmental and Engineering Geology Division)

8:00 AM, Washington State Convention Center, Room 602/603

Laura Ruhl, J. Fred Mclaughlin, Marc L. Buursink and Brett J. Valentine, Presiding

- 201-1** 8:00 AM Eble, Cortland*; Nelson, John; Elrick, Scott; Greb, Steve; DiMichele, William: **PALYNOLOGY, PETROLOGY AND GEOCHEMISTRY OF THE SPRINGFIELD COAL BED IN PROXIMITY TO A PALEOCHANNEL, EASTERN INTERIOR (ILLINOIS) BASIN, USA**
- 201-2** 8:15 AM Greb, Stephen F.*; Eble, Cortland F.: **DIFFERENCES IN THE DURATION OF CARBONIFEROUS EUSTATIC CYCLES MAY EXPLAIN SOME DIFFERENCES IN COAL AND LITHOFACIES DISTRIBUTION THROUGH TIME**

- 201-3 8:30 AM O'Keefe, Jennifer M.K.*; Demchuk, Thomas D.; Denison, Christopher N.; Cowey, Nicholas: **ORGANIC PETROGRAPHY OF HOOPER FORMATION COALS, CENTRAL TEXAS, USA**
- 201-4 8:45 AM Hower, James C.*; Eble, Cortland; Groppo, John G.; Honaker, Rick Q.: **MODES OF EMPLACEMENT OF RARE EARTH ELEMENTS IN COALS: EXAMPLES FROM THE FIRE CLAY COAL, EASTERN KENTUCKY**
- 201-5 9:00 AM Lin, Ronghong*; Soong, Yee; Roth, Elliot; Bank, Tracy L.; Howard, Bret; Granite, Evan: **RECOVERY OF RARE EARTH ELEMENTS FROM COAL AND COAL BY-PRODUCTS**
- 201-6 9:15 AM Nye, Charles*; Quillinan, Scott; McLing, Travis L.; Neupane, Ghanashyam; Ganshin, Yuri: **TYPICAL AQUEOUS RARE EARTH ELEMENT BEHAVIOR IN CO-PRODUCED BRINES, WYOMING**
- 201-7 9:30 AM Varma, Atul K.; Biswas, Sanki*; Patil, Dattatray J.; Mani, Devleena: **ORGANOGEOCHEMICAL AND PETROGRAPHICAL PROXIES FOR HYDROCARBON GENERATION FROM COAL, INDIA**
- 9:45 AM **BREAK**
- 201-8 10:00 AM Umari, Amjad M.J.*: **USING THE CODES TOUGH2 AND MODFLOW TO DELINEATE INJECTED-CO₂ PLUMES FOR CARBON STORAGE: CONCEPTUAL COMPARISON OF THE PHYSICS AND THE MATHEMATICAL FORMULATIONS OF THE PROBLEM**
- 201-9 10:15 AM Gardiner, James*; Thomas, Burt; Phan, Thai T.; Stuckman, Mengling; Hakala, J. Alexandra; Lopano, Christina L.: **GEOCHEMICAL VARIATION OF PRODUCED WATERS AND OVERLYING GROUNDWATERS AT AN ACTIVE CO₂ ENHANCED OIL RECOVERY FIELD**
- 201-10 10:30 AM Cladouhos, Trenton T.*: **ECONOMIC BREAKTHROUGHS FOR GEOTHERMAL ENERGY: SUPER HOT EGS AND THE NEWBERRY DEEP DRILLING PROJECT**
- 201-11 10:45 AM Wu, Kongyou*: **CHARACTERIZATION AND HYDROCARBON SEALING CAPACITY OF THE WEATHERING MUD LAYER IN AN UNCONFORMITY**
- 201-12 11:00 AM Lasemi, Yaghoob*: **STRATIGRAPHIC ARCHITECTURE AND RESERVOIR CHARACTERIZATION OF THE SILURIAN RACINE FORMATION, FORSYTH FIELD, CENTRAL ILLINOIS**

SESSION NO. 202

T86. Controls, Geomorphology, and Depositional Architecture of Fluvial-Tidal Sediments through Space and Time (GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology))

8:00 AM, Washington State Convention Center, Ballroom 6C

Shahin Exton Dashtgard and Stephen M. Hubbard, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 202-1 8:05 AM Dalrymple, Robert W.*: **THE SEDIMENTARY-STRUCTURE RECORD OF DEPOSITIONAL CONDITIONS IN THE FLUVIAL-TIDAL TRANSITION ZONE (Invited Presentation)**
- 202-2 8:25 AM Durkin, Paul R.*; Hubbard, Stephen M.; Leckie, Dale A.; Smith, Derald G.: **SEDIMENT DISTRIBUTION ALONG CONFINED MEANDER BENDS IN FLUVIAL AND TIDAL-FLUVIAL CHANNELS**
- 202-3 8:40 AM Mason, Jasmine*; Mohrig, David: **USING TIME-LAPSE LIDAR TO QUANTIFY RIVER BEND EVOLUTION ON THE MEANDERING COASTAL TRINITY RIVER, TEXAS, USA**
- 202-4 8:55 AM Hassenruck-Gudipati, Hima J.*; Mohrig, David; Passalacqua, Paola: **CHARACTERIZING NATURAL LEVEE MORPHOLOGY FOR A SAND-BED COASTAL RIVER**
- 202-5 9:10 AM Hess, Aaron*; Fielding, Christopher R.: **THE ROLE OF CLIMATE IN DETERMINING THE ARCHITECTURE AND STACKING PATTERNS OF COASTAL-PLAIN FLUVIAL**

- 202-6 9:25 AM Prokocki, Eric W.*: **NEW INSIGHTS INTO POINT-BAR ALLUVIAL ARCHITECTURE ACROSS THE FLUVIAL-TIDAL TRANSITION: LOWER CHEHALIS RIVER, WA, USA (Invited Presentation)**
- 9:45 AM **BREAK**
- 202-7 10:00 AM Choi, Kyungsik*; Jo, Joohee; Kim, Dohyeong: **CONTROLS ON THE DOWNSTREAM VARIABILITY OF CHANNEL MORPHODYNAMICS AND POINT-BAR ARCHITECTURE IN A TIDE-INFLUENCED MONSOON RIVER: SITTAUNG RIVER, MYANMAR (Invited Presentation)**
- 202-8 10:20 AM Di Leonardo, Diana R.*; Allison, Mead A.; McLachlan, Robin; Ogston, Andrea: **SUSPENDED SEDIMENT CHARACTER IN THE TIDAL MEKONG RIVER: OBSERVATIONS FROM LISST PROFILING**
- 202-9 10:35 AM Missimer, Thomas M.*; Maliva, Robert G.; Perea, Daniel; Badin, Ana Clara: **ORIGIN AND TRANSPORT OF FLUVIAL MUDDY OUTWASH SEDIMENTS OF THE PLIO-PLEISTOCENE RAIGON FORMATION, SOUTHWESTERN URUGUAY**
- 202-10 10:50 AM McLachlan, Robin L*; Ogston, Andrea S.; Asp, Nils E.; Fricke, Aaron T.; Gomes, Vando J.C.: **CONTROLS OF TIDAL CHANNEL CONNECTIVITY ON SEDIMENT FLUX INTO AMAZONIAN MANGROVE FORESTS**
- 202-11 11:05 AM Fricke, Aaron T.*; Nittrouer, Charles A.; Ogston, Andrea S.; Nowacki, Daniel J.; Asp, Nils E.; Souza Filho, Pedro Walfir M.: **MORPHODYNAMICS OF THE AMAZON TIDAL-RIVER FLOODPLAIN ALONG THE FLUVIAL-TIDAL TRANSITION**
- 11:20 AM **CONCLUDING REMARKS**

SESSION NO. 203

T105. Building an Inclusive Geoscience Community Today for Tomorrow I (GSA Geoscience Education Division; GSA Diversity in the Geosciences Committee; GSA Geology and Society Division; National Association of Black Geoscientists)

8:00 AM, Washington State Convention Center, Room 2A

Stephen K. Boss, Aisha R. Morris, Sadredin C. Moosavi, Wendy Smythe and Darryl Reano, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 203-1 8:15 AM Suiter, Marilyn J.*; Jesse, Jolene K.: **INCLUSION ACROSS THE NATION OF COMMUNITIES OF LEARNERS OF UNDER-REPRESENTED DISCOVERERS IN ENGINEERING AND SCIENCE (INCLUDES)**
- 203-2 8:30 AM Myles, LaToya*; Brinkworth, Carolyn; Dixon, P. Grady; Kaufman, Eric K.; Quardokus Fisher, Kathleen; Simmons, Denise R.: **GEO OPPORTUNITIES FOR LEADERSHIP IN DIVERSITY (GOLD): HEARTS OF GOLD**
- 203-3 8:45 AM Williams, Billy M.*; McPhaden, Michael J.; Gundersen, Linda C.; Davidson, Eric; McEntee, Chris; Townsend, Randy: **REDEFINING EXPECTATIONS FOR INCLUSIVE EARTH AND SPACE SCIENCE COMMUNITIES - STRATEGIES AND ACTIONS TO IMPACT SEXUAL HARASSMENT AND OTHER WORK CLIMATE ISSUES**
- 203-4 9:00 AM Taylor, Ta-Shana A.*: **HARNESSING BLACK LEADERSHIP AND BUILDING RELATIONSHIPS: LESSONS LEARNED FROM A DECADE OF WORKING WITHIN BLACK COMMUNITIES**
- 203-5 9:15 AM Houlton, Heather R.*; Chen, Jason; Brinkworth, Carolyn: **GEOSCIENCE DIVERSITY EXPERIENTIAL SIMULATIONS (GEODES)**
- 203-6 9:30 AM Lerback, Jory C.*; St. Pierre, Gabriela: **INCLUSIVE EARTH: A GRASSROOTS APPROACH TO BUILDING A PROFESSIONAL AND DIVERSE COMMUNITY (Invited Presentation)**

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- 203-7** 9:45 AM Heise, Elizabeth A.*: **INCREASING THE DIVERSITY IN THE FACULTY AT A GROWING EMERGING RESEARCH INSTITUTION**
10:00 AM **BREAK**
- 203-8** 10:15 AM Atchison, Christopher L.*; Marshall, Anita M.; Carabajal, Ivan G.: **REFLECTING ON TWENTY YEARS OF INCLUSIVE GEOSCIENCE EDUCATION (1997-2017)**
- 203-9** 10:30 AM Carabajal, Ivan G.*; Atchison, Christopher L.: **UNDERSTANDING FIELD-BASED ACCESSIBILITY FROM THE PERSPECTIVE OF GEOSCIENCE DEPARTMENTS**
- 203-10** 10:45 AM Lamb, Diedre A.*; Bennett, Richard A.: **ACCESSIBLE EARTH: ENHANCING DIVERSITY IN THE GEOSCIENCES THROUGH ACCESSIBLE COURSE DESIGN**
- 203-11** 11:00 AM Collins, Trevor*; Crompton, Helen; Marshall, Anita M.; Whitmeyer, Steven; Atchison, Chris; Pyle, Eric J.; Carabajal, Ivan G.; Piatek, Jennifer; Eriksson, Susan C.: **INVESTIGATING MODELS OF TECHNOLOGY-ENHANCED GROUP WORK ON AN INCLUSIVE INTERNATIONAL FIELD TRIP**
- 203-12** 11:15 AM Bennett, Richard A.*; Lamb, Diedre A.: **ACCESSIBLE EARTH: AN ACCESSIBLE STUDY ABROAD CAPSTONE FOR THE GEOSCIENCE CURRICULUM**
- 203-13** 11:30 AM Snow, Eleanour*; Childs, Dawn; Robinson, Craig R.; Wilson, Tamara: **ENGAGING YOUNG ADULTS WITH COGNITIVE DISABILITIES IN USGS SCIENCE: A PARTNERSHIP TO PROMOTE INCLUSION**
- 203-14** 11:45 AM Mobasher, Katayoun*; Kraemer, Carol Ann; Turk, Jeff; Moore, Logan Q.: **STEM LABORATORY ACTIVITIES AND FIELD-BASED LEARNING ENVIRONMENTS FOR STUDENTS IN GEOSCIENCES WITH ORTHOPEDIC AND SENSORY DISABILITIES**

SESSION NO. 204

T115. Hands-On Teaching Demonstrations that Combine Geoscience and Societal Issues: Audience Participation Requested! (National Association of Geoscience Teachers; GSA Geoscience Education Division)

8:00 AM, Washington State Convention Center, Room 3A

Elizabeth A. Nagy-Shadman and Anne E. Egger, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 204-1** 8:05 AM Nagy-Shadman, Elizabeth A.*; Fadem, Cynthia M.: **USING ROLE-PLAYING TO HELP STUDENTS APPRECIATE THE COMPLEXITIES OF CLIMATE MODELING**
- 204-2** 8:20 AM Walker, Becca; Stearns, Leigh A.*; Pratt-Sitaula, Beth: **USING GEODETIC DATA TO INVESTIGATE SOCIETALLY RELEVANT GEOSCIENCE PROBLEMS IN INTRODUCTORY COURSES: GETSI'S ICE MASS AND SEA LEVEL CHANGES MODULE**
- 204-3** 8:35 AM Doner, Lisa A.*; Stapleton, Patricia; Motola, Lorraine: **MAJOR STORM RISKS AND CLIMATE CHANGE, EMPOWERING COMMUNITY RESILIENCE THROUGH APPLIED ASPECTS OF GEOLOGY AND GEOGRAPHY**
- 204-4** 8:50 AM Resor, Phillip G.*; Dunn, Allison L.; MacKay, Robert M.: **HANDS ON WITH EARTH'S THERMOSTAT, A DATA-RICH INTRODUCTION TO THE CLIMATE SYSTEM FOR INTRODUCTORY COLLEGE SCIENCE COURSES (Invited Presentation)**
- 204-5** 9:05 AM Phillips, Michael A.*; Darby, Kate; Phillips, Lisa: **MAPPING THE ENVIRONMENT WITH SENSORY PERCEPTION: SENSING AND RECORDING ENVIRONMENTAL DATA (Invited Presentation)**
- 204-6** 9:20 AM Phillips, Lisa*; Darby, Kate; Phillips, Michael A.: **MAPPING THE ENVIRONMENT WITH SENSORY PERCEPTION: USING CASE STUDIES TO CRITICALLY INVESTIGATE QUALITATIVE AND QUANTITATIVE DATA ANALYSIS, COLLECTION, AND INQUIRY**

- 204-7** 9:35 AM Fortner, Sarah K.*; Scherer, Hannah H.; Murphy, Martha: **HELPING STUDENTS ADVOCATE FOR THE EARTH USING INTEGRATE MODULES (Invited Presentation)**
9:50 AM **BREAK**
- 204-8** 10:05 AM Gore, Pamela J.W.*; Bentley, Callan; Berquist, Peter J.: **HANDS-ON TEACHING ABOUT CARBON, CLIMATE, AND ENERGY RESOURCES – AN INTEGRATE PROJECT**
- 204-9** 10:20 AM Thompson, Cara K.*; Kinzel, Michelle; Schnetzer, Astrid: **TEACHING THE IMPORTANCE OF OCEAN SUSTAINABILITY USING ACTIVE LEARNING TECHNIQUES**
- 204-10** 10:35 AM Bentley, Callan*; Sundell, Ander; Ryker, Katherine; Lukes, Laura A.; Uhen, Mark; George, Christian O.; Lockwood, Rowan; Berquist, Peter J.: **USING THE PALEOBIOLOGY DATABASE TO EXPLORE TECTONIC EVENTS**
- 204-11** 10:50 AM Ptacek, Sophia*; OConnell, Suzanne; Diver, Kim; Ku, Timothy C.W.; Resor, Phillip; Royer, Dana L.: **THE IMPACTS OF SERVICE LEARNING IN THE EARTH AND ENVIRONMENTAL SCIENCES AT WESLEYAN UNIVERSITY**
- 204-12** 11:05 AM Brown, Kenneth L.*; Frier, William P.: **INCORPORATING LOCAL ISSUES: EXPLORING SERVICE LEARNING PROJECTS WITHIN WEST VIRGINIA UNIVERSITY'S CORE ARBORETUM**
- 204-13** 11:20 AM Ritter, John B.*: **SCALABLE AND SUSTAINABLE SERVICE LEARNING OPPORTUNITIES RELATED TO STREAM MANAGEMENT**
- 204-14** 11:35 AM Abolins, Mark*: **SURPRISING SERVICE: CAMPUS CLEAN UPS LEAD TO DISCUSSIONS ABOUT TOBACCO USE ON A TOBACCO-FREE CAMPUS, MIDDLE TENNESSEE STATE UNIVERSITY, MURFREESBORO, TENNESSEE**

SESSION NO. 205

T120. Making Thinking Visible: Actions and Expressions of Problem Solving and Decision Making in the Geosciences (GSA Geoscience Education Division; National Association of Geoscience Teachers, Division of Geoscience Education Research)

8:00 AM, Washington State Convention Center, Room 2B

Eric M. Riggs, Lauren N. Holder and Angela Van Boening, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 205-1** 8:05 AM McNeal, Karen*: **EXPLORING THE APPLICATIONS OF EYE TRACKING AND SKIN BIOSENSORS IN GEOSCIENCE EDUCATION (Invited Presentation)**
- 205-2** 8:25 AM Atkins, Rachel M.*; McNeal, Karen S.: **VISUALIZING STUDENT NAVIGATION OF GEOLOGIC BLOCK DIAGRAMS**
- 205-3** 8:40 AM LaDue, Nicole*; Shipley, Thomas F.: **USING CLASSROOM RESPONSE SYSTEMS TO STUDY SPATIAL CONCEPTIONS IN INTRODUCTORY GEOLOGY**
- 205-4** 8:55 AM Van Boening, Angela*; Riggs, Eric M.: **FROM TO HAND TO MOUTH TO MIND: TRACING THE CO-OCCURRENCE OF GESTURE AND SPEECH TO CONCEPTUAL UNDESTANDING**
- 205-5** 9:10 AM McNeal, Peggy M.*; Petcovic, Heather L.; Ellis, Todd D.; LaDue, Nicole D.: **COGNITIVE PROCESSING IN METEOROLOGY: AN INVESTIGATION OF THE FORECASTING PROCESS**
- 205-6** 9:25 AM Petcovic, Heather L.*; Baker, Kathleen M.; Callahan, Caitlin N.: **HOW DO THEY KNOW WHERE TO GO? EXPERT VERSUS NOVICE REASONING AND NAVIGATION DURING BEDROCK GEOLOGIC MAPPING**
- 205-7** 9:40 AM Jackson, Matthew A.; Riggs, Eric M.*: **DOCUMENTING THE CHARACTERISTICS OF EXPERTISE, EXPERIENCE AND WORKFLOW STRATEGIES EMPLOYED IN SEISMIC INTERPRETATION**
9:55 AM **BREAK**

- 205-8 10:10 AM Shipley, Thomas F.*; Jaeger, Allison J.: **IMPROVING 3D DIAGRAM COMPREHENSION WITH INCORRECT WORKED EXAMPLES** (Invited Presentation)
- 205-9 10:30 AM Jones, Jason P.*; McConnell, David: **IDENTIFYING DISPARITIES BETWEEN STUDENT PERCEPTIONS OF LEARNING AND THE REALITIES OF PERFORMANCE WITHIN AN INTRODUCTORY GEOSCIENCE COURSE**
- 205-10 10:45 AM Kastens, Kim A.*; Zrada, Melissa; Turrin, Margaret J.: **WHAT KINDS OF QUESTIONS DO UNDERGRADUATES GENERATE WHILE EXPLORING DATA VISUALIZATIONS PERTAINING TO SEA LEVEL RISE AND CLIMATE CHANGE?**
- 205-11 11:00 AM Holder, Lauren N.*; Scherer, Hannah H.; Herbert, Bruce: **STUDENT LEARNING OF COMPLEX EARTH SYSTEMS: A MODEL TO GUIDE DEVELOPMENT OF STUDENT EXPERTISE IN PROBLEM SOLVING**
- 205-12 11:15 AM Gilbert, Lisa A.*; Iverson, Ellen; Kastens, Kim A.; Awad, Aida; McCauley, Emma Q.; Caulkins, Joshua L.; Steer, David N.; Czajka, C. Doug; McConnell, David A.; Manduca, Cathryn A.: **EXPLICIT FOCUS ON SYSTEMS THINKING IN INTEGRATE MATERIALS YIELDS IMPROVED STUDENT PERFORMANCE**
- 205-13 11:30 AM Rappolee, Eleanor*; Libarkin, Julie C.; McCallum, Carmen; Kurz, Sarah: **PICTURES WORTH A THOUSAND WORDS: DRAWING ANALYSIS UNCOVERS GEOSCIENCE CAREERS INFLUENCED BY SOCIAL AND CULTURAL CAPITAL**
- 11:45 AM **FLASH TALKS BY POSTER PRESENTERS**

SESSION NO. 206

T147. What Can You Do with Geoinformatics? (GSA Geoinformatics Division; Geoscience Information Society; American Geosciences Institute; American Geophysical Union; GSA Environmental and Engineering Geology Division; GSA Geoscience Education Division; Association of American State Geologists; GSA Karst Division)

8:00 AM, Washington State Convention Center, Room 3B
Denise J. Hills, Chris Badurek, Christopher Keane and Shelley Stall, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 206-1 8:05 AM Powers, Lindsay*: **A TORTUOUS CAREER PATH THROUGH EARTH SCIENCE INFORMATICS, OR HOW DID I END UP WITH THE PERFECT JOB?**
- 206-2 8:20 AM Houlton, Heather R.*; Keane, Christopher M.: **CAN GEOINFORMATICS CATALYZE IMPROVED GENDER AND ETHNIC/RACIAL DIVERSITY IN GEOSCIENCE AND COMPUTER SCIENCE?** (Invited Presentation)
- 206-3 8:35 AM Fox, Peter*: **GEOINFORMATICS CURRICULA AND CAREERS IN THE CONTEXT OF 21ST CENTURY DATA SCIENCE**
- 206-4 8:50 AM Bishop, Bradley Wade*: **GEOINFORMATICS DOES THE DATA LIFECYCLE**
- 206-5 9:05 AM Ma, Xiaogang*: **DOING GEOINFORMATICS WITH A WEB OF DATA**
- 206-6 9:20 AM Cleverley, Paul Hugh*: **APPLYING TEXT AND DATA MINING TO GEOLOGICAL ARTICLES: TOWARDS COGNITIVE COMPUTING ASSISTANTS**
- 206-7 9:35 AM Hanson, Brooks*; Stall, Shelley: **BEST PRACTICES FOR AUTHORS, DATA REPOSITORIES, EDITORS, AND PUBLISHERS TO ENABLE GEOINFORMATICS USING THE SCHOLARLY LITERATURE AND TO EMPOWER PUBLISHED DATA**
- 9:50 AM **BREAK**
- 206-8 10:05 AM Goring, Simon*: **A BETTER CLOCK, A CLEARER PAST, A MORE PRECISE FUTURE: USING GEOINFORMATICS TO BETTER UNDERSTAND THE EARTH SYSTEM** (Invited Presentation)

- 206-9 10:20 AM Thomer, Andrea K.*; Palmer, Carole L.: **SUPPORTING GEOINFORMATICS WITH SITE-BASED DATA CURATION: COLLABORATIVE DEVELOPMENT OF AN INFORMATION FRAMEWORK**
- 206-10 10:35 AM Loeffler, Shane*; Myrbo, Amy; McEwan, Reed; Ai, Sijia; Morrison, Alexander: **BUILD APPS!**
- 206-11 10:50 AM Bunse, Emily Grace*; Walker, Douglas; Jordan-Koenig, Kristen; Ash, Jason; Tikoff, Basil: **SPOTS IN SPOTS FOR GIS: INTEROPERABILITY BETWEEN ARCGIS, QGIS AND STRABOSPOT** (UPDATE)
- 206-12 11:05 AM Levine, Norman*: **THE GEOSCIENTIST'S INSIGHT: THE INTERDEPENDENCE OF GEOLOGIC KNOWLEDGE AND GEOINFORMATICS IN TODAY'S MARKETPLACE** (Invited Presentation)
- 11:20 AM **POSTER LIGHTNING TALKS**
- 11:35 AM **DISCUSSION**

SESSION NO. 207 \$

T152. Fluids and Melts in Geologic Systems

8:00 AM, The Conference Center, Skagit 2
Pilar Lecumberri-Sanchez, Matthew Steele-MacInnis, Andrés Fall and Rosario Esposito, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 207-1 8:05 AM Appold, Martin S.*: **ORIGIN OF HYPOGENE NON-SULFIDE ZINC DEPOSITS: EVIDENCE FROM THE VAZANTE (BRAZIL), FLINDERS RANGES (AUSTRALIA), AND STAR (ZAMBIA) DEPOSITS** (Invited Presentation)
- 207-2 8:25 AM Lecumberri-Sanchez, Pilar*; Heinrich, Christoph A.; Wälle, Markus; Codeço, Marta; Weis, Philipp; Pinto, Filipe; Vieira, Romeu: **FLUID EVOLUTION AT THE PANASQUEIRA TUNGSTEN-VEIN DEPOSIT**
- 207-3 8:40 AM Drivenes, Kristian*; Larsen, R.B.; Sørensen, Bjørn Eske; Hughes, Sam: **TOURMALINE TEXTURES IN THE LAND'S END GRANITE, SW ENGLAND – A STROLL THROUGH THE MAGMATIC-HYDROTHERMAL TRANSITION**
- 207-4 8:55 AM Locmelis, Marek*; Fiorentini, Marco L.: **THE ROLE OF HYDROUS FLUIDS IN THE FORMATION OF MAGMATIC SULFIDE DEPOSITS IN THE LOWER CONTINENTAL CRUST**
- 207-5 9:10 AM Barkoff, Drew*: **PRESSURES OF SKARN MINERALIZATION AT CASTING COPPER, NEVADA, BASED ON APATITE INCLUSIONS IN GARNET**
- 207-6 9:25 AM Hudak, Michael R.*; Bindeman, Ilya N.; Guan, Yunbin: **EXPERIMENTALLY CONSTRAINED H AND O ISOTOPE FRACTIONATION BETWEEN WATER AND VOLCANIC GLASS**
- 207-7 9:40 AM Scott, Sean Ross*; Sims, Kenneth W.W.: **FE ISOTOPE SYSTEMATICS OF HYDROTHERMAL WATERS FROM THE YELLOWSTONE HYDROTHERMAL SYSTEM**
- 9:55 AM **BREAK**
- 207-8 10:10 AM Webster, James D.*; Huber, Christian; Bachmann, Olivier: **INSIGHTS ON MAGMATIC FLUID EXSOLUTION AND EVOLUTION FROM CHLORINE THE UNDER-APPRECIATED MAGMATIC VOLATILE COMPONENT** (Invited Presentation)
- 207-9 10:30 AM Brooks, Hanna L.*; Steele-MacInnis, Matthew; Lecumberri-Sanchez, Pilar: **AN EXAMINATION OF MINERAL SOLUBILITY IN COMPLEX SALINE AQUEOUS FLUIDS**
- 207-10 10:45 AM Lamadrid, Hector; Steele-MacInnis, Matthew*; Bodnar, Robert J.: **FUGACITY IN GAS MIXTURES DETERMINED FROM RAMAN SPECTROSCOPY**
- 207-11 11:00 AM Hall, Don*: **FLUID INCLUSION STUDIES IMPACT THE ECONOMICS OF PETROLEUM EXPLORATION AND FIELD DEVELOPMENT** (Invited Presentation)

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207-12 11:20 AM Costanzo, Alessandra*; Feely, Martin; Lindner, Franzisca; Parnell, John; Bowden, Stephen A.; Baba, Mas'u; George, Joe; Owens, Peter: **USING FLUID INCLUSION STUDIES TO INVESTIGATE THE SOURCE OF HYDROCARBON FLUIDS IN THE MIOCENE SNOQUALMIE GRANITE, NORTH CASCADES, WA, USA**

207-13 11:35 AM Fall, Andrés*; Ukar, Estibalitz; Lopez, Ramiro Gabriel; Gale, Julia F.W.; Manceda, René; Laubach, Stephen E.: **COMBINED EFFECTS OF OVERPRESSURE AND BED-PARALLEL CONTRACTION ON THE FORMATION OF BED-PARALLEL AND VERTICAL FRACTURES IN THE VACA MUERTA FORMATION, ARGENTINA**

SESSION NO. 208

T161. Petrology across the Inner Solar System: In Honor of Roebling Medalist Ed Stolper (Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division)

8:00 AM, The Conference Center, Skagit 4

Paul D. Asimow and Harry Y. McSween Jr., Presiding

208-1 8:00 AM McSween, H.Y.*; Raymond, Carol A.: **IGNEOUS PETROGENESIS ON VESTA, IN THE LIGHT OF DAWN**

208-2 8:15 AM Saal, Alberto*; Hauri, Erik H.; Rutherford, Malcolm; Van Orman, James: **MAGMATIC DEGASSING, ORIGIN AND BUDGET OF HIGHLY VOLATILE ELEMENTS OF THE MOON**

208-3 8:30 AM Leshin, Laurie A.*: **FROM SNC METEORITES TO THE CURIOSITY ROVER: INSIGHTS INTO MARTIAN PETROLOGY AND VOLATILES (Invited Presentation)**

208-4 8:45 AM Macris, Catherine A.*; Turley, Richard J.; Eiler, John M.; Stolper, Edward M.: **USING DIFFUSION IN TEKTITES AND EXPERIMENTS TO INVESTIGATE IMPACT PLUME DYNAMICS**

208-5 9:00 AM Lin, Chaney; Hollister, Lincoln S.*; Macpherson, Glenn J.; Bindi, Luca; Ma, Chi; Andronicos, Christopher L.; Steinhardt, Paul J.: **EVIDENCE ABOUT THE FORMATION HISTORY OF NATURAL QUASICRYSTALS IN OUTER SPACE, AND THE OCCURRENCE OF STOLPERITE**

208-6 9:15 AM Whittington, Alan*; Sehlke, Alexander; Speck, Angela: **RECALESCENCE DURING CRYSTALLIZATION OF STARDUST: RESOLUTION OF THE AMORPHOUS INTERSTELLAR MEDIUM PARADOX**

208-7 9:30 AM Kent, Adam J.R.*; Duncan, Robert A.; Graham, David W.; Alamri, Abullah M.; Hanan, Barry B.; Alshantoni, Saeed A.; Alhejji, Suhail S.S.: **ENIGMATIC ALKALINE VOLCANISM IN WESTERN SAUDI ARABIA: SUB-LITHOSPHERIC CHANNELING FROM THE AFAR MANTLE PLUME? (Invited Presentation)**

208-8 9:45 AM Dixon, Jacqueline*; Bindeman, Ilya N.; Kingsley, Richard: **HYDROGEN ISOTOPIC COMPOSITION OF ENRICHED MANTLE SOURCES: RESOLVING THE DEHYDRATION PARADOX**

10:00 AM **BREAK**

208-9 10:15 AM Garcia, Michael O.*; Norman, Marc D.; Bennett, Vickie C.; Pietruszka, Aaron J.: **MELT INCLUSIONS IN FORSTERITIC OLIVINE FROM HISTORICAL KILAUEA LAVAS REVEAL DIVERSE MANTLE MELT COMPOSITIONS**

208-10 10:30 AM Zhang, Youxue*: **ESTIMATING THE SOURCE MANTLE COMPOSITION OF A MANTLE-DERIVED BASALT**

208-11 10:45 AM Hirschmann, Marc M.*; Armstrong, Lora; Hauri, Erik H.: **STORAGE OF C IN OLIVINE AND CARBONATED MELTING IN THE MORB SOURCE REGION (Invited Presentation)**

208-12 11:00 AM Du, Wei; Walker, David*: **MICROSTRAIN IN DRY PYROPE-GROSSULAR GARNET SOLUTIONS**

208-13 11:15 AM Ihinger, Phillip D.*: **SEQUENTIAL EXTRACTION OF IMMISCIBLE LIQUIDS FROM THE SKAERGAARD**

CRYSTAL PILE: THE KEY TO UNDERSTANDING BASALT EVOLUTION AND THE ORIGIN OF GRANITE

208-14 11:30 AM Nekvasil, Hanna*; Lindsley, Donald; Schaub, Douglas R.; Catalano, Tristan: **ANORTHITE IN MID-OCEAN RIDGE BASALTS: IMPLICATIONS OF THE PSEUDO-AZEOTROPE IN THE PLAGIOCLASE-OLIVINE SYSTEM**

208-15 11:45 AM Asimow, Paul D.*; Stolper, Edward M.; Antoshechkina, Paula M.: **INSIGHTS INTO MANTLE MELTING FROM GRAPHICAL ANALYSIS OF TWO-COMPONENT SYSTEMS**

SESSION NO. 209

T168. Advances in Terrestrial Paleoclimate Reconstructions Using Paleosols (GSA Sedimentary Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group)

8:00 AM, The Conference Center, Skagit 3

Rebecca M. Dzombak, Emily J. Beverly, Daniel P. Maxbauer and Gary E. Stinchcomb, Presiding

8:00 AM **INTRODUCTION OF GSA PRESIDENT'S MEDALIST, BY CLAUDIA MORA**

209-1 8:05 AM Cerling, Thure*: **GSA PRESIDENT'S MEDAL: CROSS DISCIPLINARY SCIENCE - THOUGHTS ON PRACTICE AND TRAINING**

209-2 8:25 AM Schaller, Morgan F.*; Knobbe, Todd K.; Pettitt, Elizabeth: **ATMOSPHERIC O₂ CONCENTRATIONS FROM SOIL CARBONATE-HOSTED FLUID INCLUSIONS: A POTENTIAL NEW PROXY FOR PALEO-ATMOSPHERIC PO₂**

209-3 8:40 AM Fox, David L.*; Hansen, Lars N.; Tutolo, Benjamin M.; Snell, Kathryn E.; Lukens, William E.: **SPECTROSCOPY AND ELECTRON MICROSCOPY OF TERRESTRIAL CARBONATES: MINERALOGY, MICROTEXTURES, AND IMPLICATIONS FOR THE STABLE ISOTOPE RECORD OF THE PLIO-PLEISTOCENE MEADE BASIN (SW KANSAS)**

209-4 8:55 AM Breecker, Daniel O.*; Fricke, Henry; McNeese, Colin J.; Miller, Nathan R.; Schaller, Morgan F.; Clyde, William C.; Jordan, Jacob S.: **BORON IN SOIL CARBONATES: DEVELOPMENT AND INITIAL APPLICATION OF A HYBRID PALEO-CO₂ PROXY (Invited Presentation)**

209-5 9:15 AM Burgener, Landon*; Huntington, Katharine W.; Sletten, Ronald S.; Watkins, James M.; Quade, Jay; Hallet, Bernard: **EQUILIBRIUM FORMATION AND KINETIC ISOTOPE EFFECTS IN SOIL CARBONATES FROM COLD ENVIRONMENTS: THE EFFECTS OF SOIL MOISTURE AND SOIL SEDIMENT SIZE**

209-6 9:30 AM Huth, Tyler E.*; Cerling, Thure; Marchetti, David W.; Bowling, David R.; Fernandez, Diego P.; Mackey, Glen N.; Passey, Benjamin H.: **A FLEXIBLE MONTHLY EQUILIBRIUM MODEL OF SOIL CARBONATE PRESERVATION APPLIED TO SOUTHERN UTAH**

9:45 AM **BREAK**

209-7 10:00 AM Licht, Alexis*; Page, Mara; Meijer, Niels; Schauer, Andrew J.; Bajnai, David; Fiebig, Jens; Mulch, Andreas; Huntington, Katharine W.; Abels, Hemmo; Guo, Zhaojie; Lai, Zhongping; Dupont-Nivet, Guillaume: **PALEOGENE DESERTIFICATION OF CENTRAL ASIA SEEN THROUGH THE PALEOSOL RECORD: A TALE OF CLUMPED ISOTOPES AND SOIL PALEOBAROMETRY**

209-8 10:15 AM Fischer-Femal, Brenden J.*; Bowen, Gabriel J.: **MODEL OF DUAL ISOTOPES OF PALEOSOL CARBONATES SHOWS SPATIAL PATTERNS OF CLIMATE CHANGE OVER THE PALEOCENE-EOCENE THERMAL MAXIMUM (PETM)**

209-9 10:30 AM Fan, Majie*; Godfrey, Conan; Jesmok, Greg; Upadhyay, Deepshikha; Tripathi, Aradhna: **PETROGRAPHY AND STABLE AND CLUMPED ISOTOPE GEOCHEMISTRY OF OLIGOCENE-MIOCENE CONTINENTAL CARBONATES IN SOUTH TEXAS: IMPLICATIONS FOR PALEOCLIMATE**

AND PALEOENVIRONMENT VARIATIONS NEAR SEA-LEVEL (Invited Presentation)

- 209-10 10:50 AM Howard, Sian*; McInerney, Francesca A.; Farrell, Mark; Caddy-Retalic, Stefan; Hall, Tony: **LEAF WAX N-ALKANE SIGNALS IN SEDIMENTARY RECORDS: WHAT ARE THE KEY DRIVERS?**
- 209-11 11:05 AM Feinberg, Joshua M.*; Maxbauer, Daniel P.; Fox, David L.; Clyde, William C.; Nater, Edward A.: **RECONSTRUCTING HIGH RESOLUTION RECORDS OF PALEOCLIMATE FROM MAGNETIC MINERAL ASSEMBLAGES IN MODERN SOILS AND PALEOSOLS SEQUENCES: PROGRESS AND CHALLENGES (Invited Presentation)**
- 209-12 11:25 AM Bakkellund, Aleesha*; Porter, Trevor J.; Feakins, Sarah J.; Froese, Duane G.; Otiniano, Gerard A.: **APPARENT FRACTIONATION OF HYDROGEN ISOTOPES IN N-ALKANOIC ACIDS IN A SOIL TRANSECT FROM BOREAL FORESTS IN EASTERN BERINGIA**
- 209-13 11:40 AM Letourmy, Yohan*; Driese, Steven G.; Sims, Justin R.: **A NOVEL METHODOLOGY TO EXAMINING THE SEDIMENT ACCUMULATION HISTORY OF TERRESTRIAL BASINS: APPLICATION TO THE UNESCO WORLD HERITAGE JOGGINS FOSSIL CLIFFS, NOVA SCOTIA, CANADA**
- 11:55 AM **DISCUSSION**

SESSION NO. 210 

T175. Earthquakes, Faults, and Fault Systems in the Pacific Northwest

8:00 AM, The Conference Center, Chelan 4

Timothy J. Walsh and Corina Forson, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 210-1 8:05 AM Anderson, Megan L.*; Dragovich, Joe D.; Mahan, Shannon A.; MacDonald, James H.; Koger, Curtis J.; Cakir, Recep; Allen, Mitchell; Mavor, Skyler; Blakely, Richard J.; Wells, Ray E.: **NO STRAIN LEFT BEHIND: THE PUGET LOWLAND NEOTECTONIC FAULT NETWORK (Invited Presentation)**
- 210-2 8:25 AM Morell, Kristin*; Regalla, Christine; Amos, Colin B.; Bennett, Scott E.K.; Graham, Audrey; Leonard, Lucinda J.; Lynch, Emerson; Harrichhausen, Nicolas: **LIDAR DATA, GEOLOGIC MAPPING, AND PALEOSEISMIC TRENCHING REVEAL LATE QUATERNARY FAULT RUPTURES IN THE CASCADIA FOREARC OF SOUTHWESTERN BRITISH COLUMBIA**
- 210-3 8:40 AM Barrie, Vaughn*; Greene, H. Gary: **THE DEVILS MOUNTAIN FAULT ZONE: AN ACTIVE FAULT AND FOLD BELT OF THE PACIFIC NORTHWEST OF NORTH AMERICA**
- 210-4 8:55 AM Goldfinger, Chris*: **THE CASCADIA CREEPING SECTION: STRUCTURAL EVIDENCE FOR HETEROGENEOUS PLATE COUPLING AND LINKAGES TO GEODESY AND PALEOSEISMOLOGY**
- 210-5 9:10 AM Wirth, Erin*; Frankel, Arthur D.; Vidale, John E.; Marafi, Nasser; Stephenson, William J.: **3-D SIMULATIONS OF M9 EARTHQUAKES ON THE CASCADIA MEGATHRUST: KEY PARAMETERS AND CONSTRAINTS FROM PALEOSEISMIC EVIDENCE**
- 9:25 AM **BREAK**
- 210-6 9:40 AM Bennett, Scott E.K.*; Reid, Mattie M.; Delano, Jamie; Scharer, Katherine M.; Kelsey, Harvey M.; McPhillips, Devin; Sherrod, Brian L.; Streig, Ashley R.; Hornsby, Kristofer T.; Martin, Gregory; Mahan, Shannon A.: **LATE QUATERNARY EARTHQUAKES ON THE CANYON RIVER FAULT, OLYMPIC MOUNTAINS, WASHINGTON: LINKING ACTIVE FAULTS IN THE PUGET LOWLAND TO OFFSHORE CASCADIA (Invited Presentation)**
- 210-7 10:00 AM Contreras, Trevor A.*; Legorreta Paulin, Gabriel; Patton, Annette I.; Weeks, Sarah A.; Stone, Kimberly A.; Spangler, Eleanor; Fusso, Logan A.; Polenz, Michael: **FINDING**

FAULTS ALONG HOOD CANAL: FIELD-BASED INSIGHTS FROM FIVE YEARS OF GEOLOGIC MAPPING

- 210-8 10:15 AM Wegmann, Karl W.*; Leithold, Elana L.; Bohnenstiehl, DelWayne R.; Joyner, Catelyn; Pollen, Audrianna F.: **LACUSTRINE PALEOSEISMOLOGY FROM LAKE CRESCENT CONFIRMS MULTIPLE HOLOCENE RUPTURES OF THE LAKE CREEK – BOUNDARY CREEK FAULT ZONE IN RESPONSE TO NORTHWARD CONVERGENCE AND CLOCKWISE ROTATION OF THE NORTHERN OLYMPIC PENINSULA, WASHINGTON**
- 210-9 10:30 AM Staisch, Lydia M.*; Kelsey, Harvey; Sherrod, Brian L.; Blakely, Richard J.; Styron, Richard H.: **FROM GRAVITY ANOMALIES TO GRADED STREAMS: ASSESSING EARTHQUAKE HAZARDS IN CENTRAL WASHINGTON STATE WITH GEOPHYSICAL, GEOLOGIC, AND GEOMORPHIC CONSTRAINTS**
- 210-10 10:45 AM Brocher, Thomas M.*: **EVIDENCE FAVORING AN EPICENTER NEAR ENTIAT FOR THE LARGE DECEMBER 1872 WASHINGTON STATE EARTHQUAKE**
- 210-11 11:00 AM Madin, Ian P.*; Burns, William J.: **INCIDENTAL DISCOVERY OF YOUNG FAULT FEATURES IN OREGON LIDAR CONSORTIUM LIDAR DATA (Invited Presentation)**
- 210-12 11:20 AM Bacon, Charles R.*; Robinson, Joel E.: **POSTGLACIAL FAULTING NEAR CRATER LAKE, OREGON**

SESSION NO. 211

T181. The Geological Signature of Natural Hazard Events I (GSA Environmental and Engineering Geology Division; GSA Sedimentary Geology Division)

8:00 AM, The Conference Center, Chelan 5

Peter Bobrowsky, David H. Huntley, Jasper Knight and Catherine Chague-Goff, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 211-1 8:15 AM Kelson, Keith*; Hall, Brian; Harden, Tessa; Mahan, Shannon; Duren, Angela: **LATE HOLOCENE PALEOFLOODS ON THE MIDDLE FORK WILLAMETTE RIVER: IMPROVING HYDROLOGIC LOADING INPUT FOR USACE DAM SAFETY EVALUATIONS**
- 211-2 8:30 AM Ostenaar, Dean*: **BETTER ESTIMATING UNCERTAINTY IN GEOLOGIC PALEOFLOOD ANALYSES**
- 211-3 8:45 AM McKay, Larry D.*; Cyr, Howard J.; Tran, Liem; Horn, Sally P.: **SEDIMENTARY SIGNATURE OF HOLOCENE FLOOD DEPOSITS IN UPPER REACHES OF THE TENNESSEE RIVER**
- 211-4 9:00 AM Milewski, Adam M.*; Leigh, David S.: **PALEOFLOODS IN THE TENNESSEE RIVER BASIN: RECORDS OF MEGAFLOODS USING TRACTIVE-LOAD DEPOSITS**
- 211-5 9:15 AM Hodge, Joshua Brian*: **POWERFUL HURRICANE STRIKES SERVE AS GEOLOGIC AGENTS ON THE MCFADDIN NATIONAL WILDLIFE REFUGE, TEXAS**
- 211-6 9:30 AM Tang, Hui*; Weiss, Robert: **MARINE AND TERRESTRIAL SIGNALS IN TSUNAMI DEPOSITS**
- 9:45 AM **DISCUSSION**
- 10:00 AM **BREAK**
- 211-7 10:15 AM Huntley, David H.*; Bobrowsky, Peter; Sawai, Yuki; Tanigawa, Koichiro; Chague-Goff, Catherine; Goff, James: **GEOLOGICAL SIGNATURE OF MARINE GEOHAZARDS IN COASTAL NORTHWEST BRITISH COLUMBIA**
- 211-8 10:30 AM Koeberl, Christian*: **METEORITE IMPACT AND AIRBURSTS AS A NATURAL HAZARD (Invited Presentation)**
- 211-9 10:50 AM Hawkes, Andrea*; Donnelly, Jeffrey P.: **MILLENNIAL ARCTIC, TEMPERATE, AND TROPICAL STORM RECONSTRUCTIONS; FREQUENCY, PERIODICITY, AND TELECONNECTIONS (Invited Presentation)**

AM
TUESDAY

- 211-10 11:10 AM Baker, Victor R.*: **THE SUPREME IMPORTANCE OF GEOLOGICAL THINKING FOR COPING WITH NATURAL HAZARD EVENTS (Invited Presentation)**
- 211-11 11:30 AM Lancaster, Nick*: **CHALLENGES IN UNDERSTANDING THE QUATERNARY RECORD OF DUNE DEPOSITS**
11:45 AM **DISCUSSION**

SESSION NO. 212

T187. How, and Under What Conditions, Does Weathering Influence Surface Processes? (GSA Quaternary Geology and Geomorphology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group)

8:00 AM, The Conference Center, Chelan 2

Martha Cary Eppes, Gregory S. Hancock, Greg M. Stock and Bernard Hallet, Presiding

- 212-1 8:00 AM McFadden, Leslie D.*: **GSA QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION KIRK BRYAN AWARD: SOIL GEOMORPHOLOGICAL RESEARCH IN ARIDLANDS: THERE MIGHT BE A LITTLE DUST ON THE BOTTLE—IT'S ONE OF THOSE THINGS THAT GETS SWEETER WITH TIME**
- 212-2 8:30 AM Persico, Lyman P.*; McFadden, Les; McAuliffe, Joseph R.: **HILLSLOPES IN THE MOJAVE: REGIMES OF WEATHERING, SOIL FORMATION, AND EROSION ALTERED BY A FLIP OF THE PLEISTOCENE-HOLOCENE CLIMATE SWITCH (Invited Presentation)**
- 212-3 8:45 AM West, Nicole*; Kirby, Eric; Nyblade, Andrew A.; Brantley, Susan L.: **ASPECT-DEPENDENT FEEDBACKS BETWEEN REGOLITH PRODUCTION AND TRANSPORT AT THE SHALE HILLS CRITICAL ZONE OBSERVATORY**
- 212-4 9:00 AM Germanoski, Dru*: **DIFFERENTIAL WEATHERING AND RELATIONSHIPS BETWEEN TOPOGRAPHY, LITHOLOGY, AND REGOLITH THICKNESS IN EAST-CENTRAL PENNSYLVANIA**
- 212-5 9:15 AM Johnstone, Sam*; Finnegan, Noah J.; Hilley, George E.: **WHEN WATER IS SCARCE AND ROCKS ARE FRAGILE, EQUATOR-FACING VALLEY NETWORKS OUT-STRETCH THEIR POLE-FACING COUNTERPARTS**
- 212-6 9:30 AM Linol, Bastien*; de Villiers, Stephanie; de Wit, Maarten J.: **COLLAPSE OF THE AFRICAN WEATHERING SURFACE ACROSS THE CONGO BASIN TRIGGERED CHANGES IN CENOZOIC OCEAN CHEMISTRY**
9:45 AM **BREAK**
- 212-7 10:00 AM Hancock, Gregory S.*; Shobe, Charles M.; Eppes, M.C.; Small, Eric E.: **FIELD EVIDENCE FOR THE INFLUENCE OF WEATHERING ON ROCK ERODIBILITY AND CHANNEL FORM IN BEDROCK RIVERS**
- 212-8 10:15 AM Cerda, Carla Ivanna*; Sweeney, Kristin E.: **GEOLOGIC CONTROLS ON SHORE PLATFORM MORPHOLOGY: IMPLICATIONS FOR BIODIVERSITY**
- 212-9 10:30 AM Siman-Tov, Shalev*; Stock, Greg M.; Brodsky, Emily E.; White, Joseph Clancy: **A MICROMETER THICK COATING LAYER SLOWING THE WEATHERING RATE OF GLACIAL POLISH (Invited Presentation)**
- 212-10 10:45 AM Eppes, Martha Cary*; Keanini, Russell: **CLIMATE, MECHANICAL WEATHERING, ROCK EROSION AND REGOLITH PRODUCTION: NEW INSIGHTS FROM FRACTURE MECHANICS**
- 212-11 11:00 AM Voigtlaender, Anne*; Leith, Kerry; Krautblatter, Michael: **CONSTRAINING THE PHYSICS OF SUBCRITICAL CRACK GROWTH IN CARRARA MARBLE USING NEUTRON DIFFRACTION TECHNIQUES**
- 212-12 11:15 AM Mackenzie-Helnwein, Peter*; Hallet, Bernard: **MECHANICAL ROCK BREAKDOWN DUE TO DIURNAL SOLAR EXPOSURE: RESOLVING A PARADOX BETWEEN OBSERVATIONS AND THEORY (Invited Presentation)**

- 212-13 11:30 AM Collins, Brian D.*; Stock, Greg M.; Eppes, Martha C.; Lewis, Scott W.; Corbett, Skye C.; Smith, Joel B.: **THERMALLY-INDUCED ROCK EXFOLIATION AS A MODULATOR FOR GRANITE DOME WEATHERING**
- 212-14 11:45 AM Moser, Faye L.*; Weiserbs, Benjamin; Eppes, Martha C.: **SPATIAL AND TEMPORAL EVOLUTION OF ROCK DOME EXFOLIATION IN DIFFERENT CLIMATIC, GEOMORPHIC AND GEOLOGIC SETTINGS**

SESSION NO. 213 \$

T218. Understanding the Interplay of Structural, Metamorphic, and Magmatic Processes in the Evolution of Convergent Margins: Lessons from the Proterozoic to Present-Day South American Andean Margin (GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA International/International Interdisciplinary Interest Group)

8:00 AM, The Conference Center, Tahoma 2

Sean R. Mulcahy, Sarah M. Roeske and William C. McClelland, Presiding

- 213-1 8:00 AM Horton, Brian K.*: **CONTRASTING TECTONIC REGIMES AND BASIN EVOLUTION IN RESPONSE TO VARIABLE PLATE COUPLING ALONG THE ANDEAN MARGIN**
- 213-2 8:15 AM Chen, Yi-Wei*; Wu, Jonny; Suppe, John: **BUILDING AN ANDES PLATE TECTONIC RECONSTRUCTION BACK TO THE LATE CRETACEOUS ~80MA USING UNFOLDED SLABS FROM SEISMIC TOMOGRAPHY: IMPLICATIONS FOR FLAT SLAB TECTONICS**
- 213-3 8:30 AM Mescua, José F.*; Giambiagi, Laura; Sruoga, Patricia; Winocur, Diego; Barrionuevo, Matías; Tapia, Felipe; Alvarez, Pamela; Spagnotto, Silvana Liz; Farias, Marcelo; Stahlschmidt, Erico; Benitez, Anahi: **FEEDBACKS BETWEEN MAGMATISM AND STRESS AND STRAIN FIELDS IN THE MALARGÜE FOLD AND THRUST BELT, SOUTHERN CENTRAL ANDES (34°-36°S)**
- 213-4 8:50 AM Perez, Nicholas*: **MULTIPHASE PRE-ANDEAN DEFORMATION GUIDES CENOZOIC MOUNTAIN BUILDING IN THE CENTRAL ANDES, SOUTHERN PERU**
- 213-5 9:10 AM Wise, James*: **FOLD ANALYSIS OF THE CENTRAL PERUVIAN SEGMENT OF THE ANDEAN OROGENY REVEALS STRAIN ACCUMULATION PATTERNS DURING REPEATED PARALLEL CONTRACTIONAL EVENTS**
- 213-6 9:25 AM Garibaldi, Nicolas*; Schaen, Allen; Tikoff, Basil; Singer, Bradley S.: **CRUSTAL SHORTENING INDUCED FILTER PRESSING AND RHYOLITE MELT EXTRACTION IN A SHALLOW PLUTONIC COMPLEX, SOUTHERN ANDES**
- 213-7 9:40 AM Jackson, Lily J.*; Horton, Brian K.; Vallejo, Cristian: **DETRITAL ZIRCON U-PB GEOCHRONOLOGY OF MODERN RIVER SANDS IN THE ECUADORIAN ANDES: IMPLICATIONS FOR TECTONIC HISTORY AND SEDIMENT RECYCLING**
9:55 AM **LIGHTNING TALKS**
10:10 AM **BREAK**
10:25 AM **LIGHTNING TALKS**
- 213-8 10:40 AM Hodgins, Eben Blake*; Crowley, James L.; Carlotto, Victor; Macdonald, Francis A.: **DISPLACED CAMBRIAN BASINS AND CAMBRIAN STRIKE-SLIP EMBLEMMENT OF THE AREQUIPA TERRANE IN SOUTHERN PERU**
- 213-9 10:55 AM Ratschbacher, Barbara*; Paterson, Scott R.; Alasino, Pablo; Larrovere, Mariano A.; Cao, Wenrong; Okaya, David: **DEPTH-DEPENDENT CHANGES IN DEFORMATION AND MAGMATISM IN THE FAMATINIAN ARC, ARGENTINA: IMPLICATIONS FOR ISOSTATIC RESPONSE AND MOUNTAIN BUILDING**
- 213-10 11:15 AM Larrovere, Mariano A.; Paterson, Scott R.*; Alasino, Pablo H.; Ratschbacher, Barbara C.; Lusk, Alexander Dmitri Johnston; Cawood, Tarryn Kim: **ARCHITECTURE OF CRUSTAL-SCALE DUCTILE SHEAR**

ZONE SYSTEMS IN A HOT OROGEN: THE ORDOVICIAN FAMATINIAN OROGEN, NW ARGENTINA

- 213-11 11:30 AM Webber, Patricia*; Houlihan, Emily; Tholt, Andrew; McClelland, William C.; Roeske, Sarah M.; Mulcahy, Sean R.: **UPB CHARACTERIZATION OF SIERRA DE MAZ: IMPLICATIONS FOR THE TIMING OF TERRANE ACCRETION AND TRANSLATION ON THE WESTERN MARGIN OF GONDWANA**
- 213-12 11:45 AM Roeske, Sarah M.*; Mulcahy, Sean R.; McClelland, William C.: **THE LINK BETWEEN ORDOVICIAN – EARLY DEVONIAN TERRANE COLLISION AND TRANSLATION AND THE FLARE-UP AND SUDDEN CESSATION OF THE FAMATINA ARC**

SESSION NO. 214

T219. Challenges in Tectonics: Dynamic Interactions among Earth-Surface Processes, Landscape Evolution, and Tectonics I (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; SEPM (Society for Sedimentary Geology); Future of Tectonics Initiative)

8:00 AM, The Conference Center, Tahoma 4

Roman A. DiBiase, Elizabeth J. Cassel and Majie Fan, Presiding

- 214-1 8:00 AM Huntington, Katharine W.*; Klepeis, Keith; Cassel, Elizabeth J.; Currie, Claire A.; DiBiase, Roman A.; Kirby, Eric; Lang, Karl A.; Pazzaglia, Frank; Riebe, Clifford S.; Zeitler, Peter: **UNDERSTANDING THE DYNAMIC INTERACTIONS BETWEEN EARTH-SURFACE PROCESSES AND TECTONICS: OPPORTUNITIES FOR PROGRESS FROM OUTCROP TO GLOBAL SCALES**
- 214-2 8:15 AM Hayman, Nicholas W.*; Gulick, Sean; Milliken, Kitty; Ramirez, Sebastian G.: **WHAT ARE THE POSSIBLE SEDIMENTARY-TECTONIC-CLIMATE LINKAGES ALONG THE MIOCENE-TO-RECENT SOUTHWEST JAPAN MARGIN?**
- 214-3 8:30 AM Staisch, Lydia M.*; O'Connor, Jim E.; Holm-Denoma, Christopher S.: **U-PB DETRITAL ZIRCON PROVENANCE OF THE RINGOLD FORMATION WITH IMPLICATIONS FOR THE ANCESTRAL COLUMBIA AND SNAKE RIVER DRAINAGE AND REGIONAL TECTONIC UPLIFT**
- 214-4 8:45 AM Schwartz, Theresa M.*; Chamberlain, C. Page; Graham, Stephan A.: **PALEOGENE LANDSCAPE EVOLUTION IN THE NORTHERN ROCKY MOUNTAIN CORDILLERA**
- 214-5 9:00 AM Foster-Baril, Zachary*; Cassel, Elizabeth J.; Leier, Andrew; Archibald, S. Bruce: **EOCENE BASIN RECORDS OF VOLCANISM, TOPOGRAPHY, AND TECTONICS IN THE NORTH AMERICAN CORDILLERAN HINTERLAND, SOUTHERN BRITISH COLUMBIA**
- 214-6 9:15 AM Garzzone, Carmala N.*; McQuarrie, Nadine; Perez, Nicholas; Ehlers, Todd A.; Beck, Susan; Kar, Nandini; Eichelberger, Nathan W.; Chapman, Alan D.; Ward, Kevin M.; Ducea, Mihai N.; Lease, Richard O.; Poulsen, Christopher J.; Wagner, Lara S.; Saylor, Joel E.; Zandt, George; Horton, Brian K.: **THE TECTONIC EVOLUTION OF THE CENTRAL ANDEAN PLATEAU AND GEODYNAMIC IMPLICATIONS FOR THE GROWTH OF PLATEAUS (Invited Presentation)**
- 214-7 9:35 AM Mulch, Andreas*; Nieto-Moreno, Vanesa; Pingel, Heiko; Rohrmann, Alexander; Sachse, Dirk; Chamberlain, C. Page; Strecker, Manfred R.: **PRECIPITATION HYDROGEN ISOTOPE RECORDS TRACK TOPOGRAPHY OF THE EVOLVING ANDEAN PLATEAU MARGIN**
- 9:50 AM **BREAK**
- 214-8 10:05 AM Terhune, Patrick*; Benowitz, Jeff A.; Layer, Paul W.; Trop, Jeffrey M.; O'Sullivan, Paul B.: **THERMOCHRONOLOGY OF THE TALKEETNA MOUNTAINS OF SOUTHERN ALASKA: CENOZOIC TOPOGRAPHIC DEVELOPMENT HISTORY**

- 214-9 10:20 AM Enkelmann, Eva*; Dunn, Catherine A.; Bootes, Nathaniel; Lease, Richard O.; Ridgway, Kenneth D.: **SOURCE TO SINK RECORD OF EROSION ALONG A GLACIATED CONVERGENT MARGIN**
- 214-10 10:35 AM Meijers, Maud J.M.*; Mulch, Andreas; Brocard, Gilles Y.; Cosca, Michael A.; Niedermeyer, Eva M.; Teyssier, Christian; Langereis, Cor G.; Whitney, Donna L.: **LATE MIOCENE TO PLIOGENE PALEOENVIRONMENT AND SURFACE UPLIFT OF THE CENTRAL ANATOLIAN PLATEAU AND ITS SOUTHERN MARGIN (TURKEY)**
- 214-11 10:50 AM Campbell, Clay*; Taylor, Michael; Licht, Alexis; Mueller, Megan A.; Möller, Andreas; McLean, Noah; Ocakoğlu, Faruk; Coster, Pauline; Métais, Grégoire; Beard, K. Christopher: **TECTONIC EVOLUTION OF THE IZMIR ANKARA SUTURE ZONE IN NORTHWEST TURKEY USING ZIRCON U-PB GEOCHRONOLOGY AND ZIRCON LU-HF ISOTOPIC TRACERS**
- 214-12 11:05 AM Cheng, Feng*; Garzzone, Carmala N.; Guo, Zhaojie; Jolivet, Marc: **CENOZOIC SOURCE TO SINK RELATION BETWEEN THE QAIDAM BASIN AND THE EASTERN KUNLUN SHAN**
- 214-13 11:20 AM Villarreal, Dustin*; Robinson, Alex C.; Worthington, James; Chapman, James B.; Carrapa, Barbara; Oimahmadov, Ilhomjon; MacDonald, Brian; Gadoev, Mustafo: **SEDIMENTOLOGICAL EVIDENCE FOR EARLY MESOZOIC CRUSTAL SUTURING OF THE PAMIR**
- 214-14 11:35 AM Behr, Whitney M.*; Becker, Thorsten: **DEEP SEDIMENT SUBDUCTION CONTROLS SUBDUCTION PLATE SPEEDS**

SESSION NO. 215

T232. Subduction Zone Response to Ridge and Plateau Collision: Perspectives from the Archean to the Cenozoic (GSA Structural Geology and Tectonics Division)

8:00 AM, The Conference Center, Tahoma 5

Michael P. Eddy and Paul J. Umhoefer, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 215-1 8:15 AM Thorkelson, Derek*; Eyuboglu, Yener: **SLAB WINDOWS: FROM UNDERSTANDING THE CENOZOIC TO SOLVING THE PRECAMBRIAN (Invited Presentation)**
- 215-2 8:35 AM Billen, Magali I.*: **THE EFFECT OF SPREADING RIDGES AND BUOYANT CRUST ON THE DYNAMICS OF SUBDUCTION (Invited Presentation)**
- 215-3 8:55 AM Russo, R.M.*: **LATE CENOZOIC SUBDUCTION OF THE CHILE RIDGE BENEATH PATAGONIA: RESULTS FROM PASSIVE SEISMIC DEPLOYMENTS (Invited Presentation)**
- 215-4 9:15 AM Wu, Jonny*; Lin, Yi-An; Flament, Nicolas: **IMAGED AND PREDICTED MANTLE STRUCTURE OF THE SUBDUCTED IZANAGI-PACIFIC RIDGE UNDER EAST ASIA**
- 215-5 9:30 AM Priestley, Keith F.*; Rafi, Zahid; Mahmood, Nasir: **LATERAL VARIATIONS IN THE CRUSTAL STRUCTURE OF THE PAKISTAN REGION**
- 215-6 9:45 AM Barbosa-Espitia, Ángel A.*; Foster, David A.; Pardo-Trujillo, Andres; Restrepo-Moreno, Sergio A.; Kamenov, George: **NEOGENE MAGMATISM ALONG WESTERN CORDILLERA OF COLOMBIA AND ITS RELATIONSHIP WITH THE TECTONIC HISTORY OF THE NORTHERN ANDES**
- 10:00 AM **BREAK**
- 215-7 10:15 AM Umhoefer, Paul J.*; Eddy, Michael P.; Miller, Robert B.; Tepper, Jeffrey H.; Skinner, Lisa A.: **UPPER PLATE RESPONSE TO RIDGE AND PLATEAU SUBDUCTION, WASHINGTON CASCADES, USA: IMPLICATIONS FOR PLATE TECTONIC EVOLUTION OF THE PACIFIC NORTHWEST**

AM
TUESDAY

- 215-8** 10:30 AM Kuiper, Yvette D.*; Wakabayashi, John: **A DETAILED COMPARISON BETWEEN MID-PALEOZOIC NEW ENGLAND AND LATE CENOZOIC COASTAL CALIFORNIA: SUBDUCTION OF AN OCEANIC RIDGE-TRANSFORM FAULT SYSTEM**
- 215-9** 10:45 AM Jacobi, Robert D.*; Mitchell, Charles: **ASEISMIC RIDGE SUBDUCTION, FLAT SLAB SUBDUCTION, THE TACONIC OROGENY IN WESTERN NEW ENGLAND, AND THE UTICA FORELAND BASIN IN EASTERN NEW YORK STATE**
- 215-10** 11:00 AM Li, Shimin*; Zhu, Di-Cheng; Wang, Qing; Stern, Robert, J.; Zhao, Zhi-Dan; Cawood, Peter A.: **A LATE JURASSIC COLLISION EVENT IN CENTRAL TIBET IDENTIFIED BY DETRITAL ZIRCONS FROM THE MUGANGRI MÉLANGE IN THE BANGONG-NUJIANG SUTURE ZONE**
- 215-11** 11:15 AM Windley, Brian*; Xiao, Wenjiao: **PALEOZOIC RIDGE SUBDUCTION AND SLAB WINDOWS IN THE CENTRAL ASIAN OROGENIC BELT: TECTONIC IMPLICATIONS FOR THE EVOLUTION OF AN ACCRETIONARY OROGEN**
- 215-12** 11:30 AM Soto, Paula Mariana*; Van Buer, Nicholas J.: **PRESSURE AND TEMPERATURE CONSTRAINTS ON CRETACEOUS PLUTONS OF THE WESTERN MOJAVE DESERT**
- 215-13** 11:45 AM Meijer, Arend*: **EVIDENCE FOR A PALEOPROTEROZOIC SPREADING RIDGE SUBDUCTION EVENT IN THE PINAL TERRAIN OF SOUTHERN ARIZONA**

SESSION NO. 216 ♦

T246. Weather-Induced Landslides, Debris Flows, and Rock Fall (GSA Environmental and Engineering Geology Division; GSA Hydrogeology Division)

8:00 AM, The Conference Center, Skagit 5

Benjamin B. Mirus, Mark E. Reid, Stephen L. Slaughter and Rex L. Baum, Presiding

- 216-1** 8:00 AM Strauch, Ronda*; Istanbuluoglu, Erkan; Siddhartha Nudurupati, Sai; Bandaragoda, Christina: **A REGIONAL MODEL OF LANDSLIDE SUSCEPTIBILITY USING LANDLAB AND MACRO-SCALE HYDROLOGIC SIMULATIONS**
- 216-2** 8:15 AM Thomas, Matthew A.*; Mirus, Benjamin B.; Collins, Brian D.; Lu, Ning; Godt, Jonathan W.: **VARIABILITY IN SOIL-WATER RETENTION PROPERTIES AND IMPLICATIONS FOR PHYSICS-BASED SIMULATION OF LANDSLIDE EARLY WARNING CRITERIA**
- 216-3** 8:30 AM Oakley, Nina S.*; Lancaster, Jeremy T.; Cordeira, Jason M.: **ATMOSPHERIC RIVERS AND MASS MOVEMENTS IN CALIFORNIA**
- 216-4** 8:45 AM Staley, Dennis M.*; Kean, Jason W.; McGuire, Luke; Rengers, Francis K.; Pauling, Hannah; Smith, Joel B.; Tillery, Anne: **ESTIMATING POST-FIRE DEBRIS-FLOW HAZARDS IN THE WESTERN UNITED STATES PRIOR TO WILDFIRE**
- 216-5** 9:00 AM Bogaard, Thom*: **CAN WE INCLUDE HYDROLOGICAL INFORMATION IN REGIONAL THRESHOLDS FOR LANDSLIDE INITIATION? ANALYSIS OF THE POTENTIAL OF A 'CAUSE-TRIGGER' BASED HYDROLOGICAL THRESHOLDS APPROACH (Invited Presentation)**
- 9:20 AM **BREAK**
- 216-6** 9:35 AM Collins, Brian D.*; Reid, Mark E.: **MOBILITY SEQUENCE OF THE 2014 SR530 (OSO) LANDSLIDE REVEALED BY STRATIGRAPHIC AND STRUCTURAL MAPPING (Invited Presentation)**
- 216-7** 9:55 AM Reid, Mark E.*; Collins, Brian D.: **LIQUEFACTION AND HUMMOCK FORMATION IN THE 2014 OSO LANDSLIDE EVENT**
- 216-8** 10:10 AM Badger, Thomas C.*; D'Ignazio, Marco: **GROUNDWATER AND SHEAR STRENGTH INFLUENCE ON FIRST-TIME LANDSLIDES IN VASHON ADVANCE**

- GLACIOLACUSTRINE DEPOSITS, PUGET LOWLANDS, WASHINGTON**
- 216-9** 10:25 AM Perkins, Jonathan Patrick*; Reid, Mark E.; Schmidt, Kevin M.: **SENSITIVITY OF GLACIAL TERRACE STABILITY TO VARIABLE STRATIGRAPHY, PRECIPITATION, AND FAILURE HISTORY**
- 216-10** 10:40 AM Iverson, Richard M.*; George, David L.: **MODELING THE DYNAMICS OF WEATHER-TRIGGERED LANDSLIDES: WHY A "HOT START" IS WRONG**
- 10:55 AM **DISCUSSION**
- 216-11** 11:10 AM Geertsema, Marten*: **CRYOSPHERIC CONDITIONING OF LANDSLIDES IN WESTERN CANADA AND ALASKA (Invited Presentation)**
- 216-12** 11:30 AM Schulz, William H.*; Smith, Joel B.; Wang, Gonghui; Jiang, Yao; Roering, Joshua J.: **SOIL SWELLING INHIBITS LANDSLIDE INITIATION AND ACCELERATION**
- 216-13** 11:45 AM Smith, Zachary D.*; Rowley, Peter D.; Maxwell, David J.; Butler, Chris; MacLean, John S.: **GROUNDWATER FLOW INTERACTIONS BETWEEN BASIN AND RANGE FAULTS AND THE MARKAGUNT GRAVITY SLIDE: IMPLICATIONS FOR THE PANGUITCH MUNICIPAL WATERSHED, SOUTHWEST UTAH**

SESSION NO. 217

T247. Deciphering the Major Paleoenvironmental Crises of the Earth and Their Impact on the Marine Ecosystems and Biogeochemical Cycles (Paleontological Research Institution; GSA Sedimentary Geology Division; Paleontological Society)

8:00 AM, Washington State Convention Center, Room 307/308

Marcello Natalicchio, Francesco Dela Pierre and Elliot Jagniecki, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 217-1** 8:10 AM Petrush, Daniel*: **MICROBIAL CARBONATES: DIAGENESIS AND ITS EFFECTS ON THE PRESERVATION POTENTIAL OF PALEOCEAN REDOX PROXIES (Invited Presentation)**
- 217-2** 8:30 AM Wang, Ping*; Du, Yuansheng; Algeo, Thomas J.; Yu, Wenchao; Zhou, Qi; Xu, Yuan; Yuan, Liangjun: **POST-STURTIAN SULFUR ISOTOPE ANOMALIES IN THE NANHUA BASIN, SOUTH CHINA RELATED TO UPWARD H₂S MIGRATION**
- 217-3** 8:45 AM Kimmig, Sara Rose*; Holmden, Chris: **ARAGONITE 'CALCITE SEA' — EVIDENCE FROM A MULTI-PROXY GEOCHEMICAL APPROACH**
- 217-4** 9:00 AM Shen, Bing*; Sun, Yuanlin; Nie, Ting; Peng, Yongbo; Huang, Tianzheng: **A STRONG CARBON ISOTOPE GRADIENT IN THE DEVONIAN-CARBONIFEROUS BOUNDARY: A NEW PERSPECTIVE ON CARBONATE CARBON ISOTOPE**
- 217-5** 9:15 AM Lowenstein, Tim K.*; Garcia Veigas, Javier; Cendón, Dioni I.; Gibert Beotas, Lluís: **RAPID CHANGES IN MAJOR ION CHEMISTRY OF SEAWATER AND THE END-PERMIAN MASS EXTINCTION (Invited Presentation)**
- 217-6** 9:35 AM Yager, Joyce*; Berelson, William M.; West, A. Joshua; Corsetti, Frank A.; Pinedo-Gonzalez, Paulina; Rosas, Silvia; Bottjer, David J.: **DECREASING WATER COLUMN DENITRIFICATION BEFORE THE END-TRIASSIC EXTINCTION? INSIGHT FROM STABLE NITROGEN ISOTOPES**
- 217-7** 9:50 AM Jones, David S.*; Beaty, Brian J.; Schaller, Morgan F.; Kent, Dennis V.; Olsen, Paul E.: **SEDIMENTARY Hg IN LATEST TRIASSIC RIFT BASIN STRATA OF EASTERN NORTH AMERICA: CAMP VOLCANISM, CO₂, AND END-TRIASSIC EXTINCTION**
- 10:05 AM **BREAK**
- 217-8** 10:20 AM Schoellhorn, Iris*; Adatte, Thierry; Spangenberg, Jorge; van de Schootbrugge, Bas; Houben, Sander; Janssen, Nico; Föllmi, Karl B.: **EARLY JURASSIC ENVIRONMENTAL**

CHANGE (HETTANGIAN - PLIENSBAKIAN): NEW EVIDENCE FROM A MULTI-PROXI RECORD FROM THE DORSET SECTION (GB)

- 217-9 10:35 AM Corsetti, Frank A.*; Yager, Joyce; Ritterbush, Kathleen A.; Ibarra, Yadira; Thibodeau, Alyson M.; Bergquist, Bridget A.; West, A. Joshua; Bottjer, David J.; Berelson, William M.; Rosas, Silvia: **TIMING AND ALTERNATIVE ECOSYSTEM STATES FOLLOWING THE END-TRIASSIC MASS EXTINCTION (NEVADA, PERU, ENGLAND): INSIGHTS FROM HG ANOMALIES AND THEIR RELATIONSHIP TO THE CENTRAL ATLANTIC MAGMATIC PROVINCE (Invited Presentation)**
- 217-10 10:55 AM Fantasia, Alicia*; Föllmi, Karl B.; Adatte, Thierry; Spangenberg, Jorge E.; Bernárdez, Enrique; Mattioli, Emanuela: **PALEOENVIRONMENTAL CHANGE DURING THE EARLY TOARCIAN OCEANIC ANOXIC EVENT: INSIGHTS FROM SWITZERLAND AND CHILE**
- 217-11 11:10 AM Bryant, Raquel M.*; Leckie, R. Mark: **FORAMINIFERAL RESPONSE TO THE ONSET OCEANIC ANOXIC EVENT 2 NEAR THE SOUTHERN APERTURE OF THE WESTERN INTERIOR SEAWAY**
- 217-12 11:25 AM Steinig, Sebastian*; Flögel, Sascha; Park, Wonsun; Latif, Mojib: **CLOUD FEEDBACKS MAINTAIN MERIDIONAL TEMPERATURE GRADIENT DURING EARLY CRETACEOUS GREENHOUSE CLIMATE**
- 217-13 11:40 AM Baddouh, M'bark; Karoly, Sean E.; Hinnov, Linda A.*: **MARINE BLACK SHALE AT DEMERARA RISE, EQUATORIAL ATLANTIC OCEAN, AT THE INCEPTION OF CRETACEOUS OCEANIC ANOXIC EVENT 2: A RECORD OF DISTURBANCE IN TERRESTRIAL SEDIMENT INFLUX, MARINE PRODUCTIVITY, NUTRIENT CYCLING, OCEANIC ANOXIA AND CIRCULATION**
- 11:55 AM **CONCLUDING REMARKS**

SESSION NO. 218

T257. Contributions of Rock- and Paleo-magnetism to Understanding Orogenic Processes

8:00 AM, The Conference Center, Yakima 1

Peter A. Selkin and Daniel Pastor-Galán, Presiding

- 218-1 8:00 AM Biedermann, Andrea R.*; Bilardello, Dario; Jackson, Mike; Feinberg, Joshua M.: **ISOLATING COMPONENTS OF COMPLEX MAGNETIC FABRICS TO ENHANCE THE ANISOTROPY CORRECTION OF PALEOMAGNETIC DIRECTIONS AND INTENSITIES (Invited Presentation)**
- 218-2 8:15 AM Weil, Arlo Brandon*; Yonkee, Adolph: **INTEGRATING AMS AND PALEOMAGNETISM TO FULLY RESTORE SHORTENING DIRECTIONS ACROSS COMPLEX OROGENIC SYSTEMS (Invited Presentation)**
- 218-3 8:30 AM Waters-Tormey, Cheryl*; Kelso, Paul; Tikoff, Basil: **WHICH SCALE(S) OF STRAIN ANALYSIS BEST CHARACTERIZES AN OVERPRINTING "BULK" DEFORMATION? A CASE STUDY FROM THE CAPRICORN RIDGE SHEAR ZONE, CENTRAL AUSTRALIA**
- 218-4 8:45 AM Adams, Gayln W.*; Dulin, Shannon A.; Elmore, Douglas; Evans, Stacey; Spencer, Brandon M.; Schwing, Jonathan E.: **TIMING OF DOLOMITIZING FLUIDS IN ZEBRA DOLOMITE BODIES OF NEVADA'S BASIN AND RANGE PROVINCE**
- 218-5 9:00 AM Hamilton, Christina D.*; Evans, Stacey; Elmore, Douglas; Engel, Michael; Parnell, John: **PALEOPLUMBING AND REMAGNETIZATION ALONG FAULTS IN SCOTLAND**
- 218-6 9:15 AM Acton, Gary D.*; Richter, Carl; Xuan, Chuang; Verosub, Kenneth L.: **PALEOENVIRONMENTAL CHANGE RECORDED IN THE MAGNETIC PROPERTIES OF MARINE SEDIMENTS CORED OFF THE MARGIN OF SPAIN AND PORTUGAL DURING IODP EXPEDITION 339**
- 9:30 AM **BREAK**

- 218-7 9:45 AM Gallo, Leandro Cesar*: **A PURE DIPOLE ANALYSIS OF THE GONDWANA APPARENT POLAR WANDER PATH: PALEOGEOGRAPHIC IMPLICATIONS IN THE EVOLUTION OF PANGEA (Invited Presentation)**
- 218-8 10:00 AM Song, Peiping*; Lin, Ding; Li, Zhenyu; Lippert, Peter C.; Yue, Yahui: **AN EARLY BIRD FROM GONDWANA: PALEOMAGNETISM OF LOWER PERMIAN LAVAS FROM NORTHERN QIANGTANG (TIBET) AND THE GEOGRAPHY OF THE PALEO-TETHYS**
- 218-9 10:15 AM Roperch, Pierrick*; Licht, Alexis; Dupont-Nivet, Guillaume; Win, Zaw; Poblete, Fernando; Aung, Day Wa; Westerveel, Jan; Swe, Hnin Hnin; Kay Thi, Myat: **FIRST PALEOMAGNETIC CONSTRAINTS ON THE LATITUDINAL DISPLACEMENT OF THE WEST BURMA BLOCK**
- 10:30 AM **DISCUSSION**

SESSION NO. 219

P4. Speed Dating!: Advice on Sampling and Applications Through the Lens of the Geochronologist (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Karst Division; GSA Limnogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Tammy Rittenour, Michelle Summa Nelson and Shannon A. Mahan, Presiding

- 9:00 AM **INTRODUCTION: SPEED DATING LIGHTNING PRESENTATIONS- ROUND 1**
- 219-1 9:05 AM Park Boush, Lisa E.*; Lehnert, Kerstin A.; Myrbo, Amy; Noren, Anders J.; Peters, Shanay; Singer, Brad S.; Williams, John W.; Goring, Simon; Condon, Daniel: **SPEED DATING! WHAT IS YOUR RATE? EARTH RATES: A NEW NSF FUNDED RESEARCH COORDINATION NETWORK FOR LINKING SCALES ACROSS THE SEDIMENTARY CRUST AND OTHER RELATED PROJECTS SUPPORTING GEOCHRONOLOGY**
- 219-2 9:10 AM Rittenour, Tammy*; Nelson, Michelle; Mahan, Shannon A.; Ideker, Carlie; Gray, Harrison: **SPEED DATING!: ADVICE ON SAMPLING AND APPLICATIONS FOR LUMINESCENCE DATING**
- 219-3 9:15 AM Paces, James B.*; Niespolo, Elizabeth; Sharp, Warren: **SPEED DATING WITH A YOUNG, DIVERSE CROWD: U-TH GEOCHRONOLOGY USING HYDROGENIC AND BIOGENIC MATERIALS**
- 219-4 9:20 AM Enkelmann, Eva*; Garver, John I.: **SPEED DATING!: ADVICE ON SAMPLING AND APPLICATIONS FOR FISSION-TRACK DATING**
- 219-5 9:25 AM Schoene, Blair*; Cottle, John; Eddy, Michael P.: **SPEED DATING!: SAMPLING AND APPLICATIONS FOR U-TH-PB GEOCHRONOLOGY**
- 219-6 9:30 AM Feinberg, Joshua M.*; Sprain, Courtney J.; Stoner, Joseph S.; Tauxe, Lisa; Swanson-Hysell, Nicholas L.: **SPEED DATING!: ADVICE ON SAMPLING AND APPLICATIONS FOR PALEOMAGNETISM**
- 9:35 AM **VISIT PRESENTERS AT THEIR BOOTHS (DATABASES, LUMINESCENCE, U-TH, FISSION TRACK, U-TH-PB, PALEOMAG)**
- 12:00 PM **LUNCH**
- 1:30 PM **INTRODUCTION: SPEED DATING LIGHTNING PRESENTATIONS- ROUND 2**
- 219-7 1:35 PM Pigati, Jeffrey S.*; Springer, Kathleen B.; Honke, Jeffrey S.: **SPEED DATING!: ADVICE ON SAMPLING AND APPLICATIONS FOR RADIOCARBON DATING**
- 219-8 1:40 PM Balco, Greg*; Goehring, Brent M.: **SPEED DATING: ARTISANAL KNOWLEDGE OF COSMOGENIC-NUCLIDE GEOCHRONOLOGISTS REVEALED**

AM TUESDAY

- 219-9** 1:45 PM Morgan, Leah*; Hemming, Sidney; DeLuca, Michael J.: **SPEED DATING!: ADVICE ON SAMPLING AND APPLICATIONS FOR ⁴⁰AR/³⁹AR GEOCHRONOLOGY**
- 219-10** 1:50 PM Ault, Alexis K.*; Guenther, William R.; Mcdermott, Robert G.: **SPEED DATING!: ADVICE ON SAMPLING AND APPLICATIONS FOR (U-TH)/HE THERMOCHRONOMETRY**
- 219-11** 1:55 PM Wan, Elmira*; Knott, Jeffrey R.; Walkup, Laura C.: **SPEED DATING! TEPHROCHRONOLOGY AS A GEOLOGIC DATING TOOL – TIME TESTED AND PROVEN!**
- 219-12** 2:00 PM Miller, Gifford*: **SPEED DATING: ADVISE ON SAMPLING AND APPLICATIONS FOR AMINO ACID RACEMIZATION DATING**
- 2:05 PM **VISIT PRESENTERS AT THEIR BOOTHS (RADIOCARBON, COSMOGENIC, AR-AR, (U-TH)/HE THERMOCHRON, TEPHROCHRON, AMINO ACIDS)**
- 4:30 PM **LIBATIONS, ALL SPEAKERS WILL BE AT BOOTHS**

- 220-12** 4:15 PM Voegelé, Kristyn K.*; Ullmann, Paul Victor; Heierbacher, Michael; Kibelstis, Brian J.; Putnam, Ian; Lacovara, Kenneth J.: **VERTICAL DISTRIBUTION OF FOSSILS IN THE LOWER HORNERSTOWN AND UPPER NAVESINK FORMATIONS AT EDELMAN FOSSIL PARK, NJ**
- 220-13** 4:30 PM Lombardo, Alexander*; Gaines, Robert: **THE STEPHEN FORMATION OF MARBLE CANYON, KOOTENAY NATIONAL PARK, BRITISH COLUMBIA: A SEDIMENTOLOGICAL AND STRATIGRAPHIC CHARACTERIZATION**
- 220-14** 4:45 PM Monarrez, Pedro M.*: **TESTING FOR ESCALATION ACROSS SPATIAL SCALES DURING THE MIDDLE JURASSIC: DISCORDANT OCCURRENCE AND ABUNDANCE PATTERNS ACROSS LOCAL, REGIONAL, AND GLOBAL SCALES**

AFTERNOON ORAL TECHNICAL SESSIONS

SESSION NO. 220

Db. Paleontology, Macroevolution/Biogeography

1:30 PM, Washington State Convention Center, Room 606

Gene Hunt and Martin Aberhan, Presiding

- 220-1** 1:30 PM Adrain, Jonathan M.*: **GENERA ARE EFFECTIVE SURROGATES FOR SPECIES RICHNESS IN DEEP TIME: COMPARISONS AT MULTIPLE SCALES**
- 220-2** 1:45 PM Roden, Vanessa Julie*; Kiessling, Wolfgang: **RELIABLE ESTIMATES OF BETA DIVERSITY WITH INCOMPLETE SAMPLING**
- 220-3** 2:00 PM Pierrehumbert, Nadia D.*: **THE ROLE OF HABITAT PERTURBATION IN FACILITATING PALEOCOMMUNITY TURNOVER**
- 220-4** 2:15 PM Kocsis, Ádám T.*; Reddin, Carl J.; Kiessling, Wolfgang: **DETERMINANTS OF BENTHIC BIOGEOGRAPHY IN THE OCEANS**
- 220-5** 2:30 PM Christie, Max*; Patzkowsky, Mark E.; Dietl, Gregory P.; Kelley, Patricia H.; Whitaker, Anna F.: **CHANGES IN TAXONOMIC AND FUNCTIONAL ECOLOGY NORTH OF A BIOGEOGRAPHIC BOUNDARY DURING THE PLIOCENE TO MODERN, WESTERN NORTH ATLANTIC**
- 220-6** 2:45 PM Fernandes Martins, Maria João*; Hunt, Gene; Thompson, Carmi Milagros; Lockwood, Rowan; Swaddle, John P.: **DID SEXUAL SELECTION HINDER SURVIVAL OF OSTRACODE SPECIES THROUGH THE K/PG MASS EXTINCTION?**
- 220-7** 3:00 PM Simpson, Andrew G.*: **RELATIONSHIPS BETWEEN EXTINCTION SELECTIVITY AND REGIONAL CLIMATE CHANGE INTENSITY IN MIO-PLIOCENE PLANTS OF NORTH AMERICA**
- 220-8** 3:15 PM Hunt, Gene*; Fernandes Martins, Maria João*; Puckett, T. Markham; Shaw, Jack O.; Lockwood, Rowan; Swaddle, John P.: **SEXUAL DIMORPHISM IS GENERALLY STABLE OVER THE LIFETIME OF FOSSIL OSTRACODE SPECIES**
- 220-9** 3:30 PM Yeakel, Justin Douglas*; Kempes, Christopher; Redner, Sidney: **THE DYNAMICS OF STARVATION AND RECOVERY: A MECHANISTIC MODEL FOR A WITHIN-LINEAGE DRIVER OF COPE'S RULE**
- 220-10** 3:45 PM Uhen, Mark*: **COORDINATED DIVERSITY CHANGES IN CENOZOIC MARINE VERTEBRATE REFLECT CLIMATIC FLUCTUATIONS**
- 220-11** 4:00 PM Na, Lin*; Li, Qijian; Kiessling, Wolfgang: **DISSECTING PATTERNS OF TURNOVER AND NESTEDNESS IN**

SESSION NO. 221

D14. Paleontology, Phylogenetic/Morphological Patterns: Vertebrates

1:30 PM, Washington State Convention Center, Room 604

Samantha S.B. Hopkins and Sinjini Sinha, Presiding

- 221-1** 1:30 PM Cohen, Joshua E.*; Frederickson, Joseph: **THE EFFECT OF WEAR ON THE PLACEMENT OF LANDMARKS ON MAMMALIAN DENTITIONS USING TWO- AND THREE-DIMENSIONAL GEOMETRIC MORPHOMETRICS**
- 221-2** 1:45 PM Long, Katherine L.*; Prothero, Donald; Madan, Meena A.; Syverson, V.J.P.: **DID SABER-TOOTH KITTENS GROW UP MUSCLEBOUND? A STUDY OF POSTNATAL LIMB BONE ALLOMETRY IN FELIDS FROM THE PLEISTOCENE OF RANCHO LA BREA**
- 221-3** 2:00 PM Mann, Arjan*; Paterson, Ryan; Tsuji, Linda A.: **CRANIAL OSTEOLOGY OF THE LONG-SNOUDED APEX PREDATOR *LYCAENOPS MAJOR* COMB. SP. (THERAPSIDA: GORGONOPSIA) FROM THE KAROO BASIN, SOUTH AFRICA**
- 221-4** 2:15 PM Marsh, Adam D.*; Parker, William G.; Kligman, Ben T.; Lessner, Emily J.: **BONEBED OF A CARNIVOROUS ARCHOSAURMORPH FROM THE CHINLE FORMATION (LATE TRIASSIC: NORIAN) OF PETRIFIED FOREST NATIONAL PARK**
- 221-5** 2:30 PM Surya, Kevin*; Brenes, Isabelle M.; Gardner, Jacob D.; Viñola López, Lázaro W.; Organ, Chris L.; Varricchio, David J.: **PELVIC COEVOLUTION WITH EGG SIZE AND SHAPE IN MODERN BIRDS: IMPLICATION FOR REPRODUCTIVE BIOLOGY OF EXTINCT DINOSAURS**
- 221-6** 2:45 PM Stack, Jack Reza*; Sallan, Lauren: **SAMPLING, STASIS AND SNOW: RESOLVING GAPS IN THE LATE PALEOZOIC FISH RECORD**
- 221-7** 3:00 PM Sime, John A.*; Chang, Jonathan; Alfaro, Michael E.; Sallan, Lauren C.: **DOES THE ECOLOGY OF CLADE IMBALANCE EXPLAIN THE "LIVING FOSSIL" PHENOMENON WITHIN A MEGA-PHYLOGENY OF RAY-FINNED (ACTINOPTERYGIAN) FISHES?**
- 221-8** 3:15 PM Lively, Joshua R.*: **UNDERSTANDING THE DIVERSIFICATION OF MOSASAURINAE BASED ON TWO NEW GENERA FROM THE WESTERN INTERIOR SEAWAY**
- 221-9** 3:30 PM Sinha, Sinjini*; Twitchett, Richard J.; Marshall, John E.A.; Bernard, Emma: **MORPHOMETRIC STUDY OF THE LATE CRETACEOUS SHARK FAUNA FROM THE ENGLISH CHALK AND ITS PALEOECOLOGIC IMPLICATIONS**
- 221-10** 3:45 PM Hopkins, Samantha S.B.*; McLaughlin, Win N.F.; Famoso, Nicholas A.: **SIMILARITIES AND DIFFERENCES BETWEEN THE JOHN DAY AND CROOKED RIVER BASINS: OLIGOCENE LANDSCAPE HETEROGENEITY IN TERRESTRIAL FAUNAS**

SESSION NO. 222

D19. Geoscience and Public Policy: Bringing Our Science to Society

1:30 PM, Washington State Convention Center, Room 613/614

Christopher P. Carlson and Bruce Clark, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 222-1 1:35 PM Wessel, Gregory R.*: **GEOLOGY ACROSS BORDERS: GUIDELINES FOR SUSTAINABLE GLOBAL DEVELOPMENT**
- 222-2 1:50 PM Stewart, Alexander K.*: **SEEING THE MOST GEOLOGY: US SPECIAL OPERATIONS' DOCTRINE AND THE PHYSICAL ENVIRONMENT, WHAT'S MISSING?**
- 222-3 2:05 PM Geissman, John W.*: **21 YEARS AFTER HOUSE ARREST IN JIMSAR, XINJIANG PROVINCE, PEOPLES REPUBLIC OF CHINA, WHILE STUDYING THE PERMIAN/ TRIASSIC BOUNDARY SECTION, A SOON TO BE RETIRED GEOSCIENTIST LOOKS BACK ON MANY INTERNATIONAL EXPLOITS**
- 222-4 2:20 PM Flessa, Karl W.*: **WATCHING THE RIVER FLOW: BINATIONAL SCIENTIFIC MONITORING IN THE COLORADO RIVER DELTA**
- 222-5 2:35 PM Eriksson, Susan C.*: **THINKING MORE BROADLY AND MORE DEEPLY ABOUT EVALUATION**
- 222-6 2:50 PM Finzi, Yaron M.*: **IMPROVING AND GAUGING COMMUNAL AND FAMILIAL RESILIENCE USING A PERSONAL SEISMIC RISK AND READINESS INTERACTIVE MAPPING TOOL**
- 3:05 PM **CONCLUDING REMARKS**

SESSION NO. 223

P5. Origin, Accretion, and Translation of Mesozoic-Cenozoic Terranes along the Pacific Margin of North America (GSA Structural Geology and Tectonics Division)

1:30 PM, Washington State Convention Center, Ballroom 6A

David T. Katopody, Mark T. Brandon and Bernard Housen, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 223-1 1:35 PM Cowan, Darrel S.*: **THE CASE FOR COASTWISE DISPLACEMENTS: A PERSONAL VIEW**
- 223-2 1:55 PM Liu, Lijun*: **GEODYNAMIC CONSTRAINTS ON TERRANE ACCRETION ALONG THE WEST COAST OF NORTH AMERICA**
- 223-3 2:15 PM Housen, Bernard A.*: **A SYNOPSIS OF PALEOMAGNETIC DATA FROM CRETACEOUS ROCKS OF NORTH AMERICA AND CORDILLERAN TERRANES**
- 223-4 2:35 PM Gordon, Richard G.*; Woodworth, Daniel T.; Seidman, Lily E.; Zheng, Lin: **TRUE POLAR WANDER AND THE ORIGIN OF THE HAWAIIAN-EMPEROR BEND: IMPLICATIONS FOR PALEOGEOGRAPHY AND CIRCUM-PACIFIC TERRANE TRANSLATION**
- 223-5 2:55 PM Brandon, Mark T.*; Mitchell, Ross N.; Hyland, Ethan G.; Ward, Peter D.; Miller, Ian M.: **USING PALEOCLIMATE DATA TO ESTIMATE PALEOLATITUDE OF CORDILLERAN TERRANES**
- 223-6 3:15 PM Ward, Peter D.*: **COMPARING BIOGEOGRAPHIC INFORMATION FROM THE UPPER CRETACEOUS NANAIMO GROUP, AND THE SEPARATE EAST, AND WEST BASINS CURRENTLY COMBINED AS THE UPPER CRETACEOUS GREAT VALLEY SEQUENCE OF THE SACRAMENTO VALLEY**
- 3:35 PM **BREAK**
- 223-7 3:50 PM Garver, John I.*; Davidson, Cameron: **ACCRETION AND TRANSLATION OF THE CHUGACH, PRINCE WILLIAM, AND YAKUTAT TERRANES IN ALASKA**
- 223-8 4:10 PM Matthews, William A.*; Guest, Bernard; Boivin, Marie-Pier; Coutts, Daniel S.; Hubbard, Stephen M.: **DETRITAL**

ZIRCONS FROM THE NANAIMO BASIN, VANCOUVER ISLAND, BRITISH COLUMBIA: AN INDEPENDENT TEST OF LATE CRETACEOUS TO CENOZOIC NORTHWARD TRANSLATION

- 223-9 4:30 PM Grove, Marty*; Jacobson, C.E.; Johnston, Scott M.; Sharman, Glenn R.; Hourigan, Jeremy: **RELATIONSHIP BETWEEN SHALLOW SUBDUCTION OF THE PELONA AND RELATED SCHISTS AND DISMEMBERMENT OF THE MOJAVE/SALINAN MARGIN OF SOUTHERN CALIFORNIA**
- 223-10 4:50 PM Tikoff, Basil*; Kahn, Maureen; Davenport, Kathy K.; Hole, John A.; Kelso, Paul R.: **TWO HITS, ONE RUN, AND A FEW ERRORS: THE EFFECT OF THE PRECAMBRIAN RIFTED MARGIN ON THE TECTONIC EVOLUTION OF THE NORTHERN US CORDILLERA**
- 223-11 5:10 PM Stern, Robert J.*: **SUBDUCTION INITIATION AND TERRANE ACCRETION**

SESSION NO. 224

T24. How Nick Crawford's Vision Helped Shape Contemporary Karst Science and Education (GSA Karst Division; National Cave and Karst Research Institute; GSA Hydrogeology Division; GSA History and Philosophy of Geology Division)

1:30 PM, Washington State Convention Center, Room 615/616/617

Chris Groves, George Veni, Geary Schindel and Augusto Auler, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 224-1 1:35 PM White, William B.*: **THE REVOLUTIONARY IMPACT OF TRACER INVESTIGATIONS ON KARST HYDROGEOLOGY: A TRIBUTE TO NICHOLAS C. CRAWFORD (Invited Presentation)**
- 224-2 1:55 PM Crawford, Nicholas C.*: **KARST EDUCATION AND SCIENCE AT WESTERN KENTUCKY UNIVERSITY (Invited Presentation)**
- 224-3 2:15 PM Baker, Nancy T.*: **NICK CRAWFORD'S INFLUENCE BEYOND KARST SCIENCE: CONTAMINANT TRANSPORT IN OTHER HYDROGEOLOGICAL SETTINGS**
- 224-4 2:30 PM Schindel, Geary M.*; Ellis, Grant; Covington, Phillip; Courage, Susan; Curry, Brock; Hamilton, J. Mark; Doty, Brent R.: **THE CITY OF SAN ANTONIO'S EDWARDS AQUIFER PROTECTION PROGRAM - AN EXAMPLE OF INTER AGENCY COOPERATION TO PROTECT GROUNDWATER QUALITY IN A KARSTIC EDWARDS AQUIFER OF SOUTH CENTRAL TEXAS USA**
- 224-5 2:45 PM Veni, George*: **KARST, SCIENCE, AND LIFE: LESSONS FROM DR. NICK CRAWFORD**
- 224-6 3:00 PM Groves, Chris*; Crawford, Nicholas: **EXPLOSIVE AND TOXIC VAPORS IN THE VADOSE ZONES OF KARST FLOW SYSTEMS: CASE STUDIES AND ONGOING CONCERNS**
- 224-7 3:15 PM Auler, Augusto S.*: **NICHOLAS CRAWFORD AND THE KARST HYDROGEOLOGY OF THE LAGOA SANTA AREA, SOUTHEASTERN BRAZIL**
- 224-8 3:30 PM Jones, Sid*: **THE LAST FORTY YEARS OF KARST HYDROLOGY STUDIES ON THE CUMBERLAND PLATEAU ESCARPMENT IN TENNESSEE**
- 224-9 3:45 PM Kambesis, Patricia N.*; Groves, Chris: **KARST HYDROGEOLOGIC RESEARCH IN THE UPPER MIDWEST OF THE UNITED STATES**
- 224-10 4:00 PM Tobin, Benjamin W.*; Schindel, Geary M.; Zappitello, Sarah J.; Schenk, Edward R.; Springer, Abraham E.: **GRAND CANYON DYE TRACING: CHALLENGES, CONCERNS, AND RESULTS**
- 224-11 4:15 PM Ham, Brian*; Miller, Ben: **ESTABLISHING LONG-TERM CONTINUOUS DISCHARGE GAGING STATIONS AT TENNESSEE'S LARGEST KARST SPRINGS**

- 224-12** 4:30 PM Miller, Benjamin V.*; Bradley, Michael; Carmichael, Jack: **KARST HYDROGEOLOGY OF THE GREAT SMOKY MOUNTAINS**
- 224-13** 4:45 PM Polk, Jason*; North, Leslie A.; Powell, Matt; Shelley, Adam; McClanahan, Kegan; Nedvidek, Dan: **RECENT DEVELOPMENTS IN KARST RESEARCH, MONITORING, AND EDUCATION IN BOWLING GREEN, KENTUCKY: CONTINUING THE LEGACY OF DR. NICK CRAWFORD**
- 224-14** 5:00 PM Shelley, Adam*; Polk, Jason; Powell, Matt; North, Leslie A.; Crawford, Nicholas: **EVALUATING THE EFFECTIVENESS OF FLOOD MANAGEMENT STRATEGIES IN URBAN KARST AREAS**
- 224-15** 5:15 PM Bledsoe, Lee Anne*: **THE LEGACY CONTINUES: RESEARCH, EDUCATION, AND STUDENT ENGAGEMENT THROUGH THE CRAWFORD HYDROLOGY LABORATORY, WESTERN KENTUCKY UNIVERSITY**

SESSION NO. 225 

T33. Intersections of Sustainability and Geosciences (GSA Geology and Society Division; GSA Karst Division; GSA Environmental and Engineering Geology Division)

1:30 PM, Washington State Convention Center, Room 612

Leslie A. North, Robert Brinkmann and Elizabeth Willenbrink, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 225-1** 1:45 PM Solomon, Geri E.; Brinkmann, Robert*: **SUSTAINABILITY AND THE DIARY OF A 19TH CENTURY GOLD MINER: INSIGHTS ON ENVIRONMENTAL CHANGE IN NORTH AMERICA**
- 225-2** 2:00 PM Wiest, Adam C.*; Mahoney, J. Brian; Mueller, Carly A.; Lindquist, Derek B.; Hackenmueller, Melissa A.; Sellwood, Stephen M.; Mc Ellistrem, Laurel J.: **COMPREHENSIVE ENVIRONMENTAL BASELINE STUDIES: THE FIRST STEP IN REASONABLE AND RESPONSIBLE MINING REGULATIONS**
- 225-3** 2:15 PM Gentner, Tiffany M.*; Dehm, Dustin; Becker, Richard H.: **CLIMATE IMPACTS ON NUTRIENT LOADING IN LAKE ERIE**
- 225-4** 2:30 PM Gazis, Carey A.*: **A PRELIMINARY STUDY OF AGRICULTURAL SOILS INTENDED FOR CARBON SEQUESTRATION**
- 225-5** 2:45 PM Richard, Emilie M.*; Digan, Shane C.: **ONGOING ENVIRONMENTAL BASELINE STREAM ASSESSMENT PRIOR TO MANAGED SEDIMENT RELEASE FROM THE LOWER RESERVOIR, ONEONTA CREEK, ONEONTA, NY**
- 3:00 PM **BREAK**
- 225-6** 3:15 PM Willenbrink, Elizabeth*; North, Leslie A.; Nguyet, Vu Thi Minh: **POLICY COMMUNICATION AND THE IMPACT OF AGRICULTURAL COMMUNITIES ON KARST LANDSCAPES: AN EXAMPLE FROM PHONG NHA-Kê BÀNG NATIONAL PARK, VIETNAM**
- 225-7** 3:30 PM Egendorf, Sara Perl*; Cheng, Zhongqi; de Jesus, Erycka; Walsh, Daniel; Groffman, Peter: **HUMAN AND NATURAL SYSTEM INTERACTIONS: MODELING BIOGEOCHEMISTRY FOR THE NEW YORK CITY CLEAN SOIL BANK**
- 225-8** 3:45 PM Schaefer, Kirsten*; Dogwiler, Toby: **ASSESSMENT OF GRASSED WATERWAY IMPLEMENTATION USING ACPF AND SWAT MODELS**
- 225-9** 4:00 PM Larson, Robert A.*; Cruz, Olga; Masters, Clay; Burger, Karin: **FLOOD CONTROL, STORMWATER CAPTURE, AND GROUNDWATER RECHARGE: THE RORY M. SHAW WETLANDS PARK PROJECT**
- 225-10** 4:15 PM Graham, James*; North, Leslie A.; Huijbens, Edward H.: **USING MOBILE EYE-TRACKING TO INFORM THE DEVELOPMENT OF MASS TOURISM IN ICELAND TOWARDS THE PRINCIPLES OF ECOTOURISM**

- 225-11** 4:30 PM Chia, Kimberly Y.M.*; Smith-Tripp, Sarah M.; Wanzer, Lucy A.; Love, Brianna N.; Jones, Kristina N.; Langridge, Suzanne M.; Gilbert, Kathleen W.; Waller, Maria; Besancon, James; Brabander, Daniel J.: **SCIENCE, SYSTEMS, STAKEHOLDERS: USING GEOSCIENCES FOR LANDSCAPE SUSTAINABILITY, ENHANCED BY ECOLOGY OF PLACE**
- 225-12** 4:45 PM MacFarlane, Ian D.*; Barry, Erin E.: **EVOLVING ETHICALLY INTO THE ANTHROPOCENE: GEOSCIENCE AND THE 'BENEFIT CORPORATION' TO PROMOTE SUSTAINABILITY PROGRESS**

SESSION NO. 226

T39. Cushman Foundation Symposium: Microfossil Mayhem—Murder, Misfortune, and More

1:30 PM, Washington State Convention Center, Room 611

Miriam E. Katz, Francine M.G. McCarthy and Michelle F. Goman, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 226-1** 1:35 PM Hayward, Bruce W.*; Grenfell, Hugh R.: **PROXY FORAMINIFERAL RECORD OF HUMAN IMPACT ON NEW ZEALAND'S COASTAL MARINE ENVIRONMENT (Invited Presentation)**
- 226-2** 1:55 PM Lobegeier, Melissa K.*: **USING TESTATE AMOEBAE TO ANALYZE WATER QUALITY AND ENVIRONMENTAL CHANGES IN THE CLINCH AND POWELL RIVER WATERSHED, VIRGINIA OVER THE LAST 100 YEARS (Invited Presentation)**
- 226-3** 2:15 PM Kornecki, Krystyna*; Katz, Miriam; McCarthy, Francine M.G.; Schaller, Morgan F.; Gillikin, David P.; Stager, Jay Curt: **CALIBRATING PALEO-BIOMONITORS IN LAKE GEORGE, NY SEDIMENTS WITH MODERN GEOCHEMICAL AND LIMNOLOGICAL MEASUREMENTS**
- 226-4** 2:30 PM Martin, Ruth A.*; Nesbitt, Elizabeth A.: **CANARIES IN THE COAL MINE: BENTHIC FORAMINIFERA IN THE ASSESSMENT OF PUGET SOUND, WASHINGTON STATE, BENTHIC ENVIRONMENTS**
- 226-5** 2:45 PM Collins, Laurel S.*; Cheng, Jie; Hayek, Lee-Ann C.; Fourqrean, James W.; Buzas, Martin A.: **A ~3,800-YEAR RECORD OF SEAGRASS COVERAGE IN SOUTH FLORIDA, BASED ON FORAMINIFERA**
- 3:00 PM **BREAK**
- 226-6** 3:15 PM Mathewes, Rolf W.*: **FORENSIC PALYNOLOGY IN CANADA - FROM DELGAMUUKW TO HOMICIDE INVESTIGATION (Invited Presentation)**
- 226-7** 3:35 PM Perrotti, Angelina G.*; Fenerty, B.: **THE UTILITY OF NON-POLLEN PALYNOFORMS AS PALEOENVIRONMENTAL PROXIES IN THE SOUTHEASTERN UNITED STATES**
- 226-8** 3:50 PM Wu, Jiaying*; Porinchu, David: **RECONSTRUCTION OF LATE HOLOCENE HYDROCLIMATE AND ENVIRONMENTAL CHANGE IN SOUTHERN CENTRAL AMERICA WITH AN EMPHASIS ON THE TERMINAL CLASSIC DROUGHT (TCD)**
- 4:05 PM **BREAK**
- 226-9** 4:20 PM Gerlach, Matthew J.; Engelhart, Simon E.*; Kemp, Andrew C.; Moyer, Ryan P.; Smoak, Joseph M.; Cahill, Niamh: **RECONSTRUCTING COMMON ERA RELATIVE SEA-LEVEL CHANGE ON THE GULF COAST OF FLORIDA**
- 226-10** 4:35 PM Sider, Maria N.*; Collins, Laurel S.; O'Dea, Aaron: **A BASELINE STUDY FOR ASSESSING LAND-USE CHANGES ALONG THE CARIBBEAN COAST OF PANAMA**
- 226-11** 4:50 PM Wood, Elizabeth Tedder*; McBride, Randolph A.: **HOLOCENE BENTHIC FORAMINIFERAL ASSEMBLAGES OF TIDAL-INLET DEPOSITS ALONG CEDAR ISLAND, VA, USA: INSIGHTS INTO STORM IMPACTS, BREACH DYNAMICS, AND INLET EVOLUTION**

226-12 5:05 PM Pilarczyk, Jessica E.*; Kosciuch, Thomas J.; Griffis, Anne M.: **FORAMINIFERA FROM COASTAL ENVIRONMENTS AS INDICATORS OF PALEOSTORMS AND TSUNAMIS**

SESSION NO. 227

T46. North Pacific Environment and Paleoclimate from the Late Pleistocene to Present II (GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Limnogeology Division)

1:30 PM, Washington State Convention Center, Room 609

Lesleigh Anderson and Miriam C. Jones, Presiding

1:30 PM **INTRODUCTORY REMARKS**

227-1 1:45 PM Porter, Trevor J.*; Schoenemann, Spruce W.; Davies, Lauren J.; Froese, Duane G.: **A FULL HOLOCENE SUMMER TEMPERATURE RECONSTRUCTION FROM PRECIPITATION ISOTOPES IN SYNGENETIC PERMAFROST IN CENTRAL YUKON TERRITORY (EASTERN BERINGIA)**

227-2 2:00 PM Reuther, Joshua D.*; Druckenmiller, Patrick; Rogers, Jason S.; Bundtzen, Thomas K.; Bowman, Robert C.; May, Kevin; Wallace, Kristi L.: **LATE QUATERNARY (MIS-3 TO MIS-1) STRATIGRAPHIC TRANSITIONS IN A HIGHLAND BERINGIAN LANDSCAPE ALONG THE KUSKOKWIM RIVER, ALASKA**

227-3 2:15 PM Crossen, Kristine J.*; Yesner, David R.; Pasch, Anne D.: **PLEISTOCENE-HOLOCENE EVOLUTION OF LANDSCAPES AND SUBSISTENCE OPPORTUNITIES AT BERING PIEDMONT GLACIER, NORTHERN GULF OF ALASKA**

227-4 2:30 PM Zellers, Sarah D.*; Cowan, Ellen A.; Caissie, Beth; Müller, Juliane: **A TALE OF TWO RETREATS – COMPARING AND CONTRASTING PALEOENVIRONMENTAL CONDITIONS DURING THE ULTIMATE AND PENULTIMATE LGM RETREATS OF BERING ICE STREAM, GULF OF ALASKA**

227-5 2:45 PM Peteet, Dorothy M.*; Nichols, Jonathan; Mann, Daniel H.; Jones, Miriam C.: **COASTAL ALASKA AND COASTAL EASTERN US PALEOECOLOGY/PALEOCLIMATE - HOW DO DEGLACIATION, COLONIZATION, YOUNGER DRYAS, NORTHWARD TREE MIGRATION, HOLOCENE THERMAL MAXIMUM, NEOGLACIATION, AND PEAT FORMATION COMPARE? (Invited Presentation)**

227-6 3:05 PM Lacourse, Terri*: **A MULTI-PROXY PALEOENVIRONMENTAL RECORD FROM COASTAL BC: SUMMER TEMPERATURES, VEGETATION AND FIRE OVER THE LAST 14,000 YEARS**

3:20 PM **BREAK**

227-7 3:35 PM Fitzhugh, Ben*; Addison, Jason; Brown, William; Finney, Bruce P.; Harada, Naomi; Misarti, Nicole; Nagashima, Kana; Takase, Katsunori; Tremayne, Andrew: **DID HOLOCENE VARIABILITY IN ALEUTIAN LOW DYNAMICS FORCE OSCILLATIONS IN MARINE ECOSYSTEMS AND HUMAN SUBSISTENCE HARVESTERS?**

227-8 3:50 PM Bigelow, Nancy H.*; Reuther, Joshua D.; Wooller, Matthew; Saulnier-Talbot, Emilie; Mulliken, Katherine; Wallace, Kristi L.: **LATE GLACIAL AND HOLOCENE LANDSCAPE CHANGE IN THE MIDDLE SUSITNA VALLEY, ALASKA**

227-9 4:05 PM Anderson, Lesleigh*; Finney, Bruce P.; Engstrom, Daniel R.; Strickland, Laura E.: **NEW RECORDS OF DE-GLACIAL AND HOLOCENE HYDROCLIMATE AND ENVIRONMENTAL CHANGE FROM THE MATANUSKA-SUSITNA REGION OF SOUTH-CENTRAL ALASKA**

227-10 4:20 PM Edwards, Mary E*; Dash, Jadu; Fedorov, Alexander; Langdon, Peter G.; Mgowan, Suzanne; van Hardenbroek, Maarten; Yurova, Alla: **PAST LAND-ATMOSPHERE-LAKE INTERACTIONS IN BERINGIA: IMPLICATIONS FOR THE ANTHROPOCENE (Invited Presentation)**

227-11 4:40 PM Jones, Miriam C.*; Anderson, Lesleigh; Jolley, Chelsea; Keller, Katherine J.; Littell, Virginia; Nash, Bailey: **TOWARD UNDERSTANDING DRIVERS AND CONTROLS OF HOLOCENE OXYGEN ISOTOPIC SHIFTS OF WATER AND PEAT CELLULOSE ON THE KENAI PENINSULA, ALASKA**

227-12 4:55 PM Wiles, Gregory*; Charlton, Joshua; Wilson, Rob; D'Arrigo, Rosanne D.; Gaglioti, Ben; Wiesenberg, N.; Oelkers, Rose; Hayles, Laia Andreu; Davi, Nicole: **PROGRESS AND PROMISE IN RECONSTRUCTING NORTH PACIFIC CLIMATE FROM RING-WIDTH AND BLUE INTENSITY TREE RING CHRONOLOGIES**

5:10 PM **DISCUSSION**

SESSION NO. 228

T56. Mass Extinctions II: Past, Present, and Future? (Paleontological Research Institution; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Cushman Foundation for Foraminiferal Research; Paleontological Society; Volcanic and Magmatic Studies Group)

1:30 PM, Washington State Convention Center, Room 608

David P.G. Bond, Thierry Adatte, Gerta Keller and Dougal A. Jerram, Presiding

228-1 1:30 PM Shrivastava, Jaya Prakash*; Pal, Sucharita: **ENVIRONMENTAL EFFECTS OF DECCAN VOLCANISM ON BIOTIC CHANGES AND K/PG MASS EXTINCTION IN THE INDIAN SUB-CONTINENT: ORGANO-MOLECULAR EVIDENCES**

228-2 1:45 PM Callegaro, Sara*; Baker, Don R.; Marzoli, Andrea; Whitehouse, Martin J.; De Min, Angelo; Renne, Paul R.; Svensen, Henrik: **SULFUR PARTITIONING BETWEEN CLINOPYROXENE AND MELT: TACKLING GAS LOADS FROM LIP MAGMAS (Invited Presentation)**

228-3 2:00 PM Le Hir, Guillaume*; Fluteau, Frederic; Godderis, Yves: **THE K-PG BOUNDARY: GEOLOGICAL EVENTS, MARINE ACIDIFICATION AND COLLAPSE OF PRIMARY PRODUCERS**

228-4 2:15 PM Jerram, Dougal A.*; Svensen, Henrik H.; Planke, Sverre; Millett, John; Reynolds, Peter: **SILL INDUCED HYDROTHERMAL VENTING AS A CLIMATE TRIGGER: A SUMMARY OF OUR CURRENT UNDERSTANDING**

228-5 2:30 PM Khozyem, Hassan*; Adatte, Thierry; Mbabi Bitchong, André; Mohamed, Abdallah; Keller, Gerta: **THE ROLE OF VOLCANISM (NORTH ATLANTIC IGNEOUS PROVINCE) IN THE PETM EVENTS REVEALED BY MERCURY ANOMALIES**

228-6 2:45 PM Saupe, Erin E.*; Qiao, Huijie; Farnsworth, Alex; Donnadiue, Yannick; Lunt, Dan J.; Pohl, Alexandre; Sagoo, Navjit; Valdes, Paul J.; Finnegan, Seth: **COMBINED CLIMATE AND ECOLOGICAL NICHE MODELING PREDICTS THE RELATIVE SEVERITY OF MARINE EXTINCTIONS DURING THREE PHANEROZOIC GREENHOUSE-ICEHOUSE TRANSITIONS**

228-7 3:00 PM Beard, J. Andrew*; Bush, Andrew M.; Hren, Michael T.; Brisson, Sarah; Fernandes, Anjali: **CARBON CYCLE PERTURBATIONS ALONG AN ONSHORE-OFFSHORE GRADIENT DURING THE KELLWASSER MASS EXTINCTION EVENTS, UPPER DEVONIAN, NORTHERN APPALACHIAN BASIN**

228-8 3:15 PM Lucas, Spencer G.*: **HOW COMPILED AND INCORRECT CORRELATIONS CAN "CREATE" A MASS EXTINCTION: THE CASE OF EARLY PERMIAN TETRAPODS**

228-9 3:30 PM Bond, David P.G.*; Wignall, Paul B.; Grasby, Stephen E.: **THE MIDDLE PERMIAN (CAPITANIAN) EXTINCTION RECORD IN THE BOREAL REALM (SPITSBERGEN AND ELLESMERE ISLAND): EVIDENCE FOR VOLCANICALLY-DRIVEN KILL MECHANISMS**

228-10 3:45 PM Kiessling, Wolfgang*; Schobben, Martin; Ghaderi, Abbas; Hairapetian, Vachik; Leda, Lucyna; Korn, Dieter: **PRE-**

TUESDAY
PM

MASS EXTINCTION DECLINE OF LATEST PERMIAN AMMONOIDS

- 228-11** 4:00 PM Bernardi, Massimo*; Petti, Fabio Massimo; Benton, Michael J.: **TETRAPOD DISPERSAL DURING THE PERMIAN-TRIASSIC MASS EXTINCTION**
- 228-12** 4:15 PM Lucas, Spencer G.; Tanner, Lawrence H.*: **THE MYTH OF MASS EXTINCTION AT THE END OF THE TRIASSIC**

SESSION NO. 229

T70. Paleogenomics and Geobiology (Paleontological Society; Paleontological Research Institution; GSA Geobiology & Geomicrobiology Division)

1:30 PM, Washington State Convention Center, Room 607

Jeffrey R. Thompson and David J. Bottjer, Presiding

- 229-1** 1:30 PM Butler, Aodhán Dermot*; Eitel, Michael; Wörheide, Gert; Carlson, Sandra J.; Sperling, Erik A.: **PHYLOGENOMIC ANALYSIS OF BRACHIOPODA AND PHORONIDA: IMPLICATIONS FOR MORPHOLOGICAL EVOLUTION, BIOMINERALIZATION, AND THE CAMBRIAN RADIATION**
- 229-2** 1:45 PM Thompson, Jeffrey R.*; Erkenbrack, Eric: **PHYLOGENETICS AND THE RECONSTRUCTION OF ANCIENT GENE REGULATORY NETWORKS**
- 229-3** 2:00 PM Dolby, Greer A.*; Jacobs, David K.: **SEA-LEVEL CHANGE MEDIATES GENETIC DIVERSIFICATION OF COASTAL FISHES**
- 229-4** 2:15 PM Lopez-Carranza, Natalia*; Carlson, Sandra J.: **SPECIES AS TESTABLE HYPOTHESES: A CASE STUDY FROM TEREBRATELLIDINE BRACHIOPODS**
- 229-5** 2:30 PM Organ, Chris L.*: **GENOME MACROEVOLUTION: INSIGHTS FROM FOSSILS AND PHYLOGENIES**
- 2:50 PM **DISCUSSION**
- 229-6** 3:00 PM Gold, David A.*; Summons, Roger E.: **USING BIOMARKER GENOMICS TO DATE THE RISE OF COMPLEX LIFE**
- 229-7** 3:15 PM Gardner, Jacob D.*; Organ, Chris L.: **THE MACROEVOLUTIONARY DYNAMICS OF VERTEBRATE GENOME SIZE**
- 229-8** 3:30 PM Bottjer, David J.*: **GENES THAT MAKE ROCKS**
- 229-9** 3:45 PM Lin, Jih-Pai*; Lee, Kwen-Shen; Chang, Lo-Yu; Lee, Shyh-Jye: **MOLECULAR PHYLOGENY OF SAND DOLLARS (ECHINOIDEA: CLYPEASTEROIDA) WITH NEW DATA EXTRACTED FROM TAIWANESE SPECIES**
- 229-10** 4:00 PM Paterson, Ryan*; Samuels, Joshua X.; Rybczynski, Natalia: **THE EARLIEST-KNOWN MUSTELID IN NORTH AMERICA AND THE CONVERGENT EVOLUTION OF SMALL BODY SIZE IN MUSTELIDAE**
- 229-11** 4:15 PM Lynch, Leigha M.*: **WHAT DOES SKELETAL MORPHOLOGY REALLY TELL US? VARIATION IN PINE MARTEN LIMBS BY BIOME AND MOLECULAR PHYLOGENY**

SESSION NO. 230 ☰ \$

T79. Geologic Energy Research II (GSA Energy Geology Division; GSA Environmental and Engineering Geology Division)

1:30 PM, Washington State Convention Center, Room 602/603

Laura Ruhl, J. Fred Mclaughlin, Marc L. Buursink and Brett J. Valentine, Presiding

- 230-1** 1:30 PM Damayanti, Shinta*; Dharmayanti, Dessy A.; Amir, Ferralda Talitha; Saputra, Sunjaya Eka: **UNLOCKING BIRD'S HEAD PAPUA HYDROCARBON POTENTIAL BY USING G&G EVALUATION, A NEW INSIGHT**
- 230-2** 1:45 PM Mark-Moser, MacKenzie*; Rose, Kelly; Miller, Roy H; Bauer, Jennifer; Cameron, Emily: **REDUCING UNCERTAINTY IN THE SUBSURFACE: APPLYING THE SUBSURFACE TREND ANALYSIS METHOD TO REFINE SUBSURFACE PROPERTY PREDICTIONS IN THE GULF OF MEXICO**
- 230-3** 2:00 PM Csutak, Sebastian*; Li, Weichang; Bernero, Gregory; Alhussain, Hassan; Deffenbaugh, Max: **IN-SITU**

FLUORESCENCE SPECTROSCOPY FOR SARA MODELING

- 230-4** 2:15 PM Mahon, Keith I.*: **ADAPTING BASIN AND PETROLEUM SYSTEM ANALYSIS FOR SOURCE ROCK PLAYS**
- 2:30 PM **BREAK**
- 230-5** 2:45 PM Kang, Junyao*; Ritzer, Samantha Rose; Farrell, Úna C.; Sperling, Erik A.: **GEOCHEMISTRY OF THE WOLFCAMP AND LOWER LEONARD FORMATIONS IN THE MIDLAND BASIN OF WEST TEXAS**
- 230-6** 3:00 PM Jackson, Pat*; Pauli, David A.; Lydyard, Andy: **GAS ENCOUNTERED IN GRAYS HARBOR BASIN BY SAINT HELENS ENERGY YETI #31-34**
- 230-8** 3:15 PM Breedlovestrout, Renee*; Lewis, Reed S.: **CONNECTING GEOLOGIC MAPPING TO SUBSURFACE WELL LOGS TO EXPLORE IDAHO'S FIRST PRODUCING HYDROCARBON FIELD IN PAYETTE COUNTY**
- 230-9** 3:30 PM Yan, Wenyuan*: **FLUID INCLUSION CHARACTERISTICS AND HYDROCARBON ACCUMULATION PERIOD OF TRIASSIC RESERVOIRS IN LUNAN LOW UPLIFT OF TARIM BASIN**
- 230-10** 3:45 PM Chen, Qinghua*; Zhou, Yucheng; Zhang, Yinguo; Chai, Ming: **THE FEATURES AND IMPORTANCE OF THE UNCONFORMITIES FOR TAHE OILFIELD, TALIM BASIN OF CHINA**
- 230-11** 4:00 PM Dharmayanti, Dessy A.*; Pudyo, Nugrahani; Amir, Ferralda Talitha; Saputra, Sunjaya Eka; Damayanti, Shinta: **EXPLORATION PLAY HOT ZONES IN WESTERN INDONESIAN MATURE BASINS: 15 YEARS EXPLORATION REVIEW**
- 230-12** 4:15 PM de Wit, Maarten J.*; Doucouré, Moctar: **TRANSDISCIPLINARY BASELINE STUDIES TO MONITOR AND ENHANCE SUSTAINABLE RESOURCE EXTRACTION**

SESSION NO. 231

T88. Mudstone Facts: Deposition, Diagenesis, and Source of Basin Fluids (GSA Sedimentary Geology Division; GSA Energy Geology Division; GSA Limnogeology Division)

1:30 PM, Washington State Convention Center, Ballroom 6C

Neil Fishman, Sven Egenhoff and Dario Harazim, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 231-1** 1:35 PM Birgenheier, Lauren P.*; Horton, Brendan; McCauley, Andrew; Johnson, Cari; Kennedy, Angela: **DIAGNOSING MECHANISMS OF OFFSHORE DEPOSITION IN THE CRETACEOUS WESTERN INTERIOR SEAWAY: A DEPOSITIONAL MODEL FOR THE LOWER BLUE GATE MEMBER, MANCOS SHALE, UINTA BASIN, UTAH (Invited Presentation)**
- 231-2** 1:50 PM Egenhoff, Sven O.*; Albert, Stacie: **MUDSTONE DEPOSITION IN AN INTERIOR BASIN DURING THE LATE DEVONIAN – THE LOWER BAKKEN SHALE MEMBER IN THE WILLISTON BASIN, NORTH DAKOTA, USA**
- 231-3** 2:05 PM Denommee, Kathryn C.; Harazim, Dario*; Bentley, Samuel J.; Macquaker, Joe: **DEPOSITION AND DIAGENETIC ALTERATION OF MUDDY SEDIMENTS ACROSS AN EARLY ORDOVICIAN CLINOTHEM: THE POWER STEPS FORMATION, NEWFOUNDLAND, CANADA**
- 231-4** 2:20 PM Juntunen, Kristopher Lee*; Scott, Ashley Brooke; Morgan, Ryan: **WAVES AND SAND AND . . . MUD? SEDIMENTARY ENVIRONMENT OF AN EXPOSURE OF THE PLACID SHALE AND RANGER LIMESTONE, NORTH CENTRAL TEXAS**
- 231-5** 2:35 PM Schuller, Kathryn*; Egenhoff, Sven O.: **DEPOSITION ALONG A SHALE-CARBONATE FACIES TRANSITION ON THE SCANDINAVIAN ORDOVICIAN SHELF – THE**

- ARNESTAD FORMATION, SANDBIAN, SOUTHERN NORWAY**
- 231-6 2:50 PM Edwards, Nicholas P.; Webb, Samuel M.; Manning, Phillip L.*; Wogelius, Roy A.; Krest, Courtney M.; Bergmann, Uwe: **A NEW RAPID SCANNING, DECIMETER SCALE X-RAY FLUORESCENCE SPECTROSCOPIC IMAGING STATION AT THE STANFORD SYNCHROTRON RADIATION LIGHTSOURCE (CA, USA)**
- 3:05 PM **BREAK**
- 231-7 3:20 PM Macquaker, Joe*: **DIAGENESIS IN MUDSTONES: FRIEND OR FOE FOR STRATIGRAPHERS? (Invited Presentation)**
- 231-8 3:35 PM Blood, David R.*; Dattilo, Benjamin F.; Song, Liaosha: **REDOX CONDITIONS DURING DEPOSITION OF THE UPPER ORDOVICIAN POINT PLEASANT LIMESTONE, APPALACHIAN BASIN, USA: CONTROLS ON THE ACCUMULATION OF ORGANIC CARBON (Invited Presentation)**
- 231-9 3:50 PM Fishman, Neil S.*; Egenhoff, Sven O.; Lowers, Heather; Schlaegle, Steven: **HERE'S THE 'BEEF'—TIMING OF OVERPRESSURING IN THE CAMBRIAN ALUM SHALE, SOUTHERN SWEDEN**
- 231-10 4:05 PM O'Connell, Laura G.*; James, Noel P.: **CARBONATE MUD, GLORIOUS MUD FROM THE SHALLOW COOL-WATER MARINE REALM, SOUTH AUSTRALIA**
- 231-11 4:20 PM Peavey, Eric J.*; Pope, Michael C.; Lundquist, Jason J.; Donovan, Art D.; Wehner, Matthew; Deluca, Michael J.; Miller, Brent V.; Moore, Bronwyn; Staerker, T. Scott: **A NEW CHRONOSTRATIGRAPHIC FRAMEWORK FOR EXPLORING LATERAL VARIABILITY AND DIACHRONEITY OF EAGLE FORD- AND AUSTIN CHALK-EQUIVALENT STRATA IN WEST TEXAS**
- 231-12 4:35 PM Matheson, Edward J.*; Frank, Tracy D.: **THE RELATIONSHIPS BETWEEN PALEOCLIMATE, PALEOCEANOGRAPHY, DEPOSITION, AND EOGENESIS IN THE PHOSPHORIA ROCK COMPLEX OF THE BIGHORN BASIN, WYOMING**
- 4:50 PM **DISCUSSION**

SESSION NO. 232

T94. Limnogeology—Progress, Challenges, and Opportunities on Earth and Beyond: A Tribute to Beth Gierlowski-Kordesch (GSA Limnogeology Division; SEPM (Society for Sedimentary Geology); Paleontological Society; International Association of Limnogeology; GSA Sedimentary Geology Division; GSA Geobiology & Geomicrobiology Division)

1:30 PM, Washington State Convention Center, Room 307/308

David B. Finkelstein and Lisa E. Park Boush, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 232-1 1:45 PM Benavente, Cecilia Andrea; Mancuso, Adriana; Bohacs, Kevin M.*; Carroll, Alan R.: **LAKE-BASIN-TYPES 2.0—EXPANDING THE MODEL TO THE 4TH DIMENSION... AND BEYOND!**
- 232-2 2:00 PM Park Boush, Lisa E.*; Motz, Gary J.; Astrop, Tim; Hren, Michael T.: **LAKE FAUNAS THROUGH TIME—THE ESTUARY EFFECT AND HOW LIFE INVADED LAND**
- 232-3 2:15 PM Benavente, Cecilia Andrea; Mancuso, Adriana Cecilia*; Bohacs, Kevin M.: **LINKAGE BETWEEN TWO LACUSTRINE MODELS APPLYING STABLE ISOTOPES TO TRIASSIC CARBONATE PALEOLAKES FROM ARGENTINA**
- 232-4 2:30 PM Glumac, Bosiljka*: **STABLE ISOTOPE ANALYSIS OF CARBONATE COMPONENTS FROM LACUSTRINE DEPOSITS OF THE JURASSIC TURNERS FALLS FORMATION, DEERFIELD RIFT BASIN, MASSACHUSETTS: A VALUABLE HYDROLOGIC, DIAGENETIC AND STRATIGRAPHIC TOOL (Invited Presentation)**

- 232-5 2:45 PM Harris, Nicholas*; Tucker, Gregory E.: **THE ORGANIC CARBON RECORD OF LOWER CRETACEOUS RIFT LAKES, CONGO BASIN, AFRICA: A RECORD OF RIFT TOPOGRAPHY, SOIL DEVELOPMENT AND TOPOGRAPHY**
- 232-6 3:00 PM Wei, Wei*; Algeo, Thomas J.; Lu, Yongchao: **MARINE TRANSGRESSIONS INTO THE BOHAI BAY LACUSTRINE SYSTEM DURING THE PALEOGENE**
- 232-7 3:15 PM Hu, Chenlin*; Zhang, Yuanfu; Jiang, Zaixing; Algeo, Thomas J.; Wang, Min; Lei, Huarui: **DEVELOPMENT OF SAND-BODY RESERVOIRS IN FAULT-BOUNDED LAKE BASINS: PLEISTOCENE-HOLOCENE POYANG LAKE, EASTERN CHINA**
- 3:30 PM **BREAK**
- 232-8 3:45 PM Fedo, Christopher M.*; Grotzinger, John P.; Gupta, Sanjeev; Banham, Steven G.; Edgar, Lauren A.; Edgett, Kenneth; House, Christopher H.; Lewis, Kevin; Minitti, Michelle E.; Newsom, Horton E.; Rivera-Hernandez, Frances; Schieber, Juergen; Siebach, Kirsten L.; Stack, Kathryn M.; Stein, Nathaniel; Sumner, Dawn Y.; Vasavada, A.: **PALEOENVIRONMENTS AND STRATIGRAPHIC ARCHITECTURE OF AN ANCIENT LAKE BASIN, GALE CRATER, MARS**
- 232-9 4:00 PM Rosen, Michael R.*: **REVISITING THE CONTRIBUTION OF GROUNDWATER TO PLAYAS AS A FUNCTION OF TIMESCALE AND DEVELOPMENT IN THE WESTERN UNITED STATES**
- 232-10 4:15 PM Sirota, Ido; Enzel, Yehouda; Lensky, Nadav G.*: **TEMPERATURE SEASONALITY CONTROL OVER MODERN HALITE LAYERS IN THE DEAD SEA: IN SITU OBSERVATIONS AND IMPLICATIONS TO PALEOHYDROLOGY AND PALEOCLIMATOLOGY**
- 232-11 4:30 PM Russell, James M.*; Vogel, Hendrik; Bijaksana, Satria; Melles, Martin: **BIOGEOCHEMICAL AND SEDIMENTOLOGICAL RESPONSES TO CLIMATE CHANGE IN THE LARGE, FERRUGINOUS LAKE TOWUTI, INDONESIA**
- 232-12 4:45 PM Deocampo, Daniel M.*; Rabideaux, Nathan M.; Minkara, Karim E.: **SILICATE DIAGENESIS IN ALKALINE LAKE BASINS**
- 232-13 5:00 PM McGlue, Michael M.*; Zimmerman, Susan H.; Tunno, Irene; Woolery, Edward W.; Hodelka, Bailee; Lyon, Eva; Lucas, Joseph S.: **OPPORTUNITIES IN DEVELOPING LONG LAKE SEDIMENT RECORDS OF QUATERNARY HYDROCLIMATE IN THE EASTERN SIERRA NEVADA (CA)**
- 232-14 5:15 PM Finkelstein, David B.*; Phillips, Aubrey; Jones, Snowden: **INTERNAL WAVES AS DRIVERS OF CHEMICAL CHANGE IN THE BELHURST CASTLE HOLE IN SENECA LAKE, NY**

SESSION NO. 233

T101. Better Together: Partnerships That Facilitate or Enhance Experiential Learning in Undergraduate Geoscience Education (GSA Geoscience Education Division; National Association of Geoscience Teachers)

1:30 PM, Washington State Convention Center, Room 3A

Miriam Barquero-Molina and Jonathan W. Mies, Presiding

- 233-1 1:30 PM Dalbotten, Diana*; Berthelote, Antony R.; Bueno Watts, Nievita; Geraghty Ward, Emily M.: **THE RESEARCH EXPERIENCE FOR UNDERGRADUATES ON SUSTAINABLE LAND AND WATER RESOURCES AND THE GEOSCIENCE ALLIANCE NETWORK--WORKING HAND IN HAND TO PROMOTE BROADENING PARTICIPATION IN THE GEOSCIENCES**
- 233-2 1:45 PM Morris, Aisha R.*; Russo-Nixon, Kelsey; Charlevoix, Donna: **PRE-REU INTERNSHIPS FOR COMMUNITY COLLEGE STUDENTS SUPPORTED BY A UNIQUE PARTNERSHIP**

TUESDAY
PM

- BETWEEN A COMMUNITY COLLEGE, FACILITY, AND FEDERAL AGENCY**
- 233-3** 2:00 PM Wirth, Karl R.*; Davidson, Cameron: **KECK GEOLOGY CONSORTIUM: A PARTNERSHIP FOR BROADENING PARTICIPATION IN THE GEOSCIENCES THROUGH STUDENT-FACULTY COLLABORATIVE RESEARCH (Invited Presentation)**
- 233-4** 2:20 PM Brazil, Liza I.*: **TOOLS & SUPPORT FOR INTEGRATING REAL ENVIRONMENTAL DATA INTO EDUCATION**
- 233-5** 2:35 PM Visaggi, Christy C.*; Hawthorne, Timothy L.; Graham, Lain; Munisteri, Christine; Jarrett, Olga: **PREPARING THE NEXT GENERATION OF SCHOLARS THROUGH GIS AND CITIZEN SCIENCE IN COMMUNITY-BASED RESEARCH ON MARINE DEBRIS AND FLOODING IN HOPKINS, BELIZE**
- 233-6** 2:50 PM Manduca, Cathryn A.*; Benthien, Mark; Charlevoix, Donna; Davis, Felicia; Ellins, Katherine K.; Haddock, Darryl; Iverson, Ellen; McGill, Sally; Morris, Aisha R.; Nagle, Barbara; Neely, Norma; Pandya, Rajul; Peterman, Karen; Taber, John: **SUPPORTING LOCAL PATHWAYS LINKING GEOSCIENCE LEARNING TO COMMUNITY ENGAGEMENT: THE EARTHCONNECTIONS ALLIANCE (Invited Presentation)**
- 3:10 PM **BREAK**
- 233-7** 3:25 PM Ryan, Jeffrey*; Nocita, Bruce; Rodriguez, Eileen; Schackne, Michael; Hull, Jon; Vacher, H.L.; Connor, Charles; Rains, Mark: **TWENTY-PLUS YEARS OF A SUCCESSFUL EMPLOYER/ACADEMIC PARTNERSHIP IN SOUTHWEST FLORIDA (Invited Presentation)**
- 233-8** 3:45 PM Harris, M. Scott*; Evelpidou, Niki; Karkani, Anna; Richter, Lea: **USING AN INTERCONTINENTAL SCHOLAR-TEACHER MODEL FOR UNDERGRADUATE EDUCATION**
- 233-9** 4:00 PM Kelley, Daniel F.*; Uzunlar, Nuri; Lisenbee, Alvis L.: **POSITIVE IMPACTS OF US-ECUADORIAN STUDENT INTEGRATION IN THE ECUADOR VOLCANOLOGY FIELD CAMP**
- 233-10** 4:15 PM Kaiser, Jason F.*: **TEACHING GEOLOGY IN SOUTHERN UTAH UNIVERSITY'S JUMPSTART GENERAL EDUCATION PROGRAM: MAKING GEOLOGY ACCESSIBLE TO NON-SCIENTISTS THROUGH COLLABORATIVE TEACHING AND LEARNING**
- 233-11** 4:30 PM Gilley, Brett H.*; Gradin, Chris: **LAYERS OF LEARNING: A COLLABORATION BETWEEN EARTH OCEAN AND ATMOSPHERIC SCIENCES AND THE ACADEMIC ENGLISH PROGRAM IN THE VANTAGE ONE PROGRAM AT THE UNIVERSITY OF BRITISH COLUMBIA**
- 233-12** 4:45 PM Bhattacharyya, Prajukti*; Huss-Lederman, Susan; Deering, Brianna: **COLLABORATION ACROSS DISCIPLINES AND CULTURES TO PROMOTE CIVIC ENGAGEMENT IN ENVIRONMENTAL ISSUES: A WAY TO DEVELOP 21ST CENTURY SKILLS**
- 233-13** 5:00 PM Kraal, Erin*; Pfeiler-Wunder, Amy: **PARTNERS IN PROCESS: A CONTEMPORARY COLLABORATION BETWEEN A SCIENTIST AND ARTIST**
- 5:15 PM **CONCLUDING REMARKS**

SESSION NO. 234

T105. Building an Inclusive Geoscience Community Today for Tomorrow II (GSA Geoscience Education Division; GSA Diversity in the Geosciences Committee; GSA Geology and Society Division; National Association of Black Geoscientists)

1:30 PM, Washington State Convention Center, Room 2A

Stephen K. Boss, Aisha R. Morris, Sadredin C. Moosavi, Wendy Smythe and Darryl Reano, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 234-1** 1:45 PM Chinn, Pauline W.U.*; Spencer, Kekaha; Russo, Brigitte U.: **TRANSFORMING TEACHING: INTERSECTING**

INDIGENOUS KNOWLEDGE WITH PLACE-BASED GEOSCIENCE INSTRUCTION

- 234-2** 2:00 PM Black, Jessica L.*: **INDIGENOUS ENVIRONMENTAL SCIENCE ON THE COLUMBIA RIVER PLATEAU (Invited Presentation)**
- 234-3** 2:15 PM Garcia, Angel A.*; Semken, Steven; Brandt, Elizabeth: **THE CONSTRUCTION OF ETHNOGEOLOGICAL CULTURAL MODELS DERIVED FROM TRADITIONAL KNOWLEDGE TO INFORM PLACE-BASED EDUCATION**
- 234-4** 2:30 PM Mitchell, Todd A.*: **USING TRADITIONAL ECOLOGICAL KNOWLEDGE TO PROTECT WETLANDS, THE SWINOMISH TRIBE'S WETLANDS CULTURAL ASSESSMENT PROJECT**
- 234-5** 2:45 PM Moore, Alexandra*; Carter, Yvonne Yarber; Keakealani, Ku'ulei; Carter, Keoki; Derry, Louis A.; Grant, Katherine: **KUKUI LIGHTS THE WAY: MATCHING ORAL HISTORIES TO RADIOCARBON DATES AT KA'UPULEHU HAWA'I**
- 3:00 PM **BREAK**
- 234-6** 3:15 PM Small, Marsha*; Fox, Nicholas R.; Hubbard, Mary S.: **UNLOCKING THE GATES: CORRELATING GROUND PENETRATING RADAR (GPR) AND GEOGRAPHICAL INFORMATION SYSTEMS(GIS) FOR THE LOCATION OF INDIAN CHILDREN IN HISTORIC INDIAN BOARDING SCHOOL CEMETERIES**
- 234-7** 3:30 PM Judd, Dineh Elizabeth*: **ASSESSING THE LUMMI RESERVATION FOR RESTORATION SITES OF COASTAL PRAIRIE HABITAT USING GEOSPATIAL TECHNOLOGY**
- 234-8** 3:45 PM Cooper, Sharon*; Lewis, J.C.; Leckie, R. Mark; Hovan, Steven A.; White, Lisa D.: **WORKSHOP INITIAL REPORT: EXPANDING THE GEOSCIENCE PIPELINE BY CONNECTING EDUCATORS WITH EARLY CAREER IODP SCIENTISTS**
- 234-9** 4:00 PM Kar, Aditya*: **CONNECTING ACADEMICALLY TALENTED URMS TO A PATHWAY THAT RECRUITS, RETAINS AND GRADUATES GEOSCIENTISTS FOR STEM CAREERS AND AMERICAN WORKFORCE**
- 234-10** 4:15 PM Baldrige, Alice M.*: **USING THE PARKS TO INTEGRATE DIVERSITY, EQUITY, AND INCLUSION IN GEOSCIENCE CLASSROOMS**
- 234-11** 4:30 PM Boss, Stephen K.*: **RECOGNIZING THE CULTURE OF GEOLOGY AS A PRIMARY BARRIER TO INCLUSION**
- 4:45 PM **DISCUSSION**

SESSION NO. 235

T114. Getting It Done: Experiences of Implementing the Framework and NGSS in Earth and Space Science

1:30 PM, Washington State Convention Center, Room 2B

Aida Awad, Ed C. Robeck, Susan Sullivan, Susan M. DeBari, Eric J. Pyle, Kyle Gray and Julie Monet, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 235-1** 1:35 PM Peterson, Barney*: **ACTIVELY ENGAGING ELEMENTARY STUDENTS IN THE WONDERS OF EARTH SYSTEM SCIENCE (Invited Presentation)**
- 235-2** 1:50 PM Workman Ford, Kerry*: **TEACHING TEACHERS: A WORTHWILE ENDEAVOR**
- 235-3** 2:05 PM Wyssession, Michael E.*: **CHALLENGES IN DEVELOPING K-8 SCIENCE PROGRAMS ALIGNED WITH THE NEXT GENERATION SCIENCE STANDARDS (Invited Presentation)**
- 235-4** 2:25 PM Huntoon, Jacqueline E.*; Oppliger, Doug; Robeck, Ed C.; Gochis, Emily E.; Tubman, Stephanie; Wojcik, Christopher L.; Mattox, Stephen R.: **MI-STAR: IMPLEMENTING THE FRAMEWORK AND NGSS IN MIDDLE SCHOOLS IN MICHIGAN (Invited Presentation)**
- 235-5** 2:40 PM Lyon, Eva*; Rosen, Ashley; Freeman, Rebecca L.; Fryar, Alan; McGlue, Michael; Bathon, Justin: **ELEVATING THE STANDARDS: USING THE NEXT GENERATION SCIENCE**

STANDARDS TO PROMOTE GEOSCIENCE AWARENESS IN STEM HIGH SCHOOLS

- 235-6 2:55 PM Pyle, Eric J.*: **CONTENT KNOWLEDGE FOR TEACHING: WHAT DO PRESERVICE EARTH SCIENCE TEACHERS NEED TO "ALIGN" WITH NGSS?**
- 235-7 3:10 PM Ebert, James R.*; Bischoff, Paul; Dolphin, Glenn; Ellis, Todd D.: **PREPARING NEXT GENERATION GEOSCIENCE TEACHERS: SCIENCE AND ENGINEERING PRACTICES THROUGH MODELS AND MODEL-BASED LEARNING IN A SUMMER INSTITUTE FOR PRE-SERVICE TEACHERS**
- 3:25 PM **BREAK**
- 235-8 3:40 PM Ebert, James R.*: **NGSS SCIENCE AND ENGINEERING PRACTICES AND CROSSCUTTING CONCEPTS IN GEOSCIENCE COURSES FOR PRE-SERVICE TEACHERS**
- 235-9 3:55 PM Bodzin, Alec*; Carrigan, James H.; Anastasio, David J.; Popejoy, Kate; Hammond, Thomas; Holland, Breena; Rutzmoser, Scott; Farina, William; Sahagian, Dork: **SOCIO-ENVIRONMENTAL SCIENCE INVESTIGATIONS THAT SUPPORT NGSS TEACHING AND LEARNING**
- 235-10 4:10 PM Gray, Kyle*; Boesdorfer, Sarah; Del Carlo, Dawn; Escalada, Lawrence: **OH MIGHTY ICCISC – USING CROSS-CUTTING THEMES TO DEVELOP NGSS-ALIGNED CURRICULA FOR GRADES 6-12**
- 235-11 4:25 PM Price, Nancy A.*: **PRACTICE-CROSS-CUTTING CONCEPT PAIRS, INQUIRY PATHS, AND THE NATURE OF THE EARTH & SPACE SCIENCES**
- 235-12 4:40 PM Egger, Anne E.*; Fox, Sean P.; McDaris, John R.; Gilbert, Lisa A.: **FACILITATING THREE-DIMENSIONAL LEARNING WITH ADAPTABLE, SEARCHABLE, NGSS-ALIGNED CURRICULAR MATERIALS FROM INTEGRATE**
- 235-13 4:55 PM Oshry, Aleeza*; Bean, Jessica R.; Marshall, Charles R.: **MECHANISMS FOR MEETING DIVERSE NEEDS: DEVELOPING CURRICULUM USING THE UNDERSTANDING GLOBAL CHANGE FRAMEWORK AND THE SYSTEMS CONNECT PLANNING GUIDE**
- 235-14 5:10 PM Duggan-Haas, Don*: **DON'T JUST THINK OUTSIDE THE BOX, BREAK IT: CAN 3D SCIENCE DRIVE INNOVATIONS THAT GENUINELY AND SUBSTANTIALLY IMPROVE EDUCATIONAL OUTCOMES?**
- 5:25 PM **CONCLUDING REMARKS**

SESSION NO. 236

T143. Curating Physical Samples in a Digital World (GSA Geoinformatics Division; Paleontological Society; Society for the Preservation of Natural History Collections; Paleontological Research Institution; Cushman Foundation; GSA Geobiology & Geomicrobiology Division; Association of American State Geologists)

1:30 PM, Washington State Convention Center, Room 3B

Leslie Hsu, Megan Carter, Anders J. Noren and Lesley A.I. Wyborn, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 236-1 1:45 PM Lehnert, Kerstin Annette*: **OPEN AND FAIR SAMPLES: THE NEED FOR TRUSTWORTHY DIGITAL AND PHYSICAL SAMPLE CURATION (Invited Presentation)**
- 236-2 2:00 PM Richard, Stephen*; Fils, Douglas; Noren, Anders; Lehnert, Kerstin A.: **OPEN CORE DATA PROJECT: INTEGRATING PHYSICAL SAMPLES INTO THE WEB OF DATA**
- 236-3 2:15 PM Molineux, Ann*: **THE CHALLENGE: WHAT IS A SAMPLE AND HOW BEST TO CAPTURE MEANINGFUL DIGITAL RECORDS**
- 236-4 2:30 PM Motz, Gary J.*; Johnson, Claudia C.; Njau, Jackson K.; Polly, P. David; Zimmerman, Alexander N.: **DIGITAL ACCESS(ION) OF THE INDIANA UNIVERSITY PALEONTOLOGY COLLECTION: LEVERAGING RESOURCES FROM GEOINFORMATICS, DISTRIBUTED**

CYBERINFRASTRUCTURE, CITIZEN SCIENCE, AND AUGMENTED REALITY

- 2:45 PM **BREAK**
- 236-5 3:00 PM Hills, Denise J.*; McIntyre-Redden, Marcella R.: **METADATA ARCHAEOLOGY: AN IMPORTANT PART OF THE PROCESS OF DIGITIZATION OF PHYSICAL COLLECTIONS**
- 236-6 3:15 PM Powers, Lindsay*: **CHALLENGES AND OPPORTUNITIES FOR PROMOTING PHYSICAL SAMPLE COLLECTIONS IN GEOLOGICAL SURVEYS (Invited Presentation)**
- 236-7 3:30 PM Cole, Elaina V.*; Bowring, James F.: **AMBAPO: ENGINEERING AN OPEN SOURCE SOFTWARE APPLICATION, LIBRARY, AND WEB SERVICE FOR COORDINATE SYSTEM CONVERSIONS**
- 236-8 3:45 PM Curry, Tia*; Bowring, James F.: **MARS: MIDDLEWARE FOR ASSISTING THE REGISTRATION OF SAMPLES**
- 4:00 PM **BREAK**
- 236-9 4:15 PM Tuite, Michael L.*: **DEVELOPING A FRAMEWORK FOR A DATA LIBRARY OF MARS ANALOG GEOSAMPLES**
- 236-10 4:30 PM Noren, Anders*: **IGSN IN CONTINENTAL DRILLING AND CORING: PROGRESS AND CHALLENGES**
- 236-11 4:45 PM Klump, Jens*; Devaraju, Anusuriya; Wyborn, Lesley A.I.; Bastrakova, Irina; Golodoniuc, Pavel; McInnes, Brent I.A.; Cox, Simon: **IMPLEMENTING THE INTERNATIONAL GEO SAMPLE NUMBER (IGSN) IN AUSTRALIA (Invited Presentation)**
- 5:00 PM **LIGHTNING TALKS**
- 5:15 PM **DISCUSSION**

SESSION NO. 237 \$

T148. System-Scale Zonation of Ore Systems: Insights into 3D Architecture from Lateral and Deep Exposures Due to Mining and Structural Deformation (GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Society of Economic Geologists)

1:30 PM, The Conference Center, Yakima 1

Carson A. Richardson, Simone E. Runyon and Eric Seedorff, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 237-1 1:45 PM Dilles, John H.*; Proffett, John M.; Houston, Robert A.: **TOPS AND BOTTOMS OF PORPHYRY COPPER DEPOSITS REVISITED: VERTICAL AND LATERAL EXTENTS FROM YERINGTON, NV, AND BUTTE, MT (Invited Presentation)**
- 237-2 2:05 PM Jensen, Collin G.*; Christiansen, Eric H.; Stearns, Michael A.; Dorais, Michael J.; Dyorich, Tober; Tolworthy, Joseph; Dunkley, Riley; Kindred, Thane; Martin, Samuel; Keith, Jeffrey D.: **MULTI-STAGE INTRUSION AND DIFFERENTIATION: PETROLOGIC DEVELOPMENT OF THE LITTLE COTTONWOOD STOCK, UTAH**
- 237-3 2:20 PM Vikre, Peter G.*; Pribil, Michael J.; Poulson, Simon; Premo, Wayne R.; Hayden, Leslie A.: **TRANSFER OF SULFUR IN THE MIOCENE COMSTOCK LODGE AU-AG SYSTEM (NEVADA, USA) FROM MANTLE TO METEORIC WATER**
- 237-4 2:35 PM Richardson, Carson A.*; Seedorff, Eric: **MULTIPLE GENERATIONS OF CENOZOIC NORMAL FAULTS AND RELATED TILTING IN THE GOSHUTE MOUNTAINS AND TOANO RANGE, ELKO COUNTY, NEVADA, WITH GEOLOGIC IMPLICATIONS**
- 237-5 2:50 PM John, David A.*; Colgan, Joseph P.; Watts, Kathryn E.; Henry, Christopher D.: **ARCHITECTURE AND GENESIS OF HYDROTHERMAL SYSTEMS IN TILTED MID-CENOZOIC CALDERAS, NORTHERN GREAT BASIN, USA**
- 237-6 3:05 PM Gaynor, Sean*; Rosera, Josh; Coleman, Drew S.: **SMALL, EPHEMERAL AND SHALLOW RELATIONSHIPS: AMALGAMATING MO-MINERALIZING MAGMAS AT THE QUESTA PORPHYRY MO DEPOSIT**

TUESDAY

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| <p>237-7 3:20 PM Runyon, Simone E.*; Seedorf, Eric; Stegen, Ralph J.: AJO MINING DISTRICT, SOUTHWESTERN ARIZONA: LARAMIDE MAGMATISM, PORPHYRY COPPER MINERALIZATION, AND STRUCTURAL EVOLUTION</p> <p>3:35 PM BREAK</p> <p>237-8 3:50 PM Stromberg, J.M.*; Barr, Erik; VanLoon, Lisa; Banerjee, Neil R.: GEOCHEMISTRY OF THE DOME MINE ANKERITE VEINS; INSIGHTS INTO FLUID FLOW PATHWAYS AND THE MULTI-STAGE ENRICHMENT OF A WORLD-CLASS OROGENIC GOLD DEPOSIT</p> <p>237-9 4:05 PM Sepp, Michael D.*; Dilles, John: STRUCTURAL GEOLOGIC EVOLUTION OF THE BOTIJA PORPHYRY CU – MO – (AU) DEPOSIT, PANAMA</p> <p>237-10 4:20 PM DelGaudio, Stephen*; Hanchar, John M.; Tornos, Fernando: TIMING AND RELATIONS OF MAGNETITE AND COPPER ORE MINERALIZATION IN IOCG AND MTAPO DEPOSITS: COASTAL CORDILLERA, COPIAPO REGION CHILE,</p> <p>237-11 4:35 PM Qiu, Kun-Feng*; Deng, Jun; Yu, Hao-Cheng; Gou, Zong-Yang: LATE TRIASSIC PORPHYRY MOLYBDENUM MINERALIZATION IN THE WESTERN QINLING, CHINA: AN EXAMPLE FROM THE WENQUAN DEPOSIT</p> <p>237-12 4:50 PM Siron, Chris R.*; Thompson, John F.H.; Baker, Tim; Darling, Robert S.; Dipple, Gregory: EVIDENCE FOR A COMPLEX, MULTI-PHASE AND ZONED OLIGO-MIOCENE MAGMATIC-HYDROTHERMAL SYSTEM WITHIN THE STRATONI FAULT ZONE, NORTHERN GREECE</p> <p>237-13 5:05 PM Wetzel, Matthew*; Canby, Vertrees; Barton, Mark D.: HYDROTHERMAL ALTERATION AND MINERALIZATION AT THE CUKARU PEKI CU-AU DEPOSIT, TIMOK CU-AU METALLOGENIC BELT, SERBIA</p> | <p>LITHOSPHERIC MANTLE: WHOLE ROCK MULTIPLE SULFUR ANALYSIS OF PERIDOTITE AND ECLOGITE XENOLITHS FROM THE PREMIER KIMBERLITE, SOUTH AFRICA</p> <p>3:15 PM DISCUSSION</p> <p>238-7 3:30 PM Pearce, Julian A.*; Ernst, Richard E.; Rogers, Chris; Peate, David W.: LIP-PRINTING: A GEOCHEMICAL PROXY APPROACH TO LIP FORENSICS (Invited Presentation)</p> <p>238-8 3:50 PM Callegaro, Sara*; Marzoli, Andrea; Bertrand, Hervé; Blichert-Toft, Janne; Reisberg, Laurie; Cavazzini, Giancarlo; Jourdan, Fred; Davies, Joshua H.F.L.; Schaltegger, Urs; Chiaradia, Massimo: THE HIGH-TI CAMP FREETOWN LAYERED COMPLEX (SIERRA LEONE) - LITHOSPHERIC IMPRINTING REVEALED BY ISOTOPE SYSTEMATICS</p> <p>238-9 4:05 PM Heinonen, Jussi S.*; Luttinen, Arto V.; Vuori, Saku K.; Bohron, Wendy A.; Spera, Frank J.; Scruggs, Melissa A.: TWO GABBROIC DIKES FROM THE KAROO LIP EXHIBIT INCREASING ϵ_{Nd} TOWARDS THE CONTACT WITH THE WALLROCK AND RECORD TWO DISTINCT STORIES OF DIFFERENTIATION</p> <p>238-10 4:20 PM Kingsbury, Cole G.*; Ernst, Richard E.; Cousens, Brian: THE HIGH ARCTIC LIP IN CANADA: STRATIGRAPHIC CONTROLS AND GEOCHEMICAL MONITORING ON CRUSTAL INFLUENCES</p> <p>238-11 4:35 PM Harrison, Lauren N.*; Weis, Dominique; Garcia, Michael O.: THE HAWAIIAN MANTLE PLUME OVER >81 MILLION YEARS: EVIDENCE FOR MULTIPLE DEPLETED SOURCES</p> <p>238-12 4:50 PM Toth, Conner H.*; Bohron, Wendy A.; Louis, Mikkel; Bendaña, Sylvana; Moore, Nicole E.; Grunder, Anita: ORIGIN OF GIANT PLAGIOCLASE IN A LARGE-VOLUME BASALTIC MAGMA: ENTRAINMENT OF PARTIALLY-MELTED GABBROIC CUMULATE IN THE STEENS BASALT, SE OREGON, USA</p> <p>238-13 5:05 PM Weis, Dominique*; Harrison, Lauren; Scoates, James S.: WINDOWS INTO THE DEEP MANTLE FROM LONG-LASTING EM-1 MANTLE PLUME (Invited Presentation)</p> <p>5:25 PM CONCLUDING REMARKS</p> |
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SESSION NO. 238 \$

T150. Chemical Scene Investigations of Large Igneous Provinces II (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)

1:30 PM, The Conference Center, Skagit 2

Cole G. Kingsbury and Richard E. Ernst, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 238-1 1:40 PM Jowitt, Simon*; Ernst, Richard E.: **LITHOGEOCHEMICAL INSIGHTS INTO THE NI-CU-PGE PROSPECTIVITY OF MAFIC-ULTRAMAFIC LARGE IGNEOUS PROVINCES AND USES IN EXPLORATION TARGETING (Invited Presentation)**
- 238-2 2:00 PM Liikane, Dustin Andrew*; St-Onge, Marc R.; Ernst, Richard E.; Kjarsgaard, Bruce; Rayner, Nicole M.: **GEOCHEMICAL, ISOTOPIC, AND MINERALOGICAL CHARACTERIZATION OF THE FROBISHER SUITE MAFIC-ULTRAMAFIC SILLS, SOUTHERN BAFFIN ISLAND, CANADA, WITH IMPLICATIONS FOR METALLOGENIC POTENTIAL**
- 238-3 2:15 PM Regan, Sean P.*; Grohn, Lisa J.; Williams, M.L.; Chiarenzelli, J.; Jercinovic, Michael; Cousens, Brian; Aspler, Lawrence B.; Mahan, K.H.: **THE SNOWBIRD TECTONIC ZONE LIP: IMPLICATIONS FOR AN ABORTED RIFT ORIGIN**
- 238-4 2:30 PM Price, Jonathan D.*; Franks, Challenga; Puckett, Robert E.; Klasse, Dillon S.: **INSIGHTS FROM MAFIC MINERAL VARIATIONS AMONG AN A-TYPE LIP GRANITE SERIES FROM THE SOUTHERN OKLAHOMA AULACOGEN**
- 238-5 2:45 PM Kastek, Nico*; Ernst, Richard E.; Cousens, Brian L.; Baragar, W.R.A.; Bleeker, Wouter; Söderlund, Ulf; Sylvester, Paul J.; Kamo, Sandra L.: **PETROGENESIS OF THE 1998 MA MINTO LARGE IGNEOUS PROVINCE: EVIDENCE FOR TWO DISTINCT MAGMA SOURCES AND PLUMBING SYSTEM PATHWAYS**
- 238-6 3:00 PM Magalhaes, Nivea*; Penniston-Dorland, Sarah C.; Alpheus, Safiya; Feineman, Maureen; Farquhar, James: **SURFACE-DERIVED SULFUR IN THE SUB-CONTINENTAL**

SESSION NO. 239

T165. Recent Advances in Understanding Volcanism of the Yellowstone Hotspot

1:30 PM, The Conference Center, Tahoma 3

Arron R. Steiner, John A. Wolff and Martin J. Streck, Presiding

- 239-1 1:30 PM Camp, Victor E.*; Ross, Martin E.; Duncan, Robert; Kimbrough, David L.: **FARALLON SLAB UPLIFT AND BACK-ARC VOLCANISM ALONG THE YELLOWSTONE ADAKITE HOT SPOT TRACK (Invited Presentation)**
- 239-2 1:50 PM Benson, Thomas R.*; Borchardt, Jackson Stone; Coble, Matthew A.; Mahood, Gail A.: **NEW CONSTRAINTS ON THE GIANT RADIATING DIKE SWARM AT INITIATION OF THE YELLOWSTONE HOTSPOT THROUGH GEOLOGICAL MAPPING AND HIGH-PRECISION $^{40}\text{Ar}/^{39}\text{Ar}$ GEOCHRONOLOGY OF CONTEMPORANEOUS CALDERAS**
- 239-3 2:05 PM Cahoon, Emily B.*; Streck, Martin J.: **PICTURE GORGE BASALT, EASTERN OREGON: EXTENDED DISTRIBUTION AND PETROGENETIC CONNECTIONS TO STEENS BASALT AND STRAWBERRY VOLCANICS**
- 239-4 2:20 PM Bindeman, Ilya N.*; Colon, Dylan P.; Gerya, Taras; Melnik, Oleg; Simakin, Alexander: **ZIRCON DIVERSITY AND NUMERICAL MODELING ON DIFFERENT SCALES TO UNDERSTAND MAGMA GENESIS IN AREAS OF HOT SPOT-CRUST INTERACTION WITH EMPHASIS ON YELLOWSTONE PLUME (Invited Presentation)**
- 239-5 2:40 PM Wolff, John A.*; Starkel, William A.; Henry, Christopher D.; Ellis, Ben; Ramos, Frank C.: **MAFIC AND INTERMEDIATE MAGMATISM AT MCDERMITT CALDERA, NEVADA-**

OREGON: ICELANDITE TRIGGER FOR CALDERA FORMATION

- 239-6 2:55 PM Borchardt, Jackson S.*; Benson, T.R.; Mahood, Gail A.: **NEWLY DELINEATED CALDERAS AT THE HAWKS VALLEY-LONE MOUNTAIN CENTER IN SOUTHEASTERN OREGON ARE THE OLDEST KNOWN ASSOCIATED WITH STEENS FLOOD BASALTS AND THE IMPINGEMENT OF THE YELLOWSTONE PLUME**
- 239-7 3:10 PM Streck, Martin J.*; McIntosh, William; Ferns, Mark L.: **COLUMBIA RIVER RHYOLITES: AGE-DISTRIBUTION PATTERNS AND THEIR IMPLICATIONS FOR ARRIVAL, LOCATION, AND DISPERSION OF FLOOD BASALT MAGMAS IN THE CRUST**
- 3:25 PM **BREAK**
- 239-8 3:40 PM Finn, David*; Coe, Robert; Branney, Michael J.; Brown, Ethan; Reichow, Marc; Knott, Thomas; Storey, Michael; Bonnicksen, Bill: **ROBUST PALEOMAGNETIC CORRELATION OF YELLOWSTONE HOTSPOT IGNIMBRITES ALONG THE SNAKE RIVER PLAIN**
- 239-9 3:55 PM Knott, Thomas R.*; Reichow, Marc K.; Branney, Michael J.; Finn, David; Coe, Robert S.; McCurry, Michael: **NEW RECORD OF MID-MIOCENE LARGE-SCALE EXPLOSIVE SUPER-ERUPTIONS AND ASSOCIATED SUBSIDENCE ON THE YELLOWSTONE HOTSPOT TRACK**
- 239-10 4:10 PM Boroughs, Scott*; Birchard, Caleb E.; Wolff, John A.: **THERMODYNAMIC AND GEOCHEMICALLY CONSTRAINED MODELING OF THE GENESIS OF LOW- $\delta^{18}\text{O}$ RHYOLITES IN THE CENTRAL SNAKE RIVER PLAIN**
- 239-11 4:25 PM Potter, Katherine E.*; Shervais, John; Link, Paul K.: **FALLOUT ZIRCONS AS GEOLOGIC FINGERPRINTS: UNLOCKING THE HISTORY OF YELLOWSTONE-SNAKE RIVER PLAIN HOTSPOT MAGMATISM USING U-PB AND HF ISOTOPES IN ZIRCONS**
- 239-12 4:40 PM Vazquez, Jorge A.*; Stelten, Mark; Cooper, Kari M.: **FRACTIONATION, RECHARGE, AND REMELTING DURING THE EVOLUTION OF RHYOLITIC MAGMATISM AT YELLOWSTONE CALDERA (Invited Presentation)**
- 239-13 5:00 PM Colón, Dylan P.*; Bindeman, Ilya N.; Gerya, Taras: **MAGMATIC THERMOMECHANICAL MODELS REVEAL THE ORIGINS OF ISOTOPIC TRENDS IN YELLOWSTONE VOLCANOES**
- 239-14 5:15 PM Ward, Kevin M.*; Lin, Fan-Chi; Wu, Sin-Mei; Farrell, Jamie; Smith, Robert B.: **SUBSURFACE SEISMIC IMAGING OF THE YELLOWSTONE UPPER GEYSER BASIN HYDROTHERMAL SYSTEM**

SESSION NO. 240

T171. Terroir (GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division)

1:30 PM, The Conference Center, Skagit 3

Scott Burns and Kevin R. Pogue, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 240-1 1:35 PM Burns, Scott F.*: **DIFFERENCES IN TERROIRS OF WINE GRAPES IN OREGON, USA**
- 240-2 1:50 PM Jones, Gregory V.*; Jones, Henry E.: **WITHIN VINEYARD LANDSCAPE CONTROLS ON TEMPERATURE STRUCTURE AND VARIETAL RIPENING POTENTIAL IN THE UMPQUA VALLEY OF OREGON**
- 240-3 2:05 PM Pogue, Kevin R.*: **GEOLOGIC JUSTIFICATIONS FOR THE DISTINCTIVENESS OF FEDERALLY SANCTIONED AMERICAN VITICULTURAL AREAS: EXAMPLES FROM THE COLUMBIA BASIN, WASHINGTON AND OREGON**
- 240-4 2:20 PM Ihle, Alexander*; Morgan, Silas; Kimball, Bryn; Pogue, Kevin: **A GEOCHEMICAL ANALYSIS OF COLUMBIA RIVER BASIN VINEYARD SOILS**
- 240-5 2:35 PM Wilkins, David*; Busacca, Alan: **INSIGHTS INTO TERROIR FACTORS FROM A DENSE NETWORK OF VINEYARD**

SOIL AND WEATHER STATIONS, SUNNYSLOPE DISTRICT, IDAHO

- 240-6 2:50 PM Barlow, Megan L.*; Cameron, Barry I.; Gulbranson, Erik L.; Young, Erica B.: **SOIL-GRAPEVINE INTERACTIONS: INSIGHT FROM VERDICCHIO IN THE MARCHE WINE REGION, ITALY**
- 240-7 3:05 PM Hou, Wenzhu*; Ng, Stephen; Chung, Diane; Sun, Yiyi: **THE TERROIR OF THE HELAN MOUNTAINS: A RISING WINE REGION OF CHINA**
- 240-8 3:20 PM Burns, Scott F.*: **RESURGENCE OF TERROIR TASTING OF RIESLING WINES IN THE WILLAMETTE VALLEY, OREGON, USA**
- 240-9 3:35 PM Bershaw, John*; Carder, Bethany; Burns, Scott F.; Carlson, Tessa B.: **CANNABIS TERROIR: WHERE IS THE GRASS GREENER?**
- 3:50 PM **CONCLUDING REMARKS**
- 4:05 PM **DISCUSSION AND WINE TASTING OF DIFFERENT TERROIRS**

SESSION NO. 241

T181. The Geological Signature of Natural Hazard Events II (GSA Environmental and Engineering Geology Division; GSA Sedimentary Geology Division)

1:30 PM, The Conference Center, Chelan 5

Peter Bobrowsky, David H. Huntley, Jasper Knight and Catherine Chague-Goff, Presiding

- 241-1 1:30 PM Peck, Alexander M.*: **NEW EVIDENCE SUPPORTING PROBABLE EARTHQUAKE NUCLEATION SITE ALONG THE CENTRAL MAYNARD LAKE FAULT WITHIN THE LEFT-LATERAL PAHRANAGAT SHEAR ZONE, NEVADA, USA**
- 241-2 1:45 PM Carena, Sara*; Friedrich, Anke M.: **VERTICAL-DISPLACEMENT HISTORY OF AN ACTIVE BASIN AND RANGE FAULT BASED ON INTEGRATION OF GEOMORPHOLOGIC, STRATIGRAPHIC, AND STRUCTURAL DATA**
- 241-3 2:00 PM Cisternas, Marco*; Mizobe, Cynthia; Wesson, Robert L.; Ely, Lisa L.; Muñoz, Ariel; Dura, Tina; Valdebenito, Galo; Melnick, Daniel: **BEACH RIDGES, BURIED EROSIONAL SCARPS AND OVERHANGING SOILS EVIDENCE RECURRING PAST CO-SEISMIC SUBSIDENCE MIDWAY ALONG THE AREA OF THE GIANT 1960 CHILE EARTHQUAKE**
- 241-4 2:15 PM Keller, Edward A.*; Morel, D.L.: **HOLOCENE MARINE ABRASION PLATFORMS EAST OF THE SOUTH BRANCH OF THE SANTA YNEZ FAULT NEAR SANTA BARBARA, CA SUGGEST M 7-8 EARTHQUAKES ARE POSSIBLE**
- 241-5 2:30 PM Greene, H. Gary*; Barrie, Vaughn; Todd, Brian J.: **THE SKIPJACK ISLAND FAULT ZONE - AN ACTIVE TRANSCURRENT STRUCTURE WITHIN THE UPPER PLATE OF THE CASCADIA SUBDUCTION COMPLEX**
- 2:45 PM **DISCUSSION**
- 3:00 PM **BREAK**
- 241-6 3:15 PM Geertsema, Marten*: **CHALLENGES WITH RADIOCARBON DATING LANDSLIDES**
- 241-7 3:30 PM Hickson, Catherine J.*: **WHEN IS A SURGE NOT A SURGE? THAT IS THE PERPLEXING QUESTION**
- 241-8 3:45 PM Major, Jon J.*; Pierson, Thomas C.: **BLOCKS AND LAPILLI AND ASH, OH MY! INTERPRETATION OF VOLCANICLASTIC DEPOSITS**
- 241-9 4:00 PM Coe, Jeffrey A.*; Bessette-Kirton, Erin K.; Baum, Rex L.; Smith, Joel B.; Schmitt, Robert G.; Geiger, John W.: **THE WEST SALT CREEK ROCK AVALANCHE, SAG POND, AND OUTBURST FLOOD: MORPHOLOGICAL AND SEDIMENTOLOGICAL SIGNATURES FROM A SERIES OF EXTRAORDINARY EVENTS**

TUESDAY
PM

241-10 4:15 PM Roberts, Nicholas J.*; Geertsema, Marten; Kwohl, Eva; Clague, John; Venditti, Jeremy G.: **SIGNATURES OF LANDSLIDE-GENERATED WAVES IN THE SOUTHERNMOST COAST MOUNTAINS, BRITISH COLUMBIA**

241-11 4:30 PM Shugar, Dan H.*: **ROCK AVALANCHE SEDIMENTOLOGY AND GEOMORPHOLOGY**
4:45 PM **CONCLUDING REMARKS**

SESSION NO. 242

T188. Interrelationship between Tectonic Uplift and Quaternary Glaciations on the Tibetan Plateau and Its Surrounding Mountains

1:30 PM, The Conference Center, Chelan 2

Zhijiu Cui, Yingkui Li, Jonathan M. Harbor and Chaolu Yi, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 242-1 1:35 PM Owen, Lewis A.*: **QUATERNARY GLACIATION OF TIBET AND THE BORDERING MOUNTAINS**
- 242-2 1:55 PM Li, Yanan*; Li, Yingkui; Harbor, Jonathan M.; Liu, Gengnian; Yi, Chaolu; Caffee, Marc W.: **TIMING OF THE LITTLE ICE AGE GLACIAL ADVANCES IN THE EASTERN TIAN SHAN, CENTRAL ASIA**
- 242-3 2:10 PM Liu, Beibei*; Liu, Gengnian; Cui, Zhijiu; Zhang, Wei; Zhao, Jingdong; Wang, Jie: **¹⁰BE EXPOSURE DATING CONSTRAINED GLACIAL ADVANCE THROUGHOUT LATEGLACIAL AND HOLOCENE ON MOUNT XUEBAODING, EASTERN TIBETAN PLATEAU**
- 242-4 2:25 PM Han, Yesong*; Zhang, Jiafu; Cui, Zhijiu; Liu, Gengnian: **LUMINESCENCE DATING OF THE MINJIANG HEADWATER TERRACES AND ITS GEOMORPHOLOGICAL IMPLICATION**
- 242-5 2:40 PM Peng, Xu*; Liu, Gengnian; Chen, Yixin; Cui, Zhijiu: **TIMING AND EXTENT OF LATE QUATERNARY GLACIATIONS IN THE COGARBU VALLEY, EASTERN HIMALAYA ALONG THE CHINA-BHUTAN BORDER, INVESTIGATED USING ¹⁰BE SURFACE EXPOSURE DATING**
- 242-6 2:55 PM Li, Yingkui*; Chen, Yixin; Liu, Gengnian; Zhang, Mei; Cui, Zhijiu: **TIMING AND EXTENT OF LATE QUATERNARY GLACIATIONS ON THE NORTHERN SLOPES OF MT. SHISHAPANGMA, MONSOONAL HIMALAYAS**
3:10 PM **BREAK**
- 242-7 3:25 PM Bishop, Michael P.*; Bush, Andrew B.G.; Dobrev, Iliyana D.; Young, Brennan W.; Huo, Da: **CLIMATE-TOPOGRAPHIC FORCING AND MOUNTAIN GEODYNAMICS IN THE CENTRAL KARAKORAM HIMALAYA**
- 242-8 3:45 PM Le, Chai*: **PHYSICAL GEOGRAPHY ANALYSIS OF THE MORPHOLOGY AND DISTRIBUTION CHARACTERISTICS AND INFLUENCE FACTORS OF CIRQUE IN THE TENASSERIM CHAIN OF SOUTHEASTERN TIBET**
- 242-9 4:00 PM Xiao, Jing*; Liu, Gengnian: **GEOMORPHIC INDICES ANALYSIS FOR EVALUATING THE GLACIAL AND TECTONIC EFFECTS ON THE LATE QUATERNARY LANDFORM EVOLUTION OF THE KARLIK RANGE, EASTERN TIAN SHAN**
- 242-10 4:15 PM Yi, Chaolu*; Dong, Guocheng: **GLACIAL GEOMORPHOLOGY OF THE PURUOGANGRI, THE LARGEST ICE FIELD, IN THE TIBETAN PLATEAU**
- 242-11 4:30 PM Zhou, Shangzhe*: **AN EARLIER PLEISTOCENE GLACIATION WAS FOUND IN BODUIZANGBU VALLEY, SOUTHEASTERN TIBET**
- 242-12 4:45 PM Cui, Zhijiu*; Liu, Gengnian; Zhang, Jiafu; Liu, Beibei; Han, Yesong; Zhang, Wei; Zheng, Benxing; Zhao, Jingdong; Wang, Jie; Liu, Chunru; Chen, Jian: **TECTONIC UPLIFT AND GLACIAL HISTORY OF MIN SHAN SINCE LATE STAGE OF MIDDLE PLEISTOCENE**

5:05 PM **DISCUSSION**
5:20 PM **CONCLUDING REMARKS**

SESSION NO. 243

T189. Landscapes in the Anthropocene (GSA Quaternary Geology and Geomorphology Division; GSA Hydrogeology Division; GSA Sedimentary Geology Division; GSA Limnogeology Division)

1:30 PM, The Conference Center, Chelan 4

Rónadh Cox, José Antonio Constantine and J. Wesley Lauer, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 243-1 1:40 PM Kollar, Albert D.*; Hughes, Kay Ann: **GEOLOGY OF THE LANDSCAPE PAINTINGS AT THE CARNEGIE MUSEUM OF ART, A REFLECTION OF THE ANTHROPOCENE, 1860 TO 2017**
- 243-2 1:55 PM Lauer, J. Wesley*; Echterling, Caitlyn; Lenhart, Christian F.; Rausch, Rachel; Belmont, Patrick: **CHANNEL CROSS-SECTIONAL ENLARGEMENT ON THE MINNESOTA RIVER, MINNESOTA AND ITS ROLE IN SEDIMENT PRODUCTION**
- 243-3 2:10 PM Horton, Alexander*; Constantine, José Antonio; Hales, T.C.: **WIDESPREAD LAND COVER TRANSFORMATION AND THE MANAGEMENT IMPACTS FOR TROPICAL MEANDERING RIVER SYSTEMS**
- 243-4 2:25 PM Crowe Curran, Joanna*: **MANAGING A RIVER WITH A HISTORY OF DAM DIVERSIONS AND LOGGING**
- 243-5 2:45 PM Ortiz, Alejandra*; Roy, Samapriya; Edmonds, Douglas A.: **MARSH COLLAPSE BY POND EXPANSION ON THE MISSISSIPPI RIVER DELTA PLAIN (Invited Presentation)**
- 243-6 3:05 PM Clubb, Fiona J.*; Mudd, Simon Marius; Milodowski, David T.; Valters, Declan A.; Slater, Louise J.; Hurst, Martin D.; Limaye, Ajay: **DELINEATING FLOODPLAINS AND TERRACES FROM OBJECTIVELY DEFINED TOPOGRAPHIC THRESHOLDS**
3:20 PM **BREAK**
- 243-7 3:35 PM Eke, Esther C.*; Viparelli, Enrica: **NUMERICAL MODELING OF EROSIONAL AND DEPOSITIONAL BANK PROCESSES. MODEL VALIDATION CHALLENGES (Invited Presentation)**
- 243-8 3:55 PM David, Scott*; Edmonds, Douglas A.; Letsinger, Sally L.: **CONTROLS ON THE OCCURRENCE AND PREVALENCE OF FLOODPLAIN CHANNELS IN MEANDERING RIVERS**
- 243-9 4:10 PM Czuba, Jonathan A.*; David, Scott R.; Edmonds, Douglas A.; Johnston, Graham H.: **MORPHODYNAMIC INSIGHTS INTO A CHANNELIZED FLOODPLAIN ALONG THE MEANDERING EAST FORK WHITE RIVER, INDIANA, USA**
- 243-10 4:25 PM Constantine, José Antonio*; Ciampalini, Rossano; Hales, T.C.; Gabet, Emmanuel: **CLIMATE CHANGE AND THE ROLE OF VEGETATION IN THE REDUCTION OF SOIL EROSION**
- 243-11 4:40 PM Ouimet, William B.*: **QUANTIFYING 17TH TO EARLY 20TH CENTURY LANDSCAPE CHANGE IN SOUTHERN NEW ENGLAND**
- 243-12 4:55 PM Weirich, Frank*; Neumann, William; Campbell, David: **AN EVALUATION OF THE POTENTIAL OF GROUND PENETRATING RADAR TO DETECT THE PRESENCE AND SPATIAL EXTENT OF SUBSURFACE HYDROPHOBIC SOIL LAYERS**

SESSION NO. 244

T206. Geomorphology and Landscape Evolution of Mars: The G.K. Gilbert Award Session I (GSA Planetary Geology Division)

1:30 PM, The Conference Center, Tahoma 1

James J. Wray, Danielle Wyrick and Sharon Wilson Purdy, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 244-1 1:35 PM Grant, John A.*; Wilson, Sharon A.: **GSA PLANETARY GEOLOGY DIVISION G.K. GILBERT LECTURE: IMPACT CRATERS AS A TOOL FOR MEASURING THE AMOUNT AND PROCESSES OF DEGRADATION ON MARS**
- 244-2 1:50 PM Schultz, Peter H.*: **MISSING MARS: CLUES FROM RELICT CRATERS (Invited Presentation)**
- 244-3 2:10 PM Golombek, M.P.*; Warner, N.H.; Ganti, Vamsi; Sweeney, Julianne: **DEGRADATION OF SMALL IMPACT CRATERS: EROSION RATES AND MARS CLIMATE**
- 244-4 2:30 PM Arvidson, Raymond E.*: **ORBITAL AND ROVER-BASED EXPLORATION OF PERSEVERANCE VALLEY, ENDEAVOUR CRATER, MARS (Invited Presentation)**
- 244-5 2:50 PM Parker, Timothy*: **GEOMORPHOLOGY OF THE "SPILLWAY" AREA AT THE HEAD OF PERSEVERANCE VALLEY, ENDEAVOUR CRATER, MARS**
- 244-6 3:05 PM Williams, Rebecca M.E.*; Chuang, Frank C.; Berman, Daniel C.; Irwin, Rossman P.: **INSIGHT INTO VALLEY NETWORK ACTIVITY FROM MORPHOLOGY IN THE GREATER MERIDIANI PLANUM REGION, MARS (Invited Presentation)**
- 244-7 3:20 PM Newsom, Horton E.*; Wiens, Roger C.; Gallegos, Zachary E.; Adair, Baylee; Williams, Joshua; Le Mouélic, Stéphane; Lewis, Kevin; Calef, Fred J.; Edgett, Kenneth S.; Winter, Alice B.: **GALE CRATER AND IMPACT PROCESSES FROM THE MARS SCIENCE LABORATORY PERSPECTIVE INCLUDING ANALYSIS WITH VIRTUAL REALITY TECHNOLOGY**
- 244-8 3:35 PM Calef, Fred John*; Day, Mackenzie D.; Newsom, Horton E.: **CRATER DENSITIES ON LOWER MOUNT SHARP AS A PROXY FOR MODERN GEOLOGIC EROSION**
- 244-9 3:50 PM Lapotre, Mathieu G.A.*; Ewing, Ryan C.; Lamb, Michael P.; Weitz, Catherine M.; Rubin, David M.; Bridges, Nathan T.; Ehlmann, Bethany L.: **MORPHOLOGICAL DIVERSITY OF MARTIAN EOLIAN BEDFORMS AS REVEALED BY THE CURIOSITY ROVER AT GALE CRATER, MARS**
- 244-10 4:05 PM Yingst, R. Aileen*; Crumpler, Larry S.; Garvin, James; Gupta, Sanjeev; Kah, Linda C.; Williams, Rebecca M.E.: **CONSTRAINTS ON THE GEOLOGIC HISTORY AND TRANSPORT OF MATERIALS AT FIVE MARS LANDING SITES PROVIDED BY CLAST MORPHOLOGY AND TEXTURE**
- 244-11 4:20 PM Head, James W.*: **THE CLIMATE HISTORY OF MARS: EVIDENCE FROM GEOMORPHOLOGY AND LANDSCAPE EVOLUTION**
- 244-12 4:35 PM McEwen, Alfred S.*; Team, HiRISE Science: **TODAY'S CHANGING LANDSCAPE OF MARS**

SESSION NO. 245 \$

T212. Geologic Mapping in the Pacific Northwest and Beyond: Recent Maps, Advances, and New Insights: In Memory of Russell C. Evarts and his Extensive Contributions to Pacific Northwest Geologic Mapping

1:30 PM, The Conference Center, Tahoma 2

Michael Polenz and Dave Norman, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 1:35 PM **ADDRESS TO HONOR RUSS EVARTS' LIFE AND WORK**
- 245-1 1:45 PM Fallas, Karen M.*; MacLean, Bernard C.; MacNaughton, Robert B.: **PREVIOUSLY UNRECOGNIZED REGIONALLY EXTENSIVE PRE-WINDERMERE SUPERGROUP FOLDING IN NORTHWESTERN CANADA**
- 245-2 2:00 PM Brennan, Daniel T.*; Pearson, David M.; Link, Paul K.: **RODINIA, RIFTING, AND THE RAMSHORN SLATE: GEOLOGIC MAPPING OF THE BAYHORSE AREA, CENTRAL IDAHO REASSIGNS THE AGE OF POORLY UNDERSTOOD STRATIGRAPHY FROM ORDOVICIAN TO NEOPROTEROZOIC**

- 245-3 2:15 PM Cheney, Eric S.*: **EVIDENCE FOR A 5 MA EROSION SURFACE AND THE SUBSEQUENT RISE OF THE ANTICLINAL CASCADE RANGE, WASHINGTON**
- 245-4 2:30 PM Kavana, Ezra*: **GEOLOGICAL MAPPING, STRUCTURAL SETTING AND PETROGRAPHIC DESCRIPTION OF THE ARCHEAN VOLCANIC ROCKS OF MNANKA AREA, NORTH MARA**
- 245-5 2:45 PM Brooks, Justin L.*; Troost, Kathy Goetz: **SURFICIAL GEOLOGY OF THE NEWLY ANNEXED AREA OF KIRKLAND, WASHINGTON, KING COUNTY, USA**
- 3:00 PM **BREAK**
- 245-6 3:15 PM Clark, Doug*: **THE POTENTIAL FOR LIDAR TO TEST AND DRAMATICALLY IMPROVE PUBLISHED MAPPING OF GLACIER EXTENTS IN THE PACIFIC NORTHWEST**
- 245-7 3:30 PM Walsh, Timothy J.*; Forson, Corina: **HOW FLOODING OVER INTERSTATE 5 LED TO REVISION OF THE WASHINGTON GEOLOGICAL SURVEY GEOLOGIC MAPPING PRIORITIES (Invited Presentation)**
- 245-8 3:50 PM Haugerud, Ralph A.*; McClaughry, Jason D.; Phillips, William M.: **PRESENT AND FUTURE OF GEOLOGIC MAPPING IN THE PACIFIC NORTHWEST (Invited Presentation)**
- 4:10 PM **DISCUSSION**
- 4:25 PM **CONCLUDING REMARKS**

SESSION NO. 246

T219. Challenges in Tectonics: Dynamic Interactions among Earth-Surface Processes, Landscape Evolution, and Tectonics II (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; SEPM (Society for Sedimentary Geology); Future of Tectonics Initiative)

1:30 PM, The Conference Center, Tahoma 4

Roman A. DiBiase, Elizabeth J. Cassel and Majie Fan, Presiding

- 246-1 1:30 PM Pazzaglia, Frank J.*; Etzel, Nicole; Idleman, Bruce; Zeitler, Peter: **U-PB DETRITAL ZIRCON (DZ) GEOCHRONOLOGY OF LOWER JURASSIC NEWARK BASIN PALEO-ALLUVIAL FANS, ATLANTIC SLOPE DRAINAGE DEVELOPMENT, AND DYNAMIC INTERACTIONS IN THE POST-OROGENIC LANDSCAPE EVOLUTION OF THE APPALACHIANS**
- 246-2 1:45 PM McCulla, James K.*; Rohrer, Lucas P.; Massey, Matthew A.; Moecher, David P.: **RELATIONSHIP BETWEEN NEO-ACADIAN MID-CRUSTAL TRANSPRESSION AND EXTRUSION IN THE NEW ENGLAND APPALACHIANS WITH FORELAND BASIN DEVELOPMENT: COMPARISON OF NEW MONAZITE EPMA GEOCHRONOLOGY WITH THE SEDIMENTARY RECORD**
- 246-3 2:00 PM Moodie, Andrew J.*; Pazzaglia, Frank J.; Berti, Claudio: **EXOGENIC FORCING AND AUTOGENIC PROCESSES ON CONTINENTAL DIVIDE LOCATION AND MOBILITY**
- 246-4 2:15 PM McDermott, Jeni A.*; Redfield, Tim F.; Abrahamson, Jenna N.; Allen, Elliott F.: **EXPLORING THE TECTONIC AND CLIMATIC DRIVERS OF ASYMMETRIC TOPOGRAPHY AND FLUVIAL INCISION IN A RIFTED MARGIN, SURNA VALLEY, SOUTHWESTERN NORWAY**
- 246-5 2:30 PM McQuarrie, Nadine*; Ehlers, Todd A.; Eizenhöfer, Paul R.: **DETERMINING FAULT GEOMETRY FROM MATCHING PREDICTED AND MEASURED COOLING AGES AND TOPOGRAPHIES; MELDING CROSS SECTION KINEMATICS, THERMAL MODELING AND LANDSCAPE EVOLUTION IN CENTRAL NEPAL**
- 246-6 2:45 PM Lease, Richard O.*: **EROSIONAL PULSE AND GLACIER-LANDSCAPE FEEDBACKS DURING PLIOCENE GLACIATION ONSET IN THE WESTERN ALASKA RANGE**

TUESDAY
PM

- 246-7 3:00 PM Hodges, Kip V.*; Ehlers, Todd A.: **THERMAL-KINEMATIC MODELING OF MULTI-SYSTEM DETRITAL THERMOCHRONOLOGIC DATA FROM ACTIVE CATCHMENTS AS A RECONNAISSANCE TOOL FOR UNDERSTANDING LONG-TERM REGIONAL EROSION PATTERNS**
- 3:15 PM **BREAK**
- 246-8 3:30 PM Kirby, Eric*; Miller, Scott R.: **THE GEOMORPHIC SIGNATURE OF MANTLE FLOW: A 'GREAT' CHALLENGE FOR TECTONICS (Invited Presentation)**
- 246-9 3:50 PM Michalak, Melanie*; Hourigan, Jeremy: **DYNAMIC TOPOGRAPHY OF SOUTHERN CASCADIA RECORDED IN PROVENANCE OF PLIO-PLIOCENE FOREARC DEPOSITS**
- 246-10 4:05 PM Moon, Seulgi*; Perron, J. Taylor; Martel, Stephen J.: **TOPOGRAPHIC STRESS AND CATASTROPHIC COLLAPSE OF VOLCANIC ISLANDS (Invited Presentation)**
- 246-11 4:25 PM Eizenhöfer, Paul R.*; McQuarrie, Nadine; Ehlers, Todd A.; Shelef, Eitan: **ALL SMEARED? GEOMORPHIC RESPONSES TO HORIZONTAL MOVEMENT AT GEOLOGIC TIME SCALES**
- 246-12 4:40 PM Srivastava, Vinee*; Mukul, Malay; Barnes, Jason B.: **CURIOUS CASE OF MAIN FRONTAL THRUST DEFORMATION IN NORTHWEST HIMALAYA**
- 246-13 4:55 PM Turzewski, Michael D.*; Huntington, Katharine W.; Licht, Alexis: **THE ROLE OF MEGAFLOODS IN SHAPING THE EASTERN HIMALAYAN SYNTAXIS: INSIGHTS FROM THE SEDIMENTARY PROVENANCE OF SLACKWATER FLOOD DEPOSITS IN NORTHEASTERN INDIA**
- 246-14 5:10 PM Yanites, Brian J.*; Bregy, Josh; Carlson, Grace; Cataldo, Kirstyn; Holahan, Margaret; Johnston, Graham H.; Mitchell, Nathaniel; Nelson, Amelia; Valenza, Jeffrey; Wanker, Matthew: **LANDSLIDES CONTROL THE SPATIAL AND TEMPORAL VARIATION OF CHANNEL MORPHOLOGY IN SOUTHERN TAIWAN: IMPLICATIONS FOR LANDSCAPE EVOLUTION IN STEEP, TECTONICALLY ACTIVE LANDSCAPES**

SESSION NO. 247

T222. Decadal to Millennial Strain Accumulation at Subduction Zones (GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)

1:30 PM, The Conference Center, Tahoma 5

Christine Regalla, Kristin Morell, Scott Bennett, Lucinda J. Leonard, Colin B. Amos and John P. Loveless, Presiding

- 247-1 1:30 PM Wang, Kelin*; Sun, Tianhaozhe; Li, Shaoyang: **IMPORTANCE OF VISCOELASTIC STRESS RELAXATION IN BOTH POSTSEISMIC AND INTERSEISMIC DEFORMATION (Invited Presentation)**
- 247-2 1:45 PM Russo, R.M.*; Ambrosius, Boudeiwjn A.C.; Mocanu, Victor; Fernandes, Rui: **INTERPLATE LOCKING AND DISSIPATION OF VISCOELASTIC POST-SEISMIC DISPLACEMENT OF THE 1960 VALDIVIA, CHILE, EARTHQUAKE**
- 247-3 2:00 PM Graham, Shannon E.*; Loveless, John P.; Meade, Brendan J.: **HOW MANY M9 EARTHQUAKES ARE POSSIBLE? INTERSEISMIC COUPLING AND RUPTURE PATCH MAGNITUDES ALONG 15 OF THE WORLD'S SUBDUCTION ZONES**
- 247-4 2:15 PM Fisher, Donald M.*; Smye, Andrew J.; Marone, Chris; van Keken, Peter; Yamaguchi, Asuka; Oakley, David; Ramirez, Gabrielle: **SPECTRUM OF MEGATHRUST SLIP BEHAVIOR RECORDED WITHIN ANCIENT ACCRETIONARY COMPLEXES: THE ROLE OF SILICA REDISTRIBUTION**
- 2:30 PM **BREAK**

- 247-5 2:45 PM Nuyen, Carolyn*; Schmidt, David: **ISOLATING LONG-TERM TRANSIENTS IN CASCADIA GPS DATA USING A SEASONAL-TREND DECOMPOSITION PROCEDURE**
- 247-6 3:00 PM Van Boskirk, Elizabeth*; Hodgkinson, Kathleen; Gottlieb, Mike; Johnson, Wade; Henderson, Brent; Mencin, David; Mattioli, Glen S.: **PBO BOREHOLE STRAINMETERS OBSERVE OVER A DECADE OF EPISODIC TREMOR AND SLIP ALONG THE CASCADIA SUBDUCTION ZONE: SOUTHERN VANCOUVER ISLAND, BC, CANADA THROUGH OLYMPIA, WA, USA**
- 247-7 3:15 PM Furlong, Kevin P.*: **HIDDEN EARTHQUAKE POTENTIAL IN PLATE BOUNDARY TRANSITION ZONES**
- 247-8 3:30 PM Oakley, David O.S.*; Fisher, Donald M.; Gardner, Thomas W.; Barnes, Philip M.; Ghisetti, Francesca C.; VanderLeest, Rebecca A.: **RATES AND MECHANISMS OF ACTIVE FAULTING AND FOLDING IN THE TRANSITION FROM HIKURANGI SUBDUCTION TO NORTH CANTERBURY TRANSPRESSION, SOUTH ISLAND, NEW ZEALAND (Invited Presentation)**
- 3:45 PM **BREAK**
- 247-9 4:00 PM McCrory, Patricia A.*; Wilson, Douglas S.: **A LATE CENOZOIC KINEMATIC MODEL FOR FAULT MOTION WITHIN THE GREATER CASCADIA SUBDUCTION SYSTEM (Invited Presentation)**
- 247-10 4:15 PM Aldrich, M. James*: **RECONCILING CASCADIA FOREARC LONG-TERM DEFORMATION MODELS**
- 247-11 4:30 PM Loveless, John P.*; Schermer, Elizabeth; Amos, Colin B.; Duckworth, Cody; George, Orion: **RELATIONSHIP BETWEEN SLIP ON THE LAKE CREEK-BOUNDARY CREEK FAULT SYSTEM, NORTHERN OLYMPIC PENINSULA, AND THE UNDERLYING CASCADIA SUBDUCTION ZONE**
- 247-12 4:45 PM von Dassow, Wesley A.*; Kirby, Eric: **GEOMORPHIC EVIDENCE FOR DIFFERENTIAL ROCK UPLIFT ACROSS THE SOUTHERN CASCADIA FOREARC**
- 247-13 5:00 PM Allmendinger, Richard W.*; González, Gabriel: **PERMANENT FOREARC STRAIN IN NORTHERN CHILE**
- 247-14 5:15 PM Regalla, Christine*; Fisher, Donald M.; Kirby, Eric; Oakley, David O.S.: **SLIP INVERSION IN THE FOREARC OF TOHOKU JAPAN, OVER MULTIPLE TIME SCALES**

SESSION NO. 248

T251. Tsunami Hazards: Innovations in Mapping, Modeling, and Outreach (GSA Environmental and Engineering Geology Division; Washington Division of Geology and Earth Resources; GSA Geoinformatics Division)

1:30 PM, Washington State Convention Center, Room 618/619/620

Corina Forson and Timothy J. Walsh, Presiding

- 248-1 1:30 PM Thio, Hong Kie*; Wei, Yong; Robertson, Ian; Chock, Gary: **TSUNAMI INUNDATION MODELING FOR THE NEW ASCE 7-16 CHAPTER ON TSUNAMI LOADS AND EFFECTS**
- 248-2 1:50 PM Qin, Xincheng*; Motley, Michael; LeVeque, Randall J.; Gonzalez, Frank I.: **2D AND 3D MODELING OF TSUNAMI INUNDATION: A CASE STUDY OF SEASIDE, OREGON**
- 248-3 2:05 PM Motley, Michael*; Eberhard, Marc O.; Winter, Andrew: **TSUNAMI WAVE LOADING OF INDIVIDUAL BRIDGE COMPONENTS**
- 248-4 2:20 PM Allan, Jonathan; Gabel, Laura Stimely*: **TSUNAMI MODELING ON THE PACIFIC NORTHWEST COAST OF OREGON: PRESENT AND FUTURE**
- 248-5 2:40 PM Garrison-Laney, Carrie*; Adams, Loyce M.: **MODELING CASCADIA TSUNAMIS INTO DISCOVERY BAY AND HOOD CANAL**
- 248-6 2:55 PM Kirby, James T.*; Grilli, Stephan T.: **MODELING LANDSLIDE TSUNAMIS: REVIEW OF THE NTHMP BENCHMARKING WORKSHOP**

- 248-7 3:15 PM Gonzalez, Frank*; ten Brink, Uri S.; Walsh, Timothy J.; LeVeque, Randall J.; Adams, Loyce M.; Garrison-Laney, Carrie: **PUGET SOUND TSUNAMI SIMULATIONS WITH AN UPDATED SEATTLE FAULT MODEL**
- 248-8 3:30 PM Kitazato, Hiroshi*; Kijima, Akihiro; Kogure, Kazuhiro; Fujikura, Katsunori: **HOW CAN WE TRANSFER SCIENTIFIC KNOWLEDGE TO CITIZENS FOR DISASTER RISK REDUCTION? : CASE STUDIES FROM MEGA-EARTHQUAKE AND TSUNAMI MONITORING RESEARCHES**
- 248-9 3:45 PM Wilson, Rick*; Lynett, Patrick; Eskijian, Martin; Miller, Kevin; LaDuke, Yvette; Curtis, Edward; Hornick, Michael; Keen, Adam; Ayca, Aykut: **TSUNAMI HAZARD ANALYSIS AND PRODUCTS FOR HARBORS IN CALIFORNIA**

SESSION NO. 249

T256. The Co-Evolution of Life and Its Environment during the Precambrian: The Rise of Oxygenic Photosynthesis and the Great Oxidation Event (GSA Geobiology & Geomicrobiology Division)

1:30 PM, The Conference Center, Skagit 5

Joshua Krissansen-Totton, Stephanie Olson and David C Catling, Presiding

- 249-1 1:30 PM Parenteau, Mary N.*; Jahnke, Linda L.; Cady, Sherry; Pierson, Beverly: **EXAMINING THE EVOLUTION OF OXYGENIC PHOTOSYNTHESIS ON THE EARLY EARTH**
- 249-2 1:45 PM Wilmeth, Dylan T.*; Corsetti, Frank A.; Berelson, William M.; Beukes, Nicolas J.; Awramik, Stanley M.; Petryshyn, Victoria A.: **GAS PRODUCTION WITHIN ARCHEAN STROMATOLITES: EVIDENCE FOR ANCIENT MICROBIAL METABOLISMS**
- 249-3 2:00 PM Johnson, Aleisha C.*; Reinhard, Christopher T.; Romaniello, Stephen J.; Greaney, Allison T.; Garcia-Robledo, Emilio; Revsbech, Niels Peter; Canfield, Donald E.; Lyons, Timothy W.; Anbar, Ariel D.: **QUANTIFYING ARCHEAN OXYGENATION - INSIGHTS FROM SULFIDE OXIDATION EXPERIMENTS AT LOW PO2**
- 249-4 2:15 PM Crowe, Sean A.*; Thompson, Katharine J.: **PHOTOFERROTROPHY, CONTINENTAL GROWTH, AND THE HAZY NEOARCHEAN ATMOSPHERE (Invited Presentation)**
- 249-5 2:30 PM Goldblatt, Colin*; McDonald, Victoria; McCusker, Kelly: **PHYSICAL FEEDBACKS ON STRATUS CLOUD AMOUNT RESOLVE THE FAINT YOUNG SUN PARADOX**
- 249-6 2:45 PM Sawada, Hikaru*; Isozaki, Yukio; Sawaki, Yusuke; Fujisaki, Wataru; Sakata, Shuhei; Maruyama, Shigenori; Ueda, Hisahiro; Saito, Takuya; Sato, Tomohiko: **THE OLDEST AGE LIMIT OF THE LOMAGUNDI-JATULI EVENT: ZIRCON GEOCHRONOLOGY OF THE PALEOPROTEROZOIC MAGONDI SUPERGROUP IN ZIMBABWE**
- 249-7 3:00 PM Smit, Matthijs A.*; Mezger, Klaus: **PRIMITIVE MAFIC CONTINENTS IMPEDED OXYGENATION DURING THE ARCHEAN**
- 3:15 PM **BREAK**
- 249-8 3:30 PM Summons, Roger E.*; Gold, David A.; Caron, Abigail M.; Momper, Lily; Fournier, Gregory P.: **GENOMIC APPROACHES TO EXPLORING THE GOE**
- 249-9 3:45 PM Bosak, Tanja*; Moore, Kelsey R; Fournier, Gregory P.; Momper, Lily; Magnabosco, Cara: **CALIBRATING THE MOLECULAR RECORD OF CYANOBACTERIAL EVOLUTION (Invited Presentation)**
- 249-10 4:00 PM Osterhout, Jeffrey T.*; Czaja, Andrew D.: **STABLE ISOTOPE GEOCHEMISTRY OF A LATE ARCHEAN MICROBIAL ECOSYSTEM: DIVERSITY IN THE PRE-GOE OCEANS**
- 249-11 4:15 PM Zheng, Xin-Yuan*; Satkoski, Aaron M.; Beard, Brian L.; Reddy, Thiruchelvi R.; Beukes, Nicolas J.; Johnson, Clark M.: **TRACING OF THE COUPLED SI AND FE CYCLE IN THE ARCHEAN OCEAN**

- 249-12 4:30 PM Anbar, Ariel D.*: **DESIGNING AN INTEGRATED THEORY OF EARTH SYSTEM OXYGENATION (Invited Presentation)**
- 249-13 4:45 PM Kipp, Michael*; Stüeken, Eva E.; Bekker, Andrey; Buick, Roger: **REDOX LANDSCAPE OF THE PALEOPROTEROZOIC OCEANS: IMPLICATIONS FOR EARLY EUKARYOTIC EVOLUTION**
- 249-14 5:00 PM Ostrander, Chadlin M.*; Kendall, Brian; Romaniello, Stephen J.; Gordon, Gwyneth W.; Olson, Stephanie; Lyons, Timothy W.; Nielsen, Sune G.; Zheng, Wang; Anbar, Ariel D.: **CONSTRAINING THE MOLYBDENUM ISOTOPE BUDGET OF 2.63 – 2.50 GA OCEANS**

SESSION NO. 250

Mineralogical Society of America (MSA) Awards Lectures, Presidential Address, and Annual Business Meeting

3:00 PM, The Conference Center, Skagit 4

Michael Brown, Presiding

- 250-1 3:00 PM Stolper, E.M.*; Shorttle, O.: **MSA ROEBLING MEDAL LECTURE: THE EFFECTS OF SOLID-SOLID PHASE EQUILIBRIA AND PARTIAL MELTING ON THE OXYGEN FUGACITY OF THE UPPER MANTLE**
- 250-2 3:30 PM Sisson, Thomas W.*: **MSA DANA MEDAL LECTURE: ORIGINS OF CASCADE MAGMAS**
- 250-3 4:00 PM Trail, Dustin*: **MSA AWARD LECTURE: AN ACCESSORY MINERAL AND EXPERIMENTAL PERSPECTIVE ON THE EVOLUTION OF THE CRUST**
- 250-4 4:30 PM Harlow, George E.*: **MSA PRESIDENTIAL ADDRESS: EARTH SCIENCE EDUCATION—CHALLENGES IN SECONDARY SCHOOLS**
- 5:00 PM **ANNUAL MSA BUSINESS MEETING**

SESSION NO. 251

GSA Hydrogeology Division: Birdsall-Dreiss Distinguished Lecture

4:30 PM, Washington State Convention Center, Ballroom 6B

Abe Springer, Presiding

- 251-1 4:30 PM Harvey, F. Edwin*: **WATER RESOURCE STEWARDSHIP IN THE U.S. NATIONAL PARK SERVICE**

POSTER TECHNICAL SESSIONS

SESSION NO. 252

T244. Landslide Inventories, Databases, Hazard Maps, Risk Analysis, and Beyond (Posters) (GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Geoinformatics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

- | Booth # | Poster # | Author(s) |
|---------|----------|---|
| 252-1 | 1 | Schulz, William H.*; Wang, Gonghui; Jiang, Yao; Collins, Brian D.; Reid, Mark E.: UNDULATIONS OF SHEAR SURFACES CONTROL STRENGTH OF FAULT GOUGE AND MAY AID CATASTROPHIC LANDSLIDE MOTION |
| 252-2 | 2 | Johnson, Sarah*; Olsen, Roger; Roenker, Ben: USING SEQUENTIAL LIDAR TO MONITOR AND CATALOG RECENTLY ACTIVE LANDSLIDES IN KENTON AND CAMPBELL COUNTIES IN NORTHERN KENTUCKY |
| 252-3 | 3 | Legorreta Paulin, Gabriel*; Bursik, Marcus I.; Contreras, Trevor; Aceves Quesada, Fernando; Polenz, Michael: MAPPING LANDSLIDES AND ASSESSING LANDSLIDE SUSCEPTIBILITY IN THE RÍO LA CARBONERA WATERSHED, ON THE SE FLANK OF PICO DE ORIZABA VOLCANO, MEXICO |

TUESDAY

POSTERS

- 252-4 4 Pritchett, Brittany N.; Chang, Jefferson C.*; Chang, Julie M.; Suneson, Neil H.; Walter, Jake: **PRELIMINARY NEHRP SITE CLASSIFICATION AND SOIL AMPLIFICATION MAP OF OKLAHOMA**
- 252-5 5 Mickelson, Katherine A.*; Slaughter, Stephen L.: **WASHINGTON STATE'S NEW LANDSLIDE INVENTORY MAPPING PROTOCOL**
- 252-6 6 Schlagel, Nathan A.*: **LANDSLIDE HAZARD ASSESSMENT FOR NORTHERN FAYZ ABAD DISTRICT, BADAQSHAN PROVINCE, AFGHANISTAN**
- 252-7 7 Jacobacci, Kara E.*; Mickelson, Katherine A.: **LANDSLIDE INVENTORY FOR THE WASHINGTON SIDE OF THE COLUMBIA RIVER GORGE: CLARK, SKAMANIA, AND KLICKITAT COUNTIES**
- 252-8 8 Contreras, Trevor A.*; Stone, Kimberly A.: **BUT IT LOOKS LIKE A LANDSLIDE IN LIDAR! GEOLOGIC MAPPING OF PUGET LOWLAND GLACIAL RECESSIONAL LANDFORMS ALONG HOOD CANAL USING LIDAR**
- 252-9 9 Chapella, Hannah C.*; Haneberg, William C.; Crawford, Matthew M.: **LIDAR-BASED LANDSLIDE INVENTORY AND SUSCEPTIBILITY, PRESTONSBURG 7.5-MINUTE QUADRANGLE, KY**
- 252-10 10 Kelkar, Kaytan*; Kirschbaum, Dalia; Stanley, Thomas: **CONSTRUCTING A COMPREHENSIVE DATABASE FOR RAINFALL-TRIGGERED LANDSLIDES IN THE UNITED STATES**
- 252-11 11 Bunn, Michael D.*; Calhoun, Nancy; Leshchinsky, Ben; Olsen, Michael J.; Burns, William J.: **INCORPORATING SEMI-AUTOMATED LANDSLIDE MAPPING WITHIN AN EXISTING MANUAL, EXPERT-BASED FRAMEWORK**
- 252-12 12 Pawley, Steven*; Hartman, Gregory; Chao, Dennis: **LANDSLIDE SUSCEPTIBILITY MODELLING OF ALBERTA, CANADA: COMPARATIVE RESULTS FROM MULTIPLE STATISTICAL AND MACHINE-LEARNING PREDICTION METHOD**
- 252-13 13 Gerstel, Wendy J.*; Strelieff, Karin L.; Hibler, Katrinka: **NECESSARY INTEGRATION OF GEOLOGIC INFORMATION INTO SHORELINE POLICIES**
- 252-14 14 Woodward, Jason S.*: **CONTEMPORARY FOREST MANAGEMENT AND MASS WASTING; MAKING SIGNIFICANT PROGRESS**
- 252-15 15 Calhoun, Nancy*; Burns, William J.; Monteverde, Gustavo; Franczyk, Jon J.: **LANDSLIDE INVENTORY, SUSCEPTIBILITY AND RISK ANALYSIS OF THE EUGENE-SPRINGFIELD REGION, LANE COUNTY, OREGON**
- 252-16 16 Knapp, Kevin*; Mitchell, Robert J.; Grah, Oliver: **THE POTENTIAL EFFECTS OF FORECASTED CLIMATE CHANGE ON MASS WASTING SUSCEPTIBILITY IN THE NOOKSACK RIVER BASIN**
- 252-17 17 Burns, William J.*; McCarley, Justin; Krost, Greta: **COLLABORATIVE LANDSLIDE INVENTORY MAPPING IN DOUGLAS COUNTY, OREGON**
- 252-18 18 Garriss, Rebecca N.*; Booth, Adam M.; Perkins, Jonathan Patrick: **MODELING SURFACE ROUGHNESS TO INCREASE INVENTORIES OF PREHISTORIC LANDSLIDES, GREEN RIVER WATERSHED, WASHINGTON, USA**
- 252-19 19 Beal, D.*; de la Fuente, Juan: **COMPARING LANDSLIDES AND DEBRIS FLOWS ASSOCIATED WITH WINTER STORMS OF 2016-2017 WITH THOSE IN 2005-2006 AND 1996-1997 ON THE KLAMATH NATIONAL FOREST, CENTRAL KLAMATH MOUNTAINS, CA**
- 252-20 20 Zeng, Ziyue*; Hong, Yang; Zhang, Ke: **SHALLOW LANDSLIDE DETECTION BASED ON HYDROLOGICAL-GEOTECHNICAL MODELING AND REMOTE SENSING DATA: A CASE STUDY IN SOUTH CHINA**
- 252-21 21 Rodriguez, Stephanie C.*; Bhaskaran, Sunil: **GEOLOGIC HAZARD ASSESSMENT OF MASS WASTING ALONG CALIFORNIA'S CENTRAL PACIFIC COAST**

SESSION NO. 253

T149. Celebrating Dr. John W. Valley's Contributions to Isotope Geochemistry and Beyond, from the Hadean to the Holocene (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; Mineralogical Society of America; Geochemical Society; Microanalysis Society; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 253-1 22 Dwyer, Camille H.*; Atudorei, Nicu-Viorel; Myers, Corinne: **$\delta^{18}\text{O}$ SCHLEROCHRONOLOGY OF LATE CRETACEOUS BIVALVES AND PRESERVATION OF SEASONALITY IRRESPECTIVE OF ALTERATION**
- 253-2 23 Olsen, Ellen*; Needham, Éamonn; Watkins, James M.: **SALINITY AFFECTS OXYGEN ISOTOPE FRACTIONATION DURING INORGANIC CALCITE PRECIPITATION**
- 253-3 24 Pollington, Anthony D.*; Kozdon, Reinhard; Anovitz, Lawrence M.; Georg, R. Bastian; Spicuzza, Michael J.; Valley, John W.: **EXPERIMENTAL CALIBRATION OF FRACTIONATION OF SILICON ISOTOPES BETWEEN QUARTZ AND WATER**
- 253-4 25 Cui, Huan*; Kitajima, Kouki; Spicuzza, Michael J.; Fournelle, John H.; Ishida, Akizumi; Brown, Philip E.; Valley, John W.: **SEARCHING FOR THE GREAT OXIDATION EVENT IN NORTH AMERICA: A REAPPRAISAL OF THE "MIF-MDF TRANSITION" IN THE HURONIAN SUPERGROUP BY SIMS SULFUR FOUR-ISOTOPE ANALYSIS**
- 253-5 26 Hartley, Elena Sohn*; Pereira, Ines; Cameron, Evan D.; Page, F. Zeb; Storey, Craig; Valley, John: **TRACING MANTLE FLUIDS: TRACE ELEMENT SIGNALS IN METASOMATIC GARNET IN QUARTZITES FROM THE CATALINA SCHIST (CALIFORNIA, USA)**
- 253-6 27 Flood, Clara Margaret*; Cameron, Evan D.; Page, F. Zeb; Valley, John W.: **METASOMATISM AT THE PEAK OF METAMORPHISM: USING COMPUTATIONAL THERMODYNAMIC MODELING TO UNDERSTAND DRAMATIC OXYGEN ISOTOPE ZONING IN CATALINA GARNET QUARTZITES**
- 253-7 28 Lozier, Emilie H.*; Page, F. Zeb; Cruz-Urbe, Alicia M.; Kitajima, Kouki; Valley, John: **GETTING IN THE ZONE: OXYGEN ISOTOPE AND CATION ZONING IN MULTIPLE GENERATIONS OF FRANCISCAN GARNETS**
- 253-8 29 Gevedon, Michelle L.*; Barnes, Jaime D.; Lackey, Jade Star: **OXYGEN ISOTOPE SYSTEMATICS OF SKARN GARNET: FLUID FLOW AND ORE FORMING HISTORIES OF THE CORDILLERAN ARC**
- 253-9 30 Stowell, Harold*; Schwartz, Joshua J.; Tulloch, Andrew J.; Odom Parker, Karen; Klepeis, Keith A.: **RESOLVING THE AGES AND NATURE OF INTRUSION, METAMORPHISM AND PARTIAL MELTING IN MIGMATITE: AN EXAMPLE FROM FIORDLAND, NZ**
- 253-10 31 McCarty, Kyle R.*; Jenkins, Mariah; Lackey, Jade Star; Spicuzza, M.J.; Valley, John: **THE BADGER COMPLEX: AGES, GEOCHEMISTRY, AND OXYGEN ISOTOPES OF TONALITES IN THE SEQUOIA REGION FOOTHILLS, SIERRA NEVADA, CA**
- 253-11 32 Chen, Julia*; Holk, Gregory J.; Clausen, Benjamin L.: **MIXED MAGMA SOURCES FOR THE SOUTHERN AREQUIPA SEGMENT OF THE PERUVIAN COASTAL BATHOLITH: EVIDENCE FROM STABLE ISOTOPES**
- 253-12 33 Hayes, Leigh*; Wenner, Jennifer M.; Teasdale, Rachel; Lenz, Quin A.: **OXYGEN ISOTOPES IN OLIVINE REVEAL SMALL-SCALE VARIATIONS IN THE MANTLE BENEATH THE POISON LAKE CHAIN, LASSEN REGION, CALIFORNIA**
- 253-13 34 Sun, Yang*; Teng, Fang-Zhen; Ying, Ji-Feng; Su, Ben-Xun; Hu, Yan; Fan, Qi-Cheng; Zhou, Xin-Hua: **MAGNESIUM ISOTOPIC EVIDENCE FOR ANCIENT SUBDUCTED OCEANIC CRUST IN LOMU-LIKE POTASSIUM-RICH VOLCANIC ROCKS**
- 253-14 35 Bilenker, Laura D.*; Fourny, Anaïs; Weis, Dominique; Scoates, James S.; Morse, Stearns A.: **SIGNIFICANT FE ISOTOPE**

FRACTIONATION WITHIN THE KIGLAPAIT LAYERED INTRUSION REFLECTS CRYSTAL FRACTIONATION

- 253-15 36 Montalvo, Pedro*; Cavosie, Aaron J.; Erickson, Timmons M.; Kirkland, Christopher L.; Evans, Noreen J.; McDonald, Bradley J.; Talavera, Cristina; Lugo-Centeno, Cristina: **DETRITAL SHOCKED ZIRCON PROVIDES FIRST MAXIMUM AGE CONSTRAINT OF 1472 MA FOR THE SANTA FE IMPACT STRUCTURE, NEW MEXICO (USA)**

SESSION NO. 254 \$

T151. Consequences of Fluids in Subduction Zones: From Grain Scale to Plate Boundary Shear Zone (Posters) (GSA Hydrogeology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 254-1 37 Fagereng, Ake*; Diener, Johann F.A.; Meneghini, Francesca; Harris, C.: **FLUID RELEASE AND DEFORMATION AT, AND BEYOND, THE BASE OF THE MEGATHRUST SEISMOGENIC ZONE (Invited Presentation)**
- 254-2 38 Scott, Brandt E.*; Newell, Dennis L.; Jessup, Micah J.: **TRACING VOLATILE AND ISOTOPE GEOCHEMISTRY WITHIN MANTLE- AND SLAB-DERIVED FLUIDS IN A FLAT-SLAB SUBDUCTION ZONE, PERU**
- 254-3 39 Ferry, John M.; Penniston-Dorland, Sarah C.*: **MASS TRANSFER OF CO₂, CA AND NA DRIVEN BY H₂O INFILTRATION DURING SUBDUCTION ZONE METAMORPHISM OF THE FRANCISCAN COMPLEX, CALIFORNIA (Invited Presentation)**
- 254-4 40 Quandt, Dennis*; Micheuz, Peter; Kurz, Walter; Krenn, Kurt: **FLUID INCLUSIONS OF VEIN PRECIPITATES HOSTED IN THE TROODOS PILLOW LAVAS: IMPLICATIONS FOR THE POST-MAGMATIC STRUCTURAL EVOLUTION OF SUPRA-SUBDUCTION ZONES**
- 254-5 41 Hoover, William F.*; Penniston-Dorland, Sarah C.; Bebout, Gray E.: **LITHIUM MOBILITY DURING DEHYDRATION, FACT OR FICTION?: INSIGHTS FROM LI ISOTOPES IN ALPINE METASEDIMENTARY ROCKS**
- 254-6 42 Viete, Daniel R.*; Hacker, Bradley R.; Allen, Mark B.; Tobin, Mark; Seward, Gareth G.E.: **PRESSURE AND FLUID PULSES DURING SUBDUCTION: RECORDS FROM GARNET**
- 254-7 43 PAN, Ruiguang*; Macris, Catherine A.; Menold, Carrie A.: **INVESTIGATING THE METAMORPHIC EVOLUTION, WATER-ROCK INTERACTION, AND GEOCHEMISTRY OF TSO MORARI UHP TERRANE, NW HIMALAYA**
- 254-8 44 Elliott, Sara J.*; Fisher, Donald M.; Ukar, Estibalitz; Ramirez, Gabrielle; Forstner, Stephanie: **SLIP BEHAVIOR OF A SUBDUCTION ZONE: PRELIMINARY INFERENCES FROM QUARTZ AND CALCITE FILLED VEINS (HYDROFRACTURES) IN AN EXHUMED ACCRETIONARY WEDGE, SHIMANTO BELT, JAPAN**
- 254-9 45 Grabiec, Justine G.*; Penniston-Dorland, Sarah C.; Walker, Richard J.; French, Melodie: **INSIGHTS INTO THE FORMATION OF THE COTTONWOOD CANYON FAULT IN THE CATALINA SCHIST**

SESSION NO. 255 \$

T152. Fluids and Melts in Geologic Systems (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 255-1 46 Koteas, G. Christopher*; Seaman, Sheila J.; Williams, Michael L.: **RAPID HEATING AND PARTIAL MELTING OF THE LOWER CRUSTAL 2.6 GA FEHR GRANITE, ATHABASCA GRANULITE TERRANE: EVIDENCE FROM LEUCOSOME AND GARNET COMPOSITIONS**
- 255-2 47 Callis, Samuel J.*; Stearns, Michael A.; Bowman, John R.; Bartley, John M.: **PROLONGED MAGMATISM WITHIN THE LITTLE COTTONWOOD STOCK: A LIKELY SOURCE OF HEAT AND**

FLUIDS FOR (RE)CRYSTALLIZATION WITHIN THE ALTA STOCK, WASATCH MOUNTAINS, UTAH, U.S.A

- 255-3 48 Esposito, Rosario*; Badescu, Kimberly; Steele-MacInnis, Matthew; Cannatelli, Claudia; Lima, Annamaria; De Vivo, Benedetto; Manning, Craig; Bodnar, R.J.: **ASSESSMENT OF IGNEOUS PROCESSES AT THE MICRON SCALE USING MELT INCLUSION**
- 255-4 49 Takagi, Tetsuichi*; Tsukimura, Katsuhiro: **REDOX PATHS OF GRANITES DEDUCED FROM THEIR TEXTURE AND MINERALS**
- 255-5 50 Feng, Peng*; Wang, Lu; Brown, Michael; Wang, Songjie: **MULTIPLE EPISODES OF PARTIAL MELTING RECORDED IN THE HAIYANGSUO COMPLEX, NORTHERN SULU BELT, EASTERN CHINA**
- 255-6 51 Baques, Vinyet*; Ukar, Estibalitz; Zhang, Lijuan; Yuan, Wenfang; Laubach, Stephen; Forstner, Stephanie; Fall, Andrés; Sun, Chonghao: **DECAMETER-SCALE BIT DROPS AT 7 KM DEPTH IN THE YIJIANFANG FORMATION, HALAHATANG OILFIELD, TARIM BASIN, CHINA: FAULT-RELATED DEEP-SEATED DISSOLUTION**
- 255-7 52 Lecumberri-Sanchez, Pilar*; Bouabdellah, Mohammed; Zemri, Oussama: **CHARACTERIZATION OF MINERALIZING FLUIDS AT THE EL HAMMAM REE-RICH FLUORITE DEPOSIT**
- 255-8 53 Connors, M. Elizabeth*; Tailby, Nicholas D.; Fiege, Adrian: **USING HIGH RESOLUTION MAPPING OF CRYSTALLIZED MELT INCLUSIONS TO UNDERSTAND THE EVOLUTION OF S AND I-TYPE VOLCANICS FROM THE LACHLAN FOLD BELT, AUSTRALIA**
- 255-9 54 Duccini, Kalie M.*; Esposito, Rosario; Manning, Craig; Clemens-Knott, Diane: **FLUID-MELT-MINERAL INCLUSION STUDY OF THE EVOLUTION OF INTERCUMULUS FLUIDS ASSOCIATED WITH THE DEER MOUNTAIN OLIVINE GABBRO, SIERRA NEVADA BATHOLITH, CALIFORNIA**
- 255-10 55 Gion, Austin M.*; Candela, Philip A.; Piccoli, Philip M.: **EXPERIMENTAL GEOCHEMISTRY AND MODELING AS AN AIDE TO EXPLORATION: AN INDIUM CASE STUDY**
- 255-11 56 Oborn, Collin Austin*: **MAGMA PLUMBING SYSTEM BENEATH HERÐUBREIÐ, NORTHERN RIFT ZONE, ICELAND**

SESSION NO. 256

T247. Deciphering the Major Paleoenvironmental Crises of the Earth and Their Impact on the Marine Ecosystems and Biogeochemical Cycles (Posters) (Paleontological Research Institution; GSA Sedimentary Geology Division; Paleontological Society)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 256-1 57 Magnin, Benjamin P.*; Meszaros, Nicholas; Brake, Sandra; Hasiotis, Stephen T.: **REPEATED EXPOSURE OF A EUKARYOTIC MICROORGANISM TO SHORT WAVE, UV-C RADIATION—IMPLICATION FOR LIFE ON EARLY EARTH AND EXTRATERRESTRIAL PLANETARY BODIES**
- 256-2 58 Florie, Joshua M.*; Theiling, Bethany P.: **HIGH RESOLUTION CHEMOSTRATIGRAPHY OF THE IREVIKEN CARBON ISOTOPE EXCURSION IN THE ARBUCKLE MOUNTAINS, OKLAHOMA**
- 256-3 59 Marroquín, Selva M.*; Gill, Benjamin C.; Them, Theodore R.; Trabucho-Alexandre, João P.; Aberhan, Martin; Owens, Jeremy D.; Gröcke, Darren R.; Caruthers, Andrew: **INVESTIGATING A UNIQUE OPEN OCEAN GEOCHEMICAL RECORD OF THE END TRIASSIC MASS EXTINCTION FROM PANTHALASSA**
- 256-4 60 Marolt, Samuel D.*; Tackett, Lydia S.: **STRONTIUM ISOTOPE EXCURSIONS, SILICEOUS SPONGES, AND SILICIFIED CARBONATE MICROFOSSILS ACROSS THE NORIAN-RHAETIAN BOUNDARY IN SHALLOW MARINE DEPOSITS OF PANTHALASSA (LATE TRIASSIC, NEW YORK CANYON, NV)**

TUESDAY

POSTERS

SESSION NO. 257

T185. Geomorphology of Human-Altered Landscapes (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Environmental and Engineering Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

- | Booth # | |
|---------|--|
| 257-1 | 61 Miller, Nari*: MODELING METEORIC 10-BERYLLIUM ACROSS VARYING LAND USE AND CLIMATIC HISTORIES: UNIQUE SCENARIOS AND SOURCE-SINK COUPLING |
| 257-2 | 62 Trein, Debora C.*; Beach, Timothy P.: ANTHROPOGENIC LANDSCAPE MODIFICATION ON A MAYA LOWLANDS TROPICAL CATENA |
| 257-3 | 63 McCusker Hill, Megan*; Ouimet, William B.; Gonzales, Sean: SPATIAL VARIATION IN GEOCHEMICAL SIGNATURES OF THE ANTHROPOCENE IN NORTHEASTERN US |
| 257-4 | 64 Ruhm, Catherine T.*; Jefferson, Anne J.; Blackwood, Christopher B.; Minerovic, Anthony J.; Davis, Christopher: SOILS AND GEOMORPHOLOGY OF FIVE RECLAIMED SURFACE MINE SITES IN THE CUYAHOGA VALLEY NATIONAL PARK, OHIO |
| 257-5 | 65 Owens, Rebecca Anne*; Zhao, Panshu; Giardino, John R.; Gamache, Kevin R.: BIVOUACS OF THE ANTHROPOCENE: HUMAN-BUILT ENVIRONMENTS IN THE SAN JUAN MOUNTAINS, COLORADO, USA |
| 257-6 | 66 Bloniarz, Andrew*; Constantine, José Antonio: SNAPSHOTS OF A CHANGING LANDSCAPE: THE HISTORICAL GEOMORPHOLOGY OF THE LOWER MISSISSIPPI RIVER |

SESSION NO. 258

T111. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management (Posters) (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Limnogeology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

- | Booth # | |
|---------|---|
| 258-1 | 67 Schmidt, Kevin M.*; Minor, Scott A.; Power, Paula; Rudolph, Rocky: GEOLOGIC CONTROLS ON SURFACE-WATER HYDROLOGY ON SANTA ROSA ISLAND, CHANNEL ISLANDS NATIONAL PARK, CA |
| 258-2 | 68 Hutcheson, Holly*; Milewski, Adam M.; Rasmussen, Todd C.; Faustini, John M.; Graves, Grant; Dowd, John; Webster, Claire; Maher, Sage: WATER RESOURCES INVENTORY AND ASSESSMENT FOR FELSENTHAL NATIONAL WILDLIFE REFUGE |
| 258-3 | 69 Clark, Gregory D.*; Moffett, Kevan B.: UNDERSTANDING SOIL MOISTURE DYNAMICS IN FORESTS RECOVERING FROM WILDFIRE USING ELECTRO-MAGNETIC INDUCTION |
| 258-4 | 70 Larson, Sophia K.*; Quintana, Angelica; Kellogg, James H.; Pembroke, Heather; Gale, Marjorie; Wixscom, Scott: STYLIZED FACTS RELATING WATERBODY ACIDIFICATION TO HYDROLOGY, BEDROCK AND SURFICIAL GEOLOGY, SOIL AND ATMOSPHERIC POLLUTANTS IN THE LYE BROOK WILDERNESS, VERMONT |
| 258-5 | 71 Springer, Kathleen B.*; Pigati, Jeffrey S.; Manker, Craig R.; Mahan, Shannon A.: THE LAS VEGAS FORMATION |
| 258-6 | 72 Haddon, Elizabeth K.*; Stock, Greg M.; Booth, Derek B.: LATEST PLEISTOCENE AND HOLOCENE LANDSCAPE EVOLUTION OF YOSEMITE VALLEY, CALIFORNIA |
| 258-7 | 73 Chappell, James R.*; O'Meara, Stephanie A.; Winter, James R.H.; Karpilo, Ronald D.: STANDARDIZING AND AUTOMATING DIGITAL GIS MAP SYMBOLIZATION FOR GEOLOGIC MAPS OF NATIONAL PARKS |

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| 258-8 | 74 Port, Rebecca B.*; Kenworthy, Jason P.; Barthelmes, Michael; KellerLynn, Katie: NATIONAL PARK SERVICE GEOLOGIC RESOURCES INVENTORY REPORTS: CONNECTING GEOLOGY TO PARK HISTORY, LANDSCAPES, AND RESOURCE MANAGEMENT |
| 258-9 | 75 Flynn, Barrett*; Hungerford, Jefferson; Mordensky, Stanley; O'Neil, Molly: STRUCTURING AND ANALYSIS OF TEMPERATURE DATA FROM UPPER GEYSER BASIN IN YELLOWSTONE NATIONAL PARK |
| 258-10 | 76 Norr, Megan R.*; Thacker, Jacob O.; Oberg, Erik: FROM PRESERVATION TO PUBLIC COMMUNICATION: YELLOWSTONE NATIONAL PARK GIP JOINT INTERNSHIP, 2016 |

SESSION NO. 259

T113. Geoscience Education Research: Implications for Undergraduate Geoscience Teaching and Learning (Posters) (National Association of Geoscience Teachers; GSA Geoscience Education Division; National Association of Geoscience Teachers, Division of Geoscience Education Research)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

- | Booth # | |
|---------|--|
| 259-1 | 77 McConnell, David A.*; Jones, Jason P.; Wiggen, Jennifer: CAN UNDERGRADUATES LEARN JUST AS EFFECTIVELY FROM VIDEOS AS LECTURES? INVESTIGATION OF A FLIPPED PHYSICAL GEOLOGY CLASS |
| 259-2 | 78 Czajka, C. Doug*; McConnell, David A.: EXAMINING THE IMPACT OF THE USE OF INTEGRATE TEACHING MATERIALS ON STUDENT PERFORMANCE ON A GEOSCIENCE LITERACY EXAM |
| 259-3 | 79 Bruckner, Monica Z.*; Manduca, Cathryn A.; McConnell, David A.; Hanselman, Jennifer; Orr, Cailin Huyck; McDaris, John R.; Fox, Sean P.: USING INSTRUCTOR STORIES TO DEMONSTRATE THE ADAPTABILITY OF THE INTEGRATE INTERDISCIPLINARY SUSTAINABILITY CURRICULA |
| 259-4 | 80 Orr, Cailin Huyck*; McDaris, John R.; Manduca, Cathryn A.: LESSONS FROM INTEGRATE ON PROGRAM SCALE CHANGE: SYNTHESIZING REAL-WORLD EXPERIENCE |
| 259-5 | 81 St. John, Kristen*; Cervato, Cinzia; Kastens, Kim A.; Macdonald, Heather; McDaris, John R.; McNeal, Karen; Petcovic, Heather L.; Pyle, Eric J.; Riggs, Eric M.; Ryker, Katherine; Semken, Steven; Teasdale, Rachel: IDENTIFYING AND PRIORITIZING GEOSCIENCE EDUCATION RESEARCH GRAND CHALLENGES: DRAFT PLANS FOR A COMMUNITY RESEARCH AGENDA |
| 259-6 | 82 Foreman, Elizabeth A.D.*; Ryker, Katherine: UNDERSTANDING PATHS TO A GEOSCIENCE MAJOR: A CLOSER LOOK AT ACADEMIC PROVENANCE |
| 259-7 | 83 Merle-Johnson, Dominike*; Barrow, Lloyd: UNDERGRADUATE STUDENTS UNDERSTANDING AND CONNECTIONS AMONG VOLCANOLOGY-RELATED CONCEPTS |
| 259-8 | 84 Nossfsky, Robert*; McDaniel, Mark; Douglas, Bruce J.: TESTS OF AN EXEMPLAR-MEMORY MODEL OF HUMAN CLASSIFICATION LEARNING IN THE DOMAIN OF ROCK CATEGORIZATION |
| 259-9 | 85 Pettitt, D.N.*; Lally, Diane; Forbes, Cory; Brozovic, Nick; Franz, Trenton: TRANSDISCIPLINARY STUDENTS' LEARNING AND REASONING ABOUT SOCIO-HYDROLOGICAL ISSUES IN AN UNDERGRADUATE WATER COURSE |
| 259-10 | 86 McLeod, Claire*; Angi-O'Brien, Elizabeth: GET INTERACTIVE! EVALUATING THE INFLUENCE OF DIFFERENT TEACHING DELIVERY METHODS ON STUDENT LEARNING IN AN INTRODUCTORY GEOLOGY COURSE |
| 259-11 | 87 Dolphin, Glenn*: USING THE HISTORY OF GEOLOGY AS A VEHICLE IN TEACHING THE "WHAT" AND THE "HOW" OF GEOLOGY IN A LARGE LECTURE SERVICE COURSE SETTING |

- 259-12 88 Halligan, Theresa*; Cervato, Cinzia: **USING PEER INSTRUCTION AND COLLABORATIVE EXAMS TO INCREASE STUDENT LEARNING IN INTRODUCTORY GEOLOGY**
- 259-13 89 Teed, Rebecca*: **CIG3: AN OPEN-ENDED PRE/POST-TEST FOR INTRODUCTORY GEOLOGY**
- 259-14 90 Lang, Nicholas P.*; Persico, Lyman P.: **CONDUCTING AN AUTISM-FRIENDLY FIELD-BASED COURSE – SOME INFORMAL THOUGHTS**

SESSION NO. 260

T120. Making Thinking Visible: Actions and Expressions of Problem Solving and Decision Making in the Geosciences (Posters) (GSA Geoscience Education Division; National Association of Geoscience Teachers, Division of Geoscience Education Research)

9:00 AM, Washington State Convention Center, Halls 4EF
 Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM
 Booth #

- 260-1 91 Myer, Rachel A.*; Jaeger, Allison J.; McLaughlin, Jessica A.; Lombardi, Doug; Shipley, Thomas F.; Davatzes, Alexandra K.: **METHODS FOR IMPROVING STUDENTS' SPATIAL REASONING ABOUT EARTH'S SUBSURFACE**
- 260-2 92 Caplan-Auerbach, Jacqueline*: **PICTURES AND PROSE: A QUALITATIVE WAY TO ENHANCE STUDENT UNDERSTANDING OF QUANTITATIVE PROCESSES**
- 260-3 93 Menard, Julie M.*; Beall King, Allyson; Larson, Peter B.: **THE APPLICATION OF THE COMPLEX FIELD OF GEODESY TO AN ENTRANCE-LEVEL COLLEGE COURSE USING COGNITIVE LEARNING TECHNIQUES**
- 260-4 94 Breeding, Dalton R.*; McKay, Matthew P.; Bassett, Damon J.: **HOW LONG DOES IT TAKE TO TEACH STUDENTS TO TAKE A QUALITY STRIKE AND DIP?**

SESSION NO. 261

T121. Natural History Museums in the 21st Century—Programming for the Future While Preserving the Past (Posters) (GSA Geoscience Education Division; Paleontological Society; GSA Geoinformatics Division)

9:00 AM, Washington State Convention Center, Halls 4EF
 Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM
 Booth #

- 261-1 95 Gallaher, Timothy J.*; Senske, Ashly; Marvet, Claire; Akbar, Sultan; Wong, Silishia; Hsu, Tingting; Jessett, Kari; Klahs, Phillip C.; Clark, Lynn G.; Strömberg, Caroline A.E.: **3D DIGITIZATION OF GRASS SILICA SHORT CELL PHYTOLITHS (GSSCP'S): A DIGITAL REFERENCE COLLECTION TO IMPROVE THEIR UTILITY FOR THE STUDY OF GRASSES AND GRASSLAND EVOLUTION**
- 261-2 96 White, Lisa D.*; Clites, Erica C.; Ross, Robert; Duggan-Haas, Don: **EXPLORATIONS IN THE GEOLOGY, SEDIMENTOLOGY, AND PALEONTOLOGY OF THE KETTLEMAN HILLS IN CENTRAL CALIFORNIA THROUGH VIRTUAL FIELDWORK EXPERIENCES**
- 261-3 97 Clark, Andrea*; Davis, Arryn; Stromberg, Caroline A.E.: **MIDDLE SCHOOL GIRLS IN SCIENCE AT THE BURKE MUSEUM (UNIVERSITY OF WASHINGTON, SEATTLE): CREATING A SAFE SPACE AND COMMUNITY FOR GIRLS TO UNLEASH THEIR INNER SCIENTIST**
- 261-4 98 Dooley, Alton C.*; Smith, Kathlyn M.; Stoneburg, Brittney; Radford, Darla; Ozolins, Margaret; Drouault, Krystle; Dooley, Brett S.: **VALLEY OF THE MASTODONS: CASE STUDY OF AN INTEGRATIVE APPROACH TO RESEARCH COLLABORATION, OUTREACH, AND EXHIBITS**
- 261-5 99 Hendy, Austin J.W.; Estes-Smargiassi, Kathryn*; Walker, Lindsay J.; Hamdan, Kamal: **PARTNERSHIPS IN PALEONTOLOGY: BRINGING STUDENTS AND TEACHERS INTO THE COLLECTION TO EXPERIENCE AUTHENTIC SCIENCE AND DEVELOP EDUCATION OUTCOMES**

- 261-6 100 Butterworth, Laurel E.*; Loughton, Kathleen L.; Flowers, Khalil; Fontes, Jairo; Gutierrez, Leslie; Way-Smith, Aeon; Wooten, Brynny; Flora, Geoffrey; Hups, Kent; Lyson, Tyler; Miller, Ian; Skaer, Allie: **TEEN SCIENCE SCHOLARS: INCREASING DIVERSITY AND ACCESSIBILITY IN THE SCIENCES THROUGH AN INCLUSIVE MUSEUM PROGRAM**

SESSION NO. 262

T123. Pedagogical Applications of Point Cloud Collection and Manipulation (Posters) (GSA Geoscience Education Division; UNAVCO; GSA Geoinformatics Division)

9:00 AM, Washington State Convention Center, Halls 4EF
 Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM
 Booth #

- 262-1 101 Hasbargen, Leslie*: **SFM POINT CLOUD GENERATION, SCALING, AND GEOREFERENCING APPROACHES IN AN UNDERGRADUATE FIELD COURSE**
- 262-2 102 Richardson, Lauren J.*: **APPLICATIONS OF PHOTOGRAMMETRY AND STRUCTURE FROM MOTION FOR RESEARCH AND UNDERGRADUATE EDUCATION**
- 262-3 103 Montieth, Grant Harrison*; Zimmer, Brian: **MEASURING VOLUMETRIC AND AREAL CHANGE IN STRUCTURE FROM MOTION MODELS AND APPLICATIONS**
- 262-4 104 Douglas, Bruce J.*; Crosby, Christopher J.; Pratt-Sitaula, Beth; Crosby, Benjamin; Shervais, Katherine A.H.; Charlevoix, Donna: **USING HIGH RESOLUTION TOPOGRAPHY DATA IN UNDERGRADUATE GEOSCIENCE FIELD COURSES (Invited Presentation)**
- 262-5 105 Hasiuk, Franciszek*; Harding, Chris; Renner, Alex; Winer, Eliot: **TOUCHTERRAIN: A SIMPLE WEB-TOOL FOR CREATING 3D-PRINTABLE TOPOGRAPHIC MODELS (Invited Presentation)**
- 262-6 106 Arrowsmith, J. Ramón*; Crosby, Christopher J.; Nandigam, Viswanath: **MORE THAN A TRILLION POINTS ON-LINE: POINT CLOUD LESSONS FROM OPENTOPOGRAPHY (Invited Presentation)**
- 262-7 107 Fleming, Zachariah Douglas*; Pavlis, Terry L.: **STRUCTURE FROM MOTION-MULTIVIEW STEREO (SFM-MVS) PHOTOGRAMMETRY FOR CONSTRUCTING VIRTUAL OUTCROP MODELS AND CLASSROOM "FIELD" EXPERIENCES**
- 262-8 108 Admassu, Yonathan*: **STRUCTURE FROM MOTION (SFM)-BASED SLOPE STABILITY EXERCISE AT JAMES MADISON UNIVERSITY'S FIELD CAMP IN IRELAND**
- 262-9 109 Berti, Claudio*: **I HOPE IT FLIES! THE USE OF REAL TIME AIRBORNE IMAGES AND 3D DATA IN FIELD CAMP EDUCATION**
- 262-10 110 Hutchinson, Sonny*; Mookerjee, Matty; Anfinson, Owen A.: **INTRODUCING STRUCTURE FROM MOTION TECHNIQUES INTO UNDERGRADUATE FOLD ANALYSIS PROJECTS**
- 262-11 111 Shaw, Colin A.*: **TEACHING INFORMATION-INTENSIVE METHODS IN THE FIELD: TERRESTRIAL LIDAR SCANNING OF THE LONE PEAK ROCK GLACIER, MONTANA**
- 262-12 112 Baggett, Jeffrey A.*; McMillan, Margaret E.: **USING UNITY AND VIRTUAL REALITY AS TOOLS FOR EXPLORING TERRESTRIAL LASER SCANNING DATA FROM BIG BAT CAVE, KENTUCKY**

SESSION NO. 263

T124. Practical Advice for In-Service and Pre-Service K–12 Earth Science Teacher Preparation and Professional Development (Posters) (National Earth Science Teachers Association; National Association of Geoscience Teachers, Teacher Education Division)

9:00 AM, Washington State Convention Center, Halls 4EF
 Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

- Booth #
- 263-1** 113 Browning, Sharon*; York, Judy: **LESSONS LEARNED - K-12 EDUCATOR AND UNIVERSITY PARTNERSHIPS: INCREASING TEACHER COMPETENCY IN TEXAS ESSENTIAL KNOWLEDGE AND SKILLS (TEKS) STANDARDS**
- 263-2** 114 Perez, Anthony*; Alvernaz, Michael; Carrington, Ryan; Egger, Anne E.: **WHAT EARTH SCIENCE LITERACY PRINCIPLES COULD MEAN FOR THE PROFESSIONAL DEVELOPMENT OF TEACHERS AND THE FUTURE OF THE NEW YORK REGENTS EXAMS**
- 263-3** 115 Moosavi, Sadredin C.*: **MEETING THE CHALLENGE OF K-12 TEACHER PROFESSIONAL DEVELOPMENT IN THE GEOSCIENCES: ONE STATE'S ANSWER AND POTENTIAL MODEL FOR THE NATION**
- 263-4** 116 Carrigan, James H.*; Bodzin, Alec; Anastasio, David; Popejoy, Kate; Hammond, Tom; Sahagian, Dork; Holland, Breena; Rutzmoser, Scott; Farina, William: **A PROFESSIONAL DEVELOPMENT APPROACH FOR TEACHING SOCIO-ENVIRONMENTAL SCIENCE INVESTIGATIONS WITH MOBILE GEOSPATIAL TECHNOLOGIES**
- 263-5** 117 Thomas, Jeff D.*; Evans, Mark A.; Drew, Sally: **DEVELOPING MIDDLE SCHOOL SCIENCE TEACHERS' UNDERSTANDING OF CLIMATE CHANGE AND LITERACY PRACTICES THROUGH AN INTENSIVE A SUMMER PROFESSIONAL DEVELOPMENT EXPERIENCE**
- 263-6** 118 Abshire, Wendy*; Kauffman, Chad M.; Geer, Ira W.; Nugnes, Kira A.; Mills, Elizabeth W.; Stimach, Abigail E.: **BUILDING ON 20 YEARS OF SUCCESSFUL K-12 TEACHER PROFESSIONAL DEVELOPMENT: REVAMPING THE AMS DATASTREME PROJECT**

SESSION NO. 264

T141. Use of Geoscience Data and Information Resources in Education and Research (Posters) (Geoscience Information Society; GSA Geoinformatics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

- Booth #
- 264-1** 119 Welti, Russ*; Hubenthal, Michael; Taber, John: **TOOLS FOR EDUCATIONAL ACCESS TO SEISMIC DATA AND DATA PRODUCTS**
- 264-2** 120 Chidsey, Thomas C.; Vanden Berg, Michael D.*; Nielsen, Peter; Burris, Jason: **INTRODUCING THE LARGEST SINGLE OIL FIELD (GREATER ANETH, SOUTHEASTERN UTAH) COLLECTION OF CARBONATE CORES IN THE ROCKY MOUNTAINS— TOOLS FOR EDUCATION AND RESEARCH**
- 264-3** 121 Lukes, Laura A.*; Ryker, Katherine; Millsaps, Camerian; Lockwood, Rowan; Uhen, Mark; Bentley, Callan; Berquist, Peter J.; George, Christian O.: **STUDENT PERCEPTIONS OF USING THE PALEOBIOLOGY DATABASE (PDB) TO CONDUCT UNDERGRADUATE RESEARCH**
- 264-4** 122 Loughner, Erica Anne*; Oldham, Jordan C.: **GENUINE OR REPRODUCTION: A COMPARISON OF PHOTOGRAMMETRY AND 3D SCANNING TECHNIQUES**
- 264-5** 123 Prosser, Cynthia L.*; Pereira, Monica: **CONNECTING THE DOTS WITH DATA: LEARNING WITH GEOSCIENCE DATA**
- 264-6** 124 Teplitzky, Samantha; Warren, Mea*: **TRENDS IN OPEN EDUCATIONAL RESOURCES IN THE EARTH SCIENCES: EMERGING ROLES FOR THE ACADEMIC LIBRARY**
- 264-7** 125 Prassack, Kari A.*: **WE HAVE A LESSON PLAN FOR THAT! TRAINING THE NEXT GENERATION OF SCIENTISTS TO BE BETTER EDUCATORS THROUGH PUBLIC INTERACTION AND LESSON PLAN DEVELOPMENT**
- 264-8** 126 Rossavik, Claudia Kristina*; Glover, Stanley: **GEOCORPS GIS INTERNSHIPS WITH THE NATIONAL FOREST SERVICE IN ALABAMA**

- 264-9** 127 Phillips, C. Dianne*; Sorey, Nathan: **USING ESRI ONLINE APPLICATIONS AND GEOSCIENCE DATA IN CAPSTONE PROJECTS FOR HONORS GEOLOGY: 2Y COLLEGE**
- 264-10** 128 DiMaggio, Erin N.*; DiBiase, Roman A.: **STRATEGIES FOR CREATING STANDARDIZED GIS-BASED DIGITAL GEOLOGIC MAPS FOR GEOSCIENCE FIELD EXERCISES**
- 264-11** 129 Rayne, Todd*; Bernstein, Samuel; Tewksbury, David A.: **A GIS-BASED METHOD FOR PREDICTING SOIL EROSION ON MOUNTAIN BIKING TRAILS**
- 264-12** 130 Grysen, Taylor*; Lawrence, Dawn: **GEOSTATISTICAL ANALYSIS: COMBINING CATEGORICAL GEOLOGIC AND CULTURAL DATA TO CREATE A PREDICTABILITY MODEL FOR ARCHAEOLOGICAL SENSITIVITY**
- 264-13** 131 Asija, John Paul*; Crompton, Helen; Lin, Yi-Ching; St. John, Kristen: **A FORMATIVE EVALUATION OF DIGITAL TECHNOLOGY GEOSCIENCE EDUCATION TOOLS**
- 264-14** 132 Mahoney, Marissa M.*; Loeffler, Shane; Birlenbach, David M.; Myrbo, Amy: **DEVELOPING A FRAMEWORK FOR FLYOVER COUNTY TO SUPPLEMENT DATA IN QUERIED REPOSITORIES**
- 264-15** 133 Molnia, Bruce F.*: **DISCOVER US GEOLOGICAL SURVEY GLOBAL FIDUCIALS DATA – HIGH RESOLUTION IMAGERY FOR GEOSPATIAL RESEARCH, OBSERVING EARTH PROCESSES, OUTREACH, AND EDUCATION**
- 264-16** 134 Moore, Logan Q.*; Mobasher, Katayoun; Miller, Zac: **THE APPLICATION OF HYPERSPECTRAL IMAGING TO GEOLOGICAL STUDIES**

SESSION NO. 265

T93. Lacustrine Systems across Space and Time (Posters) (GSA Limnogeology Division; GSA Sedimentary Geology Division; Paleontological Society; SEPM (Society for Sedimentary Geology))

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 265-1** 135 Vaught-Mijares, Roxanna M.*; Hillman, Aubrey L.; Abbott, Mark B.; Werne, Josef P.; Arkush, Elizabeth N.: **A MULTIPROXY APPROACH TO UNRAVELING CLIMATE AND HUMAN DEMOGRAPHY IN THE PERUVIAN ALTIPLANO FROM A 5000 YEAR LAKE SEDIMENT CORE**
- 265-2** 136 Perdziola, Stephen*; Stansell, Nathan D.; Harvey, William; Steinman, Byron A.; Lachniet, Matthew S.: **LATE HOLOCENE OXYGEN ISOTOPE RECORD OF HYDROCLIMATE VARIABILITY IN NICARAGUA FROM LAKE ASOSOSCA**
- 265-3** 137 Mortensen, Peter*; Stansell, Nathan D.; Steinman, Byron A.; Brocard, Gilles Y.; Shea, Christopher J.; Lachniet, Matthew S.: **LATE HOLOCENE HYDROCLIMATE RECONSTRUCTION FROM LAKE CHICHOJ, GUATEMALA USING STABLE ISOTOPE ANALYSIS OF SEDIMENTS**
- 265-4** 138 Betts, Makayla N.*; Meixnerova, Jana; Ingalls, Miquela; Westacott, Sophie; Miller, Laurence G.; Sessions, Alex L.; Trower, Elizabeth J.; Geobiology Course 2017, Agouon: **MONO LAKE SEDIMENTS: A RECORD OF RECENT ENVIRONMENTAL CHANGE**
- 265-5** 139 Ingalls, Miquela*; Westacott, Sophie; Betts, Makayla; Meixnerova, Jana; Lloyd, Max; Miller, Larry; Sessions, Alex L.; Trower, Elizabeth J.; Geobiology Course 2017, Agouon: **SOURCES OF CARBONATE PRECIPITATION IN MONO LAKE SEDIMENTS: $\delta^{18}\text{O}$ AND CARBONATE CLUMPED ISOTOPES AS LAKE LEVEL PROXIES**
- 265-6** 140 Staley, Spencer E.*; Fawcett, Peter J.; Anderson, R. Scott; Brown, Erik T.; Petronis, Michael; Dunbar, Nelia W.: **SEDIMENTOLOGICAL ANALYSIS OF THE STONEMAN LAKE, AZ, CORE: IMPLICATIONS FOR LONG-TERM QUATERNARY CLIMATE CHANGE IN THE SOUTHWEST**

- 265-7 141 Brown, Sabrina R.*; Fritz, Sherylly C.; Morgan, Lisa A.; Shanks, Wayne C.: **DIATOM ASSEMBLAGES OF SILICEOUS SPIRES IN YELLOWSTONE LAKE, WYOMING**
- 265-8 142 Kile, Bethany L.*; Stone, Jeffery R.; Latimer, Jennifer C.; Shapley, Mark D.; Finney, Bruce P.: **DIATOMS AND PHOSPHORUS: RECONSTRUCTING CONVECTIVE LAKE MIXING AND DROUGHT CYCLES OF HERD LAKE**
- 265-9 143 Maxbauer, Daniel P.*; Shapley, Mark D.; Geiss, Christoph E.; Ito, Emi: **HOLOCENE HYDROCLIMATE AND SEDIMENTARY MAGNETISM FROM A GROUNDWATER FLOW-THROUGH LAKE, NORTHERN ROCKY MOUNTAINS, USA**
- 265-10 144 Starbuck, Emily C.M.*; Stone, Jeffery R.: **PACIFIC-NORTH AMERICAN TELECONNECTIVE PATTERNS AND THE HYDROCLIMATE OF NORTHEASTERN INDIANA**
- 265-11 145 Johnston, John W.*; Argyilan, Erin P.; Baedke, Steve J.; Morrison, Sean; Loope, Henry M.; Lepper, Kenneth; Thompson, Todd A.; Wilcox, Douglas A.: **INTERPRETING PALEOHYDROGRAPHIC DATA RECONSTRUCTED FROM STRANDPLAINS OF BEACH RIDGES IN THE LAURENTIAN GREAT LAKES**
- 265-12 146 Kettle, Jennifer*; Yansa, Catherine H.; Fulton, Albert E.; Schaetzl, Randall; Arbogast, Alan F.: **A 17,500-YEAR POLLEN RECORD FROM SILVER LAKE IN NORTHERN LOWER MICHIGAN, USA SUGGESTS DEGLACIATION AND PLANT COLONIZATION MILLENNIA EARLIER THAN PREVIOUS ESTIMATES**
- 265-13 147 Yansa, Catherine H.*; Kettle, Jennifer; Fulton, Albert E.: **DIFFERENTIATING BETWEEN REGIONAL PALEOCLIMATE, LAKE-EFFECT CLIMATE, AND EDAPHIC FACTORS WHEN INTERPRETING THE LATE HOLOCENE POLLEN RECORDS OF FOUR LAKES IN LOWER MICHIGAN, USA**
- 265-14 148 Gordon, Morgann*; Moretto, Michael; Breckenridge, Andy J.; Lowell, Thomas V.: **RAINY LOBE RETREAT AND KOOCHICHING LOBE ADVANCE DOCUMENTED BY GLACIAL VARVES FROM PELICAN AND VERMILION LAKES (MINNESOTA)**
- 265-15 149 Schoenemann, Spruce W.*; Steele, Austin J.; Sletten, Ronald S.; Maloney, Ashley E.; Sachs, Julian P.; Lorimor, Sean; Schauer, Andrew J.: **RECONSTRUCTING HOLOCENE CLIMATE BASED ON ALKENONES AND ISOTOPES FROM WEST GREENLAND LAKE SEDIMENTS: TEMPERATURE OR EFFECTIVE MOISTURE AS A DRIVER?**
- 265-16 150 Huth, Tyler E.*; Hudson, Adam M.; Quade, Jay; Olsen, John; Lei, Guoliang; Cheng, Hai; Edwards, Lawrence: **TIBETAN LAKE LEVEL CHRONOLOGIES AND HYDROLOGIC MODELING SUGGEST 50% INCREASE IN PRECIPITATION DURING THE EARLY HOLOCENE IN THE SOUTHWESTERN TIBETAN PLATEAU**
- 265-17 151 Mintz, Mallory L.*; Maxbauer, Daniel P.; Shapley, Mark D.; Myrbo, Amy; Borggreen, Michael: **TRACING SEDIMENT SOURCE RESPONSE TO WATER INFRASTRUCTURE DEVELOPMENT AND MANAGEMENT IN MEDICINE LAKE NATIONAL WILDLIFE REFUGE, MONTANA**
- 265-18 152 Barber, Samuel T.*; Bellais, Kaylyn C.; Beebe, D. Alex; Clark, M.W.: **MODERN GEOLOGIC CHARACTERIZATION OF A GULF OF MEXICO COASTAL DUNE LAKE**
- 265-19 153 Malenda, Margariete*; Betts, Tomas A.; Simpson, Edward L.; Simpson, Wendy S.; Wizevich, Michael C.; Miller, Kaley; Richardson, Ashley M.: **MICROBIAL-GENERATED METHANE OUTGASSING FROM LAKE POWELL SEDIMENTS, GLEN CANYON NATIONAL RECREATION AREA, UTAH**
- 265-20 154 Archer, Claire; Rosen, Michael R.*; Noble, Paula J.: **LAKES AS PALEOSEISMIC RECORDS IN THE SEISMICALLY-ACTIVE RIETI PLAIN, CENTRAL ITALY**
- 265-21 155 Shoemaker, Kurt A.*; Erjavec, James: **PLEISTOCENE (PRE-ILLINOIAN) EARTHQUAKE RECORDED IN THE SEDIMENTS OF LAKE TIGHT IN SOUTH-CENTRAL OHIO**
- 265-22 156 Rohrssen, Megan*; Inglis, Gordon N.; Charteris, Alice; Grogan, Danielle; Pancost, Richard D.; Whiteside, Jessica H.: **COMPLEX CONTROLS ON LACUSTRINE ORGANIC MATTER BURIAL**

AND CARBON ISOTOPE RECORDS: THE GREEN RIVER FORMATION OF EOCENE LAKE UINTA, UTAH USA

SESSION NO. 266

T94. Limnogeology—Progress, Challenges, and Opportunities on Earth and Beyond: A Tribute to Beth Gierlowski-Kordesch (Posters) (GSA Limnogeology Division; SEPM (Society for Sedimentary Geology); Paleontological Society; International Association of Limnogeology; GSA Sedimentary Geology Division; GSA Geobiology & Geomicrobiology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 266-1 157 Gravina, Anna Naomi*; Cohen, Andrew S.; Soreghan, Michael J.; Somasundaram, Ramanathan; Ryan, Emily: **IMPACTS OF EXCESS SEDIMENT DISCHARGE FROM HILLSLOPE DEFORESTATION ON POPULATIONS OF OSTRACODES ON TWO PLATFORMS IN LAKE TANGANYIKA, TANZANIA**
- 266-2 158 Arnon, Ali; Selker, John S.; Lensky, Nadav G.*: **THERMOHALINE STRATIFICATION AND DOUBLE DIFFUSION DIAPYCNAL FLUXES IN THE HYPERSALINE DEAD SEA**
- 266-3 159 Kiro, Yael*; Goldstein, Steven L.; Kushnir, Yochanan; Lazar, Boaz; Stein, Mordechai: **RECONSTRUCTING PRECIPITATION AND WATER SOURCES TO THE DEAD SEA BASED ON SEDIMENTS AND THEIR GEOCHEMISTRY**
- 266-4 160 Hodelka, Bailee*; McGlue, Michael; Zimmerman, Susan H.; Tunno, Irene: **PRELIMINARY INSIGHTS ON LATE QUATERNARY PALEOPRODUCTIVITY IN MONO LAKE, (CA) FROM ELEMENTAL AND STABLE ISOTOPE GEOCHEMISTRY**
- 266-5 161 DeMott, Laura M.*; Scholz, Christopher A.; Uveges, Benjamin Thornton Iglar; Junium, Christopher K.: **GROWTH HISTORY AND COMPOSITION OF A LACUSTRINE TUFF DOME FROM WINNEMUCCA DRY LAKE, NV, USA**
- 266-6 162 Curtin, Tara M.*; Geiser, Kerri: **CULTURAL EUTROPHICATION CAUSES MODIFICATION OF NUTRIENT CYCLES IN THE NEW YORK FINGER LAKES**

SESSION NO. 267

D33. Mineralogy/Crystallography (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 267-1 163 Barbato, Allison Kay*; Dutrow, Barbara L.; Henry, Darrell J.: **CATHODOLUMINESCENCE AND TRACE ELEMENT CHEMISTRY OF SILLIMANITE: EVIDENCE FOR MULTIPLE METAMORPHIC REACTIONS**
- 267-2 164 Lary, Erin*; Krekeler, Mark P.S.: **TRANSMISSION ELECTRON MICROSCOPY (TEM) INVESTIGATION OF MINERALOGICAL COMPOSITION OF OLDUVAI'S LOCALITY 80 CORE SAMPLES**
- 267-3 165 Lary, Erin*; Cymes, Brittany A.; Krekeler, Mark P.S.: **SCANNING TRANSMISSION ELECTRON MICROSCOPY – ENERGY DISPERSIVE SPECTROSCOPY (STEM-EDS) REVEALS COMPOSITIONAL HETEROGENEITY AND ZONATION OF SMECTITES FROM OLDUVAI GORGE LOCALITY 80**
- 267-4 166 Salvador, J.J.*; Antao, S.M.: **THE CRYSTAL CHEMISTRY OF BIREFRINGENT UVAROVITE GARNET, IDEALLY $Ca_3Cr_2Si_3O_{12}$**
- 267-5 167 Cruickshank, L.*; Antao, S.M.: **COMPARISON OF TETRAGONAL AND MULTI-PHASE CUBIC GARNETS**
- 267-6 168 Dhaliwal, I.*; Antao, S.M.: **OSCILLATORY ZONING IN ERYTHRITE, IDEALLY $Co_3(AsO_4)_2 \cdot 8H_2O$**
- 267-7 169 Stefano, Christopher J.*; Hackney, Stephen A.: **RAPID FORMATION OF EUTECTIC TEXTURES IN FE-SI INTERMETALLIC COMPOUNDS IN A FULGURITE FROM CENTRAL LOWER MICHIGAN**
- 267-8 170 Green, Carlin J.*; Seal, Robert R.; Cannon, William F.; Piatak, Nadine M.; McAleer, Ryan J.: **VARIATIONS IN AMPHIBOLE**

TUESDAY POSTERS

- CHEMISTRY IN THE IRONWOOD IRON-FORMATION, GOGEBIC IRON RANGE, WISCONSIN, USA**
- 267-9 171 Chakoumakos, Bryan C.*; Roth, Nikolaj; May, Andrew F.; Ye, Feng; Iversen, Bo: **IRON/MANGANESE DISTRIBUTION AND MAGNETISM IN BIXBYITE**
- 267-10 172 Cymes, Brittany A.*; Krekeler, Mark P.S.; Almquist, Catherine B.: **THE CATALYTIC ACTIVITY OF NATURAL CAVANSITE (CA(VO)Si₄O₁₀·4H₂O)**
- 267-11 173 Steven, Cody J.*; Gunter, Mickey E.: **EXCELIBR: AN EXCEL SPREADSHEET FOR SOLVING THE OPTICAL ORIENTATION OF UNIAXIAL AND BIAXIAL CRYSTALS**
- 267-12 174 Terry, Olivia Renee*; Zandanel, Amber E.; Kaszuba, John: **THE POTENTIAL OF HYDROCARBONS TO AFFECT THE ABILITY OF KCL TO STABILIZE MONTMORILLONITE**
- 267-13 175 Zigah, Sean Christopher*: **CHARACTERIZING SURFACE PROPERTIES OF NATURAL IRIDESCENT IRON (HYDR)OXIDE MINERALS**
- 267-14 176 Clark, Christine M.*; Schiffert, Matthew P.; Cymes, Brittany A.: **POVONDRITE CRYSTAL CHEMISTRY**
- 267-15 177 Sørensen, Bjørn Eske*; Drivenes, Kristian; Nolze, Gert: **DISTINGUISHING FINE INTERGROWTHS IN CU-FE-ZN-S MINERALS FROM THE ARCTIC MID-OCEAN RIDGE USING SEM, EBSD AND OPTICAL MICROSCOPY**
- 267-16 178 Restrepo-Moreno, Sergio A.*; Bernet, Matthias; Foster, David; Gehrels, George E.; Min, Kyoungwon; Corfu, Fernando; Pardo-Trujillo, Andrés; Zuluaga Castrillon, Carlos Augusto; Peña-Urueña, Mary Luz: **ATLAS OF ZIRCONS FROM COLOMBIA: "GEMS" FROM THE ANDEAN, INTER-ANDEAN, CARIBBEAN, PACIFIC AND CRATONIC REALMS OF NORTHWESTERN SOUTH AMERICA**
- 267-17 179 Bhattacharjee, Surjyendu*; Chatterjee, Arka Pratim: **MANIPUR OPHIOLITIC COMPLEX AS A PROSPECTIVE HOST FOR MICRODIAMONDS IN EASTERN HIMALAYA, INDIA**
- 267-18 180 Hovis, Guy L.*: **THE SIGNIFICANT ROLE OF EXCESS CONFIGURATIONAL ENTROPY IN THE THERMODYNAMIC MIXING BEHAVIOR OF ALKALI FELDSPARS**
- DURING GLACIAL LOWSTANDS: A SINK FOR ATMOSPHERIC CO₂**
- 268-6 186 Pearson, Bevan D.*; Franzese, Allison M.: **USING PROVENANCE OF TERRIGENOUS SEDIMENT TO RECONSTRUCT THE AGULHAS LEAKAGE DURING THE EARLY AND LATE PLEISTOCENE**
- 268-7 187 Bricker, Hayley*; Bricker, Jace; Mitsunaga, Bryce A.; Mering, John; Frechen, Manfred; Oches, Rick; Eagle, Robert; Tripathi, Aradhna K.: **SPATIAL ANALYSIS AND COMPARISON OF TEMPERATURE AND PRECIPITATION IN THE AMERICAN MIDWEST, EUROPE, AND THE CHINESE LOESS PLATEAU USING CLUMPED ISOTOPE THERMOMETRY**
- 268-8 188 Leidelmeijer, Jenifer A.*; Kirby, Matthew E.; Anderson, William T.; Mayer, Stefanie A.; Palermo, Jennifer A.; Stout, Corey; Shellhorn, Amanda I.; Weisberg, Gregory A.; Rangel, Hogan; Hess, Brenna: **LATE HOLOCENE HYDROLOGIC VARIABILITY IN THE SOUTHEAST MOJAVE DESERT USING SEDIMENTS FROM FORD LAKE, CALIFORNIA**
- 268-9 189 Luna, Melissa R.*; O'Connell, Suzanne; Ortiz, Joseph D.; Wizevich, Michael C.: **WEAK PLOCENE BOTTOM CURRENTS IN THE JANE BASIN, NW WEDDELL SEA BASED ON MULTIVARIATE ANALYSIS OF GRAIN SIZE SPECTRA**
- 268-10 190 Calner, Mikael*; Calner, Hanna; Alwmark, Carl; Naeraa, Tomas: **HOLOCENE AND ANTHROPOCENE OOID PRECIPITATION AS A POSSIBLE NATURAL ARCHIVE FOR SHORT-TERM CHANGES IN OCEAN GEOCHEMISTRY AND CLIMATE**
- 268-11 191 Haralson, Marlee D.*; Lukens, William E.; Martin, Robert A.; Fox, David L.: **PALEOCLIMATE AND PALEOENVIRONMENTAL RECONSTRUCTION ACROSS THE PLEISTOCENE BLANCAN-IRVINGTONIAN TRANSITION IN SOUTHWEST KANSAS**
- 268-12 192 Parker, Wesley G.*; Yanes, Yurena; Mesa-Hernández, Eduardo; Surge, Donna: **HIGH-RESOLUTION PALEOTEMPERATURE INFERENCES IN TENERIFE, CANARY ISLANDS FROM ARCHAEOLOGICAL *PHORCUS ATRATUS* SHELLS**
- 268-13 193 Fraser, Danielle; Kim, Sora L.*; Welker, Jeffrey; Clementz, Mark T.: **THE POSSIBILITY OF PRONGHORN TEETH AS SEASONALITY INDICATORS FOR PALEOCLIMATE RECONSTRUCTIONS**
- 268-14 194 Rabideaux, Nathan*; Deocampo, Daniel M.: **MINERALOGICAL AND GEOCHEMICAL TRENDS FROM MODERN SURFACE AND OUTCROP SAMPLES OF THE SOUTHERN KENYA RIFT**
- 268-15 195 Carlson, Tessa Boe*; Bershaw, John; Cassel, Elizabeth J.: **DEUTERIUM VALUES FROM HYDRATED VOLCANIC GLASS: A PALEOELEVATION PROXY FOR OREGON'S CASCADE RANGE**
- 268-16 196 Carroll, Robert J.*; Modys, Alexander B.; Oleinik, Anton E.: **ASSESSING SR/CA PALEOTEMPERATURE CALIBRATION TECHNIQUES FOR SUBTROPICAL WESTERN ATLANTIC CORALS USING PSEUDODIPLORIA STRIGOSA**
- 268-17 197 Brook, Zev*; Barclay, Richard S.; Wing, Scott L.: **CELL SIZE IN *GINKGO* AND THE PALEO-CO₂ PROXY**
- 268-18 198 Rigby, Emma*; Nutt, Mara; Lear, Caroline; Faul, Kristina: **EVIDENCE FOR ENHANCED EXPORT PRODUCTIVITY DUE TO VOLCANIC ASH FERTILIZATION AROUND THE MIDDLE MIOCENE CLIMATE TRANSITION (MMCT) IN THE CARIBBEAN (ODP SITE 999)**
- 268-19 199 Frazer, C.J.*: **A COMPARISON BETWEEN THE CLAMP AND PALEOSOL PALEOCLIMATE DATA OF THE MIOCENE IN REGARDS TO MAT**
- 268-20 200 Brombacher, Anieke*; Edgar, Kirsty Marie; Wilson, Paul A.; Ezard, Thomas H.G.: **EVOLUTIONARY RESPONSE OF THE PLANKTIC FORAMINIFER *ORBULINOIDES BECKMANNI* TO CLIMATIC CHANGE DURING THE MIDDLE EOCENE CLIMATIC OPTIMUM (MECO)**
- 268-21 201 Littell, Virginia*; Licht, Alexis; Dupont-Nivet, Guillaume; Win, Zaw; Schauer, Andrew J.; Swe, Hnin Hnin; Kay Thi, Myat; Aung, Day Wa; Roperch, Pierrick; Poblete, Fernando; Huang, Huasheng; Hoorn, Carina; Sein, Kyaing: **PALEOCLIMATIC**

RECONSTRUCTION OF LATE EOCENE MYANMAR VIA STABLE ISOTOPE PROXIES

- 268-22 202 Kelson, Julia R.*; Huntington, Katharine; Hyland, Ethan G.; Saenger, Casey: **HOT SUMMERS ON LAND IN THE EARLY EOCENE SUBTROPICS**
- 268-23 203 Deans, Benjamin J.*; Fan, Majie; Benowitz, Jeffrey A.; Finzel, Emily S.: **HIGH-LATITUDE CONTINENTAL RESPONSE TO GENOZOIC CLIMATE CHANGE IN SOUTHERN ALASKA BASED ON VOLCANIC GLASS HYDROGEN ISOTOPE COMPOSITIONS**
- 268-24 204 Hall, Christine M.S.*; Kirtland Turner, Sandra; Droser, Mary L.: **OSTRACODE RESPONSE TO CHANGING ENVIRONMENTS DURING EOCENE THERMAL MAXIMUM 2 IN THE EQUATORIAL ATLANTIC**

SESSION NO. 269

T45. Miocene–Pliocene Terrestrial Ecosystem Response to the Climate System (Posters) (Paleontological Society; GSA Limnogeology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 269-1 205 Peaple, Mark D.*; Feakins, Sarah J.; Levin, Naomi E.; Haile-Selassie, Yohannes: **PLANT WAX RECONSTRUCTIONS OF PALEOECOLOGY AND PALEOHYDROLOGY AT WORANSO-MILLE, ETHIOPIA**
- 269-2 206 Buzeta, Rachel Kristine*; Polissar, Pratigya J.; Uno, Kevin T.; Phelps, Samuel R.: **STEP-WISE COOLING IN THE HIGH NORTH ATLANTIC OVER THE PAST 17 MILLION YEARS**
- 269-3 207 Oginga, Kennedy Ogonda*; Peppe, Daniel J.; Lukens, William E.; Lutz, James A.; Michel, Lauren A.: **PALEOCLIMATE AND PALEOENVIRONMENTAL RECONSTRUCTION OF THE EARLY MIOCENE TINDERET SITES IN WESTERN KENYA AND THEIR IMPLICATIONS FOR HOMINOID EVOLUTION**
- 269-4 208 Jackson, Kevin E.*; Strömberg, Caroline A.E.; Andrae, Jake W.; McInerney, Francesca A.: **THE EVOLUTION OF C₄ GRASSLANDS IN AUSTRALIA: PHYTOLITH ASSEMBLAGE DATA FROM NEOGENE MARINE CORES**
- 269-5 209 Valdivia-McCarthy, Ailin Del Carmen*; Reichgelt, Tammo; D'Andrea, William J.; Fox, Beth R.S.: **SUBORBITAL-SCALE CO₂ RECONSTRUCTIONS FROM THE EARLIEST MIOCENE BASED ON FOSSIL LEAVES**
- 269-6 210 Beane, Luke*: **PALEOENVIRONMENTAL INTERPRETATIONS OF AN EARLY MIOCENE PRIMATE SITE USING SIZE AND STABLE ISOTOPIC SIGNATURES OF RHIZOLITHS; LOPEROT, WEST TURKANA (KENYA)**
- 269-7 211 Takashita-Bynum, Kevin K.*; Liutkus-Pierce, Cynthia M.; Beane, Luke; Wright, James D.; Grossman, Aryeh; Kirera, Francis M.: **UTILIZING STRATIGRAPHY AND STABLE ISOTOPE GEOCHEMISTRY TO RECONSTRUCT THE ANCIENT ENVIRONMENTS OF OUR PRIMATE ANCESTORS: LOPEROT, GREAT RIFT VALLEY, KENYA**

SESSION NO. 270

T47. Recent Developments in Cyclostratigraphy (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 270-1 212 Royce, Bethany*: **LATE PLIOCENE DEPOSITIONAL HISTORY AND PALEOCLIMATE RECONSTRUCTIONS OF THE SOUTHWEST PACIFIC**
- 270-2 213 Shen, Chen*; Schoepfer, Shane D.; Henderson, Charles M.: **ASTRONOMICAL TUNING OF THE EARLY TRIASSIC INDIAN STAGE IN THE DISTAL MONTNEY FORMATION, NE BRITISH COLUMBIA, CANADA**
- 270-3 214 Rodgers, Naomi Joyce*; Kinney, Sean T.; Lewis, Kevin; Olsen, Paul: **CHEMOSTRATIGRAPHIC ANALYSIS USING LASER-**

INDUCED BREAKDOWN SPECTROSCOPY: MARS, BY WAY OF THE NEWARK BASIN

- 270-4 215 Chen, Yan*; Zhang, Yang Wendy; Huang, Keke; Gong, Yifan; Ogg, James G.; Jiang, Haishui: **GLOBAL CORRELATION OF EARLY TRIASSIC SHALLOW-WATER PLATFORMS IN SOUTH CHINA USING COMBINED MAGNETOSTRATIGRAPHY, CARBON-ISOTOPE EXCURSIONS AND CYCLOSTRATIGRAPHY**

SESSION NO. 271

T56. Mass Extinctions: Past, Present, and Future? (Posters) (Paleontological Research Institution; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Cushman Foundation for Foraminiferal Research; Paleontological Society; Volcanic and Magmatic Studies Group)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 271-1 216 Kerr, James*: **ENCRUSTERS AND BORERS THROUGH AN EXTINCTION EVENT: A DESCRIPTION OF SKELETOBIONT ASSEMBLAGES THROUGH THE FRASNIAN-FAMENNIAN BOUNDARY OF THE APPALACHIAN FORELAND BASIN**
- 271-2 217 Paschall, Olivia C.*; Carmichael, Sarah K.; Waters, Johnny A.; Koenigshof, Peter; Joachimski, Michael M.; Ta, Phuong H.; Komatsu, Toshifumi: **PRECLUDING VOLCANISM AS PRIMARY TRIGGER FOR DEVONIAN-CARBONIFEROUS GLOBAL ANOXIA EVENT: IMPLICATIONS OF THE HANGENBERG EVENT IN THE LATE DEVONIAN PHO HAN FORMATION, CAT BA ISLAND, VIETNAM**
- 271-3 218 Kani, Tomomi*; Isozaki, Yukio; Misawa, Keiji; Ishikawa, Akira; Yoneda, Shigekazu: **STABLE AND RADIOGENIC STRONTIUM ISOTOPE ($\delta^{86}\text{Sr}$, $^{87}\text{Sr}/^{86}\text{Sr}$) IN SEAWATER ACROSS GUADALUPIAN-LOPINGIAN BOUNDARY (PERMIAN)**
- 271-4 219 Tobita, Tomoyo*; Isozaki, Yukio: **REEF COLLAPSE IN THE MID-CAPITANIAN NEAR THE NORTHERN CONNECTING CHANNEL BETWEEN THE TETHYS AND PANTHALASSA: LITHOSTRATIGRAPHY OF THE TOPMOST IWAIZAKI LIMESTONE (CAPITANIAN) IN NE JAPAN**
- 271-5 220 Wang, Xiang-Dong*; Yao, Le: **PERMIAN RUGOSE CORALS IN THE WORLD**
- 271-6 221 Graham, Grace M.*; Fontaine, Alice; Meyer, Katja M.: **ROLE OF CLIMATE WARMING AND THE BIOLOGICAL PUMP IN END-PERMIAN OCEAN ANOXIA**
- 271-7 222 Hodges, Montana S.*; Stanley, George D.; Blodgett, Robert B.; Hodges, Christopher L.: **CORAL RECOVERY IN EASTERN PANTHALASSA AFTER THE END-TRIASSIC MASS EXTINCTION: NEW EVIDENCE FROM AN ALASKAN TERRANE**
- 271-8 223 Benca, Jeffrey P.*: **EVALUATING POLLEN MALFORMATIONS AS INDICATORS FOR PAST ENVIRONMENTAL STRESS**
- 271-9 224 Svensen, Henrik; Jerram, Dougal A.*; Frolov, Sergei; Akhmanov, Grigori; Polozov, Alexander; Planke, Sverre; Burgess, Seth D.: **RAPID SILL INTRUSIONS INTO EVAPORITE RICH SEQUENCES IN THE TUNGUSKA BASIN, SIBERIA; A PERFECT STORM FOR THE END-PERMIAN ENVIRONMENTAL CRISIS**
- 271-10 225 Wilson, Paige Kathryn*; Wilson, Gregory P.; Stromberg, Caroline A.E.: **VEGETATION AND ENVIRONMENT CHANGE ACROSS THE K-PG BOUNDARY IN THE HELL CREEK OF MONTANA**

SESSION NO. 272

D17. Paleontology, Paleoecology/Taphonomy (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 272-1 226 Vasylenko, Klavdiya*; Buynevich, Ilya V.; Sparacio, Christopher A.; Kopcanski, Karen A.: **NEW DIRECTION IN NEOICHOLOGY: REAL-TIME GEORADAR IMAGING OF SIMULATED BIOTURBATION**

TUESDAY

POSTERS

- 272-2 227 Regan, Anik*; Harnik, Paul G.: **TAPHONOMIC VARIATION AMONG CARBONATE AND SILICICLASTIC DEPOSITIONAL ENVIRONMENTS IN THE NORTHERN GULF OF MEXICO**
- 272-3 228 Cummings, Cameron*; MacKenzie, Lindsay: **DEGREE OF PYRITIZATION OF VARYING TISSUE TYPES: A TAPHONOMY EXPERIMENT**
- 272-4 229 Hassell, Keenan J.*; Dornbos, Stephen Q.; Oji, Tatsuo; Gonchigdorj, Sersmaa: **PALEOBIOLOGY AND TAPHONOMY OF EXCEPTIONALLY PRESERVED PUTATIVE MACROALGAE FROM THE EDIACARAN ZUUN-ARTS BIOTA, WESTERN MONGOLIA**
- 272-5 230 Nigro, Matthew*; MacKenzie, Lindsay: **EXPERIMENTAL TAPHONOMY: THE EFFECTS OF SEDIMENT GRAIN SIZE ON MICROBIAL AND MINERAL FILM GROWTH ON TISSUES**
- 272-6 231 MacKenzie, Lindsay Ann*: **USING EXPERIMENTAL TAPHONOMY TO UNDERSTAND EXCEPTIONAL PRESERVATION IN THE FOSSIL RECORD**
- 272-7 232 Anderson, Bailey M.*; Peterson, Joseph E.; Lenczewski, Melissa; Schiffbauer, James D.: **CARBONATE PRECIPITATION DURING VERTEBRATE DECOMPOSITION IN A HYPERALKALINE AQUATIC SETTING: A CASE STUDY IN EXPERIMENTAL TAPHONOMY**
- 272-8 233 Du, Kim*; Bosak, Tanja; Newman, Sharon; Macdonald, Francis A.; Lahr, Daniel J.G.; Pruss, Sara B.: **TUBULAR MICROFOSSILS PRESERVED BY AL-SI CLAY IN SHALLOW WATER CARBONATE FACIES OF THE POST-STURTIAN RASTHOF FORMATION (~660 MA), NORTHERN NAMIBIA**
- 272-9 234 Weaver, Lucas N.*; Rogers, Raymond R.; Thole, Jeffrey T.: **AUTHIGENIC MINERALOGY AND ELEMENT DISTRIBUTIONS OF VERTEBRATE MICROFOSSILS FROM THE HELL CREEK (LATEST CRETACEOUS) AND TULLOCK (PALEOCENE) FORMATIONS OF EASTERN MONTANA**
- 272-10 235 Maguire, Evin P.*; Feldmann, Rodney M.; Schweitzer, Carrie E.; Casadio, Silvio: **VOLCANIC ASH AND EXCEPTIONAL FOSSIL PRESERVATION: INSIGHTS INTO TAPHONOMY AND EARLY DIAGENESIS**
- 272-11 236 Anderson, Evan P.*: **BUG IN A JAR: TAPHONOMIC EXPERIMENTS ALTERING BURIAL CONDITIONS OFFER INSIGHTS INTO SOFT-BODIED PRESERVATION**
- 272-12 237 Legawiec, Mary*; MacKenzie, Lindsay: **INFLUENCE OF MICROBIAL BIOFILMS ON THE PRESERVATION OF SOFT TISSUE IN SNAILS**
- 272-13 238 Parsons-Hubbard, Karla*; Banks, Shannon: **DEVELOPING THE MICRITE ENVELOPE: PATTERNS OF MICROBORING INTENSITY ACROSS DEPTH AND GEOGRAPHIC LOCATION**
- 272-14 239 Dick, Daniel*: **IS IT WHAT'S ON THE INSIDE THAT COUNTS? LITHIFICATION BIAS AND COMMUNITY PALEOECOLOGY IN CARBONATE SETTINGS**
- 272-15 240 Clark, Timothy*; MacKenzie, Lindsay: **EFFECTS OF EXPOSURE PRIOR TO BURIAL ON PRESERVATION OF DETAILED MORPHOLOGY IN FOSSIL *NEREIS***
- 272-16 241 Stoller, Michael R.*: **PRESERVATION POTENTIAL OF OWL DERIVED VERTEBRATE REMAINS FROM SAN SALVADOR ISLAND, THE BAHAMAS**
- 272-17 242 Koy, Karen A.*; Berry, Justin: **ISOLATING ABIOTIC FACTORS IN VERTEBRATE BONE TAPHONOMY: A PILOT STUDY**
- 272-18 243 Wynn, Peter D.*; Yager, Joyce A.; West, A. Joshua; Rollins, Nick; Berelson, William M.; Corsetti, Frank A.: **TESTING LIQUID DECARBONATION TEMPERATURE AND TIME FOR $\delta^{13}\text{C}_{\text{ORG}}$ ANALYSES IN SEDIMENTARY SECTIONS**
- 272-19 244 Lumsden, David N.*: **XRD ANALYSIS OF QUARTZ CRYSTALLINITY: A PETRIFIED WOOD UPDATE**
- 272-20 245 Brundin, Junstin Nathaniel*; Savrda, Charles E.: **PRELIMINARY OBSERVATIONS FROM A WOOD BIOEROSION EXPERIMENT IN MARINE AND MARGINAL MARINE SETTINGS, MOBILE BAY AREA, ALABAMA**
- 272-21 246 Stark, Courcelle*; Tosca, Nicholas; Pruss, Sara B.: **SMALL SHELLY-STYLE PRESERVATION OF FOSSILS IN LOWER TRIASSIC CARBONATES OF THE WESTERN US**
- 272-22 247 Eubanks, Eric M.*; Lewis, Ronald D.: **DISTRIBUTION OF ENCRUSTING FORAMINIFERA AT MAYAGUANA, BAHAMAS: DETERMINING ASSEMBLAGE COMPOSITION AND RELATIONSHIP TO FOOD AVAILABILITY**
- 272-23 248 Sparacio, Christopher A.*; Buynevich, Ilya V.; Kopczynski, Karen A.; Curran, H. Allen; Glumac, Bosiljka; Vasylenko, Klavdiya; Park Boush, Lisa E.: **BURROW MORPHOMETRY OF THE BLUE LAND CRAB (*CARDISOMA GUANHUMI*): A FIELD-BASED NEOICHOLOGICAL APPROACH**
- 272-24 249 Beckham, Abigail*; Graveline, Alyssa; Alvarez, Nathaly Reyna; Glumac, Bosiljka; Curran, H. Allen: **IMPACT OF BIOTURBATION ON PLEISTOCENE CARBONATE SUBTIDAL SEDIMENTS, HARRY CAY SITE, LITTLE EXUMA, BAHAMAS: INSIGHTS FROM PETROGRAPHIC ANALYSIS**
- 272-25 250 Wilson, Mark A.*; Conrad, Macy A.; Taylor, Paul D.: **BIOEROSION OF OYSTERS IN THE TYPE CAMPANIAN (UPPER CRETACEOUS) OF SOUTHWESTERN FRANCE**
- 272-26 251 Buynevich, Ilya V.*; Curran, H. Allen; Kopczynski, Karen A.; Sparacio, Christopher A.; Park Boush, Lisa E.; Glumac, Bosiljka; Gnivecki, Perry L.; Vasylenko, Klavdiya: **AVIAN PREDATION TRACES AND POSSIBLE ANTI-PREDATION STRATEGIES OF THE BLUE LAND CRAB IN THE BAHAMAS: PALEOBIOLOGICAL IMPLICATIONS**
- 272-27 252 Cheref, Ikram*; Landman, Neil H.; Garb, Matthew P.: **THE ROLE OF PREDATORS IN THE PALEOECOLOGY OF COLD METHANE SEEPS IN THE LATE CRETACEOUS PIERRE SEAWAY, SOUTH DAKOTA**
- 272-28 253 Lopic, Whitney*; Smith, Jansen A.; Dietl, Gregory P.: **DO NATICID GASTROPODS LEAVE PREDATORY MICROTRACES WHEN THEY DRILL THEIR BIVALVE PREY?**
- 272-29 254 Handley, John C.*; Smith, Jansen A.; Dietl, Gregory P.: **MANLY'S ALPHA FOR PREDATION SELECTIVITY: MODELS, ESTIMATION AND INTERPRETATION**
- 272-30 255 Martinelli, Julieta*; Gordillo, Sandra; De Aranzamendi, Maria Carla; Rivadeneira, Marcelo: **FIRST CHARACTERIZATION OF DRILLING PREDATION ON EASTER ISLAND - RAPA NUI**
- 272-31 256 Karnes, Molly E.*; Casey, Michelle M.; Dietl, Gregory P.; Fall, Leigh M.: **INVESTIGATION OF OMNIVOROUS TROPHIC POSITION IN THE DRILLING GASTROPOD, *UROSALPINX CINEREA*, USING STABLE ISOTOPE ANALYSIS**
- 272-32 257 Das, Shibajyoti*; Ivany, Linda C.; Junium, Christopher K.: **USING STABLE NITROGEN AND CARBON ISOTOPE VALUES OF BIVALVE-SHELL-BOUND ORGANICS TO UNDERSTAND FOOD WEB DYNAMICS**
- 272-33 258 Hopkins, Melanie J.*; Chen, Feiyang; Hu, Shixue; Zhang, Zhifei: **THE OLDEST KNOWN DIGESTIVE SYSTEM CONSISTING OF BOTH PAIRED DIGESTIVE GLANDS AND A CROP FROM EXCEPTIONALLY PRESERVED TRILOBITES OF THE GUANSHAN BIOTA (EARLY CAMBRIAN, CHINA)**
- 272-34 259 DeVore, Melanie L.*; Freile, Deborah: **COENOBITA CLYPEATUS (THE TERRESTRIAL HERMIT CRAB) AND ITS PREFERENCE IN INHABITING *CITTARIUM PICA* (WEST INDIAN TOP) SHELLS: A TAPHONOMIC SIGNATURE FROM A COHORT STUDY FROM SAN SALVADOR ISLAND, BAHAMAS**
- 272-35 260 Myers, Timothy S.*: **DIET OF ORNITHOCHEIROID PTEROSAURS INFERRED FROM STABLE CARBON ISOTOPE ANALYSIS OF TOOTH ENAMEL**
- 272-36 261 Buczek, Alexandra J.*; Hendy, Austin J.W.; Hopkins, Melanie; Sessa, Jocelyn: **VARIABLE BIVALVE SHELL MICROSTRUCTURE PRESERVATION IN THE CEBADA AND GRACIOSA MEMBERS OF THE CAREAGA SANDSTONE (PLIOCENE, SANTA MARIA, CA) HIGHLIGHTS NEED TO SEM ALL SPECIMENS PRIOR TO ISOTOPIC ANALYSIS**
- 272-37 262 Durham, Stephen R.*; Gillikin, David P.; Goodwin, David H.; Dietl, Gregory P.: **LA-ICP-MS LINE SCANS OF SHELL MG/CA**

- RATIOS AS A RAPID, COST-EFFECTIVE ALTERNATIVE TO STABLE ISOTOPE ANALYSIS FOR OYSTER SCLEROCRONOLOGY**
- 272-38 263 Moss, David K.*; Ivany, Linda C.; Thomas, Roger D.K.; Surge, Donna: **LATITUDINAL GRADIENTS IN LIFESPAN AND GROWTH RATE FOR TWO SPECIES OF *GLYCYMERIS* (BIVALVIA) FROM THE MID-PLIOCENE OF THE ATLANTIC COASTAL PLAIN**
- 272-39 264 Grimmelbein, Luke*; Harnik, Paul G.: **LIVE-DEAD ASSESSMENT OF THE IMPACTS OF ANTHROPOGENIC EUTROPHICATION ON BIVALVE COMMUNITIES IN THE NORTHERN GULF OF MEXICO**
- 272-40 265 Opazo, L. Felipe*; Marquet, Pablo A.; Labra, Fabio A.; Portell, Roger W.; Kowalewski, Michal: **CHANGES IN GUILD COMPOSITION AND ENERGETIC DEMANDS THROUGHOUT THE PLIOCENE-PLEISTOCENE EXTINCTION EVENT**
- 272-41 266 Cronin, Kelly*; Walker, Sally E.; Mann, Roger; Chute, A.S.; Long, Mathew; Bowser, Samuel S.: **RELATIVELY FAST GROWTH AND MODERATE LONGEVITY FOR THE ANTARCTIC SCALLOP, *ADAMUSSIUM COLBECKI*, LIVING IN THE COLDEST WATERS ON EARTH**
- 272-42 267 Martinelli, Julieta*; Rivadeneira, Marcelo; Oyanadel, Pablo; Bavestrello, Claudia; Acosta Jofre, Maria Soledad: **DISENTANGLING ANTHROPOGENIC AND ENVIRONMENTAL EFFECTS ON THE MORPHOMETRY OF FOSSIL AND RECENT SCALLOPS FROM THE SOUTH PACIFIC**
- 272-43 268 Bowditch, Maeve*; Nagel-Myers, Judith: **THE IMPACT OF RIVER IMPOUNDMENT AND OTHER HUMAN ACTIVITY ON THE SHELL SHAPE OF A NORTHERN NEW YORK FRESH WATER BIVALVE**
- 272-44 269 LaPointe, Cullen*; Walker, Sally E.: **GROWTH AND LONGEVITY OF THE SCALLOP *CHESAPECTEN NEFRENS* (CALVERT CLIFFS, MARYLAND) DURING THE MIDDLE MIOCENE CLIMATIC OPTIMUM AND SUBSEQUENT RAPID COOLING EVENT**
- 272-45 270 Boag, Thomas H.*; Elder, Leanne; Beck, Chelsey; Hull, Pincelli M.; Sperling, Erik A.: **THE SYNERGISTIC ROLE OF OXYGEN AND TEMPERATURE IN DEFINING AEROBIC SCOPE: PHYSIOLOGICAL IMPLICATIONS FOR PAST AND FUTURE OCEANS**
- 272-46 271 Rogers, Raymond R.*; Curry Rogers, Kristina; Zaton, Michal P.; Thole, Jeffrey T.; Bagley, Brian C.; Goodin, James: **EVIDENCE FOR TREMATODE PARASITISM IN LATE CRETACEOUS (CAMPANIAN) FRESHWATER BIVALVES FROM THE JUDITH RIVER FORMATION, MONTANA**
- 272-47 272 Modys, Alexander B.*; Toth, Lauren T.; Mortlock, Richard A.; Oleinik, Anton E.: **RESTRICTED FRINGING REEF DEVELOPMENT ON THE SOUTHEAST FLORIDA CONTINENTAL REEF TRACT DURING THE LATE HOLOCENE**
- 272-48 273 Koester, Bryce E.*; Gibson, Brandt M.; Darroch, Simon A.F.: **HEAVY METAL POLLUTION, TEST MUTATIONS, AND FORAMINIFERA ASSEMBLAGE STRESS INDICES ON SAN SALVADOR ISLAND, THE BAHAMAS**
- 272-49 274 Petsios, Elizabeth*; Thompson, Jeffrey R.; Pietsch, Carlie; Bottjer, David J.: **BIOTIC IMPACTS OF TEMPERATURE BEFORE, DURING, AND AFTER THE END-PERMIAN EXTINCTION: A MULTI-METRIC AND MULTI-SCALE APPROACH TO MODELING EXTINCTION AND RECOVERY DYNAMICS**
- 272-50 275 Hendy, Austin J.W.*: **HIGH-RESOLUTION PALEOENVIRONMENTAL ANALYSIS OF A PLIO-PLEISTOCENE MARINE SUCCESSION IN CALIFORNIA**
- 272-51 276 Paton, Timothy*; Brett, Carlton E.; Kampouris, George: **HABITAT HETEROGENEITY, PALEOECOLOGY, AND LOCAL BIODIVERSITY OF AN UPPER ORDOVICIAN MOUNDED HARDGROUND:IMPLICATIONS FOR BIODIVERSIFICATION**
- 272-52 277 Wheatley, Alexander A.*; Fritz, Sherilyn C.; Baker, Paul A.: **DEVELOPING AN EVOLUTIONARY NICHE MODEL FOR TROPICAL SOUTH AMERICA**
- 272-53 278 Foster, William Joseph*; Lehrmann, Daniel J.; Yu, Meiji; Ji, Li; Martindale, Rowan C.: **HABITAT SELECTIVITY OF BENTHIC COMMUNITIES IN MICROBIAL REEF ECOSYSTEMS FOLLOWING THE LATE PERMIAN MASS EXTINCTION EVENT**
- 272-54 279 Chertok, Marley A.*; Gannon, Michelle; Rosenberg, Gary: **HEART COCKLE WINDOWS AND TRANSLUCENCY: IMPLICATIONS FOR ENVIRONMENTAL STUDIES**
- 272-55 280 Chattopadhyay, Debarati*; Chattopadhyay, Devapriya: **SUBSTRATE RELATIONSHIP GUIDED MOLLUSCAN BODY-SIZE RESPONSE TO CLIMATIC FLUCTUATION DURING THE PAST 66 MA**
- 272-56 281 Slattery, Joshua S.*; Harries, Peter J.; Jarrett, Matt B.; Sandness, Ashley L.; Phillips, George E.; Minor, Keith: **PUTTING EVOLUTIONARY PATTERNS IN CONTEXT: A COMPARISON OF THE BIVALVE *NUCULA* DURING GREEN- AND ICEHOUSE CLIMATES**
- 272-57 282 Webster, Claire*; Walker, Sally E.; Teeter, William H.; Bowser, Samuel S.: **UPDATE ON THE POTENTIAL EFFECTS OF OCEAN ACIDIFICATION ON ANTARCTIC MARINE BIVALVES**
- 272-58 283 Fortier, Chantelle M.*; Paterson, Audrey; Engel, Annette Summers: **ECOLOGY AND ENDOSYMBIONT DIVERSITY OF SIX CO-OCCURRING BIVALVES (BIVALVIA: LUCINIDAE) FROM AN ANTHROPOGENICALLY-IMPACTED TIDAL FLAT ON SUGARLOAF KEY, FLORIDA KEYS**
- 272-59 284 Hayes, Matthew B.*; Herbert, Gregory S.; Tapanila, Leif: **HELICOPRIONTOOTH WHORLS AS PALEOTHERMOMETRY PROXIES FOR THE PERMIAN PHOSPHORIA SEA**
- 272-60 285 Warnock, Rachel C.M.*; Heath, Tracy A.; Stadler, Tanja: **ON THE IMPORTANCE OF INCOMPLETE SAMPLING IN PALAEONTOLOGICAL AND PHYLOGENETIC APPROACHES TO ESTIMATING SPECIATION AND EXTINCTION RATES**
- 272-61 286 Soul, Laura C.*; Hunt, Gene: **A SIMULATION REVIEW OF METHODS FOR ESTIMATING MACROEVOLUTIONARY RATES USING FOSSIL DATA**
- 272-62 287 Thompson, Carmi Milagros*; Fernandes Martins, Maria João; Hunt, Gene: **AN OSTRACODE FAUNA FROM THE CLAYTON FORMATION (PALEOCENE) AND ANALYSIS OF SAMPLE-STANDARDIZED DIVERSITIES ACROSS THE K/PG BOUNDARY IN THE US COASTAL PLAIN**
- 272-63 288 Brophy, Shannon K.*; Garb, Matthew P.; Landman, Neil H.; Brezina, Jamie; Naujokaityte, Jone; Hafner, Brianna P.: **COLD METHANE SEEPS AS POSSIBLE REFUGES FROM ASH FALLS: EVIDENCE FROM THE UPPER CRETACEOUS PIERRE SHALE, SOUTH DAKOTA**
- 272-64 289 Loxton, Jason*; Melchin, Michael: **EVIDENCE FOR A GRAPTOLITE EXTINCTION EVENT LINKED TO SEA-LEVEL FALL AT THE ORDOVICIAN-SILURIAN BOUNDARY**
- 272-65 290 Morgan, Ryan*: **PALEOECOLOGY AS A CAPSTONE COURSE FOR GEOSCIENCES: AN INTENSIVE, FIELD-BASED APPROACH**

SESSION NO. 273

T69. The Role of Silica in the Earth System: From Organisms to Global Biogeochemical Cycles (Posters) (GSA Geobiology & Geomicrobiology Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Paleontological Society; GSA Limnogeology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 273-1 291 Dunham, Jeremy I.*; Kah, Linda C.: **UNDERSTANDING 'GRIDWORK' TEXTURES WITHIN PROTEROZOIC EARLY DIAGENETIC CHERT**
- 273-2 292 Bane, Katherine*; James, Jennifer; Coenen, Jason; Scherer, Reed P.: **LIGHT MICROSCOPY ANALYSIS OF WEST ANTARCTIC SUBGLACIAL SEDIMENTS: BIOGENIC SILICA PRESERVATION AND THE POTENTIAL FOR MICROBIAL COMMUNITY INTERACTIONS**

- 273-3 293 James, Jennifer*; Bane, Katherine; Scherer, Reed P.; Coenen, Jason: **MICROBIAALLY MEDIATED DISSOLUTION FEATURES ON FOSSIL SILICEOUS SPONGE SPICULES IN A WEST ANTARCTIC ICE SHEET SUBGLACIAL LAKE**
- 273-4 294 Howard, Kerry L.*; Noble, Paula J.; Frings, Patrick J.; Conley, Daniel J.: **BIOGENIC (DIATOM) SILICA PRODUCTION IN MANZANITA LAKE, LASSEN VOLCANIC NATIONAL PARK, CA**
- 273-5 295 Wilson, Jonathan P.*; Munves, Nicholas M.: **SILICA BODIES IN CONIFER FOLIAGE: RESULTS OF A COMMON-GARDEN EXPERIMENT AND IMPLICATIONS FOR THE HISTORY OF THE TERRESTRIAL SILICA CYCLE**
- SESSION NO. 274**
D35. Petrology, Igneous (Posters)
 9:00 AM, Washington State Convention Center, Halls 4EF
 Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
 Booth #
- 274-1 296 Guo, Jinwei*; Zheng, Jianping: **THE ARCHEAN CRUSTAL LAYERING BENEATH THE YANGTZE CRATON REVEALED BY SUCCESSIVE EMPLACEMENT OF PALEOPROTEROZOIC A-TYPE GRANITES**
- 274-2 297 Murphy, J. Brendan*; Shellnutt, J. Gregory; Collins, William J.: **LATE NEOPROTEROZOIC TO CARBONIFEROUS GENESIS OF A-TYPE MAGMAS IN AVALONIA OF NORTHERN NOVA SCOTIA: REPEATED PARTIAL MELTING OF ANHYDROUS LOWER CRUST IN CONTRASTING TECTONIC ENVIRONMENTS**
- 274-3 298 Liu, Xiaoyu*; Zhang, Chen: **GEOCHRONOLOGICAL, GEOCHEMICAL, AND SR-ND-HF ISOTOPIC STUDIES OF THE QINGGELIHE A-TYPE GRANITES IN EASTERN JUNGGAR: IMPLICATIONS FOR ITS PETROGENESIS AND TECTONIC IMPLICATIONS**
- 274-4 299 Brydon, RJ*; McLeod, Claire; Haley, Maureen Y.; Wolfe, Amy; Brown, Kenneth; Shaulis, Barry; Tronnes, Reidar: **BREAKING UP A CONTINENT: TIMING AND SOURCES OF GRANITOID MAGMATISM IN THE OSLO RIFT, NORWAY**
- 274-5 300 Zhou, Tengfei*; Zhou, Yaoqi; Peng, Tianming; Zhang, Zhenkai: **THE GENESIS OF THE XIAOZHUSHAN GRANITE PLUTON IN SULU OROGEN BELT, EAST CHINA AND ITS IMPLICATION OF ROLLBACK OF SUBDUCTING PALEO-PACIFIC IN LATE MESOZOIC**
- 274-6 301 Steiner-Leach, Travis Lewis*; Feineman, Maureen; Penniston-Dorland, Sarah; Magalhaes, Nivea; Farquhar, James; Bybee, Grant; Rinehart, Josh: **MULTIPLE SULFUR ISOTOPES IN GRANITE-HOSTED SULFIDES FROM THE BUSHVELD IGNEOUS COMPLEX**
- 274-7 302 Yan, Jingjing*; Zhao, Zhidan: **LATE JURASSIC MAGMATISM IN XURU TSO BATHOLITH, CENTRAL LHASA SUBTERRANE: PRODUCTS OF SOUTHWARD SUBDUCTION OF BANGONG-NUJIANG NEO-TETHYAN OCEANIC SEAFLOOR?**
- 274-8 303 Gevedon, Michelle L.*; Duccini, Kalie M.; Clemens-Knott, Diane: **DEEP CRUSTAL ASSIMILATION BY DEPLETED-MANTLE-DERIVED BASALTS MASQUERADING AS MELTING OF ENRICHED MANTLE: HF-O MODELING OF EASTERN SIERRA NEVADA ARC GABBROS**
- 274-9 304 Boyles, Julia L.*; Sisson, Thomas W.; Miller, Jonathan S.: **EXPERIMENTAL PETROLOGY OF THE K-FELDSPAR MEGACRYST-BEARING CATHEDRAL PEAK GRANODIORITE, TUOLUMNE INTRUSIVE SUITE, YOSEMITE NATIONAL PARK, CA**
- 274-10 305 Savage, Jessica*; Douglas, Sarah R.; Barth, Andrew; Riggs, Nancy: **GEOCHEMISTRY AND FACIES OF THE EASTERN SIERRA NEVADA AS ANALOGUES FOR MODERN CONTINENTAL ARC SETTINGS**
- 274-11 306 Fuston, Spencer L.*; Hetherington, Callum J.; Barnes, Calvin G.: **GEOCHEMISTRY AND PETROGRAPHY OF THE ASHLAND PLUTON, KLAMATH MOUNTAINS, NORTHERN CALIFORNIA AND OREGON**
- 274-12 307 Bankhead, John Gardiner Richards*: **COMAGMATIC EVOLUTION OF THE BOULDER AND PIONEER BATHOLITHS OF SOUTHWEST MONTANA**
- 274-13 308 Pettus, Holly D.*; Brown, Kenneth L.: **PETROGRAPHY AND GEOCHEMISTRY OF MEGACRYSTIC K-FELDSPARS FROM A GRANITOID INTRUSION, NORTHWESTERN NEVADA**
- 274-14 309 Stearns, Michael*; Jensen, Collin; Keith, Jeffrey D.; Christiansen, Eric H.: **FOUR MILLION YEARS FROM INTRUSION TO ERUPTION IN THE WHITE PINE STOCK AND EAST TRAVERSE MOUNTAINS PEBBLE DIKE SWARM, WASATCH MOUNTAINS, UTAH, U.S.A**
- 274-15 310 Meszaros, Nicholas*; Mills, James G.: **PETROGENESIS OF IGNEOUS ROCKS IN THE EMINENCE KNOBS REGION: SOUTHWESTERN ST. FRANCOIS MOUNTAINS, MISSOURI**
- 274-16 311 Brinkman, Jacob*; Encarnacion, John: **MAGMA MIXING AND MINGLING PROCESSES IN THE TIEMANN SHUT-INS, ST. FRANCOIS MOUNTAINS, MISSOURI: CONSTRAINTS FROM GEOCHEMICAL VARIATIONS WITHIN MAFIC ENCLAVES**
- 274-17 312 Angi-O'Brien, Elizabeth*; McLeod, Claire; Haley, Maureen Y.; Brydon, RJ; Wolfe, Amy; Shaulis, Barry: **MAGMA MINGLING: UNRAVELLING GRANITE CRYSTALLIZATION ONE CRYSTAL AT A TIME**
- 274-18 313 Johnson, Eric L.; Petillo, Evan*: **TEXTURAL, MINERAL AND BULK CHEMICAL EVIDENCE FOR MAGMA MIXING AT ANDREWS POINT, CAPE ANN MASSACHUSETTS**
- 274-19 314 Lopez, Nora V.*; Hudgins, Thomas R.: **MAGMA MIXING USING GEOCHEMICAL DATA FROM THE TRANS-MEXICAN VOLCANIC BELT**
- 274-20 315 Smith, Veronica*; Miller, Calvin F.: **GEOCHEMICAL RELATIONS BETWEEN MAFIC INTRUSIONS IN POST-PEACH SPRING TUFF DEPOSITS IN THE SOUTHERN BLACK MOUNTAINS, ARIZONA**
- 274-21 316 Stephens, Travis Scott*; Pritchard, Chad J.; O'Sullivan, Paul: **U-PB GEOCHRONOLOGY OF SILVER HILL, SPOKANE COUNTY, WASHINGTON**
- 274-22 317 Pritchard, Chad J.*; O'Sullivan, Paul; Lewis, Reed S.: **LATE MIOCENE VAPOR-PHASE ENRICHMENT OF REE IN BASALTIC ENCLAVES**
- 274-23 318 Szymanski, Mark E.*; Browne, Brandon L.; Bindeman, Ilya N.: **OXYGEN ISOTOPE COMPOSITIONS OF OLIVINE FROM QUATERNARY MAFIC VENTS OF THE GOLDEN TROUT VOLCANIC FIELD, KERN PLATEAU, CA**
- 274-24 319 Sliva, Clotilde Q.*; Wittke, James H.; Haxel, Gordon B.: **UNUSUAL MINERALS AND ASSOCIATIONS IN PRIMITIVE ULTRAPOTASSIC MICROSHONKINITE DIKES, MOUNTAIN PASS RARE EARTH DISTRICT, SOUTHERN CALIFORNIA**
- 274-25 320 Kaya, Mustafa*; Kumral, Mustafa; Yalcin, Cihan; Haniçci, Nurullah; Tanc, Beril: **GEOCHEMICAL PROPERTIES OF HIGH MAGNETISM BASALTS OF SARAYCIK FORMATION, KARGIÇORUM, TURKEY**
- 274-26 321 Maruszczak, Alex D.*; Peate, David W.: **GEOCHEMISTRY OF OFF-AXIS BASALTIC GLASSES FROM THE SNAEFELLSNES PENINSULA, ICELAND**
- 274-27 322 Phillips, Erin H.*; Sims, Kenneth W.W.; Blichert-Toft, Janne; Aster, Richard C.; Kyle, Philip R.; Gaetani, Glenn A.; Wallace, Paul J.; Rasmussen, Daniel J.: **THE NATURE AND EVOLUTION OF MANTLE UPWELLING AT ROSS ISLAND, ANTARCTICA**
- 274-28 323 Love, Harrison F.*; Zerda, Christina; Barton, Michael: **MODELING FRACTIONAL CRYSTALLIZATION OF BASALTS ALONG THE NORTHERN EAST PACIFIC RISE**
- 274-29 324 Mana, Sara*; Cai, Merry Yue; Beck, Catherine C.; Goldstein, Steven L.: **TECTONOMAGMATIC EVOLUTION OF THE EAST AFRICAN RIFT SYSTEM AS DOCUMENTED IN WEST TURKANA, KENYA**
- 274-30 325 Attia, Snir*; Paterson, Scott R.; Ardill, Katie E.; Martinez, Ana Maria; Ratschbacher, Barbara; Cao, Wenrong; Cottle, John M.: **UPPER CRUSTAL EVOLUTION DURING AN ARC FLARE-UP: INTEGRATING SEDIMENTARY, VOLCANIC, AND**

PLUTONIC RECORDS OF THE TRIASSIC-EARLY JURASSIC CONTINENTAL ARC UPPER CRUSTAL SECTION, EASTERN-CENTRAL SIERRA NEVADA, CA

- 274-31 326 Zhang, Chen*; Liu, Dongdong: **ROLE OF SEDIMENT RECYCLING AT THE EARLY-MIDDLE PALEOZOIC SUBDUCTION ZONE IN THE CHINESE ALTAY INFERRED FROM SR-ND-HF ISOTOPES AND TRACE ELEMENTS OF THE SUBDUCTION-RELATED GRANITOIDS**
- 274-32 327 Kong, Xiangye*; Zhang, Chen: **ND-HF ISOTOPIC SYSTEMATICS IN SUBDUCTION-RELATED GRANITOIDS FROM THE CHINESE ALTAY: IMPLICATIONS FOR THE INCORPORATION OF OCEANIC SEDIMENTS INTO ISLAND ARC MAGMAS**

SESSION NO. 275 \$

T162. The Dance of Arcs: Causes of Arc Migrations, Flare-Ups, and Magmatic Focusing (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 275-1 328 Billen, Magali I.*: **EVOLUTION OF SLAB AND WEDGE THERMAL STRUCTURE IN TIME-DEPENDENT DYNAMIC MODELS OF SUBDUCTION**
- 275-2 329 Browne, Nicoletta C.*; Cottle, John M.; Nelson, Demian: **PETROGENESIS OF LATE-STAGE, HIGH-K MAGMAS WITHIN A CONTINENTAL ARC: AN EXAMPLE FROM THE ROSS OROGEN, ANTARCTICA**
- 275-3 330 Buritica, Luisa F.*; Schwartz, Joshua J.; Klepeis, Keith; Miranda, Elena A.; Ringwood, Mary; Tulloch, Andrew J.; Coble, Matthew A.: **TEMPORAL AND SPATIAL VARIATIONS IN MAGMATISM AND TRANSPRESSIONAL DEFORMATION IN THE MIDDLE TO LOWER-CRUST OF A CRETACEOUS ARC, MEDIAN BATHOLITH, FIORDLAND, NEW ZEALAND**
- 275-4 331 Blatchford, Hannah J.*; Klepeis, Keith A.; Schwartz, Joshua J.; Turnbull, Rose; Jongens, Richard; Coble, Matthew A.: **PARTITIONING OF STRAIN IN MID- AND LOWER-CRUSTAL LEVELS DURING AN ARC FLARE-UP, MEDIAN BATHOLITH, FIORDLAND, NEW ZEALAND**
- 275-5 332 Pompe, Lance R.*; Clausen, Benjamin L.; Paterson, Scott R.; Nick, Kevin E.; Martínez, Ana M.; Porras, Orlando P.: **EPISODIC CONTINENTAL ARC MAGMATISM IN THE PERUVIAN ANDES FROM U-PB ZIRCON GEOCHRONOLOGY**
- 275-6 333 Cardona, Agustin*; Bustamante, Camilo; Echeverri, Sebastian; Hincapie, Santiago; Jaramillo, Juan Sebastián; Leon, Santiago; Monsalve, Gaspar; Valencia, Victor: **CONTRASTING TECTONIC BEHAVIORS OF JURASSIC AND NEOGENE CONTINENTAL ARCS IN THE COLOMBIAN ANDES**
- 275-7 334 Errázuriz-Henao, Carlos*; Gómez-Tuena, Arturo; Duque-Trujillo, Jose Fernando: **THE ROLE OF SUBDUCTED SEDIMENT DIAPIRS IN THE FORMATION OF MANTLE-DERIVED ANDESITES FROM THE NORTHERN COLOMBIAN ANDES**
- 275-8 335 Munsey, Keith R.*; Farris, David W.: **GEOPHYSICAL AND GEOCHEMICAL MODELING OF THE STRUCTURE AND EVOLUTION OF THE EL VALLE VOLCANO, PANAMA**
- 275-9 336 Parolari, Mattia*; Gómez-Tuena, Arturo; Cavazos-Tovar, José Guadalupe; Hernández-Quevedo, Gabriela: **A BALANCING ACT OF CRUST CREATION AND DESTRUCTION ALONG THE WESTERN MEXICAN CONVERGENT MARGIN**
- 275-10 337 Van Buer, Nicholas J.*; Shulaker, Danielle Ziva: **RECONNAISSANCE GEOCHRONOLOGY AND THERMOCHRONOLOGY OF THE WESTERN MOJAVE BATHOLITH**
- 275-11 338 Vermillion, Karissa B.*; Van Buer, Nicholas J.: **GEOCHEMICAL ANALYSES OF PLUTONS IN THE EASTERN MOJAVE DESERT, CALIFORNIA**
- 275-12 339 Scheland, Cullen L.*; Memeti, Vali; Ardill, Katie E.; Paterson, Scott R.; Chambers, Melissa: **THE JACK MAIN INTRUSIVE**

COMPLEX: AN OUT-OF-SEQUENCE MIGRATING PLUTON FORMED DURING LATE CRETACEOUS MAGMATIC FOCUSING, CENTRAL SIERRA NEVADA, CA

- 275-13 340 Hartman, Sean M.*; Paterson, Scott R.; Ratschbacher, Barbara C.: **A REVISED LOADING AND EXHUMATION MODEL FOR THE SWAKANE BIOTITE GNEISS, CASCADES CRYSTALLINE CORE (CCC), WA: IMPLICATIONS FOR MESOZOIC TECTONICS**
- 275-14 341 Sauer, Kirsten B.*; Gordon, Stacia M.; Miller, Robert B.; Vervoort, Jeffrey; Fisher, Christopher M.: **INCORPORATION OF METASEDIMENTARY UNITS INTO THE DEEPEST EXPOSED LEVELS OF THE NORTH CASCADES CONTINENTAL ARC: COMPARISON OF THE SKAGIT AND SWAKANE GNEISSES**
- 275-15 342 Homan, Emily C.*; Cecil, M. Robinson; Gehrels, George E.; Rusmore, Margaret E.; Yokelson, Intan N.; Stowell, Harold H.; Valley, John W.; Kitajima, Kouki: **U-PB GEOCHRONOLOGY AND ZIRCON HF AND O ISOTOPE ANALYSIS OF PLUTONS OF THE SOUTHERN COAST MOUNTAINS BATHOLITH, BRITISH COLUMBIA: INSIGHT INTO EPISODIC MAGMATISM IN CONTINENTAL ARCS**
- 275-16 343 Weber, Maridee A.*; Brueseke, Matthew E.; Berkelhammer, Samuel E.; Benowitz, Jeff A.; Trop, Jeffrey M.; Davis, Kailyn N.; Layer, Paul W.; Morter, Bethany K.: **GEOCHEMICAL EVIDENCE FOR ADAKITE-LIKE MAGMATISM AT THE OLIGO-MIOCENE INITIATION OF THE WRANGELL ARC, ALASKA**
- 275-17 344 Barickman, Mattison H.*; Bucholz, Claire E.; Kay, Suzanne Mahlborg; Kay, Robert W.: **PETROLOGY AND GEOCHEMISTRY OF ADAK ISLAND PLUTONIC XENOLITHS: IMPLICATIONS FOR CRUSTAL DIFFERENTIATION IN THE ALEUTIAN ISLAND ARC**

SESSION NO. 276

T199. Basalt Weathering on Earth and Mars (Posters) (GSA Planetary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 276-1 345 Dixon, Darian T.*; Rice, Melissa S.; Horgan, Briony H.N.: **DISTINGUISHING GEOLOGIC UNITS AND ALTERATION MINERALOGY AT MARS 2020 CANDIDATE LANDING SITES WITH VISIBLE-TO-NEAR-INFRARED (VNIR) ORBITAL SPECTROSCOPY: IMPLICATIONS FOR THE MASCAM-Z INSTRUMENT**
- 276-2 346 Rudolph, Amanda N.*; Kraft, Michael D.; Rice, Melissa S.: **SPECTRAL, MINERALOGICAL, AND TEXTURAL CHANGES ASSOCIATED WITH OLIVINE ALTERATION IN NATURALLY WEATHERED DUNITE**
- 276-3 347 Jeute, Thomas J.*; Baker, Leslie L.; Bishop, Janice L.; Rampe, Elizabeth B.; Abidin, Zaenal: **CHARACTERIZING NANOPHASE MATERIALS ON MARS: SPECTROSCOPIC STUDIES OF ALLOPHANE AND IMOGOLITE**
- 276-4 348 Donaldson, Chris*; McCollom, Tom M.: **METHODS FOR REMOTE DETECTION OF MINERAL COMPOSITION IN THE ALUNITE-JAROSITE GROUP FOR APPLICATION TO MARS**

SESSION NO. 277

T206. Geomorphology and Landscape Evolution of Mars: The G.K. Gilbert Award Session (Posters) (GSA Planetary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 277-1 349 Dunning, Ian T.*; Gregg, Tracy K.P.; Zimbelman, James R.: **MAPPING THE PREVIOUS EXTENT OF THE MEDUSAE FOSSAE FORMATION, MARS**
- 277-2 350 Kelly, Anne*; Warner, N.H.: **MORPHOMETRY AND ORIGIN OF HESPERIAN TO AMAZONIAN-AGE VALLEY NETWORKS ON XANTHE TERRA, MARS**

TUESDAY

POSTERS

- 277-3** 351 Williams, Rebecca M.E.*; Malin, Michael C.; Stack, Kathryn M.; Rubin, David M.: **DOES THE AEOLIS PALUS LANDSCAPE NEAR KYLIE AND THE KIMBERLEY CONTAIN CLUES TO THE STRATIGRAPHIC ARCHITECTURE OF THE CURIOSITY FIELD SITE?**
- 277-4** 352 Williams, Rebecca M.E.*; Gullikson, Amber L.; Anderson, Ryan B.: **VARIATIONS IN ALLUVIAL FAN MORPHOLOGY IN SOUTHWESTERN TERRA SABEA, MARS, SUGGEST MULTIPLE, DISCRETE DEPOSITIONAL PHASES**
- 277-5** 353 Goldenbaum, Sara*; Hasbargen, Leslie: **CAN SLOPE-DEPENDENT SEDIMENT TRANSPORT EXPLAIN MARTIAN CRATER PROFILES?**
- 277-6** 354 Winchell, Katherine*; Rice, Melissa S.: **CHARACTERIZING THE EXTENT OF HYDROTHERMAL ACTIVITY IN GUSEV CRATER, MARS**
- 277-7** 355 Weitz, Catherine M.*; Berman, Daniel C.; Rodriguez, Alexis Palmero; Bishop, Janice L.: **GEOLOGIC MAPPING AND STUDIES OF DIVERSE DEPOSITS AT NOCTIS LABYRINTHUS, MARS**

SESSION NO. 278

D50. Precambrian Geology (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 278-1** 356 Colbert, Kyle V.*; Allard, Stephen T.: **NEW CLASSIFICATION FOR ARCHEAN GNEISSES IN THE LITTLE ELK TERRANE BASED ON STRAIN AND MICA ABUNDANCES, BLACK HILLS, SOUTH DAKOTA**
- 278-2** 357 Evenocheck, Elizabeth Lee*; Allard, Stephen T.: **GEOCHEMICAL ANALYSIS OF VARIABLY STRAINED ARCHEAN GNEISSES IN THE LITTLE ELK TERRANE, BLACK HILLS, SOUTH DAKOTA**
- 278-3** 358 Lincoln, Timothy N.*; Lincoln, Beth Z.: **PETROLOGY AND ORIGIN OF THE PROTEROZOIC CROW FORMATION, BLACK HILLS, SOUTH DAKOTA**
- 278-4** 359 Fedo, Christopher M.*; Brengman, Latisha Ashley; Whitehouse, Martin J.; Hanor, Jeffrey S.: **SILICON ISOTOPE RECORD OF EARLY SILICIFIED PALEOARCHEAN (~3.3 GA) KOMATIITES FROM THE ONVERWACHT GROUP, BARBERTON GREENSTONE BELT, SOUTH AFRICA**
- 278-5** 360 Zylstra, Scott*; Van Buer, Nicholas J.; Nourse, Jonathan A.; Vermillion, Karissa: **LATE CRETACEOUS PLUTONIC AND METAMORPHIC OVERPRINT OF PROTEROZOIC METASEDIMENTS OF ONTARIO RIDGE, EASTERN SAN GABRIEL MOUNTAINS, CA**
- 278-6** 361 Hiatt, Eric E.; Schwid, Maxwell F.*; Porto, Claudio G.; Abram, Maisa Bastos: **PHOSPHORITE AND IRON FORMATION DEPOSITED DURING THE MARINOAN SNOWBALL EARTH ICE AGE, MATO GROSSO, BRAZIL: PALEOCEANOGRAPHY OF A GLACIOMARINE BIOCHEMICAL SYSTEM**
- 278-7** 362 Sarkar, Soumendu*: **RELATION OF PIPILIA DYKE SWARMS WITH 1800–1700 MA LARGE IGNEOUS PROVINCE (LIP): APPROACH TO COLUMBIA/NUNA SUPERCONTINENT ASSEMBLAGE FROM DOLERITE DYKES IN SINGHBHUM CRATON, INDIA**

SESSION NO. 279

T254. The Co-Evolution of Life and Its Environment during the Precambrian: The “Boring Billion” and Mid-Proterozoic Emergence of Complex Life (Posters) (Paleontological Society; GSA Geobiology & Geomicrobiology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 279-1** 363 Meixnerova, Jana*; Stüeken, Eva E.; Kipp, Michael A.; Buick, Roger: **DID VOLCANISM CAUSE THE WHIFF OF OXYGEN 2.5 BILLION YEARS AGO?**

- 279-2** 364 Hodgskiss, Malcolm S.W.*; Frost, Jamie L.; Dagnaud, Olivia; Halverson, Galen P.; Schmitz, Mark D.; Sperling, Erik A.: **REVISITING THE ~2.0 GA BELCHER GROUP WITH HIGH-RESOLUTION CARBON ISOTOPE CHEMOSTRATIGRAPHY AND ZIRCON GEOCHRONOLOGY**
- 279-3** 365 Doyle, Katherine A.*; Poulton, Simon W.; Newton, Robert J.; Podkovyrov, Victor; Bekker, Andrey: **EVERY OCEAN HAS AN OXIC LINING: EVIDENCE FOR SHALLOW WATER ANOXIA IN THE MESOPROTEROZOIC**
- 279-4** 366 Tang, Qing*; Pang, Ke; Chen, Lei; Wan, Bin; Xiao, Shuhai; Zhou, Chuanming; Yuan, Xunlai; Hua, Hong: **BIOSTRATIGRAPHIC CONSTRAINT ON TONIAN SUCCESSIONS IN EASTERN NORTH CHINA BLOCK**
- 279-5** 367 Lathrop, Erin C.*; Dehler, Carol M.; Anderson, Jordan C.; Karlstrom, Karl E.; Hagadorn, James W.; Pulsipher, Mikaela A.; Crossey, Laura J.; Timmons, J. Michael; Newell, Dennis L.: **NOT-SO-BORING BASS: C-ISOTOPE STRATIGRAPHY AND FACIES ANALYSIS OF THE MESOPROTEROZOIC BASS FORMATION, GRAND CANYON, AZ**

SESSION NO. 280

T255. The Co-Evolution of Life and Its Environment during the Precambrian: The Late Proterozoic Rise of Animals; Climate, Tectonic, and Environmental Dynamics, and the Transition into the Early Paleozoic (Posters) (Paleontological Society; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 280-1** 368 Zhao, Zhouqiao*; Lang, Xianguo; Pei, Haoqiang; Shen, Bing: **ACTIVE METHANOGENESIS DURING THE MELTING OF MARINOAN SNOWBALL EARTH: EVIDENCE FROM RARE EARTH ELEMENT**
- 280-2** 369 Smith, Brett*; Kipp, Michael; Stüeken, Eva E.; Buick, Roger: **NUTRIENT CYCLING IN THE PHOSPHORIA SEA**
- 280-3** 370 Ha, Youngji*: **STRONTIUM, CARBON AND OXYGEN ISOTOPIC COMPOSITIONS OF THE HYANGSANNI DOLOMITE FROM THE OKCHEON METAMORPHIC BELT, SOUTH KOREA: POSSIBILITY OF ASSOCIATION WITH NEOPROTEROZOIC GLACIAL EVENT**
- 280-4** 371 Huang, Tianzheng*; Zhao, Zhouqiao; Shen, Bing: **EVOLUTION OF MARINE REDOX LANDSCAPE CONTROLLED BY THE PHYTOPLANKTON COMMUNITY STRUCTURE**

SESSION NO. 281

T175. Earthquakes, Faults, and Fault Systems in the Pacific Northwest (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 281-1** 372 Lynch, Emerson M.*; Regalla, Christine; Morell, Kristin; Harrichhausen, Nicolas: **GEOMORPHIC EVIDENCE FOR RECENT RUPTURES ON THE BEAUFORT RANGE FAULT IN THE NORTHERN CASCADIA FOREARC OF BRITISH COLUMBIA, CANADA**
- 281-2** 373 Murphy-Deak, Daniel*: **INVESTIGATION OF THE MT TEBO STRUCTURE AT DRY CREEK, MASON COUNTY, WA**
- 281-3** 374 Roland, Emily*; Watt, Janet; Bennett, Scott E.K.; Brothers, Daniel S.; Kluesner, Jared W.; Hart, Patrick E.; Myers, Emma; Haugerud, Ralph A.; Johnson, Samuel Y.; Walton, Maureen; Kennedy, Daniel; Balster-Gee, Alicia: **EXPLORING SHALLOW FAULT AND FOLD DEFORMATION OF THE SEATTLE FAULT ZONE USING NEW HIGH-RESOLUTION MARINE GEOPHYSICAL DATA**
- 281-4** 375 Cakir, Recep*; Walsh, Timothy J.; Scott, Spenser; Lau, Todd; Kover, Alex: **MONITORING ACTIVE CRUSTAL FAULTS IN WASHINGTON**

- 281-5 376 Edgley, Joseph*; Pritchard, Chad J.: **AN ISOLATED CRUSH BRECCIA IN MAGNISON BUTTE, OR PART OF A LARGER FAULT SYSTEM IN EASTERN WASHINGTON?**
- 281-6 377 Hansen, Elijah*; Pritchard, Chad J.: **STRUCTURAL RELATIONSHIP BETWEEN FOLDING AND FAULTING PRESERVED IN PROTEROZOIC BUTTES OF THE MEDICAL LAKE AREA, EASTERN WASHINGTON**
- 281-7 378 Redwine, Joanna*; Klinger, Ralph E.; Piety, Lucille A.; Wells, Ray E.; Sherrod, Brian L.; Howe, Julia Corbett; Levinston, Ryan; Hornsby, Kris; Niem, Alan: **QUATERNARY ACTIVITY ON THE GALES CREEK FAULT, NORTHWEST OREGON**
- 281-8 379 Klinger, Ralph E.*; Redwine, Joanna; Derouin, Sarah A.; Piety, Lucille A.: **HOLOCENE ACTIVITY ON THE KING MOUNTAIN FAULT, NORTHEASTERN OREGON**
- 281-9 380 Mark-Moser, MacKenzie*; Meigs, Andrew: **SEPARATION OF SILETZIA FROM THE BACKARC ALONG THE SISTERS FAULT ZONE, CENTRAL OREGON, USA?**
- 281-10 381 Morton, Emily A.; Bilek, Susan L.*; Rowe, Charlotte A.: **NEWLY DETECTED CASCADIA SUBDUCTION ZONE EARTHQUAKES OFFSHORE CENTRAL OREGON USING THE CASCADIA INITIATIVE AMPHIBIOUS DATASE**
- 281-11 382 McKenzie, Kirsty A.*; Furlong, Kevin P.: **LINKS BETWEEN SUBDUCTION MEGATHRUST EARTHQUAKES AND UPPER-PLATE BRITTLE DEFORMATION IN THE PACIFIC NORTHWEST**
- 281-12 383 McPherson, Bob*; Hemphill-Haley, Mark; Smith, Stewart; Williams, Todd; Pryor, Ian: **COMPLICATED KINEMATICS IN THE SOUTHERN CASCADIA SUBDUCTION ZONE**
- 281-13 384 Lifton, Zachery M.*: **PROPOSED UPDATES TO THE IDAHO FAULT DATABASE**
- 281-14 385 Im, Chang Bock*; Shim, Taek Mo; Choi, Ho Seon; Yang, Jun Mo; PARK, Seon Jeong: **RELATIONSHIPS BETWEEN EARTHQUAKE MAGNITUDES AND GEOLOGICAL PARAMETERS: A CASE STUDY ON THE SE KOREAN PENINSULA**

SESSION NO. 282

T176. Glacier-Landscape Interactions, Loess Paleoclimatology, and Interdisciplinary Quaternary Science: In Memory of Stephen C. Porter (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 282-1 386 Rawling, J. Elmo*; Zoet, Lucas; Attig, John W.; Mode, William N.: **GEOMORPHOLOGY AND QUATERNARY GEOLOGY OF TUNNEL CHANNELS ALONG THE WESTERN MARGIN OF THE GREEN BAY LOBE, WISCONSIN**
- 282-2 387 Luczak, Jonathan N.*; Fisher, Timothy G.; Samsen, Brian: **PRELIMINARY MAP OF THE SURFICIAL GEOLOGY OF THE BURNSIDE 7.5 MINUTE QUADRANGLE, LAPEER COUNTY, MICHIGAN**
- 282-3 388 Kasmerchak, Chase*; Schaetzel, Randall; Lepper, Kenneth: **INTRODUCING GLACIAL LAKE ROSCOMMON, CENTRAL LOWER MICHIGAN, USA**
- 282-4 389 Olson, Trent*; Fischer, Jenna; Clark, Logan; Gibbs Schnucker, Sara; Marston, Haley; Lepper, Kenneth: **DATING THE LATEST TINTAH SHORELINE OF LAKE AGASSIZ IN NORTHERN MINNESOTA: ADDING TO THE GEOCHRONOLOGIC PUZZLE**
- 282-5 390 Massey, Matthew A.*: **PLEISTOCENE FLUVIAL INCISION, AGGRADATION, AND SLACKWATER DEPOSITION ASSOCIATED WITH THE LICKING RIVER IN NORTHERN KENTUCKY**
- 282-6 391 Yahui, Qiu*: **MAGNETOSTRATIGRAPHIC DATING OF THE LINYI FAUNA AND IMPLICATIONS FOR SEQUENCING THE MAMMALIAN FAUNAS ON THE CHINESE LOESS PLATEAU**

- 282-7 392 Rodgers, Kelsey*; Bevis, Kenneth A.: **REVISED MAPPING OF THE LOCATION AND EXTENT OF GLACIATION IN THE CENTRAL OREGON CASCADES BASED ON LIDAR DATA**
- 282-8 393 Penkrot, Michelle L.*; Jaeger, John M.; Loss, Dylan P.; Bruand, Emilie: **INVESTIGATING MODERN GLACIAL EROSION-TECTONIC INTERACTIONS WITHIN THE ST. ELIAS MOUNTAINS, ALASKA USING MARINE SEDIMENT PROVENANCE**
- 282-9 394 Dahl, Svein Olaf*; Skoglund, Rannveig Øvrevik; Nielsen, Pål Ringkjøb: **DID PRECIPITATION STARVATION AS INDICATED BY DEPOSITION OF LOESS TERMINATE THE LATE WEICHSELIAN SCANDINAVIAN ICE SHEET IN EAST-CENTRAL SOUTHERN NORWAY DURING THE EARLY HOLOCENE?**

SESSION NO. 283

T177. Ice Streams of North American Ice Sheets and Their Stratigraphic and Sedimentary Record (Posters) (GSA Quaternary Geology and Geomorphology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 283-1 395 Kotrapu, Kristi M.*: **CALCULATING THE SLIDING VELOCITY OF THE RAINY LOBE OF THE LAURENTIDE ICE SHEET USING MASS BALANCE CALCULATIONS AND LARGEST CLAST SIZE IN LODGEMENT TILLS**
- 283-2 396 Légaré-Couture, Guillaume*; Parent, Michel: **THE ST. LAWRENCE ICE STREAM LANDFORM ASSEMBLAGE – NEW INSIGHT BASED ON LIDAR SURVEYS**
- 283-3 397 Kerr, Phillip J.*; Bettis, E. Arthur; Tassier-Surine, Stephanie A.; Quade, Deborah J.; Woida, Kathleen; Kilgore, Susan M.: **EVIDENCE FOR MIDDLE WISCONSIN GLACIATION IN NORTH CENTRAL IOWA**
- 283-4 398 Meister, Paul*; Malone, David H.: **PROVENANCE ANALYSIS OF GRANITE COBBLES IN THE TISKILWA TILL USING U-PB GEOCHRONOLOGY**
- 283-5 399 Wittkop, Chad*; Bartley, Julie K.; Krueger, Russell; Knaeble, Alan R.; Bouvier, Audrey; Georg, R.Bastian; St. Clair, Katherine; Piper, Christian: **PROVENANCE CONTROLS ON THE GEOCHEMISTRY AND RADIOGENIC ISOTOPIC COMPOSITION OF PLEISTOCENE TILLS IN MINNESOTA USA**
- 283-6 400 Regis, Robert S.*: **LATE QUATERNARY GLACIAL DYNAMICS OF THE KEWEENAW PENINSULA**

SESSION NO. 284

T168. Advances in Terrestrial Paleoclimate Reconstructions Using Paleosols (Posters) (GSA Sedimentary Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 284-1 401 Gerzan, Mallory N.*; Stinchcomb, Gary E.; Ferraro, Joseph V.; Forman, Steven L.; Blegen, Nick; Stewart, C. Lance; Binetti, Katie M.: **SITE FORMATION OF THE LATE AND POTENTIALLY MIDDLE PLEISTOCENE FARRE ARCHAEOLOGICAL SITE, CHALBI BASIN, NORTHERN KENYA**
- 284-2 402 Beverly, Emily J.*; Sherriff, Jenni; Wilkinson, Keith; Adler, Daniel; Gasparyan, Boris: **USING PLEISTOCENE PALEOSOLS TO RECONSTRUCT PALEOENVIRONMENTS IN THE HRAZDAN VALLEY OF THE SOUTHERN CAUCASUS OF ARMENIA**
- 284-3 403 Horgan, Julianna S.*; Beck, Catherine C.: **XRF ANALYSIS OF LATE MIOCENE SEDIMENT FROM THE LOCHERANGAN LOCALITY, TURKANA BASIN OF WESTERN KENYA**
- 284-4 404 Ibarra, Georgina*; Ayala, Emmanuel; Solleiro, Elizabeth; Lopez, Rafael: **PALEOPEDOGENESIS AND SEDIMENTATION IN LA PLAYA, SONORA AS EVIDENCES OF THE PALEOENVIRONMENTAL CONDITIONS FROM: MACRO AND MICRO SCALES OF OBSERVATION**

- 284-5 405 Burt, Dakota J.*; Johnson, William C.: **A PALEOSOL-DERIVED ENVIRONMENTAL PERSPECTIVE ON MIS 3 IN THE CENTRAL GREAT PLAINS, USA**
- 284-6 406 Spinola, Diogo*: **THE PALEOCLIMATE DURING THE EARLY EOCENE IN MARITIME ANTARCTICA IS CHARACTERIZED BY COOL CONDITIONS WITHOUT A PRONOUNCED DRY SEASON**
- 284-7 407 Broz, Adrian Perry*; Retallack, Gregory J.: **LANDSCAPE ECOLOGY OF THE PLEISTOCENE (100 KA) FAUNA OF FOSSIL LAKE, OR**
- 284-8 408 Summerfield, Cora*; Pazzaglia, Frank J.; Peters, Stephen C.; Markley, Laura: **PALEOCLIMATIC RECONSTRUCTION FROM THE BRYN MAWR FORMATION (MIOCENE) PALEOSOL, U.S. MID-ATLANTIC COASTAL PLAIN**

Booth #

- 286-1 416 Murphy, Kevin*; Trejo, Brittany; LaFond-Hudson, Sophia: **RADIAL OXYGEN LOSS IN THE RHIZOSPHERE OF WILD RICE AS A PRIMARY DEFENSE AGAINST TOXIC MINERAL PRECIPITATION**
- 286-2 417 Orloff, Alishia E*: **SULFUR AND IRON GEOCHEMISTRY IN THE RHIZOSPHERE OF WILD RICE (ZIZANIA PALUSTRIS)**
- 286-3 418 Dohnalkova, A.; Tfaily, Malak M.; Smith, A. Peyton; Chu, Rosalie; Crump, Alex R.; Brislaw, Colin J.; Varga, Tamas; Shi, Zhenqing; Thomashow, Linda; Harsh, James B.; Balogh-Brunstad, Zsuzsanna; Keller, C. Kent*: **MOLECULAR AND MICROSCOPIC INSIGHTS INTO THE FORMATION OF SOIL ORGANIC MATTER IN A RED PINE RHIZOSPHERE**

SESSION NO. 285

T169. Deciphering Climate Change and Climate Variability in the Geologic Record Using Palaeosols, Loess, Palaeoweathering Profiles, Pedosedimentary Sequences, and Polygenetic Soils: Their Applications and Limitations as Terrestrial Proxies in Understanding Impacts of Climatic Changes (Posters) (GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 285-1 409 McCarthy, Paul*; Fiorillo, Anthony R.; Kobayashi, Yoshitsugu; Tanaka, Tomonori; Tomsich, Carla S.; Flaig, Peter P.; Salazar Jaramillo, Susana: **A LATE CRETACEOUS HIGH-LATITUDE PALEOENVIRONMENTAL AND PALEOECOLOGICAL TRANSECT ACROSS GREENHOUSE ALASKA: A COMPARISON OF THE CHIGNIK, LOWER CANTWELL, AND PRINCE CREEK FORMATIONS, ALASKA, USA**
- 285-2 410 Kielhofer, Jennifer*; Tierney, Jessica; Holmes, Charles; Potter, Ben A.; Esdale, Julie; Lanoe, Francois; Bigelow, Nancy H.; Reuther, Joshua D.; Wooller, Matthew: **AN ORGANIC GEOCHEMISTRY PERSPECTIVE ON DEGLACIAL PALEOCLIMATE VARIABILITY IN CENTRAL ALASKA**
- 285-3 411 Tanner, Lawrence H.*; Lucas, Spencer G.: **PALEOSOLS OF THE UPPER CARBONIFEROUS-LOWER PERMIAN CUTLER GROUP, NORTHERN NEW MEXICO: PALEOCLIMATIC INTERPRETATION**
- 285-4 412 Andrzejewski, Kate*; Tabor, Neil J.: **PALEOENVIRONMENTAL RECONSTRUCTION OF CRETACEOUS TERRESTRIAL FORMATIONS OF TEXAS AND OKLAHOMA USING PEDOGENIC MINERALS**
- 285-5 413 Fox, Mathew L.*: **HOMININ PALEOENVIRONMENTS AND EAST ASIAN MONSOONAL VARIABILITY IN THE QINLING MOUNTAIN REGION OF CENTRAL CHINA: EXAMINING THE ORGANIC GEOCHEMISTRY AND GRAIN SIZE DISTRIBUTIONS OF MID-PLEISTOCENE PALEOLITHIC LOESS-PALEOSOL SEQUENCES**
- 285-6 414 Elliott, McKenzie*; Strozyk, Sarah; Bader, Nicholas E.: **FACTORS INFLUENCING MAGNETIC SUSCEPTIBILITY IN THE PALOUSE LOESS**
- 285-7 415 McGuire, Casey*; Schmidt, Amanda H.; Keen-Zebert, Amanda; Collins, Brian D.; D'Alpoim Guedes, Jade: **TIMING AND PROVENANCE OF LOESS IN JUZHAIYOU, CHINA**

SESSION NO. 286

T170. Rock Transforming to Soil—The Weathering Engine Intersects with the Carbon Cycle (Posters) (GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Geobiology & Geomicrobiology Division; Paleoclimatology/Paleoceanography)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

SESSION NO. 287

T208. Best Student Geologic Map Competition (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 287-1 419 Casady, Sommer M.*; Aird, Hannah; Guglielmo, Andrew: **EXPLORATION OF A HIGH-SULFIDATION EPITHERMAL DEPOSIT WITHIN THE ANTELOPE VALLEY VOLCANIC CENTER, SIERRA COUNTY CALIFORNIA**
- 287-2 420 Mauch, James*; Pederson, Joel L.: **MAPPING OF MOAB AND SPANISH VALLEYS TO EXPLORE SUBSIDENCE PATTERNS IN A QUATERNARY SALT GRABEN**
- 287-3 421 Kelkar, Kaytan*; Giardino, John R.: **SURFICIAL LANDFORMS AND GEOMORPHOLOGY OF THE WESTERN SAN JUAN MOUNTAINS, COLORADO**
- 287-4 422 Nicovich, Sylvia Rose*; Schmitt, James G.: **GEOLOGIC MAP OF ALLUVIAL FANS ALONG THE ZAPATA AND BLANCA SECTIONS OF THE NORTHERN SANGRE DE CRISTO RANGE-FRONT FAULT SYSTEM, SOUTH-CENTRAL COLORADO**
- 287-5 423 Gregorich, Holly*; Malone, David; Shields, William: **SURFICIAL GEOLOGIC MAP OF THE PONTIAC NORTHWEST QUADRANGLE, LIVINGSTON COUNTY, IL**
- 287-6 424 Sellers, Victoria*; Brame, Scott; Castle, James W.: **GEOLOGIC MAP OF THE NORTHERN THIRD OF THE SIX MILE 7.5' QUADRANGLE, PICKENS COUNTY, SOUTH CAROLINA**
- 287-7 425 Strickland, Evan D.*; Singleton, John S.; Griffin, Andrew T.B.: **DETAILED GEOLOGIC MAPPING OF MYLONITIC UNITS IN THE FOOTWALL OF THE PLOMOSA DETACHMENT FAULT, WEST-CENTRAL ARIZONA**
- 287-8 426 Brown, Mark Byron*; Nandi, Sourav Krishna; Spurgeon, Derek L.; Gerik, Ashley; Breeding, Dalton R.; McKay, Matthew P.: **GEOLOGIC MAP OF THE POLLOCK MOUNTAIN 7.5-MINUTE QUADRANGLE, WEST-CENTRAL IDAHO**
- 287-9 427 Severson, Allison R.*; Kuiper, Yvette D.; Buchanan, J. Wes: **STRUCTURAL MAP ACROSS THE NASHOBA TERRANE, EASTERN MASSACHUSETTS, SCALE 1:300,000**
- 287-10 428 Sharp, Emily*; Tate, Garrett W.; Richardson, Andrea E.: **GEOLOGIC MAP OF FORELAND-DIPPING DUPLEX STRUCTURES IN THE SOUTHWESTERN MOUNTAIN CITY WINDOW, CHESTOA QUADRANGLE, TENNESSEE APPALACHIANS**
- 287-11 429 Deck, Eric A.*; Malone, David; Shields, William: **SURFICIAL GEOLOGIC MAP OF THE PONTIAC NORTHEAST 7.5 MINUTE QUADRANGLE IN LIVINGSTON COUNTY, IL, SCALE 1:24,000**
- 287-12 430 Mahatma, Asha*; Powell, Logan; Kuiper, Yvette; Ruleman, Cal: **GEOLOGY OF THE SOUTHERN HALF OF THE MOUNT EVANS 7.5 MINUTE QUADRANGLE, CENTRAL COLORADO FRONT RANGE**
- 287-13 431 Chesnutt, Julian M.*; Pawl, Timothy A.; Wegmann, Karl W.; Cole, Rex D.; Byrne, Paul K.; White, Jonathan L.: **SURFICIAL, BEDROCK AND GEOHAZARD MAP OF THE MESA LAKES QUADRANGLE, GRAND MESA COLORADO**

- 287-14 432 Christ, Andrew J.*; Marchant, David R.: **GLACIAL GEOMORPHOLOGIC MAP OF MCMURDO SOUND, ANTARCTICA (78°S): A TERRESTRIAL RECORD OF LATE PLEISTOCENE GLACIATIONS IN THE ROSS SEA WITH IMPLICATIONS FOR FORMER ICE SHEET VOLUME AND CONTRIBUTION TO DEGLACIAL SEA LEVEL RISE**
- 287-15 433 Whitmore, John P.*; Steltenpohl, Mark G.: **GEOLOGIC MAP OF THE 7.5 MINUTE MILLTOWN, ALABAMA, QUADRANGLE**
- 287-16 434 Donohue, Mary K.*; Bailey, Christopher M.; Sauter, Zack: **BEDROCK AND SURFICIAL GEOLOGY OF THE JAMES RIVER VALLEY IN THE WESTERN PIEDMONT, VIRGINIA**
- 287-17 435 VanderMeer, Sarah M.*: **SURFICIAL GEOLOGY OF PICTURED ROCKS NATIONAL LAKESHORE, MICHIGAN – INDIAN TOWN, MELSTRAND, WOOD ISLAND SE, GRAND PORTAL POINT, TRAPPERS LAKE, AU SABLE POINT SW, AU SABLE POINT SE, AU SABLE POINT, GRAND SABLE LAKE, AND GRAND MARAIS 7.5 MINUTE QUADRANGLES**
- 287-18 436 Waldien, Trevor S.*; Roeske, Sarah M.: **GEOLOGIC MAP OF BROXSON GULCH, EASTERN ALASKA RANGE, ALASKA**
- 287-19 437 Olivares Hirmas, María Francisca*: **TECTONIC EVOLUTION AND GEOLOGICAL HISTORY OF THE COLINA AND VOLCÁN RIVER VALLEYS IN THE HIGH ANDES OF SANTIAGO, CHILE**
- 287-20 438 Quinn, Daven P.*; Grotzinger, John P.; Present, Theodore M.: **STRUCTURAL MAP OF THE SOUTHERN NAUKLUFT MOUNTAINS, NAMIBIA**

SESSION NO. 288

T209. Challenges in Tectonics: Fault Zone Behavior through Time, from Earth's Surface to the Upper Mantle (Posters) (GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 288-1 439 Gray, Brian*; Page, William D.; Unruh, Jeffery R.; Baldwin, John: **A REGIONAL KINEMATIC MODEL FOR HAT CREEK GRABEN, SHASTA COUNTY, CALIFORNIA; EVIDENCE FOR NORTHWARD PROPAGATION OF THE NORTHERN WALKER LANE**
- 288-2 440 Lindquist, Peter*; French, Melodie; Titus, Sarah: **EXPERIMENTALLY PRODUCED DEFORMATION BANDS IN ETCHEGOIN SANDSTONE: IMPLICATIONS FOR INFERRING STRESS DIRECTIONS IN CENTRAL CALIFORNIA**
- 288-3 441 Williams, Randolph T.*; Goodwin, Laurel B.: **A NEW APPROACH TO STATISTICAL ANALYSIS OF PALEOSEISMIC DATA CONFIRMS THE FUNDAMENTAL PERIODICITY OF MOST LARGE EARTHQUAKES**
- 288-4 442 Sare, Robert M.*; Hilley, George E.: **ESTIMATING FAULT ZONE MATURITY AT THE PLATE BOUNDARY SCALE USING TEMPLATE MATCHING FOR FAULT SCARP DETECTION AND MORPHOLOGIC DATING**
- 288-5 443 Song, Won Joon*; Johnson, Scott E.; Gerbi, Christopher C.: **BRITTLE CO-SEISMIC DEFORMATION OF QUARTZ: LOCALIZATION NEAR THE BASE OF THE SEISMOGENIC ZONE**
- 288-6 444 Caine, Jonathan Saul*; Todd, Erin; Lease, Richard O.; Jones, James V.: **TRANSPRESSION AND TRANSTENSION ALONG THE LAKE CLARK FAULT IN SOUTH-CENTRAL ALASKA: NEW VIEWS ON ITS FORMATION, CHARACTERISTICS, DAMAGE, KINEMATICS, EXHUMATION, AND EVOLUTION**
- 288-7 445 Randolph-Flagg, Jeremy*; Reber, Jacqueline E.: **EXPERIMENTAL ANALYSIS OF THE EFFECT OF GRAIN SIZE DISTRIBUTION ON STICK-SLIP AND CREEP BEHAVIOR**
- 288-8 446 Zuza, Andrew V.*; Carlson, Chad W.; Levy, Drew A.: **WHAT CAN STRIKE-SLIP FAULT SPACING TELL US ABOUT THE EVOLUTION OF THE WALKER LANE AND WESTERN NORTH AMERICA?**
- 288-9 447 Bacon, Alex T.*; Davis, Joshua R.; Titus, Sarah: **USING MAXIMUM-LIKELIHOOD ESTIMATES AND BAYESIAN STATISTICS TO STUDY SHEAR ZONES AND RIDGE-TRANSFORM SYSTEMS**
- 288-10 448 Phillips, Joseph*; Toke, Nathan A.; Langevin, Christopher; Kleber, Emily; DuRoss, Christopher B.; Hiscock, Adam; McDonald, Greg N.; Wells, Jack; Horns, Daniel; Carlson, Joseph K.: **THE TRAVERSE RIDGE SITE, WASATCH FAULT, UTAH: AN EXAMPLE OF CHALLENGES IN INTERPRETING EARTHQUAKE RECORDS AT SEGMENT BOUNDARIES**
- 288-11 449 Mookerjee, Matty; Bruvry, Andre*: **EXHUMATION OF THE BITTERROOT LOBE DETACHMENT, NORTH AMERICAN CORDILLERA: A THREE-DIMENSIONAL STRAIN AND KINEMATIC VORTICITY ANALYSIS**
- 288-12 450 Long, Sean P.*; Gordon, Stacia; Young, John P.; Soignard, Emmanuel: **TEMPERATURE AND STRAIN GRADIENTS ACROSS THE MAIN CENTRAL THRUST IN SOUTH-CENTRAL BHUTAN: IMPLICATIONS FOR THE ORIGIN OF INVERTED METAMORPHISM AND THE CONTRIBUTION OF TRANSPORT-PARALLEL STRETCHING TO CUMULATIVE MASS TRANSFER**
- 288-13 451 Nachbor, Amelia C.*; Wetmore, Paul: **PRELIMINARY STRUCTURE FROM MOTION DATA FOR THE TOWNE PASS FAULT, NORTHERN DEATH VALLEY NATIONAL PARK, CALIFORNIA**
- 288-14 452 Nymberg, David*; Gomez, Francisco; Cochran, William J.; Sandvol, Eric: **RELATING NEOTECTONIC INDICATORS TO SUBSURFACE STRUCTURAL GEOMETRIES IN THE NOBLE HILLS FLOWER STRUCTURE ALONG THE SOUTHERN DEATH VALLEY FAULT ZONE (CALIFORNIA)**
- 288-15 453 Gavillot, Yann*; Meigs, Andrew; Rittenour, Tammy M.; Sousa, Frank J.; Stockli, Daniel F.; Yule, Doug; Malik, M.: **LINKING BEDROCK EXHUMATION, FLUVIAL TERRACES, AND GEOMORPHIC INDICES TO CONSTRAIN DEFORMATION RATES AT MULTIPLE TIMESCALES ACROSS THE HIMALAYAN DEFORMATION FRONT IN THE KASHMIR HIMALAYA, NORTHWEST INDIA**
- 288-16 454 Pianowski, Laura S.*; Vervoort, Jeff D.; Long, Sean P.; Gordon, Stacia M.: **TIMING OF METAMORPHISM IN THE MAIN CENTRAL THRUST ZONE IN SOUTH-CENTRAL BHUTAN: INSIGHTS FROM PRELIMINARY GARNET AND MONAZITE GEOCHRONOLOGY**
- 288-17 455 Swiatlowski, Jerlyn L.*; Moore, Diane E.; Lockner, David A.: **THE INFLUENCE OF METASOMATIC ALTERATION ON THE FRICTIONAL PROPERTIES OF SERPENTINITE-BEARING GOUGE IN THE BARTLETT SPRINGS FAULT, NORTHERN CALIFORNIA**
- 288-18 456 Anson, Marta*; Kodama, Kenneth; Pueyo, Emilio; Soto, Ruth; Garcia-Senz, Jesus; Escuder, Javier; Pastor-Galán, Daniel: **PALEOMAGNETIC EVIDENCE OF VERTICAL AXIS ROTATIONS IN A LEFT-LATERAL STRIKE-SLIP SHEAR ZONE: NORTHEASTERN DOMINICAN REPUBLIC**

SESSION NO. 289

T211. Folds: Causes and Consequences (Posters) (GSA Structural Geology and Tectonics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 289-1 457 Greshin, Paul S.*; Davidson, Jonathan: **STYLES OF STRUCTURAL DEFORMATION ACROSS CASTLE HILL BASIN, NEW ZEALAND**
- 289-2 458 Welker, Avery Joseph*; Eckert, Andreas; Hogan, John P.: **INTERPRETATION OF PERICLINES USING 2D OBSERVATION METHODS**
- 289-3 459 Gaschot, Bertrand*: **AIRBORNE LIDAR-BASED 3D STRUCTURAL MODELING OF COVER DEFORMATION WITHIN THE CENTRAL APPALACHIAN VALLEY AND RIDGE PROVINCE**

TUESDAY

POSTERS

- 289-4 460 Adams, James M.*; McLaurin, Brett T.; Whisner, S. Christopher: **VARIABILITY IN DEFORMATIONAL STYLE OF APPALACHIAN PLATEAU FOLDS, SULLIVAN COUNTY, PENNSYLVANIA**
- 289-5 461 Wu, Yuxing*; Liu, Xiaolong; Eckert, Andreas: **NUMERICAL SIMULATION OF CHEVRON FOLDS IN MULTILAYERS**
- 289-6 462 Liu, Xiaolong*; Eckert, Andreas: **VISCO-ELASTIC PARASITIC FOLDING: INFLUENCES ON THE RESULTING VOLUMETRIC STRAIN DISTRIBUTION**
- 289-7 463 Gray, Mary Beth*; Weil, Arlo Brandon; Cush, Kylie; Whitty, Helen; Finley, Benjamin; Reach, Ali: **FOLD-RELATED FAULTING AT THE BEAR VALLEY STRIP MINE, PA**
- 289-8 464 Chandonia, William*; Hogan, John P.; Eckert, Andreas; Anglim, Trey: **RAMP FORMATION AND FAULT BREAKTHROUGH OF THE KANARRA FOLD SYSTEM, SEVIER THRUST BELT, SW UTAH**
- 289-9 465 Petrie, Elizabeth S.*; Sundal, Anja; Gutierrez, Marte; Braathen, Alvar: **KINEMATICS OF DEFORMATION BAND FORMATION AND REACTIVATION ASSOCIATED WITH A LARAMIDE FAULT PROPAGATION FOLD**
- 289-10 466 Hughes, Amanda*: **EVALUATING THE RELATIVE CONTRIBUTIONS OF MECHANICAL AND SURFACE CONDITIONS ON THE DEVELOPMENT OF SHORTENING STRUCTURES**
- 289-11 467 McDaniel, Matthew Scott*; Horsman, Eric: **CHARACTERIZATION AND DEVELOPMENT OF FRACTURE PATTERNS FORMED IN DOMED MASSIVE SANDSTONE, HENRY MOUNTAINS, UTAH**
- 289-12 468 LeFavor, Damien*; Gray, Keith D.; Pollock, Stephen G.: **MESOSCOPIC STRUCTURE OF THE MIXER POND GNEISS, SOUTH-CENTRAL MAINE**
- 289-13 469 Price, Thomas*; Taylor, Wanda J.: **MIOCENE-PLIOCENE(?) FOLDS AND THE LEFT-LATERAL BUCKHORN FAULT WITH REGIONAL IMPLICATIONS, PAHRANAGAT SHEAR ZONE, NEVADA**
- 289-14 470 Rybak-Ostrowska, Barbara; Haluch, Anna*; Konon, Andrzej; Wyglądala, Michał: **DEVELOPMENT OF FRACTURES WITHIN THE LOWER PALEOZOIC SHALE FORMATIONS FROM THE NORTHERN PART OF THE CALEDONIAN FORELAND BASIN (POLAND)**
- 289-15 471 Konon, Andrzej; Wyglądala, Michał*; Rybak-Ostrowska, Barbara; Haluch, Anna: **LATE SILURIAN/EARLY DEVONIAN GENTLE TECTONIC DEFORMATION IN THE CALEDONIAN FORELAND BASIN (EAST EUROPEAN CRATON, NORTHERN POLAND)**

SESSION NO. 290 \$

T213. Integrated Approaches to Deciphering Major Crustal Boundaries in Polyphase Orogenic Settings (Posters) (GSA Structural Geology and Tectonics Division; Society of Economic Geologists; GSA Geophysics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 290-1 472 Johnson, Simon P.*; Tyler, Ian M.; Dentith, Michael C.; Kennett, Brian; Yuan, Huaiyu; Fielding, Imogen O.H.; Korhonen, Fawna J.; Piña-Varas, Perla; Gessner, Klaus; Korsch, Russell J.; Murdie, Ruth E.; Blewett, Richard S.; Heinson, Graham; Rasmussen, Birger; Hough, Rob M.: **LINKING DEEP CRUSTAL ARCHITECTURE TO MINERAL SYSTEMS**
- 290-2 473 Fielding, Imogen O.H.*; Johnson, Simon P.; Zi, Jian-wei; Sheppard, Stephen; Rasmussen, Birger: **LINKING GOLD MINERALIZATION TO TECTONOTHERMAL EVENTS USING IN SITU XENOTIME U-PB GEOCHRONOLOGY**
- 290-3 474 Romero, Mariah C.*; Ridgway, Kenneth D.: **U-PB ANALYSIS OF DETRITAL ZIRCONS FROM MESOZOIC STRATA IN THE NORTHERN TALKEETNA MOUNTAINS, SOUTH-CENTRAL ALASKA**
- 290-4 475 Melosh, Benjamin L.*; McLaughlin, Robert J.: **POLYPHASE STRUCTURAL EVOLUTION ALONG THE SOUTHERN**

CONTINUATION OF THE TEHAMA-COLUSA MÉLANGE, NORTHERN CALIFORNIA COAST RANGES

- 290-5 476 Młynarska, Maria*; Mazur, Stanisław; Majka, Jarosław: **USING GEOCHEMICAL SIGNATURES IN SEARCH FOR RELICS OF PRE-VARISCAN OCEANIC CRUST: THE LESZCZYŃCIEC UNIT, NORTHERN BOHEMIAN MASSIF, POLAND**
- 290-6 477 Easton, R. Michael*: **IMPROVED UNDERSTANDING OF THE TECTONIC ARCHITECTURE AND RELATED MINERALIZATION ALONG THE CIRCA 1162 MA COMPOSITE ARC BELT-FRONTENAC ARC BELT BOUNDARY, GRENVILLE OROGEN, ONTARIO, CANADA**
- 290-7 478 Drenth, Benjamin J.*; Jones, James V.; Emond, Abraham; Kreiner, Douglas C.: **A PRELIMINARY AEROMAGNETIC VIEW OF THE PORCUPINE RIVER REGION, NORTHEASTERN ALASKA**

SESSION NO. 291 \$

T218. Understanding the Interplay of Structural, Metamorphic, and Magmatic Processes in the Evolution of Convergent Margins: Lessons from the Proterozoic to Present-Day South American Andean Margin (Posters) (GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA International/International Interdisciplinary Interest Group)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 291-1 479 Jiménez, Giovanni*; García, Helbert; Cardona, Agustín; García, Lorena: **PRELIMINARY RESULTS ON MAGNETIC PROPERTIES OF THE GIRON GROUP COLOMBIA. IMPLICATIONS IN STRATIGRAPHY AND TECTONICS IN THE NW MARGIN OF SOUTH AMERICA**
- 291-2 480 Weil, Arlo Brandon; Yonkee, Adolph; Whitty, Helen*: **REGIONAL PATTERNS TO LOCAL VARIATIONS IN PALEO-STRESS/ STRAINS AND VERTICAL-AXIS ROTATIONS ACROSS PART OF THE ARGENTINIAN ANDES: DECIPHERING CONTRIBUTIONS FROM PLATE-MARGIN PROCESSES TO CRUSTAL ARCHITECTURE**
- 291-3 481 Ruthven, Rachel C.*; Singleton, John S.; Seymour, Nikki M.; Magloughlin, Jerry F.; Gomila, Rodrigo; Stockli, Daniel F.; Arancibia, Gloria: **NEW CONSTRAINTS ON THE GEOMETRY, KINEMATICS, AND TIMING OF DEFORMATION ALONG THE SOUTHERN SEGMENT OF THE PAPOSO FAULT ZONE, ATACAMA FAULT SYSTEM, NORTHERN CHILE**
- 291-4 482 Seymour, Nikki M.*; Singleton, John S.; Gomila, Rodrigo; Heuser, Gert; Strickland, Evan D.; Ruthven, Rachel C.; Stockli, Daniel F.; Arancibia, Gloria: **MAGNITUDE AND TIMING OF EARLY CRETACEOUS SLIP ALONG THE ATACAMA FAULT SYSTEM, NORTHERN CHILE**
- 291-5 483 Calle, Amanda Z.*; Horton, Brian K.; García-Duarte, Raúl; Flaig, Peter P.: **NEOPROTEROZOIC-PALEOZOIC TECTONICS AND PALEOGEOGRAPHY OF THE WEST-CENTRAL SOUTH AMERICA CONVERGENT MARGIN FROM DETRITAL ZIRCON GEOCHRONOLOGY**
- 291-6 484 McClelland, William C.*; Mulcahy, Sean R.; Roeske, Sarah M.; Webber, Patricia; Tholt, Andrew; Houlihan, Emily: **DETRITAL ZIRCON CHARACTERIZATION OF METASEDIMENTARY UNITS OF SIERRA DE MAZ, WESTERN SIERRAS PAMPEANAS, ARGENTINA**
- 291-7 485 Tholt, Andrew*; Webber, Patricia; Houlihan, Emily; Mulcahy, Sean R.; McClelland, William C.; Roeske, Sarah M.; Vervoort, Jeff D.; Wilford, Diane: **METAMORPHIC EVOLUTION OF THE SIERRA DE MAZ: IMPLICATIONS FOR THE TIMING OF TERRANE ACCRETION ON THE WESTERN MARGIN OF GONDWANA**
- 291-8 486 Houlihan, Emily*; Tholt, Andrew; Webber, Patricia; Roeske, Sarah M.; Mulcahy, Sean R.; McClelland, William C.; Rutte, Daniel: **⁴⁰AR/³⁹AR GEOCHRONOLOGY AND KINEMATIC ANALYSIS OF SIERRA DE MAZ: IMPLICATIONS FOR TIMING**

AND ORIENTATION OF DEFORMATION ON THE PALEOZOIC MARGIN OF WESTERN GONDWANA

- 291-9 487 Cawood, Tarryn Kim*; Paterson, Scott; Ratschbacher, Barbara C.; Lusk, Alexander Dmitri Johnston; Larrovere, Mariano A.; Alasino, Pablo; Rick, Christopher Benton; Memeti, Valbone: **STRAIN (DE)-LOCALIZATION IN THE ~10KM WIDE CUESTA DE RANDOLFO MYLONITE ZONE, FAMATINIAN ARC**
- 291-10 488 Lusk, Alexander Dmitri Johnston*; Paterson, Scott R.; Ratschbacher, Barbara C.; Larrovere, Mariano; Alasino, Pablo; Memeti, Valbone; Cawood, Tarryn Kim; Hernandez, Robert: **DEFORMATION OF THE UPPERMOST FAMATINIAN OROGEN: MAPPING AND STRUCTURAL ANALYSIS FROM THE SIERRA DE NARVÁEZ AND SIERRA DE LAS PLANCHADAS, NW ARGENTINA**
- 291-11 489 Alasino, Pablo H.*; Memeti, Vali; Ratschbacher, Barbara C.; Larrovere, Mariano; Paterson, Scott R.; Lusk, Alexander; Cawood, Tarryn: **GEOCHEMICAL ARCHITECTURE AND EVOLUTION OF THE FAMATINIAN MAGMATIC ARC CRUSTAL SECTION IN THE NW ARGENTINA**
- 291-12 490 Memeti, Vali*; Paterson, Scott R.; Ratschbacher, Barbara C.; Alasino, Pablo H.; Larrovere, Mariano A.; Ardill, Katie E.; Cawood, Tarryn Kim; Lusk, Alexander Dmitri Johnston; Insixiengmay, Leslie: **IGNEOUS ARCHITECTURE AT THE TOP OF THE FAMATINIAN ARC, NW ARGENTINA**

SESSION NO. 292

D43. Tectonics I (Posters): Advances in Tectonics from Mineralogy and Geochronology

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 292-1 491 Zalud, Kristy M.*; MacDonald, James H.: **GEOCHEMISTRY OF RELIC SPINEL AND SILICATE MINERALS FROM SERPENTINITE OF THE INGALLS OPHIOLITE COMPLEX, CENTRAL CASCADES, WASHINGTON**
- 292-2 492 Graham, Kathleen A.*; Bidgoli, Tandis S.; Walker, J. Douglas; Möller, Andreas: **TIMING AND DRIVERS OF EXHUMATION IN THE HINTERLAND OF THE NORTH AMERICAN CORDILLERA FROM DETRITAL ZIRCON U-PB AND (U-TH)/HE DOUBLE-DATING**
- 292-3 493 White, Jennifer*; McMillan, Nancy J.; Henry, Darrell J.; Dutrow, Barbara L.: **TOURMALINE PROVENANCE DETERMINATION IN MODERN SANDS, BLACK HILLS, SOUTH DAKOTA: MULTIVARIATE ANALYSIS OF LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS) SPECTRA**
- 292-4 494 Callebert, William*; Housen, Bernard; Surpless, Kathleen: **ASSESSMENT OF INCLINATION SHALLOWING IN UPPER-CRETACEOUS TURBIDITES, OCHOCO BASIN, CENTRAL OREGON: IMPLICATIONS FOR CORDILLERAN TERRANE TRANSPORT**
- 292-5 495 Midttun, Nikolas C.*; Niemi, Nathan A.: **HOW DID MESOZOIC COMPRESSION INFLUENCE CENOZOIC EXTENSION IN THE EASTERN BASIN AND RANGE? A THERMOCHRONOMETRY STUDY OF THE HOUSE RANGE, UTAH**
- 292-6 496 Andrew, Joseph E.*: **LARGE-MAGNITUDE EXTENSION OF THE DEATH VALLEY DETACHMENT SYSTEM CONSTRAINED BY MIOCENE RAPAOKI GRANITE**
- 292-7 497 Greenawald, David*; Stewart, Kevin G.; Gaynor, Sean: **AMPHIBOLITE ZIRCON U-PB GEOCHRONOLOGY IN THE ASHE METAMORPHIC SUITE, EASTERN BLUE RIDGE, NORTH CAROLINA**
- 292-8 498 DeLuca, Michael J.*; Hemming, Sidney R.; Templeton, John A.; Anders, Mark H.; Christie-Blick, Nicholas: **CONSTRAINTS ON THE PROVENANCE OF THE OLD RED SANDSTONE (DEVONIAN) OF SCOTLAND FROM ⁴⁰AR/³⁹AR MUSCOVITE GEOCHRONOLOGY**
- 292-9 499 Wu, Weiwei*; Yang, Jingsui; Wirth, Richard; Dilek, Yildirim; Lian, Dongyang; Milushi, Ibrahim: **ORIGIN OF DIAMONDS IN**

SKENDERBEU MASSIF, MIRDITA OPHIOLITE, ALBANIA: IMPLICATIONS FROM ISOTOPES AND INCLUSION COMPOSITIONS

- 292-10 500 Flansburg, Megan E.*; Poulaki, Eirini M.; Stockli, Daniel F.; Soukis, Konstantinos: **THE CYCLADIC BASEMENT AND THE PRE-CENOZOIC TECTONIC HISTORY OF THE SOUTHERN CYCLADES, IOS ISLAND, GREECE**
- 292-11 501 Poulaki, Eirini M.*; Flansburg, Megan E.; Stockli, Daniel F.; Soukis, Konstantinos: **ZIRCON LA-SS-ICP-MS U-PB ANALYSIS OF THE PETROGENESIS, CHRONOSTRATIGRAPHY, AND PROVENANCE OF THE CYCLADIC BLUESCHIST UNIT AND BASEMENT IN THE SOUTHERN CYCLADES, SIKINOS AND IOS, GREECE**
- 292-12 502 Spencer, Christopher J.*; Cavosie, Aaron J.; Raub, Timothy D.; Rollinson, Hugh; Jeon, Heejin; Searle, Michael P.; Miller, Jodie A.; McDonald, Brad J.; Evans, Noreen J.; Edinburgh, Ion Microprobe Facility: **MELTING MUD IN THE MANTLE: EXTREME OXYGEN ISOTOPE SIGNATURES IN ZIRCON FROM SUB-MOHO GRANITIODS**
- 292-13 503 Gürsu, Semih*; Göncüoğlu, M. Cemal; Köksal, Serhat; Möller, Andreas: **FROM MAGMATIC ARC TO POST-COLLISIONAL BACK ARC SETTING IN THE TAURIDE-ANATOLIDE PLATFORM (TAP): OVERVIEW OF THE CADOMIAN BASEMENT ROCKS IN TURKEY**
- 292-14 504 Xie, Yanxue*; Dilek, Yildirim; Liu, Fei; Yang, Jingsui: **INTERNAL STRUCTURE AND GEOCHRONOLOGY OF THE ZHONGBA MICROCONTINENT OF THE WESTERN YARLUNG ZANGBO SUTURE ZONE, AND A 4.13 GA OLD DETRITAL ZIRCON IN TIBETAN PLATEAU**

SESSION NO. 293

D56. Tectonics II (Posters): Advances in Tectonics from Crust/Mantle Structure

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 293-1 505 Ogawa, Yujiro*; Dilek, Yildirim; Aung, Than Tin; Mori, Shin'ichi: **ACCRETIONARY PRISM FORMATION IN OBLIQUE SUBDUCTION ZONES: COMPARATIVE STUDY IN SPACE AND TIME**
- 293-2 506 Bernardino, Melissa; Jones, Craig H.*; Levandowski, Will: **FOUNDING OF HETEROGENEOUS MATERIAL, SIERRA NEVADA, CALIFORNIA**
- 293-3 507 Satterfield, Joseph I.*; Newton, Taylor S.; White, William J.: **RECENT MAPPING IN THE SOUTHERN STILLWATER RANGE AND NORTHERN SAND SPRINGS RANGE, NEVADA**
- 293-4 508 Mavec, Michael*; Gray, Keith D.; Schwartz, Darin: **INVENTORY OF STRUCTURES ACROSS A HIGH STRAIN ZONE IN WESTERN IDAHO**
- 293-5 509 Biddle, Julian*; Ricketts, Jason W.: **WHAT IS THE NATURE OF THE BOUNDARY SEPARATING THE RIO GRANDE RIFT AND BASIN AND RANGE PROVINCE IN SOUTHERN NEW MEXICO?**
- 293-6 510 VanDervoort, Dane S.*; Ma, Chong; Steltenpohl, Mark G.; Whitmore, John P.; Hawkins, John F.: **THE RELATIONSHIP BETWEEN THE TALLASSEE SYNFORM AND THE BREVARD ZONE AND ITS IMPLICATIONS FOR THE TECTONIC EVOLUTION OF THE SOUTHERNMOST APPALACHIANS**
- 293-7 511 Stevens, Andrew*; Tull, James F.: **RELATIONSHIP BETWEEN THE DADEVILLE COMPLEX AND OPELIKA GROUP, APPALACHIAN INNER PIEDMONT OF ALABAMA AND GEORGIA**
- 293-8 512 Abolins, Mark*; Levandowski, Will: **UPLIFT OF THE NASHVILLE DOME, CENTRAL TENNESSEE BY INVERSION OF THE PREVIOUSLY-UNDESCRIBED NASHVILLE RIFT**
- 293-9 513 Kasten, Samuel*; Hefferan, Kevin; Soulaïmani, Abderahmane: **ANTI-ATLAS MOROCCO GEOCHEMICAL AND FIELD DATA ANALYSIS INDICATE CADOMIAN SUBDUCTION &**

COLLISIONAL TECTONISM TO EDIACARAN-CAMBRIAN BOUNDARY

- 293-10 514 Naim, Fawz*; Mukherjee, Mrinal Kanti: **USE OF FAULT DISPLACEMENT VECTOR TO IDENTIFY FUTURE ZONES OF SEISMICITY: AN EXAMPLE FROM THE EARTHQUAKES OF NEPAL HIMALAYAS**
- 293-11 515 Wu, Bin*; Geng, Xiaojie: **THE CHARACTERISTIC OF ENERGY FIELD DURING THE KEY TECTONIC TRANSFORMATION PERIODS, TARIM BASIN**
- 293-12 516 Scott, Adrienne M.*; Meltzer, Anne S.; Stachnik, Josh: **CRUSTAL STRUCTURE OF KHÖVSGÖL, MONGOLIA**
- 293-13 517 Chang, Kyung Won*; Yoon, Hongkyu: **EFFECT OF THE FAULT ZONE ARCHITECTURE ON INJECTION-INDUCED SEISMICITY**
- 293-14 518 O'Neal, Donald W.*: **AEROSPACE STRUCTURAL ANALYSIS TO PREDICT EARTHQUAKES**

SESSION NO. 294

T231. Subduction Top to Bottom 2 (ST2B-2), Cascadia and Beyond (Posters) (GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 294-1 519 O'Connor, Adam Rhys*; Prytulak, Julie; Weis, Dominique; Martindale, Marina: **TRACING CONTRIBUTIONS TO CASCADE MAGMATISM WITH THALLIUM ISOTOPES**
- 294-2 520 Lally, Kevin Francis*: **SEISMIC STRUCTURE OF TANAGA ISLAND, ALASKA**
- 294-3 521 Scholl, David William*; Stern, Robert, J.; Barth, Ginger A.; Scheirer, Daniel S.; Malkowski, Matthew A.; Barron, John A.: **SCIENTIFIC OCEANIC DRILLING (IODP) TO TEST CONTRASTING HYPOTHESES FOR THE ORIGIN OF THE ALEUTIAN SUBDUCTION ZONE, ALEUTIAN ARC, AND BACKARC ALEUTIAN BASIN**
- 294-4 522 Wallace, Abraham W.*; Wirth, Erin; Eakin, Caroline; Ulberg, Carl; Creager, Kenneth C.; Abers, Geoff: **SHEAR WAVE SPLITTING OBSERVATIONS BENEATH MOUNT ST. HELENS VOLCANO, WASHINGTON**
- 294-5 523 Shaffer, Jamie*; Johnson, Emily R.; Ramos, Frank C.; Bindeman, Ilya N.; Cole, Meredith: **EVALUATING SUBDUCTION COMPONENT CONTRIBUTIONS TO THE SOUTHERN CASCADE ARC: INSIGHTS FROM GEOCHEMICAL ANALYSES OF MONOGENETIC VOLCANO MAFIC LAVAS AND GORDA PLATE SEDIMENTS**
- 294-6 524 Bourgeois, Joanne*; Pinegina, Tatiana: **1997 KRONOTSKY EARTHQUAKE AND TSUNAMI AND THEIR PREDECESSORS, KAMCHATKA, RUSSIA--LOCATIONS AND SEGMENTATION(S)**
- 294-7 525 Hu, Yan*; Teng, Fang-Zhen; Ionov, Dmitri A.: **PREDICTIVE MODELING OF MAGNESIUM ISOTOPIC VARIATION IN ARC LAVAS WITH HYDRATION STATE OF SUB-ARC MANTLE SOURCES**
- 294-8 526 Cranston, Adriana J.*; Caplan-Auerbach, Jackie; Chadwick, William W.; Dziak, Robert P.; Embley, Robert W.: **LONG-TERM HYDROACOUSTIC AND VIDEO INVESTIGATIONS OF SUBMARINE VOLCANIC ERUPTION DYNAMICS AT NW ROTA-1 AND WEST MATA**

WEDNESDAY, 25 OCTOBER 2017

MORNING ORAL TECHNICAL SESSIONS

SESSION NO. 295

D22. From Processes to Stratigraphy

8:00 AM, Washington State Convention Center, Ballroom 6C

Carl Drummond, Jonathan W. Peterson and Gabriel E. Gallegos, Presiding

- 295-1 8:00 AM Gallegos, Gabriel E.*; Miller, Kenneth G.; Browning, James V.; Monteverde, Donald H.; Mountain, Gregory S.: **LOWER MIOCENE (CA. 20-18 MA) NEW JERSEY SEQUENCE STRATIGRAPHY: ARCHITECTURE AND ONSHORE-OFFSHORE CORRELATIONS**
- 295-2 8:15 AM Cyples, Natasha*; Ielpi, Alessandro; Dirszowsky, Randy: **THE MODERN KICKING HORSE RIVER, BC; AN INTEGRATION OF GROUND-PENETRATING RADAR, REMOTE SENSING, AND GAUGING RECORD ANALYSIS**
- 295-3 8:30 AM Drummond, Carl*; Wilkinson, Bruce: **ANALYSIS OF WIND AND WAVE DATA FROM THE LIMITED-FETCH EPICONTINENTAL LACUSTRINE SETTING OF THE SOUTHERN LAKE MICHIGAN BASIN AS A POTENTIAL ANALOG FOR ANCIENT EPICONTINENTAL MARINE WAVE-DOMINATED REGIMES**
- 295-4 8:45 AM Stock, McKenzie L.; Peterson, Jonathan W.*: **DEVELOPING AN EMPIRICAL MODEL TO PREDICT THE SIZE OF VERY-FINE PARTICLES IN NATURAL WATER SUSPENSIONS VIA A LABORATORY SETTLING EXPERIMENT**
- 295-5 9:00 AM Whitmore, John H.*; Strom, Raymond: **ROUNDING OF K-FELDSPAR AND QUARTZ SAND GRAINS FROM BEACH TO DUNE ENVIRONMENTS: IMPLICATIONS FOR ANCIENT SANDSTONES**
- 295-6 9:15 AM Kettler, Richard M.*; Loope, David B.: **SIDERITE IS AN IDEAL PRECURSOR FOR LARGE ACCUMULATIONS OF IRON OXIDE CEMENT**
- 295-7 9:30 AM Munim, Mustuque A.*; Uddin, Ashraf; Holler, Robert; Jahan, Shakura; Hames, Willis E.: **SEDIMENTATION AND TECTONICS OF PLIOCENE-PLEISTOCENE HIMALAYAN CLASTIC WEDGES IN THE BENGAL BASIN**
- 295-8 9:45 AM Deighton, Jacob A.*; Bootes, Nathaniel R.; Formal, Casey L.; Forster, Dylan M.; Frommer, Greg T.; Hannon, Jeffrey S.; Huff, Warren D.; Rogaski, Alexander L.: **SIFTING THROUGH THE ASHES: USING K-BENTONITES TO REFINE THE MINERALOGICAL DATA FOR THE DOB'S LINN REGION**
- 10:00 AM **BREAK**
- 295-9 10:15 AM Valarezo, Mauricio*; Vallejo, Cristian; Horton, Brian K.; Winkler, Wilfried; Spikings, Richard; Esteban, José; Jackson, Lily J.: **SEDIMENTOLOGY AND PROVENANCE ANALYSIS OF THE ALAMOR LANCONES BASIN, SOUTHERN ECUADOR: A LATE CRETACEOUS PRE-ACCRETIONAL FOREARC BASIN**
- 295-10 10:30 AM Dong, HongKui*: **SEQUENCE STRATIGRAPHY PATTERNS IN DIFFERENT ACCOMMODATION SPACE TECTONIC ZONES-IMPLICATION FOR THE MID-LOWER JURASSIC IN TURPAN DEPRESSION**
- 295-11 10:45 AM Zhang, Jingjing*; Chen, Qinghua; Wang, Guanming; Sun, Ke: **THE EVALUATION AND PREDICTION OF CRETACEOUS SILICICLASTIC RESERVOIR IN WUSHI SAG, TARIM BASIN, WESTERN CHINA**
- 295-12 11:00 AM Azubuike-Ijomah, Kelechi*: **APPLICATION OF SEQUENCE STRATIGRAPHY IN RESERVOIR CHARACTERIZATION: A CASE STUDY OF EMI FIELD, COASTAL SWAMP DEPOBELT IN THE NIGER DELTA, NIGERIA**

- 295-13** 11:15 AM Haines, Forest*: **LATERAL EXTENT OF BURLINGTON KEOKUK AND WARSAW OF THE MISSISSIPPIAN STRATOTYPE AT GRAY QUARRY, ILLINOIS**
- 295-14** 11:30 AM Cvetko Tešović, Blanka*; Martinuš, Maja; Vlahović, Igor: **FACIES AND STRATIGRAPHY OF THE LATEST CRETACEOUS TO EARLIEST PALEOGENE PLATFORM CARBONATE SUCCESSION WITH CORAL PATCH REEFS: THE ISLAND OF BRAČ, CROATIA**

SESSION NO. 296

D34. Magma to Volcano

8:00 AM, The Conference Center, Skagit 4

Allen Schaen, M. Chris Jenkins, Arianna Soldati and Bryant Platt, Presiding

- 296-1** 8:00 AM Suikkanen, Einari*; Rämö, O. Tapani; Ahtola, Timo; Lintinen, Panu: **TEXTURAL AND GEOCHEMICAL EVOLUTION OF HIGH-TEMPERATURE EPISYENITES IN THE SUOMENNIEMI RPAKIVI GRANITE COMPLEX, SE FINLAND**
- 296-2** 8:15 AM Schaen, Allen*; Singer, Brad S.; Cottle, John M.; Garibaldi, Nicolas; Fournelle, John H.: **TEXTURAL AND MINERAL COMPOSITIONAL EVIDENCE OF SILICIC CUMULATE FORMATION VIA RHYOLITE MELT SEGREGATION**
- 296-3** 8:30 AM Holycross, Megan*; Villeneuve, Johan; Richter, Frank M.; Watson, E. Bruce: **DIFFUSIVE FRACTIONATION OF LI IN WET, HIGHLY SILICIC MELTS**
- 296-4** 8:45 AM Crabtree, Stephen*; Huber, Abigail; Beck, Karl: **THERMODYNAMIC ASSESSMENT OF BLUE ROCK SHIELD VOLCANO, JACKSON CO., OREGON: APPLICATION OF A NEW D_{Ni} (OLIVINE-MELT) GEOTHERMOMETER AND OTHER MODELS**
- 296-5** 9:00 AM Clay, John Mitchell*; Gorring, Matthew; Blacic, Tanya M.: **PETROGENESIS OF PLEISTO-HOLOCENE BASALTS FROM NEWBERRY VOLCANO, OREGON**
- 296-6** 9:15 AM Chadwick, John*: **COMPLEX MAGMATIC EVOLUTION OF THE 2.1 KYR BLUE DRAGON FLOW, CRATERS OF THE MOON NATIONAL MONUMENT, IDAHO**
- 296-7** 9:30 AM Jenkins, M. Chris*; Mungall, James E.: **POSSIBLE PARENT MAGMA AND ORIGIN OF LAYERING FOR THE PERIDOTITE ZONE, STILLWATER COMPLEX, MONTANA**
- 296-8** 9:45 AM Moore, Isabelle*; Feineman, Maureen: **RELATION BETWEEN THE MOLOPO FARMS AND BUSHVELD COMPLEXES: AN ANALYSIS OF PYROXENE EXSOLUTION LAMELLAE**
- 10:00 AM **BREAK**
- 296-9** 10:15 AM Donovan, John J.*: **IMPROVING PRECISION AND ACCURACY FOR TRACE ELEMENTS IN EPMA**
- 296-10** 10:30 AM Ackiss, Sheridan E.*; Horgan, Briony H.N.; Gudnason, J.; Thorsteinsson, Thorsteinn: **THE MINERALOGIC VARIABILITY OF ICELANDIC PALAGONITES: AN ANALOG STUDY FOR MARS**
- 296-11** 10:45 AM Soldati, Arianna*; Beem, Jordon; Gomez, Francisco; Huntley, John Warren; Robertson, Timothy; Whittington, Alan: **EMPLACEMENT DYNAMICS AND TIMESCALE OF A HOLOCENE FLOW FROM THE CIMA VOLCANIC FIELD (CA): INSIGHTS FROM RHEOLOGY AND MORPHOLOGY**
- 296-12** 11:00 AM Vargas Jimenez, Carlos Alberto; Garcia Giraldo, Maria Angelica*: **P AND S VELOCITY STRUCTURE IN THE NEVADO DEL HUILA VOLCANO (COLOMBIA)**
- 296-13** 11:15 AM Platt, Bryant*; Putirka, Keith: **DOES THE ARRIVAL OF MAFIC RECHARGE TRIGGER VOLCANIC ERUPTIONS? NEW INSIGHTS FROM FELDSPAR THERMOMETRY**
- 296-14** 11:30 AM Hampton, Rachel Lynn*: **THE MIDDLESEX FELS VOLCANIC COMPLEX: A REVISED TECTONIC MODEL BASED ON GEOCHRONOLOGY, GEOCHEMISTRY, AND FIELD DATA**

- 296-15** 11:45 AM Ferrusquia Villafranca, Ismael*; Torres-Hernández, José Ramón; Ruiz-González, José E.: **THE FIRST DOCUMENTED EOCENE VOLCANIC AVALANCHE (NDUAYACO V. A.) OF MEXICO, EVIDENCE OF PARTIAL COLLAPSE SECTOR OF A VOLCANO ADJACENT TO THE TAMAZULAPAM FAULT IN NORTHWESTERN OAXACA**

SESSION NO. 297

P6. Earth Anatomy Revealed: Geologic Mapping for Our Future (GSA Geology and Society Division; GSA Geology and Public Policy Committee; GSA Geoinformatics Division; Association of American State Geologists; American Geosciences Institute; American Institute of Professional Geologists; American Geophysical Union; U.S. Geological Survey)

8:00 AM, Washington State Convention Center, Ballroom 6A

Darcy K. McPhee, Cassandra A. Rose, L. Harvey Thorleifson and Danielle N. Woodring, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 8:01 AM **PANEL 1: WHAT IS THE ROLE OF GEOSCIENCE AS A WHOLE, OF THE SECTORS OF THE GEOSCIENCE COMMUNITY, AND OF GEOLOGICAL MAPPING IN RESPONDING TO THE NEEDS OF SOCIETY?**
- 297-1** 8:04 AM Anderson Book, Allyson*: **GEOSCIENCE AS THE BEDROCK FOR MODERN SOCIETY**
- 297-2** 8:14 AM Werkheiser, William*: **UNITED STATES GEOLOGICAL SURVEY: MAPPING THE FUTURE OF AMERICA**
- 297-3** 8:24 AM Masterman, Steven*: **THE STATE GEOLOGICAL SURVEY ROLE IN GEOLOGIC MAPPING NEEDED BY THE NATION**
- 297-4** 8:34 AM Johnson, Aaron W.*: **THE HISTORY, EVOLUTION, AND IMPORTANCE OF GEOLOGICAL MAPS**
- 8:44 AM **PANEL 1 DISCUSSION/TRANSITION**
- 9:00 AM **PANEL 2: HOW IS GEOLOGICAL MAPPING APPLIED IN ORDER TO DELIVER BENEFITS TO SOCIETY?**
- 297-5** 9:04 AM San Juan, Carma A.*; Horton, John D.: **GEOLOGIC MAPPING AND SOCIETY; A FEDERAL PERSPECTIVE**
- 297-6** 9:14 AM Henthorne, Bob*: **MULTI-DISCIPLINARY UTILIZATION OF GEOLOGIC MAPS PRODUCED BY THE STATEMAP**
- 297-7** 9:24 AM Singha, Kamini*: **HOW DO WE ESTIMATE HYDROGEOLOGIC PROCESSES GIVEN MAPS OF SUBSURFACE GEOLOGIC PROPERTIES?**
- 297-8** 9:34 AM Rubin, Jeffrey*: **APPLYING GEOLOGIC MAPPING TO NATURAL-HAZARD PREPAREDNESS IN THE PACIFIC NORTHWEST**
- 9:44 AM **PANEL 2 DISCUSSION/TRANSITION**
- 10:00 AM **PANEL 3: HOW ARE NEW PERSPECTIVES AND NEW TECHNOLOGY IMPROVING OUR ABILITY TO DELIVER BENEFITS TO SOCIETY?**
- 297-9** 10:04 AM House, P. Kyle*: **ACCOMMODATING INNOVATION AND RENOVATION IN GEOLOGIC MAPPING FOR OUR FUTURE: WHAT ARE WE WAITING FOR?**
- 297-10** 10:14 AM Minsley, Burke*: **SUBSURFACE MAPPING AT SOCIETALLY RELEVANT SCALES: AIRBORNE ELECTROMAGNETIC IMAGING**
- 297-11** 10:24 AM Peters, Shanan E.*; Czaplowski, John: **MACROSTRAT: AN INTEGRATIVE ENVIRONMENT FOR LEVERAGING GEOLOGICAL MAPS AND LINKED DATA RESOURCES**
- 297-12** 10:34 AM Myrbo, Amy*; Loeffler, Shane; McEwan, Reed: **FLYOVER COUNTRY USES A WEALTH OF GEOINFORMATICS RESOURCES TO PUT GEOSCIENCE DATA IN THE PALM OF YOUR HAND**
- 10:44 AM **PANEL 3 DISCUSSION/TRANSITION**

AM
WEDNESDAY

- 11:00 AM **PANEL 4: HOW ARE WE ORGANIZED TO ENSURE THAT GEOLOGICAL MAPPING WILL BRING THE GREATEST BENEFITS TO SOCIETY IN THE FUTURE?**
- 297-13 11:04 AM Eide, Elizabeth*: **MAKING THE MOST OF 21ST CENTURY GEOLOGIC MAPS**
- 297-14 11:14 AM White, Kasey S.*; McConnell, Vicki: **GEOLOGICAL MAPPING: VITAL INFORMATION FOR NATIONAL DECISIONS**
- 297-15 11:24 AM Brock, John C.*: **A NEW DECADAL STRATEGY FOR THE FUTURE OF GEOLOGIC MAPPING IN THE U.S**
- 297-16 11:34 AM Andrews, William*: **ARE WE ORGANIZED FOR BRINGING MAXIMUM MAPPING BENEFITS TO SOCIETY? A STATE GEOLOGICAL SURVEY PRACTITIONER PERSPECTIVE**
- 11:44 AM **PANEL 4 DISCUSSION/TRANSITION**
- 11:59 AM **CONCLUDING REMARKS**

SESSION NO. 298 

T9. Groundwater Flow in Coastal and Marine Settings: From the Intertidal Zone to the Deep Seafloor (GSA Hydrogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geobiology & Geomicrobiology Division; GSA Environmental and Engineering Geology Division)

8:00 AM, Washington State Convention Center, Room 615/616/617

Alicia Wilson and Evan Solomon, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 298-1 8:05 AM Michael, Holly A.*; Duque, Carlos; Geng, Xiaolong; Guimond, Julia; Heiss, James W.; Kim, Kyra H.; Koneshloo, Mohammad; Kreyens, Pieter; Russoniello, Christopher J.; Scott, Kaileigh; Yu, Xuan: **SUBMARINE GROUNDWATER DISCHARGE ACROSS SCALES FROM MARSH TO SHELF (Invited Presentation)**
- 298-2 8:25 AM Russoniello, Christopher J.*; Michael, Holly A.: **SPATIAL AND TEMPORAL VARIABILITY OF GLOBAL WAVE PUMPING**
- 298-3 8:40 AM Kim, Kyra H.*; Michael, Holly A.; Cai, Wei-Jun; Ullman, William: **DYNAMIC MIGRATION OF BIOGEOCHEMICAL REACTION ZONES IN AN INTERTIDAL BEACH AQUIFER**
- 298-4 8:55 AM Ramanathan, A.L.*; Chidambaram, S.; Napoleon, S.; Thivya, S.; Prasanna, M.V.: **IDENTIFICATION AND ESTIMATION OF THE SUBSURFACE GROUNDWATER DISCHARGE INTO THE SOUTH EAST COASTAL WATERS OF INDIA**
- 298-5 9:10 AM Kiro, Yael*; Michael, Holly A.; Duque, Carlos; Yechieli, Yoseph: **IDENTIFYING LONG-TERM SEAWATER CIRCULATION IN COASTAL AQUIFERS AND ITS POTENTIAL ROLE IN OCEAN CHEMISTRY**
- 298-6 9:25 AM Gustafson, Chloe; Key, Kerry*; Evans, Rob L.: **A PILOT ELECTROMAGNETIC SURVEY OF GROUNDWATER BENEATH THE US ATLANTIC CONTINENTAL SHELF (Invited Presentation)**
- 9:45 AM **BREAK**
- 298-7 10:00 AM Kurylyk, Barret L.*; Mohammed, Aaron A.; Irvine, Dylan J.; Bense, Victor F.: **RETHINKING THE USE OF OCEAN SEDIMENT TEMPERATURE-DEPTH PROFILES TO INFER SUBMARINE GROUNDWATER DISCHARGE**
- 298-8 10:15 AM George, Camaron M.*; Wilson, Alicia; Moore, Willard; White, Scott; Smoak, Erin: **SUBMARINE GROUNDWATER DISCHARGE TO THE CONTINENTAL SHELF IN THE SOUTH ATLANTIC BIGHT**
- 298-9 10:30 AM Solomon, Evan A.*; Kowalski, Lauren; Whorley, Theresa L.: **PERVASIVE SHALLOW SEAWATER CIRCULATION AT METHANE SEEPS – IMPLICATIONS FOR SEEP ECOSYSTEMS AND MARINE BIOGEOCHEMICAL CYCLES**
- 298-10 10:45 AM Johnson, Harlan Paul*; Salmi, Marie; Merle, Susan; Embley, Robert; Sampaga, Erica; Lee, Michelle: **TECTONIC**

COMPRESSION AS A SOURCE OF METHANE EMISSIONS ON CASCADIA MARGIN

- 298-11 11:00 AM Philip, Brendan T.*; Solomon, Evan; Kelley, Deborah S.; Collier, Robert W.; Whorley, Theresa L.: **PYTHIA'S OASIS: A HIGH FLUX, FLUID-DOMINATED SEAFLOOR SEEP ON THE OREGON SECTOR OF THE CASCADIA MARGIN**
- 298-12 11:15 AM Inderbitzen, Katherine E.*: **SECONDARY FLUID RECHARGE AND CIRCULATION IN THE MIDDLE VALLEY HYDROTHERMAL SYSTEM**
- 298-13 11:30 AM Turner, Christina A.*; Moyer, Craig: **TAXONOMIC AND FUNCTIONAL ANALYSIS OF MICROBIAL MAT COMMUNITIES OF MARIANA REGION HYDROTHERMAL VENTS**
- 11:45 AM **DISCUSSION**

SESSION NO. 299  

T16. Novel Approaches to Mine Remediation: Addressing the Legacy of Hardrock Mining through Innovative and Practical Methods (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division)

8:00 AM, Washington State Convention Center, Room 618/619/620

Kato T. Dee and William J. Walker, Presiding

- 299-1 8:00 AM Hultquist, Arne David*; Shope, Chris: **PRELIMINARY WATER QUALITY DATA IN THE SAN JUAN RIVER IN SAN JUAN COUNTY, UTAH FOLLOWING THE GOLD KING MINE SPILL**
- 299-2 8:15 AM Del Rio-Salas, R.*; Moreno-Rodriguez, V.; Mendivil-Quijada, H.; Molina-Freaner, F.; Peña-Ortega, M.; Ayala-Ramirez, Y.; Romero, Francisco: **THE FORGOTTEN ENVIRONMENTAL PASSIVES: IMPLICATIONS AND NEED OF AN INVENTORY OF ABANDONED MINE TAILINGS IN SONORA, MEXICO**
- 299-3 8:30 AM Wu, Robert*; McKenzie, Jeffrey M.; Martin, Vincent; Bussi re, Bruno; Aubertin, Michel; Broda, Stefan: **MONITORING SOIL MOISTURE IN AN EXPERIMENTAL WASTE ROCK PILE USING ACTIVE FIBER OPTIC DISTRIBUTED TEMPERATURE SENSING**
- 299-4 8:45 AM Hallnan, Rachel*; Rasmussen, Dirk; Mohrmann, Jacob; Smeins, Melissa: **ASSESSING LONG-TERM SPATIAL AND TEMPORAL VARIABILITY OF WATER QUALITY IN THE SUGARLOAF MINING DISTRICT, LEADVILLE, COLORADO, USA**
- 299-5 9:00 AM Davies, Gareth J.*; Gertson, Jord N.: **DEEP IMPACTED GROUNDWATER SOURCES: COAXING OUT SIGNALS USING MULTIPLE TRACERS**
- 299-6 9:15 AM Eby, G. Nelson*; Soucy, Alyssa; Fontaine, Samuel: **USING FACTOR ANALYSIS TO IDENTIFY SOIL CONTAMINANTS FROM THE PALMERTON, PA, ZINC SMELTERS**
- 299-7 9:30 AM Desbarats, Alexander J.*; Percival, Jeanne B.; Venance, Katherine E.: **URANIUM MOBILITY IN GROUNDWATER AT HISTORICAL MINE SITES IN THE BANCROFT REGION OF ONTARIO, CANADA**
- 299-8 9:45 AM Bailey, Alexandra S.*; Jamieson, Heather E.: **CHARACTERIZATION OF ARSENIC-HOSTING SOLID PHASES IN TAILINGS DUST FROM GIANT MINE: IMPLICATIONS FOR AIR QUALITY MONITORING AT LEGACY MINE SITES**
- 10:00 AM **BREAK**
- 299-9 10:15 AM Choi, Jaeyoung*: **ADSORPTION OF ARSENIC IN AQUEOUS AND SOLID PHASE BY WASTE-RECLAIMED TREATMENT AGENT IN ABANDONED MINE: BATCH AND FIELD STUDIES**
- 299-10 10:30 AM Wood, Daniel L.*; Singer, David M.; Herndon, Elizabeth; Koval, Joseph; Tucker, Amber: **CARBIDE LIME TREATMENT OF ACID MINE DRAINAGE IMPACTED SOILS IN THE HUFF RUN WATERSHED OF NORTHEAST OHIO**

- 299-11 10:45 AM Ali, Abdul-Mehdi S.*; Cerrato, Jose; Perriguet, Dustin: **INVESTIGATION OF METAL REMOVAL USING NATURAL LIMESTONE ROCK**
- 299-12 11:00 AM Palomino Ore, Sheyla B.*; Rimstidt, J. Donald; Schreiber, Madeline E.; Chermak, John A.; Seal, Robert R.: **EFFECT OF ALUMINUM OXYHYDROXIDE COATINGS ON THE PERFORMANCE OF ANOXIC LIMESTONE DRAINS**
- 299-13 11:15 AM Nordstrom, D. Kirk*; Alpers, Charles N.; Campbell, Kate M.: **THE ACID MINE DRAINAGE LEGACY: RESOURCE RECOVERY AS A REMEDIAL OPTION**
- 299-14 11:30 AM Moyer, Thomas*; Eldridge, Jim; Carr, Loftan; Bateson, James; Gusek, James J.: **A PROPOSED ALTERNATIVE APPROACH TO CLEANUP OF THE ORE KNOB MINE, NORTH CAROLINA LEGACY SITE**
- 11:45 AM **DISCUSSION**

SESSION NO. 300

T19. Springs: Providing Insights on Critical Groundwater Quality and Quantity Issues (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Geobiology & Geomicrobiology Division; GSA Karst Division)

8:00 AM, Washington State Convention Center, Room 613/614

Brian Katz, Sue Swanson and James L. Berglund, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 300-1 8:05 AM Vesper, Dorothy J.*: **CO₂ FROM SPRINGS AND SPRING-LIKE PORTALS TO THE UNDERWORLD: CHALLENGING METHODS AND CONVENTIONS (Invited Presentation)**
- 300-2 8:25 AM Bausher, Emily A.*; Vesper, Dorothy J.: **WHERE IS ALL THE WATER FROM? SPRING WATER QUALITY AND QUANTITY ALONG PETER'S MOUNTAIN IN MONROE COUNTY, WV**
- 300-3 8:40 AM Berglund, James L.*; Toran, Laura; Herman, Ellen K.: **FROM SINK TO SPRING; INTERPRETING LOCAL RECHARGE AND CONDUIT FLOW USING HIGH-RESOLUTION DATA LOGGERS AND A FINITE ELEMENT HEAT-AND-MASS TRANSPORT FRACTURE FLOW MODEL**
- 300-4 8:55 AM Florea, Lee J.*: **SIGNAL PROCESSING OF TIME-SERIES HYDROCHEMICAL DATA FROM EPIGENIC KARST IN THE CUMBERLAND ESCARPMENT OF KENTUCKY**
- 300-5 9:10 AM Lockwood, Benjamin E.*; Gouzie, Douglas R.: **THE CHEMICAL AND STATISTICAL ANALYSIS OF GEOCHEMICAL MARKERS IN KARST GROUNDWATER OF SPRINGFIELD, MO**
- 300-6 9:25 AM Martin, Jonathan B.*; Brown, Amy L.; Kurz, Marie J.; Khadka, Mitra B.; Kamenov, George D.: **SPRINGS: WINDOWS INTO DECADAL-SCALE KARST AQUIFER PROCESSES (Invited Presentation)**
- 300-7 9:45 AM Katz, Brian*; Hicks, Richard W.; Hansen, Terry: **TOWARD RESTORATION OF SPRING WATER QUALITY AND IMPLEMENTATION OF AGRICULTURAL BEST MANAGEMENT PRACTICES IN NORTHERN FLORIDA**
- 10:00 AM **BREAK**
- 300-8 10:15 AM Panno, Samuel V.*; Kelly, Walton R.; Askari, Zohreh; Hackley, Keith C.; Krothe, Jason N.: **ORIGIN AND CONTROLS ON THE OCCURRENCE OF SALINE SPRINGS OF THE ILLINOIS BASIN (Invited Presentation)**
- 300-9 10:35 AM Swanson, Susan*; Graham, Grace; Bradbury, Kenneth; Hart, David J.: **INSIGHTS GAINED FROM A STATEWIDE INVENTORY OF SPRINGS**
- 300-10 10:50 AM Burns, Erick R.*; Gannett, Marshall W.; Sherrod, David R.; Keith, Mackenzie K.; Curtis, Jennifer A.; Siler, Drew L.; Bartolino, James R.; Engott, John A.; Scandella, Benjamin P.; Stern, Michelle A.; Flint, Alan L.: **WHERE, WHEN, AND WHY DO SPRINGS OCCUR IN VOLCANIC TERRANES? A REGIONAL ANALYSIS: WESTERN OREGON AND WASHINGTON, NORTHEASTERN CALIFORNIA, AND SOUTHERN IDAHO, USA**

- 300-11 11:05 AM Sinclair, David*: **GEOMORPHOLOGY AND FLORAL DIVERSITY AT GRAND CANYON ECOREGION SPRINGS**
- 300-12 11:20 AM Weathers, Zach*; Urbanczyk, Kevin M.: **AN INVENTORY AND ASSESSMENT OF SPRINGS IN BIG BEND RANCH STATE PARK, TEXAS**

SESSION NO. 301

T35. Urban Geochemistry (International Association of GeoChemistry; GSA Hydrogeology Division; GSA Karst Division)

8:00 AM, Washington State Convention Center, Room 612

David T. Long and W. Berry Lyons, Presiding

- 301-1 8:00 AM Stackelberg, Paul E.*; Szabo, Zoltan; Jurgens, Bryant C.: **RADIUM MOBILITY AND THE AGE OF GROUNDWATER IN DRINKING-WATER SUPPLIES FROM THE CAMBRIAN-ORDOVICIAN AQUIFER SYSTEM**
- 301-2 8:15 AM Rakotoarisaona, Henintsoa*; Peterson, Hannah; Wang, Weihong: **INVESTIGATING TEMPORAL AND SPATIAL VARIATIONS OF TRACE METAL LOADING TO UTAH LAKE, UT (USA)**
- 301-3 8:30 AM Mooers, Howard D.*; Massman, William J.: **DETERMINATION OF THE SO₂ NEUTRALIZING CAPACITY OF A DECIDUOUS CANOPY IN AN URBAN ENVIRONMENT**
- 301-4 8:45 AM Long, David T.*; Voice, Thomas C.; Sanchez-Rodríguez, E. Cuauhtemoc; Pearson, Amber; Polanco-Rodríguez, Angel G.; Concha-Valdez, Fanny G.; Xagorarakis, Irene: **ASSESSING THE INFLUENCE OF URBAN LAND USE ON KARST DRINKING WATER QUALITY DURING WET AND DRY SEASONS, STATE OF YUCATAN, MEXICO**
- 301-5 9:00 AM Jacob, Clinton L.*: **IN SITU BIOREMEDIATION - APPLICABLE CONTAMINANTS AND GEOCHEMICAL CONSIDERATIONS**
- 301-6 9:15 AM Henson, Lanier Elsworth*; Deocampo, Daniel; Maldonado, Marlen: **SURFACE SOIL GEOCHEMISTRY OF ATLANTA, GA**
- 301-7 9:30 AM O'Shea, Michael J.*; Haber, Sarah J.; Elmi, Chiara; Vann, David R.; Giere, Reto: **MINERALOGICAL AND CHEMICAL CHARACTERIZATION OF ROAD DUST IN PHILADELPHIA, PA**
- 301-8 9:45 AM Kirker, Ashleigh N.*; Vulava, Vijay M.: **A MULTIMODAL APPROACH TO IDENTIFYING STORMWATER POLLUTANT HOTSPOTS IN COASTAL URBAN WATERSHEDS**
- 301-9 10:00 AM McCray, John E.*; Herzog, Skuylar; Halpin, Brittnee; Portmann, Andrea; Higgins, Chris: **POLLUTANT TRANSFORMATIONS AND RESIDENCE TIMES IN ENGINEERED HYPOHREIC ZONES OF URBAN WATERWAYS**
- 301-10 10:15 AM Jefferson, Anne J.*; Sugano, Laura L.; Buzulencia, Hayley; Avellaneda, Pedro; Kinsman-Costello, Lauren E.: **STORAGE DYNAMICS REVEALED BY WATER ISOTOPES PROVIDE INSIGHT INTO WATER QUALITY FUNCTION OF STORMWATER GREEN INFRASTRUCTURE**
- 301-11 10:30 AM Kanaley, Chelsea*; Toran, Laura; Ledford, Sarah H.: **IN-STREAM SEDIMENT AND NUTRIENT RESPONSE TO STORM EVENTS IN AN URBAN STREAM**
- 301-12 10:45 AM Russell, Rosalind*; Maas, Benjamin J.: **MANAGEMENT OF URBAN AND RURAL WATERS TO REDUCE FLOODING AND NUTRIENTS**
- 301-13 11:00 AM Qu, Chengkai*; Albanese, Stefano; Lima, Annamaria; Hope, David; Fortelli, Alberto; Rolandi, Roberto; Cerino, Pellegrino; Pizzolante, Antonio; De Vivo, Benedetto: **THE OCCURRENCE OF PERSISTENT ORGANIC POLLUTANTS (POPS) IN THE AIR OF METROPOLITAN NAPLES AND ITS SURROUNDING REGIONS, ITALY: IMPLICATIONS FOR POTENTIAL RISK AND ENVIRONMENTAL CYCLING**

**AM
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- 301-14** 11:15 AM Weis, Dominique*; Amini, Marghaleray; Gordon, Kathy; Hanano, Diane; Lai, Vivian; Smith, Kate: **HONEY BEES AS BIOINDICATORS OF ENVIRONMENTAL POLLUTION**
- 301-15** 11:30 AM Jagtap, M.M.*: **ASSESSMENT OF IRRIGATION CANAL WATER QUALITY OF NEW MUTHA RIGHT BANK CANAL, PUNE (MAHARASHTRA, INDIA) USING HYDROGEOCHEMICAL ANALYSIS**
- 301-16** 11:45 AM Hasan, M. Aziz*; Sikder, Arif M.; Kabir, M. Lutful; Jaman, M. Hasnat; Uddin, M Reaz; Rashid, M. Hashibur; Akter, Asma; Liu, Xin-Chen; McCartor, Drew: **SOIL POLLUTION FROM INFORMAL RECYCLING OF USED LEAD ACID BATTERY IN BANGLADESH**

SESSION NO. 302

T44. Insights from Microfossils, from Traditional to Novel Approaches

8:00 AM, Washington State Convention Center, Room 609

Miriam E. Katz, Robert K. Poirier, Krystyna Kordecki and Megan K. Fung, Presiding

- 302-1** 8:00 AM Davies, Marissa A.*; Schröder-Adams, Claudia J.; Herrle, Jens O.; Hülse, Peter; Schneider, Simon; Quesnel, Alex: **BENTHIC FORAMINIFERAL MORPHOGROUP RESPONSE TO PALEO-REDOX CONDITIONS ACROSS THE CONIACIAN TO SANTONIAN "OAE 3" INTERVAL IN THE KANGUK FORMATION, CANADIAN ARCTIC ARCHIPELAGO**
- 302-2** 8:15 AM Perriguet, Dustin*; Leckie, Mark; Myers, Corinne: **DIVERSITY AND PALEOECOLOGY OF GULF COASTAL PLAIN FORAMINIFERA PRIOR TO THE END-CRETACEOUS MASS EXTINCTION**
- 302-3** 8:30 AM Shaw, Jack Oliver*; D'haenens, Simon; Thomas, Ellen; Hull, Pincelli M.: **PLANKTONIC FORAMINIFERAL BLEACHING DURING EARLY EOCENE HYPERHERMAL EVENTS**
- 302-4** 8:45 AM Cotton, Laura J.*; Bryan, Jon; Eder, Wolfgang; Means, Harley; Monechi, Simonetta: **LARGER BENTHIC FORAMINIFERA OF FLORIDA AND THE EOCENE OLIGOCENE TRANSITION**
- 302-5** 9:00 AM Evans, David*; Cotton, Laura; Pearson, Paul; Rosenthal, Yair; Rae, James; Müller, Wolfgang; Erez, Jonathan; Affek, Hagit P.: **SUSTAINED IMBALANCE IN THE CALCIUM CYCLE AND CLIMATE-OCEAN CHEMISTRY INTERACTIONS OVER THE EOCENE-OLIGOCENE TRANSITION FROM THE GEOCHEMISTRY OF LARGE BENTHIC FORAMINIFERA**
- 302-6** 9:15 AM Hallock, Pamela*; Papazzoni, Cesare A.; Seddighi, Mona: **A PROPOSED MODEL FOR CARBONATE BANKS CHARACTERIZED BY LARGE, FLAT, BENTHIC FORAMINIFERS**
- 302-7** 9:30 AM Pletka, Crystal*; Collins, Laurel S.: **NEOGENE DIVERSITY OF DEEP-SEA CARIBBEAN BENTHIC FORAMINIFERA RELATIVE TO THE CLOSURE OF THE CENTRAL AMERICAN SEAWAY**
- 302-8** 9:45 AM Alvarez Zarkian, Carlos A.*; Nadiri, Chimnaz; Alonso-Garcia, Montserrat; Petruny, Loren; Hernandez, Patricia; Kroon, Dick; Wright, James; Eberli, Gregor P.; Betzler, Christian: **OSTRACOD-BASED RECONSTRUCTION OF BOTTOM WATER CONDITIONS IN THE INNER SEA OF THE MALDIVES DURING THE PLEISTOCENE (IODP SITE U1467, NORTHERN INDIAN OCEAN)**
- 10:00 AM **BREAK**
- 302-9** 10:15 AM Ross, Benjamin J.*: **RECOVERY OF THE PHOTOSYMBIOTIC FORAMINIFERA *AMPHISTEGINA GIBBOSA* FOLLOWING LONG-TERM APHOTIC INCUBATION**
- 302-10** 10:30 AM Rustic, Gerald T.*; Polissar, Pratigya J.; Ravelo, Ana Christina; deMenocal, Peter: **MEASUREMENTS, METHODS, AND MOTIVATIONS: INSIGHTS ON MG/CA FROM INDIVIDUAL FORAMINIFERA**

- 302-11** 10:45 AM Keating-Bitonti, Caitlin*: **PATTERNS OF BENTHIC FORAMINIFERAL GROWTH IN THE CALIFORNIA BORDERLAND RECONSTRUCTED BY MICRO-CT ANALYSIS (Invited Presentation)**
- 302-12** 11:00 AM Gemery, Laura*: **APPLICATIONS OF THE ARCTIC OSTRACODE DATABASE (AOD) TO SPECIES ECOLOGY AND PALEOENVIRONMENTAL RECONSTRUCTIONS (Invited Presentation)**
- 302-13** 11:15 AM Palmer, Hannah M.*; Myhre, Sarah E.; Hill, Tessa M.; Donnenfield, Jonas T.: **UTILIZING MICROFOSSIL COMMUNITY ECOLOGY TO UNDERSTAND SPATIAL AND TEMPORAL CHANGES IN THE SAN DIEGO MARGIN OXYGEN MINIMUM ZONE**
- 302-14** 11:30 AM Leorri, Eduardo*; Cearreta, Alejandro; Culver, Stephen J.; Lauback, Caitlin; Mallinson, David J.; Irabien, Maria Jesus; Corbett, D. Reide; Woodson, Anna Lee: **ISOTOPIC COMPOSITION OF ESTUARINE FORAMINIFERAL TESTS FROM TWO CONTRASTING ESTUARINE SYSTEMS AND ITS IMPLICATIONS FOR PALEOENVIRONMENTAL RECONSTRUCTIONS AT DECADAL TO MILLENNIAL TIME SCALES**
- 302-15** 11:45 AM Stepanova, Anna*; Andrés, Thomas; Obrochta, Stephen; Hyttinen, Outi; Quintana Krupinski, Nadine; Kotilainen, Aarno: **DEGLACIAL AND HOLOCENE OSTRACODA FROM THE BALTIC SEA, SITES M0059, M0060 AND M0063 (IODP EXPEDITION 347)**

SESSION NO. 303

T48. The Timing and Causes of Jurassic–Cretaceous Biological, Climatic, and Tectonic Transitions in North America (GSA Sedimentary Geology Division; Paleontological Research Institution)

8:00 AM, Washington State Convention Center, Room 611

Brady Z. Foreman and Michael D. D'Emic, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 303-1** 8:15 AM Suarez, Marina B.*; Knight, John A.; Malik, Aisha; Reinhard, Hannah: **CARBON ISOTOPE CHEMOSTRATIGRAPHY OF THE TERRIGENOUS HENSEL FORMATION, CENTRAL TEXAS**
- 303-2** 8:30 AM Yamamura, Daigo*; Suarez, Celina: **DIAGENESIS OF VERTEBRATE SKELETAL REMAINS OF THE CRETACEOUS KAIPAROWITS FORMATION AND THEIR USE AS PALEOHYDROLOGIC PROXIES: A COMPLEX HYDROLOGIC SETTING**
- 303-3** 8:45 AM Turner, Holly E.*; Gale, Andrew S.; Gradstein, Felix M.; Batenburg, Sietske J.: **A $\delta^{13}C_{ORG}$ STACK AND CLAY MINERALOGICAL PROXY RECORD OF CLIMATE CHANGE THROUGH THE LATE JURASSIC–EARLY CRETACEOUS OF NORTH-WESTERN EUROPE: AN INTEGRATED INTER-REGIONAL CORRELATION**
- 303-4** 9:00 AM Bronzo, Kayla Marie*; Fricke, Henry; Hoerner, Marie Elizebeth; Foster, John R.; Lundstrom, Craig: **USING OXYGEN, CARBON AND STRONTIUM ISOTOPE RATIOS OF TOOTH ENAMEL FROM DINOSAURS TO INFER PATTERNS OF MOVEMENT OVER THE LATE JURASSIC LANDSCAPE OF CO, UT AND WY**
- 303-5** 9:15 AM Suarez, Celina*; Frederickson, Joseph; Cifelli, Richard L.; Nydam, Randall L.; Pittmann, Jeff; Morgan, Kirsty; Frucci, Mason N.; Hunt-Foster, ReBecca: **THE VERTEBRATE FAUNA FROM THE LOWER CRETACEOUS HOLLY CREEK FORMATION. THE FIRST MULTI-TAXA VERTEBRATE ASSEMBLAGE FROM THE MESOZOIC OF ARKANSAS, USA**
- 303-6** 9:30 AM Jud, Nathan A.*: **FOSSIL LEAVES REVEAL THE DIVERSIFICATION AND SPREAD OF FLOWERING PLANTS IN THE CLOVERLY FORMATION (CRETACEOUS, WESTERN INTERIOR, USA) (Invited Presentation)**

- 9:50 AM **BREAK**
- 303-7 10:05 AM Foreman, Brady Z.*; D'Emic, Michael D.; Malone, David H.; Craddock, John P.: **COMPARISON OF U-PB DETRITAL ZIRCON PROVENANCE BETWEEN UPPER JURASSIC MORRISON FORMATION AND LOWER CRETACEOUS CLOVERLY FORMATION (BIGHORN BASIN, NORTHWEST WYOMING, USA)**
- 303-8 10:20 AM Finzel, Emily S.*: **DETRITAL ZIRCON MICROTEXTURES AND U-PB GEOCHRONOLOGY OF UPPER JURASSIC TO PALEOCENE STRATA IN THE DISTAL NORTH AMERICAN CORDILLERA FORELAND BASIN**
- 303-9 10:35 AM Zaleha, Michael J.*: **EARLY CRETACEOUS FLUVIAL SYSTEMS WITHIN THE SEVIER FORELAND BASIN, WYOMING, AND THE EFFECTS OF TECTONISM ON DEPOSITION**
- 303-10 10:50 AM Ludvigson, Greg*; Möller, Andreas; Joeckel, Robert; Blum, Mike D.; McLean, Noah: **URANIUM-LEAD AGES OF CRETACEOUS (ALBIAN-CENOMANIAN) STRATA FROM THE ROSE CREEK ESCARPMENT OF THE CRATONIC MARGIN OF THE WESTERN INTERIOR BASIN**
- 303-11 11:05 AM D'Emic, Michael D.*; Foreman, Brady Z.; Jud, Nathan A.; Britt, Brooks B.; Crowley, James; Schmitz, Mark: **REVISED AGE OF THE CLOVERLY FORMATION (CRETACEOUS, WESTERN INTERIOR, USA)**
- 11:20 AM **CONCLUDING REMARKS**

SESSION NO. 304

T52. Biotic Revolutions Recorded in the Trace Fossil Record, Neoproterozoic to Recent I (Paleontological Society; Paleontological Research Institution)

8:00 AM, Washington State Convention Center, Room 606

James Lehane and Leif Tapanila, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 304-1 8:15 AM Retallack, Gregory J.*: **INTERFLAG SANDSTONE LAMINAE AS A NEW CLUE TO THE HABITAT AND PRESERVATION OF EDIACARAN VENDOBIONTS**
- 304-2 8:30 AM Harding, Sherie C.*; Ekdale, A.A.: **FECAL PELLETS, GLAUCONITE, REGRESSING SHORELINES, AND BURROWING ORGANISMS INDICATE DYNAMIC MARINE ENVIRONMENTS IN THE LATE CAMBRIAN OF TEXAS AND WISCONSIN**
- 304-3 8:45 AM Mangano, Maria Gabriela*; Buatois, Luis A.: **THE TRACE-FOSSIL RECORD OF CAMBRIAN REVOLUTIONS: TIMING, LINKS AND GEOBIOLOGICAL IMPACT (Invited Presentation)**
- 9:00 AM **BREAK**
- 304-4 9:15 AM Lehane, James*: **SPIRORHAPHE: DECODING THE SPIRALS OF AN ENIGMATIC GRAPHOGLYPTID TRACE FOSSIL THROUGH GEOLOGIC TIME**
- 304-5 9:30 AM Vrazo, Matthew B.*; Ciuca, Samuel J.: **EURYPTERID SWIMMING BEHAVIOR: INSIGHTS FROM NEW TRACE FOSSIL EVIDENCE**
- 304-6 9:45 AM Ekdale, Eric G.*; Ekdale, Allan A.: **RECOGNITION AND PALEOECOLOGIC SIGNIFICANCE OF COMPLEX ICHNOFABRICS IN THE TRACE FOSSIL RECORD: AN EXAMPLE FROM THE EOCENE OF SOUTHERN CALIFORNIA**
- 10:00 AM **DISCUSSION**
- 304-7 10:15 AM Fiorillo, Anthony R.*; McCarthy, Paul; Kobayashi, Yoshitsugu; Tomsich, Carla S.; Tykoski, Ronald S.; Tanaka, Tomonori; Noto, Christopher: **CO-OCCURRENCE OF THERIZINOSAUR AND HADROSAUR FOOTPRINTS IN THE LOWER CANTWELL FORMATION (UPPER CRETACEOUS) OF DENALI NATIONAL PARK, ALASKA: AN ASIAN DINOSAUR TRACK ASSEMBLAGE ON THE NORTH AMERICAN SIDE OF BERINGIA**

- 304-8 10:30 AM Druckenmiller, Patrick*; Erickson, Gregory; Benowitz, Jeff A.; Capps, Denny; Knight, Cassi; May, Kevin; Stewart, Dustin: **DEINONYCHOSAURIAN TRACE FOSSILS FROM THE LATE CRETACEOUS (MAASTRICHTIAN) CANTWELL FORMATION, ALASKA: TRACK MAKER INFERENCES USING COEVAL, INTERFORMATIONAL COMPARISONS**
- 304-9 10:45 AM Zonneveld, John-Paul*; Zaim, Yahdi; Aswan, Aswan; Rizal, Yan; Gingras, Murray K.; Gunnell, Gregg F.; Ciochon, Russell: **SURFICIAL TRACKS PRODUCED BY MUDSKIPPER (*PERIOPHTHALMUS* & *PERIOPHTHALMODON*) IN FINE-GRAINED COASTAL SUCCESSIONS: IMPLICATIONS FOR THE VERTEBRATE COLONIZATION OF LAND**
- 304-10 11:00 AM Hunt, Adrian P.*; Lucas, Spencer G.: **THE PHANEROZOIC RECORD OF VERTEBRATE TRACE FOSSILS AND THE TAXOPHILE EFFECT**

SESSION NO. 305

T54. Impact of Extinction Events on the Ecological and Geochemical Functioning of Marine Ecosystems (Paleontological Society)

8:00 AM, Washington State Convention Center, Room 608

William J. Foster, Peter J. Harries and Martin Aberhan, Presiding

- 305-1 8:00 AM Oliphant, Elizabeth*; Petersen, Sierra V.; Dutton, Andrea; Lohmann, Kyger C.: **INTERPRETING LIFECYCLE BEHAVIOR OF EXTINCT BIVALVE SPECIES THROUGH STABLE AND CLUMPED ISOTOPIC VARIATIONS**
- 305-2 8:15 AM Weik, Allen S.*; Roonarine, Peter D.; Dineen, Ashley A.: **AN END-CRETACEOUS PALEOCOMMUNITY FOOD WEB FROM THE LOPEZ DE BERTODANO FORMATION, ANTARCTICA**
- 305-3 8:30 AM Sibert, Elizabeth C.*: **SEQUENTIAL SHIFTS IN FISH COMMUNITY STRUCTURE AND ECOLOGICAL ROLE FOLLOWING THE K/PG MASS EXTINCTION**
- 305-4 8:45 AM Tomasovych, Adam*; Gallmetzer, Ivo; Haselmair, Alexandra; Kaufman, Darrell S.; Zuschin, Martin: **EFFECTS OF THE 20TH CENTURY HYPOXIC EVENTS ON MOLLUSCAN COMMUNITIES AND THEIR PRESERVATION POTENTIAL IN SEDIMENT CORES (ADRIATIC SEA)**
- 305-5 9:00 AM Weiss, Anna M.*; Martindale, Rowan C.; Košir, Adrijan: **TURNOVER OF SHALLOW MARINE ECOSYSTEMS DURING THE PALEOCENE-EOCENE THERMAL MAXIMUM, SLOVENIA**
- 305-6 9:15 AM Nawrot, Rafal*; Scarponi, Daniele; Azzarone, Michele; Amorosi, Alessandro; Wittmer, Jacalyn M.; Dexter, Troy A.; Kusnerik, Kristopher M.; Portell, Roger W.; Kowalewski, Michal: **STRATIGRAPHIC ARTIFACTS IN EXTINCTION DYNAMICS: AN EMPIRICAL EVALUATION USING THE HOLOCENE FOSSIL RECORD**
- 305-7 9:30 AM Pruss, Sara B.*; Bush, Andrew M.; Higgins, John A.; Leckie, R. Mark; Deeg, Claudia: **A POST-EXTINCTION CACO₃ SATURATION STATE CRISIS IN THE EARLIEST PALEOGENE (Invited Presentation)**
- 9:45 AM **BREAK**
- 305-8 10:00 AM Jarochowska, Emilia*; Ray, David C.; Röstel, Philipp; Worton, Graham; Munnecke, Axel: **HARNESSING THE STRATIGRAPHIC BIAS AT THE SECTION SCALE: CONODONT DIVERSITY IN THE HOMERIAN (SILURIAN) OF THE MIDLAND PLATFORM, ENGLAND**
- 305-9 10:15 AM Cramer, Bradley D.*; Bancroft, Alyssa M.; McAdams, Neo E.B.; Waid, Christopher B.: **ITERATIVE EVOLUTION OF FUSED DENTICLES (SPATULATE FORMS) AMONG OZARKODINID CONODONTS IN THE AFTERMATH OF SUCCESSIVE SILURIAN BIOGEOCHEMICAL EVENTS**
- 305-10 10:30 AM Aberhan, Martin*; Piazza, Veronica; Duarte, Luís V.: **DECLINES IN THE BODY SIZE OF BENTHIC MACROINVERTEBRATES AS A HARBINGER OF THE**

AM
WEDNESDAY

- EARLY TOARCIAN (EARLY JURASSIC) EXTINCTION EVENT IN THE LUSITANIAN BASIN, PORTUGAL**
- 305-11** 10:45 AM Larina, Ekaterina*; Bottjer, David J.; Corsetti, Frank A.; Berelson, William M.; Yager, Joyce; West, A. Joshua: **NEW RECORD OF BIOTIC RESPONSE AND OF AN UNUSUAL CARBONATE SYSTEM FOR THE END-TRIASSIC MASS EXTINCTION AT FERGUSON HILL, NEVADA**
- 305-12** 11:00 AM Grasby, Stephen E.*; Knies, Jochen Manfred; Beauchamp, Benoit; Bond, David P.G.; Wignall, Paul: **IN WAKE OF END PERMIAN EXTINCTION, WIDESPREAD NUTRIENT CRISIS LEADS TO EARLY TRIASSIC PRODUCTIVITY COLLAPSE ACROSS NW PANGEA**
- 305-13** 11:15 AM Heindel, Katrin*; Foster, William J.; Richoz, Sylvain; Birgel, Daniel; Baud, Aymon; Brandner, Rainer; Krystyn, Leopold; Mohtat, Tayeb; Koşun, Erdal; Twitchett, Richard J.; Reitner, Joachim; Peckmann, Jörn: **THE ECOLOGICAL COMPOSITION OF MICROBIAL-METAZOAN REEF ECOSYSTEMS FOLLOWING THE LATEST PERMIAN MASS EXTINCTION**
- 305-14** 11:30 AM Godbold, Amanda Lynn*; Schoepfer, Shane D.; Henderson, Charles M.; Isozaki, Yukio: **DID OCEANIC ISLANDS ACT AS REFUGIA DURING THE END-PERMIAN EXTINCTION?**
- 305-15** 11:45 AM Erba, Elisabetta*: **MASS EXTINCTIONS AND GREATEST SPECIATIONS: THE EMERGENCE OF CALCAREOUS PHYTOPLANKTON IN THE EARLIEST MESOZOIC (Invited Presentation)**

SESSION NO. 306

T62. Ancient Environments of South America (Paleontological Research Institution; Paleontological Society; GSA Sedimentary Geology Division)

8:00 AM, Washington State Convention Center, Room 604

Camilla Crifò and Regan E. Dunn, Presiding

- 306-1** 8:00 AM Fedorchuk, Nicholas D.*; Isbell, John L.; Griffis, Neil; Montanez, Isabel P.; Vesely, Fernando; Iannuzzi, Roberto; Mundil, Roland; Yin, Qing-zhu; Rosa, Eduardo L.M.: **ORIGIN OF PALEOVALLEYS ON THE NORTHEAST RIO GRANDE DO SUL SHIELD (BRAZIL): IMPLICATIONS FOR THE EXTENT OF LATE PALEOZOIC GLACIATION IN WEST-CENTRAL GONDWANA**
- 306-2** 8:15 AM Luque, Javier*: **THE ROLE OF THE NEOTROPICS IN THE EVOLUTION OF TRUE CRABS**
- 306-3** 8:30 AM Hermesen, Elizabeth J.*; Jud, Nathan A.; Gandolfo, Maria A.: **CRETACEOUS-PALEOGENE MOSQUITO FERNS (AZOLLA) FROM PATAGONIA (CHUBUT PROVINCE, ARGENTINA)**
- 306-4** 8:45 AM Horton, Brian K.*: **SEDIMENTARY RECORD OF ANDEAN MOUNTAIN BUILDING, TOPOGRAPHIC BARRIERS, AND PALEODRAINAGE PATTERNS (Invited Presentation)**
- 306-5** 9:05 AM Auerbach, David*; Brandon, Mark T.; Hren, Michael T.; Hourigan, Jeremy K.; Pacini, Astrid; Cosgrove, Martha; Midzik, Maya; Garreaud, René; Metzger, Christine: **NEW EVIDENCE FOR LONG-LIVED CENOZOIC TOPOGRAPHY IN THE PATAGONIAN ANDES**
- 9:20 AM **DISCUSSION**
- 306-6** 9:30 AM Gandolfo, Maria A.*; Zamaloa, Maria C.: **EVOLUTIONARY PROCESSES IN THE FOSSIL RECORD: PATAGONIA AS A CASE STUDY (Invited Presentation)**
- 306-7** 9:50 AM Woodcock, Deborah W.*; Meyer, Herbert W.: **THE PIEDRA CHAMANA FOSSIL WOODS AND LEAVES (39 MA, PERU): A RECORD OF LOWLAND TROPICAL VEGETATION DURING THE LATE MIDDLE EOCENE**
- 306-8** 10:05 AM Jud, Nathan A.*; Gandolfo, Maria A.: **THE OLDEST KNOWN MENISPERMACEAE ARE FROM PATAGONIA, SOUTH AMERICA**
- 10:20 AM **DISCUSSION**

- 306-9** 10:30 AM Traylor, Robin B.*; Kohn, Matthew J.; Bargo, Susana; Cuitiño, José I.; Kay, Richard F.; Strömberg, Caroline A.E.; Vizcaíno, Sergio F.: **ECOLOGY AND CLIMATE OF THE EARLY MIOCENE SANTA CRUZ FORMATION, ARGENTINA**
- 306-10** 10:45 AM Crifò, Camilla*; Bargo, Susana; Cuitiño, José I.; Kay, Richard F.; Kohn, Matthew J.; Traylor, Robin B.; Vizcaíno, Sergio F.; Zucol, Alejandro F.; Stromberg, Caroline A.E.: **FOSSIL PHYTOLITH ASSEMBLAGES FROM SOUTHERN PATAGONIA INDICATE CHANGING HABITATS DURING THE MIDDLE MIOCENE CLIMATIC OPTIMUM**
- 306-11** 11:00 AM Martínez, Camila*; Crepet, William; Jaramillo, Carlos; Aliaga, Angélica; Moreno, Federico: **PALEOBOTANICAL RECORD FROM THE DESCANSO-YAURI BASIN, PERU: INSIGHTS INTO THE NEOGENE ELEVATION HISTORY OF THE CENTRAL ANDEAN PLATEAU**
- 306-12** 11:15 AM Catena, Angeline M.*; Sameh, Melissa; Croft, Darin A.: **COMPARING COMMUNITY STRUCTURE AND HABITAT OF TWO MIDDLE MIOCENE NEOTROPICAL FOSSIL LOCALITIES USING ECOLOGICAL DIVERSITY ANALYSIS (EDA)**

SESSION NO. 307

T63. Cephalopod Paleobiology and Paleoecology: A Tribute to Royal H. Mapes (Paleontological Society; SEPM (Society for Sedimentary Geology); Paleontological Research Institution)

8:00 AM, Washington State Convention Center, Room 607

Corinne Myers, Thomas S. Tobin, Benjamin J. Linzmeier and Margaret M. Yacobucci, Presiding

- 307-1** 8:00 AM Vandepas, Lauren Elizabeth*; Dooley, Frederick D.; Barord, Gregory J.; Swalla, Billie J.; Ward, Peter D.: **"I WOULD SWIM 500 MILES": UNEXPECTED CONNECTIVITY OF NAUTILUS POPULATIONS ACROSS THE INDO-PACIFIC (Invited Presentation)**
- 307-2** 8:15 AM Tajika, Amane*; Morimoto, Naoki; Wani, Ryoji; Klug, Christian: **PATTERNS OF INTRASPECIFIC VARIATION IN CEPHALOPODS - NEW DATA FROM 3D MORPHOMETRY OF NAUTILUS SHELLS**
- 307-3** 8:30 AM Okamoto, Kristina*; Clapham, Matthew E.: **NAUTILID MORPHOLOGY AND EVIDENCE FOR ECOLOGICAL RELEASE FOLLOWING THE END-CRETACEOUS EXTINCTION OF AMMONOIDS**
- 307-4** 8:45 AM Mertz, David A.A.*; Yacobucci, Margaret M.; Mann, Keith O.; Gregory, Andrew J.: **PHYLOGENY AND ECOLOGY OF THE AMMONITE SUPERFAMILY ACANTHOCERATOIDEA THROUGH THE CENOMANIAN AND TURONIAN**
- 307-5** 9:00 AM Tobin, Thomas S.*; Ellis, Nicholas M.: **STABLE ISOTOPE SCLEROCRONOLOGY OF BACULITES REVEALS POTENTIAL GROWTH RATE ESTIMATES**
- 307-6** 9:15 AM Linzmeier, Benjamin J.*; Landman, Neil H.; Sessa, Jocelyn A.; Peters, Shanan E.; Orland, Ian J.; Kitajima, Kouki; Kozdon, Reinhard; Valley, John W.: **USING IN SITU GEOCHEMISTRY TO INVESTIGATE THE DEPTH HABITAT OF AMMONITES**
- 307-7** 9:30 AM Landman, Neil H.*; Cochran, J. Kirk; Larson, Neal L.; Garb, Matthew P.; Brezina, Jamie; Witts, James D.: **COLD METHANE SEEPS AS AMMONITE HABITATS (Invited Presentation)**
- 9:45 AM **BREAK**
- 307-8** 10:00 AM Yacobucci, Margaret M.*: **REVISITING THE NOTION OF POSTMORTEM DRIFT IN FOSSIL CEPHALOPODS**
- 307-9** 10:15 AM Seuss, Barbara*; Hembree, Daniel I.; Wisshak, Max; Mapes, Royal H.; Landman, Neil H.: **THE INFLUENCE OF BIOEROSION ON TAPHONOMY - A CASE STUDY USING NAUTILUS MACROMPHALUS**
- 307-10** 10:30 AM Hugo, Nicholas; Tackett, Lydia S.*; Grier, Joyce: **CONCRETIONARY PALEOECOLOGY: PALEOCEANOGRAPHY AND FORMATION OF**

- A BACULITES ELIASI CONCRETION FROM THE LATE CRETACEOUS WESTERN INTERIOR SEAWAY**
- 307-11 10:45 AM Paul, Sharmistha*; Gangopadhyay, Tapas Kumar: **BIOERODED BELEMNITES AND DIFFERENTLY DISPOSED STEPHANOCERATID AMMONITES FROM KULDHAR MEMBER JAISLAMER FORMATION, RAJASTHAN, INDIA: A TOOL FOR SPECIFIC PALAEOENVIRONMENTAL REFINEMENT**
- 307-12 11:00 AM Hoffmann, Rene*; Weinkauff, Manuel F.G.; Schellhorn, Rico; Goeddertz, Peter: **CONCH - A NEW SOFTWARE FOR QUANTITATIVE MORPHOLOGICAL ANALYSES OF AMMONOID SHELLS**
- 307-13 11:15 AM Hendricks, Jonathan R.*: **THE CRETACEOUS ATLAS OF ANCIENT LIFE: A NEW ONLINE RESOURCE FOR IDENTIFYING AMMONOIDS AND OTHER ANIMALS FROM THE WESTERN INTERIOR SEAWAY**
- 307-14 11:30 AM Allen, Matthew*; Lambert, Lance L.: **THE CONTINUING SIGNIFICANCE OF SIBLEY RANCH LOCALITIES (CULBERSON COUNTY, TEXAS) TO GUADALUPIAN (MIDDLE PERMIAN SERIES) AMMONOID RESEARCH**
- 11:45 AM **CONCLUDING REMARKS**

SESSION NO. 308 

T80. Geothermal Energy

8:00 AM, Washington State Convention Center, Room 602/603

Corina Forson and Dave Norman, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 308-1 8:05 AM Lautze, Nicole*: **AN OVERVIEW OF THE HAWAII PLAY FAIRWAY PROJECT (Invited Presentation)**
- 308-2 8:25 AM Faulds, James E.*; Hinz, Nicholas H.; Coolbaugh, Mark F.; Shevenell, Lisa; Sadowski, Andrew J.; Ramelli, Alan R.; Siler, Drew L.; Craig, Jason W.; McConville, Emma G.: **THE NEVADA PLAY FAIRWAY PROJECT: AN INTEGRATED APPROACH TO DISCOVERING NEW GEOTHERMAL SYSTEMS IN THE GREAT BASIN REGION (Invited Presentation)**
- 308-3 8:45 AM Shervais, John W.*; Glen, Jonathan; Nielson, Dennis; Garg, Sabodh K.; Liberty, Lee; Dobson, Patrick F.; Gasperikova, Erika; Sonnenthal, Eric L.; Newell, Dennis L.; Siler, Drew L.; Neupane, Ghanashyam; DeAngelo, Jacob; Evans, James P.; Snyder, Neil: **GEOTHERMAL PLAY FAIRWAY ANALYSIS OF THE SNAKE RIVER PLAIN, IDAHO**
- 308-4 9:00 AM Forson, Corina*; Steely, Alexander N.; Cladouhos, Trenton T.; Swyer, Michael W.; Davatzes, Nicholas C.; Anderson, Megan; Ritzinger, Brent; Peacock, Jared; Glen, Jonathan; Schermerhorn, William; Stelling, Pete: **GEOTHERMAL EXPLORATION USING PLAY-FAIRWAY ANALYSIS IN WASHINGTON STATE**
- 308-5 9:15 AM Cladouhos, Trenton T.*; Swyer, Michael; Ulberg, Carl; Crosby, Kayla; Forson, Corina; Steely, Alexander N.; Davatzes, Nicholas C.: **GEOLOGIC, GEOPHYSICAL, AND GEOTHERMAL CHARACTERISTICS OF ST. HELENS SHEAR ZONE: RESULTS FROM WASHINGTON STATE PLAY FAIRWAY ANALYSIS**
- 308-6 9:30 AM Schermerhorn, William D.*; Ritzinger, Brent; Anderson, Megan; Peacock, Jared; Witter, Jeffrey B.; Glen, Jonathan; Steely, Alexander N.; Forson, Corina; Stelling, Pete; Fournier, Dominique: **GEOPHYSICAL INVESTIGATIONS OF THE MOUNT BAKER GEOTHERMAL PLAY**
- 9:45 AM **BREAK**
- 308-7 10:00 AM Glen, Jonathan*; Ritzinger, Brent; Blakely, Richard J.; Peacock, Jared; Sherrod, Brian L.; Grober, Benjamin; Palmer, Zachary; Adams, Andrea: **POTENTIAL-FIELD (GRAVITY AND MAGNETIC) METHODS APPLIED TO GEOTHERMAL SYSTEMS: THE UMATILLA INDIAN RESERVATION AND OTHER SYSTEMS OF THE WESTERN U.S (Invited Presentation)**

- 308-8 10:20 AM Lindsey, Cary R.*; Neupane, Ghanashyam; Spycher, Nicolas; Fairley, Jerry P.; Dobson, Patrick F.; Wood, Thomas R.; McLing, Travis L.; Conrad, Mark E.: **CLUSTER ANALYSIS AS A TOOL FOR EVALUATING THE EXPLORATION POTENTIAL OF KNOWN GEOTHERMAL RESOURCE AREAS**
- 308-9 10:35 AM Malkemus, Donnel; Perkins, Robert B.*; Palmer, Carl D.: **GEOCHEMISTRY AND GEOTHERMOMETRY OF THE BREITENBUSH HOT SPRINGS AREA**
- 308-10 10:50 AM Banks, Jonathan*: **VOLUMETRIC ASSESSEMENTS OF GEOTHERMAL POWER POTENTIAL FROM DEVONIAN STATA IN THE WESTERN CANADIAN SEDIMENTARY BASIN**
- 308-11 11:05 AM Jones, Clay*; Walters, Mark; Moore, Joseph; Bowman, John R.: **FLUID INCLUSION EVIDENCE OF THE TRANSITION FROM LIQUID- TO VAPOR-DOMINATED RESERVOIR CONDITIONS IN THE NORTHWEST GEYSERS GEOTHERMAL FIELD, CALIFORNIA**
- 308-12 11:20 AM Callison, Kathleen*: **DEVELOPING RULES AND REGULATIONS FOR GEOTHERMAL DRILLING IN ETHIOPIA**

SESSION NO. 309

T96. Understanding African Environmental History through Continental Scientific Drilling: Past Successes and Future Opportunities (GSA Limnogeology Division; GSA Sedimentary Geology Division)

8:00 AM, Washington State Convention Center, Room 307/308

James M. Russell, Michael McGlue and Sarah Ivory, Presiding

- 8:00 AM Beverly, Emily J.*; Berke, Melissa; Castañeda, Isla; Johnson, Thomas C.; Tryon, Christian: **UNVEILING VICTORIA'S SECRETS**
- 309-2 8:15 AM Verschuren, Dirk*; Van Daele, Maarten; Wolff, Chris; Waldmann, Nicholas; Meyer, Inka; Lane, Christine S.; Van der Meer, Thijs; Ombori, Titus; Kasanzu, Charles Happe; Olago, Daniel O.; ICDP DeepCHALLA, Project Members: **ICDP PROJECT DEEPCHALLA: RECONSTRUCTING ~250,000 YEARS OF CLIMATE CHANGE AND ENVIRONMENTAL HISTORY ON THE EAST AFRICAN EQUATOR (Invited Presentation)**
- 309-3 8:35 AM Yost, Chad L.*; Jackson, Lily J.; Stone, Jeffery R.; Cohen, Andrew S.: **SUB-DECADAL PHYTOLITH AND CHARCOAL RECORDS FROM LAKE MALAWI, EAST AFRICA, INDICATE THAT THE TOBA SUPERERUPTION AT 75 KA WAS NOT SEVERE ENOUGH TO CAUSE A HUMAN GENETIC BOTTLENECK (Invited Presentation)**
- 309-4 8:55 AM Scholz, Christopher A.*; Muirhead, James D.: **A ~10 MILLION YEAR HISTORY OF BASIN EVOLUTION IN LAKE TANGANYIKA RECORDED IN MULTIPLE VINTAGES OF SEISMIC REFLECTION DATA**
- 309-5 9:10 AM Ivory, Sarah*; Barker, Philip; Cohen, Andrew S.; Kimirei, Ishmael; Lane, Christine S; Leng, Melanie; McGlue, Michael M.; Msaky, Emma; Noren, Anders; Park Boush, Lisa E.; Russell, James M.; Salzburger, Walter; Scholz, Christopher: **LAKE TANGANYIKA DRILLING: ADDRESSING WORLD-CLASS SCIENTIFIC QUESTIONS IN PALEOCLIMATOLOGY, TECTONICS, AND EVOLUTIONARY ECOLOGY IN AFRICA'S OLDEST LAKE**
- 309-6 9:25 AM Thomas, Ellen*; Bowen, Gabriel; Berke, Melissa; Feakins, Sarah; Huber, Matthew; Pearson, Paul; 28 International, TOPIC Proponents: **TANZANIA ONSHORE PALEOGENE INTEGRATED CORING (TOPIC) (Invited Presentation)**
- 9:45 AM **BREAK**
- 309-7 10:00 AM Hspdp, Team Members; Cohen, Andrew S.*: **THE HOMININ SITES AND PALEOLAKES DRILLING PROJECT (HSPDP): PROGRESS TOWARDS UNDERSTANDING THE PALAEOENVIRONMENTAL CONTEXT OF HUMAN EVOLUTION IN EASTERN AFRICA**

**AM
WEDNESDAY**

- 309-8** 10:15 AM Behrensmeyer, Anna K.*; Potts, R.; Deino, Alan: **AN OUTCROP RECORD OF RAPID LANDSCAPE TRANSFORMATION IN THE PLEISTOCENE OLOGESAILIE BASIN, EAST AFRICAN RIFT SYSTEM, SOUTHERN KENYA**
- 309-9** 10:30 AM Lowenstein, Tim K.*; Luo, Shangde; Leet, Kennie; McNulty, Emma P.; Owen, R. Bernhart; Shen, Chuan-Chou; Renaut, Robin W.; Cohen, Andrew S.; Rabideaux, Nathan M.; Deocampo, Daniel M.; Muiruri, Veronica M.; Deino, Alan: **U-TH DISEQUILIBRIUM DATING OF LAKE MAGADI CHERTS**
- 309-10** 10:45 AM Feibel, Craig S.*; Beck, Catherine C.; Lupien, Rachel; Russell, James M.; Deino, Alan; Sier, Mark J.; Campisano, Christopher J.; Cohen, Andrew S.: **ENVIRONMENTAL DYNAMICS ON AN EARLY PLEISTOCENE LAKE MARGIN: THE WTK13 CORE AT KAITIO, WEST TURKANA, KENYA**
- 309-11** 11:00 AM Billingsley, Anne L.*; Ortiz, Kevin; Anchukaitis, Kevin; Deino, Alan L.; Kingston, John D.; Cohen, Andrew S.: **CLIMATE VARIABILITY ACROSS THE PLIO-PLEISTOCENE TRANSITION IN EAST AFRICA AS SEEN IN AN HSPDP DRILL CORE FROM TUGEN HILLS, KENYA, AND POSSIBLE IMPLICATIONS FOR HOMININ EVOLUTION**
- 309-12** 11:15 AM Scott, Jennifer J.*; Hannah, Alan J.; Chupik, Daniel T.: **STRATIGRAPHIC PACKAGING IN PLOCENE TO RECENT RIFT LAKE SUCCESSIONS, KENYA RIFT VALLEY, USING LAKE-MARGIN AND TERRESTRIAL ICHNOLOGY**
- 309-13** 11:30 AM Ashley, Gail M.*; de Wet, Carol; Houser, Leah M.: **WIDESPREAD FRESHWATER CARBONATE IN THE OLDUVAI BASIN, A PRE-CURSOR TO A MAJOR VOLCANIC ERUPTION IN EAST AFRICA RIFT SYSTEM**
- 11:45 AM **DISCUSSION**

SESSION NO. 310

T121. Natural History Museums in the 21st Century— Programming for the Future While Preserving the Past I (GSA Geoscience Education Division; Paleontological Society; GSA Geoinformatics Division)

8:00 AM, Washington State Convention Center, Room 3A

Lisa D. White, Caroline A.E. Stromberg, Gregory P. Wilson and Elizabeth A. Nesbitt, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 310-1** 8:15 AM Allmon, Warren D.*: **DOING MORE BETTER, WHEN WE WERE ALREADY DOING (ALMOST) EVERYTHING PRETTY WELL: NATURAL HISTORY AND GEOSCIENCE MUSEUMS IN THE 21ST CENTURY (Invited Presentation)**
- 310-2** 8:30 AM Lieberman, Bruce S.*; Kimmig, Julien; Saupe, Erin E.: **DIGITIZING FOSSILS TO ENHANCE MACROEVOLUTIONARY RESEARCH: THE PALEONICHES AND CRETACEOUS WORLD THEMATIC COLLECTION NETWORKS**
- 310-3** 8:45 AM Nelson, Gil*; MacFadden, Bruce; Phillips, Molly: **ADVANCING THE DIGITIZATION OF BIODIVERSITY COLLECTIONS (ADBC) AND IDIGBIO: MODELS FOR MOBILIZING DIGITAL DATA FOR RESEARCH AND EDUCATION IN THE GEOSCIENCES**
- 310-4** 9:00 AM Butts, Susan H.*; Karim, Talia S.; Norris, Christopher A.: **IDIGPALEO: EDUCATION AND OUTREACH USING DIGITIZED MUSEUM SPECIMENS**
- 310-5** 9:15 AM Sessa, Jocelyn A.*; Butts, Susan; Karim, Talia S.; Nelson, Gil; Norris, Christopher A.; Serratos, Danielle J.; Smith, Dena; Uhen, Mark D.: **THE EPANDDA PROJECT: LINKING THE PALEOBIOLOGY DATABASE, IDIGBIO, AND IDIGPALEO FOR BIOLOGICAL AND PALEONTOLOGICAL RESEARCH, COLLECTIONS MANAGEMENT, AND OUTREACH**

- 310-6** 9:30 AM Holroyd, Patricia A.*: **USING DIGITIZED DATA TO IDENTIFY NEW RESEARCH OPPORTUNITIES IN MUSEUM DRAWERS**
- 9:45 AM **BREAK**
- 310-7** 10:00 AM Marshall, Charles R.*; Clites, Erica C.; Bonuso, Nicole; Davis, Edward; Dieth, Gregory P.; Druckenmiller, Patrick; Eng, Ron; Estes-Smargiassi, Kathryn; Finnegan, Seth; Garcia, Christine; Duggan-Haas, Don; Hendy, Austin J.W.; Hollis, Kathy; Holroyd, Patricia A.; Legler, Sara; Little, Holly; Nesbitt, Elizabeth A.; Ross, Robert M.; Skibinski, Leslie; Roopnarine, Peter D.; Vendetti, Jann; White, Lisa D.: **DIGITIZATION OF MILLIONS OF MARINE INVERTEBRATE FOSSILS THROUGH THE EASTERN PACIFIC INVERTEBRATE COMMUNITIES OF THE CENOZOIC (EPIC) THEMATIC COLLECTIONS NETWORK (TCN)**
- 310-8** 10:15 AM Boyer, Doug M.*; Gunnell, Gregg F.; McGeary, Timothy; Ryan, Timothy; Winchester, Julie M.: **MORPHOSOURCE: AIDING IN CURATION OF 3D DATA ON MUSEUM SPECIMENS**
- 310-9** 10:30 AM Grant, Claudia*; Ziegler, Michael J.: **IDIGFOSSILS: ENGAGING K-12 STUDENTS IN INTEGRATED STEM VIA 3D DIGITIZATION, 3D PRINTING AND PALEONTOLOGY**
- 310-10** 10:45 AM Mayer, Paul S.*: **THE FIELD MUSEUM OF NATURAL HISTORY PROGRAMS MIXING NEW TECHNOLOGY WITH OLD COLLECTIONS**
- 310-11** 11:00 AM Hendy, Austin J.W.*; Estes-Smargiassi, Kathryn; Vendetti, Jann; Walker, Lindsay J.: **REIMAGINING INVERTEBRATE PALEONTOLOGY AT THE NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY: EMBRACING THE FUTURE WHILE CURATING THE PAST**
- 310-12** 11:15 AM Breithaupt, Brent H.*; Schulp, Anne; Matthews, Neffra A.; Lockley, Martin; McCreary, Richard T.; Buckley, Lisa G.; Gierlinski, Gerard; Xing, Lida; Vegter, Matthijs; Brouwer, Onne; Houck, Karen J.; Cart, Ken; Lim, Jong Deock; Kim, Kyung Soo; Kong, Dal Yong; Surmik, Dawid: **NEST SCRAPE BEHAVIOR IN LARGE THEROPODS: FROM COLORADO OUTCROP TO DUTCH SHOWCASE: VISITORS EXPERIENCE ANCIENT DINOSAUR DISPLAY BEHAVIOR FROM FOSSIL EVIDENCE**

SESSION NO. 311

T131. Translating Professional Development Experiences into the Classroom I (GSA Geoscience Education Division; National Association of Geoscience Teachers)

8:00 AM, Washington State Convention Center, Room 2A

Megan H. Jones, Jacquelyn Hams and Richard M. Jones, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 311-1** 8:10 AM Pound, Kate S.*; Bratt, Kirstin R.: **UNANTICIPATED OUTCOMES: FROM A FACULTY LEARNING COMMUNITY ON BACKWARD DESIGN TO A CO-TAUGHT INTERDISCIPLINARY COURSE 'GEOLOGY AND POETRY' (Invited Presentation)**
- 311-2** 8:30 AM Hatch, Kim S.*: **AN INTERDISCIPLINARY PALEOCLIMATE CASE STUDY TO TEACH STUDENTS ABOUT CLIMATE CHANGE IN AN INTRODUCTORY WEATHER AND CLIMATE COURSE**
- 311-3** 8:45 AM Colosimo, Amanda*: **INCREASED COMPLETION RATES FOLLOWING COURSE REDESIGN IN A 2YC PHYSICAL GEOLOGY COURSE**
- 311-4** 9:00 AM Ozbay, Gulnihal*; Phalen, Laurieann; Brey, James; Mills, Elizabeth W.; Jones, Megan H.; Maloney, Ashley E.; Huffman, Louise; Morris, Linda: **USING MSI-REACH OCEAN SEDIMENT AND SCHOOL OF ICE WORKSHOPS ON RECONSTRUCTING EARTH'S CLIMATE HISTORY LAB TOOLS FOR UNDERGRADUATE CLIMATE EDUCATION**
- 311-5** 9:15 AM Jones, Richard M.*: **BUT CAN I USE THIS ON MONDAY MORNING? ADAPTING PROFESSIONAL**

- DEVELOPMENT CURRICULUM IN ATMOSPHERIC SCIENCE FOR IMMEDIATE USE IN THE CLASSROOM**
- 311-6 9:30 AM Sayyar, Kelley L.*: **ADAPTATION OF SEAFLOOR SEDIMENTS PROFESSIONAL DEVELOPMENT CURRICULUM INTO UNDERGRADUATE EARTH AND ATMOSPHERE LABORATORY COURSE**
- 9:45 AM **BREAK**
- 311-7 10:00 AM ElShafie, Sara J.*; White, Lisa D.: **NEW WORKSHOP INTEGRATES STORY DEVELOPMENT TECHNIQUES WITH PEDAGOGY TO TEACH EARTH SCIENCES**
- 311-8 10:15 AM Carroll, Karen R.*: **UNEXPECTED PROFESSIONAL DEVELOPMENT: EXPERIENCES FROM TUCSON, ARIZONA**
- 311-9 10:30 AM Barone, Jessica L.*: **2YC FACULTY PROFESSIONAL DEVELOPMENT OPPORTUNITIES IGNITE STUDENT INTEREST AND PROMPT CURRICULUM EXPANSION**
- 311-10 10:45 AM Radenbaugh, Todd A.*: **USING ONLINE DATABASES IN DISTANCE DELIVERY OF GEOSCIENCE LAB COURSES IN WESTERN ALASKA**
- 311-11 11:00 AM Kim, Sora L.*: **A SCIENTIFIC COMMUNICATION COURSE FOR GRADUATE STUDENTS TO GAIN PROFESSIONAL DEVELOPMENT**
- 11:15 AM **DISCUSSION**
- 11:30 AM **CONCLUDING REMARKS**

SESSION NO. 312

T133. Victor Porter Memorial Session—Climbing out of the Fishbowl: Hands-On Public Engagement in the Geosciences (GSA Geoscience Education Division)

8:00 AM, Washington State Convention Center, Room 2B

Bryan W. Turner, Matthew T. Mossbrucker and Robert T. Bakker, Presiding

- 312-1 8:00 AM Evans, Dallas*: **THE LEGACY OF VICTOR PORTER AND GEOSCIENCE EDUCATION AT THE CHILDREN'S MUSEUM OF INDIANAPOLIS (Invited Presentation)**
- 312-2 8:20 AM Zietlow, Daniel W.*; Bartel, Beth; Olds, Shelley E.: **HANDS-ON GEODESY: ENGAGING THE PUBLIC AND FOSTERING INTERN PROFESSIONAL DEVELOPMENT**
- 312-3 8:35 AM Santi, Paul M.*; Gianquitto, Tina: **CURATING ANSEL ADAMS – PARTNERING WITH A REGIONAL ART CENTER TO CREATE GEOLOGY LABELS**
- 312-4 8:50 AM Dulin, Shannon A.*: **COMBINING ACTIVE LEARNING AND PODCASTING AS AN OUTREACH MEDIUM TO MAKE SCIENCE RELEVANT TO BOTH UNDERGRADUATE NON-MAJORS AND THE PUBLIC (Invited Presentation)**
- 312-5 9:10 AM Bakker, Robert T.; Temple, David Porter*; Ott, Janet F.: **POST OAK IN THE PERMIAN: MONTESSORI HIGH SCHOOL JOINS QUANTITATIVE SAMPLING OF EARLIEST APEX PREDATOR, THE RED BEDS *DIMETRODON* IN THE CLEAR FORK GROUP, BAYLOR COUNTY, TEXAS**
- 312-6 9:25 AM Persons, Walter S.*; Bakker, Robert T.; Smith, Sean D.; Mossbrucker, Matthew T.: **JURASSIC PARKWAY VERSUS *TRICERATOPS* SUBURBS: FIELD COURSE FOR AMATEURS SEPARATE RESIDENT DINOSAURS FROM TRANSIENTS**
- 312-7 9:40 AM Steinhardt, Shana*; Temple, David Porter; Bakker, Robert T.: **MONTESSORI EARLY ELEMENTARY GRADES EXPLORE DEEP TIME WITH TEXAS FOSSIL MOLLUSKS: IDENTIFYING WHO ATE WHOM AND HOW WARM THE WINTERS WERE IN THE EOCENE**
- 312-8 9:55 AM Miller-DeBoer, Carrie*; Laubach, Timothy: **VISUALIZING SUCCESS: SCIENCE FACULTY AS SCIENCE WRITING INSTRUCTORS (Invited Presentation)**
- 312-9 10:15 AM Gowan, Monica E.*: **PREPARING STUDENTS FOR THE DISASTER OF A LIFETIME: AN UNDERGRADUATE TEACHING ACTIVITY ON BUILDING RESILIENCE TO A CASCADIA SUBDUCTION ZONE MEGAQUAKE**

- 312-10 10:30 AM Campbell, Michael*; Salditch, Leah; Brooks, Edward M.; Stein, Seth; Spencer, Bruce D.: **EARTHQUAKES AND MONEYBALL: EXPLAINING CASCADIA EARTHQUAKE PROBABILITIES TO STUDENTS AND THE PUBLIC USING BASEBALL ANALOGIES**
- 312-11 10:45 AM Woelfel, Isaac E.*; Yunker, Molly L.; Chang, Jefferson C.: **UPTICK IN OKLAHOMA SEISMICITY TRENDS WARRANTS SHIFT IN PUBLIC OUTREACH**
- 312-12 11:00 AM Evans, Dallas*: **CHILDREN AND THEIR FAMILIES EXPLORE THE DINOSAURS OF THE HELL CREEK FORMATION AT RUTH MASON QUARRY**
- 312-13 11:15 AM Turner, Bryan W.*; Mossbrucker, Matthew T.: **SPEAKING TO THE EARTH: ENGAGING THE PUBLIC IN SEDIMENTOLOGY AND STRATIGRAPHY**
- 312-14 11:30 AM Mossbrucker, Matthew T.*; Turner, Bryan W.; Bakker, Robert T.: **JUMPING INTO THE FISHBOWL: OPEN FOSSIL PREPARATION LAB AS A MEANS OF PALEONTOLOGY EDUCATION**
- 312-15 11:45 AM Sarg, Ann; Tally, Caroline; Hartshorn, Douglas*; Elinghaus, Chenoa; Mossbrucker, Matthew T.; Bakker, Robert T.: **REQUIEM FOR JIM THE *PITUOPHIS*: HOW LIVE REPTILES JOIN WITH MAMMOTHS TO TEACH PLEISTOCENE PALEONTOLOGY**

SESSION NO. 313

T136. Discovery and Preservation of Geoscience Data and Information Resources (Geoscience Information Society; GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division; GSA Energy Geology Division)

8:00 AM, Washington State Convention Center, Room 3B

Chris Badurek, Denise Hills and Leslie Hsu, Presiding

- 313-1 8:00 AM Crosby, Christopher J.*; Nandigam, Viswanath; Arrowsmith, J. Ramón: **FROM ZERO TO A TRILLION – REFLECTIONS ON NINE YEARS OF OPENTOPOGRAPHY, A PLATFORM TO ENABLE OPEN ACCESS TO HIGH RESOLUTION TOPOGRAPHY**
- 313-2 8:15 AM Edwards, Jacob*: **OREGON LIDAR CONSORTIUM: A SUCCESSFUL MODEL FOR ACQUIRING AND SHARING LIDAR**
- 313-3 8:30 AM Eungard, Daniel W.*: **DATA STRUCTURE, WORKFLOW, AND DISPLAY OF SUBSURFACE DATA FROM GEOTECHNICAL REPORTS IN WASHINGTON STATE**
- 313-4 8:45 AM Curl, Douglas C.*; Weisenfluh, Gerald A.: **PRESERVATION AND WEB ACCESSIBILITY OF LIMESTONE AND DOLOMITE RESOURCE DATA FOR KENTUCKY**
- 313-5 9:00 AM Dunn, Lisa G.*: **THE ARCHIVAL PAPERS OF FIELD GEOLOGISTS: THE CHALLENGES OF DISCOVERY AND ACCESS TO THE BREADTH OF GEOLOGIC DATA FROM UNPUBLISHED FIELD RESEARCH**
- 9:15 AM **BREAK**
- 313-6 9:30 AM Halsted, Christian; Fisher, Adam; Marvinney, Robert G.*: **MANAGING THE DIGITAL GEOLOGIC PUBLICATION LIFECYCLE WITH DIGITAL COMMONS: A PARTNERSHIP BETWEEN THE MAINE GEOLOGICAL SURVEY AND THE MAINE STATE LIBRARY**
- 313-7 9:45 AM Teplitzky, Samantha*: **OPEN EDUCATIONAL RESOURCES IN THE EARTH SCIENCES: EXAMPLES FROM THE UC BERKELEY LIBRARY'S AFFORDABLE COURSE CONTENT PILOT PROGRAM**
- 313-8 10:00 AM Tschirhart, Lori*: **DOCUMENTATION IN THE MIDDLE: ACTIVE PHASE PROJECT DOCUMENTATION FOR INCLUSIVE AND EFFECTIVE TEAM-BASED RESEARCH**
- 313-9 10:15 AM Gowen, Elise D.*: **VIRTUAL FRONTIERS: MANAGING 3D AND VIRTUAL REALITY CONTENT AND SYSTEMS IN GEOSCIENCE LIBRARIES**

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- 313-10** 10:30 AM Badurek, Chris A.*: **USE OF WEB GIS AND SATELLITE IMAGERY FOR COMMUNICATING CONCEPTS OF UNCERTAINTY IN EARTH SCIENCE DATA**
- 313-11** 10:45 AM Grace-McCaskey, Cynthia; Manda, Alex K.*; Etheridge, James Randall; O'Neill, Jennifer: **A CITIZEN SCIENCE APPROACH TO GROUNDWATER MONITORING: THE IMPACTS OF PARTICIPATION ON KNOWLEDGE AND ATTITUDES, AND IMPLICATIONS FOR MANAGEMENT**

SESSION NO. 314

T154. Imaging the Rock and Fluid Interactions of Geologic Carbon Sequestration (GSA Hydrogeology Division; GSA Energy Geology Division; GSA Environmental and Engineering Geology Division)

8:00 AM, The Conference Center, Skagit 2

Laura E. Dalton, Dustin Crandall, Jennifer Druhan and Brian R. Ellis, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 314-1** 8:10 AM Thomas, Dana*; Garing, Charlotte; Zahasky, Christopher; Bird, Dennis K.; Benson, Sally M.; Maher, Kate: **VISUALIZING BASALT-CO₂ REACTIVITY DURING FLOW-THROUGH EXPERIMENTS (Invited Presentation)**
- 314-2** 8:30 AM Luhmann, Andrew J.*; Tutolo, Benjamin M.; Bagley, Brian C.; Tan, Chunyang; Mildner, David F.R.; Moskowitz, Bruce; Saar, Martin O.; Seyfried, William E.: **PHYSICAL AND CHEMICAL CHANGES FROM BASALT-CO₂-RICH FLUID INTERACTION DURING FLOW-THROUGH EXPERIMENTS AT 150°C AND 150 BAR**
- 314-3** 8:45 AM Davila, Gabriela*; Crandall, Dustin; Druhan, Jennifer: **GEOCHEMICAL ALTERATION OF PORE STRUCTURE IN MT. SIMON SANDSTONE RESULTING FROM CONTINUOUS INJECTION OF CO₂-SATURATED BRINE**
- 314-4** 9:00 AM Elbakhshwan, Mohamed*; Gill, Simerjeet; Weidner, Randy; Ghose, Sanjit; Bai, Jianming; Dooryhee, Eric; Ecker, Lynne: **IN SITU SYNCHROTRON MEASUREMENTS FOR CO₂ INTERACTION WITH SUBSURFACE MATERIALS**
- 9:15 AM **BREAK**
- 314-5** 9:30 AM Andrew, Matthew*: **MULTISCALE IMAGING OF WETTABILITY USING *IN SITU* X-RAY MICROSCOPY (Invited Presentation)**
- 314-6** 9:50 AM Chang, Chun*; Kneafsey, Timothy J.; Wan, Jiamin; Tokunaga, Tetsu: **NON-UNIFORM DISPLACEMENT AND RESIDUAL TRAPPING OF SUPERCRITICAL CO₂ IN MIXED-WET MICROMODELS**
- 314-7** 10:05 AM Cama, Jordi*; Davila, Gabriela; Garcia-Rios, Maria; Soler, Josep M.: **CHARACTERIZATION OF FRACTURE CHANGES UNDER HIGH PCO₂: X-RAY COMPUTED MICROTOMOGRAPHY (XCMT) AND SEM IMAGES (Invited Presentation)**
- 314-8** 10:25 AM Dalton, Laura E.; Crandall, Dustin*; Goodman, Angela; King, Seth: **EVALUATION OF METHODS TO MEASURE *IN SITU* CONTACT ANGLES OF SUPERCRITICAL CO₂ AND BRINE IN SANDSTONE CORES USING MICRO-CT IMAGING**
- 314-9** 10:40 AM Wang, Yan*; Crandall, Dustin; Wei, Ning; Moore, Johnathan; Li, Xiaochun; Bromhal, Grant S.: **CO₂-BRINE CORE FLOODING IN SANDSTONE FROM ORDOS BASIN UNDER X-RAY CT**
- 10:50 AM **DISCUSSION**
- 11:05 AM **CONCLUDING REMARKS**

SESSION NO. 315

T169. Deciphering Climate Change and Climate Variability in the Geologic Record Using Palaeosols, Loess, Palaeoweathering Profiles, Pedosedimentary Sequences, and Polygenetic Soils: Their Applications and Limitations as Terrestrial Proxies in Understanding Impacts of Climatic Changes (GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Sedimentary Geology Division)

8:00 AM, The Conference Center, Skagit 3

Mohammed Rafi G. Sayyed and Elizabeth Solleiro-Rebolledo, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 315-1** 8:10 AM Driese, Steven G.*; Riber, Lars; Dypvik, Henning; Stinchcomb, Gary E.; Sorlie, Ronald: **HOW DEEP DOES "TERRESTRIAL" WEATHERING EXTEND INTO CRYSTALLINE BASEMENT? EXAMPLES FROM THE MESOZOIC UTSIRA HIGH, NORWEGIAN NORTH SEA BASIN (Invited Presentation)**
- 315-2** 8:30 AM Hembree, Daniel I.*: **EFFECTS OF THE LATE PALEOZOIC CLIMATE TRANSITION ON SOIL ECOSYSTEMS OF THE APPALACHIAN BASIN, (MONONGAHELA AND DUNKARD GROUPS): EVIDENCE FROM ICHNOFOSSILS**
- 315-3** 8:45 AM Solleiro-Rebolledo, Elizabeth*; Sedov, Sergey; Lucke, Bernhard; Terhorst, Birgit; Diaz-Hernández, Yusnier: **PALEOSOLS DEVELOPED IN A COASTAL DUNE SYSTEM IN THE GULF OF MEXICO: CAN THEY BE USED AS PALEOENVIRONMENTAL INDICATORS OF THE LAST 100,000 YEARS?**
- 315-4** 9:00 AM Kogler, Sarah*; Hembree, Daniel I.: **INFLUENCES OF MODERN PEDOGENESIS ON PALEOCLIMATE ESTIMATES FROM PENNSYLVANIAN AND PERMIAN PALEOSOLS, SOUTHEAST OHIO**
- 315-5** 9:15 AM Retallack, Gregory J.*; Conde, Giselle D.: **PALEOSOL EVIDENCE FOR A SOIL-CO₂ GLOBAL THERMOSTAT OVER THE PAST 300 MILLION YEARS (Invited Presentation)**
- 315-6** 9:35 AM Kowler, Andrew*: **THE RELATIONSHIP AMONG CLUMPED AND STABLE (C AND O) ISOTOPES IN INCIPIENT PEDOGENIC CARBONATES AND IMPLICATIONS FOR THEIR POTENTIAL TO REFLECT THE ANCIENT ENVIRONMENTAL CONDITIONS ASSOCIATED WITH PALEOSOL FORMATION**
- 9:50 AM **BREAK**
- 315-7** 10:05 AM Hasiotis, Stephen T.*; Parrish, Judith Totman; Chan, Marjorie A.: **ROOT TRACE PRESERVATION AND DISTRIBUTION IN THE LOWER JURASSIC NAVAJO SANDSTONE, SOUTHEASTERN UTAH AREA: IMPLICATIONS FOR NAVAJO HYDROLOGY, ECOLOGY, AND CLIMATE**
- 315-8** 10:20 AM **WITHDRAWN**
- 315-9** 10:35 AM Knobbe, Todd K.*; Pettitt, Elizabeth; Schaller, Morgan F.: **REVISION OF THE PALEOSOL PCO₂ PROXY THROUGH DIRECT MEASUREMENT OF SOIL CARBONATE-HOSTED FLUID INCLUSIONS**
- 315-10** 10:50 AM Algeo, Thomas J.*; Liu, Jiangsi; Yang, Huan: **CHANGES IN VEGETATION TYPE ON THE CHINESE LOESS PLATEAU SINCE 75 KA RELATED TO EAST ASIAN SUMMER MONSOON VARIATION (Invited Presentation)**
- 315-11** 11:10 AM Sayyed, Mohammed Rafi G.*: **CLAY MINERALOGY AND GEOCHEMISTRY OF THE INTRABASALTIC PALAEOSOLS (BOLE BEDS) OBTAINED FROM THE SCIENTIFIC DRILLING PROJECT IN KOYNA, INDIA: A MULTI-PROXY PALAEOCLIMATIC STUDY**
- 315-12** 11:25 AM McIntosh, Julia A.*; Tabor, Neil J.; Rosenau, Nicholas A.: **CONSTRAINING THE CAUSES OF ILLITIZATION IN PENNSYLVANIAN-AGED PALEOSOLS FROM THE ILLINOIS BASIN USING ILLITE/SMECTITE RATIOS**

- 315-13** 11:40 AM McGann, Gabriella Elizabeth*: **MAGNETIC SUSCEPTIBILITY OF LOESS PALEOSOL SEQUENCES AT CLYDE: A PROXY FOR PALEOCLIMATE?**
 11:55 AM **CONCLUDING REMARKS**

SESSION NO. 316

T173. Change Detection Photogrammetry in Earth Science (GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division)

8:00 AM, The Conference Center, Chelan 4

Kristin E. Sweeney and Emily S. Schultz-Fellenz, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 316-1** 8:15 AM Evanoff, Emmett*; Wanless, Harold R.: **GEOLOGIC AND PALEONTOLOGIC SIGNIFICANCE OF HISTORIC PHOTOGRAPHS IN BADLANDS NATIONAL PARK, SOUTH DAKOTA**
- 316-2** 8:30 AM Warrick, Jonathan A.*; Ritchie, Andrew: **MEASURING COASTAL CHANGE FROM 4D STRUCTURE-FROM-MOTION PHOTOGRAMMETRY (Invited Presentation)**
- 316-3** 8:50 AM Devine, Parker*; Sweeney, Kristin E.: **MEASURING POST-ERUPTION EVOLUTION OF THE NORTH FORK TOUTLE RIVER, WASHINGTON FROM HISTORICAL AERIAL PHOTOGRAPHY**
- 316-4** 9:05 AM Diefenbach, Angela K.*; Schilling, Steve: **THIRTY SIX YEARS OF TOPOGRAPHIC CHANGE AT MOUNT ST. HELENS VIEWED THROUGH CONSISTENT HIGH-RESOLUTION TERRAIN MODELING (Invited Presentation)**
- 316-5** 9:25 AM Harvey, Jonathan E.*; Greiner, Spencer: **USING REPEAT PHOTOGRAMMETRY TO MONITOR EVOLUTION OF AN ACTIVE MASS MOVEMENT NEAR DURANGO, CO**
 9:40 AM **BREAK**
- 316-6** 9:55 AM Bowman, Jacob*; Truksa, Tyler; Goode, Jaime: **APPLICATION OF STRUCTURE FROM MOTION (SFM) PHOTOGRAMMETRY TO QUANTIFY SEDIMENT MOBILIZATION FOLLOWING WILDFIRE BLOWDOWN EVENTS**
- 316-7** 10:10 AM DiBiase, Roman A.*; Liu, Xiaofeng; Chen, Yunxiang; McCarroll, Nicholas R.; Neely, Alexander B.: **RAPID CHARACTERIZATION OF STREAMBED MICROTOPOGRAPHY IN MOUNTAIN CHANNELS: METHODS AND APPLICATION USING STRUCTURE-FROM-MOTION PHOTOGRAMMETRY (Invited Presentation)**
- 316-8** 10:30 AM Nash, Caroline*; Grant, Gordon E.: **DETECTING CHANNEL INCISION IN THE NORTHERN GREAT BASIN, U.S.A. USING HIGH RESOLUTION DIGITAL TERRAIN MODELS**
- 316-9** 10:45 AM Florsheim, Joan L.*; Chin, Anne: **TEMPORAL CHANGES IN EFFECTIVENESS OF STORM FLOWS IN SOUTHERN CALIFORNIA CHAPARRAL FLUVIAL SYSTEMS AFTER WILDFIRE**
- 316-10** 11:00 AM Kniffin, Maribeth*: **INVESTIGATING GROUNDWATER CONNECTIVITY IN A TUNNEL CHANNEL LAKE**
- 316-11** 11:15 AM Pontifex, Trevor Sides*; Hampton, Samuel J.: **GO WITH THE FLOW: MAPPING RECHARGE ZONES OF PERCHED SPRINGS ON BANKS PENINSULA, NEW ZEALAND**
- 316-12** 11:30 AM Suarez, Angela M.*: **APPLICATION OF REMOTE SENSING TECHNIQUES TO OBTAIN DETAILED SOIL MOISTURE DATA IN LARGE AREAS**
 11:45 AM **DISCUSSION**

SESSION NO. 317

T179. New Concepts in Glaciation of the Western Cordillera of North America (GSA Quaternary Geology and Geomorphology Division)

8:00 AM, The Conference Center, Chelan 2

Doug Clark and Jonathan E. Cripps, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 317-1** 8:05 AM Brennand, Tracy A.*; Cripps, Jonathan E.; Perkins, Andrew J.: **DEGLACIAL STYLE, PATTERN AND TIMING OF THE CORDILLERAN ICE SHEET, SOUTH-CENTRAL INTERIOR BRITISH COLUMBIA (Invited Presentation)**
- 317-2** 8:25 AM Riedel, Jon*: **RETREAT OF THE LAST CORDILLERAN ICE SHEET FROM THE NORTH CASCADE RANGE, WASHINGTON AND BRITISH COLUMBIA**
- 317-3** 8:40 AM Bervid, Heather D.*; Carlson, Anders E.; Walczak, Maureen H.; Hendy, Ingrid; Stoner, Joseph: **RAPID RETREAT OF THE WESTERN MARGIN OF THE NORTHERN AND SOUTHERN CORDILLERAN ICE SHEET IN RESPONSE TO ABRUPT DEGLACIAL SEA-SURFACE TEMPERATURE WARMING**
- 317-4** 8:55 AM Troost, Kathy Goetz*; Booth, Derek B.: **MIS 4 AND OLDER PLEISTOCENE DEPOSITS IN THE PUGET LOWLAND, WASHINGTON STATE**
 9:10 AM **DISCUSSION/BREAK**
- 317-5** 9:25 AM Menounos, Brian*; Goehring, Brent M.; Osborn, Gerald; Darvill, Christopher; Hawkins, Adam; Clague, John; Margold, Martin; Schaefer, Joerg M.; Ward, Brent C.; Gosse, John; Stroeven, Arjen P.: **WHAT HAS SURFACE EXPOSURE DATING TOLD US ABOUT GLACIER FLUCTUATIONS IN WESTERN CANADA? (Invited Presentation)**
- 317-6** 9:45 AM Headley, Rachel*; Sockness, Brian; Borchardt, Scott: **IMPACTS OF HOLOCENE WARMING ON PATTERNS OF EROSION AND MORaine DEPOSITION FOR THE MULDROW GLACIER IN DENALI NATIONAL PARK**
- 317-7** 10:00 AM Tulenko, Joseph P.*; Briner, Jason P.; Young, Nicolás E.; Schaefer, Joerg M.: **¹⁰BE DATING MIS 2 AND MIS 4 MORAINES IN THE REVELATION MOUNTAINS, ALASKA**
- 317-8** 10:15 AM Goehring, Brent M.*; Menounos, Brian; Osborn, Gerald; Hawkins, Adam C.; Ward, Brent C.: **VARIED MAGNITUDE OF ALPINE GLACIER ADVANCES GREY HUNTER PEAK THEIR CLIMATIC SIGNIFICANCE, YUKON TERRITORY, CANADA**
 10:30 AM **DISCUSSION/BREAK**
- 317-9** 10:45 AM Hawkins, Adam C.*; Menounos, Brian; Goehring, Brent M.; Darvill, Christopher; Schaefer, Joerg M.; Osborn, Gerald D.; Lerch, Rebecca: **LATE HOLOCENE GLACIER FLUCTUATIONS IN THE MACKENZIE AND SELWYN MOUNTAINS, NORTHWESTERN CANADA**
- 317-10** 11:00 AM Marchetti, David W.*; Harris, M. Scott; Bailey, Christopher M.: **AN ENIGMATIC, THOUGH LIKELY GLACIAL, BOULDER DEPOSIT IN A SMALL, HIGH-ELEVATION, TOPOGRAPHICALLY ENCLOSED BASIN: NORTH CRATER LAKE, FISH LAKE PLATEAU, UTAH**
- 317-11** 11:15 AM Dickey, Nathan W.*; Heermance, Richard V.; Plummer, Mitchell A.: **LGM AND YOUNGER DRYAS GLACIATIONS IN THE KLAMATH MOUNTAINS, CA, EVIDENCE FROM ¹⁰BE EXPOSURE DATING AND NUMERICAL MODELING**
- 317-12** 11:30 AM Becker, Richard A.*; Barth, Aaron M.; Marcott, Shaun A.; Tikoff, Basil: **CONSTRAINING THE TIMING AND MAGNITUDE OF DEGLACIATION IN THE DRAINAGE BASINS OF MONO CREEK AND THE SOUTH FORK OF THE SAN JOAQUIN RIVER, CENTRAL SIERRA NEVADA MOUNTAINS (USA)**
 11:45 AM **DISCUSSION & CONCLUDING REMARKS**

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W E D N E S D A Y

SESSION NO. 318

T190. Linking Physical and Ecological Processes from Source-to-Sink to Investigate Multi-Scale Response to Restoration (GSA Quaternary Geology and Geomorphology Division; GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Limnogeology Division)

8:00 AM, The Conference Center, Chelan 5

Andrew C. Wilcox, Amy East and Jon Major, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 318-1 8:05 AM Buffington, John M.*: **CONSIDERING SPATIAL AND TEMPORAL VARIABILITY OF FLOODS IN STREAM RESTORATION: EFFECTS OF HYDROCLIMATE ON THE STABILITY OF CHANNEL MORPHOLOGY AND AQUATIC HABITAT (Invited Presentation)**
- 318-2 8:25 AM Pfeiffer, Allison*; Finnegan, Noah J.: **SEDIMENT SUPPLY CONTROLS RIVER BED SURFACE GRAIN SIZE AND THE AVAILABILITY OF SALMONID HABITAT (Invited Presentation)**
- 318-3 8:45 AM Cienciala, Piotr*; Nelson, Andrew D.: **LARGE WOOD IN A MOUNTAINOUS STREAM NETWORK: ECO-GEOMORPHIC ASSOCIATIONS, LAND USE EFFECTS, AND IMPLICATIONS FOR INSTREAM HABITAT AND CARBON STORAGE POTENTIAL**
- 318-4 9:00 AM Gartner, John D.*; Lukas, Stephen C.; Larsen, Isaac J.; Hatch, Christine E.: **PREDICTING CHANNEL STABILITY AND ANALYZING CHANGES IN RIPARIAN COVER AND WOODY DEBRIS IN THE CHICKLEY RIVER WATERSHED, HAWLEY, MASSACHUSETTS, USA**
- 318-5 9:15 AM Krause, Samantha M.*; Beach, Timothy; Luzzadder-Beach, Sheryl; Doyle, Colin; Guderjan, Thomas; Sanchez Morales, Lara: **PALEOECOLOGY AND HUMAN USE OF WETLANDS IN THE THREE RIVERS REGION, NORTHWESTERN BELIZE**
- 318-6 9:30 AM East, Amy*; Harrison, Lee R.; Smith, Douglas P.; Bond, Rosealea; Logan, Joshua B.; Nicol, Colin; Williams, Thomas H.; Boughton, David A.: **EARLY GEOMORPHIC AND FISH-HABITAT RESPONSE TO A UNIQUE LARGE-DAM REMOVAL AND SUBSEQUENT MAJOR FLOODS: CARMEL RIVER, CALIFORNIA**
- 318-7 9:45 AM Leung, Vivian*; McCoy, Randall E.; McHenry, Michael; Montgomery, David R.: **FIELD INVESTIGATIONS OF LOGJAM DISTRIBUTION AND DYNAMICS BEFORE AND DURING THE ELWHA RIVER RESTORATION PROJECT DAM REMOVALS**
- 10:00 AM **BREAK**
- 318-8 10:15 AM Tullos, Desiree*; Elliot, Susan: **PHYSICAL MODELING OF THE FEEDBACKS BETWEEN A REED CANARYGRASS (PHALARIS ARUNDINACEA) PATCH, HYDRAULICS, AND BEDFORM EVOLUTION (Invited Presentation)**
- 318-9 10:35 AM Boyer, Elizabeth W.*; Golden, Heather E.; Galloway, James N.; Alexander, Richard B.; Schwarz, Gregory E.; Gomez-Velez, Jesus D.; Harvey, Judson W.; Scott, Durelle; Schmadel, Noah: **COUPLED HYDROLOGICAL, BIOGEOCHEMICAL, AND GEOMORPHIC PROCESSES AFFECTING NUTRIENT LOADINGS IN FLUVIAL NETWORKS**
- 318-10 10:50 AM Donahue, Daniel*; Constantine, José Antonio: **THE ENVIRONMENTAL LEGACY OF CHANNELIZATION ON AQUATIC HABITATS OF A GRAVEL-BED WANDERING RIVER**
- 318-11 11:05 AM Wilcox, Andrew C.*; Sawyer, April M.: **SETUP AND TRIGGERING OF POST-RESTORATION CHUTE CUTOFFS IN A GRAVEL-BED RIVER**
- 318-12 11:20 AM Shore, Dominique Marie*; Harvey, Jonathan E.; Gianniny, Gary L.: **SEDIMENT MOBILITY ON THE DOLORES RIVER DURING THE HIGH PEAK RUN-OFF OF 2017**

11:35 AM **LIGHTNING TALKS / POP-UPS**

11:50 AM **DISCUSSION**

SESSION NO. 319

T206. Geomorphology and Landscape Evolution of Mars: The G.K. Gilbert Award Session II (GSA Planetary Geology Division)

8:00 AM, The Conference Center, Tahoma 1

James J. Wray and Danielle Wyrick, Presiding

- 319-1 8:00 AM Adams, Kenneth D.*; McCoy, Scott W.: **WIND, WAVES, AND SHORELINE DEVELOPMENT ON MARS**
- 319-2 8:15 AM Zimbelman, James R.*; Johnson, Molly B.; O'Brien, Jennifer: **RIPPLE ORIENTATIONS ON MARTIAN DUNES DOCUMENT DIVERSE WIND FLOW PATTERNS**
- 319-3 8:30 AM Chojnacki, Matthew*; Banks, Maria E.; Fenton, Lori K.; Urso, Anna: **AEOLIAN DRIVEN LANDSCAPE EVOLUTION IN THE NOACHIS TERRA AND HELLESPOINTUS MONTES REGIONS, MARS**
- 319-4 8:45 AM Reynolds, Michael*; Rice, Melissa S.; Studer-Ellis, Genevieve; Bell, James F.; Johnson, Jeffrey R.; Herkenhoff, Ken E.; Wellington, Danika F.: **THE ALBEDO OF MARS: SIX MARS YEARS OF OBSERVATIONS FROM PANCAM ON THE MARS EXPLORATION ROVERS AND COMPARISONS TO HIRISE**
- 319-5 9:00 AM Hughes, Madison N.*; Arvidson, Raymond E.; Grant, John A.; Howard, Alan D.; Wilson, Sharon A.: **DEGRADATION OF ENDEAVOUR CRATER BASED ON ORBITAL AND ROVER-BASED OBSERVATIONS**
- 319-6 9:15 AM Noe Dobrea, Eldar*; Williams, Rebecca M.E.; Howard, Alan D.; Dietrich, William; Irwin, Rossman P.: **MINERALOGY OF A CEMENTED INVERTED CHANNEL, ATACAMA, CHILE: CLUES TO ITS FORMATION THE FORMATION OF A MARS-ANALOG LANDFORM**
- 319-7 9:30 AM Wilson, Sharon A.*; Howard, Alan D.; Grant, John A.: **GEOLOGIC MAPPING AND STRATIGRAPHIC ANALYSIS OF ALLUVIAL FANS IN RODDY CRATER ON MARS**
- 319-8 9:45 AM Cofield, Shannon M.*; Stack, Kathryn M.: **GEOLOGIC MAPPING AND STRATIGRAPHIC ANALYSIS OF A CANDIDATE MARS 2020 LANDING SITE: JEZERO CRATER, MARS**
- 319-9 10:00 AM Heydari, Ezat*; Calef, Fred J.; Schroeder, Jeffrey F.; Van Beek, Jason; Parker, Timothy; Rowland, Scott; Fairen, Alberto G.; Hallet, Bernard: **THE LAST RECORDED DELTAIC DEPOSITION IN GALE CRATER BEFORE MARS WENT COLD: EVIDENCE FROM THE RUGGED TERRAIN UNIT IN THE CURIOSITY ROVER'S LANDING ELLIPSE**
- 319-10 10:15 AM Ojha, Lujendra*; Chojnacki, Matthew; McDonald, George; Shumway, Andrew; Wolff, M.J.; Smith, Michael; Ferrier, Ken L.; Huber, Christian; Wray, James J.; Toigo, Anthony: **SEASONAL SLUMPS IN JUVENTAE CHASMA, MARS**
- 319-11 10:30 AM Fackrell, Laura E.*; Seelos, Kimberly D.; Seelos, Frank P.; Viviano-Beck, Christina E.: **MINERALOGICAL MAPPING OF LIGHT-TONED, SULFATE-RICH DEPOSITS IN EASTERN VALLES MARINERIS, MARS**
- 319-12 10:45 AM Keszthelyi, Laszlo P.*; Dundas, Colin M.; Jaeger, Windy L.: **IS EROSION BY LAVA IMPORTANT ON MARS?**
- 11:00 AM **DISCUSSION**

SESSION NO. 320***T210. Challenges in Tectonics: Beyond Steady State: New Developments in Understanding Strain Localization Processes and the Rheology of the Lithosphere (GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)***

8:00 AM, The Conference Center, Tahoma 2

Seth C. Kruckenberg, Jamie S. Levine and Elena A. Miranda, Presiding

- 320-1** 8:00 AM Pec, Matej*: **STRAIN PARTITIONING AND LOCALIZATION IN GRANITOID FAULT ROCKS DEFORMED AT ELEVATED PRESSURES AND TEMPERATURES (Invited Presentation)**
- 320-2** 8:15 AM Reber, Jacqueline E.*; Pec, Matej: **THE INTERACTION BETWEEN BRITTLE- AND DISLOCATION CREEP IN QUARTZ**
- 320-3** 8:30 AM Thigpen, J. Ryan*; Ashley, Kyle T.; Law, Richard D.: **MODELING FEEDBACKS BETWEEN TRANSIENT THERMAL EVOLUTION, RHEOLOGICAL BEHAVIOR, AND STRAIN LOCALIZATION IN COLLISIONAL THRUST BELTS**
- 320-4** 8:45 AM McGrew, Allen J.*; Rahl, Jeffrey M.: **FROM MICROKINEMATICS TO MACRO-INTERPRETATION: VARIATION IN KINEMATIC VORTICITY AND STRAIN LOCALIZATION IN THE RUBY-EAST HUMBOLDT SHEAR ZONE, NORTHEASTERN NEVADA**
- 320-5** 9:00 AM Starnes, Jesslyn K.*; Long, Sean P.; Zhang, Jingyi; Gordon, Stacia M.: **USING QUARTZ PETROFABRIC INTENSITY PARAMETERS TO DELINEATE SHEAR ZONES: A CASE STUDY FROM THE MAIN CENTRAL THRUST IN WESTERN BHUTAN**
- 320-6** 9:15 AM Jezek, Lynn P.*; Kronenberg, Andreas K.; Law, Richard D.; Jessup, Micah J.; Searle, Michael P.: **FTIR MEASUREMENTS OF WATER IN FAULT ROCKS OF THE SOUTH TIBETAN DETACHMENT, GREATER HIMALAYA**
- 320-7** 9:30 AM Ashley, Kyle T.*; Heaverlo, Nicholas D.; Law, Richard D.; Behr, Whitney M.; Morgan, Sven S.: **APPARENT MECHANICAL HARDENING OF HIGHLY STRAINED QUARTZITE IN THE INNER AUREOLE OF THE PAPOOSE FLAT PLUTON, EASTERN CALIFORNIA**
- 9:45 AM **BREAK**
- 10:00 AM **POSTER LIGHTENING ROUND**
- 320-8** 10:15 AM Mahan, Kevin H.*; Goncalves, Philippe; Orlandini, Omero F.; Leydier, Thomas; Condit, Cailey B.; Moris-Muttoni, Benjamin: **RELATIONSHIPS AMONG TRANSIENT BRITTLE AND DUCTILE DEFORMATION AND METAMORPHIC REACTIONS IN CRUSTAL SHEAR ZONES (Invited Presentation)**
- 320-9** 10:30 AM Sørensen, Bjørn Eske*; Larsen, R.B.; Grant, Thomas Bartholomew: **STRAIN LOCALIZATION INDUCED BY LATE-MAGMATIC CO₂ FLUX AND REACTION-DRIVEN STRAIN SOFTENING**
- 320-10** 10:45 AM Michels, Zachary David*; Medaris, L. Gordon: **THE EFFECT OF MAGMATIC UNDERPLATING ON RHEOLOGICAL PROPERTIES OF THE UPPER MANTLE: THEORY AND OBSERVATION**
- 320-11** 11:00 AM Behr, Whitney M.*; Kotowski, Alissa; Ashley, Kyle: **METAMORPHICALLY-INDUCED RHEOLOGICAL HETEROGENEITY AND THE DEEP TREMOR SOURCE IN SUBDUCTION ZONES (Invited Presentation)**
- 320-12** 11:15 AM Pollitz, Frederick F.*: **LITHOSPHERE AND SHALLOW ASTHENOSPHERE RHEOLOGY FROM OBSERVATIONS OF POST-EARTHQUAKE RELAXATION**
- 320-13** 11:30 AM Stewart, Craig*; Miranda, Elena A.: **PSEUDOTACHYLITE DEVELOPMENT RESULTING FROM STRAIN LOCALIZATION IN BRITTLE DUCTILE TRANSITION QUARTZOFELSPATHIC MYLONITES, SOUTH MOUNTAINS CORE COMPLEX, ARIZONA**

- 320-14** 11:45 AM Ault, Alexis K.*; Jensen, Jordan Leo; Mcdermott, Robert G.; Van Devenner, Brian; Shen, Fen-Ann: **NANO-SCALE EVIDENCE FOR DYNAMIC WEAKENING AND HEALING DURING AN EARTHQUAKE ON A HEMATITE FAULT MIRROR**

SESSION NO. 321 \$***T229. Paleocene-Eocene Tectonic and Magmatic Evolution of the Pacific Northwest (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)***

8:00 AM, The Conference Center, Tahoma 4

Jeffrey H. Tepper, Eugene D. Humphreys and Robert B. Miller, Presiding

- 321-1** 8:00 AM Eddy, Michael P.*: **EVIDENCE FOR THE SILETZIA TERRANE'S ORIGIN AS A RIDGE-CENTERED OCEANIC PLATEAU**
- 321-2** 8:15 AM Wells, Ray E.*; Blakely, Richard J.; Anderson, Megan: **SILETZIA, YELLOWSTONE, AND THE FARALLON PLATE BENEATH NORTH AMERICA (Invited Presentation)**
- 321-3** 8:35 AM Haeussler, Peter J.*; Bradley, Dwight C.; Wells, Ray E.; Miller, Marti L.; Karl, Susan M.: **LIFE AND DEATH OF THE RESURRECTION PLATE: STILL THE MOST COMPELLING EXPLANATION FOR COEVAL FOREARC MAGMATISM IN THE PACIFIC NORTHWEST AND ALASKA**
- 321-4** 8:50 AM Humphreys, Eugene D.*: **ACCRETING SILETZIA: REGIONAL MAGMATIC AND TECTONIC CONSEQUENCES**
- 321-5** 9:05 AM Teyssier, Christian; Whitney, Donna L.*; Rey, Patrice F.: **CENOZOIC EXTENSION OF THE NORTH AMERICAN CORDILLERA: NEW INSIGHT ON METAMORPHIC CORE COMPLEXES (Invited Presentation)**
- 321-6** 9:20 AM Miller, Robert B.*; Bryant, Katherine; Doran, Brigid; Eddy, Michael P.; Sylva, Nick; Raviola, Frank; Umhoefer, Paul J.: **EOCENE TRANSTENSION AND STRAIN PATTERNS FROM DIKE SWARMS AND STRIKE-SLIP FAULTS IN THE WASHINGTON CASCADES**
- 321-7** 9:35 AM Methner, Katharina*; Fiebig, Jens; Wacker, Ulrike; Umhoefer, Paul J.; Chamberlain, C. Page; Mulch, Andreas: **EO-/OLIGOCENE CASCADE TOPOGRAPHY REVEALED BY THE CLUMPED (Δ_{47}) AND OXYGEN ISOTOPE ($\delta^{18}O$) RECORD OF THE CHUMSTICK BASIN (WA, USA)**
- 9:50 AM **BREAK**
- 321-8** 10:05 AM Tikoff, Basil*; Kahn, Maureen; Fayon, Annia; Schmidt, Keegan L.; Kelso, Paul; Gaschnig, Richard; Vervoort, Jeffrey; Hole, John A.: **AN INTEGRATED TECTONIC AND MAGMATIC HISTORY OF THE INTERIOR REGION OF THE PACIFIC NORTHWEST: THE SIGNIFICANCE OF SYRINGA EMBAYMENT (Invited Presentation)**
- 321-9** 10:25 AM Kahn, Maureen*; Fayon, Annia; Tikoff, Basil: **LATEST CRETACEOUS AND PALEOGENE COOLING HISTORY FROM APATITE AND ZIRCON (U-TH)/HE IN THE SYRINGA EMBAYMENT, WESTERN IDAHO**
- 321-10** 10:40 AM Cassel, Elizabeth J.*; Smith, M. Elliot; Adams, Alexandra C.; Jicha, Brian R.: **THE CORDILLERAN OROGEN IN THE EOCENE: TOPOGRAPHY, DRAINAGE SYSTEMS, AND TECTONIC IMPLICATIONS**
- 321-11** 10:55 AM Tepper, Jeffrey H.*; Eddy, Michael P.: **THE CAUSE(S) OF WIDESPREAD EOCENE MAGMATISM IN THE PACIFIC NORTHWEST: INSIGHTS FROM GEOCHEMISTRY AND GEOCHRONOLOGY OF IGNEOUS ROCKS IN WASHINGTON**
- 321-12** 11:10 AM Gaschnig, Richard*; Vervoort, Jeffrey; Lewis, Reed S.: **THE CHALLIS MAGMATIC PROVINCE IN IDAHO: A REVIEW**
- 321-13** 11:25 AM Scarberry, Kaleb C.*: **EOCENE IGNIMBRITE FLARE-UP IN THE NORTHEASTERN U.S. CORDILLERA: TIMING AND STYLE OF VOLCANISM IN THE LOWLAND CREEK VOLCANIC FIELD OF SOUTHWESTERN MONTANA**
- 11:40 AM **DISCUSSION**

AM

WEDNESDAY

SESSION NO. 322

T230. Polygenetic Mélanges: A Glimpse on Tectono-Sedimentary Recycling in Convergent Margins (GSA International/International Interdisciplinary Interest Group; IGCP 640 program S4SLIDE (Significance of Modern and Ancient Submarine Slope Landslides); GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division)

8:00 AM, The Conference Center, Tahoma 5

Andrea Festa, Kei Ogata and Gian Andrea Pini, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 322-1** 8:05 AM Raymond, Loren A.*: **THE POLYGENETIC HEAVEN'S BEACH MELANGE, FRANCISCAN COMPLEX, CALIFORNIA, USA (Invited Presentation)**
- 322-2** 8:25 AM Wakabayashi, John*: **SEDIMENTARY COMPARED TO TECTONIC SERPENTINITE MÉLANGES AND BLOCKS OF ONE TYPE OF MÉLANGE IN ANOTHER: COASTAL CALIFORNIA EXAMPLES**
- 322-3** 8:40 AM Shields, Jessie E.*; Wakabayashi, John: **LARGE RANGE OF METAMORPHIC CONDITIONS RECORDED IN BLOCKS OF A SINGLE MÉLANGE ZONE: AN EXAMPLE FROM THE FRANCISCAN COMPLEX OF CALIFORNIA**
- 322-4** 8:55 AM Bier, Sara E.*; Fisher, Donald M.; Feineman, Maureen; O'Sullivan, Paul B.: **STRUCTURAL FABRICS, GEOCHEMISTRY, AND GEOCHRONOLOGY OF THE REINDEER HILLS MELANGE, A SUTURE ZONE IN SOUTH-CENTRAL ALASKA**
- 322-5** 9:10 AM Lacombe, Ryan A.; Waldron, John W.F.*; Harris, Nicholas B.: **BLOCK-IN-MATRIX ROCKS AT THE LEADING EDGE OF THE HUMBER ARM ALLOCHTHON, PORT AU PORT PENINSULA, NEWFOUNDLAND APPALACHIANS**
- 322-6** 9:25 AM Cloos, Mark*; Ukar, Estibalitz: **TECTONIC FLOW MÉLANGE AND OLISTOSTROMES IN THE FRANCISCAN COMPLEX: WHICH IS MORE ABUNDANT?**
- 9:40 AM **DISCUSSION**
- 9:55 AM **BREAK**
- 322-7** 10:10 AM Yamamoto, Yuzuru*; Yamada, Yasuhiro; Kawakami, Shunsuke: **LIQUEFACTION-INDUCED MASS TRANSPORT DEPOSIT: STRUCTURAL CHARACTERISTICS AND THEIR SEQUENCE OF INTERMITTENT EVENTS (Invited Presentation)**
- 322-8** 10:30 AM Ogata, Kei*; Festa, Andrea; Pini, Gian Andrea: **SEDIMENTARY STRATAL DISRUPTION AND LITHOLOGICAL MIXING IN POLYGENETIC MÉLANGES**
- 322-9** 10:45 AM Wakita, Koji*: **TECTONIC CONTROL OF MÉLANGES FORMATION OF SEDIMENTARY AND POLYGENETIC ORIGIN: EXAMPLES FROM PALEOZOIC TO MESOZOIC ACCRETIONARY COMPLEXES OF SOUTHWEST JAPAN**
- 322-10** 11:00 AM WANG, Houqi*; Ding, Lin; Kapp, Paul; Cai, Fulong; Clinkscapes, Christopher Andrew; Xu, Qiang; Yue, Yahui; Li, Shun: **ACCRETION OF NEO-TETHYS OCEANIC SUBDUCTION IN EARLIEST CRETACEOUS ALONG THE YARLUNG ZANGBO SUTURE ZONE, SANGSANG AREA, SOUTHERN TIBET**
- 322-11** 11:15 AM Pini, Gian Andrea*; Conti, Stefano; Festa, Andrea; Fontana, Daniela; Lucente, Claudio Corrado; Ogata, Kei: **MUD DIAPYRS ORIGINATED FROM MUD-RICH MASS TRANSPORT DEPOSITS: EXHUMED FIELD CASES AND MODERN ANALOGUES**
- 322-12** 11:30 AM Festa, Andrea*; Dilek, Yildirim; Mittempergher, Silvia; Ogata, Kei; Pini, Gian Andrea; Remitti, Francesca: **CAN SUBDUCTION OF SEDIMENTARY MÉLANGES CONTROL THE MECHANICS OF SHALLOW MEGATHRUST?**
- 11:45 AM **CONCLUDING REMARKS**

SESSION NO. 323

T240. Structure and Evolution of the North Atlantic–Arctic Realm

8:00 AM, The Conference Center, Yakima 1

Christian Schiffer, Gillian Foulger, Randell Stephenson, Fiona Darbyshire and Hans Thybo, Presiding

- 323-1** 8:00 AM Keathley, Danielle E.; Hetherington, Callum J.*: **GEOCHEMICAL CHARACTERIZATION OF A FEEDER-DIKE SYSTEM IN THE SEILAND IGNEOUS COMPLEX, NORTHERN NORWAY: IMPLICATIONS FOR GEOTECTONIC ENVIRONMENT OF EMPLACEMENT**
- 323-2** 8:15 AM Pease, Victoria*; Koyi, Hemin A.; Nilfouroushan, Faramarz: **DEVELOPMENT OF THE AMERASIA BASIN: WHERE ARE WE NOW? (Invited Presentation)**
- 323-3** 8:35 AM Schiffer, Christian*; Stephenson, Randell: **CRUSTAL STRUCTURE OF THE EUREKAN OROGEN, ARCTIC CANADA**
- 323-4** 8:50 AM Dubé, Jean-Michel; Darbyshire, Fiona*; Stephenson, Randell A.; Oakey, Gordon: **LITHOSPHERIC AND UPPER-MANTLE FABRIC ACROSS THE CANADIAN HIGH ARCTIC: EVIDENCE FROM SHEAR-WAVE SPLITTING**
- 323-5** 9:05 AM Schaeffer, Andrew J.*; Lebedev, Sergei; Fullea, Javier; Audet, Pascal: **INVESTIGATING THE SEISMIC AND THERMAL STRUCTURE OF THE CIRCUM-ARCTIC LITHOSPHERE AND ASTHENOSPHERE (Invited Presentation)**
- 323-6** 9:25 AM Ben Mansour, Walid*: **CRUSTAL PROPERTIES ACROSS THE TRANSITION FROM OROGENIC TO CRATONIC AREA FROM SEISMOLOGICAL ANALYSIS**
- 323-7** 9:40 AM Artemieva, Irina M.*; Barantseva, Olga; Thybo, Hans; Shulgin, Alexey; Makushkina, Anna: **LITHOSPHERE STRUCTURE OF THE NORTH ATLANTIC REGION**
- 323-8** 9:55 AM Foulger, Gillian Rose*: **EVOLUTION OF THE GREENLAND-ICELAND-FAROEES RIDGE**
- 323-9** 10:10 AM Gernigon, Laurent*; Schiffer, Christian; Geoffroy, Laurent; Nasuti, Aziz; Foulger, Gillian; Franke, Dieter: **HOW DID THE CONTINENTS BREAK APART IN THE NORWEGIAN-GREENLAND-SEA? (Invited Presentation)**
- 323-10** 10:30 AM Martinez, Fernando*; Hey, Richard: **PLATE BOUNDARY PROCESSES AND SMALL-SCALE MANTLE CONVECTION BENEATH THE REYKJANES RIDGE**
- 10:45 AM **DISCUSSION AND CONCLUDING REMARKS**

SESSION NO. 324

T254. The Co-Evolution of Life and Its Environment during the Precambrian: The “Boring Billion” and Mid-Proterozoic Emergence of Complex Life (Paleontological Society; GSA Geobiology & Geomicrobiology Division)

8:00 AM, The Conference Center, Skagit 5

Roger Buick, Matthew Koehler and Charles Diamond, Presiding

- 324-1** 8:00 AM Laakso, Thomas A.*; Schrag, Daniel P.: **LIMITATIONS ON LIMITATION**
- 324-2** 8:15 AM Gilleaudeau, Geoffrey J.*; Junium, Christopher K.; Kah, Linda C.; Zolotova, Natasha; Anbar, Ariel D.: **NO EVIDENCE FOR ALTERNATIVE NITROGENASE EXPRESSION IN A MESOPROTEROZOIC MOLYBDENUM-LIMITED ENVIRONMENT: CONSTRAINTS FROM NITROGEN ISOTOPES AT 1.1 GA**
- 324-3** 8:30 AM Koehler, Matthew*; Stüeken, Eva E.; Kipp, Michael A.; Buick, Roger; Knoll, Andrew H.: **LOW NITRATE LEVELS IN THE MESOPROTEROZOIC OCEAN**
- 324-4** 8:45 AM Planavsky, Noah J.*; Zhao, Mingyu; Reinhard, Christopher T.: **MID-PROTEROZOIC OXYGEN AND METHANE (Invited Presentation)**
- 324-5** 9:05 AM Rico, Kathryn*; Sheldon, Nathan D.; Gallagher, Timothy M.: **BIOGEOCHEMICAL PATHWAYS OF NUTRIENT AND**

- METAL BURIAL IN PROTEROZOIC LAKES AND IMPLICATIONS FOR ATMOSPHERIC OXYGEN LEVELS**
- 324-6** 9:20 AM Slotznick, Sarah P.*; Swanson-Hysell, Nicholas L.; Sperling, Erik A.: **A PRESERVED MESOPROTEROZOIC OXYCLINE AND A HOSPITABLE LACUSTRINE ENVIRONMENT FOR EARLY EUKARYOTES**
- 9:35 AM **BREAK**
- 324-7** 9:50 AM Crowe, Sean A.*; Simister, Rachel L.; Maresca, Julia; Hallam, Steven: **MICROEUKARYOTES IN FERRUGINOUS (FE-RICH) MID-PROTEROZOIC OCEAN ANALOGUES (Invited Presentation)**
- 324-8** 10:10 AM Yeung, Laurence Y.*: **LIMITS ON ATMOSPHERIC OXYGEN AND ARGON CONCENTRATIONS AT 815 MA**
- 324-9** 10:25 AM Xiao, Shuhai*; Tang, Qing; Pang, Ke; Bykova, Natalia; Ye, Qin; Yuan, Xunlai: **LIFE AFTER THE "BORING BILLION": THE FOSSIL RECORD IN THE TONIAN PERIOD (Invited Presentation)**
- 324-10** 10:45 AM Gibson, Timothy M.*; Crockford, Peter W.; Bui, Thi Hao; Wöhrndle-Quoëx, Sarah; Halverson, Galen P.: **TECTONOSTRATIGRAPHY AND RADIOGENIC ISOTOPE CHEMOSTRATIGRAPHY OF THE CA. 1 GA BYLOT SUPERGROUP**
- 324-11** 11:00 AM Agić, Heda*; Porter, Susannah M.; Wöhrndle, Sarah; Gibson, Timothy M.; Crockford, Peter W.; Kunzmann, Marcus; Halverson, Galen P.: **ORGANIC-WALLED MICROFOSSILS FROM THE ~1 GA BYLOT SUPERGROUP, BAFFIN ISLAND**
- 324-12** 11:15 AM Riedman, Leigh Anne*; Sadler, Peter: **EUKARYOTIC SPECIES RICHNESS IN THE EARLY TO MIDDLE NEOPROTEROZOIC**

- PHYSICS EXPERIMENT SITE WITH THE LARGE-N SEISMIC ARRAY**
- 325-9** 3:45 PM Pettit, Erin C.*; Zeh, Matthew C.; Wilson, Preston; Kienholz, Christian; Amundson, Jason; Nash, Jonathan; Sutherland, David A.; Jackson, Rebecca; Motyka, Roman: **ACOUSTICS AT THE GLACIER ICE-OCEAN BOUNDARY**
- 325-10** 4:00 PM Terry, Neil; Grunewald, Elliot*; Briggs, Martin A.; Kass, Andrew M.; Hury, Alexander; Gooseff, Michael; Hendrickson, Patrick J.; Lane, John W.: **A CONCEPTUAL MODEL FOR SEASONAL THAW DYNAMICS OF AN AUFEIS FEATURE INFERRED FROM SURFACE GEOPHYSICAL METHODS**
- 325-11** 4:15 PM Schmerr, Nicholas C.*; Montgomery, Lynn; Forster, Richard; Koenig, Lora; Legchenko, Anatoly; Ligtenberg, Stefan; Miège, Clément; Miller, Olivia Leigh; Solomon, D. Kip: **FIRN AQUIFER STRUCTURE IN SOUTHEASTERN GREENLAND FROM ACTIVE SOURCE SEISMOLOGY**
- 325-12** 4:30 PM Winberry, J. Paul*; Huerta, Audrey; Conway, Howard; Anandakrishnan, Sridhar; Aster, Richard; Koutnik, Michelle; Nyblade, Andrew A.; Wiens, Douglas: **USING REPEATING GLACIAL EARTHQUAKES TO STUDY TEMPORAL VARIABILITY IN SUBGLACIAL CONDITIONS**
- 325-13** 4:45 PM Christianson, Knut*; Holschuh, Nicholas D.; Paden, John; Sprick, Jordan; Peters, Leo; Anandakrishnan, Sridhar; Alley, Richard B.: **A VARIED SUBGLACIAL LANDSCAPE UNDER THWAITES GLACIER, WEST ANTARCTICA**

SESSION NO. 326

T1. 21st Century Rock Flow Properties and Processes: 3D Printing, Digital Rock Physics, and Hydrogeophysics (GSA Hydrogeology Division; GSA Geoinformatics Division; GSA Karst Division)

1:30 PM, Washington State Convention Center, Room 613/614

Michael C. Sukop, Lee J. Florea, Franciszek Hasiuk and Dave Hart, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 326-1** 1:35 PM Hasiuk, Franciszek*; Ishutov, Sergey: **USING RESIN-BASED 3D PRINTING TO BUILD GEOMETRICALLY ACCURATE PROXIES OF POROUS SEDIMENTARY ROCKS**
- 326-2** 1:50 PM Haines, Samuel*; Hasuik, Franek: **TOWARDS THE 'SNAP-OFF' PRESSURE RATIO – USING 3D PRINTED PORE VOLUMES TO BETTER UNDERSTAND RESIDUAL SEAL CAPACITY IN HYDROCARBON EXPLORATION**
- 326-3** 2:05 PM Yoon, Hongkyu*; Martinez, Mario J.; Dewers, Thomas: **3D PRINTING AND DIGITAL ROCK PHYSICS FOR SINGLE FRACTURE NETWORK**
- 326-4** 2:20 PM Kadyrov, Rail*; Starovoytov, Aleksandr; Utemov, Edward: **WAVELET ANALYSIS FOR ADVANCED TOMOGRAPHY DATA INTERPRETATION**
- 326-5** 2:35 PM Herman, Ellen K.*; Jacobson, Samuel N.; Vesper, Dorothy J.; Moore, Johnathan; Crandall, Dustin: **USING 3D PRINTING TO IMPROVE FLOW AND CONTAMINANT CHARACTERIZATION IN KARST AQUIFERS (Invited Presentation)**
- 2:55 PM **BREAK**
- 326-6** 3:10 PM Day-Lewis, Frederick D.*; Singha, Kamini; Briggs, Martin A.; Linde, Niklas; Haggerty, Roy: **GEOELECTRICAL MONITORING OF SOLUTE TRANSPORT IN DUAL-DOMAIN MEDIA: A REVIEW**
- 326-7** 3:30 PM Young, Nathan L.*; Simpkins, William W.; Horton, Robert; McLaren, Robert: **USING DISCRETE FRACTURE NETWORK MODELS TO COMPUTE EQUIVALENT POROUS MEDIA PARAMETERS FOR FRACTURED TILL**
- 326-8** 3:45 PM Gates, Christopher*; Perfect, Edmund; Lokitz, Bradley; Brabazon, Jared William: **TRANSIENT ANALYSIS OF ADVANCING CONTACT ANGLE MEASUREMENTS ON POLISHED ROCK SURFACES**

AFTERNOON ORAL TECHNICAL SESSIONS

SESSION NO. 325

D51. Geophysics/Geodynamics Session

1:30 PM, The Conference Center, Yakima 1

Kent C. Condie, Ting Chen and Paul Winberry, Presiding

- 325-1** 1:30 PM Condie, Kent C.*; Shearer, Charles K.: **RECOGNIZING THE ONSET OF PLATE TECTONICS ON EARTH: THE APPEARANCE OF WIDESPREAD ENRICHED MANTLE BETWEEN 2 AND 3 GA?**
- 325-2** 1:45 PM Shearer, Charles K.*; Condie, Kent C.: **PRIMORDIAL FRACTIONATION OF HIGH FIELD STRENGTH ELEMENTS (HFSE) ON STAGNANT-LID PLANET MANTLES**
- 325-3** 2:00 PM Jellinek, A. Mark*; Lenardic, Adrian; Weller, Matt B.: **HOW DID EARTH NOT END UP LIKE VENUS?**
- 325-4** 2:15 PM Head, James W.*: **GEOLOGICAL EVOLUTION OF THE TERRESTRIAL PLANETARY BODIES: CLUES TO THE ORIGIN OF PLATE TECTONICS (Invited Presentation)**
- 325-5** 2:30 PM Davaille, A.*; Smrekar, S.: **PLUME-INDUCED SUBDUCTION: LOCALIZED ON VENUS NOW, HELPING THE ONSET OF PLATE TECTONICS ON EARTH IN THE ARCHEAN**
- 325-6** 2:45 PM Foley, Bradford J.*: **THE ROLE OF MANTLE THERMAL STATE IN THE INITIATION OF PLATE TECTONICS**
- 325-7** 3:00 PM Vorobiev, Oleg*: **MECHANISMS OF SHEAR WAVE GENERATIONS DURING UNDERGROUND EXPLOSIONS IN JOINTED ROCK**
- 3:15 PM **BREAK**
- 325-8** 3:30 PM Chen, Ting*; Snelson, Catherine M.; Mellors, Robert: **GEOPHYSICAL CHARACTERIZATION OF THE SOURCE**

- 326-9** 4:00 PM Brabazon, Jared William*; Perfect, Edmund; Cheng, Chu-Lin; Bilheux, Hassina Z.; Tremsin, Anton S.; Santodonato, Louis J.: **INVERSE ESTIMATION OF SURFACE FRACTAL DIMENSION AND APERTURE WIDTH FOR ROCK FRACTURES FROM SPONTANEOUS IMBIBITION MEASUREMENTS**
- 326-10** 4:15 PM Stumpf, Andrew J.; Lin, Yu-Feng Forrest*: **THERMOPHYSICAL CHARACTERIZATION OF THE HETEROGENEOUS SUBSURFACE (Invited Presentation)**
4:35 PM **DISCUSSION**
- 326-11** 4:45 PM Thomas, Lauren K.*; Tinjum, James; Hart, David J.; Fratta, Dante: **LONG-TERM MONITORING OF A GEOTHERMAL EXCHANGE BOREFIELD WITH FIBER OPTIC DISTRIBUTED TEMPERATURE SENSING**
- 326-12** 5:00 PM Park, Byeong-Hak*; Jung, Dahee; Lee, Bo-Hyun; Lee, Kang-Kun: **THERMAL DISPERSION BEHAVIOR UNDER THE INDUCED FLOW FIELD BY THE GWHP SYSTEM**
- 326-13** 5:15 PM Zimik, Horthing V.*; Farooq, S.H.; Prusty, Pintu: **SUITABILITY OF GEOTHERMAL SPRING WATER FOR ESTIMATION OF RESERVOIR TEMPERATURE IN ODISHA, INDIA**

SESSION NO. 327 

T18. Remote Sensing Applications in Hydrology and Geology (GSA Hydrogeology Division; GSA Geoinformatics Division; GSA Geophysics Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division)

1:30 PM, Washington State Convention Center, Room 615/616/617

R.H. Becker, Adam M. Milewski and Rachel R. Rotz, Presiding

- 327-1** 1:30 PM Abdelmohsen, Karem*; Sultan, Mohamed; Ahmed, Mohamed; Save, Himanshu; Emil, Mustafa: **HOW DO AQUIFERS RESPOND TO WET AND DRY PERIODS? A CASE STUDY FROM THE NUBIAN SANDSTONE AQUIFER SYSTEM (NSAS)**
- 327-2** 1:45 PM Deines, Jillian M.*; Kendall, Anthony D.; Hyndman, David W.: **MAPPING ANNUAL IRRIGATION DYNAMICS IN THE NORTHERN US HIGH PLAINS AQUIFER USING LANDSAT SATELLITE DATA**
- 327-3** 2:00 PM Sultan, Mohamed*; Abdelmohsen, Karem; Emil, Mustafa; Ahmed, Mohamed; Yan, Eugene; Save, Himanshu: **REMOTE SENSING CONTRIBUTIONS TO THE ASSESSMENT OF AQUIFER'S STRUCTURE, CONNECTIVITY, PATHWAYS, IMPEDIMENTS, DISCHARGE, AND SUSTAINABILITY**
- 327-4** 2:20 PM Scanlon, Bridget R.*; Zhang, Zizhan; Save, Himanshu; Reedy, Robert; Sun, Alex; Muller-Schmied, Hannes; Van Beek, Ludovic P.H.; Wiese, David: **COMPARISON OF LAND WATER STORAGE CHANGES FROM GLOBAL HYDROLOGIC AND LAND SURFACE MODELS WITH OUTPUT FROM NEW GRACE SATELLITE SOLUTIONS**
- 327-5** 2:35 PM Lotfata, Aynaz*; Ambinakudige, Shrinidhi: **ANALYSIS OF GROUNDWATER ANOMALIES ESTIMATED BY GRACE AND GLDAS SATELLITE-BASED HYDROLOGICAL MODEL IN THE GULF OF MEXICO**
- 327-6** 2:50 PM Brookfield, Andrea E.*; Hill, Mary C.; Rodell, Matthew; Loomis, Bryant; Stotler, Randy L.; Porter, Misty E.; Bohling, Geoffrey C.: **IN-SITU AND GRACE-BASED GROUNDWATER OBSERVATIONS: SIMILARITIES, DISCREPANCIES, AND EVALUATION IN THE HIGH PLAINS AQUIFER IN KANSAS**
- 327-7** 3:05 PM Argus, Donald F.*; Wiese, David; Landerer, Felix W.; Famiglietti, James S.; Martens, Hilary; Shirzaei, Manoochehr: **SUSTAINED CHANGES IN WATER STORAGE ACROSS THE WESTERN U.S. INFERRED FROM ELASTIC LAND DISPLACEMENTS OBSERVED WITH GPS: PARCHING OF THE GROUND DURING THE SUMMER OF DROUGHT YEARS AND SEEPING OF SNOW MELT INTO THE GROUND DURING THE SPRING OF HEAVY-PRECIPIATION YEARS**

- 327-8** 3:20 PM Pawley, Steven*; Utting, Daniel: **REGIONAL-SCALE PROBABILISTIC PERMAFROST MAPPING OF NORTHERN ALBERTA, CANADA, USING GRASS GIS AND SCIKIT-LEARN**
- 327-9** 3:35 PM Jaeger, Kristin L.*; Sando, Roy; Blasch, Kyle W.; Dunham, Jason; Haluska, Tana; Hockman-Wert, David; Kaiser, Kendra; McShane, Ryan; Olsen, Teresa; Risley, John: **THE PROSPER MODEL: LEVERAGING BIG DATA TO PREDICT FLOW PERMANENCE IN SNOW-DOMINATED RIVER NETWORKS**
- 327-10** 3:50 PM Bilek, Susan L.*; Luhmann, Andrew J.; Grapenthin, Ronni; Diniakos, Rio S.; Morton, Emily A.; Alexander, E. Calvin; Alexander, Scott C.; Larsen, Martin R.; Green, Jeffrey A.: **SEISMIC MONITORING OF KARST RECHARGE EVENTS – RESULTS FROM A PILOT EXPERIMENT**
- 327-11** 4:05 PM Pankratz, Hannah Gayle*; Sultan, Mohamed; Alsefry, Saleh; Fathy, Karem; Al-Harbi, Hassan; Elkadiri, Racha; Emil, Mustafa Kemal; Gebremichael, Esayas: **REMOTE SENSING AND GEOPHYSICAL CONSTRAINTS ON THE DISTRIBUTION AND DEFORMATION ASSOCIATED WITH SALT DOME INTRUSIONS ALONG THE SOUTHERN RED SEA COASTLINE, SAUDI ARABIA**
- 327-12** 4:20 PM Mars, John C.*: **MINERAL MAPPING USING WORLDVIEW 3 DATA AT MOUNTAIN PASS, CALIFORNIA**
- 327-13** 4:35 PM Duncan, Casey J.*; Chan, Marjorie A.; Bowen, Brenda B.: **DIAGENETIC MINERAL MAPPING IN THE CRETACEOUS BASELINE SANDSTONE, SOUTHERN NEVADA FROM COMBINATION OF LANDSAT, UAV, AND REFLECTANCE SPECTRAL DATA**
- 327-14** 4:50 PM Young, Brennan W.*; Bishop, Michael P.; Huo, Da; Owen, Lewis A.: **GEOMORPHOMETRIC CHARACTERIZATION OF TOPOGRAPHIC STRUCTURE AND TECTONICS IN THE KARAKORAMHIMALAYA, PAKISTAN**
- 327-15** 5:05 PM Krekeler, Mark P.S.*; Burke, Michelle; Allen, C. Scott; Sather, Barrett; Dawson, Claudia; Roberts, Jessica: **PROGRESS IN DEVELOPING A HYPERSPECTRAL REMOTE SENSING LIBRARY AND SOFTWARE TOOL FOR FINDING PERSONS IN THE ENVIRONMENT**

SESSION NO. 328 

T21. Using Natural and Anthropogenic Tracers to Determine Recharge and Residence Times within Arid to Semi-Arid Inter-Montane Aquifer Systems (GSA Hydrogeology Division)

1:30 PM, Washington State Convention Center, Room 618/619/620

P.S.K. Knappett, D. Kirk Nordstrom, Jurgen Mahlknecht and Hongbin Zhan, Presiding

- 328-1** 1:30 PM Solomon, D. Kip*; Gardner, Philip M.; Nelson, Nora C.; Heilweil, Victor M.; Manning, Andrew H.: **ENVIRONMENTAL TRACER IN ARID AND SEMI-ARID BASINS: HISTORICAL PERSPECTIVES AND FUTURE TRENDS (Invited Presentation)**
- 328-2** 1:50 PM Faulkner, Kirsten E.*: **GROUNDWATER RECHARGE ESTIMATES OF THE INDIAN WELLS BASIN (CALIFORNIA) USING GEOCHEMICAL ANALYSIS OF TRITIUM**
- 328-3** 2:05 PM Salley, Kaitlin A.*; Stotler, Randy L.; Johnson, William C.: **INVESTIGATION OF PLAYA HYDROLOGY AND RECHARGE FLUX TO THE HIGH PLAINS AQUIFER AT EHMKE PLAYA IN WESTERN KANSAS**
- 328-4** 2:20 PM Neff, Kirstin L.*; Meixner, Thomas; de la Cruz, Lissette; Ajami, Hoori: **SEASONALITY OF GROUNDWATER RECHARGE IN THE BASIN AND RANGE PROVINCE, WESTERN NORTH AMERICA**
- 328-5** 2:35 PM Deformes, J.M.; Oyarzún, Jorge; Núñez, Jorge; Arumí, Jose; Maturana, Hugo; Fairley, Jerry P.*; Oyarzun, Ricardo: **AN ASSESSMENT OF THE NATURAL AND ANTHROPOGENIC FACTORS CONTROLLING THE DISTRIBUTION OF WELLS AND SPRINGS IN THE ARID,**

**MID-MONTANE AREA OF THE COQUIMBO REGION,
NORTH-CENTRAL CHILE**2:50 PM **BREAK**

- 328-6** 3:05 PM Jasechko, Scott; Perrone, Debra; Befus, Kevin M.; Cardenas, M. Bayani; Ferguson, Grant; Luijendijk, Elco; Gleeson, Tom; McDonnell, Jeffrey J.; Taylor, Richard; Wada, Yoshihide; Welker, Jeff; Kirchner, James W.*: **FRESH WATER AGES IN GLOBAL ARID AND MOUNTAINOUS REGIONS (Invited Presentation)**
- 328-7** 3:25 PM Ruybal, Christopher J.*; Hogue, Terri S.; McCray, John E.: **SPATIO-TEMPORAL ASSESSMENT OF GROUNDWATER RESOURCES IN THE SOUTH PLATTE BASIN, COLORADO**
- 3:40 PM **BREAK**
- 328-8** 3:55 PM Zhan, Hongbin*; Liang, Xiuyu: **BASEFLOW RECESSION FROM UNSATURATED-SATURATED FLOW**
- 328-9** 4:10 PM Wang, Quanrong*; Zhan, Hongbin: **SINGLE-WELL PUSH-PULL TEST FOR A PARTIALLY PENETRATING WELL IN A FLOW FIELD WITH A FINITE HYDRAULIC DIFFUSIVITY**
- 328-10** 4:25 PM Szykiewicz, Anna*; Ma, Lin; Garcia, Sandra; Hiebing, Matthew S.: **NATURAL AND ANTHROPOGENIC FACTORS CONTROLLING GROUNDWATER SALINITY IN THE MESSILA VALLEY OF THE SEMI-ARID RIO GRANDE WATERSHED**
- 328-11** 4:40 PM Lerback, Jory C.*; Hynek, Scott A.; Bowen, Brenda B.: **MULTI-TRACER APPROACH TO CHARACTERIZING THE CHEMICAL EVOLUTION OF SPRINGWATER IN BLUE LAKE, UTAH**
- 328-12** 4:55 PM Knappett, P.S.K.*; Li, Yanmei; Hernandez, Horacio; Giardino, J.R.; Mahlkecht, Jurgen; Datta, Saugata: **INCREASING FLUORIDE CONCENTRATIONS AND CHANGING RECHARGE PATHWAYS WITHIN AN INTENSIVELY PUMPED AQUIFER IN CENTRAL MEXICO**
- 328-13** 5:10 PM Lluria, Mario R.*: **THE DEVELOPMENT AND PROGRESS OF MANAGED AQUIFER RECHARGE IN ARIZONA: A GUIDE FOR OTHERS TO FOLLOW**
- 329-7** 3:00 PM Bayasgalan, Gantulga*; Wegmann, Karl W.; Fodor, R.V.; Amgalan, Bayasgalan: **CONTRASTING LATE MIOCENE TO PRESENT LANDSCAPE EVOLUTION ACROSS MONGOLIA'S KHANGAY MOUNTAINS THROUGH THE LENS OF CHEMICAL AND PHYSICAL WEATHERING PROCESSES**
- 329-8** 3:15 PM Jianghai, Yang; Montanez, Isabel P.; Cawood, Peter A.; Condon, Daniel*; Du, Yuansheng: **LOW-LATITUDE MULTIPHASE EARLY PERMIAN DEGLACIAL WARMING REFLECTS CO₂-FORCED CLIMATE TRANSITION**
- 329-9** 3:30 PM Brandon, Mark T.*; Auerbach, David: **HIGH-RESOLUTION MODEL OF OROGRAPHIC PRECIPITATION AND WATER ISOTOPE FRACTIONATION, AS APPLIED TO THE PATAGONIAN ANDES, WITH IMPLICATIONS FOR UNDERSTANDING PALEOTOPOGRAPHY AND CLIMATE-TECTONICS FEEDBACKS**
- 329-10** 3:45 PM Fuentes, Jocelyn*; Crowley, John; Dasgupta, Rajdeep; Mitrovica, Jerry X.: **RIDGE OUTGASSING AND MELT PRODUCTION FROM 4GA TO PRESENT**
- 329-11** 4:00 PM Donnadieu, Yannick*; Godderis, Yves: **THE CONTRIBUTION OF NUMERICAL MODELS TO OUR UNDERSTANDING OF THE PHANEROZOIC CO₂ HISTORY**
- 329-12** 4:15 PM Ward, Peter L.*: **PLATE TECTONICS CONTROLS GLOBAL CLIMATE CHANGE BY DETERMINING THE FREQUENCY OF MAJOR EXPLOSIVE, SUBDUCTION-RELATED VOLCANIC ERUPTIONS CAUSING INCREMENTAL GLOBAL COOLING VERSUS THE EXTENT OF SUBAERIAL, RIFT-RELATED, EFFUSIVE, BASALTIC LAVA FLOWS CAUSING SUDDEN GLOBAL WARMING, OCEAN ACIDIFICATION, MASS EXTINCTIONS, AND OFTEN THE ENDS OF GEOLOGIC EONS, ERAS, PERIODS, ETC**
- 329-13** 4:30 PM Gonzalez, Juan L.*: **HOW FAR INTO THE CARIBBEAN DOES FOREBULGE INDUCED SUBSIDENCE EXTEND? A NEW SEA LEVEL CHRONOLOGY FROM THE TECTONICALLY STABLE CENTRAL COAST OF COLOMBIA**

SESSION NO. 329**T36. Asthenosphere to Atmosphere: Tectonics, Topography, and Climate (GSA Structural Geology and Tectonics Division)**

1:30 PM, Washington State Convention Center, Room 609

A. Alexander G. Webb and Peter D. Clift, Presiding

- 329-1** 1:30 PM Webb, A. Alexander G.*; Clift, Peter D.; Guo, Hongcheng; Husson, Laurent: **CHICKEN OR EGG: CLIMATE AND MANTLE TECTONICS ALONG THE HIMALAYA**
- 329-2** 1:45 PM Boos, William R.*; Hu, Shineng: **MECHANISMS GOVERNING THE EFFECT OF PLATEAUS ON LOW-LATITUDE REGIONAL CLIMATE (Invited Presentation)**
- 329-3** 2:00 PM Huntington, Katharine W.*; Lang, Karl A.; Turzewski, Michael D.: **INTERACTIONS OF FLUVIAL EROSION, CLIMATE AND TECTONICS IN THE EASTERN HIMALAYAN SYNTAXIS (Invited Presentation)**
- 329-4** 2:15 PM Laskowski, Andrew*; Taylor, Michael H.; Kapp, Paul; Campbell, Clay: **DUPLEXING IN SOUTHERN TIBET AND BIRTH OF THE YARLUNG RIVER: A STRUCTURAL MODEL FOR DEVELOPMENT OF OLIGOCENE—MIOCENE RELIEF IN THE GANGDESE MOUNTAINS**
- 329-5** 2:30 PM Heermance, Richard V.*; Pearson, Jozi; Vilkas, Marius; Moe, Annelisa; Liu, Langtao; Xu, Jianhong; Chen, Jie; Richter, Fabiana; Garzzone, Carmala; Nie, Junsheng; Bogue, Scott: **14.6 MA ARIDIFICATION AND DEVELOPMENT OF THE ANCESTRAL TAKLIMAKAN DESERT BETWEEN THE PAMIR AND TIAN SHAN OROGENS, WESTERN CHINA**
- 329-6** 2:45 PM Clift, Peter D.*; Zheng, Hongbo; Jonell, Tara N.; Carter, Andrew; Böning, Philipp; Shan, Xin; Pahnke, Katharina; Wei, Xiaochun: **MODERN AND CENOZOIC EROSION RECORDS OF NORTHWEST TIBET AND PAMIR**

SESSION NO. 330**T52. Biotic Revolutions Recorded in the Trace Fossil Record, Neoproterozoic to Recent II (Paleontological Society; Paleontological Research Institution)**

1:30 PM, Washington State Convention Center, Room 606

James Lehane and Leif Tapanila, Presiding

- 330-1** 1:30 PM Labandeira, Conrad C.*; Feng, Zhuo; Rößler, Ronny; Ślipiński, Adam; Wang, Jun: **THE PERMIAN ORIGIN OF WOOD-BORING BEETLES AND THEIR ECOLOGICAL CONTEXT**
- 330-2** 1:45 PM Hsieh, Shannon*: **MORE SNAILS, MORE TRAILS?: THE RELATIONSHIP BETWEEN TRACE AND TRACEMAKER DENSITIES**
- 330-3** 2:00 PM Curran, H. Allen*; Buynevich, Ilya V.; Seike, Koji; Kopcznski, Karen; Sparacio, Christopher A.; Glumac, Bosiljka; Rodriguez-Tovar, Francisco J.: **MODIFICATION OF TROPICAL COASTAL LANDSCAPES BY BRACHYURAN CRABS: NEOICHOLOGY OF BIOTIC INNOVATION AND SPACE PARTITIONING**
- 2:15 PM **BREAK**
- 330-4** 2:30 PM Tyler, Carrie L.*; Dexter, Troy A.; Portell, Roger W.; Kowalewski, Michal: **PREDATION ON THE MODERN ECHINOID *MEOMA VENTRICOSA* IN A TROPICAL MARINE ENVIRONMENT**
- 330-5** 2:45 PM Petsios, Elizabeth*; Tyler, Carrie L.; Portell, Roger W.; Kowalewski, M.: **TRENDS IN PREDATION AND PARASITISM RECORDED BY DRILL HOLES IN PALEOGENE ECHINOIDS**
- 330-6** 3:00 PM Huntley, John Warren*; Linehan, Liane Christine; De Baets, Kenneth: **PHANEROZOIC TRENDS IN PARASITE-HOST**

INTERACTIONS AMONG COMMON MARINE BENTHOS: MOUNTING RISK OR SPURIOUS CONSEQUENCE OF A BIASED RECORD?

- 3:15 PM **DISCUSSION**
- 330-7** 3:30 PM Wistort, Zackery P.*; Ekdale, Allan A.; Ritterbush, Kathleen A.: **SILICIFIED TRACE FOSSILS AND ICHNOFABRICS IN THE PERMIAN OF NORTHWEST UTAH**
- 330-8** 3:45 PM Buatois, Luis A.*; Mangano, Maria Gabriela: **THE TRACE-FOSSIL RECORD OF MAJOR EVOLUTIONARY RADIATIONS (Invited Presentation)**
- 330-9** 4:00 PM Ekdale, A.A.*: **SIGNIFICANCE OF ICHNOFABRIC IN THE GRAND (PHANEROZOIC) SCHEME OF THINGS (Invited Presentation)**
- 4:15 PM **CONCLUDING REMARKS**

SESSION NO. 331

T57. Mercury in the Geologic Record (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)

1:30 PM, Washington State Convention Center, Room 607

Stephen E. Grasby, Presiding

- 331-1** 1:30 PM Thibodeau, Alyson M.*; Bergquist, Bridget A.; Corsetti, Frank A.; Yager, Joyce A.; West, A. Joshua; Bottjer, David J.; Berelson, William M.; Kah, Linda C.; Hazen, Robert M.; Ono, Shuhei: **HG ISOTOPES AS TRACERS OF DEPOSITIONAL ENVIRONMENTS IN MARINE SEDIMENTS FROM THE PRECAMBRIAN TO THE PHANEROZOIC**
- 331-2** 1:45 PM Zheng, Wang*; Gilleaudeau, Geoffrey J.; Kah, Linda C.; Anbar, Ariel D.: **MERCURY STABLE ISOTOPES AS A NOVEL PROXY FOR PHOTIC ZONE EUXINIA**
- 331-3** 2:00 PM Sun, Guangyi*; Feng, Xinbin; Yin, Runsheng; Fu, Xuewu: **ISOTOPIC SIGNATURES OF MERCURY CONTAMINATION IN THE EDIACARAN DOUSHANTUO FORMATION**
- 331-4** 2:15 PM Faggetter, Luke E.*; Wignall, Paul B.; Pruss, Sara B.; Jones, David S.; Grasby, Stephen E.: **MERCURY ENRICHMENTS COINCIDENT WITH TRILOBITE EXTINCTION AT THE CAMBRIAN SERIES 2 – 3 BOUNDARY; AN IMPRINT OF THE KALKARINDJI LIP? (Invited Presentation)**
- 331-5** 2:30 PM Gong, Qing*; Zhao, Laishi; Wang, Xiangdong; Chen, Zhong Qiang; Grasby, Stephen E.; Lyu, Zhengyi: **MERCURY SPIKES SUGGEST VOLCANIC DRIVER OF THE ORDOVICIAN-SILURIAN MASS EXTINCTION**
- 331-6** 2:45 PM Huang, Yuangeng*; Chen, Zhong Qiang; Wignall, Paul B.; Grasby, Stephen E.; Zhao, Laishi; Wang, Xiangdong; Kaiho, Kunio: **REEF ECOSYSTEM COLLAPSE AND BIOTIC EXTINCTION COINCIDE WITH VOLATILE VOLCANISMS AND ANOXIA OVER GUADALUPIAN-LOPINGIAN (PERMIAN) TRANSITION**
- 331-7** 3:00 PM Wang, Xiangdong*; Zhao, Laishi; Chen, ZhongQiang; Grasby, Stephen E.; Cawood, Peter A.: **MERCURY ANOMALIES SHOW PRECISE COINCIDENCE OF SIBERIAN AND THE END-PERMIAN MASS EXTINCTION IN SOUTH CHINA**
- 3:15 PM **BREAK**
- 331-8** 3:30 PM Zhao, Laishi*; Wang, Xiangdong; Cawood, Peter A.; Chen, Zhong Qiang; Lv, Zhengyi; Liu, Shijie: **GLOBAL MERCURY SPIKE INDICATES ONE VOLATILE PULSE OF THE SIBERIAN TRAPS CORRESPONDING TO THE END-PERMIAN MASS EXTINCTION**
- 331-9** 3:45 PM Yager, Joyce*; West, A. Joshua; Bergquist, Bridget A.; Thibodeau, Alyson M.; Corsetti, Frank A.; Berelson, William M.; Bottjer, David J.: **MERCURY CONCENTRATIONS AND ISOTOPES FROM THE TRIASSIC-JURASSIC BOUNDARY: A LITHOLOGIC AND DEPOSITIONAL DISCUSSION**
- 331-10** 4:00 PM Percival, Lawrence M.E.*; Jenkyns, Hugh C.; Mather, Tamsin A.; Hesselbo, Stephen P.; Ruhl, Micha; Whiteside,

Jessica H.; Dickson, Alex J.; Barclay, Richard S.; Jarvis, Ian: **MERCURY AS A PROXY FOR LARGE IGNEOUS PROVINCE VOLCANISM: A COMPARISON OF MESOZOIC EVENTS**

- 331-11** 4:15 PM Fendley, Isabel*; Sprain, Courtney J.; Marvin-DiPasquale, Mark; Renne, Paul; Tobin, Thomas S.; Weaver, Lucas N.: **MERCURY CHEMOSTRATIGRAPHY THROUGH THE CRETACEOUS-PALEOGENE BOUNDARY IN THE HELL CREEK REGION OF MONTANA AND ITS RELATIONSHIP TO DECCAN VOLCANISM**
- 331-12** 4:30 PM Meyer, Kyle W.*; Petersen, Sierra V.; Blum, Joel D.; Lohmann, Kyger C.; Washburn, Spencer J.; Gleason, James D.; Gehrke, Gretchen: **MERCURY CONCENTRATIONS AND MERCURY STABLE ISOTOPE VARIATIONS AT THE PETM: VOLCANIC LOADING SIGNAL OF THE NORTH ATLANTIC IGNEOUS PROVINCE?**

SESSION NO. 332

T65. Eco-Evolutionary Dynamics in the Fossil Record (Paleontological Research Institution; Paleontological Society)

1:30 PM, Washington State Convention Center, Room 608

Peter D. Roopnarine and Ashley A. Dineen, Presiding

- 332-1** 1:30 PM Novack-Gottshall, Philip M.*: **WHAT WE KNOW, THINK WE KNOW, AND DON'T YET KNOW ABOUT ECOLOGICAL DIVERSITY DURING THE PHANEROZOIC (Invited Presentation)**
- 332-2** 1:45 PM O'Neil, Gretchen R.*; Tackett, Lydia S.; Schiffbauer, James D.; Huntley, John Warren; Cai, Yaoping: **CHANGING ECOSYSTEM DYNAMICS IN THE TERMINAL EDIACARAN VERMIFORM FAUNA: AN ANALYSIS USING SEDIMENTOLOGICAL AND DIVERSITY DATA FROM THE GAOJIASHAN LAGERSTÄTTE OF SOUTH CHINA**
- 332-3** 2:00 PM Finnegan, Seth*; Droser, Mary L.; Gehling, James G.: **UNUSUAL PATCHINESS OF EDIACARAN BENTHIC ASSEMBLAGES RELATIVE TO PHANEROZOIC AND MODERN BENTHIC ASSEMBLAGES**
- 332-4** 2:15 PM Kempf, Hannah L.*; Castro, Ian O.; Tyler, Carrie L.; Dineen, Ashley A.; Roopnarine, Peter D.: **USING FOOD WEBS TO UNDERSTAND THE EFFECTS OF BIOTIC INVASION ON LATE ORDOVICIAN MARINE COMMUNITY STRUCTURE**
- 332-5** 2:30 PM Opazo, L. Felipe*; Marquet, Pablo A.; Dunne, Jennifer; Arroyo, Jose I.; Brito, Gabriel A.; Dannemann, Teodoro; Rivera, Carla N.: **STRUCTURE AND FUNCTIONALITY: ANALYSIS OF THE TRIASSIC-JURASSIC FOOD WEB**
- 332-6** 2:45 PM Dineen, Ashley A.*; Fraiser, Margaret L.; Roopnarine, Peter D.: **FUNCTIONAL SPACE OCCUPATION AFTER THE PERMO-TRIASSIC MASS EXTINCTION: A STUDY OF THE EARLY TRIASSIC VIRGIN LIMESTONE MEMBER (MOENKOPI FORMATION)**
- 332-7** 3:00 PM Angielczyk, Kenneth D.*; Roopnarine, Peter D.; Olroyd, Savannah L.; Nesbitt, Sterling J.; Botha-Brink, Jennifer; Peacock, Brandon R.; Day, Michael O.; Smith, Roger M.H.: **COMPARING THE ECOLOGICAL DYNAMICS OF PERMIAN-TRIASSIC TETRAPOD COMMUNITIES FROM THE KAROO, LUANGWA, AND RUHUHU BASINS OF SOUTHERN AFRICA**
- 332-8** 3:15 PM Roopnarine, Peter D.*; Weik, Allen S.; Angielczyk, Kenneth D.; Dineen, Ashley A.: **ECO-EVOLUTIONARY DYNAMICS AND COMMUNITY RESPONSE, RECOVERY AND REPLACEMENT DURING AND AFTER THE PERMIAN-TRIASSIC MASS EXTINCTION IN THE KAROO BASIN, SOUTH AFRICA**
- 332-9** 3:30 PM Maguire, Kaitlin Clare*: **NICHE DYNAMICS IN SPACE AND TIME: THE NEXUS OF ECOLOGY AND EVOLUTION (Invited Presentation)**
- 332-10** 3:45 PM Smiley, Tara M.*; Moroz, Molly; Badgley, Catherine; Cerling, Thure: **ECOLOGICAL RESPONSE TO ENVIRONMENTAL CHANGE: INSIGHTS FROM THE MIOCENE SMALL-MAMMAL RECORD OF SOUTHERN CALIFORNIA**

- 332-11 4:00 PM Polly, P. David*: **MOVE OR CHANGE? THE PARADOX BETWEEN ECOLOGICAL AND EVOLUTIONARY RESPONSES TO CHANGING ENVIRONMENTS**
- 332-12 4:15 PM Todd, Jonathan A.*; Johnson, Kenneth G.: **SPECIES DISCOVERY AND CHANGING SPECIES INCLUSIVENESS IN CENOZOIC MOLLUSCS – WHAT EMERGES FROM A POPULAR HANDBOOK AFTER MORE THAN 50 YEARS OF NEGLECT?**
- 332-13 4:30 PM Friend, Dana S.*: **EOCENE ATHLETA (VOLUTOSPINA) (GASTROPODA:VOLUTIDAE) FROM THE U.S. GULF COAST AND EUROPE: THE CLASSIC CASE OF DIRECTIONAL EVOLUTION IN ATHLETA (VOLUTOSPINA) PETROSUS CONFIRMED BY MAXIMUM LIKELIHOOD MODELS**
- 332-14 4:45 PM Pier, Jaleigh Q.*: **VARIATION IN MOLLUSCAN ASSEMBLAGE STRUCTURE, BODY SIZE, AND PREDATION ALONG A SALINITY GRADIENT ON SAN SALVADOR ISLAND, BAHAMAS**
- 332-15 5:00 PM Raymond, Anne*; Schultz, Emily: **DID THE EVOLUTION OF THE CENOZOIC INTERTIDAL DETRITIVORE COMMUNITY ELIMINATE MANGROVE (MARINE) PEAT FROM SILICICLASTIC ENVIRONMENTS?**
- 332-16 5:15 PM Johnson, Erynn H.*; Allmon, Warren D.; Sipzner, Dan; Sallan, Lauren: **SHELLS AND MARINE REVOLUTIONS: EXPERIMENTAL TESTS OF THEORETICAL SHELL SHAPES**

SESSION NO. 333 

T73. Geoscience and the Law: Exploring the Legal and Ethical Issues of Geologic Research and Practice (GSA Geology and Society Division; GSA Academic and Applied Geoscience Relations Committee; GSA Environmental and Engineering Geology Division)

1:30 PM, Washington State Convention Center, Room 611

James Heller and Susan Stover, Presiding

- 333-1 1:30 PM Murray, Kyle E.*: **WHOSE FAULT IS IT? PROBABLY NO ONE'S**
- 333-2 1:45 PM Reckendorf, Frank F.*: **KEYS TO BEING SUCCESSFUL IN PRE-LITIGATION AND LITIGATION AS AN EXPERT WITNESS**
- 333-3 2:00 PM Mogk, D.W.*: **GEOETHICS AND PROFESSIONALISM IN THE GEOSCIENCES: BE AWARE, BE PREPARED, BE READY TO ACT (Invited Presentation)**
- 333-4 2:15 PM Stirewalt, Gerry L.*: **ADDRESSING GEOLOGIC SITE CHARACTERIZATION ISSUES IN PUBLIC HEARINGS REQUIRED BY LAW FOR LICENSING NUCLEAR POWER PLANTS AT THE U.S. NRC - A PRACTICAL EXAMPLE**
- 333-5 2:30 PM Doss, Paul K.*: **IMPLICATIONS FROM THE INTERSECTION OF "GEOLOGICAL PRACTICE" AND INTERNSHIPS IN HIGHER EDUCATION (Invited Presentation)**
- 333-6 2:45 PM Stover, Susan G.*: **GEOSCIENCE FOR LAWMAKERS**
- 333-7 3:00 PM Matthews, Jack J.*: **GEOLOGICAL FIELDWORK, GEOCONSERVATION, AND THE LAW**

SESSION NO. 334

T110. Engaging Students through Course-Based Undergraduate Research Experiences (CURE) across the Geoscience Curriculum (GSA Geoscience Education Division; Council on Undergraduate Research Geosciences Division)

1:30 PM, Washington State Convention Center, Room 2B

James H. MacDonald Jr., Jeffrey G. Ryan, Rosemary Hickey-Vargas, Mary A. Beck, Chris Vidito and Sven Holbik, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 334-1 1:35 PM Reinen, Linda A.*; Brenner, Kerry: **BENEFITS AND CHALLENGES OF COURSE-BASED UNDERGRADUATE RESEARCH EXPERIENCES (CURES) FOR STEM**

STUDENTS: A REPORT FROM THE NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, AND MEDICINE (Invited Presentation)

- 334-2 1:55 PM St. John, Kristen*; Johnson, Elizabeth A.; Baedke, Steve J.; Leslie, Stephen; McGary, R. Shane: **HOW CAN CURES BE BEST IMPLEMENTED TO MEET PROGRAMMATIC LEARNING GOALS AND DEGREE REQUIREMENTS? (Invited Presentation)**
- 334-3 2:15 PM Kortz, Karen M.*; Savage, Brian; Rieger, Duayne; Cardace, Dawn: **A JOINT 2YC-4YC CURE TO IMPROVE STUDENT RETENTION AND SUCCESS (Invited Presentation)**
- 334-4 2:35 PM Maguigan, Michael A.*; Mulvey, Gerald J.: **A ONE-SEMESTER THESIS: PROBLEM TO PRESENTATION IN 15 WEEKS**
- 334-5 2:50 PM Cervato, Cinzia*; Flory, David; Gallus, William A.; Sandquist, Elizabeth: **IOWATER: A FRESHMAN RESEARCH INITIATIVE FOR GEOLOGY AND METEOROLOGY MAJORS**
- 3:05 PM **BREAK**
- 334-6 3:20 PM Allen, Joseph L.*; Creamer, Elizabeth G.; Kuehn, Stephen C.: **TESTING THE IMPACT OF A MULTI-YEAR, CURRICULUM-BASED UNDERGRADUATE RESEARCH EXPERIENCE (MY-CURE): OBSERVATIONS FROM A 5-SEMESTER COHORT**
- 334-7 3:35 PM Lepper, Kenneth*: **CHRONOQUEST: A TEAM-BASED, STUDENT-MANAGED AUTHENTIC GEOCHRONOLOGY RESEARCH COURSE**
- 334-8 3:50 PM Holbik, Sven*; Ryan, Jeffrey; Hickey-Vargas, Rosemary; MacDonald, James H.; Beck, Mary A.; Vidito, Chris: **TRANSFORMING UNDERGRADUATE EDUCATION IN THE GEOSCIENCES USING REMOTELY-OPERATED ELECTRON PROBE MICROANALYZER AND SCANNING ELECTRON MICROSCOPE: CURES**
- 334-9 4:05 PM Beck, Mary A.*: **USING A REMOTELY-ACCESSED SCANNING ELECTRON MICROSCOPE (SEM) TO EVALUATE SANDS IN A 2-YEAR COLLEGE EARTH SCIENCE EARTH SCIENCE CLASS**
- 334-10 4:20 PM MacDonald, James H.*; Savarese, Michael; Muller, Joanne; Barbosa, Alayde A.; Abercrombie, Mary I.; Ryan, Jeffrey G.: **GEOLOGY COURSE-BASED UNDERGRADUATE RESEARCH EXPERIENCES AT FLORIDA GULF COAST UNIVERSITY: A CURRICULUM INVESTMENT IN CURES**
- 334-11 4:35 PM Freile, Deborah*: **"MOM, DON'T EAT THOSE TOMATOES" OR WHAT A COURSE BASED RESEARCH EXPERIENCE ON BACKYARD SOIL TESTING TAUGHT STUDENTS IN AN ENVIRONMENTAL GEOLOGY COURSE**
- 4:50 PM **DISCUSSION**

SESSION NO. 335

T121. Natural History Museums in the 21st Century— Programming for the Future While Preserving the Past II (GSA Geoscience Education Division; Paleontological Society; GSA Geoinformatics Division)

1:30 PM, Washington State Convention Center, Room 3A

Lisa D. White, Caroline A.E. Stromberg, Gregory P. Wilson and Elizabeth A. Nesbitt, Presiding

- 335-1 1:30 PM Wing, Scott L.*: **OUR TIME IN DEEP TIME - THE ANTHROPOCENE IN THE SMITHSONIAN'S FOSSIL HALLS**
- 335-2 1:45 PM Wilson, Gregory P.*; Hovatter, Brody T.: **THE DISCOVERIES IN GEOSCIENCES (DIG) FIELD SCHOOL: CONNECTING TEACHERS WITH RESEARCHERS AND MUSEUMS TO INSPIRE STUDENTS WITH REAL SCIENCE IN THE CLASSROOM**
- 335-3 2:00 PM Runburg, Madlyn*; Levitt-Bussian, Carrie: **LEVERAGING MUSEUM OBJECTS AND RESEARCH TO ADVANCE CRITICAL THINKING**

WEDNESDAY

PM

- 335-4** 2:15 PM Famoso, Nicholas A.*: **EXPERIENCE YOUR PREHISTORIC AMERICA: THE MUSEUM PROGRAM AT JOHN DAY FOSSIL BEDS NATIONAL MONUMENT**
- 335-5** 2:30 PM Nesbitt, Elizabeth A.*; Martin, Ruth A.: **TESTING THE INSIDE-OUT MODEL OF A NATURAL HISTORY MUSEUM**
2:45 PM **BREAK**
- 335-6** 3:00 PM McKee, Melissa*; Palakarn, Sajirat; Thomas, Ellen: **THE JOE WEBB PEOPLES MUSEUM PROJECT AT WESLEYAN UNIVERSITY (MIDDLETOWN, CT)**
- 335-7** 3:15 PM Farke, Andrew A.*: **EVOLVING THE ROLE OF HIGH SCHOOL STUDENTS IN RESEARCH AT THE RAYMOND M. ALF MUSEUM OF PALEONTOLOGY**
- 335-8** 3:30 PM Tapanila, Leif*: **VIRTUAL MUSEUM OF IDAHO AND REACHING THE POTENTIAL OF THE DIGITAL REVOLUTION**
- 335-9** 3:45 PM Clary, Renee M.*; Moe Hoffman, Amy: **MAINTAIN THE MESSAGE, ADAPT THE DELIVERY: OPTIMIZING OUTREACH FOR SMALL MUSEUM SUCCESS**
- 335-10** 4:00 PM Johnson, Kirk*: **DIGITIZATION OF MUSEUM COLLECTIONS AND THE FUTURE OF NATURAL HISTORY SCIENCE (Invited Presentation)**

SESSION NO. 336

T131. Translating Professional Development Experiences into the Classroom II (GSA Geoscience Education Division; National Association of Geoscience Teachers)

1:30 PM, Washington State Convention Center, Room 2A

Megan H. Jones, Jacquelyn Hams and Richard M. Jones, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 336-1** 1:40 PM Clary, Renee M.*; Dunne, James A.; Wax, Charles: **MUTUALISTIC PROFESSIONAL DEVELOPMENT: BUILDING A COLLABORATIVE LEARNING EXPERIENCE THROUGH CO-TEACHING (Invited Presentation)**
- 336-2** 2:00 PM Callahan, Caitlin N.*: **SHARING THE IDEA OF ADAPTATIONS WITH PRE-SERVICE TEACHERS: REFLECTIONS ON A PROFESSIONAL DEVELOPMENT WORKSHOP RELATED TO INCLUSIVE EDUCATION**
- 336-3** 2:15 PM Quesada, David*: **TRANSLATING CLIMATE-ORIENTED PROFESSIONAL DEVELOPMENT EXPERIENCES INTO LIBERAL ART EDUCATION VIA CONTENT EMBEDDING ACROSS CURRICULUM**
- 336-4** 2:30 PM Bristol, Denise*: **DISCIPLINE-BASED PROFESSIONAL DEVELOPMENT AND MENTORING AS A CATALYST FOR TRANSFORMATIONAL CHANGE IN TEACHING PRACTICE**
- 336-5** 2:45 PM Gill, Thomas E.*; Collins, Joe D.: **PROFESSIONAL DEVELOPMENT WORKSHOPS AS A FORCE MULTIPLIER: AN EXAMPLE FROM PALEOCLIMATOLOGY**
3:00 PM **BREAK**
- 336-6** 3:15 PM Moosavi, Sadredin Cyrus*: **INTRODUCING MARINE SCIENCE TO THE K-12 CLASSROOM VIA AN IN-SERVICE TEACHER PROFESSIONAL DEVELOPMENT WORKSHOP**
- 336-7** 3:30 PM Glancy, Sarah Elizabeth*; St. John, Kristen; Jones, Megan H.; Gill, Thomas E.: **THE IMPORTANCE OF PROFESSIONAL DEVELOPMENT OPPORTUNITIES FOR ADJUNCT INSTRUCTORS**
- 336-8** 3:45 PM Idowu, Ayorinde*: **A CASE STUDY ON EDUCATION CURRICULUM DEVELOPMENT OF EARTH – ATMOSPHERE GEOSCIENCES AT UNIVERSITY OF HOUSTON-DOWNTOWN (UH-D): A PRESENTATION AT THE GEOLOGICAL SOCIETY OF AMERICA (GSA) ANNUAL MEETING, 22-26 OCTOBER 2017 IN SEATTLE, WA**
- 336-9** 4:00 PM Petsche, Joseph*; Jones, Megan: **USING AUTHENTIC CLIMATE DATA PROXIES TO INCREASE STUDENT**

- 336-10** 4:15 PM Taylor, Stephen V.*; Hovan, Steven A.; Jones, Megan: **A BIG LESSON FROM TINY FORAMS: A SIMPLE HANDS-ON ACTIVITY FOR HOW SCIENTISTS INFER CLIMATE OF THE PAST**
4:30 PM **DISCUSSION**
4:45 PM **CONCLUDING REMARKS**

SESSION NO. 337

T160. Coupled Evolution of Magmatic and Sedimentary Systems (GSA Sedimentary Geology Division)

1:30 PM, The Conference Center, Skagit 4

Amy L. Weislogel and Joshua J. Schwartz, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 337-1** 1:35 PM Banik, Tenley J.*; Carley, Tamara L.; Coble, Matthew A.: **TEMPORAL AND GEOCHEMICAL EVOLUTION OF SUBGLACIALLY DERIVED DETRITAL ZIRCON ALONG THE ÖRÆFI VOLCANIC BELT, ICELAND**
- 337-2** 1:50 PM Kushner, B.*; Soreghan, G.S.; Soreghan, M.J.: **HETEROGENEITY OF CLASTIC PROVENANCE TO THE PENNSYLVANIAN ANADARKO BASIN AND IMPLICATIONS FOR PALEOGEOMORPHOLOGY**
- 337-3** 2:05 PM Hutter, Alex*; Beranek, Luke P.: **MAGMATIC EVOLUTION OF THE AVALONIAN ARC SYSTEM REVEALED BY EDIACARAN STRATA IN EASTERN NEWFOUNDLAND: NEW RESULTS FROM LASER ABLATION SPLIT STREAM (LASS) DETRITAL ZIRCON U-PB GEOCHRONOLOGY AND HF ISOTOPE GEOCHEMISTRY**
- 337-4** 2:20 PM Super, Samantha C.*; Hubbard, Stephen M.; Matthews, William A.; Brar, Ranjot S.; Coutts, Daniel S.; Horner, Sean C.; Venieri, Marco: **TEMPORAL AND SPATIAL EVOLUTION OF UPPER CRETACEOUS-PALEOGENE SEDIMENT PROVENANCE: CORDILLERAN PROCESSES REFLECTED IN THE ALBERTA BASIN, CANADA**
- 337-5** 2:35 PM Capaldi, Tomas N.*; Horton, Brian K.; McKenzie, N. Ryan; Alvarado, Patricia A.: **TRACKING ANDEAN ARC MAGMATISM AND CRUSTAL SHORTENING DURING A SHIFT TO FLAT-SLAB SUBDUCTION USING DETRITAL ZIRCON GEOCHRONOLOGY FROM THE RETROARC FORELAND BASIN SYSTEM OF WESTERN ARGENTINA (30.5°S)**
- 337-6** 2:50 PM Surpless, Kathleen D.*; Clemens-Knott, Diane; Barth, Andrew; Gevedon, Michelle L.; Wooden, Joseph L.: **THE VIEW FROM THE FOREARC: A SURVEY OF SIERRA NEVADA MAGMATISM USING GREAT VALLEY DETRITAL ZIRCON TRACE ELEMENT GEOCHEMISTRY (Invited Presentation)**
3:25 PM **BREAK**
- 337-7** 3:10 PM McKay, Matthew P.*; Weislogel, Amy L.; Jackson, William T.; Dean, Justin; Fildani, Andrea: **STRUCTURAL AND MAGMATIC CONTROLS ON THE TURBIDITES OF THE KAROO BASIN, SOUTH AFRICA**
- 337-8** 3:40 PM Holland, Mark E.*; Karlstrom, Karl E.; Gehrels, George E.; Pecha, Mark: **PAIRED U-PB AND LU-HF ISOTOPE ANALYSIS OF DETRITAL AND PLUTONIC ZIRCON TRACK BASIN FORMATION AND SUBSEQUENT CRATONIZATION IN THE PALEOPROTEROZOIC MOJAVE PROVINCE OF SOUTHWESTERN LAURENTIA**
- 337-9** 3:55 PM Murray, Bryan P.*; Hames, Willis E.: **EARLY MIOCENE SYNEXTENSIONAL VOLCANISM AND DEPOSITION IN THE NORTHERN CALICO MOUNTAINS, CENTRAL MOJAVE METAMORPHIC CORE COMPLEX, SOUTHERN CALIFORNIA**
- 337-10** 4:10 PM Andrews, Graham D.M.*; Davila-Harris, Pablo; Brown, Sarah R.: **THE STRATIGRAPHIC RECORD OF SYN- AND POST-VOLCANIC EXTENSION ADJACENT TO**

THE SIERRA MADRE OCCIDENTAL SILICIC LARGE IGNEOUS PROVINCE, NORTHERN MEXICO (Invited Presentation)

- 337-11 4:30 PM Cope, Tim D.*: **THE HEARTBEAT OF AN ARC**
- 337-12 4:45 PM Zhou, Tengfei*; Zhou, Yaoqi; Zhang, Zhenkai; He, Chuan: **THE COUPLED EVOLUTION OF VOLCANIC AND SEDIMENTARY SYSTEMS IN EARLY CRETACEOUS OF EASTERN SHANDONG COASTAL RIFT BASIN, EAST CHINA**
- 337-13 5:00 PM Li, Zengda*: **TRIASSIC MAGMATISM IN SOUTHERN BEISHAN OROGEN, NW CHINA: ZIRCON U–PB GEOCHRONOLOGY, PETROGENESIS AND TECTONIC IMPLICATIONS**
- 5:15 PM **CONCLUDING REMARKS**

SESSION NO. 338

T170. Rock Transforming to Soil—The Weathering Engine Intersects with the Carbon Cycle (GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Geobiology & Geomicrobiology Division; Paleoclimatology/Paleoceanography)

1:30 PM, The Conference Center, Skagit 3
Zsuzsanna Balogh-Brunstad and Marjorie Schulz, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 338-1 1:35 PM Montgomery, David R.*; Biklé, Anne: **GROWING A REVOLUTION WITH THE HIDDEN HALF OF NATURE (Invited Presentation)**
- 338-2 1:55 PM Creamer, Courtney*; Foster, Andrea L.; Lawrence, Corey; McFarland, Jack; Schulz, Marjorie; Waldrop, Mark P.: **MINERALOGY CONTROLS THE MECHANISM AND EXTENT OF MICROBIAL C STABILIZATION (Invited Presentation)**
- 338-3 2:15 PM James, Jason*; Harrison, Rob: **INTERACTION BETWEEN CARBON AND NUTRIENT CYCLES IN DEEP SOILS OF THE PACIFIC NORTHWEST**
- 338-4 2:30 PM Hasenmueller, Elizabeth A.*; Gu, Xin; Weitzman, Julie N.; Adams, Thomas S.; Stinchcomb, Gary E.; Eissenstat, David M.; Drohan, Patrick J.; Brantley, Susan L.; Kaye, Jason P.: **WEATHERING OF ROCK TO REGOLITH: THE ACTIVITY OF DEEP ROOTS IN BEDROCK FRACTURES**
- 338-5 2:45 PM Schulz, Marjorie S.*; Dohnalkova, A.; Lawrence, Corey; Stonestrom, David A.: **EFFECTS OF ROOT AND RHIZOSPHERE PROCESSES ON DEEP SOILS AND BEDROCK**
- 338-6 3:00 PM Palmer, Corey*; Markstein, Katherine; Tanner, Lawrence H.: **EXPERIMENTAL STUDY OF SOIL CO₂-FLUX DEPENDENCE ON TEMPERATURE AND MOISTURE: PRELIMINARY RESULTS**
- 3:15 PM **BREAK**
- 338-7 3:30 PM Balogh-Brunstad, Zsuzsanna*; Keller, C. Kent; Shi, Zhenqing; Wallander, Håkan; Stipp, Susan L.S.: **RHIZOSPHERIC WEATHERING: COLUMN EXPERIMENTS WITH SCOTS AND RED PINE SEEDLINGS**
- 338-8 3:45 PM Testa, Maurice P.*; Garner, Brittany M.; Kirkland, Brenda L.: **IMAGING THE INTERFACE BETWEEN ORGANIC MOLECULES AND CARBONATE MINERAL GROWTH**
- 338-9 4:00 PM Gorony, Shorish Mustafa Abdullah*; Kolo, Kamal: **TEXTURAL AND MINERALOGICAL MICROBIAL DIAGENETIC ALTERATIONS AND SECONDARY METABOLITES AS BIOSIGNATURES IN NATURAL ROCK SUBSTRATES A CASE STUDY OF LICHENS-ROCK SURFACES INTERACTION IN HASAN BEG AND GRDMANDIL MOUNTAINS, KURDISTAN, IRAQ**
- 338-10 4:15 PM Webb, Richard M.T.*; Clow, David W.; Mast, M. Alisa: **USE OF WEIGHTED REGRESSIONS ON TIME, DISCHARGE, AND SEASON TO ELUCIDATE THE ROLE**

OF DIFFUSION, PHENOLOGY, AND COLLOIDS IN THE WEATHERING OF A SUB-ALPINE WATERSHED

- 338-11 4:30 PM Evans, Andrew*; Jacobs, Michael B.: **LIGAND EXCHANGE PROCESSES IN ALPINE TUNDRA SOIL - IMPLICATIONS FOR SOIL ACIDIFICATION AND ALUMINUM TRANSPORT**
- 338-12 4:45 PM Cuozzo, Nicolas*; Sletten, Ronald S.; Hu, Yan; Teng, Fang-Zhen: **CHEMICAL WEATHERING IN PERMAFROST ASSESSED USING MAGNESIUM ISOTOPES**
- 5:00 PM **CONCLUDING REMARKS**

SESSION NO. 339

T183. Advances and Challenges in Quantifying Sediment Budgets for River Systems (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division)

1:30 PM, The Conference Center, Chelan 4
Christopher Magirl, Allen C. Gellis and Jon Major, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 339-1 1:35 PM Topping, David J.*; Griffiths, Ronald E.; Dean, David J.; Grams, Paul E.; Buscombe, Daniel D.; Mueller, Erich R.: **ON-DEMAND CONTINUOUS MASS-BALANCE SEDIMENT BUDGETS FOR RIVER SCIENCE AND MANAGEMENT (Invited Presentation)**
- 339-2 1:55 PM Curran, Christopher A.*; Jaeger, Kristin L.; Anderson, Scott W.; Morris, Scott T.: **A SUSPENDED SEDIMENT BUDGET FOR A GLACIER-FED RIVER: SAUK RIVER, WASHINGTON, USA**
- 339-3 2:10 PM O'Connor, Jim E.*; Wise, Daniel C.; Mangano, Joseph F.: **WASTING (AND DISSOLVING) AWAY IN WESTERN OREGON**
- 339-4 2:25 PM Warrick, Jonathan A.*; Ritchie, Andrew; East, Amy; Magirl, Christopher S.; Bountry, Jennifer; Randle, Tim; Stevens, Andrew W.; Duda, Jeffrey; Hilldale, Robert C.; Curran, Chris A.; Gelfenbaum, Guy: **FLUVIAL AND COASTAL MORPHODYNAMIC EVOLUTION FOLLOWING A MASSIVE SEDIMENT RELEASE FROM THE WORLD'S LARGEST DAM REMOVAL**
- 339-5 2:40 PM Pittick, John*; Bizzi, Simone; Schmitt, Rafael: **MODELING CHANGES IN THE FLUX AND GRAIN SIZE DISTRIBUTION OF THE BED SEDIMENT IN A LARGE GRAVEL-BED RIVER**
- 339-6 2:55 PM Dethier, Evan N.*; Renshaw, Carl E.; Magilligan, Francis J.: **QUANTIFYING SUSPENDED SEDIMENT CONCENTRATION FROM SPACE: GLOBAL VARIABILITY AND TRENDS**
- 339-7 3:10 PM Gran, Karen B.*; Bevis, Martin A.: **HOW FAR CAN YOU EXPAND YOUR SEDIMENT BUDGET? ATTEMPTS TO TAKE AN INTEGRATED SEDIMENT BUDGET AND EXTRAPOLATE IT TO NEIGHBORING BASINS IN AN AGRICULTURAL WATERSHED IN THE UPPER MIDWEST, USA (Invited Presentation)**
- 3:30 PM **BREAK**
- 339-8 3:45 PM Dunne, Thomas*: **SEDIMENT TRANSPORT AND STORAGE ALONG AMAZON RIVER VALLEYS (Invited Presentation)**
- 339-9 4:00 PM Sickmann, Zachary*; Graham, Stephan A.; Paull, Charles K.: **ANTHROPOGENIC EFFECTS ON SEDIMENT BUDGETS MANIFESTED IN DETRITAL ZIRCON PROVENANCE SIGNATURES**
- 339-10 4:15 PM Beck, William; Moore, Peter*; Schilling, Keith; Wolter, Calvin; Isenhardt, Tom: **EFFECTS OF CHANNEL GEOMETRY ON FLOODPLAIN INUNDATION FREQUENCY AND SEDIMENT ACCRETION, WALNUT CREEK, IOWA, USA**
- 339-11 4:30 PM Gellis, Allen C.*; Fuller, Christopher C.; Van Metre, Peter C.; Filstrup, Christopher; Tomer, Mark D.; Cole, Kevin: **THE SOURCES AND AGES OF FINE-GRAINED SEDIMENT USING ELEMENTAL ANALYSIS AND FALLOUT**

WEDNESDAY

PM

- RADIONUCLIDES FOR AN AGRICULTURAL STREAM, WALNUT CREEK, IOWA**
- 339-12 4:45 PM Bywater-Reyes, Sharon*; Bladon, Kevin D.; Segura, Catalina: **RELATIVE INFLUENCE OF LANDSCAPE VARIABLES, DISCHARGE, AND FOREST MANAGEMENT ON SEDIMENT YIELDS IN TEMPERATE MOUNTAIN CATCHMENTS**
- 339-13 5:00 PM Sutfin, Nicholas A.*; Rowland, Joel C.; Stauffer, Sophie J.; Fratkin, Mulu; Bennett, Katrina; Carroll, Rosemary; Malenda, Helen F.; Middleton, Richard S.; Williams, Kenneth H.: **HYDROLOGIC DRIVERS OF FLOODPLAIN EROSION AND DEPOSITION ALONG THE MEANDERING EAST RIVER, CO**
- 339-14 5:15 PM Pizzuto, James E.*: **BEYOND SEDIMENT BUDGETS: HOW ALLUVIAL ARCHITECTURE CAN INFORM MODELS FOR ROUTING SUSPENDED SEDIMENT PULSES THROUGH WATERSHEDS**

SESSION NO. 340

T186. Heterogeneity in Landscape Evolution: Geomorphic Response to Spatially and Temporally Variable Forcings (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)

1:30 PM, The Conference Center, Chelan 2

Sarah A. Schanz and Charles M. Shobe, Presiding

- 340-1 1:30 PM Harbert, Sarah A.*; Duvall, Alison R.; Tucker, Gregory E.: **THE IMPORTANCE OF NEAR-FAULT RELIEF ELEMENTS IN DEVELOPING A "CLASSIC" STRIKE-SLIP LANDSCAPE**
- 340-2 1:45 PM Covington, Matthew D.*; Perne, Matija; Thaler, Evan; Myre, Joseph: **MODELING LANDSCAPE EVOLUTION WITHIN LAYERED ROCKS: WHITHER EQUILIBRIUM?**
- 340-3 2:00 PM Forte, Adam M.*; Yanites, Brian J.; Whipple, Kelin X.: **INFLUENCE OF DEFORMED STRATIGRAPHY ON DRAINAGE NETWORK STRUCTURE (Invited Presentation)**
- 340-4 2:20 PM Aldred, Jennifer L.*; Eppes, Missy; Kayser, Brandt; Diemer, John A.; Deal, Rebecca: **SOIL HETEROGENEITY PROVIDES EVIDENCE OF SPATIAL AND TEMPORAL VARIANCE IN CLIMATE-DRIVEN LANDSCAPE CHANGE, SOUTHEAST SAN JUAN MOUNTAINS, CO, USA**
- 340-5 2:35 PM Bingham, Nina L.*; Bookhagen, Bodo; Chadwick, Oliver A.: **SPATIAL AND TEMPORAL PATTERNS OF ANTHROPOGENIC-DRIVEN EROSION CONTROLLED BY ROCK TYPE**
- 340-6 2:50 PM Schenk, Edward R.*; Tobin, Benjamin W.; Tanski, Natalie; Marineau, Mathieu: **DETERMINING THE PROCESS OF DESERT STREAM RECOVERY FOLLOWING DEBRIS FLOW AND IMPLICATIONS OF CLIMATE CHANGE**
- 340-7 3:05 PM Dente, Elad; Lensky, Nadav; Morin, Efrat; Grodek, Tamir; Sheffer, Nathan; Enzel, Yehouda*: **GEOMORPHIC RESPONSE OF A LONG LOW-GRADIENT CHANNEL TO MODERN, DECADES-LONG AND CONTINUOUS BASE-LEVEL LOWERING: NAHAL HAARAVA, THE DEAD SEA**
- 3:20 PM **BREAK**
- 340-8 3:35 PM Rossi, Matthew W.*; Anderson, Robert S.; Anderson, Suzanne P.; Tucker, Gregory E.: **GEOMORPHIC IMPLICATIONS OF THE OROGRAPHIC TRANSITION FROM SNOWMELT TO RAINFALL TRIGGERED EXTREME EVENTS IN THE COLORADO FRONT RANGE**
- 340-9 3:50 PM DiBiase, Roman A.*; Rossi, Matthew W.; Neely, Alexander B.: **BEDROCK CLIFFS, COLLUVIAL SLOPES, AND FLUVIAL RELIEF COUPLED VIA FRACTURE DENSITY AND GRAIN SIZE (Invited Presentation)**
- 340-10 4:10 PM Shobe, Charles M.*; Tucker, Gregory E.; Rossi, Matthew W.: **VARIABLE THRESHOLDS IN MOUNTAIN RIVERS IMPOSED BY HILLSLOPE-DERIVED BLOCKS**

- 340-11 4:25 PM Scott, Daniel N.*; Wohl, Ellen; Ortega-Becerril, José: **THE NOT-SO-STRAIGHT BUT DEFINITELY NARROW OF BEDROCK RIVERS: UNDERSTANDING CONTROLS ON SEDIMENT DISTRIBUTION AND MORPHOLOGY IN CANYONS**
- 340-12 4:40 PM Lyons, Nathan J.*; Gasparini, Nicole M.: **TERRACES, KNICKPOINTS, AND SPATIALLY VARIABLE EROSION: INTERPRETING THE SIGNALS OF TRANSIENT TOPOGRAPHY**
- 340-13 4:55 PM Sweeney, Kristin E.*: **BOTTOM UP OR TOP DOWN? USING TIME-SERIES ANALYSIS TO TRACK EROSIONAL SIGNALS IN AN ANALOG LANDSCAPE (Invited Presentation)**
- 340-14 5:15 PM Callaghan, Kerry L.*; Wickert, Andrew D.; Edwards, R. Lawrence; Mitrovica, Jerry X.: **RECONSTRUCTION OF THE AMAZON DRAINAGE BASIN, RIVER DISCHARGE, AND BASIN-SCALE EROSION RATES SINCE THE LAST GLACIAL MAXIMUM**

SESSION NO. 341

T192. Mountain Glaciation and Climate Change of the Past and Present in the Western Americas (GSA Quaternary Geology and Geomorphology Division)

1:30 PM, The Conference Center, Chelan 5

Benjamin J. Laabs, Eric M. Leonard and Mitchell Plummer, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 341-1 1:35 PM Licciardi, Joseph M.*; Pierce, Kenneth L.: **NEW PERSPECTIVES ON THE HISTORY AND DYNAMICS OF LATE PLEISTOCENE GLACIATION IN GREATER YELLOWSTONE AND THE TETON RANGE (Invited Presentation)**
- 341-2 1:55 PM Schweinsberg, Avriël D.*; Briner, Jason P.; Licciardi, Joseph M.; Leonard, Eric M.; Shroba, Ralph R.; Caffee, William: **A DETAILED CHRONOLOGY OF THE LAST DEGLACIATION DEVELOPED FROM ¹⁰BE DATING OF MORAINES AND BEDROCK IN THE UPPER ARKANSAS RIVER VALLEY, COLORADO ROCKY MOUNTAINS, U.S.A**
- 341-3 2:10 PM Dahms, Dennis*; Egli, Markus; Fabel, Derek; Harbor, Jon; Brandova, Dagmar; Portes, Raquel; Christl, Marcus: **NEW ¹⁰BE EXPOSURE AGES FOR PLEISTOCENE GLACIAL STRATIGRAPHY, SOUTHERN WIND RIVER RANGE, WYOMING, USA**
- 341-4 2:25 PM Laabs, Benjamin J.*; Licciardi, Joseph M.; Marchetti, David W.; Munroe, Jeffrey S.; Leonard, Eric M.: **COSMOGENIC NUCLIDE EXPOSURE AGE LIMITS ON THE PENULTIMATE GLACIATION IN THE CONTERMINOUS WESTERN U.S**
- 341-5 2:40 PM Ruleman, Chester A.*; Caffee, Marc W.; Brugger, Keith A.; Hudson, Adam M.; Thompson, Ren A.; Frothingham, Michael G.; Passehl, Candice D.: **MIS 6 AND YOUNGER GLACIAL DYNAMICS WITH IMPLICATIONS ON THE GROWTH AND DEVELOPMENT OF THE MIDDLE TO LATE PLEISTOCENE CENTRAL COLORADO ICEFIELD AND ASSOCIATED REGIONAL INCISION, SAWATCH RANGE, CO, USA**
- 341-6 2:55 PM Doughty, Alice Marie*; Kelly, Meredith A.; Russell, James M.; Anderson, Brian; Jackson, Margaret S.: **MODELING GLACIAL EXTENT DURING THE LAST GLACIAL MAXIMUM IN UGANDA (Invited Presentation)**
- 3:15 PM **BREAK**
- 341-7 3:30 PM Quirk, Brendon J.*; Moore, Jeffrey R.; Laabs, Benjamin J.; Plummer, Mitchell A.; Taylor, Jenna: **WASATCH RANGE, UT GLACIER RECONSTRUCTIONS FOR THE LAST GLACIAL MAXIMUM AND LATEGLACIAL**
- 341-8 3:45 PM Brugger, Keith A.*; Ruleman, Chester A.; Caffee, Marc W.: **GLACIATION AND CLIMATE DURING THE LAST GLACIAL MAXIMUM IN THE MOUNT MASSIVE REGION, NORTHERN SAWATCH RANGE, COLORADO**

- 341-9** 4:00 PM Fountain, Andrew G.*; Glenn, Bryce; Brett, Melissa; Gray, Christina; Menounos, Brian: **GLACIERS OF THE AMERICAN WEST: GEOGRAPHY AND CHANGE (Invited Presentation)**
- 341-10** 4:20 PM Armstrong, William H.*; Anderson, Robert S.; Fahnestock, Mark A.: **SPATIAL PATTERNS OF SUMMER SPEEDUP ON SOUTH-CENTRAL ALASKA GLACIERS FROM REPEAT SATELLITE IMAGERY**
- 341-11** 4:35 PM Chellman, Nathan J.*; McConnell, Joseph R.; Arienzo, Monica M.; Pederson, Greg; Aarons, S.M.; Csank, Adam; Pattyn, Frank: **AN UPDATED CHRONOLOGY FOR THE UPPER FREMONT GLACIER ICE CORES: CLIMATE AND ENVIRONMENTAL IMPLICATIONS**
- 341-12** 4:50 PM Potter, Noel*; Clark, Douglas H.: **RESPONSE OF SULPHUR CREEK ROCK GLACIER, WYOMING TO CLIMATE CHANGE DURING THE PAST 124 YEARS**
- 5:05 PM **POSTER LIGHTNING TALKS**
- 5:20 PM **DISCUSSION**

SESSION NO. 342

T199. Basalt Weathering on Earth and Mars (GSA Planetary Geology Division)

1:30 PM, The Conference Center, Tahoma 1

Melissa S. Rice, Leslie L. Baker and Michael D. Kraft, Presiding

- 342-1** 1:30 PM Hausrath, Elisabeth M.*; Ralston, Stephanie J.; Bamisile, Toluwalope; Ming, Douglas W.; Peretyazhko, Tanya; Rampe, Elizabeth B.; Gainey, Seth R.: **INVESTIGATING WEATHERING OF BASALTIC MATERIALS IN GALE CRATER, MARS: A COMBINED LABORATORY, MODELING AND TERRESTRIAL FIELD APPROACH (Invited Presentation)**
- 342-2** 1:45 PM Buczkowski, Debra L.*; Seelos, Kimberly D.; Viviano-Beck, Christina E.; Seelos, Frank P.; Murchie, Scott L.: **ANOMALOUS PHYLLOSILICATE-BEARING OUTCROP SOUTH OF COPRATES CHASMA: A STUDY OF POSSIBLE EMPLACEMENT MECHANISMS**
- 342-3** 2:00 PM Achilles, Cherie N.*; Downs, Robert T.; Rampe, Elizabeth B.; Morris, Richard V.; Bristow, Thomas F.; Ming, Douglas W.; Blake, David F.; Vaniman, David T.; Morrison, Shaunna M.; Sutter, Brad; McAdam, Amy; Archer, P. Doug; Thompson, Lucy M.; Gellert, Ralf; Chipera, Steve; Treiman, Allan H.; Yen, Albert S.; Hazen, Robert M.; Craig, Patricia I.; Crisp, Joy A.; Grotzinger, John P.: **THE AMORPHOUS COMPOSITION OF THREE MUDSTONE SAMPLES FROM GALE CRATER: IMPLICATIONS FOR WEATHERING AND DIAGENETIC PROCESSES ON MARS**
- 342-4** 2:15 PM Jackson, Ryan S.*; Newsom, Horton; Cousin, Agnes; Payre, Valérie; Wiens, Roger C.: **CHANGES IN TRACE ELEMENT COMPOSITION BETWEEN FLOAT BASALTS AND THE SEDIMENTS OF YELLOWKNIFE BAY, GALE CRATER, MARS**
- 342-5** 2:30 PM Schmidt, Mariek*; Bray, Samantha; Bradley, Nicholas; Perrett, Glynis; Campbell, J.L.; Tesselaaar, Dustin: **DUSTY ROCKS IN GALE CRATER: ESTIMATING COVERAGES ON APXS TARGETS FROM MAHLI IMAGES AND THE INFLUENCE OF DUST ON ELEMENTAL COMPOSITIONS**
- 342-6** 2:45 PM Wong, Gregory M.*; McAdam, Amy; Eigenbrode, Jennifer L.; Lewis, James M.T.; House, Christopher H.: **INVESTIGATING THE EFFECTS OF CHLORINE MINERALS ON HYDROGEN SULFIDE FORMATION FROM SULFUR MINERALS DURING EVOLVED GAS ANALYSIS (EGA) TO CONSTRAIN MARTIAN BASALTIC MINERALOGY**
- 342-7** 3:00 PM Kraft, Michael D.*; Spencer, Madison N.; Fristad, Kirsten; Rice, Melissa S.: **VARIABILITY IN BASALTIC WEATHERING RINDS FROM A SINGLE WEATHERING ENVIRONMENT: INTERPRETING COLOR DIFFERENCES ON WEATHERED ROCKS ON EARTH AND MARS**
- 3:15 PM **BREAK**

- 342-8** 3:30 PM Liu, Yang*: **APATITE AS A RECORDER OF HYDROTHERMAL AND METASOMATIC EVENTS ON MARS (Invited Presentation)**
- 342-9** 3:45 PM Ende, Jessica J.*; Szyrkiewicz, Anna; Faiia, Anthony M.: **FORMATION AND WEATHERING OF ACIDIC HYDROTHERMAL SULFUR-RICH DEPOSITS IN ICELAND: IMPLICATIONS FOR SULFATE FORMATION ON MARS**
- 342-10** 4:00 PM Smith, Devin F.*; Harmon, Brendan A.; Espinosa, Jorge; Goldsmith, Steven T.; Harmon, Russell S.: **EVALUATION OF CLIMATIC AND PHYSICAL CONTROLS AND THE INFLUENCE OF ENSO EVENTS ON LONG-TERM WEATHERING AND CO₂ CONSUMPTION ACROSS THE PANAMA CANAL WATERSHED**
- 342-11** 4:15 PM Nelson, Stephen T.*; McBride, John H.; Sowards, Kimberly F.; Bickmore, Barry R.; Tingley, David G.; Rey, Kevin A.; Yaede, Johnathan R.: **THE EARLY WEATHERING OF OCEAN ISLANDS: A SYNTHESIS OF GEOCHEMISTRY AND GEOPHYSICS, KOHALA PENINSULA, HAWAII, USA**
- 342-12** 4:30 PM Baker, Leslie L.*: **VOLATILE CONSUMPTION RESULTING FROM BASALT WEATHERING ON MARS**
- 342-13** 4:45 PM Soare, Richard J.*; Conway, Susan J.; Osinski, Gordon R.: **COLD-CLIMATE WEATHERING OF BASALT ON MARS AND OPPORTUNISTIC PERIGLACIATION**
- 342-14** 5:00 PM Rampe, Elizabeth B.*; Horgan, Briony H.N.; Smith, Rebecca J.; Scudder, Noel A.; Rutledge, Alicia M.; Bamber, Emily; Morris, Richard V.: **BASALT WEATHERING IN A COLD AND ICY CLIMATE: THREE SISTERS, OREGON AS AN ANALOG FOR EARLY MARS**
- 5:15 PM **DISCUSSION**

SESSION NO. 343

T214. Late Paleozoic and Early Mesozoic Tectono-Stratigraphy and Biostratigraphy of the NW Pangea Margin: In Dedication to Jim Trexler (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division)

1:30 PM, The Conference Center, Tahoma 2

Walter S. Snyder, Charles M. Henderson and Scott Ritter, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 343-1** 1:40 PM Colpron, Maurice*; Nelson, JoAnne L.: **SETTING THE STAGE IN NW PANGEA – EARLY TO MID-PALEOZOIC TRANSLATION OF TERRANES AND ONSET OF THE CORDILLERAN CONVERGENT MARGIN (Invited Presentation)**
- 343-2** 2:00 PM Beauchamp, Benoit*: **THE SUB-GUADALUPIAN (SUB-MIDDLE PERMIAN) UNCONFORMITY IN ARCTIC CANADA AND ALONG NW PANGEA: A MAJOR PLATE REORGANIZATION LINKED TO THE URALIAN OROGENY**
- 343-3** 2:15 PM Henderson, Charles M.*: **PALEOGEOGRAPHY AND CORRELATION OF LATE PALEOZOIC CRATONIC MARGIN TECTONO-STRATIGRAPHIC UNITS FROM NEVADA TO WESTERN CANADA**
- 343-4** 2:30 PM Snyder, Walter S.*; Davydov, Vladimir; Schiappa, Tamra A.; Spinosa, Claude: **LATE PALEOZOIC OF THE WESTERN U.S.: AN ACTIVE CONTINENTAL MARGIN**
- 2:45 PM **BREAK**
- 343-5** 3:00 PM Schiappa, Tamra A.*; Spinosa, Claude; Snyder, Walter; Davydov, Vladimir: **USING LATE PALEOZOIC AMMONOIDS AS PROXIES FOR BASIN DEVELOPMENT AND CHARACTERIZATION ALONG THE WESTERN MARGIN OF THE UNITED STATES**
- 343-6** 3:15 PM Ritter, Scott M.*: **SEQUENCE STRATIGRAPHY AND BIOSTRATIGRAPHY OF CARBONIFEROUS-PERMIAN BOUNDARY STRATA IN WESTERN UTAH**

- 343-7** 3:30 PM Boyer, Steven E.*; Cheney, Eric S.: **STRUCTURE AND TECTONIC SIGNIFICANCE OF THE NORTHEASTERN WASHINGTON FOLD AND THRUST BELT (NEWAFT)**
- 343-8** 3:45 PM Blakey, Ronald*: **LINKING LATE PALEOZOIC PLATE-TECTONIC SETTING WITH GEOLOGIC EVENTS, SOUTHWEST NORTH AMERICA**
- 4:00 PM **DISCUSSION**
- 343-9** 4:15 PM Stevens, Calvin H.*; Stone, Paul: **"LAST CHANCE" INTERPRETATION OF THE PERMIAN LAST CHANCE THRUST, EAST-CENTRAL CALIFORNIA**
- 343-10** 4:30 PM Lawton, Timothy F.*; Cashman, Patricia H.; Taylor, Wanda J.: **SOUTHEAST END OF THE LATE PALEOZOIC SOUTHWESTERN LAURENTIAN BORDERLAND: ¿QUÉ PASÓ? (Invited Presentation)**
- 4:50 PM **CONCLUDING REMARKS**

SESSION NO. 344 \$

T225. New Perspectives on Cordilleran Tectonics, Paleogeography, and Metallogeny (GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology); Society of Economic Geologists; GSA Structural Geology and Tectonics Division)

1:30 PM, The Conference Center, Tahoma 5

Luke P. Beranek, Justin V. Strauss and Stephen J. Piercey, Presiding

- 344-1** 1:30 PM Nelson, Lyle L.*; Smith, Emily F.; Macdonald, Francis A.; Hodgins, Eben Blake: **A PORPOISING CRYOGENIAN BASIN IN THE PANAMINT RANGE, CALIFORNIA**
- 344-2** 1:45 PM Sears, James W.*: **NEOPROTEROZOIC-EARLY CAMBRIAN PULL-APART BASINS ALONG CORDILLERAN TRANSFORM MARGIN, NORTH AMERICA, AND IMPLICATIONS FOR SIBERIAN CONJUGATE CONNECTION**
- 344-3** 2:00 PM Hart, Craig J.R.*: **ANCIENT RIFTED LAURENTIAN MARGIN CONTROLS ON MESO-CENOZOIC CORDILLERAN METALLOGENY (Invited Presentation)**
- 344-4** 2:20 PM Piercey, Stephen J.*; Beranek, Luke P.: **USING VOLCANOGENIC MASSIVE SULFIDES (VMS) AS PROXIES FOR MID-PALEOZOIC TECTONICS, CRUSTAL COMPOSITION, AND BASIN REDOX ALONG THE ANCIENT PACIFIC MARGIN OF NORTH AMERICA**
- 344-5** 2:35 PM Dusel-Bacon, Cynthia*; Holm-Denoma, Christopher S.; Jones, James V.; Aleinikoff, John N.; Mortensen, James K.: **DETRITAL ZIRCON GEOCHRONOLOGY AND PROVENANCES OF QUARTZOSE METASEDIMENTARY ROCKS FROM PARAUTOCHTHONOUS NORTH AMERICA, EAST-CENTRAL ALASKA**
- 344-6** 2:50 PM van Drecht, Leigh H.*; Beranek, Luke P.: **JURASSIC STRATIGRAPHY AND TECTONIC EVOLUTION OF THE WHITEHORSE TROUGH, CENTRAL YUKON: NEW INSIGHTS FROM LASER ABLATION SPLIT STREAM (LASS) DETRITAL ZIRCON U-PB GEOCHRONOLOGY AND HF ISOTOPE GEOCHEMISTRY**
- 344-7** 3:05 PM Finzel, Emily S.*; Enkelmann, Eva; Falkowski, Sarah; Reid, Mattie M.; McClelland, William C.: **FOREARC BASIN DETRITAL RECORD OF MESOZOIC-CENOZOIC TECTONICS IN THE NORTHERN CORDILLERA, SOUTH-CENTRAL ALASKA (Invited Presentation)**
- 344-8** 3:25 PM Vice, Lianna E.D.*; Gibson, H. Dan; Israel, Steve A.; Crowley, James L.: **EVOLUTION OF JURA-CRETACEOUS BASINS IN SOUTHWEST YUKON, WITH IMPLICATIONS FOR MESOZOIC ACCRETIONARY PROCESSES IN THE WESTERN NORTH AMERICAN CORDILLERA**
- 344-9** 3:40 PM Long, Sean P.*: **A SUMMARY OF RECENT PROGRESS ON UNDERSTANDING THE STRUCTURAL EVOLUTION AND PALEOGEOGRAPHY OF THE NEVADAPLANO (Invited Presentation)**

- 344-10** 4:00 PM Wylde, Sandra J.*; Prihar, Douglas W.; Peters, Stephen G.; Fifarek, Richard H.; Wright, James E.: **AN OVERLOOKED WIDE ZONE OF HIGH STRAIN IN THE 'AUTOCHTHON' OF THE EARLY-MIDDLE JURASSIC FENCEMAKER DEFORMATION BELT, NORTHWEST NEVADA: IMPLICATIONS FOR CORDILLERAN OROGENESIS, PALEOGEOGRAPHY, AND ORE DEPOSITS**
- 344-11** 4:15 PM Balgord, Elizabeth*; Yonkee, Adolph; Wells, Michael; Laskowski, Andrew; Gentry, Amanda: **EVALUATING ARC PERIODICITY AND GEOCHEMICAL EVOLUTION WITHIN THE CENTRAL NORTH AMERICAN CORDILLERA: CONSTRAINTS FROM THE U-PB AND HF ISOTOPE RECORD OF DETRITAL ZIRCONS IN FORELAND STRATA**
- 344-12** 4:30 PM Schermer, Elizabeth*; Labadie, Julia E.; Griesel, Gerald E.; Fitts, Aaron; Isaacson, Robert G.: **GEOCHRONOLOGIC CONSTRAINTS ON THE HISTORY OF MAGMATISM, METAMORPHISM, AND DEFORMATION IN THE CHELAN MOUNTAINS TERRANE, NW CASCADES CRYSTALLINE CORE, WA**
- 344-13** 4:45 PM O'Brien, Tim M.*; Miller, Elizabeth L.; Pease, Victoria; Hayden, Leslie A.; Fisher, Christopher M.; Hourigan, Jeremy; Vervoort, Jeff D.: **CONTRASTING CRETACEOUS PALEODRAINAGE SYSTEMS OF BASINS FLANKING THE BROOKS RANGE, ARCTIC ALASKA**
- 344-14** 5:00 PM Hampton, Brian A.*; Jacobs, Makayla R.; Stopka, Cody J.: **U-PB DETRITAL GEOCHRONOLOGY AND HF ISOTOPIC ANALYSES FROM UPPER CRETACEOUS STRATA OF THE NORTHERN TALKEETNA MOUNTAINS, SOUTHERN ALASKA: SEDIMENT DISPERSAL AND MAGMATISM DURING THE FINAL ACCRETIONARY PHASE OF THE WRANGELLIA COMPOSITE TERRANE**
- 344-15** 5:15 PM Israel, Steve A.*; Murphy, Donald C.; Crowley, James L.; Benowitz, Jeffrey A.: **CHARACTERIZATION OF PALEOCENE TO EOCENE MAGMATISM AND TECTONICS IN THE NORTHERN CANADIAN CORDILLERA AND THEIR ROLE IN REGIONAL METALLOGENY**

SESSION NO. 345

T233. Tectonics, Geohazards, and Morphodynamics from High-Resolution Topography and Imagery (GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; GSA Structural Geology and Tectonics Division)

1:30 PM, The Conference Center, Tahoma 4

Amit Mushkin and Edwin Nissen, Presiding

- 345-1** 1:30 PM Madin, Ian P.*; Edwards, Jacob: **HIGH RESOLUTION LIDAR IMAGERY FROM THE OREGON LIDAR CONSORTIUM: A UNIQUE RESOURCE FOR GEOSCIENCE RESEARCH**
- 345-2** 1:45 PM LaHusen, Sean Richard*; Booth, Adam M.; Duvall, Alison R.; Montgomery, David R.: **DEVELOPING A REGIONAL LANDSLIDE CHRONOLOGY NEAR OSO, WASHINGTON (USA) USING TOPOGRAPHIC ROUGHNESS MEASURED FROM LIDAR IMAGERY (Invited Presentation)**
- 345-3** 2:05 PM Shemesh, Ran*; Mushkin, Amit; Crouvi, Onn; Katz, Oded; Enzel, Yehouda; Lensky, Nadav: **THE SEDIMENT BUDGET OF CLIFF-DOMINATED BEACHES IN THE EASTERN MEDITERRANEAN AT SINGLE-STORM TO SEASONAL TIME SCALES**
- 345-4** 2:20 PM Howe, Julia Corbett*; Jewell, Paul; Bruhn, Ronald: **AUTOMATED SHORELINE ELEVATION MEASUREMENT FROM HIGH-RESOLUTION TOPOGRAPHY: APPLICATIONS TO QUANTIFYING LANDSCAPE DEFORMATION**
- 345-5** 2:35 PM Paine, Jeffrey G.*; Collins, Edward W.; Costard, Lucie: **DISCRIMINATING QUATERNARY COASTAL-PLAIN STRATA USING AIRBORNE LIDAR AND NEAR-SURFACE**

- GEOPHYSICS: A HELPFUL APPROACH TO LOW-RELIEF GEOLOGIC MAPPING**
- 345-6** 2:50 PM Greenbaum, Noam; Mushkin, Amit*; Porat, Naomi; Amit, Rivka: **TIME-SCALE AND GEOMORPHIC PROCESSES OF GULLY EROSION ON ABANDONED ALLUVIAL SURFACES IN THE HYPER ARID NEGEV DESERT, SOUTHERN ISRAEL**
- 345-7** 3:05 PM Sholes, Steven F.*; Mushkin, Amit; Catling, David C.: **BOULDER-SIZE DISTRIBUTIONS AS INDICATORS FOR DEPOSITION PROCESSES ON EARTH AND MARS**
- 345-8** 3:20 PM Swanson, Erika M.*; Schultz-Fellenz, Emily S.; Sussman, Aviva; Wilson, Jennifer: **PERMANENT DEFORMATION FROM UNDERGROUND EXPLOSIONS: INTEGRATING SUBSURFACE AND SURFACE OBSERVATIONS**
- 345-9** 3:35 PM Willis, Michael J.*; Higman, Bretwood; Shugar, Dan H.; Lynett, Patrick; Barba, Magali; Tiampo, Kristy; Clark, Marin K.; Zheng, W.; Pritchard, M.E.; Ramage, Joan M.; Stearns, Leigh A.; Morin, Paul: **LANDSLIDE, EARTHQUAKE AND CRYOSPHERE STUDIES USING HIGH RESOLUTION DIGITAL SURFACE MODELS FROM COMMERCIAL IMAGERY AND DRONES (Invited Presentation)**
- 345-10** 3:55 PM Scott, Chelsea Phipps*; Arrowsmith, J. Ramón; Lajoie, Lia; Nissen, Edwin; Maruyama, Tadashi; Chiba, Tatsuro: **THE M7 2016 KUMAMOTO, JAPAN, EARTHQUAKE: 3D COSEISMIC DEFORMATION FROM DIFFERENTIAL TOPOGRAPHY (Invited Presentation)**
- 345-11** 4:15 PM Johnson, Kendra; Nissen, Edwin*; Lajoie, Lia: **SCARP MORPHOLOGY, SLIP DISTRIBUTION, AND SHALLOW FAULT STRUCTURE OF THE M_w 7.2 1959 HEBGEN LAKE EARTHQUAKE RUPTURE FROM AIRBORNE LIDAR**
- 345-12** 4:30 PM Xie, Surui; Gallant, Elisabeth; Wetmore, Paul*; Owen, Lewis A.; Dixon, Timothy H.: **A NEW GEOLOGICAL SLIP RATE ESTIMATE FOR THE CALICO FAULT, EASTERN CALIFORNIA: IMPLICATIONS FOR GEODETIC VERSUS GEOLOGIC RATE ESTIMATES IN THE EASTERN CALIFORNIA SHEAR ZONE**
- 345-13** 4:45 PM Trexler, Charles C.*; Cowgill, Eric; Spencer, Joel Q.G.; Godoladze, Tea; Gogoladze, Salome: **DEFORMED RIVER TERRACES SHOW ACTIVE SHORTENING IN THE WESTERN GREATER CAUCASUS, REPUBLIC OF GEORGIA**
- 345-14** 5:00 PM Bunn, Michael D.*; Leshchinsky, Ben; Olsen, Michael J.: **RAPID AND FLEXIBLE LANDSLIDE INVENTORY MAPPING WITH CCM FLOW**
- 5:15 PM **LIGHTNING TALKS FOR POSTER SESSION**
- 346-4** 2:15 PM Zhao, Zhouqiao*; Zhu, Jianming; Lang, Xianguo; Wu, Guangliang; Zhang, Shuwan; Huang, Tianzheng; Ning, Meng; Ma, Haoran; Shen, Bing: **NICKEL ISOTOPE EVIDENCE INDICATING ACTIVITY METHANOGENESIS DURING THE MELTING OF MARINOAN SNOWBALL EARTH**
- 346-5** 2:30 PM Hurtgen, Matthew T.*; Wang, Jiuyuan; Jacobson, Andrew D.; Sageman, Bradley B.: **RADIOGENIC AND STABLE SR ISOTOPE RECORDS REVEAL CHANGES IN WEATHERING AND CARBONATE BURIAL RATES FOLLOWING MARINOAN GLACIATION (Invited Presentation)**
- 346-6** 2:45 PM Schrag, Daniel P.*; Laakso, Thomas A.: **METHANOTROPHY, AUTHIGENIC CARBONATE, AND THE NEOPROTEROZOIC CARBON CYCLE**
- 346-7** 3:00 PM Zhao, Mingyu*; Planavsky, Noah J.; Wei, Guangyi; Gong, Zheng: **SIMULATING METEORIC AND MIXING-ZONE DIAGENESIS OF MARINE CARBONATES VIA A TWO-DIMENSIONAL REACTIVE TRANSPORT MODEL**
- 3:15 PM **BREAK**
- 346-8** 3:30 PM Tsukui, Kaori*; Ramezani, Jahandar; Bowring, Samuel A.: **DEVELOPING AN ENHANCED CHRONOLOGY FOR THE TERMINAL EDIACARAN-CAMBRIAN TRANSITION ON A GLOBAL SCALE**
- 346-9** 3:45 PM Maloof, Adam; Mehra, Akshay*: **CONSTRAINING THE ROLE OF AN EDIACARAN BIOMINERALIZER USING A MULTISCALE METHODOLOGY**
- 346-10** 4:00 PM Pehr, Kelden*; Love, Gordon D.; Kuznetsov, Anton; Podkovyrov, Victor; Junium, Christopher K.; Bekker, Andrey: **EXCEPTIONAL PRESERVATION OF LIPID BIOMARKERS REVEALS NEW INSIGHTS INTO LATE EDIACARAN OLIGOTROPHIC SHALLOW-MARINE COMMUNITIES AND ENVIRONMENTS ON BALTICA**
- 346-11** 4:15 PM Huang, Jing*; Farquhar, James; Shen, Yanan: **MULTIPLE SULFUR ISOTOPIC RECORDS ASSOCIATED WITH THE "SHURAM EXCURSION" FROM SOUTH CHINA**
- 346-12** 4:30 PM Diamond, Charles Wilson*; Zhang, Feifei; Chen, Yan; Lyons, Timothy W.: **THE EVOLVING REDOX LANDSCAPE OF THE NANHUA BASIN ACROSS THE NEOPROTEROZOIC/CAMBRIAN TRANSITION**
- 346-13** 4:45 PM Wei, Guangyi*; Kalderon-Asael, Boriana; Shen, Jun; Ling, Hongfei; Planavsky, Noah J.: **ENHANCED CONTINENTAL WEATHERING INTENSITY IN THE EARLY CAMBRIAN AND ITS EFFECTS ON MARINE OXYGENATION AND PRODUCTION**
- 346-14** 5:00 PM Jacobs, David K.*; Speck, Hayden P.: **COLD CRADLES AND WARM GRAVES- HOW TEMPERATURE CONSTRAINS OXYGEN IMPACTING DIVERSITY**

SESSION NO. 346

T255. The Co-Evolution of Life and Its Environment during the Precambrian: The Late Proterozoic Rise of Animals; Climate, Tectonic, and Environmental Dynamics, and the Transition into the Early Paleozoic (Paleontological Society; GSA Sedimentary Geology Division)

1:30 PM, The Conference Center, Skagit 5

Michael Kipp, J. Alex Zumberge and Timothy W. Lyons, Presiding

- 346-1** 1:30 PM Rooney, Alan D.*; Strauss, Justin V.; Cohen, Phoebe; Condon, Daniel; Schmitz, Mark D.: **NEW RE-OS AND U-PB AGE CONSTRAINTS FOR THE BIOLOGICAL INNOVATIONS AND GEOCHEMICAL AND CLIMATIC PERTURBATIONS OF THE NEOPROTEROZOIC (Invited Presentation)**
- 346-2** 1:45 PM Huang, Kang-Jun*; Shen, Bing; Teng, Fang-Zhen; Lang, Xianguo; Ma, Haoran; Peng, Yongbo; Fu, Yong: **CHEMICAL WEATHERING DURING THE MARINOAN SNOWBALL EARTH**
- 346-3** 2:00 PM Partin, Camille A.*; Sadler, Peter M.: **SLOW NET SEDIMENT ACCUMULATION SETS SNOWBALL EARTH APART FROM ALL YOUNGER GLACIAL EPISODES (Invited Presentation)**

POSTER TECHNICAL SESSIONS

SESSION NO. 347 ☺ \$

T79. Geologic Energy Research (Posters) (GSA Energy Geology Division; GSA Environmental and Engineering Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 347-1** 1 Hood, Madison M*; Hower, James C.; Dai, Shifeng: **MACERAL-BASED ENVIRONMENT OF DEPOSITION MODELS: EXAMPLES FROM ANALYSIS OF A LITHOTYPE SUITE FROM A CRETACEOUS COAL, INNER MONGOLIA AUTONOMOUS REGION, CHINA**

- 347-2** 2 Weisenfluh, Gerald A.*; Greb, Stephen F.; Wang, Rebecca: **COAL GEOLOGY INFORMATION: COAL CORE DESCRIPTION AND MINING GEOLOGY**
- 347-3** 3 Greb, Stephen F.*; Eble, Cortland F.: **POTENTIAL PALEOTOPOGRAPHIC INFLUENCES ON SULFUR DISTRIBUTION IN THE ELM LICK COAL ZONE, TRADEWATER FORMATION (MIDDLE PENNSYLVANIAN) WESTERN KENTUCKY**
- 347-4** 4 Dinterman, Philip A.*; Moore, Jessica Pierson; Lewis, J. Eric; Greb, Stephen F.; Miller, Kenneth G.: **CROSS-SECTIONS FROM THE MIDWEST REGIONAL CARBON SEQUESTRATION PARTNERSHIP: VISUALIZING SUBSURFACE CARBON STORAGE OPPORTUNITIES ACROSS THE CENTRAL AND EASTERN UNITED STATES**
- 347-5** 5 Bowen, David W.*; Eby, David E.; DeVault, Bryan C.; Lageson, David R.; Zaluski, Wade; Spangler, Lee; Fairwether, Stacey: **THE BIG SKY CARBON SEQUESTRATION PARTNERSHIP PHASE III KEVIN DOME PROJECT – SITE CHARACTERIZATION AND LESSONS LEARNED IN DEVONIAN CARBONATES**
- 347-6** 6 Patch, Austin*; Ritzer, Samantha R.; Farrell, Úna C.; Sperling, Erik A.: **PALEOREDOX ANALYSIS OF TWO CORES THROUGH THE MARCELLUS SHALE, HARRISON AND WETZEL COUNTIES, WEST VIRGINIA**
- 347-7** 7 Alkan Gün, Beril*; Çemen, Ibrahim; Yalçın Erik, Nazan; Demirci, Mustafa; Engin, Can: **PETROLEUM SYSTEM ANALYSIS OF THE KIRKKAVAK FORMATION IN THE HAYMANA BASIN, CENTRAL ANATOLIA, TURKEY**
- 347-8** 8 Askari, Zohreh*; Lasemi, Yaghoob; Webb, Nathan D.: **STRATIGRAPHIC VARIABILITY AND RESERVOIR CHARACTERIZATION OF THE MISSISSIPPIAN CYPRESS SANDSTONE IN THE DEEP AREA OF THE ILLINOIS BASIN**
- 347-9** 9 Kim, Hyeonju*; Lee, Gwang H.; Kim, Han-J.; Pigott, John D.: **HORIZON SLICE OF BANDWIDTH-ENHANCED SEISMIC DATA FOR THIN BEDS AUTOTRACKED FROM SPECTRAL DECOMPOSITION**
- 347-10** 10 Calhoun, Zachary A.*; Uddin, Ashraf: **RESERVOIR POTENTIAL OF LATE PENNSYLVANIAN-EARLY PERMIAN CALCAREOUS GRAVITY FLOW LITHOFACIES, INCLUDING HYBRID EVENT BEDS, NORTHERN MIDLAND BASIN, TEXAS**
- 347-11** 11 Meng, Tao*; Qiu, Longwei; Wang, Yongshi: **A QUANTITATIVE EVALUATION METHOD OF STRATIGRAPHIC TRAPS TAKING SOUTH SLOPE OF DONGYING DEPRESSION AS AN EXAMPLE**
- 347-12** 12 Yan, Wenyuan*; Zha, Ming: **ANALYSIS AND CALCULATION OF HYDROCARBON ACCUMULATION HISTORY AND PALEO-FLUID POTENTIAL FIELD OF TRIASSIC RESERVOIRS IN LUNAN LOW UPLIFT OF TARIM BASIN**
- 347-13** 13 Ma, Baoquan*: **NEW IDENTIFICATION METHOD OF LOW-PERMEABILITY RESERVOIR DIAGENETIC FACIES**
- 347-14** 14 Oguadinma, Vivian Onyinyechukwu*; Aniwetalu, Emmanuel Ude; Ezenwaka, Kingsley Chimaobi; Ilechukwu, Juliet Nwamaka; Amaechi, Pascal Ogechukwu; Ejezie, Ezinne Okwukweka: **ADVANCED STUDY OF SEISMIC AND WELL LOGS IN THE HYDROCARBON PROSPECTIVITY OF SIRAM FIELD, NIGER DELTA BASIN**
- 347-15** 15 Jiang, Youlu*; Zhao, Kai; Chen, Tao; Song, Guoqi: **GEOLOGICAL FEATURES OF UNCONFORMITY STRUCTURES AND FORMATION CHARACTERISTICS OF STRATIGRAPHIC RESERVOIRS IN JIYANG DEPRESSION, BOHAI BAY BASIN, CHINA (Invited Presentation)**
- 347-16** 16 Zhang, Yinguo*; Chen, Qinghua; Chen, Jianwen; Wang, Jianqiang: **TYPES OF UNCONFORMITY AND PREDICTION OF HYDROCARBON RESERVOIRS IN YANTAI DEPRESSION, SOUTH YELLOW SEA BASIN**

SESSION NO. 348 

T80. Geothermal Energy (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 348-1** 17 Ritzinger, Brent*; Glen, Jonathan; Steely, Alexander N.; Anderson, Megan L.; Forson, Corina: **APPLICATION OF POTENTIAL FIELD GEOPHYSICAL DATA TO STUDY THE GEOTHERMAL RESOURCES IN THE WIND RIVER VALLEY, WA**
- 348-2** 18 Golla, Jon K.*; Tepper, Jeffrey H.: **SUBSURFACE CHARACTERIZATION OF THERMAL SPRINGS IN CASCADE RANGE AND OLYMPIC MOUNTAINS, WASHINGTON USING MULTIPLE MINERAL EQUILIBRIA GEOTHERMOMETRY**
- 348-3** 19 Sadowski, Andrew J.*; Faulds, James E.; Coolbaugh, Mark F.; Siler, Drew L.: **GEOTHERMAL PLAY FAIRWAY ANALYSIS OF THE SOU HILLS, CENTRAL NEVADA**
- 348-4** 20 Scanlon, Darby P.*; Bershaw, John; Burns, Erick R.; Wells, Ray E.; Cladouhos, Trenton T.: **Basin Analysis and Reservoir Characterization for Geothermal Deep Direct Use Thermal Energy Storage (DDU-TES) in Portland, Oregon**
- 348-5** 21 Harper, Thomas B.*; Liberty, Lee: **SEISMIC CONSTRAINTS ON GEOTHERMAL RESOURCES BENEATH THE WESTERN AND CENTRAL SNAKE RIVER PLAIN**
- 348-6** 22 Whittington, Alan*; Roy, Derick; Kenderes, Stuart M.; Merriman, Jesse; Hofmeister, Anne: **THE DEPENDENCE OF ROCK THERMAL PROPERTIES ON COMPOSITION AND TEMPERATURE**
- 348-7** 23 Villegas, Gabriela*; Fairley, Jerry P.; Price, Adam: **DEGREE OF INFLUENCE OF THE BIOT NUMBER OVER NEAR-SURFACE TEMPERATURE ANOMALIES**
- 348-8** 24 Liu, Shaowen*; Zhu, Ge: **ESTIMATION OF DEEP FORMATION TEMPERATURE AND GEOTHERMAL RESOURCE POTENTIAL ASSESSMENT IN THE LOWER YANGTZE AREA, EAST CHINA**
- 348-9** 25 Renaud, Evan D.*; Harris, Nicholas B.; Banks, Jonathan C.: **GEOTHERMAL RESOURCE CHARACTERIZATION OF THE SLAVE POINT FORMATION IN CLARKE LAKE FIELD, FORT NELSON, B.C., CANADA**
- 348-10** 26 Çallı, Süleyman Selim*: **APPLICABILITY AND SUSTAINABILITY OF SEAWATER INJECTION IN ORDER TO PRODUCE GEOTHERMAL ENERGY**

SESSION NO. 349

D7. Environmental Geoscience (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 349-1** 27 Ademeso, Odunyemi Anthony*; Afelumo, Ademola John: **INVESTIGATING THE INTEGRITY OF THE SUBSOIL AS FOUNDATION SUPPORT MATERIALS FOR A HOSTEL BUILDING, FUTA, SW, NIGERIA**
- 349-2** 28 Jovanelly, Tamie J.*: **WATER QUALITY AND ENDANGERED IMPALAS: CASE STUDY FOR KENYA WILDLIFE SERVICE**
- 349-3** 29 Bowen, Brenda B.*; Pechmann, Jessie; Kipnis, Evan; Lerback, Jory C.; Stinson, Hannah; Wetterlin, Lily; Bernau, Jeremiah A.: **EVALUATING CHANGE AT THE BONNEVILLE SALT FLATS, UTAH**
- 349-4** 30 Rezaie Boroon, Mohammad Hassan*; Ramirez, Christian; Nguyen, Henry: **ANTHROPOGENIC CONTAMINANTS IN THE WATER AND SEDIMENTS OF URBANIZED LAGOONS OF LOS ANGELES**
- 349-5** 31 Merrill, Alyssa*; Murphy, Jacob; Widmer, Julia; Harford, Ashley; Ruiz, Elena; Roote, Carol; Brown, Beverly; Giacherio, David; Zamule, Stephanie; Das, Padmini: **THE FATE AND TOXICITY OF BPA IN SWITCHGRASS (*Panicum virgatum*), A NATIVE PLANT, TO EXPLORE THE PHYTOREMEDIATION POTENTIAL**

- 349-6** 32 Widmer, Julia*; Murphy, Jacob; Merrill, Alyssa; Modeen, Emily; Biswa, Barsha; Devolgado, Mirzi; Oteme, Gbassey; Muuse, Janelle; Taylor, Courtney; Zamule, Stephanie; Das, Padmini: **BIOREMEDIATION OF TWO NEONICOTINOID INSECTICIDES, THIAMETHOXAM AND IMIDACLOPRID, USING SELECT BACTERIAL SPECIES**
- 349-7** 33 Connors, Gannon*; Das, Padmini; Giacherio, David; Izzo, Sarah; Murphy, Jacob; Merrill, Alyssa; Loy, Daryn; Fuentes, Shane; Hyde, Emilee; Vodacek, Anthony; Ford, Ryan; Raqueno, Nina; Gergi, Ivan; Pelkey, Eileen; Hornack, Emma; Ahern, Aubrey; Ahmed, Mustafa; Brooks, Davy; Cavacos, Sarah; Justiniano, Jaun; Kokkoris, Giannette; Kwok, Matthew; Martinez, Austin; Narang, Claire; O'Hern, Natalie; Ribeiro, Rahul; Ryder, Chris; Schmitz, Caroline; Seshadri, Aditi; Seshadri, Anjana; Stein, Rachel; Stolberg, Sophie; Sushko, Oksana; Tangirala, Aditya; Vinton, Audrey; Wu, Catherine; Zaft, Alyssa; Zhang, Selena; Shebert, Jane; Zamule, Stephanie: **TROPHIC PROFILING OF THE MOUTH OF THE GENESSEE RIVER AT LAKE ONTARIO AS FUNCTION OF SEASONALITY AND DETERMINATION OF GREEN ALGAE AND BLUE GREEN ALGAE USING THE LANDSAT IMAGES**
- 349-8** 34 Murphy, Jacob*; Das, Padmini; Giacherio, David; Izzo, Sarah; Connors, Gannon; Merrill, Alyssa; Loy, Daryn; Fuentes, Shane; Hyde, Emilee; Gergi, Ivan; Pelkey, Eileen; Ahern, Aubrey; Ahmed, Mustafa; Brooks, Davy; Cavacos, Sarah; Hornack, Emma; Justiniano, Jaun; Kokkoris, Giannette; Kwok, Matthew; Martinez, Austin; Narang, Claire; O'Hern, Natalie; Ribeiro, Rahul; Ryder, Chris; Schmitz, Caroline; Seshadri, Aditi; Seshadri, Anjana; Stein, Rachel; Stolberg, Sophie; Sushko, Oksana; Tangirala, Aditya; Vinton, Audrey; Wu, Catherine; Zaft, Alyssa; Zhang, Selena; Shebert, Jane; Zamule, Stephanie: **POINT-SOURCE CONTRIBUTION OF WASTEWATER TREATMENT PLANTS IN INCREASING THE NUTRIENT PROFILES OF THE WATERWAYS IN THE LOWER GENESSEE RIVER WATERSHED AS FUNCTION OF SEASONALITY**
- 349-9** 35 Horton, Ashley Diane*; Murray, Kyle E.: **ANALYSIS AND MAPPING OF SOURCES OF CONTAMINANTS OF EMERGING CONCERN IN LAKE THUNDERBIRD, NORMAN, OK**
- 349-10** 36 Bowling, Jessica A.*; Hunt, A.M.: **A NEW HYPOTHETICAL APPROACH TO PROTECT FRESH WATER AQUIFER QUALITY FROM CONTAMINATION BY HYDRAULIC FRACTURE INITIATED CONTAMINATION: FRACTURE ADVANCE CESSATION BY PLUGGING ACTION**
- 349-11** 37 Hallnan, Rachel*; Rasmussen, Dirk; Smeins, Melissa: **GEOSPATIAL CHARACTERIZATION OF SURFACE WATER QUALITY FOR WATERSHEDS WITH ABANDONED MINE LANDS: A CASE STUDY FROM THE SUGARLOAF MINING DISTRICT, LEADVILLE, COLORADO, USA**

SESSION NO. 350 

T33. Intersections of Sustainability and Geosciences (Posters) (GSA Geology and Society Division; GSA Karst Division; GSA Environmental and Engineering Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 350-1** 38 Hefley, Ryan J.*; Shroat-Lewis, René A.; Ruhl, Laura: **THE IMPACT OF HUMAN VISITS ON WATER QUALITY IN LIGHTHOUSE CAVE, SAN SALVADOR, THE BAHAMAS**
- 350-2** 39 Page, Robert F*: **THE INFLUENCES OF SOIL CHARACTERISTICS ON NEST-SITE SELECTION IN PAINTED TURTLES (*CHRYSEMYS PICTA*)**
- 350-3** 40 Harris, Katherine*; Coaffee, Jon; Bricker, Stephanie: **THE USE OF GEO-RESOURCES UNDERNEATH CITIES FOR RESILIENT AND SUSTAINABLE URBAN DESIGN**
- 350-4** 41 Stabile, Paola; Paris, Eleonora*; Ansaloni, Francesco; Radica, Francesco; Giuli, Gabriele; Carroll, Michael: **SUBSTITUTING RAW MATERIALS WITH WASTE FOR NEW ECO-SUSTAINABLE BUILDING PRODUCTS (ECOTILES)**

- 350-5** 42 Watson, Andrew L.*; O'Reilly, Catherine M.; Perry, William L.; Heath, Victoria E.; Bruening, Benjamin G.: **EFFECTS OF PRECIPITATION ON NUTRIENT STORAGE IN A COVER CROPPED AGRICULTURAL WATERSHED**
- 350-6** 43 Morales, Alan*; Watson, Andrew L.; Perry, William L.; O'Reilly, Catherine M.; O'Reilly, Catherine M.: **ANALYZING THE INFLUENCE OF PRECIPITATION ON BUFFER ZONE TILE DRAIN SYSTEMS IN CENTRAL ILLINOIS**
- 350-7** 44 Johnson, Linnea L.*; O'Reilly, Catherine M.; Peterson, Eric W.; Heath, Victoria E.; Miller, Joseph J.; Gregorich, Holly G.; Twait, Richard: **FIELD DRAIN TILE DIVERSION INTO A RIPARIAN BUFFER ZONE EFFECTS ON SPATIAL DISPERSION OF NITRATE IN GROUNDWATER**

SESSION NO. 351 

T150. Chemical Scene Investigations of Large Igneous Provinces II (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 351-1** 45 Pu, Judy P.*; Schmitz, Mark D.; Crowley, James L.; Macdonald, Francis A.: **GEOCHRONOLOGICAL CONSTRAINTS ON THE EMPLACEMENT OF THE FRANKLIN LIP: TESTING HYPOTHESES FOR THE ONSET OF THE STURTIAN SNOWBALL EARTH**
- 351-2** 46 Stevenson, Alexandria M.*; Price, Jonathan D.: **AN EXAMPLE OF INTRUSION RELATIONSHIPS ALONG THE NORTHERN MARGIN OF THE QUANAH GRANITE, WICHITA LIP, SOUTHWESTERN OKLAHOMA**
- 351-3** 47 Quevy, Amber L.*; Price, Jonathan D.: **SUSTAINED MARGINAL DIKES IN THE WICHITA LIP, SOUTHWESTERN OKLAHOMA**
- 351-4** 48 Matos, Javier*: **STUDY OF ALKALINE BRECCIAS, DYKES AND SILLS FROM EASTERN CORDILLERA, BOLIVIA**

SESSION NO. 352

T155. Improvements and Challenges in Geochronology: Organizing the Past while Planning for the Future (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 352-1** 49 Condon, Daniel*; Kuiper, Klaudia; Morgan, Leah E.; Renne, Paul R.; Schmitz, Mark D.; Schoene, Blair; Singer, Bradley S.: **EARTHTIME 2.0, ACCELERATING THE DEVELOPMENT AND APPLICATION OF INTEGRATED METHODOLOGIES FOR THE QUANTIFICATION OF GEOLOGICAL TIME**
- 352-2** 50 Grove, Marty*; Hourigan, Jeremy; Lovera, Oscar M.: **ADVANTAGES OF CONTINUOUS RAMP HEATING AND MACHINE-LEARNING IN ⁴⁰AR/³⁹AR THERMOCHRONOLOGY (Invited Presentation)**
- 352-3** 51 Gardiner, Stephanie*; Rivera, Tiffany A.; Jicha, Brian R.; Schmitz, Mark D.: **MOVING LEGACY DATA FORWARD: HARMONIZING ⁴⁰AR/³⁹AR ERUPTION AGES FOR THE THREE YELLOWSTONE SUPER-ERUPTIONS**
- 352-4** 52 Singer, Brad S.*; Jicha, Brian R.; Mochizuki, Nobutatsu; Coe, Robert S.: **⁴⁰AR/³⁹AR MULTI-COLLECTOR REVOLUTION AND AGE OF THE MATUYAMA-BRUNHES BOUNDARY**
- 352-5** 53 Holland, Mark E.*; Heizler, Matthew T.; Amato, Jeffrey M.; Karlstrom, Karl E.: **MAXIMIZING THE THERMOCHRONOLOGIC POTENTIAL OF MUSCOVITE THROUGH MULTIPLE DIFFUSION DOMAIN MODELING: EPISODIC ⁴⁰AR* LOSS IN THE BURRO MOUNTAINS, SOUTHERN NEW MEXICO**
- 352-6** 54 Flowers, Rebecca M.*; Baughman, Jaclyn S.; Johnson, Joshua E.; Metcalf, James R.: **THE EXPANDING TEMPERATURE SENSITIVITY RANGE OF (U-TH)/HE THERMOCHRONOLOGY FROM IMPROVED UNDERSTANDING OF THE "BIG THREE" (APATITE, ZIRCON AND TITANITE): APPROACHES AND EXAMPLES (Invited Presentation)**

WEDNESDAY

POSTERS

- 352-7 55 Niespolo, Elizabeth*; Sharp, Warren; Fylstra, Nicholas; Tryon, Christian A.; Tripathy-Lang, Alka; Weisz, David G.; Blegen, Nick; Faith, J. Tyler; Henshilwood, Christopher S.; Lewis, Jason; Mackay, Alex; Steele, Teresa; Van Niekerk, Karen; WoldeGabriel, Giday: **U-TH BURIAL DATING OF OSTRICH EGGSHELLS: A NOVEL APPROACH TO DATING AFRICAN ARCHAEOLOGICAL SEQUENCES BEYOND THE ¹⁴C LIMIT**
- 352-8 56 Smye, Andrew J.*: **APPLICATIONS AND LIMITATIONS OF U-PB THERMOCHRONOLOGY (Invited Presentation)**
- 352-9 57 Eddy, Michael P.*; Ibanez-Mejia, Mauricio: **GHR1 – A NEW EOCENE NATURAL REFERENCE MATERIAL FOR U-PB AND HF ISOTOPIC MEASUREMENTS IN ZIRCON**
- 352-10 58 Griffis, Neil*; Mundil, Roland; Keller, C. Brenhin; Montañez, Isabel P.; Isbell, John L.; Fedorchuk, Nicholas D.; Linol, Bastien; Iannuzzi, Roberto; Vesely, Fernando; Yin, Qing-zhu: **DECIPHERING AGE DISPERSION IN HIGH-RESOLUTION CA-TIMS U-PB ZIRCON ANALYSIS: EXAMPLES FROM THE CARBONIFEROUS-PERMIAN PARANÁ AND KAROO BASINS**
- 352-11 59 Li, Xiang*; Zhao, Kui-Dong; Jiang, Shao-Yong: **IN-SITU LA-ICP-MS CASSITERITE U-PB DATING OF THE NEVES CORVO CU-SN DEPOSIT, IBERIAN PYRITE BELT**
- 352-12 60 Rasmussen, Cornelia; Mundil, Roland; Irmis, Randall B.*; Keller, C. Brenhin; Giesler, Dominique; Gehrels, George E.: **CONSTRUCTING A PRECISE TIMESCALE FOR NON-MARINE SEDIMENTARY STRATA USING U-PB GEOCHRONOLOGY OF REDEPOSITED VOLCANIC ZIRCONS**
- 352-13 61 Bonamici, Chloe E.*: **A COMPARISON OF IN SITU U-PB DATING TECHNIQUES FOR CA-1-GA TITANITE**
- 352-14 62 Davies, Joshua H.F.L.*; Sheldrake, Thomas; Reimink, Jesse; Moeck, Christian; Finlay, Alex: **ISOCHRON REVISITED: A NEW APPROACH TO DEAL WITH EXCESS SCATTER**

SESSION NO. 353

T143. Curating Physical Samples in a Digital World (Posters) (GSA Geoinformatics Division; Paleontological Society; Society for the Preservation of Natural History Collections; Paleontological Research Institution; Cushman Foundation; GSA Geobiology & Geomicrobiology Division; Association of American State Geologists)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 353-1 63 Wyborn, Lesley*; Klump, Jens: **A NEW ROLE FOR PHYSICAL SAMPLES IN THE GEOSCIENCES BIG DATA WORLD**
- 353-2 64 Newman, Tyler*; Cozart, Gabrielle; Bigelow, Robert; Bowring, James F.; Mclean, Noah M.: **CHRONI: ENGINEERING A MOBILE APP FOR GEOCHRON.ORG**
- 353-3 65 Marotta, Jake*; Bigelow, Robert; Bowring, James F.; Mclean, Noah M.: **TOPSOIL: COMMUNITY-DRIVEN REPLACEMENT FOR ISOPLOT DATA VISUALIZATION**
- 353-4 66 Thompson, Richard H.*; Karadkar, Unmil P.: **IMPLICATIONS OF EARTH CORE REPOSITORY PRACTICES FOR BUILDING A GEOSCIENCES CYBERINFRASTRUCTURE**

SESSION NO. 354 \$

T144. Drones in Geoscience (Posters) (GSA Environmental and Engineering Geology Division; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 354-1 67 Ellett, Nicholas*; Pierce, Jennifer L.; Goode, Jaime; Glenn, Nancy F.: **QUANTIFYING POST-FIRE HILLSLOPE AND DEBRIS FLOW EROSION IN A STEEP CATCHMENT USING HIGH-RESOLUTION STRUCTURE FROM MOTION**
- 354-2 68 Lundine, Mark*; Dohner, Stephanie; Trembanis, Arthur; Miller, Douglas: **OPTIMIZING UAV SURVEYS FOR COASTAL**

MORPHODYNAMICS: ESTIMATION OF SPATIAL UNCERTAINTY AS A FUNCTION OF FLIGHT ACQUISITION AND POST PROCESSING FACTORS

- 354-3 69 Pearson, Paul; Haddrill, Keri; Gorgenson, Ian; Brophy, Erin E.; Huffman, Max*; DeVries-Zimmerman, Suzanne J.; Fast, Kathleen M.; Caltrider, Kaitlyn; Hansen, Edward: **USING REMOTELY ACQUIRED IMAGES TO MAP VEGETATION DENSITIES IN OPEN DUNE ENVIRONMENTS: A CASE STUDY FROM COASTAL DUNES ALONG THE SOUTHEASTERN SHORE OF LAKE MICHIGAN**
- 354-4 70 Barbieri, Lindsay*: **INTEGRATED SUAS MEASUREMENTS AND IMAGERY FOR LAND USE MONITORING**
- 354-5 71 Allen, Phillip P.*; Ramspott, Matthew E.: **NEW VIEWS ON AN OLD LANDSCAPE: EMPLOYING AN UNMANNED AIRCRAFT SYSTEM (UAS) FOR RAPID HIGH RESOLUTION DATA ACQUISITION TO AID GEOMORPHOLOGICAL RESEARCH**
- 354-6 72 Duncan, Casey James*; Wheatley, David Fairchild; Chesebrough, Sam W.: **BEST-PRACTICES FOR THE INTEGRATION OF DRONE/UAV DATA PRODUCTS INTO FIELD GEOLOGY CURRICULUM**
- 354-7 73 Baker, Gregory*: **UTILIZING SUAS (DRONES) IN NEAR-REAL TIME TO ENHANCE GEOLOGY FIELD CAMP LEARNING OUTCOMES**
- 354-8 74 Rasmussen, Dirk*; Mohrmann, Jacob: **APPLIED UAV PHOTOGRAMMETRY AS AN INTEGRATIVE MINE RECLAMATION TOOL**
- 354-9 75 Meghani, Nooreen A.*; Miller, Douglas A.; Holderman, Brennan: **ACCURACY OF SUAS OPERATIONS IN DENSELY FORESTED AREAS WITH USE OF EMLID REACH RTK SYSTEM**
- 354-10 76 Finnegan, John P.*; Becker, Richard H.: **USING UAV BASED DIGITAL PHOTOGRAMMETRY AND CLASSICAL TECHNIQUES TO MAP STRUCTURAL FEATURES EXPOSED IN THE HANSON-2 QUARRY, SYLVANIA, OH**
- 354-11 77 Stright, Lisa*; Durkin, Paul R.; Southern, Sarah J.; Romans, Brian W.; Hubbard, Stephen M.: **APPLYING OUTCROP ANALOGUE STATISTICS TO SUBSURFACE MODELING WORKFLOWS**
- 354-12 78 Truksa, Tyler*; Bowman, Jake; Goode, Jaime: **CAN DRONES MEASURE LWD?: HIGH RESOLUTION AERIAL IMAGERY AND STRUCTURE FROM MOTION AS A METHOD FOR QUANTIFYING INSTREAM WOOD**
- 354-13 79 Pitts, Alan*; Bentley, Callan; Di Celma, Claudio: **USING UAV BASED PHOTOGRAMMETRY TO MAP STRATIGRAPHIC ARCHITECTURE IN SEDIMENTARY SYSTEMS**
- 354-14 80 Young, James R.*; Watts, Chester F.: **IDENTIFYING SINKHOLES USING INFRARED AERIAL IMAGERY**
- 354-15 81 McDonald, Kristian*; Fletcher, Charles H.; Barbee, Matthew; Habel, Shellie L.; Anderson, Tiffany; Tavares, Kammie-Dominique A.: **UAV SURVEYS TO MONITOR VOLUMETRIC BEACH CHANGES OVER AN EXTREME HIGH-TIDE EVENT: WAIKIKI, HAWAII**

SESSION NO. 355

T147. What Can You Do with Geoinformatics? (Posters) (GSA Geoinformatics Division; Geoscience Information Society; American Geosciences Institute; American Geophysical Union; GSA Environmental and Engineering Geology Division; GSA Geoscience Education Division; Association of American State Geologists; GSA Karst Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 355-1 82 Hsu, Leslie*: **LEARNING ABOUT GEOINFORMATICS WITH YOUR PEERS**
- 355-2 83 Rose, Shea*: **DEVELOPING UNDERGRADUATE RESEARCH THROUGH INTEGRATING THE R-LANGUAGE INTO AN APPLIED CLIMATOLOGY COURSE**

- 355-3 84 Loeffler, Shane*: **TILED LIDAR FOR USE IN MOBILE AND WEB APPS**
- 355-4 85 Schwat, Eli L.*: **GEOSTATION: AN OPEN SOURCE SCALA LIBRARY FOR SPATIAL DATA ANALYSIS**
- 355-5 86 Calef, Fred John*; Soliman, Tariq K.; Gengl, Hallie; Abercrombie, Stewart P.; Powell, Mark W.: **SPATIAL DATA INFRASTRUCTURE FOR MARS ROVERS**
- 355-6 87 Sweetkind, D.S.*; Langenheim, V.E.; Hanson, R.T.: **BACK TO THE FUTURE: USING A GIS TO POPULATE 3D GEOCELLULAR GEOLOGIC MODELS**
- 355-7 88 Yalcin, Cihan; Sabah, Levent; Kaya, Mustafa*: **EARTHQUAKE HAZARD ANALYSIS OF ÇANAKKALE'S INDUSTRIAL FIRMS VIA GIS-BASED ANALYTICAL HIERARCHY PROCESS**
- 355-8 89 Neace, Sydney D.*; Bevis, Kenneth A.: **IMPROVED SINKHOLE MAPPING IN JEFFERSON COUNTY, INDIANA USING LIDAR TECHNOLOGY**
- 355-9 90 Shields, Ashley J.B.*; Delparte, Donna; Pearson, David M.: **FAULT DETECTION USING MULTISCALE REMOTE SENSING TECHNIQUES, NEAR CHALLIS, IDAHO**
- 355-10 91 Rasera, Luiz Gustavo*; Mariethoz, Gregoire; Lane, Stuart N.: **SPATIAL MODELING AND UNCERTAINTY ASSESSMENT OF FINE SCALE SURFACE PROCESSES BASED ON COARSE TERRAIN ELEVATION DATA**
- 355-11 92 Chan, Marjorie A.*; Hajek, Elizabeth; Kamola, Diane L.; Tikoff, Basil; Williams, Randolph T.; Walker, Douglas: **SEDIMENTARY VOCABULARY FOR AN INTEGRATED FIELD GEOLOGY DATA SYSTEM**
- 355-12 93 Jiang, Meichen*; He, Yuxin: **REVEALING VEGETATION COVER CHANGES IN BEIJING AND INFLUENTIAL FACTORS DURING 2000-2015 WITH GEOINFORMATICS**

SESSION NO. 356

T183. Advances and Challenges in Quantifying Sediment Budgets for River Systems (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

- | Booth # | Author(s) | Title |
|----------|--|---|
| 356-1 94 | Talbot-Wendlandt, Haley*; Jimerson, Cole; Tomenchok, Kira; Hill, Marcus; Henck Schmidt, Amanda; Frey, Holli M.: | SPATIAL PATTERNS OF EROSION ON DOMINICA, A VOLCANIC TROPICAL ISLAND |
| 356-2 95 | Rachels, Aaron A.*; Bladon, Kevin D.; Bywater-Reyes, Sharon: | DETERMINING THE SOURCES OF SUSPENDED SEDIMENT IN OREGON COAST RANGE HEADWATER STREAMS FOLLOWING FOREST-HARVESTING OPERATIONS |
| 356-3 96 | Cole, Ryan*; Bladon, Kevin D.; Wagenbrenner, Joe; Coe, Drew B.R.: | COMPARATIVE EFFECTS OF DIFFERENT POST-FIRE LAND MANAGEMENT STRATEGIES ON HILLSLOPE SEDIMENT YIELD |
| 356-4 97 | Beveridge, Claire*: | RECONSTRUCTING SEDIMENT SUPPLY, TRANSPORT AND DEPOSITION BEHIND THE ELWHA DAMS |
| 356-5 98 | Keith, Mackenzie K.*; Wallick, J. Rose; Schenk, Liam; White, James; Gordon, Gabriel; Stratton, Laurel; Mangano, Joseph F.: | RESERVOIR-DOWNSTREAM SEDIMENT BALANCE FROM ANNUAL DRAWDOWNS AT FALL CREEK LAKE, OREGON |
| 356-6 99 | Bailey, Tim L.*: | HISTORICAL SEDIMENT DYNAMICS IN A DEBRIS FLOW IMPACTED WATERSHED |

SESSION NO. 357

T186. Heterogeneity in Landscape Evolution: Geomorphic Response to Spatially and Temporally Variable Forcings (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

- | Booth # | Author(s) | Title |
|------------|---|--|
| 357-1 100 | Neagu, Nathalie*; Matmon, Ari; Enzel, Yehouda; Porat, Naomi: | CONTROLS ON QUATERNARY AGGRADATION-INCISION CYCLES IN A HYPERARID WATERSHED, NORTHEASTERN NEGEV, ISRAEL |
| 357-2 101 | Ryan, James J.*; Hayward, Nathan; Jackson, Lionel E.: | INVESTIGATING LANDSCAPE ANTIQUITY AND CENOZOIC DRAINAGE DEVELOPMENT OF SOUTHERN YUKON (CANADA), THROUGH RESTORATION MODELING OF THE CORDILLERAN-SCALE TINTINA FAULT |
| 357-3 102 | Schanz, Sarah A.*; Montgomery, David R.; Collins, Brian D.; Duvall, Alison R.: | MULTIPLE PATHS TO CLIMATIC STRATHS: HOW LOCAL CONDITIONS AND DATING METHODS OBSCURE TERRACE CORRELATION WITH CLIMATE CYCLES |
| 357-4 103 | Mitchell, Nate A.*; Yanites, Brian J.: | LANDSCAPE TRANSIENCE IN THE CLEARWATER AND SALMON WATERSHEDS: INSIGHTS FROM BEDROCK RIVER MORPHOLOGY |
| 357-5 104 | Sheehan, Christopher E.*; Ward, Dylan J.: | A NEW MECHANISM OF ESCARPMENT RETREAT: QUANTIFYING THE PROCESSES OF Laterally-propagating "WAVES OF EROSION" |
| 357-6 105 | Phillips, Zachary*; Day, Stephanie S.: | EXPLAINING POSSIBLE GEOMORPHIC IMPLICATIONS OF THE SPATIAL DISTRIBUTION OF MEANDER CUTOFFS ON THE RED RIVER (ND AND MN, USA) |
| 357-7 106 | Mistick, Katherine Ann*; Hampton, Samuel J.; Borella, Josh: | HOW PRIMARY VOLCANIC EMPLACEMENT AND COOLING MECHANISMS INFLUENCE ROCKFALL HAZARD |
| 357-8 107 | Carnes, Lorraine K.*; Pazzaglia, Frank; Pratt, Thomas: | SPECTRAL ANALYSIS OF RIVER SINUOSITY FOR IDENTIFYING INTRAPLATE CRUSTAL DEFORMATION |
| 357-9 108 | Martin, Caroline*: | EVALUATION OF TOPOGRAPHIC WETNESS INDEX AND CATCHMENT CHARACTERISTICS ON SPATIALLY AND TEMPORALLY VARIABLE STREAMS ACROSS AN ELEVATION GRADIENT |
| 357-10 109 | Fratkin, Mulu*; Segura, Catalina; Bywater-Reyes, Sharon: | INVESTIGATING THE HILLSLOPE AND IN-CHANNEL DRIVERS OF TRANSPORT CAPACITY IN VARIABLE LITHOLOGY: A CASE STUDY IN THE OREGON COAST RANGE |
| 357-11 110 | Shaw, George H.*; Mooers, Howard D.; Smrz, Josef; Papez, Zdenek; Svitek, Martin; Krotky, Antonin; Shoemaker, Peter: | AN OPEN-SOURCE CODE FOR NUMERICAL SIMULATION OF DRAINAGE BASIN DEVELOPMENT |

SESSION NO. 358

T188. Interrelationship between Tectonic Uplift and Quaternary Glaciations on the Tibetan Plateau and Its Surrounding Mountains (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

- | Booth # | Author(s) | Title |
|-----------|---|---|
| 358-1 111 | Liu, Jinhua*; Yi, Chaolu; Li, Yingkui: | GLACIAL FLUCTUATIONS IN THE KAROLA PASS, EASTERN LHAGOI KANGRI RANGE, SINCE THE LAST GLACIAL MAXIMUM |
| 358-2 112 | Zhang, Qian*; Yi, Chaolu: | GLACIATION OF THE LOPU KANGRI AREA, CENTRAL GANGDISE RANGE: TIMING THE EXTENTS |
| 358-3 113 | Huang, Xianmei*: | LATE QUATERNARY SLIP RATE OF THE MIDDLE SEGMENT OF THE GANZI-YUSHU FAULT ZONE CONSTRAINED BY NUMERICAL (CRN AND OSL) DATING OF OFFSET MORaine AND TERRACES |
| 358-4 114 | Zhang, Jiafu*; Han, Yesong; Cui, Zhijiu; Liu, Gengnian: | TIMING OF LANDSLIDES IN THE UPPER REACHES OF THE MINJIANG RIVER, EASTERN TIBETAN PLATEAU: DEFINED BY OPTICAL DATING OF DAMMED LAKE SEDIMENTS |
| 358-5 115 | Wang, Jie*; Cui, Hang; Yao, Pan; Cao, Bo; Yu, Beibei: | QUATERNARY GLACIAL HISTORY OF THE QILIAN SHAN, |

WEDNESDAY

POSTERS

NORTHEASTERN TIBETAN PLATEAU, CONSTRAINED BY ¹⁰BE SURFACE EXPOSURE DATING

- 358-6 116 Zhao, Jingdong*; Harbor, Jonathan M.; Zheng, Huijun: **OSL AND ESR AGES FOR GLACIER FLUCTUATIONS SINCE THE LATE QUATERNARY IN THE XIATE RIVER VALLEY, TIANSHAN RANGE, CHINA**

SESSION NO. 359

T189. Landscapes in the Anthropocene (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Hydrogeology Division; GSA Sedimentary Geology Division; GSA Limnogeology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 359-1 117 Bernau, Jeremiah A.*; Wetterlin, Lily; Bowen, Brenda B.: **UTILIZING SURFACE TEXTURES TO UNDERSTAND CHANGE DYNAMICS AT THE BONNEVILLE SALT FLATS**
- 359-2 118 Bowen, Mark W.*; Johnson, W.C.: **ANTHROPOGENICALLY ACCELERATED SEDIMENT ACCUMULATION WITHIN HIGH PLAINS PLAYA WETLANDS**
- 359-3 119 De Rego, Kathryn Grace*; Eaton, Brett; Lauer, J. Wesley; Hassan, Marwan: **MODELING THE EFFECT OF SEDIMENT SUPPLY ON CHANNEL WIDTH CHANGE ALONG ELWHA RIVER, WASHINGTON**
- 359-4 120 Skoglund, Rannveig*; Koller, Max: **FLUVIAL CHANNEL MORPHOLOGY IN WESTERN NORWAY AND RESILIENCE TO CHANGE**
- 359-5 121 Koller, Max*; Skoglund, Rannveig: **AN APPROACH TO ANALYZING THE VULNERABILITY TO ENVIRONMENTAL CHANGE IN CATCHMENTS IN SOUTHWESTERN NORWAY - RESEARCH DESIGN AND PRELIMINARY RESULTS**
- 359-6 122 McManimon, Caitlin T.*; Ouimet, William B.: **EVALUATING RECORDS OF NITROGEN AND HEAVY METALS IN SMALL, UPLAND WATERSHEDS AFFECTED BY 17TH CENTURY TO PRESENT LAND USE CHANGE, SOUTHERN NEW ENGLAND**
- 359-7 123 Miller, Nari*: **SOIL RESIDENCE TIMES OF UNCULTIVATED HILLSLOPES IN NAVARRES, SP, AND ARIZONA, US, USING METEORIC 10-BERYLLIUM**
- 359-8 124 Eckes, Samantha W.*; Shepherd, Stephanie: **EXPLORING APPLICATIONS OF GPR METHODOLOGY AND USES IN DETERMINING FLOODPLAIN FUNCTION OF RESTORED STREAMS IN THE GULF COASTAL PLAIN, ALABAMA**
- 359-9 125 Guo, Changbao*; Yang, Zhihua; Liu, Xiaoyi; Ren, Sanshao: **STUDY ON CREEPING LANDSLIDES DISTRIBUTION CHARACTERISTICS WITH SBAS-INSAR METHOD ALONG THE XIANSUIHE FAULT ZONE, TIBETAN PLATEAU, CHINA**
- 359-10 126 Yang, Zhihua*; Zhang, Yongshuang; Guo, Changbao; Wang, Tao: **PREDICTING LANDSLIDE SCENES UNDER POTENTIAL EARTHQUAKE SCENARIOS IN THE XIANSUIHE FAULT ZONE, SOUTHWEST CHINA**

SESSION NO. 360

T190. Linking Physical and Ecological Processes from Source-to-Sink to Investigate Multi-Scale Response to Restoration (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Limnogeology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 360-1 127 Peterman, Cara L.*; Fryar, Alan E.; Edwards, Dwayne: **DETERMINING THE PROVENANCE OF A CONTEMPORARY SEDIMENT LOAD WITHIN THE OTTER CREEK WATERSHED, KENTUCKY**

- 360-2 128 Murr, Marissa*; Alexander, Jason S.; McElroy, Brandon: **PIPING PLOVER AND LEAST TERN NESTING LOCATION COMPARED TO RIVERINE HABITAT ON GREAT PLAINS RIVERS**
- 360-3 129 Hunter, Brooke*; Kozarek, Jessica; MacGregor, Kelly; Hornbach, Daniel J.: **FRESHWATER RIVER MUSSEL GAPING RESPONSE BEHAVIOR TO INCREASED WATER VELOCITY AND TOTAL SUSPENDED SOLID CONCENTRATIONS**
- 360-4 130 Brown, Elizabeth R.; Upton, Margaret M.*; LaBonne, Nolan; Labuz, Stephen; Scott, Larissa; Sinner, Kate; Strasser, Andrew; Treat, Ian H.; Voigt, Thomas; Gran, Karen B.: **RESTORATION DESIGN EVALUATION OF THE EAST BRANCH OF THE BEAVER RIVER, SILVER BAY, MINNESOTA: A STUDENT-LED INVESTIGATION COMPARING TWO DESIGNS**
- 360-5 131 Natali, Jennifer L.*; Sytsma, Anneliese: **RESTORATION OF AGING CONCRETE CHANNELS THROUGH A WATERSHED-SCALE APPROACH TO GREEN INFRASTRUCTURE: "A FIFTY-YEAR PLAN"**
- 360-6 132 Das-Toke, Shyam*; Jungers, Matthew Cross; Persico, Lyman P.; Granke, Sarah B.; O'Bryan, Spencer: **QUANTITATIVELY ANALYZING THE GEOMORPHIC PARAMETERS OF SUITABLE BEAVER HABITAT, ADIRONDACK MOUNTAINS, NY**
- 360-7 133 Yeager, Amelia*; Segura, Catalina: **EXAMINING HOW STREAM SIZE INFLUENCES THE RELATIVE GEOMORPHIC CHANGE TRIGGERED BY LARGE WOOD INTRODUCTIONS**
- 360-8 134 Gombert, Carolyn E.*; Lancaster, Stephen T.; Grant, Gordon E.; Flitcroft, Rebecca L.: **DEVELOPING METRICS TO CHARACTERIZE HEAT BUDGETS IN OFF-CHANNEL HABITATS, WILLAMETTE RIVER, OR**

SESSION NO. 361

T192. Mountain Glaciation and Climate Change of the Past and Present in the Western Americas (Posters) (GSA Quaternary Geology and Geomorphology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 361-1 135 Crump, Sarah E.*; Larsen, Darren: **EVIDENCE FOR YOUNGER DRYAS GLACIER ACTIVITY IN THE TETON MOUNTAIN RANGE, WYOMING**
- 361-2 136 Vavrus, Claire*; Barth, Aaron M.; Marcott, Shaun A.; Ceperley, Elizabeth G.; Shakun, Jeremy D.; Caffee, Marc W.: **A LATE HOLOCENE ¹⁰BE BASED GLACIAL CHRONOLOGY FOR THE BEARTOOTH MOUNTAINS, SOUTHWESTERN MONTANA**
- 361-3 137 Ferragut, Gabriel*; Laabs, Benjamin J.; Amidon, William H.; Munroe, Jeffrey S.: **CONSTRAINING LATE PLEISTOCENE CLIMATE OF THE NORTHEASTERN GREAT BASIN USING MASS BALANCE MODELING OF PALEOLAKES AND GLACIERS**
- 361-4 138 Gray, Christina E.*; Fountain, Andrew G.; Menounos, Brian: **REGIONAL MODELING OF GLACIERS IN THE OLYMPIC MOUNTAINS, WASHINGTON**
- 361-5 139 Brett, Melissa*; Fountain, Andrew G.; Fagre, Dan; McKeon, Lisa; Menounos, Brian: **GLACIER AREA AND VOLUME CHANGE IN GLACIER NATIONAL PARK**
- 361-6 140 Stock, Greg M.*; Anderson, Robert S.; Painter, Thomas H.; Henn, Brian; Lundquist, Jessica D.: **IMPENDING LOSS OF LITTLE ICE AGE GLACIERS IN YOSEMITE NATIONAL PARK**
- 361-7 141 McConnell, Joseph R.*; Chellman, Nathan J.; Sigl, Michael; Eckhardt, Sabine; Stohl, Andreas; Nolan, Matt: **ICE CORE RECORDS OF CONTINENTAL DUST, SEA SALT, BIOMASS BURNING, AND POLLUTION FROM MCCALL GLACIER, ALASKA DURING THE PAST TWO CENTURIES**

SESSION NO. 362

T101. Better Together: Partnerships That Facilitate or Enhance Experiential Learning in Undergraduate Geoscience Education (Posters) (GSA Geoscience Education Division; National Association of Geoscience Teachers)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 362-1 142 Theissen, Kevin M.*; Hickson, Thomas A.: **SCIENCE FOR THE COMMON GOOD: AN UNDERGRADUATE GEOSCIENCE PROGRAM PARTNERS WITH WATERSHED DISTRICTS IN THE TWIN CITIES METRO AREA**
- 362-2 143 Moore, Alexandra*; Duggan-Haas, Don; Ross, Robert M.; Derry, Louis A.: **EXPLORE THE CRITICAL ZONE THROUGH THE CZO NETWORK**
- 362-3 144 Latimer, Jennifer C.*; Fu, Peng; Kile, Bethany L.; Donahue, Robert; Starbuck, Emily C.M.; Xie, Yanhua; Beijer, Caz; Millan, Josue G.: **COMMUNITY GARDENS PROVIDE OPPORTUNITIES FOR COMMUNITY ENGAGEMENT, SERVICE LEARNING, AND STUDENT LEARNING**
- 362-4 145 Olson, Trent*; Gibbs Schnucker, Sara; Marston, Haley; Fischer, Jenna; Clark, Logan; Lepper, Kenneth: **CHRONOQUEST: OUR ADVENTURES IN A TEAM-BASED, STUDENT-MANAGED AUTHENTIC GEOCRONOLOGY RESEARCH COURSE**
- 362-5 146 Romo, Iris S.*; Churchill, Alyson N.; Robles Rivera, Angélica; Walczak, Maureen H.; Yalcin, Kaplan; Mix, Alan C.; Stoner, Joseph S.: **UNDERGRADUATES ON SHIPS: OREGON STATE UNIVERSITY'S R/V OCEANUS AND THE NSF RESEARCH EXPERIENCES FOR UNDERGRADUATES PROGRAM**
- 362-6 147 Bauer, Jennifer E.*; Lam, Adriane R.; Bryant, Raquel M.; Fraass, Andrew Jeffrey; Golder, Keenan B.; Hartshorn, Kyle R.; Hils, J. Mike; Limbeck, Maggie R.; Sheffield, Sarah L.: **TIME SCAVENGERS: A COLLABORATIVE WEBSITE FOR EXPLORING CLIMATE CHANGE AND EVOLUTION THROUGH SCIENTISTS' EXPERIENCES**
- 362-7 148 Hughes, Richard O.*: **UTILIZING SUPPLEMENTAL INSTRUCTORS (SIS) IN A GEOSCIENCE PROGRAM AT THE COMMUNITY COLLEGE LEVEL**
- 362-8 149 Sherman, Sarah Bean*: **BENEFITS OF TWO-STAGE REVIEWS**
- 362-9 150 Lukes, Laura A.*; Nelson, J.; Kerby-Patel, K.C.; Liles, W.C.; Henry, Jennifer; Oputa, Janet: **ECLIPSEMOB: LESSONS LEARNED FROM A NATIONAL SCALE CITIZEN SCIENCE EXPERIMENT DURING THE 2017 SOLAR ECLIPSE**

SESSION NO. 363

T105. Building an Inclusive Geoscience Community Today for Tomorrow (Posters) (GSA Geoscience Education Division; GSA Diversity in the Geosciences Committee; GSA Geology and Society Division; National Association of Black Geoscientists)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 363-1 151 Heath, Victoria E.*; Platt, Christa D.; Meister, Paul; O'Reilly, Catherine M.: **BUILDING AN INCLUSIVE GEOSCIENCE COMMUNITY AT ILLINOIS STATE UNIVERSITY**
- 363-2 152 Wiley, Lindsey*; Callahan, Caitlin N.: **EXPLORING THE IMPORTANCE OF SOCIAL CAPITAL FOR GEOSCIENTISTS WITH COGNITIVE DISABILITIES**
- 363-3 153 Bruno, Barbara C.*; Bottjer-Wilson, Daniela: **INDIVIDUAL DEVELOPMENT PLAN: A PERSONAL ACTION PLAN FOR 'IKE WAI GRADUATE STUDENTS**
- 363-4 154 Pagnac, Darrin; Hubbard, Mary*; Smythe, Wendy; Bowser, Gillian; Brinkworth, Carolyn; Fong, Peggy; Nunez, Anne-Marie; Posselt, Julie; White, Lisa D.: **WHAT HAPPENS AT CAMP CANNOT STAY AT CAMP: THE FIELD PROJECT, WORKING TOWARD GREATER ACCESSIBILITY AND INCLUSION IN FIELD GEOSCIENCES**

- 363-5 155 Thatcher, Sean*; Vinson, Grant; Haddock, Amanda; Todd, Anna C.; O'Brien, Mathew; Pritchard, Caroline E.; Sullivan, Betty; Miller, Leah Z.; Thomas, Christian; Kilpack, Will; Morris, Malea; Whitmeyer, Steven; Atchison, Christopher L.: **STUDENT PERSPECTIVES ON WIRELESS COMMUNICATION TECHNOLOGIES TO FACILITATE INCLUSION IN FIELD ACTIVITIES**
- 363-6 156 Crompton, Helen*; Collins, Trevor; Whitmeyer, Steven; Atchison, Chris; Piatek, Jennifer; Pyle, Eric J.; Eriksson, Susan C.; Marshall, Anita M.; Carabajal, Ivan G.: **USING MOBILE TECHNOLOGIES TO DEVELOPING INCLUSIVE GEOLOGY FIELD EXPERIENCES FOR STUDENTS WITH MOBILITY DISABILITIES**

SESSION NO. 364

T110. Engaging Students through Course-Based Undergraduate Research Experiences (CURE) across the Geoscience Curriculum (Posters) (GSA Geoscience Education Division; Council on Undergraduate Research Geosciences Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 364-1 157 Ryan, Jeffrey*: **ALIGNING LEARNING OBJECTIVES AND CONTENT COVERAGE TOWARD CREATING SUSTAINABLE GEOSCIENCE CURES: TWO EXAMPLES USING REMOTELY OPERABLE MICROBEAM INSTRUMENTS**
- 364-2 158 Stempien, Jennifer A.*; Abbott, Lon D.: **CREATING A COLLABORATIVE UNDERGRADUATE GEOSCIENCE RESEARCH COMMUNITY USING A HYBRID RESEARCH EXPERIENCE APPROACH**
- 364-3 159 Shroat-Lewis, René A.*; Ruhl, Laura S.: **CHALLENGES OF IMPLEMENTING A COURSE-BASED UNDERGRADUATE RESEARCH EXPERIENCE (CURE) ON SAN SALVADOR ISLAND, THE BAHAMAS**
- 364-4 160 Cervantes, Jose Pablo*; Doser, Diane I.: **DEVELOPING RESEARCH BASED LABORATORIES FOR INTRODUCTORY PHYSICAL AND HISTORICAL GEOLOGY**

SESSION NO. 365

T114. Getting It Done: Experiences of Implementing the Framework and NGSS in Earth and Space Science (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 365-1 161 Wyssession, Michael E.*: **PROMOTING K-12 GEOSCIENCE EDUCATION THROUGH AN EMPHASIS ON GEOSCIENCE PRACTICES AND CROSSCUTTING CONCEPTS**
- 365-2 162 Wyssession, Michael E.*: **THE IMPORTANCE OF PRE-SERVICE TRAINING FOR THE SUCCESS OF THE NGSS**
- 365-3 163 McGeary, Susan*; Ford, Danielle; Gallo-Fox, Jennifer; Ackerman, Cheryl M.: **"THE WORLD IN A RIVER": REDESIGNING AN EARTH SCIENCE COURSE FOR PRE-SERVICE ELEMENTARY TEACHERS WITHIN THE FRAMEWORK OF THE NGSS**
- 365-4 164 Aguilar, Annaimee*; Bursztyn, Natalie: **THE DEVELOPMENT AND STUDY OF EARTH SCIENCE LESSONS IN KINDERGARTEN CLASSROOMS**
- 365-5 165 Cummings, Michael L.*; Hugo, Richard C.; Robbins, Connie; Koskela, Carolyn; Pelroy, Linda; Neuschwander, Karla: **NGSS IN MULTI-GRADE CLASSROOMS: EXPERIENCES FROM RURAL EASTERN OREGON**
- 365-6 166 Burns, Stephanie A.*; Hantz, Catherine M.; Crnosija, Olga: **INQUIRY BEYOND FOUR WALLS: EARTH SCIENCE OUTDOOR LEARNING FOR PRE-SERVICE AND IN-SERVICE TEACHERS**
- 365-7 167 Lopez, Leilani*; Villanueva, Destinee; Van Natta, Danielle; Gonzalez, Cristina; Diaz, Ana; Hendy, Austin J.W.; Estes-Smargiassi, Kathryn; Walker, Lindsay J.: **CRETACEOUS**

WEDNESDAY

POSTERS

IN THE CLASSROOM: A PARTNERSHIP BETWEEN THE MUSEUM SCIENTISTS AND PRE-SERVICE TEACHERS

- 365-8** 168 Sullivan, Susan*; Gold, Anne; Manning, Cheryl L.B.; Taylor, Jennifer L.; Kirk, Karin B.; Bruckner, Monica Z.; Niepold, Frank; Lynds, Susan; Fox, Sean P.; Ledley, Tamara Shapiro: **NGSS WITH THE CLIMATE LITERACY AND ENERGY AWARENESS NETWORK (CLEAN) COLLECTION**

SESSION NO. 366  

T4. Approaches to Applied Modeling for Industry and the Public (Posters) (GSA Hydrogeology Division; GSA Geology and Society Division; National Ground Water Association (NGWA); GSA Environmental and Engineering Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

- | Booth # | Author(s) | Title |
|-------------------|--|--|
| 366-1 169 | Underdown, Carrie G.*; Boutt, David F.; Hynek, Scott; Munk, LeeAnn | THE IMPORTANCE OF HYDROLOGIC TRANSIENCE IN CONCEPTUAL AND NUMERICAL GROUNDWATER MODELING IN THE GREAT BASIN |
| 366-2 170 | Freeman, Kyra M.*; Mitchell, Robert J.; Yearsley, John R. | CALIBRATION OF A HYDROLOGIC AND STREAM TEMPERATURE MODEL TO THE NORTH FORK OF THE STILLAGUAMISH RIVER FOR CLIMATE CHANGE MODELING |
| 366-3 171 | Porter, Matthew J.*; Koger, Curtis J.; Saltonstall, Jennifer H.; Brown, J. Michael | MODELING INFILTRATION INTO THE UNSATURATED VASHON ADVANCE OUTWASH FROM CLASS-V UIC WELLS |
| 366-4 172 | Park, Jai-Yong*; Lee, Sungho; Lee, Yong Il; Kihm, Jung-Hwi; Kim, Jun-Mo | SENSITIVITY ANALYSIS OF GROUNDWATER FLOW AND LAND DEFORMATION DUE TO LEAKAGE AND DRAINAGE THROUGH URBAN UNDERGROUND ARTIFICIAL STRUCTURES |
| 366-5 173 | Vaughn, Tyler L.*; Datta, Saugata; Langston, Abby; Adam, Claudia | MAPPING FLOOD EXTENT AND UNDERSTANDING MECHANISMS OF SURFACE INUNDATION IN AREAS OF IMPERMEABLE SOILS USING ANUGA HYDRODYNAMIC MODEL: A STUDY FROM FREDONIA, KANSAS |
| 366-6 174 | Chien, Nathaniel Patrick*; Lautz, Laura K. | LINEAR DISCRIMINANT ANALYSIS AS A REGIONAL SCREENING TOOL TO FINGERPRINT SOURCES OF CHLORIDE CONTAMINATION IN GROUNDWATER |
| 366-7 175 | Jahan, Khurshid*; Pradhanang, Soni | PREDICTION OF TOTAL PHOSPHORUS CONCENTRATION IN NEW YORK CITY USING ARTIFICIAL NEURAL NETWORK |
| 366-8 176 | Kihm, Jung-Hwi*; Park, Jai-Yong; Lee, Sungho; Kim, Jun-Mo | PREDICTION OF INJECTION EFFICIENCY OF CARBON DIOXIDE IN THE JANGGI BASIN, KOREA USING INTEGRATED NUMERICAL METHODS |
| 366-9 177 | Shabani, Babak*; Vilcaez, Javier | AN IMPROVED TOUGH2 MODULE TO SIMULATE GEOLOGICAL CO₂ STORAGE IN SALINE AQUIFERS |
| 366-10 178 | Sowers, Theron*; Boyd, Oliver S. | A PETROLOGIC DATABASE FOR THE USGS NATIONAL CRUSTAL MODEL |
| 366-11 179 | Smart, Nicholas Hunter*; Everett, Mark E. | APPLYING INDUCED POLARIZATION TO IMAGE STEEL INFRASTRUCTURE |

SESSION NO. 367 

T9. Groundwater Flow in Coastal and Marine Settings: From the Intertidal Zone to the Deep Seafloor (Posters) (GSA Hydrogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geobiology & Geomicrobiology Division; GSA Environmental and Engineering Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- | | | |
|------------------|--|--|
| 367-1 180 | Xiao, Kai*; Li, Hailong | HYDROCHEMISTRY CHARACTERISTICS OF INTERTIDAL POREWATER: A CASE STUDY IN A MANGROVE SWAMP IN DAYA BAY, CHINA |
| 367-2 181 | Xiao, Kai*; Wu, Jiapeng; Li, Hailong; Hong, Yiguo | SEAWATER-GROUNDWATER EXCHANGE: POTENTIAL ASSOCIATION WITH NITROGEN CYCLING PROCESSES IN A MANGROVE SWAMP |
| 367-3 182 | Carlson, Charles*; Georgen, Jennifer; Hutt, Sheila | SUBMARINE GROUNDWATER DISCHARGE IN THE CHESAPEAKE BAY: CONSTRAINTS FROM NUMERICAL MODELS |
| 367-4 183 | Hutt, Sheila*; Georgen, Jennifer; Carlson, Charles | DETERMINING HOW SEA LEVEL RISE IMPACTS SALTWATER INTRUSION WITHIN COASTAL GROUNDWATER FLOW SYSTEMS IN THE SOUTHERN CHESAPEAKE BAY |
| 367-5 184 | Lorenson, Thomas D.*; Conaway, Christopher H.; Fitzpatrick, John; Choy, Doug; Oberle, Ferdinand; Johnson, Cordell; Richmond, Bruce; Gibbs, Ann; Swarzenski, Peter W. | CHEMISTRY OF CRYOPEGS ON BARTER ISLAND, NORTH SLOPE ALASKA |

SESSION NO. 368 

T10. Groundwater Influenced Ecosystems: Springs, Gaining Streams, and Terrestrial Ecosystems (Posters) (GSA Hydrogeology Division; GSA Karst Division; GSA Geobiology & Geomicrobiology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

- | Booth # | Author(s) | Title |
|------------------|---|--|
| 368-1 185 | Nourse, Jonathan A.*; Miranda, Danny | RUNOFF AND SPRING DISCHARGE MEASUREMENTS RECORD WATERSHED RECOVERY FROM A FIVE-YEAR DROUGHT IN ICEHOUSE CANYON, SAN GABRIEL MOUNTAINS, CALIFORNIA |
| 368-2 186 | Raley, Kristina Marie*; Hays, Phillip D. | CALCULATING THE AGE OF THE WATER IN HOT SPRINGS NATIONAL PARK, AR BY USE OF 14C ISOTOPES |
| 368-3 187 | Shama, Charles P.*; Shaw, Glenn D. | MOUNTAIN FRONT RECHARGE IN A SEMI-ARID CLIMATE; SOUTHWEST MONTANA |
| 368-4 188 | Lee, David Robert*; Stuart, Marilyn; Bellan, Lee; Haughton, Jennifer; Valente, Andrew | GROUNDWATER-BORNE ⁹⁰Sr IN BONE OF TREE SWALLOW NESTLINGS |

SESSION NO. 369 

T11. Hydrogeology of Island Environments in a Changing Climate (Posters) (GSA Hydrogeology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

- | Booth # | Author(s) | Title |
|------------------|---|--|
| 369-1 189 | Shuler, Christopher K.*; Dulai, Henrietta; Kirs, Marek; Glenn, Craig R.; DeWees, Randal | AN ISOTOPIC AND MICROBIOLOGICAL MULTI-TRACER APPROACH TO ASSESSING RECHARGE MECHANISMS IN SURFACE WATER AFFECTED WELLS ON TUTUILA, AMERICAN SAMOA |
| 369-2 190 | Rotz, Rachel R.*; Milewski, Adam M. | INLAND FRESHWATER LENS OCCURRENCE AND LONGEVITY IN RESPONSE TO RECHARGE RATE IN DRYLAND ENVIRONMENTS USING A PHYSICAL LABORATORY MODEL |
| 369-3 191 | Tachera, Diamond K.*; Lautze, Nicole | INTEGRATING PRECIPITATION AND GROUNDWATER CHEMISTRY TO INTERPRET GROUNDWATER FLOW IN THE HAWAIIAN ISLANDS |
| 369-4 192 | Quiroga, Allison*; Polk, Jason; Thorsteinsson, Thorsteinn; Kaiser, Rachel | MEASURING CARBON FLUX IN ICELANDIC GLACIAL RIVERS UNDER A CHANGING CLIMATE |

- 369-5 193 Gatz-Miller, Hannah*; Speiran, Gary: **ARCHAEOLOGICAL SITES AT RISK FROM SEA-LEVEL RISE: GROUNDWATER LEVELS AND SALINITY BENEATH JAMESTOWN ISLAND, COLONIAL NATIONAL HISTORICAL PARK, VIRGINIA**
- 369-6 194 Niu, Yi*; Castro, M. Clara; Hall, Chris M.; Gingerich, Stephen B.; Scholl, Martha A.: **CHARACTERIZING GROUNDWATER SOURCES ON THE ISLAND OF MAUI, HAWAII USING NOBLE GASES AND STABLE ISOTOPES**
- 369-7 195 Thomas, Donald*; Pierce, Herbert A.; Lautze, Nicole: **INTEGRATED GEOPHYSICAL AND DRILLING RESULTS FOR MAUNA KEA VOLCANO: HYDROLOGIC IMPLICATIONS**
- 369-8 196 Reichard, James S.*; Vance, R. Kelly; Kelly, Jacque L.; Meyer, Brian K.: **STRUCTURAL CONTROLS ON SALTWATER INTRUSION IN THE SURFICIAL AQUIFER ON ST. CATHERINES ISLAND, GEORGIA**

SESSION NO. 370 

T12. Hydrogeology, Geochemistry, and Wetland Processes: A Session in Honor of the Career of Donald I. Siegel (Posters) (GSA Hydrogeology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 370-1 197 Guimond, Julia*; Michael, Holly A.: **SPATIAL AND TEMPORAL IMPACTS OF CRAB BURROWS ON GROUNDWATER-SURFACE WATER INTERACTIONS AND REDOX CONDITIONS IN A TIDAL WETLAND**
- 370-2 198 Shoup, Bryce O.*; Whittecar, G. Richard: **ACTUAL EVAPOTRANSPIRATION (AET) RATES FOR DIFFERENT VEGETATION GROUPS MAY CONTROL GROUNDWATER DOME ASYMMETRY, FIRST LANDING STATE PARK, VIRGINIA**
- 370-3 199 McGibbon, Chris*; Crossey, Laura J.; Karlstrom, Karl; Grulke, Tanner: **GROUNDWATER CONTROLS ON WATER CHEMISTRY IN THE JEMEZ RIVER**
- 370-4 200 DeVries-Zimmerman, Suzanne J.; Fast, Kathleen M.; Caltrider, Kaitlyn*; Bodenbender, Brian E.: **GEGENWALLE RIDGES: AN ECOHYDROLOGICAL CHRONOSEQUENCE IN MORFA DYFFRYN, WALES, UNITED KINGDOM**
- 370-5 201 Smith, Serena*; Hoopes, Sydney; Houghton, Sydney; Ormond, Daniel; Gherasim, Janelle; Wang, Weihong; Cadet, Eddy: **QUANTIFYING NUTRIENT AND TRACE METAL INPUT TO UTAH LAKE FROM THE OREM WASTEWATER TREATMENT EFFLUENT**
- 370-6 202 Shamrani, Ali*: **GEOCHEMISTRY OF ARTIFICIAL WETLANDS IN AN ARID CLIMATE**
- 370-7 203 Francis, Hannah*; Little, Josie L.; Hecox, Casey L.; Rhodes, Amy L.: **EXPERIMENTS INVESTIGATING NA-CA EXCHANGE ON PEAT TO UNDERSTAND ROAD SALT RETENTION IN A CALCAREOUS FEN**

SESSION NO. 371 

T15. Monitoring the Complex Nature of Water Balances and Solute Transport at the Groundwater-Surface Water Interface (Posters) (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 371-1 204 Porter, Misty E.*; Hill, Mary C.; Li, Xingong: **MULTIVARIATE SPATIO-TEMPORAL VISUALIZATION OF IMPACTS ON THE HIGH PLAINS AQUIFER AND ARKANSAS RIVER DUE TO PUMPING FOR IRRIGATION**
- 371-2 205 Shaljian, Michael C.*; Keller, C. Kent; Brooks, Erin S.; Huggins, David R.: **HYDROLOGIC LOSSES AND CONCENTRATION-FLOW RELATIONSHIPS OF NUTRIENTS AND MAJOR IONS IN A SEMI-ARID AGRICULTURAL CATCHMENT**

- 371-3 206 Bardsley, Audra I.*; Hammond, Douglas E.: **DEVELOPING A RADIUM CHRONOMETER FOR SHALLOW GROUNDWATER: COMPARISON WITH ³H/³HE IN URBANIZED COASTAL WATERSHEDS**
- 371-4 207 Williams, Noah N.*; Dethier, David P.; Fields, Jordan: **INFILTRATION VARIABILITY AND SHALLOW GROUNDWATER RESPONSE TO SNOWMELT IN HEADWATER CATCHMENTS, NIWOT RIDGE, COLORADO**
- 371-5 208 Yang, Yong*: **INFLUENCE OF ARTIFICIAL RECHARGE BY SOUTH TO NORTH WATER ON AQUIFER OF MIHUAISHUN AREA, BEIJING, CHINA**
- 371-6 209 Li, Binghua*: **EFFECTS OF RECLAIMED WATER INFILTRATION ON AQUIFERS IN CHAOBAI RIVER AREA, BEIJING, CHINA**
- 371-7 210 Essaid, Hedef I.*; Kuwabara, James S.; Carter, James L.; Topping, Brent R.: **USING FLOW AND REACTIVE TRANSPORT MODELING TO ESTIMATE DIFFUSION AND ADVECTION OF PHOSPHORUS FROM LAKEBED SEDIMENT INTO UPPER KLAMATH LAKE, OR**
- 371-8 211 Thielman, Rebekah*; Smidt, Samuel J.: **LIGHTWEIGHT, LOW-COST PERISTALTIC PUMP FOR STREAM TRACER INJECTIONS**
- 371-9 212 Cascarano, Ryan N.*; Reeves, Donald M.; Henry, Mark: **USE OF FLUORESCIN DYE FOR CHARACTERIZING HYDROLOGIC FLUXES AT THE GROUNDWATER - SURFACE WATER INTERFACE**
- 371-10 213 Vattikuti, Shannon K.*; Paul, Varun: **CHARACTERIZING THE GROUNDWATER OF THE UPPER PEARL RIVER WATERSHED IN CENTRAL MISSISSIPPI**

SESSION NO. 372 

T18. Remote Sensing Applications in Hydrology and Geology (Posters) (GSA Hydrogeology Division; GSA Geoinformatics Division; GSA Geophysics Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 372-1 214 Jennings, Aurielle Daunee*; Buck, Paul E.; Rosales Lagarde, Laura; Sabol, Donald Edwin: **A REMOTE SENSING APPROACH TO UNDERSTANDING THE HEALTH OF CLARK COUNTY WETLANDS PARK, NV USA**
- 372-2 215 Baker, Emily A.*; Lautz, Laura K.; McKenzie, Jeffrey M.; Mark, Bryan G.: **METHODS FOR CORRECTING GROUND-BASED TIME-LAPSE INFRARED IMAGERY**
- 372-3 216 Caldwell, Samuel*; Kelleher, Christa: **PERSISTENCE AND HETEROGENEITY: EXPLORING STREAM TEMPERATURE VARIABILITY AS OBSERVED BY UAV-COLLECTED TIR IMAGERY**
- 372-4 217 Becker, Richard H.*: **DETERMINING STREAM DISCHARGE LOCATIONS USING UAV BASED THERMAL IMAGERY**
- 372-5 218 McKenna, Thomas E.*; Keyser, Todd A.; Asreen, Robert C.; Cargill, John G.: **ENVIRONMENTAL THERMOGRAPHY DETERMINES CONTAMINANT TRANSPORT PATHWAYS AND GROUNDWATER SAMPLING LOCATIONS DURING SITE INVESTIGATIONS IN DELAWARE, USA**
- 372-6 219 Knapp, Abigail S.*; Milewski, Adam M.; Rotz, Rachel R.; Yilmaz, Koray K.; Fulton, Stephanie; De Lange, James; Webster, Claire: **THE ROLE OF DROUGHT AND STORMS IN HARMFUL ALGAL BLOOM EVENTS IN TWO GEORGIA PIEDMONT RESERVOIRS**
- 372-7 220 Quintero, Kaydian*; Becker, Richard H.; Dehm, Dustin; Tokars, Roger; Lekki, John: **AN UNMANNED AERIAL VEHICLE (UAV) BASED SPECTROMETER FOR OBSERVING WATER QUALITY**
- 372-8 221 Hernandez Muniz, William*; Burke, Michelle; Krekeler, Mark P.S.: **REFLECTIVE SPECTROSCOPY OF GASOLINES FOR THE DEVELOPMENT OF A HYPERSPECTRAL LIBRARY AND DEVELOPMENT OF AGE ESTIMATION TECHNIQUES FOR SPILL INVESTIGATION**

WEDNESDAY POSTERS

- 372-9** 222 Brum, Jared*; Schlegel, Christopher; Hernandez Muniz, William; Dawson, Claudia; Burke, Michelle; Krekeler, Mark P.S.: **LABORATORY REFLECTIVE SPECTROSCOPY INVESTIGATIONS OF HEAVY FUELS, PLASTICS AND GEOMATERIALS FOR HYPERSPECTRAL REMOTE SENSING BASED ENVIRONMENTAL MONITORING**
- 372-10** 223 Durkee, Matthew I.*: **APPLYING GEOSPATIAL TOOLS TO MODEL AND DISPLAY GROUNDWATER DATA AT A FOOD PROCESSING FACILITY LAND TREATMENT SPRAYFIELD, ELLENSBURG, WASHINGTON**
- 372-11** 224 Li, Yumin*; Lancia, Michele; Zheng, Chunmiao: **IMPACTS OF URBANIZATION ON THE GROUNDWATER RESOURCE: THE CASE OF SHENZHEN, CHINA**
- 372-12** 225 Parrish, Gabriel E.L.*; Hendrickx, Jan; Cadol, Daniel; Ayertey, Juliet: **PARAMETRIZATION OF TOTAL AVAILABLE WATER FOR STATEWIDE WATER ASSESSMENT IN NEW MEXICO**
- 372-13** 226 Othman, Abdullah*; Sultan, Mohamed; Abdelmohsen, Kareem: **USE OF GRACE AND LSMS OUTPUTS FOR THE ASSESSMENT AND SUSTAINABLE UTILIZATION OF THE MEGA AQUIFER SYSTEM OVER THE ARABIAN PENINSULA**
- 372-14** 227 Gillespie, Alan R.*; Batbaatar, J.; Sletten, Ronald S.; Trombotto, Dario; O'Neal, Michael; Hanson, Brian; Mushkin, Amit: **MONITORING AND MAPPING SOIL ICE/WATER PHASE TRANSITIONS IN ARID REGIONS**
- 372-15** 228 Ramsey, Cameron E.*; Granados-Aguilar, Raquel; Giardino, John R.; Everett, Mark E.; Mmasa, Dennis; Witek, Maximilian; Rodriguez, Rodrigo; Pondthai, Potpreecha: **APPLICATION OF ELECTROMAGNETIC INDUCTION AT THE UPPER CAMP BIRD III ROCK GLACIER IN THE SAN JUAN MOUNTAINS, COLORADO**
- 372-16** 229 Mmasa, Dennis*; Granados-Aguilar, Raquel; Giardino, John R.; Everett, Mark E.; Ramsey, Cameron E.; Witek, Maximilian; Rodriguez, Rodrigo; Pondthai, Potpreecha: **GEOLOGIC MAPPING OF THE UPPER CAMP BIRD III ROCK GLACIER IN THE SAN JUAN MOUNTAINS, COLORADO**
- 372-17** 230 Granados-Aguilar, Raquel*; Giardino, John R.; Everett, Mark E.; Rodriguez, Rodrigo; Ramsey, Cameron E.; Mmasa, Dennis; Witek, Maximilian; Pondthai, Potpreecha: **FRESHWATER RESOURCE EVALUATION OF THE UPPER CAMP BIRD III ROCK GLACIER, SAN JUAN MOUNTAINS, COLORADO**
- 372-18** 231 Huo, Da*; Bishop, Michael P.; Young, Brennan W.: **WAVELET ANALYSIS OF GLACIER TOPOGRAPHIC PROPERTIES FOR CHARACTERIZING GLACIER DYNAMICS AND SENSITIVITY TO CLIMATE CHANGE IN THE KARAKORAM, HIMALAYA**
- 372-19** 232 Skiles, S. McKenzie*: **A SPATIAL AND TEMPORAL ANALYSIS OF RADIATIVE FORCING ACROSS A REGIONAL SCALE IN THE WESTERN UNITED STATES**
- 372-20** 233 Jones, Natalie A.*; Tobin, Benjamin W.; Schenk, Edward R.: **SINKHOLE GEOMORPHOLOGY AND DISTRIBUTION ON THE KAIBAB PLATEAU, GRAND CANYON NATIONAL PARK**
- 372-21** 234 Brown, Elizabeth R.*; Gran, Karen B.: **MONITORING BLUFF EROSION RATES USING TERRESTRIAL LASER SCANNING AND STRUCTURE-FROM-MOTION PHOTOGRAMMETRY ON MINNESOTA'S NORTH SHORE STREAMS**
- 372-22** 235 Sinclair, Samantha N.*; Shoop, Sally A.; Ochs, Elke: **A REMOTE SENSING TECHNIQUE TO LOCATE AUSTERE ENTRY LANDING ZONES FOR MILITARY AIRCRAFT**

SESSION NO. 373 

T19. Springs: Providing Insights on Critical Groundwater Quality and Quantity Issues (Posters) (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Geobiology & Geomicrobiology Division; GSA Karst Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

- Booth #
- 373-1** 236 Deaton, Karaline*; Foster, Anna; Asante, Joseph: **HYDROCHEMICAL EVALUATION OF HUMAN AND SEASONAL EFFECTS ON KARST CARBONATE GROUNDWATER**
- 373-2** 237 Banks, Sarah M.*; Florea, Lee J.; Forray, Ferenc: **CARBON TRANSPORT FROM A KARST SYSTEM IN THE PADUREA CRAIULUI, ROMANIA**
- 373-3** 238 Armanetti, Casey L.*; Hampton, Samuel J.: **IMPROVING SECURITY, QUALITY, AND RESILIENCE IN A COMMUNITY SPRING-FED WATER SUPPLY; CASE STUDY FROM BANKS PENINSULA, NEW ZEALAND**
- 373-4** 239 Lee, Kyle J.*; Vesper, Dorothy J.: **CO₂ AND INORGANIC CARBON FLUXES FROM MINE WATERS IN WEST VIRGINIA AND PENNSYLVANIA**
- 373-5** 240 Downey, Autum R.*; Vesper, Dorothy J.: **SANDSTONE SPRINGS AS CONTRIBUTORS TO KARST AQUIFERS IN THE VALLEY AND RIDGE PROVINCE**
- 373-6** 241 Engelbart, Tyler W.*; Dugas, Stephen; Ward, James W.; Straub, Raymond L.; Moss, Clayton A.: **SUBSURFACE GROUNDWATER STUDIES IN THE SAN SOLOMON SPRINGS REGION, REEVES COUNTY, TEXAS**
- 373-7** 242 Hargie, Kirstin*; Rudolph, Maxwell: **HYDROGEOLOGICAL CHARACTERIZATION OF SPRINGS OF THE HARNEY BASIN, OREGON**

SESSION NO. 374

T20. The Critical Zone As Heterogeneous Media: Implications for Physical, Chemical, and Biological Processes (Posters) (GSA Hydrogeology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Geobiology & Geomicrobiology Division; GSA Karst Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

- Booth #
- 374-1** 243 Pevehouse, Katie J.*; Sweet, Dustin E.: **ASSESSING THE UTILITY OF WELL CUTTINGS TO CHARACTERIZE WEATHERING PROFILES OF CRYSTALLINE BASEMENT**
- 374-2** 244 Spooner, Emmett A.*; Kennedy, David R.; Raines, Nichele; Ward, James W.; Scott, Cody: **INFILTRATION STUDIES OF MECHANICALLY ALTERED BRINE SPILL IMPACTED SOILS**
- 374-3** 245 Crist, Clarissa*; Hanes, Margaret: **ANALYZING GEOGRAPHIC DISTRIBUTION MODELS OF MADAGASCAR PLANT SPECIES USING GEOLOGICAL DATA TO UNDERSTAND SPECIATION**
- 374-4** 246 Rea, Patrick*; Jin, Lixin; Gill, Thomas E.; Gardea-Torresdey, Jorge; Tamez, Carlos: **CYCLING OF GYPSIFEROUS WHITE SANDS AEROSOLS IN SHALLOW CRITICAL ZONE SOILS AT WHITE MOUNTAIN, NEW MEXICO**
- 374-5** 247 Fischer, Alicia*; Shepard, Christopher; Rasmussen, Craig: **GEOCHEMICAL DIFFERENCES IN PETROCALCIC AND CALCIC HORIZONS DUE TO SOIL PARENT MATERIAL IN SOUTHEASTERN ARIZONA**
- 374-6** 248 Harris, F. Claire*; Peterson, Eric W.: **TRENDS IN VERTICAL PORE WATER FLUX IN THE HYPORHEIC ZONE OF A LOW GRADIENT THIRD ORDER STREAM**
- 374-7** 249 Williams, Sarah G.*; Blackstock, Joshua M.; Covington, Matthew D.: **CARBON DIOXIDE DYNAMICS WITHIN THE CRITICAL ZONE OF A KARST LANDSCAPE: SAVOY EXPERIMENTAL WATERSHED, ARKANSAS**
- 374-8** 250 Ferguson, Benedict W.*; Stinchcomb, Gary E.: **THE ROLE OF ALLUVIAL LANDFORMS IN STORING SOIL ORGANIC CARBON: A CASE STUDY FROM HUMID-TEMPERATE WESTERN KENTUCKY**

SESSION NO. 375

T96. Understanding African Environmental History through Continental Scientific Drilling: Past Successes and Future Opportunities (Posters) (GSA Limnogeology Division; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 375-1 251 Opiyo, Benjamin Atieno*; Cheruiyot, Vicky Chelangat: **PALEOENVIRONMENTAL AND PALEOCLIMATIC CHANGES IN TROPICAL EAST AFRICA SINCE THE LGM, NEW RECORD FROM THE CHERANGANI HILLS, KENYA**
- 375-2 252 Davis, David M.*; Rabideaux, Nathan M.; Deocampo, Daniel M.; Feibel, Craig S.; Cohen, Andrew S.: **A CLAY MINERAL ANALYSIS OF SAMPLES FROM HOMININ SITES AND PALEOLAKES DRILLING PROJECT WTK CORE FROM THE TURKANA BASIN: A GLIMPSE INTO THE EAST AFRICAN PLEISTOCENE**
- 375-3 253 Garelo, Dominique*; Roman, Diana C.; Deino, Alan L.; Campisano, Christopher J.; Arrowsmith, J Ramón: **GEOCHEMICAL CHARACTERIZATION AND CORRELATIONS OF UPPER HADAR FORMATION CORE AND OUTCROP TEPHRA: NORTHERN AWASH SITE, HOMININ SITES AND PALEOLAKES DRILLING PROJECT (HSPDP)**
- 375-4 254 Upadhyay, Deepshikha*; Caraveo, Clara Alvarez; Gomis, Ernest; Hailemichael, Million; Bedaso, Zelalem K.; Aronson, James L.; Cohen, Andrew S.; Tripathi, Aradhna: **TESTING HYPOTHESES FOR THE ROLE OF CLIMATE CHANGE IN HOMININ EVOLUTION USING THE GEOCHEMISTRY OF CARBONATES FROM THE EAST AFRICAN RIFT SYSTEM**
- 375-5 255 Foerster, Verena*; Asrat, Asfawossen; Bronk Ramsey, Christopher; Chapot, Melissa S.; Cohen, Andrew S.; Dean, Jonathan R.; Deocampo, Daniel M.; Deino, Alan L.; Günter, Christina; Junginger, Annett; Lamb, Henry F.; Leng, Melanie; Roberts, Helen M.; Schaebitz, Frank; Trauth, Martin H.: **THE CHEW BAHIR DRILLING PROJECT (HSPDP). FROM MUD, GRAINS AND CRYSTALS TO >500,000 YEARS OF CONTINUOUS CLIMATE HISTORY IN SOUTHERN ETHIOPIA**
- 375-6 256 Ivory, Sarah*; Russell, James M.: **CLIMATE, HERBIVORY, AND FIRE CONTROLS ON TROPICAL AFRICAN FOREST FOR THE LAST 60KA**
- 375-7 257 Clark, Miriam E.*; Michel, Ellinor; Ryan, Emily; McGlue, Michael; Soreghan, Michael J.: **SEDIMENTATION IMPACTS ON BIODIVERSITY OF A UNIQUE BIOGENIC SUBSTRATE, THE GASTROPOD SHELL BEDS OF LAKE TANGANYIKA, EAST AFRICA**
- 375-8 258 Ryan, Emily*; Todd, Jonathan A.; McGlue, Michael; Kimirei, Ismael; Soreghan, Michael: **VARIATION IN TAPHONOMIC CHARACTER OF SHELL BEDS IN LAKE TANGANYIKA, AFRICA: PALEOENVIRONMENTAL AND STRATIGRAPHIC IMPLICATIONS OF SHELL BEDS IN LAKES**
- 375-9 259 Westover, Karlyn; Stone, Jeffery R.*; Kingston, John D.: **LATE-PLIOCENE/EARLY-PLEISTOCENE DIATOM RECORD FROM BARINGO BASIN, KENYA**
- 375-10 260 Shilling, Andrea M.*; Ashley, Gail M.; Bourel, Benjamin; Barboni, Doris; Bernhart, Owen, R.; Goman, Michelle F.; Magill, Clayton: **WETLANDS, A PERENNIAL WATER RESOURCE, AND RECORD OF CLIMATE CHANGE IN ARID EAST AFRICA**

SESSION NO. 376

D47. Marine/Coastal Science (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 376-1 261 McDougall, Kristin*; Miranda-Martínez, Adriana Yanet: **TRANSITION FROM MARINE ESTUARY TO SALINE LAKE RECORDED BY THE BOUSE FORMATION IN THE BLYTHE BASIN**

- 376-2 262 Kilibarda, Zoran*; Kilibarda, Vesna: **PLASTIC DEBRIS ON THE ADRIATIC SEA BEACHES IN SOUTHERN MONTENEGRO**
- 376-3 263 Wingard, G. Lynn*: **THE ROLE OF HOLOCENE SEA LEVEL IN SHAPING SOUTH FLORIDA ENVIRONMENTS**
- 376-4 264 Barnes, Tyler*; Aiello, Ivano: **USING HIGH-RESOLUTION BEACH SURVEYS TO ASSESS GEOMORPHOLOGIC CHANGE WITHIN THE SALINAS SUB-CELL (MONTEREY BAY, CA) BEFORE AND AFTER THE 2015/2016 EL NIÑO**
- 376-5 265 Ramos, Sara A.*; Zarillo, Gary A.; Allen, Kerri: **SEDIMENT ANALYSIS OF AN ARTIFICIAL BERM NEAR FT. MYERS BEACH, FLORIDA**
- 376-6 266 Schlaerth, Hannah L.*; Avouris, Dulci; Flanagan, David; Brandt, Marilyn E.; Smith, Tyler B.; Ali, K. Adem; Ortiz, Joseph D.: **REMOTE SENSING OF BIOGEOPHYSICAL FACTORS INFLUENCING LOCAL WATER QUALITY AND CORAL REEF HEALTH, U.S. VIRGIN ISLANDS**
- 376-7 267 Gregor, Arturo*; Kimbrough, David L.; Kimbrough, Joan; Keller, Barry: **ARE LITTORAL CELLS FROM CENTRAL CALIFORNIA BEACHES CLOSED SYSTEMS? INSIGHT FROM DETRITAL HEAVY MINERAL DISTRIBUTIONS AT ANDREW MOLERA AND EL CAPITAN STATE BEACHES**
- 376-8 268 Wright, Eric*; Shen, Zhixiong; Harris, M. Scott: **STRATIGRAPHY AND NEW OSL CHRONOLOGY OF A NORTHEASTERN SOUTH CAROLINA BARRIER SYSTEM: WAITES ISLAND**
- 376-9 269 Mataitis, Richard James*; Burds, Luke; Beck, Joe; Jol, Harry M.; Pupienis, Donatas: **GROUND PENETRATING RADAR INVESTIGATION OF THE CURONIAN SPIT, LITHUANIA**
- 376-10 270 Michalopoulos, Panagiotis*; Stanica, Adrian; Schultz, Michael: **DANUBIUS-RI: INTERNATIONAL CENTRE FOR ADVANCED STUDIES ON RIVER-SEA SYSTEMS. A PAN-EUROPEAN INITIATIVE FOR THE DEVELOPMENT OF AN INTERDISCIPLINARY RESEARCH AND INNOVATION INFRASTRUCTURE FOR RIVER-SEA SYSTEMS**

SESSION NO. 377

T251. Tsunami Hazards: Innovations in Mapping, Modeling, and Outreach (Posters) (GSA Environmental and Engineering Geology Division; Washington Division of Geology and Earth Resources; GSA Geoinformatics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 PM and 4:30 to 6:30 PM

Booth #

- 377-1 271 Harris, Ron*; Prasetyadi, Carolus; Hall, Sarah; Putra, Purna; Bunds, Michael P.; Rafliana, Irina; Horns, Daniel; Yulianto, Eko; Ahmad, Arif; Sulaeman, Hanif; Setiadi, Gilang; Deng, May; Stuart, Kevin; Mesery, William; Fretha, Julian: **BRIDGES OVER TROUBLED WATERS: FROM DISCOVERING TSUNAMI DEPOSITS TO EVALUATING TSUNAMI MITIGATION EFFICACY IN INDONESIA**
- 377-2 272 Becerra, Rebeca Isabel*; MacInnes, Breanyn; Ely, Lisa L.: **APPLICATIONS OF TSUNAMI MODELING: ASSESSING THE VALIDITY OF MATCHING ON-LAND OBSERVATIONS TO EARTHQUAKE SOURCE SCENARIOS, SOUTH-CENTRAL CHILE**
- 377-3 273 Arcos, Nicolas Paulo*; Dunbar, Paula; Kong, Laura; Stroker, Kelly J.: **INTERNATIONAL TSUNAMI SURVEY TEAM'S IMPACT ON THE NCEI GLOBAL HISTORICAL TSUNAMI DATABASE**
- 377-4 274 Raulerson, Andrew*; MacInnes, Breanyn: **TSUNAMI DEPOSITS AND TSUNAMI MODELING OF THE 900 AD SEATTLE FAULT EVENT IN NORTHERN PUGET SOUND**
- 377-5 275 Matos-Llavona, Pedro*; López-Venegas, Alberto; Jaffe, Bruce E.; Richmond, Bruce: **ASSESSING POTENTIAL TSUNAMI SOURCES FOR EXTREME WAVE DEPOSITS ON SOUTHWEST ISLA DE MONA, PUERTO RICO, USING NUMERICAL SIMULATIONS AND HYDRODYNAMIC BOULDER TRANSPORT EQUATIONS**
- 377-6 276 Tang, Hui*: **TSUNAMI SOURCE INVERSION BASED ON TSUNAMI WAVEFORMS, TSUNAMI INUNDATION AREA AND**

WEDNESDAY

POSTERS

TSUNAMI DEPOSITS SPATIAL DISTRIBUTION: TAKE THE 2011 TOHOKU-OKI TSUNAMI AS AN EXAMPLE

- 377-7 277 Sulaeman, Haniff*; Harris, Ronald A.; Putra, Purna; Hall, Sarah; Raffiana, Irina; Prasetyadi, Carolus: **MEGATHRUST EARTHQUAKES ALONG THE JAVA TRENCH: DISCOVERY OF POSSIBLE TSUNAMI DEPOSITS IN THE LESSER SUNDA ISLANDS, INDONESIA**

SESSION NO. 378

T44. Insights from Microfossils, from Traditional to Novel Approaches (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 378-1 278 King Phillips, Ezekiel J.*; Cohen, Phoebe; Junium, Christopher K.; Uveges, Benjamin Thornton Iglar: **EXAMINING THE MARINE ISOTOPIC GRADIENT THROUGH THE LATE DEVONIAN USING MICROFOSSILS FROM THE KELLWASSER HORIZONS**
- 378-2 279 Sheng, Qingyi*: **MISSISSIPPIAN FORAMINIFERS FROM SOUTH CHINA**
- 378-3 280 Richardson, Susan L.*: **LIFE HISTORY EVOLUTION IN FUSULINACEA**
- 378-4 281 Cotton, Laura J.*; Rivero-Cuesta, Lucia; Franceschetti, Gloria; Iakovleva, Alina; Hooker, Jerry J.; Alegret, Laia; Dinarès-Turell, Jaume; Yager, Stacy L.; Fluegeman, Richard H.; Monechi, Simonetta: **REASSESSING THE BARTONIAN UNIT STRATOTYPES: AN INTEGRATED APPROACH**
- 378-5 282 Cobb, Bethany*; Clark, M.W.: **MIOCENE BIOSTRATIGRAPHIC TRANSECT BETWEEN ALAMINOS CANYON AND MISSISSIPPI CANYON, GULF OF MEXICO**
- 378-6 283 Carter, Eliza*; OConnell, Suzanne; Hemming, Sidney; Cai, Merry Yue; Kaplan, Michael R.; Liu, Tanzhuo; Liang, Jingzhi: **TIMESCALE AND PROVENANCE OF PLEISTOCENE SEDIMENT FROM ODP LEG 113 SITE 693**
- 378-7 284 Pendergrass, Emily*; Fowell, Sarah J.; Bigelow, Nancy H.; Westbrook, Rachel E.: **PALYNOLOGICAL EVIDENCE FOR THE PRESENCE OF COASTAL TUNDRA WITH STANDS OF BOREAL TREES ON THE SOUTHERN MARGIN OF CENTRAL BERINGIA DURING GLACIAL STAGES 2 - 16**
- 378-8 285 Twarog, Michael*; Culver, Stephen J.; Leorri, Eduardo; Mallinson, David J.; Horsman, Eric; Parham, Peter R.; Shazili, Noor A.M.: **PALEOENVIRONMENTAL RECONSTRUCTION OF LATE QUATERNARY SEDIMENTS FROM THE CENTRAL SUNDA SHELF OFF PENINSULAR MALAYSIA**
- 378-9 286 Sarkar, Ria*; Neitzke Adamo, Lauren; Wright, James D.: **VARIATIONS IN PLANKTONIC FORAMINIFERA ASSEMBLAGES ACROSS THE LAST DEGLACIATION: A HIGH-RESOLUTION EXAMINATION OF A NORTH ATLANTIC DEEP-SEA SEDIMENT CORE**
- 378-10 287 Shmorhun, Nina M.E.*; Culver, Stephen J.; Farrell, Kathleen M.; Mallinson, David J.; Riggs, Stanley R.: **MODERN AND FOSSIL FORAMINIFERAL ASSEMBLAGES OF ONSHORE AND OFFSHORE SUBENVIRONMENTS FROM BEAR ISLAND AND BOGUE BANKS, NORTH CAROLINA, USA**
- 378-11 288 Rubin, Margaret*; Borella, Josh; Grimshaw, Chris; Hampton, Samuel J.: **PHYTOLITH RECONSTRUCTION OF THE ENVIRONMENT SURROUNDING THE KAWAKAWA TEPHRA IN BANKS PENINSULA, SOUTH ISLAND**
- 378-12 289 Sorenson, Adrienne*; Martin, Ruth A.; Nesbitt, Elizabeth A.: **RECENT BENTHIC FORAMINIFERAL ASSEMBLAGES FROM HOOD CANAL, PUGET SOUND, WASHINGTON STATE**
- 378-13 290 Verlaak, Zoe R.F.*; Collins, Laurel S.: **SPATIAL DISTRIBUTION OF MODERN FORAMINIFERAL ASSEMBLAGES IN THE SOUTHWESTERN EVERGLADES, FLORIDA, USA**
- 378-14 291 Little, Shawna N.*; van Hengstum, Peter J.: **SHALLOW WATER (<4 M) FORAMINIFERA AND SEDIMENT IN TWO BERMUDIAN ANCHIALINE CAVES: IMPLICATIONS FOR RECONSTRUCTING CAVE PALEO ENVIRONMENTS**

- 378-15 292 Lazar, Kelly Best*: **FUMAROLAS & FORAMINIFERA: CHRONICLING EFFECTS OF DECREASED PH ON BENTHIC FORAMINIFERA OF DOMINICA**
- 378-16 293 Tripathi, Aradhna*; Vollmer, Tyler; Jesmok, Greg; Pham, Leo; Voon, Justin; Perez-Huerta, Alberto: **A QUANTITATIVE SOLUTION FOR THE COOL TROPICS PARADOX OF PAST GREENHOUSE CLIMATES: TESTING DIAGENETIC HYPOTHESES COMBINING CLUMPED ISOTOPE AND ELECTRON BACKSCATTER DIFFRACTION DATA ON FORAMINIFERA**
- 378-17 294 Kahanamoku, Sara S.*; Elder, Leanne E.; Henehan, Michael J.; Hull, Pincelli M.: **CALIBRATING FORAMINIFERAL FRAGMENTATION AS A PROXY FOR SEAWATER CARBONATE SATURATION STATE**
- 378-18 295 Richey, Julie N.*; Reynolds, Caitlin E.; Fehrenbacher, Jennifer S.: **ENVIRONMENTAL CONTROLS ON BARIUM INCORPORATION INTO PLANKTIC FORAMINIFER, GLOBOROTALIA TRUNCATULINOIDES**

SESSION NO. 379

T46. North Pacific Environment and Paleoclimate from the Late Pleistocene to Present (Posters) (GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Limnogeology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 379-1 296 Pratt, Jacob W.*; Cowan, Ellen A.; Zellers, Sarah D.: **TESTING A QUARTZ GRAIN MICROTEXTURE PROXY FOR PALEO-SEA-ICE IN COASTAL ALASKA**
- 379-2 297 Lofton, Connor James*; Reece, Bobby; Gulick, Sean; LeVoi, Maureen; Haeussler, Peter J.; Sastrup, Steffen; O'Brien, Nicholas S.; McCall, Naoma: **THE EFFECT OF GLACIAL RETREAT ON FJORD DEPOSITIONAL REGIMES, TAAAN FIORD, ICY BAY, ALASKA**
- 379-3 298 Mitchell, Kayla A.*; Cowan, Ellen A.: **COMPARING THREE NEW IRD MAR RECORDS FROM IODP EXPEDITION 341 IN THE GULF OF ALASKA**
- 379-4 299 Keller, Katherine J.*; Jones, Miriam C.; Wooller, Matthew: **HOLOCENE CLIMATE RECONSTRUCTION FOR THE BERING SEA REGION FROM PEAT OXYGEN ISOTOPES, ST. MATTHEW ISLAND, ALASKA**
- 379-5 300 Stein, Rebekah*; Sheldon, Nathan D.; Smith, Selena Y.: **STABLE ISOTOPE ECOLOGY AND PALEOCLIMATE IMPLICATIONS OF MODERN THUJA PLICATA IN THE PACIFIC NORTHWEST**
- 379-6 301 Bakkellund, Aleesha*; Porter, Trevor J.; Feakins, Sarah J.; Pisaric, Michael; Prince, Tyler: **HOLOCENE CLIMATE CHANGE AT SPINDLY PINE LAKE, SOUTHWESTERN YUKON, INFERRED FROM THE HYDROGEN ISOTOPE COMPOSITION OF PLANT WAXES**
- 379-7 302 Whicker, Chloe A.*; Ibarra, Daniel E.; Lora, Juan M.; Mering, John; Tripathi, Aradhna: **CLUMPED ISOTOPE THERMOMETRY CONSTRAINTS ON LATE PLEISTOCENE HYDROCLIMATES FOR LAKE SURPRISE, CALIFORNIA**

SESSION NO. 380

T63. Cephalopod Paleobiology and Paleoecology: A Tribute to Royal H. Mapes (Posters) (Paleontological Society; SEPM (Society for Sedimentary Geology); Paleontological Research Institution)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 380-1 303 Hernandez, Alexander V.; Bozer, Ryan Alejandro; Dettman, Minda C.*; Drummer, Keara Y.; Rubin, Sarah E.; Vargas-Parra, Ernesto E.; O'Leary, Ruth; Landman, Neil H.; Hopkins, Melanie; Hussaini, Bushra M.: **CURATION OF THE ROYAL H. MAPES INVERTEBRATE PALEONTOLOGY COLLECTION AT THE**

AMERICAN MUSEUM OF NATURAL HISTORY: STRATEGIES FOR DIGITIZATION AND OUTREACH

- 380-2 304 Hugo, Nicholas*; Landman, Neil H.; Slovacek, Mariah: **COMPARATIVE ANALYSIS OF SHELL COLOR PATTERNS IN MODERN ECTOCOCHLIATE CEPHALOPODS**
- 380-3 305 Whalen, Christopher D.*; Briggs, Derek E. G.: **NEW INSIGHTS INTO PALEOZOIC AMMONOID MACROEVOLUTION AND PALEOECOLOGY FROM WESTERMANN MORPHOSPACE**
- 380-4 306 Hebdon, Nicholas*; Ritterbush, Kathleen A.; Jenkins, Olivia: **3D MODELING OF AMMONITE HYDRODYNAMICS**
- 380-5 307 Smith, Christopher; Kruta, Isabelle; Landman, Neil H.*: **HOOKS OR TEETH? THE STUDY OF MYSTERIOUS STRUCTURES IN *RHAEBOCERAS HALLI***
- 380-6 308 Hoffmann, Rene*; Richter, Detlev K.; Neuser, Rolf D.; Jöns, Niels; Linzmeier, Benjamin J.; Lemanis, Robert E.; Füsseis, Florian; Xiao, Xianghui; Immenhauser, Adrian: **WHAT IS RECORDED IN YOUR BELEMNITE?**
- 380-7 309 Rowe, Alison J.*; Landman, Neil H.; Garb, Matthew P.; Witts, James D.: **HABITAT OF JUVENILE AMMONITES AT METHANE SEEPS IN THE LATE CRETACEOUS WESTERN INTERIOR SEAWAY**
- 380-8 310 Lewis, Donovan*; Lambert, Lance L.; Hearst, J.M.: **AN UNEXPECTEDLY ADVANCED KUFENGOCERATIN AMMONOID FROM THE PIPELINE SHALE MEMBER, BRUSHY CANYON FORMATION (UPPER ROADIAN STAGE)**

SESSION NO. 381

T161. Petrology Across the Inner Solar System: In Honor of Roebling Medalist Ed Stolper (Posters) (Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 381-1 311 Ustunisik, Gokce*; Nielsen, Roger L.; Walker, David: **PHASE EQUILIBRIA OF PLAGIOCLASE ULTRAPHYRIC BASALTS: CONSTRAINTS FROM HIGH-PRESSURE EXPERIMENTS**
- 381-2 312 Catalano, Tristan*; Schaub, Douglas R.; Lockwood, Oliver; DiFrancesco, Nicholas; Nekvasil, Hanna; Lindsley, Donald: **CONSTRAINING THE DEPTHS AT WHICH AN AZEOTROPE CONTROLS THE COMPOSITIONAL EVOLUTION OF CALCIC PLAGIOCLASE**
- 381-3 313 Schaub, Douglas R.*; Catalano, Tristan; Lockwood, Oliver; Nekvasil, Hanna; Lindsley, Donald: **CRYSTALLIZATION OF ANORTHITIC PLAGIOCLASE: IMPACT OF MG# ON THE PSEUDO-AZEOTROPE IN THE OLIVINE-PLAGIOCLASE SYSTEM**
- 381-4 314 Abbott, Jared R.*; Fellows, Steven A.; Emerman, Steven H.: **THE USE OF PORTABLE X-RAY FLUORESCENCE, MAGNETIC SUSCEPTIBILITY, AND THE SCANNING ELECTRON MICROSCOPE TO CLASSIFY, CHARACTERIZE, AND DETERMINE THE REDOX STATE OF GRANITES**
- 381-5 315 McCanta, Molly C.*; Beckett, John: **ZONING OF PHOSPHORUS AND OTHER MINOR ELEMENTS IN OLIVINE: AN EXPERIMENTAL STUDY**

SESSION NO. 382

T173. Change Detection Photogrammetry in Earth Science (Posters) (GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 382-1 316 Anderson, Scott W.*; Keith, Mackenzie K.; Magirl, Christopher S.; Wallick, J. Rose: **FLUVIAL EROSION AND SEDIMENT DELIVERY AFTER THE 2014 OSO LANDSLIDE BASED ON REPEAT STRUCTURE-FROM-MOTION PHOTOGRAMMETRY**

- 382-2 317 Fisher-Price, Cassidie*; How, Ashley R.; Benson, Robert G.: **USING A YUNEEC © TYPHOON H HEXACOPTER IMAGING PLATFORM TO ANALYZE SHORT AND LONG-TERM EFFECTS OF EROSION PREVENTION STRUCTURES ON THE RIO GRANDE IN THE SAN LUIS VALLEY, COLORADO**
- 382-3 318 How, Ashley R.*; Fisher-Price, Cassidie; Benson, Robert G.: **USING REMOTE SENSING AND GIS TO TRACK THE MODIFICATION OF FLUVIAL GEOMORPHOLOGY OF THE RIO GRANDE WITH THE INTRODUCTION OF EROSION CONTROL STRUCTURES IN SOUTH CENTRAL COLORADO**
- 382-4 319 Nibert, Lucas A.*: **QUANTIFYING BANK EROSION USING STRUCTURE FROM MOTION PHOTOGRAMMETRY**
- 382-5 320 Thomas, Robin H.*: **MONITORING GLACIAL RETREAT IN THE WIND RIVER RANGE (BRIDGER-TETON NATIONAL FOREST)**
- 382-6 321 Rutte, Monique M.*; Tranel, Lisa M.: **PHOTOGRAMMETRIC AND SCHMIDT HAMMER ANALYSES TO UNDERSTAND EROSION OF THE ST. PETER SANDSTONE IN LA SALLE COUNTY, ILLINOIS**

SESSION NO. 383

T179. New Concepts in Glaciation of the Western Cordillera of North America (Posters) (GSA Quaternary Geology and Geomorphology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 383-1 322 Baichtal, James F.*; Carlson, Risa J.; Smith, Jane L.; Landwehr, Dennis J.: **DEFINING THE TIMING AND EXTENT OF THE MARINE TRANSGRESSION FOLLOWING THE LAST GLACIAL MAXIMUM IN SOUTHEASTERN ALASKA**
- 383-2 323 Cary, William A.*; Clark, Douglas H.: **TESTING ¹⁰BE EXPOSURE DATING OF HOLOCENE CIRQUE MORAINES USING GLACIOLACUSTRINE SEDIMENTS IN THE SIERRA NEVADA, CALIFORNIA**
- 383-3 324 Wilkins, Susan*: **GLACIAL LAKE SHORELINES FROM THE VASHON GLACIATION FOUND IN THE BEAR CREEK VALLEY NEAR REDMOND, WASHINGTON & THEIR IMPLICATION IN SALMON MIGRATION AND DISTRIBUTION IN THE PUGET SOUND REGION**
- 383-4 325 Lyles, Alex S.*; Baichtal, James F.; Karl, Susan M.: **DECIPHERING FLOW PATH OF ICE ACROSS THE SOUTHERN ALASKA PANHANDLE BASED ON GEOMORPHOLOGICAL INTERPRETATION AND FIELD DATA**
- 383-5 326 Harris, Anna Gwendolyn*; Baichtal, James F.: **MAPPING GLACIAL RETREAT IN THE TONGASS NATIONAL FOREST, ALASKA**
- 383-6 327 Wilkins, Susan*: **THE MIMA MOUNDS OF SOUTHWEST WASHINGTON AND OTHER MOUNDS LOCATED AROUND THE STATE WERE THE RESULT OF FREQUENT MELT WATER INUNDATIONS OF FORESTS ALONG THE MAJOR GLACIAL DRAINAGE CHANNELS DURING THE LAST ICE AGE**

SESSION NO. 384

T181. The Geological Signature of Natural Hazard Events (Posters) (GSA Environmental and Engineering Geology Division; GSA Sedimentary Geology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 384-1 328 Cytrynbaum, Jacob*; Cox, Rónadh: **GLOBAL SIGNATURES OF EXTREME WAVE EVENTS: INVESTIGATING THE MASS-TOPOGRAPHY RELATIONSHIPS OF COASTAL BOULDER DEPOSITS**
- 384-2 329 Edwards, Kyrien R.*; Cox, Rónadh; Goto, Kazuhisa: **MAKING TSUNAMI IN A WAVE TANK: EXPERIMENTS ON BOULDER TRANSPORT**

WEDNESDAY

POSTERS

- 384-3** 330 Tanigawa, Koichiro*; Sawai, Yuki; Bobrowsky, Peter; Huntley, David H.; Goff, James; Shinozaki, Tetsuya: **GEOLOGICAL EVIDENCE FOR TSUNAMIS PRIOR TO THE 1700 CASCADIA EARTHQUAKE FROM VANCOUVER ISLAND, CANADA**
- 384-4** 331 Sawai, Yuki*; Momohara, Arata: **COASTAL SUBMERGENCE AT UKISHIMA-GA-HARA ADJACENT TO THE SURUGA TROUGH (EASTERN NANKAI TROUGH), CENTRAL JAPAN**
- 384-5** 332 Patton, Annette I.*; Rathburn, Sara L.; Capps, Denny M.; Ruleman, Chester A.: **PRELIMINARY SURFICIAL MAPPING OF THE DENALI NATIONAL PARK AND PRESERVE ROAD CORRIDOR: IMPLICATIONS FOR LANDSLIDE HAZARDS IN A CHANGING CLIMATE**
- 384-6** 333 Greene, H. Gary*; Barrie, Vaughn; Todd, Brian J.; Conway, Kim: **CASCADIA UPPER PLATE FAULTING IN THE SAN JUAN-SOUTH GULF ISLANDS ARCHIPELAGOS**
- 384-7** 334 Taylor, Wanda J.*; Chamero, Eric J.; Ely, Rebecca N.; Konkright, Kelsy J.; Medema, Jayson; Peck, Alexander M.; Rafferty, Kevin C.: **SEISMIC HAZARD AND PALEOSEISMICITY IN SOUTHERN NEVADA: THE CALIFORNIA WASH FAULT**
- 384-8** 335 Gontz, Allen*; Karlsson, Keene; Cambron, Jaziel; Rockwell, Thomas K.; Fletcher, John M.: **GPR IMAGERY AND IDENTIFICATION OF NEOTECTONIC FEATURES OF THE CHUPAMIERTOS FAULT SYSTEM, BAJA CALIFORNIA, MEXICO**
- 384-9** 336 Guns, Katherine A.*; Bennett, Richard A.; Blisniuk, Kim: **INVESTIGATING STRAIN TRANSFER ALONG THE SOUTHERN SAN ANDREAS FAULT: A GEOMORPHIC AND GEODETIC STUDY OF BLOCK ROTATION IN THE EASTERN TRANSVERSE RANGES, JOSHUA TREE NATIONAL PARK, CA**
- 384-10** 337 Johnston, Amanda*; Zhang, Rui; Gottardi, Raphaël; Dawers, Nancye H.: **INVESTIGATING THE RELATIONSHIP BETWEEN TECTONICS AND LAND LOSS NEAR GOLDEN MEADOW, LOUISIANA BY UTILIZING 3D SEISMIC AND WELL LOG DATA**
- 384-11** 338 Bartlett, Marie*; Hawkes, Andrea D.; Bobrowsky, Peter; Sawai, Yuki; Tanigawa, Koichiro: **QUANTITATIVE PALEOENVIRONMENTAL RECONSTRUCTIONS OF PAST COASTAL SUBSIDENCE ALONG THE NORTHERN MARGIN OF THE CASCADIA SUBDUCTION ZONE**
- 384-12** 339 Jeong, Gi Young*: **RECURRENT EVENTS ON A QUATERNARY FAULT RECORDED IN THE CLAY MINERALOGY OF RAISED MARINE TERRACE SEDIMENTS**
- 384-13** 340 Stewart, C. Lance*; Stinchcomb, Gary E.; Forman, Steven L.; Davis, Lisa; Lombardi, Rachel: **PALEOFLOOD RECONSTRUCTION EFFORTS ALONG THE MIDDLE TENNESSEE RIVER VALLEY, USA**
- 384-14** 341 Wetherell, Logan R.*; Ely, Lisa L.; Walsh, Megan; Roering, Joshua; Struble, William; Black, Bryan: **FORMATION AND SEDIMENTATION OF LANDSLIDE-DAMMED LAKES WITHIN SMALL WATERSHEDS OF THE CENTRAL OREGON COAST RANGE**
- 385-4** 345 Bate, Charlotte E.*; Tikoff, Basil; Housen, Bernard: **FABRIC AND PALEOMAGNETIC ANALYSES OF THE SW LOBE OF THE TUOLUMNE INTRUSIVE SUITE, SIERRA NEVADA BATHOLITH, CALIFORNIA, USA**
- 385-5** 346 Morales, Victor M.*; Solar, Gary S.; Tomascak, Paul B.: **THE GRANITE BOUDINAGE STRAIN RECORD IN DEFORMED MIGMATITES IN THE NORUMBEGA SHEAR ZONE SYSTEM, SOUTHERN MAINE**
- 385-6** 347 Biesiada, Veronica C.*; Price, Nancy A.: **ANALYSIS OF DEFORMATION IN PILLOW BASALTS OF THE CRESCENT FORMATION, OLYMPIC MOUNTAINS, WASHINGTON, USA**
- 385-7** 348 Mezger, Jochen E.*: **CONTRACTIONALLY DEFORMED BELEMNITES AS INDICATORS FOR THRUST FAULTING IN MECHANICALLY WEAK SEDIMENTARY LAYERS – AN EXAMPLE FROM THE LOWER CRETACEOUS OF THE TALKEETNA MTS., CENTRAL ALASKA**
- 385-8** 349 Walter, Bradley T.*; McKenzie, Zachary M.; Nelson, Samuel T.; Allard, Stephen T.: **COMPARING DEFORMATION STYLE AND MECHANISMS OF RHEOLOGICALLY DIFFERENT ROCKS NEMO, BLACK HILLS, SD**
- 385-9** 350 Jarrett, Corey B.*; Miller, Marli B.; Price, Nancy A.: **MYLONITE MÉLANGE IN AN EXTENSIONAL SHEAR-ZONE: A DESCRIPTIVE HISTORY AND STRAIN ANALYSIS**
- 385-10** 351 Iosso, Chantal*; Rahl, Jeffrey M.: **A MICROSTRUCTURAL ANALYSIS OF THE UPPERMOST UNIT OF CRETE, GREECE**
- 385-11** 352 Cashman, Susan M.*; Bradshaw, Tomia H.; Browne, Brandon L.: **ANATOMY OF THE LA GRANGE DETACHMENT FAULT, KLAMATH MOUNTAINS, CALIFORNIA, FROM CALTRANS CORES**
- 385-12** 353 Schusler, Kyle L.*; Pearson, David M.; McCurry, Michael: **WHOSE FAULT IS IT? A KINEMATIC ANALYSIS OF HIGH ANGLE FAULTS ADJACENT TO THE EASTERN SNAKE RIVER PLAIN NEAR ARCO, ID**
- 385-13** 354 Cooper, Jordan M.*: **PALINSPATIC RECONSTRUCTION OF THE EASTERN SAN GABRIELS, CALIFORNIA UP TO 12 MYA**
- 385-14** 355 Baran, Zeynep*; Gesualdo, Anthony M.: **STRUCTURAL CONTROLS ON GOLD MINERALIZATION IN MARIGOLD MINING SITE, HUMBOLDT COUNTY, NV**
- 385-15** 356 Hoffman, Charles F.*; Greene, David C.; Klemetti, Erik W.; Toth, Conner; Worm, Thomas J.: **COMPILATION OF NEW AND EXISTING AGE DATA INDICATES LARGE SCALE STRUCTURAL IMBRICATION IN THE MINERAL KING PENDANT, SOUTHERN SIERRA NEVADA, CALIFORNIA**
- 385-16** 357 Greene, David C.*; Hoffman, Charles F.; Klemetti, Erik W.; Toth, Conner; Worm, Thomas J.: **PERVASIVE FOLDING DURING CRETACEOUS DEFORMATION IN THE MINERAL KING PENDANT, SOUTHERN SIERRA NEVADA, CALIFORNIA**
- 385-17** 358 Wyatt, Michael R.*; Singleton, John S.; Seymour, Nikki M.: **EVIDENCE FOR DEXTRAL TRANSTENSION IN THE SOUTHERN PLOMOSA MOUNTAINS, WEST-CENTRAL ARIZONA**
- 385-18** 359 Wang, Yijun*; Cooke, Michele L.; Titus, Sarah: **ECHOLON FAULT DEVELOPMENT DEPENDS ON STRAIN RATE IN WET KAOLIN**
- 385-19** 360 Mayberry, Camille*: **GEOLOGIC MAPPING ALONG THE GUMDROP HILLS FAULT: DEXTRALLY OFFSET TUFF-FILLED PALEOVALLEYS IN THE CENTRAL WALKER LANE**
- 385-20** 361 Webber, Amy*; Oldow, John S.: **TWO PERIODS OF MIOCENE TO CONTEMPORARY FLATTENING STRAIN DURING DISPLACEMENT ON A LOW-ANGLE DETACHMENT AND ON SUPERPOSED CURVED HIGH-ANGLE FAULTS, VOLCANIC HILLS, SOUTHWEST NEVADA**
- 385-21** 362 Mueller, Nicholas J.*; Oldow, John S.: **PLIOCENE CHANGES IN KINEMATICS AND LONG-TERM GEOLOGIC SLIP RATES ALONG THE FURNACE CREEK – FISH LAKE VALLEY FAULT ZONE, CALIFORNIA AND NEVADA**

SESSION NO. 385

D41. Structural Geology (Posters): Analysis of Faulting, Deformation and Flow

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 385-1** 342 Nemeth, Lauryn Nicole*: **EFFECTS OF RIO GRANDE RIFT RELATED FAULTS ON DOMINANT FRACTURE TRENDS OF EL PASO'S THREE SISTERS INTRUSIVE FORMATION**
- 385-2** 343 Brink, Shannon E*: **MAPPING MAGMATIC FLOW VIA ENCLAVE DEFORMATION IN THE THREE SISTERS ANDESITE: EL PASO, TEXAS**
- 385-3** 344 Horsman, Eric*: **CONSTRUCTION OF HIGH-SYMMETRY SHEET-LIKE INTRUSIONS IN THE UPPER CRUST THROUGH AMALGAMATION OF LOW-SYMMETRY LOBES**

- 385-22** 363 Landreneau, Lauren*; Sokol, Sarah; Oldow, John S.; Mueller, Nicholas J.: **ACTIVE DISPLACEMENT TRANSFER BETWEEN THE HUNTER MOUNTAIN – SALINE VALLEY FAULT SYSTEM AND THE FURNACE CREEK – FISH LAKE VALLEY FAULT SYSTEM VIA THE EUREKA VALLEY PULL-APART BASIN, EASTERN CALIFORNIA**
- 385-23** 364 Ng, Melissa*; Oldow, John S.: **GEOMETRY OF SUPERPOSED LOW-ANGLE DETACHMENT AND HIGH-ANGLE FAULTS IN THE WESTERN SILVER PEAK RANGE AND NORTHERN FISH LAKE VALLEY, NEVADA**
- 385-24** 365 Sokol, Sarah*; Landreneau, Lauren; Oldow, John S.; Mueller, Nicholas J.: **LATE CENOZOIC STRUCTURAL EVOLUTION AND DISPLACEMENT PARTITIONING WITHIN DEEP SPRINGS VALLEY, EASTERN CALIFORNIA**
- 385-25** 366 Cland, Brent*; Oldow, John S.: **LATE CENOZOIC SUPERPOSITION OF HIGH-ANGLE FAULTS AND LOW-ANGLE DETACHMENT FAULTS IN THE EASTERN MINA DEFLECTION, WEST-CENTRAL NEVADA**
- 385-26** 367 Ridde, August R.*; Oldow, John S.: **STRAIN IMPLICATIONS FOR THE FORMATION OF FLUID ESCAPE STRUCTURES DURING SYNEXTENSIONAL DEPOSITION OF MIOCENE VOLCANIClastic SEDIMENTARY ROCKS IN THE VOLCANIC HILLS, SOUTHWEST NEVADA**
- 385-27** 368 Miller, M*; Cameron, Samuel; Morgan, Sven S.: **CHARACTERISTICS OF SANDSTONE DIKE INTRUSION IN THE EARLY PROTEROZOIC OF THE MARQUETTE TROUGH, MICHIGAN**
- 385-28** 369 Hatfield, Marques E.*; Burberry, Caroline M.: **QUANTIFYING PENETRATIVE STRAIN RELATED VOLUME LOSS IN CLASTIC RESERVOIR UNITS OF THE DENVER-JULESBURG BASIN**
- 385-29** 370 Fisher, James A.*; Lammie, Daniel Benjamin; Wagner, Joshua; Sak, Peter B.; McQuarrie, Nadine: **QUANTIFICATION OF SHORTENING FOR BALANCED CROSS SECTIONS ACROSS THE CENTRAL APPALACHIAN FOLD-THRUST BELT OF PENNSYLVANIA AND WEST VIRGINIA**
- 385-30** 371 Mager, Stephanie*; Marshak, Stephen; Haq, Saad S.B.: **PIV ANALYSIS OF BACKSTOP EVOLUTION IN AN ANALOG (SANDBOX) MODEL OF A FOLD-THRUST BELT**
- 385-31** 372 Evans, Mark A.*: **THE STRUCTURAL GEOMETRY AND RETRODEFORMATION OF THE CENTRAL APPALACHIAN FOLD-AND-THRUST BELT IN THE PENNSYLVANIA SALIENT**
- 385-32** 373 Wislocki, Joseph J.*; Rowan, Christopher J.: **ANALOGUE MODELLING OF THE FORMATION OF THE PENNSYLVANIA SALIENT: DO THE APPALACHIANS BEND AROUND AN ANCIENT RIFT?**
- 385-33** 374 Robinson, Jessica*; Crespi, Jean: **VARIATION OF GEOMETRY OF STRUCTURES AND STRAIN IN A CURVED OROGENIC BELT: TACONIC ALLOCHTHON, VERMONT AND NEW YORK**
- EMPLACEMENT OF DEEPLY SUBDUCTED ULTRAHIGH-PRESSURE ROCKS: AN EXAMPLE FROM THE SEVE NAPPE COMPLEX OF THE SWEDISH CALEDONIDES**
- 386-4** 378 Ostwald, Claire*; Kahn, Maureen; Schmitz, Mark D.; Tikoff, Basil: **FINDING STRAIN LOCALIZATION AND DATING THE ONSET OF DEFORMATION IN THE WESTERN IDAHO SHEAR ZONE USING TITANITE U-PB GEOCHRONOLOGY AND CRYSTALLOGRAPHIC VORTICITY AXIS ANALYSIS**
- 386-5** 379 Kruckenberg, Seth C.*; Montz, William J.: **RHEOLOGICAL TRANSITIONS AND STRUCTURAL OVERPRINTING ASSOCIATED WITH CRETACEOUS PARTIAL MELTING AND STRAIN LOCALIZATION IN THE POTTERS POND MIGMATITE DOMAIN, WEST-CENTRAL IDAHO**
- 386-6** 380 Baden, Curtis William*; Hilley, George E.; Shuster, David L.; Hourigan, Jeremy: **CONTRASTS IN INTEGRATED CRUSTAL STRENGTH DRIVE STRAIN LOCALIZATION WITHIN THE SANTA CRUZ MOUNTAINS RESTRAINING BEND IN THE THE SAN ANDREAS FAULT, NORTHERN CALIFORNIA**
- 386-7** 381 McGinn, Courtney*; Miranda, Elena A.; Hufford, Lonnie; Schwartz, Joshua J.; Klepeis, Keith A.: **MICROSTRUCTURAL DEVELOPMENT WITHIN A DISTRIBUTED MID-CRUSTAL SHEAR ZONE: A NORTHERN EXTENSION OF THE GREBE MYLONITE ZONE IN FIORDLAND, NEW ZEALAND?**
- 386-8** 382 Gross, Caroline E.*; Miranda, Elena A.; Klepeis, Keith: **PLAGIOCLASE DEFORMATION RESULTING IN LOCALIZED STRAIN IN A LOWER CRUSTAL SHEAR ZONE, FIORDLAND, NEW ZEALAND**
- 386-9** 383 Hufford, Lonnie Justin*; Miranda, Elena A.; Schwartz, Joshua J.; Klepeis, Keith: **DEFORMATION MECHANISMS OF QUARTZ AND PLAGIOCLASE IN A MID-CRUSTAL TRANSPRESSIONAL SHEAR ZONE WITHIN ARC CRUST: MICROSTRUCTURAL INVESTIGATION OF THE GREBE MYLONITE ZONE IN FIORDLAND, NEW ZEALAND**
- 386-10** 384 Hughes, Cameron A.*; Jessup, Micah J.; Shaw, Colin A.: **DEFORMATION MECHANISMS RELATED TO STRAIN LOCALIZATION IN THE CORDILLERA BLANCA SHEAR ZONE (CBSZ), PERU**
- 386-11** 385 Cullik, Michael*; Rahl, Jeffrey M.: **CRYSTALLOGRAPHIC PREFERRED ORIENTATION AND MICROSTRUCTURAL ANALYSES ACROSS A STRAIN GRADIENT, MAGGIA NAPPE, SWITZERLAND**
- 386-12** 386 Sparks, Stephanie A.*; Thigpen, J. Ryan: **EXAMINING TRANSIENT THERMAL-RHEOLOGICAL INTERACTION DURING COLLISIONAL OROGENESIS USING NUMERICAL MODELING: IMPLICATIONS FOR CHANNEL FLOW AND CRITICAL WEDGE MODELS**
- 386-13** 387 Long, Sean P.*; Gordon, Stacia; Soignard, Emmanuel: **LARGE-SCALE, DISTRIBUTED STRUCTURAL THINNING IN THE HIMALAYAN OROGEN: A CASE STUDY FROM CENTRAL BHUTAN**
- 386-14** 388 Liu, Xiaobing*; Liu, Xiaohan; Leloup, P.H.; Mahéo, G.; Li, Guangwei; Wei, Lijie: **STRUCTURAL CHARACTERISTICS OF THE UPPER HIMALAYA CRYSTALLINE SEQUENCE, IN NYALAM AREA, SOUTHERN TIBET AND GEOLOGICAL IMPLICATIONS**
- 386-15** 389 Nso, Peter*; Eckert, Andreas: **DEFORMATION OF SEDIMENTS AT SALT FLANKS AND OVERHANGS: A NUMERICAL MODELING APPROACH**
- 386-16** 390 Davis, Joshua R.*; Chatzaras, Vasileios; Roberts, Nicolas M.; Poppick, Andrew; Titus, Sarah: **STATISTICS OF ELLIPSOIDAL DATA FROM RIDGE-TRANSFORM SYSTEMS**
- 386-17** 391 Howell, Samuel M.*: **THE EFFECT OF FAULT LOCALIZATION ASSUMPTIONS ON EXTENSIONAL TERRAIN DEVELOPMENT IN ICY SATELLITES**
- 386-18** 392 Cao, Wenrong*; Lee, Cin-Ty A.: **SCALING ANALYSIS AND NUMERICAL MODELING OF HYDROTHERMAL CIRCULATION IN COOLING AND EXHUMING HOT CONTINENTAL ARC CRUST**

SESSION NO. 386

T210. Challenges in Tectonics: Beyond Steady State: New Developments in Understanding Strain Localization Processes and the Rheology of the Lithosphere (Posters) (GSA Structural Geology and Tectonics Division; Future of Tectonics Initiative)

9:00 AM, Washington State Convention Center, Halls 4EF
 Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM
 Booth #

- 386-1** 375 Wang, Lu*; Wang, Songjie; Brown, Michael; Zhang, Junfeng; Feng, Peng: **ON THE SURVIVAL OF INTERGRANULAR COESITE IN UHP ECLOGITE**
- 386-2** 376 Chatzaras, Vasileios*; Kruckenberg, Seth C.; Titus, Sarah; Tikoff, Basil; Teyssier, Christian; Drury, Martyn: **STRAIN LOCALIZATION PROCESSES IN THE UPPER MANTLE SECTION OF AN OCEANIC PALEOTRANSFORM FAULT, BOGOTA PENINSULA SHEAR ZONE, NEW CALEDONIA**
- 386-3** 377 Ma, Chong*; Gee, David G.; Benowitz, Jeffrey A.; Sjöström, Håkan; Steltenpohl, Mark G.: **STRUCTURE AND**

WEDNESDAY POSTERS

386-19 393 Forstner, Stephanie*; Laubach, Stephen E.; Fall, András:
**REGIONAL BRITTLE DEFORMATION, STRAIN, AND
PALEOSTRESS TRAJECTORIES, TETON RANGE, WYOMING
USA**

SESSION NO. 387 \$

**T212. Geologic Mapping in the Pacific Northwest and Beyond:
Recent Maps, Advances, and New Insights: In Memory of
Russell C. Evarts and his Extensive Contributions to Pacific
Northwest Geologic Mapping (Posters)**

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 387-1** 394 Polenz, Michael*; Allen, Mitchell; Legorreta Paulin, Gabriel;
Eungard, Daniel W.; Cakir, Recep; Scott, Spenser; Mahan,
Shannon A.: **GEOLOGIC MAP OF THE SHELTON VALLEY 7.5'
QUADRANGLE, MASON COUNTY, WASHINGTON**
- 387-2** 395 Polenz, Michael*; Vermeer, Jessica L.; Legorreta Paulin, Gabriel;
Tepper, Jeffrey H.; Mahan, Shannon A.; Cakir, Recep: **GEOLOGIC
MAP OF THE LITTLEROCK QUADRANGLE, THURSTON
COUNTY, WASHINGTON**
- 387-3** 396 Troost, Kathy Goetz*; Brooks, Justin L.; Teague, Kathryn E.; Porter,
Matthew J.; Kohn, James A.; Thompson, Lauren: **GEOLOGIC
HAZARD AND OTHER DERIVATIVE MAPPING FOR CITY OF
KIRKLAND, WA**
- 387-4** 397 Mavor, Skyler Pendleton*; Allen, Mitchell; Tepper, Jeffrey H.;
Nesbitt, Elizabeth A.; Mahan, Shannon A.; Cakir, Recep; Stoker,
Bruce A.; Anderson, M.L.: **GEOLOGIC MAP OF THE MALTBY
7.5' QUADRANGLE, SNOHOMISH AND KING COUNTIES,
WASHINGTON**
- 387-5** 398 Dragovich, Joe D.*; Anderson, Megan L.; Mahan, Shannon A.;
MacDonald, James H.; Tepper, Jeffrey H.; Mavor, Skyler; Koger,
Curtis J.; Cakir, Recep; Stoker, Bruce A.; Smith, Daniel T.;
DuFrane, S. Andrew: **GEOLOGY OF THE GRANITE FALLS
7.5-MINUTE QUADRANGLE AREA—A RICH HISTORY OF
NEOTECONIC BASIN DEVELOPMENT AND INVERSION TO
MESOZOIC ACCRETIONARY TECTONICS IN THE FOOTHILLS
OF SNOHOMISH COUNTY, WASHINGTON**
- 387-6** 399 Nandi, Sourav Krishna*; Brown, Mark Byron; Spurgeon,
Derek L.; Breeding, Dalton R.; Gerik, Ashley; McKay, Matthew P.:
**GEOLOGIC MAP OF THE PURGATORY SADDLE 7.5'
QUADRANGLE, ADAMS COUNTY, IDAHO, WESTERN IDAHO:
PRE-ACCRETIONARY DEFORMATION IN THE EASTERN
BLUE MOUNTAINS**
- 387-7** 400 Breedlovestrout, Renee; Lewis, Reed S.*; Isakson, Vince; Wood,
Spencer H.; Feeney, Dennis M.: **MAPPING OF MIOCENE-
PLIOCENE LAKE IDAHO AND PAYETTE SEDIMENTARY
DEPOSITS NORTH OF THE WESTERN SNAKE RIVER PLAIN**
- 387-8** 401 Feeney, Dennis M.*; Isakson, Vincent H.; Lewis, Reed S.;
Mertzman, Stanley A.: **MAPPING MIDDLE MIOCENE VOLCANIC
ROCKS IN THE WEISER EMBAYMENT, SOUTHWEST IDAHO:
NEW U-PB TIMS ZIRCON AGE DATA AND ITS IMPLICATIONS**
- 387-9** 402 Goodson, Berni*; Armstrong, Austin; Pritchard, Chad J.;
O'Sullivan, Paul: **EOCENE DEFORMATION AND ASSIMILATION
IN THE WILLOW LAKE NATURAL AREA, SPOKANE COUNTY,
WASHINGTON**
- 387-10** 403 Cleveland, Aaron B.*; Adams, Drew B.; Pritchard, Chad J.:
**GEOLOGIC AND ANTHROPOGENIC HISTORY OF SPOKANE
REVEALED BY SUBSURFACE PROJECTIONS FOR
STORMWATER DISPOSAL**
- 387-11** 404 Hendrick, Megan*; Haugerud, Ralph; O'Connor, Jim E.: **MAPPING
THE MISSOULA FLOODS, NORTH-CENTRAL WASHINGTON**
- 387-12** 405 Gordon, Gabriel*; Haugerud, Ralph; O'Connor, Jim E.: **MAPPING
THE MISSOULA FLOODS: THE COLUMBIA RIVER GORGE**
- 387-13** 406 Cannon, Charles M.*; O'Connor, Jim E.: **NEOGENE FILLING
AND INCISION OF THE DALLES BASIN, OREGON AND
WASHINGTON**

- 387-14** 407 Wells, Ray E.*; Haugerud, Ralph; Evarts, Russell C.; Niem,
Alan; Niem, Wendy A.; Ma, Lina; O'Connor, Jim E.; Madin,
Ian P.: **GEOLOGIC MAP OF THE GREATER PORTLAND
METROPOLITAN AREA, OREGON AND WASHINGTON**
- 387-15** 408 McClaughry, Jason D.*; Franczyk, Jon J.: **GEOLOGIC MAP OF
THE NORTH HALF OF THE LOWER CROOKED BASIN OF
CENTRAL OREGON REVEALS A COMPLEX EOCENE TO
PLEISTOCENE VOLCANIC HISTORY**
- 387-16** 409 Houston, Robert A.*; McClaughry, Jason D.: **NEW GEOLOGIC
MAPPING RECORDS LATE MIOCENE TECTONIC
DEFORMATION IN NORTHERN HARNEY BASIN, OREGON**
- 387-17** 410 Lenart, Margaret R.*; Weldon, Ray J.; Weldon, Elise M.; Hopkins,
Samantha S.B.: **COMBINING MAPPING AND DIGITAL
ELEVATION DATA TO CHARACTERIZE STRUCTURE IN THE
UPPER CROOKED RIVER BASIN, OREGON**
- 387-18** 411 Lapo, Kristiana*; Clark, Doug: **TIMING AND PALEOCLIMATIC
SIGNIFICANCE OF QUATERNARY GLACIATION IN THE
THREE-FINGERED JACK REGION, OREGON HIGH
CASCADES**

SESSION NO. 388

**T219. Challenges in Tectonics: Dynamic Interactions among
Earth-Surface Processes, Landscape Evolution, and Tectonics
(Posters) (GSA Structural Geology and Tectonics Division;
GSA Sedimentary Geology Division; GSA Quaternary Geology
and Geomorphology Division; GSA Mineralogy, Geochemistry,
Petrology, and Volcanology Division; SEPM (Society for
Sedimentary Geology); Future of Tectonics Initiative)**

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM
Booth #

- 388-1** 412 Ingram, Jonathan James*; Burgette, Reed J.: **CONSTRAINING
THE UPLIFT HISTORY OF THE SANTA SUSANA MOUNTAINS,
WESTERN TRANSVERSE RANGES, SOUTHERN CALIFORNIA
THROUGH U-PB DETRITAL ZIRCON GEOCHRONOLOGY**
- 388-2** 413 Haeussler, Peter J.*; Saltus, Richard W.; Stanley, Richard G.;
Ruppert, Natalia; Lewis, Kristen A.; Karl, Susan M.; Bender,
Adrian: **THE PETERS HILLS BASIN, A NEOGENE PIGGYBACK
BASIN ON THE BROAD PASS THRUST FAULT, SOUTH-
CENTRAL ALASKA**
- 388-3** 414 White, Emily J.*; Cassel, Elizabeth J.: **PRELIMINARY RESULTS
FROM VOLCANIC GLASS PALEOALTIMETRY AND MIOCENE
STRATIGRAPHY OF THE CENTRAL ANDES, SOUTHERN
PERU**
- 388-4** 415 Canada, Andrew S.*; Cassel, Elizabeth J.; Smith, M. Elliot;
Stockli, Daniel F.: **CONNECTING LANDSCAPE CHANGES
IN EXHUMATION TO LACUSTRINE SEDIMENTATION AND
SURFACE DEFORMATION IN A UNIQUE HINTERLAND BASIN,
NORTHEAST NEVADA**
- 388-5** 416 Licht, Alexis*; Dupont-Nivet, Guillaume; Win, Zaw; Littell, Virginia;
Swe, Hnin Hnin; Kay Thi, Myat; Aung, Day Wa; Roperch, Pierrick;
Poblete, Fernando; Huang, Huasheng; Hoorn, Carina; Sein,
Kyaing: **ONSET OF INDIAN OBLIQUE CONVERGENCE ALONG
THE BURMESE SUBDUCTION MARGIN RECORDED IN
UPPER EOCENE SEDIMENTARY DEPOSITS OF CENTRAL
MYANMAR**
- 388-6** 417 Lai, Larry Syu-Heng*; Dorsey, Rebecca J.; Teng, Louis Suh-Yui:
**THRUST-RELATED GROWTH STRATA IN THE RETROWEDGE
OF ARC-CONTINENT COLLISION ZONE, SOUTHERN
COASTAL RANGE OF EASTERN TAIWAN**
- 388-7** 418 Ma, Huimin*; Wang, Yu; Huang, Yajuan: **LINKAGES BETWEEN
TECTONICS AND SEDIMENTARY RECORDS OF MESOZOIC
INTRACONTINENTAL DEFORMATION IN CENTRAL SOUTH
CHINA**
- 388-8** 419 Anderson, Ryan B.*; Long, Sean P.; Thomson, Stuart N.; Calle,
Amanda Z.; Horton, Brian K.; Stockli, Daniel F.: **OROGENIC
WEDGE DYNAMICS OF THE CENTRAL ANDEAN RETROARC
IN SOUTHERN BOLIVIA (~21°S): INSIGHTS INTO FEEDBACK**

- EFFECTS FROM APATITE (U-TH)/HE, APATITE FISSION TRACK, AND ZIRCON (U-TH)/HE AGES**
- 388-9** 420 Abbott, Lon D.*; Flowers, Rebecca M.; Metcalf, James R.; Falkowski, Sarah: **THE PRE-RIFT EXHUMATION HISTORY ALONG THE ARKANSAS RIVER SEGMENT OF COLORADO'S RIO GRANDE RIFT**
- 388-10** 421 Niazy, Fatima*; Abbott, Lon D.; Metcalf, James R.; Flowers, Rebecca M.: **EXHUMATION HISTORY OF COLORADO'S SOUTH PARK BASIN AND ITS POTENTIAL CAUSES FROM COUPLING APATITE (U-TH)/HE THERMOCHRONOLOGY WITH CONSTRAINTS FROM SURFACE GEOLOGY**
- 388-11** 422 Sweet, Dustin E.*; Barnes, Melanie A.; Marshak, Stephen; Barnes, Calvin G.; Rothfok, Aaron: **PRESERVATION OF PALEOTOPOGRAPHY OF THE GRANITE-RHYOLITE PROVINCE OF THE MIDCONTINENT, USA: A BURIAL AND EXHUMATION HISTORY**
- 388-12** 423 Sajeev, Riffin Thandassery*: **EVIDENCE OF NEOTECTONIC ACTIVITY ALONG THE EAST COAST OF INDIAN PENINSULA**
- 388-13** 424 Powars, David S.*; Edwards, Lucy E.: **COASTAL PLAIN FAULTS WITHIN WASHINGTON EAST 1:100,000 QUADRANGLE**
- 388-14** 425 Minor, Scott A.*; Schmidt, Kevin M.: **CURVED FAULT TRACES, SURFACE UPLIFTS, AND EVOLVING LANDSCAPES: MORE THAN SIMPLE STRIKE SLIP FAULTING ON THE CHANNEL ISLANDS, SOUTHERN CALIFORNIA**
- 388-15** 426 McCall, Naoma*; Gulick, Sean S.P.; Walton, Maureen; Haeussler, Peter J.; Reece, Bobby; Sastrup, Steffen: **FAULT GEOMETRIES AND GLACIAL CONDUITS IN ICY BAY, ALASKA**
- 388-16** 427 Manopkawe, Pichawut*; Kirby, Eric: **EVALUATING CHANNEL-HILLSLOPE COUPLING ALONG AN EROSION RATE GRADIENT, BOLINAS RIDGE, CALIFORNIA**
- 388-17** 428 Madoff, Risa D.*; Putkonen, Jaakko: **ACCOUNTING FOR TEMPORAL COMPLEXITY WHEN MODELING EROSION AND SEDIMENT TRANSPORT IN EVOLVING LANDSCAPES**
- 388-18** 429 Shobe, Charles M.*; Tucker, Gregory E.; Barnhart, Katherine R.: **EXPLORING RIVER RESPONSE TO TECTONIC PERTURBATIONS WITH THE OPEN SOURCE 2-D SPACE MODEL**
- 388-19** 430 Fedotova, Anastasia*; Reece, Bobby; Goff, John A.; Christeson, Gail L.; Carlson, Richard L.; Estep, Justin; Bonnette, Grant J.; Skipwith, Jordan J.: **AN ANALYSIS OF VARIATION IN ABYSSAL HILL GEOMORPHOLOGY IN THE SOUTH ATLANTIC OCEAN**
- 388-20** 431 Carrigan, James H.*; Anastasio, David; Berti, Claudio: **GEOMORPHIC EVIDENCE OF TRANSIENT FLUVIAL LANDSCAPE RESPONSE IN AN ACTIVE OROGEN, CENTRAL BETIC CORDILLERA, SPAIN**

SESSION NO. 389 \$

T225. New Perspectives on Cordilleran Tectonics, Paleogeography, and Metallogeny (Posters) (GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology); Society of Economic Geologists; GSA Structural Geology and Tectonics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 389-1** 432 Hart, David B.*; Shimabukuro, David H.: **NEW GEOLOGIC MAPPING OF THE PRECAMBRIAN TONALITE ASSOCIATED WITH THE ORDOVICIAN TRINITY OPHIOLITE, KLAMATH MOUNTAINS, CALIFORNIA**
- 389-2** 433 MacNaughton, Robert B.*; Fallas, Karen M.; Chan, Wing C.: **STRATIGRAPHIC EVIDENCE FOR EDIACARAN AND EARLY CAMBRIAN EXTENSIONAL FAULTING, MACKENZIE MOUNTAINS, NORTHWESTERN CANADA**
- 389-3** 434 Campbell, Roderick W.*; Beranek, Luke P.; Piercey, Stephen J.; Friedman, Richard M.: **EARLY PALEOZOIC POST-BREAKUP MAGMATISM ALONG THE NORTHERN CORDILLERAN MARGIN: NEW GEOCHRONOLOGICAL AND GEOCHEMICAL**

- RESULTS FROM THE KECHIKA GROUP, SOUTH-CENTRAL YUKON**
- 389-4** 435 Pivarunas, Anthony F.*; Meert, Joseph G.: **FRINGE BENEFITS: PALEOMAGNETIC AND GEOCHRONOLOGIC DATA FROM DYKES ON THE MARGINS OF THE MCCLURE MOUNTAIN IGNEOUS COMPLEX, COLORADO**
- 389-5** 436 Bliss, Ben*; Trop, Jeffrey M.; Benowitz, Jeff A.: **PALEOZOIC MAGMATISM IN THE WRANGELLIA TERRANE CONSTRAINED BY U-PB GEOCHRONOLOGY OF MODERN RIVER DETRITAL ZIRCONS, WRANGELL MOUNTAINS, ALASKAN CORDILLERA**
- 389-6** 437 Jones, James V.*; Todd, Erin; Caine, Jonathan S.; Holm-Denoma, Christopher S.; Ryan, James J.; Benowitz, Jeff A.: **LATE PERMIAN (CA. 267–257 MA) MAGMATISM, DEFORMATION, AND METAMORPHISM AND LITHOTECTONIC ASSOCIATIONS OF THE LADUE RIVER UNIT IN EAST-CENTRAL ALASKA**
- 389-7** 438 Anderson, Thomas H.*; Ortega-Rivera, Amabel; Rodríguez-Castaneda, J.L.: **JURASSIC FAULTS ALONG THE MARGIN OF LAURASIA: PRINCIPAL CONDUITS FOR GOLD-BEARING FLUIDS**
- 389-8** 439 Stout, Austin J.*; Long, Sean P.; Soignard, Emmanuel: **EXTENSIONAL STRAIN, CONTRACTIONAL STRAIN, AND PEAK THERMAL CONDITIONS IN THE WHITE PINE RANGE, EASTERN NEVADA: INSIGHTS FROM A STRUCTURAL RECONSTRUCTION INTEGRATED WITH RSCM THERMOMETRY**
- 389-9** 440 Mihalynuk, Mitchell G.*; Diakow, Larry J.; Logan, James M.; Friedman, Richard M.; Camacho, Alfredo: **NEW GEOCHRONOLOGIC CONSTRAINTS ON MESOZOIC QUESNELLIA VOLCANO-STRATIGRAPHY AND MINERALIZATION, WITH POSSIBLE CORRELATIVES IN WESTERN USA**
- 389-10** 441 Seymour, Nikki M.*; Strickland, Evan D.; Singleton, John S.; Stockli, Daniel F.; Wong, Martin: **SUBDUCTION AND METAMORPHISM OF THE OROCOPIA SCHIST, NORTHERN PLOMOSA MOUNTAINS, WEST-CENTRAL ARIZONA: INSIGHTS FROM ZIRCON U-PB GEOCHRONOLOGY**
- 389-11** 442 Dorsey, Cameron*; Matthews, William A.; Guest, Bernard; Hubbard, Stephen M.: **U-PB DETRITAL ZIRCON ANALYSIS OF THE QUEEN CHARLOTTE GROUP, HAIDA GWAI, BRITISH COLUMBIA**
- 389-12** 443 Koepf, Donald Q.*; Trop, Jeffrey M.; Benowitz, Jeff A.; Layer, Paul W.; Zippi, Pierre A.; Brueske, Matthew E.: **MID-CRETACEOUS VOLCANISM AND FLUVIAL SEDIMENTATION IN THE ALASKA RANGE SUTURE ZONE: IMPLICATIONS FOR THE ACCRETIONARY HISTORY OF THE WRANGELLIA COMPOSITE TERRANE**
- 389-13** 444 Rubino, Erica*; Leier, Andrew; Archibald, S. Bruce; Cassel, Elizabeth J.; Foster-Baril, Zachary; Barbeau, David L.; Sexton, Jubal: **DETRITAL ZIRCON U-PB PROVENANCE OF EOCENE SEDIMENTS IN SOUTHERN BRITISH COLUMBIA AND NORTHERN WASHINGTON: RECORD OF A COLLAPSING OROGEN**
- 389-14** 445 Rubino, Erica*; Leier, Andrew; Archibald, S. Bruce; Cassel, Elizabeth J.: **DETRITAL ZIRCON HF CHARACTERIZATION OF EOCENE SEDIMENTS DEPOSITED IN THE SOUTHERN CANADIAN CORDILLERAN HINTERLAND**
- 389-15** 446 Anfinson, Owen A.*; Chapman, Alan D.; Grace, Robert; Peoples, James P.; Redmond, Maureen; Fleming, Kaitlyn C.; Rico, Mayerline: **AGE CONSTRAINTS AND CORRELATION OF "SUR SERIES" METASEDIMENTARY FRAMEWORK ROCKS: IMPLICATIONS FOR THE ORIGIN OF THE SALINIAN TERRANE, CENTRAL CALIFORNIA**
- 389-16** 447 Applegate, Nathaniel T.*; Swapp, Susan M.: **PRIMARY MINERALIZATION OF HEXAVALENT URANIUM IN TERTIARY "ROLL FRONT" DEPOSITS OF WYOMING**
- 389-17** 448 Lacroix, Brice*; Lahfid, Abdeltif; Delchini, Sylvain; Hughes, Jacob: **EMPLACEMENT OF AN AU-DEPOSIT WITHIN THE FRANCISCAN COMPLEX: EXAMPLE FROM THE LOS BURROS MINING DISTRICT**

- 389-18 449 Easterbrook, Don J.*: **NEW LIDAR AND SEA FLOOR SONAR IMAGERY INVALIDATES THE SAN JUAN ISLANDS THRUST SYSTEM**
- 389-19 450 Haxel, Gordon B.*; Jacobson, Carl E.: **GEOCHEMISTRY OF METACHERT, SILICEOUS MARBLE, AND (NEWLY RECOGNIZED) META-UMBER IN THE PELONA-OROQUIA-RAND SCHIST LOW-ANGLE SUBDUCTION COMPLEX, SOUTHERN CALIFORNIA AND SOUTHWEST ARIZONA**

SESSION NO. 390 \$

T229. Paleocene-Eocene Tectonic and Magmatic Evolution of the Pacific Northwest (Posters) (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 2 to 4 PM and 4:30 to 6:30 PM

Booth #

- 390-1 451 Buddington, A.M.*; Steven, Cody J.; Tikoff, Basil: **EOCENE LAMPROPHYRIC DIKES FROM NORTHERN IDAHO AND NORTHEASTERN WASHINGTON**
- 390-2 452 Kimler, Thomas David*; Tepper, Jeffery H.: **PETROLOGY, GEOCHRONOLOGY, AND TECTONIC IMPLICATIONS OF THE EOCENE NACHES FORMATION, CENTRAL CASCADES, WASHINGTON**
- 390-3 453 Wallenbrock, Cameron J.*; Tepper, Jeffrey H.: **MID-EOCENE ARC VOLCANISM IN CENTRAL WASHINGTON CASCADES: PETROLOGY OF THE TANEUM FORMATION AND ITS RELATION TO FARALLON PLATE SUBDUCTION AND BREAKOFF**
- 390-4 454 Randall, John A.*: **PETROLOGY AND GEOCHRONOLOGY OF THE EOCENE BASALT OF FROST MOUNTAIN: THOLEIITIC VOLCANISM IN THE CENTRAL CASCADES, WASHINGTON**
- 390-5 455 Larson, Kristine*; Pritchard, Chad J.: **DECIPHERING CRETACEOUS AND EOCENE GRANITOIDS IN THE SPOKANE AREA, EASTERN WASHINGTON**
- 390-6 456 Easterbrook, Madison A.*; MacDonald, James H.: **MINERAL CHEMISTRY OF THE CAMAS LAND DIABASE, CENTRAL CASCADES, WASHINGTON: A SILL WITHIN THE EOCENE CHUMSTICK FORMATION**
- 390-7 457 Thompson, Glenn T.*; MacDonald, James H.; Dragovich, Joe D.; Tepper, Jeffrey H.: **MINERAL GEOCHEMISTRY AND GEOTHERMOBAROMETRY OF THE EOCENE GRANITE FALLS STOCK, BALD MOUNTAIN PLUTON, AND MOUNT PILCHUCK STOCK, WASHINGTON STATE**
- 390-8 458 Dragovich, Joe D.*; Tepper, Jeffrey H.; MacDonald, James H.; DuFrane, S. Andrew; Anderson, Megan L.; Koger, Curtis J.; Mavor, Skyler; Thompson, Glenn T.; Eddy, Michael P.: **GRANITE FALLS STOCK AND THE HANSEN LAKE RHYOLITE—A HISTORY OF SYN-TECTONIC EOCENE MAGMATISM AND UPLIFT IN THE PILCHUCK RIVER VALLEY DURING REGIONAL TRANSTENSION, SNOHOMISH COUNTY, WASHINGTON**
- 390-9 459 Umhoefer, Paul J.*; Donaghy, Erin E.; Eddy, Michael P.; Miller, Robert B.: **STRATIGRAPHIC RECORD OF THE MIDDLE EOCENE FAULT-BEND, STRIKE-SLIP CHUMSTICK BASIN, CENTRAL WASHINGTON, SYNCHRONOUS WITH AN EPISODE OF MAJOR STRIKE-SLIP FAULTING ACROSS THE CASCADES**
- 390-10 460 Holk, Gregory J.*; McCarthy, Anne; Mallory, Marci: **A MASSIVE “CHALLIS” EPISODE HYDROTHERMAL SYSTEM IN SOUTH-CENTRAL BRITISH COLUMBIA: STABLE ISOTOPE EVIDENCE FROM THE CORYELL INTRUSIVE SUITE AND PENTICTON VOLCANICS**

SESSION NO. 391

T233. Tectonics, Geohazards, and Morphodynamics from High-Resolution Topography and Imagery (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; GSA Structural Geology and Tectonics Division)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 391-1 461 Johnstone, Sam*; Hudson, Adam M.; Sare, Robert M.; Nicovich, Sylvia Rose; Ruleman, Cal; Thompson, Ren A.: **MAPPING THE HISTORY OF ALLUVIAL FAN DEPOSITION WITH ANALYSIS OF HIGH-RESOLUTION TOPOGRAPHIC DATA**
- 391-2 462 Chicangana, German E.*; Bocanegra, Alfonsina; Kammer, Andreas; Vargas-Jimenez, Carlos Alberto; Salcedo Hurtado, Elkin; Gomez-Capera, Augusto Antonio: **GEOTECTONIC EVOLUTION AND SEISMOTECTONICS OF NORTH FAULTS OF ALGECIRAS FAULT SYSTEM, COLOMBIA**
- 391-3 463 Angster, Stephen*; Sawyer, Thomas L.; Wesnousky, Steven G.: **QUATERNARY EXPRESSION OF NORTHERN GREAT VALLEY FAULTS AND FOLDS: ACCOMMODATING NORTH-SOUTH CONTRACTION BETWEEN THE SIERRAN MICROPLATE AND OREGON BLOCK**
- 391-4 464 Zinke, Robert*; Hollingsworth, James; Dolan, James F.; Van Dissen, Russ: **QUANTIFYING 3D DEFORMATION IN THE 14 NOVEMBER M_w 7.8 KAIKOURA, NEW ZEALAND EARTHQUAKE USING A NOVEL TECHNIQUE FOR CORRELATION OF OPTICAL SATELLITE IMAGERY**
- 391-5 465 Wade, Adam*; Arrowsmith, J Ramón; Donnellan, Andrea; Vernon, Frank; Ben-Zion, Yehuda: **STRUCTURAL CHARACTERIZATION OF THE SAN JACINTO FAULT FROM HIGH RESOLUTION UAV-BASED IMAGERY AND TOPOGRAPHY AT SAGE BRUSH FLAT, ANZA, CALIFORNIA**

SESSION NO. 392

D37. Volcanology (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 392-1 466 Zhao, He*; Wang, Xiangdong; Grasby, Stephen E.: **MERCURY ANOMALOUS EVIDENCE FOR STRONG VOLCANISM IN LATE-NEOPROTEROZOIC BEFORE THE RISE OF ANIMAL LIFE**
- 392-2 467 Zheng, Xin-Yuan*; Yin, Runsheng; Percival, Lawrence M.E.; Zhu, Chuanwei; Al-Suwaidi, Aisha; Barclay, Richard S.; Lu, Zunli; Li, Xiangdong; Hesselbo, Stephen P.; Jenkyns, Hugh C.: **TRACING OF VOLCANISM DURING JURASSIC AND CRETACEOUS OCEANIC ANOXIC EVENTS (OAES) USING MERCURY ISOTOPES**
- 392-3 468 Best, Mackenzie B.*; West, David P.; Coish, Raymond: **AN EARLY RECORD OF RHEIC OCEAN FORMATION IN THE NORTHERN APPALACHIANS: THE NORTH HAVEN FORMATION IN PENOBSCOT BAY, MAINE**
- 392-4 469 Ohrmundt, Sierra C.*; Hanson, Richard E.; Andrews, Virginia P.: **INTRUSIVE PYROCLASTIC ROCKS FORMED DURING EXPLOSIVE ANDESITIC ERUPTIONS IN A MESOPROTEROZOIC VOLCANIC ARC SETTING, BARBY FORMATION, SW NAMIBIA**
- 392-5 470 Andrews, Virginia P.*; Hanson, Richard E.; Ohrmundt, Sierra C.: **EXPOSED PYROCLASTIC VENT CONDUITS FOR MONOGENETIC ANDESITIC VOLCANOES IN A MESOPROTEROZOIC ARC SEQUENCE, SW NAMIBIA**
- 392-6 471 Browne, Brandon L.*; Sion, Bradley D.; Phillips, Fred; Nicholson, Robert: **ERUPTION STYLES AND LATE PLEISTOCENE AGES FROM ³⁶CL DATING OF GROUNDHOG CONE, THE MOST RECENT AND UNGLACIATED BASALTIC VOLCANO IN THE GOLDEN TROUT VOLCANIC FIELD, KERN PLATEAU, SIERRA NEVADA**

- 392-7 472 Hudziak, Samuel Xavier*; Hampton, Samuel J.; Gravelly, Darren M.: **PHYSICAL VOLCANOLOGIC EVOLUTION OF AN AGGLUTINATED CRATER RIM SEGMENT**
- 392-8 473 Massey, Erica*; Greenough, John D.; Edwards, Ben: **A COMPARATIVE STUDY OF GLACIOVOLCANIC PALAGONITIZATION OF THOLEIITIC AND ALKALINE SIDEROMELANE AT HELGAFELL, ICELAND AND WELLS GRAY-CLEARWATER VOLCANIC FIELD, BC CANADA**
- 392-9 474 Bersson, Jessica Joelle*; Hampton, Samuel J.: **INVESTIGATING VOLCANIC RECONSTRUCTION USING AKAROA LAVA BENCHES**
- 392-10 475 Espoir, Mugisho Birhenjira*: **NEW CONSTRAINTS ON THE ERUPTION OF CENOZOIC BASALTIC FLOWS IN NW BUKAVU CITY (SOUTH KIVU, DEMOCRATIC REPUBLIC OF THE CONGO)**
- 392-11 476 Chandler, Jakob*; Hampton, Samuel J.: **ERUPTION, INTRUSION, AND PRESERVATION OF A COASTAL SCORIA CONE: RED BAY, BANKS PENINSULA, NZ**
- 392-12 477 Li, Peishu*; Boudreau, Alan E.: **OCCURRENCE OF NATIVE COPPER, SILVER AND GOLD IN BASALTIC LAVA FLOWS**
- 392-13 478 Rosen, Jeremy S.*; Rusk, Brian G.; Clynne, Michael A.; DeBari, Susan M.: **MAGMA CHAMBER DYNAMICS AND ERUPTIVE MECHANISMS IN THE CASCADE ARC: INSIGHTS FROM MELT INCLUSIONS AND TITANIUM-IN-QUARTZ THERMOBAROMETRY**
- 392-14 479 Moore, Kate M.*; Palmerton, Jack; Pipher, MaryMargaret; Brunstad, Keith A.: **PLAGIOCLASE STRATIGRAPHY AS A GUIDE TO SEPARATING LAVA FLOWS OF THE TIETON ANDESITE, AND MAGMA EVOLUTION**
- 392-15 480 Patch, Alex*; Deardorff, Nick: **DETERMINING CRYSTALLIZATION DYNAMICS OF RECYCLED TEPHRA THROUGH REHEATING EXPERIMENTS UNDER NA CL SOLUTION**
- 392-16 481 Trafton, Kathy*; Giachetti, Thomas: **QUANTIFYING THE RELATIONSHIP BETWEEN VOLUME AND POROSITY IN PUMICE AND THE IMPACT OF POST-FRAGMENTATION EXPANSION: A CASE STUDY FROM MEDICINE LAKE VOLCANO, CA**
- 392-17 482 Herold, Tim*: **RHEOLOGIC CONSTRAINTS OF THE CARBONAL DACITE, GUANACASTE, COSTA RICA**
- 392-18 483 Gardner, Cynthia*; Hayden, Leslie: **HOW EXPLOSIVE IS MOUNT SHASTA?**
- 392-19 484 Ellowitz, Molly K.*; Rudolph, Maxwell L.; Streck, Martin J.: **DYNAMICS OF MAGMA RECHARGE AND MIXING AT MOUNT HOOD, OREGON - INSIGHTS FROM ENCLAVE-BEARING LAVAS**
- 392-20 485 Dodge, Chad*; Teasdale, Rachel; Wenner, Jennifer M.: **GROUNDMASS CRYSTALLINITIES OF PROXIMAL AND DISTAL LAVAS OF THE POISON LAKE CHAIN IN THE LASSEN REGION OF THE SOUTHERN CASCADES**
- 392-21 486 Rodriguez, Angelica*; Allen, Chris; Teasdale, Rachel: **MONITORING THE HYDROTHERMAL SYSTEM OF LASSEN VOLCANIC CENTER, SOUTHERN CASCADES**
- 392-22 487 Guglielmo, Andrew*: **IDENTIFYING THE HOST ROCK OF A HIGH SULFIDATION EPITHERMAL SYSTEM IN ANTELOPE VALLEY, CA**
- 392-23 488 D'Accardi, Daniele*: **APPLICATION OF THERMOGRAPHIC ANALYSIS FOR THE SURVEILLANCE AND STUDY OF THE MOUNT RAINIER VOLCANO**
- 392-24 489 Marsellos, Antonios*; Tsakiri, Katerina; Kapetanakis, Stelios; Jones, Morgan Bridget; Kyriakopoulos, Konstantinos: **TEMPERATURE MONITORING OF A VOLCANIC VENT GAS EMISSION USING TIME SERIES ANALYSIS AND MARKOV CHAIN APPROACH: AN EXAMPLE IN NISYROS VOLCANO, SOUTH AEGEAN**
- 392-25 490 Jones, Morgan Bridget; O'Neill, Andrew P*; Marsellos, Antonios; Kyriakopoulos, Konstantinos: **3D SCANNING AND PRINTING OF VOLCANIC MONITORING DEVICES TO EVALUATE POTENTIAL ALTERNATIVE CASING**
- 392-26 491 Jones, Morgan Bridget*; Marsellos, Antonios; Kyriakopoulos, Konstantinos: **GIS AND STATISTICAL ANALYSIS OF RESIDENTS RESPONSE TO VOLCANIC HAZARDS ON NISYROS, SOUTH AEGEAN**

SESSION NO. 393

T165. Recent Advances in Understanding Volcanism of the Yellowstone Hotspot (Posters)

9:00 AM, Washington State Convention Center, Halls 4EF

Authors will be present from 9:30 to 11:30 AM and 4:30 to 6:30 PM

Booth #

- 393-1 492 Martin, David A.*; Brueseke, Matthew E.; Ellis, Ben; Allaz, Julien: **INSIGHTS ON ERUPTIONS OF CRYSTAL-RICH RHYOLITE MAGMA: CRYSTAL CHEMISTRY CONSTRAINTS ON MID-MIOCENE JARBIDGE RHYOLITE (NEVADA, USA) VOLCANISM**
- 393-2 493 Cruz, Matthew*; Streck, Martin J.: **THE CASTLE ROCK AND IRONSIDE MOUNTAIN CALDERAS, EASTERN OREGON: TWO ADJACENT VENTING SITES FOR UNITS OF THE 16 – 15 MA DINNER CREEK TUFF**
- 393-3 494 Hanna, Teresa R.*; Streck, Martin J.: **AREAL EXTENT AND VOLUMES OF THE DINNER CREEK TUFF UNITS, EASTERN OREGON BASED ON LITHOLOGY AND FELDSPAR COMPOSITION**
- 393-4 495 Unruh, David W.*; Wolff, John A.; Davis, Klarissa: **PHREATOMAGMATIC TUFFS AT THE BASE OF THE COLUMBIA RIVER FLOOD BASALTS**
- 393-5 496 Potter, Katherine E.*; Shervais, John; Champion, D.E.; Duncan, Robert: **VOLCANIC STRATIGRAPHY AND AGE MODEL OF THE KIMAMA DEEP CORE HOLE (PROJECT HOTSPOT), CENTRAL SNAKE RIVER PLAIN, IDAHO**
- 393-6 497 Spencer, Danielle Jeannette*; Christiansen, Eric H.; Colon, Dylan P.; Bindeman, Ilya N.; Shervais, John W.: **CANNIBALIZATION AND MIXING PROCESSES IN HOTSPOT RHYOLITES: ANOMALOUS TEXTURES AND GEOCHEMISTRY OF THE KIMBERLY MEMBER OF THE CASSIA FORMATION, YELLOWSTONE HOTSPOT TRACK, IDAHO**
- 393-7 498 Kennett, James*; Behl, Richard J.; Dean, Walter E.; Sorlien, Christopher; Nicholson, Craig: **SANTA BARBARA BASIN SEDIMENT RECORD OF VOLCANIC WINTERS TRIGGERED BY TWO YELLOWSTONE SUPERVOLCANO ERUPTIONS AT 639 KA**