

# 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 and Environmental Geology

## SUNDAY, 10 OCTOBER 2021

### MORNING ORAL TECHNICAL SESSIONS

#### SESSION NO. 1

#### ***D10. The Role of Chemistry, Climate, and Geology in Controlling Subsurface Structure and Flow***

8:00 AM, Oregon Convention Center, D135

Jill Marshall, Stephen Gingerich, Joseph J. Kennedy, Daniella Rempe and Tracie Jackson, Presiding

- |     |         |                                                                                                                                                                                                                                                      |  |         |                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                             |
|-----|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | 8:00 AM | <b>INTRODUCTORY REMARKS</b>                                                                                                                                                                                                                          |  | 9:20 AM | Valencia, Miguel*; Oldfield, Grace; Sukop, Michael; Obeysekera, Jayantha; Walsh, Virginia; Montoya, Angela; Hagemann, Katherine: <b>MIAMI-DADE COUNTY SEPTIC RETURN FLOWS: PATHLINES, ENDPOINTS, AND FLOWS BASED ON THE URBAN MIAMI-DADE GROUNDWATER MODEL</b> |                                                                                                                                                                                                                                                                                             |
| 1-1 | 8:05 AM | Jackson, Tracie*: <b>IMPLEMENTING GEOLOGIC FRAMEWORKS IN GROUNDWATER MODELS: THE DOS AND DON'TS</b>                                                                                                                                                  |  | 9:35 AM | Mehta, Sunil*; Senger, Rainer; Khaleel, Raziuddin; Nell, Ryan M.; Mayenna, Amana: <b>ASSESSMENT OF URANIUM ATTENUATION REMEDY PERFORMANCE AT THE 300 AREA OF THE DEPARTMENT OF ENERGY'S HANFORD SITE</b>                                                       |                                                                                                                                                                                                                                                                                             |
| 1-2 | 8:20 AM | Gingerich, Stephen*; Johnson, Hank; Boschmann, Darrick E.; Grondin, Gerald H.; Garcia, C. Amanda: <b>GEOLOGIC CONTROLS ON GROUNDWATER AVAILABILITY IN OREGON'S HARNEY BASIN</b>                                                                      |  | 9:50 AM | <b>BREAK</b>                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                             |
| 1-3 | 8:35 AM | Izuka, Scot*; Rotzoll, Kolja: <b>MODELING GROUNDWATER AVAILABILITY IN THE VOLCANIC-ISLAND AQUIFERS OF HAWAI'I</b>                                                                                                                                    |  | 1-8     | 10:00 AM                                                                                                                                                                                                                                                       | Sullivan, Pamela*; Wen, Hang; Zhang, Xi; Koop, Aaron; Moreno, Victoria; Keen, Rachel; Sadayappan, Kayalvizhi; Nippert, Jesse B.; Hirmas, Daniel; Billings, Sharon A.; Li, Li: <b>HOW SENSITIVE IS THE RATE OF BEDROCK WEATHERING TO NEAR-SURFACE CHANGES IN CRITICAL ZONE ARCHITECTURE?</b> |
| 1-4 | 8:50 AM | Cromwell, Geoffrey*; Faunt, Claudia C.; Woolfenden, Linda R.; Engott, John A.; Larsen, Joshua D.; Sweetkind, Donald: <b>COMPLEX GEOLOGY AND WATER-USE EFFECTS ON THE BARKA SLOUGH IN SAN ANTONIO CREEK VALLEY, SANTA BARBARA COUNTY, CALIFORNIA,</b> |  | 1-9     | 10:15 AM                                                                                                                                                                                                                                                       | Brown, Jesse*; Gorrie, Connor; Conway-White, Oliver; Steelman, Colby; Parker, Beth L.; Arnaud, Emmanuelle: <b>HYDROGEOLOGIC INSIGHT FROM THE GEOLOGY OF A BURIED BEDROCK VALLEY</b>                                                                                                         |
| 1-5 | 9:05 AM | Wright, Elise E.*; Long, Andy; Fuhrig, Leland; Welch, Wendy: <b>MODELING THE HYDRAULIC CONNECTIONS OF ALLUVIAL VALLEY AQUIFERS AND ADJACENT GLACIAL DEPOSITS NEAR PUGET SOUND</b>                                                                    |  | 1-10    | 10:30 AM                                                                                                                                                                                                                                                       | Hiwiller, Erika*; Singh, Kuldeep: <b>DETERMINING HOW TOPOGRAPHY AND HYDRAULIC HETEROGENEITY CONTROL TÓTH FLOW CHARACTERISTICS AND IMPACT THE TRANSPORT OF ROAD SALT IN AQUIFERS: A GUIDE FOR POLICY AND MANAGEMENT</b>                                                                      |
|     |         |                                                                                                                                                                                                                                                      |  | 1-11    | 10:45 AM                                                                                                                                                                                                                                                       | Johnson, Keira*; Carroll, Rosemary; Raleigh, Mark; Williams, Kenneth H.; Li, Li; Barnard, Holly; Sullivan, Pamela: <b>MIXING MODELS AND HYDROGRAPH SEPARATION REVEALS WESTERN US WATERSHEDS' SUMMER FLOWS AND GROUNDWATER PROPORTIONS</b>                                                   |

- RESPOND QUICKLY TO INTERANNUAL SNOW VARIABILITY**
- 1-12 11:00 AM Murgia, Evangelia\*; Reeves, Donald; Parashar, Rishi; Akara, Mahawa-Essa Mabossani: **MODELING THE GEOMETRIC, HYDROLOGIC, AND SOLUTE TRANSPORT PROPERTIES OF COLUMNAR BASALT**
- 1-13 11:15 AM Meyer, Jessica\*; Parker, Beth L.: **USING MULTIPLE LINES OF EVIDENCE TO EVALUATE AQUITARD INTEGRITY FOR A CONTAMINATED SEDIMENTARY ROCK AQUIFER SYSTEM**
- 1-14 11:30 AM Zhang, Chi\*; Zhang, Fan: **NMR INVESTIGATION OF WATER DISTRIBUTION AND PARTITIONING IN UNSATURATED CARBONATE CRITICAL ZONE**
- 1-15 11:45 AM Flinchum, Brady\*: **EXPLORING THE RELATIONSHIP BETWEEN CANOPY HEIGHT AND BEDROCK DEPTH IN THE CRITICAL ZONE USING SEISMIC REFRACTION AND LIDAR**

**SESSION NO. 2**

**D15. Paleontological Methods and Reading the Fossil Record**

8:00 AM, Oregon Convention Center, E145

Kristyn Voegele and Lilja Carden, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 2-1 8:05 AM Shohel, Mohammad\*; Cramer, Bradley; Forbes, Tori Z.: **EFFECT OF ND SUBSTITUTION AND THERMAL MATURATION ON RAMAN SPECTRA OF CONODONT MICROFOSSIL**
- 2-2 8:20 AM Ullmann, Paul\*; Schweitzer, Mary H.: **A STATISTICAL META-ANALYSIS OF LITHOLOGIC AND OTHER CONTROLS ON FOSSIL BONE CELLULAR AND SOFT TISSUE PRESERVATION**
- 2-3 8:35 AM Voegele, Kristyn\*; Ullmann, Paul; Lonsdorf, Tara; Christman, Zachary; Lacovara, Kenneth: **MICROSTRATIGRAPHIC ANALYSIS OF FOSSIL DISTRIBUTION IN THE LOWER HORNERSTOWN AND UPPER NAVESINK FORMATIONS AT THE EDELMAN FOSSIL PARK, NJ**
- 2-4 8:50 AM Ng, Reuben\*; Webster, Mark: **MODELING THE IMPACT OF TIME-AVERAGING ON THE ABILITY TO RESOLVE THE STRUCTURE OF PHENOTYPIC INTEGRATION IN THE FOSSIL RECORD**
- 2-5 9:05 AM Edie, Stewart\*; Khouja, Safia C.; Collins, Katie; Crouch, Nicholas M.A.; Jablonski, David: **MODULARITY, INTEGRATION AND DISPARITY IN AN ACCRETIONARY SKELETON: ANALYSIS OF VENERID BIVALVIA**
- 2-6 9:20 AM Carden, Lilja\*; Wisniewski, Anna; Slater, Graham: **IMPACTS OF TAPHONOMIC LOSS AT LOWER TAXONOMIC LEVELS: STEM-WARD SLIPPAGE IN A BIVALVE FAMILY**
- 2-7 9:35 AM Simpson, Andrew\*; Korasidis, Vera: **ON HOW DATABASE RECORDS OF PLANT AND ANIMAL FOSSILS ARE DIFFERENT: PITFALLS THAT DATABASE RESEARCHERS SHOULD BE AWARE OF**
- 9:50 AM **BREAK**
- 2-8 10:00 AM Phillipi, Daniel\*; Czekanski-Moir, Jesse; Ivany, Linda: **GLOBAL PHANEROZOIC BIODIVERSITY – CAN VARIATION BE EXPLAINED BY SPATIAL SAMPLING INTENSITY?**
- 2-9 10:15 AM Richter, Hannah R.\*; Edie, Stewart; Kidwell, Susan; Jablonski, David: **PREDICTING THE IMPACTS OF OCEAN ACIDIFICATION ON THE SPATIAL AND PHYLOGENETIC STRUCTURE OF THE GLOBAL MARINE BIVALVE FAUNA**
- 2-10 10:30 AM Abbott, Caroline\*; Webster, Mark; Angielczyk, Kenneth: **BODY SIZE AND BIOTIC CRISES: THE IMPORTANCE OF ONTOGENY AND PHYLOGENY TO THE LILLIPUT EFFECT**
- 2-11 10:45 AM Doughty, Evan\*; Balisi, Mairin; Friscia, Anthony; Howenstine, Aidan; Jacquemetton, Christiane; Juhn, Mark;

Marcot, Jonathan; Van Valkenburgh, Blaire: **DECOUPLED DYNAMICS IN BODY MASS DISTRIBUTION BETWEEN LARGE NORTH AMERICAN MAMMALIAN HERBIVORE AND CARNIVORE GUILDS**

- 2-12 11:00 AM Shupinski, Alexandria\*; Smith, Felisa; Lyons, S. Kathleen: **TAXONOMIC AND FUNCTIONAL BETA DIVERSITY OF NORTH AMERICAN MAMMAL PALEOCOMMUNITIES ARE DECOUPLED ACROSS THE CENOZOIC**

**SESSION NO. 3**

**D40. Recent Advances in Geoscience Education**

8:00 AM, Oregon Convention Center, B112

Carol Frost, Erynn Johnson and Onema Adojoh, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 3-1 8:05 AM Cheek, Kim\*: **PROFESSIONAL LEARNING FOR ELEMENTARY TEACHERS ON PROJECT-BASED LEARNING IN NGSS-ESS**
- 3-2 8:20 AM Petcovic, Heather\*; Bertman, Steven; Davis, Lauri E.; Kaczmarek, Stephen; Koch, Kevin; Long, Valerie; Vellom, R. Paul: **PREPARING PRESERVICE TEACHERS TO ENGAGE IN NGSS SCIENCE AND ENGINEERING PRACTICES: THE PATHWAYS TO SCIENCE TEACHING PROGRAM**
- 3-3 8:35 AM Cates, Sharon\*; Smith, Joshua B.: **A SIMPLIFIED STUDENT-CENTERED LESSON MODEL FOR PHENOMENON-FOCUSED CLASSROOM ACTIVITIES ALIGNED TO THREE-DIMENSIONAL SCIENCE STANDARDS**
- 3-4 8:50 AM Anbar, Ariel\*; Swann, Jessica; Mead, Chris; Hunsley, Diana; Bratton, Donald; Tamer, Joseph: **THE INFINISCOPE INITIATIVE: TRANSFORMING ESS EDUCATION THROUGH ADVANCES IN DIGITAL LEARNING DESIGN**
- 3-5 9:05 AM Passow, Michael\*; Straub, Susanne: **EXPANDING K-12 TEACHER AND STUDENT UNDERSTANDING OF EXPLOSIVE ARC VOLCANISM THROUGH THE EARTH2CLASS PROGRAM**
- 3-6 9:25 AM Grambling, Nadine\*; Drumheller, Stephanie K.; Rearden, Kristin T.: **DIAMONDS IN THE ROUGH: USING STATE STANDARDS FOR CHEMISTRY TO INTRODUCE GEOSCIENCE TO HIGH SCHOOL STUDENTS**
- 9:45 AM **BREAK**
- 3-7 9:55 AM Meyer, Michael\*; Liu, Sa; Rissler, Matthew; Sliko, Jennifer; Stegman, Melanie: **VR EARTH SCIENCE: RESULTS OF A YEAR IN THE 'FIELD' USING DIFFERENT VR TECHNOLOGIES AND METHODOLOGIES**
- 3-8 10:10 AM Lindsey, Emily\*; Kennedy, Alana; Herrick, Imogen; Nye, Benjamin; Davis, Matt; Nelson, David; Porter, Molly; Swartout, William; Sinatra, Gale: **AUGMENTED REALITY IN NATURAL HISTORY MUSEUMS: IMPACT ON VISITOR ENGAGEMENT AND SCIENCE LEARNING**
- 3-9 10:25 AM Pier, Jaleigh Q\*; Dielt, Gregory P.; Schuldt, Jonathon P.: **COMMUNICATING CONSERVATION PALEOBIOLOGY SCIENCE TO THE PUBLIC: IS A MUSEUM EXHIBIT AN EFFECTIVE MEDIUM?**
- 3-10 10:40 AM Johnson, Erynn\*; Carter, Aja M.; Schroeter, Elena R.: **INCREASING DIVERSITY IN PALEONTOLOGY REQUIRES INCREASING ACCESSIBILITY**
- 3-11 10:55 AM Snell, Alexandra\*; Sparks, David; Newman, Julie; Thompson, Courtney: **IDENTIFYING SIGNIFICANT DIFFERENCES IN LEARNING AND INCLUSION FOR UNDERGRADUATE DEMOGRAPHIC GROUPS**
- 3-12 11:10 AM Benbow, Ann; Frost, Carol\*; Balanon, Sean Navat: **THE STATUS OF TEACHING MINERALOGY AND PETROLOGY IN U.S. INSTITUTIONS OF HIGHER EDUCATION: 2021**
- 3-13 11:25 AM Adojoh, Onema\*; Onema, Pauline A.; Muto, Tetsuji: **SELF-SABOTAGE AMONG GEOSCIENCES STUDENTS AND**

- EARLY CAREER PROFESSIONALS: A RETARDING COG TO A SUCCESSFUL CAREER PATH**
- 3-14 11:40 AM Suzuki, Kazuyoshi Myles; Smith, Joshua B.\*: **SAND OR SILT AT THE DESERT OF MAINE: A STUDENT-CENTERED PROJECT ALIGNED TO NEXT GENERATION SCIENCE STANDARD PERFORMANCE EXPECTATION 5-PS1-3**
- 11:55 AM **CONCLUDING REMARKS**

**SESSION NO. 4**

**D42. Recent Advances in Geoinformatics**

8:00 AM, Oregon Convention Center, D139/D140

C. Brenhin Keller and Denise Hills, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 4-1 8:05 AM Orimoloye, Israel\*; Ololade, Olusola: **LAND DEGRADATION ASSESSMENT USING GEOINFORMATICS AND REMOTE SENSING-BASED NATIONAL LEVEL METRICS**
- 4-2 8:20 AM Lamm, Sarah\*; Rodriguez, Laura E.; Shepard, Rachel Y.; Perl, Scott M.; Celestian, Aaron J.; Barge, Laura M.: **CLASSIFICATION OF IRON (OXY)HYDROXIDES AND SULFIDES USING MISSION-READY SPECTROSCOPIC TECHNIQUES AND MACHINE LEARNING**
- 4-3 8:35 AM Budge, Trevor\*; Kidder, Josh; Parslow, Marna; Smith, Kevin; Tomusiak, Stephanie: **RECHARGE EVOLUTION TOOL: ASSIGNING RECHARGE RATES TO LOCATIONS OVER TIME USING EXISTING GIS-BASED DATA AT THE HANFORD SITE**
- 4-4 8:50 AM Demissie, Zelalem\*; Parcell, William; Swindle, Andrew; Fielding, Eric; Seyoum, Wondwosen Mekonnen; Duta, Atri; Liang, Xue: **AN INTEGRATED TIME-SERIES SURFACE DEFORMATION ANALYSIS USING INSAR, GNSS, AND NLDAS DATA**
- 4-5 9:05 AM Keefer, Donald\*; Phillips, Andrew; Blake, Catherine L.; Ludäscher, Bertram: **DESIGNING A DATABASE TO MANAGE UNCERTAIN LITHOLOGIC AND STRATIGRAPHIC PICKS**
- 4-6 9:20 AM Arpin, Sarah\*: **DATA PRESERVATION EFFORTS FACILITATE 3D MAPPING AND BIG EARTH DATA MODELING**
- 4-7 9:35 AM Adams, Elizabeth\*; Arpin, Sarah: **GAINING ORGANIZATIONAL BUY-IN FOR IMPROVED DATA MANAGEMENT PRACTICES**
- 4-8 9:50 AM Ogg, James\*; Li, Haipeng; Du, Wen; Mishra, Suyash; Qian, Yuzheng; Zahirovic, Sabin; Scotese, Christopher; Ault, Aaron; Hou, Hongfei; Hou, Mingcai; Raju, D.S.N.; Dong, Bui: **DEEP-TIME DIGITAL EARTH (DDE) PALEOGEOGRAPHY DATABASES AND VISUALIZATION WITH AN INITIAL APPLICATION TO THE EAST ASIA**
- 4-9 10:05 AM Teplitzky, Samantha\*; Hardy, Shaun; Johnson, Kay; Tolliver, Robert; Tschirhart, Lori; Vardakosta, Ifigenia: **A REVIEW OF OPEN EDUCATIONAL RESOURCES IN THE GEOSCIENCES: GUIDELINES AND CRITERIA**

**SESSION NO. 5**

**T2. Cenozoic Tectonism, Magmatism, Sedimentation, and Landscape Evolution in the Intermountain West I (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Geochronology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

8:00 AM, Oregon Convention Center, Portland Ballroom 257 (Hybrid Room)

Theresa Schwartz, Amy K. Gilmer and Jens-Erik Lund Snee, Presiding

- 8:00 AM Schwartz, Theresa\*; Lund Snee, Jens-Erik; Gilmer, Amy K.: **INTRODUCTORY REMARKS**
- 5-1 8:05 AM Chapman, James\*: **THE NORTH AMERICAN CORDILLERAN ANATECTIC BELT (Invited Presentation)**

- 5-2 8:25 AM Ferrill, David\*; Smart, Kevin; Evans, Mark A.; Cawood, Adam J.; Morris, Alan P.; McGinnis, Ronald N.; Lehrmann, Daniel; Sickmann, Zachary T.; Bellow, Harrison B.: **DEFORMATION IN CRETACEOUS STRATA NEAR THE FRONTAL LIMIT OF LARAMIDE TECTONISM, DEVILS RIVER UPLIFT REGION OF SOUTHWEST TEXAS, USA**
- 5-3 8:40 AM Copeland, Peter\*; Lawton, Timothy; Hall, Stuart; Garber, Jarret; Solari, Luigi; White, Shantel; De Los Santos, Marie; Dailey, Sarah; Byers, Callum; Ngyuen, Ashley; Herrera, Viktor: **PALEOGENE BASEMENT THRUST REACTIVATION OF MESOZOIC NORMAL FAULTS: EVIDENCE FROM THE LOBO FORMATION, SOUTHWEST NEW MEXICO**
- 5-4 8:55 AM Young-Dahl, Erin\*; Cassel, Elizabeth; Breecker, Daniel O.: **EOCENE SKYSCRAPERS: HIGH TOPOGRAPHY OF THE NORTHERN U.S. CORDILLERA FOLLOWING MESOZOIC COMPRESSION**
- 5-5 9:10 AM Smith, M. Elliot\*; Cassel, Elizabeth: **DO LACUSTRINE INUNDATION PATTERNS RECORD EARLY EXTENSION IN THE LARAMIDE FORELAND PROVINCE? INSIGHTS FROM COMPARISONS WITH MODERN BASEMENT ELEVATIONS**
- 9:25 AM **BREAK**
- 5-6 9:35 AM Carroll, Alan\*; Gregorich, Holly; Hammond, Alexander P.; Honig, Shlomo; Parrish, Ethan C.; Schwaderer, Colby; Smith, M. Elliot: **CHRONOFACIES CONVERGENCE AND DYNAMIC DRAINAGE EVOLUTION IN AN EOCENE BROKEN FORELAND: BRIDGER BASIN, WYOMING, USA**
- 5-7 9:50 AM Thoresen, Haley\*; Cassel, Elizabeth; Smith, M. Elliot: **EOCENE BASIN RECORD OF EXTENSIONAL DEFORMATION IN SOUTHWEST MONTANA**
- 5-8 10:05 AM Mosolf, Jesse\*; McDonald, Catherine; Kylander-Clark, Andrew: **EOCENE MAGMATISM AND EXTENSION IN SOUTHWEST MONTANA: PRELIMINARY AGE AND GEOCHEMICAL CONSTRAINTS ON THE DILLON VOLCANIC GROUP**
- 5-9 10:20 AM Frazer, Ryan\*; Gilmer, Amy K.; Souders, A. Kate; Thompson, Ren: **MAGMATIC HISTORY OF THE GRIZZLY PEAK CALDERA, SAWATCH RANGE, COLORADO**
- 5-10 10:35 AM Chan, Christine\*; McLean, Noah M.; Thompson, Ren A.; Gilmer, Amy; Andrew, Joseph E.; Souders, A. Kate: **TIMESCALES OF MAGMATISM DURING LARGE-SCALE EXTENSION: NEW CA-TIMS U-PB ZIRCON GEOCHRONOLOGY OF LATE-MIOCENE INTRUSIONS, CENTRAL DEATH VALLEY, CALIFORNIA**
- 10:50 AM **DISCUSSION**
- 11:10 AM **CONCLUDING REMARKS**

**SESSION NO. 6**

**T4. Feedbacks between Upper-Plate Deformation, Accretion and Alteration and Plate Boundary Processes in Subduction Systems (GSA Geophysics and Geodynamics Division; GSA Structural Geology and Tectonics Division)**

8:00 AM, Oregon Convention Center, B111

Christine Regalla, Kirsty Mckenzie, Kristin Morell and David Scholl, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 6-1 8:05 AM Dura, Tina\*; Briggs, Richard W.; Engelhart, Simon E.; Witter, Robert; Koehler, Rich; Padgett, Jason S.: **LIMITS OF PRIOR MEGATHRUST RUPTURE FROM STRATIGRAPHIC AND MICROFOSSIL OBSERVATIONS IN THE WESTERN KODIAK ISLAND REGION (Invited Presentation)**
- 6-2 8:25 AM Roland, Emily\*; Psczola, Kevin; Barcheck, Grace; Abers, Geoff; Schwartz, Susan: **EXPLORING FOREARC DEFORMATION OFFSHORE KODIAK ISLAND USING AMPHIBIOUS SEISMIC OBSERVATIONS (Invited Presentation)**

Sunday, 10 October 2021

- 6-3 8:45 AM Scholl, David\*; Zimmermann, Mark; Prescott, Megan; Yagodzinski, Gene; White, Scott: **MODERN BATHYMETRIC MAPPING OF THE ALEUTIAN RIDGE (ARC) BETTER REVEALS THE SURFACE, MAGMATIC, AND STRUCTURAL PROCESSES BUILDING ITS GEOMORPHIC FORM**
- 6-4 9:00 AM Benowitz, Jeffrey\*; Roeske, Sarah; Regan, Sean; Waldien, Trevor S.; Elliott, Julie; O'Sullivan, Paul: **LARGE SCALE CRUSTAL-BLOCK VERTICAL EXTRUSION BETWEEN THE HINES CREEK AND DENALI FAULTS COEVAL WITH SLIP LOCALIZATION ON THE DENALI FAULT SINCE CA. 45 MA: HAYES RANGE, ALASKA**
- 6-5 9:15 AM Dalziel, Ian\*; Macdonald, David; Stone, Philip; Storey, Bryan: **SOUTH GEORGIA MICROCONTINENT AND THE SOUTHERNMOST ANDES: UPPER PLATE EXTENSION, MARGINAL BASIN INVERSION, ESCAPE TECTONICS**
- 6-6 9:30 AM George, Sarah\*; Perez, Nicholas D.; Curry, Magdalena Ellis; Struble, William; Horton, Brian K.: **EXHUMATION AND FOREARC DRAINAGE REORGANIZATION IN RESPONSE TO FLAT SLAB SUBDUCTION, PERUVIAN FLAT SLAB**
- 9:45 AM **BREAK**
- 6-7 10:00 AM Delph, Jonathan\*; Thomas, Amanda M.: **LINKING PLATE INTERFACE PROCESSES WITH THE SURFACE EXPRESSION OF SUBDUCTION (Invited Presentation)**
- 6-8 10:20 AM Herman, Matthew\*; Furlong, Kevin P.; Govers, Rob: **UPPER PLATE DEFORMATION ABOVE AN UNCOUPLED MEGATHRUST: INVESTIGATING THE ROLE OF SPATIALLY VARYING COUPLING IN PRODUCING PATTERNS OF SUBDUCTION ZONE STRAIN**
- 6-9 10:35 AM Fisher, Donald\*; Hooker, John; Smye, Andrew J.; Chen, Tsai-wei: **INSIGHTS FROM THE GEOLOGICAL RECORD OF DEFORMATION ALONG THE SUBDUCTION INTERFACE AT DEPTHS OF SEISMOGENESIS**
- 6-10 10:50 AM Wakabayashi, John\*: **TEMPORAL AND SPATIAL LOCALIZATION OF SUBDUCTION AND EXHUMATION SLIP AND ESTIMATES OF ACCRETIONARY VERSUS NON-ACCRETIONARY SLIP: VIEW FROM THE FRANCISCAN COMPLEX**
- 6-11 11:05 AM Lacroix, Brice\*; Lahfid, Abdeltif; Ward, Christine; Niemi, Nathan; Chapman, Alan; Kempton, Pamela: **RAMAN THERMOMETRY REVEALS UNSUSPECTED TRANSPRESSIONAL VERTICAL UPLIFT IN THE NACIMIENTO BLOCK OF CENTRAL CALIFORNIA**
- 11:20 AM **POSTER POP-UPS**
- 7-4 8:50 AM Roche, Vincent\*; Jolivet, Laurent; Grasemann, Bernhard; Papanikolaou, Dimitrios; Bozkurt, Erdin: **TECTONOMETAMORPHIC EVOLUTION OF THE EASTERN MEDITERRANEAN FROM THE LATE CRETACEOUS TO THE PRESENT (Invited Presentation)**
- 9:10 AM **BREAK**
- 7-5 9:20 AM Flansburg, Megan E.\*; Stockli, Daniel F.; Poulaki, Eirini; Orlandini, Omero F.; Soukis, Konstantinos: **PERMIAN MYLONITES IN A MIOCENE METAMORPHIC CORE COMPLEX: INTEGRATED EBSD AND APATITE U-PB THERMOCHRONOLOGY ON IOS ISLAND (SOUTHERN CYCLADES, GREECE)**
- 7-6 9:35 AM Wind, Sandra C.\*; Schneider, David A.; Hannington, Mark D.; Coleman, Mark: **ISOTOPIC RECORDS IN HYDROTHERMAL MINERALIZATION AS A TRACER OF THE CRUSTAL ARCHITECTURE OF THE CYCLADES, GREECE (Invited Presentation)**
- 7-7 9:55 AM Hinshaw, Emily\*; Stockli, Daniel F.; Soukis, Konstantinos: **COHERENT UNDERPLATING AND METAMORPHISM IN A SUBDUCTION ZONE: PETROCHRONOLOGY OF THE AMBELAKIA BLUESCHIST UNIT OF OSSA REGION, GREECE**
- 7-8 10:10 AM Menant, Armel\*; Augier, Romain; Glodny, Johannes; Angiboust, Samuel; Jolivet, Laurent; Bessièrre, Eloïse; Oncken, Onno: **CADENCED BASAL-ACCRETION EVENTS ALONG THE HELLENIC MARGIN: INSIGHTS FROM THE HIGH-PRESSURE METAMORPHIC COMPLEX IN WESTERN CRETE (GREECE)**
- 10:25 AM **BREAK**
- 7-9 10:35 AM Hillenbrand, Ian\*; Williams, Michael L.: **QUANTIFYING CRUSTAL THICKNESS AND PALEOELEVATION IN THE VARISCAN OROGEN: GEOCHEMICAL EVIDENCE FOR TWO SHORT-LIVED CRUSTAL THICKENING AND THINNING CYCLES**
- 7-10 10:50 AM Bessièrre, Eloïse\*; Jolivet, Laurent; Augier, Romain; Scaillet, Stéphane; Précigout, Jacques; Azañon, José Miguel: **PRESSURE-TEMPERATURE-TIME-DEFORMATION EVOLUTION IN A NON-CYLINDRICAL OROGEN: THE BETIC-RIF CORDILLERA EXAMPLE (Invited Presentation)**
- 7-11 11:10 AM Kempton, P.D.\*; Spence, A.; Downes, H.; Blichert-Toft, J.; Bryce, J.G.; Hegner, E.; Vroon, P.Z.: **GEOCHEMISTRY AND GEODYNAMICS OF THE PREHISTORIC MANTLE SOURCE BENEATH MT. ETNA, SICILY: EVIDENCE FROM THE VALLE DEL BOVE**
- 11:25 AM **DISCUSSION**

## SESSION NO. 7

### *T14. Tectonometamorphic Evolution of the Mediterranean from the End of the Variscan Orogeny to Present (GSA Geophysics and Geodynamics Division; GSA Geochronology Division)*

8:00 AM, Oregon Convention Center, A106

Megan Flansburg, Eirini Poulaki and Romain Augier, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 7-1 8:05 AM Campbell, Clay\*; Taylor, Michael H.; Mueller, Megan; Licht, Alexis; Ocakoglu, Faruk; Möller, Andreas; Beard, K. Christopher: **THE PHYSIOGRAPHIC RESPONSE TO CENOZOIC DRIP TECTONICS IN CENTRAL ANATOLIA**
- 7-2 8:20 AM Yasar, I. Dogancan\*; Sayit, Kaan; Hames, Willis E.; Koralay, O. Ersin; Jeong, Youn-Joong; Goncuoglu, M. Cemal: **OVERVIEW OF THE TECTONIC EVOLUTION OF THE SOGUT METAMORPHICS, VARISCAN BASEMENT ASSEMBLAGE OF THE CENTRAL SAKARYA TERRANE (NW ESKISEHIR, TURKEY)**
- 7-3 8:35 AM Katzir, Yaron\*; Golan, Tzahi; Coble, Matthew A.: **THE TIMING OF RIFTING EVENTS IN THE EASTERNMOST MEDITERRANEAN: U-PB ZIRCON AGES OF DRILLED VOLCANIC SEQUENCES IN THE LEVANT MARGIN**

## SESSION NO. 8

### *T27. Evolution of Earth's Surface: Honoring Xiao-Ming Liu, Recipient of the 2021 Mineralogy, Geochemistry, Petrology, and Volcanology Division's Early Geological Career Award (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)*

8:00 AM, Oregon Convention Center, Portland Ballroom 252 (Hybrid Room)

Roberta Rudnick, Timothy Lyons and Fangzhen Teng, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 8-1 8:05 AM Teng, Fangzhen\*; Liu, Xiao-Ming: **POTASSIUM ISOTOPE FRACTIONATION DURING CONTINENTAL WEATHERING**
- 8-2 8:20 AM Vigier, Nathalie\*; Ryu, Jong-Sik; Godderis, Yves; Bayon, Germain: **PROBING CONTINENTAL WEATHERING AT GLOBAL SCALE USING LI, MG AND SI ISOTOPES IN FLUVIAL SEDIMENTS**
- 8-3 8:35 AM Torres, Mark\*; Chapela Lara, Maria; Clark, Kasey; Collin, Rachel; Hou, Yi; Kemeny, Preston C.; Larsen, Will; López-Lloreda, Carla; McDowell, William H.; Russo, Kayla: **THE EVOLUTION OF EARTH'S SURFACE FROM THE PERSPECTIVE OF MODERN RIVERS (Invited Presentation)**



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| <p><b>8-4</b> 8:55 AM Conwell, Christopher*; Saltzman, Matthew; Edwards, Cole; Griffith, Elizabeth M.; Adiatma, Yoseph: <b>PAIRED MIDDLE-LATE ORDOVICIAN CONTINENTAL WEATHERING (<sup>87</sup>SR/<sup>86</sup>SR AND E<sub>MDT</sub>) AND PALEOTEMPERATURE (<math>\Delta^{18}O</math>) PROXY MEASUREMENTS LINK ENHANCED MAFIC WEATHERING TO GLOBAL COOLING</b></p> <p><b>8-5</b> 9:10 AM Avila, Teresa*; Saltzman, Matthew; Adiatma, Yoseph; Joachimski, Michael; Griffith, Elizabeth M.; Olesik, John: <b>ROLE OF SEAFLOOR PRODUCTION VERSUS CONTINENTAL BASALT WEATHERING IN MIDDLE TO LATE ORDOVICIAN SEAWATER <sup>87</sup>SR/<sup>86</sup>SR AND CLIMATE</b></p> <p><b>8-6</b> 9:25 AM Li, Su*; Rudnick, Roberta; Qiu, Lin; Zurkowski, Claire; Gaschnig, Rich; Valley, John W.; Guy, Bradley M.; Beukes, Nicolas J.: <b>LITHIUM AND OXYGEN ISOTOPIC COMPOSITIONS OF ANCIENT SHALES TRACE CHEMICAL WEATHERING ACROSS THE ARCHEAN-PROTEROZOIC BOUNDARY</b></p> <p><b>8-7</b> 9:40 AM Zakharov, David*; Zozulya, Dmitry; Rubatto, Daniela; Colon, Dylan; Marin-Carbonne, Johanna: <b>NEOARCHEAN CONTINENTAL EXPOSURE AND HYDROLOGICAL CYCLE RECORDED IN A 2.67 GA MAGMATIC-HYDROTHERMAL SYSTEM</b></p> <p><b>8-8</b> 9:55 AM Liu, Xiao-Ming*; Kah, Linda; Knoll, Andrew H.; Cui, Huan; Wang, Chao; Bekker, Andrey; Hazen, Robert M.: <b>A PERSISTENTLY LOW LEVEL OF ATMOSPHERIC OXYGEN IN EARTH'S MIDDLE AGE (Invited Presentation)</b></p> <p><b>8-9</b> 10:15 AM Sun, Chenguang*; Lee, Cin-Ty: <b>REDOX EVOLUTION OF MAGMAS WITH C-H-O-S VOLATILES DURING DEEP AND SHALLOW CRUSTAL CRYSTALLIZATION AND ITS IMPACT ON ATMOSPHERIC OXYGENATION</b></p> <p><b>8-10</b> 10:30 AM Fang, Yihang*; Xu, Huifang: <b>DISSOLVED SILICA DRIVEN RAPID PRECIPITATION OF CAP CARBONATE DURING DEGLACIATION OF THE MARINOAN SNOWBALL EARTH</b></p> <p><b>8-11</b> 10:45 AM Li, Menghan; Grasby, Stephen; Wang, Shuijiong; Wasylenki, Laura*; Xu, Yilun; Sun, Mingzhao; Beauchamp, Benoit; Hu, Dongping; Shen, Yanan: <b>NICKEL ISOTOPES LINK SIBERIAN TRAPS AEROSOL PARTICLES TO THE END-PERMIAN MASS EXTINCTION (Invited Presentation)</b></p> <p><b>8-12</b> 11:05 AM Lee, Cin-Ty*; Allen, Sydney M.: <b>TECTONOMAGMATIC CONTROLS ON SEQUENCE STRATIGRAPHY AND THE ACTIVE PASSIVE MARGIN</b></p> <p><b>8-13</b> 11:20 AM Hazen, Robert*; Morrison, Shaunna; Prabhu, Anirudh; Williams, Jason: <b>ON THE PARAGENETIC MODES OF MINERALS: A MINERAL EVOLUTION PERSPECTIVE</b></p> <p><b>8-14</b> 11:35 AM Morrison, Shaunna*; Hazen, Robert M.; Prabhu, Anirudh; Williams, Jason; Eleish, Ahmed; Fox, Peter: <b>MINERAL NETWORK ANALYSIS: EXPLORING GEOLOGICAL, GEOCHEMICAL, AND BIOLOGICAL PATTERNS IN MINERALIZATION VIA MULTIDIMENSIONAL ANALYSIS</b></p> | <p><b>9-2</b> 8:25 AM Garcia, C. Amanda*; Pischel, Esther; Gannett, Marshall; Gingerich, Stephen; Johnson, Henry M.: <b>HYDROGEOLOGIC CONTROLS ON MOUNTAIN-BLOCK RECHARGE AND IMPLICATIONS FOR GROUNDWATER AVAILABILITY IN EASTERN OREGON</b></p> <p><b>9-3</b> 8:40 AM Sahoo, Prafulla*: <b>URANIUM CONTAMINATION IN THE SHALLOW AQUIFER SYSTEM OF PUNJAB, NORTHWEST INDIA: CURRENT STATUS AND HYDROGEOCHEMICAL PROCESSES</b></p> <p><b>9-4</b> 8:55 AM Sinton, Christopher*; Olivieri, Matthew; Perry, Tara; Stoddard, Katherine: <b>ASSESSING POTENTIAL HEALTH HAZARDS OF ROADSIDE SPRINGS IN CENTRAL NEW YORK</b></p> <p><b>9-5</b> 9:10 AM Scanlon, Bridget R.*; Rateb, Ashraf: <b>ASSESSING SUSTAINABILITY OF GROUNDWATER DEVELOPMENT USING GRACE SATELLITE DATA (Invited Presentation)</b></p> <p><b>9-6</b> 9:30 AM MacAllister, Donald John*; Krishan, Gopal; Basharat, Muhammad; MacDonald, Alan; Cuba, Daniela: <b>GROUNDWATER ACCUMULATION IN NORTHWEST INDIA AND PAKISTAN IN THE 20<sup>TH</sup> CENTURY</b></p> <p><b>9-7</b> 9:45 AM Brauns, Bentje*; Banda, Kawawa; Lapworth, Dan J.; MacDonald, Alan; Mudimbu, Daina; Namaona, Willy; Owen, Richard; Sinda, Mabvuso: <b>ASSESSING DIFFERENCES IN GROUNDWATER RECHARGE PATTERNS UNDER TILLED AND ZERO-TILL SYSTEMS USING A COMBINATION OF WATER LEVEL OBSERVATIONS, HYDROCHEMISTRY, AGE TRACERS (CFCS, SF<sub>6</sub>), AND ISOTOPES</b></p> <p><b>9-8</b> 10:00 AM Castillo, Marissa*; Sawyer, Audrey H.; Durand, Michael; Shastry, Apoorva; Gianotti, Rebecca L.: <b>INTEGRATING GROUND-BASED WELL OBSERVATIONS AND HYDROLOGIC REMOTE SENSING TO UNDERSTAND CHARACTERISTICS OF AQUIFER RECHARGE IN RURAL TANZANIA</b></p> <p><b>9-9</b> 10:15 AM Jasechko, Scott*; Perrone, Debra: <b>GLOBAL GROUNDWATER WELLS (Invited Presentation)</b></p> <p><b>9-10</b> 10:35 AM Re, Viviana; Manzione, Rodrigo; Abiye, Tamiru; Mukherji, Aditi; MacDonald, Alan*: <b>GROUNDWATER, SUSTAINABLE LIVELIHOODS AND EQUITABLE GROWTH</b></p> <p><b>9-11</b> 10:50 AM Akrie, Perry*; Coyte, Rachel M.; Lundstrom, Craig; Vengosh, Avner: <b>THE ROLE OF CHEMICAL REDUCTION IN REDUCING U CONCENTRATIONS IN NATURAL GROUNDWATERS: A CASE STUDY FROM INDIA</b></p> <p><b>9-12</b> 11:05 AM Bhattacharya, Prosun*; Mukherjee, Abhijit; Ijumulana, Julian: <b>SECURING SAFE DRINKING WATER IN SOUTH ASIA: FROM SOURCE TO MARKET AND COMMUNITY</b></p> <p><b>9-13</b> 11:20 AM Moore, Kate*; Larsen, Daniel; Leslie, Deborah L.; Schoefermacker, Scott R.; Waldron, Brian: <b>MODERN WATER RECHARGE SOURCES AND GROUNDWATER FLOW TO THE MEMPHIS-SPARTA AQUIFER, SHAW WELLFIELD, MEMPHIS, TENNESSEE</b></p> <p><b>9-14</b> 11:35 AM Hatami, Jiyun*; Johnson, Raymond; Tigar, Aaron; Conroy, Nathan A.; Reimus, Paul W.; Grundl, Tim; Benko, Anna M.; Paradis, Charles: <b>DETERMINING THE SOIL ORGANIC CARBON PARTITION COEFFICIENT (K<sub>oc</sub>) FOR THE NOVEL GROUNDWATER TRACER 2-NAPHTHALENE SULFONATE (2-NS)</b></p> |
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**SESSION NO. 9** 

***T57. Secured Groundwater towards a Sustainable Earth (GSA Hydrogeology Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division; GSA Geoinformatics and Data Science Division; GSA Geology and Health Division; GSA International; International Association of Hydrogeologists; International Society of Groundwater for Sustainable Development (ISGSD); Groundwater Solutions Initiative for Policy and Practice (GRIPP); GSA Karst Division)***

8:00 AM, Oregon Convention Center, D136 (Hybrid Room)

Abhijit Mukherjee, Alice Aureli, Prosun Bhattacharya, Karen Villholth, Alan MacDonald and Roger Sathre, Presiding

**8:00 AM INTRODUCTORY REMARKS**

- 9-1** 8:05 AM Schwartz, Franklin\*: **CLIMATE-CHANGE RELATED DROUGHTS MIGHT DEFEAT SUSTAINABILITY EFFORTS (Invited Presentation)**

**SESSION NO. 10**

***T87. New Perspectives on Phanerozoic Mass Extinctions and Environmental Perturbations I (GSA Geobiology and Geomicrobiology Division; Paleontological Research Institution; Paleontological Society; GSA Marine and Coastal Geoscience Division)***

8:00 AM, Oregon Convention Center, E143/E144

Ekaterina Larina, Bethany Allen, James D. Wits and Rowan Whittle, Presiding

**8:00 AM INTRODUCTORY REMARKS**

- 10-1** 8:05 AM Montanez, Isabel\*; Royer, Dana; Breecker, Daniel O.; Bowen, Gabriel J.; Hönisch, Bärbel; Huntington, Katharine; Feiner, Steven; Chilton, Lydia: **CO<sub>2</sub>PIP— A COMMUNITY PROJECT TO ADVANCE AND STANDARDIZE APPROACHES TO PALEO-CO<sub>2</sub> RECONSTRUCTION AND TO BUILD THE NEXT-GENERATION PHANEROZOIC RECORD**
- 10-2** 8:20 AM Boag, Thomas\*; Stockey, Richard; Gearty, William: **METABOLIC TRADEOFFS CONTROL BIODIVERSITY GRADIENTS THROUGH GEOLOGICAL TIME**
- 10-3** 8:35 AM Rojas, Alexis\*; Eriksson, Anton; Rosvall, Martin: **MULTILAYER NETWORKS IN PALEOBIOLOGY**
- 10-4** 8:50 AM Malanoski, Cooper\*; Petsios, Elizabeth: **“SURVIVAL OF THE TOLERANT” – A LOGISTIC REGRESSION ANALYSIS OF ECOLOGICAL TOLERANCE SELECTIVITY THROUGHOUT THE PHANEROZOIC**
- 10-5** 9:05 AM Myers, Corinne\*; Perriguet, Dustin; Witts, James; Petrovskii, Sergei; Sudakow, Ivan; Sumrall, Colin: **REVISITING MECHANISMS AND THRESHOLDS OF MASS EXTINCTIONS**
- 10-6** 9:20 AM Monarrez, Pedro\*; Heim, Noel A.; Payne, Jonathan L.: **ALTERNATING MACROEVOLUTIONARY REGIMES: ARE ORGANISMAL TRAITS PREFERENTIALLY SELECTED OVER EMERGENT TRAITS DURING MASS EXTINCTIONS? (Invited Presentation)**
- 9:40 AM **BREAK**
- 10-7** 9:50 AM Edwards, Cole\*; Young, Seth; Kozik, Nevin P.; Bowman, Chelsie; Owens, Jeremy: **IDENTIFYING THE CAUSES OF EARLY PALEOZOIC MASS EXTINCTIONS USING NEW CARBONATE GEOCHEMICAL PROXIES: LOCAL EVIDENCE OF MARINE ANOXIA USING I/CA RATIOS**
- 10-8** 10:05 AM Yang, Yezi\*; Gill, Benjamin: **FIRST REPORT OF THE ARCHAEOCYATHID EXTINCTION AND THE REDLICHIID-OLENELLID EXTINCTION CARBON ISOTOPE EXCURSIONS (AECE AND ROECE) IN EASTERN LAURENTIA: IMPLICATIONS FOR PERTURBATIONS IN THE LATE EARLY CAMBRIAN CARBON CYCLE**
- 10-9** 10:20 AM Zimmt, Josh\*; Bergmann, Kristin D.; Present, Theodore M.; Desrochers, André; Finnegan, Seth: **NEW CLUMPED ISOTOPE CONSTRAINTS ON THE TEMPO AND MAGNITUDE OF HIRNANTIAN (LATE ORDOVICIAN) GLACIATION FROM ANTICOSTI ISLAND, QUÉBEC, CANADA**
- 10-10** 10:35 AM Stolfus, Brittany\*; Allman, Lindsy; Cramer, Bradley; Young, Seth; Calner, Mikael; Hartke, Emma; Oborny, Stephan; Bancroft, Alyssa M.: **EXPANSION OF REDUCING MARINE ENVIRONMENTS DURING THE EARLY SILURIAN IREVIKEN BIOGEOCHEMICAL EVENT**
- 10-11** 10:50 AM Morgan, Dustin\*; McAdams, Neo: **TRACE ELEMENT GEOCHEMISTRY OF THE GIVETIAN-FRASNIAN FRASNES EVENT, NEVADA, USA**
- 10-12** 11:05 AM Fiorito, Angela\*; McAdams, Neo: **PRELIMINARY CONODONT BIODIVERSITY DATA FROM THE GIVETIAN-FRASNIAN “FRASNES EVENT” INTERVAL IN THE NORTHERN ANTELOPE RANGE NEVADA, USA**
- 10-13** 11:20 AM Brisson, Sarah\*; Bush, Andrew; Beard, J. Andrew; Hren, Michael T.: **MULTI-PROXY ANALYSIS OF THE LOWER KELLWASSER EVENT IN THE APPALACHIAN BASIN**
- 10-14** 11:35 AM Endriga, Cecilia\*; Kabanov, Pavel; Sperling, Erik A.: **CARBON ISOTOPE CHEMOSTRATIGRAPHY AND REDOX GEOCHEMISTRY OF THE MIDDLE-LATE DEVONIAN HORN RIVER GROUP**

**SESSION NO. 11**

**T90. Biotic Interactions through Time (Paleontological Society; German Research Foundation (DFG); GSA Marine and Coastal Geoscience Division)**

8:00 AM, Oregon Convention Center, E141/E142 (Hybrid Room)

Elizabeth Petsios, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 11-1** 8:05 AM Lee, Jeong-Hyun\*; Riding, Robert: **CAMBRO-ORDOVICIAN KERATOSE SPONGE-MICROBIAL ‘KERATOLITE’ CONSORTIA MIMIC STROMATOLITES**
- 11-2** 8:20 AM Bays, Andrew\*; Sanon, Sonicah; Ibarra, Yadira: **BENTHIC MICROBIAL CALCIFICATION OF COLUMNAR STRUCTURES IN THE LATE ORDOVICIAN BIGHORN DOLOMITE OF WESTERN AND NORTHERN WYOMING**
- 11-3** 8:35 AM Plotnick, Roy\*; Hagadorn, James; Young, Graham: **JELLY ROLES: THE IMPORTANCE OF GELATINOUS ZOOPLANKTON IN PHANEROZOIC MARINE ECOSYSTEMS**
- 11-4** 8:50 AM Koll, Rebecca\*; Labandeira, Conrad: **DIVERSITY OF EXTERNAL FOLIAGE FEEDING BY ARTHROPOD HERBIVORY IN BOTANICALLY RICH EMILY IRISH LOCALITY, WESTERN EQUATORIAL PANGEA, EARLY PERMIAN**
- 11-5** 9:05 AM McCoy, Victoria E.\*; Gee, Carole T.; Wings, Oliver: **FOSSIL EVIDENCE OF LATEX SABOTAGING BEHAVIOR BY HERBIVOROUS INSECTS**
- 11-6** 9:20 AM Labandeira, Conrad\*; Xiao, Lifang; Ben-Dov, Yair; Maccracken, S. Augusta; Shih, Chungkun; Dilcher, David; Ren, Dong: **MEALYBUGS AND OTHER SCALE INSECTS OF EARLY CRETACEOUS ANGIOSPERMS**
- 11-7** 9:35 AM Schulte, Cody\*; Flis, Chris J.; Simon, Holly; Vollmer, Evelyn: **TOOTH MARK ANALYSIS OF DIMETRODON APPENDICULAR SKELETAL ELEMENTS WITH IMPLICATIONS OF FEEDING STRATEGIES**
- 11-8** 9:50 AM Kim, Sora\*; Yeakel, Justin; Balk, Meghan; Eberle, Jaelyn; Zeichner, Sarah S.: **ECOLOGICAL ORIGINS OF SHARK BODY SIZE DISTRIBUTIONS: FOUR FOSSIL CASE STUDIES FROM THE EOCENE**
- 11-9** 10:05 AM Anderson, Evan P.\*; Rosbach, Stephanie A.; Deadwyler, Hannah; Ericsson, Aaron; Schiffbauer, James: **EXPERIMENTAL TAPHONOMY WITH WET-CHEMISTRY MICROSENSORS AND GENETIC ANALYSES CRACKS A TAPHONOMIC WINDOW AJAR**
- 10:20 AM **BREAK**
- 11-10** 10:30 AM Chiarello, Josephine\*; Brett, Carlton: **INVESTIGATION OF DRIVING MECHANISMS FOR TWO BIOTIC INCURSIONS OF THE MOHAWKIAN SERIES (LOWER KATIAN STAGE) INTO CINCINNATIAN SERIES, NORTHERN KENTUCKY**
- 11-11** 10:45 AM Kerr, Jim\*; Pier, Jaleigh Q.; Brisson, Sarah; Bush, Andrew: **RELATIVE EFFECTS OF ABIOTIC ENVIRONMENTAL CHANGE AND FAUNAL TURNOVER ON OBLIGATE COMMENSALS OF THE APPALACHIAN BASIN DURING THE LOWER KELLWASSER (LATE DEVONIAN) EXTINCTION PULSE**
- 11-12** 11:00 AM Huntley, John\*; De Baets, Kenneth; Scarponi, Daniele; Klompaker, Adiel; Skawina, Aleksandra: **PHANEROZOIC PARASITISM AND MARINE METAZOAN DIVERSITY: INCREASING RISK WITH SUPPORT FOR THE AMPLIFICATION HYPOTHESIS**
- 11-13** 11:15 AM Ess, Madeline\*; Tyler, Carrie L.; Dineen, Ashley; Roopnarine, Peter D.: **MARINE FUNCTIONAL ECOSPACE CHANGES ACROSS THE MESOZOIC MARINE REVOLUTION**
- 11-14** 11:30 AM Daley, Gwen\*; Burke, Mikalya M.; Crago, Emily I.; Forney, Sabrina R.: **DO PREDATORY BOREHOLES SIGNIFICANTLY WEAKEN SHELLS: DATA FROM MODERN AND FOSSIL BIVALVES FROM FLORIDA**

11-15 11:45 AM Lackey, Hilary S.\*: **PATTERNS OF DRILLING PREDATION IN MOLLUSCS ACROSS THE PLIOCENE-PLEISTOCENE BOUNDARY IN SOUTHERN CALIFORNIA**

**INFLUENCE OF TURBIDITY ON INFAUNAL DIVERSITY IN A MIXED-INFLUENCE DELTA-FRONT SETTING**

11:05 AM **CONCLUDING REMARKS**

**SESSION NO. 12** 

**T98. Applying Integrated Sedimentology and Ichnology to Refine Paleoenvironmental Interpretations, Identify Paleosalinities, and Reveal Key Sequence Stratigraphic Surfaces along Complex Coastlines (GSA Marine and Coastal Geoscience Division)**

8:00 AM, Oregon Convention Center, D138

Peter Flaig and Stephen Hasiotis, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 12-1 8:05 AM Gingras, Murray\*: **INTERPRETING GLOSSIFUNGITES ICHNOFACIES IN THE STRATIGRAPHIC RECORD (Invited Presentation)**
- 12-2 8:20 AM Northrup, Dustin\*; Finzel, Emily; Peate, David W.; Bohacs, Kevin M.; Horkley, L. Kenneth: **UNDERSTANDING THE FLUVIAL-TIDAL TRANSITION ZONE IN MODERN AND ANCIENT SYSTEMS USING MAJOR AND TRACE ELEMENTS, C/S ANALYSIS, AND PALYNOLOGY**
- 12-3 8:35 AM Wroblewski, Anton\*; Flaig, Peter; Hasiotis, Stephen: **THE PRESENT IS THE KEY TO THE PAST...AS LONG AS THE PAST LOOKED LIKE THE PRESENT: BAYHEAD DELTAS AND BACK-BARRIER SYSTEMS IN TIME AND SPACE (Invited Presentation)**
- 12-4 8:50 AM Flaig, Peter\*; Hasiotis, Stephen; Ambrose, William A.; Hattori, Kelly; DeJarnett, Beverly Blakeney: **THE IMPORTANCE OF INTEGRATING SEDIMENTOLOGY AND ICHNOLOGY TO ACCURATELY INTERPRET THE SPATIAL-TEMPORAL RELATIONSHIP OF MIXED CARBONATE-CLASTIC COASTAL-SHELFAL DEPOSITIONAL SYSTEMS, PENNSYLVANIAN (DESMOINESIAN) STRAWN GROUP, TEXAS**
- 12-5 9:05 AM Hasiotis, Stephen\*; Chan, Marjorie A.; Parrish, Judith Totman: **RELATIONSHIPS BETWEEN BOUNDING SURFACES, ICHNOCOENOSSES, AND ICHNOFACIES IN ERG SYSTEM STRATA: EXAMPLES FROM THE JURASSIC NAVAJO SANDSTONE**
- 12-6 9:20 AM Wroblewski, Anton\*: **RUMORS OF THE J5'S DEMISE HAVE BEEN GREATLY EXAGGERATED: ICHNOLOGY AND SEDIMENTOLOGY REVEAL DETAILS OF AN OXFORDIAN FORCED REGRESSION (Invited Presentation)**
- 12-7 9:35 AM Harris, Brette\*; Gingras, Murray: **FACIES ANALYSIS AND STRUCTURE IN MOTION ANALYSIS OF THE CRETACEOUS CARDIUM FORMATION, ALBERTA, CANADA**
- 9:50 AM **BREAK**
- 12-8 10:05 AM Buntin, Rogers\*; Noffke, Nora: **MICROBIAL MAT FACIES AND ICHNOCOENOSSES IN THE LOWER CRETACEOUS (ALBIAN) DAKOTA GROUP, DENVER, COLORADO, USA**
- 12-9 10:20 AM Hensen, Corey\*; Allmon, Warren; Ivany, Linda; Rindsberg, Andrew: **INTEGRATING SUBSURFACE AND OUTCROP DATA TO BUILD A UNIFIED MODEL FOR THE COCKFIELD-GOSPORT SHORE ZONE, MIDDLE EOCENE OF MISSISSIPPI AND ALABAMA**
- 12-10 10:35 AM Hanneman, Debra; Hasiotis, Stephen\*; Wideman, Charles; Lofgren, Donald; McIntosh, William C.: **INTEGRATING SEDIMENTOLOGY, ICHNOLOGY, AND PALEOPEDELOGY TO RECONSTRUCT LANDSCAPES AND ECOSYSTEMS OF THE UPPER EOCENE PIPESTONE SPRINGS STRATA, WESTERN MONTANA**
- 12-11 10:50 AM Zonneveld, John-Paul\*; Zaim, Yahdi; Rizal, Yan; Aswan, Aswan; Fortuin, Anne; Larick, Roy; Ciochon, Russell: **ICHOLOGY OF REEF-ADJACENT SUCCESSIONS IN THE PALAEO-KAMBANIRU RIVER MOUTH, SUMBA, EAST NUSA TENGGARA, INDONESIA: ASSESSING THE**

**SESSION NO. 13**

**T108. Young Investigators in Mineralogy and Crystallography (Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

8:00 AM, Oregon Convention Center, Portland Ballroom 255 (Hybrid Room)

Tyler L. Spano and Si Athena Chen, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 13-1 8:05 AM Sims, Melissa\*: **COMPRESSION IN MULTIPLE REGIMES: STUDIES OF COPPER AND MGO (Invited Presentation)**
- 13-2 8:25 AM Thompson, Elizabeth C.\*; Liu, Zhenxian; Tsuchiya, Jun; Campbell, Andrew J.: **FEOOH POLYMORPHS IN THE DEEP EARTH: COMBINING THEORETICAL AND EXPERIMENTAL APPROACHES**
- 13-3 8:40 AM Bots, Pieter\*; Comarmond, M. Josick; Payne, Timothy E.; Lunn, Rebecca J.; Schellenger, Alexandra E.P.; Renshaw, Joanna C.: **A HOLISTIC APPROACH TO MULTICOMPONENT EXAFS: SR COMPLEXATION IN CLAYEY SOIL (Invited Presentation)**
- 13-4 9:00 AM Acosta, Marisa\*; Olsen, Ellen K.; Watkins, James M.; Pickerel, Molly E.: **EFFECT OF SUBSTRATE ROUGHNESS ON CALCITE EPITAXIAL GROWTH MODE AND SR INCORPORATION**
- 13-5 9:15 AM Chowdhury, Md Abu\*; Herndon, Elizabeth; Singer, David M.: **IRON, SULFUR, AND TRACE METAL TRANSPORT DYNAMICS DURING WEATHERING OF HISTORIC COAL MINE SPOIL**
- 9:30 AM **DISCUSSION**
- 9:40 AM **BREAK**
- 13-6 9:55 AM McIntosh, Julia\*; Wampler, J. Marion; Elliott, W. Crawford; Tabor, Neil J.: **INVESTIGATING THE TIMING OF ILLITE FORMATION IN PENNSYLVANIAN-AGED PALEOSOLS OF THE ILLINOIS BASIN**
- 13-7 10:10 AM Brown, Noah\*; Fang, Yihang; Xu, Huifang: **DIRECT PRECIPITATION OF ONEOTA DOLOMITE OF THE UPPER SAUK MEGASEQUENCE**
- 13-8 10:25 AM Lamm, Sarah\*; Lacroix, Brice; Marshall, C.P.; Lahfid, Abdeltif; Gasda, Patrick J.; Kempton, Pamela D.: **RAMAN SPECTRAL FEATURES OF CHLORITE: A NEW CALIBRATION**
- 13-9 10:40 AM Hough, David\*; DeAngelis, Michael: **SOL-GEL SYNTHESIS OF TARGETED COMPOSITION NANOSCALE OLIVINE**
- 13-10 10:55 AM Farfan, Gabriela\*: **TACKLING MODERN BIOMINERALOGY FROM A MINERALOGY PERSPECTIVE**
- 13-11 11:10 AM Spano, Tyler\*; Niedziela, Jennifer L.; Kapsimalis, Roger; Olds, Travis A.; Miskowiec, Andrew; McDonnell, Marshall; Smith, Robert; Shields, Ashley: **CURIES: COMPENDIUM OF URANIUM RAMAN AND INFRARED EXPERIMENTAL SPECTRA**
- 11:25 AM **DISCUSSION**
- 11:45 AM **CONCLUDING REMARKS**

**SESSION NO. 14**

**T117. Perseverance at Jezero Crater—Characterizing an Ancient Crater Lake Basin on Mars (GSA Planetary Geology Division)**

8:00 AM, Oregon Convention Center, Portland Ballroom 256 (Hybrid Room)

Kathryn Stack Morgan, Briony Horgan and Patrick Russell, Presiding

- 14-1 8:00 AM Stack Morgan, Kathryn\*; Farley, Kenneth A.; Williford, Kenneth H.; Science Team, Mars 2020: **EARLY RESULTS FROM THE MARS 2020 PERSEVERANCE ROVER IN JEZERO CRATER, MARS**

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SUNDAY



- 14-2 8:15 AM Czaja, Andrew D.\*; Benison, Kathleen; Bosak, Tanja; Cohen, Barbara A.; Hausrath, Elisabeth M.; Hickman-Lewis, Keyron; Mayhew, Lisa E.; Shuster, David L.; Siljeström, Sandra; Simon, Justin I.; Weiss, Benjamin P.: **SAMPLES AND NOTIONAL CACHES FROM JEZERO CRATER AND BEYOND FOR MARS SAMPLE RETURN**
- 14-3 8:30 AM Gupta, Sanjeev\*; Mangold, Nicolas; Dromart, Gilles; Gasnault, Olivier; Le Mouelic, Stephane; Bell, James F.: **EVIDENCE FOR A DELTA-LAKE SYSTEM AND ANCIENT FLOOD DEPOSITS AT JEZERO CRATER, MARS, FROM THE PERSEVERANCE ROVER (Invited Presentation)**
- 14-4 8:50 AM Sholes, Steven\*; Stack Morgan, Kathryn; Kah, Linda; Simon, Justin I.; Brown, Adrian: **BRIDGING THE GAP: EVALUATING PAST WATER LEVELS AT JEZERO CRATER, MARS THROUGH ORBITAL AND *IN SITU* DATA**
- 14-5 9:05 AM Wogsland, Brittan\*; Horgan, Briony; Stack Morgan, Kathryn; Kah, Linda; Calef, Fred; Schroeder, Jeffrey F.: **1:2500 PHOTOGEOLOGIC MAPPING OF THE JEZERO CRATER FLOOR: DIVERSITY OF ORBITALLY-RESOLVED SURFACE TEXTURES AT AND AROUND THE PERSEVERANCE ROVER LANDING SITE**
- 14-6 9:20 AM Sun, Vivian\*; Hand, Kevin P.; Farley, Kenneth A.; Stack Morgan, Kathryn; Williford, Kenneth H.; Milkovich, Sarah; Kronyak, Rachel; Bell, James F.; Shuster, David; Simon, Justin I.: **EXPLORING THE JEZERO CRATER FLOOR: THE MARS 2020 PERSEVERANCE ROVER'S FIRST SCIENCE CAMPAIGN**
- 14-7 9:35 AM Kah, Linda\*; Gupta, Sanjeev; Simon, Justin I.; Benison, Kathleen: **ROCK TEXTURES: UNDERSTANDING THE JEZERO CRATER FLOOR IN THE REGION OF THE PERSEVERANCE ROVER LANDING SITE (Invited Presentation)**
- 14-8 9:55 AM Crumpler, Larry\*; Science Team, Mars 2020: **MARS 2020/PERSEVERANCE IN SITU GEOLOGIC CONTEXT MAPPING (GXM) INITIAL RESULTS ALONG THE TRAVERSE WITHIN JEZERO CRATER**
- 14-9 10:10 AM Ghent, Rebecca\*; Russell, Patrick; Nunes, Daniel; Mellon, Michael; Hamran, Svein-Erik: **FRACTURES AND LINEAMENTS IN JEZERO CRATER (Invited Presentation)**
- 14-10 10:30 AM Calef, Fred\*; Alwmark, Sanna; Amundsen, Hans E.F.; Bechtold, Andreas; Bell, James F.; Quantin, Cathy; Dypvik, Henning; Hamran, Svein-Erik; Schmitz, Nicole; Simon, Justin I.; Stack, Kathryn M.: **VISITING A FRESH CRATER IN JEZERO WITH THE MARS 2020 PERSEVERANCE ROVER**
- 14-11 10:45 AM Wiens, Roger\*; Cousin, Agnes; Ollila, Ann; Beyssac, Olivier; Maurice, Sylvestre; Johnson, Jeffrey; Mangold, Nicolas; Clegg, Sam; Quantin, Cathy; Mandon, Lucia: **CHEMISTRY, MINERALOGY, AND PHYSICAL PROPERTIES OF ROCKS AND SOILS TARGETED BY SUPERCAM AT JEZERO CRATER**
- 14-12 11:00 AM Rice, Melissa\*; Horgan, Briony; Johnson, Jeffrey; Bell, James F.; Vaughan, Alicia; St. Clair, Michael; Million, Chase; Kinch, Kjartan; Nunez, Jorge: **ROCK DIVERSITY ON THE FLOOR OF JEZERO CRATER OBSERVED IN MASTCAM-Z MULTISPECTRAL IMAGES FROM THE PERSEVERANCE ROVER**
- 14-13 11:15 AM Horgan, Briony\*; Rice, Melissa; Kah, Linda; Gupta, Sanjeev; Mangold, Nicolas; Bell, James F.; Kinch, Kjartan; Johnson, Jeffrey; Million, Chase; Nunez, Jorge; Paar, Gerhard; St. Clair, Michael; Tate, Christian; Vaughan, Alicia; Ravanis, Eleni; Fagents, Sarah A.; Brown, Adrian: **LINKING MASTCAM-Z MULTISPECTRAL IMAGING FROM THE PERSEVERANCE ROVER TO ORBITAL GEOLOGY IN JEZERO CRATER: IMPLICATIONS FOR THE ORIGIN OF THE CRATER FLOOR**
- 14-14 11:30 AM Cardarelli, Emily L.\*; Hausrath, Elisabeth M.; Sullivan, Robert; Johnson, Jeffrey; Siljeström, Sandra; Madariaga, Juan Manuel; Meslin, P.Y.; Mandon, Lucia; Cousin, Agnes; Williford, Kenneth H.: **INSIGHTS INTO JEZERO CRATER GEOLOGY FROM ROCK-REGOLITH INTERFACES**
- 14-15 11:45 AM Tamas, Jesse\*; Stack, Kathryn M.; Gupta, Sanjeev; Kah, L.C.; Shuster, David; Mandon, Lucia; Quantin, Cathy; Wiens, Roger: **STRATIGRAPHY OF SÉITAH: UNDERSTANDING THE OLDEST GEOLOGIC UNIT EXPOSED IN THE JEZERO CRATER FLOOR**

**SESSION NO. 15**

***T125. New Voices in Geobiology (GSA Geobiology and Geomicrobiology Division; Geochemical Society)***

8:00 AM, Oregon Convention Center, D137

Andrew Putt, Alison Cribb, Zoë Havlena, Trinity Hamilton, Victoria A. Petryshyn, David Gold, Emily F. Smith, Rowan Martindale and Brandt M. Gibson, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 15-1 8:05 AM Howard, Cecilia\*; Sheldon, Nathan; Smith, Selena Y.; Noffke, Nora: **LIFE IN 3D: EXAMINING PUTATIVE 3.2 GA MICROBIAL MATS WITH MICROCT IMAGING**
- 15-2 8:20 AM Corpolongo, Andrea\*; Czaja, Andrew D.: **NEOARCHEAN MICROORGANISMS TOOK ADVANTAGE OF A SUB-WAVEBASE O<sub>2</sub> GRADIENT APPROXIMATELY 100-200 MILLION YEARS PRIOR TO THE GOE**
- 8:35 AM **INTRODUCTION OF INVITED SPEAKER: HEDA AGIĆ**
- 15-3 8:40 AM Agić, Heda\*; Porter, Susannah; Cohen, Phoebe; Junium, Christopher: **INDIVIDUAL ORGANIC-WALLED MICROFOSSIL δ<sup>13</sup>C DECOUPLED FROM POSITIVE δ<sup>13</sup>C<sub>ORG</sub> EXCURSIONS IN THE TONIAN CHUAR GROUP (Invited Presentation)**
- 15-4 9:00 AM Nelson, Lyle\*; Ramezani, Jahandar; Almond, John E.; Taylor, Wendy L.; Brenner, Dana C.; Furey, Ryan P.; Turner, Madison; Smith, Emily F.: **AN INTEGRATED EDIACARAN-CAMBRIAN STRATIGRAPHIC RECORD FROM THE NAMA GROUP IN NORTHWESTERN REPUBLIC OF SOUTH AFRICA**
- 15-5 9:15 AM Lonsdale, Mary\*; Eyster, Athena; Mohammed, Kabir A.; Smith, Emily F.: **RECONSTRUCTING ARCHAEOCYATHAN REEF SEAFLOORS OF THE LOWER POLETA FORMATION IN ESMERALDA COUNTY, NV**
- 15-6 9:30 AM Westacott, Sophie\*; Planavsky, Noah; Isson, Terry T.; Zhao, Ming-Yu; Hull, Pincelli M.: **A SHIFT IN THE MODE OF DEEP-SEA SILICON BURIAL AND CENOZOIC COOLING**
- 9:45 AM **INTRODUCTION OF DIVISION PRE-TENURE AWARD WINNER: KIMBERLY LAU**
- 15-7 9:50 AM Lau, Kimberly\*; Hardisty, Dalton: **A NEW MODEL-DATA COMPARISON: PROMISES AND PITFALLS OF PALEOREDOX PROXIES IN CARBONATE ROCKS (Invited Presentation)**
- 10:10 AM **BREAK**
- 15-8 10:20 AM Wray, Addien\*; Gorman-Lewis, Drew: **BIOENERGETICS OF AEROBIC GROWTH BY *SHEWANELLA PUTREFACIENS* STRAIN CN32**
- 15-9 10:35 AM Rohret, Shari\*; Bernhard, Joan: **CELLULAR ULTRASTRUCTURE OF BENTHIC FORAMINIFERA FROM DEEP-WATER HYDROCARBON SEEPS**
- 15-10 10:50 AM Martin, Cayla\*; Kimberly, David; Butler, Jaimi K.; Baxter, Bonnie: **THE ROZEL POINT TAR SEEPS AND THEIR ASSOCIATION WITH THE HYPERSALINE ENVIRONMENT AT GREAT SALT LAKE, UTAH**
- 15-11 11:05 AM Leon, Josh\*; Rumbaugh, Ethan; Wang, Weihong: **INVESTIGATING PHOSPHORUS AND NITROGEN INPUT TO UTAH LAKE FROM ITS TRIBUTARIES AND THE SURROUNDING WASTEWATER TREATMENT PLANTS**
- 15-12 11:20 AM Havlena, Zoë\*; Jones, Daniel; Hose, Louise; DuChene, Harvey; Labrado, Amanda; Brunner, Benjamin: **PROBING THE ORIGIN AND MODERN MICROBIAL COLONIZATION**



**OF GYPSUM SEDIMENTS IN LEHMAN CAVES, GREAT BASIN NATIONAL PARK, NV, USA**

- 15-13 11:35 AM Lakrou, Carole A.\*; Kulkarni, Harshad Vijay; Datta, Saugata; Phillips-Lander, Charity M.: **HABITABILITY INFLUENCES BIOSIGNATURES IN MARS ANALOG LAVA TUBES**
- 11:50 AM **CONCLUDING REMARKS**

**SESSION NO. 16**

*T127. Advances in Geomorphology: Understanding How Interactions among Climatic, Tectonic, Fluvial, and Hillslope Processes Drive Topographic Change I (GSA Soils and Soil Processes Division; GSA Quaternary Geology and Geomorphology Division)*

8:00 AM, Oregon Convention Center, Portland Ballroom 254 (Hybrid Room)  
Adrian Bender, Sean Gallen, Karin Lehnigk and Charles Shobe, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 16-1 8:05 AM Weber, John\*; Arkle, Jeanette; Noriega, Nigel; Jowers, Michael; Murphy, John: **TRINIDAD AND TOBAGO (CARIBBEAN-SOUTH AMERICAN) GEOGENOMICS: RECONCILING AND SYNTHESIZING PUBLISHED GENETICS DATA INTO A COMPREHENSIVE GEOLOGIC, PALEOGEOGRAPHIC, AND GEOMORPHIC MODEL**
- 16-2 8:20 AM Gavin, Daniel\*: **ANNUALLY-LAMINATED LAKE SEDIMENT REVEALS LATE HOLOCENE ALLUVIAL CHANNEL HISTORY AND A RECORD FLOOD IN 1867, TOLT RIVER, WESTERN WASHINGTON**
- 16-3 8:35 AM Jess, Scott\*; Enkelmann, Eva; Matthews, William A.: **LASER ABLATION (U-TH-SM)/HE DATING OF DETRITAL APATITE IN THE APPALACHIANS: A NEW ANALYTICAL TOOL FOR RESOLVING REGIONAL LANDSCAPE EVOLUTION**
- 16-4 8:50 AM Anders, Alison\*; Lai, Jingtao; Marshak, Stephen: **UPLIFT OF FORELAND INTRACRATONIC PLATEAUS DUE TO EROSION OF ADJACENT FOLD-THRUST BELTS: A CASE STUDY OF THE OZARK PLATEAU**
- 16-5 9:05 AM Barineau, Clinton\*; Ortega-Ariza, Diana; Torres, Coral Mari; Truitt, Jasmine Christina: **FINDING THE ANCESTRAL CHATTAHOOCHEE RIVER: EVIDENCE FOR A PERSISTENT MESOZOIC AND CENOZOIC PALEODRAINAGE SYSTEM IN THE SOUTHERN APPALACHIAN PIEDMONT AND COASTAL PLAIN PROVINCES OF EASTERN GEORGIA AND WESTERN ALABAMA**
- 16-6 9:20 AM Johnson, Bradley\*: **STREAM CAPTURE ALONG THE LINVILLE RIVER AS A DRIVER OF INCISION AND GORGE FORMATION**
- 16-7 9:35 AM McGuire, Luke\*; McCoy, Scott W.; Struble, William; Marc, Odin; Barnhart, Katherine: **A NUMERICAL MODELING INVESTIGATION OF STEADY STATE CHANNEL PROFILES INCISED BY DEBRIS FLOW AND FLUVIAL PROCESSES**
- 9:50 AM **BREAK**
- 16-8 10:00 AM Johnson, Sarah\*; Swallom, Meredith L.; Thigpen, James; McGlue, Michael M.; Woolery, Edward W.; Dortch, Jason; Gallen, Sean; Yeager, Kevin: **POST-GLACIAL FLUVIAL INEFFICIENCY**
- 16-9 10:15 AM Meghani, Nooreen A.\*; Anders, Alison M.: **CONTROLS ON DRAINAGE DENSITY IN THE RECENTLY GLACIATED CENTRAL LOWLANDS OF THE USA**
- 16-10 10:30 AM Brady, Jordan\*; Weirich, Frank: **A FIELD STUDY OF THE PRESENCE OF ZONES OF ELEVATED SUBSURFACE WATER LEVELS AND PORE WATER PRESSURES IN HILLSLOPES AS A PREFERENTIAL LOCATION FOR SLOPE FAILURE IN UNBURNED HILLSLOPES IN SOUTHERN CALIFORNIA**

- 16-11 10:45 AM Tanski, Natalie M.\*; Pederson, Joel; Rittenour, Tammy; Hidy, Alan J.: **INVESTIGATING THE ROLES OF SALT TECTONICS AND HILLSLOPE MASS MOVEMENTS IN FORMING THE CATARACT CANYON KNICKZONE, UTAH USING CHRONOSTRATIGRAPHY OF COLORADO RIVER TERRACES**
- 16-12 11:00 AM Adams, Byron\*; Cooper, Frances; Walsh, Clementine; Cashman, Katharine: **CONSTRAINING ROCK UPLIFT HISTORIES FROM IGNIMBRITE-ENGULFED LANDSCAPES (Invited Presentation)**
- 11:20 AM **DISCUSSION**
- 11:30 AM **CONCLUDING REMARKS**

**SESSION NO. 17**

*T137. From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary (INQUA IFG POCAS, IGCP 610) I*

8:00 AM, Oregon Convention Center, ONLINE

Valentina Yanko-Hombach and Tamara Yanina, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 17-1 8:05 AM Kurbanov, Redzhep\*; Yanina, Tamara; Semikolennykh, Daria; Taratunina, Natali; Murray, Andrew: **RECENT DEVELOPMENTS IN UNDERSTANDING THE CHRONOLOGY OF THE CASPIAN SEA-LEVEL CHANGE (Invited Presentation)**
- 17-2 8:25 AM Panin, Andrei\*; Sidorchuk, Alexei; Ukraintsev, Vadim: **GLACIAL MELTWATER VERSUS RIVER RUNOFF AS THE DRIVERS OF THE KHALYNIAN TRANSGRESSION OF THE CASPIAN SEA (Invited Presentation)**
- 17-3 8:45 AM Makshaev, R.\*; Svitoch, Alexander; Tkach, N.; Lobacheva, D.: **THE LATE PLEISTOCENE PALEOESTUARY LITHOFACIES OF THE EARLY KHALYNIAN BASIN (THE MIDDLE VOLGA RIVER VALLEY, RUSSIA)**
- 17-4 9:00 AM Sorokin, Valentin; Yanina, Tamara\*; Bolikhovskaya, Natalia; Berdnikova, Alina; Tkach, Nikolai: **LATE QUATERNARY REGRESSIONS IN THE CASPIAN SEA**
- 17-5 9:15 AM Tkach, Nikolai\*; Sorokin, Valentin; Makshaev, R.: **THE CASPIAN SEA LEVEL CHANGES DURING THE SECOND PART OF THE LATE PLEISTOCENE**
- 17-6 9:30 AM Badyukova, Ekaterina\*: **CONNECTION OF THE ARAL AND CASPIAN SEARS IN LATE PLEISTOCENE - EARLY HGOLOCENE**
- 17-7 9:45 AM Lobacheva, Daria\*; Badyukova, Ekaterina; Makshaev, Radik: **PRELIMINARY ESTIMATES OF THE AGE OF THE BAER KNOLLS, NORTHERN PRE-CASPIAN**
- 17-8 10:00 AM Berdnikova, Alina\*: **STABLE OXYGEN ISOTOPE METHOD RESTRICTIONS FOR PALEOTEMPERATURE RECONSTRUCTIONS IN THE CASPIAN SEA**
- 17-9 10:15 AM Shtyrkova, Elena\*: **HIGH-RESOLUTION STRATIGRAPHY IN HOLOCENE SEDIMENTS FROM THE VOLGA DELTA BASED ON DIATOM ANALYSIS**
- 17-10 10:30 AM Romanis, Tatiana\*; Romanis, Tatiana; Plotnikova, Oksana; Churilin, Nikita: **SOIL FABRIC OF DRY-STEPPE SOLONETZ COMPLEXES OF THE CASPIAN LOWLAND UNDER CONDITIONS OF CHANGING CLIMATE**
- 17-11 10:45 AM Alisher kyzy, Saltanat\*; Yanina, Tamara; Shnaider, Svetlana: **THE MESOLITHIC AND NEOLITHIC CULTURES IN EASTERN CASPIAN REGION DURING THE FINAL PLEISTOCENE – HOLOCENE PERIOD**
- 17-12 11:00 AM Smyntyna, Olena\*: **THE NORTH BLACK SEA PREHISTORY: NEW HIGHLIGHTS, REVISIONS AND UPDATES IN THE LIGHT OF RECENT INTERDISCIPLINARY PROJECTS (IGCP610, IGCP521, INQUA501, INQUA IFG POCAS ETC.) (Invited Presentation)**

AM

SUNDAY

Sunday, 10 October 2021

- 17-13 11:20 AM Yanko-Hombach, Valentina\*; Chepalyga, Andrei; Yanina, Tamara; Semikolennykh, Daria; Sorokin, Valentin; Bolikhovskaya, Natalia; Kurbanov, Redzhep; Zenina, Maria; Markova, Anastasia; Motnenko, Irena: **THE KARANGATIAN EPOCH IN THE AZOV-BLACK SEA (PONT) BASIN: STRATIGRAPHY, PALEOGEOGRAPHY, CORRELATIONS, GEOLOGICAL HISTORY**
- 17-14 11:35 AM Pedan, Halyna\*; Kadurin, Sergii; Andreeva, Kseniya; Dragomyretska, Olena: **LITHODYNAMIC PROCESSES IN THE SEA EDGE OF THE DANUBE DELTA (BLACK SEA)**

## SESSION NO. 18

### *T144. Intersections of Sustainability and Geosciences (GSA Karst Division; GSA Soils and Soil Processes Division)*

8:00 AM, Oregon Convention Center, B115/B116 (Hybrid Room)

Leslie North and Robert Brinkmann, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 18-1 8:05 AM Neches, Alex\*: **THE GEODIVERSITY INDEX MAP OF PUERTO RICO – A PRACTICAL REFERENCE IN LAND DEVELOPMENT AND ENVIRONMENTAL CONSERVATION**
- 18-2 8:20 AM Withdrawn
- 18-3 8:35 AM Kellough, Gavin\*; Boss, Stephen: **A 60-YEAR RECORD OF THE DEMOTECHNIC INDEX OF STATES, 1960-2019**
- 18-4 8:50 AM North, Vanya\*; Boss, Stephen K.: **THE HUMAN NATURAL RESOURCE ENDOWMENT OF LIMESTONE AND THE LIMITS OF CEMENT PRODUCTION**
- 18-5 9:05 AM DeVries, Stephanie\*: **MICROPLASTICS IN GROUNDWATER AND THE ROLE OF SOIL THICKNESS IN MITIGATING SEPTIC EFFLUENT AS A SOURCE**
- 18-6 9:20 AM McLindon, Chris\*: **CAUSES AND EFFECTS OF A LATE 20TH CENTURY FAULT SLIP EVENT IN COASTAL LOUISIANA**
- 9:35 AM **BREAK**
- 9:45 AM **INTRODUCTION OF GSA PRESIDENT'S MEDAL, BY DOUG WALKER**
- 18-7 9:50 AM McNutt, Marcia\*: **GSA PRESIDENT'S MEDAL: CIVILIZATION-SAVING SCIENCE FOR THE TWENTY-FIRST CENTURY**
- 18-8 10:10 AM Sahad, Alhassan\*; Peterson, Eric; O'Reilly, Catherine M.; Seyoum, Wondwosen Mekonnen; Hoberg, Joseph Robert; Schukow, Elijah John; Twait, Rick: **USING A TRACER TEST TO ASSESS THE TRANSPORT AND FATE OF NITRATE IN A SATURATED BUFFER ZONE**
- 18-9 10:25 AM Pietsch, Carlie\*; Metzger, Ellen P.: **INNOVATING FOR SUSTAINABILITY IN "THE BEST GEOSCIENCE CLASS I'VE EVER TAKEN"**
- 18-10 10:40 AM Brinkmann, Robert\*: **THE 30 DAY SUSTAINABILITY CHALLENGE: ASSESSMENTS AND REVISIONS**
- 18-11 10:55 AM Rogers, Daniel\*: **EMPIRICAL RESULTS OF A GEOLOGICAL- AND ANTHROPOGENIC CONTAMINANT-BASED ENVIRONMENTAL RISK SUSTAINABILITY MODEL**

## SESSION NO. 19

### *T167. The Lasting Effects of the 2020–2021 COVID-19 Crisis on Geoscience Education: Insights, Problems, and Unanticipated Benefits I (GSA Geoscience Education Division; National Association of Geoscience Teachers (NAGT); National Association of Geoscience Teachers (NAGT) Geoscience Education Research (GER) Division; GSA Geoinformatics and Data Science Division; GSA Geology and Society Division)*

8:00 AM, Oregon Convention Center, B113/B114 (Hybrid Room)

Mark Abolins and Tyler G. Smith, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 19-1 8:05 AM Keane, Christopher\*; Gonzales, Leila: **MACROSCOPIC IMPACT TRENDS FROM THE PANDEMIC ON GEOSCIENCE PROGRAMS**
- 19-2 8:20 AM Hamilton, Wayne\*; Yelderman, Joe: **LESSONS LEARNED FROM THE CLASSROOM, LAB AND FIELD RESEARCH DURING COVID-19 RESTRICTIONS WITH APPLICATION TO FUTURE GEOSCIENCE TEACHING AT BAYLOR UNIVERSITY**
- 19-3 8:35 AM Johanesen, Katharine\*: **RETHINKING APPROACHES TO GRADING STUDENT WORK UNDER PANDEMIC CONDITIONS**
- 8:50 AM **BREAK**
- 19-4 9:00 AM Rademacher, Laura\*; Burmeister, Kurtis C.; Ryker, Katherine; Atchison, Christopher L.; Egger, Anne; Shipley, Thomas F.; Tikoff, Basil: **THE LASTING IMPACTS OF THE COVID PANDEMIC ON TEACHING AND LEARNING WITHOUT THE FIELD (Invited Presentation)**
- 19-5 9:20 AM Abercrombie, Mary\*; MacDonald, James; Rotz, Rachel; Barbosa, Alayde; Muller, Joanne; Savarese, Michael: **UNEXPECTED BENEFITS REALIZED FROM NECESSARY RECONFIGURATION OF FIELD COURSE DUE TO COVID-19**
- 19-6 9:35 AM Pritchard, Chad\*; Davies, Nigel; Keattch, Sharen; Callender, Derry: **EWU FIELD CAMP MOVES TO APPLIED AND COMMUNITY BASED PROJECTS FOR PANDEMIC SAFETY AND STUDENT SUCCESS**
- 9:50 AM **BREAK**
- 19-7 10:00 AM Lacroix, Brice\*; Kempton, Pamela; Brueseke, Matthew: **PETCAT-SCAN: A NEW TOOL FOR QUANTITATIVE PETROGRAPHY IN THE COVID-19 PANDEMIC AND BEYOND (Invited Presentation)**
- 19-8 10:20 AM Winkelstern, Ian\*: **AN ATTEMPT TO BRING STUDENT-DRIVEN RESEARCH INTO THE VIRTUAL SEDIMENTOLOGY CLASSROOM**
- 19-9 10:35 AM Fleming, Zachariah\*: **USING VIRTUAL OUTCROP MODELS AND REMOTE SENSING TO TEACH STRUCTURAL GEOLOGY AND GEOLOGIC MAPPING CONCEPTS IN A DISTANCE LEARNING SETTING**
- 10:50 AM **DISCUSSION**
- 19-10 11:00 AM Mrofka, David D.; Walker, Becca\*: **COMMUNITY COLLEGE STUDENTS' PERCEPTION OF COVID-ERA ONLINE CLASSES: SURVEY RESULTS AND IMPLICATIONS FOR FUTURE INSTRUCTIONAL METHODS, CLASS SCHEDULING, AND SUPPORT SERVICES FOR STUDENTS**
- 19-11 11:15 AM Smith, Tyler G.\*; McNeal, Karen S.: **ENVIRONMENTAL RISK PERCEPTIONS RELATED TO CHANGES IN OUTDOOR ACTIVITY DURING THE COVID-19 PANDEMIC (Invited Presentation)**
- 19-12 11:35 AM Lapeyrouse, Nicole\*: **EMERGENCY REMOTE TEACHING TO A FULLY ONLINE COURSE: INVESTIGATING STUDENT PERCEPTION OF NOVEL MULTIMEDIA FOR AN INTRODUCTORY GEOLOGY COURSE**
- 11:50 AM **CONCLUDING REMARKS**

## SESSION NO. 20

### *T177. Solving Paleoenvironmental Problems with Isotopes: New Advances and Ongoing Challenges in Soils and Geoarchaeology (GSA Geoarchaeology Division; GSA Soils and Soil Processes Division; GSA Quaternary Geology and Geomorphology Division; GSA Energy Geology Division)*

8:00 AM, Oregon Convention Center, Portland Ballroom 253 (Hybrid Room)

Samantha Marie Krause and Tim Beach, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 20-1 8:05 AM Hudson, Adam\*; Emery-Wetherell, Meaghan M.; Lubinski, Patrick M.; Butler, Virginia L.; Jenkins, Dennis L.: **THERE'S SOMETHING FISHY IN THE GREAT BASIN: A 15 KA**

		<b>PALEOHYDROLOGIC RECORD FROM FISH BONE ISOTOPES FROM THE PAISLEY CAVES, OREGON</b>
20-2	8:20 AM	Beach, Sheryl*; Beach, Tim; Doyle, Colin; Krause, Samantha; Smith, Byron: <b>A SYNTHESIS OF CARBON ISOTOPE RATIOS OF SOIL PROFILES IN THE MAYA LOWLANDS</b>
20-3	8:35 AM	Stein, Rebekah*; Amundson, Ronald; Stolper, Daniel A.: <b>CLUMPED ISOTOPES OF HACKBERRY ENDOCARP CARBONATE RECORDS INFORMATION ON GROWING SEASON TEMPERATURE</b>
20-4	8:50 AM	Tankersley, Kenneth*; Dunning, Nicholas P.: <b>INTERPRETING <math>\delta^{13}\text{C}</math> ENRICHMENT OF SOM FROM MAIZE AGRICULTURE ON ANCIENT MAYA SITES</b>
20-5	9:05 AM	Vokhshoori, Natasha*; Rick, Torben; Braje, Todd; McCarthy, Matthew D.: <b>TESTING THE PRESERVATION OF ISOTOPE SIGNATURES IN AMINO ACIDS FROM DIAGENETICALLY ALTERED ARCHAEOLOGICAL SHELLS</b>
20-6	9:20 AM	Krause, Samantha*; Damick, Alison: <b>RECONSTRUCTING MID-LATE HOLOCENE SOIL SEQUENCES AND ANTHROPOGENIC IMPACTS WITHIN THE RIO GRANDE WATERSHED, NORTHERN NEW MEXICO</b>
20-7	9:35 AM	Solleiro-Rebolledo, Elizabeth*; Valera-Fernández, Daisy; López-Martínez, Rafael; Sedov, Sergey: <b>QUATERNARY CARBONATES IN KARSTIC LANDSCAPES OF YUCATAN PENINSULA AND THE ISLAND OF COZUMEL, MEXICO: PALEOENVIRONMENTAL RECONSTRUCTION BASED OF STABLE ISOTOPE STUDIES</b>
20-8	9:50 AM	Beach, Tim*; Doyle, Colin; Smith, Byron; Beach, Sheryl: <b>NEW CARBON ISOTOPIC PROFILES FROM WETLAND SOILS OF ANCIENT MAYA FIELDS</b>
20-9	10:05 AM	Edwards, Alexandra*; Dvoracek, Douglas; Crowe, Doug: <b>LEAD ISOTOPES AND XRF ANALYSES OF BRONZE BELL FRAGMENTS FROM THE SPANISH COLONIZATION ERA</b>
20-10	10:20 AM	Munoz, Samuel*: <b>HYDROCLIMATE VARIABILITY OF THE MISSISSIPPI RIVER BASIN IN THE COMMON ERA: IMPLICATIONS FOR MODERN AND ANCIENT HAZARDS (Invited Presentation)</b>
20-11	10:40 AM	Harrison, Emma*; Brocard, Gilles; Willenbring, Jane: <b>CATCHING CLAYS: NATURAL ARCHIVED RECORDS OF CLIMATE AND COLONIAL DISTURBANCE IN THE FLOODPLAIN OF THE RIO FAJARDO, NORTHEASTERN PUERTO RICO (Invited Presentation)</b>
20-12	11:00 AM	Serach, Lily; Ramos, Evan; Jackson, Charles; Breecker, Dan*: <b>INTERPRETING STABLE CARBON ISOTOPE PROFILES OF ORGANIC MATTER IN SOILS (Invited Presentation)</b>

## MORNING POSTER TECHNICAL SESSIONS

### SESSION NO. 21

#### **D39. Recent Advances in Continental Scientific Drilling (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

	Booth #	
21-1	1	Zambito, James*; McLaughlin, Patrick I.; Holicky, Madeline G.; Farbarik, Olivia B.; Clinkscales, Emily N.; Fries, Morgan A.: <b>EXTREMELY NEGATIVE <math>\delta^{13}\text{C}_{\text{CARB}}</math> VALUES ASSOCIATED WITH THE LATE GIVETIAN TAGHANIC BIOCRISIS IN THE NORTHERN APPALACHIAN BASIN</b>
21-2	2	Carney, Hannah*; Bova, Samantha; Rosenthal, Yair: <b>SOURCE-TO-SINK ANALYSIS OF NORTHERN PAPUA NEW GUINEA RIVER SEDIMENT DISCHARGE</b>

21-3	3	Burgess, Seth*; Vazquez, Jorge; Waythomas, Christopher F.; Wallace, Kristi: <b>DATING THE QUATERNARY OLD CROW TEPHRA VIA ZIRCON U-TH-PB-HE GEOCHRONOMETERS</b>
21-4	4	Kuehn, Stephen*; Bursik, Marcus I.; Goring, Simon; Kodama, Samuel; Kurbatov, Andrei; Lehnert, Kerstin A.; Profeta, Lucia; Ramdeen, Sarah; Quinn, Daven P.; Wallace, Kristi; Walker, Douglas: <b>MAKING TEPHRA DATA ACCESSIBLE AND INTEROPERABLE THROUGH COMMUNITY-DRIVEN BEST PRACTICES FOR DIGITAL DATA COLLECTION AND DOCUMENTATION</b>

### SESSION NO. 22

#### **T45. Recent Studies in Near Surface Geophysics to Solve Geological Problems (Posters) (GSA Geophysics and Geodynamics Division; GSA Hydrogeology Division; GSA Geoaerchaeology Division; GSA Environmental and Engineering Geology Division; GSA Soils and Soil Processes Division; GSA Karst Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

	Booth #	
22-1	5	Mousa, Ahmed*; Al-Bahadily, Hayder; Mickus, Kevin: <b>MICROGRAVITY STUDY OF THE DERBENDIKHAN DAM, NORTHEASTERN IRAQ</b>
22-2	6	Doyle, Kevin*: <b>SEDIMENTOLOGY OF DICKMAN'S POINT BEACH, SW FLORIDA – INTEGRATION OF GROUND PENETRATING RADAR</b>
22-3	7	Springs, Maria*: <b>INVESTIGATING ROCK GLACIERS IN THE EASTERN SIERRA NEVADA WITH GROUND-PENETRATING RADAR: INTERNAL STRUCTURE, COMPOSITION, AND HYDROLOGIC ROLE IN A CHANGING CLIMATE</b>
22-4	8	Andersen, Brielle*; Rubin, Allison; Rostron, Benjamin; Froese, Duane: <b>ELECTRICAL RESISTIVITY PROFILING OF BURIED VALLEY AQUIFERS IN THE EDMONTON REGION</b>
22-5	9	Molson-Moran, Brooke*; Schulmeister, Marcia; Arjwech, Rungroj; Srikraiwest, Romyupa: <b>INVESTIGATING SEASONAL IMPACTS ON SUBSURFACE SALINIZATION IN NORTHEASTERN THAILAND WITH ELECTRICAL CONDUCTIVITY TOMOGRAPHY</b>
22-6	10	Bouchakour, Imene*; Onwumelu, Chioma; Nordeng, Stephan: <b>ESTIMATION OF ANISOTROPY OF THE BAKKEN SHALE FROM ULTRASONIC VELOCITY MEASUREMENTS</b>
22-7	11	Eliä, Easton*; Ferbey, Travis; Ward, Brent: <b>MAPPING MINERAL DISPERSAL IN SUBGLACIAL TILLS FROM REMOTELY PILOTED AIRCRAFT SYSTEMS</b>

### SESSION NO. 23

#### **T169. Discovery and Preservation of Emerging Research Output Formats in the Geosciences (Posters) (Geoscience Information Society)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

	Booth #	
23-1	12	Gowen, Elise*: <b>AN OVERVIEW OF OPEN ACCESS POLICY AND SELF-ARCHIVING UPTAKE IN THE GEOSCIENCES</b>
23-2	13	Needle, Mattathias*; Mooc, Jacky; Akers, John Francis; Crider, Juliet: <b>THE STRUCTURAL GEOLOGY QUERY TOOLKIT FOR DIGITAL 3D MODELS: DESIGN YOUR OWN VIRTUAL FIELD EXPERIENCE</b>
23-3	14	Warrell, Kathleen*; Turner, Kenzie J.: <b>SIMPLIFYING DATA ENTRY AND CURATION WITH PYTHON TOOLBOXES IN AN OPEN-ENDED GEOLOGIC MAP COMPILATION DATABASE</b>
23-4	15	Dombrowski, Allison*; Hillenbrand, Ian; Malone, Joshua R.; Warrell, Kathleen; Gilmer, Amy K.; Morgan, Leah: <b>USGS GEOCHRON: A NEW DATABASE OF USGS GEOCHRONOLOGIC DATA</b>

Sunday, 10 October 2021

- 23-5 16 Stuart, William\*; Hossain, A.K.M. Azad: **SEEING THE CARBON FOR THE TREES - USING REMOTE SENSING TO MODEL FOREST CARBON**
- 23-6 17 Soto-Montero, Paola\*; Goldrich-Middaugh, Grace; Ricketts, Jason; Ma, Lin; Garcia, Victor H.; Sullivan, Pamela L.: **SPATIAL AND TEMPORAL ASSESSMENT OF THE COLORADO RIVER BASIN USING GIS TO DETERMINE THE CONTRIBUTION OF CLIMATE, LAND-USE AND LITHOLOGY TO RIVER'S WATER CHEMISTRY**
- 23-7 18 Eungard, Daniel\*: **PEDESTRIAN WALK TIME MAPS FOR TSUNAMI EVACUATION IN THE ABERDEEN AREA WASHINGTON**
- 23-8 19 Michel, Luke\*; Szeliga, Walter: **QUANTIFYING THE PERCEPTION OF THE 2011 TOHOKU TSUNAMI THROUGH COMPARISON OF MEDIA REPORTS AND TIDE GAUGE DATA**
- 23-9 20 Feldman, Hannah Z.; Davatzes, Alexandra\*; Shipley, Thomas: **AUTO-DETECTION OF GEOLOGIC FEATURES THROUGH CITIZEN SCIENCE**
- 23-10 21 Ahern, Shannon T.; Blackburn, Evan B.; Crapo, Tristanna; Fischer, Emily L.; Fokar, Lanya A.; Gifford, Stacy; Perkins, Katie; Rodriguez, Tristan; Hetherington, Callum\*; Martinez, TJ; Arif, Rauf: **INTEGRATING STORY-TELLING SKILLS INTO RESEARCH EXPERIENCES TO INCREASE IMPACT OF OUTREACH**
- 24-9 30 Saha, Subrota\*; Tushar, Mahmud Al Noor; Singh, Sonjita; Sarker, Prabir Kumar: **PALEO-BIO-CLIMATOLOGICAL EVOLUTION AND BIOMARKER EVIDENCE FOR EARLY PERMIAN COAL DEPOSITS FROM BARAPUKURIA BASIN, NORTH-WESTERN BANGLADESH**
- 24-10 31 Hogan, Hannah\*; Schoepfer, Shane D.; Xiang, Lei: **PROVENANCE OF VOLCANOGENIC SEDIMENTS IN WUCHIAPINGIAN AND EARLIEST CHANGHSINGIAN STRATA AT PENGLAITAN**
- 24-11 32 Cribb, Alison\*; Bottjer, David J.: **BIOGEOCHEMICAL CONSEQUENCES OF A SEDIMENTARY MIXED LAYER COLLAPSE IN THE WAKE OF THE END-PERMIAN MASS EXTINCTION**
- 24-12 33 Arias, Sean\*; Schoepfer, Shane: **RESUMED OCEANIC UPWELLING IN THE EARLY TRIASSIC FROM ISOTOPIC ANALYSIS OF A SPATHIAN ATOLL**
- 24-13 34 Kulenguski, Joseph T.\*; Gilleaudeau, Geoffrey J.; Pitts, Alan; Pierantoni, Pietro Paolo; Kaufman, Alan; Elrick, Maya: **URANIUM ISOTOPES IN PLATFORM CARBONATES RECORD A MAJOR EXPANSION OF GLOBAL OCEAN EUXINIA ACROSS CRETACEOUS OAE 2**
- 24-14 35 Bourdon, Matthew\*; Byerly, Jacob; Arnaud-Vanneau, Annie; Suarez, Marina B.; Adatte, Thierry; Godet, Alexis: **THE IMPACT OF APTIAN SUPER GREENHOUSE CONDITIONS ON THE URGONIAN SUBTROPICAL CARBONATE PLATFORM**
- 24-15 36 Gill, Benjamin\*; Aberhan, Martin; Caruthers, Andrew H.; Golding, Martyn; Gröcke, Darren R.; Marroquin, Selva M.; McCabe, Kayla; Owens, Jeremy; Them, Theodore R.; Trabucho Alexandre, João; Veenma, Yorick: **THE GROTTO CREEK SUCCESSION: A UNIQUE RECORD OF LATE TRIASSIC – EARLY JURASSIC ENVIRONMENTAL AND BIOLOGIC CHANGE**

## SESSION NO. 24

### *D14. Recent Advances in Paleoclimatology/Paleoceanography (Posters)*

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 24-1 22 Scotese, Christopher\*: **AN ATLAS OF PHANEROZOIC PALEOGEOGRAPHIC MAPS: THE SEAS COME IN AND THE SEAS GO OUT**
- 24-2 23 Dente, Chloe; Frederick, Daniel\*: **FORAMINIFERAL ASSEMBLAGE OF TIDAL FLATS IN ELD AND BUDD INLETS, PUGET SOUND, WASHINGTON STATE, USA**
- 24-3 24 Saha, Subrota Kumar\*; Nishi, Fatematuz Zohora; Mahir, Tajwar; Tushar, Mahmud Al Noor: **THE USE OF FORAMINIFERA AS INDICATORS OF TIDAL EFFECTS IN ESTUARINE DEPOSITS AND ASSESSMENT OF RELATIVE SEA LEVEL CHANGE AT SOUTH-CENTRAL COASTAL REGIONS OF BANGLADESH**
- 24-4 25 Diaz Santana, Gabriela\*; Pietsch, Carlie; Pacifico, Nikka P.; Portner, Ryan A.: **EFFECTS OF A CALDERA-FORMING ERUPTION ON THE FORAMINIFERAL COMMUNITY AT AXIAL SEAMOUNT, JUAN DE FUCA RIDGE**
- 24-5 26 Choquel, Constance\*; Geslin, Emmanuelle; Metzger, Edouard; Filipsson, Helena; Risgaard-Petersen, Nils; Launeau, Patrick; Thibault de Chanvalon, Aubin; Jean-Soro, Liliane; Giraud, Manuel; Jauffrais, Thierry; Jesus, Bruno; Mouret, Aurelia: **LARGE CONTRIBUTION OF BENTHIC FORAMINIFERAL AND MACROFAUNAL BIOIRRIGATION TO COUPLING BETWEEN NITROGEN AND MANGANESE CYCLES IN A FJORD ENVIRONMENT**
- 24-6 27 De Palma, Maurizio\*; Cui, Ying; Jiang, Shijun: **MULTIPLE CO<sub>2</sub> EMISSION PULSES SUPPORTED BY NEW GEOCHEMICAL DATA IN THE EASTERN TETHYS DURING THE PETM**
- 24-7 28 Flynn, Andrew\*; Beverly, Emily; Zellman, Kristine; Fricke, Henry; Williamson, Thomas E.: **PRELIMINARY EARLY EOCENE AGE MODEL AND TERRESTRIAL PALEOENVIRONMENT RECORD FROM THE SAN JUAN BASIN, NEW MEXICO, USA**
- 24-8 29 Rafter, Madison\*; Cotton, Jennifer; Hyland, Ethan; Ghosh, Adit; Raigemborn, Maria Sol; Tineo, David; Insel, Nadja: **A NEW PALEOCLIMATE PROXY FOR GROWING SEASON PRECIPITATION USING PALEOSOL GEOCHEMISTRY: APPLICATIONS FOR RECONSTRUCTING SOUTH AMERICAN MONSOON CONDITIONS IN NORTHWEST ARGENTINA**

## SESSION NO. 25

### *D18. Recent Advances in Paleontology II (Posters)*

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 25-1 37 Prothero, Donald\*: **THE EVOLUTION OF NORTH AMERICAN PECCARIES**
- 25-2 38 Balassa, Daniella\*; Prothero, Donald; Olson, Sara: **DID PRONGHORNS BECOME SMALLER AFTER THE ICE AGES?**
- 25-3 39 Olson, Sara\*; White, Richard S.; Prothero, Donald; Balassa, Daniella; Marriott, Katherine; Syverson, V.J.P.: **ONTOGENETIC GROWTH IN THE PLEISTOCENE PRONGHORN STOCKOCEROS FROM SAN JOSECITO CAVE, MEXICO**
- 25-4 40 Cleaveland, Casey\*; Prothero, Donald; Stevens, Margaret S.: **THE LAST OF THE OREODONTS: A REVIEW OF THE USTATOCHOERINAE (MERYCOIDODONTIDAE: ARTIODACTYLA)**
- 25-5 41 Holguin-Caldera, Daniel\*; McAdams, Neo: **DIFFERENTIATION OF THE S<sub>b</sub> AND S<sub>c</sub> ELEMENTS OF THE CONODONT SPECIES DAPSILODUS OBLIQUICOSTATUS USING LANDMARK-BASED GEOMETRIC MORPHOMETRICS**
- 25-6 42 Panasci, Giulio; Varricchio, David J.; Martin, Tony\*: **TRACKS OF ORNITHOPODS PUTTING THEIR BEST FEET FORWARD IN THE FRONTIER FORMATION (CONIACIAN), MONTANA**
- 25-7 43 Gavirneni, Siddharth\*; Friend, Dana; Allmon, Warren: **THE TURRITELLA NASUTA GROUP OF THE EOCENE GULF AND ATLANTIC COASTAL PLAIN**
- 25-8 44 Arens, Nan Crystal; Garcia Tomas, Catalina\*; Ivany, Linda: **LEAVES AND POLLEN FROM THE LOWER EOCENE OF HATCHETIGBEE BLUFF, ALABAMA, USA**
- 25-9 45 Potter, Jacob\*; Falk, Amanda: **THE GLIDING HINDLIMB CONFIGURATION OF SHAROVIPTERYX MIRABILIS, THE WORLD'S ONLY HINDLIMB GLIDER AND THE FIRST KNOWN GLIDING VERTEBRATE**



- 25-10 46 Hemingway, Susan S.; Kendrick, David C.\*: **LITTLE LAGERSTÄTTEN — ACRTARCH ABUNDANCES IN A CHERT NODULE FROM THE LOWER MIDDLE DEVONIAN ONONDAGA LIMESTONE NEAR PHELPS, NEW YORK, USA**
- 25-11 47 Lavin, Samuel\*; Markham, Andrew; Brightly, William; Crifó, Camilla; Gallaher, Timothy J.; Lowe, Alex; Novello, Alice; Stiles, Elena; Wilson, Paige; Stromberg, Caroline A.E.: **INVESTIGATING PHYLOGENETIC PATTERNS OF PALM PHYTOLITH MORPHOLOGY AND APPLICATIONS FOR RECONSTRUCTING THE PALEOECOLOGY OF THE ARECACEAE**
- 25-12 48 Vega, Eduardo Josue\*: **RECENT ADVANCES IN CARIBBEAN PALEONTOLOGY: A CASE STUDY OF OLIGOCENE FAUNA FROM THE SAN SEBASTIÁN FORMATION, PUERTO RICO**
- 25-13 49 Walker, Mikayla\*; Schaefer, Scott N.: **FLORA AND FAUNA OF THE PLEISTOCENE OAK CREEK FORMATION PEAT DEPOSITS**
- 25-14 50 Chameroy, Eric\*; Rowland, Stephen: **A POTENTIAL NEW CANID TRACK ICHNOSPECIES FROM THE MID-MIOCENE THUMB MEMBER OF THE HORSE SPRING FORMATION, LAKE MEAD REGION, SOUTHERN NEVADA**
- 25-15 51 Frederico, Charles Austin; McLain, Matthew\*: **NEW CAENAGNATHID (THEROPODA: OVIRAPTOROSAURIA) MATERIAL FROM THE LANCE FORMATION (MAASTRICHTIAN) OF WYOMING**
- 25-16 52 Rios, Pablo\*; Street, Christian; Wittmer, Jacalyn M.; Michelson, Andrew V.: **A DICHOTOMOUS KEY TO QUICKLY DIFFERENTIATE BETWEEN OSTRACODES TO ESTABLISH PRE-EUROPEAN ECOSYSTEM STATE FROM CONESUS LAKE**
- 25-17 53 Bradley, Alexander\*; Adrain, Jonathan M.: **SYSTEMATIC REVISION OF MARJUMAN STAGE (MIAOLINGIAN SERIES: GLOBAL GUZHANGIAN STAGE) TRILOBITES FROM THE LINCOLN PEAK FORMATION, EASTERN NEVADA, WITH NEW SILICIFIED COLLECTIONS**
- 25-18 54 Ely, Ricardo\*: **EVOLUTIONARY RATES OF PHENOTYPIC INTEGRATION AND DIETARY ECOMORPHOLOGY IN CARNIVORA (MAMMALIA)**
- 25-19 55 Spagnuolo, Edward\*; Gordhan, Khel; Souto, Camilla; Hunt, Gene: **EXPLORING MORPHOLOGICAL DISPARITY IN THE CASSIDULOIDA (ECHINODERMATA, ECHINOIDEA) USING GEOMETRIC MORPHOMETRICS**
- 25-20 56 Kelley, Kara\*; McDonald, Andrew T.; Wolfe, Douglas G.: **A POLYGLYPHANODONTINE LIZARD FROM THE MORENO HILL FORMATION (TURONIAN, UPPER CRETACEOUS), ZUNI BASIN, NEW MEXICO**
- 25-21 57 Hilt, Sawyer\*; Goodwin, David H.; Gillikin, David; Wanamaker, Alan D.; Verheyden, Anouk: **THE INFLUENCE OF DIFFERENTIAL GROWTH RATES ON HIGH-RESOLUTION BIOGEOCHEMICAL ARCHIVES FROM BIVALVE MOLLUSKS**
- 25-22 58 Stemann, Thomas\*: **CORALS ON SOFT SUBSTRATES IN THE CAMPANIAN OF JAMAICA**
- 25-23 59 Cone, Marjean\*; O'Brien, Monika; Christie, Max; Sclafani, Judith A.: **GEOMETRIC MORPHOMETRICS OF CINCINNETINA (BRACHIOPODA) ACROSS THE RICHMONDIAN INVASION EVENT IN THE LATE ORDOVICIAN**
- 25-24 60 Tan, Yu Kai\*; Tan, Andy (Dick Yee); Burke, Ann C.; Thomas, Ellen: **3D MORPHOMETRY QUANTIFIES COST OF ECOPHENOTYPIC COVARIANCE IN FRESHWATER MUSSELS**
- 25-25 61 Fitzgerald, Erin\*; Nagel-Myers, Judith: **MORPHOMETRIC CHANGES IN AN ANTARCTIC NASSARIID GASTROPOD DURING THE EOCENE**
- 25-26 62 Van Houte, Emma\*; Hegna, Thomas; Butler, Aodhan: **A NEW GENUS AND SPECIES OF ?PARTHENOGENIC ANOSTRACAN (CRUSTACEA, BRACHIOPODA, ?THAMNOCEPHALIDAE) FROM THE CRETACEOUS KOONWARRA FOSSIL BEDS IN AUSTRALIA**

- 25-27 63 Monferran, Mateo M.\*; Perez, Damian E.; Gallego, Oscar F.; Hegna, Thomas: **PHYLOGENETIC ANALYSIS OF THE FAMILY AFROGRAPTIDAE (BRANCHIOPODA-DIPLOSTRACA-ESTHERIELLINA)**
- 25-28 64 Herring, Theodore\*; Juhn, Mark; Van Valkenburgh, Blaire: **EVALUATION OF DISPARITY METRICS FROM MORPHOLOGICAL CHARACTER MATRICES AS PROXIES FOR FUNCTIONAL OVERLAP**
- 25-29 65 Negron, Kelsey\*; Tennakoon, Shamindri; Portell, Roger W.; Kowalewski, Michal: **A MORPHOLOGICAL COMPARISON OF RECENT AND PLEISTOCENE *PHRONTIS VIBEX* (MOLLUSCA: GASTROPODA: NASSARIIDAE) FROM SOUTHWESTERN FLORIDA**
- 25-30 66 Jiménez Becerril, Josefina Itzel\*; Pérez Crespo, Víctor; Arroyo-Cabrales, Joaquin: **PRELIMINARY REPORT FOR PLEISTOCENE CAMELIDS FROM SANTA LUCIA, STATE OF MÉXICO, MÉXICO**

**SESSION NO. 26**

***T21. From the Afar Rift to Alaskan Arcs (and the Oregon Plateau in between): Honoring the Career and Contributions of William K. Hart (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)***

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |                                                                                                                                                                                                                                                                                      | Booth # |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 26-1 67 Cahoon, Emily*; Streck, Martin; Koppers, Anthony A.P.: <b>THE SIGNIFICANCE OF GEOCHEMISTRY AND ERUPTIVE TIMING IN EXTENDING SPATIAL DISTRIBUTION AND EVALUATING STRATIGRAPHIC CORRELATION OF THE PICTURE GORGE BASALT</b>                                                    |         |
| 26-2 68 Fox, Lena*; Streck, Martin; Cahoon, Emily: <b>IDENTITY OF CRBG LAVAS IN THE GREATER VALE AREA, EASTERN OREGON: IMPLICATIONS FOR VENTING GRANDE RONDE BASALT (GRB) UNITS LOCALLY, WITHOUT LATERAL CONNECTION TO MAIN GRB UNITS</b>                                            |         |
| 26-3 69 Karrasch, Alexander*; Brueseke, Matthew; Adams, David C.: <b>NEW BULK ROCK GEOCHEMICAL DATA FOR &lt;10 MA VOLCANISM IN JACKSON HOLE AND THE UPPER WIND RIVER BASIN, WY: COMPARATIVE GEOCHEMISTRY TO SNAKE RIVER PLAIN –YELLOWSTONE BASALTS AND PETROGENETIC IMPLICATIONS</b> |         |
| 26-4 70 Endrich, Alyssa*; Brueseke, Matthew; Walters, Benjamin J.; Karrasch, Alexander: <b>PETROGENESIS OF CENOZOIC BASALTS IN THE CENTENNIAL VALLEY AND VICINITY IN SW MONTANA: OUT-OF-SEQUENCE SNAKE RIVER PLAIN BASALT ERUPTIONS NORTH OF THE EASTERN SNAKE RIVER PLAIN?</b>      |         |
| 26-5 71 McCombs, Taylor*; Rivera, Tiffany; Jicha, Brian: <b>PETROGENESIS AND GEOCHRONOLOGY OF BASALTIC LAVAS FROM BLACK ROCK DESERT, UTAH</b>                                                                                                                                        |         |
| 26-6 72 Espinoza Lugo, Mariana*; Fairchild, Megan; Rivera, Tiffany; Jicha, Brian: <b>DEVELOPING A VIRTUAL FIELD TRIP ABOUT QUATERNARY VOLCANISM IN THE BLACK ROCK DESERT, UTAH</b>                                                                                                   |         |
| 26-7 73 Hennig, Haran*; Katzir, Yaron; Vapnik, Yevgeny; Yudalevitz, Zinovi: <b>THE ORIGIN OF CONTINENTAL ALKALINE MAFIC MAGMATISM: MELT INCLUSIONS PERSPECTIVE ON MESOZOIC LAVAS FROM MAKHTESH RAMON, ISRAEL</b>                                                                     |         |

**SESSION NO. 27**

***D24. Recent Advances in Quaternary Geology and Geomorphology (Posters)***

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

	Booth #	
27-1	74	Lehnigk, Karin*; Larsen, Isaac J.; Quirk, Brendon; David, Scott: <b>THE TIMING OF MISSOULA FLOODS ON THE COLUMBIA PLATEAU: IMPLICATIONS FOR THE AGE OF GRAND COULEE</b>
27-2	75	Greenbaum, Noam*; Zituni, Rami; Porat, Naomi; Benito, Gerardo: <b>MAGNITUDE, FREQUENCY AND HAZARD ASSESSMENT OF THE LARGEST FLOODS IN STEEP, MOUNTAINOUS BEDROCK CHANNELS OF THE SOUTHERN JUDEAN DESERT, ISRAEL</b>
27-3	76	Breckenridge, Andy*; Fisher, Timothy: <b>TWO UNUSUAL SETS OF GIANT DUNES CREATED BY CATASTROPHIC ICE-DAM FAILURE AND GLACIAL LAKE DRAINAGE INTO A PROGLACIAL LAKE, UPPER PENINSULA OF MICHIGAN, USA</b>
27-4	77	Adams, Trent*; MacInnes, Breanyn: <b>GEOMORPHIC IMPACTS CAUSED BY HISTORIC LANDSLIDE TSUNAMIS IN ALASKA, U.S.A., BRITISH COLUMBIA, CANADA, AND WESTERN GREENLAND</b>
27-5	78	Aslan, Andres*; Buxton, Sherri; Heizler, Matthew; Cole, Rex D.; Orelup, Aaron P.; Weller, Leyna; Arinze, Daniel: <b>MIOCENE RIVERS OF WESTERN COLORADO: IMPLICATIONS FOR THE TIMING OF RIVER INTEGRATION IN THE ROCKY MOUNTAINS</b>
27-6	79	Taylor, Robert*; Brennand, Tracy; Lian, Olav: <b>THE NATURE AND TIMING OF POSTGLACIAL INCISION OF THE NICOLA RIVER, BRITISH COLUMBIA</b>
27-7	80	Delikowski, Hunter M.*; Faulkner, Douglas J.: <b>FLUVIAL SYSTEM RESPONSE TO ABRUPT BASE-LEVEL FALL: ANALYSIS OF TRIBUTARY STREAMS AND THEIR TERRACE REMNANTS IN THE LOWER CHIPPEWA RIVER WATERSHED</b>
27-8	81	Taylor, Stephen*: <b>LIDAR-BASED HYDROGEOMORPHIC ANALYSIS OF THE LUCKIAMUTE RIVER BASIN, CENTRAL OREGON COAST RANGE</b>
27-9	82	Kerr, Phillip*: <b>PRESERVATION OF FORM: THE LONGEVITY OF GLACIAL INFLUENCE ON DRAINAGE PATTERNS</b>
27-10	83	Sims, Alyssa*; Bowen, Mark; Johnson, William C.: <b>RECONSTRUCTING REGIONAL PALEOENVIRONMENTS AND GEOMORPHIC HISTORY OF HIGH PLAINS PLAYA-LUNETTE SYSTEMS</b>
27-11	84	Beeton, Jared*: <b>LATE-QUATERNARY ENVIRONMENTAL CHANGE ON THE MONTE VISTA NATIONAL WILDLIFE REFUGE, COLORADO, USA</b>
27-12	85	Barna, Joshua*; Bigelow, Nancy; Orkhonselenge, Alexander; Fowell, Sarah J.; Gardner, William R.M.; Burentogtokh, Jargalan; Honeychurch, William: <b>HOLOCENE PALEOENVIRONMENTAL CHANGES IN THE FOREST-STEPPE ECOTONE OF NORTHERN MONGOLIA BASED ON PALYNOLOGICAL AND SEDIMENTOLOGICAL ANALYSES OF CORES FROM LAKE KHARGAL</b>
27-13	86	Maine, Brittney*; Hagedorn, Klaus: <b>CONSTRAINING SUBMARINE GROUNDWATER DISCHARGE TO CORAL REEFS FROM SALINITY, RADON AND SILICA SYSTEMATICS – INSIGHTS FROM MO'OREA AND TETIAROA, FRENCH POLYNESIA</b>
27-14	87	Bench, Tristan*; Feathers, James K.: <b>TRIALLING THE USE OF CONTROLLED EXPOSURE EXPERIMENTS FOR OPTICAL SURFACE EXPOSURE DATING ON QUARTZITE QUARRY SURFACES IN WASHINGTON STATE</b>
27-15	88	Ritter, John*; Seitz, Kaitlyn E.: <b>REVISITING MULTIPARAMETER RELATIVE-AGE METHODS FOR MAPPING LATE QUATERNARY FAN DEPOSITS OF THE SODA MOUNTAINS, MOJAVE DESERT, CALIFORNIA, WITH STRUCTURE-FROM-MOTION PHOTOGRAMMETRY</b>
27-16	89	Dewet, Carol*; Driscoll, Elizabeth; de Wet, Andrew; Godfrey, Linda; Jordan, Teresa E.; Caterham, Catie: <b>QUATERNARY FOSSIL TUFAS PROVIDE A RECORD OF PAST HUMIDITY IN THE HYPERARID ATACAMA BASIN, ATACAMA DESERT, CHILE</b>
27-17	90	Miller, McKenzie*; Eppes, Martha Cary; Lamp, Jennifer L.; Swanger, Kate M.; Dahlquist, Maxwell P.; Reynolds, Valerie:

**EXPLORING RELATIONSHIPS BETWEEN POROSITY, MINERALOGY, AND EXPOSURE AGE OF ROCKS SAMPLED FROM THE MULLINS GLACIER, MCMURDO DRY VALLEYS, ANTARCTICA**

27-18	91	Ferry, Nick*; Powell, Ross D.; Brigham-Grette, Julie: <b>MODERN SEDIMENTARY PROCESSES AND DEPOSITS AT THE KRONEBREEN-KONGSVEGEN TIDEWATER GLACIER FRONT, KONGSFJORDEN, SVALBARD, NORWAY</b>
27-19	92	Brigham-Grette, Julie*; Goldner, Mark; Mckeon, Kelly; Kirshen, Alexander: <b>TIDEWATER MARGIN INFLUENCE OF MELT-WATER PLUMES AND SEDIMENTATION AT THE HEAD OF KONGSFJORD, SVALBARD</b>
27-20	93	Gunther, Daniel; Jungers, Matthew*: <b>QUANTIFYING THE ROLE OF TREE THROW IN HILLSLOPE PROCESSES OF THE WESTERN APPALACHIAN PLATEAU</b>

## SESSION NO. 28

### *D27. Recent Advances in Sediments, Clastic (Posters)*

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

	Booth #	
28-1	94	Groff, Mia; Holicky, Madeline G.; Larkin, Katherine; Pulido, Martina; Wilde, Kallan; Hinkle, Margaret; Lyon, Eva*: <b>CHARACTERIZING LAND USE HISTORY AND ASSESSING POTENTIAL GEOCHEMICAL CONTAMINANTS FROM LEGACY SEDIMENTS AND IMPOUNDED WATER IN ROCKBRIDGE COUNTY, VA</b>
28-2	95	Deckman, Max*; Lovelace, David M.; Holland, Steven M.: <b>LATERAL VARIABILITY OF SPLAY DEPOSITS IN A DISTRIBUTIVE FLUVIAL SYSTEM: UPPER TRIASSIC CHUGWATER GROUP, FREMONT COUNTY, WYOMING</b>
28-3	96	Valarezo, Joe*; Valarezo, Mauricio; Reyes, Pedro: <b>NEW EVIDENCE OF MARINE TRANSGRESSION IN THE INTERMONTANE BASINS OF ECUADOR DURING THE MIDDLE MIOCENE</b>
28-4	97	Haralson, Marlee*; McCarthy, Paul J.; Fiorillo, Anthony R.: <b>THE CHIGNIK FORMATION, ANIAKCHAK NATIONAL MONUMENT &amp; PRESERVE, ALASKA: A LATE CRETACEOUS (CAMPANIAN-MAASTRICHTIAN) ESTUARY-FILL</b>
28-5	98	Wu, Sixuan*; Yang, Wan; Crowley, James L.: <b>CONSTRAINTS ON AMALGAMATION OF THE SOUTHERN CENTRAL ASIAN OROGENIC BELT FROM DETRITAL ZIRCON FROM THE UPPERMOST CARBONIFEROUS TO LOWER TRIASSIC GREATER TURPAN-JUNGGAR RIFT BASIN, BOGDA MOUNTAINS, NW CHINA</b>
28-6	99	Monami, Shifat*; Uddin, Ashraf; Hames, Willis: <b>SEDIMENT COMPOSITION AND <sup>40</sup>AR/<sup>39</sup>AR AGES OF DETRITAL MUSCOVITE FROM POTTSVILLE CLASTIC WEDGES IN THE NORTHERN APPALACHIAN BASIN, PENNSYLVANIA: PROVENANCE AND DISPERSAL DURING THE LATE PALEOZOIC</b>
28-7	100	Bohara, Pratap*: <b>WITHIN- AND BETWEEN-MEMBER LITHOLOGICAL AND GEOCHEMICAL VARIATIONS IN THE WOODFORD SHALE IN SOUTHERN OKLAHOMA</b>
28-8	101	Stevens, Molly R.*; Freed, Madeline M.; Elick, Jennifer M.: <b>MEGA CURRENT BEDFORMS OF THE SUSQUEHANNA RIVER: FEATURES THAT FORM FROM MAJOR FLOOD EVENTS</b>
28-9	102	Freed, Madeline M.*; Stevens, Molly R.; Elick, Jennifer M.: <b>COMPOSITIONAL ANALYSES OF CHRISTMAS 2020 FLOOD ALLUVIUM OF THE SUSQUEHANNA RIVER</b>
28-10	103	Lo, Edward*; Matocha, Chris; McGlue, Michael; Silva, Aguinaldo: <b>CLAY MINERALOGY OF MODERN FLUVIAL SEDIMENTS FROM THE PANTANAL BASIN, BRAZIL</b>
28-11	104	Homan, Renee*; Currie, Brian; Rice, Trezevant; Foust, Livia: <b>POTENTIAL LATE CRETACEOUS DISPLACEMENT ON THE LITTLE GRAND FAULT DURING MANCOS SHALE</b>

- DEPOSITION: EVIDENCE FROM HATCH MESA, GRAND COUNTY, UTAH**
- 28-12 105 Marshall, Madeline\*; Bergeron, Lauren; Jatta, Moses: **COMPARISON OF GLAUCONITIC UNITS OF THE NORTHERN AND SOUTHERN MORONDAVA BASIN, CRETACEOUS OF WESTERN MADAGASCAR**
- 28-13 106 Morgan, Ryan\*; Juntunen, Kristopher; Landreth, Marion: **CIRCULICHNIS LEOMONTI, A NEW ICHNOSPECIES FROM THE LATE CAMBRIAN OF TEXAS**
- 28-14 107 Wester, Logan; Akins, Ciarra; Holloman, Clayton; Morgan, Ryan\*: **PALEOECOLOGICAL ASSESSMENT OF THE PENNSYLVANIAN COLONY CREEK SHALE, TEXAS**
- 28-15 108 Maithel, Sarah A.\*; Brand, Leonard R.; Whitmore, John: **CHARACTERIZING VARIATION AMONG PRINTS INTERPRETED AS "RAINDROP IMPRESSIONS" IN THE PERMIAN COCONINO SANDSTONE (NORTHERN ARIZONA, USA)**
- 28-16 109 Konavaluk, Hanna\*; Finzel, Emily; Horkley, L. Kenneth: **COMPARISON BETWEEN GEOCHRONOLOGIC AND GEOCHEMICAL PROVENANCE MODELS FOR CRETACEOUS SEDIMENTARY ROCKS IN SOUTHWESTERN MONTANA**

**SESSION NO. 29**

**T6. Hot Rocks: High-Temperature Microstructures from Mantle to Surface (Posters) (GSA Structural Geology and Tectonics Division; GSA Geochronology Division; GSA Geophysics and Geodynamics Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |      | Booth # |                                                                                                                                                                                                                                       |
|------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 29-1 | 110     | Leib, Susan*; Hetherington, Callum; Barnes, Calvin; Stowell, Harold; Bollen, Elizabeth M.: <b>PETROCHRONOLOGY OF THE GOLD FLAT AMPHIBOLITE AND THE ROLE OF HIGH-GRADE NEVADAN METAMORPHISM</b>                                        |
| 29-2 | 111     | Davis, Niya; Hughes, Brendan; Gottardi, Raphael*; Casale, Gabriele: <b>FLUID PATHWAYS IN DETACHMENT SHEAR ZONE: INSIGHT FROM FRACTURE AND FLUID INCLUSION ANALYSIS FROM THE RAFT RIVER DETACHMENT SHEAR ZONE (UTAH)</b>               |
| 29-3 | 112     | Baskin, Jillyan*; Casale, Gabriele; Levine, Jamie S.F.; Michels, Zachary: <b>KINEMATIC VORTICITY ANALYSIS ACROSS THE TALLULAH FALLS DOME, NE GEORGIA, USA</b>                                                                         |
| 29-4 | 113     | Platt, John*: <b>GRAIN-SIZE PIEZOMETRY: SUBGRAINS AND NEW GRAINS IN THEORY AND IN PRACTICE</b>                                                                                                                                        |
| 29-5 | 114     | Brown, Virginia*; Miranda, Elena; Klepeis, Keith; Schwartz, Joshua: <b>MICROKINEMATIC ANALYSIS OF STRAIN GRADIENTS IN THE MIDDLE CRUST OF THE GEORGE SOUND SHEAR ZONE, NEW ZEALAND</b>                                                |
| 29-6 | 115     | Caban, Isabelle*; Seymour, Nikki M.; Bernard, Rachel E.: <b>CHARACTERIZATION OF QUARTZ DEFORMATION IN THE OROCOPIA SCHIST, NORTHERN PLOMOSA MOUNTAINS USING EBSD AND MICROSTRUCTURAL ANALYSES</b>                                     |
| 29-7 | 116     | Austin, Sarah*; Mitra, Gautam: <b>USING TEMPERATURE AND MICROSTRUCTURAL ANALYSES OF REACTION RIM TAILS ON PORPHYROCLASTS TO DETERMINE DEFORMATION CONDITIONS IN GRANITIC BASEMENT ROCKS IN THE KOREAN COLLISION BELT, SOUTH KOREA</b> |

**SESSION NO. 30**

**T11. Recent to Long-Term Slip Histories of Active Faults and Folds in Cascadia (Posters) (GSA Structural Geology and Tectonics Division; GSA Structural Geology and Tectonics Division; GSA Geophysics and Geodynamics Division; GSA Quaternary Geology and Geomorphology Division; GSA Geoinformatics and Data Science Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |       | Booth # |                                                                                                                                                                                                                                                      |
|-------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 30-1  | 117     | Trexler, Charles C.*; Kelsey, Harvey M.; Furlong, Kevin P.: <b>ACTIVE DEFORMATION ALONG MULTIPLE STRANDS OF THE NORTHERN MAACAMA FAULT, MENDOCINO COUNTY, CALIFORNIA, FROM LIDAR-DERIVED TOPOGRAPHIC DATA</b>                                        |
| 30-2  | 118     | Team, Taylor; Cashman, Susan*; Michalak, Melanie: <b>NEOGENE-QUATERNARY FAULTING IN THE KLAMATH MOUNTAINS PROVINCE, CALIFORNIA AND OREGON: EVIDENCE FROM GEOLOGY AND THERMOCHRONOLOGY</b>                                                            |
| 30-3  | 119     | Kirby, Eric*; McKenzie, Kirsty A.; Furlong, Kevin; Hefner, William: <b>GEOMORPHIC FINGERPRINTS OF ACTIVE FAULTS IN THE SOUTHERN CASCADIA FOREARC AND THEIR GEODYNAMIC SIGNIFICANCE</b>                                                               |
| 30-4  | 120     | Mckenzie, Kirsty*; Kirby, Eric; Kelsey, Harvey M.; Rittenour, Tammy: <b>LONG-TERM SLIP ACROSS THE YAQUINA BAY FAULT REVEALED BY IRSL DATING OF UPLIFTED MARINE TERRACES</b>                                                                          |
| 30-5  | 121     | Mongovin, Daniel D.*; Taylor, Michael H.; Bemis, Sean; Hoxey, Andrew K.R.; Campbell, Clay: <b>DOCUMENTATION OF QUATERNARY DEXTRAL ACTIVITY ON THE TUMALO FAULT, SISTERS FAULT ZONE, CENTRAL OREGON</b>                                               |
| 30-6  | 122     | Blakely, Richard*; Anderson, Megan; Bennett, Scott; Sherrod, Brian L.; Staisch, Lydia; Wells, Ray: <b>CASCADIA BACKARC-FOREARC TECTONIC LINKS INTERPRETED FROM POTENTIAL-FIELD ANOMALIES, GEOLOGIC MAPPING, AND PALEOSEISMOLOGY</b>                  |
| 30-7  | 123     | Wells, Ray*; Bennett, Scott: <b>THE GALES CREEK FAULT AT SCOGGINS DAM: AN ACTIVE FAULT IN THE NORTHWEST OREGON COAST RANGE</b>                                                                                                                       |
| 30-8  | 124     | Horst, Alison; Amaral, Chelsea; Stanton, Kelsay M.*; von Dassow, Wesley; Reedy, Tabor; Anderson, Megan; Lau, Todd; Steely, Alexander N.: <b>SUBSURFACE STRUCTURES OF COASTAL SOUTHWESTERN WASHINGTON USING POTENTIAL-FIELDS GEOPHYSICAL MODELING</b> |
| 30-9  | 125     | Lau, Todd*; Anderson, Megan; Steely, Alexander N.; Horst, Alison; Amaral, Chelsea; Reedy, Tabor; von Dassow, Wesley; Stanton, Kelsay M.: <b>GEOPHYSICAL INSIGHT INTO THE DOTY FAULT ZONE: POTENTIAL FIELD MODELING AND CONSTRAINTS ON ACTIVITY</b>   |
| 30-10 | 126     | Hambrick, Mary Catherine*; Hammons, Michael; Reynoso-Sujo, Karla; Bowling, Kathryn: <b>PRELIMINARY VIRTUAL INVESTIGATION OF THE NEOTECTONICS OF THE YAKIMA FOLD BELT USING EMERGING DIGITAL MAPPING AND GEODETIC TECHNIQUES</b>                      |

**AFTERNOON ORAL TECHNICAL SESSIONS**

**SESSION NO. 31**

**D23. Recent Advances in Quaternary Geology and Geomorphology**

1:30 PM, Oregon Convention Center, D137

Julie Brigham-Grette and Karl W. Wegmann, Presiding

- |      |         |                                                                                                                                                                          |
|------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | 1:30 PM | <b>INTRODUCTORY REMARKS</b>                                                                                                                                              |
| 31-1 | 1:35 PM | Galster, Josh*; Galster, George C.: <b>DAM REMOVALS AND ENVIRONMENTAL JUSTICE</b>                                                                                        |
| 31-2 | 1:50 PM | Shobe, Charles*; Campforts, Benjamin; Bower, Samuel J.: <b>THE UNCERTAIN FUTURE OF LANDSCAPES SUBJECTED TO MOUNTAINTOP REMOVAL MINING</b>                                |
| 31-3 | 2:05 PM | Horisk, Kaitlyn*; Ivory, Sarah; McCorriston, Joy: <b>COMPLEX INTERACTIONS BETWEEN PLANTS, PEOPLE, AND PRECIPITATION IN DHOFAR, OMAN FROM THE MID-HOLOCENE TO PRESENT</b> |

AM

SUNDAY

POSTERS

Sunday, 10 October 2021

- 31-4 2:20 PM Medvedev, Sergei\*; Hartz, Ebbe H.: **LITHOSPHERE RESPONSE TO LOCALIZED EROSION: MODEL AND CASE STUDIES**
- 31-5 2:35 PM Gibbs Schnucker, Sara\*; Lepper, Kenneth: **FORMATION AND EVOLUTION OF THE STOCKTON ISLAND TOMBOLO REFINED BY OSL GEOCHRONOLOGY**
- 2:50 PM **BREAK**
- 31-6 3:00 PM Wilson, Kat\*; Mohrig, David; Kerans, Charles; Moore, Paul J.: **GEOMORPHOLOGY AND STRATIGRAPHY OF CARBONATE COASTAL DUNE COMPLEXES**
- 31-7 3:15 PM Hampton, Ryan\*: **WINDBLOWN SNOW BEDFORMS AND THEIR IMPACTS ON SNOW WATER EQUIVALENCY, ON TRONSEN RIDGE, WENATCHEE RANGE, WASHINGTON**
- 31-8 3:30 PM Strickland, Ryan\*; Covington, Matthew; Gulley, J.; Blackstock, Joshua; Kayastha, Rijan Bhakta; Sherpa, Dawa Tshering: **SCALE INVARIANCE OF TOPOGRAPHIC DEPRESSIONS ON HIMALAYAN DEBRIS-COVERED GLACIERS**
- 31-9 3:45 PM Dawes, Ralph\*: **EVALUATING THE GLACIAL UNDERBURST HYPOTHESIS IN THE OKANOGAN LOBE REGION OF THE CORDILLERAN ICE SHEET, NORTH-CENTRAL WASHINGTON (USA) AND SOUTH-CENTRAL BRITISH COLUMBIA (CANADA)**
- 31-10 4:00 PM Stewart, Alexander\*; Perry, Calum A.: **EVALUATING RECORD-WEATHER-INITIATED ROOT EXPOSURE AND EROSION AT A RECREATION SITE, GRASSE RIVER, CANTON, NY**
- 31-11 4:15 PM Graham, Brandon\*; Briner, Jason P.; Young, Nicolas; Balter-Kennedy, Allie; Schaefer, Joerg M.: **COMBINING UAV TERRAIN ANALYSIS AND *IN SITU* COSMOGENIC <sup>10</sup>BE INVENTORIES TO DETERMINE LITTLE ICE AGE SUBGLACIAL ABRASION: QUARRYING RATIO AT JAKOBSHAVN FORE-FIELD**
- 4:30 PM **DISCUSSION**
- 31-12 4:45 PM Mijum, Moshammat\*; Bristol, Katie; Tremblay, Marissa; Sprain, Courtney: **A MODEL FRAMEWORK FOR COSMOGENIC NUCLIDE PRODUCTION RATES THROUGH DEEP TIME**

### SESSION NO. 32

#### *D45. Recent Advances in Sediments and Stratigraphy*

1:30 PM, Oregon Convention Center, D135

Gary Gianniny and Win McLaughlin, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 32-1 1:35 PM Weaver, Luke\*; Tobin, Thomas; Claytor, Jordan R.; Wilson, Paige; Clemens, William A.; Wilson Mantilla, Gregory P.: **REVISED STRATIGRAPHIC RELATIONSHIPS WITHIN THE LOWER FORT UNION FORMATION (TULLOCK MEMBER; GARFIELD COUNTY, MONTANA, U.S.A.) PROVIDE A NEW FRAMEWORK FOR EXAMINING POST K-PG MAMMALIAN RECOVERY DYNAMICS**
- 32-2 1:50 PM Rojas, Alexia\*; Currie, Brian; Colombi, Carina E.: **UTILIZING REMOTE GEOLOGIC MAPPING TO ANALYZE STRATIGRAPHIC VARIATION IN THE TRIASSIC ISCHIGUALASTO FORMATION, SAN JUAN PROVINCE, ARGENTINA**
- 32-3 2:05 PM Rice, Trezevant\*; Foust, Livia; Homan, Renee; Currie, Brian: **SEDIMENTOLOGY AND STRATIGRAPHY OF SUPER-CRITICAL SEDIMENT GRAVITY FLOW DEPOSITS IN THE UPPER CRETACEOUS MANCOS SHALE, EASTERN UTAH**
- 32-4 2:20 PM Passalacqua, Paola\*; Hariharan, Jayaram; Michael, Holly; Paola, Chris; Xu, Zhongyuan; Steel, Elisabeth; Chadwick, Austin J.; Khan, Mahfuzur R.: **FROM SURFACE TO SUBSURFACE: CONNECTIVITY, METRICS, AND PREDICTABILITY OF SUBSURFACE PATTERNS FROM SURFACE INFORMATION**

- 32-5 2:35 PM McLaughlin, Win\*; Weldon, Nicholas; Weldon, Ray: **BIOSTRATIGRAPHICALLY CALIBRATED PALEOMAGNETOSTRATIGRAPHY IN THE TIEN SHAN OF KYRGYZSTAN**
- 32-6 2:50 PM Quinn, Daven P.\*; Peters, Shanan: **FUTURE MODES OF COLLABORATION TOWARDS A MULTI-SCALE MACROSTRAT**
- 3:05 PM **BREAK**
- 32-7 3:15 PM Riding, Robert\*; Liang, Liyuan; Fralick, Philip: **OXYGEN AND THE ARCHEAN INCEPTION OF ARAGONITE SEAS**
- 32-8 3:30 PM Bartley, Julie\*; Firmin, Sydney; Berger, John: **RECOGNITION OF A CALCITIZED EVAPORITE FROM A HYPERSALINE PLAYA LAKE SETTING: ROSSPORT FORMATION (MESOPROTEROZOIC, ONTARIO)**
- 32-9 3:45 PM Gianniny, Gary\*: **DENDROLITIC MICROBIAL MAT BOUNDSTONES FORMED BY THE BRANCHING FILAMENTOUS CYANOBACTERIUM *ORTONELLA*, LATE CARBONIFEROUS (MOSCOWIAN) PARADOX FORMATION, SOUTHEAST UTAH**
- 32-10 4:00 PM Bailey, Elizabeth\*: **THE SHURAM EXCURSION AS BURIAL OF BIOMINERALIZED CALCIUM CARBONATE**
- 4:15 PM **DISCUSSION**

### SESSION NO. 33

#### *D5. Recent Advances in Geochemistry and Petrology*

1:30 PM, Oregon Convention Center, B111

Laura Sammon and Henry Agbogun, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 33-1 1:35 PM Robbins, Leslie\*; Mänd, Kaarel; Bishop, Brendan; Konhauser, Kurt: **ARE 'BIO-INORGANIC BRIDGES' FALLING DOWN? THE EVOLUTION OF LIFE AND THE ENVIRONMENT IN THE WAKE OF THE GREAT OXIDATION EVENT**
- 33-2 1:50 PM Eyster, Athena\*; Brengman, Latisha; Ramezani, Jahandar; George, Sarah; Bergmann, Kristin D.: **THE FIRST HIGH RESOLUTION GEOCHRONOLOGICAL CONSTRAINTS ON IRON FORMATION DEPOSITION AFTER THE GREAT OXIDATION EVENT**
- 33-3 2:05 PM Srinivasan, Poorna\*; Jacobi, David; Atwah, Ibrahim; Karg, Harald; Azzouni, Abdulhameed: **THERMAL MATURITY EVALUATION OF SULFUR-RICH SOURCE ROCKS AND OILS USING THE DI- AND TRI-METHYLDIBENZOTHIOPHENES**
- 33-4 2:20 PM Jacobi, David\*; Srinivasan, Poorna; Atwah, Ibrahim; Karg, Harald; Azzouni, Abdulhameed: **KEROGEN CHEMISTRY AND ITS CONTROL ON HYDROCARBON GENERATION IN SULFUR-RICH ORGANOFACIES**
- 33-5 2:35 PM Eziashi, Christiana\*; Agbogun, Henry; Ali, Hendratta: **USING GEOCHEMICAL COMPOSITION TO INVESTIGATE SEDIMENT PROVENANCE AND PRODUCTIVITY IN ROCKS FROM CENTRAL KANSAS, USA**
- 33-6 2:50 PM Sammon, Laura\*; McDonough, William; Mooney, Walter: **THE COMPOSITION OF THE DEEP CONTINENTAL CRUST FROM GEOCHEMICAL AND SEISMOLOGICAL DATA**
- 33-7 3:05 PM Donovan, John\*; Allaz, Julien; von der Handt, Anette; Seward, Gareth G.E.; Neill, Owen; Goemann, Karsten; Chouinard, Julie; Carpenter, Paul: **QUANTITATIVE WDS COMPOSITIONAL MAPPING USING THE ELECTRON MICROPROBE**
- 3:20 PM **BREAK**
- 33-8 3:40 PM Smith-Schmitz, Sarah E.\*; Appold, Martin: **EXPERIMENTAL QUANTIFICATION OF THE PARTITIONING OF ZN BETWEEN DOLOMITE AND BRINE**



- 33-9 3:55 PM Denny, Adam C.\*; Zimmer, Mindy M.; Cunningham, Heather S.: **LITHIUM ISOTOPE BIAS DURING SIMS ANALYSIS OF SILICATE GLASS STANDARDS**
- 33-10 4:10 PM Murray, John\*; Hirniak, Jayde; Zipkin, Andrew M.: **IMPACT OF HEAT TREATMENT ON GEOCHEMISTRY OF THREE SILCRETE SOURCES NEAR PINNACLE POINT, SOUTH AFRICA**
- 33-11 4:25 PM Shields, Jessie E.\*; Chapman, James: **LARGE MELT VOLUMES AS POSSIBLE INDICATOR FOR WATER PRESENT CRUSTAL MELTING IN THE NORTH AMERICAN CORDILLERA**
- 33-12 4:40 PM Bloch, Elias\*; Jollands, Michael; Tollan, Peter; Plane, Florent; Berry, Andrew; Hervig, Richard L.; Escrige, Stephane; Bouvier, Anne-Sophie; Zaubitzer, Christian; Newville, Matthew; Ibanez, Mauricio; Müntener, Othmar; Alleon, Julien; Meibom, Anders; Baumgartner, Lukas; Marin-Carbonne, Johanna: **DIFFUSION ANISOTROPY OF TI IN ZIRCON AND IMPLICATIONS FOR TI-IN-ZIRCON THERMOMETRY**
- 33-13 4:55 PM Almazán López, María\*; González-Ixta, Yessica; Colás, Vanessa; Ortega-Gutiérrez, Fernando; Elias-Herrera, Mariano: **THE METAMORPHIC RETROGRESSION OF THE ECLOGITIC ROCKS FROM ACATLÁN COMPLEX, MÉXICO: UNRAVELING ITS EXHUMATION COMBINING FIELD OBSERVATIONS WITH MICROSTRUCTURAL ANALYSIS**

**SESSION NO. 34**

**T2. Cenozoic Tectonism, Magmatism, Sedimentation, and Landscape Evolution in the Intermountain West II (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Geochronology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

1:30 PM, Oregon Convention Center, Portland Ballroom 257 (Hybrid Room)

Theresa Schwartz, Amy K. Gilmer and Jens-Erik Lund Snee, Presiding

- 1:30 PM Schwartz, Theresa\*; Lund Snee, Jens-Erik; Gilmer, Amy K.: **INTRODUCTORY REMARKS**
- 34-1 1:35 PM Liu, Lijun\*; Zhou, Quan; Peng, Diandian: **CENOZOIC TOPOGRAPHIC EVOLUTION OF WESTERN-CENTRAL US (Invited Presentation)**
- 34-2 1:55 PM Heitmann, Emma O.\*; Hyland, Ethan G.; Schoettle-Greene, Philip; Brigham, Cassandra A.; Huntington, Katharine W.: **RISE OF THE COLORADO PLATEAU: A SYNTHESIS OF PALEOELEVATION CONSTRAINTS FROM THE REGION AND A PATH FORWARD USING TEMPERATURE-BASED ELEVATION PROXIES**
- 34-3 2:10 PM Bahadori, Alireza\*; Holt, William; Rasbury, E. Troy; Loughney, Katharine M.; Badgley, Catherine: **LITHOSPHERE DYNAMICS DRIVE UPLIFT OF THE COLORADO PLATEAU AND INCISION OF THE GRAND CANYON IN SOUTHWESTERN NORTH AMERICA**
- 34-4 2:25 PM Lund Snee, Jens-Erik\*; Schwartz, Theresa; Colgan, Joseph P.: **RECORD OF PALEOGENE SEDIMENTARY BASIN AND FLUVIAL SYSTEM DEVELOPMENT IN SOUTHERN NEVADA, USA**
- 34-5 2:40 PM Jepson, Gilby\*; Carrapa, Barbara; George, Sarah; Reeher, Lauren; Kapp, Paul A.; DeCelles, Peter G.; Davis, George; Thomson, Stuart N.; Amidori, Chiara; Jones, Sean; Gleadow, Andrew; Kohn, Barry P.: **WHERE DID THE ARIZONAPLANO GO? MIDDLE TO LOWER CRUSTAL PROCESSES REQUIRED**
- 2:55 PM **BREAK**
- 34-6 3:05 PM Ruleman, Cal\*; Sortor, Rachel; Hudson, Adam; Brugger, Keith; Goehring, Brent M.; Caffee, Marc: **NEW CHRONOLOGIC, STRATIGRAPHIC, AND GEOMORPHIC RELATIONSHIPS INDICATING NEOGENE TECTONO-MAGMATIC FRAGMENTATION OF WESTERN**

- NORTH AMERICAN FLUVIAL SYSTEMS AND MIDDLE PLEISTOCENE (MIS 12-11, ~480-370 KA) GLACIOFLUVIAL INTEGRATION AND ESTABLISHMENT OF MODERN RIVER SYSTEMS**
- 34-7 3:20 PM Ricketts, Jason\*; Amato, Jeffrey; Gavel, Michelle M.: **THE ORIGIN AND TECTONIC SIGNIFICANCE OF THE BASIN AND RANGE-RIO GRANDE RIFT BOUNDARY IN SOUTHERN NEW MEXICO, USA (Invited Presentation)**
- 34-8 3:40 PM Toke, Nathan\*; Marchetti, David W.; Bailey, Christopher; Biek, Robert F.; Bartram, Hanna C.; Phillips, Joseph E.; Forster, Clayton; Ward, Sally; Richards, Rachel; Ideker, Carlie J.; Rittenour, Tammy: **THE THOUSAND LAKE FAULT: A LONG RECURRENCE NORMAL FAULT THAT HAS SLOWED DOWN AT THE EASTERN EDGE OF THE BASIN AND RANGE**
- 34-9 3:55 PM Polun, Sean\*; Gomez, Francisco; Altuntas, Gozde; Potter, Michael; Heins, Julie; Ludwig, Katherine: **GEOMETRIC AND KINEMATIC ANALYSIS OF THE CHICKEN SPRINGS FAULT SYSTEM, A DIFFUSE HOLOCENE FAULT SYSTEM IN THE GREAT DIVIDE BASIN, WYOMING**
- 34-10 4:10 PM Gavillot, Yann\*; Stickney, Mike; Lonn, Jeffrey D.; Hidy, Alan J.: **LATE QUATERNARY SLIP RATES OF THE BITTERROOT FAULT IN WESTERN MONTANA FROM BE-10 DATING OF OFFSET PINEDALE AND BULL LAKE GLACIAL DEPOSITS**
- 4:25 PM **DISCUSSION**
- 34-11 4:45 PM Welcker, Chris; Sundell, Kurt E.; Fisher, James M.; Link, Paul K.\*: **MORE THAN YOU WANTED TO KNOW ABOUT DETRITAL ZIRCONS OF HELLS CANYON, IDAHO AND OREGON: REVISITING THE BUMPY BARCODE WITH LARGE-N U-PB GEOCHRONOLOGICAL METHODS**
- 5:00 PM **CONCLUDING REMARKS**

**SESSION NO. 35**

**T6. Hot Rocks: High-Temperature Microstructures from Mantle to Surface (GSA Structural Geology and Tectonics Division; GSA Geochronology Division; GSA Geophysics and Geodynamics Division)**

1:30 PM, Oregon Convention Center, A106

Morgan Monz, Hannah Blatchford and Zachary D. Michels, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 35-1 1:35 PM Cross, Andrew\*; Fan, Sheng; Prior, David; Skemer, Philip; Goldsby, David; Hager, Travis; Kidder, Steven; Negrini, Marianne; Qi, Chao; Stipp, Michael: **TRACKING DYNAMIC RECRYSTALLIZATION ACROSS A BROAD RANGE OF HOMOLOGOUS TEMPERATURES AND STRESSES (Invited Presentation)**
- 35-2 1:55 PM Hulseley, Kaitlyn\*; Currier, Ryan: **A TALE OF TWO FABRICS: AN EBSD INVESTIGATION OF CRYSTAL POPULATIONS IN A DOLERITE DIKE**
- 35-3 2:10 PM Michels, Zachary\*; Zimmerman, Mark E.; Kohlstedt, David L.; Hansen, Lars N.: **EFFECTS OF SHEAR-INDUCED MELT SEGREGATION AND STRAIN PARTITIONING ON OLIVINE MICROSTRUCTURES**
- 35-4 2:25 PM Wiesman, Harison\*; Michels, Zachary; Zimmerman, Mark E.; Kohlstedt, David L.: **INVESTIGATING THE ROLE OF INITIAL MICROSTRUCTURAL FEATURES ON PHASE MIXING AND LOCALIZATION DURING DEFORMATION OF OLIVINE-BEARING ROCKS (Invited Presentation)**
- 35-5 2:45 PM Leuchter, Ethan\*; Cao, Wenrong: **INVESTIGATING THE CONTACT AUREOLE AND EMPLACEMENT MECHANISMS OF AN UPPER CRUSTAL ULTRAMAFIC PLUTON NEAR EMIGRANT GAP, CALIFORNIA**
- 35-6 3:00 PM Hillenbrand, Ian\*; Williams, Michael L.; Peterman, Emily; Jercinovic, M.J.; Dietsch, Craig: **PETROCHRONOLOGIC CONSTRAINTS ON ACCRETION, EXTRUSION, AND INVERTED METAMORPHISM IN THE GNEISS DOME BELT, APPALACHIAN OROGEN**

- 35-7 3:15 PM Blatchford, Hannah\*; Fayon, Annia K.; Michels, Zachary: **MICROSTRUCTURAL AND GEOCHEMICAL CHARACTERIZATION OF TITANITE DEFORMED IN TORSION: POTENTIAL IMPLICATIONS FOR PETROCHRONOLOGY OF DEFORMED ROCKS**
- 35-8 3:30 PM Miranda, Elena\*; Klepeis, Keith A.; Schwartz, Joshua; Dietel, Matthew; Page, Brandon; Brown, Virginia: **SPATIAL AND TEMPORAL VARIATIONS IN KINEMATIC DEFORMATION GEOMETRY WITHIN A CRUSTAL-SCALE SHEAR ZONE NETWORK: MICRO- TO REGIONAL-SCALE PARTITIONING OF OBLIQUE CONVERGENCE ALONG THE GONDWANA MARGIN, FIORDLAND, NEW ZEALAND (Invited Presentation)**
- 35-9 3:50 PM Dietel, Matthew\*; Miranda, Elena; Klepeis, Keith A.; Schwartz, Joshua: **LINKING REGIONAL TECTONICS WITH MICROSTRUCTURAL FABRICS USING ELECTRON BACKSCATTER DIFFRACTION AND CRYSTALLOGRAPHIC VORTICITY AXIS ANALYSIS IN THE GREBE SHEAR ZONE, FIORDLAND, NEW ZEALAND**
- 35-10 4:05 PM McDermott, Robert\*; Ault, Alexis K.; Evans, James P.; Weitzel, Kelsey F.; Shen, Fen-Ann: **SPATIALLY VARIABLE COSEISMIC TEMPERATURE RISE AND TRANSIENT RHEOLOGY ALONG HEMATITE FAULT MIRRORS IN THE WASATCH FAULT ZONE, UTAH, USA**
- 35-11 4:20 PM Economou, John; Gottardi, Raphael\*; Casale, Gabriele: **IMPACT OF PHYLLOSILICATE DISTRIBUTION, SPATIAL ARRANGEMENT AND INTERCONNECTIVITY ON QUARTZ RECRYSTALLIZATION, RAFT RIVER MOUNTAINS DETACHMENT SHEAR ZONE, UTAH**

**SESSION NO. 36**

*T11. Recent to Long-Term Slip Histories of Active Faults and Folds in Cascadia (GSA Structural Geology and Tectonics Division; GSA Structural Geology and Tectonics Division; GSA Geophysics and Geodynamics Division; GSA Quaternary Geology and Geomorphology Division; GSA Geoinformatics and Data Science Division)*

1:30 PM, Oregon Convention Center, A107–A109

Scott Bennett, Elizabeth Schermer and Andrew Meigs, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 36-1 1:35 PM Wells, Ray\*; Venera, Zdenek; Bennett, Scott: **50 MILLION YEARS OF FAULT SLIP IN THE CASCADIA FOREARC (Invited Presentation)**
- 36-2 1:55 PM Furlong, Kevin\*; Mckenzie, Kirsty; Villasenor, Antonio; Benz, Harley: **LINKAGE BETWEEN UPPER-PLATE CASCADIA FAULTING AND THE EVOLUTION OF THE NORTHERN SAN ANDREAS PLATE BOUNDARY FAULT SYSTEM**
- 36-3 2:10 PM Patton, Jay\*: **TECTONIC TERRACES AT THE TRIPLE JUNCTION**
- 36-4 2:25 PM Dunning, Andrew\*; Streig, Ashley R.; Madin, Ian; Amidon, Will; Streck, Martin; Balco, Greg; McClean, Kyra H.; Hedrick, Kate; Scott, William: **EVALUATION OF THE SLIP HISTORY AND HOLOCENE ACTIVITY OF FAULTS IN THE STRAWBERRY MOUNTAINS, GRANT COUNTY, OREGON**
- 36-5 2:40 PM Klema, Nathaniel\*; Karlstrom, Leif; Cannon, Charles M.; O'Connor, Jim; Wells, Ray: **MAGMATICALLY DRIVEN FLEXURAL UPLIFT OF THE CENTRAL CASCADES ARC, USA, ENCODED BY FLUVIAL INCISION OF THE COLUMBIA RIVER GORGE**
- 36-6 2:55 PM Madin, Ian\*; Bennett, Scott; Streig, Ashley R.: **NEW LIDAR AND PALEOSEISMOLOGIC DISCOVERIES OF HOLOCENE-ACTIVE FAULTS IN THE HIGH CASCADES GRABEN, OREGON**
- 36-7 3:10 PM Bennett, Scott\*; Streig, Ashley R.; Levinson, Ryan; Roberts, Nick; Dunning, Andrew; Wells, Ray; Madin, Ian; O'Connor, Jim E.; Reynolds, Nathaniel D.; Pringle, Patrick; Grant, Alex R.R.: **THE MOST RECENT EARTHQUAKE**

**ON THE MOUNT HOOD FAULT ZONE, NORTH-CENTRAL OREGON: IMPLICATIONS FOR CASCADING EARTHQUAKE, LANDSLIDE, AND FLOOD MULTI-HAZARDS IN THE COLUMBIA RIVER GORGE**

3:25 PM **BREAK**

- 36-8 3:35 PM Anderson, Megan\*; Steely, Alexander N.; Horst, Alison; von Dassow, Wesley; Lau, Todd; Reedy, Tabor; Amaral, Chelsea; Stanton, Kelsay: **THE DOTY FAULT ZONE: CENTERPIECE OF A LONG-LIVED, SLOW-MOVING, TRANSPRESSIVE FAULT SYSTEM IN SOUTHWESTERN WASHINGTON (Invited Presentation)**
- 36-9 3:55 PM Woodring, Danielle\*; Meigs, Andrew; O'Connor, Jim E.; Cannon, Charles; Mahan, Shannon; Wells, Ray; Bennett, Scott; Stelten, Mark E.: **THE ACTIVE WARWICK STRIKE-SLIP FAULT AND THE COLUMBIA HILLS THRUST FAULT OF THE YAKIMA FOLD AND THRUST BELT ACCOMMODATE VERTICAL-AXIS ROTATION IN THE CASCADIA BACKARC**
- 36-10 4:10 PM Angster, Stephen\*; Sherrod, Brian L.; Mahan, Shannon; Lasher, John P.; Johns, Wes: **WIDESPREAD LIQUEFACTION ASSOCIATED WITH HOLOCENE EARTHQUAKES ON THE WALLULA FAULT ZONE, SOUTHEAST WASHINGTON, USA**
- 36-11 4:25 PM Ewetuya, Daniel; Machado, Aldair J.; Zermeno, Veronica\*; Simao, Vilma: **PRELIMINARY AND VIRTUAL ASSESSMENT OF THE NEOTECTONICS OF THE EASTERN YAKIMA FOLD BELT AND QUINCY BASIN SCABLANDS GEOMORPHIC FEATURES, WASHINGTON**
- 36-12 4:40 PM Schermer, Elizabeth\*; Weldon, Nyle; Amos, Colin: **EOCENE TO QUATERNARY SLIP ALONG THE ENTIAT FAULT, NORTH CASCADES, WA**
- 36-13 4:55 PM Lynch, Emerson\*; Regalla, Christine; Morell, Kristin; Bennett, Scott; Leonard, Lucinda J.; Harrichhausen, Nicolas; Nissen, Edwin: **GEOMORPHIC MAPPING AND PALEOSEISMIC TRENCHING REVEAL MULTIPLE LATEST PLEISTOCENE TO HOLOCENE EARTHQUAKES ON THE RIGHT-LATERAL OBLIQUE BEAUFORT RANGE FAULT, NORTHERN CASCADIA FOREARC, BRITISH COLUMBIA, CANADA**
- 36-14 5:10 PM Regalla, Christine\*; Morell, Kristin; Harrichhausen, Nicolas; Lynch, Emerson; Leonard, Lucinda J.; Bennett, Scott; Nissen, Edwin; Finley, Theron: **FOREARC FAULTING IN NORTHERN CASCADIA: WHERE, WHEN, AND WHY? (Invited Presentation)**

**SESSION NO. 37**

*T23. The How, When, Where, and Why of Open-System Magma Processes (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; GSA Geochronology Division; Geochemical Society)*

1:30 PM, Oregon Convention Center, Portland Ballroom 252 (Hybrid Room)

Jenna Adams, Valerie Strasser, Wendy A. Bohrson and Frank J. Spera, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 37-1 1:35 PM Lundstrom, Craig\*: **THE EXTREME ENDMEMBER OF OPEN SYSTEM BEHAVIOR: A ROLE FOR LOW TEMPERATURE LIQUIDS IN SILICIC IGNEOUS ROCK PETROGENESIS?**
- 37-2 1:50 PM Barnes, Calvin\*; Coint, Nolwenn; Barnes, Melanie A.; Chamberlain, Kevin R.; Cottle, John; Rämö, O. Tapani; Valley, John W.: **OPEN-SYSTEM BEHAVIOR IN A CRUSTAL-SCALE MAGMA COLUMN, KLAMATH MOUNTAINS, CALIFORNIA**
- 37-3 2:05 PM Memeti, Vali\*; Barnes, Calvin; Werts, Kevin; Oppenheim, Louis; Chambers, Melissa; Ardill, Katie: **AS OPEN-SYSTEM AS IT GETS: LONG-LIVED AND SPATIALLY EXTENSIVE MAGMA MIXING, FRACTIONAL CRYSTALLIZATION, AND MELT LOSS DURING MAGMA FOCUSING IN THE**

- TUOLUMNE INTRUSION, SIERRA NEVADA BATHOLITH, CA (Invited Presentation)**
- 37-4 2:25 PM Foley, Michelle\*; Putlitz, Benita; Baumgartner, Lukas; Ulyanov, Alexey; Siron, Guillaume: **ISOTOPE CHARACTERISTICS OF A LARGE SILICIC PROVINCE: CRUSTAL VERSUS MANTLE PROCESSES IN THE GENERATION OF THE JURASSIC CHON AIKE PROVINCE (ARGENTINA)**
- 37-5 2:40 PM Mahar, Munazzam Ali\*; Goodell, Philip: **OPENING AND CLOSING OF A SHORT-LIVED OCEAN BASIN IN LIBYA DURING THE PAN AFRICAN OROGENY**
- 37-6 2:55 PM Tavazzani, Lorenzo\*; Economos, Rita C.; Wotzlav, Jörn-Frederik; Laurent, Oscar; Chelle-Michou, Cyril; Bachmann, Olivier: **MODELING ZIRCON GROWTH DURING OPEN-SYSTEM CRYSTALLIZATION**
- 37-7 3:10 PM Hampton, Rachel\*; Karlstrom, Leif: **MACHINE LEARNING USED TO UNDERSTAND THE GEOCHEMISTRY OF MAFIC MAGMATIC SYSTEMS (Invited Presentation)**
- 37-8 3:30 PM Dungan, Michael\*; Sisson, Thomas; Langmuir, Charles; Jweda, Jason; Costa, Fidel; Goldstein, Steve: **INCREASED OXIDATION STATES OF ARC BASALTS DURING REACTIVE ASSIMILATION OF THE PLUTONIC ROOTS OF THE QUATERNARY ANDEAN SOUTHERN VOLCANIC ZONE, CHILE: THE UPPER PLACETA SAN PEDRO SEQUENCE (UPSPS) OF THE TATARA-SAN PEDRO COMPLEX (36 S)**
- 3:45 PM **BREAK**
- 37-9 4:00 PM Schwartz, Joshua\*; Brackman, Adam; Carty, Kendra; Greenberg, Gillian; Klepeis, Keith A.; Stowell, Harold H.; Barnes, Calvin: **THE DIVERSIFICATION OF CORDILLERAN ARC MELTS IN THE DEEP CRUST OF FIORDLAND, NEW ZEALAND**
- 37-10 4:15 PM Takach, Marie\*; Tepley, Frank J.; Harpel, Christopher J.; Aguilar, Rigoberto; Rivera, Marco: **DECIPHERING THE PETROLOGY OF A HAZARDOUS VOLCANO: MAGMA STORAGE CONDITIONS, REMOBILIZATION, AND TIMESCALES INFERRED FROM TEPHRA-FALL DEPOSITS FROM MISTI VOLCANO, PERU**
- 37-11 4:30 PM Lynn, Kendra\*: **BIG CHANGES AT KĪLAUEA VOLCANO: THE IMPACT OF 2018 SUMMIT COLLAPSE ON MAGMATIC PROCESSES RECORDED BY THE 2020 ERUPTION (Invited Presentation)**
- 37-12 4:50 PM Lerner, Allan\*; Wallace, Paul J.: **KĪLAUEA VOLCANO'S INTERMITTENT OPEN-SYSTEM BEHAVIOR: PETROLOGIC EVIDENCE AND IMPLICATIONS FOR ERUPTION STYLE**
- 37-13 5:05 PM Adams, Jenna\*; Bohrsen, Wendy; Spera, Frank J.; Sanchez, Rachelle P.: **QUANTITATIVE CONSTRAINTS ON MAGMA MIXING AND ERUPTION DYNAMICS DURING THE 1915 LASSEN PEAK, CA ERUPTION USING THERMODYNAMIC MODELING AND TRANSPORT CALCULATIONS**
- 38-3 2:05 PM Azmi, Iffat\*; Hyland, Ethan; Cotton, Jennifer; Ghosh, Adit; Raigemborn, Maria Sol; Tineo, David; Insel, Nadja: **LATE MIOCENE EXPANSION OF GRASSLANDS IN NW ARGENTINA LINKED TO SHIFTING HYDROCLIMATE**
- 38-4 2:20 PM Trayler, Robin\*; Bargo, M. Susana; Cuitiño, José; Kay, Richard; Kohn, Matthew J.; Schmitz, Mark D.; Stromberg, Caroline A.E.; Vizcaíno, Sergio: **USING GEOCHRONOLOGY AND ISOTOPE ECOLOGY TO RECONSTRUCT PAST CLIMATES: A CASE STUDY FROM THE MIOCENE SANTA CRUZ FORMATION, ARGENTINA (Invited Presentation)**
- 2:35 PM **DISCUSSION**
- 38-5 2:45 PM Raffi, Isabella\*; Wade, Bridget: **INTEGRATED CALCAREOUS PLANKTON EVOLUTION IN THE MIOCENE (Invited Presentation)**
- 38-6 3:00 PM Penman, Donald\*; Kirtland Turner, Sandra; Ridgwell, Andy; Scher, Howie D.; Hull, Pincelli M.: **THE ROLE OF PCO<sub>2</sub> IN ORBITALLY-PACED CLIMATE AND CARBON CYCLE VARIATIONS IN THE MIDDLE MIOCENE**
- 38-7 3:15 PM Kasbohm, Jennifer\*; Schoene, Blair; Montanari, Alessandro; Coccioni, Roldolfo; Hull, Pincelli M.: **REVISING AGE MODELS FOR MIOCENE DEEP-SEA SEDIMENTS WITH U-PB ZIRCON GEOCHRONOLOGY**
- 38-8 3:30 PM Hlinka, Lisa\*; Black, Benjamin A.; Longpré, Marc-Antoine; Schoene, Blair: **CONSTRAINING TIMESCALES OF MAGMATIC PROCESSES IN THE COLUMBIA RIVER FLOOD BASALT PROVINCE**
- 38-9 3:45 PM Lowe, Alex\*; Stromberg, Caroline A.E.; Schmitz, Mark D.; Dillhoff, Richard; Dillhoff, Thomas; Rember, William: **PLANT COMMUNITY AND CLIMATIC RESPONSE TO MID-MIOCENE ENVIRONMENTAL CHANGE IN THE PACIFIC NORTHWEST (USA) WITHIN A REFINED TEMPORAL FRAMEWORK**
- 4:00 PM **DISCUSSION**
- 38-10 4:15 PM Reichgelt, Tammo\*; D'Andrea, William; West, Christopher K.: **RETURN TO A GREENER DAY: MIOCENE PLANT FOSSILS AND PRIMARY PRODUCTIVITY IN A HIGH CO<sub>2</sub> WORLD (Invited Presentation)**
- 38-11 4:30 PM Arrendale, Alexander\*; Nguyen, Minh; Ertsgaard, Erik; Ng, Ellen; Brightly, William; Dunn, Regan; Stromberg, Caroline A.E.: **CELL-SEARCHING: DID HABITAT OPENNESS PARALLEL GRASS DOMINANCE IN THE CENOZOIC ASSEMBLY OF GREAT PLAINS GRASSLANDS?**
- 38-12 4:45 PM Peppe, Daniel; Cote, Susanne; Deino, Alan L.; Fox, David L.; Kingston, John D.; Kinyanjui, Rahab N.; Lukens, William E.; MacLachy, Laura M.; Novello, Alice; Stromberg, Caroline\*; Driese, Steven; Garrett, Nicole; Hillis, Kayla R.; Jacobs, Bonnie F.; Jenkins, Kirsten E.; Kityo, Robert; Lehmann, Thomas; Manthi, Fredrick K.; Mbua, Emma N.; Michel, Lauren A.; Miller, Ellen; Mugume, Amon; Nengo, Isaiah; Oginga, Kennedy Ogonada; Phelps, Samuel R.; Rossie, James B.; Stevens, Nacny J.; Uno, Kevin; McNulty, Kieran P.: **EARLY MIOCENE EVIDENCE FOR C4 BIOMASS IN KENYA AND UGANDA**
- 38-13 5:00 PM Michel, Lauren A.\*; Peppe, Daniel J.; Deino, Alan L.; Cheng, Kimberly D.; Summers, Hunter J.; Vineyard, Heather B.; Lehmann, Thomas; Muteti, Samuel; McNulty, Kieran P.: **STRATIGRAPHIC REVISION OF THE EARLY MIOCENE DEPOSITS ON RUSINGA ISLAND AND ITS EFFECT ON INTERPRETATIONS OF PALEOCLIMATE AND EVOLUTION**
- 38-14 5:15 PM Lukens, William\*; Peppe, Daniel; Deino, Alan L.; Fox, David L.; Beverly, Emily; Miller, Ellen: **A WOODLAND-SAVANNA MOSAIC IN THE EARLY MIDDLE MIOCENE AT BULUK, TURKANA BASIN, KENYA**

**SESSION NO. 38**

**T31. Assessing Causes, Consequences, and Time Scales of Miocene Climate and Environmental Change (GSA Geochronology Division; Paleontological Society)**

1:30 PM, Oregon Convention Center, E141/E142 (Hybrid Room)

Jennifer Kasbohm and Alex Lowe, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 38-1 1:35 PM Anttila, Eliel\*; Macdonald, Francis: **TESTING THE MONTEREY HYPOTHESIS: A NEW AGE AND STRATIGRAPHIC MODEL FOR THE MIOCENE MONTEREY FORMATION ALONG THE CENTRAL COAST OF CALIFORNIA**
- 38-2 1:50 PM Feng, Ran\*; Loughney, Katharine M.: **SENSITIVITY OF SOUTH AMERICAN PRECIPITATION TO MIOCENE CO<sub>2</sub> VARIATIONS AND EASTERN ANTARCTIC GLACIATION**



**SESSION NO. 39**  

*T38. Geologic Research at the Cascade Volcanoes: Ideal Natural Laboratories for Cutting-Edge Research with Implications for Life Safety and Infrastructure Protection in the Pacific Northwest (GSA Quaternary Geology and Geomorphology Division; U.S. National Park Service; Geochemical Society)*

1:30 PM, Oregon Convention Center, D138

Scott Beason, Claire Todd, Robert P. Jost and Taylor Kenyon, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 39-1 1:35 PM Florea, Lee\*; Stenner, Christian; Cartaya, Eduardo; Pflitch, Andreas; Sobolewski, Linda; Ionescu, Artur; Burgess, Sarah A.: **THE MORPHOLOGY OF GLACIOVOLCANIC CAVES**
- 39-2 1:50 PM Fordham, Edward\*; Pfeiffer, Allison M.: **CONNECTING HEADWATER DEBRIS FLOWS TO SUSPENDED SEDIMENT EXPORT IN THE LOWER SUIATTLE RIVER, GLACIER PEAK, WASHINGTON STATE**
- 39-3 2:05 PM Beyeler, Jonathan\*; Sklar, Leonard; Montgomery, David R.; Kennard, Paul: **FLUVIAL EXPRESSION OF THE GEOMORPHIC TRANSITION FROM PROGLACIAL DEBRIS FLOWS TO FLUVIAL PROCESSES IN DEGLACIATING ALPINE HEADWATERS OF THE PACIFIC NORTHWEST**
- 39-4 2:20 PM Todd, Claire\*; Ireson, Rosemary; Sheffo, Allison; Koutnik, Michelle: **EVOLUTION OF A GLACIER TERMINUS WITH IMPLICATIONS FOR LOCATING STAGNANT ICE**
- 39-5 2:35 PM Ball, Jessica\*; McBride, Sara K.: **YOURS, MINE, AND OURS: ASSESSING STAKEHOLDER NEEDS TO CO-CREATE USGS VOLCANO HAZARD PRODUCTS AT MOUNT SHASTA, CALIFORNIA (Invited Presentation)**
- 2:55 PM **BREAK**
- 39-6 3:10 PM Moran, Seth\*; Pauk, Benjamin: **PERMITTING VOLCANO MONITORING STATIONS IN WILDERNESS/RESTRICTED AREAS: A CASE STUDY FROM MOUNT HOOD, OREGON (Invited Presentation)**
- 39-7 3:30 PM Thelen, Weston\*; Moran, Seth; Kramer, Rebecca; Lockett, Christopher; Parker, Thomas; Allstadt, Kate E.; Pauk, Benjamin: **MITIGATING LAHAR HAZARDS: THE RAINIER LAHAR DETECTION SYSTEM (Invited Presentation)**
- 39-8 3:50 PM Kenyon, Taylor\*: **COMPASS AND TRANSIT TO CAMERAS AND LASERS: THE EVOLVING NEEDS AND FUTURE SOLUTIONS FOR FEDERAL LAND MANAGERS**
- 39-9 4:05 PM Fricke, Rachel\*; Lofgren, Rebecca A.; Kenyon, Taylor; Jost, Robert P.; Beason, Scott: **EVALUATING FUTURE WATER SUPPLY SCENARIOS IN MOUNT RAINIER NATIONAL PARK**
- 39-10 4:20 PM McMahan, Patrick\*: **TRANSPORTATION RESILIENCY PLANNING INITIATIVE - NATIONAL PARK SERVICE**
- 4:35 PM **DISCUSSION**

**SESSION NO. 40 Hydrogeology and Environmental Geology**

*T50. Arsenic, Fluoride, and Other Geogenic Contaminants in Groundwater Basins: Linking Advances in Natural Sciences and Applications of Artificial Intelligence and Data Science for Long-Term Risk Prediction and Policy Interventions (GSA Hydrogeology Division; GSA International; GSA Geology and Health Division; International Society of Groundwater for Sustainable Development (ISGSD); International Water Association Specialist Group Metals and Related Substances in Drinking Water (METRELS); Geochemical Society; GSA Environmental and Engineering Geology Division; GSA Geoinformatics and Data Science Division)*

1:30 PM, Oregon Convention Center, D136 (Hybrid Room)

Prosun Bhattacharya, Abhijit Mukherjee, Arslan Ahmad, Saugata Datta, Joseline Tapia and Brady Ziegler, Presiding

- 1:30 PM Bhattacharya, Prosun\*: **INTRODUCTORY REMARKS**

- 40-1 1:35 PM Knierim, Katherine\*; Kingsbury, James A.: **INTERPRETING MACHINE-LEARNING PREDICTIONS OF ARSENIC IN THE MISSISSIPPI RIVER VALLEY ALLUVIAL AQUIFER**
- 40-2 1:50 PM Nath, Bibhash\*; Rahman, Mohammad Mahmudur; Saikia, Parimita; Choudhury, Runti; Ni-Meister, Wenge: **IMPACT OF URBANIZATION ON DECLINING GROUNDWATER LEVEL AND DRINKING WATER QUALITY IN GUWAHATI CITY, INDIA: TREND ANALYSIS AND HEALTH RISK ASSESSMENT**
- 40-3 2:05 PM Podgorski, Joel\*; Araya, Dahyann; Berg, Michael: **EXAMPLES AND CONSIDERATIONS OF SPATIAL PREDICTION MODELING OF GEOGENIC GROUNDWATER CONTAMINATION**
- 40-4 2:20 PM Sarkar, Soumyajit\*; Chakraborty, Madhumita; Bhattacharya, Prosun; Mukherjee, Abhijit: **PREDICTING THE DISTRIBUTION OF GROUNDWATER ARSENIC ACROSS INDIA USING ARTIFICIAL INTELLIGENCE: INSIGHTS FROM THE TECTONICS, HYDROLOGIC AND ANTHROPOGENIC INFLUENCING FACTORS**
- 40-5 2:35 PM Krishan, Gopal\*; Bhattacharya, Prosun; Sudarsan, Natarajan; Polya, David; Vasisht, Rajesh: **HEALTH RISK ASSESSMENT ASSOCIATED WITH ARSENIC IN GROUNDWATER IN THE STATE OF PUNJAB, INDIA**
- 40-6 2:50 PM Ullah Baig, Zakir; Javed, Asif\*; Farooqi, Abida: **ARSENIC FIXATION AND MOBILIZATION IN PADDY SOILS OF PUNJAB PLAINS, PAKISTAN**
- 40-7 3:05 PM Armienta, Maria Aurora\*: **CHALLENGES AND OPPORTUNITIES TO APPLY MACHINE LEARNING METHODOLOGIES TO SOLVE AS AND F GROUNDWATER CONTAMINATION PROBLEMS IN MEXICO (Invited Presentation)**
- 40-8 3:25 PM Tapia, Joseline\*: **DISTRIBUTION AND POTENTIAL MOBILIZATION OF AS, CU, AND ZN IN THE CAMARONES RIVER BASIN, SURIRE SALT FLAT, AND CARITAYA DAM, NORTHERN CHILE**
- 3:40 PM **BREAK**
- 40-9 3:50 PM Niazi, Nabeel\*; Bibi, Irshad: **BATTLING ARSENIC HAZARD THROUGH SUSTAINABLE TECHNOLOGIES FOR AQUATIC ECOSYSTEM RESTORATION**
- 40-10 4:05 PM Nordstrom, D. Kirk\*: **FLUORIDE IN GROUNDWATER: INSIGHTS FROM GEOCHEMICAL MODELING (Invited Presentation)**
- 40-11 4:25 PM Alam, M. Jahid; Bhattacharya, Prosun\*; Ahmed, Kazi Matin; Akter, Nargis; von Brömssen, Mattias; Islam, Md Tahmidul; Sharma, Sanjeev; Hasin, Morshedul; Russel Khan, Eheteshamul: **INTEGRATED APPROACH FOR EFFECTIVE AND SUSTAINABLE ARSENIC MITIGATION PROGRAMS WITH A DIGITAL DECISION-MAKING TOOL: EXPERIENCES FROM THREE CONTRASTING GEOLOGICAL AREAS OF BANGLADESH**
- 40-12 4:40 PM Ijumulana, Julian\*; Bhattacharya, Prosun; Ahmad, Arslan; Ligate, Fanuel J.; Irunde, Regina Filemon; Mitalo, Felix W.; Kimambo, Vivian: **DEEP LEARNING APPROACH FOR UNDERSTANDING CO-OCCURRENCE AND SPATIAL VARIABILITY OF ARSENIC AND FLUORIDE IN PRECAMBRIAN BASEMENT AQUIFERS OF NORTH-WEST TANZANIA**
- 40-13 4:55 PM Sharma, Sanjeev\*; Bhattacharya, Prosun; Ahmad, Arslan; von Brömssen, Mattias; Ahmed, Kazi Matin; Alam, M. Jahid; Islam, Md Tahmidul; Akter, Nargis; Basak, Soumyajit: **DEMYSTIFYING SUSTAINABLE GROUNDWATER SYSTEM WITH BIG DATA: AN INTEGRATED DIGITAL WATER PLATFORM FOR ENSURING DRINKING WATER SAFETY**
- 40-14 5:10 PM Irunde, Regina\*; Ligate, Fanuel J.; Ijumulana, Julian; Gustaffsson, Jon-Petter; Maity, Jyoti Prakash; Bhattacharya, Prosun; Mitalo, Felix W.; Ahmad, Arslan: **ARSENIC REMOVAL USING LOCALLY AVAILABLE GYPSUM MINERALS IN TANZANIA**



5:25 PM CONCLUDING REMARKS

**SESSION NO. 41**

**T82. Integrative Approaches to Understanding Mesozoic Environmental and Biologic Perturbations (GSA Geobiology and Geomicrobiology Division; Paleontological Society)**

1:30 PM, Oregon Convention Center, E143/E144

Selva M. Marroquin and Benjamin Gill, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 41-1 1:35 PM Lau, Kimberly\*; Hulse, Dominik; van de Velde, Sebastiaan J.; Arndt, Sandra; Meyer, Katja; Ridgwell, Andy: **TEMPERATURE-DRIVEN NUTRIENT RECYCLING CONTROLLED THE GLOBAL REDOX LANDSCAPE DURING THE END-PERMIAN MASS EXTINCTION (Invited Presentation)**
- 41-2 1:55 PM Lei, Jerry\*; Husson, Jon M.; Golding, Martyn: **CONODONTS, CARBONATE, AND CLAMS: A MULTIDISCIPLINARY APPROACH TO THE LATE TRIASSIC PALEOENVIRONMENTAL RECORD OF NORTHERN VANCOUVER ISLAND, BRITISH COLUMBIA, CANADA**
- 41-3 2:10 PM Oberg, Danielle\*; Bordy, Emese M.; Choiniere, Jonah N.; Suarez, Celina A.: **C-ISOTOPE CHEMOSTRATIGRAPHY OF THE ELLIOT FORMATION OF SOUTHERN AFRICA**
- 41-4 2:25 PM Clement, Annaka M.\*; Tackett, Lydia: **NORIAN-RHAETIAN SPONGES OF EASTERN PANTHASSA: A HARBINGER OF ELEVATED DISSOLVED SILICA IN THE EARLY JURASSIC**
- 2:40 PM **BREAK 1**
- 41-5 2:50 PM Trabucho Alexandre, João P.\*: **PROCESSES AND TIMESCALES OF BLACK MUD ACCUMULATION IN SHALLOW EPEIRIC SEAS AND ON THE DEEP OCEAN FLOOR (Invited Presentation)**
- 41-6 3:10 PM Breeden, Benjamin T.\*; Izumi, Kentaro; Kemp, David B.; Manabe, Makoto; Takahashi, Fumio; Sakata, Chisako: **A NEW RECORD OF THE TOARCIAN OCEAN ANOXIC EVENT FROM WESTERN PANTHALASSA AND THE UTILITY OF GEOCHEMICAL DATA FOR CONSTRAINING THE PROVENANCE OF *EX SITU* FOSSILS**
- 41-7 3:25 PM Gomez, Kiara\*; Sahoo, Swapan; Panteli, Eleni; Moscardelli, Lorena; Howie, Aaron; Larson, Toti E.; Kerans, Charles: **EVOLUTION OF EARLY TO MIDDLE JURASSIC REDOX CONDITIONS WITHIN THE VIKING CORRIDOR, NORTH SEA BASIN**
- 41-8 3:40 PM Peterman, David\*; Hebdon, Nicholas; Ritterbush, Kathleen: **NEW APPROACHES TO STUDY THE RELATIONSHIPS BETWEEN FUNCTIONAL MORPHOLOGY AND MORPHOLOGICAL TRENDS IN AMMONOID EVOLUTION**
- 3:55 PM **BREAK 2**
- 41-9 4:05 PM Bryant, Raquel\*; Belanger, Christina: **ECOLOGICAL ANALYSES OF FORAMINIFERAL BIOEVENTS REVEAL SPATIAL VARIATION IN THE RESPONSE TO OAE2 (Invited Presentation)**
- 41-10 4:25 PM Singer, Brad\*; Li, Youjuan; Schmitz, Mark D.; Sageman, Bradley B.; Selby, David; Takashima, Reishi; Jicha, Brian: **FOUNDATION FOR THE NEXT GENERATION OF PALEOCEANOGRAPHIC AND BIOGEOCHEMICAL STUDIES: DEVELOPING A NEW LOWER CRETACEOUS TIME SCALE**
- 41-11 4:40 PM Li, Yong-Xiang\*; Montanez, Isabel: **THE CRETACEOUS OCEANIC ANOXIC EVENT 2 (OAE2) INTERVAL DOCUMENTED IN THE IONA-1 CORE, WESTERN INTERIOR SEAWAY, NORTH AMERICA: A RE-ANALYSIS**
- 41-12 4:55 PM Li, Siqui\*: **RECONCILIATION OF THE PALEONTOLOGICAL EVIDENCE AND THE GEOCHEMICAL PROXIES: THE LOCAL WEAK OXYGENATION IN THE BOTTOM**

**WATER DURING THE OAE2 AS TRACKED BY THE SEDIMENTARY V ISOTOPE COMPOSITIONS**

5:10 PM CONCLUDING REMARKS

**SESSION NO. 42**

**T83. Future Leaders in Paleontology (Paleontological Society)**

1:30 PM, Oregon Convention Center, Portland Ballroom 255 (Hybrid Room)

Matthew E. Clapham, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 42-1 1:35 PM Craffey, Matthew\*; Darroch, Simon; Wagner, Peter J.; Watkins, David K.; Shizuka, Daizaburo; Lyons, S. Kathleen: **THE STRUCTURE OF EDIACARAN AND CAMBRIAN COMMUNITIES**
- 42-2 1:50 PM Lindsay-kaufman, Amelia\*; Rosbach, Stephanie; Wright, Lauren S.; Vaziri, Seyed Hamid; Majidifard, Mahmoud Reza; Selly, Tara; Lafamme, Marc; Schiffbauer, James: **IT'S NOT RIDICOLOUS TO BE TUBICOLOUS: AN *ANABARITES* AND *CAMBROTUBULUS*-BEARING SHELL-HASH ASSEMBLAGE FROM THE EDIACARAN-CAMBRIAN TRANSITION, SOLTANIEH FORMATION, NORTHERN IRAN**
- 42-3 2:05 PM Cribb, Alison\*; van de Velde, Sebastiaan J.; Berelson, Will; Corsetti, Frank; Bottjer, David J.: **DID EARLY BIOTURBATORS OXYGENATE SHALLOW TO DEEP SEDIMENT TIERS IN EDIACARAN-CAMBRIAN BENTHIC ECOSYSTEMS?**
- 2:20 PM **BREAK**
- 42-4 2:30 PM Purcell, Ceara\*; Stigall, Alycia: **FEEDBACK LOOPS IN ECOLOGICAL NICHE EVOLUTION, DISPERSAL, AND SPECIATION: EXPLORING ECOLOGICAL NICHE EVOLUTION IN EASTERN LAURENTIAN UPPER ORDOVICIAN BRACHIOPODS**
- 42-5 2:45 PM Smith, Nicholas\*; Sain, Colby E.; Thuy, Ben; Sumrall, Colin: **IMPROVING OUR UNDERSTANDING OF LATE PALEOZOIC BRITTLE STAR DIVERSITY: A NEW BRITTLE STAR FAUNA FROM THE INDIAN SPRINGS SHALE MEMBER OF THE BIG CLIFTY FORMATION, SULPHUR, IN**
- 42-6 3:00 PM Rakshit, Nibedita\*; Ray, Sanghamitra: **DECODING THE LATE TRIASSIC VERTEBRATE PALEOECOSYSTEM FROM A HIGHLY DIVERSE MULTITAXIC BONEBED**
- 3:15 PM **BREAK**
- 42-7 3:30 PM Napoli, James\*: **THE MISSING DIVERSITY OF THE DINOSAUR FOSSIL RECORD**
- 42-8 3:45 PM Laker, Rachel\*: **UNDERSTANDING DIAGENETIC VARIATION IN FOSSIL ASSEMBLAGES: LEVERAGING THE SEQUENCE STRATIGRAPHIC CONTEXT OF VERTEBRATE REMAINS WITHIN THE CALVERT CLIFFS (MIOCENE OF MARYLAND)**
- 42-9 4:00 PM Juhn, Mark\*; Balisi, Mairin; Doughty, Evan; Friscia, Anthony; Howenstine, Aidan; Jacquemetton, Christiane; Marcot, Jonathan; Nugen, Sarah; Van Valkenburgh, Blaire: **NORTH AMERICAN MAMMAL PREDATOR DIVERSITY AND FUNCTIONAL TRAIT RESPONSE TO CLIMATE CHANGE ACROSS THE CENOZOIC**
- 42-10 4:15 PM Antell, Gwen\*; Saupe, Erin: **RATE AND MODE OF THERMAL NICHE EVOLUTION ACROSS AND WITHIN LINEAGES OF CENOZOIC PLANKTONIC FORAMINIFERA**

SUNDAY  
PM

**SESSION NO. 43**

**T113. Friends of Hoth: Episode V—Small, Icy, and Ocean Worlds (GSA Planetary Geology Division)**

1:30 PM, Oregon Convention Center, D139/D140

Erin Leonard, Kynan H.G. Hughson, Emily S. Martin and D Alex Patthoff, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 43-1 1:35 PM Cheng, Hiu Ching Jupiter\*; Klimczak, Christian: **A STRUCTURAL MAP OF THE RHEASILVIA BASIN ON VESTA**
- 43-2 1:50 PM Parekh, Ritu\*; Otto, Katharina A.; Matz, K.D.; Jaumann, Ralf; Krohn, Katrin; Roatsch, Thomas; Kersten, Elke; Elgner, Stephan; Russell, Christopher T.; Raymond, Carol A.: **NATURE OF LOCALIZED POND DEPOSITS ON ASTEROID VESTA**
- 43-3 2:05 PM Scully, Jennifer\*; Carey, Elizabeth M.; Poston, Michael J.; Baker, Samantha R.; Castillo-Rogez, Julie C.; Raymond, Carol A.: **LABORATORY EXPERIMENTS AND GEOMORPHOLOGICAL ANALYSIS TO TEST THE HYPOTHESIS THAT SHORT-LIVED, DEBRIS-FLOW-LIKE PROCESSES OCCURRED ON VESTA AND CERES**
- 43-4 2:20 PM Wallace, Sydney\*; Dyar, M. Darby; Sheldon, Daniel; Burbine, Thomas H.: **MACHINE LEARNING APPROACHES TO ASTEROID TAXONOMY USING METEORITE SPECTRA**
- 43-5 2:35 PM Hamilton, V.\*; Simon, A.; Kaplan, H.; Christensen, P.; Reuter, D.; DellaGiustina, D.; Haberle, C.; Breitenfeld, L.; Clark, B.; Lauretta, D.: **THE COMPOSITION OF ASTEROID BENNU FROM THE OSIRIS-REX MISSION**
- 43-6 2:50 PM Leonard, Erin\*; Senske, David A.; Patthoff, D. Alex: **EUROPA'S GLOBAL GEOLOGY: INSIGHT INTO SURFACE PROCESSES FROM GEOLOGIC MAPPING AT THE GLOBAL SCALE**
- 43-7 3:05 PM Cameron, Marissa\*; Hand, Kevin P.; Phillips, Cynthia B.; Pitesky, Jo E.; Craft, Kathleen L.; Hofgartner, Jason D.; Hofmann, Amy E.; Leonard, Erin; Scully, Jennifer; Klonicki, Emily; Brooks, Shawn: **EUROPA: SCIENCE-DRIVEN PREPARATIONS FOR LANDING ON AN UNKNOWN SURFACE (Invited Presentation)**
- 43-8 3:25 PM Lien, Rudi R.\*; Craft, Kathleen L.; Walker, Matt: **TIDALLY INDUCED ICE SHELL FRACTURING AND FAULTING AT EUROPA & IMPLICATIONS FOR FUTURE SUBSURFACE MISSIONS**
- 43-9 3:40 PM Mills, Alyssa\*; Leonard, Erin; Howell, Samuel; Skjetne, Helle L.; Pappalardo, Robert: **INVESTIGATING SIZE DISTRIBUTIONS OF CHAOS BLOCKS ON EUROPA, PLUTO, AND MARS**
- 43-10 3:55 PM Howell, Samuel\*; Leonard, Erin: **PALM READING ON EUROPA: USING LANDFORMS TO BOUND THE TIMING OF FEATURE FORMATION THROUGH STRATIGRAPHIC AND THERMOPHYSICAL ANALYSES**
- 43-11 4:10 PM Ferguson, Sierra\*; Rhoden, Alyssa; Kirchoff, Michelle R.: **THE UNIQUE IMPACTOR POPULATIONS OF THE SATURNIAN SYSTEM; A CASE STUDY ON TETHYS AND DIONE (Invited Presentation)**
- 43-12 4:30 PM Beddingfield, Chloe\*; Cartwright, Richard J.: **POLYGONAL IMPACT CRATERS ON URANIAN SATELLITES REVEAL HIDDEN TECTONISM (Invited Presentation)**
- 43-13 4:50 PM Patthoff, D Alex\*; Martin, Emily; Collins, Geoffrey C.; Bland, Michael: **DATING TRITON'S SURFACE: IT'S COMPLICATED**
- 5:05 PM **DISCUSSION**
- 5:25 PM **CONCLUDING REMARKS**

**SESSION NO. 44**

**T114. From the Guajira Desert to the Apennines, and from the Sardinia/Corsica Microplate to the Killer Asteroid: Honoring the Career of Walter Alvarez on the Occasion of His 80th Birthday (GSA Planetary Geology Division; GSA Structural Geology and Tectonics Division; GSA History and Philosophy of Geology Division; GSA Geophysics and Geodynamics Division)**

1:30 PM, Oregon Convention Center, Portland Ballroom 256 (Hybrid Room)

Christian Koeberl and Philippe Claeys, Presiding

- 44-1 1:30 PM Claeys, Philippe\*; Goderis, Steven; Kaskes, Pim; de Graaff, Sietze; Dehais, Thomas; Sinnesael, Matthias; De Winter, Niels: **FROM GUBBIO TO CHICXULUB: K-PG IRIIDIUM ANOMALY COMES FULL CIRCLE**
- 44-2 1:45 PM Alegret, Laia\*; Arreguín-Rodríguez, Gabriela; Thomas, Ellen: **OCEANIC PRODUCTIVITY AFTER THE CRETACEOUS/PALEOGENE IMPACT: THE VIEW FROM THE DEEP**
- 44-3 2:00 PM Schmitz, Birger\*; Schmieder, Martin; Liao, Shiyong; Martin, Elinor; Terfelt, Fredrik: **IMPACT-CRATER AGES AND MICROMETEORITE PALEOFUXES COMPARED: EVIDENCE FOR THE IMPORTANCE OF ORDINARY CHONDRITES IN THE FLUX OF METEORITES AND ASTEROIDS TO EARTH THE PAST 500 MILLION YEARS**
- 44-4 2:15 PM Mittal, Tushar\*; Sprain, Courtney; Renne, Paul R.; Richards, Mark A.: **DECCAN VOLCANISM AT K-PG TIME**
- 44-5 2:30 PM Rowan, Mark\*: **RIFTING, SPREADING, AND SALT DEPOSITION W AND NW OF CHICXULUB, SOUTHERN GULF OF MEXICO**
- 44-6 2:45 PM Fouke, Bruce\*: **DEPOSITIONAL AND DIAGENETIC HISTORY OF TRAVERTINE DEPOSITED WITHIN THE ANIO NOVUS AQUEDUCT OF ANCIENT ROME**
- 44-7 3:00 PM Stewart, Kevin\*; Boulter, Rachel: **DETAILED MAPPING AND PALEOSTRESS ANALYSIS OF ACTIVE FAULTS IN THE NORTHERN VETTORE - BOVE FAULT ZONE, SIBILLINI MOUNTAINS, ITALY**
- 44-8 3:15 PM Pazzaglia, Frank\*; Fisher, James: **APENNINE UPLIFT HISTORY AND DEVELOPMENT OF TRANSVERSE DRAINAGES FROM LONGITUDINAL PROFILE INVERSION**
- 44-9 3:30 PM Chan, Lung Sang\*; Alvarez, Walter; Geiser, Peter; Tavarnelli, Enrico: **MORPHOLOGY, CLAST SIZE AND MICROSTRUCTURES OF EXPANSION BRECCIAS IN THE MAIOLICA LIMESTONE IN THE UMBRIA-MARCHE APENNINES: IMPLICATIONS ON FLOW REGIMES AND P-T CONDITION OF THE HYDROTHERMAL FLUIDS**
- 44-10 3:45 PM Warme, John\*: **PANCHO'S RADICAL LANDSLIDE, CENTRAL GRAND CANYON: SOUTH SLOPE RECORD RUN-UP, ROCK MISSILE CRATERS, POST-EVENT SUBAQUOUS BOULDER DUNES**
- 44-11 4:00 PM Tavarnelli, Enrico\*; Barchi, Massimiliano Rinaldo: **THIN-SKINNED VERSUS THICK-SKINNED TECTONICS IN THE UMBRIA-MARCHE FOLD-AND-THRUST BELT: CONTRAST OR COEXISTENCE?**
- 44-12 4:15 PM Tarduno, John\*: **ROBUST HOTSPOT ORIGIN FAR FROM LLSVP MARGINS**
- 44-13 4:30 PM Bice, David M.\*; Tavarnelli, Enrico: **THE INFLUENCE OF THE MESSINIAN SALINITY CRISIS ON THE TECTONIC EVOLUTION OF THE NORTHERN APENNINES**
- 44-14 4:45 PM Koeberl, Christian\*; Bazso, Akos: **THE DINOSAURS HAD NO WARNING OR CHANCE – DO WE? A “PLANETARY DEFENSE” VIEWPOINT**
- 44-15 5:00 PM DePalma, Robert\*; Oleinik, Anton E.; Burnham, David A.; Larson, Peter; Gurche, Loren; Klingler, Jeremy; Wogelius, Roy; Egerton, Victoria; Manning, Phillip L.: **A TURTLE FROM THE TANIS KPG MASS-DEATH ASSEMBLAGE: FURTHER EVIDENCE FOR CIRCUM-RIPARIAN**

**DISRUPTION BY A MASSIVE CHICKULUB IMPACT-TRIGGERED SURGE**

44-16 5:15 PM Smit, Jan\*: **FROM 1979 TO 2021-OVER 40 YEARS OF EVOLUTION OF THE CRETACEOUS-TERTIARY IMPACT-EXTINCTION THEORY : FROM A SPECULATIVE HYPOTHESIS TO PARADIGM?**

**SESSION NO. 45**

**T124. New Advances in Geobiology (GSA Geobiology and Geomicrobiology Division; Geochemical Society)**

1:30 PM, Oregon Convention Center, B115/B116 (Hybrid Room)

Trinity Hamilton, Victoria A. Petryshyn, David Gold, Emily F. Smith, Zoë Havlena, Alison Cribb, Rowan Martindale, Andrew Putt and Brandt M. Gibson, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 45-1 1:35 PM Fulton, James\*; Dhar, Sanjukta; Frucci, Mason N.; Atchley, Stacy C.: **BIOGEOCHEMICAL PROCESSES AT THE DEVONIAN/CARBONIFEROUS BOUNDARY IN THE WESTERN CANADA SEDIMENTARY BASIN**
- 45-2 1:50 PM Wiemann, Jasmina\*: **FOSSIL BIOMOLECULES REVEAL METABOLIC AND THERMOREGULATORY STRATEGIES IN EXTINCT AMNIOTES**
- 45-3 2:05 PM Wostbrock, Jordan\*; Witts, James; Gao, Yang; Myers, Corinne; Henkes, Gregory A.; Sharp, Zachary D.: **COMBINED TRIPLE OXYGEN AND CLUMPED ISOTOPE MEASUREMENTS TO RECONSTRUCT PALEOENVIRONMENTS OF THE LATE CRETACEOUS WESTERN INTERIOR SEAWAY**
- 45-4 2:20 PM Wroblewski, Anton\*; Gulas-Wroblewski, Bonnie: **NEOICHOLOGY OF FIRMGROUD AND SOFTGROUND BURROWING MAYFLIES (EPHEMEROPTERA) WITH COMPARISON TO *GLOSSIFUNGITES GINGRASI* AND OTHER ICHNOTAXA**
- 2:35 PM **BREAK**
- 2:45 PM **INTRODUCTION OF ARTHUR L. DAY MEDAL, BY ARIEL D. ANBAR WITH CLAUDIA MORA**
- 45-5 2:50 PM Freeman, Katherine H.\*: **ARTHUR L. DAY MEDAL: ISOTOPE PATTERNS WITHIN BIOMARKERS**
- 3:10 PM **DISCUSSION**
- 45-6 3:20 PM Bower, Dina\*; Yang, Clayton S.C.; Hewagama, T.; Jin, F.; Aslam, S.; Nixon, C.A.: **SPECTROSCOPIC TECHNIQUES FOR THE *IN SITU* DETECTION OF MOLECULAR SIGNATURES INDICATIVE OF HABITABILITY AND LIFE IN PLANETARY ANALOGS**
- 45-7 3:35 PM Rasmussen, Cornelia\*; Hoffman, David W.: **POSITION-SPECIFIC CARBON ISOTOPE ANALYSIS OF ORGANIC MOLECULES – APPLYING A NOVEL NMR TOOL**
- 45-8 3:50 PM Alarcon, Hugo; Mohl, Jonathan; Xu, Jie\*: **UTILIZATION OF SOLID-PHASE METAL SULFIDE AS ELECTRON DONORS BY *A. VINOSUM* AND *H. HALOPHILA*: A COMPARATIVE AND MECHANISTIC STUDY**
- 4:05 PM **INTRODUCTION OF INVITED SPEAKER, CARA SANTELLI**
- 45-9 4:10 PM Santelli, Cara\*; Sabuda, Mary; Mejia, Jacqueline: **UNRAVELING THE PATHWAYS OF METAL(LOID) UTILIZATION AND DETOXIFICATION OF FUNGI (Invited Presentation)**
- 45-10 4:30 PM Eby, Leigha; Venn, Cynthia\*; Hranitz, John M.; Hallen, Christopher P.: **ASSESSMENT OF WATER QUALITY AND MICROBIAL POPULATIONS OF ACID MINE DRAINAGE ENTERING AND EXITING A VERTICAL FLOW WETLAND TREATMENT SYSTEM NEAR RANSHAW, PA (NORTHUMBERLAND COUNTY)**
- 4:45 PM **INTRODUCTION OF DIVISION DISTINGUISHED CAREER AWARD WINNER**

45-11 4:50 PM Corsetti, Frank A.\*; Frantz, Carie M.; Petryshyn, Victoria A.; Ibarra, Yadira; Wilmeth, Dylan: **STROMATOLITE BIOGENICITY: AN UPDATE (Invited Presentation)**

5:10 PM **DISCUSSION AND CONCLUDING REMARKS**

**SESSION NO. 46**

**T127. Advances in Geomorphology: Understanding How Interactions among Climatic, Tectonic, Fluvial, and Hillslope Processes Drive Topographic Change II (GSA Soils and Soil Processes Division; GSA Quaternary Geology and Geomorphology Division)**

1:30 PM, Oregon Convention Center, Portland Ballroom 254 (Hybrid Room)

Adrian Bender, Sean Gallen, Karin Lehnigk and Charles Shobe, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 46-1 1:35 PM Struble, William\*; Roering, Joshua; Dorsey, Rebecca; Bendick, Rebecca: **TOPOGRAPHIC TRANSFORMATIONS REVEAL LONGITUDINAL LENGTHENING OF OREGON FOREARC RIVERS**
- 46-2 1:50 PM Rittenour, Tammy\*; Short, Alexander K.: **GRAVEL ON THE STAIRCASE: MIDDLE TO LATE PLEISTOCENE PIEDMONT DEPOSITS AND ENVIRONMENTAL CHANGE, GRAND STAIRCASE, SOUTHERN UTAH**
- 46-3 2:05 PM Thomson, Kelly\*; Lang, Karl; Jiao, Rouhong; Glotzbach, Christoph; Ring, Uwe; Kamp, Peter; Ehlers, Todd: **LONG-TERM LINK BETWEEN OROGRAPHIC PRECIPITATION AND ROCK EXHUMATION IN THE SOUTHERN ALPS OF NEW ZEALAND CONFIRMED BY DETRITAL ZIRCON (U-TH)/HE AND FISSION-TRACK DOUBLE-DATING AND RAMAN SPECTROSCOPY OF CARBONACEOUS MATERIAL IN THE WAIHO-1 BOREHOLE**
- 46-4 2:20 PM Dietsch, Craig\*: **VERY LONG-LIVED LOW BEDROCK EROSION RATES AND SLOW SEDIMENT TRANSPORT OUT OF HIGH ELEVATION CATCHMENTS SUSTAIN OROGENIC PLATEAUS: MODERN EXAMPLES FROM THE HIMALAYA OF NORTHERN INDIA**
- 2:35 PM **BREAK**
- 46-5 2:45 PM Sklar, Leonard\*; Riebe, Clifford: **PROGRESS IN MODELING THE SIZE DISTRIBUTION OF SEDIMENT PRODUCED ON HILLSLOPES AND SUPPLIED TO RIVERS**
- 46-6 3:00 PM Harvey, Erin\*; Hales, Tristram; Hobley, Daniel E.J.; Fan, Xuanmei; Liu, Jie; Xu, Qiang; Huang, Runqiu: **THE ROLE OF TOPOGRAPHY AND GRAIN SIZE IN CONTROLLING POST-EARTHQUAKE DEBRIS FLOW DEPOSITION**
- 46-7 3:15 PM Olivares, Lester\*; Jordan, Teresa E.: **IDENTIFYING LANDSCAPE CHANGES DUE TO EXTREME RAIN EVENTS IN THE ATACAMA DESERT AND THEIR GEOMORPHIC CONTROLS: INSIGHTS FROM UPPER RIO SALADO AND SIPUCA WATERSHEDS**
- 46-8 3:30 PM Cook, Kristen\*; Puri, Bijay; Andermann, Christoff; Schwanghart, Wolfgang; Adhikari, Basanta Raj: **EVENT-SCALE INTERACTIONS AMONG CLIMATE, TECTONICS, HILLSLOPE AND FLUVIAL PROCESSES IN THE HIMALAYA (Invited Presentation)**
- 46-9 3:50 PM Adeoti, Blessing\*; Webb, A. Alexander G.: **A MAP-VIEW RECONSTRUCTION OF THE STRUCTURAL DEVELOPMENT OF THE KUQA FOLD-AND-THRUST BELT, NORTHWESTERN CHINA**
- 46-10 4:05 PM Yanites, Brian\*; Shore, Dominique; Rittenour, Tammy; Shyu, J. Bruce H.; DeLisle, Clarke; Chen, Chia-Yu: **BEDROCK RIVER MORPHOLOGY REFLECTS UPSTREAM SEDIMENT SUPPLY IN RAPIDLY UPLIFTING SOUTHERN TAIWAN (Invited Presentation)**
- 4:25 PM **DISCUSSION**
- 4:35 PM **CONCLUDING REMARKS**

SUNDAY  
PM

**SESSION NO. 47**

**T137. From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary (INQUA IFG POCAS, IGCP 610) II**

1:30 PM, Oregon Convention Center, ONLINE

Valentina Yanko-Hombach and Tamara Yanina, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 47-1 1:35 PM Yanko-Hombach, Valentina\*; Kravchuk, Anna; Kulakova, Irina: **MEIOBENTHOS AS SEARCH INDICATORS FOR METHANE ACCUMULATIONS UNDER THE BLACK SEA FLOOR**
- 47-2 1:50 PM Pinchuk, Tatiana\*; Kodash, Anna; Fursina, Angelina: **MICROFAUNISTIC STUDIES OF DEEP-SEA SEDIMENTS OF THE BLACK SEA (THE RUSSIAN SECTOR)**
- 47-3 2:05 PM Matygin, Alexander\*; Andreev, Nadejda; Zubcov, Elena; Ene, Antoaneta; Trombitsky, Ilya; Kovalishina, Svetlana: **ASSESSING THE IMPACT OF HYDROPOWER CONSTRUCTIONS AND CLIMATE CHANGES ON FUNCTIONING OF DNIESTER RIVER ECOSYSTEM WITHIN THE HYDROECONEX PROJECT**
- 47-4 2:20 PM Chepurna, Valentyna\*: **FORECASTING OCEANOGRAPHIC PARAMETERS IN THE AZOV AND BLACK SEAS USING THE COUPLED DELFT3D-SWAN NUMERICAL MODELS**
- 47-5 2:35 PM Matygin, Alexander\*; Yakovleva, Nataliia: **NATURAL MECHANISMS OF PALEOCLIMATIC CHANGES IN THE NORTHERN BLACK SEA REGION AND ITS SOCIAL CONSEQUENCES**
- 47-6 2:50 PM Anastas, Alexandru\*; Kravchenko, Elena; Zakharov, Denis; Marareskul, Vladislav: **ON THE FIND OF AN ELEPHANT MANDIBLE NEAR TIRASPOL (PRIDNESTROYE)**
- 47-7 3:05 PM Semikolennykh, Daria\*; Yanina, Tamara; Kurbanov, Redzhep: **DATING THE LOWER KHALVALYNIAN SEDIMENTS OF THE MANYCH DEPRESSION**
- 47-8 3:20 PM Yanina, Tamara\*: **CASPIAN MOLLUSKS IN THE BLACK SEA DURING THE LATE PLEISTOCENE**
- 47-9 3:35 PM Vasilyev, Sergey\*; Ivanov, Sergey V.; Kharlamova, Natalia V.; Borutskaya, Svetlana B.: **ANTHROPOLOGICAL DESCRIPTION AND FEATURES OF ADAPTATION OF THE ANCIENT EGYPTIANS**

**SESSION NO. 48** 

**T153. Application of Student Research Projects, A Way to Solve Water-Related Problems—Issues in Developing Nations (GSA Geology and Society Division)**

1:30 PM, Oregon Convention Center, B112

Solomon Isiorho, Duke U. Ophori and Isaac Akinwumi, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 48-1 1:35 PM Yelderman, Joe\*; Wong, Stephanie S.: **HELPING SOLVE INTERNATIONAL WATER PROBLEMS: TO KNOW, YOU NEED TO GO; TO HELP, YOU NEED TO GO AGAIN (Invited Presentation)**
- 48-2 1:55 PM Ophori, Duke\*: **MODELING THE EFFECTS OF GROUNDWATER PUMPING IN A REGIONAL GROUNDWATER FLOW SYSTEM**
- 48-3 2:10 PM Ali, Banire Sunday\*; Akinwumi, Isaac; Isiorho, Solomon: **WATER SUPPLY, SANITATION AND HYGIENE IN UNGWAN RIMI PRIMARY HEALTHCARE CENTRE, KADUNA STATE, NIGERIA**
- 48-4 2:25 PM Udoh, Happiness J.\*; Akinwumi, Isaac; Isiorho, Solomon: **OIL REMOVAL FROM WATER SURFACE USING BAMBOO MAT**
- 2:40 PM **BREAK**
- 48-5 2:45 PM Nyarko, Delaiah\*; Yidana, Mark; Chegbeleh, L.P.: **GROUNDWATER RECHARGE ESTIMATION USING THE RAINFALL INFILTRATION BREAKTHROUGH (RIB)**

**MODEL IN THE BIRIM NORTH DISTRICT OF SOTH-EAST GHANA**

- 48-6 3:00 PM Yeboah, Felicia\*: **CALIBRATION AND VALIDATION OF HEC-HMS MODEL FOR THE BLACK VOLTA BASIN IN GHANA**
- 48-7 3:15 PM Owusu-Akyaw, Francis K.B.; Nunoo, Samuel\*; Manu, Johnson: **IMPACT FROM ARTISANAL SMALL-SCALE GOLD MINING ON SELECTED MAJOR RIVER BODIES IN GHANA**
- 48-8 3:30 PM Ngene, Ben U.; Akinwumi, Isaac; Ugwu, Emmanuel; Bamigboye, Gideon; Isiorho, Solomon\*: **STUDENT'S RESEARCH PROJECTS IN WATER RESOURCES DEVELOPMENT: POSITIVES AND NEGATIVES**
- 3:45 PM **BREAK**
- 48-9 3:50 PM Oyen, Toritseju\*; Ophori, Duke U.: **HYDROCHEMICAL CHARACTERIZATION OF GROUNDWATER OF THE RARITAN BASIN**
- 48-10 4:05 PM Akinwumi, Isaac; Aizebeokhai, Ahzegbobor; Ede, Anthony; Omole, David O.; Isiorho, Solomon\*: **STUDENTS' RESEARCH PROJECTS TACKLING WATER-RELATED ISSUES IN NIGERIA**
- 48-11 4:20 PM Gierke, John\*; Bowman, Luke; Henquinet, Kari B.; Bartel, Beth; Carter, Angie; Aguilar, Nelson Andres; Zambrana, Juan Francisco; Cruz Centeno, J. Fredy; Clark, Emily: **WATER ONCE A MONTH: GRADUATE STUDENTS AND WATER SCARCITY ISSUES IN RURAL EL SALVADOR**
- 48-12 4:35 PM Aizebeokhai, Ahzegbobor\*; Oyeyemi, Kehinde D.; Oladunjoye, Michael A.; Doro, Kennedy: **STUDENTS' RESEARCH PROJECTS IN HYDROLOGICAL STUDIES: EFFECTIVE AND SUSTAINABLE APPROACH FOR GROUNDWATER RESOURCE MANAGEMENT IN DEVELOPING NATIONS (Invited Presentation)**
- 4:55 PM **CONCLUDING REMARKS**

**SESSION NO. 49**

**T167. The Lasting Effects of the 2020–2021 COVID-19 Crisis on Geoscience Education: Insights, Problems, and Unanticipated Benefits II (GSA Geoscience Education Division; National Association of Geoscience Teachers (NAGT); National Association of Geoscience Teachers (NAGT) Geoscience Education Research (GER) Division; GSA Geoinformatics and Data Science Division; GSA Geology and Society Division)**

1:30 PM, Oregon Convention Center, B113/B114 (Hybrid Room)

Mark Abolins and Tyler G. Smith, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 49-1 1:35 PM Koy, Karen\*: **LESSONS LEARNED: COVID-19 AND RETHINKING NON-MAJORS GEOSCIENCE COURSES AT A REGIONAL FOUR-YEAR UNIVERSITY**
- 49-2 1:50 PM Rueger, Bruce\*: **INSPIRING STUDENTS VIA REMOTE LEARNING IN AN INTRODUCTORY GEOSCIENCE COURSE (OR AN OLD DOG CAN INDEED LEARN NEW TRICKS)!**
- 49-3 2:05 PM Cronin, Vincent S.\*: **REMOTE TEACHING OF INTRODUCTORY PHYSICAL GEOLOGY LABS DURING THE COVID PANDEMIC**
- 49-4 2:20 PM Fryar, Alan\*: **REFLECTING ON WATER: CONTRASTING LESSONS FROM TWO COURSES DURING THE PANDEMIC**
- 2:35 PM **DISCUSSION**
- 49-5 2:50 PM Walker, Becca\*; Pratt-Sitaula, Beth; Douglas, Bruce J.; Crosby, Benjamin; Charlevoix, Donna; O'Connell, Kristin: **RESULTS, BENEFITS, AND LESSONS LEARNED FROM OUR QUICK PIVOT TO ONLINE GEODESY CURRICULUM PROFESSIONAL DEVELOPMENT: A REPORT FROM THE GETSI VIRTUAL MINI SHORT COURSE SERIES**
- 49-6 3:05 PM Limbeck, Maggie R.\*; Lopic, Whitney A.; Lam, Adriane R.; Bauer, Jennifer E.; Sheffield, Sarah L.; Daemmer,



Linda; Barclay, Kristina M.: **TIME SCAVENGERS: A DIGITAL LEARNING PLATFORM'S ADAPTATIONS TO INCREASED NEED FOR ONLINE LEARNING RESOURCES**

- 49-7 3:20 PM Fischer-Femal, Brenden\*; Lopez, Samuel; Hartley, Hannah; Godsey, Holly: **CONNECTING GRADUATE STUDENTS, RESEARCH AND K-12 STUDENTS THROUGH ONLINE OUTREACH: MAKING THE MOST OF ONLINE LEARNING DURING COVID-19**
- 49-8 3:35 PM Levering, David A.\*: **GATHER THE STUDENTS: IMPLEMENTING FIELDWORK-BASED ACTIVE LEARNING STRATEGIES IN CUSTOMIZED INTERACTIVE VIRTUAL SPACES THROUGH GATHERTOWN**
- 49-9 3:50 PM Hargrave, Jennifer\*: **KEEPING GEOSCIENCE MUSEUM EXPERIENCES HANDS-ON IN A VIRTUAL WORLD**
- 49-10 4:05 PM Haas, Don\*; Zidell, Kenneth R.: **SCIENCE IN THE VIRTUAL (AND ACTUAL) PUB**
- 4:20 PM **CONCLUDING REMARKS**

**SESSION NO. 50** 

**T174. Great Geological Outcrops and Locales (GSA History and Philosophy of Geology Division; History of Earth Sciences Society)**

1:30 PM, Oregon Convention Center, Portland Ballroom 253 (Hybrid Room)  
Kathleen J. Lohff, Renee M. Clary and Joanne Bourgeois, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 50-1 1:35 PM Dominici, Stefano\*: **A LOOK AT THE VOLTERRA CLIFF (TUSCANY, ITALY) FROM THE MIDDLE AGES TO THE EARLY MODERN AGE AND THE ONSET OF MODERN GEOLOGY**
- 50-2 1:55 PM Lohff, Kathleen\*: **SACRED SPACES: JAMES HUTTON'S SCOTTISH LOCALES**
- 50-3 2:10 PM Bourgeois, Joanne\*: **TRACKWAYS IN THE NEW RED SANDSTONE OF THE CONNECTICUT RIVER VALLEY, USA**
- 50-4 2:25 PM Sharpe, Tom\*: **THE EARLY JURASSIC SEQUENCE OF LYME REGIS, DORSET, ENGLAND AND ITS SIGNIFICANCE TO THE HISTORY OF GEOLOGY AND PALEONTOLOGY**
- 50-5 2:45 PM Clary, Renee\*; Dockery, David T.: **CHARLES LYELL (1797-1875) IN MISSISSIPPI: THE HISTORIC TOWN CREEK LOCALE (Invited Presentation)**
- 50-6 3:00 PM Bobeck, Patricia\*: **HENRY DARCY LOCALES IN DIJON FRANCE**
- 3:15 PM **BREAK**
- 50-7 3:25 PM Thomas, Roger D.K.\*; Ismat, Zeshan: **CHICKIES ROCK: A STRIKING PROMONTORY ON THE SCENIC SUSQUEHANNA RIVER THAT IS THE EARLY CAMBRIAN TYPE LOCALITY OF THE ICONIC TRACE FOSSIL SKOLITHOS**
- 50-8 3:40 PM Brandt, Danita S.\*; Velbel, Michael: **THE "COAL MEASURES" OF GRAND LEDGE, MICHIGAN, USA**
- 50-9 3:55 PM Sack, Dorothy\*: **THE GREAT BARRIER-SPIT COMPLEX AT THE STOCKTON BAR, LAKE BONNEVILLE, UTAH**
- 50-10 4:10 PM Anderson, Thomas\*; James, Matthew; McNeil, Paul: **THE BURGESS SHALE LAGERSTATTEN AT THE WALCOTT QUARRY, YOHO NATIONAL PARK, CANADA**
- 50-11 4:25 PM OConnell, Suzanne\*: **ANONYMOUS IS A WOMAN. DISCOVERING THE DEEP-SEA HYDROTHERMAL VENTS IN THE GALAPAGOS**
- 4:45 PM **RAPID FIRE PRESENTATIONS: GONZÁLEZ ET AL.; MIKULIC & KLUESSENDORF; PYLE ET AL.; ANDREWS, JR.; CASTONGUAY; MOGK ET AL.; SABEL**

**SESSION NO. 51**

**P1. Linking Diversity, Equity, and Inclusion to the Climate Crisis: Inclusive Leadership and Practice in Geoscience (GSA Quaternary Geology and Geomorphology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Soils and Soil Processes Division; GSA Geochronology Division; GSA Marine and Coastal Geoscience Division; GSA Geoscience Education Division; GSA Environmental and Engineering Geology Division; GSA Geochronology Division; GSA Geology and Society Division; GSA Limnogeology Division)**

2:00 PM, Oregon Convention Center, Oregon Ballroom 202/203/204 (Hybrid Room)

- Jennifer Pierce, Stephanie Shepherd, Nick Sutfin and Nancy Glenn, Presiding
- 2:00 PM **INTRODUCTORY REMARKS**
- 51-1 2:05 PM Ali, Hendratta\*: **CLIMATE CRISIS: PETROLEUM. COMMUNITIES. IMPACT**
- 51-2 2:25 PM Hayhoe, Katharine\*: **WHY DIVERSITY IS ESSENTIAL TO SOLVING THE CLIMATE CRISIS**
- 51-3 2:45 PM Berhe, Asmeret Asefaw\*: **GEOSCIENCES, CLIMATE CHANGE, AND INCLUSIVE DIVERSITY**
- 51-4 3:05 PM Jones, Brandon\*: **NSF'S GOLD-EN PROGRAM: BUILDING CAPACITY FOR BROADENING PARTICIPATION IN THE GEOSCIENCES**
- 3:25 PM **PANEL DISCUSSION**

**AFTERNOON POSTER TECHNICAL SESSIONS**

**SESSION NO. 52**

**T144. Intersections of Sustainability and Geosciences (Posters) (GSA Karst Division; GSA Soils and Soil Processes Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A  
Authors will be present from 4 to 6 PM

- |      | Booth # |                                                                                                                                                                                                                                                                                                 |
|------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 52-1 | 1       | Bender-Awalt, Mitchell*; Iverson, Ellen; Szymanski, David; Erhemjamts, Otgontsetseg; Lenczewski, Melissa; Mooney, Christine; Oches, Rick; Ritter, John; Wilson, Rachel: <b>ASSESSING STUDENT LEARNING ABOUT SUSTAINABILITY AND WICKED PROBLEMS THROUGH TRANSDISCIPLINARY CURRICULUM MODULES</b> |
| 52-2 | 2       | Davies, Gareth*; Alexander, E. Calvin: <b>MONITORING BEDROCK SETTINGS AS A POROUS MEDIUM: THE EMPEROR HAS NO CLOTHES</b>                                                                                                                                                                        |
| 52-3 | 3       | Cooke, Campbell*; Jordan, Brennan: <b>ASSESSING GEOLOGIC ECOSYSTEM SERVICES IN THE BLACK HILLS OF SOUTH DAKOTA AND WYOMING: A PRELIMINARY APPROACH</b>                                                                                                                                          |
| 52-4 | 4       | Chen, Zhaozhe*; Costa, Ozeas: <b>GROWTH OF TWO AQUATIC MACROPHYTE SPECIES IN ARTIFICIAL FLOATING ISLANDS IN AN OHIO WETLAND: POTENTIAL FOR NUTRIENT SEQUESTRATION</b>                                                                                                                           |
| 52-5 | 5       | Hoving, Kailey M.*; Gotham, Kelly J.; Bodenbender, Brian: <b>TERRESTRIAL TRASH TAPHONOMY: CHARACTERIZING ROADSIDE LITTER AS POTENTIAL SOURCES OF PLASTIC IN WATERWAYS</b>                                                                                                                       |

**SESSION NO. 53**   

**T145. Sigma Gamma Epsilon Student Research Exhibition (Posters) (Sigma Gamma Epsilon; GSA Limnogeology Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A  
Authors will be present from 4 to 6 PM

- |      | Booth # |                                                                                                                                                                                                                                                                                 |
|------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 53-1 | 6       | Anannya, Anuva*; Stewart, Alexander; Eifert, Helen: <b>DETECTION OF FE/MG PHYLLOSILICATE-RICH LANDSLIDES SITUATED IN IMPACT CRATERS IN THE TYRRHENA TERRA REGION ON MARS</b>                                                                                                    |
| 53-2 | 7       | Keirs, Austin*; Ray, Kayla Ann; Schiappa, Tamra A.: <b>ANALYSIS OF SECONDARY SULFATE MINERAL PARAGENESIS IN RELATION TO ENVIRONMENTAL CONDITIONS AND THE DECOMPOSITION OF SULFIDE MINERALS IN COAL</b>                                                                          |
| 53-3 | 8       | Menold, Carrie*; Menold, Carrie; Macris, Catherine A.: <b>FLUID MEDIATED RECRYSTALLIZATION OF A UHP ECLOGITE DURING EXHUMATION FROM TSO MORARI, INDIA</b>                                                                                                                       |
| 53-4 | 9       | Henning, Kathryn*; Menold, Carrie A.; McRivette, Michael W.; Macris, Catherine A.: <b>TEXTURAL AND CHEMICAL ANALYSIS OF WHITE MICA FROM THE TSO MORARI UHP GNEISS</b>                                                                                                           |
| 53-5 | 10      | Zhang, Hanlin*; Klein, S.P.; Tower, John; Rougvie, James: <b>ALTERATION IN THE WHITE MOUNTAIN PEAK METAVOLCANIC COMPLEX, EASTERN CALIFORNIA</b>                                                                                                                                 |
| 53-6 | 11      | Lesmann, Sarah Rose*; Malone, David; Craddock, Erica Powers; Craddock, John P.; Bjornerud, Marcia G.; Medaris, Levi: <b>PROTEROZOIC GEOLOGY OF THE DELLS OF THE EAU CLAIRE RIVER IN EASTERN MARATHON COUNTY, WISCONSIN, USA</b>                                                 |
| 53-7 | 12      | Czupski, Matthew*; Fischer, Cory; Lei, David; Ronquille, Rachel; Tran, Hy: <b>PRELIMINARY VIRTUAL NEOTECTONIC ANALYSIS OF FLATHEAD LAKE AND MISSION FAULTS, MONTANA</b>                                                                                                         |
| 53-8 | 13      | Ceesay, Roheyatou M.; Delgado, Daliedmarie; Kumar, Namitha; Lanker, Sabrina L.; Price, Daniel C.; Wais, Paul*; Welsh, Josie T.; Allen, Joseph; Reynolds, Aislin; Shaw, Colin: <b>HOW DOES METAMORPHIC FABRIC CONTROL EARTHQUAKE RUPTURE PROPAGATION? AN NSF REU FIELD STUDY</b> |
| 53-9 | 14      | Gossett, Lauren*; DeVries, Stephanie: <b>MICROPLASTICS IN THE TENNESSEE RIVER: ARE SMALL STREAMS A MAJOR SOURCE?</b>                                                                                                                                                            |

#### SESSION NO. 54

##### *4A. Recent Advances in Geoarchaeology (Posters)*

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |      | Booth # |                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 54-1 | 15      | Holcomb, Justin A.*; Wegmann, Karl; Runnels, Curtis: <b>LATE QUATERNARY COASTAL STRATIGRAPHY AT MOCHLOS BAY, NORTHEAST CRETE, GREECE: IMPLICATIONS FOR PALAEO-LITHIC ARCHAEOLOGICAL SITE PRESERVATION AND HOMININ DISPERSALS</b>                                                                                                                                                                                                   |
| 54-2 | 16      | Blackwell, Bonnie; Chen, Alvin*; Chen, Olivia R.L.; D'Costa, Katelyn A.; Faija, Mehrin U.; Mihailović, Dušan; Plavšić, Senka; Roksandic, Mirjana; Dimitrijević, Vesna; D'Costa, Jonathan N.; Dakovic, Gligor; Singh, Impreet K.C.; Li, Raymond; Ashkenas, Samuel G.; Yoon, Dylan Y.; Tan, Rebecca S.: <b>ESR DATING IN THE BALANICA CAVE COMPLEX, SERBIA: TRACKING HOMININS AND PALEOLITHIC CULTURES IN THE MIDDLE PLEISTOCENE</b> |
| 54-3 | 17      | Sanchez, William*; Yanes, Yurena; Linstädter, Jörg; Hutterer, Rainer: <b>OXYGEN ISOTOPIC COMPOSITION OF HARVESTED MOLLUSK ASSEMBLAGES FROM IFRI OUDADANE, NE MOROCCO</b>                                                                                                                                                                                                                                                           |
| 54-4 | 18      | Dantale, Sumedh*; Ugarkovic, Marina; Badurina, Luka; Segvic, Branimir: <b>A LONG JOURNEY OF AMPHORISKOI FROM LEVANT TO EASTERN ADRIATIC: INTRODUCING THE DISTANT MARKETS OF LUXURIOUS PHOENICIAN PRODUCTS OF THE 2<sup>ND</sup> AND 1<sup>ST</sup> C. BCE</b>                                                                                                                                                                      |
| 54-5 | 19      | Praetorius, Summer*; Alder, Jay; Condron, Alan; Mix, Alan; Walczak, Maureen: <b>ABRUPT DEGLACIAL CHANGES IN THE NORTH PACIFIC OCEAN AND IMPLICATIONS FOR HUMAN COASTAL MIGRATIONS INTO NORTH AMERICA</b>                                                                                                                                                                                                                           |

- |       |    |                                                                                                                                                                                                                                |
|-------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 54-6  | 20 | Futty, James*; Maloney, Jillian M.; Klotsko, Shannon A.; Derosier, Boe; Wriston, Teresa; Casperson, Molly: <b>GEOPHYSICAL MAPPING OF SUBMERGED LANDSCAPES IN OREGON RESERVOIRS AS AN ANALOG FOR COASTAL ENVIRONMENTS</b>       |
| 54-7  | 21 | Dowling, Katherine*; Wholey, Heather; Nikitina, Daria; Knight, Cameron; Sullivan, Jacob; Kaiser, Joan: <b>GEOARCHAEOLOGICAL EXAMINATION OF THE EAST POINT ARCHAEOLOGICAL DISTRICT, NEW JERSEY</b>                              |
| 54-8  | 22 | Windingstad, Jason*: <b>DISCONTINUOUS EPHEMERAL STREAM DYNAMICS IN THE LOWER SONORAN DESERT: IMPLICATIONS FOR ARCHAIC PERIOD LAND USE</b>                                                                                      |
| 54-9  | 23 | Cajigas, Rachel*; Plattner, Alain; Blair, Elliot H.: <b>GEOARCHAEOLOGICAL INVESTIGATIONS AT MOUND Z, MOUNDVILLE, ALABAMA (1TU500)</b>                                                                                          |
| 54-10 | 24 | Rowland, Stephen*; Gordon, Thomas; Chameroy, Eric: <b>AN EARLY-HISTORIC-AGE BISON AND PRONGHORN SKINNING AND BUTCHERING SITE IN THE CARSON VALLEY OF NORTHERN NEVADA</b>                                                       |
| 54-11 | 25 | Pacifico, Lina*: <b>PREHISTORIC TIN MINING: DETERMINING THE DURATION OF TIN ALLOY PRODUCTION VIA ANALYSIS OF METALLURGICAL CRUCIBLE FRAGMENTS FROM WEST SERBIA</b>                                                             |
| 54-12 | 26 | Pavlovics, Victoria*; Sprain, Courtney; Bloch, Lindsay; Wallis, Neill: <b>ROCK MAGNETIC CHARACTERIZATION OF FLORIDA POTTERY</b>                                                                                                |
| 54-13 | 27 | Pitcher, Alison*; Pike, Scott: <b>SOURCING BRICKS: AN HXRF STUDY OF WILLAMETTE UNIVERSITY'S OLDEST BUILDING</b>                                                                                                                |
| 54-14 | 28 | Pascoe, Margaret*; Sikder, Arif: <b>GEOARCHAEOLOGICAL APPROACH OF ASSESSING THE LEGACY POLLUTION OF CIVIL WAR BATTLE FIELD: A CASE STUDY OF BATTLE OF THE CRATER OF VIRGINIA</b>                                               |
| 54-15 | 29 | Malloch, Hayden*; Shepherd, Stephanie L.; Wolf, Lorraine L.; Buchanan, Meghan E.: <b>COMPARING GROUND PENETRATING RADAR SURVEY (GPR) CONFIGURATIONS FOR IDENTIFYING GRAVES, GEORGE AND ADDIE GIDDENS CEMETERY, OPELIKA, AL</b> |

#### SESSION NO. 55

##### *T27. Evolution of Earth's Surface: Honoring Xiao-Ming Liu, Recipient of the 2021 Mineralogy, Geochemistry, Petrology, and Volcanology Division's Early Geological Career Award (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)*

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |      | Booth # |                                                                                                                                                                                                                                                                                            |
|------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 55-1 | 30      | Richardson, Christina*; Paytan, Adina; Young, Megan: <b>MULTI-SCALE CHANGES IN DISSOLVED AND PARTICULATE CARBON AND NITROGEN DYNAMICS THROUGHOUT THE SAN FRANCISCO BAY AND SACRAMENTO-SAN JOAQUIN DELTA</b>                                                                                |
| 55-2 | 31      | Goldrich-Middaugh, Grace*; Ma, Lin; Ricketts, Jason; Soto-Montero, Paola; Engle, Mark; Sullivan, Pamela: <b>REGIONAL SCALE ANALYSIS OF RIVER FLOW AND CHEMISTRY SHOWS LITHOLOGY, CLIMATE, AND ANTHROPOGENIC CONTROLS ON SPATIAL TRENDS IN MAJOR ION BEHAVIOR ON THE COLORADO RIVER, TX</b> |
| 55-3 | 32      | Bhattacharya, Shailee*; Sharma, Shikha; Agrawal, Vikas; Wang, Yifeng: <b>UNDERSTANDING THE MECHANISMS OF OXYGEN AND HYDROGEN ISOTOPE FRACTIONATION OF WATER IN SHALES</b>                                                                                                                  |
| 55-4 | 33      | Allen, Jordan*; Winnick, Matthew: <b>NITROGEN GAS EMISSIONS FROM SHALE CRITICAL ZONE ENVIRONMENTS</b>                                                                                                                                                                                      |
| 55-5 | 34      | Gong, Lei; Zhang, Yilun; Chen, Kaiyun; Zhu, Chen*: <b>UNIDIRECTIONAL KAOLINITE DISSOLUTION RATES AT NEAR-EQUILIBRIUM USING SI ISOTOPE TRACERS</b>                                                                                                                                          |

		Booth #
55-6	35 Zhang, Zhuojun*; Zhao, Zhiqi; Liu, Congqiang; Chadwick, Oliver A.; Hu, Yongfeng; Vaughan, Karen L.; Zhu, Mengqiang: <b>EFFECTS OF CLIMATE AND DUST INPUTS ON PHOSPHORUS AVAILABILITY AND SPECIATION IN FOREST SOIL PROFILES</b>	57-1 48 Mijum, Moshammam*; Denton, C. Adeene: <b>URGE AT PURDUE EAPS: ACTIONS TAKEN AND BARRIERS TO DEVELOPING A DIVERSE AND INCLUSIVE DEPARTMENT</b>
55-7	36 Wang, Xi-Kai*; Liu, Xiao-Ming; Liu, Xiaofeng: <b>RARE EARTH ELEMENT GEOCHEMISTRY OF CENOZOIC CARBONATES DURING DOLOMITIZATION</b>	57-2 49 Kasbohm, Jennifer*; Long, Maureen; Westacott, Sophie; Millikin, Alexie E.G.: <b>URGE-ING IDEAS FORWARD IN YALE EPS</b>
55-8	37 Debes, Randall*; Fecteau, Kristopher; Shock, Everett L.: <b>TEMPORAL VARIATIONS REVEAL HOT SPRING FLUID SOURCES</b>	57-3 50 Menold, Carrie*; Macris, Catherine A.; Bramson, Ali; Cruz, Miguel; Druschel, Gregory; Gilhooly, William; Johnson, Brandon C.; Lee-Cullin, Joseph; Licht, Kathy; Marrs, Ian; McRivette, Michael; Thompson, Michelle; Wang, Lixin: <b>MEGA POD: BENEFITS AND LESSONS LEARNED FROM A MULTI-INSTITUTION URGE POD</b>
55-9	38 Aarons, Sarah*; Reimink, Jesse; Greber, Nicolas; Heard, Andy; Zhang, Zhe; Dauphas, Nicolas: <b>TITANIUM ISOTOPES CONSTRAIN A MAGMATIC TRANSITION AT THE HADEAN-ARCHEAN BOUNDARY IN THE ACATA GNEISS COMPLEX</b>	57-4 51 Guice, George*; Ackerson, Michael; Andrews, Benjamin J.; Cole, Selina R.; Corrigan, Catherine M.; Cottrell, Elizabeth; Farfan, Gabriela A.; Hale, Leslie J.; Pobiner, Briana L.; Rasmussen, Daniel J.; Souto, Camilla: <b>ADVANCING DIVERSITY, EQUITY, ACCESSIBILITY, AND INCLUSION AT THE SMITHSONIAN'S NATIONAL MUSEUM OF NATURAL HISTORY: UNIQUE OPPORTUNITIES AND CHALLENGES</b>
55-10	39 van Wijk, Jolante*; Ellis, Nicholas; Liu, Lijun; Lowery, Christopher M.; Owens, Jeremy: <b>RECONSTRUCTING PALEO-DYNAMIC TOPOGRAPHY OF THE OCEAN BASINS</b>	57-5 52 Schneider, Blair*; Suarez, Marina B.; Zipper, Samuel; Ortega-Ariza, Diana; Seals, Leila Joyce; Jordan, Kristen; McLean, Noah M.; Glose, Thomas; Mongovin, Daniel; Ahlert, Alexis; Proulx, Michelle; Gottberg, Amy: <b>LOOKING FORWARD: URGE ACTION ITEMS UNDERWAY FROM THE KANSASGEO POD</b>
55-11	40 Onwumelu, Chioma*; Nordeng, Stephan; Bouchakour, Imene; Kolawole, Oladoyin: <b>COMPENSATION EFFECT IN SOURCE ROCK KINETICS: INFLUENCE OF BITUMEN FORMATION</b>	57-6 53 Petrie, Lesley*; Samuel, Justin; Dawson, Matthew; Cullen, Cliff; Raessler, Jon; Stout, Nan; Bear, Tahlia: <b>ENVISIONING THE CONTRIBUTIONS OF PROFESSIONAL SOCIETY STAFF FOR SUSTAINING ANTI-RACISM WORK IN THE GEOSCIENCES</b>
55-12	41 Jiang, Hehe*; Chu, Xu: <b>RAPID DEGLACIATION IN THE PALEOPROTEROZOIC HURONIAN GLACIAL EVENT INDICATED BY CLASTIC DIKES IN ONTARIO, CANADA</b>	57-7 54 Allen, Jordan*; Lehnigk, Karin; Baranes, Hannah; Bowlick, Forrest J.; Brown, Laurie L.; Fattaruso, Laura; Griswold, Frances; Mckee, Kelly; Sadai, Shaina; Smith, Rebecca: <b>URGE DRIVES INSTITUTIONAL CHANGE AT UMASS GEOSCIENCE: A TIMELINE OF PERTURBATIONS TO THE STEADY STATE</b>
		57-8 55 Aderhold, Kasey*; IRIS/UNAVCO+ Pod, (URGE): <b>IRIS/ UNAVCO+: JOINING FORCES FOR UNLEARNING RACISM IN GEOSCIENCE</b>

**SESSION NO. 56**

**T150. Geoscience and Hydrology of Your Public Lands: STEM Internships, Research, Science, Mapping, Resource Management, and Education (Posters)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

	Booth #
56-1 42	Sivils, Anna*; Bilderback, Eric L.; Warner, Katherine Anne: <b>VIBRATING WIRE DISPLACEMENT SENSORS FOR ROCKFALL MONITORING IN CHACO CULTURE NATIONAL HISTORICAL PARK, NEW MEXICO</b>
56-2 43	Schwarz, Alex*; Ensign, Derek; Mauk, Jeffrey; Yager, Douglas B.; Ellefsen, Karl J.; Pillers, Renee M.; Rutley, James: <b>A RELATIONAL DATABASE FOR EVALUATING POTASH RESOURCES IN THE DESIGNATED POTASH AREA: EDDY AND LEA COUNTIES, NEW MEXICO</b>
56-3 44	Mauk, Jeffrey*; Horton, John D.; San Juan, Carma A.; Hernandez, Micah A.; Owen, Logan: <b>UPDATING THE GEOLOGIC AND STRUCTURE MAPS OF THE WALLACE AND KALISPELL 1 X 2 DEGREES QUADRANGLES, MONTANA AND IDAHO, USA, AND ALBERTA AND BRITISH COLUMBIA, CANADA</b>
56-4 45	Omeara, Stephanie*; Karpilo, Ronald D.; Chappell, James R.; Winter, James R.H.: <b>NATIONAL PARK SERVICE GEOLOGIC RESOURCES INVENTORY MAP PRODUCTION: CONVERTING 3 BILLION YEARS AND 85 MILLION ACRES OF GEOLOGY INTO GEOSPATIAL DATA</b>
56-5 46	Aziz, Javaria*: <b>GEOLOGY OF OREGON CAVES AND THE SURROUNDING KLAMATH MOUNTAINS</b>
56-6 47	Barnes, Alexander Jordan*; Nordin, Bailey J.; Fitzpatrick, Kayla Michele; Slawson, Jacob Scott: <b>GEOMORPHIC ROAD ANALYSIS AND SEDIMENT TRANSPORT MODELING IN THE LOWER STEAMBOAT AND CANTON CREEKS SUBWATERSHED, UMPQUA NATIONAL FOREST</b>

**SESSION NO. 57**

**T162. Lessons Learned from URGE 2021: Unlearning Racism in the Geosciences (Posters) (GSA Geoscience Education Division; GSA Geology and Society Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

**SESSION NO. 58**

**D9. Recent Advances in Hydrogeology (Posters)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

	Booth #
58-1 56	Maharjan, Madan*: <b>REVEALING AQUIFER RESPONSES TO GLACIATIONS USING RESIDENTIAL WATER-WELL DATA</b>
58-2 57	Halihan, Todd*; Acharya, Bharat Sharma; Hager, John P.; Guertault, Lucie; Fox, Garey: <b>MACROPOROUS VELOCITY MAPPING OF ALLUVIAL SOIL USING TEMPORAL ELECTRICAL RESISTIVITY IMAGING</b>
58-3 58	Stephens, Michael*; Chang, Will; Howery, Amanda; Shimabukuro, David H.: <b>SALINITY MAPPING OF GROUNDWATER IN AND AROUND OIL FIELDS WITH HETEROGENEOUS TEMPERATURE FIELDS</b>
58-4 59	Matecha, Rebecca M.*; Xiong, Wei; Capo, Rosemary; Stewart, Brian; Heck, William F.; Lopano, Christina L.; Hakala, J. Alexandra: <b>EXPERIMENTAL INVESTIGATIONS OF MARCELLUS SHALE INTERACTION WITH FLUIDS AT DOWNHOLE CONDITIONS USING BA ISOTOPES</b>
58-5 60	Field, Hannah*; Burck, Peter: <b>IMPACT OF HYDRO-CLIMATIC FACTORS AND RESOURCE EXTRACTION ACTIVITIES ON SURFACE WATER AND GROUNDWATER INFLOWS TO SALT PLAINS NATIONAL WILDLIFE REFUGE IN OKLAHOMA, USA</b>
58-6 61	Kenworthy, Celeste*; Sharda, Vaishali; Haacker, Erin M.K.: <b>IMPACT OF RAINFALL VARIABILITY ON GROUNDWATER STORAGE AND CROP PRODUCTION IN NEBRASKA</b>
58-7 62	Towell, Jessica*; Larsen, Daniel; Leslie, Deborah L.; Waldron, Brian; Schoefnacker, Scott R.: <b>APPLICATION OF GEOCHEMICAL AND MODERN-WATER TRACERS TO ASSESS</b>

SUNDAY  
PM  
POSTERS



- AQUIFER VULNERABILITY IN A HYDROGEOLOGICALLY COMPLEX SETTING IN MEMPHIS, TENNESSEE, USA**
- 58-8 63 Gratzner, Michael\*; Knierim, Katherine; Solder, John; Kingsbury, James A.; O'Reilly, Andrew M.: **ACCOUNTING FOR PROCESSES THAT ALTER GROUNDWATER CARBON ISOTOPIC COMPOSITION IN A SILICICLASTIC AQUIFER**
- 58-9 64 Perez, Gabriel\*; Gomez-Velez, Jesus D.; Chen, Yunxiang; Chen, Xingyuan; Scheibe, Timothy D.; Bao, Jie: **ANALYSIS OF NESTED HYPORHEIC FLOW PATHS USING ANALYTICAL SPECTRAL SOLUTIONS**
- 58-10 65 Ramatlapeng, Goabaone\*; Atekwana, Eliot A.; Molwalefhe, Loago: **SPATIAL AND TEMPORAL CONTROLS ON SOLUTE BEHAVIOR IN RIVERS IN ARID WATERSHEDS: THE OKAVANGO RIVER IN THE OKAVANGO DELTA, NW BOTSWANA**
- 58-11 66 Letshele, Kesego P.\*; Atekwana, Eliot A.; Molwalefhe, Loago; Ramatlapeng, Goabaone J.: **THE SPATIAL AND TEMPORAL VARIATIONS IN THE STABLE ISOTOPES OF HYDROGEN AND OXYGEN AND SOLUTES IN THE OKAVANGO RIVER IN THE OKAVANGO DELTA, NW BOTSWANA: IMPLICATIONS FOR SOLUTE CYCLING IN RIVERS IN ARID WATERSHEDS**
- 58-12 67 Obi, Victor\*; Singh, Kuldeep: **EXPERIMENTAL DETERMINATION OF HOW SEDIMENT SIZES AND GRADATION CONTROL FICKIAN TO NON-FICKIAN DISPERSION WITH FLOW RATE – A LABORATORY APPROACH**
- 58-13 68 Evans, Andrew\*; McGrath, Joshua A.: **AMMONIUM ADSORPTION IN ALPINE TUNDRA SOIL: IMPACTS ON NUTRIENT TRANSPORT**
- 58-14 69 Solleiro-Rebolledo, Elizabeth\*; Rivera-Uria, Yazmín; Diaz-Ortega, Jaime; Chávez-Vergara, Bruno; Beltrán-Paz, Ofelia: **EVALUATION OF CHANGES OF MICRO-AGGREGATION IN DETERIORATED VOLCANIC SOILS BY USING AMENDMENTS IN THE BASIN OF MEXICO**

**SESSION NO. 59** 

**T47. A Showcase of Undergraduate Research in Hydrogeology (Posters) (GSA Hydrogeology Division; GSA Karst Division; Council on Undergraduate Research Geosciences Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- | Booth # |                                                                                                                                                                                                                                                                     |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 59-1    | 70 Camulli, Hanna*; Singh, Kuldeep; Bradley, Jacob: <b>SEDIMENT SIZE AND GRADATION CONTROLS ON CHARACTERISTICS OF INERTIA INFLUENCED NON-DARCY FLOWS</b>                                                                                                            |
| 59-2    | 71 Szydlowski, Hanna*; Winkelstern, Ian Z.; Colgan, Patrick: <b>USING STABLE ISOTOPES TO TEST ALTERNATIVE HYPOTHESES OF THE SIZE AND COMPLEXITY OF A SHALLOW SANDY AQUIFER, OTTAWA COUNTY, MICHIGAN, USA</b>                                                        |
| 59-3    | 72 Cadavid, Luz*; Noureen, Mahzabin; Rahat, Ibrahim; Dhar, Ratan: <b>GROUNDWATER NITRATE CONTAMINATION IN UPPER GLACIAL AQUIFER IN SOUTH-EAST QUEENS, NEW YORK CITY</b>                                                                                             |
| 59-4    | 73 Villafane-Pagan, Jobel*; Hughes, Kenneth S.: <b>GROUNDWATER ELEVATION CHANGES DURING THE 2020 SOUTHWESTERN PUERTO RICO SEISMIC SEQUENCE</b>                                                                                                                      |
| 59-5    | 74 Childs, Dylan*; Paradis, Charles; Schmidt, Adam; Morgan, Maxwell: <b>THE MILWAUKEE COLUMN: A SIMPLE COLUMN APPARATUS FOR TEACHING GROUNDWATER FLOW AND CONTAMINANT TRANSPORT</b>                                                                                 |
| 59-6    | 75 Occhi, Elizabeth*; Meyer, Jessica; Parker, Beth L.: <b>ASSESSING THE RELATIVE CONTRIBUTIONS OF FLUSHING AND DEGRADATION TO ATTENUATION OF A COMPLEX MIXTURE OF ORGANIC CONTAMINANTS IN A CROSS-CONTAMINATED BOREHOLE IN A FRACTURED SANDSTONE AQUIFER</b>        |
| 59-7    | 76 Vig, Zachary*; Meyer, Jessica; Arnaud, Emmanuelle; Parker, Beth L.: <b>USING A CAMSIZER TO OPTIMIZE GRAIN SIZE-BASED HYDRAULIC CONDUCTIVITY ESTIMATION FOR ICE-MARGINAL SEDIMENTS</b>                                                                            |
| 59-8    | 77 Meiner, Kathleen M.*; Sawyer, Audrey H.; Chikomo, Mazvita: <b>MIRROR LAKE MONITORING: WATER LEVEL OBSERVATIONS AND GROUNDWATER-SURFACE WATER INTERACTIONS</b>                                                                                                    |
| 59-9    | 78 Ergh, Isabella*; Morgan, Maggie; Teipel, Willow; Telgen, Phillip; Clevette, Ocean; Swanson, Susan: <b>GEOCHEMICAL PROPERTIES OF SEEPAGE-FILTRATION AND FRACTURE SPRINGS IN WISCONSIN</b>                                                                         |
| 59-10   | 79 Summerford, Billy*; Ruhl, Laura: <b>GROUNDWATER-SURFACE WATER INTERACTION ALONG COLEMAN CREEK, LITTLE ROCK, ARKANSAS</b>                                                                                                                                         |
| 59-11   | 80 Zink, Sam*; Jost, Saige; Lee-Cullin, Joseph: <b>ASSESSING BIODEGRADATION OF URBAN-DERIVED DISSOLVED ORGANIC CARBON AT THE STREAM-GROUNDWATER INTERFACE</b>                                                                                                       |
| 59-12   | 81 Davis, Lane*; Rotz, Rachel; Thomas, Serge; Morejon, Jasmine; Thomas, Daniel; Lopez, Janelys; Piquiet, Megan: <b>SHALLOW GROUNDWATER AND SURFACE WATER COMPARISON OF A MASTER-PLANNED COMMUNITY IN BONITA SPRINGS, FLORIDA</b>                                    |
| 59-13   | 82 Chikomo, Mazvita*; Sawyer, Audrey H.; Meiner, Kathleen M.: <b>MODELING MEETS MIRROR LAKE: HOW HIGHLY URBANIZED AREAS INFLUENCE SURFACE WATER-GROUNDWATER INTERACTIONS</b>                                                                                        |
| 59-14   | 83 Bugno, Benjamin*: <b>RELATIONSHIP BETWEEN RAINFALL RATES AND LAG TIMES OF PEAK DISCHARGE AND TURBIDITY</b>                                                                                                                                                       |
| 59-15   | 84 Johnson, Kera*; Mondal, Sreewashi; Nandi, Shayoni; Nath, Bibhash; Dhar, Ratan: <b>ASSESSING THE HISTORICAL WATER QUALITY OF JAMAICA BAY, NEW YORK</b>                                                                                                            |
| 59-16   | 85 Petersen, Natalie*; Bershaw, John: <b>SPATIAL VARIABILITY IN STABLE ISOTOPES OF SNOW AND ICE FROM PERENNIAL SNOWFIELDS IN THE PACIFIC NORTHWEST</b>                                                                                                              |
| 59-17   | 86 Hoberg, Joseph Robert*; Peterson, Eric; Schukow, Elijah John; Sahad, Alhassan; Twait, Rick: <b>BREAKING DOWN A TRACER IN A SATURATED BUFFER ZONE: COMPARING THE USE OF RHODAMINE WT TO SODIUM CHLORIDE AND SODIUM BROMIDE</b>                                    |
| 59-18   | 87 Benefiel, Ryan*; Field, Hannah; Mathie, Devan; Pawlowski, Ethan; Gabor, Rachel; Welch, Sue A.; Hood, J.; Karwan, Diana L.; Lyons, W.; Sawyer, Audrey: <b>BATCH EXPERIMENTS TO UNDERSTAND PHOSPHOROUS AND FINE PARTICLE TRACER INTERACTIONS</b>                   |
| 59-19   | 88 Foster, Karlee*; Bergen, Morgan; Gellasch, Christopher: <b>SOURCE TRACKING OF INORGANIC CHEMICAL CONTAMINANTS IN MILLERS CREEK, ANN ARBOR</b>                                                                                                                    |
| 59-20   | 89 Almquist, Seth*; Peterson, Jonathan W.: <b>EFFECTS OF DRUG ADSORPTION ON THE SETTLING OF VERY FINE PARTICLES IN AQUEOUS SUSPENSIONS</b>                                                                                                                          |
| 59-21   | 90 Jerew, Hailey R.*; Hawasli, Hania; Cunningham, Jeffrey A.: <b>EFFECTS OF NITRATE ON ARSENIC MOBILIZATION FROM ARSENOPYRITE DURING SIMULATED AQUIFER STORAGE AND RECOVERY CONDITIONS</b>                                                                          |
| 59-22   | 91 Jost, Saige*; Zink, Sam; Lee-Cullin, Joseph: <b>EVALUATING THE STORM EVENT EXPORT OF DISSOLVED ORGANIC CARBON FROM AN URBAN ENVIRONMENT TO THE KALAMAZOO RIVER, ALBION, MI</b>                                                                                   |
| 59-23   | 92 Shelnick, Nathan P.*; Murphy, Riley M.; Riemersma, Peter E.: <b>SEASONAL CHANGES IN CONDUCTIVITY DUE TO ROAD SALT IMPACTED RUNOFF AND RAIN EVENTS AT A DRAINAGE POND IN ALLENDALE, MI</b>                                                                        |
| 59-24   | 93 Paul, Cora*; Bunton, Clare; Carver, Jovaughn; Garneau, Kathy; Markou, Keelin; Norlien, Diamond; Salome, Brianna; Bertman, Steven; Davis, Lauri E.; Kaczmarek, Stephen; Petcovic, Heather L.: <b>TALKING SHIF: AN EXPLORATION OF HUMAN IMPACT ON CREEK HEALTH</b> |
| 59-25   | 94 Dixon, Alexandra*; Lukasik, Hannah L.; Dierauer, Jennifer R.; Smidt, Samuel: <b>HISTORICAL USE OF IRRIGATION IN RESPONSE TO REGIONAL DROUGHT</b>                                                                                                                 |



- 59-26 95 Ullah, Amin\*; Johnson, Kera; Nath, Bibhash; Dhar, Ratan: **ASSESSING THE LEVELS OF WATER CONTAMINANTS DISCHARGING TO JAMAICA BAY**
- 59-27 96 Almeida, Sofia\*; Jung, Lily; Ramos, MariaElena; Faul, Kristina; Rademacher, Laura: **THE URBANIZATION HISTORY OF AN ACID MINE DRAINAGE IMPACTED RESERVOIR IN THE SAN FRANCISCO BAY AREA, AS DETERMINED BY SEDIMENTARY TRACE METAL, PHOSPHORUS, NITROGEN, AND CARBON RECORDS**
- 59-28 97 Bagge, Sam\*; Bowen, Brenda; Lerback, Jory: **EVALUATION OF BIOMEDIATED FRACTIONATION OF 13C AND 18O ISOTOPES: AQUATIC GASTROPOD PHYSIOLOGY AND MINERALOGY**
- 59-29 98 Morejon, Jasmine\*; Rotz, Rachel; Davis, Lane; Thomas, Daniel; Kerrigan, Ed; Silva, Lily; Donnenfeld, Alex: **INVESTIGATING THE RELATIONSHIP BETWEEN GROUNDWATER SALINITY AND VEGETATION ON A BARRIER ISLAND AT CAYO COSTA, FLORIDA**

**SESSION NO. 60**

**T108. Young Investigators in Mineralogy and Crystallography (Posters) (Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- | Booth # |                                                                                                                                                                                                                                                                                                                                      |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 60-1    | 99 Tomasic, Patrick*; Heimann Rios, Adriana; Alonso-Perez, Raquel; Dyar, M. Darby; Lanzirrotti, Antonio: <b>XANES SPECTROSCOPY CHARACTERIZATION OF FE, CR, V, AND MN K-PR-EDGES IN EMERALD AND OTHER BERYL VARIETIES AND RELATIONSHIP WITH COLOR</b>                                                                                 |
| 60-2    | 100 Lucas, Katherine*; Mattinson, Chris; Halfpenny, Angela: <b>DEVELOPMENT OF A STANDARD OPERATING PROCEDURE FOR QUANTITATIVE ANALYSIS USING CENTRAL WASHINGTON UNIVERSITY'S RIGAKU MINIFLEX 600 BENCHTOP X-RAY DIFFRACTOMETER</b>                                                                                                   |
| 60-3    | 101 Tompkins, Hannah G.D.*; Ibanez-Mejia, Mauricio; Tissot, Francois L.H.; Wang, Yanling; Trail, Dustin: <b>EXPERIMENTAL CONSTRAINTS ON ZIRCONIUM STABLE ISOTOPE FRACTIONATION DURING MAGMATIC ZIRCON CRYSTALLIZATION</b>                                                                                                            |
| 60-4    | 102 Stevens, Zachary*; Mattinson, Chris G.: <b>TESTING VARIOUS GIS OVERLAY METHODS TO TARGET SAMPLING IN THE CENTRAL CASCADES</b>                                                                                                                                                                                                    |
| 60-5    | 103 Meyrowitz, Haley E.*; Cullen, Katherine Grace; Liscomb, J.B.; Zach, Terri A.; Stokes, M. Rebecca; Jubb, Aaron M.; Bailey, Christopher M.: <b>PORTABLE RAMAN SPECTROSCOPIC ANALYSIS OF GRAPHITE IN NEOPROTEROZOIC METASEDIMENTARY ROCKS FROM CENTRAL VIRGINIA: TESTING A FIELD-BASED APPROACH TO GENERATE GEOTHERMOMETRY DATA</b> |
| 60-6    | 104 Clinkscapes, Emily*; Abbott, Tirzah; Rougvie, James: <b>INTERFACE-COUPLED DISSOLUTION-PRECIPIATION MECHANISMS IN K FELDSPAR REPLACEMENTS PRODUCED BY LOW T K-METASOMATISM: CREEDE, CO</b>                                                                                                                                        |
| 60-7    | 105 Murchland, Madeline*; Elasmara, Serene; Viner, Grace; Bhowmick, Mithun; Krekeker, Mark; Dlott, Dana D.: <b>THE EFFECT OF SHOCK COMPRESSION ON THE CRYSTAL STRUCTURE OF CRYPTOMELANE</b>                                                                                                                                          |
| 60-8    | 106 Elasmara, Serene*; Murchland, Madeline; Viner, Grace; Krekeker, Mark; Bhowmick, Mithun; Dlott, Dana D.: <b>SHOCK COMPRESSION EFFECTS ON THE CRYSTAL STRUCTURE OF BIRNESSITE</b>                                                                                                                                                  |

**SESSION NO. 61**

**D25. Recent Advances in Sediments, Carbonates (Posters)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- | Booth # |                                                                                                                                                                                                                                                                                                                               |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 61-1    | 107 Glumac, Bosiljka*; Lu, Kristine; Pharris, George; Mugabekazi, Victoire Raissa; Curran, H. Allen; Griffing, David: <b>MULTIFACETED APPROACH FOR EVALUATING RESERVOIR PROPERTIES OF PLEISTOCENE CARBONATE ROCKS FROM THE BAHAMAS: PRELIMINARY INSIGHTS FROM A NEW CORE ON SAN SALVADOR ISLAND</b>                           |
| 61-2    | 108 Boardman, Miriam*; Weirens, Sierra; Glumac, Bosiljka; Curran, H. Allen; Griffing, David: <b>MODIFICATION OF PLEISTOCENE CARBONATE REEF DEPOSITS BY BIOEROSION OF CORALS: INSIGHTS FROM NEW CORE DATA, SAN SALVADOR ISLAND, BAHAMAS</b>                                                                                    |
| 61-3    | 109 Weirens, Sierra*; Boardman, Miriam; Hansen, Olivia; Beckham, Abigail; Mannucci, Agnese; Glumac, Bosiljka; Curran, H.; Griffing, David: <b>ENCRUSTERS ON PLEISTOCENE CORALS FROM THE BAHAMAS: NEW DATA FROM A CORE ON SAN SALVADOR AND COMPARISON WITH OUTCROP OBSERVATIONS FROM GREAT INAGUA AND SAN SALVADOR ISLANDS</b> |
| 61-4    | 110 Griffing, David*; Glumac, Bosiljka; Curran, H. Allen: <b>PRELIMINARY CORE STRATIGRAPHY OF PLEISTOCENE (MIS5) COCKBURN TOWN MEMBER REEF DEPOSITS, SAN SALVADOR ISLAND, BAHAMAS</b>                                                                                                                                         |
| 61-5    | 111 LU, Yiran*; Yang, Wan: <b>LACUSTRINE BIOGENIC AND ABIOGENIC COATED GRAINS IN LOWER PERMIAN LUCAOGOU LOW-ORDER CYCLE IN ZHAOBISHAN SECTION, BOGDA MOUNTAINS, NW CHINA</b>                                                                                                                                                  |
| 61-6    | 112 Boyle, Alexandra E.; Gilleaudeau, Geoffrey J.*; Cherry, Lucas; Evans, Michael N.; Kaufman, Alan: <b>A NEW RECORD OF THE KLONK POSITIVE CARBON ISOTOPE EXCURSION ACROSS THE SILURIAN-DEVONIAN BOUNDARY, WEST VIRGINIA, USA</b>                                                                                             |

**SESSION NO. 62**

**T4. Feedbacks between Upper-Plate Deformation, Accretion and Alteration and Plate Boundary Processes in Subduction Systems (Posters) (GSA Geophysics and Geodynamics Division; GSA Structural Geology and Tectonics Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

- | Booth # |                                                                                                                                                                                                                                                       |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 62-1    | 113 McKenzie, Kirsty A.*; Furlong, Kevin P.; Kirby, Eric: <b>MID-MIOCENE TO PRESENT UPPER-PLATE DEFORMATION OF THE SOUTHERN CASCADIA FOREARC: EFFECTS OF THE SUPERPOSITION OF SUBDUCTION AND TRANSFORM TECTONICS</b>                                  |
| 62-2    | 114 Jensen, Chantel*; Amos, Colin; Larsen, Isaac J.; Clark, Kate; Litchfield, Nicola J.; Delano, Jaime; Quirk, Brendon: <b>DOES FOREARC EROSION MIRROR SHORT-TERM MEGATHRUST EARTHQUAKE CYCLE DEFORMATION?</b>                                        |
| 62-3    | 115 Perman, Emily A.*; Gallen, Sean; Singleton, John; Mavor, Skyler; Gomila, Rodrigo; Seymour, Nikki M.; Mueller, Karl: <b>QUATERNARY NEOTECTONIC LINEAMENTS IN THE HYPERARID ATACAMA DESERT, NORTHERN CHILE: LONG-TERM RECORDS OF FOREARC STRAIN</b> |
| 62-4    | 116 Pinegina, Tatiana; Bourgeois, Joanne*: <b>IDENTIFICATION AND STUDY OF BURIED SCARPS ASSOCIATED WITH CO-SEISMIC COASTAL SUBSIDENCE: EXAMPLES FROM KAMCHATKA, RUSSIA</b>                                                                            |
| 62-5    | 117 Biemiller, James*; Arnulf, Adrien; Lavier, Luc; Wallace, Laura M.: <b>UPPER PLATE RIGIDITY AND SHALLOW SUBDUCTION ZONE SLIP STABILITY IN DATA-CONSTRAINED SEISMIC-CYCLE MODELS OF THE CENTRAL HIKURANGI MARGIN, NEW ZEALAND</b>                   |
| 62-6    | 118 Muller, Isabella*; Suhey, Jane; Regan, Sean; Holland, Mark E.; Wellingham, Amanda; Mezger, Jochen: <b>STRUCTURAL EVOLUTION OF THE HATCHER PASS SCHIST, SOUTHERN TALKEETNA MOUNTAINS, ALASKA</b>                                                   |
| 62-7    | 119 Basich, Luka*; Seymour, Nikki M.; Hourigan, Jeremy K.; Anfinson, Owen A.: <b>THE AGE AND ORIGIN OF CRYSTALLINE GNEISS IN THE PLOMOSA MOUNTAINS, WEST-CENTRAL ARIZONA</b>                                                                          |

Monday, 11 October 2021

- 62-8 120 Kepezhinskas, Pavel\*; Berdnikov, Nikolai; Kepezhinskas, Nikita; Konovalova, Natalya: **METALS IN KAMCHATKA MANTLE WEDGE LINKED TO CU-AU-AG DEPOSITS IN MAGMATIC ARCS**
- 62-9 121 George, Freya\*; Viète, Daniel: **SYSTEMATIC GEOCHEMICAL ZONING IN MINERALS FROM HIGH-PRESSURE LOW-TEMPERATURE METAMORPHIC ROCKS: DO UBIQUITOUS PATTERNS REFLECT A UBIQUITOUS PROCESS?**
- 62-10 122 Shirey, Steven B.\*; Wagner, Lara S; Walter, Michael J; Pearson, D. Graham; van Keken, Peter E.: **SUBDUCTION BEYOND THE ISLAND ARC AND MANTLE WEDGE: EVIDENCE FROM SUBLITHOSPHERIC DIAMONDS AND DEEP EARTHQUAKES**
- 62-11 123 Jackson, William\*; McKay, Matthew; Bartholomew, Mervin J.; Thomas, William: **SYNDEPOSITIONAL TECTONISM IN THE BLACK WARRIOR FORELAND BASIN (USA) RECORDED BY LATE MISSISSIPPIAN PALEOSEISMITES**

**MONDAY, 11 OCTOBER 2021**

**MORNING  
ORAL TECHNICAL SESSIONS**

**SESSION NO. 63**

**GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division Awards Session**

8:00 AM, Oregon Convention Center, Portland Ballroom 252 (Hybrid Room)

Rosemary C. Capo and Dennis L. Newell, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 8:20 AM **EGCA INTRO AND CITATION**
- 63-1 8:35 AM Liu, Xiao-Ming\*: **MGPV EARLY GEOLOGIC CAREER AWARD LECTURE: ARE LITHIUM ISOTOPES GOOD TRACERS OF CONTINENTAL WEATHERING?**
- 9:15 AM **EGCA Q&A**
- 9:25 AM **DGCA INTRO AND CITATION**
- 63-2 9:40 AM Brown, Michael\*: **MGPV DISTINGUISHED GEOLOGIC CAREER AWARD LECTURE: SECULAR CHANGE IN METAMORPHISM AND METAMORPHIC COOLING RATES TRACK THE EVOLVING PLATE TECTONIC REGIME ON EARTH**
- 10:20 AM **DGCA Q&A**

**SESSION NO. 64**

**P2. Cordilleran Subduction Zones: Dynamics of Plate Deformation from Megathrust to Mountain Building (GSA International; GSA Geophysics and Geodynamics Division; GSA Quaternary Geology and Geomorphology Division; GSA Structural Geology and Tectonics Division; GSA Marine and Coastal Geoscience Division)**

8:00 AM, Oregon Convention Center, Oregon Ballroom 202/203/204 (Hybrid Room)

Eric Kirby, Daniel Stockli and Kevin Furlong, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 64-1 8:10 AM Elliott, Julie\*: **DEFORMATION PROCESSES ALONG THE ALASKA-ALEUTIAN CONVERGENT MARGIN**
- 64-2 8:30 AM Aron, Felipe\*: **PERMANENT DEFORMATION AND RELIEF CONSTRUCTION AT SUBDUCTION FOREARCS**
- 64-3 8:50 AM Ramírez-Herrera, María-Teresa\*; Gaidzik, Krzysztof; Forman, Steven L.: **TECTONIC UPLIFT SPATIAL VARIABILITY AND SUBDUCTING PLATE EFFECTS ON THE GUERRERO FOREARC, MEXICO**

- 64-4 9:10 AM Almeida, Rafael\*; Martin-Merino, German; Vazquez, Yaniel; Carrillo, Emilio: **STRATIGRAPHIC RECORD OF OCEANIC PLATEAU COLLISION AND FOREARC INITIATION IN CENTRAL AND NORTHERN ECUADOR**
- 9:30 AM **PANEL DISCUSSION**
- 9:45 AM **BREAK**
- 64-5 10:00 AM Bilek, Susan\*; Morton, Emily: **EXAMINING CORDILLERAN SUBDUCTION ZONE MEGATHRUST SLIP HETEROGENEITY ACROSS MAGNITUDE SCALES**
- 64-6 10:20 AM Barrientos, Sergio\*: **LONG-TERM SEISMIC MONITORING CAPABILITIES IN CHILE**
- 64-7 10:40 AM Ruiz, Sergio\*: **SEISMIC AND ASEISMIC SLIP BEHAVIOR ALONG CHILEAN SUBDUCTION**
- 64-8 11:00 AM Pérez-Campos, Xyoli\*: **THE COMPLEX GEOMETRY OF COCOS UNDER MEXICO: OVERVIEW**
- 64-9 11:20 AM Rowe, Christie\*: **WHAT LOCKS SUBDUCTION THRUSTS?**
- 11:40 AM **PANEL DISCUSSION**

**SESSION NO. 65**

**T12. Sutures and Suture Zones in the Phanerozoic and Precambrian Orogenic Belts (GSA Structural Geology and Tectonics Division; GSA Geophysics and Geodynamics Division; GSA Geochronology Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geological Society of London)**

8:00 AM, Oregon Convention Center, A106

Yildirim Dilek and Andrea Festa, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 65-1 8:05 AM Dilek, Yildirim\*: **SUTURES AND SUTURE ZONES IN THE ALPINE - HIMALAYAN OROGENIC BELT**
- 65-2 8:20 AM Festa, Andrea\*; Meneghini, Francesca; Balestro, Gianni; Pandolfi, Luca; Tartarotti, Paola; Dilek, Yildirim; Marroni, Michele: **ORIGIN AND SIGNIFICANCE OF MASS TRANSPORT AND CHAOTIC ROCK DEPOSITS IN THE OCEANIC ROCKS OF THE WESTERN ALPS: DISTINGUISHING SEAFLOOR SPREADING TO SUBDUCTION ZONE TECTONICS IMPRINT IN SUTURE ZONE OPHIOLITES**
- 65-3 8:35 AM Martin, Craig R.\*; Jagoutz, Oliver; Upadhyay, Rajeev; Mueller, Paul A.; Weiss, Benjamin P.: **PALEOMAGNETISM AND GEOCHRONOLOGY OF THE EURASIAN MARGIN IN THE SHYOK SUTURE ZONE**
- 65-4 8:55 AM Lai, Larry Syu-Heng\*; Dorsey, Rebecca; Horng, Chorong-Shern; Chi, Wen-Rong; Shea, Kai-Shuan; Yen, Jiun-Yee: **EXTREME UP-AND-DOWN VERTICAL MOTIONS OF ACCRETING ARC CRUST IN AN ACTIVE COLLISIONAL SUTURE, COASTAL RANGE OF EASTERN TAIWAN**
- 65-5 9:15 AM Murphy, Benjamin S.\*; Bedrosian, Paul A.; Kelbert, Anna: **THE ELECTRICAL SIGNATURE OF SUTURES IN THE CONTIGUOUS UNITED STATES**
- 65-6 9:30 AM Holland, Mark\*; Velasquez, Jason A.; Regan, Sean; Doe, Michael; Karlstrom, Karl E.: **THE GHOST OF SUTURES PAST: A RE-EVALUATION OF THE PALEOPROTEROZOIC YAVAPAI-MAZATZAL PROVINCE BOUNDARY IN SOUTHWESTERN LAURENTIA**
- 65-7 9:45 AM Miller, Brent\*: **PRE-BIG SKY RETROARC BASIN ALONG THE NORTHWESTERN MARGIN OF THE WYOMING CRATON: EVIDENCE FROM THE HIGHLAND MOUNTAINS, SOUTHWESTERN MONTANA**
- 10:00 AM **BREAK**
- 65-8 10:15 AM Jaret, Steven\*; Tailby, Nicholas D.; Hammond, Keiji; Ebel, Denton; Wooton, Kathleen; Rasbury, E. Troy: **PROVENANCE, TECTONIC HISTORY, AND GEOCHEMISTRY OF THE MANHATTAN AND HARTLAND SCHISTS IN NEW YORK CITY**

- 65-9 10:30 AM McKay, Matthew\*; Jackson, William; Spurgeon, Derek; Ionescu, Adelle; Shaulis, Barry: **PRE-ALLEGHANIAN DEFORMATION IN THE SOUTHERN APPALACHIAN VALLEY AND RIDGE PROVINCE**
- 65-10 10:45 AM Ionescu, Adelle\*; McKay, Matthew: **TWO SYNCHRONOUS THRUST FAULT SYSTEMS IN THE EARLY ALLEGHENIAN OROGENY**
- 65-11 11:00 AM Zach, Terri A.\*; Bailey, Christopher M.: **STRUCTURAL ANALYSIS OF THE SHORES MÉLANGE AT THE SEVEN ISLANDS, CENTRAL VIRGINIA PIEDMONT: POLYPHASE DEFORMATION OF THE TACONIAN SUTURE**
- 65-12 11:15 AM Rankin, Colleen\*; McKay, Matthew: **U-PB ZIRCON AND APATITE CHRONOMETRY OF INTRUSIONS IN AN ACCRETIONARY METAMORPHIC BELT IN WESTERN IDAHO, USA**
- 65-13 11:30 AM Dunham, John\*: **CONTINENTAL SUBDUCTION, AS A MECHANISM FOR PALEOZOIC EMPLACEMENT OF THE ROBERTS MOUNTAINS THRUST, AND A DRIVER OF SUBSEQUENT TECTONISM IN WESTERN NORTH AMERICA**
- 11:45 AM **DISCUSSION**

**SESSION NO. 66****T15. The 100-Ma Event on the Western Margin of North America (GSA Structural Geology and Tectonics Division)**

8:00 AM, Oregon Convention Center, A107–A109

Basil Tikoff, Michael L. Wells and Sarah Trevino, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 66-1 8:05 AM Yonkee, Adolph; Balgord, Elizabeth\*; Wells, Michael L.; Stockli, Daniel F.; Gentry, Amanda: **TECTONIC TEMPOS OF THE NORTH AMERICA CORDILLERA RETROARC DURING THE MID-CRETACEOUS: EXPLORING INTERCONNECTIONS BETWEEN PLATE DYNAMICS, THRUST SLIP HISTORIES, FORELAND BASIN SEDIMENTATION, AND THE ARCHIVE OF ARC MAGMATISM FROM NEVADA TO WYOMING (Invited Presentation)**
- 66-2 8:25 AM Pujols, Edgardo J.\*; Stockli, Daniel F.: **COUPLING BETWEEN MAGMATISM, RETRO-ARC CONTRACTION, FORELAND BASIN ARCHITECTURE AND PLATE CONVERGENCE: EVIDENCE FROM DETRITAL ZIRCON GEO-THERMOCHRONOLOGY IN THE CORDILLERAN RETROARC BASIN**
- 66-3 8:40 AM Quick, James\*; Hogan, John; Wizevich, Michael; Coleman, Drew S.: **PUNCTUATED OROGENIC ACTIVITY: EVIDENCE FOR A 100 MA EPISODE OF SEVIER DEFORMATION IN SOUTHWEST UTAH**
- 66-4 8:55 AM Wells, Michael\*; Rafferty, Kevin; Yonkee, Adolph: **THE 100 MA EVENT IN THE SOUTHERN SEVIER BELT OF NEVADA AND CALIFORNIA**
- 66-5 9:10 AM Hildebrand, Robert\*; Bhattacharya, Janok P.; Whalen, Joseph B.: **TYING SEDIMENTATION IN THE WESTERN INTERIOR BASIN TO THE MID-CRETACEOUS PENINSULAR RANGES OROGENY USING STARVED OUTER-SLOPE TRENCH DEPOSITS AND POST-COLLISIONAL MOLASSE (Invited Presentation)**
- 66-6 9:30 AM Cao, Wenrong\*; Yang, Jiaming: **DOES UNDERTHRUSTING CRUST FEED THE 100 MA MAGMATIC FLARE-UPS IN THE SIERRA NEVADA? (Invited Presentation)**
- 9:50 AM **BREAK**
- 66-7 10:05 AM Trevino, Sarah\*; Tikoff, Basil: **MID-CRETACEOUS DEFORMATION IN THE MAGMATIC ARC OF NORTHWESTERN NEVADA**
- 66-8 10:20 AM Howard, Keith\*; Allen, Charlotte M.; Wooden, Joseph L.: **DO BACK-ARC SIERRAN-LIKE PLUTONS IN THE SOUTHWEST USA SIGNAL MID-CRETACEOUS SLAB ROLLBACK?**

- 66-9 10:35 AM Turner, Elijah\*; Wells, Michael L.; Stockli, Daniel F.: **UNDERTHRUSTING, UPPER-CRUSTAL COOLING, AND PROGRADE METAMORPHISM IN THE NORTHERN PANAMINT RANGE, CA: NEW INSIGHTS INTO THE EVOLUTION OF THE SOUTHERNMOST SEVIER FOLD-THRUST BELT**
- 66-10 10:50 AM Kirk, Jillian K.\*; Ford, Kendall A.B.; Seymour, Nikki M.; Chapman, Alan: **DATING FARALLON SHALLOW-ANGLE SUBDUCTION: CONSTRAINING THE AGE USING U-PB ZIRCON GEOCHRONOLOGY OF THE SCHIST OF SIERRA DE SALINAS**
- 66-11 11:05 AM Fuston, Spencer\*; Colli, Lorenzo; Wu, Jonny: **~100 MA WRANGELLIA COMPOSITE TERRANE COLLISIONAL TIMING FROM STRUCTURALLY RESTORING SUBDUCTED SLABS AND MANTLE CONVECTION FORWARD MODELING**
- 66-12 11:20 AM Wang, Jordan\*; Gehrels, G.E.; Kapp, Paul A.: **THE COAST MOUNTAINS BATHOLITH AT 100-MA: RECORD OF THE TRANSITION FROM SINISTRAL-OBLIQUE TO STRONGLY CONVERGENT TWO-PLATE MARGIN**
- 66-13 11:35 AM Tikoff, Basil\*; Housen, Bernard; Maxson, Julie; Nelson, Ellen M.; Trevino, Sarah F.: **THE 100 MA OBLIQUE COLLISION OF THE INSULAR TERRANE ALONG WESTERN NORTH AMERICA**

**SESSION NO. 67****T21. From the Afar Rift to Alaskan Arcs (and the Oregon Plateau in between): Honoring the Career and Contributions of William K. Hart (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

8:00 AM, Oregon Convention Center, Portland Ballroom 254 (Hybrid Room)

Matthew Brueseke and Kurt Shoemaker, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 67-1 8:05 AM Rooney, Tyrone\*; Arrowsmith, Ramon; Campisano, Christopher: **THE VOLCANIC STRATIGRAPHY OF AFAR – COLLABORATIONS, LEGACIES, AND NEW FRONTIERS (Invited Presentation)**
- 67-2 8:25 AM Carlson, Richard\*; Hart, William: **PRIMITIVE HIGH-AL OLIVINE THOLEIITES OF THE PACIFIC NORTHWEST REVISITED – INSIGHTS FROM COMBINED ELEMENTAL AND ISOTOPIC DATA**
- 8:40 AM **BREAK**
- 67-3 8:55 AM Trop, Jeffrey\*; Brueseke, Matthew; Benowitz, Jeffrey A.; Kirby, Carl S.: **EVOLUTION OF MAGMATISM ALONG A FLAT-SLAB SUBDUCTION-TRANSFORM TRANSITION, WRANGELL ARC, ALASKA-YUKON (Invited Presentation)**
- 67-4 9:15 AM McHugh, Kelly\*; Hart, William; Coombs, Michelle; Preece, Shari; Pearce, Nicholas J.G.; Wallace, Kristi: **ORIGIN OF THE REGIONALLY DISTINCTIVE DACITIC TO RHYOLITIC MAGMA SERIES ERUPTED AT HAYES VOLCANO, THE EASTERNMOST VOLCANO OF THE ALEUTIAN-ALASKA ARC**
- 67-5 9:30 AM Brueseke, Matthew\*; Benowitz, Jeffrey; Miggins, Daniel P.: **NEWLY RECOGNIZED MONOGENETIC VOLCANISM IN SOUTH-CENTRAL ALASKA (U.S.A.): THE MACLAREN RIVER VOLCANIC FIELD AND IMPLICATIONS FOR THE ARCHITECTURE OF THE SUBDUCTING YAKUTAT SLAB**
- 67-6 9:45 AM Regan, Sean\*; Benowitz, Jeffrey; Waldien, Trevor S.; Marble, Sean; Holland, Mark E.; Roeske, Sarah M.: **LONG DISTANCE PLUTONIC RELATIONSHIPS DEMONSTRATE 33 MY OF STRAIN PARTITIONING ALONG THE DENALI FAULT**
- 67-7 10:00 AM Leeman, William\*; Streck, Martin J.: **LATE CENOZOIC MAGMATISM OF THE NORTHWESTERN U.S. – THE ROLE OF SUB-CONTINENTAL LITHOSPHERIC MANTLE (SCLM)**
- 10:15 AM **BREAK**

AM

MONDAY

Monday, 11 October 2021

- 67-8** 10:30 AM Walkup, Laura\*; Prassack, Kari; Hart, William; Wan, Elmira; Premo, Wayne R.: **NEW MAPPING AND TEPHROCHRONOLOGY AT HAGERMAN FOSSIL BEDS NATIONAL MONUMENT, IDAHO, USA - A PROJECT DECADES IN THE MAKING (Invited Presentation)**
- 67-9** 10:50 AM Prassack, Kari\*; Walkup, Laura C.; Hart, William; Wan, Elmira; Starratt, Scott: **A HORSE, AN OTTER, AND A BEAR WALK INTO A BAR AND GET CARDED: REFINING AGES FOR IMPORTANT FOSSIL LOCALITIES AT HAGERMAN FOSSIL BEDS NATIONAL MONUMENT, IDAHO, USA**
- 67-10** 11:05 AM Streck, Martin\*; Jackson, Robert; Black, Cassandra; Sweeten, Rachel; McIntosh, William: **THE PROLIFIC ~300K LONG ERUPTIVE HISTORY OF THE MAHOGANY MOUNTAIN – THREE FINGERS RHYOLITE FIELD, EASTERN OREGON**
- 67-11** 11:20 AM Swenton, Vanessa\*; Streck, Martin; Miggins, Daniel P.; McIntosh, William: **NEWLY DISCOVERED PERIODICITY IN MIOCENE, HIGH LAVA PLAINS AND CO-CRBG RHYOLITES OF EASTERN OREGON TIED TO COEVAL BASALT MAGMATISM AND REGIONAL EXTENSION EVENTS**
- 67-12** 11:35 AM Colon, Dylan\*; Schaltegger, Urs; Seligman, Angela; Bindeman, Ilya: **CONTRASTING THE WILDCAT MOUNTAIN AND CROOKED RIVER CALDERAS FROM THE PRE-COLUMBIA RIVER BASALT OREGON PLATEAU USING HIGH-PRECISION ZIRCON PETROCHRONOLOGY**
- 11:50 AM **CONCLUDING REMARKS**

#### SESSION NO. 68

**T34. Metals for the Future: Geology of Critical and Basic Minerals for the Green Economy I (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Society of Economic Geologists; Geochemical Society; Mineralogical Society of America; GSA Geology and Society Division; GSA Energy Geology Division)**

8:00 AM, Oregon Convention Center, Portland Ballroom 257 (Hybrid Room)

Douglas Kreiner, Zhaoshan Chang, Simone Runyon and John Dilles, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 68-1** 8:05 AM Price, Jonathan G.\*: **OPPORTUNITIES IN GLOBAL MINERAL RESOURCES WITH A FOCUS ON THE GREEN ECONOMY (Invited Presentation)**
- 68-2** 8:25 AM Jowitt, Simon\*; Mudd, Gavin M.: **THE NEW CENTURY FOR NICKEL RESOURCES, RESERVES AND MINING: REASSESSING THE SUSTAINABILITY OF THE DEVIL'S METAL**
- 68-3** 8:40 AM Kreiner, Douglas\*: **A MINERAL SYSTEM APPROACH TO CRITICAL MINERALS RESEARCH AND EXPLORATION**
- 68-4** 8:55 AM Vikre, Peter\*: **CRITICAL MINERAL (PGE, NI, CO) PRODUCTION AND CONCEALED RESOURCES IN THE WESTERN US**
- 68-5** 9:10 AM Mauk, Jeffrey\*; Karl, Nick; Funk, Jonathan; Gnesda, Will; Hammond, Margaret B.; Ringer, Amanda; San Juan, Carma A.; Van Gosen, Bradley S.: **GEOLOGY OF U.S. CRITICAL MINERAL DEPOSITS AND RESOURCES FOR THE GREEN ECONOMY**
- 68-6** 9:25 AM Goodell, Philip\*: **GEOLOGIC ORDERING FOLLOWED BY METALLURGICAL FILTERING OF ECONOMIST'S CRITICAL MINERALS LEAVES 28 CM IN 12 GEOLOGIC ENVIRONMENTS**
- 68-7** 9:40 AM Holley, Elizabeth\*: **RESPONSIBLE CRITICAL MINERALS: A SOCIO-TECHNICAL FRAMEWORK FOR EVALUATING SUPPLY SCENARIOS**
- 9:55 AM **DISCUSSION**
- 10:10 AM **BREAK**

- 68-8** 10:20 AM Langlois, Lauren; Aksu, Baykan; Lecumberri-sanchez, Pilar\*; Falck, Hendrik: **GOLD IN THE YELLOWKNIFE GOLD BELT: GEOCHEMICAL VECTORS AND GRADE INDICATORS (Invited Presentation)**
- 68-9** 10:40 AM Brimhall, George\*: **RECOGNIZING THE TOPS OF DEEP SEDIMENT-HOSTED PORPHYRY COPPER DEPOSITS USING ORBICULAR ACTINOLITE ALTERATION AND HIGH ANTIMONY-ARSENIC-BARIUM VEIN GOSSANS**
- 68-10** 10:55 AM Zhou, Lingli\*; Hitzman, Murray; Hollis, Steven P.; Drakou, Foteini; McClenaghan, Sean; Guven, John: **CRITICAL METALS IN THE IRISH CARBONATE-HOSTED ZN-PB DEPOSITS: A GEOCHEMICAL OVERVIEW**
- 68-11** 11:10 AM Steinhorsdottir, Katrin\*; Dipple, Gregory; Cutts, Jamie; Turvey, Connor; Milidragovic, Dejan; Peacock, Simon M.: **FORMATION AND PRESERVATION OF BRUCITE AND AWARUITE IN SERPENTINIZED AND TECTONIZED MANTLE IN CENTRAL BRITISH COLUMBIA: IMPLICATIONS FOR CARBON MINERALIZATION AND NICKEL MINING**
- 68-12** 11:25 AM Nye, Charles\*; Bagdonas, Davin A.; Phillips, Erin H.; Lively, Thomas: **RARE EARTH ELEMENT AND CRITICAL MINERAL ENRICHMENTS IN THE TOP AND BOTTOM COALS OF WYOMING'S GREEN RIVER BASIN: A REGIONAL MODE OF OCCURRENCE**
- 68-13** 11:40 AM Lefticariu, Liliana\*; Bowman, Ryan L.; Klitzing, Kyle: **RARE EARTH ELEMENTS AND YTTRIUM (REY) IN COAL MINE DRAINAGE FROM THE ILLINOIS BASIN, USA**

#### SESSION NO. 69

**T43. Modern Geoscience: Hazard and Risk Analysis and Communication**

8:00 AM, Oregon Convention Center, B111

William Burns, Nancy Calhoun and Christina Appleby, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 69-1** 8:05 AM de Groot, Robert\*: **BUILDING A COMMUNICATION, EDUCATION, OUTREACH, AND TECHNICAL ENGAGEMENT PROGRAM FOR THE SHAKEALERT EARTHQUAKE EARLY WARNING SYSTEM (Invited Presentation)**
- 69-2** 8:25 AM Abdelhaleem, Shaimaa\*; Taylor, Wanda J.; dePolo, Craig M.: **USING DIFFERENTIAL COMPACTION MODELLING FOR IDENTIFYING FAULT ORIGIN: AN EXAMPLE USING THE LAS VEGAS VALLEY FAULT SYSTEM, NV, USA**
- 69-3** 8:40 AM Eungard, Daniel\*: **PRODUCING TSUNAMI SIMULATIONS WITH ARCGIS PRO AND ADOBE CREATIVE SUITE**
- 69-4** 8:55 AM Gabel, Laura Stimely\*; Allan, Jonathan; O'Brien, Fletcher: **BEAT THE WAVE TSUNAMI EVACUATION MODELING ON THE OREGON COAST**
- 69-5** 9:10 AM Bryant, Andy\*: **NATIONAL WEATHER SERVICE PORTLAND SUPPORT FOR POST-FIRE FLOOD CONCERNS IN NORTHWEST OREGON FOLLOWING THE 2020 LABOR DAY FIRES (Invited Presentation)**
- 69-6** 9:30 AM Kostelnik, Jaime\*; Wald, Lisa A.; Rengers, Francis; Staley, Dennis; Schmitt, Robert G.: **A NEW APPROACH TO SCIENCE COMMUNICATION FOR POST-FIRE DEBRIS-FLOW EVENTS. KOSTELNIK, WALD, SCHMITT, RENGERS, AND STALEY**
- 9:45 AM **BREAK**
- 69-7** 10:00 AM Pringle, Patrick\*; Reynolds, Nathaniel D; O'Connor, Jim E.; Schuster, Robert L.; Weaver, Russ; Black, Bryan: **TREE-RING DATING OF THE BONNEVILLE LANDSLIDE TO LATE 1446 OR EARLY 1447 CE**
- 69-8** 10:15 AM Appleby, Christina\*: **ADVANCES IN CHANNEL MIGRATION ZONE MAPPING METHODOLOGY IN OREGON**



- 69-9 10:30 AM Brophy, Trista\*; Coleman, Red Willow; Garik, Ann; Peters, William: **ASSESSING FLOODING VULNERABILITY TO ASSIST HIGH WATER INTERVENTION AND URBAN PLANNING PROGRAMS IN THE CHARLES RIVER WATERSHED**
- 69-10 10:45 AM Bard, Joseph\*: **TAKING A USER-CENTERED APPROACH TO CREATING AND EVALUATING HAZARD- AND RISK-COMMUNICATION PRODUCTS (Invited Presentation)**
- 69-11 11:05 AM Singh, Vani\*; Delmelle, Elizabeth: **RELATIONSHIP BETWEEN VOLCANIC HAZARD NOTICES AND NEIGHBORHOOD RESIDENTIAL PROPERTY VALUES IN WASHINGTON STATE**
- 69-12 11:20 AM OShea, Thomas\*; Farmer, Samantha; Nandi, Arpita; Bilderback, Eric L.; Luffman, Ingrid: **USING AN INVENTORY OF UNSTABLE SLOPES TO PRIORITIZE PROBABILISTIC ROCKFALL MODELING AND ACID BASE ACCOUNTING IN GREAT SMOKY MOUNTAINS NATIONAL PARK**
- 69-13 11:35 AM Murdock, Kathryn\*: **PYRITE, MARCASITE, AND PYRRHOTITE: POTENTIAL CONSTRUCTION HAZARDS IN NEW ENGLAND AND BEYOND**
- 11:50 AM **DISCUSSION**

**SESSION NO. 70**

***T46. Rifts, Rifted Margins, Backarcs, and Spreading Ridges: Understanding Extensional Processes across Tectonic Settings and Time Scales I (GSA Geophysics and Geodynamics Division; GSA Energy Geology Division)***

8:00 AM, Oregon Convention Center, B115/B116 (Hybrid Room)

Patricia Persaud, Jolante van Wijk, Abah Omale and Jackson Borchardt, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 70-1 8:05 AM Kolawole, Folarin\*: **HOW DO CONTINENTAL RIFTS GROW? (Invited Presentation)**
- 70-2 8:20 AM Burgette, Reed J.\*; Sholdt, Ronny G.: **LATE QUATERNARY DEFORMATION ACROSS THE SOUTHERN RIO GRANDE RIFT**
- 70-3 8:35 AM Martin, Samuel\*; Axen, Gary; van Wijk, Jolante; Koning, Daniel J.; Heizler, Matthew T.; Whitman, Connor: **EXAMINING DRIVERS FOR INTRAPLATE EXTENSION: INSIGHTS FROM THE RESERVE GRABEN IN THE COLORADO PLATEAU-RIO GRANDE RIFT-BASIN AND RANGE TRANSITION ZONE, NEW MEXICO**
- 70-4 8:50 AM Phillips, Fred M.\*; Axen, Gary: **IMAGING THE SUBSURFACE GEOMETRY OF THE SIERRA NEVADA FRONTAL FAULT IN THE OWENS VALLEY: NORMAL/ STRIKE-SLIP FAULT INTERACTIONS UNDER TRANSTENSION**
- 70-5 9:05 AM Lutz, Brandon\*; Axen, Gary; van Wijk, Jolante; Phillips, Fred: **WHOLE-LITHOSPHERE SHEAR DURING OBLIQUE RIFTING**
- 70-6 9:20 AM Ebinger, Cynthia\*; Bastow, Ian; Bendick, Rebecca; Mariita, Nicholas; Ayele, Atalay; Kianji, Gladys; Musila, Martin; Sullivan, Garrett; Ogden, Chris; Kounidis, Rita; Mwangi, Samuel; Karanja, Mary: **UNRAVELLING THE ROLES OF LITHOSPHERIC HETEROGENEITY, MANTLE UPWELLINGS, AND MAGMATISM ON RIFT DEVELOPMENT IN THE TURKANA DEPRESSION, E AFRICA (Invited Presentation)**
- 70-7 9:35 AM Mayle, Micah\*; Harry, Dennis: **MELTING OF MANTLE METASOMATIC PHASES DURING CRETACEOUS - CENOZOIC EXTENSION OF THE WEST ANTARCTIC RIFT SYSTEM: INSIGHTS FROM 1D GEODYNAMIC MODELING**
- 9:50 AM **BREAK**
- 70-8 10:00 AM Ojo, Oyewande\*; Thomson, Stuart N.; Lao-Davila, Daniel: **NEOGENE - QUATERNARY RIFTING OF THE**

- SOUTHERN MALAWI RIFT AND LINKAGE TO THE LATE CARBONIFEROUS – EARLY JURASSIC SHIRE RIFT**
- 70-9 10:15 AM Shah, Anjana\*; Pratt, Thomas L.; Horton, J. Wright: **NEW AEROMAGNETIC DATA OVER THE SOUTH GEORGIA RIFT BASIN HIGHLIGHT INHERITED STRUCTURES WITH TIES TO THE CHARLESTON SEISMIC ZONE**
- 70-10 10:30 AM Seyum, Solomon\*; Quigley, Cade; Kolawole, Folarin: **CRUSTAL MECHANICAL HETEROGENEITY CONTROLS RIFT BASIN ASYMMETRY DURING EARLY CONTINENTAL EXTENSION**
- 70-11 10:45 AM Nguyen, Luan C.\*; Levander, Alan; Niu, Fenglin; Li, Guoliang: **LITHOSPHERIC DEFORMATION: INSIGHTS FROM SEISMIC IMAGING OF THE GULF OF MEXICO CONTINENTAL MARGINS**
- 70-12 11:00 AM Hodgin, Blake\*; Swanson-Hysell, Nicholas; DeGraff, James M.; Kylander-Clark, Andrew; Schmitz, Mark D.; Zhang, Yiming: **NEW AGE CONSTRAINTS FROM LAURENTIA'S MIDCONTINENT RIFT CALIBRATE THE TIMING OF RIFT CESSATION AND INVERSION, PROVIDING INSIGHTS INTO FAR-FIELD CONTROL ON THE GEODYNAMICS OF RIFT FAILURE**
- 70-13 11:15 AM Omojola, Jose\*; Persaud, Patricia: **ANALYSIS OF MICROEARTHQUAKES TO IDENTIFY WEAK POINTS IN THE SUBSURFACE AS OBSERVED FROM A SALT DOME STUDY**
- 70-14 11:30 AM Montgomery-Brown, Emily\*; Miklius, Asta: **FLANK SPREADING AT KĪLAUEA LEADS TO PERIODIC DIKE INTRUSIONS: A TEMPLATE FOR OTHER RIFT ZONES?**

**SESSION NO. 71**

***T48. Addressing Complex Problems in Hydrogeology with Big Data and Machine Learning (GSA Hydrogeology Division; GSA Karst Division; GSA Geoinformatics and Data Science Division)***

8:00 AM, Oregon Convention Center, D135

Paul Stackelberg, Kenneth Bellitz, Mason Stahl and James J. Butler Jr., Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 71-1 8:05 AM Perrone, Debra\*: **MOBILIZING SUSTAINABLE GROUNDWATER MANAGEMENT WITH BIG DATA (Invited Presentation)**
- 71-2 8:25 AM Stahl, Mason\*; Mar, Tyler; Jameel, Mohd Yusuf: **ASSESSMENT AND CLASSIFICATION OF SEASONAL GROUNDWATER LEVEL DYNAMICS IN UNCONFINED AQUIFERS OF THE UNITED STATES**
- 71-3 8:40 AM Soriano, Mario A.\*; Siegel, Helen G.; Johnson, Nicholas P.; Gutches, Kristina M.; Xiong, Boya; Li, Yunpo; Clark, Cassandra J.; Plata, Desiree L.; Deziel, Nicole C.; Saiers, James E.: **METAMODELING OF GROUNDWATER WELL VULNERABILITY TO CONTAMINATION FOR ELUCIDATING POTENTIAL IMPACTS OF SHALE GAS DEVELOPMENT ON WATER QUALITY**
- 71-4 8:55 AM Killian, Courtney\*; Knierim, Katherine: **INCORPORATING AIRBORNE ELECTROMAGNETIC SURVEY DATA INTO MACHINE-LEARNING MODELS TO PREDICT GROUNDWATER SALINITY IN THE MISSISSIPPI RIVER VALLEY ALLUVIAL AQUIFER**
- 9:10 AM **DISCUSSION**
- 71-5 9:25 AM Walter, Donald\*: **BIG-DATA SUPPORTED SIMULATION OF NITROGEN LOADING TO COASTAL WATERS, LONG ISLAND, NEW YORK (Invited Presentation)**
- 71-6 9:45 AM Bao, Jichao; Li, Liangping\*: **LEVERAGING DATA ASSIMILATION AND DEEP LEARNING WITH GENERATIVE ADVERSARIAL NETWORKS FOR IDENTIFICATION OF PREFERENTIAL PATHS IN COMPLEX AQUIFERS**
- 71-7 10:00 AM Redoloza, Fieford\*; Li, Liangping: **THE USE OF DEEP LEARNING WITH PROGRESSIVE GROWING**

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		<b>GENERATIVE ADVERSARIAL NETWORKS FOR CONNECTIVITY MODELING IN COMPLEX AQUIFERS</b>	
71-8	10:15 AM	Wu, Hao*; O'Malley, Daniel; Golden, John; Vesselinov, Velimir: <b>LEARNING TO REGULARIZE WITH A VARIATIONAL AUTOENCODER FOR HYDROGEOLOGIC INVERSE ANALYSIS</b>	
	10:30 AM	<b>DISCUSSION</b>	
71-9	10:45 AM	Smith, Ryan*; Majumdar, Sayantan; Hasan, Md Fahim; Butler, J.J.; Lakshmi, Venkataraman; Conway, Brian D.; Rigby, James R.: <b>MAPPING GROUNDWATER USE WITH SATELLITE SENSOR FUSION AND MACHINE LEARNING (Invited Presentation)</b>	
71-10	11:05 AM	Levy, Zeno*; Jurgens, Bryant C.; Fram, Miranda S.: <b>USING A 30-YEAR RECONSTRUCTION OF GROUNDWATER LEVELS IN CALIFORNIA'S CENTRAL VALLEY TO EVALUATE REGIONAL LINKAGES BETWEEN WATER USE AND QUALITY DURING DROUGHT</b>	
71-11	11:20 AM	Odom, William*; Doctor, Daniel H.; Burke, Caitlin E.; Cox, Cheyenne L.: <b>USING HIGH-RESOLUTION LIDAR AND DEEP LEARNING MODELS TO GENERATE MINIMUM THICKNESS MAPS OF SURFICIAL SEDIMENTS</b>	
71-12	11:35 AM	Alvarez, Oscar*; Gomez-Velez, Jesus D.; Kosson, David; Brown, Kevin: <b>DAGPY: A HIGHLY EFFICIENT OPEN-SOURCE PYTHON PACKAGE FOR DATA ASSIMILATION IN PRACTICAL GROUNDWATER MODELING VIA THE ENSEMBLE KALMAN FILTER</b>	
	11:50 AM	<b>DISCUSSION / WRAP UP</b>	

**SESSION NO. 72** 

*T66. New Frontiers in Cave and Karst Research: In Honor of the International Year of Caves and Karst (GSA Karst Division; GSA Geochronology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Quaternary Geology and Geomorphology Division; GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Geophysics and Geodynamics Division; GSA Geobiology and Geomicrobiology Division; National Cave and Karst Research Institute; Karst Waters Institute)*

8:00 AM, Oregon Convention Center, D136 (Hybrid Room)

Daniel Jones, Rachel Bosch, Ellen K. Herman, Patricia N. Kambesis, Lewis Land, Andrew Luhmann, Jason S. Polk and Benjamin W. Tobin, Presiding

	8:00 AM	<b>INTRODUCTORY REMARKS</b>
72-1	8:05 AM	Veni, George*: <b>GEOSCIENCE OUTREACH IN THE INTERNATIONAL YEAR OF CAVES AND KARST</b>
72-2	8:20 AM	Parizek, Richard*: <b>36 PLUS CONTROLS ON POROSITY AND HYDRAULIC CONDUCTIVITY</b>
72-3	8:35 AM	Kavousi, Alireza*; Reimann, Thomas; Wöhling, Thomas; Birk, Steffen; Luhmann, Andrew; Kordilla, Jannes; Noffz, Torsten; Sauter, Martin; Liedl, Rudolf: <b>TOWARD MORE REALISTIC REPRESENTATION OF DISCRETE CONDUIT FEATURES IN DISCRETE-CONTINUUM FLOW AND TRANSPORT MODELS OF KARST SYSTEMS (Invited Presentation)</b>
72-4	8:50 AM	Jenson, Aubri*; Gao, Yongli; Schwartz, Benjamin F.: <b>SINKHOLE MORPHOLOGY AND DISTRIBUTION AS INDICATORS OF HYDROGEOLOGIC CONTROLS ON KARSTIFICATION: QUINTANA ROO, MEXICO</b>
72-5	9:05 AM	Polk, Jason*; Shelley, Adam; Troxell, James; McKinney, Dallas; Lawhon, Nick; Williams, Abigail; Cooper, Chloe; Marić, Nenad: <b>HAZARD RESPONSE PLANNING IN KARST GROUNDWATER SYSTEMS USING AN INTEGRATED GIS, MODELING, AND MANAGEMENT APPROACH</b>
72-6	9:20 AM	Burgess, Sarah A.*; Florea, Lee; Branam, Tracy D.: <b>SULFUR SYSTEMATICS AND CARBONATE DIAGENESIS IN THE MITCHELL PLATEAU, INDIANA</b>
72-7	9:35 AM	Lukoczki, Georgina*; Burgess, Sarah A.; Tobin, Benjamin W.; Florea, Lee: <b>EVOLUTION OF MATRIX</b>

**POROSITY AND ITS EFFECT ON CAVE PASSAGE DEVELOPMENT**

	9:50 AM	<b>BREAK</b>
72-8	10:00 AM	Tobin, Benjamin*; Niemiller, Matthew L.; Miller, Benjamin V.; Erhardt, Andrea: <b>COUPLING POPULATION GENETICS AND TRACER HYDROLOGY TO CHARACTERIZE FLOW-PATH DYNAMICS IN A KARST SYSTEM</b>
72-9	10:15 AM	Osburn, Magdalena*; Selensky, Matthew J.; Masterson, Andrew L.; Toomey, Rickard S.; Olson, Rickard A.; Osburn, Glenn R.: <b>GEOMICROBIOLOGY OF MAMMOTH CAVE USING AN ISOTOPE GEOBIOLOGY APPROACH</b>
72-10	10:30 AM	Northup, Diana*; Hathaway, J.J.M.; Briggs, William C.; Devlin, Molly; Moser, D.P.; Blank, Jennifer G.: <b>MICROBIAL DIVERSITY OF THE MINERAL-MICROBIAL CONTINUUM IN LAVA CAVES: IMPLICATIONS FOR NITROGEN CYCLING</b>
72-11	10:45 AM	Best, Mackenzie*; Gomez-Cruz, Rodolfo; Northup, Diana; Jones, Daniel: <b>GENOMIC CHARACTERIZATION OF EXTREMELY ACIDOPHILIC BACTERIA IN ACIDIC CAVE WALL BIOFILMS</b>
72-12	11:00 AM	Blank, Jennifer G.*: <b>THE TREASURE OF PLANETARY CAVES</b>
72-13	11:15 AM	Sekhon, Natasha*; Banner, Jay L.; Breecker, Daniel O.; Tremaine, Darrel M.; Miller, Nathan: <b>MONITORING A UNIQUE KARST SYSTEM OVER TWO-YEARS TO ELUCIDATE HYDROCLIMATE VARIABLES INFLUENCING THE GEOCHEMISTRY OF SURFACE AND SUBSURFACE WATERS</b>
72-14	11:30 AM	Wortham, Barbara*; Montanez, Isabel; Swart, Peter K.; Vonhof, Hubert; Tabor, Clay: <b>AN INTEGRATED APPROACH TO UNDERSTAND DISEQUILIBRIUM EFFECTS IN A STALAGMITE RECORD FROM A CENTRAL SIERRA NEVADA CAVE</b>
	11:45 AM	<b>LIGHTENING TALKS BY POSTER PRESENTERS</b>

**SESSION NO. 73**

*T81. Impacts of Volcanism on Global Climate and Oceans—Drivers of Mass Extinctions through the Phanerozoic I (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geobiology and Geomicrobiology Division; GSA Marine and Coastal Geoscience Division; U.S. Paleontology and Sedimentology; Geochemical Society; Paleontological Society)*

8:00 AM, Oregon Convention Center, Portland Ballroom 255 (Hybrid Room)

Stephen Grasby, Gerta Keller, David Bond and Thierry Adatte, Presiding

	8:00 AM	<b>INTRODUCTORY REMARKS</b>
73-1	8:05 AM	Scotese, Christopher*: <b>PHANEROZOIC PALEOTEMPERATURES: THE EARTH'S CHANGING CLIMATE DURING THE LAST 540 MILLION YEARS</b>
73-2	8:25 AM	Karlstrom, Leif*; Black, Benjamin A.; Mather, Tamsin A.: <b>THE LIFE CYCLE OF LARGE IGNEOUS PROVINCES</b>
73-3	8:40 AM	Griffis, Neil*; Mundil, Roland; Montanez, Isabel; Richey, Jon D.; Dietrich, Pierre; Le Heron, Daniel; Kettler, Christoph; Linol, Bastien; Iannuzzi, Roberto: <b>TIMING AND POTENTIAL CAUSES FOR THE DEMISE OF EARTH'S PENULTIMATE ICEHOUSE</b>
73-4	8:55 AM	Cui, Ying*; Shen, Shuzhong; Zhang, Feifei; Wang, Wenqian; Zhang, Hua: <b>QUANTIFYING CO<sub>2</sub> EMISSION AND SEQUESTRATION ACROSS THE END-PERMIAN MASS EXTINCTION</b>
73-5	9:10 AM	Benca, Jeffrey*; Duijnste, Ivo A.P.; Looy, Cynthia: <b>DEVELOPMENTAL ORIGINS OF FOSSILIZED POLLEN MALFORMATIONS, A POTENTIAL VOLCANOGENIC ENVIRONMENTAL STRESS PROXY</b>
73-6	9:25 AM	Schaltegger, Urs*; Gaynor, Sean; Antoine, Clémentine; Spikings, Richard; Svensen, Henrik H.: <b>DATING THE EMPLACEMENT OF THE KAROO LARGE IGNEOUS PROVINCE</b>

- 73-7** 9:40 AM Möller, Andreas\*; Lee, Jacquelin Diane; Ludvigson, G.; Suarez, Marina B.; Joeckel, R.M.; McLean, Noah M.; Gulbranson, Erik; Rasbury, E. Troy; Maxson, Julie; Hunt-Foster, Rebecca: **IMPROVING THE AGE CONSTRAINTS ON CRETACEOUS CARBON ISOTOPE EXCURSIONS: A COMBINED U-PB DATING APPROACH USING PALEOSOL CRYPTOTEPHRA AND PEDOGENIC CARBONATES**
- 73-8** 9:55 AM Wang, Yi\*; Bodin, Stéphane; Blusztajn, Jerzy S.; Ullmann, Clemens; Nielsen, Sune G.: **RAPID GLOBAL OCEANIC (DE)OXYGENATION DURING OCEANIC ANOXIC EVENT 1B REVEAL INTERACTIONS OF VOLCANISM, WEATHERING, AND ORBITAL FORCING**
- 73-9** 10:10 AM Ludvigson, Gregory\*; Möller, Andreas; McLean, Noah M.; Lee, Jacquelin Diane; Suarez, Marina B.; Joeckel, Robert; Maxson, Julie: **CRYPTOTEPHRAS IN SILICICLASTIC MUDSTONE PALEOSOLS AND THE GEOCHRONOLOGIC CALIBRATION OF CRETACEOUS (APTIAN-ALBIAN) C-ISOTOPE STRATIGRAPHY**
- 74-9** 10:05 AM Hebdon, Nicholas\*; Ritterbush, Kathleen; Choi, YunJi; Peterman, David: **BECOMING A WINNER IN JUST A MILLION YEARS: EXAMINING THE FUNCTIONAL CONSEQUENCES OF AMMONOIDS ACROSS THE END-TRIASSIC**
- 74-10** 10:20 AM Fendley, Isabel M.\*; Frieling, Joost; Mather, Tamsin A.; Jenkyns, Hugh C.: **THE EARLY JURASSIC HG CYCLE: LARGE IGNEOUS PROVINCES, OCEANIC ANOXIC EVENTS, AND ENVIRONMENTAL CHANGE**
- 74-11** 10:35 AM Martindale, Rowan\*; Vasseur, Raphaël; Lathuilière, Bernard; Bodin, Stéphane; Stone, Travis N.; Krencker, François-Nicolas; Lazăr, Iuliana; Durllet, Christophe; Debeljak, Irena; Kabiri, Lahcen: **NEW PERSPECTIVES ON THE SIGNIFICANCE OF THE MULTI-PHASED PLIENSCHACHIAN/TOARCIC EXTINCTION ON REEF ECOSYSTEMS**
- 74-12** 10:50 AM Tobin, Thomas\*; Wilson Mantilla, Gregory P.; Renne, Paul R.; Samant, Bandana; Mohabey, Dhananjay; Dhobale, Anup; Tholt, Andrew; Widdowson, Mike; Wilson, Jeffrey A.: **THE AGE OF NASKAL, THE TYPE LOCALITY OF INDIA'S FIRST KNOWN CRETACEOUS MAMMAL**
- 74-13** 11:05 AM Beltracchi, Ronan\*; Pietsch, Carlie; Myers, Corinne; Witts, James; Petersen, Sierra; Lowery, Christopher M.; Dastas, Natalie; Sloan, J. Carson: **COMMUNITY CHANGES IN SHALLOW BENTHIC INVERTEBRATE ECOLOGY AT THE K/PG BOUNDARY SITE AT MALVERN, ARKANSAS**
- 74-14** 11:20 AM Sharma, Neha\*; Mondal, Subhronil: **SUSTAINED MORPHOSPACE OCCUPANCY OF NATICID GASTROPODS ACROSS THE K-PG MASS EXTINCTION**
- 74-15** 11:35 AM Spalding, Christopher\*; Hull, Pincelli M.: **TOWARDS QUANTIFYING THE MASS EXTINCTION DEBT OF THE ANTHROPOCENE**
- SESSION NO. 74**  
**T87. New Perspectives on Phanerozoic Mass Extinctions and Environmental Perturbations II (GSA Geobiology and Geomicrobiology Division; Paleontological Research Institution; Paleontological Society; GSA Marine and Coastal Geoscience Division)**  
8:00 AM, Oregon Convention Center, E143/E144  
Ekaterina Larina, Bethany Allen, James D. Witts and Rowan Whittle, Presiding
- 74-1** 8:00 AM Sahoo, Swapan\*; Gilleaudeau, Geoffrey J.; Kaufman, Alan: **EUSTASY, EUXINIA, AND EXTINCTION: GLOBAL REORGANIZATION ACROSS THE DEVONIAN-CARBONIFEROUS TRANSITION**
- 74-2** 8:15 AM Gulbranson, Erik\*; Sheldon, Nathan; Montanez, Isabel; Tabor, Neil J.; McIntosh, Julia A.: **LATE PERMIAN SOIL-FORMING PALEOENVIRONMENTS ON GONDWANA**
- 74-3** 8:30 AM Gastaldo, Robert\*; Neveling, Johann; Geissman, John; Kamo, Sandra L.; Looy, Cynthia: **WHERE IN THE KAROO IS CARMEN SANDIEGO'S LYSTROSAURUS DECLIVIS ASSEMBLAGE-ZONE BOUNDARY?**
- 74-4** 8:45 AM Yang, Wan\*; Wan, Mingli; Crowley, James L.: **PALEOENVIRONMENTAL AND PALEOCLIMATIC EVOLUTION AND CYCLO- AND CHRONO-STRATIGRAPHY OF UPPER PERMIAN-LOWER TRIASSIC FLUVIAL-LACUSTRINE DEPOSITS IN BOGDA MOUNTAINS, NW CHINA – IMPLICATIONS FOR PERMO-TRIASSIC DIACHRONOUS PLANT EVOLUTION ACROSS THE PERMIAN-TRIASSIC BOUNDARY**
- 74-5** 9:00 AM Larina, Ekaterina\*; Hohmann, Niklas; Jarochovska, Emilia; Richoz, Sylvain; Bottjer, David J.: **PALEOENVIRONMENTAL AND PALEOECOLOGICAL CONDITIONS LEADING UP TO THE END-TRIASSIC MASS EXTINCTION FROM THE NORTHERN CALCAREOUS ALPS, AUSTRIA**
- 74-6** 9:15 AM Singh, Pulkit\*; Lu, Wanyi; Lu, Zunli; Jost, Adam; Lau, Kimberly; Bachan, Aviv; van de Schootbrugge, Bas; Payne, Jonathan L.: **REDOX DYNAMICS AND REDUCED BENTHIC FAUNAL ABUNDANCE ACROSS THE TRIASSIC-JURASSIC MASS EXTINCTION**
- 74-7** 9:30 AM Dunne, Emma M.\*; Farnsworth, Alexander; Benson, Roger B.J.; Godoy, Pedro L.; Greene, Sarah E.; Lunt, Dan J.; Butler, Richard J.: **CLIMATE AND COMPETITION AS CONTROLS ON THE ECOLOGICAL ASCENDANCY OF DINOSAURS (Invited Presentation)**
- 74-8** 9:50 AM McGaughey, Gary\*; Irmis, Randall B.; Kelley, Neil P.; dePolo, Paige E.; Fasig, Nadine; Fasig, Forrest; Noble, Paula: **THE LAST TRIASSIC GIANT? A LATE RHAETIAN ICHTHYOSAUR FROM NEW YORK CANYON, NEVADA, USA**
- 75-1** 8:10 AM Marroquín, Selva\*; Caruthers, Andrew H.; Aberhan, Martin; Golding, Martyn; Gröcke, Darren R.; McCabe, Kayla; Owens, Jeremy; Them, Theodore R.; Trabucho Alexandre, João P.; Veenma, Yorick; Gill, Benjamin: **A LONG-TERM CARBON ISOTOPE RECORD ACROSS THE TRIASSIC-JURASSIC TRANSITION FROM ALASKA (Invited Presentation)**
- 75-2** 8:30 AM Ellefson, Emily\*; Galloway, Jennifer; Bringué, Manuel; Hubbard, Stephen M.; Hadlari, Thomas: **THE UPPER JURASSIC - LOWER CRETACEOUS IN THE RICHARDSON MOUNTAINS (NORTHWEST TERRITORIES, CANADA): PALYNOSTRATIGRAPHY AND PALYNOLOGICAL INSIGHTS ON THE TECTONO-STRATIGRAPHIC ARCHITECTURE OF THE CANADIAN ARCTIC MAINLAND**
- 75-3** 8:45 AM Kelly, Abigail\*; Miller, Joshua; DeSantis, Larisa; Zazula, Grant D.; Wooller, Matthew J.: **A LATE PLEISTOCENE CHRONOLOGY OF BISON PRISCUS FROM THE KLONDIKE REGION OF NORTHERN CANADA: NICHE STABILITY THROUGH CHANGING CLIMATE**
- 75-4** 9:00 AM Love, Renee\*; Erdman, Jonathan; Brooks, Kate; Usachenko, Natalya; Waters, Shilah: **RESURRECTING THE STORY OF OLD MAMMOTH FOSSIL BONES FROM SODA SPRINGS, IDAHO**
- 75-5** 9:15 AM Kimmig, Julien\*; Whitaker, Anna F.; Egenhoff, Sven; Schiffbauer, James D.; LaVine, Rhiannon; Krumenacker, L.J.; Kimmig, Sara R.: **BRINGING OUT THE DEAD:**
- SESSION NO. 75**  
**T92. From the Burgess Shale to the Manis Mastodon: 500 Million Years of Environmental & Evolutionary Change in the Great Northwest (Paleontological Society; GSA Geochronology Division)**  
8:00 AM, Oregon Convention Center, E145  
John Orcutt, Lindsay MacKenzie and Caroline A.E. Stromberg, Presiding
- 8:00 AM **INTRODUCTORY REMARKS**



		<b>UNTANGLING SOFT-BODIED PRESERVATION IN THE CAMBRIAN SPENCE SHALE OF UTAH AND IDAHO</b>	
	9:30 AM	<b>BREAK</b>	
75-6	9:45 AM	Hopkins, Samantha*: <b>MAMMAL EVOLUTION ON AN ACTIVE LANDSCAPE: INSIGHTS FROM OREGON'S CENOZOIC RECORD OF TECTONICS AND EVOLUTIONARY CHANGE (Invited Presentation)</b>	
75-7	10:05 AM	Calede, Jonathan*; Claxton, Alexander: <b>THE DIVERSIFICATION OF THE ENTOPTYCHINAE DURING THE OLIGOCENE: INSIGHTS FROM THE GREAT NORTHWEST</b>	
75-8	10:20 AM	Myers, Jeffrey*; Erwin, Diane M.: <b>TRULY OREGON'S TREE: REASSESSMENT OF THE IMPRESSION FOSSIL RECORD OF <i>PSEUDOTSUGA</i> (DOUGLAS FIR) IN WESTERN NORTH AMERICA</b>	
75-9	10:35 AM	Budd, Susannah*; McLaughlin, Win: <b>PALEOPEDOLOGICAL STUDY OF LATE MIOCENE AGE FOSSILIFEROUS DEPOSITS IN NORTHEASTERN NEVADA</b>	
75-10	10:50 AM	Benoy, Russell*; McLaughlin, Win: <b>TAPHONOMY AND PALEOECOLOGY OF NEW LATE MIOCENE SITES IN NORTHERN NEVADA</b>	
75-11	11:05 AM	Love, Renee*: <b>A COMPARISON OF LOWLAND FLORAS FROM THE PALEOCENE – EOCENE PACIFIC NORTHWEST, USA (Invited Presentation)</b>	
	11:25 AM	<b>DISCUSSION</b>	

**SESSION NO. 76**

***T94. The Neoproterozoic Earth-Life System (GSA Geobiology and Geomicrobiology Division; Paleontological Society; SEPM (Society for Sedimentary Geology))***

8:00 AM, Oregon Convention Center, E141/E142 (Hybrid Room)

Qing Tang, Morrison Nolan, Junyao Kang and Scott D. Evans, Presiding

76-1	8:00 AM	Riedman, Leigh Anne*; Porter, Susannah; Lechte, Maxwell A.; Halverson, Galen P.: <b>ORGANIC-WALLED MICROFOSSILS OF THE PALEOPROTEROZOIC AND MESOPROTEROZOIC MCARTHUR AND BIRRINDUDU BASINS, NORTHERN TERRITORY, AUSTRALIA (Invited Presentation)</b>
76-2	8:15 AM	Stern, Robert*; Gerya, Taras: <b>CO-EVOLUTION OF PLATE TECTONICS AND LIFE: THE BIOGEOLOGICAL PERSPECTIVE ON THE MESOPROTEROZOIC-NEOPROTEROZOIC TRANSITIONS</b>
76-3	8:30 AM	Tang, Qing*; Pang, Ke; Li, Guangjin; Chen, Lei; Yuan, Xunlai; Xiao, Shuhai: <b>ONE-BILLION-YEAR-OLD EUKARYOTIC EPIBIONTS IN NORTH CHINA</b>
76-4	8:45 AM	Kang, Junyao*; Xiao, Shuhai; Gill, Benjamin; Zhang, Feifei; Reid, Rachel: <b>EXTENSIVE DENITRIFICATION AND NITRATE LIMITATION IN AN EARLY TONIAN MARINE BASIN</b>
76-5	9:00 AM	Millikin, Alexie E.G.*; Strauss, Justin; Halverson, Galen P.; Bergmann, Kristin D.; Tosca, Nicholas J.; Rooney, Alan D.: <b>NEW RE-OS AGES FROM THE NEOPROTEROZOIC HECLA HOEK SUCCESSION, SVALBARD, NORWAY</b>
76-6	9:15 AM	Tu, Chenyi*; Diamond, Charles W.; Stueeken, Eva; Lyons, Timothy: <b>DYNAMIC EVOLUTION OF MARINE CHEMISTRY LINKED TO WAX AND WANE OF THE GLACIATIONS IN A RESTRICTED CRYOGENIAN BASIN</b>
76-7	9:30 AM	Slagter, Silvina*; Hao, Weiduo; Planavsky, Noah; Konhauser, Kurt; Tarhan, Lydia: <b>MICROBIAL-MEDIATED FOSSILIZATION IN SANDSTONES: AN EXPERIMENTAL APPROACH</b>
76-8	9:45 AM	Cui, Huan*; Kaufman, Alan; Xiao, Shuhai; Zhou, Chuanming; Zhu, Maoyan; Cao, Mengchun; Loyd, Sean; Crockford, Peter W.; Liu, Xiao-Ming; Goderis, Steven; Wei, Wang; Guan, Chengguo: <b>COUPLED CARBON, SULFUR, AND BARIUM CYCLES DURING THE EDIACARAN</b>

**SHURAM EXCURSION: A SYNTHESIS (Invited Presentation)**

76-9	10:00 AM	Marusin, Vasily; Bykova, Natalia*: <b>FORTUNIAN SOFT-BODIED FOSSILS AND PLUG-SHAPED BURROWS FROM THE SYHARGALAKH FORMATION, NE SIBERIAN PLATFORM</b>
76-10	10:15 AM	Nolan, Morrison*; Xiao, Shuhai; Gill, Benjamin; Reid, Rachel; Zhou, Chuanming; Jones, David S.; Zhou, Anwen; Chen, Jiubin; Zheng, Wang; Sahoo, Swapan K.: <b>MERCURY CONTENT AND STABLE ISOTOPE DATA AS A TOOL FOR STRATIGRAPHIC CORRELATION AND ENVIRONMENTAL INTERPRETATION: A CASE STUDY OF EDIACARAN BLACK SHALES OF THE DOUSHANTUO FORMATION, SOUTH CHINA</b>
76-11	10:30 AM	Cherry, Lucas*; Gilleaudeau, Geoffrey J.; Grazhdankin, Dmitriy; Romaniello, Stephen J.; Kaufman, Alan: <b>A DIVERSE EDIACARA ASSEMBLAGE SURVIVED UNDER ANOXIC CONDITIONS</b>
76-12	10:45 AM	Eguchi, James*; Diamond, Charles W.; Lyons, Timothy: <b>PROTEROZOIC OXYGENATIONS AND CARBON ISOTOPE EXCURSIONS DRIVEN BY COUPLED SURFACE-INTERIOR CARBON CYCLING (Invited Presentation)</b>
76-13	11:00 AM	Boan, Phillip*; Evans, Scott; Hughes, Ian V.; Hughes, Emily B.; Dzaugis, Peter W.; Droser, Mary L.: <b>SPATIAL POINT PATTERN ANALYSIS OF <i>OBAMUS CORONATUS</i> FROM NILPENA EDIACARA NATIONAL PARK, SOUTH AUSTRALIA</b>
76-14	11:15 AM	Evans, Scott*; Xiao, Shuhai; Boan, Phillip; Surprenant, Rachel; McCandless, Heather; Rizzo, Adriana; Marshall, Nathan; Tu, Chenyi; Droser, Mary L.: <b>LOST IN TRANSITION: EXAMINING CAUSES OF BIOTIC TURNOVER IN THE EDIACARAN</b>
76-15	11:30 AM	McCandless, Heather*; Droser, Mary L.: <b>RIDGE OVER TROUBLED WATER: INVESTIGATING THE LIFE HABIT OF <i>ATTENBORITES JANAE</i></b>
76-16	11:45 AM	Morris, Dustin*; Grotzinger, John P.: <b>FACIES DISTRIBUTION IN BASAL EDIACARAN CAP CARBONATE SEQUENCE, NAUKLUFT MOUNTAINS, NAMIBIA</b>

**SESSION NO. 77**

***T110. Best Practices and Exciting Discoveries in Identifying, Mapping, and Analyzing Planetary Landforms and Terrestrial Analogues (GSA Planetary Geology Division)***

8:00 AM, Oregon Convention Center, D139/D140

Kelsey Crane and Elena Favaro, Presiding

	8:00 AM	<b>INTRODUCTORY REMARKS</b>
77-1	8:05 AM	Richardson, Jacob*; Sutton, Sarah S.; Whelley, Patrick L.; Scheidt, Stephen P.: <b>VENT DEVELOPMENT AT THE HOLUHRAUN LAVA FLOW (NORTHERN ICELAND) AND SMALL MARTIAN VOLCANOES (Invited Presentation)</b>
77-2	8:25 AM	Yingst, R. Aileen*; Bartley, Julie; Cohen, Barbara A.; Hynek, Brian; Kah, Linda; Archer, Richard; Lotto, Michael; Mooney, Jennifer Tuggle; Wang, Justin; Wogoland, Brittan: <b>USING ROVER-ANALOGOUS INSTRUMENTATION TO DISCRIMINATE BETWEEN VOLCANIC AND SEDIMENTARY PROCESS IN SUCCESSIONS DOMINATED BY IGNEOUS CHEMISTRY</b>
77-3	8:40 AM	Aubele, Jayne*: <b>OVERVIEW OF A HALF-CENTURY OF VENUS GEOLOGICAL EXPLORATION</b>
77-4	9:00 AM	Buczkowski, Debra*; Fattarusso, Laura; McGowan, Eileen M.; McGill, George: <b>THE VOLCANOES OF THE LACHESIS TESSERA QUADRANGLE (V-18), VENUS</b>
77-5	9:15 AM	Lang, Nicholas*; Thomson, Bradley J.: <b>THE UPS, DOWNS, INS, AND OUTS OF TWO COMPLETE VENUSIAN CHANNEL SYSTEMS: WHAT CAN THEY TELL US ABOUT THEIR FORMATION?</b>



- 77-6 9:30 AM Fattaruso, Laura\*; Buczkowski, Debra; McGowan, Eileen M.; McGill, George: **DARK SPOTS SUPERPOSED ON THE REGIONAL PLAINS OF THE LACHESIS TESSERA QUADRANGLE (V-18), VENUS**
- 9:45 AM **DISCUSSION - VOLCANISM ON MARS AND VENUS**
- 77-7 9:55 AM Wyrick, Danielle\*; Buczkowski, Debra: **IDENTIFICATION AND ANALYSES OF SUBTERRANEAN TECTONIC CAVES**
- 77-8 10:10 AM Crane, Kelsey\*; Bohanon, Allison: **FAULTS IN BASALTS: HOW FLOOD BASALT CHARACTERISTICS CHANGE NORMAL FAULT SCARP MORPHOLOGY**
- 77-9 10:25 AM Bohanon, Allison\*; Crane, Kelsey: **STRUCTURAL AND BIOLOGICAL ANALYSIS OF NORMAL FAULTS IN BASALTS IN SHEEPSHEAD MOUNTAINS, OREGON AS AN EARTH ANALOGUE FOR MARS**
- 77-10 10:40 AM Aaron, Lavontria\*: **INVESTIGATION OF HYDROTHERMAL CLAYS AND SULFATES IN TYRRHENA TERRA MARTIAN CRATERS (Invited Presentation)**
- 77-11 11:00 AM Chapline, Daphne\*; Salvatore, Mark; Sankey, Joel B.; Caster, Joshua: **INVESTIGATING THE ROLE OF SALT WEATHERING AT GRAND FALLS, AZ**
- 77-12 11:15 AM Broz, Adrian\*: **RADIOCARBON DATING OF MARS-ANALOG PALEOSOLS REVEALS CONTAMINATION WITH EXOGENOUS ORGANIC CARBON**
- 77-13 11:30 AM Hughson, Kynan Horace\*; Schmidt, Britney E.; Quartini, Enrica; Michaelides, Roger; Siegfried, Matthew; Mullen, Andrew; Bradford, John H.; Swidinsky, Andrei; Sizemore, Hanna G.: **PINGOS AS PLANETARY ANALOGS: THE GEOPHYSICAL PERSPECTIVE**
- 11:45 AM **DISCUSSION - TECTONICS, ALTERATION, EROSION AND ASTROBIOLOGICAL IMPLICATIONS**

**SESSION NO. 78**

**T112. Exploring the Solar System in the Thermal Infrared I: A Memorial Session in Remembrance of Joshua L. Bandfield (GSA Planetary Geology Division)**

8:00 AM, Oregon Convention Center, Portland Ballroom 256 (Hybrid Room)

Timothy Glotch and Christopher Edwards, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 78-1 8:05 AM Glotch, Timothy\*; Edwards, Christopher: **THE CONTRIBUTIONS OF JOSHUA BANDFIELD TO OUR UNDERSTANDING OF MARS, THE MOON, AND SMALL BODIES**
- 78-2 8:20 AM Michalski, Joseph\*: **TWENTY YEARS OF EXPLORING SILICATE ALTERATION MINERALOGY ON MARS IN THE THERMAL INFRARED**
- 78-3 8:35 AM Rogers, A. Deanne\*; Farrand, William H.: **SPECTRAL EVIDENCE FOR COMPOSITIONAL DIVERSITY IN FELDSPATHIC LIGHT-TONED NOACHIAN TERRAINS ON MARS (Invited Presentation)**
- 78-4 8:55 AM McKeeby, Benjamin\*; Ramsey, Michael: **VALIDATING THE BANDFIELD SURFACE ROUGHNESS MODEL USING NOVEL THEMIS ROTO DATA: APOLLINARIS MONS IN A NEW LIGHT**
- 78-5 9:10 AM Bapst, Jonathan\*; Piqueux, Sylvain; Edwards, Christopher; Wolfe, Christopher; Hayne, Paul O.; Kass, David M.; Kleinboehl, Armin: **DUST REDISTRIBUTION ON MARS USING INTERANNUAL DIFFERENCES IN GLOBAL SURFACE TEMPERATURE**
- 78-6 9:25 AM Simurda, Christine\*; Ramsey, Michael; Crown, David: **THERMOPHYSICAL MODELING OF MANTLED LAVA FLOWS ON MARS: EXTENDING THE KRC LEGACY AND THE PIONEERING WORK OF JOSH BANDFIELD**
- 78-7 9:40 AM Weintraub, Aaron\*; Edwards, Christopher; Chojnacki, Matthew F.; Edgar, Lauren A.; Fenton, Lori; Gullikson, Amber L.: **CONSTRAINING CEMENT VOLUME**

- RESPONSIBLE FOR PRESERVATION OF LITHIFIED BEDFORMS ON MARS**
- 78-8 9:55 AM Jones, Natalie A.\*; Rutledge, Alicia M.; Salvatore, Mark R.; Horgan, Briony: **DETECTING GLACIAL ALTERATION IN A MARS ANALOG ENVIRONMENT: COMPOSITIONAL REMOTE SENSING OF MOUNT KILIMANJARO, TANZANIA**
- 78-9 10:10 AM Nowicki, Scott\*; Bennett, Kristen A.; Edgar, Lauren A.; Edwards, Christopher; Eifert, Helen A.; Gullikson, Amber L.; Koeppel, Ari; Rogers, A. Deanne: **FIELD THERMOPHYSICAL EXPERIMENTS OF MARS ANALOG SITES**
- 78-10 10:25 AM Ruff, Steven\*; Hamilton, Victoria: **A NOVEL ATMOSPHERIC REMOVAL TECHNIQUE FOR TES SPECTRA APPLIED TO ROCKS IN THE NILI FOSSAE REGION, MARS**
- 78-11 10:40 AM Edwards, Christopher\*; Piqueux, Sylvain; Glotch, Timothy; Hamilton, Victoria; Duxbury, Thomas; Hill, Jonathon; Christensen, Philip R.; Haberle, Christopher; Smith, Nathan M.; Bandfield, Joshua L.: **THE THERMOPHYSICAL PROPERTIES OF PHOBOS FROM TES AND THEMIS OBSERVATIONS**
- 78-12 10:55 AM Osterloo, Mikki M.\*; Bandfield, Joshua L.; Holsclaw, Greg M.: **REVISITING MERCURY'S THERMOPHYSICAL PROPERTIES USING DATA FROM THE MARINER 10 INFRARED RADIOMETER**
- 11:10 AM **DISCUSSION**

**SESSION NO. 79**

**T131. Mountain Glaciation and Climate Change of the Past and Present I**

8:00 AM, Oregon Convention Center, Portland Ballroom 253 (Hybrid Room)

Benjamin Laabs, Keith Brugger and Eric M. Leonard, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 79-1 8:05 AM Walter, Larkin\*; Laabs, Benjamin: **LATE PLEISTOCENE MOUNTAIN GLACIER EQUILIBRIUM LINE ALTITUDES IN THE GREAT BASIN AND NEIGHBORING SETTINGS IN THE SOUTHWESTERN USA**
- 79-2 8:20 AM Walcott, Caleb K.\*; Tulenko, Joseph P.; Briner, Jason P.: **LAST GLACIAL MAXIMUM EQUILIBRIUM LINE ALTITUDES FROM MOUNTAIN GLACIERS ACROSS ALASKA**
- 79-3 8:35 AM Tulenko, Joseph P.\*; Briner, Jason P.; Young, Nicolas; Schaefer, Joerg M.: **A DEGLACIATION CHRONOLOGY FROM THE WESTERN ALASKA RANGE: GLACIER FLUCTUATIONS DRIVEN BY REGIONAL CLIMATE MECHANISMS (Invited Presentation)**
- 79-4 8:55 AM Ward, Brent\*; Jackson, Lionel E.; Clague, John J.; Franz, Kenya; Telka, Alice: **RE-EVALUATION OF THE SIGNIFICANCE OF THE GLACIAL STRATIGRAPHY OF SW BC**
- 79-5 9:10 AM Che, Yueyi\*; Abbey, Alyssa; Shuster, David; Balco, Greg; Stock, Greg M.; Cuffey, Kurt M.: **UNDERSTANDING GLACIER THINNING AND RETREAT DURING THE LAST GLACIAL MAXIMUM IN YOSEMITE TO PREDICT CONTEMPORARY DEGLACIATION**
- 9:25 AM **BREAK**
- 79-6 9:35 AM Laabs, Benjamin\*; Walter, Larkin; Balco, Greg; Halvorson, Victoria: **SPATIO-TEMPORAL PATTERNS OF LATE-PLEISTOCENE MOUNTAIN GLACIATION IN THE WESTERN UNITED STATES**
- 79-7 9:50 AM Thackray, Glenn\*; Rittenour, Tammy M.; Collins, Emma; O'Brien, Gary: **MIS 3 WAS WETTER THAN YOU MIGHT THINK IN THE NORTHERN ROCKIES**
- 79-8 10:05 AM Muscott, Amelia\*; Larsen, Darren J.; Crump, Sarah; Wang, Lane: **A 14,000-YEAR RECORD OF ROCK GLACIER ACTIVITY IN THE TETON RANGE, WY FROM ALPINE LAKE SEDIMENTS**

AM  
MONDAY

- 79-9** 10:20 AM Martin, Ellen\*; Deuerling, Kelly; Flynn, Shauna; Everhart, Cheyenne; Martin, Jonathan; Pain, Andrea; An, Emily: **WEATHERING, RADIOGENIC ISOTOPES, AND MARINE RECORDS OF GLACIAL DYNAMICS**
- 79-10** 10:35 AM Schwenk, Michael\*; Schlunegger, Fritz; Douillet, Guilhem A.; Gribenski, Natacha; Schläfli, Patrick; Bandou, Dimitri: **OTHERWISE INACCESSIBLE: RECOVERING 208.5 M OF MID-PLEISTOCENE GLACIAL DEPOSITS THROUGH DRILLING**
- 10:50 AM **POSTER LIGHTNING TALKS**

**SESSION NO. 80** 

**T132. Sediment Residence Times and Thresholds for Sediment Transport in Fluvial Corridors (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Geoinformatics and Data Science Division; GSA Geochronology Division)**

8:00 AM, Oregon Convention Center, D138

Kristin Jaeger and Nicholas Sutfin, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 80-1** 8:05 AM Segura, Catalina\*; Monsalve, Angel: **A BED LOAD TRANSPORT EQUATION BASED ON THE SPATIAL DISTRIBUTION OF SHEAR STRESS - OAK CREEK REVISITED (Invited Presentation)**
- 80-2** 8:25 AM Loucks, Emily\*; Pfeiffer, Allison: **SEDIMENT SUPPLY IN NATURAL RIVERS: IMPACTS ON GRAIN-PROTRUSION AND THE THRESHOLD FOR MOTION?**
- 80-3** 8:40 AM Bergman, Nathaniel\*; Greenbaum, Noam; Coren, Lavie; Glassman, Hillel: **SEDIMENT TRANSPORT AND CHANNEL MORPHOLOGY DURING AN EXTREME FLOOD EVENT IN NAHAL MESHUSHIM, CENTRAL GOLAN HEIGHTS AND NE SEA OF GALILEE, ISRAEL**
- 80-4** 8:55 AM Anderson, Scott\*: **RIVER NON-RESPONSE TO A LARGE SEDIMENT PULSE: TIMESCALES OF SEDIMENT DELIVERY AND RIVER ADJUSTMENT BELOW MOUNT RAINIER (Invited Presentation)**
- 9:15 AM **BREAK**
- 80-5** 9:25 AM James, Allan\*: **CENTENNIAL-SCALE STORAGE AND REWORKING OF A DISCRETE SLUG OF CLASTIC MINING SEDIMENT**
- 80-6** 9:40 AM Thomas, Summer-Solstice; Constantine, Jose\*; Dethier, David; Thoman, John W.; Racela, Jason; Landis, Joshua D.: **THE IMPORTANCE OF OXBOW LAKES TO THE FLOODPLAIN STORAGE OF POLLUTANTS**
- 80-7** 9:55 AM Tenison, Christina N.\*; Rech, Jason A.: **RECONSTRUCTING STREAM MORPHOLOGY AND PLANFORM PRIOR TO EUROPEAN SETTLEMENT, FOUR MILE CREEK, SOUTHWESTERN OHIO**
- 80-8** 10:10 AM Pizzuto, James\*; Huffman, Max: **EROSION AND DEPOSITION FUNCTIONS CALIBRATED TO CHRONOSTRATIGRAPHIC DATA PREDICT TRANSIENT HOLOCENE – PRESENT SEDIMENT AGE AND STORAGE TIME DISTRIBUTIONS IN MID-ATLANTIC RIVER CORRIDORS**
- 80-9** 10:25 AM Suhr, Jens\*; Rathburn, Sara L.; McGrath, Daniel; Delgado, Cody N.: **POST-GLACIAL ALLUVIAL VALLEY DYNAMICS IN A HEADWATER RIVER OF THE ROCKY MOUNTAINS**
- 80-10** 10:40 AM Sweet, Michael\*; Gailot, Gwladys; Rittenour, Tammy; Love, Kathrine; Blum, Michael: **HOW FAST DO SUBMARINE FANS GROW? INSIGHTS FROM THE QUATERNARY GOLO FANS, OFFSHORE CORSICA**

**SESSION NO. 81**

**T136. Eolian Processes, Landforms, and Chronologies (GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; GSA Soils and Soil Processes Division)**

8:00 AM, Oregon Convention Center, D137

Randall Schaetzl, Nicholas Lancaster and Phillip Kerr, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 81-1** 8:05 AM Sweeney, Mark\*; Forman, Steven L.; McDonald, Eric: **COMPARING DUST EMISSION PROCESSES AND DUST FLUXES FROM DUNE FIELDS AND ASSOCIATED LANDFORMS**
- 81-2** 8:20 AM Fenton, Lori\*; Metzger, Steve; Michaels, Timothy I.; Scheidt, Stephen P.; Dorn, Taylor C.; Battin, Ryan; Cole, Banner; Crevier, Justin; Idec, Eli; Jackson, Brian; Neakrase, Lynn; Sprau, Owen: **ENVIRONMENTAL INFLUENCES ON DUST DEVIL GENERATION RATE, BASED ON FIELD STUDIES AT SMITH CREEK VALLEY, NEVADA, USA**
- 81-3** 8:35 AM Pullen, Alexander\*; Barbeau, David L.; Leier, Andrew; Ward, Madison; Bruner, Austin; Fidler, Mary: **WESTERLY WINDS OVER THE SOUTHERN PUNA PLATEAU DURING DEPOSITION OF UPPER PLEISTOCENE LOESSIC SEDIMENTS IN THE SUBTROPICAL ANDEAN FOOTHILLS, SOUTH AMERICA**
- 81-4** 8:50 AM Grimley, David\*; Nash, T. Andrew; Dendy, Sarah; Rech, Jason A.; Curry, Ben; Conroy, Jessica L.; Guenther, William: **UPDATED CHRONOLOGY OF PEORIA SILT ACCUMULATION IN ILLINOIS FROM RADIOCARBON DATING OF TERRESTRIAL GASTROPOD SHELLS AND VEGETATION**
- 81-5** 9:05 AM Mason, Joseph\*; McDowell, Taylor M.; Vo, Tien; Xu, Zhiwei; Marin-Spiotta, Erika: **GEOMORPHOLOGY OF THE UPWIND BOUNDARY OF THICK LOESS, CENTRAL GREAT PLAINS, AND IMPLICATIONS FOR LONG-TERM SEDIMENT AND SOC STORAGE**
- 81-6** 9:20 AM Muhs, Daniel\*; Skipp, Gary L.: **REVISITING A QUATERNARY SOIL CHRONOSEQUENCE ON MARINE TERRACES IN SOUTHERN CALIFORNIA: EVIDENCE FOR MOJAVE DESERT DUST INPUTS TO THE EASTERN PACIFIC OCEAN OVER THE PAST ~700,000 YEARS**
- 81-7** 9:35 AM McKeehan, Kevin\*; Arbogast, Alan F.: **THE GEOGRAPHY AND PROGRESSION OF BLOWOUTS IN THE COASTAL DUNES ALONG THE EASTERN SHORE OF LAKE MICHIGAN SINCE 1938**
- 81-8** 9:50 AM Bodenbender, Brian; Yurk, Brian\*; Hansen, Edward C.; Harlow, Blake; Schaetzl, Randall; Devries-Zimmerman, Suzanne: **AEOLIAN TRANSPORT OF SAND ACROSS A FOREST CANOPY IN THE LEE OF A LARGE PARABOLIC DUNE**
- 81-9** 10:05 AM Kerr, Phillip\*; Bloch, Daniel; Kohrt, Casey: **A SAND DUNE INVENTORY AND TOPOGRAPHIC ANALYSIS IN EASTERN IOWA**
- 81-10** 10:25 AM Staley, Spencer\*; Fawcett, Peter; Brown, Erik; Anderson, R. Scott: **EOLIAN ACTIVITY IN THE SOUTHWESTERN US OVER THE LAST 1 MA FROM THE STONEMAN LAKE, AZ RECORD**
- 81-11** 10:40 AM Rotz, Rachel\*; Milewski, Adam; Craddock, Robert; Morgan, Alex; Leigh, David: **AEOLIAN, FLUVIAL, AND LACUSTRINE INFLUENCES ON LINEAR DUNE SEDIMENT SUPPLY AT LAKE CAROLINE IN THE SIMPSON DESERT OF AUSTRALIA**
- 81-12** 10:55 AM Shandonay, Kenzie\*; Bowen, Mark; Larson, Phillip H.; Running, Garry L.; Rittenour, Tammy: **STRATIGRAPHIC INVESTIGATIONS OF AEOLIAN SAND STRINGERS IN SOUTHEAST MINNESOTA AND WESTERN WISCONSIN**

**SESSION NO. 82**

**T152. Advances in Undergraduate Research and Education, Colorado Geology, and Igneous Petrology I: Celebrating the 55-Year Career of Reinhard “Bud” Wobus (National Association of Geoscience Teachers (NAGT); GSA Geoscience Education Division; Council on Undergraduate Research Geosciences Division)**

8:00 AM, Oregon Convention Center, B113/B114 (Hybrid Room)

Brock Riedell, Rachel Beane and Cathryn Manduca, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 82-1 8:05 AM Wobus, Reinhard\*: **THE SUBALPINE “BIG FLAT” IN COLORADO’S SOUTHERN FRONT RANGE; WHAT LIES BENEATH AND ABOVE, AND HOW HAS IT BEEN CHANGED ? (Invited Presentation)**
- 82-2 8:25 AM Meyer, Herbert W.\*; McLain, Jerry: **THE 67-YEAR LEGACY OF BUD WOBUS ON THE FLORISSANT QUADRANGLE, COLORADO**
- 82-3 8:40 AM Lockwood, Christian A.\*; Wobus, Reinhard; Olson, Erikka R.: **GEOCHEMICAL VERIFICATION OF THE 36.7 MA WALL MOUNTAIN TUFF IN THE FLORISSANT REGION, SOUTHERN FRONT RANGE, COLORADO: TECTONIC IMPLICATIONS**
- 82-4 8:55 AM Sterne, Edward\*: **PREVIOUSLY UNRECOGNIZED CENOZOIC STRUCTURAL CONTROLS ON RIVER COURSES ALONG THE EASTERN FLANK OF THE SOUTHERN ROCKY MOUNTAIN EPIIROGEN WITH A FOCUS ON “PIKES DOME”, AN INTERFLUVE HIGH BETWEEN THE SOUTH PLATTE AND ARKANSAS RIVERS – HOW THE FLORISSANT VALLEY DATES INITIAL RISE OF PIKES DOME TO THE LATEST EOCENE**
- 82-5 9:10 AM Anderson, Robert\*; Anderson, Suzanne; Tucker, Gregory E.; Rossi, Matthew W.: **CORRESPONDENCE BETWEEN COLORADO FRONT RANGE BATHOLITHS AND “EROSION SURFACES” (Invited Presentation)**
- 82-6 9:25 AM Dethier, David\*; Bierman, Paul; Bubel, Ansel; Jungers, Matthew; Lazarus, Eli D.; Ouimet, William B.; Schildgen, Taylor: **MEASURING LONG-TERM EROSION RATES IN THE NORTHERN FRONT RANGE—THE UNDERGRADUATE CONNECTION**
- 82-7 9:40 AM Wobus, Cameron\*; Tucker, Gregory E.; Anderson, Robert S.: **EXPLAINING THE “HOLE” IN THE COLORADO HIGH PLAINS**
- 9:55 AM **BREAK**
- 82-8 10:05 AM Smith, Diane\*: **BUD WOBUS, UNDERGRADUATE RESEARCH AND THE PIKES PEAK BATHOLITH**
- 82-9 10:20 AM Manduca, Cathryn\*: **FROM FIELD TO LAB: THE IMPORTANCE OF TEACHING THROUGH INVESTIGATION**
- 82-10 10:35 AM Marcarelli, Matthew\*; Williams, Noah; Keenan, Martin: **COMMUNITY, LEGACY, AND CAMARADERIE IN THE CLASSROOM OF REINHARD “BUD” WOBUS: THREE FORMER STUDENTS REFLECT ON THEIR EXPERIENCE**
- 10:50 AM **DISCUSSION**

**SESSION NO. 83**

**T156. Building Trust Using Science Communication and Education within Diverse Communities (GSA Geology and Society Division; GSA Geoscience Education Division; GSA Diversity in the Geosciences Committee; GSA Karst Division; GSA Soils and Soil Processes Division)**

8:00 AM, Oregon Convention Center, B112

Leila Joyce, Darryl Reano, Michael Buck, Angel Garcia Jr., Ivan Carabajal and Akilah Alwan, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 83-1 8:05 AM Joyce Seals, Leila M.\*; Reano, Darryl; Garcia, Angel; Buck, Michael; Smythe, Wendy: **MAINTAINING MOMENTUM FOR CHANGE: IDENTITY INCORPORATION AND JEDI**

**EFFORTS IN GEOSCIENCE COMMUNICATION AND EDUCATION**

- 83-2 8:20 AM Saha, Sriparna\*; Tapuke, Sylvia; Tapuke, Kelvin; Kennedy, Ben; Tolbert, Sara; Macfarlane, Angus: **TOWARDS A BICULTURAL APPROACH TO DESIGNING EDUCATIONAL RESOURCES IN AOTEAROA NEW ZEALAND: RECOMMENDATIONS FROM REFLECTIONS AT THE INTERFACE**
- 83-3 8:35 AM Fortner, Sarah\*; Brown, Ken; Ebanks, Sue C.; Fadem, Cynthia; Latimer, Jennifer; Trierweiler, Annette M.: **COMMUNITIES OF PRACTICE SUPPORT SCIENTISTS AND COMMUNITY THROUGH TRUST-BUILDING**
- 83-4 8:50 AM Villafane-Pagan, Jobel Y.\*: **THE MOTHER MAP: RIO GRANDE DE MANATI WATERSHED AND THE HUMAN IMPACT ON NATURAL RESOURCES**
- 83-5 9:05 AM Buck, Michael\*; Lampman, Ralph; Black, Jessica: **AMPLIFYING THE VOICES OF INDIGENOUS ELDERNS FROM THE COLUMBIA RIVER GORGE**
- 83-6 9:20 AM Reano, Darryl\*; Smythe, Wendy: **EXPANDING THE INDIGENOUS GEOSCIENCE COMMUNITY**
- 83-7 9:35 AM Turner, Leah\*: **UNDERSTANDING PERCEPTIONS OF GEOSCIENCE PROFESSIONALS AND CAREERS RELATED TO THE GEOSCIENCES AMONG PREDOMINATELY MARGINALIZED HIGH SCHOOL YOUTH**
- 83-8 9:50 AM Suarez, Stephanie\*; Montoya, Maritza: **PLANETARY GEOSCIENCE OUTREACH FOR LATINO K-5 STUDENTS IN THE INNER-CITY OF HOUSTON, TX (Invited Presentation)**
- 10:10 AM **DISCUSSION AND BREAK**
- 83-9 10:25 AM Bryant, Raquel\*; Keisling, Benjamin A.; Bernard, Rachel E.: **“WAKE WORK,” BRAVE LEADERSHIP, AND STUDENT GEOGRAPHIES: USING CRITICAL THEORIES TO ACTUALIZE THE SECOND NATIONAL CONFERENCE**
- 83-10 10:45 AM Reano, Darryl\*; Benabentos, Rocio; Kornreich Leshem, Hagit S.; Rodriguez, Idaykis; Kramer, Laird H.: **USING SOCIOTRANSFORMATIVE CONSTRUCTIVISM TO FRAME A CRITICAL, QUANTITATIVE STUDY**
- 83-11 11:00 AM Alwan, Akilah\*; Brinkworth, Carolyn; Wolf, Lorraine L.: **CRITICAL WHITENESS STUDIES IN THE GEOSCIENCES: A QUALITATIVE PILOT STUDY**
- 83-12 11:15 AM **Withdrawn**
- 83-13 11:30 AM Fore, Grant\*; Licht, Kathy: **ETHICAL REFLECTION IN A SEDIMENTOLOGY COURSE: EXPLORING ETHICAL DEVELOPMENT THROUGH AN ETHIC OF CARE FRAMEWORK**
- 11:45 AM **DISCUSSION**
- 11:55 AM **CONCLUDING REMARKS**

**MORNING POSTER TECHNICAL SESSIONS**

**SESSION NO. 84**

**T41. Environmental and Engineering Geology Division Student Research Competition (Posters) (GSA Environmental and Engineering Geology Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- Booth #
- 84-1 1 Mofali, Lehlomela\*; Nagel-Myers, Judith: **THE EFFECTS OF LOWER PH ON FRESHWATER MUSSEL SHELL GROWTH IN THE RAQUETTE RIVER IN NORTHERN NEW YORK STATE**
- 84-2 2 Gomez, Ramona\*; Gutierrez, Melida: **WATER QUALITY MONITORING OF FIVE SPRINGS IN POLK COUNTY,**

- MISSOURI, TO DETERMINE CONTAMINATION RISKS TO THE SPRINGFIELD AQUIFER**
- 84-3 3 Tella, Kinshuk\*; Krekeker, Mark; McLeod, Claire; Gillis, Morgan; Gokey, Kailee: **INITIAL INVESTIGATIONS OF LEAD CHROMATE TRAFFIC PAINT IN THE MIDWEST UNITED STATES: CHARTING A PATH FORWARD FOR INVESTIGATING A POTENTIAL SOURCE OF LEAD AND HEXAVALENT CHROMIUM POLLUTION**
- 84-4 4 Robinson, James M.\*; Mitchell, Robert: **APPLYING DYNAMICALLY DOWNSCALED CLIMATE PROJECTIONS TO A MOUNTAINOUS WATERSHED IN WESTERN WASHINGTON TO ESTIMATE FUTURE PEAK FLOWS**
- 84-5 5 Steck, Brett\*; Sanders, Peyton; Heberer, Mikelia; Jeninga, Esther; Lewis, Gabriel; Huffmann, Nicholas; Yavuzcetin, Ozgur; Sun, Haijian; Bhattacharyya, Prajukti: **DEVELOPING A PROTOTYPE MULTIMODAL DEVICE FOR MONITORING SLOPE INSTABILITY USING RASPBERRY PI**
- 84-6 6 Sanders, Peyton\*; Heberer, Mikelia; Steck, Brett; Jeninga, Esther; Bhattacharyya, Prajukti: **PHYSICAL MODELING OF EROSIONAL PROCESSES LEADING TO SLOPE FAILURE ALONG LAKE MICHIGAN SHORELINE**
- 84-7 7 McEnaney, Trenton\*; Niemi, Tina: **BUILDING A GEOREFERENCED DATABASE FOR THE 1976 GUATEMALAN EARTHQUAKE RUPTURE OF THE MOTAGUA FAULT SYSTEM ALONG THE NORTH AMERICAN-CARIBBEAN PLATE BOUNDARY**
- 84-8 8 Gokey, Kailee\*; Gillis, Morgan; Krekeker, Mark; Renkes, Natalie G.; Brown, Ken: **PRELIMINARY ANALYSIS OF TEXTURAL AND GEOCHEMICAL CHARACTERISTICS OF STREET SEDIMENT MATERIAL FROM LAS VEGAS, NV**
- 84-9 9 Gorman, Sarah G.\*; Edwards, Jack; Knutte, Alex; Grosshans, Cole; Klinkhammer, Jenna; Zabroski, Jordan; Barrett, Braxton; Krekeker, Mark: **REFLECTIVE SPECTROSCOPY OF ENVIRONMENTAL MATERIALS SOUTHERN LAKE MICHIGAN, NORTHWESTERN INDIANA FOR SUPPORTING HYPERSPECTRAL REMOTE SENSING POLLUTION INVESTIGATIONS**
- 84-10 10 Gillis, Morgan\*; Gokey, Kailee; Renkes, Natalie; Brown, Ken; Krekeker, Mark: **EXPLORING NATURALLY OCCURRING ASBESTOS IN ROAD SEDIMENT FROM BOULDER CITY, NEVADA**
- 84-11 11 Mahorney, Katie\*; Lemley-Fry, Eleanor; Buckardt, Gillian; Knudsen, Andrew; Ribbons, Relena; Planavsky, Noah: **EVALUATING THE BIOGEOCHEMICAL EFFECTS OF CARBON SEQUESTRATION THROUGH ENHANCED ROCK WEATHERING OF CRUSHED BASALT ON URBAN AND FORESTED SOILS IN APPLETON AND BAILEYS HARBOR, WI**
- 84-12 12 Stokes, Gretchen\*; Flores, John; Wong, Jesse P.; Morang, Connor; Lynch, Abigail J.; Smidt, Samuel: **CLASSIFYING ENVIRONMENTAL IMPACTS WITH A COUPLED MANUAL-AUTOMATED LITERATURE REVIEW**

**SESSION NO. 85**  

**T42. Landslide Hazards: Inventories, Hazard Maps, Risk Analysis, and Warning Systems (Posters) (GSA Environmental and Engineering Geology Division; GSA Environmental and Engineering Geology Division Landslide Committee)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 85-1 13 Underwood, Abigail C.\*; Booth, Adam M.; Duvall, Alison R.; Wirth, Erin A.: **SURFACE ROUGHNESS ANALYSIS OF 6 BEDROCK LANDSLIDES IN WASHINGTON'S CASCADE RANGE: A MODEL FOR DETERMINING REGIONAL LANDSLIDE CHRONOLOGY AND LANDSLIDE DRIVING MECHANISMS IN WESTERN WHATCOM COUNTY, WA**
- 85-2 14 Obryk, Maciej\*; Mirus, Benjamin B.: **ASSESSING LANDSLIDE INVENTORY COMPLETENESS UTILIZING BENFORD'S LAW**

- 85-3 15 Stock, Greg M.\*; Helfrich, Autumn; Collins, Brian: **DOCUMENTING ROCKFALLS IN YOSEMITE NATIONAL PARK WITH A NEW SPATIALLY ENABLED GEODATABASE AND INTERACTIVE WEB-BASED MAP**
- 85-4 16 Brien, Dianne\*; Reid, Mark E.; Cronkite-Ratcliff, Collin; Perkins, Jonathan: **PORTRAYING RUNOUT AND INUNDATION FROM HURRICANE-INDUCED LANDSLIDES IN PUERTO RICO**
- 85-5 17 Legorreta Paulin, Gabriel\*; Richard, Emilie; Jacobacci, Kara E.; Gallin, William; Contreras, Trevor A.; Mickelson, Katherine A.; Allen, Mitchell; Bursik, Marcus I.: **ASSESSING SURFICIAL LANDSLIDE VOLUME: A CASE STUDY IN WHATCOM COUNTY, WASHINGTON, USA**
- 85-6 18 Ackerson, Crey\*; Ward, Brent; Kennedy, Kristen; Dai, Chunli; Griffith, Peter C.; Hoy, Elizabeth: **ACTIVE LAYER DETACHMENT SLIDES, KLUANE RANGES, SOUTHWEST YUKON**
- 85-7 19 Brown, Eric\*; Clark, Douglas H.: **TESTING POTENTIAL TRIGGERING MECHANISMS OF LONG-RUNOUT CATASTROPHIC ROCK AVALANCHE DEPOSITS IN THE NOOKSACK RIVER BASIN, WHATCOM COUNTY, WASHINGTON**
- 85-8 20 Baum, Rex L.\*; Brien, Dianne L.; Lewis, Adrian C.; Bedinger, Emily C.; Schulz, William; Reid, Mark E.: **ASSESSMENT OF POTENTIAL HURRICANE-INDUCED SHALLOW LANDSLIDE SOURCES FOR NARANJITO MUNICIPALITY, PUERTO RICO**
- 85-9 21 Sturmer, Daniel M.\*: **STATISTICAL ANALYSIS OF LARGE-SCALE BEDROCK LANDSLIDES IN NEVADA, USA**
- 85-10 22 Clark, Doug\*; Brown, Eric: **THE GOOD, THE BAD, AND THE NOT-SO-UGLY IMPLICATIONS OF NEW <sup>10</sup>BE EXPOSURE AGES FOR ROCK AVALANCHE DATING AND DYNAMICS, NOOKSACK DRAINAGE, WA**
- 85-11 23 Oakley, Nina\*; Perkins, Jonathan; Collins, Brian; Corbett, Skye C.: **VARIABILITY IN ATMOSPHERIC CONDITIONS AMONG WIDESPREAD LANDSLIDE EVENTS IN CALIFORNIA**
- 85-12 24 Okok, Abdurraouf\*; Rogers, J. David: **COMPARISON OF MANUAL AND SICCM SEMI-AUTOMATED MODES TO CONSTRUCT LANDSLIDE INVENTORIES ALONG THE BUFFALO NATIONAL RIVER OF ARKANSAS**

**SESSION NO. 86**

**D6. Recent Advances in Geochemistry (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 86-1 25 Frederickson, Connor\*; Newell, Dennis; Lonero, Andrew: **FINGERPRINTING PALEO-GROUNDWATER SOURCES USING OXYGEN ISOTOPES OF HEMATITE CONCRETIONS FROM THE "BOILER ROOM", MOAB AREA, UTAH**
- 86-2 26 Holloway, Mariah E.\*; Tabor, Neil J.: **FEASIBILITY OF MEASURING STRUCTURAL STABLE H ISOTOPES IN TOOTH ENAMEL BIOAPATITE VIA IN-VACUO, STEP HEATING DEHYDRATION-DEHYDROXYLATION EXPERIMENTS**
- 86-3 27 Sun, Zeyang\*; Defliese, William F.; Grossman, Ethan: **THE KINETICS OF CLUMPED ISOTOPE REORDERING OF SYNTHETIC INORGANIC CARBONATES**
- 86-4 28 Prue, Ann Marie\*; Brengman, Latisha: **PRELIMINARY CUSTOM IRON FORMATION CALIBRATION FOR A PORTABLE X-RAY FLUORESCENCE INSTRUMENT USING THE NEOARCHEAN SOUDAN IRON FORMATION, MINNESOTA, USA**
- 86-5 29 Wise, Paige\*: **RARE EARTH ELEMENTS ADSORPTION ON KAOLINITE**
- 86-6 30 Crawford, Casey\*; Soltis, Nicholas: **DETERMINING THE VALIDITY OF MICROWAVE PLASMA ATOMIC EMISSION SPECTROSCOPY IN QUANTITATIVE ANALYSIS OF ORDOVICIAN BRACHIOPODS**



**SESSION NO. 87****T124. New Advances in Geobiology (Posters) (GSA Geobiology and Geomicrobiology Division; Geochemical Society)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |       | Booth # |                                                                                                                                                                                                                                                                     |
|-------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 87-1  | 31      | Ramey-lariviere, Juliet*; Gong, Jian; Bosak, Tanja; Pruss, Sara: <b>EVIDENCE FOR BIOLOGICALLY INFLUENCED PRECIPITATION IN Ooids FROM SHARK BAY, WESTERN AUSTRALIA</b>                                                                                               |
| 87-2  | 32      | Howard, Jenna D.*; Shinkle, Michael; Gutierrez, Micayla B.; Sumrall, Jeanne Lambert: <b>MICROBIAL ISOLATION AND DNA ANALYSIS OF TURNER HALL WOODS' NATURAL HYDROCARBON SEEP ON THE ISLAND OF BARBADOS</b>                                                           |
| 87-3  | 33      | Zheng, Tianyi*; Marenco, Pedro; Marenco, Katherine N.: <b>LAMINATION-SCALE GEOCHEMISTRY OF MICROBIALITES: INVESTIGATING THE COMBINED EFFECTS OF PRIMARY MINERALOGY AND DIAGENESIS IN MICROBIALITES FROM THE UPPER CAMBRIAN AND LOWER TRIASSIC OF THE WESTERN US</b> |
| 87-4  | 34      | Clevenger, Joe*; Creveling, Jessica: <b>PETROLOGY AND PETROGRAPHY OF EDIACARAN NOONDAY DOLOSTONE TUBESTONE STROMATOLITE CLASTS WITHIN IBEX FORMATION SLOPE APRON POLYMICT CONGLOMERATE BEDS, DEATH VALLEY REGION, CALIFORNIA</b>                                    |
| 87-5  | 35      | Meyer, Fran*; Essack, Zahra; Jost, Adam B.; Strauss, Justin; Bergmann, Kristin D.: <b>CARBONATE CLUMPED ISOTOPE RECORD OF THE BITTER SPRINGS ANOMALY FROM SVALBARD</b>                                                                                              |
| 87-6  | 36      | van Wieren, Connor*; Husson, Jon M.; Dyer, Blake C.: <b>LATERAL CONTROLS ON BASIN SCALE CARBON ISOTOPIC EXCURSIONS IN EDIACARAN MARINE CARBONATES OF THE CANADIAN ROCKIES</b>                                                                                       |
| 87-7  | 37      | Wren, Olivia*; Husson, Jon M.: <b>IMPLICATIONS OF VARIABILITY IN FLUVIAL <math>\delta^{13}C_{DIC}</math> FOR ANCIENT CARBON CYCLE RECONSTRUCTIONS</b>                                                                                                               |
| 87-8  | 38      | Ruiz, Roman*; Byrne, Quinlan; Junium, Christopher; Cohen, Phoebe: <b>USING SINGLE-FOSSIL ORGANIC CARBON ISOTOPES TO ILLUSTRATE THE PALEOECOLOGY AND DEPOSITIONAL CONDITIONS OF THE MESOPROTEROZOIC VELKERRI FORMATION OF AUSTRALIA</b>                              |
| 87-9  | 39      | Janecky, David*; Glaser, P.H.; Siegel, D.I.; Chanton, J.P.; Reeve, A.S.; Rosenberry, Donald; Romanowicz, E.; Chasar, L.; Corbett, L.E.: <b>LARGE PEAT BASINS AS INCUBATORS OF METHANE AND CARBON DIOXIDE: A GEOCHEMICAL PERSPECTIVE</b>                             |
| 87-10 | 40      | Rhodes, Amy*; Francis, Hannah R.: <b>SODIUM ADSORPTION AND SELECTIVITY COEFFICIENTS FOR CA-NA EXCHANGE ON PEAT: IMPLICATIONS FOR ROAD SALT CONTAMINATION OF PEATLAND SOILS</b>                                                                                      |
| 87-11 | 41      | Arens, Nan Crystal*; Bell, Chase W.; Meyer, Madeleine G.: <b>FIBERS, FIBERS EVERYWHERE: FIRST LOOK AT MICROPLASTICS IN THE HUMAN WATER CYCLE OF SENECA LAKE, FINGER LAKES OF NEW YORK, USA</b>                                                                      |

**SESSION NO. 88****T127. Advances in Geomorphology: Understanding How Interactions among Climatic, Tectonic, Fluvial, and Hillslope Processes Drive Topographic Change (Posters) (GSA Soils and Soil Processes Division; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |      | Booth # |                                                                                                                                                                    |
|------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 88-1 | 42      | Shobe, Charles*; Turowski, Jens M.; Nativ, Ron; Glade, Rachel C.; Bennett, Georgina L.; Dini, Benedetta: <b>GREAT BIG BOULDERS AND LANDSCAPE SELF-ORGANIZATION</b> |

- |       |    |                                                                                                                                                                                                                                                                      |
|-------|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 88-2  | 43 | Monyak, Paige*; Holmes, Lauren; Fredell, Lucy; Macedo, Stephanie; Smith, Nola; Schmidt, Amanda H.; Bierman, Paul R.: <b>DETERMINING THE SPATIAL AND TEMPORAL IMPACTS ON EROSION OF HILLSLOPE LAND USE IN SOUTHWESTERN CHINA</b>                                      |
| 88-3  | 44 | Burkett, Faith*; Onderdonk, Nate: <b>GEOMORPHIC INDICATORS OF NEOTECTONIC ACTIVITY ALONG THE SANTA YNEZ FAULT, IN SANTA BARBARA COUNTY, CA</b>                                                                                                                       |
| 88-4  | 45 | Alexander, Erin*; Shock, Everett L.; Whipple, Kelin: <b>COMBINING GEOMORPHOLOGY AND GEOCHEMISTRY TO EXPLAIN HOT SPRING COMPOSITIONS IN YELLOWSTONE</b>                                                                                                               |
| 88-5  | 46 | Day, Stephanie*; Phillips, Zachary: <b>PHYSICAL EXPERIMENTS IN RIVER ICE DYNAMICS</b>                                                                                                                                                                                |
| 88-6  | 47 | Phillips, Zachary*; Day, Stephanie: <b>FIELD MONITORING OF RIVER ICE DYNAMICS AND BANK CONDITIONS FOR THE BUFFALO RIVER (MINNESOTA, USA)</b>                                                                                                                         |
| 88-7  | 48 | Mahan, Shannon*: <b>VALLES CALDERA, NEW MEXICO, USA: DATING AND DEFINING THE RATE OF FORMATION OF SOILS AND WILDFIRE ACTIVITY USING LUMINESCENCE</b>                                                                                                                 |
| 88-8  | 49 | Pound, Katherine*: <b>THE CEMENT MIXER EXPERIMENT: MODELING COBBLE TRANSPORT, ABRASION, AND FRAGMENTATION FOR PROVENANCE STUDIES</b>                                                                                                                                 |
| 88-9  | 50 | Bunds, Michael*; Scott, Chelsea P.; Whitney, Brigham; Lee, Vickie Jui-Chi: <b>NEW HIGH RESOLUTION TOPOGRAPHY ALONG 40 KM OF THE SOUTHERN SAN ANDREAS FAULT</b>                                                                                                       |
| 88-10 | 51 | Trexler, Charles C.*; Morelan, Alexander E.; DeLong, Stephen B.; Catchings, Rufus D.; Sickler, Robert R.; Chan, Joanne H.; Goldman, Mark R.: <b>TOPOGRAPHIC EXPRESSION OF ACTIVE FAULTING ALONG THE GREAT VALLEY THRUST SYSTEM NEAR WINTERS, NORTHERN CALIFORNIA</b> |
| 88-11 | 52 | Gabel, Vanessa*; Tucker, Gregory E.: <b>RIVER PROFILE EVOLUTION ACROSS A LITHOLOGIC BOUNDARY: INSIGHTS FROM MODELING BEDLOAD TRANSPORT</b>                                                                                                                           |
| 88-12 | 53 | Wegmann, Karl*; De La Calle, Ruben A.; Nixon, Matthew Z.; Scheip, Corey M.; Das, Raja: <b>WHEN A TROPICAL STORM GOES TO BATTLE WITH AN ASEISMIC RIDGE: LANDSLIDE EROSION CAUSED BY CYCLONE HAROLD, APRIL 2020, ESPIRITU SANTO, VANUATU</b>                           |
| 88-13 | 54 | Zhao, Qian*; Bidgoli, Tandis S.; Zhu, Hongtao; Liu, Qianghu: <b>DETRIAL ZIRCON PROVENANCE OF SOUTH CHINA SEA BASINS SIGNAL DRAINAGE REORGANIZATIONS ACROSS EAST ASIA TIED TO TECTONICS AND CLIMATE</b>                                                               |
| 88-14 | 55 | Bennett, Isabella B.*; Bierman, Paul R.; Halsted, Christopher T.: <b>A CENTURY OF URBAN LANDSLIDES: THE LEGACY AND CONSEQUENCES OF ALTERING OUR LANDSCAPES</b>                                                                                                       |
| 88-15 | 56 | Nguyen, Simon*; Phillips, Zachary: <b>VELOCITY AND IMPACT FORCE FOR SMALL, SIMULATED ICE BLOCKS IN AN EXPERIMENTAL RIVER</b>                                                                                                                                         |
| 88-16 | 57 | DeMott, Alyssa*; Ely, Lisa L.; Free, Bryon: <b>LONG-TERM GEOMORPHIC EFFECTS OF THE GLINES CANYON DAM REMOVAL ON THE ELWHA RIVER, WASHINGTON, USA</b>                                                                                                                 |
| 88-17 | 58 | Bender, Adrian*; Lease, Richard; Rittenour, Tammy: <b>EMERGENT THRESHOLD LANDSCAPE DYNAMICS IN THE NORTHERN ALASKA RANGE (USA)</b>                                                                                                                                   |
| 88-18 | 59 | Vohra, David*; Ouimet, William B.: <b>INVESTIGATING LOW-RELIEF TOPOGRAPHY IN TAIWAN'S CENTRAL RANGE</b>                                                                                                                                                              |

**SESSION NO. 89****D44. Recent Advances in Geoscience and Public Policy (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |      | Booth # |                                                                                                                                                                 |
|------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 89-1 | 60      | Hatherly, Sarah J.*; Spencer, Christopher: <b>HOW COVID-19 WORK-FROM-HOME INITIATIVES HAVE DISPROPORTIONATELY IMPACTED THE PRODUCTIVITY OF EARTH SCIENTISTS</b> |

AM

MONDAY

POSTERS

Monday, 11 October 2021

- 89-2 61 Avila, Teresa\*; Bell, Brandon; Mclellan, Oliver; Griffith, Elizabeth M.; Sawyer, Audrey H.: **EXPERIENCES OF THE LGBTQIA+ COMMUNITY IN THE EARTH AND PLANETARY SCIENCES**
- 89-3 62 Coulombe, Julie; Smith, Nicholas\*; Ocon, Samantha B.; Speir, Laura; Samano, Jena; Baines, Alec; Parker, Wesley G.; Libarkin, Julie C.; Bauer, Jennifer E.; Lam, Adriane: **UNDERSTANDING LGBTQ+ EXPERIENCES ACROSS THE GEOSCIENCES THROUGH A TARGETED SURVEY**

## SESSION NO. 90

**T160. How Has the COVID-19 Pandemic Transformed K9–16 Students' Ability to Engage in Multi-Faceted Research in the Geosciences Using a Virtual Platform? (Posters) (GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division; GSA Geoscience Education Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- | Booth # |                                                                                                                                                                                                                                                                                                                         |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 90-1    | 63 Khandaker, Nazrul*; Mayeesha, Anika Nawar; Correa, Violeta Escandon; Munro, Toralv; Singh, Andrew; Khargie, Matthew; Aghedo, Ality; Budhan, Jasmin; Mahabir, Krishna; Sayeed, Belal A.: <b>ADDRESSING THE LEARNING LOSS DURING THE COVID-19 PANDEMIC THROUGH THE ADAPTATION OF VIRTUAL PLATFORMS</b>                 |
| 90-2    | 64 Singh, Andrew*; Khandaker, Nazrul; Correa, Violeta Escandon; Singh, Omadevi; Skobelsky, Ariel; Tanvir, Farhan; Sukhnandan, Brian; Khargie, Matthew; Selby, Elton; Ahmed, Masud: <b>LEVERAGING THE POPULARITY OF VIRTUAL CONFERENCING DUE TO THE COVID-19 PANDEMIC TO CREATE NEW OPPORTUNITIES FOR STEM EDUCATION</b> |
| 90-3    | 65 Sharmili, Noshin*; Mayeesha, Anika Nawar; Akhter, Syed Humayun; Khandaker, Nazrul: <b>AN EXTENSIVE VIRTUAL OUTREACH APPROACH BY SPE DHAKA UNIVERSITY CHAPTER FOR GEOSCIENCE EDUCATION AMIDST THE COVID-19 PANDEMIC</b>                                                                                               |
| 90-4    | 66 Mcclinton, Brett*; Brown, Jeremiah; Hamel, James V.; Dunst, Brian; Gross, Mary Ann; Schiappa, Tamra A.: <b>GEOGRAPHIC INFORMATION SYSTEMS AS A TOOL FOR GEOLOGIC INTERPRETIVE PROGRAMMING – A VIRTUAL LANDSLIDE FIELD TRIP NEAR PITTSBURGH, PENNSYLVANIA</b>                                                         |
| 90-5    | 67 Schott, Lynn; Marton, Fred*: <b>MINING FOR “GOLD”: STUDENT-DERIVED CRITERIA FOR WEBSITE EVALUATION IN INTRO COURSES</b>                                                                                                                                                                                              |
| 90-6    | 68 Zaman, SM Anisuz*; Hassan, Muhammad Qumrul; Khandaker, Nazrul: <b>PROSPECTS OF EFFICIENT DISASTER MANAGEMENT FRAMEWORK IN BANGLADESH THROUGH GLOBAL PARTNERSHIP</b>                                                                                                                                                  |
| 90-7    | 69 Khandaker, Nazrul*; Sharmili, Noshin; Singh, Omadevi; Sahota, Gurwinder; De Leon, Sol; Khargie, Matthew; Zarine, Ali; Mahabir, Krishna; Teemal, Adacia; Selby, Mildred M.: <b>MULTI-FACETED GEOSCIENCE RESEARCH USING OPEN ACCESS RESOURCES: THE SUCCESSFUL PARTICIPATION OF K9-16 STUDENTS</b>                      |
| 90-8    | 70 Azad, Md. Abdul*; Warriar, Ram; Raza, Jowaher; Hassan, Muhammad Qumrul; Khandaker, Nazrul: <b>REAL-TIME MONITORING TO ASSESS THE IMPACT OF GROUNDWATER LEVEL CHANGE ON THE ECOSYSTEM IN BANGLADESH AQUIFERS</b>                                                                                                      |
| 90-9    | 71 Akhi, Atika Rahman*; Priyanka, Nowshin Ahsan; Raza, Jowaher; Zahid, Anwar; Hassan, Muhammad Qumrul; Khandaker, Nazrul: <b>ASSESSMENT OF THE IMPACTS OF URBANIZATION ON LAND-USE AND LAND-COVER CHANGES USING REMOTE SENSING AND PYTHON AT GAZIPUR DISTRICT, BANGLADESH</b>                                           |
| 90-10   | 72 Priyanka, Nowshin Ahsan*; Akhi, Atika Rahman; Zahid, Anwar; Hassan, Muhammad Qumrul; Raza, Jowaher; Khandaker,                                                                                                                                                                                                       |

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|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 90-11 | 73 Zahid, Anwar; Hassan, Muhammad Qumrul*; Khandaker, Nazrul: <b>DETERMINATION OF SUSTAINABLE ZONES FOR GROUNDWATER ABSTRACTION FROM THE MULTI-LAYERED AQUIFER SYSTEM IN THE BENGAL BASIN, BANGLADESH</b>                               |
| 90-12 | 74 Dhar, Adrita*; Rahman, Sarnale; Nath, Bibhash; Dhar, Ratan: <b>OCCURRENCE OF FIBS (FECAL INDICATOR BACTERIA) IN THE FLUSHING BAY, NEW YORK CITY</b>                                                                                  |
| 90-13 | 75 Hassan, Muhammad Qumrul*; Zahid, Anwar; Khandaker, Nazrul: <b>THE IMPORTANCE OF MONITORING TO ASSESS THE IMPACT OF CLIMATE CHANGE ON GROUNDWATER RESOURCES IN BANGLADESH</b>                                                         |
| 90-14 | 76 Raza, Jowaher; Hassan, Muhammad Qumrul; Zahid, Anwar*; Khandaker, Nazrul: <b>UTILIZING REMOTE SENSING AND GIS TECHNIQUE TO ASSESS THE SPATIOTEMPORAL DYNAMICS OF LAND COVER AND LAND USE CHANGES OF GAZIPUR DISTRICT, BANGLADESH</b> |
| 90-15 | 77 Husain, Meer*; Ahmed, Irfan; Adel, Miah M.; Kamal, Sharifa; Hassan, Muhammad Qumrul; Uddin, Jasim; Zahid, Anwar; Rajib, Mohamamad; Khandaker, Nazrul: <b>MUKTI WATER TECHNOLOGY FOR COMBATING THE GROUNDWATER ARSENIC CRISIS</b>     |

## SESSION NO. 91

**T71. Advances and New Voices in Marine and Coastal Geoscience (Posters) (GSA Marine and Coastal Geoscience Division; GSA Geology and Society Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- | Booth # |                                                                                                                                                                                                                                                           |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 91-1    | 78 Paterson, Shona*; Cox, Ronadh; Byrne, Cormac; Whyte, Hester; O Snodaigh, Rónán: <b>COMMUNICATING COASTAL AND MARINE GEOSCIENCE THROUGH WAVE-BASED ART AND MUSIC: AN INTERDISCIPLINARY APPROACH TO CONVEY AND AUGMENT KNOWLEDGE</b>                     |
| 91-2    | 79 Mason, Aria J.*; Cox, Ronadh: <b>USING THE “PEBBLECOUNTS” DIGITAL CLAST-COUNTING METHODOLOGY FOR ANALYSIS OF BOULDER BEACHES</b>                                                                                                                       |
| 91-3    | 80 Lapham, Laura*; Beech, Miles C.; Fernandes, Anjali; Mahon, Robert; Swanson, Travis: <b>ANALYZING ORGANIC CARBON AND PARTICLE SIZE IN SEDIMENT DEPOSITED BY THE MISSISSIPPI RIVER FLOOD OF 2019</b>                                                     |
| 91-4    | 81 Mattheus, Christopher*; Barklage, Mitchell; Braun, Katherine: <b>ANATOMY OF A MIGRATORY, LATE HOLOCENE STRAND COMPLEX: A GPR-BASED ARCHITECTURAL STUDY OF THE ZION BEACH-RIDGE PLAIN, SW LAKE MICHIGAN</b>                                             |
| 91-5    | 82 Giles, Katelyn*; Jackson, William; McKay, Matthew; Larsen, Daniel; Wang, Xiangli; Kwon, Youngsang; Shaulis, Barry: <b>INVESTIGATING LITTORAL SEDIMENT TRANSPORT AND MIXING IN THE NORTHERN GULF OF MEXICO USING DETRITAL ZIRCON U-PB GEOCHRONOLOGY</b> |
| 91-6    | 83 Callahan, Libby*; Truempi, Sophia; Todd, Sheridan; Sweeney, Kristin E.; Prestholdt, Tara: <b>LINKING BIODIVERSITY AND MEASURES OF TOPOGRAPHIC VARIABILITY, OREGON COAST, USA</b>                                                                       |
| 91-7    | 84 Armstrong, Michael; Gill, Allison; Constantine, Jose*; Nelson, Nick: <b>BIOPHYSICAL CONTROLS ON TIDAL CHANNEL DYNAMICS AT PLUM ISLAND ESTUARY, MASSACHUSETTS</b>                                                                                       |
| 91-8    | 85 Guzman, Desiree*; Balbas, Andrea; Konrad, Kevin: <b>GEOMORPHOLOGY AND GEOCHRONOLOGY OF TWO SEAMOUNTS IN THE WENTWORTH CHAIN, MID-PACIFIC</b>                                                                                                           |
| 91-9    | 86 Sotomayor, Arturo*; Balbas, Andrea; Konrad, Kevin; Koppers, Anthony A.P.; Konter, Jasper; Wanless, V. Dorsey; Hourigan, Thomas; Kelley, Christopher; Raineault, Nicole: <b>VOLCANIC GEOMORPHOLOGY AND ORIGIN OF THE NAIFEH AND</b>                     |

**UNKNOWN SEAMOUNT CLUSTER, NORTH WEST HAWAIIAN RIDGE**

- 91-10 87 Rostami, Masoud A.\*; Frontalini, Fabrizio; Giordano, Patrizia; Francescangeli, Fabio; Virginia Alves Martins, Maria; Dyer, Lee; Spagnoli, Federico: **QUANTIFYING THE DISTRIBUTION PATTERN OF BENTHIC FORAMINIFERA IN RESPONSE TO MULTIPLE ENVIRONMENTAL PARAMETERS: EMERGING OPPORTUNITY USING THE RANDOM FOREST MODELING**
- 91-11 88 Justis, Ellen\*; Hagedorn, Klaus: **GEOCHEMICAL EVOLUTION OF GROUNDWATER ALKALINITY ON MOOREA AND TETIAROA (FRENCH POLYNESIA) USING  $\Delta^{13}\text{C}$  AND MAJOR IONS**
- 91-12 89 Greer, Lisa\*; Wirth, Karl; Johnson, Ginny; Jontz, Jordan; Nguyen, Alicia; Petsinger, Lillian; Curran, H. Allen: **A REEF THAT WORKS: ASSESSING THE HEALTH OF *ACROPORA CERVICORNIS* AT CORAL GARDENS, BELIZE**
- 91-13 90 Tajwar, Mahir\*; Uddin, Ashraf: **HEAVY MINERAL DISTRIBUTION IN ARSENIC-CONTAMINATED COASTAL SEDIMENTS IN THE SOUTHEASTERN PART OF BANGLADESH**

**SESSION NO. 92**

**T73. Coastal Storm Impacts in Times of Changing Climate and Sea Levels: Geological Records, Historic Perspectives, and Forecasting (Posters) (GSA Marine and Coastal Geoscience Division; GSA Quaternary Geology and Geomorphology Division; Eastern Section of the Society for Sedimentary Geology (ES-SEPM); GSA Geology and Society Division; GSA Sedimentary Geology Division; GSA Environmental and Engineering Geology Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

## Booth #

- 92-1 91 Gleasman, Gavin\*; Lazar, Kelly Best: **DESIGN AND METHODOLOGY FOR INVESTIGATING CARBON (CO<sub>2</sub>) FLUX DURING HIGH ENERGY STORM EVENTS IN TIDAL WETLANDS: A PRESENT AND HISTORICAL APPROACH**
- 92-2 92 Linder, Charles\*; Harris, M. Scott: **USING INSAR DATA TO MEASURE VERTICAL DISPLACEMENT IN COASTAL SOUTH CAROLINA**
- 92-3 93 Lange, Kennedy; Huang, Austin; Foisy, Sylvain; Parfait, Devon; Constantine, Jose\*: **IMPACTS OF SALINITY ENCROACHMENT ON COASTAL MARSHES IN SOUTHERN LOUISIANA**
- 92-4 94 Standing, Patricia\*; Lowery, Christopher; Burstein, Jacob; Swartz, John M.; Goff, John A.; Gulick, Sean P.S.: **FORAMINIFERAL ANALYSIS OF HOLOCENE SEA LEVEL RISE WITHIN TRINITY RIVER INCISED PALEO-VALLEY, OFFSHORE GALVESTON BAY, TEXAS**
- 92-5 95 Points, Elisabeth\*; Cornell, Sean R.: **PALYNOLOGICAL INVESTIGATION OF A PALEOSOL ON THE EASTERN SHORE**
- 92-6 96 Barklage, Mitchell\*; Mattheus, Christopher; Phillips, Andrew: **GEOMAGNETISM OF THE SUBSURFACE ALONG THE NORTHERNMOST ILLINOIS COAST OF LAKE MICHIGAN**
- 92-7 97 Mies, Jonathan\*; White, Jessica: **THE ARCUATE GEOMETRY OF ONSLOW BAY, NORTH CAROLINA, ITS INFLUENCE ON HURRICANE-INDUCED MICROSEISMS, AND POTENTIAL RELATIONS TO COASTAL PROCESSES**
- 92-8 98 Pflugger, Helena\*; Davis, Elizabeth; Crider, Juliet: **THE ANTHROPOGENIC BATHYMETRY OF NEARSHORE SEATTLE AS SEEN IN A HISTORIC MAP: HOW MUCH SEDIMENT DID EARLY CITY ENGINEERS SLUICE INTO ELLIOTT BAY?**
- 92-9 99 Szymanska, Natalia\*; Pawlowska, Joanna; Lacka, Magdalena; Koziorowska-Makuch, Katarzyna; Kulinski, Karol; Zajaczkowski, Marek: **FORAMINIFERAL CONTRIBUTION TO SEDIMENTARY CARBON POOL IN HIGH-LATITUDE FJORDS**

**SESSION NO. 93****D20. Recent Advances in Paleontology III (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

## Booth #

- 93-1 100 Puhalski, Emma\*; Gillikin, David; Cronin, Kelly; Verheyden, Anouk; Walker, Sally: **PAST SEA ICE STATE IN MCMURDO SOUND, ANTARCTICA FROM CARBON ISOTOPES AND GROWTH STRIATIONS IN THE ANTARCTIC SCALLOP *ADAMUSSIUM COLBECKI***
- 93-2 101 Gygi, Danielle\*; Milligan, Joseph; Peppe, Daniel: **EARLY PALEOCENE PLANT COMMUNITY AND PALEOCLIMATE RECONSTRUCTION OF THE NACIMIENTO FORMATION FROM THE SAN JUAN BASIN, NEW MEXICO**
- 93-3 102 Norville, Caleb\*; McLaughlin, Peter: **PALYNOSTRATIGRAPHY OF THE LATE CRETACEOUS MARGOTHY FORMATION OF DELAWARE AND MARYLAND**
- 93-4 103 Stoller, Jeri\*; Harnik, Paul G.: **GEOGRAPHIC VARIATION IN SHELL PRESERVATION ACROSS THE NORTHERN GULF OF MEXICO**
- 93-5 104 Sumrall, Colin\*; Smith, Nicholas; Thuy, Ben; Knox, Larry: **NEW DISTRIBUTION OF BRITTLE STARS THROUGH THE CARBONIFEROUS BASED ON ISOLATED ARM PLATES**
- 93-6 105 Calderaro, Luke\*; Davies, Nicole L.; Harnik, Paul G.: **NUCULANA BODY SIZE CORRELATES WITH SPATIOTEMPORAL CHANGES IN PRIMARY PRODUCTIVITY IN THE NORTHERN GULF OF MEXICO**
- 93-7 106 Meyer, Celia\*; Harnik, Paul G.: **SPATIOTEMPORAL VARIATION IN *NUCULA* LIFE HISTORY IN THE NORTHERN GULF OF MEXICO**
- 93-8 107 Nederveld, Drew\*; Goodwin, David; Gillikin, David; Wanamaker, Alan D.; Verheyden, Anouk: **DO DIFFERENT BIVALVE MOLLUSK SPECIES RECORD THEIR SHARED ENVIRONMENT IN THE SAME WAY?**
- 93-9 108 Abbati, Emily; Gerstler, Kaitlyn; Rose, Griffin; Gahlod, Shekhar; Morgan, Justin; Rios, Pablo; Street, Christian; Michelson, Andrew V.; Wittmer, Jacalyn M.\*: **AN INVESTIGATION OF FINGER LAKE SEDIMENTOLOGY AND MICRO-ALGAL COMMUNITIES IN WESTERN NEW YORK**
- 93-10 109 Vincett, William\*; McLaughlin, Peter; Martin, Ronald E.: **BIOSTRATIGRAPHY AND PALEOECOLOGY OF THE VINCENTOWN, MANASQUAN, AND SHARK RIVER FORMATIONS OF NORTHERN KENT COUNTY, DELAWARE**
- 93-11 110 Michelson, Andrew V.; Abbati, Emily; Gahlod, Shekhar; Gerstler, Kaitlyn; Morgan, Justin; Rios, Pablo; Rose, Griffin; Street, Christian\*; Wittmer, Jacalyn M.: **SUBFOSSIL OSTRACODES REVEAL ONGOING REMEDIATION EFFORTS IN CONESUS LAKE RECREATING PRE-EUROPEAN ECOSYSTEM STATE**
- 93-12 111 Marquez, Jose Andres\*; Duncan, Murray Ian; Stockey, Richard; Boag, Thomas; Sperling, Erik A.: **COMPARING THE HYPOXIA TOLERANCE AND TEMPERATURE SENSITIVITIES OF PALEOZOIC AND MODERN MARINE FAUNA**
- 93-13 112 Withdrawn
- 93-14 113 Monferran, Mateo\*; Hegna, Thomas: **AN END-TRIASSIC SURVIVOR?: A POSSIBLE EUTHYCARCINOID ARTHROPOD FROM THE JURASSIC OF ARGENTINA**
- 93-15 114 Britt, Rebecca\*; Marenco, Pedro: **NOVEL FINDINGS FROM STABLE CARBON ISOTOPE AND ELEMENTAL ANALYSIS OF THE LOWER ORDOVICIAN TRIBES HILL FORMATION OF EAST-CENTRAL NEW YORK STATE**
- 93-16 115 LeClair, Parker J.; Thomka, James\*: **MAGNETIC SUSCEPTIBILITY OF INTER-MOUND SHALLOW-WATER CARBONATES IN THE UPPER ORDOVICIAN CROWN POINT FORMATION (CHAZY GROUP) OF NORTHEASTERN NEW YORK**

AM

MONDAY

POSTERS



**SESSION NO. 94**

**T90. Biotic Interactions through Time (Posters) (Paleontological Society; German Research Foundation (DFG); GSA Marine and Coastal Geoscience Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

	Booth #	
94-1	116	Groff, Stephen*; Perez, Victor; Nance, John R.; Schweitzer, Carrie; Feldmann, Rodney M.: <b>A NEW PINNOTHEROID PEA CRAB (DECAPODA, BRACHYURA, PINNOTHEROIDEA) FROM THE MIOCENE ST. MARYS FORMATION EXHIBITING PREFERENTIAL SYMBIOSIS WITH THE SURF CLAM MACTRODESMA SUBPONDEROSA</b>
94-2	117	Wright, Nathan*; Petsios, Elizabeth: <b>ASSESSING CRUSTACEAN PARASITE PRESERVATION POTENTIAL; COMPARING MODERN AND FOSSIL EVIDENCE</b>
94-3	118	Thomka, James*; Vinn, Olev; Toom, Ursula: <b>SITE-SELECTIVE PARASITIC EMBEDMENT STRUCTURES ON MIDDLE SILURIAN CRINOID COLUMN MATERIAL FROM WESTERN ESTONIA</b>
94-4	119	Ryan, Delaney*; Scarponi, Daniele; Huntley, John: <b>ANOTHER ONE BITES THE HOST: ASSESSING THE INFLUENCE OF ABIOTIC FACTORS ON SURGING PARASITE PREVALENCE DURING SEA LEVEL RISE, PO PLAIN AND NORTHERN ADRIATIC COAST, ITALY</b>
94-5	120	Ferre, Jordan*; Singh, Pulkit; Payne, Jonathan L.: <b>POST-PALEOZOIC INCREASE IN THE ABUNDANCE OF SKELETAL BENTHIC MARINE ORGANISMS</b>
94-6	121	Jacobs, Megan*; Petsios, Elizabeth: <b>MORPHOLOGY OF REGULAR ECHINOID SPINES USED TO INFER ENVIRONMENTAL PRESSURE AND ADAPTIVE CONVERGENT EVOLUTION</b>
94-7	122	Tome, Catalina*; Winter, Peyton; Lockwood, Rowan; Keller, Jonathan; Newsome, Seth D.; Lyons, S. Kathleen; Smith, Felisa A.: <b>MORPHOLOGICAL AND DIETARY RESPONSES IN THE GRANIVOROUS HISPID POCKET MOUSE (CHAETODIPUS HISPIDUS) TO CLIMATE CHANGE AND BIODIVERSITY LOSS OVER THE LATE QUATERNARY</b>
94-8	123	Bakker, Robert*: <b>STEGOSAUR MARTIAL ARTS: MASSIVE ENLARGEMENT OF HUMERUS PROTRACTORS ("BACKING UP" MUSCLES) SHOULD HAVE AUGMENTED FIGHTING WITH TAIL SPIKES</b>
94-9	124	Muruganatham, Kaaviya*; King Phillips, Ezekiel; Yanes, Yurena: <b>ASSESSING NICHE PARTITIONING AMONG INTRODUCED AND NATIVE SLUGS USING STABLE ISOTOPE ECOLOGY</b>
94-10	125	Balmaki, Behnaz*; Christensen, Tara; Dyer, Lee: <b>QUANTIFYING GREAT BASIN BUTTERFLY-POLLEN NETWORKS OVER A 100 -YEAR TIME SERIES</b>
94-11	126	Leuba, Zoe M.*; Casey, Michelle M.; Dietl, Gregory P.: <b>FOOD WEB COMPRESSION DUE TO HABITAT REDUCTION: TOWARDS AN UNDERSTANDING OF THE ECOLOGICAL EFFECTS OF SUBTROPICAL MASS EXTINCTIONS THROUGH TROPIC ANALYSIS OF A MODERN MOLLUSCAN FOOD WEB</b>
94-12	127	Hebdon, Nicholas*; Ritterbush, Kathleen; Choi, YunJi: <b>IT'S COMPLICATED: HOW QUANTITATIVE METHODS REVEAL THE COMPLEX DYNAMISM OF FUNCTIONAL LANDSCAPES AND WHY THAT'S A GOOD THING</b>

**SESSION NO. 95**

**T23. The How, When, Where, and Why of Open-System Magma Processes (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; GSA Geochronology Division; Geochemical Society)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

**Booth #**

95-1	128	Antoshechkina, Paula M.*; Riches, Amy J.V.; Asimow, Paul D.: <b>MODELING PICRITE-RHYOLITE MAGMATISM AT SPITZKOPPE, WESTERN NAMIBIA, USING ALPHAMELTS 2 AND THE MAGMA CHAMBER SIMULATOR</b>
95-2	129	Bohrson, Wendy*; Spera, Frank J.; Adams, Jenna; Brown, Guy; Antoshechkina, Paula; Wolf, Aaron S.; Strasser, Valerie; Distefano, Monike; Heinonen, Jussi: <b>A NEW APPROACH TO QUANTIFYING OPEN-SYSTEM TRANSCRUSTAL MAGMA STORAGE AND TRANSPORT SYSTEMS: MONTE CARLO MAGMA CHAMBER SIMULATOR</b>
95-3	130	Shamloo, Hannah*; Kent, Adam; Watkins, James M.; Befus, Kenneth S.: <b>AN EXPERIMENTAL REEXAMINATION ON BA ZONING IN SANIDINE: WHAT MAGMATIC PROCESSES IS IT ACTUALLY RECORDING?</b>
95-4	131	Hewitt, John*; Ustunisik, Gokce; Nielsen, Roger: <b>TEXTURAL AND COMPOSITIONAL FEATURES OF PLAGIOCLASE AND MAFIC PHASES OF PLAGIOCLASE ULTRAPHYRIC BASALTS (PUB) FROM THE NE PACIFIC RIDGE SYSTEM</b>
95-5	132	Couperthwaite, Fiona*; Kent, Adam; Ruth, Dawn; Wallace, Paul: <b>REVEALING THE CONTRASTING HISTORIES OF MAFIC MAGMAS IN THE CENTRAL OREGON CASCADES USING DIFFUSION CHRONOMETRY AND MINERAL CHEMISTRY</b>
95-6	133	Brackman, Adam*; Schwartz, Joshua: <b>EVALUATING DISCREPANCIES BETWEEN BULK-ROCK AND SINGLE-MINERAL GEOCHEMICAL DATA IN THE MAGMATIC EVOLUTION OF CORDILLERAN ARC ROCKS</b>
95-7	134	Hernández Uribe, David*; Holder, Robert: <b>SLAB VS CRUSTAL MELTING: IMPLICATIONS FOR THE SR/Y SIGNATURE IN ARC MAGMAS</b>
95-8	135	Beno, Carl*; Stearns, Michael A.; Bowman, John R.; Bartley, John M.; Fernandez, Diego P.; Kylander-Clark, Andrew R.C.: <b>ZIRCON AND MONAZITE PETROCHRONOLOGY RECORD MULTI-MILLION-YEAR TIMESCALE OF MAGMA EMPLACEMENT AND HYDROTHERMAL ACTIVITY IN THE INNER ALTA, UTAH CONTACT AUREOLE</b>
95-9	136	West, David*; Mahar, Munazzam Ali; Goodell, Philip; Mahéo, Gweltaz: <b>ZIRCON U-PB GEOCHRONOLOGY AND HF ISOTOPIC COMPOSITIONS OF AMA DRIME MIGMATITIC GNEISSES: IMPLICATIONS FOR THE ASSEMBLY OF THE PALEOPROTEROZOIC SUPERCONTINENT COLUMBIA</b>

**SESSION NO. 96**

**T2. Cenozoic Tectonism, Magmatism, Sedimentation, and Landscape Evolution in the Intermountain West (Posters) (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Geochronology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

	Booth #	
96-1	137	Trzinski, Adam*; Scoggin, Shane; Chapman, James: <b>SYNOROGENIC DEPOSITION AND EVIDENCE FOR MULTIPLE PHASES OF CONTRACTIONAL DEFORMATION DURING THE LARAMIDE OROGENY IN THE NORTHERN CHIRICAHUA MOUNTAINS, ARIZONA</b>
96-2	138	Schwartz, Theresa*; Dechesne, Marieke; Zellman, Kristine: <b>MODIFICATION OF LATE CRETACEOUS-PALEOCENE RIVERS IN RESPONSE TO LARAMIDE INTRAFORLAND DEFORMATION: AN EXAMPLE FROM THE RATON BASIN, COLORADO-NEW MEXICO, USA</b>
96-3	139	Hobbs, Kevin*; Thacker, Jacob: <b>SYN-SEISMIC DEPOSITION OR SYNDEPOSITIONAL SEISMICITY: PALEOSEISMITES RECORD 10 M.Y. OF EARLY PALEOGENE LARAMIDE SEISMICITY IN SAN JUAN BASIN, NORTH-CENTRAL NEW MEXICO</b>
96-4	140	Zamanielavijeh, Nina*; Heij, Gerhard W.; Ferre, Eric; Murphy, Michael; Bagley, Brian: <b>FRICTION-DRIVEN THERMAL</b>



**DECOMPOSITION AND SYNKINEMATIC FABRICS OF CARBONATES IN THE HEART MOUNTAIN SLIDE, WYOMING**

- 96-5 141 Ferre, Eric\*; Zamanialavijeh, Nina; Heij, Gerhard W.; Biedermann, Andrea; Biek, Robert F.: **HIGH-VELOCITY FRICTION AND SYNKINEMATIC FLOW AT THE BASE OF GIANT GRAVITY SLIDES: CARBONATES VS SILICATES**
- 96-6 142 Filkorn, Harry\*: **THE YOUNGEST KNOWN VOLCANIC ROCKS OF THE MARKAGUNT MEGABRECCIA (LATEST OLIGOCENE OR EARLIEST MIOCENE), HIGH PLATEAUS, SOUTHWESTERN UTAH: THE MISSING LINK TO THE BIRTH AND TRUE AGE OF THE MYSTICAL CREATURE**
- 96-7 143 Anderson, Caden D.; Horvat, Devin J; Dacuag, Rhett M.; Hadden, Karlie; Johnson, Verner\*; Baker, Gregory S.; Livaccari, Richard; Eckberg, Eric: **PRELIMINARY STRUCTURAL AND GEOPHYSICAL INVESTIGATION OF POSSIBLE CENOZOIC INTRUSIVE EVENTS ALONG THE NE UNCOMPAHGRE PLATEAU IN WESTERN COLORADO**
- 96-8 144 Maitoza, Cooper\*; Carey, Chris; Guzzle, Gregory; Kaiser, Jason F.: **A PETROLOGIC ANALYSIS OF THE HENRY MOUNTAINS LACCOLITH**
- 96-9 145 Withdrawn
- 96-10 146 Gilmer, Amy\*; Thompson, Ren; Turner, Kenzie J.; Morgan, Leah E.: **EARLY RIFT-RELATED VOLCANISM ALONG THE MARGIN OF THE NORTHERN RIO GRANDE RIFT IN SOUTHERN COLORADO, USA**
- 96-11 147 Rader, M.; Kempton, Pamela\*; Möller, Andreas: **IN SITU U-PB ZIRCON GEOCHRONOLOGY AND HF ISOTOPE ANALYSIS OF XENOLITHS FROM THE GERONIMO VOLCANIC FIELD, SE ARIZONA: IMPLICATIONS FOR LOWER CRUSTAL EVOLUTION SINCE 2.4 GA**
- 96-12 148 Thompson, Ren A.\*; Gilmer, Amy K.; Souders, A. Kate; Miggins, Daniel P.; Fleck, Robert J.: **NEOGENE AND QUATERNARY MAGMATISM OF THE CENTRAL DEATH VALLEY RHOMBOCHASM, USA**
- 96-13 149 Lund Snee, Jens-Erik\*; Schwartz, Theresa; Workman, Jeremiah B.; Colgan, Joseph P.; Thompson, Ren; Page, William R.: **PRELIMINARY 1:48,000-SCALE GEOLOGIC MAP OF THE SPOTTED RANGE AND ADJACENT AREAS, SOUTH-CENTRAL NEVADA, USA**
- 96-14 150 Zuza, Andrew\*; Dee, Seth; Levy, Drew; DesOrmeau, Joel: **DECIPHERING THE POLYPHASE HISTORY OF THE RUBY MOUNTAINS-EAST HUMBOLDT RANGE METAMORPHIC CORE COMPLEX: A DYNAMIC COMPETITION BETWEEN PLATE-BOUNDARY FORCES, GRAVITATIONAL POTENTIAL ENERGY, AND THERMAL INSTABILITIES**
- 96-15 151 Scoggin, Shane\*; Chapman, James; Jepson, Gilby; Schaen, Allen; Reiners, P.W.; Trzinski, Adam: **EXHUMATION OF THE PINALEÑO-JACKSON MOUNTAIN METAMORPHIC CORE COMPLEX, SOUTHEASTERN ARIZONA: CONSTRAINTS FROM MULTI-SYSTEM THERMOCHRONOLOGIC ANALYSIS**
- 96-16 152 Gregorich, Holly G.\*; Smith, M. Elliot; Carroll, Alan; Parrish, Ethan: **HIGH SPATIAL-RESOLUTION PROVENANCE DISCRIMINATION OF SILICICLASTIC MARKER BEDS OF THE WILKINS PEAK MEMBER OF THE EOCENE GREEN RIVER FORMATION, WYOMING**
- 96-17 153 Parrish, Ethan C.\*; Carroll, Alan; Smith, M. Elliot: **A TALE OF TWO RIVERS: FLUVIAL RECORDS OF COMPETING MOISTURE SOURCES IN A BROKEN EOCENE FORELAND**
- 96-18 154 Usachenko, Natalya\*; Cassel, Elizabeth: **UTILIZING STABLE CARBONATE ISOTOPE DATA TO RECONSTRUCT TERRESTRIAL BASIN ENVIRONMENTS DURING THE EOCENE-OLIGOCENE TRANSITION IN THE NORTHERN ROCKY MOUNTAINS**
- 96-19 155 Lamb, Melissa\*; Hickson, Thomas; Umhoefer, Paul; Anderson, Zachary; Puszta, Zsuzsanna; Dunbar, Nelia; McIntosh, William: **INTRACONTINENTAL RIFT BASIN STRATIGRAPHY RECORDS MIDDLE MIOCENE EXTENSION, FAULTING EVOLUTION AND CLIMATIC INFLUENCES ON DEPOSITION, UPPER HORSE**

**SPRING FORMATION AND RED SANDSTONE UNIT, LAKE MEAD REGION, NEVADA**

- 96-20 156 Di Fiori, Russell\*; Schmidt, Keegan; Lewis, Reed S.: **MIOCENE EXTENSIONAL BASINS IN THE ELK CITY REGION: BASIN AND RANGE FAULTING IN NORTH-CENTRAL IDAHO**
- 96-21 157 Memmott, Charles F.\*; Bunds, Michael P.: **INSIGHTS INTO SEGMENTATION AND SURFACE RUPTURE HISTORY OF THE OQUIRRH – GREAT SALT LAKE FAULT SYSTEM, UTAH, USA, FROM FAULT SCARP HEIGHTS AND LAKE BONNEVILLE SHORELINE ELEVATIONS**
- 96-22 158 Abdelhaleem, Shaimaa\*; Taylor, Wanda J.: **NORMAL AND STRIKE-SLIP FAULT INTERACTIONS: THREE FAULT TIPS ALONG THE QUATERNARY KANE SPRINGS WASH TRANSFER FAULT ZONE, SOUTHERN NEVADA**
- 96-23 159 Andrew, Joseph\*; Walker, J. Douglas: **DYNAMICS OF FAULT SLIP AT THE INTERFACE OF THE GARLOCK FAULT WITH THE WALKER LANE BELT, SPANGLER HILLS, CALIFORNIA**
- 96-24 160 Potter, Michael\*; Polun, Sean; Gomez, Francisco: **DEFORMATION OF THE SOUTH GRANITE MOUNTAINS FAULT SYSTEM: HOW CENOZOIC TECTONISM INFLUENCES MODERN FAULTING**

**AFTERNOON ORAL TECHNICAL SESSIONS**

**SESSION NO. 97**

**D17. Paleontological Finds and Evolutionary Patterns**

1:30 PM, Oregon Convention Center, E145

Mark Nikolic and Javier Ortega-Hernandez, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 97-1 1:35 PM Ortega-Hernandez, Javier\*; Parry, Luke; Lerosey-Aubril, Rudy; Weaver, James C.: **NEW CAMBRIAN FOSSILS FROM UTAH ILLUMINATE THE EARLY EVOLUTION OF NERVOUS AND SENSORY SYSTEMS IN CTENOPHORES**
- 97-2 1:50 PM Hauf, Emily\*; McAdams, Neo; Bancroft, Alyssa M.: **GEOMETRIC MORPHOMETRIC ANALYSIS OF HOMERIAN WURMIELLA EXCAVATA S.L. FROM THE US MIDCONTINENT WITH COMPARISON TO TOPOTYPE W. EXCAVATA AND A POTENTIAL NEW SPECIES**
- 97-3 2:05 PM Nikolic, Mark\*; Hopkins, Melanie; Evans, Alistair R.: **A DEVELOPMENTAL MODEL OF SEGMENT SIZE PATTERNING SHARED AMONG TRILOBITES AND VERTEBRATES**
- 97-4 2:20 PM Koran, Cheyanne\*; Schaefer, Scott N.: **SEM PHOTOGRAPHIC SURVEY OF LATE DEVONIAN (FRANSIAN) LIME CREEK FORMATION MICROFOSSILS FROM FOSSIL PRAIRIE PARK**
- 97-5 2:35 PM Elrick, Scott\*; DiMichele, William; Falcon-Lang, Howard; Nelson, W. John: **INTRODUCTION TO THE MT. RORAH COAL BED AND MT. RORAH COAL BALLS AT THE CREEK PAUM MINE IN SOUTHWESTERN ILLINOIS, GEOLOGIC CONTEXT AND PALEOBOTANICAL UNIQUENESS**
- 97-6 2:50 PM Hunt, Gene\*; Love, Alan C.; Grabowski, Mark; Houle, David; Liow, Lee Hsiang; Porto, Arthur; Tsuboi, Masahito; Voje, Kjetil L.: **EVOLVABILITY IN THE FOSSIL RECORD**
- 97-7 3:05 PM Leventhal, Sarah E.\*: **THE EVOLVABILITY OF HEREDITY AND THE ORIGIN OF BRYOZOAN POLYMORPHISM**
- 3:20 PM **BREAK**
- 97-8 3:30 PM Persons, Walter\*; Street, Hallie; Kelley, Amanda: **A NEW LONG-SNOUTED AND LONG-NECKED POLYCOTYLID PLESIOSAUR FROM THE PIERRE SHALE OF WYOMING**
- 97-9 3:45 PM Getty, Patrick\*; Martin, Anthony J.; Hyatt, James A.: **TURNING BACK FROM A DINOSAUR TRACK: A**

AM

MONDAY

POSTERS

- MAMMALIFORM TRACKWAY FROM THE EARLY JURASSIC PORTLAND FORMATION, CONNECTICUT, USA**
- 97-10** 4:00 PM Ashurst-mcgee, Logan\*; Cowgill, Ethan; Storrs, Glenn; Johnson, Christopher L.; Affolter, Matthew D.; Law, Lane; Hawkins, Quinlan; Tamez-Galvan, Evan; Kosowatz, Luke: **A PRELIMINARY REPORT ON NEW VERTEBRATE FOSSILS FROM THE LATE CRETACEOUS ALMOND FORMATION, WYOMING**
- 97-11** 4:15 PM DeVore, Melanie\*; Pigg, Kathleen; Wheeler, Elisabeth: **LEAF MORPHOLOGICAL FEATURES OF TREES WITH RING POROUS WOOD ARE PREDICTIVE OF DECIDUOUSNESS IN THE FOSSIL RECORD**
- 97-12** 4:30 PM Miller, Wade\*; Perez-Roldan, Gilberto; Mead, James I.; Gómez-Núñez, Rosario; Madrazo-Fanti, Jorge; Ortiz- Pérez, Isai: **POST-PLEISTOCENE, PRE-COLUMBIAN HORSES FROM A SITE IN SAN LUIS POTOSI, MEXICO**

**SESSION NO. 98**

**D3. Recent Advances in Geoarchaeology**

1:30 PM, Oregon Convention Center, B111

Laura R. Murphy and Leila Joyce Seals, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 98-1** 1:35 PM Huang, Nicole\*; Blackwell, Bonnie; Agha, Maheen A.P.; Dragosavac, Sofija; Mihailović, Dušan; Roksandic, Mirjana; Singh, Impreet K.C.; Huang, Clara L.C.; Yang, Diana J.Y.: **PLEISTOCENE FAUNAL GEOCHEMICAL AND SEDIMENTARY DOSIMETRIC ANALYSES AT POPŠIČKA PEČINA 2, SERBIA: FACTORS THAT AFFECT ACCURACY FOR ESR DATING IN A NEW PALEOLITHIC SITE**
- 98-2** 1:50 PM Pike, Scott\*: **FINDING APOLLO'S MARBLES: REDISCOVERY OF A WHITE MARBLE SOURCE IN SOUTHERN NAXOS, GREECE**
- 98-3** 2:05 PM Waling, Annelise\*; Lazar, Kelly; Smith, N. Adam: **DETERMINING THE PROVENANCE OF HAGOOD MILL (SC) MILLSTONES USING X-RAY FLUORESCENCE AND LIGHT-DENSITY SPECTROSCOPY**
- 2:20 PM **BREAK**
- 98-4** 2:30 PM White, Loren\*: **GEOARCHAEOLOGICAL INSIGHTS FROM A LATE PLEISTOCENE - EARLY HOLOCENE SITE ON ISLA CEDROS, BAJA CALIFORNIA**
- 98-5** 2:45 PM Goman, Michelle\*; Zimmer, Paul; Russell, Matthew: **BURIED BY WATER AND SAND: GLIMPSES INTO THE HOLOCENE LANDSCAPE AND PALEOECOLOGY OF PREHISTORIC SAN FRANCISCO**
- 98-6** 3:00 PM Davis, Loren\*; Maloney, Jillian M.; Klotsko, Shannon A.; Nyers, Alexander; Braje, Todd J.; Ball, David: **GEOARCHAEOLOGICAL IMPLICATIONS OF SUBMERGED LATE PLEISTOCENE-AGED LANDFORMS DISCOVERED ALONG OREGON'S COAST**
- 98-7** 3:15 PM Nikitina, Daria\*; Wholey, Heather; Powers, Michael; Dowling, Katherine: **GEOARCHAEOLOGY OF DYNAMIC LANDSCAPES: SITE DISCOVERIES, INVESTIGATIONS AND FUTURE PROJECTIONS FOR COASTAL DELAWARE, USA**
- 98-8** 3:30 PM Wholey, Heather\*; Nikitina, Daria; Burgoyne, Rachael: **GEOARCHAEOLOGICAL APPROACHES TO CULTURAL RESOURCES MANAGEMENT IN THE MURDERKILL WATERSHED: DELAWARE BAY, MID-ATLANTIC USA**
- 98-9** 3:45 PM Luchsinger, Heidi\*: **IMPEDED FLOOD DRAINAGE DUE TO RESTRICTED OUTLETS OF RIVER VALLEYS ALONG COASTAL PUERTO RICO: ITS IMPACT ON PRESERVATION OF PREHISTORIC ARCHAEOLOGICAL SITES**
- 4:00 PM **DISCUSSION**

- 98-10** 4:10 PM Walters, Elizabeth\*; Cakir, Recep; Parizek, Richard; el Gohary, Amr; Parizek, Katarin; Hess, Gerry: **PRECIOUS PAST VIEWED FROM 45 YEARS OF CHANGE - HIERAKONPOLIS ANCIENT EGYPTIAN TOWN AND TEMPLE**
- 98-11** 4:25 PM Parizek, Katarin\*; Parizek, Richard; el Gohary, Amr; Cakir, Recep; Walters, Elizabeth: **"WE NEED SOLUTIONS NOT PROBLEMS" SUPREME COUNCIL OF ANTIQUITIES**
- 98-12** 4:40 PM Schuldenrein, Joseph\*: **A GEOARCHAEOLOGICAL WINDOW ON THE ANTHROPOCENE OF MANHATTAN ISLAND, USA**
- 4:55 PM **CONCLUDING REMARKS**

**SESSION NO. 99**

**P3. Geoheritage: Celebrating Our Past, Protecting Our Future (GSA History and Philosophy of Geology Division; GSA Geology and Health Division; GSA Geology and Society Division; GSA Geoscience Education Division; Association of American State Geologists; History of Earth Sciences Society; National Association of Geoscience Teachers (NAGT); GSA Soils and Soil Processes Division; GSA Marine and Coastal Geoscience Division; GSA Limnogeology Division)**

1:30 PM, Oregon Convention Center, Oregon Ballroom 202/203/204 (Hybrid Room)

Renee M. Clary, William Andrews, David Mogk and Steven Semken, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 99-1** 1:35 PM Brilha, Jose\*: **WHY GEOHERITAGE MATTERS?**
- 1:45 PM **SHOWCASING GEOHERITAGE - VIDEOS & VIGNETTES**
- 2:05 PM **1. CELEBRATING GEOHERITAGE PANEL DISCUSSION**
- 99-2** 2:15 PM Hilario, Asier\*: **IGCP 731. IUGS GEOLOGICAL HERITAGE SITES. THE GREAT OPPORTUNITY FOR THE RECOGNITION OF GEOLOGICAL HERITAGE WORLDWIDE**
- 99-3** 2:25 PM Burns, Robert\*; Cardozo Moreira, Jasmine: **THE APPALACHIAN GEOPARK PROJECT: SUSTAINED EFFORT AND SUPPORT IN 2021 AND BEYOND**
- 99-4** 2:35 PM Connors, Tim\*; Wood, Jim: **2021 UPDATE ON U.S. NATIONAL PARK SERVICE INITIATIVES TO PROMOTE GEOLOGIC HERITAGE SITES AMONG FEDERAL, STATE AND LOCAL SITES AND THE CONCEPT OF AN OFFICIAL REGISTER**
- 99-5** 2:45 PM Schnur, Susan\*: **WASHINGTON 100: A WASHINGTON GEOTOURISM WEBSITE**
- 99-6** 2:55 PM Andrews, William\*: **COLLABORATIONS TO COMMUNICATE GEOLOGY AT SELECTED LOCAL PARKS IN KENTUCKY: STATE GEOLOGICAL SURVEY PARTNERSHIPS AND INFORMATION RESOURCES**
- 3:05 PM **2. GEOHERITAGE LIFE CYCLE, RESOURCES, TOOLS, AND NETWORKS PANEL DISCUSSION**
- 3:15 PM **BREAK**
- 99-7** 3:30 PM Madalena, Kevin\*: **RESEARCH AND LEARNING IN TWO WORLDS: THE DICHOTOMY OF UNDERSTANDING INDIGENOUS SCIENCE AND CONTEMPORARY WESTERN SCIENCE FOR PROTECTION OF HERITAGE**
- 99-8** 3:40 PM Youngs, Yolonda\*: **GEOHERITAGE AND GEOGRAPHY: FINDING CONNECTIONS ACROSS THE EARTH SCIENCES IN NATIONAL PARKS**
- 99-9** 3:50 PM Garcia, Angel\*; Shank, Austin: **THE IMPLEMENTATION OF MULTIDISCIPLINARY RESEARCH AS A MECHANISM TO SUPPORT GRAND CAVERNS IN BECOMING A GEOHERITAGE SITE**
- 99-10** 4:00 PM Semken, Steven\*: **RECOGNIZING DIVERSE VOICES AND CONNECTING PEOPLE TO GEOHERITAGE AND CULTURAL HERITAGE THROUGH PLACE-BASED TEACHING AND INTERPRETATION**

- 4:10 PM **3. GEOHERITAGE VOICES, COMMUNITY, RESPECT, AND COMPROMISE PANEL DISCUSSION**
- 99-11 4:20 PM Mogk, David\*: **GEOHERITAGE: AN ENDURING LEGACY FOR GEOSCIENCE EDUCATION**
- 99-12 4:30 PM Clary, Renee\*: **GEOHERITAGE APPLICATION ACROSS AN EDUCATIONAL SPECTRUM: VALUES AND BENEFITS WITHIN TRADITIONAL CLASSROOMS AND INFORMAL LEARNING ENVIRONMENTS**
- 99-13 4:40 PM Chan, Marjorie\*: **SHAPING THE FUTURE OF GEOHERITAGE SCIENCE**
- 4:50 PM **4. GEOHERITAGE APPLICATION AND VALUE PANEL DISCUSSION**
- 5:00 PM **5. TOWN HALL DISCUSSION**

**SESSION NO. 100**

**T9. Late Cretaceous–Eocene (pre-Cascadia) Tectonics from the Greater Pacific Northwest Margin to the Rocky Mountains (GSA Geochronology Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Geophysics and Geodynamics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

1:30 PM, Oregon Convention Center, A106

Paul Umhoefer, Robert B. Miller, Stacia M. Gordon and Thomas Kalakay, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 100-1 1:35 PM Rusmore, Margaret\*; Cecil, Robinson; Woodsworth, Glenn J.; Gehrels, George E.; Stowell, Harold H.; Bollen, Elizabeth M.: **LATE CRETACEOUS–EOCENE TECTONICS: A VIEW FROM THE COAST MOUNTAINS BATHOLITH (CMB), BRITISH COLUMBIA (Invited Presentation)**
- 100-2 1:55 PM Miller, Robert\*; Umhoefer, Paul; Eddy, Michael; Tepper, Jeffrey: **UPPER PLATE RESPONSE TO RIDGE-TRENCH INTERACTION AND OCEANIC PLATEAU ACCRETION, WASHINGTON CASCADES AND SURROUNDING REGION: IMPLICATIONS FOR PALEOGENE PLATE TECTONIC EVOLUTION OF THE PACIFIC NORTHWEST**
- 100-3 2:10 PM Gordon, Stacia\*; Hanson, Ann E.H.; Sauer, Kirsten B.; Miller, Robert B.: **METASEDIMENTARY ROCKS OF THE NORTH CASCADES CONTINENTAL MAGMATIC ARC: IMPORTANT TRACKERS OF THE RHEOLOGIC HISTORY OF AN ARC SYSTEM**
- 100-4 2:25 PM Donaghy, Erin\*; Umhoefer, Paul; Eddy, Michael; Miller, Robert B.: **THE STRUCTURAL AND DEPOSITIONAL EVOLUTION OF PULL-APART BASINS: AN EXAMPLE FROM THE EOCENE CHUMSTICK BASIN, CENTRAL WASHINGTON**
- 100-5 2:40 PM Humphreys, Eugene\*; Umhoefer, Paul; Miller, Robert B.: **MAKING THE COLUMBIA EMBAYMENT WITH OBLIQUE FLAT-SLAB SUBDUCTION (Invited Presentation)**
- 100-6 3:00 PM Umhoefer, Paul\*; Humphreys, Eugene; Miller, Robert B.: **REEVALUATION OF THE THICK EOCENE-AGE COLUMBIA BASIN, SOUTH CENTRAL WASHINGTON – N OREGON, BASED ON A SYNTHESIS OF GEOLOGICAL AND GEOPHYSICAL DATA**
- 3:15 PM **BREAK**
- 100-7 3:30 PM Tepper, Jeffrey\*; Miller, Robert B.: **MIGRATING EOCENE MAGMATISM AND TECTONISM ACROSS THE PACIFIC NORTHWEST: SLAB ROLLBACK, SLAB WINDOW, OR BOTH?**
- 100-8 3:45 PM Methner, Katharina\*; Ibarra, Daniel E.; Mulch, Andreas; Chamberlain, C. Page: **TRIPLE OXYGEN ISOTOPE PALEOALTIMETRY OF METAMORPHIC CORE COMPLEXES**
- 100-9 4:00 PM Cassel, Elizabeth\*; Smith, M. Elliot; Young-Dahl, Erin; Breecker, Daniel O.: **PROFILE OF A PALEOGENE ANDES IN THE NORTH AMERICAN WEST**

- 100-10 4:15 PM Schmidt, Keegan\*; Di Fiori, Russell; Lewis, Reed S.: **LATE CRETACEOUS OROGENESIS ACROSS THE IDAHO BATHOLITH OF NORTH-CENTRAL IDAHO**
- 100-11 4:30 PM Mulrooney, Laura\*; Vogl, Jim; Foster, David A.: **AGE, GEOCHEMISTRY AND SOURCE OF THE PIONEER INTRUSIVE SUITE; PIONEER METAMORPHIC CORE COMPLEX SOUTH-CENTRAL IDAHO**
- 100-12 4:45 PM Kalakay, Thomas\*; Lonn, Jeffrey D.; Foster, David A.: **DEVELOPMENT OF AN OROGENIC PLATEAU DURING MID-CRUSTAL FLOW IN THE CORDILLERAN HINTERLAND: EVIDENCE FROM FOOTWALL ROCKS OF THE ANACONDA METAMORPHIC CORE COMPLEX OF WESTERN MONTANA**
- 100-13 5:00 PM Weil, Arlo\*; Yonkee, Adolph: **THE LARAMIDE OROGENY: MODERN UNDERSTANDING OF THE STRUCTURAL STYLE, TIMING, AND SPATIAL DISTRIBUTION OF A CLASSIC FORELAND THICK-SKINNED TECTONIC SYSTEM**

**SESSION NO. 101**

**T34. Metals for the Future: Geology of Critical and Basic Minerals for the Green Economy II (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Society of Economic Geologists; Geochemical Society; Mineralogical Society of America; GSA Geology and Society Division; GSA Energy Geology Division)**

1:30 PM, Oregon Convention Center, Portland Ballroom 257 (Hybrid Room)

Douglas Kreiner, Zhaoshan Chang, Simone Runyon and John Dilles, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 101-1 1:35 PM Benson, Thomas\*: **GEOLOGY OF THE THACKER PASS DEPOSIT IN THE MCDERMITT CALDERA, NEVADA: THE LARGEST AND HIGHEST-GRADE KNOWN SEDIMENTARY LITHIUM RESOURCE IN THE UNITED STATES (Invited Presentation)**
- 101-2 1:55 PM Gammons, Christopher H.\*: **THE IMPORTANCE OF THE AQUEOUS FERRIC/FERROUS REDOX BUFFER TO IOCG AND OTHER HEMATITE-RICH HYDROTHERMAL DEPOSITS**
- 101-3 2:10 PM Bos Orent, Eytan\*; Barton, Mark D.; Barton, Isabel; Radwany, Molly R.: **CHARACTERIZATION OF U(-V) DEPOSITS IN THE LA SAL DISTRICT, UT AND CO AND THEIR RELATIONSHIP TO PARADOX BASIN FLUID FLOW**
- 101-4 2:25 PM Chafetz, Daniel A.\*; Stillings, Lisa; Reynolds, John: **CHEMISTRY AND MINERALOGY OF THE LITHIUM-BORON DEPOSIT AT RHYOLITE RIDGE, ESMERALDA COUNTY, NV, USA**
- 101-5 2:40 PM Gillerman, Virginia S.\*; Schmitz, Mark D.; Jercinovic, Michael J.: **ND-ENRICHED LEMHI PASS REE-TH DISTRICT, IDAHO-MONTANA: A LINK BETWEEN CRUSTAL HYDROTHERMAL CIRCULATION AND DEVONIAN-CARBONIFEROUS MARINE ENVIRONMENTS?**
- 101-6 2:55 PM Lukoczki, Georgina\*; Dietsch, Craig; Hickman, John: **MAGMATIC RARE EARTH ELEMENT OCCURRENCES IN THE ILLINOIS-KENTUCKY FLUORSPAR DISTRICT**
- 101-7 3:10 PM Brennan, Clara\*; Sirbescu, Mona-Liza C.; Hlohowskyj, Stephan R.; Student, James J.: **EVIDENCE OF TRACE ELEMENT SPECIATION IN SPODUMENE FROM X-RAY ABSORPTION FINE STRUCTURE (XAFS) SPECTROSCOPY**
- 101-8 3:25 PM Graham, Garth\*; Pfaff, Katharina; Jones, Alexander; Kelley, Karen D.: **RESIDENCE OF GE IN THE SOUTH REEF OF THE BORNITE CU-CO DEPOSIT, AMBLER DISTRICT, ALASKA**
- 3:40 PM **BREAK**
- 101-9 3:50 PM Dilles, John\*; John, David: **TEMPERATURE – DEPTH RANGES OF CU-AU-MO-(AG-PB-ZN) ARC-RELATED**

- MAGMATIC-HYDROTHERMAL SYSTEMS: PORPHYRY – EPITHERMAL ORE FORMATION FROM 10 KM TO THE SHALLOW SUBSURFACE**
- 101-10 4:05 PM Fischer, Bill\*; Marshall, Dan; Crowley, James L.; Hanchar, John: **THE CU-AG ± AU A.M. BRECCIA PIPE: A WELL-DEFINED ZONED-TOURMALINE BRECCIA PIPE OF THE CANADIAN CORDILLERA. A CASE STUDY FOR UTILIZING TOURMALINE AND BRECCIA PIPES AS EXPLORATION VECTORS**
- 101-11 4:20 PM Piurkowsky, Stephen\*; Chang, Zhaoshan; Brunetto, Paula: **PROXIMAL TO DISTAL GEOCHEMICAL SIGNATURES OF HYDROTHERMAL MINERALIZATION IN THE CANDELARIA CU-AU DISTRICT, CHILE**
- 101-12 4:35 PM Wetzel, Matthew\*: **TINTIC DISTRICT: A MINERAL SYSTEMS APPROACH AS A GUIDE TO VECTORING INTO BLIND PORPHYRY DEPOSIT**
- 101-13 4:50 PM Kirschbaum, Michael\*; Chang, Zhaoshan; Agnew, Paul; Pacey, Adam; Nickerson, Phillip; Sasso, Andrew; Schroeder, Kim; Gundy, Kathleen: **VECTORS TO PORPHYRY CU-AU MINERALIZATION IN CARBONATE WALLROCKS AROUND THE BINGHAM DEPOSIT, UTAH, USA**
- 101-14 5:05 PM Tassara, Santiago\*; Ague, Jay J.: **DEEP CRUSTAL BARRIERS TO THE FLUX OF COPPER DURING ARC MAGMATISM**

**SESSION NO. 102**

**T46. Rifts, Rifted Margins, Backarcs, and Spreading Ridges: Understanding Extensional Processes across Tectonic Settings and Time Scales II (GSA Geophysics and Geodynamics Division; GSA Energy Geology Division)**

1:30 PM, Oregon Convention Center, B115/B116 (Hybrid Room)

Patricia Persaud, Jolante van Wijk, Abah Omale and Jackson Borchardt, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 102-1 1:35 PM Harry, Dennis\*; Guerzon, Emmanuel: **RIFT TO DRIFT TRANSITION IN THE SOUTHWEST AUSTRALIAN DEEPWATER MENTELLE BASIN**
- 102-2 1:50 PM Borchardt, Jackson\*; Lee, Cin-Ty: **EXAMINING THE EFFECT OF OLIVINE ADDITION ON OLIVINE LIQUID EQUILIBRIUM TEMPERATURES: IMPLICATIONS FOR THE TEMPERATURES OF THE NORTH ATLANTIC IGNEOUS PROVINCE**
- 102-3 2:05 PM Stein, Carol\*; Gallahue, Molly; Stein, Seth A.: **COMPARING ONSHORE AND OFFSHORE VOLUMES OF LARGE IGNEOUS PROVINCES ASSOCIATED WITH PASSIVE CONTINENTAL MARGINS**
- 102-4 2:20 PM Brandl, Collin\*; Worthington, Lindsay Lowe; Magnani, Maria Beatrice; Shillington, Donna J.; Luckie, Thomas: **DISCONTINUOUS IGNEOUS ADDITION AND EARLY MARGIN SEGMENTATION ALONG THE EASTERN NORTH AMERICAN MARGIN'S RIFT TO DRIFT TRANSITION**
- 102-5 2:35 PM Reynolds, Aislin\*; Laskowski, Andrew: **SPATIO-TEMPORAL EVOLUTION OF THE TANGRA YUMCO RIFT, SOUTH-CENTRAL TIBET: INSIGHTS FROM ZIRCON (U-TH)/HE THERMOCHRONOMETRY**
- 2:50 PM **BREAK**
- 102-6 3:00 PM Hinchey, Alana M.\*: **LOCALIZED BACKARC EXTENSION DURING THE ASSEMBLY OF NUNA: EVIDENCE FROM VOLCANO-SEDIMENTARY ROCKS OF THE AILLIK GROUP, LABRADOR, CANADA**
- 102-7 3:15 PM Biemiller, James\*; Gabriel, Alice; Wallace, Laura M.; Ellis, Susan; Boulton, Carolyn; Lavier, Luc; Mizera, Marcel; Little, Timothy; Ulrich, Thomas; Webber, Samuel: **CHARACTERIZING THE SEISMOGENIC POTENTIAL OF ACTIVE FAULTS IN THE WOODLARK RIFT WITH**

**INTEGRATED MULTI-TIMESCALE OBSERVATIONS AND MODELS (Invited Presentation)**

- 102-8 3:30 PM Conder, James\*: **OCEANIC INUNDATION AS THE TRIGGER FOR THE RIFT TO DRIFT TRANSITION**
- 102-9 3:45 PM Colwell, Daniel\*; Cheadle, Michael J.; John, Barbara E.; Swapp, Susan M.; Brunelli, Daniele; Dick, Henry J.B.; Urann, Benjamin M.: **EXHUMATION OF MANTLE AT THE SOUTHWEST INDIAN RIDGE: CONSTRAINTS ON TEMPERATURE AND DEPTH OF WATER INGRESS DURING DETACHMENT FAULTING**
- 102-10 4:00 PM Liu, Yang\*; Wu, Ziyin: **THE BIRTH AND GROWTH OF MARIANA ISLAND ARC SYSTEM: A PERSPECTIVE FROM TECTONIC GEOMORPHOLOGY**
- 102-11 4:15 PM Van Hazinga, Cornelia\*; Mana, Sara; DiMaggio, Erin: **AVAILABILITY AND ACCESSIBILITY OF EAST AFRICAN TEPHRA GEOCHEMICAL DATA COMPILED IN EARTH D**

**SESSION NO. 103**

**T73. Coastal Storm Impacts in Times of Changing Climate and Sea Levels: Geological Records, Historic Perspectives, and Forecasting (GSA Marine and Coastal Geoscience Division; GSA Quaternary Geology and Geomorphology Division; Eastern Section of the Society for Sedimentary Geology (ES-SEPM); GSA Geology and Society Division; GSA Sedimentary Geology Division; GSA Environmental and Engineering Geology Division)**

1:30 PM, Oregon Convention Center, D138

Bosiljka Glumac and Michael Savarese, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 103-1 1:35 PM Muller, Joanne\*; Collins, Jennifer: **RECENT ADVANCES IN THE EMERGING FIELD OF PALEOTEMPESTOLOGY**
- 103-2 1:50 PM Park Boush, Lisa\*; Beamer, Dawn; Myrbo, Amy; Berman, Mary Jane; Michelson, Andrew: **A RECORD OF VARIABILITY--HURRICANE ACTIVITY IN THE BAHAMAS, THE GREATER ANTILLES, MESOAMERICA, AND NORTHERN SOUTH AMERICA OVER THE LAST 2000 YEARS (Invited Presentation)**
- 103-3 2:05 PM Morales, Illexis\*; Muller, Joanne: **RECONSTRUCTION OF HURRICANE HISTORY FOR THE EASTERN COAST OF FLORIDA**
- 103-4 2:20 PM Elliott, Emily A.\*; Bregy, Josh C.; Tucker, Clay S.; Lehrmann, Asmara; Minzoni, Rebecca Totten; Wallace, Davin; Therrell, Matthew D.: **RECORDING STORMS - UTILIZING MULTIPROXY RECORDS TO IDENTIFY AND CHARACTERIZE TROPICAL CYCLONE ACTIVITY ALONG THE NORTHERN GULF OF MEXICO**
- 103-5 2:35 PM Cox, Ronadh\*: **COASTAL MEGAGRAVEL AND CLIFF-TOP BOULDERS RECORD EXTREME OVERLAND FLOW VELOCITIES DURING STORM WAVE INUNDATION: RELEVANCE FOR COASTAL HERITAGE MANAGEMENT (Invited Presentation)**
- 103-6 2:50 PM **Withdrawn**
- 103-7 3:05 PM Sankar, Ravi\*; Allchin, Michael; Mazan, Ryan; Murray, Maribeth; Pulsifer, Peter; Matthews, Kara; Parrott, Jennifer; Madan, Munish; Grewal, Navarjun; Navarjun: **VULNERABILITY ASSESSMENT OF COASTAL ARCHAEOLOGICAL SITES IN THE WESTERN CANADIAN ARCTIC**
- 3:20 PM **BREAK**
- 103-8 3:30 PM Mallinson, David\*; Culver, Stephen; DeWitt, Regina; Leorri, Eduardo; Gudmunson, Erik; Cressman, Amy W.; Snyder, Kelli: **THE STRATIGRAPHIC RECORD OF LATE QUATERNARY RELATIVE SEA-LEVEL CHANGES IN NORTH CAROLINA, USA: AN ANALOG FOR FUTURE COASTAL CHANGE**
- 103-9 3:45 PM Kamola, Diane L.\*; Baker, Gregory S.: **THE BIRTH AND DEATH OF EBB TIDAL DELTAS FOLLOWING HURRICANE IRWIN: SAPELO ISLAND, GA**



- 103-10 4:00 PM Glumac, Bosiljka\*; Curran, H. Allen; Savarese, Michael: **SAN SALVADOR ISLAND AS A NATURAL LABORATORY TO STUDY IMPACTS OF COASTAL STORMS IN THE BAHAMAS**
- 103-11 4:15 PM Daly, Christopher\*; Maxam, Ava; Fletcher, Darren; Bissick, Ajani; McGaw, Kaodi: **HYDRODYNAMIC CONTROLS AND SOLID WASTE IMPACTS ON MANGROVE ECOSYSTEMS PROTECTING THE KINGSTON HARBOUR COAST, JAMAICA**
- 103-12 4:30 PM Smallegan, Stephanie\*; Collini, Renee; Vedral, Sonia; Posey, Peyton; Bellais, Kaylyn; Delaney, Benji: **INFORMING AND PREPARING COASTAL COMMUNITIES TO REDUCE COASTAL VULNERABILITY TO FLOODING AND SEA-LEVEL RISE THROUGH EDUCATION AND APPLICATION**
- 103-13 4:45 PM Savarese, Michael\*: **BRINGING VULNERABILITY ANALYSIS TOOLS TO LOCAL GOVERNMENT TO IMPROVE RESILIENCE FOR SEA-LEVEL RISE AND STORMINESS**
- 103-14 5:00 PM Levine, Norman\*; Knapp, Landon C.: **MOVING FROM VULNERABILITY MAPPING TO RESILIENCE PLANNING LESSONS FROM CHARLESTON SC**
- 5:15 PM **DISCUSSION**

**SESSION NO. 104**

**T81. Impacts of Volcanism on Global Climate and Oceans—Drivers of Mass Extinctions through the Phanerozoic II (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geobiology and Geomicrobiology Division; GSA Marine and Coastal Geoscience Division; U.S. Paleontology and Sedimentology; Geochemical Society; Paleontological Society)**

1:30 PM, Oregon Convention Center, Portland Ballroom 255 (Hybrid Room)

Stephen Grasby, Gerta Keller, David Bond and Thierry Adatte, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 104-1 1:35 PM Naber, Tiera\*; Grasby, Stephen; Cuthbertson, Jennifer; Rayner, Nicole; Tegner, Christian: **NEW CONSTRAINTS ON THE AGE, GEOCHEMISTRY, AND ENVIRONMENTAL IMPACT OF HIGH ARCTIC LARGE IGNEOUS PROVINCE MAGMATISM: TRACING THE EXTENSION OF THE ALPHA RIDGE ONTO ELLESMERE ISLAND, CANADA (Invited Presentation)**
- 104-2 1:55 PM Grasby, Stephen\*; Bringué, Manuel; Galloway, Jennifer; Percival, Jeanne; Smith, I. Rod: **VOLCANIC LOADING OF METALS AND NUTRIENTS INTO THE CRETACEOUS BOREAL SEA – NOT ALL LIPS ARE KILLERS**
- 104-3 2:10 PM Karabeyoglu, Uygur\*; Adatte, Thierry; Lorenzo, Valentin; Spangenberg, Jorge; Ozkan-Altiner, Sevinc; Altiner, Demir: **THE ROLE OF DECCAN VOLCANISM ON FAUNAL AND ENVIRONMENTAL CHANGES ACROSS THE CRETACEOUS-PALEOGENE (K-PG) BOUNDARY: EXAMPLES FROM NEO-TETHYS, TURKEY**
- 104-4 2:25 PM Cox, Alexander\*; Keller, C.: **CONSTRAINING EMISSIONS SCENARIOS AT THE CRETACEOUS/PALEOGENE BOUNDARY**
- 104-5 2:40 PM Humayun, Munir\*; Sillitoe-Kukas, Steffanie; Adatte, Thierry; Keller, Gerta: **A MECHANISM FOR THE GLOBAL ACCUMULATION OF TERRESTRIAL SIDEROPHILE ELEMENTS ON THE K-PG BOUNDARY (Invited Presentation)**
- 104-6 3:00 PM Keller, Gerta\*; Adatte, Thierry; Spangenberg, Jorge; Mateo, Paula; Puneekar, Jahnavi: **MERCURY LINKS DECCAN VOLCANISM TO CLIMATE CHANGE AND THE END-CRETACEOUS MASS EXTINCTION**
- 104-7 3:15 PM Adatte, Thierry\*; Font, Eric; Keller, Gerta; Regelous, Marcel; Spangenberg, Jorge; Mateo, Paula; Puneekar, Jahnavi: **TIMING AND PALEOENVIRONMENTAL IMPLICATIONS OF DECCAN VOLCANISM RELATIVE TO THE KPG EXTINCTION REVEALED BY MERCURY AND TELLURIUM ANOMALIES**
- 104-8 3:30 PM Kdýr, Šimon\*; Soták, Ján; Elbra, Tiiu: **THE MERCURY CONCENTRATIONS AND BIOCHRONOLOGY OF BOUNDARY EVENTS ACROSS THE CRETACEOUS-PALEOGENE TRANSITION IN SLOVAKIA**
- 104-9 3:45 PM Sillitoe-Kukas, Steffanie\*; Humayun, Munir; Keller, Gerta; Adatte, Thierry: **CADMIUM AS A TRACER OF VOLCANIC ERUPTION INTENSITY IN THE KPG SECTION FROM ELLES (TUNISIA) (Invited Presentation)**
- 104-10 4:00 PM Gachetti, Anthony\*; Calderón Convers, Liliana; De Palma, Maurizia; Jiang, Shijun; Cui, Ying: **PALEOENVIRONMENT RECONSTRUCTION DURING THE PRE-ONSET EXCURSION PRIOR TO THE PALEOCENE-EOCENE THERMAL MAXIMUM**

**SESSION NO. 105**

**T84. Cephalopods Present and Past: Evolution, Paleocology, and Links to Paleoenvironmental Change (Paleontological Society; Paleontological Research Institution; GSA Geobiology and Geomicrobiology Division)**

1:30 PM, Oregon Convention Center, E141/E142 (Hybrid Room)

Christopher Whalen, Corinne Myers and James Witts, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 105-1 1:35 PM Mohr, Rachel C.\*; Tobin, Thomas; Tompkins, Emily M.: **ONTOGENETIC AND ALLOMETRIC SCALING WITHIN THE LATE CRETACEOUS PLACENTICERAS OF ALABAMA: A LINEAR MIXED MODEL APPROACH**
- 105-2 1:50 PM Ritterbush, Kathleen\*; Hebdon, Nicholas; Peterman, David; Choi, YunJi; Hoskins, Brittny; Heberer, Mikelia; Crawford, Casey; Hambleton, Jenny A.: **DID FLUID DYNAMICS DRIVE AMMONITE BIODIVERSITY DYNAMICS?**
- 105-3 2:05 PM Clapham, Matthew\*: **MORPHOLOGICAL DISPARITY AND ONTOGENETIC VARIABILITY IN AMMONOIDS**
- 105-4 2:20 PM Peterman, David\*: **THE ADAPTIVE VALUE OF HETEROMORPHY IN AMMONOID CEPHALOPODS (Invited Presentation)**
- 2:40 PM **BREAK**
- 105-5 2:55 PM Witts, James\*; Myers, Corinne; Petersen, Sierra; Hoffman, Jon J.; Naujokaityte, Jone; Rovelli, Remy; Garb, Matthew; Phillips, George E.; Landman, Neil: **CLUMPED ISOTOPE ANALYSIS OF AMMONITE PALEOECOLOGY AND LATEST CRETACEOUS CLIMATE VARIABILITY IN THE US GULF COASTAL PLAIN**
- 105-6 3:10 PM Mccraw, Jessie\*; Tobin, Thomas: **SEA SURFACE TEMPERATURE RECONSTRUCTIONS OF THE WESTERN INTERIOR SEAWAY THROUGH SPACE AND TIME FROM BACULITES SP. SHELL MATERIAL**
- 105-7 3:25 PM Whalen, Christopher\*; Landman, Neil: **EXCEPTIONALLY PRESERVED CARBONIFEROUS CEPHALOPOD OUTLINES VAMPYROPOD EVOLUTION THROUGH A NEW TIP-DATED BAYESIAN PHYLOGENY**
- 105-8 3:40 PM Lindgren, Annie\*; Pratt, Abigail; Anderson, Frank: **EVOLUTIONARY HISTORY OF DECAPODIFORM CEPHALOPODS: THE IMPACT OF “OMICS” DATA ON PHYLOGENY (Invited Presentation)**
- 4:00 PM **DISCUSSION**
- 105-9 4:15 PM Naujokaityte, Jone\*; Garb, Matthew; Landman, Neil; Cochran, J. Kirk; Witts, James; Lowery, Christopher M.; Rashkova, Anastasia; Phillips, George; Broussard, Joshua; Larina, Ekaterina; Myers, Corinne: **DID AMMONITES SURVIVE FOR A BRIEF TIME AFTER THE K/Pg MASS EXTINCTION ON THE U.S. GULF COASTAL PLAIN?**
- 105-10 4:30 PM Moeller, Karson N.; Lambert, Lance L.\*: **A HIGHER-DIVERSITY REEF TRAIL AMMONOID FAUNA: GOOD NEWS IN SMALL PACKAGES**

**SESSION NO. 106**

**T96. Phylogenetic Paleobiology: Combining Evolutionary Trees and Fossils to Understand the Evolution of Life (Paleontological Society; Paleontological Research Institution; GSA Geobiology and Geomicrobiology Division; GSA Geoinformatics and Data Science Division)**

1:30 PM, Oregon Convention Center, Portland Ballroom 254 (Hybrid Room)

William Gearty, Curtis Congreve and James Lamsdell, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 106-1** 1:35 PM Zietlow, Amelia\*: **TYLOSAURUS THROUGH TIME: CLADISTIC ANALYSIS OF ONTOGENY RECOVERED EVIDENCE OF PERAMORPHY-DRIVEN ANAGENESIS IN NORTH AMERICAN TYLOSAURINES**
- 106-2** 1:50 PM LaBarge, Thomas\*; Gardner, Jacob D; Organ, Chris L.: **BAYESIAN REANALYSIS OF THE EVOLUTION OF PHORUSRHACIDAE (AVES, CARIAMIFORMES)**
- 106-3** 2:05 PM Guardado, Rosemary\*; Lockwood, Rowan; Wingard, G.; Wagner, Peter J.: **PHYLOGENETIC RELATIONSHIPS IN CRASSATELLID BIVALVES ACROSS THE CRETACEOUS-PALEOGENE MASS EXTINCTION (U.S. COASTAL PLAIN)**
- 106-4** 2:20 PM Liow, Lee Hsiang\*; Orr, Russell J. S.; Di Martino, Emanuela; Warnock, Rachel; Gordon, Dennis P.: **DEEP ORIGINS OF EXTANT BRYOZOAN CLADES: EVIDENCE USING A NEW, FOSSIL-CALIBRATED MOLECULAR PHYLOGENY**
- 106-5** 2:35 PM Butler, Aodhan\*; Carlson, Sandra J.; Sperling, Erik A.: **INVESTIGATING THE EVOLUTIONARY HISTORY OF BRACHIOPOD BIOMINERALIZATION**
- 106-6** 2:50 PM Wright, David\*; Hopkins, Melanie: **A CATCH-22 OR SIREN OF TITAN? ASSESSING THE IMPACT OF CHARACTER EVOLUTION MODELS ON PHYLOGENETIC AND MACROEVOLUTIONARY INFERENCES OF FOSSIL DATA**
- 106-7** 3:05 PM Buckner, Janet\*; Ellingson, Ryan; Gold, David; Jones, Terry L.; Jacobs, David: **EXTINCTION, ANCIENT DNA AND MOLECULAR PHYLOGENETICS: LESSONS FROM SUBFOSSIL ANSERIFORMES (Invited Presentation)**
- 3:25 PM **BREAK**
- 106-8** 3:30 PM Anderson, Brendan\*; Friend, Dana; Petsios, Elizabeth; Allmon, Warren: **A COMPARISON OF SCLEROCRONOLOGICALLY DETERMINED GROWTH AND LIFESPAN DATA AMONG 3 CLADES OF CO-OCCURRING TURRITELLID GASTROPODS IN PHYLOGENETIC CONTEXT**
- 106-9** 3:45 PM Friend, Dana\*; Anderson, Brendan; Allmon, Warren; Portell, Roger W.; Altier, E.: **THE HOLLOW NEWEL STATE IN GASTROPODS: WHEN SNAILS ARE OPEN-AXIS**
- 106-10** 4:00 PM Rivero-Vega, Rafael\*; Clarke, John T.; Friedman, Matt: **PATTERNS IN RATES OF DISCRETE-CHARACTER AND BODY-SHAPE EVOLUTION: ARE "LIVING FOSSILS" ALIKE?**
- 106-11** 4:15 PM Pham, Karen V.\*; Liow, Lee Hsiang; Ivory, Sarah: **IMPACTS OF MIOCENE CLIMATE CHANGE ON PALM TRAIT EVOLUTION IN MADAGASCAR AND MAINLAND AFRICA**
- 106-12** 4:30 PM Novack-Gottshall, Philip\*; Sultan, Ali; Smith, Nicholas; Purcell, Jack Nathan; Hanson, Kathryn E.; Lively, Rachel K.; Ranjha, Isa; Collins, Clayton; Parker, Runeshia; Sumrall, Colin; Deline, Bradley: **ECHINODERM MORPHOLOGICAL EVOLUTION PRECEDES AND IS MORE VOLATILE THAN ECOLOGICAL INNOVATION DURING CAMBRIAN AND ORDOVICIAN RADIATIONS**
- 106-13** 4:45 PM Gearty, William\*; Carrillo, Elsie; Payne, Jonathan L.: **ECOLOGICAL FILTERING AND EXAPTATION IN THE EVOLUTION OF MARINE SNAKES**
- 106-14** 5:00 PM Jordan, Katherine\*: **RAGING AGAINST THE INEVITABLE: THE GRADUAL DECLINE OF PROETIDE TRILOBITES INTERRUPTED BY REDIVERSIFICATION**

- 106-15** 5:15 PM Congreve, Curtis\*; Patzkowsky, Mark; Wagner, Peter: **AN EARLY BURST IN BRACHIOPOD EVOLUTION CORRESPONDING WITH SIGNIFICANT CLIMATIC SHIFTS DURING THE GREAT ORDOVICIAN BIODIVERSIFICATION EVENT**

**SESSION NO. 107** 

**T106. Gemological Research in the 21st Century—Gem Minerals and Localities**

1:30 PM, Oregon Convention Center, A107–A109

James Shigley, Wuyi Wang, Barbara Dutrow, John W. Valley and Caroline Nelms, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 107-1** 1:35 PM Celestian, Aaron\*; Heginbotham, Arlen; Ehlmann, Bethany; Greenberger, Rebecca N.; Morgan, Alyssa: **MINERALOGY AND HISTORY OF SEMI-PRECIOUS GEMSTONES ON THE BORGHESE-WINDSOR CABINET (Invited Presentation)**
- 107-2** 1:55 PM Badur, Cislil\*; Cahoon, Emily; Kamenov, George; Hames, Willis E.: **AN EXPLORATION OF PRIMARY NATIVE COPPER IN OREGON SUNSTONES**
- 107-3** 2:10 PM Jin, Shiyun\*; Ma, Lu; Sun, Ziyin; Palke, Aaron C.: **DIFFUSION MECHANISM OF CU IN THE GEM-QUALITY LABRADORITE FELDSPAR**
- 107-4** 2:25 PM Henry, Rhiana\*; Groat, Lee A.; Evans, R. James; Cempírek, Jan; Škoda, Radek: **CRYSTAL-CHEMICAL OBSERVATIONS AND THE RELATION BETWEEN SODIUM AND WATER IN DIFFERENT BERYL VARIETIES**
- 107-5** 2:40 PM Turnier, Rachele\*; Palke, Aaron C.; Berg, Richard; Kitajima, Kouki; Valley, John W.: **VARIABLE OXYGEN ISOTOPE RATIOS FROM MONTANA CORUNDUM: IMPLICATIONS FOR PROTOLITH AND GENESIS OF *IN SITU* SIMS MEASUREMENTS**
- 107-6** 2:55 PM Palke, Aaron\*; Renfro, Nathan D.: **DISCOVERY OF A NEW GROUP OF SAPPHIRES FROM ROCK CREEK, MONTANA**
- 107-7** 3:10 PM Henry, Darrell\*; Dutrow, Barbara: **ZINC-ENRICHED FRACTURE-FILL AND FIBROUS OVERGROWTHS IN PARAÍBA TOURMALINE FROM THE SÃO JOSÉ DA BATALHA, BRAZIL**
- 3:25 PM **BREAK**
- 3:30 PM **DISCUSSION**
- 107-8** 3:35 PM Liu, Yicen\*; Zhou, Zheng-yu; Qi, Li-jian: **SPECTROSCOPIC THERMAL VARIATION AND COLOR MECHANISM OF KUH-I-LAL PINK SPINEL FROM TAJIKISTAN**
- 107-9** 3:50 PM Shen, Che\*; Palke, Aaron C.; Sun, Ziyin; Fairchild, Mark D.: **HOW TO CALCULATE COLOR FROM SPECTRA OF UNIAXIAL GEMSTONES**
- 107-10** 4:05 PM Farfan, Gabriela\*; Zhou, Chunhui; Orland, Ian J.; Valley, John W.: **SEASONAL SHIFTS IN FRESHWATER PEARL MINERALOGY AND CHEMISTRY (Invited Presentation)**
- 107-11** 4:25 PM Zhou, Chunhui\*; Jin, Shiyun; Sun, Ziyin; Homkrajae, Artitaya; Myagkaya, Elina; Nilpetploy, Nanthaporn; Lawanwong, Kwanreun: **DISORDERED DOLOMITE FOUND IN THE CENTER OF A NATURAL PEARL FROM A *CASSIS* SP. MOLLUSK**
- 107-12** 4:40 PM Hardman, Matthew F.\*; Eaton-Magana, Sally; Breeding, Christopher M.: **EXAMINING THE DEFECTS IN NATURALLY IRRADIATED GREEN DIAMONDS: A STATISTICAL APPROACH TO SPECTROSCOPY**
- 107-13** 4:55 PM Bassoo, Roy\*; Befus, Kenneth S.; Hahn, Timothy M.; Bose, Maitrayee: **DEUTERIUM-DEPLETED COMPOSITIONS OF DIAMOND-HOSTED MINERAL INCLUSIONS FROM THE SUBCONTINENTAL LITHOSPHERIC MANTLE**

- 107-14 5:10 PM Litvak Kochavi, Ira\*; Cahana, Avner; Ruthstein, Sharon;  
Cohen, Haim: **EFFECT OF ROUGH DIAMOND POLISHING  
ON THE CARBON CENTERED RADICALS**
- 5:25 PM **CONCLUDING REMARKS**

**SESSION NO. 108****T112. Exploring the Solar System in the Thermal Infrared II: A Memorial Session in Remembrance of Joshua L. Bandfield (GSA Planetary Geology Division)**

1:30 PM, Oregon Convention Center, Portland Ballroom 256 (Hybrid Room)

Timothy Glotch and Christopher Edwards, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 108-1 1:35 PM Hamilton, V.: **SEARCHING FOR THERMAL INFRARED SPECTRAL VARIABILITY ON ASTEROID BENNU USING FACTOR ANALYSIS AND TARGET TRANSFORMATION (Invited Presentation)**
- 108-2 1:55 PM Martinot, Méliissa\*; Donaldson Hanna, Kerri; Greenhagen, Benjamin T.; Peplowski, Patrick; Cahill, Joshua T.S.: **CONSTRAINING THE FORMATION OF THE LUNAR ANORTHOSITIC CRUST WITH MOON MINERALOGY MAPPER AND DIVINER LUNAR RADIOMETER EXPERIMENT DATA**
- 108-3 2:10 PM Donaldson Hanna, Kerri\*; Greenhagen, Benjamin T.; Bowles, Neil E.: **THE EFFECTS OF FINE PARTICULATES ON THERMAL INFRARED EMISSIVITY SPECTRA: IMPLICATIONS FOR SOLAR SYSTEM AIRLESS BODIES**
- 108-4 2:25 PM Farrand, William\*; Edwards, Christopher; Tai Udovicic, Christian: **OBSERVATIONS OF A POTENTIALLY HYDRATED PYROCLASTIC MANTLE OVER THE MENELAUS DOMES/TACQUET FORMATION OF SOUTHERN MARE SERENITATIS**
- 108-5 2:40 PM Paige, David\*; Bennett, Kristen A.; Bowles, Neil E.; Foote, Emily; Greenhagen, Benjamin T.; Rubanenko, Lior; Warren, Tristram: **THE ANGULAR INFRARED EMISSIVITY OF THE SURFACE OF THE MOON**
- 108-6 2:55 PM Elder, Catherine\*: **THE LUNAR ROCK SIZE FREQUENCY DISTRIBUTION DERIVED FROM THERMAL INFRARED OBSERVATIONS (Invited Presentation)**
- 108-7 3:15 PM Tai Udovicic, Christian J.\*; Gonzales, Johnelle K.; Ruiz, Juan A.; Edwards, Christopher; Haberle, Christopher; Farrand, William H.; Bandfield, Joshua L.: **PREDICTING EMITTED RADIANCE OF ROUGH LUNAR SURFACES TO INFORM VOLATILE DISTRIBUTION**
- 108-8 3:30 PM Powell, Tyler\*; Horvath, Tyler; Lopez Robles, Valeria; Williams, Jean-Pierre; Hayne, Paul O.; Gallinger, Cailin L.; Greenhagen, Benjamin T.; Paige, David A.: **IMPROVED ROCK ABUNDANCE AND LUNAR NIGHTTIME TEMPERATURE MAPS FROM DIVINER**
- 108-9 3:45 PM Hayne, Paul\*; Edwards, Christopher; Greenhagen, Benjamin T.; Klima, Rachel; Paige, David A.; Poston, Michael J.; Williams, Jean-Pierre; Wu, Yunzhao: **EFFECTS OF UNRESOLVED SURFACE ROUGHNESS ON THERMAL INFRARED EMISSION OF AIRLESS PLANETARY BODIES**
- 108-10 4:00 PM Williams, Jean-Pierre\*; Greenhagen, Benjamin T.; Bennett, Kristen A.; Paige, David A.; Kumari, Nandita; Ahrens, Caitlin J.; Rubanenko, Lior; Powell, Tyler; Prem, Parvathy; Blewett, David T.; Russell, Patrick; Hayne, Paul O.; Sullivan, Mark T.: **USING THERMAL INFRARED OBSERVATIONS TO CHARACTERIZE THE THERMOPHYSICAL AND COMPOSITIONAL PROPERTIES OF THE LACUS MORTIS REGION OF THE MOON**
- 108-11 4:15 PM Byron, Benjamin\*; Elder, Catherine; Williams, Jean-Pierre; Ghent, Rebecca: **THERMOPHYSICAL PROPERTIES OF LUNAR IRREGULAR MARE PATCHES**
- 108-12 4:30 PM Haberle, Christopher\*; Edwards, Christopher; Tai Udovicic, Christian; Bandfield, Joshua L.; Clark, Ben: **SURFACE**

- ROUGHNESS OF BENNU DERIVED FROM OSIRIS-REX THERMAL EMISSION SPECTROMETER OBSERVATIONS**
- 4:45 PM **DISCUSSION**

**SESSION NO. 109****T116. Impact Cratering in the Solar System: Remembering Nadine Barlow and H. Jay Melosh (GSA Planetary Geology Division; GSA Continental Scientific Drilling Division; GSA Geophysics and Geodynamics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Quaternary Geology and Geomorphology Division; GSA Structural Geology and Tectonics Division)**

1:30 PM, Oregon Convention Center, Portland Ballroom 252 (Hybrid Room)

Christian Koeberl and Jeffrey B. Plescia, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 109-1 1:35 PM McEwen, Alfred\*: **IMPACT RATE VARIATIONS OVER GEOLOGIC TIME: SPIKY OR SMOOTH?**
- 109-2 1:50 PM Nypaver, Cole\*; Thomson, Bradley J.; Fassett, Caleb I.; Rivera-Valentín, Edgard; Patterson, G. Wesley: **PROLONGED ROCK EXHUMATION AT THE RIMS OF KILOMETER-SCALE LUNAR CRATERS**
- 109-3 2:05 PM Gosselin, Gregory\*; Freed, Andrew M.; Johnson, Brandon C.: **SIMULATING THE FORMATION OF MERCURY'S CALORIS BASIN TO DETERMINE IF IT LIKELY FORMED AS A MULTIRING BASIN**
- 109-4 2:20 PM Bechtold, Andreas; Paar, Gerhard; Traxler, Christoph; Nowak, Rebecca; Garolla, Filippo; Koeberl, Christian\*: **TOWARDS AUTOMATIC DETECTION OF SHATTER CONES ON PLANETARY ROVER IMAGES: FIRST RESULTS OF A FEASIBILITY STUDY (Invited Presentation)**
- 109-5 2:35 PM Connelly, Daniel\*; Sikder, Arif; Turner, Joseph B. McGee: **PETROGRAPHIC CHARACTERISTICS OF MUSGRAVE PSEUDOTACHYLITE INDICATING IMPACT ORIGIN**
- 109-6 2:50 PM Hopkins, Randy\*; Spray, John G.: **PRESSURE-TEMPERATURE-TIME CONSTRAINTS FOR SHOCK VEIN DEVELOPMENT: A CASE STUDY AT VREDEFORT**
- 109-7 3:05 PM Spencer, Marissa\*; Oboh-Ikuenobe, Francisca E.; Webb, Laura E.: **THE ORDOVICIAN METEOR EVENT: EVIDENCE FROM IMPACT-DAMAGED ACIRARCHS AND THE <sup>40</sup>AR/<sup>39</sup>AR DATE OF IMPACT SPHERULES FROM THE CROOKED CREEK STRUCTURE**
- 3:20 PM **BREAK**
- 109-8 3:30 PM Gulick, Sean\*; Morgan, Joanna V.; Christeson, Gail; Collins, Gareth S.; Warner, Michael: **CHICXULUB AS A TESTING GROUND FOR MODELS AND THEORIES: TRIBUTE TO PROF. H. JAY MELOSH**
- 109-9 3:45 PM King, David\*; Petruny, Lucille W.: **CHICXULUB TARGET STRATIGRAPHY AND EJECTA COMPARED TO THE STRATIGRAPHY OF NORTHERN BELIZE**
- 109-10 4:00 PM Faucher, Juliette; Déhais, Thomas\*; Kaskes, Pim; de Graaff, Sietze J.; Lambert, Philippe; Luais, Béatrice; Goderis, Steven: **FIRST PETROGRAPHIC AND GEOCHEMICAL CHARACTERIZATION OF IMPACT MELT-RICH LITHOLOGIES AND TARGET ROCKS WITHIN THE ROCHECHOUART IMPACT STRUCTURE (FRANCE), RECOVERED BY THE 2017 DRILLING CAMPAIGN**
- 109-11 4:15 PM Lambert, Philippe\*: **THE SIZE/SHAPE OF THE ROCHECHOUART IMPACT CRATER (FRANCE)?**
- 109-12 4:30 PM Harris, Robert\*; Jaret, Steven; Albin, Edward F.: **THE WOODBURY-MANCHESTER IMPACT STRUCTURE IN SOUTHEASTERN NORTH AMERICA: IMPLICATIONS FOR THE EARLY NEOPROTEROZOIC EARTH-MOON ASTEROID/COMET SHOWER AND SNOWBALL EARTH**
- 109-13 4:45 PM Martin, Ellinor\*; Schmitz, Birger; Terfelt, Fredrik; Aguirre Palafox, Luis Erick; Alvarez, Walter: **THE MICROMETEORITE FLUX IN THE ALBIAN/APTIAN AGE**



(~103-117 MA): A SEARCH FOR TYCHO EJECTA IN PELAGIC SEDIMENTS USING CHROME SPINELS

109-14 5:00 PM Wehr, Riley\*; DePalma, Robert; Oleinik, Anton E.; Burnham, David A.; Larson, Peter; Gurche, Loren; Klingler, Jeremy; Egerton, Victoria; Manning, Phillip L.: **ECOLOGICAL STATUS AT THE TIME OF IMPACT: EVIDENCE OF DINOSAURIA AT THE KPG BOUNDARY, HELL CREEK FORMATION, NORTH DAKOTA**

SESSION NO. 110

**T126. Source, Fate, and Roles of Natural Organic Matter in Geochemical Cycling of Metals and Metalloids in Surface and Groundwater Systems (GSA Geology and Health Division; GSA Geobiology and Geomicrobiology Division; GSA Karst Division; Geochemical Society)**

1:30 PM, Oregon Convention Center, D135

Harshad Kulkarni, Thomas Varner, Mohammad Alauddin, Robert Finkelman, Karen Johannesson and Saugata Datta, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 110-1 1:35 PM Balogun, Fatai\*; Aiken, Miranda; Namayandeh, Alireza; Duckworth, Owen; Polizzotto, Matthew: **DISSOLVED ORGANIC CARBON DIMINISHES MANGANESE OXIDE-DRIVEN OXIDATION OF CHROMIUM**
- 110-2 1:50 PM Stewart, Brandy\*; Nicholas, Sarah; Eger, Paul; Sheik, Cody; Toner, Brandy M.: **AN XRF STUDY IN MECHANISMS OF CHROMIUM REMOVAL FROM INDUSTRIAL STORM WATER USING PEAT MEDIUM**
- 110-3 2:05 PM Abongwa, Pride\*; Akondi, Rawlings; Den, Walter: **ISOTOPIC, AND MICRO-BIOGEOCHEMICAL CONTROLS ON THE CYCLING OF METALS AND METALLOIDS IN LOW-TEMPERATURE AQUEOUS SYSTEMS**
- 110-4 2:20 PM Moore, Rhiannon\*; Hage, Melissa; Nkomo, Simbarashe: **THE EFFECT OF THE PRESENCE OF IRON ON THE PHYTOREMEDIATION OF COPPER BY WATER HYACINTH (*EICHHORNIA CRASSIPES*) AND WATER WILLOW (*JUSTICIA AMERICANA*)**
- 110-5 2:35 PM Jimenez, Miguel\*; Orrego-Ruiz, Jorge A.; Rojas-Ruiz, Fernando A.; Pu, Hui: **IDENTIFICATION AND CLASSIFICATION OF HEAVY CRUDE OILS FROM THE WESTERN FLANK OF THE MIDDLE MAGDALENA VALLEY, COLOMBIA USING COMPOSITIONAL PARAMETERS MEASURED BY FT-ICR-MS**
- 110-6 2:50 PM Aguilar, Ashley\*; Datta, Saugata; Li, Yanmei; Kulkarni, Harshad; Rampe, Elizabeth: **HYDROTHERMAL INFLUENCE ON ARSENIC AND FLUORIDE IN GROUNDWATER OF THE INDEPENDENCE BASIN AQUIFER SYSTEM IN CENTRAL MEXICO**
- 110-7 3:05 PM D'Orazio, Gabriela\*; Keily, Elizabeth; Alauddin, Mohammad; Turner, Joseph B. McGee; Sikder, Arif: **ELEVATED LEVELS OF ARSENIC IN THE GROUNDWATER FROM THE PINEY POINT AQUIFER IN THE VIRGINIA COASTAL PLAIN: IN SEARCH OF THE CAUSE AND MECHANISM**
- 3:20 PM **DISCUSSION-I**
- 110-8 3:30 PM Ikehata, Keisuke\*; Palmer, Jacob A.; Gao, Han; Roden, Sara N.; Roy, Emon; Gonzalez, Saul; Adams, J. Hunter; Kulkarni, Harshad Vijay; Datta, Saugata: **COMPARISON OF CHEMICAL AND PHOTOBIOLOGICAL METHODS FOR THE REMOVAL OF DISSOLVED SILICA AND CALCIUM HARDNESS FROM BRACKISH GROUNDWATER REVERSE OSMOSIS CONCENTRATE**
- 110-9 3:45 PM Poling, Katrina\*; Kulkarni, Harshad; Datta, Saugata; Ikehata, Keisuke; Gao, Yongli: **INVESTIGATING BIOLOGICAL METHODS FOR IMPROVING REVERSE OSMOSIS BASED DESALINATION OF BRACKISH GROUNDWATER IN BEXAR COUNTY, TEXAS**
- 110-10 4:00 PM Oehring, Brandie\*; Gutierrez, Melida: **IDENTIFYING NITRATE POLLUTION SOURCES AND CONTAMINATION**

**FOR GROUND WATER QUALITY USING A STABLE ISOTOPE APPROACH IN NORTHERN CEDAR COUNTY, MISSOURI**

- 110-11 4:15 PM Banerjee, Protik\*; Kulkarni, Harshad Vijay; Nagaraja, Thiba; Das, Suprem R.; Datta, Saugata: **ROLE OF ORGANIC MATTER IN MOBILIZATION OF PHOSPHORUS IN TALLGRASS PRAIRIE SOIL**
- 110-12 4:30 PM Varner, Thomas\*; Kulkarni, Harshad; Cardenas, M. Bayani; Knappett, Peter S.K.; Datta, Saugata: **CONTRASTING BIOGEOCHEMICAL CONTROLS ON ARSENIC MOBILIZATION IN REDUCING AQUIFER AND A POTENTIAL NATURAL REACTIVE BARRIER (NRB)**
- 110-13 4:45 PM Kulkarni, Harshad\*; Barua, Shovon; Kibria, Md Golam; Bhattacharya, Prosun; Datta, Saugata: **ROLE OF DISSOLVED ORGANIC MATTER IN CONTROLLING GROWTH OF COLIFORM BACTERIA IN ARSENIC CONTAMINATED GROUNDWATER OF SOUTHEAST BANGLADESH**
- 110-14 5:00 PM Datta, Saugata\*; Kulkarni, Harshad Vijay; Ford, Joshua Alexander; Park, Minkyu; Blank, Jennifer G.: **USING ANALYSES OF DISSOLVED ORGANIC MATTER IN WATERS FROM VOLCANIC CAVES TO IDENTIFY PREVAILING MICROBIAL METABOLISMS**
- 5:15 PM **DISCUSSION-II**
- 5:25 PM **CONCLUDING REMARKS**

SESSION NO. 111

**T131. Mountain Glaciation and Climate Change of the Past and Present II**

1:30 PM, Oregon Convention Center, D139/D140

Benjamin Laabs, Keith Brugger and Eric M. Leonard, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 111-1 1:35 PM Peltier, Carly\*; Kaplan, Michael; Schaefer, Joerg M.; Aravena, Juan Carlos; Soteres, Rodrigo L.; Sagredo, Esteban A.: **THE HOLOCENE GLACIER AND CLIMATE HISTORY OF CENTRAL PATAGONIA, A NEW RECORD FROM THE CALLUQUEO GLACIER**
- 111-2 1:50 PM Herbert, Jordan\*; Kelly, Meredith; Bromley, Gordon; Doughty, Alice; Ruiz-Carrascal, Daniel; Hidy, Alan J.; Restrepo-Moreno, Sergio A.: **CLIMATE CHANGE IN THE NORTHERN TROPICAL ANDES DURING TERMINATION 1 DERIVED FROM GLACIER RECONSTRUCTIONS: THE SIERRA NEVADA DEL COCUY CASE**
- 111-3 2:05 PM Marcott, Shaun\*; Jones, Andrew G.; Gorin, Andrew; Kennedy, Tori M.; Goehring, Brent M.; Shakun, Jeremy D.; Bromley, Gordon; Hein, Andrew; Jomelli, Vincent; Mateo, Emilio; Mark, Bryan; Menounos, Brian; Rodbell, Donald T.; Van Wyk de Vries, Maximilian; Wickert, Andrew: **HOLOCENE GLACIER LENGTH VARIATIONS ALONG THE AMERICAN CORDILLERAS FROM PAIRED 14C-10BE MEASUREMENTS**
- 111-4 2:20 PM Ye, Shan\*; Marcott, Shaun; Quinn, Daven P.; Cuzzzone, Joshua; Heyman, Jakob; Licciardi, Joseph M.; Ward, Dylan J.: **A QUANTITATIVE ASSESSMENT OF SNOW SHIELDING EFFECTS ON SURFACE EXPOSURE DATING IN THE WESTERN UNITED STATES**
- 111-5 2:35 PM Margason, Andrew\*; Anders, Alison M.; Roe, Gerard; D'Souza, Brian M.: **INFLUENCE OF PRECIPITATION GRADIENTS ON LEE-SIDE GLACIER DYNAMICS IN THE OLYMPIC MOUNTAINS, WASHINGTON STATE**
- 111-6 2:50 PM Enderlin, Ellyn\*; Bollen, Katherine; Muhlheim, Rebecca: **MULTI-DECADAL CHANGES IN ICE DYNAMICS FOR GREENLAND'S MARINE-TERMINATING PERIPHERAL GLACIERS AND ICE CAPS (Invited Presentation)**
- 3:10 PM **BREAK**
- 111-7 3:25 PM Woodard, Jacob\*; Zoet, Lucas; Iverson, Neal; Helanow, Christian: **INFERRING FORMS OF GLACIER SLIP LAWS**



- FROM ESTIMATES OF ICE-BED SEPARATION DURING GLACIER SLIP**
- 111-8 3:40 PM Rupper, Summer\*; Brewer, Simon; Forster, Richard; Schaefer, Joerg M.: **HIGH MOUNTAIN ASIA GLACIER SENSITIVITY AND TRANSIENT RESPONSE TO CLIMATE CHANGE (Invited Presentation)**
- 111-9 4:00 PM Stock, Greg M.\*; Avdievitch, Nikita; Painter, Thomas H.; Bormann, Kat J.; Anderson, Robert S.; Basagic, Hassan; Fountain, Andrew G.: **RECONSTRUCTING HISTORICAL VOLUME LOSS OF LITTLE ICE AGE GLACIERS IN YOSEMITE NATIONAL PARK**
- 111-10 4:15 PM Coffey, Jessica\*: **ROCK GLACIER HYDROLOGICAL SIGNIFICANCE IN A WARMING WORLD: A GEOECOLOGICAL TRANSECT IN THE NORTH CASCADES, WASHINGTON**
- 111-11 4:30 PM OConnell, Suzanne\*: **IMPACTS OF MELTING MOUNTAIN GLACIERS**
- 4:45 PM **DISCUSSION**
- SESSION NO. 112**
- T141. Reconstruction of Quaternary Paleoenvironments at Regional and Global Scales: A Tribute to Eric C. Grimm (1951–2020) (GSA Quaternary Geology and Geomorphology Division; GSA Geobiology and Geomicrobiology Division; GSA Geochronology Division; GSA Geoinformatics and Data Science Division; GSA Geoarchaeology Division; American Quaternary Association; GSA Sedimentary Geology Division; GSA Karst Division; Paleontological Society)*
- 1:30 PM, Oregon Convention Center, D136 (Hybrid Room)
- Rolfe Mandel, Julie Brigham-Grette and Cathy Whitlock, Presiding
- 112-1 1:30 PM Styles, Bonnie\*: **ERIC GRIMM'S INTERDISCIPLINARY CONTRIBUTIONS AND CAREER AT THE ILLINOIS STATE MUSEUM (Invited Presentation)**
- 112-2 1:45 PM Nanavati, William Parashar\*; Mueller, Pietra: **ERIC AS A MENTOR: LESSONS LEARNED FROM THE PALEOECOLOGICAL RECONSTRUCTION OF SWEETON POND, OZARK COUNTY, MISSOURI**
- 112-3 2:00 PM Williams, John\*; Goring, Simon; Blois, Jessica: **FROM NAPD TO THE NEOTOMA PALEOECOLOGY DATABASE: CARRYING ERIC'S VISION FORWARD (Invited Presentation)**
- 112-4 2:15 PM Jacobson, George L.\*; Grimm, Eric C.; Norton, Stephen A.; Jain, Shaleen: **INCREASED RISK TO HUMAN HEALTH FROM MOBILIZED TRACE METALS IN GROUNDWATER IS LINKED TO RISING SEA LEVEL, INCREASED PRECIPITATION, AND HUMAN IMPOUNDMENTS (Invited Presentation)**
- 112-5 2:30 PM Aiuvalasit, Michael\*: **ASSESSING THE POTENTIAL FOR ANTHROPOGENIC INFLUENCES ON FIRE-CLIMATE ANOMALIES IN PALEOECOLOGICAL RECORDS FROM THE EASTERN TALLGRASS PRAIRIE PENINSULA, USA USING SIMULATED CHARCOAL RECORDS**
- 112-6 2:45 PM Smith, Alison\*; Donovan, Joseph; Grimm, Eric C.: **CHANGING DRIVERS OF HOLOCENE DROUGHTS IN THE NORTHERN GREAT PLAINS**
- 112-7 3:00 PM Matmon, Ari\*: **GSA QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION FAROUK EL-BAZ AWARD FOR DESERT RESEARCH 2020: A NEW LOOK AT THE KALAHARI GROUP SEDIMENTS**
- 112-8 3:30 PM Mandel, Rolfe\*; Grimm, Eric; Jass, Chris; Mead, James I.: **A LATE-QUATERNARY PALEOENVIRONMENTAL RECORD FROM PARKER'S PIT, A NATURAL TRAP IN THE SOUTHERN BLACK HILLS OF SOUTHWESTERN SOUTH DAKOTA, USA**
- 112-9 3:45 PM Stine, Jonathan\*; Geissman, John W.; Sweet, Dustin E.: **ENVIRONMENTAL MAGNETISM AND PALEOMAGNETIC INVESTIGATION OF THE QUATERNARY HARPOLE**
- MESA FORMATION IN THE FISHER VALLEY BASIN, GRAND COUNTY, UTAH**
- 112-10 4:00 PM Grimm, Eric C.; Donovan, Joseph\*; Fritz, Sherilyn C.; Baker, Paul; Brown, Kendrick; Mueller, Pietra: **BRUSH LAKE, MONTANA: A LARGE EVAPORATIVE GROUNDWATER-DOMINATED LAKE WITH A COMPLEX SEDIMENT AND PALEOCLIMATIC RECORD**
- 112-11 4:15 PM Holbrook, John\*; Anderson, Justin; Goble, Ronald: **THE SAGA OF THE MISSOURI RIVER FROM LGM TO TODAY, AND WHAT THE VALLEY FILL TELLS OF THE RIVER'S RESPONSE TO ICE, RAIN, AND GIA**
- 112-12 4:30 PM Fastovich, David\*; Russell, James; Marcott, Shaun; Williams, John: **SPATIAL FINGERPRINTS AND MECHANISMS OF TEMPERATURE AND PRECIPITATION CHANGES DURING THE YOUNGER DRYAS IN EASTERN NORTH AMERICA**
- 112-13 4:45 PM Curry, Brandon\*: **SNOWY, WET AND CALM CONDITIONS DURING THE YOUNGER DRYAS IN NORTHEASTERN ILLINOIS**
- 112-14 5:00 PM Layzell, Anthony\*; Mandel, Rolfe D.: **THE PAST 14,000 YEARS: EVIDENCE FOR PERIODS OF WARMING AND ARIDITY FROM RIVER VALLEYS OF THE CENTRAL GREAT PLAINS**
- 112-15 5:15 PM Goring, Simon\*; Blois, Jessica; Dominguez Vidana, Socorro; Williams, John; Charles, Donald F.; Jacob, Jerrin: **PAVING THE FUTURE OF PALEOECOLOGY THROUGH OPEN, COMMUNITY-FOCUSED DATABASES**
- SESSION NO. 113**
- T150. Geoscience and Hydrology of Your Public Lands: STEM Internships, Research, Science, Mapping, Resource Management, and Education*
- 1:30 PM, Oregon Convention Center, D137
- Jason Kenworthy, Matthew Dawson, Limaris Soto, Chelsea Biting, F. Edwin Harvey and Brent H. Breithaupt, Presiding
- 1:30 PM **INTRODUCTORY REMARKS**
- 113-1 1:35 PM Gouzie, Douglas\*: **PUBLIC AWARENESS, NPS SOCIAL MEDIA, "STEALTH EDUCATION," AND UNDERGRADUATE ENROLLMENTS - WHAT MIGHT WORK?**
- 113-2 1:50 PM Seiser, Patricia\*: **SHAKE, RATTLE AND ROLL: INSTIGATING A CULTURAL SHIFT IN CAVE AND KARST MANAGEMENT**
- 113-3 2:05 PM Ledeczki, Anna\*; Seixas, Miranda: **CAVE AND KARST IDENTIFICATION AND INTERPRETATION IN WHITE RIVER NATIONAL FOREST**
- 113-4 2:20 PM Kemp, Jordan\*; Bacay, Ashleyann; Sutphin, Emma; Hays, David; Cannon, John: **UNPRECEDENTED WILDFIRE SEASON LEAVES LASTING IMPACT ON CAVE RESOURCES: A CASE STUDY FROM LAVA BEDS NATIONAL MONUMENT**
- 113-5 2:35 PM Garcia, Angel\*; Mogyar, R.: **EXPANDING CAVE AND KARST SCIENCE IN THE FORM OF SUMMER RESEARCH EXPERIENCES FOR UNDERGRADUATES**
- 2:50 PM **DISCUSSION PERIOD 1**
- 113-6 3:00 PM Breithaupt, Brent\*; Matthews, Neffra A.; Hunt-Foster, ReBecca; McDonald, H. Gregory; Lockley, Martin: **CHASING THEROPODS ACROSS AN EARLY JURASSIC SAND SEA: "PALEOCAMP" OPPORTUNITIES FOR YOUNG CITIZEN SCIENTISTS TO HELP DISCOVER, DOCUMENT, INTERPRET, MANAGE, AND PRESERVE AN ANCIENT TRACKSITE IN THE NAVAJO SANDSTONE OF SOUTHEASTERN UTAH**
- 113-7 3:15 PM McElvogue, Bryce\*; DeVault, Grace: **THIS IS NOT A DRILL: FOSSIL PREPARATION AS A TOOL FOR SCIENCE COMMUNICATION**

Monday, 11 October 2021

- 113-8 3:30 PM Crystal, Victoria\*; Santucci, Vincent L.; Tweet, Justin S.: **PROACTIVE PALEONTOLOGICAL RESOURCE INVENTORY AND MONITORING CULMINATES IN IMPORTANT FOSSIL DISCOVERIES WITHIN NATIONAL PARK SERVICE AREAS**
- 113-9 3:45 PM Wilkins, William\*; Schumacher, Bruce; Beasley, Barbara A.: **ARE THOSE OLD BONES JUST FOSSILS? ASSESSING VERTEBRATE PALEONTOLOGICAL RESOURCES IN NEAR-TIME**
- 4:00 PM **DISCUSSION PERIOD 2**
- 113-10 4:10 PM Kragh, Natali\*; Orme, Devon; Myers, Madison: **DETERMINING THE LITHOLOGY AND GEOLOGIC MAP UNITS OF MOUNT EVERTS, YELLOWSTONE NATIONAL PARK, WY**
- 113-11 4:25 PM Nandi, Arpita\*; Farmer, Samantha; O'Shea, Thomas; Bilderback, Eric L.; Joyner, Andrew T.; Gregg, Chris; Watts, Chester F.: **RISK ESTIMATION OF HIGH PRIORITY UNSTABLE ROCK SLOPES IN GREAT SMOKY MOUNTAINS NATIONAL PARK, TENNESSEE AND NORTH CAROLINA**
- 113-12 4:40 PM Bonner, Hannah\*: **MONITORING NOVEL TOXIGENIC CYANOBACTERIA IN ZION NATIONAL PARK**
- 113-13 4:55 PM Burchill, Andrew\*; Potvin, Lynette R.; Wolfe, Jared D.: **HOW NATIONAL PARK MANAGEMENT AND CHANGING MOOSE POPULATIONS AFFECT BIRD COMMUNITIES IN THE GREAT LAKES REGION**
- 5:10 PM **CONCLUDING REMARKS**

#### SESSION NO. 114

*T152. Advances in Undergraduate Research and Education, Colorado Geology, and Igneous Petrology II: Celebrating the 55-Year Career of Reinhard "Bud" Wobus (National Association of Geoscience Teachers (NAGT); GSA Geoscience Education Division; Council on Undergraduate Research Geosciences Division)*

1:30 PM, Oregon Convention Center, B113/B114 (Hybrid Room)

Brock Riedell, Rachel Beane and Cathryn Manduca, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 114-1 1:35 PM Coombs, Michelle\*; Loewen, Matthew W.; Dietterich, Hannah R.: **USING IGNEOUS PETROLOGY TO INFORM FORECASTS OF VOLCANIC ACTIVITY**
- 114-2 1:50 PM Klemetti, Erik\*; Kent, Adam; Cooper, Kari M.; Hernandez, Lindsey D.; Herrold, Emily: **TESTAMENT TO YOUTH IN ZIRCON: NEAR ERUPTION-AGE ZIRCON CRYSTALLIZATION OVER THE PAST 50,000 YEARS AT MT. HOOD, OREGON (Invited Presentation)**
- 114-3 2:05 PM Beane, Rachel\*: **COMBINING SEM-EBSD AND CL ANALYSES FURTHERS IGNEOUS INTERPRETATIONS AND UNDERGRADUATE RESEARCH**
- 114-4 2:20 PM Seeger, Christina\*; Grotzinger, John P.; Thompson, Lucy M.; Kah, L.C.: **UNPACKING DIAGENETIC OVERPRINTS ASSOCIATED WITH THE CLAY-SULFATE TRANSITION IN GALE CRATER, MARS**
- 2:35 PM **BREAK**
- 114-5 2:50 PM Dobson, Patrick\*; Kneafsey, Timothy J.; Blankenship, Doug; White, Mark D.; Morris, Joseph P.; Fu, Pengcheng; Schwering, Paul; Ajo-Franklin, Jonathan; Huang, Lianjie; Knox, Hunter A.; Strickland, Christopher; Burghardt, Jeffrey; Johnson, Timothy; Neupane, Ghanashyam; Weers, Jon; Horne, Roland; Singh, Ankush; Roggenthen, William; Ulrich, Craig; Hopp, Chet; Doe, Thomas; Ingraham, Mathew; Mattson, Earl D.: **THE POWER OF COLLABORATION – TEAM SCIENCE TO ADDRESS KEY QUESTIONS FOR ENHANCED GEOTHERMAL SYSTEMS: THE EGS COLLAB PROJECT**

- 114-6 3:05 PM Davis, Nell\*: **THE USE OF SCIENCE COMMUNICATION STRATEGIES ON MOUNT MONADNOCK: FROM PUBLIC EDUCATION TO MOUNTAIN RESCUE OPERATIONS**
- 114-7 3:20 PM Andry, Eloise\*: **FROM ROCKS TO STOCKS: PREPARING GEOLOGY MAJORS FOR NON-TRADITIONAL CAREERS**
- 114-8 3:35 PM Riedell, K. Brock\*: **TOMICHI PORPHYRY COPPER-MOLYBDENUM DEPOSIT, GUNNISON COUNTY, COLORADO**
- 114-9 3:50 PM Anderson, Rebecca\*: **ALLIANCE FOR CLIMATE EDUCATION: EDUCATING YOUTH ABOUT THE CLIMATE CRISIS AND EMPOWERING THEM TO ACT**
- 114-10 4:05 PM Davidson, Cameron\*; Wirth, Karl R.: **THE KECK GEOLOGY CONSORTIUM: A CONTINUING LEGACY OF REINHARD (BUD) WOBUS**
- 4:20 PM **DISCUSSION**

#### SESSION NO. 115

*T159. Hands-On Teaching Demonstrations that Combine Geoscience and Societal Issues: Audience Participation Requested! (GSA Geoscience Education Division; National Association of Geoscience Teachers (NAGT); GSA Structural Geology and Tectonics Division; GSA Marine and Coastal Geoscience Division; GSA Soils and Soil Processes Division)*

1:30 PM, Oregon Convention Center, B112

Elizabeth Nagy and Tiffany A. Rivera, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 115-1 1:35 PM van der Hoeven Kraft, Katrien J.\*: **INCLUSIVE PRACTICES WHEN INTRODUCING CLIMATE, CLIMATE CHANGE, AND RACISM (Invited Presentation)**
- 115-2 1:55 PM Pound, Katherine\*: **TEACHING DEMONSTRATIONS AND LABORATORY ACTIVITIES FOR VISION-IMPAIRED STUDENTS – BUILDING COMMUNITY SO ALL STUDENTS DO BETTER**
- 115-3 2:10 PM Whitmeyer, Shelley\*: **VIRGINIA'S BARRIER ISLANDS: A VIRTUAL FIELD EXPERIENCE FOR STUDENTS (Invited Presentation)**
- 115-4 2:30 PM Berg, Christopher A.\*: **VIRTUAL FIELD TRIPS IN GOOGLE EARTH AS A TOOL TO PROVIDE LOCAL CONTEXT FOR INTRODUCTORY GEOLOGY STUDENTS**
- 115-5 2:45 PM Rivera, Tiffany\*: **BREAKING THE ICE WITH A BLANK MAP**
- 115-6 3:00 PM Heberer, Mikelia\*; Jeninga, Esther; Steck, Brett; Sanders, Peyton; Bhattacharyya, Prajukti: **HANDS-ON DEMONSTRATIONS OF SLOPE FAILURE HAZARDS FOR TEACHING AND COMMUNITY OUTREACH**
- 115-7 3:15 PM Gildner, Raymond\*; Dattilo, Benjamin: **A GIS EXERCISE FOR INTRODUCTORY GEOLOGY COURSES**
- 3:30 PM **BREAK**
- 115-8 3:45 PM Voorhees, David\*: **IS YOUR (VIRTUAL) EARTHQUAKE LAB MAKING YOU GO IN CIRCLES? (Invited Presentation)**
- 115-9 4:05 PM Crayne, Jenny\*; Deras, Kimberly; Stewart, Raquel; Sumy, Danielle F.: **INTERACTIVE APPROACHES TO EARTHQUAKE EDUCATION: RESOURCES AND STRATEGIES FROM SHAKEALERT® EARTHQUAKE EARLY WARNING**
- 115-10 4:20 PM Moore, Alexandra\*; Zabel, Ingrid H.H.; Ross, Robert; Haas, Don: **KITCHEN CLIMATE SCIENCE**
- 115-11 4:35 PM Nagy, Elizabeth\*: **CULMINATING WEATHER MAP JIGSAW ACTIVITY FOR INTRODUCTORY EARTH SCIENCE STUDENTS**
- 115-12 4:50 PM Jauregui, Estefania\*; Martindale, Rowan; Ellins, Kathy; Henry, Denise; Gordon-Smith, Debbie-Ann: **FACILITATING SPACES OF COLLABORATIVE LEARNING FOR GEOCONSERVATION USING A NEW BOARD GAME, REEF SURVIVOR JAMAICA**

- 115-13 5:05 PM Hendricks, Jonathan\*; Ross, Robert M.; Haas, Don; Zabel, Ingrid H.H.; Hermsen, Elizabeth J.: **EARTH@HOME: A NEW OPEN ACCESS WEBSITE TO HELP GEOSCIENCE EDUCATORS AND THEIR STUDENTS LEARN ABOUT THE EARTH WHERE THEY LIVE**
- 5:20 PM Willis, Siloa\*; Stern, Robert; Tsujimori, Tatsuki; Ryan, Jeffrey: **PLATE TECTONICS BASICS 3: METAMORPHISM AND PLATE TECTONICS, A NEW YOUTUBE VIDEO FOR USE IN THE UNDERGRADUATE CLASSROOM**

**SESSION NO. 129****GSA Hydrogeology Division Henry Darcy Distinguished Lecture**

4:00 PM, Oregon Convention Center, Portland Ballroom 253 (Hybrid Room)

Donald O. Rosenberry, Presiding

- 129-1 4:00 PM Zhu, Chen\*: **WATERSHED-SCALE HYDROLOGICAL MODELS AS A COMMUNITY CYBERPLATFORM FOR RESEARCH, TEACHING, AND SERVICE TO SOCIETY**

## AFTERNOON POSTER TECHNICAL SESSIONS

**SESSION NO. 116 Energy****T37. Geologic Energy Research (Posters) (GSA Energy Geology Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

Booth #

- 116-1 1 Palmer, Carl\*; Smith, Robert W.; Neupane, Ghanashyam; Mattson, Earl D.; McLing, Travis: **THE RESERVOIR TEMPERATURE ESTIMATOR (RTEST): A MULTICOMPONENT GEOTHERMOMETRY TOOL**
- 116-2 2 Smith, Connor\*; Lachmar, Thomas; Shervais, John; Evans, James P.; Newell, Dennis: **EVALUATION OF THE GEOTHERMAL POTENTIAL OF THE CAMAS PRAIRIE, SOUTH-CENTRAL IDAHO**
- 116-3 3 Wiggins, Adrian\*; Çemen, Ibrahim: **GEOTHERMAL GRADIENT AND HEAT FLOW IN THE BÜYÜK MENDERES GRABEN, WESTERN TURKEY**
- 116-4 4 Williams, Spencer\*: **REGIONAL CORRELATION AND DEPOSITIONAL HISTORY USING WELL LOG AND CORE DATA OF THE MIDDLE DEVONIAN MARCELLUS POSEIDON 8M WELL, WESTMORELAND COUNTY, PA, USA**
- 116-5 5 Murtaugh, John P.; Zobaa, Mohamed K.\*: **CHARACTERIZATION OF ORGANIC FACIES, PALEOGEOGRAPHY, AND THERMAL MATURITY OF EARLY LEONARDIAN AGED STRATA, MARTIN COUNTY, TEXAS**

**SESSION NO. 117****T38. Geologic Research at the Cascade Volcanoes: Ideal Natural Laboratories for Cutting-Edge Research with Implications for Life Safety and Infrastructure Protection in the Pacific Northwest (Posters) (GSA Quaternary Geology and Geomorphology Division; U.S. National Park Service; Geochemical Society)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

Booth #

- 117-1 6 Poland, Michael\*; McLay, Megan; Wicks, Charles: **HIGH-RESOLUTION INSAR REVEALS POST-ERUPTIVE LAVA DOME DEFORMATION AT MOUNT ST. HELENS, WASHINGTON**
- 117-2 7 Sobolewski, Linda\*; Stenner, Christian; Ionescu, Artur; Florea, Lee J.; Burgess, Sarah A.; Zorn, Edgar U.; Hansteen, Thor H.; Cartaya, Eduardo; Pflitsch, Andreas: **THE DEVELOPMENT OF**

**MOUNT ST. HELENS' CRATER GLACIER AFTER THE 2004-2008 DOME BUILDING ERUPTION**

- 117-3 8 Ireson, Rosemary\*; Todd, Claire; Koutnik, Michelle: **EVOLUTION OF DEBRIS COVER ON EMMONS GLACIER, MOUNT RAINIER, WASHINGTON**
- 117-4 9 Sheffo, Allison\*; Todd, Claire; Koutnik, Michelle; Williams, Henry; Yannello, Alex; Lungberg, Benjamin; Altenberger, Samuel: **SOURCES OF SUPRAGLACIAL DEBRIS ON EMMONS GLACIER, MOUNT RAINIER, WA**
- 117-5 10 Fontana, Baylee\*; Todd, Claire; Koutnik, Michelle; Flury, Bryce; Black, Logan; Krehbiel, Logan: **SURFACE ELEVATION CHANGE ON DEBRIS-COVERED EMMONS GLACIER, MOUNT RAINIER, WA**
- 117-6 11 Reyes, Luis\*; Todd, Claire: **TEMPORAL CHANGES IN PROGLACIAL STREAM TEMPERATURES IN WHITE RIVER, WA**

**SESSION NO. 118****D7. Recent Advances in Geochronology (Posters)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

Booth #

- 118-1 12 Apen, Francisco\*; Wall, Corey J.; Cottle, John; Schmitz, Mark D.; Kylander-Clark, Andrew R.C.; Seward, Gareth G.E.: **APATITES FOR DESTRUCTION: NEW REFERENCE APATITES FOR U-PB PETROCHRONOLOGY AND SM-ND AND SR ISOTOPE GEOCHEMISTRY**
- 118-2 13 Stone, Joshua S.\*; Mattinson, Chris G.: **EVALUATING THE IMPACT OF LASER OPERATING CONDITIONS ON PRECISION AND ACCURACY OF U/PB ANALYSIS BY LA-ICP-MS**
- 118-3 14 Acob, Erliana\*; Naranjo, Alexis; Marshall, Collin E.; Mattinson, Chris G.: **ZIRCON SEPARATION USING THE JCR CONCENTRATION TABLE**
- 118-4 15 Monito, Lindsey\*; Stoner, Joseph S.; Zhao, Xiangyu; Expedition 383 Scientists, IODP: **U-CHANNEL PALEOMAGNETIC RESULTS FROM IODP SITE U1543: DEVELOPING THE FIRST LONG, HIGH RESOLUTION PALEOINTENSITY RECORD FROM THE HIGH LATITUDE SOUTHERN HEMISPHERE AND CHRONOLOGICAL IMPLICATIONS FOR THE EVOLUTION OF THE PATAGONIAN ICE SHEET**
- 118-5 16 Paul, Molly\*; Schwartz, Darin; Schmitz, Mark D.: **HIGH-PRECISION U-PB ZIRCON GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY OF MANTLE-DERIVED XENOLITHS FROM THE KAAPVAAL CRATON**
- 118-6 17 Volante, Paul\*; Kaste, J.M.: **ADVANTAGES OF <sup>241</sup>AM AS A DATING TOOL IN SEDIMENTARY SYSTEMS**

**SESSION NO. 119****D11. The Role of Chemistry, Climate, and Geology in Controlling Subsurface Structure and Flow (Posters)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

Booth #

- INTRODUCTORY REMARKS**
- 119-1 18 Nerhus, Kaela\*; Stotler, Randy; Layzell, Tony; Kastens, Jude; Bowen, Mark; Baker, Debra; Brookfield, Andrea; Zipper, Samuel: **ANALYZING LAND USE EFFECTS ON RECHARGE THROUGH PLAYAS TO THE HIGH PLAINS AQUIFER IN WESTERN KANSAS**
- 119-2 19 Donovan, Keegan\*: **KARST SPRING PROCESSES AND STORAGE IMPLICATIONS IN HIGH ELEVATION, SEMI-ARID SOUTHWESTERN UNITED STATES**
- 119-3 20 Johnson, Henry M.\*; Kennedy, Joseph J.; Gingerich, Stephen: **TIMESCALES OF HYDROLOGIC VARIABILITY IN DESERT SPRINGS OF THE NORTHERN GREAT BASIN, OREGON AND NEVADA**



Monday, 11 October 2021

- 119-4 21 Johns, Thomas\*; Lee, Eung Seok: **CHARACTERIZING AND MODELING N<sub>2</sub>O GAS DYNAMICS IN A GROUNDWATER-DEPENDENT WETLAND**
- 119-5 22 Linville, Luke\*; Lee, Eung Seok: **THE QUANTIFICATION OF BIOGAS EMISSIONS FROM A GROUNDWATER-DEPENDENT ECOSYSTEM THROUGH NOVEL FIELD AND LABORATORY METHODS**
- 119-6 23 Thompson, Sarah\*; LaGrange, Ted; Stutheit, Randy; Varner, Dana; Bishop, Andy; Haacker, Erin M.K.: **HUMAN AND HYDROLOGIC INFLUENCES ON UNIQUE PLAYA WETLANDS**
- 119-7 24 Conway-White, Oliver\*; Parker, Beth L.; Steelman, Colby; Smirowski, Adam; Ugalde, Hernan; Arnaud, Emmanuelle; Munn, Jonathan D.; Brown, Jesse; Gorrie, Connor: **EVIDENCE FOR ROCK MECHANICAL LAYERS INFLUENCING CHANNEL MORPHOLOGY IN A BURIED BEDROCK VALLEY**
- 119-8 25 Price, Adam N.\*; Lindsey, Cary R.; Fairley, Jerry P.: **UNDERSTANDING MASS AND ENERGY LINKAGES ACROSS THE GROUND/ATMOSPHERE INTERFACE IN HYDROTHERMAL DISCHARGE AREAS**
- 119-9 26 Buzzard, Quinn\*; Langman, Jeff; Bartholomaeus, Timothy; Behrens, David: **TRACKING AQUIFER RECHARGE THROUGH PERTURBATIONS IN THE AMBIENT SEISMIC FIELD ALONG A MOUNTAIN-FRONT INTERFACE IN THE COLUMBIA RIVER BASALT PROVINCE**
- 119-10 27 Hacking, Tyler\*; Lewis, Annette; Emerman, Steven; Abbott, Morgan: **HOT SPRINGS IN THE WATERSHED OF UTAH LAKE, CENTRAL UTAH: AN ESSENTIAL COMPONENT OF A HYDROLOGIC MODEL FOR UTAH LAKE**
- 119-11 28 Deuerling, Kelly\*; Dere, Ashlee; Miller, Andrew; Stover, Lee A.: **INSIGHTS INTO GROUNDWATER FLOW PATHS IN AN INTENSIVELY MANAGED CRITICAL ZONE IN NEBRASKA**
- 119-12 29 Kniptash, Riley\*; Meyer, Jessica; Swanner, Elizabeth: **CHARACTERIZING DISSOLVED IRON CONCENTRATIONS AND GROUNDWATER FLUXES IN AN AQUIFER DISCHARGING TO A FERRUGINOUS, MEROMICTIC LAKE**
- 119-13 30 Williams, Ethan\*; Cadol, Daniel; Ma, Lin; Rinehart, Alex: **EMMA AND VOLUMETRIC STREAM GAUGING REVEAL MULTIPLE TIME-VARYING CONTRIBUTIONS TO AGRICULTURAL DRAINS ALONG RIO GRANDE, CENTRAL NM**

#### SESSION NO. 120

**T28. Groundwater–Surface Water Interactions in Streams, Lakes, and Wetlands (Posters) (GSA Hydrogeology Division; GSA Karst Division; GSA Soils and Soil Processes Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- | Booth # |                                                                                                                                                                                                                                     |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 120-1   | 31 Hoss, Kendyl*; Sultana, Rakiba; Meurer, Cullen; Hatami, Jiyan; Tigar, Aaron; Johnson, Raymond; Paradis, Charles: <b>DIRECT RIVER WATER TO GROUNDWATER RECHARGE EXPERIMENTS TO ELUCIDATE MASS TRANSPORT MECHANISMS OF URANIUM</b> |
| 120-2   | 32 Kuentz, Lily*; Levy, Joseph; Salvatore, Mark: <b>MAPPING THE EXTENT AND TIMING OF EPHEMERAL ANTARCTIC WETLANDS USING HIGH-TEMPORAL RESOLUTION SATELLITE IMAGERY OF THE MCMURDO DRY VALLEYS</b>                                   |
| 120-3   | 33 Aman, Lindsey*; Knights, Deon; Russoniello, Christopher: <b>SURFACE WATER – GROUNDWATER INTERACTIONS CONTRIBUTING TO ANNUAL AND SEASONAL SHRINKAGE OF ARCTIC LAKES</b>                                                           |
| 120-4   | 34 Corona, Claudia*; Ge, Shemin: <b>EXAMINING SUBSURFACE RESPONSE TO AN EXTREME PRECIPITATION EVENT USING HYDRUS 1D</b>                                                                                                             |
| 120-5   | 35 Riedel, Jake*; Peterson, Eric; Dogwiler, Toby; Seyoum, Wondwosen Mekonnen: <b>EFFECTS OF THERMAL VARIATION ON FLOW DYNAMICS IN THE HYPORHEIC ZONE</b>                                                                            |

- |        |                                                                                                                                                                                                                                           |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 120-6  | 36 Sepúlveda, Rosa; Alam, Mohammad Ayaz*: <b>SHRINKING OF GROUNDWATER-DEPENDENT LAGUNA SANTA ROSA WETLAND IN THE CHILEAN ALTIPLANO: A CRITICAL ASSESSMENT BASED ON REMOTE SENSING AND PIEZOMETRIC DATA</b>                                |
| 120-7  | 37 Dawson, Claudia*; Yelderma, Joe; Brewer, Will: <b>GROUNDWATER/ SURFACE WATER INTERACTIONS: GRAVEL PIT LAKES IN THE BRAZOS RIVER ALLUVIUM AQUIFER</b>                                                                                   |
| 120-8  | 38 Emerman, Steven*: <b>AN ASSESSMENT OF PEACH CREEK AS A NATURAL STREAM, HORRY COUNTY, SOUTH CAROLINA</b>                                                                                                                                |
| 120-9  | 39 Kirksey, Keitrece*; Fairfax, Emily: <b>ONE YEAR OF BEAVER MODIFICATIONS TO A LARGE SANDY RIVER: A CASE STUDY IN CENTRAL CALIFORNIA</b>                                                                                                 |
| 120-10 | 40 Croy, Marina; Culbertson, Haley; Goldmann, Christopher; Willis, Noah; Roquemore, Margaret Grace; Lyon, Eva C.; Hinkle, Margaret*: <b>ASSESSING MANGANESE CONCENTRATIONS IN SPRING AND GROUNDWATER ACROSS THE SHENANDOAH VALLEY, VA</b> |
| 120-11 | 41 Quinlan, Kaelyn*; Brown, Megan; Fairfax, Emily: <b>GROUNDWATER DYNAMICS AND CONTRIBUTIONS WITHIN THE ASHLEY-BRUSH BASIN, UTAH</b>                                                                                                      |
| 120-12 | 42 Nichol, Craig*; Pyett, Nicole: <b>DIRECT MEASUREMENT OF GROUNDWATER DISCHARGE TO A LARGE LAKE</b>                                                                                                                                      |

#### SESSION NO. 121

**T66. New Frontiers in Cave and Karst Research (Posters): In Honor of the International Year of Caves and Karst (GSA Karst Division; GSA Geochronology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Quaternary Geology and Geomorphology Division; GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Geophysics and Geodynamics Division; GSA Geobiology and Geomicrobiology Division; National Cave and Karst Research Institute; Karst Waters Institute)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- | Booth # |                                                                                                                                                                                                                |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 121-1   | 43 Kent, W. Norman*: <b>PENN-PERM STRATIGRAPHY AND KARST OF THE MOGOLLON RIM AND SLOPE, ARIZONA</b>                                                                                                            |
| 121-2   | 44 Downey, Autumn*; Vesper, Dorothy: <b>CHARACTERIZATION OF NATURAL ORGANIC MATTER WITHIN CLASTIC CAVE SEDIMENTS USING PARAFAC MODELLING</b>                                                                   |
| 121-3   | 45 Wooten, Brynn*; Franks, Alexa; Sumrall, Jeanne Lambert; Kambesis, Patricia N.: <b>INCREASED FLOODING IN HIDDEN RIVER CAVE AND GEOSPATIAL MEASUREMENTS OF LAND USE CHANGES</b>                               |
| 121-4   | 46 Kambesis, Patricia*: <b>MAPPING THE “INCROPS” OF THE MAMMOTH CAVE SYSTEM</b>                                                                                                                                |
| 121-5   | 47 Cyrier, Michael*; Keenan, Sarah W.: <b>SEASONAL FLUCTUATIONS OF SUBSURFACE CONDITIONS IN RUSHMORE CAVE, KEYSTONE, SOUTH DAKOTA</b>                                                                          |
| 121-6   | 48 Blitch, William*; Tobin, Benjamin; Heimel, Sierra; Sovie, Adia: <b>USING A MACHINE-LEARNING APPROACH TO PREDICT CAVE LOCATIONS: IMPLICATIONS FOR SPELEOGENESIS</b>                                          |
| 121-7   | 49 Heimel, Sierra*; Blitch, William; Tobin, Benjamin; Burger, Paul: <b>A GEOSPATIAL ANALYSIS OF SPELEOGENESIS: USING PASSAGE MORPHOLOGY AND RESOURCE INVENTORY DATA TO QUANTIFY CONTROLS ON CAVE FORMATION</b> |
| 121-8   | 50 Lyles, Alexander*; Jerez, Marjorie: <b>A SEMI-AUTOMATED KARST FEATURE PREDICTION MODEL FOR THE WHITE RIVER NATIONAL FOREST, COLORADO BASED ON BARE-EARTH LIDAR IMAGERY</b>                                  |
| 121-9   | 51 Franks, Alexa*; Sumrall, Jeanne Lambert; Kambesis, Patricia N.: <b>DYE TRACING AND THE EFFECTS OF INFRASTRUCTURE IN HIDDEN RIVER CAVE, HORSE CAVE, KY</b>                                                   |
| 121-10  | 52 Mogary, R.*; Garcia, Angel: <b>UNDERGRADUATE RESEARCH OPPORTUNITIES IN CAVE AND KARST SCIENCE (U-ROCKS)</b>                                                                                                 |



- 121-11 53 Rudolph, Max Gustav\*; Collenteur, Raoul; Giese, Markus; Kavousi, Alireza; Wöhling, Thomas; Noffz, Torsten; Hartmann, Andreas; Birk, Steffen; Reimann, Thomas: **EVALUATION OF TRANSFER FUNCTION NOISE MODELLING AND DIMENSIONALITY REDUCTION TECHNIQUES FOR KARST SYSTEMS**
- 121-12 54 Jones, Daniel\*; Veni, George; Havlena, Zoë; Labrado, Amanda; Brunner, Benjamin: **ORIGIN AND SIGNIFICANCE OF SULFATE MINERAL CRUSTS IN THE CAVERNS OF SONORA, SUTTON COUNTY, TEXAS**

**SESSION NO. 122**

*T87. New Perspectives on Phanerozoic Mass Extinctions and Environmental Perturbations (Posters) (GSA Geobiology and Geomicrobiology Division; Paleontological Research Institution; Paleontological Society; GSA Marine and Coastal Geoscience Division)*

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |        | Booth # |                                                                                                                                                                                                                                                                                                                                  |
|--------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 122-1  | 55      | Calderón Convers, Liliana*; Cui, Ying; Jiang, Shijun; De Palma, Maurizia; Gachetti, Anthony: <b>PALEOENVIRONMENT RECONSTRUCTION IN THE EASTERN TETHYS DURING THE PALEOCENE-EOCENE THERMAL MAXIMUM USING TRACE METAL GEOCHEMISTRY</b>                                                                                             |
| 122-2  | 56      | Chilcoat, Gwyneth*; Oh, Ashlyn; Pippenger, Kate; Cohen, Phoebe: <b>A COMPREHENSIVE EXAMINATION OF ABSOLUTE AND RELATIVE MICROFOSSIL ABUNDANCE DURING THE LATE DEVONIAN KELLWASSER EVENTS IN THE APPALACHIAN BASIN</b>                                                                                                            |
| 122-3  | 57      | Crowley, Kiera*; Allmon, Warren D.; Lowery, Christopher M.; Myers, Corinne; Naujokaityte, Jone; Witts, James D.: <b>REGIONAL EXTINCTION OF, AND SUBSEQUENT RECOLONIZATION BY, TURRITELLINE GASTROPODS IN THE U.S. GULF COASTAL PLAIN FOLLOWING THE K-PG MASS EXTINCTION</b>                                                      |
| 122-4  | 58      | Dastas, Natalie Rose*; Chamberlain, John; Garb, Matthew; Landman, Neil; Sloan, J. Carson: <b>DINOFLLAGELLATE CYST BIOSTRATIGRAPHY ACROSS THE CRETACEOUS-PALEOGENE (K-PG) BOUNDARY NEAR THE CITY OF MALVERN, HOT SPRINGS COUNTY, ARKANSAS, USA</b>                                                                                |
| 122-5  | 59      | Golding, Martyn*: <b>ABUNDANT CONODONT FAUNAS FROM THE LOWER AND MIDDLE TRIASSIC OF SUBSURFACE BRITISH COLUMBIA, CANADA, AND THE NORTH AMERICAN RECORD OF NEOGONDOLELLIN DIVERSIFICATION AROUND THE SMITHIAN-SPATHIAN BOUNDARY</b>                                                                                               |
| 122-6  | 60      | Luksch, Corinne K.*; LeRoy, Matthew A.; Harrison, William B.; Formolo, Michael J.; Riedinger, Natascha; Caruthers, Andrew H.; Gill, Benjamin; Them, Theodore R.: <b>EVALUATING SEDIMENTARY MERCURY CONCENTRATIONS ACROSS THE LATE DEVONIAN FRASNIAN-FAMMENIAN MASS EXTINCTION EVENT FROM THE MICHIGAN AND APPALACHIAN BASINS</b> |
| 122-7  | 61      | Maxeiner, Philip-Peter*; Ritterbush, Kathleen; Yager, Joyce A.; Rosas, Silvia; Bottjer, David J.; Corsetti, Frank: <b>NEW 87SR/86SR DATA FROM THE MARINE CARBONATE DEPOSITS OF THE PUCARÁ GROUP, PERU DURING THE TRIASSIC-JURASSIC TRANSITION</b>                                                                                |
| 122-8  | 62      | Mellum, Morgan*; Gulbranson, Erik; Corti, Valentina; Dalhseid, Aidan; Atkinson, Brian A.; Ryberg, Patricia E.; Cornamusini, Gianluca: <b>PALEOCLIMATE-INDUCED STRESS ON POLAR FORESTED ECOSYSTEMS PRIOR TO THE PERMIAN-TRIASSIC MASS EXTINCTION</b>                                                                              |
| 122-9  | 63      | Olsen, Amelia E.*; Svec, Ginny; Jones, David S.; Fike, David A.; Pruss, Sara B.: <b>ANIMAL ABUNDANCE AND CHANGING REDOX CONDITIONS DURING THE FURONGIAN CAMBRIAN SPICE EVENT, WESTERN UTAH</b>                                                                                                                                   |
| 122-10 | 64      | Orchard, Cade*; Cole, Selina: <b>ECOLOGICAL DRIVERS OF BODY SIZE EVOLUTION IN BRACHIOPODS AND TRILOBITES ACROSS THE LATE ORDOVICIAN MASS EXTINCTION</b>                                                                                                                                                                          |

- 122-11 65 Stone, Travis\*; Martindale, Rowan; Fonville, Tanner; Bodin, Stéphane; Vasseur, Raphaël; Lathuilière, Bernard; Kabiri, Lahcen: **ASSESSING MOROCCAN REEF ARCHITECTURE AND COMMUNITIES TO DEFINE THE ROLE OF EXTINCTIONS IN EARLY JURASSIC REEF EVOLUTION**
- 122-12 66 Williams, Claire\*; Christie, Max; Sclafani, Judith: **MORPHOLOGICAL CHANGES IN *CYCLOCARDIA GRANULATA* FOLLOWING THE PLIO-PLEISTOCENE EXTINCTION IN VIRGINIA AND NORTH CAROLINA, WESTERN ATLANTIC**

**SESSION NO. 123**

*T92. From the Burgess Shale to the Manis Mastodon: 500 Million Years of Environmental & Evolutionary Change in the Great Northwest (Posters) (Paleontological Society; GSA Geochronology Division)*

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |       | Booth # |                                                                                                                                                                                  |
|-------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 123-1 | 67      | Hernandez, Mariana*; Cohen, Phoebe; Busch, James; Strauss, Justin: <b>ENIGMATIC PHOSPHATIC TUBULAR FOSSILS FROM THE EARLY-MIDDLE PALEOZOIC BOUVETTE FORMATION, YUKON, CANADA</b> |
| 123-2 | 68      | Donahue, Aaron; MacKenzie, Lindsay*: <b>PRELIMINARY TAPHOFACIES OF THE METALINE LIMESTONE, METALINE FALLS, WA</b>                                                                |
| 123-3 | 69      | Lubisich, Jeffrey*; Orcutt, John: <b>SEXES OR SPECIES? CASE STUDIES IN CARNIVORAN BODY SIZE AND TAXONOMY FROM GERMANY AND IDAHO</b>                                              |
| 123-4 | 70      | Orcutt, John*: <b>THE STORIES THIS VALLEY COULD TELL: THE MIOCENE FAUNAS OF THE COLUMBIA BASIN AS A FOUNDATION FOR PLACE-BASED EDUCATION AND OUTREACH</b>                        |
| 123-5 | 71      | Hunt, Molly*; Caledo, Jonathan; Claxton, Alexander; Jiménez-Hidalgo, Eduardo: <b>COMPARATIVE ANALYSIS OF BODY SIZE EVOLUTION WITHIN POCKET GOPHERS (RODENTIA, GEOMYIDAE)</b>     |
| 123-6 | 72      | Lubbers, Kelly*; Famoso, Nicholas: <b>OCCLUSAL ENAMEL COMPLEXITY OF BEAVERS (RODENTIA: CASTOROIDEA) FROM JOHN DAY FOSSIL BEDS NATIONAL MONUMENT, OREGON</b>                      |

**SESSION NO. 124**

*T22. Rhyolites, Take a Bow! Examining the Production of Rhyolite Magma in Continental Arc Settings (Posters) (Geochemical Society; GSA Geochronology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)*

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |       | Booth # |                                                                                                                                                                                                                              |
|-------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 124-1 | 73      | Isom, Shelby*; Ruth, Dawn; Blatter, Dawnika; Andrews, Graham; Ware, Jayden: <b>THE ORIGINS AND IMPLICATIONS OF FELDSPAR MEGACRYSTS IN SILICIC LAVAS AND DOMES OF THE INYO CHAIN, LONG VALLEY CALDERA, EASTERN CALIFORNIA</b> |
| 124-2 | 74      | Panahi, Fatema*; Walker, J. Douglas; Andrew, Joseph: <b>BIMODAL MAGMATISM IN THE LATE JURASSIC SIERRA NEVADA CONTRACTIONAL ARC, CALIFORNIA</b>                                                                               |
| 124-3 | 75      | Pitcher, Bradley*; Gualda, Guilherme A.R.: <b>THREE THOUSAND YEARS OF BUILD-UP TO THE BIG ONE: MAGMATIC STORAGE AND TIMESCALES OF PRECURSORY AND CLIMACTIC ERUPTIONS OF AIRA CALDERA, JAPAN</b>                              |
| 124-4 | 76      | Scroggs, Andrea*; Klemetti, Erik; Mcleod, Jennifer; Kent, Adam: <b>EXPLORING CORRELATIONS BETWEEN TUMALO VOLCANIC CENTER DEPOSITS WITH QUARTZ AND PLAGIOCLASE CATHODOLUMINESCENCE ZONING PATTERNS</b>                        |

Monday, 11 October 2021

- 124-5 77 Brooks, C.\*; Kempton, Pamela; Rader, M.: **MELT INCLUSIONS IN GRANULITE XENOLITHS FROM THE GERONIMO VOLCANIC FIELD: EVIDENCE FOR THE NATURE OF CRUSTAL MELTING PROCESSES**
- 124-6 78 Herbst, Thomas\*; Whittington, Alan; Clynne, Michael A.: **A RHEOLOGICAL INVESTIGATION OF THE 1915 SILICIC LAVAS AT LASSEN PEAK, CALIFORNIA**
- 124-7 79 Lewis, Charles\*; de Silva, Shanaka L.; Burns, Dale: **PRODUCTION AND PRESERVATION OF SMALL VOLUME RHYOLITIC MELTS RECORDED IN THE MIDST OF A MONOTONOUS CONTINENTAL ARC FLARE-UP - THE HETEROGENEOUS CASPANA IGIMBRITE OF THE ALTIPLANO-PUNA VOLCANIC COMPLEX OF THE CENTRAL ANDES**
- 124-8 80 Mcleod, Jennifer\*; Kent, Adam; Klemetti, Erik: **CHARACTERIZING SILICIC MAGMA GENERATION WITHIN CENTRAL OREGON: THE TUMALO VOLCANIC CENTER**

#### SESSION NO. 125

***T136. Eolian Processes, Landforms, and Chronologies (Posters)***  
***(GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; GSA Soils and Soil Processes Division)***

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |        | Booth # |                                                                                                                                                                                                                                        |
|--------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 125-1  | 81      | Bloch, Daniel*; Kerr, Phillip: <b>EASTERN IOWA DUNE ORIENTATION AS A PROXY FOR EFFECTIVE WIND DIRECTION DURING THE LATE WISCONSINAN</b>                                                                                                |
| 125-2  | 82      | Schaetzl, Randall*: <b>A NEW, PRELIMINARY, LOESS MAP FOR WISCONSIN</b>                                                                                                                                                                 |
| 125-3  | 83      | Norris, Emmet*; Aarons, Sarah M.; Ferrier, Ken; Hu, Kai; Blakenship, Rain: <b>GEOCHEMICAL AND MINERALOGICAL ANALYSIS OF DUST DEPOSITION ON SAN JACINTO PEAK, CA: ELEVATION AND SEASONAL VARIABILITY</b>                                |
| 125-4  | 84      | Stubbins, Blake*; Brunner, Austin; Pullen, Alexander; Leier, Andrew; Barbeau, David L.: <b>A PRELIMINARY ASSESSMENT OF DUST PRODUCTION PATHWAYS FROM SOUTHERN SOUTH AMERICAN PLEISTOCENE LOESS USING DETRITAL ZIRCON GEOCHRONOLOGY</b> |
| 125-5  | 85      | Baldauf, Paul*; Burkhart, Patrick; Miles, Maraina: <b>RECENT FINDINGS IN QUATERNARY AEOLIAN CHRONOLOGIES IN THE WHITE RIVER BADLANDS, SOUTH DAKOTA</b>                                                                                 |
| 125-6  | 86      | Carlson, Kaci*; Aerts, Rene; Brown, Sarah C.; Waalkes Hanson, Amelia; DeVries-Zimmerman, Suzanne J.; Philben, Michael: <b>INFLUENCES ON THE GEOCHEMISTRY OF AN INTERDUNAL WETLAND/SLACK IN THE LAKE MICHIGAN COASTAL DUNES</b>         |
| 125-7  | 87      | Weeden, Taylor L.*; Forman, Steven L.; Sweeney, Mark: <b>EVIDENCE FOR A NORTHERN DUST BOWL: HEIGHTENED WIND EROSION AND DUST SOURCES DURING THE 1930S IN THE NORTHERN GREAT PLAINS, USA</b>                                            |
| 125-8  | 88      | Harsha, Gwenn L.*; Sweeney, Mark; McDonald, Eric: <b>TESTING THE PREFERENTIAL DUST SOURCE SCHEME USING THE PI-SWERL IN THE NORTHERN CHIHUAHUAN DESERT, NEW MEXICO AND TEXAS</b>                                                        |
| 125-9  | 89      | Dendy, Sarah*; Conroy, Jessica L.; Grimley, David; Guenther, William; Kerr, Phillip; Pigati, Jeffrey S.: <b>LGM ISOSCAPE OF CENTRAL NORTH AMERICA: IMPLICATIONS FOR AN ICE-PROXIMITY CLIMATE GRADIENT</b>                              |
| 125-10 | 90      | Bader, Nicholas*; Coates, Molly; Elliott, McKenzie; McGann, Gabriella Elizabeth; Stroyk, Sarah; Burmester, Russell F.: <b>MAGNETIC SUSCEPTIBILITY AND ITS CAUSES IN THE PALOUSE LOESS, EASTERN WASHINGTON</b>                          |
| 125-11 | 91      | Thieme, Donald*: <b>REMNANT RIVERINE DUNES OF THE GEORGIA COASTAL PLAIN: NEW DATA FROM THE VALDOSTA AREA</b>                                                                                                                           |

#### SESSION NO. 126

***D30. Recent Advances in Structural Geology (Posters)***

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |        | Booth # |                                                                                                                                                                                                                                                           |
|--------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 126-1  | 92      | Maher, Harmon*; Persinger, Emily: <b>BRULE FORMATION CLASTIC DIKES OF THE GREAT PLAINS, YET ANOTHER TYPE?</b>                                                                                                                                             |
| 126-2  | 93      | Soucey, Charles*; Dean, Sarah L.: <b>INVESTIGATING GRAVITY-DRIVEN SHALE TECTONICS: RESULTS FROM CLAY MODELS</b>                                                                                                                                           |
| 126-3  | 94      | Johnston, Kyrsten*; Mitra, Gautam: <b>MECHANICAL DIFFERENCES BETWEEN LIFT-OFF FOLDS AND DISHARMONIC FOLDS: EXAMPLES FROM THE SEVIER FOLD-THRUST BELT, WESTERN SAN RAFAEL SWELL, UT AND THE HUDSON VALLEY FOLD-THRUST BELT, NY</b>                         |
| 126-4  | 95      | Jayne, Caylee*; Campbell, Patricia; Anderson, Thomas H.: <b>STRUCTURAL FEATURES WITHIN SLIDES AND DEBRIS FLOWS OF THE MORGANTOWN SANDSTONE, EASTERN MARGIN OF THE APPALACHIAN PLATEAU, WESTERN PENNSYLVANIA</b>                                           |
| 126-5  | 96      | Workman, Noah*; Tindall, Sarah E.: <b>OUTCROP-SCALE STRUCTURAL ANALYSIS OF THE BLUE MOUNTAIN RIDGE NEAR PORT CLINTON, PA</b>                                                                                                                              |
| 126-6  | 97      | McLain, Jacob*; Mayo, Dave P.: <b>JOINTS IN THE MIDDLE-PENNSYLVANIAN MCALESTER FORMATION, FORT SMITH, ARKANSAS</b>                                                                                                                                        |
| 126-7  | 98      | Wells, Sarah B.*; Lynn, Ashley S.; Stewart, Kevin G.: <b>REGIONAL CONTACT BETWEEN THE ASHE AND ALLIGATOR BACK METAMORPHIC SUITES IN NORTHWESTERN NORTH CAROLINA CORRESPONDS TO AN AMPHIBOLITE FACIES NORMAL FAULT</b>                                     |
| 126-8  | 99      | Greene, David*; Lackey, Jade Star; Hoffman, Charles F.: <b>REVISED GEOLOGIC MAP OF THE MINERAL KING PENDANT, SOUTHERN SIERRA NEVADA, CALIFORNIA, INDICATES EXTREME STRUCTURAL IMBRICATION OF A PERMIAN TO MID-CRETACEOUS VOLCANO-SEDIMENTARY SEQUENCE</b> |
| 126-9  | 100     | Heins, Julie*; Polun, Sean; Sandvol, Eric; Gomez, Francisco: <b>NEOTECTONIC ASSESSMENT OF THE SOUTHERN WASSUK RANGE FAULT ZONE, WESTERN NEVADA</b>                                                                                                        |
| 126-10 | 101     | Rodgers, Naomi Joyce*; Platt, John: <b>INVESTIGATING THE GEOMETRY OF THRUST STRUCTURES IN THE PRE-EXTENSIONAL GREAT BASIN</b>                                                                                                                             |
| 126-11 | 102     | Rossi, Amanda*; Chapman, James; Haxel, Gordon B.: <b>TIMING AND KINEMATICS OF THE QUITOBAQUITO SHEAR ZONE, SOUTHWESTERN ARIZONA</b>                                                                                                                       |
| 126-12 | 103     | Barba, William*; Long, Sean; McKay, Matthew; Soignard, Emmanuel: <b>DEFINING THE THERMAL ARCHITECTURE OF THE SALMON RIVER SUTURE ZONE IN WEST-CENTRAL IDAHO USING RSCM THERMOMETRY</b>                                                                    |
| 126-13 | 104     | Adams, Susan A.*; Aman, Lindsey; Donati, Lauren; Lewis, Jonathan C.: <b>BRITTLE DEFORMATION: FAULT ANALYSIS IN TAIWAN'S EASTERN CENTRAL RANGE</b>                                                                                                         |

#### SESSION NO. 127

***D32. Recent Advances in Tectonics/Tectonophysics (Posters)***

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |       | Booth # |                                                                                                                                                                                               |
|-------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 127-1 | 105     | Altuntas, Gozde*; Gomez, Francisco; Polun, Sean: <b>REFINING THE ESTIMATE OF SLIP RATE ON THE OWL LAKE FAULT (EASTERN CALIFORNIA) AND IMPLICATIONS FOR THE TECTONICS OF THE GARLOCK FAULT</b> |
| 127-2 | 106     | Hecker, Suzanne*; Blair, J. Luke: <b>LIDAR MAPPING OF THE BENNETT VALLEY FAULT—DEFINING A CONNECTION BETWEEN MAJOR PLATE-BOUNDARY FAULTS IN NORTHERN CALIFORNIA</b>                           |

- 127-3 107 Fougere, Dannielle\*; Dolan, James F.; Anthonissen, Christoffel; Gauriau, Judith; Ivester, Andrew; McGill, Sally F.; Rhodes, Edward J.: **AT LEAST TWELVE-EVENT HOLOCENE TO LATE PLEISTOCENE PALEO-EARTHQUAKE RECORD ON THE CENTRAL GARLOCK FAULT AT KOEHN LAKE, SOUTHERN CALIFORNIA**
- 127-4 108 Sowers, Theron\*; Shimabukuro, David; Skinner, Steven: **GEOMETRY OF THE LATE CRETACEOUS SOUTHERN SIERRA NEVADA DETACHMENT SYSTEM: A COMPARISON OF PRE-SAN-ANDREAS-FAULT PALEOGEOGRAPHIC RECONSTRUCTIONS**
- 127-5 109 Harrigan, Claire\*; Trevino, Sarah; Schmitz, Mark D.; Tikoff, Basil: **TITANITE PETROCHRONOLOGY DATES SHEAR ZONE INITIATION TO BETWEEN 99 AND 96 MA IN THE WESTERN IDAHO SHEAR ZONE**
- 127-6 110 Parker, Stuart\*; Pearson, David M.: **THE PROGRESSION FROM THIN- TO THICK-SKINNED THRUSTING IN THE IDAHO-MONTANA FOLD-THRUST BELT RESULTED FROM STEP-DOWN OF THE BASAL DÉCOLLEMENT INTO BASEMENT ROCKS TOWARD THE CONTINENTAL INTERIOR**
- 127-7 111 Wildland, Alec\*; Regan, Sean; Holland, Mark E.: **TEMPORAL LINKS BETWEEN TECTONIC EXHUMATION, DUCTILE SHEARING, AND WIDESPREAD PLUTONISM NEAR THE BOUNDARY OF PARAUTOCHTHONOUS AND ALLOCHTHONOUS TERRINES IN THE NORTHERN CORDILLERA: EASTERN ALASKA**
- 127-8 112 Lahart, Eleanor\*; Price, Nancy A.: **A COMPARISON STUDY OF SCHISTS FROM THE SOUTHWEST EDGE OF THE GOSHEN DOME, WESTERN MASSACHUSETTS, USA**
- 127-9 113 Williams, Sheri\*; Farris, David: **INVESTIGATIONS OF THE BREVARD FAULT ZONE WITHIN THE GRANDFATHER MOUNTAIN WINDOW, NC USING POTENTIAL FIELD GEOPHYSICS: TERRANE SUTURE?**
- 127-10 114 Mere, Andre\*; Barth, Nicolas; Kylander-Clark, Andrew R.C.: **INSIGHTS INTO THE TECTONIC EVOLUTION OF THE SOUTHERN ALPINE FAULT FROM MAPPING, PETROGRAPHY, AND ZIRCON U-PB GEOCHRONOLOGY AT KAIPO RIVER, NEW ZEALAND**
- 127-11 115 Khatri, Sanju\*; Giri, Bibek; Nepal, Kabindra; Paudyal, Kabi Raj: **GEOLOGY OF NAUBISE TISTUNG AREA, LESSER HIMALAYA, NEPAL**
- 127-12 116 Schiffer, Joel\*; Robinson, Delores; Faisal, Shah: **LOCATING THE MAIN CENTRAL THRUST IN THE KAGHAN VALLEY, PAKISTAN: INSIGHTS FROM DETRITAL ZIRCON GEOCHRONOLOGY**
- 127-13 117 Amine, Afaf\*; EL Ouardi, Hmidou: **VOLUBILIS PIGGY-BACK BASIN DEVELOPMENT IN RESPONSE TO GROWING FAULT-RELATED FOLDS, FROM THE SOUTH RIFIAN RIDGES, NORTHERN MOROCCO**
- 127-14 118 Grambling, Tyler A.\*; Jessup, Micah J.; Newell, Dennis; Methner, Katharina; Mulch, Andreas; Hughes, Cameron A.; Shaw, Colin: **ASSESSMENT OF STABLE ISOTOPE-BASED LAPSE RATES IN THE UPPER RIO SANTA WATERSHED, CORDILLERA BLANCA, PERU, AND IMPLICATIONS FOR REGIONAL PALEOALTIMETRY STUDIES**

**SESSION NO. 128**

***T5. Geologic and Geomorphic Evolution of the Columbia River Basin (Posters) (GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)***

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

Booth #

- 128-1 119 Staisch, Lydia\*; Sadowski, Andrew J.: **PLIOCENE ISOLATION OF THE KITTITAS VALLEY FROM THE COLUMBIA BASIN AND IMPLICATIONS FOR UPLIFT OF THE HOG RANCH-NANEUM ANTICLINE**

- 128-2 120 O'Connor, Jim\*; Cannon, Charles M.; Schwid, Maxwell F.; Staisch, Lydia; Engstrom, Jessica; Lee, Simon: **10,000 PEBBLES OF THE COLUMBIA RIVER BASIN—A PROVENANCE ASSESSMENT**
- 128-3 121 Anderberg, Mira M.\*; Smith, Jenner; Bader, Nicholas E.; Persico, Lyman P.: **GEOMORPHIC LANDSCAPES OF THE INLAND PACIFIC NORTHWEST BASED ON COMPARATIVE WEATHERING AT TWO FIELD SITES**
- 128-4 122 Jones, Dylan R.\*; Bees, Brandon; Bader, Nicholas E.; Persico, Lyman P.: **OUT OF THE BLUE(S): A COMPARISON OF BASALT WEATHERING RATES AT TWO SITES IN DIFFERENT STRATIGRAPHIC POSITIONS IN THE BLUE MOUNTAINS OF OREGON**
- 128-5 123 Davis, Elizabeth\*: **INTERTIDAL EVIDENCE FOR A COLUMBIA RIVER DAM-BREAK FLOOD IN THE 15<sup>TH</sup> CENTURY CE**
- 128-6 124 Deans, Benjamin\*; Ely, Lisa L.; Hackenberger, Steven; MacInnes, Breannyn: **GEOMORPHIC HISTORY AND PRESERVATION OF ARCHAEOLOGICALLY SIGNIFICANT AREAS IN THE HANFORD REACH OF THE COLUMBIA RIVER, WASHINGTON STATE**
- 128-7 125 Fixler, Samuel\*; Ely, Lisa L.; Gazis, Carey; Lipton, Jennifer: **DECADAL-SCALE EFFECTS OF LARGE WOOD RESTORATION ON CHANNEL MORPHOLOGY AND GROUNDWATER CONNECTIVITY, TANEUM CREEK, WA**
- 128-8 126 Last, George\*; Maughan, Anne E.: **PROVENANCE OF CARBONATE ERRATICS FOUND AT THE COYOTE CANYON MAMMOTH SITE, KENNEWICK, WASHINGTON**

**TUESDAY, 12 OCTOBER 2021**

**MORNING ORAL TECHNICAL SESSIONS**

**SESSION NO. 130**

***D13. Recent Advances in Paleoclimatology/Paleoceanography***

8:00 AM, Oregon Convention Center, D137

Vera Korasidis, Brenden Fischer-Femal and William Rush, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 130-1 8:05 AM Kunert, Alex\*; Poulton, Simon W.; Kendall, Brian: **SHIFT IN GLOBAL OCEAN REDOX STRUCTURE CAPTURED BY URANIUM ISOTOPES FROM 1.84 GA ROVE FORMATION (ONTARIO, CANADA) BLACK SHALES**
- 130-2 8:20 AM Lu, Xinze\*; Edwards, Cole; Kendall, Brian: **REVISITING A TREMADOCIAN (EARLY ORDOVICIAN) MASS EXTINCTION EVENT AND OCEAN ANOXIA: NEW INSIGHTS FROM TRACE METAL ABUNDANCES AND URANIUM ISOTOPE COMPOSITIONS OF CARBONATES FROM THE GREAT BASIN REGION, WESTERN USA**
- 130-3 8:35 AM Zeebe, Richard\*: **EARTH SYSTEM FORCING AND RESPONSE: THE PALEOCENE-EOCENE THERMAL MAXIMUM VS. THE FUTURE**
- 130-4 8:50 AM Fischer-Femal, Brenden\*; Bowen, Gabriel J.: **EXPLORING SOIL CARBON BURIAL OVER THE PALEOCENE EOCENE THERMAL MAXIMUM: A CASE STUDY OF SOIL CARBON RESPONSE TO RAPID WARMING**
- 130-5 9:05 AM Rush, William\*; Zachos, James C.; Blackburn, Terry; Finnegan, Noah J.; von Strandmann, Phillip Pogge: **CHANGES IN PROVENANCE AND SEDIMENT TRANSPORT ALONG THE MID-ATLANTIC DURING THE PETM: IMPLICATIONS FOR HYDROCLIMATE**
- 130-6 9:20 AM Korasidis, Vera\*; Wing, Scott; Nelson, David; Baczynski, Allison A.; Harrington, Guy: **REWORKED POLLEN REDUCES APPARENT FLORAL CHANGE DURING THE PALEOCENE-EOCENE THERMAL MAXIMUM**

MONDAY

PM

POSTERS



- 130-7** 9:35 AM Wing, Scott\*; Morse, Paul E.; Vitek, Natasha; Bloch, Jonathan I.; Korasidis, Vera; Baczynski, Allison A.; Bowen, Gabriel J.; Kraus, Mary J.: **AN EARLIEST EOCENE CONGLOMERATE IN THE BIGHORN BASIN, WYOMING, AND POSSIBLE RELATIONSHIP TO THE PALEOCENE-EOCENE THERMAL MAXIMUM**
- 130-8** 9:50 AM Pérez-Angel, Lina\*; Sepúlveda, Julio; Montes, Camilo; Molnar, Peter; Smith, Jamila J.; Gonzalez-Arango, Catalina; Snell, Kathryn E.; Dildar, Nadia: **STABLE ISOTOPES OF PLANT WAXES IN THE NORTHERN TROPICAL ANDES: A PROXY FOR PALEOLATIMETRY STUDIES IN COLOMBIA?**
- 130-9** 10:05 AM Thompson, Natalie; Caissie, Beth\*: **SEA ICE DURING MARINE ISOTOPE STAGE 11 (424-374 KA) IN THE BERING SEA**
- 130-10** 10:20 AM Behrens, Bethany\*; Yokoyama, Yusuke; Miyairi, Yosuke; Sproson, Adam David; Yamane, Masako; Jimenez-Espejo, Francisco J.: **HOLOCENE GLACIAL DYNAMICS OF EAST ANTARCTICA DETECTED BY BERYLLIUM ISOTOPE RATIOS FROM THE ADÉLIE BASIN**
- 130-11** 10:35 AM Grunow, Anne\*; Maletic, Erica: **THE POLAR ROCK REPOSITORY: A RESOURCE FOR UNDERSTANDING GLOBAL EVENTS**
- 130-12** 10:50 AM Chowdhury, Shafiul; Chowdhury, Shafiul\*; Hodder, Donald: **A SUCTION LYSIMETER STUDY TO EVALUATE THE EFFECTS OF SOIL MOISTURE QUALITY AND QUANTITY ON THE GROWTH OF SUMMER SQUASH**
- 130-13** 11:05 AM Paltseva, Anna\*; Slukovskaya, Marina; Sarzhanov, Dmitry; Drogobuzhskaya, Svetlana; Dvornikov, Yury; Vasenev, Viacheslav: **AN XRF APPLICATION FOR ASSESSING SOIL POLLUTION ON AN INDUSTRIAL BARREN UNDER SEVERE CLIMATIC CONDITIONS OF THE ARCTIC REGION**
- 130-14** 11:20 AM White, Haskelle\*; Moreno, Victoria; Zhang, Xi; Sullivan, Pamela L.: **LINKING SOIL STRUCTURE AND GAS FLUXES TO CHANGING LAND COVER CONDITIONS**
- 130-15** 11:35 AM Spring, Isaiah\*; Nelson, Stephen: **CHEMICAL LEACHING OF OCEAN ISLAND BASALT: MULTIDIMENSIONAL REGRESSION OF PH, RAINFALL, VEGETATION COVER, AND TIME COMPARED TO LEACHING IN FIVE LAVA FLOW UNITS IN HAWAII**

**SESSION NO. 131**

***D26. Recent Advances in Sediments, Clastic***

8:00 AM, Oregon Convention Center, D135

Sven Egenhoff and Gregory Nadon, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 131-1** 8:05 AM Staub, Alexandra\*; Kamola, Diane; Baker, Gregory S.: **CHARACTERIZING AN INCISED VALLEY FILL IN THE ABERDEEN MEMBER, UPPER CRETACEOUS BLACKHAWK FORMATION, BOOK CLIFFS, UTAH**
- 131-2** 8:20 AM Hayes, Robert\*; DeCelles, Peter G.: **DETAILED FLUVIAL ANALYSIS OF THE SHINARUMP CONGLOMERATE IN UTAH AND NORTHERN ARIZONA**
- 131-3** 8:35 AM Duxbury, Jeffrey\*; Bentley, Sam: **IDENTIFICATION OF STRATIGRAPHY AND TEMPORAL SCALING OF MASS-WASTING SEDIMENT TRANSPORT REGIMES ACROSS THE MISSISSIPPI RIVER DELTA FRONT DELINEATED BY 210PB/137CS GEOCHRONOLOGY**
- 131-4** 8:50 AM Nadon, Gregory\*; Fox, James J.; Fugitt, Franklin: **THE BLACK HAND SANDSTONE MEMBER OF THE CUYAHOGA FORMATION: AN EARLY MISSISSIPPIAN LARGE RIVER DEPOSIT**
- 131-5** 9:05 AM Zallum, Ibrahim\*; Kamola, Diane: **DELTAIC FACIES OF THE TRIASSIC MOENKOPI FORMATION AT CAPITOL REEF NATIONAL PARK**

- 131-6** 9:20 AM Mondro, Claire\*; Fedo, Christopher M.; Moersch, Jeffrey E.: **DEPOSITIONAL STYLES OF ALLUVIAL FANS SOURCED FROM PRIMARILY BASALTIC CATCHMENTS**
- 131-7** 9:35 AM Whitmore, John\*: **A COMPARISON OF DIP ANGLES FROM ANCIENT CROSS-BEDDED SANDSTONES AND MODERN EOLIAN DUNES**
- 131-8** 9:50 AM Bidgoli, Tandis S.\*; Wang, Wei; Sturmer, Daniel: **CARBONIFEROUS TRANSITION FROM EXTRAREGIONAL TO LOCAL SEDIMENT SOURCES TIED TO INTRACONTINENTAL ANCESTRAL ROCKY MOUNTAINS DEFORMATION**
- 131-9** 10:05 AM Swanson-Hysell, Nicholas\*; Slotznick, Sarah; Zhang, Yiming; Pierce, James; Hodgkin, Eben; Fuentes, Anthony: **HEMATITE IN THE TIME OF GEOLOGY: LESSONS FROM SEDIMENTARY ROCKS OF THE NORTH AMERICAN MIDCONTINENT RIFT**
- 131-10** 10:20 AM Egenhoff, Sven\*: **THREE BAKKEN SHALES? INTRACRATONIC BASIN FLOODING AFTER A MAJOR EXPOSURE – THE WILLISTON BASIN IN THE LATE DEVONIAN**
- 131-11** 10:35 AM Martins, Gustavo\*; Etensohn, Frank R.; Knutsen, Stig-Morten: **UNDERSTANDING THE TECTONOSTRATIGRAPHIC DEVELOPMENT OF THE UPPER PERMIAN–MIDDLE JURASSIC CLASTIC SUCCESSION ON THE BARENTS SEA SHELF**

**SESSION NO. 132**

***D29. Recent Advances in Structural Geology***

8:00 AM, Oregon Convention Center, A106

John Singleton and Harmon Maher Jr., Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 132-1** 8:05 AM Hatcher, Robert D.\*: **FAULT ROCKS: A FOURTH CLASS OF ROCKS**
- 132-2** 8:20 AM Reeher, Lauren\*; Davis, George; Hughes, Amanda; Kemeny, John M.: **FINDING THE RIGHT PLACE IN MOHR CIRCLE SPACE**
- 132-3** 8:35 AM Goldsby, Ryan\*; Swanger, William; Thigpen, James; Powell, Nicholas E.: **QUANTIFYING STRESS CONDITIONS OF DEFORMATION BAND FORMATION ADJACENT TO SALT STRUCTURES, SOUTHERN UTAH, USA**
- 132-4** 8:50 AM Ferroni, Felipe R.\*: **3D INTERPRETATION AS A TOOL TO UNRAVEL STRUCTURAL FRAMEWORK**
- 132-5** 9:05 AM Bose, Subham\*; Gupta, Saibal: **DOES PRESERVATION POTENTIAL OF STRETCHING LINEATION INDICATE VARIATION IN STRAIN-RATE? CASE STUDY FROM THE EASTERN GHATS PROVINCE, INDIA**
- 132-6** 9:20 AM Hummel, Natalie\*; Titus, Sarah; Waag-Swift, Seth: **SMALL-SCALE FAULTING AND BLOCK ROTATION NEAR THE HÚSAVÍK-FLATEY TRANSFORM FAULT IN NORTHERN ICELAND**
- 132-7** 9:35 AM Anthonissen, Christoffel\*; Wolfe, Franklin; Leon, Lorraine; Don, Jessica; Dolan, James F.; Shaw, John H.; Rittenour, Tammy; Rhodes, Edward J.; Ivester, Andrew: **FORE-LIMB AND BACK-LIMB FOLDING OF THE PUENTE HILLS BLIND-THRUST FAULT WITH IMPLICATIONS FOR PLEISTOCENE-HOLOCENE SLIP-RATE ESTIMATES AND SEISMIC HAZARD ANALYSIS IN THE LOS ANGELES BASIN, SOUTHERN CALIFORNIA**
- 132-8** 9:50 AM Moore, Diane\*; McLaughlin, Robert J.: **SERPENTINITE AND CREEP ALONG THE RODGERS CREEK FAULT, NORTHERN CALIFORNIA**
- 132-9** 10:05 AM Kirby, Stephen\*: **POTENTIAL THERMAL AND RHEOLOGICAL INSTABILITY OF SERPENTINITES IN MANTLE FOREARCS: EMPLACEMENT MECHANISMS BASED ON EVIDENCE FROM CALIFORNIA MERCURY MINES AND ROAD, AND COMMERCIAL EXCAVATIONS**



**132-10** 10:20 AM Chen, Tsai-wei\*; Fisher, Donald; Smye, Andrew J.; Hashimoto, Yoshitaka; Raimbourg, Hugues; Famin, Vincent: **QUANTIFICATION OF STRAIN RELATED TO INTERSEISMIC DEFORMATION ALONG SUBDUCTION INTERFACES USING CHEMICAL MASS-BALANCE ANALYSIS**

**SESSION NO. 133**

**T20. Structural Geology and Tectonics Division 40th Anniversary Symposium: Drivers of Orogenesis (GSA Structural Geology and Tectonics Division; GSA Geophysics and Geodynamics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Quaternary Geology and Geomorphology Division)**

8:00 AM, Oregon Convention Center, Portland Ballroom 257 (Hybrid Room)

Juliet Crider, Nancye Dawers, Eric Cowgill, Ramon Arrowsmith and Paul J. Umhoefer, Presiding

8:00 AM **INTRODUCTORY REMARKS**  
 8:05 AM **SPECIAL SYMPOSIUM FORMAT: TALKS AND POSTERS IN THE SAME ROOM.**  
 8:20 AM **POSTER DISCUSSION**  
 8:45 AM **INTRODUCTION OF PENROSE MEDALIST, BY JOHN F. DEWEY**

**133-1** 8:50 AM Dalziel, Ian\*: **PENROSE MEDAL: OVER THE HORIZON: CONNECTING CONTINENTS IN THE GIANT FOOTSTEPS OF DU TOIT AND HOLMES**

9:10 AM **INDRODUCTION TO 40TH ANNIVERSARY SYMPOSIUM**

**133-2** 9:15 AM Alvarez, Walter\*: **HOW GEOLOGISTS AND GEOCHEMISTS CAN HELP SOLVE THE 50-YEAR PROBLEM OF THE PLATE DRIVING MECHANISM**

**133-3** 9:30 AM Cooke, Michele\*: **ENERGY BUDGET OF OROGENESIS AND IMPLICATIONS OF A LAZY EARTH (Invited Presentation)**

**133-4** 9:50 AM Forte, Adam\*; Rossi, Matthew W.: **THE ROLE(S) OF SURFACE PROCESSES IN OROGENESIS – WHICH, WHETHER, AND WHY DETAILS MATTER (Invited Presentation)**

10:10 AM **LIGHTNING POSTER PREVIEWS (ONE SLIDE EACH).**

10:25 AM **POSTER DISCUSSION**

**SESSION NO. 134**

**T26. Environmental Geochemistry and Health (GSA Geology and Health Division; GSA Environmental and Engineering Geology Division; GSA Hydrogeology Division; GSA Geology and Society Division; GSA Soils and Soil Processes Division)**

8:00 AM, Oregon Convention Center, A107–A109

Jean Morrison, Ann Ojeda, Sarah Hayes and Nico Perdrual, Presiding

8:00 AM **INTRODUCTORY REMARKS**

**134-1** 8:05 AM Morrison, Jean\*; Manning, Andrew; Wanty, Richard B.; Walton-Day, Katie; Runkel, Robert L.; McGee, Ben Nevis: **THE USE OF MULTI-SCALE GEOCHEMICAL TECHNIQUES IN THE ASSESSMENT OF LEGACY MINE LAND REMEDIATION**

**134-2** 8:20 AM Toupal, Jonas\*; Gieré, Reto: **GEOCHEMISTRY OF SURFACE WATERS AROUND FOUR HARD-ROCK LITHIUM DEPOSITS IN CENTRAL EUROPE**

**134-3** 8:35 AM Dietrich, Matthew\*; Filippelli, Gabriel M.; Krekeker, Mark; Kousehlar, Masoomeh; Widom, Elisabeth: **USING METAL ISOTOPES AND STATISTICS TO UNRAVEL URBAN METAL POLLUTION CYCLING**

**134-4** 8:50 AM Hasan, M. Aziz\*; Sikder, Arif; Kabir, Mohammad Lutful; Keith, John; Binkhorst, Gordon; McCartor, Drew: **PILOTING RISK MITIGATION AT A LEAD CONTAMINATED SITE IN BANGLADESH**

**134-5** 9:05 AM Leonard, Maria\*; Farthing, Dori; LaGamba, Nicholas: **THE MORPHOLOGICAL AND CHEMICAL PROPERTIES OF**

**IRON SLAG FROM STANDISH, NY AND THE IMPACT OF WEATHERING**

**134-6** 9:20 AM Bione, Shannon\*; Ruhl, Laura: **DIRT ON THE STREETS: ENVIRONMENTAL AND HEALTH IMPACTS OF URBAN ROAD DUST IN LITTLE ROCK, ARKANSAS**

**134-7** 9:35 AM Walton-Day, Katherine\*; Hinck, Jo Ellen; Cleveland, Danielle; Duniway, Michael C.; Campbell, Kate M.: **STUDIES OF POTENTIAL HUMAN-HEALTH EFFECTS FROM BRECCIA-PIPE URANIUM MINING IN THE GRAND CANYON REGION, USA**

**134-8** 9:50 AM Wasylenki, Laura\*; Dunlap, Katherine; Johnson, Nancy; Chanda, Piyali: **CAN ROOT FUNGI INTERRUPT TROPHIC TRANSFER OF URANIUM FROM SOIL TO PLANTS TO SHEEP TO NAVAJO PEOPLE?**

**134-9** 10:05 AM Blake, Johanna\*; Brown, Jeb; Ferguson, Christina L.: **IDENTIFYING THE SOURCES OF METALS TO THE SAN JUAN RIVER THROUGH THE NAVAJO NATION, FOUR CORNERS REGION, USA**

10:20 AM **BREAK**

**134-10** 10:30 AM Malina, Natalia\*; Ojeda, Ann: **DIRECT MEASUREMENTS OF ARSENIC COMPLEXATION WITH DISSOLVED ORGANIC MATTER**

**134-11** 10:45 AM Higgins, Mark\*; Robbins, Gary A.; Metcalf, Meredith J.: **ARSENIC DISTRIBUTIONS IN RESIDENTIAL SOILS AND GROUNDWATER NEAR HISTORIC ORCHARDS TREATED WITH LEAD-ARSENATE PESTICIDES**

**134-12** 11:00 AM Smith, Zachary\*; Pollock, Erik D.; Shaulis, Barry; Samuelsen, John; Potra, Adriana; Ruhl, Laura: **ESTIMATING URBAN CONTRIBUTIONS TO SURFACE WATER THROUGH CL AND 87SR/86SR MIXING MODELS WITHIN THE FOURCHE CREEK WATERSHED, LITTLE ROCK, ARKANSAS**

**134-13** 11:15 AM Rossi, Marissa\*; Kremer, Peleg; Cravotta, Charles; Scheirer, Krista E.; Goldsmith, Steven T.: **IMPACTS OF IMPERVIOUS SURFACE COVER AND ROADWAY DEICING AGENT APPLICATION RATES ON CHLORIDE CONCENTRATIONS IN SOUTHEASTERN PENNSYLVANIA STREAMS**

**134-14** 11:30 AM Nell, Ryan M.\*; Mehta, Sunil; Petersen, Dennis: **DEVELOPMENT OF PRELIMINARY REMEDIATION GOALS PROTECTIVE OF GROUNDWATER BASED ON AN EFFICIENT FATE AND TRANSPORT MODELING APPROACH**

**134-15** 11:45 AM Edwards, Jaydee\*; Gieré, Reto: **CHARACTERIZATION AND FATE OF MICROPLASTICS AS EMERGING CONTAMINANTS IN PHILADELPHIA'S FRESHWATER SYSTEMS**

**SESSION NO. 135**

**T37. Geologic Energy Research I (GSA Energy Geology Division)**

8:00 AM, Oregon Convention Center, B115/B116 (Hybrid Room)

Laura Ruhl, Travis McLing and Richard Esposito Jr., Presiding

8:00 AM **INTRODUCTORY REMARKS**

**135-1** 8:05 AM Xiong, Fengyang\*; Rother, Gemot; Gong, Yiwen; Moortgat, Joachim; Radonjic, Mileva: **APPLICATION OF SUPERCRITICAL GAS ADSORPTION THEORIES IN ASSESSMENT OF ADSORBED GAS IN SHALES UNDER GEOLOGICAL CONDITIONS**

**135-2** 8:20 AM Awejori, Gabriel; Katende, Allan; Xiong, Fengyang\*; Radonjic, Mileva: **GEOCHEMICAL AND GEOMECHANICAL RESPONSES OF CANEY SHALE TO FRACTURING FLUID COMPOSITIONS AND RESERVOIR CONDITIONS**

**135-3** 8:35 AM Szyplski, Jozef\*; Henderson, Miles A.; Trentham, Robert C.; Verma, Sumit: **THE EFFECT OF DEEP EARLY PALEOZOIC FAULTING ON PERMIAN-AGED STRATA**

AM

TUESDAY

- WITH SEISMIC ATTRIBUTE ANALYSIS IN ECTOR COUNTY, TEXAS**
- 135-4** 8:50 AM Fishman, Neil\*; Egenhoff, Sven: **DIAGENETIC CONTROLS ON HYDROCARBON STORAGE IN CHERTS: EVIDENCE FROM THE WOODFORD SHALE, ARBUCKLE MOUNTAINS, OKLAHOMA**
- 135-5** 9:05 AM Adsul, Tushar\*; Ghosh, Santanu; Bhattacharyya, Sudip; Konar, Ritam; Varma, Atul Kumar: **STRUCTURAL AND CHEMICAL UPSHOTS WITH PROGRADING COAL RANK: A PERSPICACITY FROM SPECTRAL PROBES**
- 9:20 AM **BREAK**
- 135-6** 9:35 AM Neely, Samuel\*; Raymond, Anne: **THE INFLUENCE OF MACROINVERTEBRATES (FIDDLER CRABS AND PULMONATE SNAILS) ON MANGROVE PEAT TAPHONOMY AND PARTICLE SIZE, KEY LARGO, FLORIDA**
- 135-7** 9:50 AM Doiron, Kelsey\*; Sauer, Peter E.; Schimmelmann, Arndt; Drobniak, Agnieszka; Mastalerz, Maria; Brassell, Simon C.: **TRACING THE ROLE OF WATER IN CH<sub>4</sub> GENERATION VIA LONG-TERM, LOW TEMPERATURE EXPERIMENTAL MATURATION OF IMMATURE SHALES**
- 135-8** 10:05 AM Adeyilola, Adedoyin\*; Zakharova, Natalia; Liu, Kouqi; Gentzis, Thomas; Carvajal-Ortiz, Humberto; Oculalidet, Seare: **HYDROCARBON POTENTIAL OF THE DEVONIAN ANTRIM SHALE, MICHIGAN BASIN: INSIGHTS FROM ROCK-EVAL PYROLYSIS, THERMAL MATURITY AND ORGANOFACIES STUDIES**
- 135-9** 10:20 AM Agrawal, Vikas\*; Donmoyer, Shaun; Sharma, Shikha: **DEVELOPING A MOLECULAR-LEVEL UNDERSTANDING OF THE EFFECT OF OXIDATIVE BREAKERS IN SHALE-FRACTURING FLUID INTERACTIONS: IMPLICATIONS ON HYDROCARBON RECOVERY AND CRITICAL METAL (CM) RELEASE**
- 135-10** 10:35 AM Reed, Robert M.\*; Loucks, Robert G.: **COMPLEX ROLES FOR CALCITE IN ORGANIC-RICH MUDROCKS: USING MICROPETROGRAPHY TO UNDERSTAND GRAINS, FOSSILS, AND CEMENTS**
- 10:50 AM **CONCLUDING REMARKS**

**SESSION NO. 136**

***T40. Environmental and Engineering Geology Division I (GSA Environmental and Engineering Geology Division)***

8:00 AM, Oregon Convention Center, B111

Robert Mitchell, Thomas Oommen and Arpita Nandi, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 136-1** 8:05 AM Hatheway, Allen W.; Speight, Thomas\*: **GSA ENGINEERING AND ENVIRONMENTAL DIVISION BURWELL AWARD: MANUFACTURED GAS PLANT REMEDIATION—A CASE STUDY**
- 136-2** 8:20 AM Koepke, Bobbi\*; Frank, Kelly; McKay, Matthew: **APPLYING SUBSURFACE STRUCTURAL AND STRATIGRAPHIC ANALYSIS TO ASSESS CONTAMINATION HAZARDS FOR REGIONAL AQUIFERS**
- 136-3** 8:35 AM Thomason, Jason\*; Kim, Joon Han; Olson, Scott M.; Anderson, Andrew C.: **GEOTECHNICAL PROPERTIES OF GLACIAL SEDIMENTS USING CONE-PENETROMETER TESTING**
- 136-4** 8:50 AM Bhandari, Bharat\*; Dhakal, Subodh: **SHEAR BEHAVIOR ANALYSIS OF THE LANDSLIDE SOILS IN THE SIWALIK HILLS OF NEPAL**
- 136-5** 9:05 AM Hall, Cynthia\*; Ward, Kevin: **ENABLING ACCESS AND USE OF NASA EARTH SCIENCE DATA IN DISASTER SITUATIONS WITH THEMATIC DATA PATHFINDERS**
- 9:20 AM **BREAK**
- 136-6** 9:30 AM Macinnis, Jana\*; Kaspari, Susan: **CHARACTERIZING THE SPECTRAL REFLECTANCE OF ORGANICS FOUND ON SNOW AND ICE AT THE SUB-MICRON SCALE**

- 136-7** 9:45 AM Dwivedi, Dipankar\*; Ozgen, Ilhan; Steefel, Carl I.; Arora, Bhavna; Newcomer, Michelle; Xu, Zexuan; Mital, Utkarsh; Nico, Peter; Faybishenko, Boris; Molins, Sergi; Dafflon, Baptiste; Wainwright, Haruko; Fox, Patricia; Williams, Kenneth H.; Hubbard, Susan: **A SCALE-ADAPTIVE FRAMEWORK TO PREDICT WATER AND NUTRIENT FLUXES ACROSS LAND-WATER INTERFACES**
- 136-8** 10:00 AM Gonzalez-Duque, Daniel\*; Gomez-Velez, Jesus D.; Person, Mark; Kelley, Shari; Lucero, Dolan; Luong, Loc: **WHAT CAN ELECTROMAGNETIC METHODS TELL US ABOUT THE NESTED NATURE OF GROUNDWATER FLOW IN MOUNTAINOUS WATERSHEDS?**
- 136-9** 10:15 AM Agbogun, Henry\*; Ali, Hendratta; Atekwana, Eliot A.; Njilah, Isaac Konfor; Latimer, Jennifer: **ASSESSMENTS OF HEAVY METALS IN SEDIMENT FROM RIVER TRANSECTS IN THE WOURI ESTUARY**
- 136-10** 10:30 AM Jimenez, Adrian\*; Bershaw, John; Gall, Scott; Saslaw, Mae: **INVESTIGATING THE EFFECTS OF HYDROLOGIC RESTORATION ON WATER FLUX ACROSS SAUVIE ISLAND, OREGON**
- 136-11** 10:45 AM Lawless, Michael\*: **CHANGES TO ENVIRONMENTAL CONSULTING FOLLOWING COVID-19**

**SESSION NO. 137** 

***T54. Geology, Hydrogeology, and Hydrochemistry of Non-Traditional Basin Resources (GSA Hydrogeology Division; GSA Energy Geology Division; Geochemical Society)***

8:00 AM, Oregon Convention Center, D139/D140

Benjamin Jay Rostron, Gavin Jensen and Leslie Robbins, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 137-1** 8:05 AM Alessi, Daniel\*; Seip, Adam; Safari, Salman: **EXTRACTION OF LITHIUM FROM BASINAL BRINES**
- 137-2** 8:25 AM Lewis, Joshua M.\*; Engle, Mark: **METHOD DEVELOPMENT FOR PRECONCENTRATION AND QUANTIFICATION OF CRITICAL VALUABLE ELEMENTS IN PERMIAN BASIN PRODUCED WATERS**
- 137-3** 8:40 AM Bishop, Brendan\*; Jensen, Gavin; Alessi, Daniel; Robbins, Leslie: **RARE EARTH ELEMENTS IN SUBSURFACE BRINES OF SASKATCHEWAN: PRELIMINARY FINDINGS**
- 137-4** 8:55 AM McIntosh, Jennifer\*; Kim, Jihyun; Marza, Mohammad; Bailey, Lydia; Lucero, Dolan; Tyne, Rebecca; Ferguson, Grant; Barton, Isabel; Barton, Mark D.; Ballentine, Chris; Person, Mark; Reiners, Peter W.: **EMERGENT BEHAVIOR OF SUBSURFACE MICROBE-ROCK-FLUID SYSTEMS RELATED TO CU, U, V, AND LI MINERALIZATION**
- 137-5** 9:10 AM Loree, Peter E.\*; Quan, Tracy M.: **CHARACTERIZING ORGANIC COMPOUND CLASSES AND TRENDS WITHIN PRODUCED WATER FROM BLACK WARRIOR BASIN, ALABAMA, USA**
- 137-6** 9:25 AM Molofsky, Lisa J.; Engle, Mark\*: **WATER OF CONDENSATION: A NEWLY IDENTIFIED WATER END-MEMBER IN SHALE GAS WELLS**
- 137-7** 9:40 AM Stotler, Randy\*; Shen, Yizhi; Frape, Shaun K.; Gwynne, Rhys; Newell, K. David; Mesich, Nickolas; Meinzinger, Shayna: **SEQUENTIAL EXTRACTION FOR DETERMINING δ<sup>8</sup>BR AND δ<sup>37</sup>CL COMPOSITIONS OF ORGANIC MATTER IN COAL BED METHANE AND SHALE DEPOSITS, CHEROKEE BASIN, USA**
- 137-8** 9:55 AM Kutsienyo, Eusebius\*; Appold, Martin: **COMPARATIVE ASSESSMENT OF CO<sub>2</sub>-SEQUESTRATION IN THE FARNSWORTH, TEXAS HYDROCARBON FIELD USING THE STOMP-EOR, TOUGHREACT, AND GEM REACTIVE TRANSPORT SIMULATORS**
- 10:10 AM **BREAK**
- 137-9** 10:30 AM Cozzarelli, Isabelle\*; Akob, Denise M.; Farag, Aida: **USGS ENERGY INTEGRATED SCIENCE TEAM: ASSESSING ACTUAL VS. PERCEIVED RISKS OF OIL AND GAS**

**PRODUCT AND WASTEWATER RELEASES TO SURFACE WATER AND GROUNDWATER**

- 137-10 10:45 AM Osadetz, Kirk\*; Utting, Nicholas; Wigston, Andrew; Lawton, Donald Caleb: **CHARACTERISTICS, MAGNITUDES AND IMPACTS OF PETROLEUM WELL INTEGRITY ISSUES IN ALBERTA**
- 137-11 11:00 AM Rinehart, Alex\*; Grigg, Joseph; Litherland, Mairi; Graves, Emily; Martin, Luke; Grapenthin, Ronni: **SPATIAL AND TEMPORAL PATTERNS OF SALT WATER DISPOSAL BY FORMATION AND CORRELATION WITH SEISMICITY, 2010 TO 2020, DELAWARE BASIN AND CENTRAL BASIN PLATFORM, SOUTHEASTERN NM**
- 137-12 11:15 AM Woroniuk, Blake\*; McIntosh, Jennifer; Ferguson, Grant: **HYDROGEOLOGY OF THE INTERMEDIATE ZONE BETWEEN DEEPER ANTHROPOGENIC ACTIVITIES AND SHALLOW AQUIFERS**
- 137-13 11:30 AM Utting, Nicholas\*; Namsechi, Behnam; McMullen, Craig; Brydie, James; Ahad, Jason: **LABORATORY-BASED SIMULATIONS OF SPILLS OF DILUTED BITUMEN VS. CONVENTIONAL CRUDE**
- 137-14 11:45 AM Bordeleau, Geneviève\*; Rivard, Christine; Roy, Jim; Ryan, M. Cathy: **LONG-TERM MONITORING OF METHANE CONCENTRATIONS IN A SHALE AQUIFER USING TOTAL DISSOLVED GAS PRESSURE (P<sub>TDG</sub>) PROBES: COMPARISON WITH DATA FROM GROUNDWATER SAMPLES**

**SESSION NO. 138** 

*T68. Lacustrine Systems around the World I: In Honor of Michael Rosen (GSA Limnogeology Division; GSA Geobiology and Geomicrobiology Division; GSA Continental Scientific Drilling Division; GSA Geochronology Division; GSA Marine and Coastal Geoscience Division; GSA Quaternary Geology and Geomorphology Division; American Quaternary Association; International Association of Limnogeology; SEPM (Society for Sedimentary Geology); Paleontological Society; GSA Sedimentary Geology Division)*

8:00 AM, Oregon Convention Center, Portland Ballroom 252 (Hybrid Room)

Scott W. Starratt and Bailee N. Hodelka, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 138-1 8:05 AM McGlue, Michael\*; Dilworth, John R.; Johnson, Hillary; Yeager, Kevin; Thigpen, James; Woolery, Edward W.; Brown, Summer J.; Cearley, Cooper S.; Clark, Gillian; Dixon, T. Spencer; Goldsby, Ryan; Helfrich, Autumn L.; Hodelka, Bailee N.; Johnson, Sarah; Domingos Luz, Leandro; Powell, Nicholas E.; Rasbold, Giliane G.; Swanger, William; Whitehead, Samuel J.: **SUBLACUSTRINE GEOMORPHOLOGY AND DEEPWATER CHEMOSTRATIGRAPHY REVEAL EFFECTS OF DAM INSTALLATION AT JACKSON LAKE (WYOMING, USA)**
- 138-2 8:20 AM Lopera Congote, Laura\*; Quang, Hung Ha; McGlue, Michael; Streib, Laura C.; Lyon, Eva; Stone, Jeffery: **FROM LARGE TO SMALL: USING GIS TO UNDERSTAND DIATOM DISTRIBUTION IN A HIGH-ALTITUDE LAKE**
- 138-3 8:35 AM Bernau, Jeremiah\*; Bowen, Brenda; Jagniecki, Elliot; Kipnis, Evan L.: **DIURNAL TO SEASONAL HYDROLOGICAL FLUCTUATIONS IN SALINE PANS, EXAMPLES FROM THE BONNEVILLE SALT FLATS, UTAH**
- 138-4 8:50 AM Medina ferrer, Fernando\*; Rosen, Michael R.; Feyhl-Buska, Jayme; Russell, Virginia; Sønnderholm, Fredrik; Loyd, Sean; Shapiro, Russell; Stamps, Blake W.; Petryshyn, Victoria A.; Demirel-Floyd, Cansu; Bailey, Jake V.; Johnson, Hope A.; Spear, John R.; Corsetti, Frank A.: **MICROBIAL ROLES IN THE RAPID FORMATION OF COLUMNAR TUFAS FROM BIG SODA LAKE, NEVADA**
- 138-5 9:05 AM Anderson, Lesleigh\*; Skipp, Gary L.; Strickland, Laura E.; Honke, Jeffrey; Havens, Jeremy; VanSistine, Paco: **HOLOCENE PALEOHYDROLOGY AND DROUGHT IN THE UPPER COLORADO RIVER BASIN FROM ALPINE**

**LAKE SEDIMENT ON THE WASATCH PLATEAU, CENTRAL UTAH, USA**

- 138-6 9:20 AM Benfield, Adam\*; Ivory, Sarah; Hodelka, Bailee N.; Zimmerman, Susan; McGlue, Michael: **TERRESTRIAL ECOSYSTEM RESPONSE TO ABRUPT CLIMATE CHANGE DURING THE LAST DEGLACIATION AROUND MONO LAKE, CALIFORNIA**
- 138-7 9:35 AM Starratt, Scott\*: **LATE QUATERNARY PALEOHYDROLOGY RECORD FROM MONO LAKE, CALIFORNIA, USA**
- 9:50 AM **BREAK**
- 10:05 AM **INTRODUCTORY REMARKS**
- 138-8 10:10 AM Reheis, Marith\*; Adams, Kenneth; Redwine, Joanna: **GSA QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION DISTINGUISHED CAREER AWARD 2020: 40 YEARS SEARCHING FOR ROUNDED GRAVELS: DRAINAGE CHANGES, FLOODS, AND BIG LAKES**
- 138-9 10:40 AM Adams, Kenneth\*: **THE BONNEVILLE SHORELINE: WIND AND WAVE PROCESSES, ISOSTATIC SUBSIDENCE, AND PROLONGED SPILL ALL LED TO THE TALLEST LACUSTRINE SHORELINES IN THE WORLD**
- 138-10 10:55 AM Menking, Kirsten\*; Bixby, Rebecca J.; Cutler, Savannah M.: **DIATOM EVIDENCE FOR A GROUNDWATER DIVIDE THAT LIMITED THE EXTENT OF LAKE ESTANCIA, NEW MEXICO HIGHSTANDS DURING THE LAST GLACIAL MAXIMUM**
- 138-11 11:10 AM Passey, Benjamin H.\*; Packard, Natalie R.; Kelson, Julia R.; Sheldon, Nathan; Niemi, Nathan; Rhodes, Rebekah L.; Hyland, Ethan G.; Carroll, Alan: **TRIPLE OXYGEN ISOTOPE PALEOHYDROLOGY OF EARLY EOCENE PALEOLAKE GOSIUTE (WYOMING, USA)**
- 11:25 AM **CONCLUDING REMARKS**

**SESSION NO. 139**

*T71. Advances and New Voices in Marine and Coastal Geoscience I (GSA Marine and Coastal Geoscience Division; GSA Geology and Society Division)*

8:00 AM, Oregon Convention Center, D136 (Hybrid Room)

Deirdre D. Ryan, Stephen C. Phillips, Rónadh Cox and Oana-Alexandra Dumitru, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 139-1 8:05 AM Cross, Malcolm\*; Penko, Allison M.; Mahon, Robert: **BIOPHYSICAL COHESION AND BEDFORM DYNAMICS**
- 139-2 8:20 AM Oakley, Bryan\*: **SEDIMENT DEPOSITION IN A BREAKWATER HARBOR; TOWARDS A SEDIMENT BUDGET FOR THE SOUTHERN RHODE ISLAND SHORELINE**
- 139-3 8:35 AM Swirski, Angie\*; Conley, Alison: **CASE STUDY ON PUBLICLY AVAILABLE LIDAR PRODUCTS FOR BATHYMETRIC AND GROUND FEATURE DETECTION**
- 139-4 8:50 AM Pan, Linda\*; Powell, Evelyn M.; Latychev, Konstantin; Mitrovica, Jerry X.; Creveling, Jessica R.; Gomez, Natalya; Hoggard, Mark J.; Clark, Peter U.: **RAPID POSTGLACIAL REBOUND AMPLIFIES GLOBAL SEA-LEVEL RISE FOLLOWING WEST ANTARCTIC ICE SHEET COLLAPSE**
- 139-5 9:05 AM Creveling, Jessica\*; Thompson, Schmitt; Latychev, Konstantin; Mitrovica, Jerry X.: **3D MANTLE VISCOSITY STRUCTURE IN GLACIAL ISOSTATIC ADJUSTMENT MODELS RESOLVES DISCREPANCIES IN MARINE ISOTOPE STAGE (MIS) 5A AND 5C GLOBAL MEAN SEA LEVEL PREDICTIONS (Invited Presentation)**
- 9:25 AM **DISCUSSION**
- 139-6 9:35 AM Dumitru, Oana-Alexandra\*; Dyer, Blake C.; Austermann, Jacqueline; Sandstrom, Michael; Cashman, Miranda; Goldstein, Steven L.; D'Andrea, William; Creel, Roger; Raymo, Maureen E.: **U-TH CHRONOLOGY OF BAHAMAS CORALS: IMPLICATIONS FOR TIMING AND MAGNITUDE OF LAST INTERGLACIAL SEA-LEVEL**

AM  
TUESDAY



Tuesday, 12 October 2021

- 139-7 9:50 AM Poirier, Robert\*; Cronin, Thomas; Katz, Miriam; Schaller, Morgan F.; Miller, Kenneth G.; Browning, James V.; McCoy, Kurt J.; Toomey, Michael; Willard, D.: **MULTI-PROXY CONSTRAINTS ON MARINE ISOTOPE STAGE 5E SEA-LEVEL POSITION IN THE U.S. ATLANTIC COASTAL PLAIN: IMPLICATIONS FOR GLACIO-ISOSTATIC ADJUSTMENT AND SEA-LEVEL MODELING**
- 139-8 10:05 AM Muhs, Daniel\*; Groves, Lindsey T.; Simmons, Kathleen R.; Schumann, R. Randall: **GLACIAL ISOSTATIC ADJUSTMENT PROCESSES AND ORBITAL FORCING MAY EXPLAIN THE ORIGIN OF THERMALLY ANOMALOUS MOLLUSCAN FOSSILS OF EARLY AND MIDDLE PLEISTOCENE MARINE TERRACE FAUNAS, SAN NICOLAS ISLAND, CALIFORNIA**
- 139-9 10:20 AM Christ, Andrew\*; Rittenour, Tammy M.; Bierman, Paul R.; Schaefer, Joerg M.; Knutz, Paul C.; Thomsen, Tonny B.; Keulen, Nynke; Fosdick, Julie; Hemming, Sidney R.; Keisling, Benjamin A.: **CAMP CENTURY SUBGLACIAL SEDIMENT PRESERVES EVIDENCE FOR DEGLACIATION OF NORTHWESTERN GREENLAND DURING MIS 11: IMPLICATIONS FOR PALEO-SEA LEVEL**
- 139-10 10:35 AM Gardner, Kevin\*; Dorsey, Rebecca: **USING CHANNEL PLANFORM GEOMETRIES TO IDENTIFY TIDAL CHANNELS ON RELICT LANDSCAPES: A NOVEL APPROACH TO TRACKING SEA LEVEL CHANGE**
- 139-11 10:50 AM Tasistro-Hart, Adrian\*; Macdonald, Francis: **PHANEROZOIC FLOODING OF NORTH AMERICA**
- 11:05 AM **DISCUSSION AND CONCLUDING REMARKS**

#### SESSION NO. 140

**T85. In Memory of Joanne Kluessendorf: The Winifred Goldring Award and the Promise of Women in Paleontology I (Association for Women Geoscientists; Paleontological Society; Paleontological Research Institution)**

8:00 AM, Oregon Convention Center, E141/E142 (Hybrid Room)

Patricia Kelley and Rene Shroat-Lewis, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 140-1 8:05 AM Kelley, Patricia\*: **JOANNE KLUESSENDORF'S LEGACY: THE WINIFRED GOLDRING AWARD AND THE PROMISE OF WOMEN IN PALEONTOLOGY**
- 140-2 8:20 AM Clary, Renee\*: **NEVERTHELESS, SHE PERSISTED: WINIFRED GOLDRING AND THE PRACTICE AND PUBLIC DISSEMINATION OF PALEONTOLOGY (Invited Presentation)**
- 140-3 8:35 AM Saube, Erin\*; Fenton, Isabel S.; Woodhouse, Adam; Aze, Tracy; Yasuhara, Moriaki; Farnsworth, Alexander; Valdes, Paul J.: **THE LATITUDINAL BIODIVERSITY GRADIENT FOR PLANKTONIC FORAMINIFERA OVER THE CENOZOIC**
- 140-4 8:50 AM Hupp, Brittany\*; Kelly, D. Clay; Jiang, Shijun: **RESPONSE OF HIGH-LATITUDE PLANKTIC FORAMINIFER COMMUNITIES TO THE PALEOCENE-EOCENE THERMAL MAXIMUM: INSIGHTS FROM THE SOUTHERN INDIAN OCEAN (ODP SITE 1135)**
- 140-5 9:05 AM Sikes, Melissa\*; Cordie, David R.; Fedorchuk, Nicholas; McDonough, Isabel: **ANALYSIS OF THE ENVIRONMENTAL CONDITIONS FOLLOWING THE LATE CAMBRIAN REEF ECLIPSE IN THE NOTCH PEAK FORMATION AND EASTERN NEVADA**
- 140-6 9:20 AM Hattori, Kelly\*; Kerans, Charles; Martindale, Rowan: **PALEOECOLOGY OF A MID-CRETACEOUS PATCH REEF: FOSSIL ASSEMBLAGES YIELD EVIDENCE OF ENVIRONMENTAL CHANGE THROUGH TIME**
- 9:35 AM **BREAK**
- 140-7 9:45 AM Thompson, Carmi Milagros\*; Felt, Elise; Portell, Roger W.; Kowalewski, Michał: **PALEOECOLOGY AND BIODIVERSITY OF PLIO-PLEISTOCENE MOLLUSK**

#### ASSEMBLAGES OF THE FLORIDA SHELL AND FILL QUARRY

- 140-8 10:00 AM Pulsipher, Mikaela A.\*; Rosbach, Stephanie A.; Wright, Lauren S.; Anderson, Evan; Mikulic, Donald; Schiffbauer, James D.: **ARTHROSQUAD ASSEMBLE! RECENT AND FORTHCOMING DESCRIPTIONS OF ARTHROPODS UNIQUE TO THE WAUKESHA LAGERSTÄTTE**
- 140-9 10:15 AM Schachat, Sandra\*: **BEHAVIORAL DIVERSIFICATION OF PALEOZOIC INSECTS: INSIGHTS FROM THE FOSSIL RECORD OF INSECT HERBIVORY**
- 140-10 10:30 AM Formoso, Kiersten\*: **COMPARING DEGREE OF MORPHOLOGICAL CHANGE ACROSS MARINE MAMMAL AND REPTILE GROUPS: INVESTIGATING THE INFLUENCE OF ANCESTRAL TERRESTRIAL ANATOMY ON THE LAND-TO-SEA TRANSITION**
- 140-11 10:45 AM Tate, Kellum\*: **A FORELIMB-DOMINATED SWIMMING MODE IS PLESIOMORPHIC FOR OTARIOID PINNIPEDS (MAMMALIA, CARNIVORA) AS REVEALED BY GEOMETRIC MORPHOMETRIC ANALYSIS OF HUMERAL MORPHOLOGY**
- 140-12 11:00 AM Colleary, Caitlin\*; Behrensmeier, Anna; Cleland, Timothy P.: **MOLECULAR SCALE PRESERVATION OF BONE DURING EARLY DIAGENESIS**
- 11:15 AM **DISCUSSION**

#### SESSION NO. 141

**T89. The Evolution of Early Phanerozoic Oceans: A Geobiological Perspective (Paleontological Society; GSA Geobiology and Geomicrobiology Division; GSA Marine and Coastal Geoscience Division; Geochemical Society)**

8:00 AM, Oregon Convention Center, E145

Pedro Monarrez, Joshua Zimmt and Richard Stockey, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 141-1 8:05 AM Jacobs, David K.\*; Speck, Hayden; Zhang, Paige; Abrecht, Mira: **TOWARD A HOLISTIC ASSESSMENT OF PROTEROZOIC ANTECEDENTS OF ANIMALS - EPIGENETIC REGULATION EVOLVED IN RESPONSE TO CHANGING REDOX CONDITIONS AND IS THEN CO-OPTED FOR THE EVOLUTION OF COMPLEX METAZOA**
- 141-2 8:20 AM Turk, Katherine\*; Maloney, Katie; Laflamme, Marc; Darroch, Simon A.F.: **PRIAPULID TRACE FOSSILS FROM THE LATE EDIACARAN OF NAMIBIA**
- 141-3 8:35 AM Fjeld, Alyssa\*; Brock, Glenn A.; Zhang, Zhiliang: **DECIPHERING EARLY CAMBRIAN LOPHOTROCHOZOAN RELATIONSHIPS USING TOMMOTIID SCLERITE MICROORNAMENT AND ULTRASTRUCTURE**
- 8:50 AM **INTRODUCTION OF SARA PRUSS**
- 141-4 8:55 AM Pruss, Sara B.\*; Smith, Emily F.; Nolan, Rhiannon: **SKELETAL ABUNDANCE AND EARLY ANIMAL REEFS: HOW REEF OCCURRENCES INFLUENCED SKELETONS IN EARLY PALEOZOIC SEAS (Invited Presentation)**
- 141-5 9:15 AM Parsley, Ronald\*; Rozhnov, Sergey; Sumrall, Colin: **MID CAMBRIAN GOGIID MIGRATION BETWEEN THE SOUTH CHINA PLATE AND LAURENTIA BY WAY OF SIBERIA**
- 141-6 9:30 AM Hagen, Amy\*; Jones, David S.; Fike, David A.; Tosca, Nicholas J.; Pruss, Sara B.: **SEDIMENTARY MERCURY AS A PROXY FOR REDOX OSCILLATIONS DURING THE CAMBRIAN SPICE EVENT IN WESTERN NEWFOUNDLAND**
- 141-7 9:45 AM Barnes, Gwen\*; Cramer, Bradley; Clark, Ryan J.; Bancroft, Alyssa M.; Tassier-Surine, Stephanie: **A HIGH-RESOLUTION INVESTIGATION OF THE  $\delta^{13}\text{C}_{\text{CARB}}$  AND  $\delta^{15}\text{N}$  RECORDS OF THE LATE CAMBRIAN SPICE EVENT**
- 10:00 AM **BREAK**
- 10:10 AM **INTRODUCTION OF YOUNG SCIENTIST AWARD (DONATH MEDAL), BY MURRAY GINGRAS**



- 141-8 10:15 AM Tarhan, Lidya\*: **YOUNG SCIENTIST AWARD (DONATH MEDAL): TRACKING AND MODELING THE DEVELOPMENT OF THE SEDIMENTARY MIXED LAYER**
- 141-9 10:35 AM Stockey, Richard\*; Cole, Devon B.; Planavsky, Noah; Farrell, Una C.; Sperling, Erik A.; SGP Trace Metal Working Group, The: **MULTIPLE INCREASES IN ATMOSPHERIC OXYGEN AND MARINE PRODUCTIVITY THROUGH THE NEOPROTEROZOIC AND PALEOZOIC**
- 141-10 10:50 AM Xu, Sherry Y.\*; Hull, Pincelli M.; Hülse, Dominik; Ridgwell, Andy: **THE ROLE OF TECTONIC, CLIMATIC, AND BIOTIC BOUNDARY CONDITIONS IN CONTROLLING PLANKTON DIVERSITY**
- 141-11 11:05 AM Zhou, Sharon\*; Collins, Katie S.; Edie, Stewart; Jablonski, David: **DISPARIFICATION BEFORE, DURING, OR AFTER DIVERSIFICATION? TESTING AN EARLY BURST HYPOTHESIS FOR FUNCTIONAL DIVERSITY IN EARLY PALEOZOIC BIVALVES**
- 141-12 11:20 AM Adiatma, Y. Datu\*; Saltzman, Matthew; Edwards, Cole; Griffith, Elizabeth M.: **DID A TECTONIC UPLIFT AND BASALTIC WEATHERING ENHANCE NUTRIENT DELIVERY TO THE MIDDLE ORDOVICIAN OCEANS?**
- 141-13 11:35 AM Ritzer, Samantha\*; Brocks, Jochen J.; Sperling, Erik A.: **MY BIOGEOCHEMICAL ROMANCE: EXPLORING RELATIONSHIPS BETWEEN MICROBIAL COMMUNITIES AND THEIR REDOX ENVIRONMENTS IN THE LATE ORDOVICIAN UTICA-POINT PLEASANT FORMATION**

**SESSION NO. 142**

***T93. Stratigraphy, Stasis, and Shales I (Paleontological Society; GSA Energy Geology Division)***

8:00 AM, Oregon Convention Center, E143/E144

Alex J. Bartholomew and Jocelyn Sessa, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 142-1 8:05 AM Baird, Gordon\*; Brett, Carlton: **STRATIGRAPHIC MAPPING AS A FUNDAMENTAL INTERDISCIPLINARY APPROACH FOR FIELD-BASED, STEP-WISE STUDENT ENGAGEMENT USING THE CLASSIC NEW YORK STRATIGRAPHIC RECORD AS A SURPRISE-BASED LEARNING TOOL**
- 142-2 8:25 AM Speir, Laura\*; Selly, Tara; Schiffbauer, James D.; Betts, Marissa J.; Jacquet, Sarah: **SMALL SHELLY FAUNAS AND REPEATED PHOSPHATIC HARDGROUNDS FROM THE LOWER CAMBRIAN, WIRRAPOWIE LIMESTONE, IKARA-FLINDERS RANGES, SOUTH AUSTRALIA**
- 142-3 8:40 AM Sprinkle, James\*; Jell, Peter A.: **REEVALUATION OF EARLY MIDDLE CAMBRIAN EOCRINOIDS PERIDIONITES AND CYMBIONITES AND TWO NEW ECHINODERMS FROM THE THORNTONIA LIMESTONE, NORTHWEST QUEENSLAND, AUSTRALIA**
- 142-4 8:55 AM Suarez, Stephanie\*; Catlos, Elizabeth J.; Brookfield, Michael; Stockli, Daniel F.; Baird, Gordon C.; Batchelor, Richard A.: **U-PB LA-ICP-MS ZIRCON DATES FROM K-BENTONITES IN THE UPPER ORDOVICIAN OF EASTERN NORTH AMERICA AND BRITAIN**
- 142-5 9:10 AM Bartholomew, Alex\*; Ver Straeten, Charles: **MIDDLE HAMILTON GROUP STRATA (LOWER GIVETIAN) OF THE EASTERN OUTCROP BELT IN NEW YORK STATE**
- 9:25 AM **BREAK**
- 142-6 9:40 AM Zambito, James\*: **TRANSGRESSION VERSUS THE CATSKILL DELTA: UNIQUE LATEST MIDDLE DEVONIAN LITHOFACIES IN THE NORTHERN APPALACHIAN BASIN**
- 142-7 9:55 AM Otto, Cheyenne\*; Over, D. Jeffrey; Tuskes, Katherine; Slater, Brian: **MILLENNIAL-SCALE CYCLES IN THE UPPER DEVONIAN SHALES OF THE HANOVER FORMATION, JAVA GROUP, APPALACHIAN BASIN, WESTERN NEW YORK**

- 142-8 10:10 AM Blood, David\*; Douds, Ashley S.B.; McCallum, Scott D.: **DEPOSITIONAL AND DIAGENETIC PROCESSES THAT CONCENTRATE CRITICAL MINERALS IN FINE-GRAINED STRATA: A CASE STUDY IN THE UPPER DEVONIAN HANOVER AND DUNKIRK SHALES OF WESTERN NEW YORK STATE**
- 142-9 10:25 AM Boyer, Diana\*; Darroch, Simon: **THE BEAUTY OF BURROWS: TRACE FOSSILS REVEAL RAPID FLUCTUATIONS IN DEVONIAN BLACK SHALES**
- 142-10 10:40 AM Braun, Matthew\*; Cramer, Bradley; Stolfus, Brittany; Gilbert, Madysen H.; Heath, Megan; Barnes, Gwen; Clark, Ryan J.; Day, James E.; Witzke, Brian; Hogancamp, Nicholas; Bancroft, Alyssa M.; Tassier-Surine, Stephanie: **CHASING THE HANGENBERG AND KINDERHOOK-OSAGE BOUNDARY EXCURSIONS IN THE U.S. MIDCONTINENT: "DUMBBELL STRATIGRAPHY" AND THE SUB-BURLINGTON UNCONFORMITY**

**SESSION NO. 143**

***T99. Insights into Cordilleran Tectonics and Magmatism from the Sedimentary Record (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; Geochemical Society)***

8:00 AM, Oregon Convention Center, Portland Ballroom 255 (Hybrid Room)

Richard M. Gaschnig and Kathleen Surpless, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 143-1 8:05 AM Cashman, Patricia\*; Sturmer, Daniel: **THE REAL ANTLER OROGENY: EVIDENCE IN NEVADA**
- 143-2 8:20 AM Lawton, Timothy\*; Thomas, William A.; Gehrels, George E.: **DETRITAL-ZIRCON AGES OF UPPER MISSISSIPPIAN-LOWER PENNSYLVANIAN DEPOSITS INDICATE MORROWAN INCEPTION OF THE ANCESTRAL ROCKY MOUNTAINS OROGEN**
- 143-3 8:35 AM Kwiatkowski, Chad J.\*; Riggs, Nancy R.; Reynolds, Stephen J.: **RAIDERS OF THE LOST ARC: EARLY CORDILLERAN MAGMATISM DOCUMENTED IN LOWER TO MIDDLE TRIASSIC STRATA OF SOUTHWESTERN NORTH AMERICA**
- 143-4 8:50 AM Schwartz, Theresa\*; Surpless, Kathleen D.; Colgan, Joseph P.: **DETRITAL ZIRCON RECORD OF CORDILLERAN MAGMATISM AS PRESERVED BY JURASSIC-PALEOCENE FOREARC AND FORELAND BASINS OF THE NORTH AMERICAN CORDILLERA**
- 143-5 9:05 AM Sharman, Glenn\*; Johnson, Isaac; Huang, Xiao; Szymanski, Eugene: **PREDICTING SAND MINERALOGY WITHIN CORDILLERAN OROGENIC SYSTEMS: MACHINE LEARNING APPLIED TO A GLOBAL DATABASE OF MODERN-PLEISTOCENE SAND SAMPLES (Invited Presentation)**
- 143-6 9:25 AM Johnston, Scott\*; Kylander-Clark, Andrew; Barth, Andrew: **TRACKING CRETACEOUS CORDILLERAN MAGMATIC ARC PETROGENESIS USING COUPLED DETRITAL ZIRCON GEOCHRONOLOGY, HF ISOTOPES, AND GEOCHEMISTRY FROM MODERN SIERRA NEVADA SAND**
- 143-7 9:40 AM Jones, James V.\*; Holm-Denoma, Chris; Bradley, Dwight; O'Sullivan, Paul: **LATE MESOZOIC TERRANE ASSEMBLY IN THE NORTHWESTERN CORDILLERA THROUGH THE LENS OF SILICICLASTIC SUCCESSIONS IN EASTERN INTERIOR ALASKA**
- 9:55 AM **BREAK**
- 143-8 10:10 AM LaMaskin, Todd\*; Rivas, Jonathan A.; Barbeau, David L.; Schwartz, Joshua; Russell, John A.; Chapman, Alan: **A CRUCIAL GEOLOGIC TEST OF LATE JURASSIC EXOTIC COLLISION VERSUS ENDEMIC RE-ACCRETION IN THE KLAMATH MOUNTAINS PROVINCE, WESTERN UNITED STATES, WITH IMPLICATIONS FOR THE ASSEMBLY OF WESTERN NORTH AMERICA**

AM  
TUESDAY

Tuesday, 12 October 2021

- 143-9 10:25 AM Boudreau, Ericka\*; Gaschnig, Richard M.; Schwartz, Joshua; Vervoort, Jeffrey: **DETRITAL MINERAL CONSTRAINTS REFLECTING MODERATE NORTHWARD TRANSLATION OF THE GOLD BEACH TERRANE, OREGON**
- 143-10 10:40 AM Hannon, Jeffrey\*; Dietsch, Craig; Huff, Warren D.: **TRACKING 40 MILLION YEARS OF MIGRATING MAGMATISM ACROSS THE IDAHO BATHOLITH USING ZIRCON U-PB AGES AND HF ISOTOPES FROM CRETACEOUS BENTONITES**
- 143-11 10:55 AM Eichler, Carla\*; Saylor, Joel; Wellner, Julia S.: **VARIATION IN BASIN GEOMETRY AND ACCOMMODATION DURING THE LATE CRETACEOUS, NORTH AMERICAN CORDILLERA, MONTANA AND WYOMING**
- 143-12 11:10 AM Finzel, Emily\*; Pearson, David; Rosenblume, Justin; Gardner, Cole; Garber, Kacey: **DETRITAL ZIRCON U-PB GEOCHRONOLOGY OF CRETACEOUS STRATA IN THE SOUTHWESTERN MONTANA FORELAND BASIN PROVIDES NEW TEMPORAL CONTROL FOR THE ONSET OF LARAMIDE DEFORMATION (Invited Presentation)**
- 143-13 11:30 AM Rosenblume, Justin\*; Finzel, Emily; Gardner, Cole; Pearson, David: **MIDDLE ALBIAN PROVENANCE, SEDIMENT DISPERSAL, AND FORELAND BASIN DYNAMICS IN SOUTHWESTERN MONTANA, NORTH AMERICAN CORDILLERA**
- 143-14 11:45 AM Morgan, George\*; Prall, John: **PRE-MIOCENE AGED SAPROLITE ZONE IN THE COYOTE MOUNTAINS, SALTON TOUGH, SOUTHERN CALIFORNIA**
- 144-8 10:10 AM Smith, Langhorne\*: **COMPARISON OF DEEP AND SHALLOW MARINE BLACK SHALES: THE VACA MUERTA, NEUQUEN BASIN, ARGENTINA AND THE MIDDLE AND UPPER DEVONIAN BLACK SHALES, NORTHERN APPALACHIAN BASIN, USA (Invited Presentation)**
- 144-9 10:30 AM Gilleaudeau, Geoffrey J.\*; Algeo, Thomas J.; Song, Yi; Lyons, Timothy; Bates, Steve; Anbar, Ariel: **LATERAL WATERMASS GRADIENTS RECORDED IN ORGANIC-RICH FACIES OF THE LATE DEVONIAN APPALACHIAN AND ILLINOIS BASINS, USA**
- 144-10 10:45 AM Meehan, Kimberly\*: **PREDOMINANCE FACIES AND FRESHWATER MICROFOSSILS OF THE LATE DEVONIAN APPALACHIAN BASIN DELTAIC SEQUENCES OF WESTERN NEW YORK**
- 144-11 11:00 AM Petty, David\*: **SHALLOW-WATER VS. DEEP-WATER STRATIGRAPHIC GEOMETRIES IN THE ORGANIC-RICH SHALE/MUDSTONE DEBATE**
- 144-12 11:15 AM Morris, Noah\*; Potra, Adriana; Samuelsen, John: **GEOCHEMICAL CHARACTERIZATION OF ORGANIC-RICH BLACK SHALES AND THEIR RELATIONSHIP TO PB-ZN ORES IN THE MIDCONTINENT UNITED STATES**
- 144-13 11:30 AM Letourmy, Yohan\*; Driese, Steven; Sims, Justin R.: **ABSENCE OF EVIDENCE OF CLIMATE-DRIVEN CYCLES IN CARBONIFEROUS DEPOSITS OF JOGGINS, NOVA SCOTIA, CANADA: INFLUENCE OF SALT WITHDRAWAL TECTONICS ON DEPOSITION AND PEDOGENESIS**
- 144-14 11:45 AM Pope, Michael\*; Wehner, Matthew; Donovan, Arthur D.; Tice, Michael M.; Pramudito, Aris; Conte, Roy; Gardner, Rand; Lyon, Trey; Miller, Brent: **ORGANIC-RICH MUDSTONE DEPOSITED UNDER SHALLOW-WATER ANOXIC AND EUXINIC CONDITIONS ON CONTINENTAL SHELVES AND EPICONTINENTAL SEAWAYS: AN EXAMPLE FROM THE LATE CRETACEOUS EAGLE FORD FORMATION, WEST TEXAS, USA**

## SESSION NO. 144

*T101. Broken Paradigms: Shallow-Water Deposition of Organic-Rich Facies through Earth History (GSA Marine and Coastal Geoscience Division; GSA Geobiology and Geomicrobiology Division; Geochemical Society; GSA Sedimentary Geology Division; GSA Energy Geology Division)*

8:00 AM, Oregon Convention Center, B113/B114 (Hybrid Room)

Ed Landing, Langhorne B. Smith and Brian Pratt, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 144-1 8:05 AM Landing, Ed\*: **SHALLOW MARINE ORGANIC-RICH FACIES: RELATIONSHIPS TO PLATFORM ONLAP, TROPICAL CONTINENT DISTRIBUTIONS AND A NEED FOR QUANTITATIVE MODELING**
- 144-2 8:20 AM Schieber, Juergen\*: **ANOXIA NOT OBLIGATORY – THE MYTHS AND REALITIES OF BLACK SHALE DEPOSITIONAL SETTINGS (Invited Presentation)**
- 144-3 8:40 AM Carmichael, Sarah\*; Waters, Johnny; Edwards, Cole; Boyer, Diana; Cohen, Phoebe; Königshof, Peter: **HOW ROBUST IS YOUR FAVORITE ANOXIA PROXY? LESSONS WE'RE LEARNING FROM THE LATE DEVONIAN (Invited Presentation)**
- 144-4 9:00 AM Podrecca, Luca\*; Hurtgen, Matthew T.; Masterson, Andrew L.; Todes, Jordan; Sageman, Bradley: **THE ROLE OF RELATIVE SEA LEVEL IN MICROBIAL SULFATE REDUCTION AND THE LOCAL S-ISOTOPE RECORD**
- 144-5 9:15 AM Pratt, Brian\*: **HALITE CUBES IN MUDSTONES OF SHALLOW-MARINE EPEIRIC SEAS: NOT PLAYA EVAPORITES BUT PRECIPITATED FROM BOTTOM-HUGGING HYPERSALINE BRINES IN THE OFFSHORE SETTING**
- 9:30 AM **BREAK**
- 144-6 9:40 AM Hints, Rutt\*; Pajusaar, Siim; Ndiaye, Mawo; Graul, Sophie: **EARLY PALEOZOIC NEARSHORE BLACK SHALES FROM BALTICA – EUTROPHICATION FRONT TRIGGERED BY NUTRIENT MIXING?**
- 144-7 9:55 AM Brett, Carlton\*; Baird, Gordon C.; Ver Straeten, Charles; Over, D.; Witzke, Brian; Boyer, Diana L.:

## SESSION NO. 145

*T105. Reading the Record of Volcanic Tephra and Tuff in Geoarchaeological Site Studies and Drill Core Records (GSA Continental Scientific Drilling Division; GSA Geoarchaeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)*

8:00 AM, Oregon Convention Center, Portland Ballroom 253 (Hybrid Room)

Jayde Hirniak and Marie D. Jackson, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 145-1 8:05 AM Ntoutsis, Ioanna\*; Meimaroglou, Nikiforos; Kostoulas, Panos; Papatrechas, Christos; Jackson, Marie: **THE USE OF 'THERAN TEPHRA' IN AEGEAN TRADITIONAL BUILDING TECHNIQUES: A CASE-STUDY FROM THERASIA ISLAND, GREECE (Invited Presentation)**
- 145-2 8:20 AM Rispoli, Concetta\*; Cappelletti, Piergiulio: **LEARNING FROM THE PAST – RAW MATERIALS AND TECHNOLOGY OF ANCIENT ROMAN MORTARS USED IN THE ARCHAEOLOGICAL SITES OF CAMPANIA REGION (ITALY)**
- 145-3 8:35 AM Hambleton, Jenny\*; Peterson, Jacob G.; Tamura, Nobumichi; Sinner, Alejandro G.; Jackson, Marie: **VOLCANIC AND AUTHIGENIC FABRICS IN TEPHRA FROM THE 'SES LLUMETES' SHIPWRECK AND ROMAN MARINE CONCRETES**
- 145-4 8:50 AM Calzolari, Laura\*; Botticelli, Michela; Medeghini, Laura; Mignardi, Silvano: **MINERALOGICAL INVESTIGATION OF THE AGGREGATE OF HYDRAULIC ROMAN MORTARS: THE AQUA TRAIANA CASE STUDY**
- 145-5 9:05 AM Secco, Michele\*; Ricci, Giulia; Dilaria, Simone; Garbin, Enrico; Tamburini, Sergio; Asscher, Yotam; Artioli,

- Gilberto; Previato, Caterina; Bonetto, Jacopo: **ANCIENT POZZOLANICITY REVISITED: NOVEL INSIGHTS ON MATERIALS AND REACTIVE PROCESSES OF ROMAN HYDRAULIC BINDERS**
- 145-6 9:20 AM Holmberg, Karen\*: **'BUT IS IT ART?': THE IMPORTANCE OF TEPHRA IN CHAITEN, CHILE IN UNDERSTANDING THE LONG-TERM EXPERIENCE OF THE LIVED HUMAN LANDSCAPE**
- 145-7 9:35 AM Blockley, Simon\*: **SYNCHRONISING LONG PALAEOCLIMATE ARCHIVES WITH ARCHAEOLOGICAL RECORDS USING DISTAL TEPHRA, HIGHLIGHTS AND PROBLEMS FROM EUROPE, MEDITERRANEAN AND THE LEVANT (Invited Presentation)**
- 145-8 9:50 AM Lane, Christine\*; Martin-Jones, Catherine M.; Wynton, Hannah L.; Blegen, Nick; Piermattei, Alma; Mark, Darren F.; Van Daele, Maarten; Van der Meeren, Thijs: **A ~250 KYR TEPHROSTRATIGRAPHY FROM THE DEEPCHALLA DRILLED LAKE RECORD: NEW CHRONOSTRATIGRAPHIC TIE-LINES BETWEEN PALAEOENVIRONMENTAL AND GEOARCHAEOLOGICAL SEQUENCES IN KENYA**
- 145-9 10:05 AM Feibel, Craig\*; Beck, Catherine: **THE NATOO TUFF AT KAITIO, WEST TURKANA, KENYA: A STRATIGRAPHIC KEY FOR EARLY PLEISTOCENE FOSSIL AND ARCHAEOLOGICAL RECORDS**
- 145-10 10:20 AM McHenry, Lindsay\*; Deino, Alan L.; Stollhofen, Harald; Stanistreet, Ian G.; Njau, Jackson K.; Schick, Kathy; Toth, Nicholas: **CORES RECORD PLEISTOCENE NGORONGORO VOLCANIC HISTORY, OLDUVAI GORGE, TANZANIA**
- 145-11 10:35 AM Hirniak, Jayde\*; Smith, Eugene; Johnsen, Racheal; Ren, Minghua; Campisano, Christopher; Marean, Curtis: **THE POTENTIAL FOR BUILDING A LATE PLEISTOCENE TEPHROCHRONOLOGICAL FRAMEWORK FOR ARCHAEOLOGICAL SITES IN SOUTH AFRICA USING CRYPTOTEPHRA**
- 145-12 10:50 AM Jensen, Britta\*: **THE MANY LIVES OF LAWETLAT'LA: THE PAST, PRESENT, AND FUTURE OF TEPHRA RESEARCH AT MOUNT ST. HELENS (Invited Presentation)**
- 145-13 11:05 AM Kuehn, Stephen\*; Modonough, Katelyn; Davis, Loren: **TEPHROCHRONOLOGY OF SEDIMENT CORES FROM PAULINA MARSH IN THE GREATER FORT ROCK BASIN, NORTHERN GREAT BASIN, OREGON**
- 145-14 11:20 AM Johnsen, Racheal\*; Hlebovy, Alex; Smith, Eugene; Ren, Minghua: **DISCOVERY OF ASH IN SEDIMENTS AROUND THE LAS VEGAS VALLEY: IMPLICATIONS FOR FUTURE ASHFALL HAZARDS FROM DISTAL VOLCANOES**
- 145-15 11:35 AM Monteath, Alistair\*; Jensen, Britta; Davies, Lauren; Mackay, Helen; Amesbury, Matthew; Edwards, Mary; Finkenbinder, Matthew; Booth, Robert K.; Froese, Duane; Harvey, Jordan; Bolton, Matthew; Hughes, Paul: **TEMPORAL PATTERNS IN THE TEPHROSTRATIGRAPHIC FRAMEWORK OF EASTERN NORTH AMERICA: WHAT CAUSED THE LATE-GLACIAL/EARLY HOLOCENE QUIESCENCE?**

**SESSION NO. 146**

**T120. The G.K. Gilbert Award Session I (GSA Planetary Geology Division)**

8:00 AM, Oregon Convention Center, Portland Ballroom 256 (Hybrid Room)

Debra Needham, Emily S. Martin and Nicholas Patrick Lang, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 146-1 8:05 AM Bishop, Janice\*: **COORDINATING FIELD, LAB, THEORY, AND REMOTE OBSERVATIONS FOR SPECTROSCOPIC MINERAL IDENTIFICATION**
- 146-2 8:25 AM Pieters, Carle\*: **MOVING FORWARD IN THE BUOYANT LUNAR TIDE**

- 146-3 8:40 AM Klima, Rachel\*; Pieters, Carle; Ehlmann, Bethany; Donaldson Hanna, Kerri: **SEARCHING FOR BOUND HYDROXYL/WATER ON THE MOON**
- 146-4 8:55 AM Murchie, Scott\*: **VISIBLE TO SHORT-WAVE INFRARED SPECTRAL ANALYSES OF MARS FROM ORBIT USING CRISM (Invited Presentation)**
- 146-5 9:15 AM Tirsch, Daniela\*; Bishop, Janice; Voigt, Joana R.C.; Tornabene, Livio L.; Viviano, Christina E.; Lane, Melissa D.; Loizeau, Damien; Sacks, Leah: **TRACING THE AQUEOUS ALTERATION HISTORY IN THE REGION BETWEEN ISIDIS AND HELLAS PLANITIAE ON MARS**
- 146-6 9:30 AM Lane, Melissa D.\*; Bishop, Janice; Viviano, Christina E.; Tirsch, Daniela; Tornabene, Livio L.; Loizeau, Damien; Sacks, Leah; Voigt, Joana R.C.: **TWO COMPOSITIONALLY DISTINCT OLIVINE-ENRICHED UNITS IN TYRRHENA TERRA AND LIBYA MONTES, MARS**
- 9:45 AM **DISCUSSION - CHARACTERIZING MAFIC MINERALS AND HYDROUS PHASES ON THE MOON AND MARS**
- 146-7 9:55 AM Arvidson, Raymond\*: **SYNERGISTIC ANALYSES OF MRO CRISM HYPERSPECTRAL IMAGING DATA AND ROVER-BASED MEASUREMENTS OF MARS**
- 146-8 10:10 AM Mustard, John\*; Parente, Mario; Das, Eashan; Lin, Honglei; Wu, Wing: **SEARCHING FOR NEEDLES**
- 146-9 10:25 AM Parente, Mario\*; Saranathan, Arun: **AUTOMATED IDENTIFICATION OF NOVEL MINERAL SPECTRA IN THE CRISM IMAGE DATABASE USING OPEN SET CLASSIFICATION METHODS**
- 146-10 10:40 AM Brown, Adrian\*: **ASYMMETRIC GAUSSIAN FITTING FOR VNIR SPECTRA**
- 146-11 10:55 AM Baker, Leslie\*; Bishop, Janice; Jeute, Thomas J.; Rampe, Elizabeth B.; Stoian, Sebastian; Strawn, Daniel G.: **STRUCTURE AND CHEMISTRY OF TERRESTRIAL AND SYNTHETIC ALLOPHANES AND THEIR IMPORTANCE FOR MARS**
- 146-12 11:10 AM Rampe, Elizabeth\*; Bishop, Janice; Horgan, Briony; Smith, Rebecca J.; Achilles, Cherie N.; Thorpe, Michael T.: **CHARACTERIZING SECONDARY X-RAY AMORPHOUS MATERIALS ON MARS VIA MISSION DATA AND ANALOG STUDIES**
- 146-13 11:25 AM Michalski, Joseph\*; Liu, Jiacheng; Ye, Binlong: **NEW PERSPECTIVES ON THE ANCIENT MARTIAN CLIMATE: CHEMICAL WEATHERING OF VOLCANIC ASH UNDER TRANSIENT, REDUCED GREENHOUSE CONDITIONS (Invited Presentation)**
- 11:45 AM **DISCUSSION - CHARACTERIZING ALTERATION MINERALS ON MARS AND IMPLICATIONS FOR CLIMATE**

**SESSION NO. 147 Hydrogeology and Environmental Geology T129. Dynamics of Huge Floods (GSA Quaternary Geology and Geomorphology Division)**

8:00 AM, Oregon Convention Center, Portland Ballroom 254 (Hybrid Room)

Roger Denlinger and Richard Waitt, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 147-1 8:05 AM Larsen, Isaac J.\*; Lamb, Michael P.; Farley, Kenneth A.; Lehnigk, Karin E.; David, Scott: **COSMOGENIC NUCLIDE CONSTRAINTS ON THE GEOMORPHIC EVOLUTION OF THE COLUMBIA PLATEAU, WASHINGTON USA**
- 147-2 8:20 AM Gombiner, Joel\*; Stone, John O.: **AGE OF LAST GLACIAL MEGAFLOODS IN MOSES COULEE AND GRAND COULEE (Invited Presentation)**
- 147-3 8:40 AM Bjornstad, Bruce\*: **NEW EVIDENCE FOR LATE-GLACIAL ADVANCE OF THE OKANOGAN LOBE INTO UPPER GRAND COULEE**
- 147-4 8:55 AM Waitt, Richard\*: **NEW VIEW OF MISSOULA MEGAFLOOD PATTERNS IN UPPER GRAND COULEE**

AM  
TUESDAY



- 147-5 9:10 AM Burns, Scott\*: **LAKERIDGE RHYOLITE ERRATIC BOULDER TRANSPORTED TO LAKE OSWEGO, OREGON BY THE MISSOULA FLOODS**
- 147-6 9:25 AM Reckendorf, Frank\*: **WAVE EROSION OF GEOMORPHIC SURFACES, DEPOSITION OF ERRATICS, MASTODON AND WOOLY MAMMOTH OCCURRENCE, AND DEPOSITION OF MALPASS STRATIGRAPHIC UNIT**
- 147-7 9:40 AM McCarville, Katherine\*; Dingbaum, Zachary: **OSL DATING OF SEDIMENTS IN THE IOWAN EROSION SURFACE LANDFORM REGION MAY SUPPORT MEGAFLOOD HYPOTHESIS OF FORMATION**
- 9:55 AM **BREAK**
- 147-8 10:05 AM Gillespie, Alan\*: **GSA QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION DISTINGUISHED CAREER AWARD 2021: THE MORaine DAM OF THE LATE-QUATERNARY GIANT OUTBURST FLOODS FROM THE YARLUNG TSANGPO RIVER IN TIBET**
- 147-9 10:35 AM Morey, Susannah\*; Huntington, Katharine; Montgomery, David R.; Turzewski, Michael D.; Mangipudi, Mahathi: **HYDRAULICS OF A HOLOCENE TIBETAN MEGAFLOOD THROUGH THE YARLUNG TSANGPO GORGE, EASTERN HIMALAYA**
- 147-10 10:50 AM Pico, Tamara\*; Lamb, Michael P.; David, Scott; Larsen, Isaac; Mix, Alan; Lehnigk, Karin E.: **THE INFLUENCE OF GLACIAL ISOSTATIC ADJUSTMENT ON CHanneLED SCABLAND INCISION (Invited Presentation)**
- 147-11 11:10 AM Liu, Tao\*; Baker, Victor: **GEOLOGICAL IMPLICATIONS FROM HYDRAULIC MODELING OF THE LARGEST MEGAFLOODING ON EARTH**
- 147-12 11:25 AM George, David\*: **MODELING PLEISTOCENE GLACIAL LAKE MISSOULA OUTBURST FLOODS WITH GEOCLAW (Invited Presentation)**
- 147-13 11:45 AM Wiman, Charlotte\*; Harden, Tessa; Beighley, R. Edward; Munoz, Samuel: **LARGE FLOODS ON THE LOWER OHIO RIVER INFERRED FROM SLACKWATER DEPOSITS**

**SESSION NO. 148**  

**T134. Advances in Wildfire-Related Earth-Surface Processes I (GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division)**

8:00 AM, Oregon Convention Center, D138

Ann Youberg, Luke McGuire and Francis Rengers, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 148-1 8:15 AM Barnhart, Katherine\*; Jones, Ryan P.; George, David L.; McArdell, Brian W.; Rengers, Francis; Staley, Dennis; Kean, Jason W.: **MULTI-MODEL COMPARISON OF COMPUTED DEBRIS-FLOW RUNOUT AND INUNDATION FOR THE 9 JANUARY 2018 MONTECITO, CALIFORNIA POSTFIRE EVENT (Invited Presentation)**
- 148-2 8:35 AM Gorr, Alexander\*; McGuire, Luke; Youberg, Ann; Rengers, Francis: **PRODF: A REDUCED-COMPLEXITY MODEL FOR POST-WILDFIRE DEBRIS-FLOW INUNDATION**
- 148-3 8:50 AM Calhoun, Nancy\*; Burns, William; Rengers, Francis; Kean, Jason W.; Jones, Eric S.: **A NEW DEBRIS FLOW MAPPING PROTOCOL USING ARCGIS COLLECTOR MOBILE PLATFORM, EXAMPLES FROM OREGON'S 2020 BURN AREAS**
- 148-4 9:05 AM Beers, Rebecca\*; Robichaud, Peter; Porter, Ryan C.; Joyal, Taylor J.; Youberg, Ann; Loverich, Joseph; Schenk, Edward; Untalan, Sean: **GEOMORPHIC MONITORING AND RESPONSE IN A POST-FIRE EPHEMERAL CHANNEL, A CASE STUDY FROM HIGH ELEVATION, STEEP SLOPES IN ARIZONA**
- 148-5 9:20 AM Loverich, Joseph\*; Helton, Cory; Sharp, Ian; Acton, Peter; Kellogg, Michael; Ogden, W. Scott; Scragg, Matthew: **A TALE OF TWO ARIZONA FIRES: A CASE STUDY OF THE MUSEUM AND TELEGRAPH FIRES EMERGENCY**

- FLOOD RISK ANALYSES, AND SUBSEQUENT MONSOONAL FLOODING**
- 9:35 AM **BREAK**
- 148-6 9:50 AM Orland, Elijah\*; Kirschbaum, Dalia; Stanley, Thomas: **REAL-TIME ASSESSMENT OF POST-FIRE DEBRIS FLOW HAZARDS USING GLOBALLY AVAILABLE DATA**
- 148-7 10:05 AM Thomas, Matthew\*; Rengers, Francis; Kean, Jason W.; McGuire, Luke; Staley, Dennis; Barnhart, Katherine R.; Ebel, Brian A.: **POSTWILDFIRE SOIL-HYDRAULIC RECOVERY AND THE PERSISTENCE OF DEBRIS FLOW HAZARDS**
- 148-8 10:20 AM Hunter, Brooke\*; Roering, Joshua J.; Silva, Lucas C.R.: **EROSION RATE INFLUENCE ON SOIL ORGANIC CARBON FRACTIONS IN A BURNED MONTANE LANDSCAPE (Invited Presentation)**
- 148-9 10:40 AM Cerovski-Darriau, Corina\*; Prancevic, Jeffrey P.; Perkins, Kim; Stock, Jonathan D.; Perkins, Jonathan; Corbett, Skye C.: **UNEXPECTED POST-FIRE SOIL HYDROLOGIC RESPONSE IN NORTHERN CALIFORNIA (USA)**
- 148-10 10:55 AM Weirich, Frank\*; Neumann, William: **A FIELD-BASED APPLICATION OF HIGH FREQUENCY GROUND PENETRATING RADAR (HFGPR) TO EVALUATE THE DEPTH, STRENGTH, SPATIAL VARIABILITY, AND DETERIORATION OVER TIME OF HYDROPHOBIC SOIL LAYERS IN BURNT WATERSHEDS IN SOUTHERN CALIFORNIA**
- 148-11 11:10 AM Youberg, Ann\*; McGuire, Luke; Beers, Rebecca; Hoch, Olivia; Gorr, Alexander: **HYDRO-GEOMORPHIC IMPACTS OF SUCCESSIVE WILDFIRES IN AREAS WITH DIFFERENT FIRE EXPOSURES: LESSONS LEARNED FROM THE SANTA CATALINA MOUNTAINS, TUCSON, AZ**
- 11:25 AM **DISCUSSION**

**SESSION NO. 149**  

**T151. That Signpost up Ahead: At the Crossroads of Geoscience and Society—A Public Policy Perspective I (GSA Geology and Society Division; Geology and Public Policy Committee; GSA Environmental and Engineering Geology Division; GSA Energy Geology Division; GSA Geology and Health Division; GSA Hydrogeology Division; GSA Soils and Soil Processes Division)**

8:00 AM, Oregon Convention Center, B112

James Heller, Beth Ann Bartel and Susan Stover, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 149-1 8:05 AM Jordan, Brennan T.\*: **CONNECTING PEOPLE WITH GEOHERITAGE: THE GEOHERITAGE OF HISTORICAL SITES OF STRATEGIC IMPORTANCE**
- 149-2 8:20 AM Gray, Murray\*; Brilha, Jose; Matthews, Jack J.; Zwolinski, Zbigniew: **GEODIVERSITY, SOCIETY AND THE INTERNATIONAL GEODIVERSITY DAY**
- 149-3 8:35 AM Hughes, Nigel\*; Banerjee, Trisha; Mukherjee, Sekhar; Sein, Kyaing; Chowdhury, Marufa: **THE OCEAN ON TOP OF OUR MOUNTAIN: PLACE-BASED GEOSCIENCE OUTREACH IN SOUTH AND SOUTHEAST ASIA (Invited Presentation)**
- 149-4 8:55 AM Spears, David\*: **U.S. MINERALS POLICY AND THE RISE OF THE CRITICAL MINERALS AGENDA**
- 149-5 9:10 AM Buchanan, Rex\*: **PUBLIC POLICY LESSONS FROM INDUCED SEISMICITY**
- 9:30 AM **BREAK**
- 149-6 9:45 AM Olson, Hunter\*; Kempf, Hannah; Keane, Christopher; Carlson, Sandra: **HISTORY OF LAND AND GEOLOGICAL RESOURCE MANAGEMENT POLICY ON NATIVE AMERICAN LANDS**
- 149-7 10:00 AM Kempf, Hannah\*; Olson, Hunter; Keane, Christopher; Carlson, Sandra: **PALEONTOLOGICAL RESOURCES ON NATIVE AMERICAN LANDS: DISPOSSESSION, HISTORY, AND POLICY**



- 149-8 10:15 AM Greiner, Patrick Trent\*; McGee, Julius Alexander: **FROM SLOW-VIOLENCE TO SLOW DEATH: ON THE DEVELOPMENT OF NECRO-ECOLOGIES IN THE ANTHROPOCENE**
- 149-9 10:30 AM Hills, Denise\*; Diggs, Stephen: **WHY ACCESS TO DATA MATTERS AND WHAT WE CAN DO TO IMPROVE ACCESS AND REUSABILITY**
- 10:45 AM **DISCUSSION**

- 151-8 12 Bryant, Mana M.\*; Larson, Will B.; Schoenemann, Spruce W.; Corbett, Lee B.; Bierman, Paul R.: **INVESTIGATING ARID ALPINE PLEISTOCENE GLACIATION IN THE PIONEER MOUNTAINS OF MONTANA USING COSMOGENIC 10-BERYLLIUM**
- 151-9 13 Shukla, Vidhesh\*; Spencer, Joel: **EXTENT AND GLACIAL HISTORY OF THE CORDILLERAN ICE SHEET IN NW MONTANA: USING OSL TO DATE GLACIAL SEDIMENTS FROM THE SOUTHEASTERN FLATHEAD LOBE OF THE CORDILLERAN ICE SHEET**

## MORNING POSTER TECHNICAL SESSIONS

### SESSION NO. 150

#### **D43. Recent Advances in Geology and Health (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- | Booth # |                                                                                                                                                                                                        |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 150-1   | 1 Lake, Loryssa*; Basta, Nicholas T.; Barker, David J.: <b>PREDICTING BIOACCESSIBILITY OF AS AND PB FROM SOIL PROPERTIES AND ADJUSTING EXPOSURE FOR THE HUMAN SOIL INGESTION EXPOSURE PATHWAY</b>      |
| 150-2   | 2 Wudke, Hannah*; Gillis, Morgan; Gokey, Kailee; Doepke, Lauren; Krekeker, Mark: <b>INITIAL ANALYSIS OF SOME HISTORIC TALC PRODUCTS: ELECTRON MICROSCOPY INVESTIGATION OF MINERALOGICAL IMPURITIES</b> |
| 150-3   | 3 Rahman, Md Mahfujur*: <b>ARSENIC SEQUESTRATION IN NATURALLY OCCURRING BIOGENIC PYRITE IN THE HOLOCENE FLUVIAL AQUIFERS IN UPHAPEE WATERSHED, MACON COUNTY, ALABAMA</b>                               |
| 150-4   | 4 Martinez-Sacristan, Hernando*: <b>ARE GEOLOGISTS REALLY PREPARED FOR NEGATIVE EVENTS?: FAR FROM RHETORIC CLOSER TO REALITY</b>                                                                       |

### SESSION NO. 151

#### **T131. Mountain Glaciation and Climate Change of the Past and Present (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- | Booth # |                                                                                                                                                                                                                      |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 151-1   | 5 Miles, Maraina*; Hall, Brenda L.; Denton, George H.: <b>PAST INTERACTIONS BETWEEN ALPINE GLACIERS AND THE GROUNDED ROSS SEA ICE IN THE ROYAL SOCIETY RANGE, ANTARCTICA</b>                                         |
| 151-2   | 6 Withdrawn                                                                                                                                                                                                          |
| 151-3   | 7 Fedotova, Anastasia*; Magnani, Maria Beatrice: <b>SEISMIC STRATIGRAPHY OF LATEGLACIAL AND NEOGLACIAL ICE FLUCTUATIONS IN LAGO ARGENTINO (PATAGONIA, ARGENTINA)</b>                                                 |
| 151-4   | 8 Steinke, Jessi L.*; Ward, Brent; Bond, Jeffrey D.: <b>LATE PLEISTOCENE ALPINE GLACIATION AT THE EASTERN LIMIT OF BERINGIA, CENTRAL YUKON TERRITORY</b>                                                             |
| 151-5   | 9 Brugger, Keith*; Leonard, Eric M.; Refsnider, Kurt A.; Dolan, Peter: <b>GLACIATION OF THE BLANCA MASSIF, SANGRE DE CRISTO MOUNTAINS, COLORADO, DURING THE LAST GLACIAL MAXIMUM: IMPLICATIONS FOR CLIMATE</b>       |
| 151-6   | 10 Quirk, Brendon*; Larsen, Isaac J.: <b>LATE PLEISTOCENE GLACIAL HISTORY OF THE EAST RIVER, COLORADO WATERSHED</b>                                                                                                  |
| 151-7   | 11 Larson, Will B.*; Bryant, Mana M.; Schoenemann, Spruce W.; Corbett, Lee B.; Bierman, Paul R.: <b>GLACIAL MAPPING IN THE ARID PIONEER MOUNTAINS, MONTANA: ASSESSING PALEO-ELAS DURING THE LAST GLACIAL MAXIMUM</b> |

### SESSION NO. 152

#### **T46. Rifts, Rifted Margins, Backarcs, and Spreading Ridges: Understanding Extensional Processes across Tectonic Settings and Time Scales (Posters) (GSA Geophysics and Geodynamics Division; GSA Energy Geology Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- | Booth # |                                                                                                                                                                                                                                                                              |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 152-1   | 14 Perron, Paul*; Le Pourhiet, Laetitia; Jourdon, Anthony; Cornu, Tristan; Gout, Claud: <b>CONSTRAINING THE THERMAL HISTORY OF SEDIMENTARY BASINS OF PASSIVE MARGINS BY DRIVING KINEMATICALLY 2D THERMOMECHANICAL SIMULATIONS</b>                                            |
| 152-2   | 15 Quigley, Cade*; Seyum, Solomon; Kolawole, Folarin: <b>CONTINENTAL RIFT BASIN ASYMMETRY AND THE INFLUENCE OF MECHANICAL PROPERTIES OF UPPER CRUSTAL ROCKS</b>                                                                                                              |
| 152-3   | 16 Mustaque, Sharif*; Uddin, Ashraf: <b>A SYSTEMATIC APPROACH TO MODEL BASIN EVOLUTION AND COMPARE BETWEEN RIFT AND FORELAND BASIN SYSTEMS THROUGHOUT THE PERMO-CARBONIFEROUS</b>                                                                                            |
| 152-4   | 17 Ludwig, Katherine*; Bidgoli, Tandis; Gomez, Francisco; Walker, J. Douglas; Stockli, Daniel F.: <b>THERMOCHRONOLOGY OF THE KINGSTON RANGE-HALLORAN HILLS DETACHMENT SYSTEM AND IMPLICATIONS FOR THE MESOZOIC TO CENOZOIC TECTONIC EVOLUTION OF SOUTHEASTERN CALIFORNIA</b> |
| 152-5   | 18 Magnin, Benjamin P.*; Kuiper, Yvette D.; Barkmann, Peter E.: <b>PRELIMINARY STRUCTURAL ANALYSIS OF ALKALINE DIKES AND MINERALIZED VEINS IN THE WET MOUNTAINS, SOUTH-CENTRAL COLORADO: CONNECTING RARE EARTH ELEMENT MINERALIZATION TO CAMBRIAN RIFTING</b>                |
| 152-6   | 19 Jie, Yaqi*; Li, Guoliang; Chen, MIN: <b>SHEAR WAVE SPEED IMAGING OF THE MAGMA-POOR WESTERN BRANCH OF THE EAST AFRICAN RIFT</b>                                                                                                                                            |
| 152-7   | 20 Alam, Md.*; Uddin, Ashraf; Mustaque, Md Sharif; Katumwehe, Andrew: <b>GRAVITY AND COMPOSITIONAL STUDY FOR RECONSTRUCTION OF LATE PALEOZOIC INTRA-CRATONIC GONDWANAN BASINS OF NORTHWEST BENGAL BASIN, BANGLADESH</b>                                                      |

### SESSION NO. 153

#### **D41. Recent Advances in Geoscience Education (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- | Booth # |                                                                                                                                                                                                                                                                                                       |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 153-1   | 21 Buntton, Clare*; Carver, Jovaughn; Gameau, Kathy; Markou, Keelin; Norlien, Diamond; Paul, Cora; Salome, Brianna; Davis, Lauri E.; Koch, Kevin; Long, Valerie; Petcovic, Heather L.; Vellom, R. Paul: <b>ENGAGING YOUTH IN NGSS SCIENCE AND ENGINEERING PRACTICES IN WATER SCIENCE SUMMER CAMPS</b> |
| 153-2   | 22 Sulbaran, Barbara*; Martindale, Rowan; Jauregui, Estefania; Sinha, Sinjini; Ellins, Katherine K.; Cooc, North: <b>UNDERSTANDING HOW ENTRY-LEVEL COLLEGE STUDENTS RETAIN MATERIAL AND ENGAGE WITH GEOSCIENCE</b>                                                                                    |

AM

TUESDAY

**CONCEPTS BY UTILIZING EDUCATIONAL BOARD GAMES IN A VIRTUAL SETTING**

- 153-3 23 Withdrawn
- 153-4 24 Murchland, Madeline\*; Elasmara, Serene; Murchland, Madeline; Krekeker, Mark; Bhowmick, Mithun; Dlott, Dana D.: **INTEGRATING NOVEL SHOCK COMPRESSION SCIENCE INTO MINERALOGICAL UNDERGRADUATE RESEARCH: SOME OUTCOMES OF EDUCATIONAL STRATEGIES AND MANAGEMENT APPROACHES**
- 153-5 25 Woodle, Morgan\*; Bhattacharya, Joyeeta; Cerato, Amy; Fahs, Mashhad; Martin, Elinor; Irungu, Jane; Snyder, Lori; Soreghan, Gerilyn (Lynn); Elwood Madden, Megan: **WHO ARE WE? WHAT IDENTITIES DO WE HOLD? HURDLES AND PATHWAYS FOR COLLECTING FACULTY DEMOGRAPHIC DATA IN THE GEOSCIENCES**
- 153-6 26 Mostacedo Marasovic, Silvia Jessica\*; White, Holly; Forbes, Cory: **WATER IN SOCIETY: A FIVE-YEAR EVALUATION STUDY OF AN INTERDISCIPLINARY COURSE TO SUPPORT UNDERGRADUATE STUDENTS' WATER LITERACY**
- 153-7 27 Stephens, Adrienne\*; Perkins, Robert; Grathoff, Georg; Peterson, Curt D.: **CEMENTATION AND GROUNDWATER CHEMISTRY IN PLEISTOCENE PALEODUNE DEPOSITS OF THE CENTRAL OREGON COAST**

**SESSION NO. 154**

***T164. Making Sense of Methodologies and Theoretical Frameworks in Geoscience Education Research (Posters) (GSA Geoscience Education Division; National Association of Geoscience Teachers (NAGT) Geoscience Education Research (GER) Division)***

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 154-1 28 Wilfong, Collette\*; Arthurs, Leilani: **FACTORS THAT INFLUENCE WHETHER AND HOW POST-SECONDARY EDUCATION GEOSCIENCE INSTRUCTORS USE STUDENT-CENTERED TEACHING PRACTICES**
- 154-2 29 Randall, Allyson\*; Rioux, Matthew; Muller, Alexandria; Bianchini, Julie; Viskupic, Karen: **EXPERIENCES AND PERCEIVED TRAINING NEEDS OF GEOSCIENCE GRADUATE TEACHING ASSISTANTS**
- 154-3 30 Mostacedo Marasovic, Silvia Jessica\*; White, Holly; Moot, Brooke; Forbes, Cory: **TRANSDISCIPLINARY WATER EDUCATION: A VIEW ACROSS STANDARDS FOR TEACHING AND LEARNING TO FOSTER WATER LITERACY**
- 154-4 31 Bauer, Jennifer E\*; Lam, Adriane R.; Slater, Emily; Bex, Richard; Lundgren, Lisa: **GEOSCIENCE COMMUNICATION MICROCOSMS ON TWITTER: AN INVESTIGATION FROM THE TIME SCAVENGERS UNIVERSE**
- 154-5 32 Midttun, Nikolas\*; Niemi, Nathan: **ASSESSING DIFFERENCES IN SELF-REGULATED LEARNING BETWEEN TRADITIONAL CLASSROOM COURSES AND FIELD COURSES IN THE EARTH SCIENCES**
- 154-6 33 Droboth, Jason\*: **METAPHORICALLY SPEAKING: UNCOVERING METAPHOR IN GEOSCIENCE COMMUNICATION AND EDUCATION ON SOCIAL MEDIA**
- 154-7 34 Boyd, Evelyn Abagayle\*; Lazar, Kelly Best; Moysey, Stephen M.: **TOPOLOGICAL DATA ANALYSIS AS A TOOL TO ASSESS GEOSCIENCE STUDENT RECRUITMENT POTENTIAL**
- 154-9 35 Klyce, Annie\*; Ryker, Katherine: **LOOKING THROUGH THE LENS OF EXPECTANCY VALUE THEORY: HOW TRAINING SPATIAL SKILLS AFFECTS THE STUDENT EXPERIENCE**

**SESSION NO. 155**

***T84. Cephalopods Present and Past: Evolution, Paleoecology, and Links to Paleoenvironmental Change (Posters) (Paleontological Society; Paleontological Research Institution; GSA Geobiology and Geomicrobiology Division)***

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 155-1 36 Marriott, Katherine\*: **EXTRAPOLATING INCOMPLETE AMMONITE SUTURES IN THE FRACTAL STEP METHOD**
- 155-2 37 Rosensaft, Marcelo\*; Landman, Neil; Hussaini, Bushra M.: **A PALEOBIOGEOGRAPHIC MAP OF THE CRETACEOUS MOLLUSCA OF THE WESTERN INTERIOR SEAWAY**
- 155-3 38 Tajika, Amane\*; Landman, Neil; Cochran, J. Kirk: **REFINING THE HABITAT OF NAUTILUS MACROMPHALUS BASED ON THE ISOTOPIC COMPOSITION AND TEMPERATURE OF THE WATER COLUMN IN NEW CALEDONIA**
- 155-4 39 Shell, Ryan\*; Peterman, David: **LARGE ORDOVICIAN CEPHALOPODS FROM MICHIGAN'S UPPER PENINSULA**
- 155-5 40 Peterman, David\*; Hebdon, Nicholas; Ritterbush, Kathleen: **EXPLORING THE HYDRODYNAMIC CONSEQUENCES OF CEPHALOPODS IN THE WESTERMANN MORPHOSPACE WITH NEUTRALLY BUOYANT, 3D-PRINTED ROBOTS**
- 155-6 41 Brophy, Shannon K.\*; Titus, Alan; Garb, Matthew; Naujokaityte, Jone; Harrynam, Donovan; Landman, Neil; Cochran, J. Kirk; Bottjer, David J.: **AMMONITES, SEEPS, ASH FALLS, AND OAE 2: PALEOECOLOGY OF COLD METHANE SEEP DEPOSITS IN THE CENOMANIAN-TURONIAN TROPIC SHALE OF SOUTHERN UTAH**
- 155-7 42 Fernandez, Martin\*; Gladson, Sareta; King, Justin; Seh, Kee Horng; Sun, Yiyang; Green, Melissa A.; Ivany, Linda: **PRELIMINARY INVESTIGATIONS INTO THE ECOLOGY AND FUNCTIONAL MORPHOLOGY OF THE ANNULATED ORTHOCONIC CEPHALOPOD SPYRO CERAS**
- 155-8 43 Clifton, Wolf\*; Carlisle, Maureen H.; Wilson, Gregg: **BELEMNITES OF THE NOOKSACK FORMATION (WASHINGTON, USA) AND PALEO GEOGRAPHIC IMPLICATIONS**
- 155-9 44 Hoskins, Brittney\*; Ritterbush, Kathleen; Peterman, David; Crawford, Casey: **LIFE ON THE EDGE: A MORPHOSPACE EVALUATION OF ANCIENT AMMONITE HYDRODYNAMICS**
- 155-10 45 Slattery, Joshua\*; Landman, Neil; Andres, Brian; Sandness, Ashley: **EVOLUTIONARY RESPONSES OF SCAPHITID AND BACULITID AMMONITES TO ENVIRONMENTAL CHANGES IN THE LATE CRETACEOUS WESTERN INTERIOR SEAWAY**

**SESSION NO. 156**

***T91. Community Ecology and the Fossil Record: Diversity, Ecological Structure, and Paleoenvironmental Responses (Posters) (Paleontological Society)***

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 156-1 46 LaBarge, Thomas\*; Njau, Jackson K.: **TECHNICAL CONSIDERATIONS FOR OBSERVING, DOCUMENTING AND INTERPRETING BITE MARKS**
- 156-2 47 Daly, Peter\*: **PALEOCOMMUNITY STRUCTURE IN CRETACEOUS METHANE SEEPS: COMPARING NORTH AMERICAN EPEIRIC SEA COMMUNITIES TO THOSE BORDERING THE GLOBAL OCEAN**
- 156-3 48 Sinha, Sinjini\*; Martindale, Rowan; Little, Crispin T.; Bodin, Stéphane; Kabiri, Lahcen: **TAXONOMIC ASSESSMENT OF EARLY JURASSIC MACROFAUNA FROM THE HIGH ATLAS MOUNTAINS OF MOROCCO**
- 156-4 49 Maxwell, Vivienne\*; Thuy, Ben; Pruss, Sara B.: **DESCRIPTION OF A PREVIOUSLY UNKNOWN PHOSPHATIZED OPHIUROID GENUS AND SPECIES FROM THE LOWER TRIASSIC VIRGIN**

- LIMESTONE MEMBER, MOENKOPI FORMATION, WESTERN UNITED STATES**
- 156-5 50 Martinez, Selena\*; Jenkins, Kelsey; Bhullar, Bhart-Anjan: **PHENOTYPIC DIVERSITY OF PROCOLOPHONID DENTITION**
- 156-6 51 Nolan, Morrison\*; Kligman, Ben T.; Yang, Yezi; Gill, Benjamin; Reid, Rachel: **INVESTIGATION OF CARBON AND NITROGEN STABLE ISOTOPES IN A VERTEBRATE COPROLITE ASSEMBLAGE FROM THE LATE TRIASSIC OF CONTINENTAL EQUATORIAL PANGAEA**
- 156-7 52 Crowell, Jennifer\*; Hembree, Daniel: **CLIMATE-INDUCED CHANGES IN FLUVIAL ICHNOFOSSIL ASSEMBLAGES OF THE PENNSYLVANIAN-PERMIAN APPALACHIAN BASIN**
- 156-8 53 Samuels-Fair, Maya\*; Zimmt, Joshua; Holland, Steven M.; Finnegan, Seth: **A SIMULATION FRAMEWORK FOR UNDERSTANDING THE INFLUENCE OF SAMPLING ON APPARENT DIVERSITY PARTITIONING PATTERNS WITHIN DEPOSITIONAL BASINS**
- 156-9 54 Mohler, Benjamin\*; McDonald, Andrew T.: **NEW CROCODYLOMORPH MATERIAL REFERABLE TO BRACHYCHAMPSA CF. SEALEYI AND AND CF. DENAZINOSUCHUS FROM THE MENEFFEE FORMATION OF NEW MEXICO AND CROCODYLOMORPH ECOLOGY IN MIDDLE CAMPANIAN SOUTHERN LARAMIDIA**
- 156-10 55 Grimmelbein, Louis\*; Barry, Savanna; Casebolt, Sahale; Cummings, Katherine; Hyman, Alexander; Frazer, Thomas; Kowalewski, Michal: **NOT ALL SEAGRASS MEADOWS ARE DECLINING: HIGH LIVE-DEAD FIDELITY OF SEAGRASS-ASSOCIATED MOLLUSK ASSEMBLAGES ALONG THE NORTHERN GULF COAST OF FLORIDA**
- 156-11 56 Peltier, Danielle M.\*; Njau, Jackson K.: **PALEOECOLOGICAL RESPONSE TO ENVIRONMENTAL VARIABILITY IN OLDUVAI GORGE, TANZANIA**
- 156-12 57 Hotard, Hampton\*; Walker, Sally E.: **TAPHONOMIC ANALYSIS OF SHORTFIN MAKO SHARK (*ISURUS OXYRINCHUS*) TEETH TUMBLED IN SILICICLASTIC AND CARBONATE SEDIMENTS**
- 156-13 58 Hummel, Rudolph\*; Pagnac, Darrin; Famoso, Nicholas: **TESTING POTENTIAL OF MULTIVARIATE ECOMETRICS FOR PALEOENVIRONMENTAL RECONSTRUCTION USING DISCRIMINANT FUNCTION ANALYSIS**
- 156-14 59 Formoso, Kiersten; Cribb, Alison; Woolley, C. Henrik\*; Beech, James D.; Brophy, Shannon; Byrne, Paul J.; Cassady, Victoria C.; Godbold, Amanda; Larina, Ekaterina; Maxeiner, Philip-Peter; Wu, Yun-Hsin; Corsetti, Frank; Bottjer, David J.: **CONTEMPORANEOUS CHANGES IN TERRESTRIAL AND MARINE FUNCTIONAL ECOLOGY DURING ANCIENT AND MODERN MASS EXTINCTION EVENTS: AN ECOSPACE CUBE APPROACH**
- 156-15 60 O'Quin, Megan\*; Leonard-Pingel, Jill S.; Cramer, Katie: **CHANGES IN BIVALVE ASSEMBLAGES THROUGH TIME INDICATE LONG-TERM ECOSYSTEM CHANGE IN CORAL REEFS OF BELIZE**
- 156-16 61 Schmer, Christiana\*; Orcutt, John: **USING THE LAST GLACIAL MAXIMUM TO INFORM ECOLOGICAL NICHE MODELING**
- 156-17 62 Yager, Stacy L.; Bergel, Emily; Caldwell, Lauren P.; Fights, Ramey; Heuer, Jarod S.; Humphrey, Sarah A.; McCarty, Amanda E.; Montgomery, Jaia; Fluegeman, Richard\*: **BENTHIC FORAMINIFERAL PALEOECOLOGY FROM THE CLAIBORNE AND LOWER JACKSON GROUPS (EOCENE; LUTETIAN AND BARTONIAN) AT LITTLE STAVE CREEK, CLARKE COUNTY, ALABAMA**

**SESSION NO. 157** 

**T24. The Life and Times of Arc Volcanoes from Bottom to Top (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- Booth #
- 157-1 63 Bowman, Emilie\*; Ducea, Mihai N.; Triantafyllou, Antoine: **ARCLOGITES IN THE SUBARC LOWER CRUST: EFFECTS OF CRYSTALLIZATION, PARTIAL MELTING, AND RETAINED MELT ON THE FOUNDERING ABILITY OF RESIDUAL ROOTS**
- 157-2 64 Topham, Judith\*; Tepley, Frank J.; Takach, Marie K.; Harpel, Christopher J.; Rivera, Marco; Aguilar, Rigoberto; Cuno, Juan Jose: **UNDERSTANDING THE PETROLOGY AND GEOCHEMISTRY OF BIOTITE-BEARING DACITIC/RHYOLITIC TEPHRA-FALL DEPOSITS FROM MISTI VOLCANO, PERU**
- 157-3 65 Johnson, Emily R.\*; Hodgetts, Alastair; Van Eaton, Alexa R.; Clynne, Michael A.; Vallance, James W.: **EXPLOSIVE MAFIC ERUPTIONS OF MOUNT ST. HELENS: INSIGHTS FROM TEXTURAL AND GEOCHEMICAL ANALYSES OF MINERALS AND MELTS**
- 157-4 66 Jackson, Yasmin\*; Economos, Rita C.; Ding, Shuo; Longpré, Marc-Antoine; Vidal, Céline; Hertwig, Andreas T.: **SULFUR BEHAVIOR IN THE 1257 CE SAMALAS MAGMA (LOMBOK, INDONESIA) AS REVEALED BY SULFUR ISOTOPE RATIOS IN APATITE**
- 157-5 67 Angulo, Alejandra\*; Barnes, Calvin: **AUGITE AND AMPHIBOLE COMPOSITIONS REVEAL TWO MAGMA REGIMES: THE IRONSIDE MOUNTAIN PLUTON AND WESTERN HAYFORK ARC, NORTHERN CA**
- 157-6 68 Ardill, Katie\*; Attia, Snir; Paterson, Scott; Memeti, Vali; Borsook, Ariel: **SPATIOTEMPORAL GEOCHEMICAL PATTERNS RECORD CONSTRUCTION OF A PRIMED, TRANSCRUSTAL MAGMA PLUMBING SYSTEM IN THE CRETACEOUS CENTRAL SIERRA NEVADA**
- 157-7 69 Polenz, Michael\*; Hladky, Frank R.; Anderson, Megan; Tepper, Jeffrey; Miggins, Daniel P.; Horst, Alison; Legorreta Paulin, Gabriel: **NEW GEOLOGIC MAPPING IN THE TENALQUOT PRAIRIE AND VAIL QUADRANGLES, WASHINGTON, INDICATES THAT CASCADE ARC VOLCANISM STARTED ABOUT 46 MA, ASSOCIATED VOLCANIC DEPOSITS LIKELY FILLED AN EOCENE FAULT-BOUNDED TACOMA BASIN NORTHEAST OF THE OLYMPIA STRUCTURE, PRE-VASHON DEPOSITS HERE EXTEND SEVERAL KILOMETERS FARTHER SOUTH THAN VASHON DEPOSITS, AND HIGH-VOLUME MELT-WATER DISCHARGE MARKED THE GLACIAL ICE MARGIN**

**SESSION NO. 158**

**T109. Life's Innovations from the Early Earth to the Search on Modern Mars: Honoring the Career of Andrew H. Knoll (Posters) (Paleontological Society; GSA Geobiology and Geomicrobiology Division; GSA Planetary Geology Division; GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology); Geochemical Society)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- Booth #
- 158-1 70 Sperling, Erik A.\*; Farrell, Una C.; Planavsky, Noah; Lau, Kimberly; Johnston, David T.; SGP Collaborative Team, .: **THE SEDIMENTARY GEOCHEMISTRY AND PALEOENVIRONMENTS PROJECT**
- 158-2 71 Edmonson, Stacey\*; Maloof, Adam C.; Nadeau, Matthew D.; Ahm, Anne-Sofie C.; Geyman, Emily C.; Higgins, John A.; McGee, David; Stolper, Daniel A.: **INTERGLACIAL PLEISTOCENE PERIPLATFORM CARBONATE  $\delta^{13}C$  AS AN ANALOGUE FOR INTERPRETING ANCIENT CHEMOSTRATIGRAPHIES**
- 158-3 72 Nosarzewski, Julian\*; Kah, Linda; Patranabis-Deb, Sarbani; Bartley, Julie: **UNDERSTANDING THE ORIGIN OF INCLINED STROMATOLITE COLUMNS**
- 158-4 73 Manning-Berg, Ashley\*; Lam, Elizabeth Kathleen; Riedman, Leigh Anne; Gomes, Maya: **MODERN MICROBIAL MAT TAPHONOMY AND ITS IMPLICATIONS ON MICROFOSSIL PRESERVATION**

AM  
TUESDAY

POSTERS

Tuesday, 12 October 2021

- 158-5 74 Wong, Clara\*; Nelson, Lyle L.; Schiffbauer, James; Selly, Tara; Pruss, Sara B.: **TUBULAR FOSSILS FROM THE LATE EDIACARAN LA CIÉNEGA FORMATION, SONORA, MEXICO**
- 158-6 75 Gordon, Caleb M.\*; Planavsky, Noah: **PHOSPHORUS LEVELS PREDICT GENOMIC NOVELTY PRODUCTION IN THE NEOPROTEROZOIC: A PRELIMINARY MATHEMATICAL MODEL**

**SESSION NO. 159**  

**T134. Advances in Wildfire-Related Earth-Surface Processes (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 159-1 76 Liu, Tao\*; McGuire, Luke; Oakley, Nina; Cannon, Forest: **MODELLING CHANGES IN RAINFALL INTENSITY-DURATION THRESHOLDS FOR FLASH FLOODS IN A SOUTHERN CALIFORNIA WATERSHED OVER FIVE YEARS OF POST-FIRE RECOVERY**
- 159-2 77 Hammer, Morena\*; Booth, Adam: **POST-FIRE DEBRIS FLOW INITIATION AND EROSIONAL PROCESSES OF RIVERSIDE FIRE, OREGON**
- 159-3 78 Bogoski, Collin J.\*; Portenga, Eric; Corbett, Lee B.; Bierman, Paul R.; Caffee, M.W.: **REPRODUCIBILITY OF <sup>10</sup>BE CONCENTRATIONS IN STREAM SAND FOLLOWING THE 2018 WOOLSEY FIRE IN SOLSTICE CANYON, SANTA MONICA MOUNTAINS, CALIFORNIA**
- 159-4 79 Phinney, April\*; Rittenour, Tammy; Geddes, Chloe; Nelson, Michelle S.: **ASSESSING WILDFIRE INTENSITY ON THE KAIBAB PLATEAU, ARIZONA, USA**
- 159-5 80 Geddes, Chloe\*; Phinney, April I.; Rittenour, Tammy: **FIRE TEMPERATURE RECONSTRUCTION: ANALYSIS OF KAIBAB FORMATION HEAT EXPOSURE DUE TO THE MANGUM FIRE ARIZONA**
- 159-6 81 McGuire, Luke\*; Youberg, Ann; Hoch, Olivia; Gorr, Alexander; Beers, Rebecca: **GEOMORPHIC AND HYDROLOGIC IMPACTS OF SUCCESSIVE WILDFIRES: INSIGHTS FROM THE 2021 TELEGRAPH FIRE IN CENTRAL ARIZONA**

**SESSION NO. 160**

**T140. Paleoclimate, Paleoenvironments, and Paleoceanography of Northwestern North America (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Continental Scientific Drilling Division; GSA Marine and Coastal Geoscience Division; GSA Limnogeology Division; GSA Geoaerchaology Division; American Quaternary Association; Geochemical Society; Paleontological Society)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 160-1 82 Callahan, Owen\*; Brigham, Cassandra Alison; Heitmann, Emma; Sullivan, Emma; Huntington, Katharine; Loewy, Staci L.; Crider, Juliet: **GEOMORPHIC EVIDENCE FOR LONG-LIVED HYDROTHERMAL CIRCULATION AT HYDER HOT SPRINGS, NEVADA**
- 160-2 83 White, Sarah\*; Ibarra, Daniel E.; Wahl, David: **REASSESSMENT OF THE LAKE-BASED PLIOCENE PROXY NETWORK IN WESTERN NORTH AMERICA**
- 160-3 84 Lopera Congote, Laura\*; McGlue, Michael; Stone, Jeffery: **UNRAVELING PAST HYDROCLIMATE DYNAMICS IN GULL LAKE, SIERRA NEVADA, CALIFORNIA. INSIGHTS FROM DIATOM EVOLUTION AND COMMUNITY ASSEMBLAGES**
- 160-4 85 Kumar, Avinesh; Gavin, Daniel\*; Waldmann, Nicolas: **POST-GLACIAL ENVIRONMENTAL RECONSTRUCTION FROM**

**SEDIMENT GEOCHEMISTRY, BELLS LAKE, NORTHERN IDAHO**

- 160-5 86 Stelling, Katherine M.\*; Walczak, Maureen H.; Mix, Alan; Ponton, Camilo; Gregory, Erin; Hofstetter, Celeste; Hytrek, Holly; Dwyer, Deepa; Reilly, Brendan; Padman, June: **A PALEOCEANOGRAPHIC PERSPECTIVE ON THE FINAL DAYS OF GLACIAL LAKE RUSSELL, PUGET SOUND, WASHINGTON**
- 160-6 87 Gregory, Erin\*; Mix, Alan; Walczak, Maureen H.; Ponton, Camilo; Padman, June; Ross, Andrew; Stelling, Katherine M.; Dwyer, Deepa; Donnenfield, Jonas; Reilly, Brendan; Stoner, Joseph S.: **PALEOCEANOGRAPHIC PERSPECTIVES ON COLUMBIA RIVER DISCHARGE DURING THE HOLOCENE**
- 160-7 88 Hytrek, Holly\*; Walczak, Maureen; Reilly, Brendan; Haley, Brian; Churchill, Alyson; Dwyer, Deepa; Hofstetter, Celeste; Stelling, Katherine M.; Gregory, Erin: **ANALYZING VARIABILITY IN SEDIMENT PROVENANCE TO UNDERSTAND THE RETREAT OF THE SOUTHERN CORDILLERAN**
- 160-8 89 Gromig, Raphael\*; Ward, Brent; Jackson, Lionel E.; Turner, Derek; Melles, Martin: **RECONSTRUCTION OF THE GLACIAL HISTORY OF THE FRASER LOWLAND - INSIGHTS FROM GEOCHEMICAL ANALYSES OF SEDIMENT CORES FROM PORT MOODY (BC)**
- 160-9 90 Dwyer, Deepa\*; Stoner, Joseph S.; Walczak, Maureen H.; Reilly, Brendan; Mix, Alan; Fallon, Stewart; Velle, Julie; St-Onge, Guillaume; Penkrot, Michelle: **THE SEDIMENTOLOGIC AND MAGNETIC SIGNATURE OF SIKU EVENTS DURING THE LAST GLACIATION IN THREE DIFFERENT DEPOSITION ENVIRONMENTS IN THE GULF OF ALASKA RECOVERED DURING IODP EXP 341**
- 160-10 91 Hofstetter, Celeste\*; Dwyer, Deepa; Monito, Lindsey; Reilly, Brendan; Walczak, Maureen H.; Stoner, Joseph S.; Stelling, Katherine M.; Hytrek, Holly; Donnenfield, Jonas; Gregory, Erin: **DO MARINE SEDIMENTS FROM THE CASCADIA MARGIN RECORD THE GEOMAGNETIC FIELD? A STUDY OF PISTON CORES COLLECTED DURING OC2006A FROM THE UPPER SLOPE ADJACENT TO GRAYS HARBOR CANYON, WA**
- 160-11 92 Williams, Carson\*; Walczak, Maureen; Stoner, Joseph S.: **CORRELATING WAVE POWER WITH GRAIN SIZE OF ACCUMULATING SEDIMENT: DEVELOPMENT OF A PALEO PROXY FOR THE PACIFIC NORTHWEST CONTINENTAL SHELF**
- 160-12 93 Donnenfield, Jonas\*; Walczak, Maureen H.; Mix, Alan; Stelling, Katherine; Hofstetter, Celeste; Gregory, Erin; Hytrek, Holly; Dwyer, Deepa; Reilly, Brendan; Stoner, Joseph; Fehrenbacher, Jennifer S.; McKay, Jennifer: **OBSERVATIONS OF PERSISTENT BENTHIC HYPOXIA ON THE PACIFIC NORTHWEST MARGIN: AN EARLY HOLOCENE ANALOGUE FOR OUR NEAR-FUTURE**

**SESSION NO. 161**

**T103. Sedimentary Geology Division/SEPM Student Research Poster Competition: Dynamics of Stratigraphy and Sedimentation (Posters) (GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology); GSA Energy Geology Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 161-1 94 Martinez, Priscilla R.\*; Knott, Jeffrey R.; Sarna-Wojcicki, Andrei M.; Heizler, Lynn L.: **TEPHROCHRONOLOGY OF THE MODELO FORMATION AT BALCOM CANYON, VENTURA COUNTY, CALIFORNIA**
- 161-2 95 Eisenberg, Jane\*; Bershaw, John: **MAJOR CONTROLS ON DIAGENESIS IN THE MARTIN BRIDGE FORMATION: WALLOWA MOUNTAINS, OREGON**
- 161-3 96 Rodarte, Dorothy\*; Marshall, Madeline: **COMPARATIVE ANALYSIS OF PHOSPHORITE HARDGROUNDS FROM THE RECENT OF THE CALIFORNIA BORDERLANDS AND THE PERMIAN PHOSPHORIA ROCK COMPLEX OF IDAHO**



- 161-4 97 Bradford, Maya\*; Benison, Kathleen; Knapp, Jonathan P.; Petras, Brigitte: **GYPSUM TEXTURAL RECORDS OF SALINE ENVIRONMENTS FROM THE TRIASSIC RED PEAK FORMATION**
- 161-5 98 Persad, Liselle\*; Marsaglia, Kathleen; Expedition 385 Scientists, The: **UNIFYING LITHOLOGY, FACIES AND BEDDING CHARACTERISTICS OF THE DSDP LEG 64 AND IODP EXPEDITION 385 SITES, FOR A COMPREHENSIVE GUAYMAS BASIN DEPOSITIONAL MODEL: PRELIMINARY RESULTS**
- 161-6 99 Friend, Justin\*; Hampton, Brian; Bonar, Alicia: **DETERMINING THE EXTENT AND DEGREE OF DIAGENETIC ALBITIZATION OF K-FELDSPAR IN EARLY PERMIAN (WOLFCAMPIAN) ARKOSIC, NONMARINE, STRATA THROUGHOUT NEW MEXICO**
- 161-7 100 Allred, Isaac\*; Blum, Michael: **THERE AND BACK AGAIN: THE RECYCLING OF APPALACHIAN AND GRENVILLE SIGNATURES IN DZ U-PB RECORDS OF PHANEROZOIC NORTH AMERICA**
- 161-8 101 Huisman, Matthew\*; Freiburg, Jared T.; Malone, David; Holland, Mark E.; McLaughlin, Patrick; Malone, Shawn J.: **ZIRCON GEOCHRONOLOGY OF CAMBRIAN CLASTIC AND CRYSTALLINE ROCKS FROM THE CARBON SAFE WABASH #1 WELL, INDIANA, USA**
- 161-9 102 Krieger, Aidan\*; Malone, David; Craddock, John P.; Holm, Daniel; Baumann, Steven; Malone, Shawn J.: **CONTINENTAL-SCALE SEDIMENT DISPERSAL OF THE MESOPROTEROZOIC BARABOO INTERVAL QUARTZITES IN THE SOUTHERN LAKE SUPERIOR REGION, USA**
- 161-10 103 Kannam, Peter\*; Mehra, Akshay; Sperling, Erik A.; Jackson, Brian P.; Tosca, Nicholas; Clayton, Katherine; Fraser, Tiffani; Melchin, Michael; Strauss, Justin: **MULTIPLE HOST PHASES OF MERCURY IN THE EARLY PALEOZOIC ROAD RIVER GROUP OF NORTHERN YUKON, CANADA**
- 161-11 104 Hartstein, Amanda R.\*; Frank, Tracy D.: **MICROPLASTICS IN THE SEDIMENT OF THE PLATTE RIVER, NEBRASKA, USA**
- 161-12 105 Sharpe, Justin\*; Price, Dianna; Davis, Charles; Sheppard, Charles; Tesauro, Josephine; Adams, Thomas; Altiner, Demir; Lehrmann, Daniel; Lehrmann, Asmara; Suarez, Marina B.; Lacroix, Brice; Godet, Alexis: **PALEOENVIRONMENTAL RECONSTRUCTION OF LOWER CRETACEOUS DINOSAUR TRACKWAYS CENTRAL TEXAS**
- 161-13 106 Herdocia, Carlos\*; Maurrasse, Florentin J.-M.R.: **GEOCHEMICAL AND ORGANIC MATTER CHARACTERIZATION OF LOWER APTIAN SEDIMENTS WITHIN THE LA FRONTERA SECTION, SUBBETIC BASIN IN RESPONSE TO GLOBAL EVENT: OAE 1A**
- 161-14 107 Johnson, Isaac\*; Sharman, Glenn R.; Huang, Xiao; Szymanski, Eugene: **MACHINE LEARNING APPLIED TO A PETROGRAPHIC DATABASE: INTRODUCING THE GLOBAL PREDICTION OF SAND MINERALOGY (GLOPRSM) MODEL**
- 161-15 108 Villasenor, Gabriel\*; Lang, Karl; Betka, Paul; Rakshit, Raghupratim; Stockli, Daniel F.: **OLIGO-MIOCENE REORGANIZATION OF EASTERN HIMALAYAN RIVER SYSTEMS: NEW CONSTRAINTS FROM DETRITAL ZIRCON (U-TH)/PB PROVENANCE ANALYSIS OF THE BARAIL GROUP, NORTHERN INDO-BURMAN RANGES**
- 161-16 109 Plonka, Zoey\*; Capaldi, Tomas N.; Odlum, Margaret; Alvarado, Patricia A.; Ortíz, Gustavo: **RESOLVING ALONG-STRIKE ANDEAN THRUST FRONT EVOLUTION USING THE FORELAND BASIN RECORD IN THE FLAT SLAB REGION OF ARGENTINA**
- 161-17 110 Prior, Ashley\*; Parga, Victoria L.; Stubbins, Blake; Leier, Andrew; Pullen, Alexander; Barbeau, David L.: **INFERRING PLEISTOCENE WIND PATTERNS FROM EOLIAN LANDFORMS IN THE PAMPEAN SAND SEA, CENTRAL ARGENTINA**
- 161-18 111 Rahamut, Matthew\*; Stemann, Thomas: **TAPHONOMIC AND BIO-FACIES CHARACTERIZATION OF LATE PLEISTOCENE EMERGENT REEF DEPOSITS IN TREASURE BEACH, JAMAICA**

- 161-19 112 Anannya, Anuva\*; Husinec, Nika; Wilkerson, Oscar A.; Husinec, Antun: **INFLUENCES ON CARBONATE GEOCHEMISTRY AND MINERALOGY IN COASTAL LAGOONS, NORTHERN JAMAICA**

**SESSION NO. 162**

*T7. Initiation and Evolution of Arc-Forearc Systems in Cascadia and Beyond (Posters) (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Geophysics and Geodynamics Division; GSA Marine and Coastal Geoscience Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)*

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 162-1 113 Orme, Devon\*; Laskowski, Andrew; Zilinsky, Misia F.; Chao, Wang; Guo, Xudong; Cai, Fulong; Ding, Lin: **TRENCH VERSUS FOREARC: LATE CRETACEOUS TRENCH SEDIMENT ACCUMULATION AND FOREARC EROSION ALONG THE SOUTHERN MARGIN OF TIBET AS REVEALED BY PROVENANCE ANALYSIS**
- 162-2 114 Unruh-Friesen, Evan\*; Chapman, Alan: **DETRITAL ZIRCON GEOCHRONOLOGY OF THE WESTERN BAJA TERRANE: CONSTRAINTS ON THE TIMING OF MESOZOIC SUBDUCTION AND ACCRETION IN BAJA CALIFORNIA**
- 162-3 115 Romero, Mariah C.\*; Orme, Devon; McAleer, Ryan J.; Jubb, Aaron M.: **QUANTIFYING RADIATION DAMAGE USING CATHODOLUMINESCENCE, PHOTOLUMINESCENCE, AND RAMAN SPECTROSCOPY ON ZIRCONS FROM THE COAST RANGE OPHIOLITE AND SIERRA NEVADA BASEMENT: IMPLICATIONS FOR THE THERMAL HISTORY OF BASEMENT ROCKS AND THE OVERLYING GREAT VALLEY FOREARC BASIN, NORTHERN CALIFORNIA**
- 162-4 116 Black, Jo\*; Shimabukuro, David; Skinner, Steven; Rack, Sierra: **GEOCHRONOLOGY AND THERMOBAROMETRY OF THE GARNET AMPHIBOLITE AT THE BASE OF THE TUOLUMNE OPHIOLITE, SIERRA NEVADA CENTRAL BELT, CALIFORNIA**
- 162-5 117 Oleson, Ethan\*; Orme, Devon: **THE RELATIONSHIP BETWEEN THE FORMATION AND EVOLUTION OF THE COAST RANGE OPHIOLITE AND GREAT VALLEY FOREARC, NORTHERN AND CENTRAL CALIFORNIA**
- 162-6 118 Romero, Mariah\*; Orme, Devon: **AGE RELATIONSHIPS BETWEEN THE COAST RANGE OPHIOLITE, OPHIOLITIC BRECCIA, AND OVERLYING STRATA OF THE GREAT VALLEY FOREARC, SACRAMENTO SUBBASIN, NORTHERN CALIFORNIA**
- 162-7 119 Dittrich, Samantha\*; Orme, Devon: **PROVENANCE AND DEPOSITIONAL AGE ANALYSIS OF THE BASAL GREAT VALLEY FOREARC IN NORTHERN CALIFORNIA USING DETRITAL AND IGNEOUS ZIRCON U-PB GEOCHRONOLOGY**
- 162-8 120 Stine, Nicole\*; Orme, Devon: **A LOOK INTO THE PROVENANCE AND DEPOSITIONAL AGES OF THE GREAT VALLEY FOREARC AND UNDERLYING COAST RANGE OPHIOLITE COMPLEX, NORTHERN CALIFORNIA, FROM DETRITAL AND IGNEOUS U-PB GEOCHRONOLOGY**
- 162-9 121 Manta, Robert\*; Orme, Devon: **DEPOSITIONAL AGE AND PROVENANCE OF THE GREAT VALLEY FOREARC BASIN EXAMINED THROUGH U-PB GEOCHRONOLOGY, WILBUR HOT SPRINGS AND LYNCH CANYON, NORTHERN CALIFORNIA**
- 162-10 122 Blackwell, Noel\*; Blackwell, David L.S.; Bogue, Scott; Weldon, Ray; Armentrout, John: **CENOZOIC EVOLUTION OF THE CASCADIA FOREARC: CONSTRAINTS FROM PALEOMAGNETISM AND ANISOTROPY OF MAGNETIC SUSCEPTIBILITY OF SEDIMENTARY ROCKS EXPOSED NEAR CAPE ARAGO, CENTRAL OREGON COAST**
- 162-11 123 Barbato, Allison\*; Magoon, Leslie; Warny, Sophie; Demchuk, Thomas D.; Armentrout, John: **SOURCE ROCK CHARACTERIZATION AND THERMAL MATURITY**

AM

TUESDAY

POSTERS

**EVALUATION OF EOCENE-MIOCENE SHELF MARGIN DEPOSITIONAL UNITS IN COOS BAY, OREGON**

**SESSION NO. 163**

**T9. Late Cretaceous–Eocene (pre-Cascadia) Tectonics from the Greater Pacific Northwest Margin to the Rocky Mountains (Posters) (GSA Geochronology Division; GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Geophysics and Geodynamics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 163-1 124 Donaghy, Erin\*; Eddy, Michael: **REVISITING STRATIGRAPHY OF THE EOCENE TO MIOCENE SEDIMENTARY PERIPHERAL ROCKS ON THE OLYMPIC PENINSULA, WASHINGTON**
- 163-2 125 Regier, Nicholas\*; Donaghy, Erin; Eddy, Michael: **STRATIGRAPHIC AND STRUCTURAL CHARACTERIZATION OF THE EOCENE BLUE MOUNTAIN UNIT, OLYMPIC PENINSULA, WA: IMPLICATIONS FOR BASIN FORMATION AND VOLCANISM FOLLOWING SILETZIA'S ACCRETION**
- 163-3 126 Mulcahy, Sean\*; Schermer, Elizabeth; Singleton, Kalieh: **JURASSIC AND PALEOGENE FAULTING IN THE EASTON NAPPE OF THE WESTERN NORTHWEST CASCADES THRUST SYSTEM OF WASHINGTON**
- 163-4 127 White, Audrey\*; Tepper, Jeffrey; Dawes, Ralph: **GEOCHEMISTRY AND PETROLOGY OF EOCENE TO MIOCENE ROCKS IN A REAR-ARC SETTING, CENTRAL CASCADES, WASHINGTON**
- 163-5 128 Peterson, Pauline\*; Tepper, Jeffrey: **PETROLOGY AND TECTONIC SETTING OF THE SILVER PASS VOLCANICS, CENTRAL CASCADES, WA: EARLY EVIDENCE OF FARALLON SLAB BREAKOFF**
- 163-6 129 Haugerud, Ralph\*: **REVISITING THE LEAVENWORTH FAULT, SOUTHEASTERN NORTH CASCADE RANGE, WASHINGTON**
- 163-7 130 Gaschnig, Rich\*; Chan, Nick; Vervoort, Jeffrey D.: **ZIRCON AND MONAZITE PETROCHRONOLOGY OF THE COOLWATER CULMINATION, IDAHO**
- 163-8 131 Neal, Bryce\*; Burrell, Will; Laskowski, Andrew; Lonn, Jeffrey D.: **KINEMATIC EVOLUTION OF THE GEORGETOWN THRUST FOOTWALL, WEST-CENTRAL ANACONDA RANGE, SW MONTANA, USA**
- 163-9 132 Reed, Nathan\*; Bidgoli, Tandis; Moore, Kimberly: **STRUCTURAL STYLE AND EXHUMATION HISTORY OF THE FRISCO THRUST SHEET, SEVIER FOLD-THRUST BELT, UTAH**
- 163-10 133 Fuston, Spencer\*; Wu, Jonny: **RAISING THE RESURRECTION PLATE FROM AN UNFOLDED-SLAB PLATE TECTONIC RECONSTRUCTION OF NORTHWESTERN NORTH AMERICA SINCE EARLY CENOZOIC TIME**

**SESSION NO. 164**

**D34. Recent Advances in Volcanology (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 164-1 134 Edwards, Felicia\*; Horsman, Eric: **TESTING MODELS OF SHALLOW MAGMA SYSTEM CONSTRUCTION USING STATISTICS ON GEOCHEMISTRY AND ROCK MAGNETIC DATA, HENRY MOUNTAINS, UTAH**
- 164-2 135 Marine, Henry\*; Teasdale, Rachel; Harp, Andrew: **MYANA EXPLORER: RESEARCH AND OUTREACH OF AN APP-BASED GUIDE INTO AN ERODED VOLCANO IN THE SOUTHERN CASCADES**
- 164-3 136 Vlahovich, Nolan\*; Cahoon, Emily: **GEMSTONES AND FLOOD BASALTS: EXPLORING VOLCANIC STRATIGRAPHY AND REGIONAL UPLIFT IN EASTERN OREGON**

- 164-4 137 Ford, Mallory\*; Rader, Erika: **RELATIONSHIP BETWEEN EFFUSION RATES, FLOW EMPLACEMENT STYLES, AND SPATTER DEPOSITS OF THE 2021 FAGRADALSFJALL ERUPTION**
- 164-5 138 Grachen, Hannah\*; Graettinger, Alison; Brand, Brittany: **INTENSE SHALLOW MAGMA SEDIMENT MINGLING WITHIN DIKES AT GUFFEY BUTTE MAAR, IDAHO**
- 164-6 139 Waian, Jonathon\*: **NUMERICAL INVESTIGATION AND DISCUSSION OF THE MAGNETOHYDRODYNAMICS OF BASALTIC LAVA FLOWS THROUGH TUBES BY FIRST ORDER APPROXIMATIONS OF THE MAGNETIC REYNOLDS NUMBER AND HARTMANN NUMBER**

**SESSION NO. 165**

**T20. Structural Geology and Tectonics Division 40th Anniversary Symposium: Drivers of Orogenesis (Posters) (GSA Structural Geology and Tectonics Division; GSA Geophysics and Geodynamics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Quaternary Geology and Geomorphology Division)**

10:30 AM, Oregon Convention Center, Portland Ballroom 257 (Hybrid Room)

Booth #

- SPECIAL SYMPOSIUM FORMAT: TALKS AND POSTERS IN THE SAME ROOM.**
- 165-1 He, John\*; Ozamah, Duke Oshiomah; Kapp, Paul: **A DETRITAL APPROACH TO EVALUATING THE ROLE OF DEEP LITHOSPHERE REMOVAL IN OROGENESIS**
- 165-2 Regan, Sean\*; Waldien, Trevor S.; Holland, Mark E.; Marsh, Jeffrey; Suhey, Jane; Pickett, Jessica; Benowitz, Jeffrey; Twelker, Evan: **IN-SITU MONAZITE PETROCHRONOLOGY THROUGH AN INVERTED BARROVIAN SEQUENCE, VALDEZ CREEK SHEAR ZONE, CLEARWATER MOUNTAINS, ALASKA**
- 165-3 Jones, Craig\*: **THE GRAVITATIONAL POTENTIAL ENERGY CONSTRUCT: STRENGTHS AND WEAKNESSES IN UNDERSTANDING OROGENESIS**
- 165-4 Cowgill, Eric\*; Vasey, Dylan; Niemi, Nathan: **PLATE COUPLING VS. STRENGTH IN CONTROLLING OROGENIC STRUCTURE**
- 165-5 Rosen, Madison\*; Crespi, Jean: **CONTRIBUTION OF PENETRATIVE STRAIN AND OUT-OF-SEQUENCE THRUST FAULTS TO THRUST SHEET THICKENING IN THE TACONIC OROGENIC WEDGE OF THE NORTHERN APPALACHIANS**
- 165-6 Clark, Gillian\*; Spencer, Brandon; Thigpen, James; Merschat, Arthur J.; Casale, Gabriele; Levine, Jamie S.F.: **UNDERSTANDING GRADIENTS IN THE DIFFERENTIAL STRESS DRIVING FLOW: IMPLICATIONS FOR THE CRUSTAL ESCAPE FLOW MODEL IN THE SOUTHERN APPALACHIAN INNER PIEDMONT**
- 165-7 Zapata, Sebastian\*; Zapata -Henao, Mauricio; Cardona, Agustin; Jaramillo, Carlos; Silvestro, Daniele; Obok-Ikuenobe, Francisca: **RELIEF CONSTRUCTION AND DESTRUCTION CONSTRAINED BY 3D THERMO-KINEMATIC MODELING: TECTONIC EVOLUTION OF THE ANTIOQUIA ALTIPLANO IN THE NORTHERN ANDES**
- 165-8 Haproff, Peter\*; Levy, Drew; Zuza, Andrew; Hooker, Julian: **CENOZOIC SLIP HISTORIES OF THE TIDDING AND LOHIT THRUSTS IN THE NORTHERN INDO-BURMA RANGES, AND IMPLICATIONS FOR CRUSTAL THICKENING AND EXHUMATION OF GANGDESE LOWER ARC CRUST ALONG THE INDIA-ASIA SUTURE ZONE**
- 165-9 Giri, Bibek\*; Hubbard, Mary: **CROSS FAULTS AND LATERAL HETEROGENEITY IN MOUNTAIN BELTS**
- 165-10 Czeck, Dyanna M.\*; Strey, Falyon; Yonkee, Adolph; Martin, Chad: **FLUID-DRIVEN SHIFTS IN DEFORMATION MECHANISMS IN QUARTZ-RICH ROCKS NEAR A MAJOR FAULT: WILLARD THRUST ZONE, NORTHERN UTAH**

## AFTERNOON ORAL TECHNICAL SESSIONS

### SESSION NO. 166

#### D19. Paleocology and Environmental Change

1:30 PM, Oregon Convention Center, E145

Christiane Jacquemetton and Kelly Cronin, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 166-1 1:35 PM Bergeron, Lauren\*; Marshall, Madeline: **A COMPLEX MARINE SUCCESSION REVEALED BY AUTHIGENIC MINERALS AND MICROFOSSILS IN DINOSAUR-BEARING DEPOSITS OF THE LATE CRETACEOUS OF THE MORONDAVA BASIN, MADAGASCAR**
- 166-2 1:50 PM Cronin, Kelly\*; Walker, Sally; Gillikin, David; Perez-Huerta, Alberto; Puhalski, Emma; Bowser, Samuel S.: **TRACE ELEMENTS IN SUBFOSSIL *ADAMUSSIUM COLBECKI*: EVIDENCE OF PAST MULTIANNULAR SEA ICE IN COASTAL MCMURDO SOUND, ANTARCTICA**
- 166-3 2:05 PM Dworkin, Steve\*; DiPietro, Lyndsay M.; Nordt, Lee C.; Atchley, Stacy C.; Ramezani, Jahandar: **DIFFERENTIATING BETWEEN INHERITED AND PEDOGENIC MINERALS WITHIN PALEOSOLS: AN EXAMPLE OF RECONSTRUCTING PALEOCLIMATE DURING CHINLE FORMATION DEPOSITION**
- 166-4 2:20 PM Strother, Paul K.\*; Foster, Clinton: **A LOWER ORDOVICIAN CRYPTOSPORE ASSEMBLAGE FROM AUSTRALIA HELPS TO RECONCILE MOLECULAR PHYLOGENETICS AND FOSSIL ORIGINS OF PLANT DEVELOPMENT**
- 166-5 2:35 PM Ghosh, Adit\*; Cotton, Jennifer M.; Hauswirth, Scott; Hyland, Ethan; Azmi, Iffat; Raigemborn, Maria Sol; Tineo, David; Hayduk, Tyler; Insel, Nadja: **LATE MIOCENE-PLIOCENE VEGETATION, FIRE AND HYDROCLIMATE DYNAMICS IN THE RÍO IRUYA BASIN, NORTHWEST ARGENTINA**
- 166-6 2:50 PM Harnik, Paul\*; Andrus, C. Fred T.: **FLUVIAL INFLUENCE ON TIME AVERAGING AND NUTRIENT LOADS ON THE CONTINENTAL SHELF, NORTHERN GULF OF MEXICO**
- 3:05 PM **BREAK**
- 166-7 3:15 PM Ruebenstahl, Alexander\*; Napoli, James; Turner, Alan; Bhullar, Bhart-Anjan; Norell, Mark A.: **TWO NEW EUDROMAEOSAURS FROM KHULSAN (CENTRAL MONGOLIA) REVEAL MODERN-LIKE FAUNAL PREDATORY STRUCTURE AMONG NON-AVIAN DINOSAURS**
- 166-8 3:30 PM Bykowski, Richard\*; Schroeder, Katlin; Polly, P. David: **NON-AVIAN THEROPOD SKULL MORPHOLOGY TENTATIVELY SUPPORTS ONTOGENETIC NICHE SHIFT AMONG NORTH AMERICAN TYRANNOSAURIDS**
- 166-9 3:45 PM Vieira, Justin\*; Ullmann, Paul: **SURVIVORSHIP OF INVERTEBRATE MODES OF LIFE ACROSS THE K/PG BOUNDARY AT EDELMAN FOSSIL PARK, MANTUA TOWNSHIP, NEW JERSEY**
- 166-10 4:00 PM Jacquemetton, Christiane\*; Balisi, Mairin; Doughty, Evan; Friscia, Anthony; Howenstine, Aidan; Juhn, Mark; Marcot, Jonathan; Van Valkenburgh, Blaire: **NORTH AMERICAN PREDATOR FUNCTIONAL DIVERSITY AND NOVEL NICHE EXPLORATION AFTER THE EOCENE**
- 166-11 4:15 PM Allmon, Warren\*; Friend, Dana: **RADIATION, WITH OLIVES: DIVERSIFICATION OF ANCILLARIIDAE (NEOGASTROPODA, OLIVOIDEA) FROM THE PALEOCENE AND EOCENE OF THE U.S. GULF COASTAL PLAIN**
- 166-12 4:30 PM Williams, John\*; Burke, Kevin D.; Chandler, Mark A.; Haywood, Alan M.; Lunt, Dan J.; Otto-Bliesner, Bette: **CENOZOIC MODEL SYSTEMS FOR A NO-ANALOGUE FUTURE**

### SESSION NO. 167

#### D33. Recent Advances in Volcanology

1:30 PM, Oregon Convention Center, D135

Ryan Cahalan, Jessica Bersson and Erin Fitch, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 167-1 1:35 PM Anderson, Emily\*; Ort, Michael H.; Oldenburg, Curtis M.: **THERMO-HYDROLOGIC PROCESSES IN MAAR ERUPTIONS: THE ROLE OF VAPOR TRANSPORT AND CONDENSATION**
- 167-2 1:50 PM Ball, Jessica\*: **WRITTEN IN THE MAARS: PRELIMINARY MAPPING AND STRATIGRAPHY OF HYDROMAGMATIC ERUPTION DEPOSITS IN THE CLEAR LAKE VOLCANIC FIELD, CALIFORNIA**
- 167-3 2:05 PM Graettinger, Alison\*; Broley, Kyle; Bearden, Alex: **USING MAAR-DIATREME GEOMETRIES TO CONSTRAIN SUBSURFACE INFLUENCE ON EXPLOSIVE MAGMA WATER INTERACTIONS**
- 167-4 2:20 PM Carrasco, Gerardo\*; Cavazos, Jaime; Ort, Michael H.: **LOCATIONAL CONTROLS OF HOLOCENE MAAR VOLCANOES IN THE EASTERN MEXICAN VOLCANIC BELT**
- 167-5 2:35 PM Cahalan, Ryan\*; Mastin, Larry G.; Van Eaton, Alexa R.; Hurwitz, Shaul; Dufek, Josef; Solovitz, Stephen A.; Smith, Adam: **A UNIQUELY WELL-CONSTRAINED ASH PLUME DERIVED FROM CRATER LAKE-LAVA INTERACTION: INVESTIGATING THE DECEMBER 20, 2020 KÍLAUEA ERUPTION PLUME**
- 167-6 2:50 PM Moitra, Pranabendu\*; Horvath, David; Andrews-Hanna, Jeffrey: **ROLES OF GROUND ICE, MAGMATIC VOLATILES, AND IMPACT-TRIGGERING ON A VERY RECENT AND HIGHLY EXPLOSIVE VOLCANIC ERUPTION ON MARS**
- 167-7 3:05 PM Sikder, Arif\*; Paul, Sharmistha; Das, Priyabrata; Verma, Vishal Gyaneshwar; D'Orazio, Gabriela; Mayer, Carl; Pestov, Dmitry; Turner, Joseph B. McGee; Biswas, Partha Pratim; Gangopadhyay, Tapas Kumar: **DISCOVERY OF EVIDENCE OF EXPLOSIVE HYDROVOLCANICS IN INTERTRAPPEAN SEDIMENTS, IN MADHYA PRADESH, INDIA**
- 3:20 PM **BREAK**
- 167-8 3:35 PM Abbott, Dallas\*; Sultan, Anzim; Atadzhanov, Malik: **WHAT IS THE COMPOSITION AND AGE OF VOLCANISM ON NORTHERN MID LATITUDE AND TROPICAL SUBMARINE VOLCANOES?**
- 167-9 3:50 PM Breard, Eric\*; Dufek, Josef; Lube, Gert: **USING THE SAUTER MEAN DIAMETER TO CHARACTERIZE THE COUPLING OF POLYDISPERSE VOLCANIC MIXTURES WITH A FLUID**
- 167-10 4:05 PM Bersson, Jessica\*; Clarke, Amanda; Arrowsmith, Ramon: **SECONDARY EXPLOSION PITS ON THE BANCO BONITO RHYOLITE LAVA FLOW, NEW MEXICO**
- 167-11 4:20 PM Humphreys, J.\*; Brounce, M.; Walowski, Kristina: **DIFFUSIVE RE-EQUILIBRATION OF WATER AND OXYGEN FUGACITY IN NATURAL OLIVINE HOSTED MELT INCLUSIONS**
- 167-12 4:35 PM Pivarunas, Anthony\*; Blatter, Dawnika; Calvert, Andrew: **A BRIEF LIFESPAN FOR ASH CREEK BUTTE, CALIFORNIA**
- 167-13 4:50 PM Bruckel, Karoline\*; Lundstrom, Craig C.; Ackerson, Michael: **A GLIMPSE INTO THE THERMAL HISTORY OF THE FISH CANYON TUFF REVEALED BY QUARTZ PHENOCRYSTS**



**SESSION NO. 168**

**T7. Initiation and Evolution of Arc-Forearc Systems in Cascadia and Beyond (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; GSA Geophysics and Geodynamics Division; GSA Marine and Coastal Geoscience Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

1:30 PM, Oregon Convention Center, Portland Ballroom 257 (Hybrid Room)

Michael Darin, Kristin McDougall-Reid, James Jackson, Paul Umhoefer, Megan Mueller, Devon Orme and Harold Tobin, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 168-1 1:35 PM Moore, Gregory\*; Cornard, Pauline; Strasser, Michael: **DEVELOPMENT OF THE KUMANO FOREARC BASIN, NANKAI TROUGH SUBDUCTION ZONE**
- 168-2 1:50 PM Mueller, Megan\*; Licht, Alexis; Campbell, Clay; Ocakoglu, Faruk; Beard, K. Christopher; Möller, Andreas; Aksit, Gui; Metais, Gregoire; Coster, Pauline; Taylor, Michael H.: **FOREARC AND FORELAND BASIN EVIDENCE FOR PROTRACTED LATE CRETACEOUS-EOCENE COLLISION IN WESTERN ANATOLIA**
- 168-3 2:05 PM Finzel, Emily\*; Enkelmann, Eva; Ridgway, Kenneth D.; Trop, Jeffrey M.; McClelland, William C.: **TERRANES, SPREADING RIDGES, AND OCEANIC PLATEAUS – A TALE OF THE SOUTH-CENTRAL ALASKAN FOREARC (Invited Presentation)**
- 168-4 2:25 PM Wells, Ray\*; Niem, Alan: **EVOLUTION OF THE CASCADIA FOREARC, OREGON AND WASHINGTON (Invited Presentation)**
- 168-5 2:45 PM Dorsey, Rebecca\*; Darin, Michael; Armentrout, John; Santra, Manasij; Blackwell, David L.S.; Bindeman, Ilya: **TECTONOSTRATIGRAPHIC EVOLUTION OF SW OREGON FROM EARLY EOCENE COLLISION OF SILETZIA TO THE MODERN CASCADIA CONVERGENT MARGIN**
- 168-6 3:00 PM Santra, Manasij\*; Darin, Michael; Dorsey, Rebecca; Armentrout, John: **PALEOGEOGRAPHY OF THE MIDDLE EOCENE TYEE GROUP, COAST RANGE OF OREGON, USA**
- 3:15 PM **BREAK**
- 168-7 3:30 PM Armentrout, John\*; Blackwell, David L.S.; Thompson, Laird B.; Darin, Michael; McDougall-Reid, Kristin; Weldon, Ray; Bogue, Scott: **INITIATION AND CENOZOIC EVOLUTION OF THE CASCADIA FOREARC BASIN: MULTIDISCIPLINARY EVIDENCE FROM THE COOS BAY AREA CENOZOIC STRATIGRAPHY, SOUTHWESTERN OREGON (Invited Presentation)**
- 168-8 3:50 PM Darin, Michael\*; Armentrout, John; Dorsey, Rebecca: **LATE OLIGOCENE UPLIFT, INVERSION AND EMERGENCE OF THE CASCADIA FOREARC BASIN, SOUTHERN OREGON COAST RANGE, USA**
- 168-9 4:05 PM Bindeman, Ilya\*; Lackey, Jade Star; Jicha, Brian; Colon, Dylan; Armentrout, John: **SEARCHING FOR YELLOWSTONE PLUME VS. CASCADE ARC SIGNATURES IN 49-30 MA BASALTIC AND RHYOLITIC ROCKS OF WESTERN OREGON**
- 168-10 4:20 PM Barbato, Allison\*; Warny, Sophie; Demchuk, Thomas D.; Armentrout, John: **COMBINING ORGANIC PETROGRAPHY, PALYNOFORM ASSEMBLAGES AND LITHOLOGIC OBSERVATIONS TO RECONSTRUCT THE PALEOENVIRONMENT OF THE COOS BAY BASIN, SOUTHWEST OREGON, USA**
- 168-11 4:35 PM Scanlon, Darby P.; Bershaw, John\*; Wells, Ray; Streig, Ashley R.: **THE SPATIAL AND TEMPORAL EVOLUTION OF THE PORTLAND AND TUALATIN FOREARC BASINS, OREGON, USA**
- 4:50 PM **DISCUSSION**

**SESSION NO. 169**  

**T33. Magnetite Apatite (MtAp) Deposits in Space and Time (Mineralogical Society of America; Society of Economic Geologists)**

1:30 PM, Oregon Convention Center, A107–A109

John Hanchar, Jeffrey Chiarenzelli, Marian Lupulescu and Fernando Tornos, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 169-1 1:35 PM Dilles, John\*; Barton, Mark D.: **THE ENVIRONMENT OF ORE FORMATION IN LATE PHANEROZOIC IRON-OXIDE-RICH MINERAL DEPOSITS OF THE WESTERN USA, AND EVIDENCE FOR A NON-MAGMATIC HYDROTHERMAL ORIGIN (Invited Presentation)**
- 169-2 1:55 PM Meighan, Corey\*; Hofstra, Albert H.; Marsh, Erin; Lowers, Heather; Koenig, Alan E.: **CHEMISTRY OF MINERALS IN IOA DEPOSITS IN SE MISSOURI, USA: RELATION TO MAFIC AND INTERMEDIATE INTRUSIONS (Invited Presentation)**
- 169-3 2:15 PM Steele-Macinnis, Matthew\*; Bain, Wyatt; Tornos, Fernando; Hanchar, John; Pietruszka, Dorota; Lehmann, Bernd: **CARBONATE-SULFATE MELTS AND THEIR ROLE IN MAGNETITE-APATITE FORMATION WORLDWIDE (Invited Presentation)**
- 169-4 2:35 PM Peters, Stefan\*; Feng, Dingsu; Troll, Valentin; Pack, Andreas; Andersson, Ulf; Tornos, Fernando; Lehmann, Bernd; Di Rocco, Tommaso: **A TRIPLE OXYGEN ISOTOPE SEARCH FOR EVAPORITE-DERIVED OXYGEN IN MAGNETITE APATITE DEPOSITS**
- 169-5 2:50 PM Bain, Wyatt\*; Steele-Macinnis, Matthew; Bussweiler, Yannick: **TEXTURAL AND GEOCHEMICAL EVIDENCE FOR SECONDARY TH AND REE MOBILIZATION VIA CARBONATE-SULFATE FLUIDS IN THE BUENA VISTA MAGNETITE-APATITE SYSTEM (NEVADA)**
- 3:05 PM **BREAK**
- 169-6 3:20 PM Tornos, Fernando\*; Hanchar, John: **FORMATION OF MAGNETITE-(APATITE) SYSTEMS BY CRYSTALLIZATION OF ULTRAMAFIC IRON-RICH MELTS**
- 169-7 3:35 PM Pietruszka, Dorota\*; Hanchar, John; Tornos, Fernando; Wirth, Richard; Graham, Nathan A.; Severin, Kenneth P.; Velasco, Francisco; Steele-Macinnis, Matthew; Bain, Wyatt: **COMPLEX MAGMA IMMISCIBILITY IN THE FORMATION OF A MAGNETITE-APATITE SYSTEM, EL LACO, CHILE**
- 169-8 3:50 PM Mateo, Laura\*; Hanchar, John; Tornos, Fernando; Stein, H.J.; Delgado, Antonio; Villa, Igor M.: **THE MONTECRISTO IRON OXIDE-COPPER-GOLD (IOCG) DISTRICT IN NORTHERN CHILE: NEW EVIDENCE ABOUT THE GENETIC RELATIONSHIP BETWEEN IOCG AND MAGNETITE-(APATITE) DEPOSITS**
- 169-9 4:05 PM Tornos, Fernando\*; Hanchar, John; Steele-Macinnis, Matthew; Bain, Wyatt: **ARE MAGNETITE-(APATITE) SYSTEMS RELATED TO CONVENTIONAL SILICATE-RICH INTERMEDIATE MELTS?**
- 169-10 4:20 PM Hanchar, John\*; Tornos, Fernando: **REDOX CONTROL ON THE TI-IN MAGNETITE CONTENT: CONSTRAINTS FOR THE ORIGIN OF MAGNETITE APATITE (MTAP) DEPOSITS**
- 169-11 4:35 PM Corchado Albelo, Jose\*; Alagha, Lana: **CHARACTERIZATION AND LIBERATION ANALYSIS OF RARE EARTH ELEMENTS INCLUSIONS WITHIN THE APATITE-RICH TAILING FROM THE PEA RIDGE IRON MINE**
- 169-12 4:50 PM Baird, Graham\*; Grover, Timothy; Williams, Michael L.; Regan, Sean: **TECTONIC SETTING OF THE C. 1060-1030 MA OTTAWAN-AGED LYON MT. GRANITE, HOST TO THE IRON OXIDE-APATITE DEPOSITS IN THE ADIRONDACKS OF NORTHERN NEW YORK STATE**
- 5:05 PM **DISCUSSION**

5:15 PM CONCLUDING REMARKS

**SESSION NO. 170** 

**T37. Geologic Energy Research II (GSA Energy Geology Division)**

1:30 PM, Oregon Convention Center, B115/B116 (Hybrid Room)

Laura Ruhl, Travis McLing and Richard Esposito Jr., Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 170-1 1:35 PM Yan, Yiming\*; Zhang, Liqiang; Tong, Jia: **EFFECTS OF GRAIN PACKING TEXTURE AND DUCTILE GRAIN DEFORMATION ON SANDSTONE COMPACTION PROCESS: IMPLICATIONS FROM DEM NUMERICAL SIMULATION**
- 170-2 1:50 PM Henderson, Miles\*; Fuller, Matthew J.; Trentham, Robert C.: **PETROGRAPHY AND GEOCHEMISTRY OF THE LIMESTONE-DOLOSTONE TRANSITION IN RESIDUAL OIL ZONE OF THE EARLY PERMIAN SAN ANDRES FORMATION, PERMIAN BASIN, TEXAS**
- 170-3 2:05 PM Dallegge, Todd\*; Demko, Timothy Michael; Rozs, Lou: **THE HELIUM EXPLORATION BOOM IN ARIZONA**
- 170-4 2:20 PM Hills, Denise\*; McIntyre-Redden, Marcella R.; Koster, John; Hooks, Christopher: **ADVANCING ABILITY AND ACCEPTANCE FOR POTENTIAL SUBSEA CO<sub>2</sub> STORAGE IN THE EASTERN GULF OF MEXICO**
- 170-5 2:35 PM Muñoz, Adolfo; Alam, Mohammad Ayaz\*: **A CRITICAL EVALUATION OF THE ROLE OF THERMAL WATERS IN THE FORMATION OF LITHIUM DEPOSITS IN THE SALT FLATS AT LAGUNA VERDE IN THE CHILEAN ANDES**
- 2:50 PM **BREAK**
- 170-6 3:05 PM Lindsey, Cary\*; DeAngelo, Jacob; Mordensky, Stanley; Burns, Erick; Lipor, John: **CONSTRAINING SPATIAL STRUCTURES IN THE GREAT BASIN, U.S.A. FOR ASSESSMENT OF GEOTHERMAL RESOURCES**
- 170-7 3:20 PM Morgan, Paul\*: **UNUSUAL PLUMBING OF THE PAGOSA SPRINGS GEOTHERMAL SYSTEM, COLORADO, USA**
- 170-8 3:35 PM Palmer, Carl\*; Perkins, Robert; Malkemus, Donnel: **NEW INTERPRETATIONS OF THE GEOTHERMOMETRY AND GEOCHEMISTRY OF BREITENBUSH HOT SPRINGS, OREGON CASCADES**
- 170-9 3:50 PM Mordensky, Stanley\*; Lipor, John; DeAngelo, Jacob; Burns, Erick R.; Lindsey, Cary: **APPLYING DATA-DRIVEN MACHINE LEARNING TO GEOTHERMAL FAVORABILITY, WESTERN UNITED STATES**
- 170-10 4:05 PM Benz, Susanne\*; Menberg, Kathrin; Bayer, Peter; Blum, Philipp; Kurylyk, Barret: **HEAT RECYCLING IN THE SHALLOW SUBSURFACE - HEAT AS A RESOURCE**
- 4:20 PM **CONCLUDING REMARKS**

**SESSION NO. 171**

**T40. Environmental and Engineering Geology Division II (GSA Environmental and Engineering Geology Division)**

1:30 PM, Oregon Convention Center, B111

Robert Mitchell, Thomas Oommen and Arpita Nandi, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 171-1 1:35 PM Xiong, Fengyang\*; Jiang, Zhenxue; Lu, Hailong; Moortgat, Joachim; Radonjic, Mileva: **OBSERVATION AND MODELING OF KINETIC EMISSION OF SHALE GAS USING CANISTER DESORPTION TESTING**
- 171-2 1:50 PM Shabani, Babak\*; Zhu, Chen: **EFFECTS OF RESERVOIR HYDROGEOLOGICAL HETEROGENEITY ON CO<sub>2</sub> MIGRATION AND MINERAL TRAPPING: A CASE STUDY IN ILLINOIS BASIN, INDIANA**
- 171-3 2:05 PM Davis, John\*; Callas, Catherine; Benson, Sally M.; Saltzer, Sarah; Zoback, Mark: **TOWARD A UNIFORM STANDARD FOR EVALUATING SITES FOR GEOLOGICAL STORAGE OF CARBON DIOXIDE**

- 171-4 2:20 PM Aaltonen, Ismo\*: **FINAL HLW REPOSITORY SITE SELECTION PROGRAM - FINNISH APPROACH**
- 171-5 2:35 PM Hirschorn, Sarah\*; Blyth, Alec; Parmenter, Andy; Perritt, Jessica; Sanchez-Rico Castejon, Maria: **STATUS OF CANADA'S GEOSCIENTIFIC SITE EVALUATIONS FOR A DEEP GEOLOGICAL REPOSITORY FOR USED NUCLEAR FUEL (Invited Presentation)**
- 2:50 PM **BREAK**
- 171-6 3:00 PM Leslie, Bret\*: **UNDERGROUND RESEARCH LABORATORIES ARE KEY TO DEVELOPING AND COMMUNICATING GEOLOGIC REPOSITORY SAFETY CASES**
- 171-7 3:15 PM Sassani, David\*: **U.S. R&D PROGRAM ON DEEP GEOLOGIC DISPOSAL OF RADIOACTIVE WASTE**
- 171-8 3:30 PM Bahr, Jean\*; Becker, Steven; Brantley, Susan L.; Croff, Allen; Foufoula-Georgiou, Efi; Illangasekare, Tissa; Peddicord, K. Lee; Turinsky, Paul; Zoback, Mary Lou: **MOVING THE U.S. NUCLEAR WASTE PROGRAM FORWARD: SIX OVERARCHING RECOMMENDATIONS FROM THE NUCLEAR WASTE TECHNICAL REVIEW BOARD**
- 171-9 3:45 PM Caporuscio, Florie\*; Sauer, Kirsten B.; Rock, Marlina: **EXTENDED EXPERIMENTS ON THE STABILITY OF NEUTRON ABSORBER COMPOSITE MATERIAL IN DUAL PURPOSE CANISTERS: MINERAL AND STRUCTURAL PHASE CHANGES AT ELEVATED REPOSITORY TEMPERATURES**
- 171-10 4:00 PM Hapke, Cheryl\*; Revell, David; Jones, Craig: **MODEL-BASED COASTAL HAZARD ADAPTATION FRAMEWORK**
- 171-11 4:20 PM Yeh, Harry\*; Exton, Margaret: **SOIL INSTABILITY ASSOCIATED WITH RAPID COASTAL INUNDATION**
- 171-12 4:35 PM TатаhMentan, Mom\*; Nyachoti, Syprose; Okwori, Frederick; Godebo, Tewodros: **TOXIC ELEMENTAL COMPOSITION OF RICE AND LENTILS CONSUMED IN THE UNITED STATES**

**SESSION NO. 172**  

**T68. Lacustrine Systems around the World II: In Honor of Michael Rosen (GSA Limnogeology Division; GSA Geobiology and Geomicrobiology Division; GSA Continental Scientific Drilling Division; GSA Geochronology Division; GSA Marine and Coastal Geoscience Division; GSA Quaternary Geology and Geomorphology Division; American Quaternary Association; International Association of Limnogeology; SEPM (Society for Sedimentary Geology); Paleontological Society; GSA Sedimentary Geology Division)**

1:30 PM, Oregon Convention Center, Portland Ballroom 252 (Hybrid Room)

Scott W. Starratt and Bailee N. Hodelka, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 172-1 1:35 PM Hastly, Jordan\*; Hage, Melissa: **COMPARISON OF LAND-USE AND HYDROLOGIC CHARACTERISTICS FOR TWO SOUTHEASTERN US DRINKING WATER RESERVOIRS**
- 172-2 1:50 PM Park Boush, Lisa\*; Michelson, Andrew V.: **OSTRACODE DISTRIBUTION IN LAKES IN THE BAHAMAS AS A RESPONSE TO SEA LEVEL AND CLIMATE CHANGE**
- 172-3 2:05 PM Obrist-Farner, Jonathan\*; Stone, Jeffery R.; Perez, Liseth; Wojewodka-Przybył, Marta: **THE HOLOCENE RECORD OF THE LAKE IZABAL BASIN – PEEKING INTO ONE OF THE LONGEST CONTINENTAL RECORDS OF THE NORTHERN NEOTROPICS**
- 172-4 2:25 PM Duarte, Edward\*; Obrist-Farner, Jonathan; Zimmerman, Susan; Brown, Erik; Brown, Robert: **INVESTIGATING A POTENTIAL VARVED RECORD FROM THE NORTHERN NEOTROPICS**
- 172-5 2:40 PM Mongol, Erdoo\*; Oboh-Ikuenobe, Francisca; Obrist-Farner, Jonathan; Correa-Metrio, Alex: **A 9.5-KA RECORD OF PALEOVEGETATIONAL CHANGES IN EASTERN**

TUESDAY  
PM

- GUATEMALA UTILIZING POLLEN AND SPORE DATA FROM LAKE IZABAL**
- 172-6 2:55 PM Sun, Mingjie\*; Huang, Xiaozhong; Xiang, Lixiong: **DIATOM RECORDED CLIMATE CHANGE IN THE ALTAI MOUNTAINS OVER THE LAST 15 CAL. KYR BP**
- 3:10 PM **BREAK**
- 172-7 3:25 PM Domingos Luz, Leandro\*; Yost, Chad; McGlue, Michael: **INFLUENCE OF WATER DEPTH ON PHYTOLITH ASSEMBLAGES AND TAPHONOMY IN SURFACE SEDIMENTS FROM LAKE TANGANYIKA, EAST AFRICA**
- 172-8 3:40 PM Ivory, Sarah\*; McGlue, Michael; Cohen, Andrew S.; Kimirei, Ismael A.; Kamulali, Tumaini M.; Msaky, Emma; Stone, Jeffery; Soreghan, Michael J.: **LINKS BETWEEN LANDSCAPE AND LAKESCAPE IN EAST AFRICA, INFERENCES FOR CONSERVATION PALEOECOLOGY FROM LAKE TANGANYIKA**
- 172-9 3:55 PM Robakiewicz, Elena\*; Owen, R. Bernhart; Deino, Alan; Trauth, Martin H.; Junginger, Annett: **EARLY MIDPLEISTOCENE LACUSTRINE DYNAMICS AT PALEOLAKE SUGUTA, KENYA**
- 172-10 4:10 PM Dean, Silas\*; Greenlee, John; Hall, Christine; Park Boush, Lisa; Waldmann, Nicolas: **RECONSTRUCTING ENVIRONMENTAL CONDITIONS IN THE JORDAN VALLEY DURING THE PLIOCENE: INSIGHTS FROM NEW PALEOLAKE CORES**
- 172-11 4:25 PM Langford, Richard\*; Fox, Matthew; Giles, Katherine A.: **LAKE LEVELS AND DELTAS IN THE MID-CRETACEOUS BORDER RIFT, INDIO MOUNTAINS WEST TEXAS**
- 172-12 4:40 PM Drzewiecki, Peter\*: **ROLE OF GROUNDWATER DURING DEPOSITION OF THE JURASSIC EAST BERLIN AND LOWER PORTLAND FORMATIONS, HARTFORD BASIN, CONNECTICUT**
- 172-13 4:55 PM Petras, Brigitte\*; Benison, Kathleen; Zambito, James: **LAKE SYSTEMS OF PANGEA: THE DEPOSITIONAL AND DIAGENETIC HISTORY OF THE PERMIAN BLAINE FORMATION FROM THE REBECCA K. BOUNDS CORE OF KANSAS**
- 172-14 5:10 PM Benison, Kathleen\*; Andeskie, Anna Sofia: **SALINE LAKE SYSTEMS OF THE TRIASSIC MERCIA MUDSTONE OF NORTHERN IRELAND: LESSONS FROM TWO CORES**
- 5:25 PM **CONCLUDING REMARKS**

**SESSION NO. 173**

**T71. Advances and New Voices in Marine and Coastal Geoscience II (GSA Marine and Coastal Geoscience Division; GSA Geology and Society Division)**

1:30 PM, Oregon Convention Center, D136 (Hybrid Room)

Deirdre D. Ryan, Stephen C. Phillips, Rónadh Cox and Oana-Alexandra Dumitru, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 173-1 1:35 PM Borrelli, Mark\*; Legare, Bryan; McCormack, Bryan; Nichols, Owen: **THE PERSISTENCE OF HYDRAULIC DREDGE TRACKS FOLLOWING SURFCLAM HARVESTING: RELATIONSHIPS BETWEEN SHORELINE EVOLUTION AND NEARSHORE SEDIMENT TRANSPORT**
- 173-2 1:50 PM Vriesman, Veronica Padilla\*; Carlson, Sandra J.; Hill, Tessa M.: **EXAMINING DECADAL SCALE CHANGES IN THE SHELL OF A FOUNDATION BIVALVE MOLLUSC SPECIES**
- 173-3 2:05 PM Stevens, Michelle\*; Deng, Rongping: **USING QUAGGA MUSSEL SHELLS TO REMOVE HEAVY METAL IONS FROM CONTAMINATED WATER**
- 173-4 2:20 PM Ali, Hendratta\*; Atekwana, Eliot; Njilah, Isaac Konfor; Fregoso-Sanchez, Diana; Germaine Corine, Ngameni Youaleu: **ANTHROPOGENIC IMPACT: MANGROVES ESTUARIES NEED MORE ATTENTION AND PROTECTION (Invited Presentation)**

- 2:40 PM **DISCUSSION**
- 173-5 2:50 PM Mcdermott, Jill\*; Downing, Connor C.; Fornari, Daniel J.; Parnell-Turner, Ross; Barreyre, Thibaut: **CHANGES IN HYDROTHERMAL FLUID ORIGIN CONDITIONS LEADING UP TO THE NEXT ERUPTION AT 9° 50' N EAST PACIFIC RISE (Invited Presentation)**
- 173-6 3:10 PM Kim, Bumsoo\*; Zhang, Yi Ge: **METHANE INDEX: TOWARDS A QUANTITATIVE PROXY FOR PAST MARINE ANAEROBIC METHANE OXIDATION**
- 173-7 3:25 PM Thiagarajan, Nivedita\*; Phillips, Alexandra; Kitchen, Nami; Kinnaman, Frank; Valentine, David; Formolo, Michael J.; Lawson, Michael; Buenz, Stefan; Pedersen, Jon Halvard; Lepland, Aivo; Eiler, John M.: **STABLE AND CLUMPED ISOTOPE CONSTRAINTS ON THE ORIGINS OF NATURAL GASES FROM COLD SEEP ENVIRONMENTS**
- 173-8 3:40 PM Phillips, Stephen\*; Formolo, Michael J.; Wang, David T.; Xie, Hao; Becker, Stephen P.; Eiler, John M.: **FRACTIONATION OF METHANE ISOTOPOLOGUES DURING GAS HYDRATE DISSOCIATION: EXAMPLE FROM A HIGH-SATURATION RESERVOIR IN THE NORTHERN GULF OF MEXICO**
- 173-9 3:55 PM You, Kehua\*; Flemings, Peter: **COARSE-GRAINED SEDIMENTS ARE POTENTIAL MICROBIAL FACTORIES FOR METHANE GENERATION IN MARINE SEDIMENTS**
- 173-10 4:10 PM Kadurin, Sergii\*; Yanko-Hombach, Valentina; Kadurin, Vladimir; Naumko, Igor; Kakaranza, Sergii; Dikol, Olena; Zinchuk, Igor: **DEEP NATURE OF HYDROCARBON FLUID WITHIN THE BLACK SEASHELF BASED ON INCLUSIONS IN AUTHIGENIC MINERALS**
- 173-11 4:25 PM Lundgren, Dylan; Johnson, Joel\*; Varner, Ruth: **ASSESSING BOTTOM SEDIMENT METHANE CONCENTRATIONS AND THE EXTENT OF ANAEROBIC OXIDATION OF METHANE IN THE GREAT BAY ESTUARY, NEW HAMPSHIRE, U.S.A**
- 4:40 PM **DISCUSSION AND CONCLUDING REMARKS**

**SESSION NO. 174**

**T80. Foraminiferal Signals of Major Events in Mesozoic–Cenozoic Earth History (Cushman Foundation; Paleontological Society; Paleontological Research Institution; GSA Marine and Coastal Geoscience Division; Geochemical Society; GSA Sedimentary Geology Division)**

1:30 PM, Oregon Convention Center, Portland Ballroom 254 (Hybrid Room)

Kenneth Miller, Miriam E. Katz and Megan Fung, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 174-1 1:35 PM Filipsson, Helena L.\*; Ni, Sha; Charrieau, Laurie; Knudsen, Karen Luise; Pirzamanbein, Behnaz; Schmiedl, Gerhard; Seidenkrantz, Marit-Solveig; Múter, Dirk: **4D X-RAY MESSAGES FROM BALTIC BENTHIC FORAMINIFERA COVERING THE PRESENT AND LAST INTERGLACIAL PERIODS**
- 174-2 1:50 PM Brinkmann, Inda\*; Barras, Christine; Jilbert, Tom; Naeraa, Tomas; Paul, K. Mareike; Schweizer, Magali; Filipsson, Helena: **DROUGHT RECORDED BY BA/CA IN BENTHIC FORAMINIFERA**
- 174-3 2:05 PM Gaskell, Daniel\*; Hull, Pincelli: **EXTRACTING TEMPERATURES FROM FORAMINIFERAL  $\delta^{18}O$ : MODEL-DATA APPROACHES AND A NEW ONLINE TOOL**
- 174-4 2:20 PM Thirumalai, Kaustubh\*; Clemens, Steven C.; Rosenthal, Yair; Conde, Serena; Bu, K.; Desprat, Stéphanie; Zhou, Liping; Giosan, Liviu: **EXTREME INDIAN MONSOON STATES AND STRATIFICATION-INDUCED PALEOPRODUCTIVITY COLLAPSES SINCE THE LAST ICE AGE (Invited Presentation)**
- 174-5 2:40 PM Davis, Catherine\*; Hull, Pincelli M.: **DEGLACIAL SHOALING OF THE EASTERN EQUATORIAL PACIFIC OXYGEN MINIMUM ZONE**



- 174-6 2:55 PM Thomas, Ellen\*; Arreguín-Rodríguez, Gabriela; Alegret, Laia: **SOME LIKE IT COOL: DEEP-SEA BENTHIC FORAMINIFERAL RESPONSE TO PALEOGENE WARMING EVENTS**
- 174-7 3:10 PM Robinson, Marci M.\*; Dowsett, Harry J.; Foley, Kevin M.; Self-Trail, Jean M.; Sutton, Seth R.; Spivey, Whitney E.: **FORAMINIFERAL SIGNALS IN ATLANTIC COASTAL PLAIN SEDIMENTS**
- 3:25 PM **BREAK**
- 174-8 3:35 PM Lam, Adriane\*; Leckie, R. Mark; Crundwell, Martin P.: **MEET ME IN THE MIDDLE: AN INVESTIGATION OF PLANKTIC FORAMINIFERAL DIACHRONEITY ACROSS THE WESTERN PACIFIC, FROM THE MID-LATITUDES TO THE TROPICS**
- 174-9 3:50 PM Woodhouse, Adam\*; Dunhill, Alexander M.; Saupe, Erin; Wignall, Paul B.; Fenton, Isabel S.; Aze, Tracy: **CENOZOIC CLIMATE REGIME DROVE SPATIAL PATTERNS IN SPECIATION AND DISPERSAL DYNAMICS OF PLANKTONIC FORAMINIFERA**
- 174-10 4:05 PM Lowery, Christopher\*; Bown, Paul; Fraass, Andrew; Hull, Pincelli M.: **THE ECOLOGICAL RESPONSE OF PLANKTON TO MAJOR MESOZOIC AND CENOZOIC CLIMATE EVENTS (Invited Presentation)**
- 174-11 4:25 PM Dameron, Serena\*; Leckie, R. Mark; Polyak, Desiree; Robinson, Libby J.; Whiteside, Jessica H.; Elder, Will; Leithold, Elana L.: **WHERE SOUTH MEETS NORTH: A PALEOCEANOGRAPHIC FRONT IN THE WESTERN INTERIOR SEAWAY DURING OCEANIC ANOXIC EVENT 2**
- 174-12 4:40 PM Londono, Vanessa\*; Collins, Laurel: **THE EFFECT OF SIZE VARIATION ON PERCEIVED FORAMINIFERAL ABUNDANCE DURING OCEANIC ANOXIC EVENTS**
- 174-13 4:55 PM Hull, Pincelli M.\*; Henehan, Michael J.: **A REMARKABLY RESILIENT LATEST CRETACEOUS MARINE CARBON CYCLE (Invited Presentation)**
- 174-14 5:15 PM Miller, Kenneth\*; Schmelz, William; Browning, James; Kopp, Robert; Katz, Miriam; Makarova, Maria; Galochkina, Mariya; Rosenthal, Yair; Falkowski, Paul; Wright, James: **FEEDBACKS AMONG CARBON CYCLE, SEA LEVEL, AND CLIMATE OVER THE PAST 66 MILLION YEARS**

**SESSION NO. 175**

*T85. In Memory of Joanne Kluessendorf: The Winifred Goldring Award and the Promise of Women in Paleontology II (Association for Women Geoscientists; Paleontological Society; Paleontological Research Institution)*

1:30 PM, Oregon Convention Center, E141/E142 (Hybrid Room)

Patricia Kelley and Rene Shroat-Lewis, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 175-1 1:35 PM Carlson, Sandra\*: **DEDICATED TO THE STEWARDSHIP OF FOSSILS AND THEIR GEOLOGICAL CONTEXT: THE PROFESSIONAL LIFE OF JOANNE KLUESSENDORF (Invited Presentation)**
- 175-2 1:50 PM Johnson, Beth\*: **THE MAKING OF A MUSEUM: JOANNE KLUESSENDORF AND HER TIRELESS ACTIONS TO SHARE GEOLOGY THROUGH THE WEIS EARTH SCIENCE MUSEUM**
- 175-3 2:05 PM Visaggi, Christy\*: **PANDEMIC PARENTING: REALITY, RESILIENCE, AND NEW RESEARCH DIRECTIONS**
- 175-4 2:20 PM Shroat-Lewis, Rene\*: **THE UNESSAY: AN ASSIGNMENT USED TO HELP STUDENTS REDUCE PANDEMIC STRESS**
- 175-5 2:35 PM Bulinski, Katherine\*; Goldstein, Alan: **PALEONTOLOGICAL PROFESSIONAL DEVELOPMENT EXPERIENCES FOR K-12 TEACHERS: AN UNDERUTILIZED OPPORTUNITY FOR EDUCATORS AND PROFESSIONAL PALEONTOLOGISTS**

- 175-6 2:50 PM Oboh-Ikuenobe, Francisca\*; Akingbade, Atinuke; Ochogbu, Patricia: **THE LEGACY OF ADELINE BISI DUROTOYE: A PIONEERING FEMALE NIGERIAN GEOLOGIST**
- 175-7 3:05 PM Berta, Annalisa\*; Turner, Susan: **WOMEN IN VERTEBRATE PALEONTOLOGY: PAST, PRESENT, AND FUTURE**
- 175-8 3:20 PM Yacobucci, Margaret\*: **EVERYBODY INTO THE POOL: SUPPORTING CAREER SUCCESS FOR WOMEN IN PALEONTOLOGY**
- 175-9 3:35 PM Hermsen, Elizabeth\*; Blume, Helaina; Cohen, Phoebe; Haas, Don; Hendricks, Jonathan R.; Moore, Alexandra: **DARING TO DIG: WOMEN IN AMERICAN PALEONTOLOGY**
- 3:50 PM **DISCUSSION**
- 4:00 PM **CONCLUDING REMARKS**

**SESSION NO. 176**

*T93. Stratigraphy, Stasis, and Shales II (Paleontological Society; GSA Energy Geology Division)*

1:30 PM, Oregon Convention Center, E143/E144

Alex J. Bartholomew and Jocelyn Sessa, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 176-1 1:35 PM Ver Straeten, Charles\*; Over, D.; Woodrow, Donald L.; Ebert, James; Boyer, Diana; Colosimo, Amanda: **BRETT AND BAIRD, AND THE DEVONIAN OF NEW YORK: A NEW, EXTENSIVE VOLUME ON THE NORTH AMERICAN STANDARD SECTION**
- 176-2 1:55 PM Sain, Colby E.; Smith, Nicholas; Sumrall, Colin\*: **BRITTLE STAR (OPHIUROIDEA, ECHINODERMATA) SKELETAL ELEMENTS FROM A NEW LOCALITY (FLORAVILLE, IN): COMPARING THE FAUNAL DIVERSITY OF TWO MISSISSIPPIAN-AGE LOCALITIES**
- 176-3 2:10 PM Remirez, Mariano\*; Shen, Jun; Algeo, Thomas J.; Wei, Wei; Gilleaudeau, Geoffrey J.: **ELEMENTAL PALEOSALINITY PROXIES DEMONSTRATE FRESHWATER CONDITIONS IN TRIASSIC-JURASSIC BOUNDARY STRATA PREVIOUSLY ASSUMED TO BE MARINE (ARROYO MALO FORMATION, ARGENTINA)**
- 176-4 2:25 PM Self-Trail, Jean M.\*; Seefelt, Ellen L.; Merrill, Matthew D.; Dreier, Mark F.; Wycech, Jody B.; Warden, Augusta: **STRATIGRAPHIC CORRELATION OF CALCAREOUS NANNOFOSSILS, TOTAL ORGANIC CARBON AND CARBON ISOTOPE DATA OF THE BILOXI MARSHLANDS O-1 AND P-2 CORES, EASTERN LOUISIANA: TOWARDS UNDERSTANDING REGIONAL CHANGES ACROSS THE CENOMANIAN-TURONIAN BOUNDARY**
- 176-5 2:40 PM Rosbach, Stephanie A.\*; Snyder, John C.; Lamadrid, Hector M.; Huntley, John W.; Schiffbauer, James D.: **AVOIDING PITFALLS IN PCA FOR DESCRIBING TAPHONOMY: REFINING THE CHEMOSPHERE APPROACH**
- 2:55 PM **BREAK**
- 176-6 3:10 PM Cornell, Sean\*: **A MODERN ANALOG FOR SHALE RIP-UP CLAST FORMATION: CASE STUDIES OF MULTI-GENERATIONAL MUD CLASTS FROM THE EASTERN SHORE, VIRGINIA, USA**
- 176-7 3:25 PM Hendy, Austin\*: **LIFE AND DEATH ON THE EDGE: THE BIODIVERSITY, PALEOECOLOGY, AND TAPHONOMY OF ROCKY INTERTIDAL INVERTEBRATES**
- 176-8 3:40 PM Hartshorn, Kyle\*: **PROFESSIONALIZING THE AMATEURS: OVER TWO DECADES OF COLLABORATION BETWEEN CARLTON BRETT AND THE CINCINNATI DRY DREDGERS**
- 176-9 3:55 PM Brett, Carlton\*; Baird, Gordon C.: **HALF A CENTURY OF COLLABORATIVE FIELDWORK: INSIGHTS FROM STRATA AND STUDENTS**
- 4:15 PM **DISCUSSION**

4:55 PM CONCLUDING REMARKS

**SESSION NO. 177**

**T102. Correlation of Global Stages, Series, and Systems into North American Stratigraphic Successions (SEPM (Society for Sedimentary Geology); North American Commission on Stratigraphic Nomenclature (NACSN); International Commission on Stratigraphy (ICS); Paleontological Society)**

1:30 PM, Oregon Convention Center, A106

Richard Fluegeman, Stanley C. Finney, David A.T. Harper and Carlton E. Brett, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 177-1 1:35 PM Cramer, Bradley\*: **PITFALLS AND THE PRACTICAL REALITY OF GSSPS: THE OVER-RELIANCE AND OVER-INTERPRETATION OF SINGLE-TAXON-BIOZONE BIOSTRATIGRAPHY (Invited Presentation)**
- 177-2 1:50 PM Landing, Ed\*: **CAMBRIAN CHRONOSTRATIGRAPHIC UNITS IN NORTH AMERICA**
- 177-3 2:05 PM Farrell, Thomas\*; Cothren, Hannah; Crossey, Laura J.; Dehler, Carol; Foster, John R.; Hagadorn, James W.; Karlstrom, Karl E.; Sundberg, Fred A.; Schmitz, Mark D.; Webster, Mark: **NUMERICAL CALIBRATION OF WESTERN LAURENTIAN CAMBRIAN STRATIGRAPHIC SUCCESSIONS INTO THE GLOBAL GEOLOGIC TIME SCALE**
- 177-4 2:20 PM Farnam, Cole\*; Brett, Carlton: **REEXAMINING THE ORDOVICIAN-SILURIAN BOUNDARY OF OHIO**
- 177-5 2:35 PM Husinec, Antun\*; Leslie, Stephen A.: **UPPER ORDOVICIAN-LOWER SILURIAN CHEMOSTRATIGRAPHY TIED TO CONODONT BIOSTRATIGRAPHY IN THE WILLISTON BASIN, SUBSURFACE NORTH DAKOTA**
- 177-6 2:50 PM McAdams, Neo\*; Cramer, Bradley; Davies, Jeremy R.; Männik, Peep; Bancroft, Alyssa M.: **ORGANIC CARBON ISOTOPE AND CONODONT BIO-CHEMOSTRATIGRAPHY OF THE BASE TELYCHIAN (SILURIAN) GLOBAL BOUNDARY STRATOTYPE SECTION AND POINT (GSSP), CEFN CERIG, WALES**
- 177-7 3:05 PM Day, Jed\*: **BRACHIOPOD SEQUENCE IN THE LATEST FAMENNIAN AND EARLY TOURNAISIAN (DEVONIAN-CARBONIFEROUS BOUNDARY) IN THE WESTERN ILLINOIS BASIN OF NORTH AMERICA**
- 177-8 3:20 PM Over, D.\*: **THE DEVONIAN-CARBONIFEROUS BOUNDARY IN MARINE STRATA OF THE UNITED STATES - A REVIEW**
- 177-9 3:35 PM Sageman, Bradley\*; Jones, Matthew M.; Singer, Bradley S.: **UPDATED CHRONOSTRATIGRAPHY OF THE BASAL TURONIAN GSSP IN ROCK CANYON, LAKE PUEBLO STATE PARK, CO (Invited Presentation)**
- 177-10 3:50 PM Walaszczyk, Irek\*; Cech, Stanislav; Crampton, James S.; Dubicka, Zofia; Ifrim, Christina; Jarvis, Ian; Kennedy, William J.; Lees, Jackie A.; Lodowski, Damian; Pearce, Martin; Peryt, Daunta; Sageman, Bradley B.; Schioler, Poul; Todes, Jordan; Uličný, David; Voigt, Silke; Wiese, Frank: **THE GLOBAL BOUNDARY STRATOTYPE SECTION AND POINT (GSSP) FOR THE BASE OF THE CONIACIAN STAGE (SALZGITTER-SALDER, GERMANY) AND ITS AUXILIARY SECTIONS (SŁUPIA NADBRZEŻNA, CENTRAL POLAND; STŘELEČ, CZECH REPUBLIC; AND EL ROSARIO, NE MEXICO) (Invited Presentation)**
- 177-11 4:05 PM Suarez, Marina\*; McLean, Noah M.; Möller, Andreas; Ludvigson, Greg; Kirkland, James I.; Montgomery, Elizabeth; Paige, Marquise: **COMBINED CA-ID-TIMS AND CARBON ISOTOPE CHEMOSTRATIGRAPHY TO CORRELATE CRETACEOUS CONTINENTAL STRATA OF THE RUBY RANCH MEMBER OF THE CEDAR MOUNTAIN FORMATION**
- 177-12 4:20 PM Tholt, Andrew\*; Griffis, Neil; Mundil, Roland; Renne, Paul R.: **NEW DEPOSITIONAL AGE CONSTRAINTS FOR**

**THE CRETACEOUS-PALEOGENE TRANSITION (HELL CREEK REGION, WILLISTON BASIN)**

- 177-13 4:35 PM Fluegeman, Richard\*: **RECOGNIZING THE BARTONIAN STAGE IN THE GULF COASTAL PLAIN**

**SESSION NO. 178**

**T109. Life's Innovations from the Early Earth to the Search on Modern Mars I: Honoring the Career of Andrew H. Knoll (Paleontological Society; GSA Geobiology and Geomicrobiology Division; GSA Planetary Geology Division; GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology); Geochemical Society)**

1:30 PM, Oregon Convention Center, Portland Ballroom 255 (Hybrid Room)

Julie K. Bartley, Charles Boyce, Linda Kah, Alan Kaufman, Shuhai Xiao and Nora Noffke, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 178-1 1:40 PM Arens, Nan Crystal\*; Fisher, Emily: **DOES A GOOD PROFESSOR IN THE CLASSROOM MATTER? RELAXING MOTIVATED REASONING AROUND CLIMATE CHANGE**
- 178-2 1:55 PM Javaux, Emmanuelle\*: **EARLY EUKARYOGENESIS AND EUKARYOTIC DIVERSIFICATION (Invited Presentation)**
- 178-3 2:15 PM Cohen, Phoebe\*; Kodner, Robin: **EUKARYOTES WERE LIKELY AEROBIC AND ESTABLISHED IN PROTEROZOIC ECOSYSTEMS**
- 178-4 2:30 PM Bernhard, Joan\*; Gomaa, Fatma; Powers, Christopher C.; Utter, Daniel R.; Beaudoin, David J.; Edgcomb, Virginia P.; Filipsson, Helena L.; Hansel, Colleen M.; Wankel, Scott D.; Zhang, Ying: **BENTHIC FORAMINIFERA WITH ANAEROBIC MICROBIAL-LIKE METABOLISMS PROVIDE HYPOTHETICAL INSIGHTS INTO EARLY MICROEUKARYOTE EVOLUTION**
- 2:45 PM **BREAK**
- 178-5 3:00 PM Kodner, Robin\*; Cohen, Phoebe: **PRASINOPHYTE GREEN ALGAE AND THEIR MICROFOSSIL ANALOGS: GEOBIOLOGICAL IMPLICATIONS**
- 178-6 3:15 PM Riedman, Leigh Anne\*; Sadler, Peter M.: **THE FIRST BILLION YEARS OF EUKARYOTIC SPECIES RICHNESS**
- 178-7 3:30 PM Gilbert, Pupa\*; Bergmann, Kristin; Knoll, Andrew H.: **BIOMINERALIZATION: INTEGRATING MECHANISM AND EVOLUTIONARY HISTORY**
- 178-8 3:45 PM Porter, Susannah\*; Moore, John L.; Riedman, Leigh Anne: **PATTERNS IN THE EVOLUTIONARY ACQUISITIONS OF MINERALIZED SKELETONS IN EUKARYOTES**
- 178-9 4:00 PM Anderson, Ross\*; Woltz, Christina R.; Tosca, Nicholas J.; Porter, Susannah; Briggs, Derek E.G.: **DARWIN'S DILEMMA: TAPHONOMIC STUDIES HELP CONSTRAIN THE ORIGIN OF ANIMALS**
- 178-10 4:15 PM Boyce, Charles\*: **SIZE CONSTRAINTS ON THE EVOLUTION OF TERRESTRIAL ANIMAL LINEAGES**
- 4:30 PM **CONCLUDING REMARKS**

**SESSION NO. 179**

**T120. The G.K. Gilbert Award Session II (GSA Planetary Geology Division)**

1:30 PM, Oregon Convention Center, Portland Ballroom 256 (Hybrid Room)

Debra Needham, Emily S. Martin and Nicholas Patrick Lang, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 179-1 1:35 PM Weitz, Catherine\*: **A MARRIAGE MADE ON MARS: USING HIRISE AND CRISM DATA SETS TO STUDY LIGHT-TONED HYDRATED DEPOSITS IN AND AROUND VALLES MARINERIS (Invited Presentation)**
- 179-2 1:55 PM Wilk, Kierra\*; Bishop, Janice; Saranathan, Arun; Parente, Mario; Weitz, Catherine; Flahaut, Jessica; Gross, Christoph; Seelos, Frank P.: **THE CHANGING GEOCHEMICAL ENVIRONMENT AT IUS CHASMA, MARS, AS**

**DETERMINED THROUGH THE MINERALOGY AND STRATIGRAPHY OF AQUEOUS OUTCROPS**

- 179-3 2:10 PM Ehlmann, Bethany\*; Leask, Ellen K.: **MINERAL SPECTROSCOPY REVEALS THE EVOLUTION OF PLANETARY HABITABILITY ON MARS: A CASE STUDY OF SOUTHERN HIGHLANDS SULFATES AND CHLORIDES**
- 179-4 2:25 PM Elwood Madden, Megan\*; Bishop, Janice; Elwood Madden, Andrew S.; Phillips-Lander, Charity M.; Rodriguez, Andrew; Geyer, Christopher; Mason, Daniel; Cullen, Mason: **A SALTY COCKTAIL ON THE ROCKS. THE EFFECTS OF BRINES ON THE DISSOLUTION, FORMATION, AND PRESERVATION OF NEAR-SURFACE MINERALS ON MARS**
- 179-5 2:40 PM Yesilbas, Merve\*; Bishop, Janice: **FOLLOWING THE WATER ON MARS: A MOLECULAR LEVEL STUDY FOR LIQUID SALTY BRINE FORMATION IN MARS ANALOGS IN THE MID-IR REGION**
- 2:55 PM **DISCUSSION - CHARACTERIZING SULFATES AND CL SALTS ON MARS AND THEIR EFFECTS ON MARTIAN CHEMISTRY**
- 179-6 3:05 PM Flahaut, Jessica\*; Bishop, Janice; Viveiros, Fatima; Silva, Catarina; Daniel, Isabelle; Silvestro, Simone; Tedesco, Dario: **FUMAROLIC ALTERATION ON MARS: LESSONS LEARNED FROM TERRESTRIAL ANALOG FIELDWORK**
- 179-7 3:20 PM Burton, Zachary F.M.\*; Bishop, Janice: **SPECTROSCOPY, MINERALOGY, AND GEOCHEMISTRY OF REGOLITH FROM GAIPIÁ CALDERA (FUERTEVENTURA, SPAIN): AQUEOUS ALTERATION IN A DRY, SPARSELY VEGETATED, MAFIC MARS ANALOG SETTING**
- 179-8 3:35 PM Sheevam, Pooja\*; Calvin, Wendy: **MINERALOGY, SPECTROSCOPY AND GEOCHEMISTRY OF BASALTIC DRILL CORE FROM HUMU'ULA SADDLE, HI: IMPLICATIONS FOR SUBSURFACE ALTERATION ON MARS**
- 179-9 3:50 PM Moore, Rhianna\*; Szykiewicz, Anna: **GEOCHEMICAL AND ENVIRONMENTAL CONTROLS ON SULFUR MINERAL FORMATION AND PRESERVATION IN HYDROTHERMAL SEDIMENTS: IMPLICATIONS FOR THE VOLCANIC AND AQUEOUS HISTORY OF GUSEV CRATER, MARS**
- 4:05 PM **DISCUSSION - CHARACTERIZING VOLCANIC ALTERATION**
- 179-10 4:15 PM Velbel, Michael\*: **MINERALOGY OF SAND- AND SILT-SIZE GRAINS ON MARS FROM PHOENIX OM IMAGES**
- 179-11 4:30 PM Englert, Peter A.J.\*; Bishop, Janice; Foerder, Andrew; Bailey, Andrew H.; Burton, Zachary Florentino; Patel, Shital; Dera, Przemyslaw; Koeberl, Christian; Gibson, Everett K.: **WEATHERING AND CHEMICAL ALTERATION IN WRIGHT VALLEY, ANTARCTICA, AS AN ANALOG FOR ALTERATION ON MARS**
- 179-12 4:45 PM Smith, Sara\*; Mikucki, Jill; Bishop, Janice; Szykiewicz, Anna: **ASSESSING ABIOTIC AND BIOTIC PROCESSES CONTRIBUTING TO SULFATE FORMATION IN ANTARCTICA: ASTROBIOLOGICAL IMPLICATIONS FOR MARS**
- 179-13 5:00 PM Szykiewicz, Anna\*; Bishop, Janice: **UNANSWERED QUESTIONS ABOUT THE ORIGIN OF GYPSUM IN THE NORTH POLE ON MARS: HOW CAN THESE BE ADDRESSED?**
- 5:15 PM **DISCUSSION - CHARACTERIZING MINERALS AND SALTS ON MARS AND IN COLD TERRESTRIAL ENVIRONMENTS**

**SESSION NO. 180**

***T133. Weathering and Soils: Advances in Understanding Rates, Mechanisms, Controlling Factors and Feedbacks (GSA Quaternary Geology and Geomorphology Division; GSA Soils and Soil Processes Division)***

1:30 PM, Oregon Convention Center, D139/D140

Brendon J. Quirk, Jennifer Aldred, Arjun M. Heimsath and Rachel Glade, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 180-1 1:35 PM Ramos, Evan J.\*; Breecker, Daniel O.; Barnes, Jaime D.; Li, Fangliang; Gingerich, Phillip D.; Loewy, Staci L.; Satkoski, Aaron M.; Baczynski, Allison A.; Wing, Scott; Miller, Nathaniel R.; Lassiter, John C.: **ACTIVE SILICATE WEATHERING ON FLOODPLAINS DURING THE PALEOCENE-EOCENE THERMAL MAXIMUM: INSIGHTS FROM THE BIGHORN BASIN, WYOMING, USA**
- 180-2 1:50 PM Webb, Nina\*; Regmi, Netra R.; Soreghan, Gerilyn (Lynn); Elwood Madden, Andrew S.; Sylvester, Jordan; Cartagena Colon, Fabiola; Demirel-Floyd, Cansu; Madden, Megan: **EFFECTS OF HURRICANE-INDUCED MASS WASTING ON SOIL TRANSPORT AND CHEMICAL WEATHERING IN A TROPICAL FLUVIAL SYSTEM IN PUERTO RICO**
- 180-3 2:05 PM Bonar, Alicia\*; Soreghan, Gerilyn (Lynn); Webb, Nina; Madden, Megan; Joo, Young Ji: **GEOCHEMISTRY AND POTENTIAL ORIGINS OF SILT IN GRANITOID-HOST SOILS FROM HOT-HUMID AND HOT-ARID CLIMATES**
- 180-4 2:20 PM Harrison, Emma\*; Brocard, Gilles; Comas, Xavier; Dosseto, Anthony; Willenbring, Jane: **DIGGING DEEP: GEOCHEMICAL AND GEOPHYSICAL CHARACTERIZATIONS OF SOILS ACROSS A GEOMORPHICALLY EVOLVING LANDSCAPE IN THE LUQUILLO MOUNTAINS, PUERTO RICO (Invited Presentation)**
- 180-5 2:40 PM Harrison, James B.\*: **HILLSLOPE SOIL LANDSCAPES**
- 180-6 2:55 PM Persico, Lyman\*; McFadden, Leslie D.; McAuliffe, Joseph R.: **LATE QUATERNARY GEOCHRONOLOGIC RECORD OF SOIL FORMATION AND EROSION: THE IMPORTANCE OF VEGETATION IN MODULATING HILLSLOPE RESPONSE TO CLIMATE CHANGE**
- 3:10 PM **BREAK**
- 180-7 3:20 PM Zaarur, Shikma\*: **AGE CONSTRAINTS FOR THE GOLAN HEIGHTS VOLCANIC SOILS DETERMINED FROM INTEGRATING GEOCHEMICAL AND GEOCHRONOLOGICAL TOOLS**
- 180-8 3:35 PM Dong, Xiaoli\*; Cohen, Matthew; Martin, Jonathan; McLaughlin, Daniel; Murray, A. Brad; Ward, Nicholas; Flint, Madison; Heffernan, James: **ECOHYDROLOGIC PROCESSES AND SOIL THICKNESS FEEDBACKS CONTROL LIMESTONE-WEATHERING RATES IN A KARST LANDSCAPE (Invited Presentation)**
- 180-9 3:55 PM Pappala, Venkata Sailaja\*; Arendt, Carl: **CHARACTERIZATION OF CHEMICAL WEATHERING IN PROGLACIAL MATANUSKA ENVIRONMENT, SOUTHCENTRAL ALASKA**
- 180-10 4:10 PM Lukens, Claire E.\*; Norton, Kevin P.; Raines, Eron R.; Dahms, Dennis: **CLIMATIC SIGNALS IN CHEMICAL WEATHERING AND SOIL PRODUCTION IN NEW ZEALAND'S TARARUA RANGE (Invited Presentation)**
- 4:30 PM **DISCUSSION**
- 180-11 4:40 PM Rasmussen, Monica\*; Eppes, Martha Cary; Aldred, Jennifer; Evans, Sarah; Layzell, Tony; Cavender, Joshua R.; Folz Donahue, Kiernan; Smith, Ivy: **QUATERNARY GEOLOGY & GEOMORPHOLOGY DIVISION J. HOOVER MACKIN AWARD: CHRONOSEQUENCES OF MECHANICAL WEATHERING: THE INFLUENCE OF ROCK TYPE ON TIME-DEPENDENT CRACKING IN THE MOJAVE DESERT, CALIFORNIA**

TUESDAY  
PM



- 180-12** 4:55 PM Rossi, Matthew W.\*; Tucker, Gregory E.; Anderson, Robert S.; Anderson, Suzanne; McGlinchy, Joseph: **THE INFLUENCE OF PLANTS ON ELEVATION- AND ASPECT-DEPENDENT EMERGENCE OF BEDROCK TORS IN THE RAMPART RANGE, CO**
- 180-13** 5:10 PM Mccarroll, Nicholas\*; Temme, Arnaud: **GEOMETRY, SIZE, AND FRACTIONATION – CONSTRAINING THE TRANSPORT PROCESSES OF TILE AND CUBIC SHAPED LIMESTONE BLOCKS IN THE FLINT HILLS, KS**
- 5:25 PM **CONCLUDING REMARKS**

**SESSION NO. 181** 

**T134. Advances in Wildfire-Related Earth-Surface Processes II (GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division)**

1:30 PM, Oregon Convention Center, D138

Ann Youberg, Luke McGuire and Francis Rengers, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 181-1** 1:35 PM Murphy, Sheila\*; Ebel, Brian A.; Martin, Deborah A.: **ADDRESSING CRITICAL GAPS IN ASSESSMENT AND PREDICTION OF WILDFIRE IMPACTS ON WATER QUALITY (Invited Presentation)**
- 181-2** 1:55 PM Carpenter, Kurt; Schmadel, Noah\*; Anderson, Chauncey: **STRATEGIC CONTINUOUS WATER-QUALITY MONITORING IS FUNDAMENTAL TO UNDERSTANDING WILDFIRE EFFECTS ON WATER RESOURCES**
- 181-3** 2:10 PM Rengers, Francis\*; McGuire, Luke; Youberg, Ann; Gorr, Alexander; Hoch, Olivia; Cadol, Daniel; Barnhart, Katherine; Beers, Rebecca: **WHERE POST-FIRE DEBRIS FLOWS STOP**
- 181-4** 2:25 PM Florsheim, Joan\*; Chin, Anne: **EFFECT OF POST-WILDFIRE SEDIMENTATION ON PHYSICAL HABITAT FOLLOWING HIGH INTENSITY RAINFALL**
- 2:40 PM **BREAK**
- 181-5** 2:55 PM Wampler, Katie\*; Bladon, Kevin D.; Faramarzi, Monireh: **PREDICTING WILDFIRE EFFECTS ON STREAMFLOW USING HYDROLOGIC MODELING**
- 181-6** 3:10 PM Fairfax, Emily\*; Osorio, Brandon; Kirksey, Keitrece; Torres, Rhianna: **MEGAFIRES BE DAMMED: CAN BEAVER-CREATED FIRE REFUGIA PERSIST THROUGH EXTREME WILDFIRE EVENTS? (Invited Presentation)**
- 181-7** 3:25 PM Chin, Anne\*; Burton, Jonathan W.; Gautreau, Tandie E.; Kinoshita, Alicia M.; Florsheim, Joan; O'Dowd, Alison P.: **VEGETATION AND CHANNEL RECOVERY NINE YEARS FOLLOWING THE WALDO CANYON FIRE OF COLORADO**
- 181-8** 3:40 PM Wittenberg, Lea\*: **GEOMORPHIC RESPONSE TO REOCCURRING WILDFIRES IN MEDITERRANEAN FLUVIAL SYSTEMS – FROM POINT MEASUREMENTS TO CATCHMENT SCALE PROCESSES (Invited Presentation)**
- 181-9** 3:55 PM Smith, Doug\*; Schnieders, Jamie; Marshall, Lauren; Melchor, Katherine; Wolfe, Skylar; Campbell, Devon; French, Alyssa; Randolph, Joseph: **POST-FIRE DEBRIS FLOW IMPACTS ON STEELHEAD SPAWNING GRAVEL IN THE CARMEL RIVER, CALIFORNIA**
- 4:10 PM **DISCUSSION**

**SESSION NO. 182** 

**T151. That Signpost up Ahead: At the Crossroads of Geoscience and Society—A Public Policy Perspective II (GSA Geology and Society Division; Geology and Public Policy Committee; GSA Environmental and Engineering Geology Division; GSA Energy Geology Division; GSA Geology and Health Division; GSA Hydrogeology Division; GSA Soils and Soil Processes Division)**

1:30 PM, Oregon Convention Center, B112

James Heller, Beth Ann Bartel and Susan Stover, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 182-1** 1:35 PM Stover, Susan\*; Hill, Mary C.: **CAPTURING WIND FOR FOOD-ENERGY-WATER IN THE HIGH PLAINS**
- 182-2** 1:50 PM Aviles, Diego; Belshe, E. Fay; Reisinger, A.J.; Smidt, Samuel\*: **IMPACTS OF RESIDENTIAL FERTILIZER ORDINANCES ON FLORIDA LACUSTRINE WATER QUALITY**
- 182-3** 2:05 PM Gotkowitz, Madeline\*; Cardiff, Michael: **MEASURING NITRATE LOSS FROM AGRICULTURAL FIELDS WITH FARMER COOPERATION: CAN MORE DATA MOVE US TOWARDS IMPROVED GROUNDWATER QUALITY?**
- 182-4** 2:20 PM Ferraro, Carrie\*; Kopp, Robert; Herb, Jeanne; Auermuller, Lisa; Jordan, Rebecca; Gong, Jie; Andrews, Clinton; Bond, Sally: **TRAINING THE NEXT GENERATION OF CLIMATE RESILIENCE PROFESSIONALS**
- 182-5** 2:35 PM Wilson, Augusta\*: **CLIMATE SCIENCE IN THE COURTROOM: BEING AN EXPERT WITNESS**
- 2:55 PM **BREAK**
- 182-6** 3:10 PM Schenck, William\*; Keane, Christopher; Sneyd, Deana: **THE GEOLOGIST IN TRAINING (GIT) AS A HIDDEN OPPORTUNITY TOWARDS PROFESSIONAL GEOSCIENCE CAREERS (Invited Presentation)**
- 182-7** 3:25 PM Edison-Iahm, Paul\*: **GRASSROOTS CAMPAIGN TO SAVE OREGON DEPT. OF GEOLOGY AND MINERAL INDUSTRIES IN 2021 LEGISLATIVE SESSION**
- 182-8** 3:40 PM Blackmer, Gale\*: **LONG-TERM EFFECTS OF THE COVID-19 PANDEMIC ON THE PENNSYLVANIA GEOLOGICAL SURVEY**
- 182-9** 3:55 PM Barnes, Rebecca\*; Berhe, Asmeret Asefaw; Diaz-Vallejo, Emily J.; Hastings, Meredith; Magley, Vicki; Mattheis, Allison; Schneider, Blair; Williams, Billy; Marin-Spiotta, Erika: **TRANSFORMING WORKPLACE CLIMATE THROUGH BEHAVIORAL AND INSTITUTIONAL CHANGE, RESULTS FROM A GEOSCIENCES WORKPLACE CLIMATE SURVEY BY THE ADVANCEGEO PARTNERSHIP**
- 4:10 PM **DISCUSSION**

**SESSION NO. 183**

**T165. Measuring Learning in Geoscience Education (National Association of Geoscience Teachers (NAGT); National Association of Geoscience Teachers (NAGT) Geoscience Education Research (GER) Division; GSA Geoscience Education Division)**

1:30 PM, Oregon Convention Center, B113/B114 (Hybrid Room)

Virginia Isava and Argenta Price, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 183-1** 1:35 PM Iverson, Ellen\*: **THE CHANGING LANDSCAPE OF ASSESSING LEARNING IN THE GEOSCIENCES (Invited Presentation)**
- 183-2** 1:50 PM Teasdale, Rachel\*; Bitting, Kelsey; Ryker, Katherine: **STUDENT AND TEACHING ASSISTANTS' PERSPECTIVES ON INCREASING STUDENT INTEREST FOR LEARNING IN INTRODUCTORY GEOLOGY COURSES**
- 183-3** 2:05 PM Chermak, John\*; Filer, Kimberly; Baum, Liesl: **INCREASING STUDENT ENGAGEMENT AND LEARNING IN LARGE GEOSCIENCES GENERAL EDUCATION CLASSES**

## AFTERNOON POSTER TECHNICAL SESSIONS

- 183-4** 2:20 PM Koziol, Andrea\*: **RE-IMAGINING A MULTI-INSTRUCTOR ENTRY LEVEL GEOLOGY COURSE: FORMULATING STUDENT LEARNING OUTCOMES AND ASSESSMENT STRATEGIES**
- 183-5** 2:35 PM DiLeonardo, Christopher\*: **THE GAME OF STONES: A CASE-BASED, PARTIALLY-COLLABORATIVE EXAM MODEL FOR INTRODUCTORY GEOLOGY**
- 183-6** 2:50 PM Muhlbauer, Jason G.\*: **LEARNER SELF-ASSESSMENT AND REFLECTION IN A PHYSICAL-GEOLOGY LABORATORY**
- 183-7** 3:05 PM Isava, Virginia\*; Price, Argenta: **MEASURING EXPERT PROBLEM-SOLVING IN GEOSCIENCE THROUGH A NATURAL HAZARDS ASSESSMENT**
- 3:20 PM **BREAK**
- 183-8** 3:30 PM McKay, Jessica\*; Riggs, Eric M.; Fairchild, Ennea; Hinerman, Krystal; Newman, Harmony; Sexton, Julie M.: **MEASURING TRANSFORMATIVE EXPERIENCES IN GEOLOGICAL FIELD SETTINGS (Invited Presentation)**
- 183-9** 3:45 PM Nuhfer, Edward\*; Fleisher, Steven; Wirth, Karl R.; Watson, Rachel; Cogan, Christopher; Scharff, Lauren: **PAIRED COGNITIVE AND AFFECTIVE SELF-ASSESSMENT MEASURES SEEM TO RENDER SOLELY COGNITIVE ASSESSMENT INSTRUMENTS ARCHAIC**
- 183-10** 4:00 PM Fleisher, Steven\*; Nuhfer, Edward; Wirth, Karl; Watson, Rachel; Cogan, Christopher; Scharff, Lauren: **THE VALUE OF PAIRED COGNITIVE AND AFFECTIVE SELF-ASSESSMENT MEASURES AS ASSESSMENTS OF STUDENTS' INTELLECTUAL DEVELOPMENT: A PERSPECTIVE FROM PSYCHOLOGY**
- 183-11** 4:15 PM Wirth, Karl\*; Davidson, Cameron; Nuhfer, Edward: **ASSESSING UNDERGRADUATE RESEARCH EXPERIENCES USING KNOWLEDGE SURVEYS**
- 183-12** 4:30 PM Carroll Steward, Kimberly\*; Forbes, Cory; Chandler, Mark A.: **THE EFFECTIVENESS OF MODEL-BASED TEACHING PRACTICES ON STUDENT ACHIEVEMENT IN THE DIMENSIONS OF EPISTEMIC AND CONTENT KNOWLEDGE**
- 183-13** 4:45 PM Barbosa, Alayde\*: **THE USE OF PEER OBSERVATION AND SMALL-GROUP INSTRUCTIONAL DIAGNOSIS TO ENHANCE UNDERGRADUATE COURSES**
- 183-14** 5:00 PM MacDonald, James\*; Barbosa, Alli; McManus, Gregory J.: **USING X-RAY DIFFRACTION AND RAMAN SPECTROMETRY TO HELP STUDENTS BETTER UNDERSTAND UNIT CELLS AND SOLID SOLUTIONS. AN ENGAGEMENT COMBINING NSF GEOPATH AND NSF MRI FUNDING**
- 183-15** 5:15 PM Voorhees, David\*: **METACOGNITION INFUSION – A FIVE-YEAR RETROSPECTIVE**

### SESSION NO. 198

#### *GSA Hydrogeology Division Birdsall-Dreiss Distinguished Lecture*

4:30 PM, Oregon Convention Center, Portland Ballroom 253 (Hybrid Room)

Andrea E. Brookfield, Presiding

- 198-1** 4:30 PM Martin, Jonathan\*; Pain, Andrea; Martin, Ellen; Black, Megan; Deuerling, Kelly: **GREENLAND REVISITED: LAKE EFFECTS ON COASTAL NUTRIENT FLUXES**

### SESSION NO. 184

**T34. Metals for the Future: Geology of Critical and Basic Minerals for the Green Economy (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Society of Economic Geologists; Geochemical Society; Mineralogical Society of America; GSA Geology and Society Division; GSA Energy Geology Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |               | Booth # |                                                                                                                                                                                                                                                                                                                      |
|---------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>184-1</b>  | 1       | Wang, Bronwen*; Karl, Susan M.: <b>CONSIDERATIONS WHEN EVALUATING THE RESOURCE POTENTIAL OF CRITICAL ELEMENTS IN MINE WASTE: EXAMPLE LEGACY PLACER MINE TAILINGS IN ALASKA</b>                                                                                                                                       |
| <b>184-2</b>  | 2       | Carey, Nathan*; Jowitt, Simon; Mills, Stephanie E.: <b>AGE AND GENESIS OF W-MO-CU MINERALIZATION, GOLD HILL, UTAH</b>                                                                                                                                                                                                |
| <b>184-3</b>  | 3       | Allard, John*; Gammons, Christopher H.; Hatcherian, Javin J.; Zieg, Jerry; LeLacheur, Eric: <b>INVESTIGATIONS OF ORE-FORMING CONDITIONS AND FLUID SOURCES AT THE BLACK BUTTE COPPER PROJECT, BELT BASIN, MONTANA</b>                                                                                                 |
| <b>184-4</b>  | 4       | Beaucamp, Celine*; Gammons, Christopher H.: <b>STUDY OF AN IMPRESSIVE YET UNDER-STUDIED MINERALIZATION IN PHILIPSBURG'S POLYMETALLIC LODE DEPOSITS, GRANITE COUNTY, MONTANA</b>                                                                                                                                      |
| <b>184-5</b>  | 5       | Rodriguez Mustafa, Maria Alejandra*; Blakemore, Daniel; Simon, Adam C.; Holder, Robert; del Real, Irene; Barra, Fernando; Reich, Martin; Thompson, John F.H.; Hames, Willis E.: <b>MAGNETITE, APATITE, TITANITE, AND ACTINOLITE GEOCHRONOLOGY OF THE CANDELARIA IRON OXIDE - COPPER - GOLD (IOCG) DEPOSIT, CHILE</b> |
| <b>184-6</b>  | 6       | Young, Kayla*; Gifford, Jessica E.; Runyon, Simone: <b>HYDROTHERMAL PLATINUM-GROUP ELEMENT MINERALIZATION AND ALTERATION, MEDICINE BOW MOUNTAINS, SOUTHEASTERN WYOMING</b>                                                                                                                                           |
| <b>184-7</b>  | 7       | Appold, Martin*; Bauchau, Philippe H.: <b>INSIGHTS FROM PARTITIONING THEORY INTO THE ZINC CONTENT AND ORIGIN OF MINERALIZING FLUIDS IN THE LEMHI PASS THREE DISTRICT, IDAHO-MONTANA</b>                                                                                                                              |
| <b>184-8</b>  | 8       | Konieczka, Victoria*; Sirbescu, Mona-Liza C.; Brennan, Clara; Student, James J.: <b>HETEROGENEOUS TRACE-ELEMENT DISTRIBUTION IN SPODUMENE FROM THE BLACK HILLS, SOUTH DAKOTA AND OXFORD COUNTY, MAINE PEGMATITES</b>                                                                                                 |
| <b>184-9</b>  | 9       | Bell, Colton*; Eyassu, Samuel; Mattinson, Chris G.; Kjelland, Megan; Halfpenny, Angela: <b>EVALUATING THE ROLE OF DEEP EARTH PROCESSES IN MINERAL DEPOSIT FORMATION, NORTH CASCADES, WASHINGTON</b>                                                                                                                  |
| <b>184-10</b> | 10      | Huang, Shiqiang*; Chang, Zhaoshan; Garbe-Schönberg, Dieter: <b>IN SITU RB-SR DATING OF HYDROTHERMAL MINERAL DEPOSITS BY LA-ICP-MS/MS</b>                                                                                                                                                                             |
| <b>184-11</b> | 11      | Oladeni, Ibrahim*; Elliott, W. Crawford; Renner, Jim: <b>RARE-EARTH ELEMENT OCCURRENCE IN HEAVY MINERAL SANDS IN SOUTHEAST GEORGIA</b>                                                                                                                                                                               |
| <b>184-12</b> | 12      | Salgado Munoz, Valente*; Niemi, Tina; Murowchick, James B.; Maher, Anna-Turi: <b>CONTROLS ON COBALT METAL DISTRIBUTION IN AN EVAPORITIC BASIN: AN EXAMPLE FROM THE BOLEO DEPOSITS OF BAJA CALIFORNIA PENINSULA OF MEXICO</b>                                                                                         |
| <b>184-13</b> | 13      | Brennan, Clara*; Jensen, Kevin T.; Sirbescu, Mona-Liza C.; Student, James J.: <b>PRELIMINARY GEOCHEMICAL ANALYSIS OF THE A-1 EVAPORITE, SALINA GROUP, MICHIGAN BASIN</b>                                                                                                                                             |

**SESSION NO. 185**

**T26. Environmental Geochemistry and Health (Posters)**  
**(GSA Geology and Health Division; GSA Environmental and Engineering Geology Division; GSA Hydrogeology Division; GSA Geology and Society Division; GSA Soils and Soil Processes Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

	Booth #	
185-1	14	Mills, Christopher*; Kochis, Austin; Stricker, Craig A.; Pfaff, Katharina; Livingston, Kelsey; Buckley, Camille E.; Schumacher, John G.; Morrison, Jean; Kane, Tyler J.; Campbell, Kate M.: <b>AUTOMATED MINERALOGY TO CHARACTERIZE RESIDENCE OF LEAD IN FINE GRAINED SEDIMENT ALONG A RIVER IMPACTED BY HISTORIC LEAD MINING IN SOUTHEAST MISSOURI, USA</b>
185-2	15	Wright, Emily*; Foster, Andrea L.; Tepper, Jeffrey; Alpers, Charles N.: <b>INVESTIGATING ARSENIC MINERALOGY IN HISTORIC MINE WASTE FROM THE IDAHO-MARYLAND MINE (GRASS VALLEY, CALIFORNIA) USING SEM-EDS</b>
185-3	16	Dos Santos Ferreira, Leticia Augusta*; Borrok, David: <b>ADSORPTION OF ARSENIC ONTO NATURAL RIVER SEDIMENTS</b>
185-4	17	Herron, Caitlyn*; Malina, Natalia; Ojeda, Ann: <b>EVALUATING THE IMPACT OF PH AND MOLECULAR CHARACTERISTICS ON THE FORMATION OF AS-DOM COMPLEXES</b>
185-5	18	Killen, Ireland*; Harris, Daniel; Netherton, Amber; Bush, Aydan; Fredrick, Kyle: <b>DAILY CHANGES TO THE EFFICIENCY OF THE WINGFIELD PINES PASSIVE ACID MINE DRAINAGE TREATMENT SYSTEM</b>
185-6	19	Netherton, Amber*; Harris, Daniel; Killen, Ireland; Bush, Aydan; Fredrick, Kyle: <b>HOURLY AND SEASONAL TRENDS OF DISSOLVED TOTAL FE CONCENTRATIONS AT THE WINGFIELD PINES PASSIVE ACID MINE DRAINAGE TREATMENT FACILITY</b>
185-7	20	Larson, Eleanore*; Malina, Natalia; Ojeda, Ann: <b>EXAMINING STATISTICAL RELATIONSHIPS BETWEEN <i>E. COLI</i> AND ANTHROPOGENIC MARKERS IN CHOCCOLOCCO CREEK, AL</b>
185-8	21	Plechacek, Amy*; Mathews, Madeleine; Scott, Sean; Gotkowitz, Madeline; Ginder-vogel, Matthew: <b>ASSESSING RADIUM LEACHING POTENTIAL FROM STRATIGRAPHIC UNITS WITHIN THE MIDWESTERN CAMBRIAN-ORDOVICIAN AQUIFER SYSTEM</b>
185-9	22	Moreu, Lourdes*; Ricketts, Jason; Garcia, Victor H.; Ma, Lin: <b>USING TRACE METALS TO FINGERPRINT WATER SOURCES IN THE COLORADO RIVER BASIN, TEXAS</b>
185-10	23	Fatema, Umme*; Vazquez-Ortega, Angelica: <b>THE ROLE OF DISSOLVED ORGANIC MATTER ON PHOSPHOROUS SORPTION ONTO IRON-ENHANCED ACTIVATED ALUMINA MEDIA USING IN-FIELD AND FLOW-THROUGH COLUMN EXPERIMENTS</b>
185-11	24	Finegan, Carly*; Hasenmueller, Elizabeth: <b>USING LOW COST, IN SITU MEASUREMENTS OF OPTICAL BRIGHTENERS TO IDENTIFY WASTEWATER INPUTS INTO A SUBURBAN STREAM</b>
185-12	25	Hernandez, Natalie*; Hasenmueller, Elizabeth: <b>MICROPLASTIC DEBRIS STORAGE AND TRANSPORT IN SMALL URBAN STREAMS</b>
185-13	26	Dhar, Ratan*; Cadavid, Luz: <b>EXPLORING VILLAGERS' INDIGENOUS KNOWLEDGE OF WATER AND SOIL MANAGEMENT PRACTICES IN SELECTED COMMUNITIES OF THE VILLAGE CARBUNA OF THE REPUBLIC OF MOLDOVA</b>
185-14	27	Rampersaud, Hemwattie*; Totten, Marquis; Nath, Bibhash; Dhar, Ratan: <b>SEASONAL VARIATION OF FECAL INDICATOR BACTERIA IN CORONA MEADOW LAKE, FLUSHING, NY</b>

**SESSION NO. 186**

**T132. Sediment Residence Times and Thresholds for Sediment Transport in Fluvial Corridors (Posters)**  
**(GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Geoinformatics and Data Science Division; GSA Geochronology Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

	Booth #	
186-1	28	Kutsanzira, Michael*; Mulkern, Alec S.; Harbor, David; Smith, Laws; Kriss, Stevan; Erickson, Jonathan; Wilkinson, Clare: <b>RIVER EROSION BY PLUCKING ILLUMINATED IN LAB AND FIELD STUDIES</b>
186-2	29	Greenbaum, Noam*; Schwartz, Uri; Carling, Paul; Bergman, Nathaniel; Mushkin, Amit; Zituni, Rami; Benito, Gerardo; Porat, Naomi: <b>FREQUENCY OF BOULDERS TRANSPORT DURING LARGE FLOODS IN HYPERARID AREAS USING PALEOFLOOD ANALYSIS – AN EXAMPLE FROM THE NEGEV DESERT, ISRAEL</b>
186-3	30	Bergman, Nathaniel*: <b>THE HYDROLOGIC AND GEOMORPHIC OUTCOMES OF A SMALL DAM-BREAK FLOOD, KFAR YEHOShUA C RESERVOIR, NW JEZREEL VALLEY, ISRAEL</b>
186-4	31	Larkin, Katherine*; Iosso, Chantal; Harbor, David; Hinkle, Margaret; Lyon, Eva C.: <b>CHANNEL MORPHOLOGY CHANGE AND LEGACY SEDIMENT MOBILIZATION FOLLOWING DAM REMOVAL ON THE MAURY RIVER, VIRGINIA</b>
186-5	32	Kelk, Rachel M.*; Heitmuller, Franklin; Hudson, Paul F.; Kuehn, Kevin A.; Sebren, Saysha E.: <b>A COMPARISON OF DEPOSITIONAL THICKNESSES, ORGANIC MATTER CONTENT, CARBON, AND NITROGEN IN DIFFERENT FLOODPLAIN SETTINGS ALONG THE EMBANKED LOWER MISSISSIPPI RIVER NEAR NATCHEZ, MISSISSIPPI, DURING THE 2018, 2019, AND 2020 FLOODS</b>

**SESSION NO. 187**

**D8. Recent Advances in Geophysics/Geodynamics (Posters)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

	Booth #	
187-1	33	Carranco Lopez, Jefferson Andres*; Green, Chris; Ugalde, Hernan: <b>SUBSURFACE STRUCTURE INTERPRETATION OF THE NORTH OF THE WESTERN CORDILLERA, ECUADOR: INSIGHTS FROM AEROMAGNETIC DATA</b>
187-2	34	Dumais, Marie-andrée*; Gernigon, Laurent; Olesen, Odleiv; Lim, Anna; Johansen, Ståle Emil; Brønner, Marco: <b>SEAFLOOR SPREADING AND STRUCTURAL EVOLUTION OF THE FRAM STRAIT WITH NEW AEROMAGNETIC DATA</b>
187-3	35	Farhi, Walid*; Saibi, Hakim; Mickus, Kevin; Quensel, Yoann; Aktouf, Abdelwahab; Boudella, Amar: <b>CRUSTAL CONFIGURATION OF THE NAAMA AND EL BAYADH REGION OF NORTHWEST ALGERIA: INFERENCES FROM A GRAVITY AND MAGNETIC ANALYSIS</b>
187-4	36	Mickus, Kevin*: <b>STRUCTURAL ANALYSIS OF THE METHOW BASIN, WASHINGTON USING GRAVITY AND MAGNETIC DATA</b>
187-5	37	Mickus, Kevin*: <b>GRAVITY ANALYSIS OF THE OGADEN BASIN, ETHIOPIA</b>
187-6	38	Withdrawn
187-7	39	Asefaw, Hanna*; Tauxe, Lisa; Koppers, Anthony A.P.; Behar, Nicole; Shaar, Ron; Staudigel, Hubert: <b>A TEST OF THE GAD HYPOTHESIS OVER THE PLIO-PLEISTOCENE WITH PALEOMAGNETIC RESULTS FROM ANTARCTICA AND THE GOLAN HEIGHTS, ISRAEL</b>
187-8	40	Withdrawn
187-9	41	Ozotta, Ogochukwu*; Ostadhassan, Mehdi; Rasouli, Vamegh: <b>CO2 INDUCED ALTERATIONS OF MICROSTRUCTURE AND MECHANICAL PROPERTIES IN TIGHT RESERVOIR</b>



- 187-10 42 Morse, Mike\*; FitzGerald, Des; Keetley, Jeff; Ayfer, Simge: **ROLE OF ADVANCED GEOPHYSICAL PROCESSING IN SEARCHING FOR THE NEXT GIANT GOLD-COPPER DEPOSIT IN NORTH SUMATRA**
- 187-11 43 Kenyon, Lindsey\*; Wada, Ikuko: **MANTLE WEDGE SEISMIC ANISOTROPY AND SHEAR WAVE SPLITTING: EFFECTS OF OBLIQUE SUBDUCTION**
- 187-12 44 Žalohar, Jure; Vivic, Blaž\*; Foundotos, Laetitia; Komac, Marko: **TIME-DEPENDENT EARTHQUAKE FORECASTING**
- 187-13 45 Kar, Aditya\*; Holmes, Tiffani; Taber, John; Hubenthal, Michael: **TRAINING OF AFRICAN AMERICANS INVOLVING GROUND PENETRATING RADAR – A SUCCESSFUL COLLABORATION BETWEEN FORT VALLEY STATE UNIVERSITY (HBCU) AND IRIS**

**AND GEOCHEMICAL ANALYSIS OF A DINOSAUR TRACK SITE, THE DAVENPORT RANCH, BANDERA COUNTY AND COMPARISON WITH OTHER TRACK SITES IN THE LOWER CRETACEOUS GLEN ROSE FORMATION OF CENTRAL TEXAS**

- 188-11 56 Gallagher, Maeve\*; Shinneman, Avery; Lucchetto, Angelica; Gawel, James; Fox-Dobbs, Kena: **COMPARING 40-YEAR SEDIMENT RECORDS OF AQUATIC ECOSYSTEM EVOLUTION IN TWO LARGE LAKES IN THE BLAST ZONE OF MOUNT ST. HELENS**
- 188-12 57 Oakey, Jackson\*; Medley, Lily R.; Cox, Brannon; Cribb, Warner: **VERY STICKY STUFF: RHEOLOGICAL ADVENTURES WITHIN THE MOUNT HOOD VOLCANO MAGMATIC PLUMBING SYSTEM**
- 188-13 58 Fenton, Rachel; Krejci, Matthew\*; Wheeler, Justin; Maher, Harmon: **CROSS JOINT GEOMETRIES IN THE UPPER ENTRADA SANDSTONES; SOUTHEASTERN ARCHES NATIONAL PARK AS SEEN IN GOOGLE EARTH**
- 188-14 59 Heithaus, Sarah\*; Klemetti, Erik: **A SUMMER OF STARDUST: MICROMETEORITES AND WHERE TO FIND THEM**
- 188-15 60 Goldsmith, Steve\*; Smith, Devin F.; Harmon, Brendan A.; Harmon, Russell S.; Espinosa, Jorge A.; Goldsmith, Steven T.: **PHYSICAL AND CLIMATIC CONTROLS ON NITROGEN EXPORT ACROSS THE PANAMA CANAL WATERSHED**
- 188-16 61 Mobasher, Neda\*; Ledbetter Ferrill, Nathaniel; Li, Xiaowei; Lehrmann, Daniel; Luczaj, John: **A CALCITE INVESTIGATION ON THE GREAT BANK OF GUIZHOU IN THE NANPANJIANG BASIN, SOUTH CHINA**
- 188-17 62 Moczulski, Michelle M.\*; Goldsmith, Steven T.; Rodrigues, Lisa J.; Cleary, Niki E.; Gandy, Michele L.; Chase, Tory J.: **HEAVY METAL CONTAMINATION IN SEDIMENTS AND LAND USE/ LAND COVER CHANGE IN THE GUÁNICA WATERSHED, PUERTO RICO FROM 1936-2016**
- 188-18 63 Duncan, Meredith\*; Swanson, Travis; Mahon, Robert; Fernandes, Anjali; Abeyta, Antoinette: **DIRECTIONAL SENSITIVITY OF CROSS-STRATA SET THICKNESS STATISTICS**
- 188-19 64 Campbell, Jalen\*; Swanson, Travis; Mahon, Robert: **EXPLORING THE INFLUENCE OF BED SEEPAGE ON THE FORMATION OF RIPPLE CROSS-LAMINATION DURING WANING FLOW**
- 188-20 65 Massey, Madalyn\*; Walston, Patrick: **COMPILING RECOMMENDED PRACTICES FOR THE PRESERVATION OF GEOLOGICAL DATA AND SAMPLES TO PROMOTE THE FAIR PRINCIPLES**
- 188-21 66 Sowers, Allison\*; Swift, Jimmy: **EXPLORATION OF OPEN SCIENCE PRACTICES WITHIN THE GEOSCIENCES**
- 188-22 67 Johanson, Alex\*; Rogers, Raymond; Ramezani, Jahandar: **TRACKING THE TERRESTRIAL “80 MA SEQUENCE BOUNDARY” IN THE SURFACE AND SUBSURFACE OF NORTHWESTERN MONTANA (TWO MEDICINE FORMATION) AND SOUTHERN ALBERTA (BELLY RIVER GROUP)**
- 188-23 68 Tun, Sun\*; Ricks, Julia; Curry Rogers, Kristina; Rogers, Raymond; Thole, Jeffrey T.: **FOSSIL EGGSHELL HIGHLIGHTS HIDDEN DIVERSITY IN THE UPPER CRETACEOUS (CAMPANIAN) JUDITH RIVER FORMATION, NORTH-CENTRAL MONTANA**
- 188-24 69 Perkins, K.\*; Woods, Adam: **A PALEOENVIRONMENTAL ANALYSIS OF THE UPPER MEMBER OF THE UNION WASH FORMATION, DARWIN, CA: ENVIRONMENTAL CONDITIONS DURING THE LATE POST-EXTINCTION RECOVERY PERIOD**
- 188-25 70 Darby, Amanda\*: **PHOSPHORUS RELEASE IN LITTLE SEBAGO LAKE IN RELATION TO CONCENTRATIONS OF ALUMINUM AND IRON IN SEDIMENTS**
- 188-26 71 Carpenter, Robert\*; Clark, Elyse: **THE OBSERVED IMPACT OF ROAD DE-ICERS ON WATER QUALITY IN NORTH-CENTRAL MASSACHUSETTS**
- 188-27 72 Paris, Gabrielle\*; Michael, Andrew: **AN R PACKAGE TO IMPROVE USGS OPERATIONAL AFTERSHOCK FORECASTS**

**SESSION NO. 188**

*T168. Undergraduate Research Posters by 2YC and 4YCU Geoscience Students (Posters) (National Association of Geoscience Teachers (NAGT); National Association of Geoscience Teachers (NAGT) Geo2YC Division; International Association for Geoscience Diversity; National Association of Geoscience Teachers (NAGT) Geoscience Education Research (GER) Division; GSA Geoscience Education Division; GSA Karst Division; Council on Undergraduate Research Geosciences Division)*

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- | Booth # | Author(s)                                                                                                                                                                 | Title                                                                                                                                                                  |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 188-1   | 46 Jones, Brendell*; Manning-Berg, Ashley R.; Roney, Ryan; Santamaria, Jose; Czaja, Andrew D.:                                                                            | <b>STROMATOLITIC FABRICS WITHIN CHERT NODULES IN THE KNOX GROUP OF NORTHWEST GEORGIA</b>                                                                               |
| 188-2   | 47 Bryant, Derek*; Smaglik, Suzanne M.:                                                                                                                                   | <b>OXIDATION OF IRON IN A CARBONATED SPRING - BIOTIC OR ABIOTIC?</b>                                                                                                   |
| 188-3   | 48 Minnebo, Lillian*; Winkelstern, Ian Z.; Zhang, Jade; Petersen, Sierra; Lohmann, Kyger C.:                                                                              | <b>LAST INTERGLACIAL CLIMATE FROM <i>DENDOSTREA FRONS</i> OYSTERS, VERRILL ISLAND, BERMUDA</b>                                                                         |
| 188-4   | 49 Nelson, Daren*; Ashliman, Derek; Benson, Taylor:                                                                                                                       | <b>R.E.V.E.A.L THE GEOSCIENCES (RESEARCH EXPERIENCES AND VIRTUAL EXPLORATION FOR ACTIVE LEARNING) BY DISCOVERING THE LATE PLEISTOCENE LAKE BONNEVILLE, UT</b>          |
| 188-5   | 50 Mayes, B. Michelle*; Incorvaia, Annalisa; MacDonald, James; Davis, Peter B.:                                                                                           | <b>INVESTIGATING THE MINERALOGY OF SYMPLECTIC GABBRO FROM THE HICKS BUTTE COMPLEX, CENTRAL CASCADES, WASHINGTON, SUPPORTS A FORMATION IN AN ISLAND ARC SETTING</b>     |
| 188-6   | 51 Mennenga, Madeline*; Peterson, Ginny; Rahl, Jeffrey:                                                                                                                   | <b>COMPARING OLIVINE DEFORMATION CONDITIONS FOR NORTH CAROLINA BLUE RIDGE DUNITE DEPOSITS USING EBSD-BASED PALEOPIEZOMETRY AND SLIP-SYSTEM ANALYSIS</b>                |
| 188-7   | 52 Ledbetter Ferrill, Nathaniel*; Mobasher, Neda; Luczaj, John; Li, Xiaowei; Lehrmann, Daniel:                                                                            | <b>MECHANISMS FOR REGIONAL DOLOMITIZATION OF THE TRIASSIC YANGTZE PLATFORM IN THE NANPANJIANG BASIN OF SOUTH CHINA</b>                                                 |
| 188-8   | 53 Wolf, Hannah*; Kroeger, Glenn; Luczaj, John; Lehrmann, Daniel:                                                                                                         | <b>REGIONAL ANALYSIS OF PALEO GEOGRAPHY, DOLOMITE DISTRIBUTION AND BEDROCK CONTROL ON RIVER GEOMORPHOLOGY FROM REMOTE SENSING DATA, NANPANJIANG BASIN, SOUTH CHINA</b> |
| 188-9   | 54 Broley, Kyle*; Graettinger, Alison:                                                                                                                                    | <b>AN EXAMINATION OF BASALT LAVA FLOW PEPERITE ASSOCIATED WITH DOTSERO CRATER, COLORADO</b>                                                                            |
| 188-10  | 55 Tesauro, Josephine*; Sheppard, Charles; Davis, Charles; Adams, Thomas; Price, Dianna; Sharpe, Justin; Godet, Alexis; Suarez, Marina; Altiner, Demir; Lehrmann, Daniel: | <b>SEDIMENTOLOGIC</b>                                                                                                                                                  |

Tuesday, 12 October 2021

- 188-28 73 Parker, Carey\*: **USING POTTERY TO TELL STORIES ABOUT THE GEOLOGIC PAST AND FURTHER OUR UNDERSTANDING OF EARTH SYSTEMS**
- 188-29 74 Clevette, Ocean\*; Swanson, Susan: **INCREASING ACCESSIBILITY TO INTRODUCTORY GEOLOGY COURSES USING VIRTUAL FIELD EXPERIENCES**
- 188-30 75 Cunningham, Desiree\*; Crane, Kelsey: **EFFECTS OF FRACTURES IN FOLD-RELATED FAULT ZONES**

#### SESSION NO. 189

##### **D37. Celebrating Great Outcrops and Geoheritage (Posters)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |       | Booth # |                                                                                                                                                                                                                                                                         |
|-------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 189-1 | 76      | González, Juan L.*; Bacha-Garza, Roseann; Skowronek, Russell; Miller, Christopher; Hardage, Sarah: <b>THE ANCIENT LANDSCAPES OF SOUTH TEXAS, HIDDEN IN PLAIN SIGHT</b>                                                                                                  |
| 189-2 | 77      | Mikulic, Donald*; Kluessendorf, Joanne: <b>THE THORNTON REEF (SILURIAN) ILLINOIS: A KEY TO UNDERSTANDING THE PALEOZOIC HISTORY OF A PRIMARY ANCIENT MARINE ECOSYSTEM</b>                                                                                                |
| 189-3 | 78      | Pyle, Eric*; Feely, Martin; Whitmeyer, Steven: <b>THE CONNEMARA MARBLE AS AN ICONIC PIECE OF IRELAND'S GEOLOGY AND CULTURE AND WORLD GEOHERITAGE</b>                                                                                                                    |
| 189-4 | 79      | Andrews, William*: <b>USING VISIBILITY ANALYSIS OF LIDAR DATA TO MODEL LETHALITY OF CIVIL WAR BATTLEFIELD TROOP POSITIONS</b>                                                                                                                                           |
| 189-5 | 80      | Castonguay, Sammy*: <b>OWYHEE GEODIVERSITY</b>                                                                                                                                                                                                                          |
| 189-6 | 81      | Mogk, David*; Mueller, Paul A.; Henry, Darrell: <b>THE BEARTOOTH MOUNTAINS MONTANA AND WYOMING: TRAVERSING FOUR BILLION YEARS OF EARTH HISTORY, CLASSIC EXPOSURES OF GEOLOGIC PROCESSES, CONTRIBUTIONS TO THE HISTORY OF GEOLOGIC THOUGHT, AND PUBLIC POLICY ISSUES</b> |
| 189-7 | 82      | Sabel, Claire*: <b>RECOGNIZING LOU HENRY HOOVER (1874-1944) IN THE HISTORY OF GEOLOGY</b>                                                                                                                                                                               |

#### SESSION NO. 190

##### **T106. Gemological Research in the 21st Century—Gem Minerals and Localities (Posters)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |       | Booth # |                                                                                                                                                                                     |
|-------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 190-1 | 83      | Stone-Sundberg, Jennifer L.*; Dubinsky, Emily; Emmett, John L.: <b>A QUANTITATIVE DESCRIPTION OF THE CAUSES OF COLOR IN CORUNDUM</b>                                                |
| 190-2 | 84      | Persaud, Stephanie*; Johnson, Paul: <b>DISCOVERY OF DIAMONDS THAT CHANGE COLOR AT LIQUID NITROGEN TEMPERATURES</b>                                                                  |
| 190-3 | 85      | Soonthorntantikul, Wasura*; Weeramongkhonlert, Vararut; Palke, Aaron C.: <b>SPECTROSCOPIC CHARACTERISTICS OF HEATED BLUE/VIOLET SPINELS: UV-VIS-NIR AND PHOTOLUMINESCENCE STUDY</b> |
| 190-4 | 86      | Johnson, Paul*: <b>FANCY LIGHT BLUE DIAMONDS – A NEW TREATMENT</b>                                                                                                                  |
| 190-5 | 87      | Dirlam, Dona Mary*; Weldon, Robert; Rogers, Chris L.; Weldon, Orasa: <b>GEM MINERAL LOCALITIES AT THE TIME OF THE TAJ MAHAL</b>                                                     |
| 190-6 | 88      | Vins, Viktor G.; Eliseev, Alexander; Grizenko, Alex*: <b>THERMALLY STIMULATED LUMINESCENCE (TSL) A NEW EFFECTIVE METHOD FOR DIAMOND IDENTIFICATION</b>                              |
| 190-7 | 89      | Eaton-Magana, Sally; Ardon, Troy*; McElhenny, Garrett R.; Breeding, Christopher M.: <b>COMPARISON OF SPECTROSCOPIC FEATURES IN TYPE IIA AND IA NATURAL PINK DIAMONDS</b>            |

- 190-8 90 Smith, Evan\*: **EXPLORATION IMPLICATIONS OF ISOTOPICALLY HEAVY IRON IN LARGE GEM TYPE IIA DIAMONDS**
- 190-9 91 Katsurada, Yusuke\*; Palke, Aaron C.; Sun, Ziyin; Vertriest, Wim: **CHROMOPHORES OF PARAÍBA TOURMALINE IN VISIBLE RED AND NEAR INFRARED LIGHTS: CASE STUDY**

#### SESSION NO. 191

##### **T95. Advances in Virtual Paleontology: Applications, Digitization, and Dissemination (Posters) (Paleontological Society; GSA Geoinformatics and Data Science Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

- |        | Booth # |                                                                                                                                                                                                                                                                                                                                       |
|--------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 191-1  | 92      | Lakeram, Scott*; Muddiman, Benjamin; DiMichele, William; Donovan, Michael; Duijnste, Ivo A.P.; Elrick, Scott; Looy, Cynthia; Obrad, Jennifer: <b>COMPARING THE GRID ANALYSIS METHOD OF PLANT BEARING COAL BALLS WITH DIGITAL IMAGE ANALYSIS</b>                                                                                       |
| 191-2  | 93      | Lakeram, Scott*; Punyasena, Surangi; Sivaguru, Mayandi; Elrick, Scott: <b>VISUALIZING ECOLOGICAL DATA IN PENNSYLVANIAN COAL BALLS USING COMPUTER TOMOGRAPHY (CT)</b>                                                                                                                                                                  |
| 191-3  | 94      | Magallanes, Isaac*; Beard, K. Christopher; Luo, Zhe-Xi: <b>3D VISUALIZATION OF THE TOOTH-ROOTS OF A NEW DRYOLESTOID MAMMAL SPECIES FROM THE JURASSIC MORRISON FORMATION</b>                                                                                                                                                           |
| 191-4  | 95      | Price, Dianna*; Sharpe, Justin; Adams, Thomas; Tesauro, Josephine; Sheppard, Charles; Davis, Charles; Lehmann, Daniel; Suarez, Marina B.; Godet, Alexis: <b>DIGITAL PRESERVATION AND 3D RECONSTRUCTION OF DINOSAUR TRACKS AND TRACKWAYS USING PHOTOGRAMMETRY IN THE GLEN ROSE FORMATION (ALBIAN, EARLY CRETACEOUS), CENTRAL TEXAS</b> |
| 191-5  | 96      | Jenkins, Kelsey*; Bhullar, Bhart-Anjan S.: <b>SIMPLE-PATCH METHOD IN FOSSIL RETRODEFORMATION AND RECONSTRUCTION</b>                                                                                                                                                                                                                   |
| 191-6  | 97      | Olaru, Andrei*; Gibson, Brandt; Rahman, Imran A.; Gutarra-Díaz, Susana; Darroch, Simon: <b>FUNCTIONAL MORPHOLOGY OF THE EDIACARAN ORGANISM <i>TRIBRACHIDIUM HERALDICUM</i> REVEALED BY COMPUTATIONAL FLUID DYNAMICS</b>                                                                                                               |
| 191-7  | 98      | Melim, Leslie A.*; Mure-Ravaud, Sebastien R.; Hegna, Thomas; Bellott, Brian J.; Lerosey-Aubril, Rudy: <b>COMPLEX SEM FABRICS IN SILICIFIED TRILOBITES FROM THE CAMBRIAN WEEKS FORMATION: CLUES TO THE PROCESS OF SILICIFICATION</b>                                                                                                   |
| 191-8  | 99      | Masaki, Hale Nobuo*; Gibson, Brandt; Rahman, Imran A.; Dunn, Frances; Mitchell, Emily G.; Darroch, Simon A.F.: <b>HYDRODYNAMICS OF THE RANGEOMORPH EDIACARAN ORGANISM <i>PECTINIFRONS ABYSSALIS</i></b>                                                                                                                               |
| 191-9  | 100     | Hambleton, Jenny A.*; Ritterbush, Kathleen: <b>PICTURE YOUR FOSSILS ORGANIZED: OPEN-SOURCE TOOLS FOR COMPARING AND MAPPING PHOTOMICROGRAPHS</b>                                                                                                                                                                                       |
| 191-10 | 101     | Crawford, Casey*; Ritterbush, Kathleen; Peterman, David; Hebdon, Nicholas; Hoskins, Brittney: <b>EXPLORING HYDRODYNAMIC CONSEQUENCES OF AMMONITE ORNAMENTATION AND ONTOGENETIC SHAPE CHANGE VIA COMPUTATIONAL FLUID DYNAMICS</b>                                                                                                      |
| 191-11 | 102     | Tate, Kellum*; White, Lisa D.; Haas, Don; Ross, Robert M.: <b>FROM DEATH AND DECAY TO DATABASE AND DISPLAY: A REMOTE LEARNING EXPLORATION OF TAPHONOMIC PROCESSES IN THE ASTORIA FORMATION, OREGON</b>                                                                                                                                |
| 191-12 | 103     | Gallagher, Timothy J.; Jessett, Kari; Zender, Callie; Brightly, William; Stromberg, Caroline*: <b>USING AUTOMATED, QUANTITATIVE IMAGING ANALYSIS OF FOSSIL GRASS SILICA PHYTOLITH TO ELUCIDATE EVOLUTION OF TEMPERATE GRASSLANDS</b>                                                                                                  |

- 191-13 104 Bittof, Lucas\*; Gibson, Brandt; Dunn, Frances; Rahman, Imran A.; Darroch, Simon: **MARINE NURSERIES FORMED BY EDIACARAN FRONDS**
- 191-14 105 Jacquet, Sarah M.\*; Betts, Marissa J.; Selly, Tara; Schiffbauer, James D.; Brock, Glenn A.: **SHELL ULTRASTRUCTURE AND ONTOGENY OF ORGANOPHOSPHATIC BRACHIOPODS FROM THE LOWER CAMBRIAN OF SOUTH AUSTRALIA**
- 191-15 106 Schiffbauer, James\*; Pulsipher, Mikaela A.; Selly, Tara; Hagadorn, James W.: **OPENING AN OLD CAN OF (TUBE) WORMS: REEVALUATING WYATTIA TAYLOR 1966 FROM THE EDIACARAN OF SOUTHWESTERN LAURENTIA AND CONICAL FOSSILS FROM THE CAMBRIAN OF MISSOURI**
- 191-16 107 Meyer, Dalton\*; Brownstein, Chase; Gauthier, Jacques: **A JURASSIC STEM-GEKKOTAN FROM THE MORRISON FORMATION REVEALED VIA COMPUTED TOMOGRAPHY IMAGING**
- 191-17 108 White, Lisa D.; Haas, Don; Ross, Robert M.\*; Tate, Kellum: **VIRTUAL FIELD EXPERIENCES FOSTER INTERDISCIPLINARY EXPLORATION OF FOSSIL-RICH EXPOSURES OF THE ASTORIA FORMATION (MIOCENE) OUTCROPS ALONG THE NORTHWEST OREGON COAST**

**SESSION NO. 192**

**D21. Recent Advances in Petrology, Igneous and Metamorphic (Posters)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

Booth #

- 192-1 109 Angelo, Tiago Valim\*; Spencer, Christopher J.; Cavosie, Aaron; Thomas, Robert; Li, HongYan: **A NEW TYPE OF GRANITE: EXPLORING THE PETROGENESIS OF SUB-MOHO GRANITES FROM THE SAMAIL OPHIOLITE**
- 192-2 110 Cung, Erica\*; Ustunisik, Gokce; Nielsen, Roger: **IMPACT OF DATABASE CHARACTERISTIC ON TRACE ELEMENT PARTITIONING MODELS FOR CLINOPYROXENE**
- 192-3 111 Scoggin, Shane\*; Chapman, James; Shields, Jessie E.; Trzinski, Adam; Ducea, Mihai N.: **EARLY-PALEOGENE MAGMATISM IN THE PINALEÑO MOUNTAINS, ARIZONA: EVIDENCE FOR CRUSTAL MELTING OF DIVERSE BASEMENT ASSEMBLAGES DURING THE LARAMIDE OROGENY**
- 192-4 112 Yoder, Emily\*; Sirbescu, Mona; Brennan, Clara; Hulsbosch, Niels: **CRYSTALLIZATION OF AN INTERNALLY-ZONED GRANITIC PEGMATITE: INSIGHTS FROM FLUID AND MELT INCLUSIONS, EMMONS PEGMATITE, OXFORD COUNTY, MAINE**
- 192-5 113 Price, Jonathan\*; Schmidt, Megan; Stevenson, Alexandria M.: **SAME SOURCE, DIFFERENT TEXTURES: THE CACHE AND QUANAH GRANITES, SOUTHWESTERN OKLAHOMA**
- 192-6 114 Walker, Julia\*; Mazza, Sarah: **GEOCHEMICAL ANALYSIS OF JURASSIC GABBROS AND SYENITES FROM THE WHITE MOUNTAINS, NEW HAMPSHIRE**
- 192-7 115 Newman, Jordan\*; Leybourne, Matthew I.; Stern, Robert: **INTRUSIVE SILL MORPHOLOGY OF THE EARLY CAMBRIAN COLD SPRINGS BRECCIA, WICHITA MTNS., SW OKLAHOMA**
- 192-8 116 Duncan, Mitchell P.\*; McLeod, Claire; Santana, Liannie Coral: **INSIGHTS INTO THE ASCENT RATES OF MAGMAS BENEATH CONTINENTAL ARC SYSTEMS**
- 192-9 117 Fischer, Emily\*; Hetherington, Callum; Roberts, R. James: **TRACE ELEMENT COMPOSITIONS OF MAGNETITE LAYERS AND PIPES IN THE EASTERN LIMB OF THE BUSHVELD COMPLEX, SOUTH AFRICA**
- 192-10 118 Nicoli, Gautier\*; Ferrero, Silvio; Borghini, Alessia: **SURVIVING DECARBONATION: THE CO<sub>2</sub> BUDGET OF THE LOWER CONTINENTAL CRUST DURING ANATEXIS**
- 192-11 119 Tuttle, Larry\*; Henry, D.J.; Mogk, D.W.; Mueller, Paul: **CONSTRAINING THE TIMING OF ARCHEAN METAMORPHIC EVENTS IN HIGH-GRADE ROCKS FROM THE BEARTOOTH**

- MOUNTAINS OF MONTANA AND WYOMING VIA U-PB MONAZITE GEOCHRONOLOGY**
- 192-12 120 Do, Hanh-Tu Ella\*; Martin, Celine; Jaret, Steven J.: **P-T ESTIMATES OF "RETROGRESSED ECLOGITES" IN THE EASTERN BLUE RIDGE**
- 192-13 121 Chen, Tsai-Wei\*; Vervoort, Jeffrey D.; Baldwin, Julia: **NEOARCHEAN-PALEOPROTEROZOIC METAMORPHIC RECORD IN THE MONTANA METASEDIMENTARY TERRANE, WYOMING CRATON: CONSTRAINTS FROM ZIRCON-GARNET GEOCHRONOLOGY AND ISOTOPE GEOCHEMISTRY**
- 192-14 122 Holliday, McKenna\*; Sprain, Courtney: **GEOCHEMICAL CHARACTERIZATION OF CLINKER PROFILES IN POWDER RIVER BASIN, MONTANA**
- 192-15 123 Liscomb, J.B.\*; Mojica, G.R.; Bailey, C.M.; Rich, M.: **STRUCTURE, PETROLOGY, AND CHEMISTRY OF SOAPSTONE BODIES IN THE EASTERN BLUE RIDGE, NEAR SCHUYLER VIRGINIA**

**SESSION NO. 193**

**T135. Dynamics of the Laurentide Ice Sheet (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Marine and Coastal Geoscience Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

Booth #

- 193-1 124 Gauthier, Michelle\*; Hodder, Tyler: **ICE-FLOW AND TILL PROVENANCE IN MANITOBA, CANADA; DECODING THE LAURENTIDE ICE SHEET PUZZLE PIECES**
- 193-2 125 Rawling, J. Elmo\*; Breckenridge, Andy; Ullman, David: **1:100,000 SCALE PRELIMINARY QUATERNARY MAPPING IN THE LAKE SUPERIOR REGION OF WISCONSIN**
- 193-3 126 Lowe, Theodor Rex Hartmann\*; Malone, David; Gifford, Jennifer; Grimley, David; Colgan, Patrick: **DETRITAL ZIRCON GEOCHRONOLOGY OF ILLINOIS-EPIISODE GLACIAL DEPOSITS: CONSTRAINING THE DYNAMICS OF THE PENULTIMATE LAURENTIDE GLACIATION IN THE GREAT LAKES REGION**
- 193-4 127 Hodder, Tyler\*; Gauthier, Michelle; Ross, Martin; Kelley, Samuel E.: **REPEATED GLACIAL ADVANCES FROM THE QUEBEC-LABRADOR SECTOR INTO WESTERN HUDSON BAY LOWLAND**
- 193-5 128 Breckenridge, Andy\*; Lowell, Thomas V.; Wattrus, Nigel; Peteet, Dorothy M.; Rittenour, Tammy: **A 3450-YEAR VARVE CHRONOLOGY FROM MINNESOTA (USA) AND ONTARIO (CANADA) THAT SPANS THE BØLLING-ALLERØD TO EARLY HOLOCENE**
- 193-6 129 Dendy, Sarah\*; Guenther, William; Conroy, Jessica L.; Grimley, David; Counts, Ronald C.: **DETRITAL ZIRCON GEOCHRONOLOGY AND PROVENANCE OF PLEISTOCENE LOESS AND CONTRIBUTING GLACIAL SOURCES, MIDCONTINENTAL USA**
- 193-7 130 Halsted, Christopher\*; Bierman, Paul R.; Corbett, Lee B.; Shakun, Jeremy D.; Davis, P.; Caffee, Marc: **INACCURACIES IN DEGLACIAL CHRONOMETERS RECORDING LAURENTIDE ICE SHEET RETREAT IN THE NORTHEASTERN UNITED STATES: PRESENCE, MAGNITUDE, AND CONTROLS**
- 193-8 131 Luczak, Jonathan N.; Fisher, Timothy\*: **STRATIGRAPHY AND CHRONOLOGY OF THE IMLAY CHANNEL IN LAPEER COUNTY, MICHIGAN, USA**

**SESSION NO. 194**

**T99. Insights into Cordilleran Tectonics and Magmatism from the Sedimentary Record (Posters) (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division; Geochemical Society)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM



Booth #

- 194-1 132 Gunning, Kellie\*; Gaschnig, Rich; Doe, Michael; Goodge, John W.: **RESOLVING SUPERCONTINENT MODELS WITH MULTI-MINERAL PROVENANCE STUDIES OF PROTEROZOIC SEDIMENTARY ROCKS IN THE SOUTHWEST US AND EAST ANTARCTICA**
- 194-2 133 Mato, Klementina\*; Gaschnig, Rich: **RECONSTRUCTING A MESOPROTEROZOIC TECTONIC PUZZLE BY REVISITING THE PROVENANCE OF THE BELT SUPERGROUP IN THE WESTERN US**
- 194-3 134 Lever, Jon\*; Sundell, Kurt E.; Pearson, David; Link, Paul K.: **TIGHTENING THE BELT: NEW AGE AND PROVENANCE CONSTRAINTS ON PROTEROZOIC STRATA INEAST-CENTRAL IDAHO**
- 194-4 135 Karl, Susan\*; Baichtal, James F.; Quinn, Kei; Steeves, Nathan; Layer, Paul W.; O'Sullivan, Paul; Elder, W.P.: **NEW JURASSIC AGES DEFINE MAGMATIC AND SEDIMENTARY BELTS IN SOUTHEAST ALASKA: IMPLICATIONS FOR WRANGELLIA, THE ALEXANDER TERRANE AND THE GRAVINA-NUTZOTIN BELT**
- 194-5 136 Alford, Ryan\*; Weis, Natalee; Surpless, Kathleen DeGraaff; Yoshinobu, Aaron S.; Barnes, Calvin; Dailey, Shane R.: **DETRITAL ZIRCON AGE AND HAFNIUM ANALYSIS OF THE GALICE FORMATION, KLAMATH MOUNTAINS, OR AND CA: A RECORD OF THE LATE JURASSIC NEVADAN OROGENY**
- 194-6 137 Chapman, Alan\*; Grischuk, Jennifer; Klapper, Meghan; Schmidt, William L.; LaMaskin, Todd A.: **ZIRCON U-PB GEOCHRONOLOGY OF THE CONDREY MOUNTAIN SCHIST (NORTHERN CALIFORNIA-SOUTHERN OREGON) REVEALS A PREVIOUSLY UNDOCUMENTED EARLY CRETACEOUS CORDILLERAN SHALLOW/FLAT-SUBDUCTION EPISODE**
- 194-7 138 Saylor, Joel\*; Rudolph, Kurt; Sundell, Kurt E.; van Wijk, Jolante: **LATE CRETACEOUS EVOLUTION OF PALEO-RELIEF AND LITHOSPHERIC STRENGTH IN THE NORTH AMERICAN CORDILLERA FROM MONTE CARLO-BASED FLEXURAL MODELING**
- 194-8 139 Zermeno, Veronica\*; Saylor, Joel; Eichler, Carla; Wellner, Julia S.: **DETRITAL ZIRCON GEOCHRONOLOGY, PROVENANCE, AND SEDIMENT DISPERSAL IN LATE CRETACEOUS STRATA WITH IMPLICATIONS FOR SEVIER AND LARAMIDE TECTONISM IN THE WESTERN INTERIOR BASIN, MONTANA AND WYOMING, NORTH AMERICAN CORDILLERA**
- 194-9 140 Moore, Kimberly\*; Bidgoli, Tandis; Reed, Nathan; Sturmer, Daniel: **STRATIGRAPHY, AGE, AND PROVENANCE OF THE FLAGSTAFF FORMATION, SAN FRANCISCO AND CRICKET MOUNTAINS, UTAH: IMPLICATIONS FOR THE DEVELOPMENT AND DEMISE OF THE SEVIER HINTERLAND PLATEAU**
- 194-10 141 Kapolas, Alethea\*; Finzel, Emily; Horkley, L. Kenneth: **COMPARISON BETWEEN GEOCHRONOLOGIC AND GEOCHEMICAL PROVENANCE MODELS FOR NEOGENE COOK INLET BASIN STRATA, SOUTH-CENTRAL ALASKA**
- 194-11 142 Haeussler, Peter\*; Karl, Susan M.; White, Timothy S.; Layer, Paul W.; Friedman, Richard M.: **AGE AND EVOLUTION OF MID-CENOZOIC STEPOVER BASINS IN SOUTHEASTERN ALASKA**
- 194-12 143 Gerasimov, Stacey\*; Swanson-Hysell, Nicholas; Hodgin, Eben; Crowley, James L.: **CHRONOSTRATIGRAPHY OF MIOCENE STRATA IN THE BERKELEY HILLS (CALIFORNIA COAST RANGE, USA) AND CALIBRATION OF STRIKE-SLIP TECTONICS DURING MIOCENE EVOLUTION OF THE SAN ANDREAS FAULT SYSTEM**
- 194-13 144 Morgan, George\*; Prall, John: **MIOCENE AGED PALEO-CHANNEL ASSOCIATED WITH EXTENSIONAL TECTONICS OF THE SOUTHERN BASIN AND RANGE PROVINCE, COYOTE MOUNTAINS, SOUTHERN CALIFORNIA**

SESSION NO. 195  

**T19. Best Student Geologic Map Competition (Posters)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

Booth #

- 195-1 145 Suhey, Jane\*; Regan, Sean; Holland, Mark E.; Pickett, Jessica; Reaume, Michelle: **EXPLORING COMPETING GOLD SYSTEM MODELS IN THE VALDEZ CREEK REGION, CLEARWATER MOUNTAINS, ALASKA**
- 195-2 146 Lambert, Crystal A.\*; Troost, Kathy G.; Angel, Samuel M.; Phillips, Samuel J.: **SURFICIAL GEOLOGY AND HYDROGEOLOGIC FEATURES OF PORT GAMBLE S'KLALLAM TRIBAL TRUST LAND, KITSAP COUNTY, WASHINGTON**
- 195-3 147 Sweeten, Rachel\*; Streck, Martin: **NEW GEOLOGIC MAPPING IN LOGAN VALLEY WEST AND MAGPIE TABLE QUADS IN THE NE HARNEY BASIN CORRIDOR, EASTERN OREGON, PROVIDES IMPORTANT LOCAL DATA FOR THE MAGMATIC HISTORY OF THE STRAWBERRY VOLCANICS**
- 195-4 148 Jarvis, William\*; Walters, Benjamin J.; Lacroix, Brice: **GEOLOGIC MAP OF A PORTION OF CAPE SAN MARTIN/ALDER PEAK/VILLA CREEK/BURRO MOUNTAIN 7.5' QUADRANGLES**
- 195-5 149 Burkey, Jordan D.\*; Haproff, Peter J.; Hooker, Julian: **QUATERNARY SURFICIAL GEOLOGIC MAP OF THE EUREKA VALLEY NORMAL FAULT, DEATH VALLEY NATIONAL PARK, EASTERN CALIFORNIA**
- 195-6 150 Aguilar, Valerie; Gates, Emily; Lindsey, Alyssa; McGuire, Keli\*; Rager, Jackson; Rueda, Ian; Wheat, Ted; Zinto, Joneel; Anttila, Eliel: **TECTONIC AND STRATIGRAPHIC MAP OF LATE NEOPROTEROZOIC MCCOY GROUP AT COCOMONGO MOUNTAIN, EGAN RANGE, NEVADA**
- 195-7 151 Amaya Lopez, David; Haisler, Jason; Morrison, Max; Preece, Camille; Randall, Allyson\*; Ruangsak, Thae; Silver, Ryan; LoBianco, Samuel: **GEOLOGIC MAP OF HUESER MOUNTAIN, WHITE PINE COUNTY, NV**
- 195-8 152 Reeher, Lauren\*: **THE WONDER IN THE DETAILS: APPLIED STRUCTURAL MAPPING TECHNIQUES IN NORTHERN SALT VALLEY, PARADOX BASIN, SOUTHERN UTAH**
- 195-9 153 Quick, James\*; Hogan, John: **PRELIMINARY RESULTS OF GEOLOGIC MAPPING OF THE SOUTHERN PORTION OF THE THREE PEAKS 7.5' QUADRANGLE, IRON COUNTY, UTAH**
- 195-10 154 Epperson, Jacqueline\*; Mayback, Danika F.; Malone, John; Malone, David H.: **SUBDIVIDING THE BIGHORN BATHOLITH: GEOLOGIC MAP OF THE WOODROCK QUADRANGLE, SHERIDAN COUNTY, WYOMING USA**
- 195-11 155 Ronemus, Chance\*; Orme, Devon: **SPATIAL AND TEMPORAL OVERLAP OF DISTINCTIVE TECTONIC DOMAINS OF THE NORTH AMERICAN CORDILLERA: GEOLOGIC MAPPING AND GEO/THERMOCHRONOLOGY RESULTS FROM THE HIGHLAND MOUNTAINS, SOUTHWESTERN MONTANA, USA**
- 195-12 156 Brosky, Madeline\*; Wade, Mason; Gani, Nahid; Gani, M. Royhan: **MULTI-TECHNIQUES GEOLOGIC AND GEOMORPHOLOGIC MAPPING OF THE BEDROCK OUTCROPS WITHIN THE MCDANIELS QUADRANGLE, ROUGH CREEK GRABEN, KENTUCKY**
- 195-13 157 Duong, Lisa\*; Rogers, Keith; Hidalgo, Paulo J.; Dai, Dajun: **GEOLOGIC MAP OF THE TUGALOO TERRAIN IN THE VICINITY OF THE BREVARD SHEAR ZONE, NORTHERN-HALF OF THE CHAMBLEE QUADRANGLE, GEORGIA**
- 195-14 158 Fleischer, Noah\*; Kuiper, Yvette D.: **PRELIMINARY BEDROCK GEOLOGIC MAP OF THE HONEY HILL FAULT AND ADJACENT TERRANES IN SOUTHEASTERN CONNECTICUT, 1:50,000 SCALE**

**SESSION NO. 196**

**T17. Mapping the West: Understanding of the Geologic History of Volcanic Terranes (Posters) (Geochemical Society; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

2:30 PM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 4 to 6 PM

Booth #

- 196-1 159 Cannon, Charles\*; Anderson, James; Evarts, Russell C.; O'Connor, Jim E.; Wells, Ray; Woodring, Danielle N.; Bennett, Scott; McClaughry, Jason D.; Hackett, Joshua A.: **PRELIMINARY GEOLOGIC MAP OF THE COLUMBIA RIVER GORGE NATIONAL SCENIC AREA, OREGON AND WASHINGTON**
- 196-2 160 Anderson, James\*; Lite, Kenneth E.; Hackett, Joshua A.: **AN OUT-OF-SYNECLINE THRUST AND OTHER GEOLOGIC DISCOVERIES ON THE LYLE QUADRANGLE, OREGON**
- 196-3 161 Pivarunas, Anthony\*; O'Connor, Jim E.; Cannon, Charles; Sherrod, David; Stelten, Mark E.: **A FAR-TRAVELED LATE MIOCENE BASALT FLOW FROM CENTRAL OREGON**
- 196-4 162 Thieme, Chanel\*; Streck, Martin J.; Steiner, Arron; Sweeten, Rachel: **A NEWLY DOCUMENTED MAJOR MID-MIOCENE RHYOLITE FIELD ASSOCIATED WITH COLUMBIA RIVER BASALT MAGMATISM, EASTERN OREGON, USA: THE STRAWBERRY RHYOLITES**
- 196-5 163 House, P. Kyle\*; O'Connor, Jim; Safran, Elizabeth; Ely, Lisa L.; Grant, Gordon: **MAPPING THE PERILOUS GEOLOGIC JOURNEY OF THE LOWER OWYHEE RIVER, SOUTHEASTERN OREGON**
- 196-6 164 Miller, David\*; Denief, Lilly; Flick, Raine; Domagall, Abigail; Kobs Nawotniak, Shannon: **ANALYSIS OF THE EMPLACEMENT, COMPOSITION, AND ERUPTIVE HISTORY OF THE HORSE BASIN RHYOLITE NEAR BRUNEAU, IDAHO**
- 196-7 165 Hobbs, Kevin\*; Gehr, Jacob R.; Zimmerer, Matthew J.; Heizler, Matthew T.: **A 1 M.Y. INTERTRAPPEAN SEDIMENTARY RECORD OF PLIOCENE PALEOENVIRONMENTAL CHANGE IN THE TAOS PLATEAU VOLCANIC FIELD, NEW MEXICO**
- 196-8 166 Langenheim, Victoria\*; Sweetkind, D.S.; Champion, Duane E.; Avery, Margaret S.; Pivarunas, Anthony: **CONSTRAINTS ON FAULT CONTINUITY AND LIMITS ON SLIP IN THE BACKARC OF NORTHEASTERN CALIFORNIA FROM AEROMAGNETIC DATA**
- 196-9 167 Roberts, Michelle\*: **THE IMPORTANCE OF TERTIARY VOLCANICS IN UNDERSTANDING THE GEOLOGIC HISTORY OF THE NORTHERN SIERRA NEVADA MOUNTAINS, CALIFORNIA**
- 196-10 168 Kragh, Natali\*; Myers, Madison; Hungerford, Jefferson: **UPDATING AND ASSESSING THE ACCURACY OF THE GEOLOGIC MAPS OF YELLOWSTONE NATIONAL PARK**
- 196-11 169 Henderson, Stacy\*; Myers, Madison: **REEVALUATING THE DISTRIBUTION OF THE LAVA CREEK TUFF, YELLOWSTONE**
- 196-12 170 Salazar, Raymond\*; Myers, Madison; Wilson, Colin J.N.; Henderson, Stacy: **DISENTANGLING THE LAVA CREEK TUFF ERUPTION THROUGH RE-MAPPING OF SOUR CREEK DOME, YELLOWSTONE NATIONAL PARK**

**WEDNESDAY, 13 OCTOBER 2021**

**MORNING ORAL TECHNICAL SESSIONS**

**SESSION NO. 199**

**D31. Recent Advances in Tectonics/Tectonophysics**

8:00 AM, Oregon Convention Center, D137

Rebecca J. Dorsey and Scott Jess, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 199-1 8:05 AM Meert, Joseph\*; Miller, Scott: **TELLING TIME OR TELLING LIES? PROTEROZOIC APPARENT POLAR WANDER PATHS**
- 199-2 8:20 AM Ding, Jikai\*; Zhang, Shihong; Evans, David A.D.; Li, Haiyan; Shi, Meinan; Yang, Tianshui; Wu, Huaichun; Zhao, Hanqing: **A LATE MESOPROTEROZOIC SEMI-SUPERCONTINENT "LAUSINALIA"**
- 199-3 8:35 AM Banerjee, Anwesa\*; Cogné, Nathan; Sequeira, Nicole; N., Prabhakar; Bhattacharya, Abhijit: **TECTONICS OF THE BEND IN A CURVED CRUSTAL-SCALE EARLY NEOPROTEROZOIC ACCRETION ZONE, THE GREATER INDIA PROTEROZOIC FOLD BELT (GIPFOB), INDIA: NEW FINDINGS AND A SPECULATION**
- 199-4 8:50 AM Ruiz, Daniel\*; Stockli, Daniel F.; Fitz-Diaz, Elisa; Lawton, Timothy: **MULTI-STAGE JURASSIC RIFTING IN EASTERN MEXICO AND IMPLICATIONS FOR GULF OF MEXICO OPENING**
- 199-5 9:05 AM Jess, Scott\*; Gröger, Heike; Peace, Alexander; Schiffer, Christian: **COMPILATION OF APATITE FISSION-TRACK DATA FROM ACROSS THE NORTH ATLANTIC: REGIONAL TRENDS AND INTERPRETATIONS**
- 199-6 9:20 AM Faehnrich, Karol\*; McClelland, William C.; Webb, Laura E.; Rasbury, E. Troy; Colpron, Maurice; Strauss, Justin: **THERMOCHRONOLOGIC EVIDENCE FOR CRETACEOUS STRIKE-SLIP DISPLACEMENT ON THE PORCUPINE SHEAR ZONE, ALASKA AND YUKON**
- 199-7 9:35 AM Farris, David\*: **NEAR SIMULTANEOUS ACCRETIONARY PRISM GROWTH, FOREARC MAGMATISM, AND FAULTING: DETRITAL ZIRCON CONSTRAINTS FROM THE KODIAK ACCRETIONARY COMPLEX, KODIAK ISLAND, ALASKA**
- 9:50 AM **BREAK**
- 199-8 10:05 AM Sundell, Kurt\*; George, Sarah; Carrapa, Barbara; Gehrels, G.E.; Ducea, Mihai N.; Saylor, Joel; Pepper, Martin: **TWO-STAGE CRUSTAL GROWTH OF THE NORTHERN CENTRAL ANDEAN PLATEAU**
- 199-9 10:20 AM Ingersoll, Raymond V.\*; Bird, Peter: **PALEOTECTONICS OF SOUTHERN CALIFORNIA 48-0 MA BASED ON FINITE-ELEMENT RECONSTRUCTION**
- 199-10 10:35 AM Trammell, Cali\*; Heermance, Richard: **THE GOLER FORMATION: EOCENE FLUVIAL DEPOSITS, PALEOGEOGRAPHY, AND BASIN GEOMETRY AT THE SOUTHERN END OF THE SIERRA NEVADA**
- 199-11 10:50 AM Hubbard, Mary\*; Giri, Bibek; Mukul, Malay; Ghosh, Abhijit; Srivastava, Vinee; Gajurel, Ananta; Mendoza, Manuel: **OROGENIC SEGMENTATION AND THE ROLE OF CROSS FAULTS IN THE HIMALAYA**
- 199-12 11:05 AM Stanton, Kelsay M.\*; Crider, Juliet; Kelsey, Harvey M.; Feathers, James K.: **UPLIFTED PLEISTOCENE TERRACES, WILLAPA BAY AND GRAYS HARBOR, SOUTHWESTERN WASHINGTON COAST**

AM

WEDNESDAY

POSTERS

**199-13** 11:20 AM Prush, Veronica\*; Onwuemeka, John; Liu, Yajing; Rowe, Christie; Steffen, Rebekka; Steffen, Holger: **IS SEISMICITY IN THE WESTERN QUÉBEC SEISMIC ZONE DRIVEN BY GLACIAL REBOUND?**

11:15 AM **DISCUSSION: PLANETARY SCIENCE-THEMED EDUCATION**

**SESSION NO. 200**

**D35: Planetary Exploration and Education: How We've Learned about our Solar System**

8:00 AM, Oregon Convention Center, D139/D140

Nicholas Patrick Lang and Jennifer Anderson, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 200-1** 8:05 AM Williams, David\*; Elkins-Tanton, Linda T.; Bell, James F.; Krohn, Katrin; Otto, Katharina; Jaumann, Ralf; Russell, Christopher T.: **THE GEOLOGICAL EXPLORATION OF (16) PSYCHE: INVESTIGATION OF A METAL WORLD**
- 200-2** 8:20 AM Whitten, Jennifer\*; Smrekar, Suzanne E.; Dyar, M. Darby; Hensley, Scott; Nunes, Daniel; the VERITAS, Science Team: **EXPLORING VENUS WITH THE VERITAS MISSION (Invited Presentation)**
- 200-3** 8:35 AM Gilmore, Martha\*; Garvin, James; Arney, Giada; Ravine, Michael; Getty, Stephanie; Bos, Brent; Filiberto, Justin: **SEEING VENUS TESSERA TERRAIN WITH THE VENDI CAMERA ON DAVINCI (Invited Presentation)**
- 200-4** 8:50 AM Kelley, Michael\*; Davis, Richard M.; Collom, Robert B.; Viotti, Michelle A.; Hollibaugh Baker, David M.: **INTERNATIONAL MARS ICE MAPPER MISSION: A RECONNAISSANCE MISSION FOR THE HUMAN EXPLORATION OF MARS**
- 200-5** 9:05 AM Scully, Jennifer\*; Hand, Kevin P.; Phillips, Cynthia B.; Cable, Morgan L.; Cameron, Marissa; Craft, Kathleen L.; Hofgartner, Jason D.; Hofmann, Amy E.; Kosberg, Jacob A.; Nordheim, Tom; Pitesky, Jo E.: **THE EUROPA LANDER MISSION CONCEPT: PREPARING FOR THE IN-SITU EXPLORATION OF AN OCEAN WORLD**
- 9:20 AM **DISCUSSION: UPCOMING MISSIONS AND MISSION CONCEPTS**
- 200-6** 9:30 AM Bowman, Catherine D.D.; Elkins-Tanton, Linda T.; Williams, David\*; Handal, Joshua A.; McCartney, Gretchen P.; McLaurin, Lindsay S.; Valentine, Karin: **NASA PSYCHE MISSION STUDENT COLLABORATIONS (Invited Presentation)**
- 200-7** 9:45 AM Lamm, Sarah\*; Bosch, Jeanette S.; Gonzalez, Yesenia; Bosch, Lynette D.: **BRINGING MARS AND THE CURIOSITY ROVER TO RURAL COMMUNITIES IN NORTHWEST KANSAS (Invited Presentation)**
- 200-8** 10:00 AM Williams, Wendi J.W.\*: **CONSIDERATIONS FOR THE PLANETARY / ASTROGEOLOGY SCIENCE COMMUNITY: DELIBERATELY FOSTERING INCLUSION OF PERSONS WITH DISABILITIES USING DEI-INFORMED CULTURE AND INTERACTION DESIGN STRATEGIES (Invited Presentation)**
- 200-9** 10:15 AM Harris, Robert\*: **THE FERNBANK SCIENCE CENTER AT-HOME PLANETARIUM: A CASE STUDY IN BRINGING ASTROGEOLOGY TO A GLOBAL AUDIENCE (DURING AND AFTER THE PANDEMIC)**
- 200-10** 10:30 AM Jacobsen, Robert\*; Grambling, Nadine; Skjetne, Helle L.: **PLANETARY SCIENCE AS A GATEWAY TO THE GEOLOGY MAJOR: IN-PERSON AND ONLINE TEACHING RESOURCES AND STRATEGIES FROM THE COURSE EXPLORING THE PLANETS AT THE UNIVERSITY OF TENNESSEE, KNOXVILLE**
- 200-11** 10:45 AM Pyle, Eric\*: **JMARS AS A GATEWAY PLATFORM FOR TEACHING THROUGH PLANETARY DATASETS**
- 200-12** 11:00 AM Soumano, Victoire\*; Espinoza Lugo, Mariana; Martin, Cayla; Butler, Jaimi K.; Baxter, Bonnie; Rivera, Tiffany: **GREAT SALT LAKE AS A MODEL FOR TEACHING GEOBIOLOGY THROUGH VIRTUAL FIELD TRIPS**

**SESSION NO. 201**

**P5. Geoscience and Society: Action and Interdisciplinary Engagement on Local and Global Scales (GSA Geology and Society Division; GSA International; GSA Geology and Public Policy Committee; European Geosciences Union; American Geophysical Union; Geological Survey of Sweden; The Global Network for Geoscience and Society; Geology in the Public Interest; Geology for Global Development; Department of Geology and Environmental Science, Wheaton College; Clean Water Institute, Calvin University; Department of Geology, San Jose State University; Department of Geological & Mining Engineering & Sciences, Michigan Technological University; Department of Earth, Environmental and Resource Sciences, The University of Texas at El Paso; GSA Soils and Soil Processes Division; GSA Environmental and Engineering Geology Division; GSA Marine and Coastal Geoscience Division; GSA Soils and Soil Processes Division; GSA Limnogeology Division)**

8:00 AM, Oregon Convention Center, Oregon Ballroom 202/203/204 (Hybrid Room)

Gregory Wessel, Rudy Schuster, Chloe Hill and Nina Burkardt, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 201-1** 8:10 AM Applegate, David\*: **GEOSCIENCE WITH A PUBLIC PURPOSE: ADDING PEOPLE TO THE EQUATION**
- 201-2** 8:22 AM Lebel, Daniel\*: **CANADA'S PUBLIC GEOSCIENCE FOR A SUSTAINABLE GLOBAL VILLAGE**
- 201-3** 8:34 AM Stewart, Iain\*: **RE-PURPOSING GEOSCIENCE COMMUNICATIONS FOR SUSTAINABLE HUMAN PROGRESS: MOVING FROM 'MAKE AND SELL' AND 'SENSE AND RESPOND' TO 'GUIDE AND CO-CREATE'**
- 201-4** 8:46 AM Hayhoe, Katharine\*: **HELPING CITIES PREPARE FOR A CHANGING CLIMATE**
- 201-5** 8:58 AM Reddy, Elizabeth\*: **EDUCATION FOR ACTIVE AND ENGAGED GEOSCIENCE**
- 9:10 AM **PANEL DISCUSSION**
- 9:25 AM **BREAK**
- 201-6** 9:35 AM Cortes Puch, Maria\*: **THE SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK: TRANSFORMATIVE PARTNERSHIPS IN SUPPORT OF THE SUSTAINABLE DEVELOPMENT GOALS**
- 201-7** 9:50 AM Wessel, Gregory\*; Greenberg, Jeffrey K.: **THE GLOBAL NETWORK FOR GEOSCIENCE AND SOCIETY: CONNECTING SCIENCE TO SERVE THE PUBLIC GOOD**
- 201-8** 10:00 AM Garg, Arti\*: **SCIENTISTS AS CIVIC PARTICIPANTS: ENGAGING IN LOCAL DECISION-MAKING**
- 201-9** 10:15 AM Szein, Ester\*; Mogk, David: **GEOHERITAGE: AN INTERDISCIPLINARY APPROACH TOWARDS SUSTAINABILITY**
- 10:30 AM **BREAK**
- 201-10** 10:40 AM Hendricks, Rose\*: **HOW DO AMERICANS WANT TO ENGAGE WITH GEOSCIENCE? IMPLICATIONS FOR COMMUNICATING AND WORKING WITH NON-GEOSCIENTISTS**
- 201-11** 10:55 AM Ilesanmi, Olufeyisayo\*; Abiola-Awe, Iniobong; Oboh-Ikuenobe, Francisca: **STIMULATING CLIMATE CHANGE ENGAGEMENT IN COMMUNITIES: CASE STUDIES FROM NIGERIA**
- 201-12** 11:10 AM Walton-Day, Katherine\*; Hinck, Jo Ellen; Siebers, Benjamin J.; Campbell, Kate M.; Croteau, Marie-Noele; Welch, Eric; Schuster, Rudy; Michalegko, Lesley F.: **INNOVATIVE GEOSCIENCE/SOCIETY ENGAGEMENT— USING ART AND SOCIAL SCIENCE TO IMPROVE COMMUNICATION OF THE ENVIRONMENTAL EFFECTS OF MINING**



- 201-13 11:25 AM Hilbert Wolf, Hannah\*: **MOBILISING GEOSCIENCE TO DELIVER THE UN SUSTAINABLE DEVELOPMENT GOALS – REFLECTIONS FROM ‘GEOLOGY FOR GLOBAL DEVELOPMENT’ ACTIVITIES**
- 11:40 AM **PANEL DISCUSSION / TOWN HALL**

**SESSION NO. 202**

**T8. Intracontinental Tectonics and Orogeny: The Deformation, Fabric Evolution, and Mechanism (GSA Geophysics and Geodynamics Division)**

8:00 AM, Oregon Convention Center, Portland Ballroom 257 (Hybrid Room)

Yu Wang, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 202-1 8:05 AM van der Pluijm, Ben\*; Marshak, Stephen: **VERTICAL TECTONICS AND PLATE INTERIORS: EVIDENCE FROM THE US CONTINENTAL INTERIOR (Invited Presentation)**
- 202-2 8:25 AM Withdrawn
- 202-3 8:45 AM Polashenski, Michael\*; Pazzaglia, Frank; Kodama, Kenneth: **UNSTEADY LATE CENOZOIC EPEIROGENY OF THE CENTRAL APPALACHIANS ENCODED IN THE DELAWARE RIVER – ATLANTIC COASTAL PLAIN SOURCE TO SINK SYSTEM**
- 202-4 9:00 AM Liu, Songnan\*; Wang, Yu: **AN INTRACONTINENTAL RIFTING TO OROGENY: THE SONGPAN–GARZÉ TERRANE, NORTHEASTERN TIBETAN PLATEAU, CHINA**
- 202-5 9:15 AM Alemu, Tadesse\*; Hodgkin, Eben; Swanson-Hysell, Nicholas: **TECTONIC ORIGIN FOR STRIATED SURFACE ON TOP OF THE MICHIGAMME FORMATION AT L'ANSE MICHIGAN: IMPLICATIONS TO THE JACOBSVILLE FORMATION**
- 202-6 9:30 AM Peace, Alexander\*; Schiffer, Christian; Jess, Scott; Phethean, Jordan: **DEPTH-DEPENDENT INVERSION DUE TO HALOKINESIS IN THE PENOBSCOT 3D SEISMIC VOLUME, OFFSHORE NOVA SCOTIA, CANADA**
- 202-7 9:45 AM Zhang, Bo\*; Liu, Shaofeng; Wan, Neng; Xu, Qingqun: **PALEOSTRESS REGIME EVOLUTION IN SOUTH CHINA INDUCED BY DYNAMIC CHANGES IN IZANAGI-PACIFIC SUBDUCTION SINCE THE CRETACEOUS**
- 10:00 AM **BREAK**
- 202-8 10:10 AM Bruce, Hallie\*; Lacroix, Brice; Möller, Andreas: **REFINING THE SYN-TECTONIC DIAGENETIC AND STRUCTURAL HISTORY OF THE ARBUCKLE MOUNTAINS**
- 202-9 10:25 AM Wang, Yu\*; Liu, Songnan; Zhou, Liyun: **TECTONIC STRESS TRANSMISSION FROM MARGIN TO INTERIORS: RESPONSIBILITY FOR INTRACONTINENTAL DEFORMATION, MAGMATISM AND SEDIMENTATION**
- 202-10 10:40 AM Richardson, Harrison\*; McKay, Matthew; Frank, Kelly; Jackson, William: **ORDOVICIAN AND MISSISSIPPIAN BASEMENT FAULT REACTIVATION PRESERVED BY PALEOSEISMITES IN SOUTHERN MISSOURI AND NORTHERN ARKANSAS, USA**
- 202-11 10:55 AM Evans, Kevin Ray\*; Bassett, Damon J.; McAvoy, Jared W.: **TIMING AND STRUCTURAL FRAMEWORK OF THE OZARKS UPLIFT**
- 202-12 11:10 AM Stevens Goddard, Andrea\*; Yang, Xiaotao; Liu, Lijun: **IDENTIFYING THE TIMING AND RATE OF CHANGES TO BASEMENT TOPOGRAPHY IN THE EASTERN NORTH AMERICAN CRATON USING LOW-TEMPERATURE THERMOCHRONOLOGY**
- 11:15 AM **DISCUSSION**
- 11:35 AM **CONCLUDING REMARKS**

**SESSION NO. 203** 

**T24. The Life and Times of Arc Volcanoes from Bottom to Top I (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

8:00 AM, Oregon Convention Center, A106

Anita Grunder, Thomas Sisson and Kellie Wall, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 203-1 8:05 AM Grunder, Anita\*: **VOLCANIC PERSPECTIVE ON PLUTONISM: COMPARISON OF THE ANDEAN AUCANQUILCHA VOLCANIC CLUSTER TO THE SIERRA NEVADA TUOLUMNE INTRUSIVE COMPLEX**
- 203-2 8:20 AM Memeti, Vali\*; Barnes, Calvin; Werts, Kevin; Oppenheim, Louis: **THE VOLCANIC-PLUTONIC CONNECTION FROM THE PERSPECTIVE OF THE TUOLUMNE INTRUSIVE COMPLEX, SIERRA NEVADA, CA (Invited Presentation)**
- 203-3 8:40 AM Delph, Jonathan\*; Shimizu, Kei; Ratschbacher, Barbara C.: **INTEGRATING SEISMIC, GEOCHEMICAL, AND PETROLOGIC OBSERVATIONS TO UNDERSTAND THE TRANS-LITHOSPHERIC STRUCTURE OF MAGMATIC SYSTEMS: THE SOUTHERN PUNA PLATEAU**
- 203-4 8:55 AM Ackerson, Michael\*: **GRANITIC THERMAL HISTORIES RECORDED IN TITANITE OF THE TUOLUMNE INTRUSIVE SUITE**
- 203-5 9:10 AM Wieser, Penelope\*; Petrelli, Maurizio; Lubbers, Jordan; Wieser, Eric; Kent, Adam; Till, Christy B.: **THERMOBAR: A CRITICAL EVALUATION OF MINERAL-MELT THERMOBAROMETRY AND HYGROMETRY IN ARC MAGMAS USING A NEW OPEN-SOURCE PYTHON 3 TOOL**
- 203-6 9:25 AM Frey, Holli\*; Christopher, Thomas E.; Manon, Matthew R.; Walters, Sydney; Wright, Joanna; Levins, Grace; Joseph, Erouscilla P.: **2021 EXPLOSIVE ERUPTION AT LA SOUFRIÈRE, ST. VINCENT: CONSTRAINTS ON ERUPTION TRIGGERS FROM MONITORING AND PETROLOGY**
- 9:40 AM **BREAK**
- 203-7 9:50 AM Bucholz, Claire\*; Lewis, Madeline J.; Ryan-Davis, Juliet: **CONTRIBUTIONS OF MAFIC MAGMATISM TO THE UPPER CRUSTAL SIERRA NEVADA BATHOLITH, CALIFORNIA (Invited Presentation)**
- 203-8 10:10 AM Ryan-Davis, Juliet\*; Bucholz, Claire E.; Sisson, Thomas; Tissot, Francois L.H.; Druzhinina, Zhanna; Present, Theodore M.: **FIELD, PETROLOGIC AND GEOCHEMICAL EVIDENCE FOR UPPER-CRUSTAL ULTRAMAFIC CUMULATE FRACTIONATION TO GENERATE INTERMEDIATE PLUTONS AT EMIGRANT GAP, SIERRA NEVADA, CALIFORNIA**
- 203-9 10:25 AM Benson, Erin\*; Boudreau, Alan: **LAYERED INTRUSIONS AS SUBDUCTION ZONE ANALOGUES: GEOCHEMICAL AND ISOTOPIC EVIDENCE OF FLUID CIRCULATION IN THE STILLWATER COMPLEX, MONTANA**
- 203-10 10:40 AM Leeman, William\*; Evarts, Russell C.; Streck, Martin J.; Conrey, Richard M.; Zhang, Yin; Salters, Vincent: **IMPLICATIONS OF CASCADES FRONTAL ARC (FA) MAGMATISM - BORING VOLCANIC FIELD**
- 203-11 10:55 AM Salters, Vincent J.M.\*; Fowler, Gary D.; Zhang, Yin; Leeman, William; Hildreth, Wes; Conrey, Richard M.: **SIMILAR MAGMAS ACROSS THE ARC FROM WEST TO EAST, BORING TO SIMCOE ALONG THE COLUMBIA RIVER**
- 203-12 11:10 AM Pamukcu, Ayla\*; Gualda, Guilherme A.R.; Gravelly, D.M.: **EXTRACTION TO ERUPTION: COMPARING THE CRUSTAL RESIDENCE OF LARGE-VOLUME MAGMAS AT THE TAUPŌ VOLCANIC CENTER (NEW ZEALAND) (Invited Presentation)**

AM  
WEDNESDAY

**SESSION NO. 204**

***T25. Metamorphism into the 21st Century I—A Celebration of the Career of Mike Brown (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Geochemical Society)***

8:00 AM, Oregon Convention Center, Portland Ballroom 252 (Hybrid Room)

Chris Yakymchuk, Julia Baldwin and Mark Caddick, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 204-1 8:10 AM Holder, Robert\*; Viète, Daniel; Brown, Michael; Johnson, Tim E.: **PAIRED METAMORPHISM AND THE EVOLUTION OF PLATE TECTONICS**
- 204-2 8:25 AM Spencer, Christopher J.\*; Mitchell, Ross N.; Brown, Michael: **SOME LIKE IT HOT: ENIGMATIC OROGENS OF THE MID-PROTEROZOIC**
- 204-3 8:40 AM Gnieski, Rachel\*; Henry, Darrell J.; Harris, Connor J.; Mueller, Paul; Mogk, David: **ARCHEAN CHROMITE, CHROMITITES, AND BONINITES IN THE EASTERN BEARTOOTH MOUNTAINS, MT**
- 204-4 8:55 AM Viète, Daniel\*; Holder, Robert; Guice, George; George, Freya: **METAMORPHIC SCALES ILLUMINATE PAST TECTONIC PROCESSES (Invited Presentation)**
- 204-5 9:15 AM Poulaki, Eirini\*; Stockli, Daniel F.; Flansburg, Megan; Gevedon, Michelle; Stockli, Lisa D.; Shuck, Brandon; Barnes, Jaime D.; Soukis, Konstantinos; Kitajima, Kouki; Valley, John W.: **ZIRCON GRAINS AS RECORDERS OF SUBDUCTION ZONE METAMORPHISM IN THE SOUTHERN CYCLADES, GREECE AND THE BETIC CORDILLERA, S. SPAIN**
- 204-6 9:30 AM PAN, Ruiguang\*; Macris, Catherine A.; Menold, Carrie: **MULTIPLE FLUID EVENTS DURING EXHUMATION OF THE TSO MORARI UHP ECLOGITE, NW INDIA: CONSTRAINTS FROM MINERALOGY, GEOCHEMISTRY, AND THERMODYNAMIC MODELLING**
- 9:45 AM **BREAK**
- 204-7 10:00 AM Penniston-Dorland, Sarah\*; Harvey, Kayleigh M.; Kohn, Matthew J.; Piccoli, Philip M.; Walker, Stephanie; Starr, Paul G.; Baxter, Ethan: **GOING DEEPER – INSIGHTS INTO THE TECTONICS OF SUBDUCTION ZONES FROM THE CATALINA SCHIST (CA) (Invited Presentation)**
- 204-8 10:20 AM Bollen, Elizabeth M.; Stowell, Harold\*: **THE DURATION, PRESSURE, AND TEMPERATURE OF METAMORPHISM, PICURIS AND TUSAS MOUNTAINS, NM**
- 204-9 10:35 AM Pavlis, Terry\*; Serpa, Laura: **A NEW FUTURE FOR METAMORPHIC GEOLOGY**
- 204-10 10:50 AM Spencer, Brandon\*; Powell, Nicholas E.; Thigpen, James; Moecher, David P.; Stowell, Harold H.; Merschhat, Arthur J.: **DEFINING METAMORPHIC TIMING, EXTENT, AND CONDITIONS IN THE SOUTHERN APPALACHIAN BLUE RIDGE AND INNER PIEDMONT—INSIGHTS FROM MONAZITE XENOTIME GEOCHEMISTRY AND GEOCHRONOLOGY**
- 204-11 11:05 AM Martin, Celine\*: **P-T ESTIMATES IN METABASITES FROM THE EASTERN BLUE RIDGE, NORTH CAROLINA: A RE-EVALUATION**
- 11:20 AM **DISCUSSION**

**SESSION NO. 205**

***T28. Groundwater–Surface Water Interactions in Streams, Lakes, and Wetlands (GSA Hydrogeology Division; GSA Karst Division; GSA Soils and Soil Processes Division)***

8:00 AM, Oregon Convention Center, D136 (Hybrid Room)

Zeno Levy and Masaki Hayashi, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 205-1 8:05 AM Zanihi, Hannah; Ayers, John\*: **ARE NUTRIENTS AFFECTED BY DIEL CYCLES IN STREAMS? STUDY OF A LOW-DISCHARGE STREAM IN MIDDLE TN**

- 205-2 8:20 AM Sultana, Rakiba\*; Hoss, Kendyl; Meurer, Cullen; Hatami, Jiyan; Johnson, Raymond; Tigar, Aaron; Paradis, Charles: **SURFACE INFILTRATION OF RIVER WATER TO GROUNDWATER TO SIMULATE PERIODIC FLOODING EVENTS AT A URANIUM-CONTAMINATED SITE**
- 205-3 8:35 AM Johnson, Raymond\*; Tigar, Aaron; Paradis, Charles; Kent, Ronald D.: **USING SURFACE WATER INJECTIONS IN LABORATORY COLUMN AND FIELD TRACER TESTS TO DETERMINE URANIUM SORPTION PARAMETERS FOR REACTIVE TRANSPORT MODELING**
- 205-4 8:50 AM Moran, Jean\*; Delgadillo, Brenda; Visser, Ate: **EXPLORING SURFACE WATER-GROUNDWATER INTERACTION IN URBAN WATERSHEDS USING GEOCHEMICAL AND ISOTOPIC TRACERS**
- 205-5 9:05 AM Wittmeyer, Gordon\*; Green, Ronald; Flores, Mauricio E.: **EVALUATING LONG-TERM HYDRAULIC RELATIONSHIPS BETWEEN A MAJOR RIVER AND REGIONAL AQUIFER TO IDENTIFY IMPROVED WATER RESOURCE MANAGEMENT PRACTICES: AMISTAD RESERVOIR AND THE RIO GRANDE**
- 205-6 9:20 AM Hare, Danielle\*; Helton, Ashley; Briggs, Martin A.; Johnson, Zachary C.; Cummins, Carolyn; Bumpers, Phillip; Tomczyk, Nathan; Gulis, Vladislav; Wenger, Seth; Hotchkiss, Erin; Benstead, Jonathan; Rosemond, Amy: **GROUNDWATER FLOW PATH DEPTH INFLUENCES THE THERMAL STABILITY OF STREAMS: IMPLICATIONS FOR INSTREAM CARBON CYCLING (Invited Presentation)**
- 9:40 AM **BREAK**
- 205-7 9:55 AM Devlin, John\*: **SBPVP REVELATIONS/CONFIRMATIONS OF FLOW MEASURED AT THE GROUNDWATER-SURFACE WATER INTERFACE (Invited Presentation)**
- 205-8 10:15 AM Humphrey, C. Eric\*; Solomon, D. Kip; Genereux, David P.; Gilmore, Troy E.; Mittelstet, Aaron R.; Zlotnik, Vitaly A.; Zeyrek, Caner; Jensen, Craig R.; MacNamara, Markus R.: **SPATIAL VARIABILITY AND ESTIMATION OF GROUNDWATER FLUX FROM LOCAL DISCHARGE MEASUREMENTS**
- 205-9 10:30 AM Naranjo, Ramon\*; Kendall, Carol; Rosen, Michael R.: **GROUNDWATER NUTRIENT SUPPLY TO NEARSHORE PERIPHYTON IN ULTRA-OLIGOTROPHIC LAKE TAHOE (Invited Presentation)**
- 205-10 10:50 AM Bartlett, Stephen\*; Ely, Lisa L.; Gazis, Carey; Petralia, Joseph: **ASSESSING THE EFFECT OF IN-STREAM LARGE WOOD JAMS ON AQUIFER RECHARGE AT INDIAN CREEK, KITTITAS COUNTY, WASHINGTON**
- 205-11 11:05 AM Gazis, Carey\*; Petralia, Joseph; Henning, Lindsay; Taylor, Maxwell: **GROUNDWATER-SURFACE WATER INTERACTION NEAR THE TEANAWAY RIVER (CENTRAL WASHINGTON STATE) BASED ON DATA FROM TEN MONITORING WELLS**
- 205-12 11:20 AM Moulton, Dedrick E.\*; Levine, Norman; Knapp, Landon C.; Callahan, Timothy J.; Bundrick, Melton: **MONITORING AND MODELING THE GROUNDWATER FRESH-SALTWATER BOUNDARY ON KIAWAH ISLAND SC**
- 205-13 11:35 AM Hayashi, Masaki\*; Roesky, Benjamin: **EFFECTS OF GROUNDWATER-SURFACE WATER EXCHANGE ON THE THERMAL REGIME OF A SUB-ALPINE HEADWATER STREAM**

**SESSION NO. 206**

***T30. Using Hydrochemistry to Conceptualize Relations between Recharge and Discharge in Karst Aquifers (GSA Hydrogeology Division; GSA Karst Division)***

8:00 AM, Oregon Convention Center, A107–A109

Rebecca Nunu and Marylynn Musgrove, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**

<p><b>206-1</b> 8:05 AM Doctor, Daniel*: <b>SOME CONSIDERATIONS ON THE USE OF STABLE CARBON ISOTOPES AS TRACERS IN KARST AQUIFERS (Invited Presentation)</b></p> <p><b>206-2</b> 8:25 AM Martin, Jonathan*; Flint, Madison; Oberhelman, Andrew; Brown, Amy: <b>RECHARGE, RESIDENCE TIMES, AND REDOX: CONTROLS ON KARST GROUNDWATER COMPOSITIONS (Invited Presentation)</b></p> <p><b>206-3</b> 8:45 AM Musgrove, Marylynn*; Opsahl, Steve; Ging, Patricia; Mahler, Barbara J.: <b>HIGH-FREQUENCY TRACERS OF RECHARGE AND AQUIFER VULNERABILITY IN KARST GROUNDWATER: EDWARDS AQUIFER, CENTRAL TEXAS</b></p> <p><b>206-4</b> 9:00 AM Chadwick, Jesse*; Bertetti, F. Paul; Goddard, Faith; Quintanilla, Jessica; Gao, Yongli: <b>CONTAMINANTS AS TRACERS: UTILIZING ENVIRONMENTAL SIGNALS TO CHARACTERIZE REGIONAL CONTRIBUTIONS TO A KARST SPRING SYSTEM</b></p> <p><b>206-5</b> 9:15 AM Quintanilla, Jessica*; Goddard, Faith; Bertetti, F. Paul; Gao, Yongli: <b>IDENTIFYING REGIONAL AND LOCAL CONTRIBUTIONS TO A LARGE KARST SPRING SYSTEM, COMAL SPRINGS, TEXAS, USA</b></p> <p><b>206-6</b> 9:30 AM Flores, Mauricio*; Nunu, Rebecca; Nicholaides, Kindra D.; Green, Ronald: <b>EXAMINING HYDROCHEMISTRY IN TEXAS AND COAHUILA DE ZARAGOZA TO CONSTRAIN THE SOURCE AREA OF GOODENOUGH SPRING, AMISTAD RESERVOIR, U.S.-MEXICO BORDER REGION</b></p> <p>9:45 AM <b>BREAK</b></p> <p><b>206-7</b> 9:55 AM Vesper, Dorothy*; Bausher, Emily; Downey, Autumn R.; Riddell, Jill: <b>COMPARISON OF SEASONAL TEMPERATURE CHANGE WITH CHEMICAL VARIABILITY TO UNDERSTAND THE TIME OF TRAVEL FROM RECHARGE TO SPRING DISCHARGE; AN EXAMPLE FROM MONROE COUNTY, WV (Invited Presentation)</b></p> <p><b>206-8</b> 10:15 AM Darling, Bruce K.; Nicot, Jean-Philippe; Nunu, Rebecca; Smyth, Rebecca C.; Wolaver, Brad D.; Sharp, John*: <b>EVALUATION OF A REGIONAL KARSTIC FLOW SYSTEM IN A SEMIARID CLIMATE</b></p> <p><b>206-9</b> 10:30 AM Nunu, Rebecca*; Bertetti, Paul; Green, Ronald; Gao, Yongli: <b>USING GEOCHEMICAL AND STATISTICAL ANALYSES TO IDENTIFY LOCAL AND REGIONAL FLOW TO A MULTI-OUTLET SPRING SYSTEM: SAN SOLOMON SPRINGS, TEXAS, USA</b></p> <p><b>206-10</b> 10:45 AM Land, Lewis*; Jones, Michael: <b>WATER CHEMISTRY VARIATIONS IN A KARSTIC AQUIFER SYSTEM: SAN SOLOMON SPRINGS, FAR WEST TEXAS</b></p> <p><b>206-11</b> 11:00 AM Massey, Jordon*; Halihan, Todd: <b>QUANTIFYING PSEUDOKARST HYDROGEOLOGICAL CONTROLS IN A PERMIAN SANDSTONE SILTSTONE AQUIFER, OKLAHOMA</b></p> <p><b>206-12</b> 11:15 AM Honings, Joseph*; Wicks, Carol; Brantley, Steven T.: <b>CHARACTERIZATION OF PREFERENTIAL SUBSURFACE FLOW PATHS IN A MANTLED KARST TERRAIN</b></p> <p>11:30 AM <b>DISCUSSION</b></p> <p>11:45 AM <b>CONCLUDING REMARKS</b></p>	<p>James; Haney, Matt; LaHusen, Sean; Lyons, John; Macias, Marisa; Ohlendorf, Summer; Rupper, Natalia; Schaefer, Lauren; Snider, David; Stevens, De Anne; West, Michael: <b>TSUNAMIGENIC LANDSLIDE HAZARDS IN COASTAL ALASKA: PAST AND PRESENT (Invited Presentation)</b></p> <p><b>207-2</b> 8:25 AM Avdievitch, Nikita*; Coe, Jeffrey: <b>ASSESSING SUBMARINE LANDSLIDE SUSCEPTIBILITY IN GLACIER BAY, ALASKA</b></p> <p><b>207-3</b> 8:40 AM Burns, William*; Calhoun, Nancy; Franczyk, Jon J.: <b>CHANNELIZED DEBRIS FLOW INVENTORY DATA IN OREGON</b></p> <p><b>207-4</b> 8:55 AM Lindsay, Donald*; Lancaster, Jeremy: <b>A SYSTEMATIC APPROACH TO EVALUATING POST-FIRE HAZARDS AND PRESCRIBING POST-FIRE TRIGGERING THRESHOLDS IN THE FIRST AND SECOND YEAR AFTER WILDFIRE, 2020 RIVER FIRE, MONTEREY COUNTY, CALIFORNIA (Invited Presentation)</b></p> <p><b>207-5</b> 9:15 AM Reid, Mark E.*; Ochiai, Hiroataka: <b>FROM SLOW TO FAST: ABRUPT DEBRIS-FLOW MOBILIZATION IN A HILLSLOPE EXPERIMENT</b></p> <p><b>207-6</b> 9:30 AM Lingbloom, Joshua*; Crosby, Benjamin: <b>A LANDSLIDE INVENTORY AND GEOSTATISTICAL ANALYSIS FOR GRAND TETON NATIONAL PARK, WYOMING</b></p> <p><b>207-7</b> 9:45 AM Mirus, Benjamin B.*; Belair, Gina M.; Jones, Eric S.; Slaughter, Stephen: <b>UPDATES TO THE U.S. LANDSLIDE INVENTORY COMPILATION AND ASSESSMENT OF NATIONAL-SCALE LANDSLIDE SUSCEPTIBILITY</b></p> <p>10:00 AM <b>BREAK</b></p> <p><b>207-8</b> 10:10 AM Wooten, Richard*; Cattanach, Bart; Bozdog, G. Nicholas; Isard, Sierra J.: <b>THE SEPTEMBER 18, 2018 SUNNY DAY LANDSLIDE IN WARRENSVILLE, ASHE COUNTY, NORTH CAROLINA: DISASTER NARROWLY AVERTED FOLLOWING A SERIES OF UNFORTUNATE EVENTS (Invited Presentation)</b></p> <p><b>207-9</b> 10:30 AM Kite, J. Steven*; Maynard, Shannon Marie; Maxwell, Aaron Edward; Sharma, Maneesh; Donaldson, Kurt; Bell, Matthew L.; Yesenchak, Rachel E.; Hanwell, Elizabeth: <b>LANDSLIDE RISK ASSESSMENT IN THE MOUNTAIN STATE OF WEST VIRGINIA: BROAD-SCALE GEOLOGIC AND PHYSIOGRAPHIC INFLUENCES ON LANDSLIDE SUSCEPTIBILITY AND SLOPE FAILURE TYPES</b></p> <p><b>207-10</b> 10:45 AM Crawford, Matthew*; Dortch, Jason M.; Koch, Hudson; Zhu, Yichuan; Haneberg, William: <b>LANDSLIDE SUSCEPTIBILITY AND RISK MAPPING IN THE BIG SANDY AREA DEVELOPMENT DISTRICT, EASTERN KENTUCKY</b></p> <p><b>207-11</b> 11:00 AM Konopinski, Madeline*; McKay, Matthew; Jackson, William: <b>JOINT-INDUCED LANDSLIDE SUSCEPTIBILITY IN THE SOUTH AND CENTRAL APPALACHIAN MOUNTAINS, EASTERN US</b></p> <p><b>207-12</b> 11:15 AM Froese, Corey*: <b>LINKING LANDSLIDE VELOCITY CHANGES AND CLIMATE IN THE WESTERN CANADIAN SEDIMENTARY BASIN</b></p> <p><b>207-13</b> 11:30 AM Perkins, Jonathan*; Finnegan, Noah J.; Murphy, Colleen; Nereson, Alex; Handwerker, Alex: <b>PREDICTING THE ONSET AND LIMITS OF SEASONAL REACTIVATION IN EARTHFLAWS FROM VADOSE ZONE HYDROLOGY</b></p> <p><b>207-14</b> 11:45 AM Keck, Jeffrey*; Istanbuluoglu, Erkan: <b>MASS WASTING RUNOUT: A SIMPLE MODEL FOR PREDICTING LANDSLIDE RUNOUT AND THE TOPOGRAPHIC EVOLUTION OF HEADWATER CHANNELS</b></p>
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**SESSION NO. 207**  

**T42. Landslide Hazards: Inventories, Hazard Maps, Risk Analysis, and Warning Systems (GSA Environmental and Engineering Geology Division; GSA Environmental and Engineering Geology Division Landslide Committee)**

8:00 AM, Oregon Convention Center, Portland Ballroom 254 (Hybrid Room)

William Burns, Matthew Crawford, Anne Witt and Stephen Slaughter, Presiding

8:00 AM **INTRODUCTORY REMARKS**

**207-1** 8:05 AM Staley, Dennis\*; Wolken, Gabriel; Collins, Brian; Coe, Jeffrey; Barnhart, Katherine; Baxstrom, Kelli; Belair, Gina M.; Daanen, Ronald; Einbund, Mason; Gridley,



**SESSION NO. 208** 

**T45. Recent Studies in Near Surface Geophysics to Solve Geological Problems (GSA Geophysics and Geodynamics Division; GSA Hydrogeology Division; GSA Geochronology Division; GSA Environmental and Engineering Geology Division; GSA Soils and Soil Processes Division; GSA Karst Division)**

8:00 AM, Oregon Convention Center, B111

Kevin Mickus, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 208-1 8:05 AM Doser, Diane\*; Baker, Mark R.; Baker, Luke A.: **GEOPHYSICAL RECONNAISSANCE SURVEYS FOR SITING OF CRITICAL ZONE INVESTIGATIONS IN RED LAKE PLAYA, JORNADA DEL MUERTO, NEW MEXICO**
- 208-2 8:20 AM Gutterman, William S.\*; Doran, Peter; Virginia, Ross A.; Barrett, John E.; Myers, Krista F.; Tulaczyk, Slawek M.; Foley, Neil T.; Mikucki, Jill A.; Dugan, Hilary A.; Auken, Esben: **CAUSES AND CHARACTERISTICS OF AIRBORNE ELECTRICAL RESISTIVITY VARIABILITY IN SHALLOW (<4 M) SOILS IN TAYLOR VALLEY, EAST ANTARCTICA**
- 208-3 8:35 AM Wormington, Donald\*; Mickus, Kevin; Gouzie, Douglas: **GEOPHYSICAL INVESTIGATIONS IN DETERMINING THE EXTENT OF KARST FEATURES SOUTH OF SPRINGFIELD, MISSOURI**
- 208-4 8:50 AM Chen, Hang\*; Niu, Qifei: **A SEQUENTIAL STRATEGY FOR HYDROGEOLOGICAL INVERSION OF MULTIPLE GEOPHYSICAL DATASETS**
- 208-5 9:05 AM Ogunkoya, Akinwale\*; Martin-Hayden, James M.; Doro, Kennedy: **AN IMPROVED CONCEPTUAL HYDROGEOLOGICAL MODEL OF A POST-GLACIAL AQUIFER IN NORTHWESTERN OHIO USING GEOPHYSICAL AND GEOLOGICAL DATASETS**
- 9:20 AM **BREAK**
- 208-6 9:35 AM Person, Mark\*; Voller, Vaughan R.; Camille, Adrien; Sazeed, Nafis; Steckler, Michael S.; Leary, Kate C.P.; Key, Kerry; Hutton, Eric: **ONSHORE ENTRAPMENT OF SEA WATER IN COASTAL AQUIFERS BY RAPID COASTLINE PROGRADATION**
- 208-7 9:50 AM Karahalios, Nicholas\*; Balikian, Riley; Thomason, Jason; Larson, Timothy; Barklage, Mitchell; Lohman, Shaina; Mattson, Anne: **CHARACTERIZATION OF THE TROY VALLEY BEDROCK TOPOGRAPHY USING PASSIVE SEISMIC DATA**
- 208-8 10:05 AM Pettifer, Geoff\*: **USE OF AIRBORNE GEOPHYSICS, REMOTE SENSING AND GEOLOGICAL MODELLING TO ASSIST AND UPGRADE 1:100,000 SCALE GEOLOGICAL MAPPING**
- 208-9 10:20 AM Rodriguez, Oscar\*; Vargas, Carlos: **NEOTECTONICS ANALYSIS IN THE GUAJIRA OFFSHORE BASIN, TAYRONA AREA, FROM SEISMIC INFORMATION**
- 208-10 10:35 AM West, Loyd T.\*; Wernle, Alex; Cooley, Jade; Allen, Corina: **WASHINGTON STATE SCHOOL SEISMIC SAFETY PROJECT: GEOLOGIC AND STRUCTURAL ASSESSMENTS OF SEISMIC RISK AT 561 K-12 SCHOOL BUILDINGS**

**SESSION NO. 209** 

**T51. Basic Data Innovations in Hydrogeological Investigations (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Karst Division; GSA Geoinformatics and Data Science Division)**

8:00 AM, Oregon Convention Center, D138

Abraham E. Springer and William Cunningham, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 209-1 8:05 AM Evans, Max\*; Chambless, Hannah; Springer, Abraham E.: **EFFECTS OF CLIMATE TRENDS AND SEASONAL**

**VARIABILITY ON BRIGHT ANGEL CREEK, A KARST SPRING-FED CREEK WITHIN GRAND CANYON NATIONAL PARK**

- 209-2 8:20 AM Chambless, Hannah\*; Springer, Abraham E.; Jones, Natalie A.; Evans, Max: **WATER BUDGET AND TREND ANALYSES OF A DEEP KARST AQUIFER IN A SEMI-ARID ENVIRONMENT, GRAND CANYON NATIONAL PARK**
- 209-3 8:35 AM Swanson, Susan\*; Graham, Grace: **SPRING FLUX AS AN INDICATOR OF SOURCE GEOMORPHOLOGY, SUBSTRATA, TEMPERATURE CONDITIONS, AND GEOCHEMICAL CONDITIONS IN SPRINGS**
- 209-4 8:50 AM Burns, Erick\*; Mordensky, Stanly; Lipor, John; Curtis, Jennifer A.; Sando, Roy: **UNCONVENTIONAL STRATEGIES TO UNDERSTAND WATER RESOURCES OF THE NORTHWEST VOLCANIC PROVINCE, USA**
- 209-5 9:05 AM Springer, Abraham\*; Ledbetter, Jeri; Stevens, Lawrence E.: **IMPROVING SPRINGS ECOSYSTEMS STEWARDSHIP WITH COMPREHENSIVE, INTERDISCIPLINARY, BASIC INVENTORY, ASSESSMENT AND MONITORING DATA**
- 209-6 9:20 AM Rosenberry, Donald\*: **HIGH-FREQUENCY MEASUREMENTS INDICATE EXCHANGES BETWEEN GROUNDWATER AND SURFACE WATER THAT ARE UNRELATED TO TRADITIONALLY MEASURED HYDRAULIC GRADIENTS (Invited Presentation)**
- 209-7 9:40 AM Lane, John\*: **MOBILE GEOPHYSICAL METHODS: IMPROVING HYDROGEOLOGIC CHARACTERIZATION AT LOCAL TO REGIONAL SCALES (Invited Presentation)**
- 209-8 10:00 AM Paradis, Charles\*; Van Ee, Nathan; Hoss, Kendyl; Meurer, Cullen; Tigar, Aaron; Reimus, Paul W.; Johnson, Raymond: **SINGLE-WELL INJECTION-DRIFT TEST TO ESTIMATE GROUNDWATER VELOCITY**
- 209-9 10:15 AM Missimer, Thomas\*; Guo, Weixing: **AUDITING COMPLEX LONG-TERM SOLUTE TRANSPORT MODELS USING REAL DATA**
- 209-10 10:30 AM Dowell, Bradley\*; Cox, Mark; McDermitt, Dayle K.; Novak-Harsch, Amy; Tiller, Billy; Haacker, Erin M.K.: **USING FIELD SCALE ELECTRICAL DATA TO UNDERSTAND REAL-TIME AGRICULTURAL WATER DELIVERY**
- 209-11 10:45 AM Doyle, Thomas\*; Meyer, Jessica: **HIGH FREQUENCY MONITORING OF DETAILED AND DEPTH-DISCRETE HEAD PROFILES TO CHARACTERIZE VARIABILITY IN HYDROGEOLOGIC PROPERTIES IN THE SILURIAN-DEVONIAN AQUIFER IN IOWA**

**SESSION NO. 210**

**T65. Karst Sedimentary, Paleoclimate, and Historical Records (GSA Karst Division; GSA Geochronology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Quaternary Geology and Geomorphology Division; National Cave and Karst Research Institute; Karst Waters Institute; Geochemical Society)**

8:00 AM, Oregon Convention Center, D135

Matthew Peros and Eduard Reinhardt, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 210-1 8:05 AM Riddell, Jill\*; Vesper, Dorothy: **CONCENTRATIONS OF ORGANIC CARBON AND NITROGEN OF UNSATURATED CLASTIC SEDIMENTS FROM BUTLER CAVE, VIRGINIA USA**
- 210-2 8:20 AM Downey, Autum\*; Kipnis, Evan L.; Vesper, Dorothy J.: **ELEMENTAL COMPOSITION OF CLASTIC CAVE SEDIMENTS COLLECTED THROUGH CORE SCANNING PXRF**
- 210-3 8:35 AM Melim, Leslie A.\*; O'Dell, Gary A.: **BIOFILM AND MOONMILK IN COMPLEX CAVE PEARLS, ARTHUR SINGLETON CAVE, ROCKCASTLE COUNTY, KENTUCKY**

- 210-4 8:50 AM Gunn, Heather\*; Miller, Nathan; Banner, Jay L.; Orlandini, Omero F.: **USING LA-ICP-MS 2D CHEMICAL MAPPING OF STALAGMITE GROWTH FABRICS FOR SEASONALLY RESOLVED HYDROCLIMATE RECONSTRUCTION**
- 210-5 9:05 AM MacDonald, Brandi Lee\*; Reinhardt, Eduard; Chatters, James C.: **LATE PLEISTOCENE OCHRE MINING IN THE CAVES OF THE YUCATAN PENINSULA, MEXICO (Invited Presentation)**
- 210-6 9:20 AM Chatters, James C.\*: **SURMOUNTING THE PROBLEMS OF RADIOMETRIC DATING IN THE SUBMERGED CAVES OF THE YUCATAN: THE LA MINA AND HOYO NEGRO EXAMPLES (Invited Presentation)**
- 210-7 9:35 AM Reinhardt, Eduard\*; Conant, Amory; Kovacs, Shawn, E.; Devos, Frederic; Meacham, Samuel: **CALCITE RAFT GEOCHEMISTRY AS A GROUNDWATER LEVEL PROXY FOR PALEOINDIAN ACCESS IN LA MINA (SAGITARIO) AND HOYO NEGRO (SAC AKTUN) CAVES, QUINTANA ROO, MEXICO**
- 210-8 9:50 AM Fortin, Julien\*; Meacham, Samuel; Dorshow, Wetherbee; Le Maillot, Chris; Devos, Frederic: **FROM UNDERWATER CAVE SURVEY IN YUCATAN, MEXICO, TO GEOGRAPHICAL INFORMATION SYSTEM (GIS): CONCRETE CASE STUDY AND REPLICABLE WORKFLOW LINKING DATA ACQUISITION TO SCIENTIFIC DATA EXPLOITATION**
- 210-9 10:05 AM Steele, Riley E.\*; Reinhardt, Eduard; Zhu, Juliet; Devos, Frederic; Meacham, Samuel: **SEDIMENT ACCUMULATIONS FROM THE BOCA PAILA CAVE SYSTEM LOCATED IN THE SIAN KA'AN BIOSPHERE OF THE YUCATAN PENINSULA PROVIDE EVIDENCE ON RECENT SEA-LEVEL RISE AND FORMATION OF THE CLASSIC MAYA CANAL SYSTEM**
- 210-10 10:20 AM Peros, Matthew\*: **ENVIRONMENTAL CONTEXT OF EXTINCT SLOTH REMAINS AT AN UNDERWATER CAVE IN WESTERN CUBA (Invited Presentation)**

**SESSION NO. 211**

***T74. Geoscience Approaches to Interpreting Coastal Records of Earthquakes, Tsunamis, and Storms (GSA Quaternary Geology and Geomorphology Division; GSA Marine and Coastal Geoscience Division; GSA Structural Geology and Tectonics Division)***

8:00 AM, Oregon Convention Center, B113/B114 (Hybrid Room)

Isabel Hong, Tina Dura, Frances Griswold and Breanyn MacInnes, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 211-1 8:05 AM Garcia, Lourdes\*; Hong, Isabel; MacInnes, Breanyn; Bruce, David: **A 1000-YR SEA-LEVEL HISTORY IN DEER LAGOON MARSH, WHIDBEY ISLAND, WA, USA**
- 211-2 8:20 AM Griswold, Frances\*; Woodruff, Jonathan D.; Yellen, Brian C.; Matos-Llavona, Pedro; Mckeon, Kelly: **MANGROVE INTEGRITY AND RESULTING IMPACTS OF HURRICANE OVERWASH**
- 211-3 8:35 AM Cox, Ronadh\*; Kennedy, Andrew B.; Berke, Melissa A.; Guannel, Gregory; Engel, Max; Lau, A.Y. Annie; Mori, Nobuhito: **INTRODUCING ISROC—INUNDATION SIGNATURES ON ROCKY COASTLINES—A NEW RESEARCH COORDINATION NETWORK**
- 211-4 8:50 AM Bush, Chelsea\*; Benson, Mary Alice K.; Davis, Elizabeth J.; Troost, Kathy; Tavengar, Varqa G.; Maloney, Devin A.: **DETERMINATION OF FOREST AGE IN A COASTAL SETTING AFFECTED BY BOTH LANDSLIDING AND CATASTROPHIC STORM EVENTS: RIALTO BEACH, PACIFIC COAST, WASHINGTON**
- 211-5 9:05 AM Garner, Andra\*; Kopp, Robert; Horton, Benjamin P.: **EVOLVING TROPICAL CYCLONE TRACKS IN THE NORTH ATLANTIC IN A WARMING CLIMATE (Invited Presentation)**
- 9:25 AM **BREAK**

- 211-6 9:30 AM Majewski, Jedrzej\*; Richards, Geoff; Daly, Patrick; Switzer, Adam; Ismail, Nazli; Afrizal, Tomi; Horton, Benjamin P.: **EXTENDING PALEO-TSUNAMI RECORDS SOUTH OF THE 2004 INDIAN OCEAN TSUNAMI PATCH, SUMATRA, INDONESIA**
- 211-7 9:45 AM Jaffe, Bruce\*; La Selle, SeanPaul: **DIFFERENTIATING SANDY TSUNAMI AND STORM DEPOSITS THROUGH FINE-SCALE VERTICAL GRADING ANALYSIS**
- 211-8 10:00 AM La Selle, SeanPaul\*; Nelson, Alan; Jaffe, Bruce; Witter, Robert; Walter, Wendy Grant; Gelfenbaum, Guy: **CONSTRAINTS ON EARTHQUAKE SOURCE MODELS OF THE 1700 CE TSUNAMI: MAPPING AND SEDIMENT TRANSPORT MODELING OF TSUNAMI DEPOSITS IMPLY >1 M OF MEGATHRUST COSEISMIC SUBSIDENCE AT THE SALMON RIVER, OR**
- 211-9 10:15 AM Simms, Alexander\*; Zurbuchen, Julie; Reynolds, Laura; Rockwell, Thomas K.; DeWitt, Regina; Osleger, Dillon; Ejarque, Ana; Anderson, R. Scott; Vaughan, Patrick; Nelson, Zack: **THE HOLOCENE RECORD OF TSUNAMI ACROSS THE CALIFORNIA COAST (Invited Presentation)**
- 10:35 AM **BREAK**
- 211-10 10:40 AM MacInnes, Breanyn\*; Pinegina, Tatiana; Bourgeois, Joanne; Szeliga, Walter: **NUMERICAL MODELING OF CO-SEISMIC COASTAL SUBSIDENCE AND TSUNAMIS ASSOCIATED WITH UNUSUALLY WIDE, PREHISTORIC EARTHQUAKES, KAMCHATKA SUBDUCTION ZONE**
- 211-11 10:55 AM Hemphill-Haley, Eileen\*: **OBSERVATIONS ON THE CHARACTERISTICS OF DEPOSITS FROM HISTORICAL MEGASTORMS AND FARFIELD TSUNAMIS ON THE NORTHERN CALIFORNIA COAST (Invited Presentation)**
- 211-12 11:15 AM Pizer, Charlotte\*; Howarth, Jamie; Clark, Kate: **GENERATING PRECISELY-DATED EARTHQUAKE RECORDS ON THE CENTRAL HIKURANGI SUBDUCTION MARGIN, NEW ZEALAND**
- 211-13 11:30 AM Joyce, Anthony\*; MacInnes, Breanyn; Szeliga, Walter: **EFFECTS OF CASCADIA RUPTURE LOCATION ON TSUNAMI PROPAGATION IN THE PACIFIC NORTHWEST**
- 211-14 11:45 AM Stanek, Jasmine\*; Fisher, Scott; MacInnes, Breanyn: **MODELING THE EFFECTS OF TRANS-PACIFIC TSUNAMIS ON NU'U, HAWAII**

**SESSION NO. 212**

***T91. Community Ecology and the Fossil Record: Diversity, Ecological Structure, and Paleoenvironmental Responses I (Paleontological Society)***

8:00 AM, Oregon Convention Center, E143/E144

Karma Nanglu and Thomas M. Cullen, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 212-1 8:05 AM Kidwell, Susan\*; Tomasovych, Adam: **THE STRUCTURE AND FORMATION OF TIME-AVERAGED FOSSIL RECORDS: AN EMPIRICAL MODEL FROM AN OPEN SILICICLASTIC SHELF**
- 212-2 8:20 AM Behrensmeier, Anna K.\*: **ECOLOGICAL RECYCLING AND TAPHONOMIC BIAS THE FOSSIL RECORD**
- 212-3 8:35 AM Swain, Anshuman\*; Azevedo Schmidt, Lauren; Maccracken, S. Augusta; Currano, Ellen; Dunne, Jennifer; Labandeira, Conrad C.; Fagan, William F.: **EFFECTS OF SAMPLING BIAS ON ROBUSTNESS OF ECOLOGICAL METRICS IN FOSSIL PLANT-DAMAGE TYPE ASSOCIATION NETWORKS**
- 212-4 8:50 AM Nanglu, Karma\*; Cullen, Thomas M.: **EXAMINING POTENTIAL SOURCES OF BIAS IN PALEOCOMMUNITY ANALYSES, FROM DATA COLLECTION TO PATTERN INFERENCE**
- 212-5 9:05 AM Lerosey-Aubril, Rudy\*; Comfort, David; Gaines, Robert R.; Mángano, M. Gabriela; Paterson, John R.; Skabelund, Jacob; Webster, Mark; Ortega-Hernandez, Javier: **LIFE**

AM  
WEDNESDAY

- IN THE VICINITY OF A CAMBRIAN REEF: INSIGHTS FROM THE MID-DYERAN MCDAME KONSERVAT-LAGERSTAETTE OF BRITISH COLUMBIA, CANADA (Invited Presentation)**
- 212-6** 9:20 AM Chattopadhyay, Devapriya\*; Dutta, Saurav: **OLIGO-MIOCENE BIVALVE COMMUNITY ECOLOGY OF KUTCH (WESTERN INDIA) IN RESPONSE TO REGIONAL CHANGES IN CLIMATE AND TECTONICS (Invited Presentation)**
- 212-7** 9:35 AM Bhattacharjee, Madhura\*; Chattopadhyay, Devapriya: **DRIVERS OF BETA DIVERSITY IN TROPICAL MARINE ECOSYSTEM: INSIGHTS FROM THE BIVALVE ASSEMBLAGES OF THE WEST COAST OF INDIA**
- 9:50 AM **BREAK**
- 212-8** 10:00 AM Tackett, Lydia\*; Clement, Annaka M.: **THE NORIAN-RHAETIAN BOUNDARY (LATE TRIASSIC) IN PANTHALASSA: MACRO- AND MICROFOSSIL PERSPECTIVES**
- 212-9** 10:15 AM Forsythe, Ian\*; Stigall, Alycia: **BIOTIC RESPONSE TO THE CLARKSVILLE PHASE OF THE RICHMONDIAN INVASION: A SYNECOLOGICAL PERSPECTIVE**
- 212-10** 10:30 AM Cullen, Thomas M.\*: **INTENSIVE GEOCHEMICAL ANALYSES OF SPATIALLY- AND TEMPORALLY-CONSTRAINED SITES TO FACILITATE HIGH-RESOLUTION PALEOCOMMUNITY AND PALEOENVIRONMENTAL RECONSTRUCTION: A CASE-STUDY FROM THE CRETACEOUS**
- 212-11** 10:45 AM Silano, Miranda R.\*; Moran, Sean M.; Ross, Mackenzie: **STABLE ISOTOPE PALEOECOLOGY OF CARNIVORES DURING THE EOCENE-OLIGOCENE TRANSITION OF NEBRASKA**
- 212-12** 11:00 AM King Phillips, Ezekiel\*; Muruganantham, Kaaviya; Yanes, Yurena: **ASSESSING SEASONAL VARIATION IN THE ISOTOPIC BASELINE OF AN EASTERN OHIO WOODLAND**
- 212-13** 11:15 AM Tripp, Madison\*; Wiemann, Jasmina; Hope, Janet M.; Brocks, Jochen J.; Mayer, Paul; Lidgard, Scott; Rickard, William; Whiteside, Jessica H.; Grice, Kliti: **DIETARY BIOMARKERS PRESERVED IN CARBONIFEROUS MAZON CREEK COPROLITE FOSSILS**
- 213-6** 9:20 AM Gibson, Brandt\*; Darroch, Simon A.F.; Maloney, Katie; Lafamme, Marc: **THE IMPORTANCE OF SIZE AND LOCATION WITHIN GREGARIOUS POPULATIONS OF *ERNIETTA PLATEAUENSIS***
- 213-7** 9:35 AM Hill, Stephen\*; Sheffield, Sarah; Rahman, Imran A.: **A STUDY OF DIPLOPORAN ECHINODERM FEEDING AND RESPIRATION USING COMPUTATIONAL FLUID DYNAMICS**
- 9:50 AM **BREAK**
- 213-8** 10:00 AM Clark, Elizabeth G.\*; Rahman, Imran A.; Brodersen, Craig R.; Darroch, Simon; Crane, Peter R.: **EVIDENCE FOR HYDROPHILY IN A CARBONIFEROUS MEDULLOSAN ILLUMINATES POLLINATION MODE OF EARLY SEED PLANTS (Invited Presentation)**
- 213-9** 10:15 AM Webb, Jeremy-louis\*; Jacquet, Sarah M.; Selly, Tara; Schiffbauer, James D.; Farke, Andrew: **X-RAY TOMOGRAPHIC MICROSCOPY SHINES A LIGHT ON FOSSILIZED FECES FROM THE EOCENE PIPESTONE SPRINGS MAIN POCKET, MONTANA**
- 213-10** 10:30 AM Kort, Anne\*; Edie, Riley A.; Polly, P. David: **XRCT SCANS REVEAL UNUSUAL CHARACTERISTICS OF LUMBAR VERTEBRAE IN EXTINCT MAMMALS**
- 213-11** 10:45 AM Fabbri, Matteo\*; O'Connor, Jingmai Kathleen; Bhullar, Bhart-Anjan: **DEVELOPMENTAL LINK BETWEEN THE BRAIN AND SKULL SHAPES THE EVOLUTION OF THE REPTILIAN HEAD**
- 213-12** 11:00 AM Racicot, Rachel\*; Lambert, Olivier: **"VIRTUAL" INNER EARS OF EXTINCT PLATANISTOIDS REVEAL FUNCTIONAL SIGNAL IN THE SEMICIRCULAR CANALS**
- 213-13** 11:15 AM Coorough, Patricia\*; Mayer, Paul: **DIGITIZING THE ORDOVICIAN FROM BIODIVERSIFICATION TO EXTINCTION**
- 213-14** 11:30 AM Bauer, Jennifer\*; Anderson, Lian C.; Vantooenburg, Haley; Sheffield, Sarah: **VIRTUAL COLLABORATIVE RESEARCH PROJECTS USING U-M'S ONLINE REPOSITORY OF FOSSILS**
- 213-15** 11:45 AM Smith, MacKenzie\*: **SCROLLING TO THE FOSSILS: EXAMINING PROFILE AND VIDEO VIEWERSHIP IN PALEONTOLOGY TIKTOK**

## SESSION NO. 213

### *T95. Advances in Virtual Paleontology: Applications, Digitization, and Dissemination (Paleontological Society; GSA Geoinformatics and Data Science Division)*

8:00 AM, Oregon Convention Center, E141/E142 (Hybrid Room)

Sarah M. Jacquet, Tara Selly and James Schiffbauer, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 213-1** 8:05 AM Rahman, Imran\*: **A VIRTUAL WORLD OF PALAEOLOGY (Invited Presentation)**
- 213-2** 8:20 AM Selly, Tara\*; Schiffbauer, James: **X-RAY MICROSCOPY AND COMPUTED TOMOGRAPHIC APPLICATIONS IN PALEONTOLOGY**
- 213-3** 8:35 AM Jacobs, Gabriel S.\*; Selly, Tara; Jacquet, Sarah M.; Schiffbauer, James D.; Huntley, John W.: **PREPARATION BIASES IN SILICIFIED FAUNAS REVEALED BY PAIRED MICRO-CT AND ACID MACERATION**
- 213-4** 8:50 AM Manzuk, Ryan A.\*; Singh, Devdigvijay; Mehra, Akshay; Maloof, Adam C.: **A HIGH SPATIAL RESOLUTION, MULTISPECTRAL MACRO-IMAGER FOR QUANTITATIVE ANALYSIS OF FACIES AND FOSSIL ASSEMBLAGES**
- 213-5** 9:05 AM Darroch, Simon\*; Rahman, Imran; Dunn, Frances; Racicot, Rachel; Gibson, Brandt; Gutarra-Díaz, Susana: **ANCIENT LIFE IN MOVING FLUIDS: HYDRODYNAMICS OF THE EDIACARAN-CAMBRIAN TRANSITION (Invited Presentation)**

## SESSION NO. 214

### *T109. Life's Innovations from the Early Earth to the Search on Modern Mars II: Honoring the Career of Andrew H. Knoll (Paleontological Society; GSA Geobiology and Geomicrobiology Division; GSA Planetary Geology Division; GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology); Geochemical Society)*

8:00 AM, Oregon Convention Center, Portland Ballroom 255 (Hybrid Room)

Julie K. Bartley, Charles Boyce, Linda Kah, Alan Kaufman, Shuhai Xiao and Nora Noffke, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 214-1** 8:05 AM Noffke, Nora\*; Awramik, Stanley A.; Galante, Douglas; Callefo, Flavia; Hickman-Lewis, Keyron; Reis, Humberto; Sanchez, Evelyn; Westall, Frances; Whitehouse, Martin J.: **THE EOARCHEAN- PALEOARCHEAN BOUNDARY: THE CURRENT DISCUSSION**
- 214-2** 8:20 AM Zhang, Tianran\*; Keller, C.; Halverson, Galen P.; Hoggard, Mark J.; Rooney, Alan D.; Bergmann, Kristin D.; Strauss, Justin: **A BAYESIAN FRAMEWORK FOR SUBSIDENCE MODELING IN SEDIMENTARY BASINS: IMPLICATIONS FOR THE PRECAMBRIAN**
- 214-3** 8:35 AM Tosca, Nicholas\*; Brady, Matthew P.; Tostevin, Rosalie: **MARINE PHOSPHATE AVAILABILITY AND THE CHEMICAL ORIGINS OF LIFE ON EARTH (Invited Presentation)**
- 214-4** 8:55 AM Kovalick, Francis\*; Bekker, Andrey; Heard, Andy; Johnson, Aleisha; Dauphas, Nicolas; Chan, Clara; Ootes, Luke:



**WERE MICROAEROPHILIC IRON-OXIDIZING BACTERIA RESPONSIBLE FOR THE DEPOSITION OF CA. 1.88 GA GRANULAR IRON FORMATIONS?**

9:10 AM **BREAK**

- 214-5 9:25 AM Wang, Jiuyuan\*; Jacobson, Andrew D.; Sageman, Bradley B.; Hurtgen, Matthew T.: **STABLE CA AND SR ISOTOPE MULTI-PROXY PROVIDES EVIDENCE FOR PRIMARY SIGNAL PRESERVATION IN MARINOAN CAP CARBONATES**
- 214-6 9:40 AM Xiao, Shuhai\*; Jiang, Ganqing; Ye, Qin; Ouyang, Qing; Banerjee, Dhiraj M.; Singh, Birendra P.; Zhou, Chuanming; Hughes, Nigel: **BIO- AND CHEMOSTRATIGRAPHY OF THE KROL A FORMATION IN LESSER HIMALAYA, INDIA: EARLY EDIACARAN EUKARYOTE EVOLUTION AND ENVIRONMENTAL CHANGE**
- 214-7 9:55 AM Kaufman, Alan\*; Gilleaudeau, Geoffrey J.; Cherry, Lucas B.; Kulenguski, Joseph T.; Elrick, Maya: **URANIUM ISOTOPE EVIDENCE FOR REDOX COUPLING OF THE CARBON CYCLE**
- 214-8 10:10 AM Retallack, Gregory\*: **BIOLOGICALLY ENHANCED WEATHERING AS A CAUSE FOR NEOPROTEROZOIC SNOWBALL EARTH**
- 214-9 10:25 AM Sheldon, Nathan\*; Dzombak, Rebecca: **SOILS, PLANTS, AND THE EVOLUTION OF THE INORGANIC CARBON CYCLE ON LAND**
- 214-10 10:40 AM Shen, Yanan\*: **UNDERSTANDING THE LATE ORDOVICIAN MASS EXTINCTION**
- 214-11 10:55 AM Bush, Andrew M.\*; Payne, Jonathan L.; Wang, Steve C.; Heim, Noel A.: **WAS THE END-PERMIAN MASS EXTINCTION UNUSUALLY SELECTIVE IN MARINE ANIMALS? A TEST OF THE KNOLL ET AL. MODEL**
- 11:10 AM **CONCLUDING REMARKS**

**SESSION NO. 215**

*T140. Paleoclimate, Paleoenvironments, and Paleoceanography of Northwestern North America (GSA Quaternary Geology and Geomorphology Division; GSA Continental Scientific Drilling Division; GSA Marine and Coastal Geoscience Division; GSA Limnogeology Division; GSA Geomorphology Division; American Quaternary Association; Geochemical Society; Paleontological Society)*

8:00 AM, Oregon Convention Center, Portland Ballroom 256 (Hybrid Room)  
Beth Caissie, Leigh Anderson, Alan Mix and Summer Praetorius, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 215-1 8:05 AM Pico, Tamara\*; Mitrovica, Jerry X.; Mix, Alan; Robel, Alex; Powell, Evelyn; Farmer, Jesse; Sigman, Danny: **BERING STRAIT SEA LEVEL DETECTS THE TIMING AND GEOMETRY OF NORTH AMERICAN ICE SHEET MELT (Invited Presentation)**
- 215-2 8:25 AM Lund, David\*; Mix, Alan: **OLDER DEEP NORTHEAST PACIFIC DURING THE LAST GLACIAL MAXIMUM FOLLOWED BY LATE DEGLACIAL CIRCULATION RESPONSE**
- 215-3 8:40 AM Stoner, Joseph\*; Reilly, Brendan; Dwyer, Deepa; Walczak, Maureen H.; Mix, Alan; Hofstetter, Celeste; St-Onge, Guillaume; Velle, Julie: **GEOMAGNETIC NETWORK ANALYSIS: A HIGH RESOLUTION PALEOMAGNETIC BASED CHRONOSTRATIGRAPHIC APPROACH PARTICULARLY WELL-SUITED FOR THE NORTHEAST PACIFIC-WESTERN NORTH AMERICAN REGION**
- 215-4 8:55 AM Addison, Jason\*; Finney, Bruce P.; Barron, John; Anderson, Leigh; Mix, Alan: **THE ROLE OF THE ALASKA COASTAL CURRENT IN HOLOCENE PRIMARY PRODUCTIVITY IN SOUTHEAST ALASKA FJORDS**
- 9:10 AM **DISCUSSION**
- 9:20 AM **BREAK**

- 215-5 9:30 AM Bassett, Christine\*; Andrus, C. Fred T.: **ABALONE: A NEW TOOL FOR UNDERSTANDING UPWELLING IN THE CALIFORNIA CURRENT (Invited Presentation)**
- 215-6 9:50 AM Nield, Catherine\*; Yanes, Yurena; Pigati, Jeffrey S.; Rech, Jason A.; Proschwitz, Ted Von; Nekola, Jeffrey: **CALIBRATION OF LAND SNAIL SHELL OXYGEN ISOTOPES IN ALASKA**
- 215-7 10:05 AM Gemery, Laura\*; Cooper, Lee; Magen, Cedric; Cronin, Thomas; Grebmeier, Jackie: **ASSESSING THE FEASIBILITY OF STABLE OXYGEN ISOTOPES FROM OSTRACODE SHELLS AS PALEOCEANOGRAPHIC PROXIES FOR WATER MASS IN ARCTIC AND SUBARCTIC CONTINENTAL SHELF ENVIRONMENTS**
- 10:20 AM **DISCUSSION**
- 10:30 AM **BREAK**
- 215-8 10:40 AM O'Connor, Jim\*; Haugerud, Ralph; Cannon, Charles M.: **LAST-GLACIAL FRESHWATER FLUXES TO THE NORTHEASTERN PACIFIC FROM THE PACIFIC NORTHWEST, A VIEW FROM THE LAND (Invited Presentation)**
- 215-9 11:00 AM Cowan, Ellen A.\*; Zellers, Sarah; Walczak, Maureen H.; Carney, Gina Marie; Romero, Oscar E.; Caissie, Beth: **SOURCES AND DISPERSAL OF ICE RAFTED SILICATE EVENTS IN THE NE PACIFIC**
- 215-10 11:15 AM Walczak, Maureen\*; Mix, Alan; Cowan, Ellen A.; Fallon, Stewart; Fifield, L. Keith; Alder, Jay; Du, Jianghui; Haley, Brian; Hobern, Tim; Padman, June; Praetorius, Summer; Schmittner, Andreas; Stoner, Joseph S.; Zellers, Sarah: **GSA QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION KIRK BRYAN AWARD - THE DYNAMIC ROLE OF THE PACIFIC OCEAN AND CORDILLERAN ICE SHEET IN MILLENNIAL-SCALE GLOBAL CLIMATE VARIABILITY**
- 11:45 AM O'Connor, Jim E.\*; Walczak, Maureen H.; Pico, Tamara; Bassett, Christine: **PANEL DISCUSSION**

**SESSION NO. 216**

*T148. Head, Shoulders, Knees, and Toes: Delineating Biogeochemical and Metabolic Pathways Linking Environmental Exposures and Human Health (GSA Geology and Health Division; GSA Soils and Soil Processes Division; GSA Geology and Society Division; GSA Geobiology and Geomicrobiology Division; GSA Environmental and Engineering Geology Division; International Society of Exposure Science; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; International Medical Geology Association)*

8:00 AM, Oregon Convention Center, Portland Ballroom 253 (Hybrid Room)  
Malcolm Siegel, Reto Gieré, Laura Suzanne Ruhl and Ann Ojeda, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 216-1 8:05 AM Siegel, Malcolm\*: **HEURISTICS FOR PRACTICAL MEDICAL GEOLOGY: GEOAVAILABILITY AND BIOAVAILABILITY**
- 216-2 8:20 AM Miller, Gary\*: **THE EXPOSOME: A SYSTEMATIC INTEGRATION OF OUR ENVIRONMENT INTO HUMAN HEALTH**
- 216-3 8:40 AM Hickman, Katelyn J.\*; Larsen, Tanee; Rawson, Clayton D.; Smith, Serena; Cadet, Eddy: **LAND-USE IMPACTS ON TRACE METAL CONCENTRATIONS IN UPLAND, WETLAND, AND SURFACE WATERS OF UTAH LAKE**
- 216-4 8:55 AM Krekeker, Mark\*; Doepke, Lauren; Wudke, Hannah; Gillis, Morgan; Gokey, Kailee; Murchland, Madeline; Brown, Ken; McLeod, Claire: **ELECTRON MICROSCOPY INVESTIGATION OF SAMPLES OF JOHNSON'S BABY POWDER SHOWS A VARIETY OF CONTAMINANTS**
- 216-5 9:10 AM Basta, Nicholas T.\*; Stevens, Brooke N.; Whitacre, Shane D.; Scheckel, Kirk G.; Betts, Aaron R.; Bradham, Karen; Anderson, Richard H.: **PREDICTING ARSENIC BIOAVAILABILITY IN CONTAMINATED SOILS BY USING**

AM  
WEDNESDAY



- IN VITRO GASTROINTESTINAL BIOACCESSIBILITY AND SOLID PHASE SPECIATION FOR SITE-SPECIFIC RISK ASSESSMENT (Invited Presentation)**
- 216-6** 9:30 AM Hettiarachchi, Eshani\*; Das, Milton; Cadol, Daniel; Frey, Bonnie A.; Rubasinghe, Gayan: **THE FATE OF INHALED URANIUM-CONTAINING PARTICLES UPON CLEARANCE TO GASTRO-INTESTINAL TRACT**
- 216-7** 9:45 AM Castillo, Eliseo\*; Campen, Matthew: **MICROPLASTICS AND IMPLICATIONS FOR HUMAN HEALTH: INTERFACIAL INTERACTIONS IN THE GUT AND LUNG**
- 10:00 AM **BREAK**
- 216-8** 10:15 AM Finkelman, Robert\*: **HEALTH IMPACTS OF UNCONTROLLED COAL FIRES**
- 216-9** 10:30 AM Brugge, Doug\*: **USING GEOGRAPHIC DATA TO STUDY NEAR HIGHWAY POLLUTION AND HEALTH (Invited Presentation)**
- 216-10** 10:50 AM Campen, Matthew\*: **LEGACY URANIUM MINES: WHAT ARE THE HUMAN HEALTH RISKS OF WINDBLOWN DUSTS CONTAMINATED WITH HEAVY AND TRANSITION METALS? (Invited Presentation)**
- 216-11** 11:05 AM Gieré, Reto\*; O'Shea, Michael J.; Toupal, Jonas; Caballero-Gómez, Hasibe; McKeon, Tomas; Howarth, Marilyn; Pepino, Richard: **LEAD POLLUTION, DEMOGRAPHICS, AND ENVIRONMENTAL HEALTH RISKS IN PHILADELPHIA, USA**
- 11:20 AM **DISCUSSION**

**SESSION NO. 217**

**T149. Building the Workforce of the 21st Century: Understanding Diversity, Intersectionality, Ethics, and Inclusivity in the Geosciences and Implementing Transformative Change in Our Culture I (GSA Geoscience Education Division; GSA Geology and Society Division; GSA Marine and Coastal Geoscience Division; International Association for Geoscience Diversity; National Association of Geoscience Teachers (NAGT); GSA Soils and Soil Processes Division)**

8:00 AM, Oregon Convention Center, B115/B116 (Hybrid Room)

Elena Miranda, Aradhna Tripathi, Gabriela Mora-Klepeis and Catherine Flowers, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 217-1** 8:05 AM Linn, Anne; DeFries, Ruth S.; Hornberger, George M.; Everett, Lauren; Glickson, Deborah\*: **OPPORTUNITIES TO ADVANCE NEXT GENERATION EARTH SYSTEMS SCIENCE: A REPORT FROM THE NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, AND MEDICINE**
- 217-2** 8:20 AM Fraiser, Margaret; Williams, Billy\*; Asher, Pranoti; Goodwin, Stephanie; Hanson, Brooks: **INTRODUCING LANDING (LEADERSHIP ACADEMY AND NETWORK FOR DIVERSITY & INCLUSION IN GEOSCIENCES): A NSF FUNDED INITIATIVE TO BUILD, DEVELOP, AND SUSTAIN DEI LEADERS**
- 217-3** 8:35 AM Snow, Eleanour\*; Kaplan, Marlene: **THE RESPONSE OF FEDERAL SCIENCE AGENCIES TO EXECUTIVE ORDERS ON EQUITY DIVERSITY INCLUSION AND ACCESSIBILITY: OPPORTUNITIES FOR YOUNG SCIENTISTS**
- 217-4** 8:50 AM Shafer, Gregory\*; Viskupic, Karen; Egger, Anne: **THE OCCURRENCE OF PHYSICAL ABILITIES IN ENTRY-LEVEL GEOSCIENCE JOB ADVERTISEMENTS AND THEIR POTENTIAL IMPACT ON STUDENTS**
- 9:05 AM **DISCUSSION**
- 217-5** 9:20 AM Luckie, Thomas; Carrera, Anahi\*; Cooperdock, Emily: **FIRST-GENERATION COLLEGE STUDENTS UNDERREPRESENTED IN US GEOSCIENCE PROGRAMS**

- 217-6** 9:35 AM Grana, Dario\*: **MENTORING PROGRAMS FOR STUDENTS AND FACULTY: A KEY COMPONENT OF DEI ACTION PLANS**
- 217-7** 9:50 AM Houlton, Heather\*; Sumy, Danielle F.; Smith, Joyce: **UNEARTH YOUR FUTURE: AN ONLINE MODULE ABOUT GEOSCIENCE CAREERS USING DIVERSITY, EQUITY AND INCLUSION BY DESIGN**
- 10:05 AM **DISCUSSION 2**
- 217-8** 10:20 AM Miranda, Elena\*: **THE LEAKY PIPELINE PLAYBOOK: A CRITICAL LOOK AT GATEKEEPING METHODS THAT PERPETUATE THE DISENFRANCHISEMENT OF WOMEN AND PEOPLE OF COLOR IN THE GEOSCIENCES AND SOME STRATEGIES FOR INTERRUPTING THE EFFECTIVENESS OF THE PLAYBOOK MOVES**
- 217-9** 10:35 AM Lockwood, Rowan\*; Baer, Eric; White, Lisa D.; Villalobos, Joshua; Morris, Vernon R.; McDaris, John; Macdonald, Heather; Beane, Rachel: **UNEVEN GAINS IN RACIAL DIVERSITY IN U.S. GEOSCIENCE UNDERGRADUATE DEGREES**
- 217-10** 10:50 AM Czeck, Dyanna M.\*; Schaefer, Scott N.: **GO FORWARD: ATTRACTING NEW GEOSCIENCES MAJORS FROM DIVERSE BACKGROUNDS BY INTEGRATING RESEARCH EXPERIENCES, COMMUNITY BUILDING, AND CAREER READINESS SKILLS AT UNIVERSITY OF WISCONSIN-MILWAUKEE**
- 11:05 AM **DISCUSSION 3**

**SESSION NO. 218**

**T164. Making Sense of Methodologies and Theoretical Frameworks in Geoscience Education Research (GSA Geoscience Education Division; National Association of Geoscience Teachers (NAGT) Geoscience Education Research (GER) Division)**

8:00 AM, Oregon Convention Center, B112

Kelsey Bitting, Emily Ward, Leilani Arthurs, Lauren Neitzke Adamo, Cory Forbes, Bailey Kreager and Peggy McNeal, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 218-1** 8:05 AM Marshall, Anita\*: **INCORPORATING SOCIAL AND CULTURAL THEORETICAL FRAMEWORKS INTO GEOSCIENCE EDUCATION RESEARCH (Invited Presentation)**
- 218-2** 8:20 AM Corbett, Lee B.\*; Bierman, Paul R.; Semken, Steven; Whittaker, Joseph A.: **COMMUNITY LABORATORY FACILITIES CAN INCREASE ACCESS, INCLUSIVITY, AND DIVERSITY IN GEOSCIENCE: FINDINGS FROM OUR FIRST THREE YEARS**
- 218-3** 8:35 AM Erikson, Johan P.\*; Young, Marion E.; Jury, Steven H.; Teegarden, Gregory J.: **IMMERSIVE PROGRAMS INCREASE SELF-EFFICACY IN NSF SSTEM STUDENTS AT SAINT JOSEPH'S COLLEGE OF MAINE**
- 218-4** 8:50 AM Corradino, Julia\*; Gallagher, Eliza D.; Scribner, Emily; Lazar, Kelly Best; Brame, Scott; Fidler, Mary; Murdoch, Lawrence C.: **STUDENT EXPERIENCES AND PERCEPTIONS OF SKILL DEVELOPMENT IN A MULTI-MODAL FIELD COURSE: APPLICATION OF THE COGNITIVE APPRENTICESHIP FRAMEWORK**
- 218-5** 9:05 AM O'Connell, Kari\*; Hoke, Kelly; Giamellaro, Michael; Berkowitz, Alan; Branchaw, Janet: **DESIGNING AND STUDYING HOLISTIC UNDERGRADUATE FIELD LEARNING EXPERIENCES: THE UFERN MODEL**
- 218-6** 9:20 AM Shaulskiy, Stephanie\*; Jolley, Alison; O'Connell, Kari: **THE INFLUENCE OF AFFECTIVE OUTCOMES ON SCIENTIFIC LITERACY AND FUTURE SCIENCE PLANS IN THE FIELD STATION SETTING**
- 218-7** 9:35 AM Arthurs, Leilani\*; Kowalski, Chelsie M.: **USING STUDENTS' PRECONCEPTIONS ABOUT GROUNDWATER TO FACILITATE THEIR LEARNING ABOUT AQUIFERS**

- 218-8** 9:50 AM Dolphin, Glenn\*; Droboth, Jason; Karchewski, Brandon; Moldoveanu Constantinescu, Cristina; Sasko, Brolin: **METAPHOR IN GEOSCIENCE: CATEGORIZING DIRECT, INDIRECT, AND IMPLIED METAPHORS TO UNDERSTAND TEACHING AND LEARNING**
- 10:05 AM **BREAK**
- 218-9** 10:15 AM Carroll Steward, Kimberly\*; Forbes, Cory; Chandler, Mark A.: **TEACHERS' USE AND ADAPTATION OF A MODEL-BASED CLIMATE CURRICULUM: A THREE-YEAR LONGITUDINAL STUDY**
- 218-10** 10:30 AM Lukes, Laura A.\*: **ROLE OF METHODS TRANSPARENCY IN ESTABLISHING TRUSTWORTHINESS IN QUALITATIVE AND SOME MIXED METHODS STUDIES AS DEMONSTRATED IN A CASE STUDY EXPLORING THE SOCIAL PATTERNS OF CITIZEN SCIENTIST ENGAGEMENT**
- 218-11** 10:45 AM Van Boening, Angela\*; Riggs, Eric M.: **SCIENTIFIC LEARNING PROGRESSION THROUGH GESTURE AND PLACE USING THREE FACETS OF EMBODIED COGNITION**
- 218-12** 11:00 AM Soltis, Nicholas\*; Mcneal, Karen: **APPLYING CLASSICAL TEST THEORY AND ITEM RESPONSE THEORY IN THE VALIDATION OF THE EARTH SYSTEMS THINKING CONCEPT INVENTORY**
- 218-13** 11:15 AM Bennett, William\*; Arthurs, Leilani: **THE UTILITY AND LIMITATIONS OF EYE-TRACKING METHODS IN GEOSCIENCE EDUCATION RESEARCH**
- 218-14** 11:30 AM Egger, Anne\*; Viskupic, Karen; Iverson, Ellen: **THE USE AND VALUE OF DESCRIPTIVE ANALYSIS TO IMPROVE THE SYSTEM OF GEOSCIENCE EDUCATION**
- 218-15** 11:45 AM Viskupic, Karen\*; Egger, Anne; Iverson, Ellen: **USING DESCRIPTIVE ANALYSIS OF NATIONAL SURVEY OF GEOSCIENCE FACULTY RESPONSES TO DEVELOP TOOLS FOR DEPARTMENT-LEVEL REFLECTION AND GOAL-SETTING**

## MORNING POSTER TECHNICAL SESSIONS

### SESSION NO. 219

#### D2. Recent Advances in Economic Geology (Posters)

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |              | Booth # |                                                                                                                                                                                                               |
|--------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>219-1</b> | 1       | Karl, Nick*; Mauk, Jeffrey; Knudsen, Liam; Gnesda, Will; Funk, Jonathan; Ringer, Amanda: <b>U.S. GEOLOGICAL SURVEY'S MINERAL DEPOSIT DATABASE</b>                                                             |
| <b>219-2</b> | 2       | Maglich, Simeon*; Krekeker, Mark; McLeod, Claire; Shaulis, Barry; Gokey, Kailee; Gillis, Morgan: <b>SCANNING ELECTRON MICROSCOPY INVESTIGATIONS OF OXIDES AND SULFIDES FROM MINE WASTE IN TONOPAH, NEVADA</b> |
| <b>219-3</b> | 3       | Chaumba, Jeff*; Mamuse, Antony: <b>COMPLETELY MODIFIED CHROMITES FROM THE ZVISHAVANE ULTRAMAFIC COMPLEX, SOUTH-CENTRAL ZIMBABWE</b>                                                                           |
| <b>219-4</b> | 4       | Ahmed, Shamsuddin*; Langston-Stewart, Sage; Pfaff, Katharina; Livingston, Kelsey; Muller, Sean; Monecke, Thomas: <b>OCCURRENCE OF GOLD IN THE CROSS MINE, BOULDER COUNTY, COLORADO, USA</b>                   |
| <b>219-5</b> | 5       | Zuniga, Eduardo*; Arribas, Antonio; Goodell, Philip: <b>RECON EXPLORATION FOR CRITICAL MINERALS IN THE TERLINGUA QUICKSILVER DISTRICT</b>                                                                     |
| <b>219-6</b> | 6       | Zimmerman, Jarred*; Larson, Peter B.: <b>BA MOBILITY IN A GEOTHERMAL ENVIRONMENT, YELLOWSTONE NATIONAL PARK</b>                                                                                               |

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|---------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>219-7</b>  | 7  | Rewis, John*; Goodell, Philip; Arribas, Antonio; Kubicki, James; Pingitore, Nicholas; Engle, Mark: <b>TRACE ELEMENT ANALYSIS OF FLUORSPAR FOR CRITICAL MINERALS, WEST TEXAS</b>                                                                                                                              |
| <b>219-8</b>  | 8  | Potra, Adriana*; Mckim, Sydney; Bottoms, Bryan; Simbo, Christophe; Chick, Jonathan; Samuelsen, John; Schutter, Stephen; Manger, Walter L.: <b>RADIOGENIC PB ENRICHMENT IN MISSISSIPPI VALLEY-TYPE ORE DEPOSITS, SOUTHERN OZARKS: CONSTRAINTS BASED ON GEOCHEMICAL STUDIES OF POTENTIAL SOURCE ROCKS</b>      |
| <b>219-9</b>  | 9  | Oglesbee, Traister*; Gokey, Kailee; Gillis, Morgan; Fouh Mbindi, Mireille; McLeod, Claire; Krekeker, Mark: <b>TRACE MINERAL ANALYSIS OF GLACIOGENIC SANDS FROM THE GREAT MIAMI RIVER SYSTEM IN SOUTHWESTERN OHIO: EVALUATING COMPLEX MINERAL ASSEMBLAGES AND THE POTENTIAL OF CRITICAL RESOURCE MINERALS</b> |
| <b>219-10</b> | 10 | Charnock, Robert*; Mauk, Jeffrey; Monecke, Thomas: <b>CONTROLS ON VOLCANISM ASSOCIATED WITH THE INTRUSION OF THE REDWELL AND MOUNT EMMONS STOCKS, CRESTED BUTTE, COLORADO: IMPLICATIONS FOR CLIMAX-TYPE PORPHYRY MO EXPLORATION</b>                                                                          |

### SESSION NO. 220

#### T40. Environmental and Engineering Geology Division (Posters) (GSA Environmental and Engineering Geology Division)

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |               | Booth # |                                                                                                                                                                                                                                                                                                       |
|---------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>220-1</b>  | 11      | Lee, Cin-Ty*; Little, Mark: <b>CARBON NEUTRALITY AND BIODIVERSITY: HOW TO MAKE THE TRANSITION RESPONSIBLY</b>                                                                                                                                                                                         |
| <b>220-2</b>  | 12      | Smidt, Samuel; Brophy, Trista*; Bi, Xiang; Mook, Anne; Adams, Damian: <b>INTEGRATING POLICY TO ACHIEVE A HARMONIZED SUSTAINABILITY MODEL</b>                                                                                                                                                          |
| <b>220-3</b>  | 13      | Hornak, Andrew*; Moran, Jack; Krekeker, Mark: <b>REFLECTIVE SPECTROSCOPY STUDY OF BLOOD ON GEOLOGIC AND OTHER MATERIALS: PROVIDING FORENSIC CONTEXT FOR OUTDOOR CRIME SCENES</b>                                                                                                                      |
| <b>220-4</b>  | 14      | Krekeker, Mark*; Loertscher, Cynthia; Loertscher, Seth: <b>ASSESSING CONTEXT AND CONTENT OF A HYPERSPECTRAL REMOTE SENSING TOOL FOR HOSTAGE RECOVERY AND INVESTIGATIONS IN THE SAHEL</b>                                                                                                              |
| <b>220-5</b>  | 15      | Fouh Mbindi, Mireille*; Gokey, Kailee; Gillis, Morgan; Argyilan, Erin P.; Krekeker, Mark: <b>INVESTIGATING POLLUTION CAPTURED IN DUNE SANDS TO BETTER UNDERSTAND AIR DEPOSITION OF HEAVY METAL PARTICULATE FROM INDUSTRIAL FACILITIES IN GARY, INDIANA</b>                                            |
| <b>220-6</b>  | 16      | Simpson, Mathew*; Lang, Patricia L.; Howell, Emily; Pichtel, John: <b>EFFECTIVENESS OF ATR-FTIR FOR ANALYSIS OF MICROPLASTICS FROM MARINE AND FRESHWATER SEDIMENTS</b>                                                                                                                                |
| <b>220-7</b>  | 17      | Kaminski, Camille A; Leszczak, Aubrey E.; Boyer, Diana*: <b>THE IMPACTS OF RENOURISHMENT AND GRAIN SIZE ON MICROPLASTIC ABUNDANCE IN CAROLINA BEACH SANDS</b>                                                                                                                                         |
| <b>220-8</b>  | 18      | Garcia, Aimee*; Orona, Viridiana; Quiroz, Michelle; Doser, Diane; Darrouzet-Nardi, Anthony; Jin, Lixin: <b>USING GEOPHYSICS TO INVESTIGATE SOIL TEXTURE AND CHARACTERIZE SPATIAL VARIABILITY IN SOIL CO<sub>2</sub> EFFLUXES IN AN IRRIGATED PECAN ORCHARD IN THE RIO GRANDE VALLEY OF WEST TEXAS</b> |
| <b>220-9</b>  | 19      | Duvvuru, Ashish*; Kane, Eli; Wrobel, Ashley; Peterson, Jonathan W.: <b>SURVEY OF HEAVY METAL CONTENTS OF FISH IN A COASTAL LAKE MICHIGAN WATERSHED</b>                                                                                                                                                |
| <b>220-10</b> | 20      | Mathews, Julia; Blitz, Emily; Echevarria, Kathryn; Testa, Maurice*; Mader, Jordan; Murray, Kayla: <b>QUANTIFYING METAL OXIDE LEACHING TO ASSESS THE VIABILITY OF USING GLASS CULLET FOR SHORELINE RESTORATION</b>                                                                                     |

- 220-11** 21 Lee, Seong-Sun\*; Park, Inwoo; Jun, Seong-Chun; Ha, Seung-Wook; Im, Jin-Hui; Lee, Sanghoon; Lee, Kang-Kun: **APPLICATION OF SIMULATION-OPTIMIZATION METHODS FOR PREVENTING THE SPREAD OF DNAPL CONTAMINANTS BASED ON A HYDRAULIC FLOW CONTROL**
- 220-12** 22 Foust, Livia\*; Krekeker, Mark: **PRELIMINARY INVESTIGATIONS ON AN ARTIFICIAL SOIL AGGREGATE USED IN BOTANICAL EXPERIMENTS: INITIAL GRAIN SIZE, REFLECTIVE SPECTROSCOPY, AND TRANSMISSION ELECTRON MICROSCOPY RESULTS**
- 220-13** 23 Cassidy, Will; Codd, Zoe R.\*; Krekeker, Mark: **LEAD IN DRINKING WATER IN TWO SOUTHWEST OHIO COUNTIES**
- 220-14** 24 Foyle, Anthony\*; Schuckman, Karen: **REDUCED BLUFF SEDIMENT EXPORT TO THE LAKE ERIE LITTORAL ZONE DURING 1-2 DECADES OF AVERAGE LAKE LEVEL: NW PENNSYLVANIA, USA**
- 220-15** 25 Begay, Megan\*; Mailboy, Letisha; Lindline, Jennifer; Diem, Kate; Tapia, Ezekiel: **RESULTS FROM 18 MONTH WATER QUALITY MONITORING OF THE UPPER PECOS RIVER, NEW MEXICO**
- 220-16** 26 Deal, Anne\*; Callahan, Owen A.; Ukar, Esti; Zahm, Chris; Allen, Spencer; Dunaway, Kori; Eppler, Michael; Loera, Alica; Polach, Dustin: **OBSERVATIONAL SCALE AND USER BIAS IN FRACTURE NETWORK CHARACTERIZATION**
- 27 Blitz, Emily\*; Neal, Matthew; Hattabough, Ian; Edmonds, Andrew; Thompson, Jake; Turco, Jon; Mader, Jordan; Testa, Maurice: **DETERMINING THE IMPACT OF A FLOCCULANT OR SURFACTANT ON MICROPLASTIC RECOVERY**

**SESSION NO. 221**

***T172. Integrating Remote Sensing and In Situ Data for Understanding Surface and Subsurface Processes (Posters) (GSA Geoinformatics and Data Science Division; GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division; GSA Marine and Coastal Geoscience Division; GSA Soils and Soil Processes Division)***

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |              | Booth # |                                                                                                                                                                                                                                                                                              |
|--------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>221-1</b> | 28      | Buna, Arisson T.M.; Silva Junior, Celso H.L.; Costa, Ozeas*; Bezerra, Denilson S.: <b>SYNERGY BETWEEN LANDSCAPE FRAGMENTATION AND FOREST FIRES IN EASTERN AMAZON</b>                                                                                                                         |
| <b>221-2</b> | 29      | Mosbrucker, Adam*; Major, Jon: <b>CONSUMER-GRADE DIGITAL CAMERAS—HOW FAR CAN WE PUSH GEOMORPHIC DATA COLLECTION?</b>                                                                                                                                                                         |
| <b>221-3</b> | 30      | Ahmed, Mohamed*; Haley, Michael Boyd; Gebremichael, Esayas; Murgulet, Dorina; Starek, Michael: <b>LAND SUBSIDENCE IN COSTAL TEXAS: LOCATIONS, RATES, TRIGGERS, AND CONSEQUENCES</b>                                                                                                          |
| <b>221-4</b> | 31      | Komas, Jerome*; Seyoum, Wondwosen Mekonnen; O'Reilly, Catherine M.; Mayes, Jill; Darter, Joseph M.; Harlovic, Thomas; Perry, William L.: <b>USING AN UNMANNED AERIAL VEHICLE EQUIPPED WITH A MULTISPECTRAL SENSOR TO OPTICALLY MAP WATER QUALITY PARAMETERS IN DRINKING WATER RESERVOIRS</b> |
| <b>221-5</b> | 32      | Franz, Kenya*; Ward, Brent; Clague, John J.: <b>REFINEMENT OF THE DEGLACIAL HISTORY OF SW BRITISH COLUMBIA USING LIDAR-BASED GEOMORPHIC MAPPING</b>                                                                                                                                          |
| <b>221-6</b> | 33      | Maue, Anthony D.*; Burr, Devon M.; Jarquin, Manfredo J.: <b>DISENTANGLING SEDIMENT SIGNALS ON ALLUVIAL FANS IN SYNTHETIC APERTURE RADAR</b>                                                                                                                                                  |
| <b>221-7</b> | 34      | Stackhouse, Leanna*; O'Neal, Michael: <b>IDENTIFYING POTENTIAL FOSSIL BEARING DEPOSITS IN THE BIGHORN BASIN, WYOMING USING GIS AND REMOTE SENSING</b>                                                                                                                                        |
| <b>221-8</b> | 35      | Firat, Connor*; Hossain, A.K.M. Azad: <b>ESTIMATING SUSPENDED SEDIMENT CONCENTRATIONS IN THE TENNESSEE RIVER AND THE SURROUNDING TRIBUTARIES</b>                                                                                                                                             |

**DURING A HIGH PRECIPITATION EVENT USING PLANETSCOPE SATELLITE IMAGERY**

- 221-9** 36 Potter, Corey\*; Tindall, Sarah E.; Welker, Avery Joseph: **FROM FIELD TO SCREEN: EXPERIMENTING WITH DIGITAL EXTRACTION OF GEOSPATIAL DATA**

**SESSION NO. 222**

***T154. Best Practices in Place-Based Education (Posters) (National Association of Geoscience Teachers (NAGT); GSA Geoscience Education Division)***

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |               | Booth # |                                                                                                                                                                                                                                     |
|---------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>222-1</b>  | 37      | Tierney, Kate*; Swanson, Benjamin; Tassier-Surine, Stephanie; Cramer, Bradley: <b>AWARENESS, ENGAGEMENT, AND PROFESSIONAL PREPARATION: INTEGRATING PLACE-BASED LEVELED FIELD COURSES INTO A HOLISTIC PROGRAM RE-DESIGN</b>          |
| <b>222-2</b>  | 38      | Balgord, Elizabeth*; Frantz, Carrie M.; Matyjasik, Marek: <b>INCREASING STUDENT RECRUITMENT AND RETENTION USING PLACE-BASED RESEARCH PROGRAMS FOR INCOMING AND FIRST-YEAR EARTH AND ENVIRONMENTAL SCIENCE STUDENTS IN OGDEN, UT</b> |
| <b>222-3</b>  | 39      | Cullicott, Catherine*; Semken, Steven; Chi, Michelene T.H.; Boucher, Nicole: <b>ENHANCING ACTIVE LEARNING IN A PLACE-BASED GEOSCIENCE COURSE USING THE ICAP THEORY OF COGNITIVE ENGAGEMENT</b>                                      |
| <b>222-4</b>  | 40      | van der Pluijm, Ben*; Williams, Josh: <b>ENHANCED GOOGLE EARTH WEB (EGEW): VIRTUAL FIELDTRIPS AND GEOLOGIC EXPLORATIONS</b>                                                                                                         |
| <b>222-5</b>  | 41      | Withdrawn                                                                                                                                                                                                                           |
| <b>222-6</b>  | 42      | Salisbury, Morgan*: <b>USING LOCAL GEOLOGIC MAPS TO CONNECT LESSONS IN EARTH SCIENCE CLASSROOMS WITH THE GEOLOGY OF THE SURROUNDING LANDSCAPE</b>                                                                                   |
| <b>222-7</b>  | 43      | McCarville, Katherine*: <b>MICROPLASTICS AND PLASTIC WASTE IN THE IOWA GREAT LAKES AS A FOCUS FOR OUTDOOR EXPERIENTIAL ENVIRONMENTAL EDUCATION AND RESEARCH</b>                                                                     |
| <b>222-8</b>  | 44      | Gibson, Michael*; Garrett, Jack S.: <b>PLACE-BASED FIELD STUDIES IN PALEONTOLOGY AND ECOLOGY AT THE UNIVERSITY OF TENNESSEE MARTIN COON CREEK SCIENCE CENTER</b>                                                                    |
| <b>222-9</b>  | 45      | Westby, Elizabeth*; Melander, Sonja M.; Roberti, Gina: <b>GEOGIRLS ROCK! STEM-BASED OUTDOOR PROGRAM AT MOUNT ST. HELENS ENCOURAGES AND SUPPORTS THE NEXT GENERATION OF SCIENTISTS</b>                                               |
| <b>222-10</b> | 46      | Doser, Diane*; Villalobos, Joshua; Rohrbaugh, Rob; Langford, Richard P.: <b>SLATES: SERVICE-LEARNING FOR TWO-YEAR AND FOUR-YEAR COLLEGE STUDENTS IN THE EL PASO, TEXAS REGION (2017-2021)</b>                                       |
| <b>222-11</b> | 47      | Lonsdorf, Tara*; Osmun, Mallory Faith; Rustic, Gerald; Connolly, Harold C.: <b>ART ROCKS!: DEVELOPING NOVEL GEOSCIENCE OUTREACH AND EDUCATION OPPORTUNITIES THROUGH PUBLIC SCULPTURE</b>                                            |



**SESSION NO. 223** 

*T158. Geoscience and Society: Action and Interdisciplinary Engagement on Local and Global Scales (Posters) (GSA Geology and Society Division; GSA International; GSA Geology and Public Policy Committee; European Geosciences Union; American Geophysical Union; Geological Survey of Sweden; The Global Network for Geoscience and Society; Geology in the Public Interest; Geology for Global Development; Department of Geology and Environmental Science, Wheaton College; Clean Water Institute, Calvin University; Department of Geology, San Jose State University; Department of Geological & Mining Engineering & Sciences, Michigan Technological University; Department of Earth, Environmental and Resource Sciences, University of Texas–El Paso.)*

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |        | Booth # |                                                                                                                                                                                                                                                     |
|--------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 223-1  | 48      | Slaughter, Stephen*; Cerovski-Darriau, Corina; Davis, Lindsay A.: <b>THE USGS-USAID LANDSLIDE DISASTER ASSISTANCE TEAM: HELPING TO BUILD LANDSLIDE TECHNICAL CAPACITY WITH PARTNER COUNTRIES</b>                                                    |
| 223-2  | 49      | Davis, Lindsay*; Slaughter, Stephen: <b>USAID-USGS EARTHQUAKE DISASTER ASSISTANCE TEAM: COLLABORATING WITH INTERNATIONAL PARTNERS TO REDUCE EARTHQUAKE RISK WORLDWIDE</b>                                                                           |
| 223-3  | 50      | Crayne, Jenny*; Sumy, Danielle F.; Olds, Shelley; Deras, Kimberly: <b>ENGAGING THE PUBLIC: EDUCATION AND OUTREACH TO SUPPORT SHAKEALERT®, THE EARTHQUAKE EARLY WARNING SYSTEM FOR THE WEST COAST OF THE UNITED STATES</b>                           |
| 223-4  | 51      | Shelton, Jenna*; Marketti, Michael; Gaswirth, Stephanie; Robeck, Edward; Brock, John C.: <b>EDMAP: AN EDUCATIONAL COMPONENT OF THE U.S. GEOLOGICAL SURVEY'S NATIONAL COOPERATIVE GEOLOGIC MAPPING PROGRAM</b>                                       |
| 223-5  | 52      | Davock, Caroline*; Herzfeld, Julia; Glumac, Bosiljka; Berner, Carol: <b>AN INTERDISCIPLINARY, WEB-BASED EDUCATIONAL RESOURCE AIMED AT PROMOTING CLIMATE LITERACY, ENGAGEMENT AND RESILIENCE</b>                                                     |
| 223-6  | 53      | Sztejn, Ester*; Mogk, David; Chan, Marjorie; Connors, Timothy; Dunbar, Nelia W.; Tormey, Daniel; Whitlock, Cathy: <b>AMERICA'S GEOHERITAGE WORKSHOP II: IDENTIFYING, DEVELOPING, AND PRESERVING AMERICA'S NATURAL LEGACY-- WORKSHOP PROCEEDINGS</b> |
| 223-7  | 54      | Knapp, Landon C.*; Levine, Norman; Kaufman, Charlie: <b>CO-PRODUCTION OF KNOWLEDGE IN THE GEOSCIENCES: SCIENCE-TO-ACTION IN COASTAL SOUTH CAROLINA</b>                                                                                              |
| 223-8  | 55      | Greenberg, Jeffrey K.*: <b>GATHERING CRUCIAL GRASS-ROOTS ALLIES IN GEO-STEWARDSHIP A DEGRADED PLANET</b>                                                                                                                                            |
| 223-9  | 56      | Maguigan, Mike*: <b>ADDRESSING WATER QUALITY REPORTING ISSUES</b>                                                                                                                                                                                   |
| 223-10 | 57      | Radwin, Mark*; Pletcher, Addison; Waugh, Emma; Hietpas, Kaitlyn; Chang, Shuyu: <b>USING NASA EARTH OBSERVATIONS TO IMPROVE EARLY WARNING SYSTEMS FOR HARMFUL ALGAE EVENTS IN LADY BIRD LAKE AND LAKE TRAVIS IN AUSTIN, TX</b>                       |
| 223-11 | 58      | Thaisen, Kevin*; Dolliver, Holly A.S.; Williams, Ian: <b>THE GEOLOGICAL DESTINY OF NATIONS - A NEW TYPE OF GEOLOGY COURSE THAT EXPLORES THE INTERSECTION OF HUMANITY AND GEOLOGY</b>                                                                |
| 223-12 | 59      | Fore, Grant*; Williamson, Francesca; Angstmann, Julia; Sorge, Brandon: <b>UTILIZING A CAMPUS FARM TO CULTIVATE CIVIC ENGAGEMENT, PLACE ATTACHMENT, AND ENVIRONMENTAL SCIENCE LITERACY IN STEM AND NON-STEM STUDENTS: A QUALITATIVE STUDY</b>        |
| 223-13 | 60      | Rodengen, Tommy*: <b>REWRITING THE ECOLOGY TEXTBOOK WITH A BEDROCK IN GEOLOGY</b>                                                                                                                                                                   |
| 223-14 | 61      | Haroldson, Erik*: <b>IMPROV GAMES IN GEOSCIENCE COURSES</b>                                                                                                                                                                                         |

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|--------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 223-15 | 62 | Bolton, Curtis*; Ronck, Catherine: <b>COMPILING DISPERSED GEOLOGIC KNOWLEDGE FOR EASE OF ACCESS AND MAINTENANCE</b>                                                                                                                                         |
| 223-16 | 63 | Nichol, Craig*: <b>ADVANCING THE RELATIONSHIPS BETWEEN EARTH SCIENCE DEPARTMENTS AND THE REGULATORS OF PROFESSIONAL GEOSCIENCE</b>                                                                                                                          |
| 223-17 | 64 | Persad, Liselle*; White, Lisa D.: <b>EFFECTIVELY COMMUNICATING SCIENCE: A PROJECT BY IODP'S 2019 SCHOOL OF ROCK AND THE AMBASSADORS FOR STEM TRAINING TO ENHANCE PARTICIPATION (A-STEP) PROGRAM</b>                                                         |
| 223-18 | 65 | Moss, David*; Guida, Ross; Benford, Bryn A.; Spears, Christa L.; Zhou, Renjie; Hill, Joseph; Cooper, Brian; Harris, John P.: <b>PRELIMINARY DATA ON THE PERCEPTIONS OF THE GEOSCIENCES OF HIGH SCHOOL AND COMMUNITY COLLEGE STUDENTS IN SOUTHEAST TEXAS</b> |

**SESSION NO. 224** 

*T68. Lacustrine Systems around the World (Posters): In Honor of Michael Rosen (GSA Limnogeology Division; GSA Geobiology and Geomicrobiology Division; GSA Continental Scientific Drilling Division; GSA Geochronology Division; GSA Marine and Coastal Geoscience Division; GSA Quaternary Geology and Geomorphology Division; American Quaternary Association; International Association of Limnogeology; SEPM (Society for Sedimentary Geology); Paleontological Society; GSA Sedimentary Geology Division)*

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

- |       | Booth # |                                                                                                                                                                                                                                                                           |
|-------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 224-1 | 66      | Zimmerman, Susan*; Tunno, Irene; Brown, Thomas A.; Hassel, Christiane A.; Hodelka, Bailee; McGlue, Michael: <b>ASSESSMENT OF AMS RADIOCARBON DATING RESULTS ON POLLEN SAMPLES PURIFIED BY FLOW CYTOMETRY: RELIABILITY FOR BUILDING LAKE-SEDIMENT AGE MODELS</b>           |
| 224-2 | 67      | Fish, Andrew*; Lepper, Kenneth: <b>AN ANALYSIS OF POTASSIUM TO RUBIDIUM RATIOS IN SHORELINE SEDIMENTS: IMPLICATIONS FOR OSL DATING</b>                                                                                                                                    |
| 224-3 | 68      | Dilworth, John*; Stone, Jeffery R.; McGlue, Michael; Yeager, Kevin; Thigpen, James: <b>DIATOM PALEOECOLOGY REVEALS ANTHROPOGENICALLY DRIVEN CHANGES AT JACKSON LAKE (WYOMING)</b>                                                                                         |
| 224-4 | 69      | Zimmerman, Susan*; Deino, Alan L.; Hodelka, Bailee; McGlue, Michael; Peteet, Dorothy; Hemming, Sidney: <b>TEPHRA STRATIGRAPHY AND AMS MACROFOSSIL RADIOCARBON CHRONOLOGY OF HOLOCENE MONO CRATERS ERUPTIONS FROM MULTIPLE SEDIMENT CORES, MONO LAKE BASIN, CALIFORNIA</b> |
| 224-5 | 70      | Hodelka, Bailee*; McGlue, Michael; Palacios-Fest, Manuel R.; Zimmerman, Susan: <b>LATE QUATERNARY OSTRACOD STRATIGRAPHY AND PALEOECOLOGY FROM MONO LAKE, CALIFORNIA</b>                                                                                                   |
| 224-6 | 71      | Boccignone, Leah*; Theissen, Kevin M.; Arnold, Alexandria; Tripathi, Aradhna: <b>CLUMPED ISOTOPE PALEOTHERMOMETRY AND PALEOHYDROLOGIC ESTIMATES FOR THE HOLOCENE FROM MULTIPLE LACUSTRINE CARBONATE SOURCES IN THE PAHRANAGAT VALLEY, NEVADA</b>                          |
| 224-7 | 72      | McLellan, Oliver*; Welch, Sue A.; Griffith, Elizabeth M.; Lyons, W.; Leonard-Pingel, Jill S.: <b>INFLUENCE OF LAKE TYPE, SIZE, AND ECOREGION ON WATER QUALITY OF INLAND OHIO LAKES</b>                                                                                    |
| 224-8 | 73      | Seidler, Addison*; Westover, Karlyn S.; Stone, Jeffery; Bird, Broxton W.; Steinman, Byron A.: <b>DIATOM EVIDENCE OF HYDROCLIMATE VARIABILITY IN THE MIDWESTERN UNITED STATES SINCE 2150 CAL YR BP</b>                                                                     |
| 224-9 | 74      | Bailey, Mary*; Jackson, Emily E.; Fish, Andrew; Peterson, Annalie; Ludewig, Carl; Lepper, Kenneth: <b>OSL AGE RESULTS FOR A TRANSECT ACROSS CAMPBELL SHORELINES AND</b>                                                                                                   |

AM

WEDNESDAY

POSTERS

**SUB-CAMPBELL SPIT COMPLEXES OF LAKE AGASSIZ IN TRAIL COUNTY, NORTH DAKOTA**

- 224-10 75 LU, Yiran\*; Yang, Wan: **LOWER-PERMIAN LACUSTRINE MICROBIAL BUILDUPS IN A CYCLOSTRATIGRAPHIC CONTEXT, BOGDA MOUNTAINS, NW CHINA**

**SESSION NO. 225**

**D16. Recent Advances in Paleontology I (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 225-1 76 Currano, Ellen D.\*; Cleveland, Claire; Contreras, Dori; Koll, Rebecca; Meredith, Douglas; Peters, Shanan; Uhen, Mark; Zaffos, Andrew: **INTRODUCING PBOT, THE INTEGRATIVE PALEOBOTANY PORTAL**
- 225-2 77 Hebert, Thomas\*: **GEOSPATIAL DATA CURATION AND MAPPING OF FOSSILS FROM THE HELL CREEK FORMATION IN SOUTH DAKOTA**
- 225-3 78 Leibach, Wade\*; Rosbach, Stephanie; Whitaker, Anna F.; Lerosey-Aubril, Rudy; Kimmig, Julien; Selly, Tara; Schiffbauer, James: **COMPARISONS BETWEEN THE PUBLISHED AND SAMPLED FOSSIL RECORD IN TWO MIDDLE CAMBRIAN GREAT BASIN LAGERSTÄTTEN OF THE WESTERN USA**
- 225-4 79 Groff, Stephen; Perez, Victor\*; Nance, John R.; Cole, Selina; Wright, David F.: **EXCEPTIONAL PRESERVATION AND ACTIVE TAPHONOMIC ALTERATION OF THE LATE MIOCENE BRITTLE STAR, *OPHIURA MARYLANDICA***
- 225-5 80 Jordan, Lindsey\*; Walker, Sally: **TUMBLING OSTEODERMS OF *ALLIGATOR MISSISSIPPIENSIS* TO UNDERSTAND THE TAPHONOMIC RECORD OF CROCODILIAN OSTEODERM FOSSILS**
- 225-6 81 Clendenon, Cedric\*; Brand, Leonard R.: **EXPERIMENTAL TRACKWAYS OF SCORPIONS, TARANTULAS, AND CRAYFISH UNDER SUBAERIAL AND SUBAQUEOUS CONDITIONS: IMPLICATIONS FOR DETERMINING WATER CONTENT OF FINE SAND AT THE TIME OF TRACKWAY FORMATION**
- 225-7 82 Blake, Elliot\*; Holland, Steven M.: **USING SEQUENCE STRATIGRAPHY TO PREDICT VERTEBRATE TRACKWAYS IN COASTAL SETTINGS: JURASSIC GYPSUM SPRING AND SUNDANCE FORMATIONS, BIGHORN BASIN, USA**
- 225-8 83 Bradbury, Michael\*; Hegna, Thomas: **SMALL SHELLIES IN THE LATE CAMBRIAN?—ENIGMATIC SILICIFIED SHELLY FOSSILS FROM THE ST. CHARLES FORMATION, LATE CAMBRIAN (FURONGIAN) OF SOUTHEASTERN IDAHO, USA**
- 225-9 84 Hohman, Charlotte\*; Dooley, Alton C.: **THE IMPLICATIONS OF THE ABSENCE OF HORSES (*EQUUS*) FROM A LATE PLEISTOCENE DEPOSIT AT LAKE ELSINORE, RIVERSIDE COUNTY, CALIFORNIA**
- 225-10 85 Barker, Kelsey\*; Ullmann, Paul V.; Terry, Dennis O.: **RECOVERING ENDOGENOUS CELLS AND SOFT TISSUES FROM FOSSIL BONES: DOES THE DEPOSITIONAL ENVIRONMENT MATTER?**
- 225-11 86 Karnes, Molly\*; Chan, Rachel L.; Griffiths, Michael L.; Shimada, Kenshu; Becker, Martin A.; Eagle, Robert; Cliff, Jeremy; Maisch, Harry M.; Kim, Sora: **INVESTIGATING ENIGMATIC CARBONATE CARBON ISOTOPIC VALUES IN SHARK TEETH: EVIDENCE FOR TEMPERATURE DEPENDENT PARTITIONING**
- 225-12 87 DeVault, Grace\*; Keenan, Sarah W.: **USING FOSSIL BONE GEOCHEMISTRY AND AGE REPORTS TO RECONSTRUCT DIAGENESIS AT THE PIG DIG SITE, BADLANDS NATIONAL PARK, SD**
- 225-13 88 Regan, Anik\*; Holland, Steven M.: **MODELING NONMARINE FOSSIL OCCURRENCES IN A SEQUENCE STRATIGRAPHIC FRAMEWORK USING AN EMBEDDED MARKOV CHAIN METHOD**

- 225-14 89 Sullivan, Colleen A.\*; Keenan, Sarah W.: **VERTEBRATE FOSSIL DISSOLUTION RATES AT VARYING PH: A PILOT STUDY**

- 225-15 90 Visaggi, Christy; Maduro-Salvarrey, Leonardo A.\*; Rich, Megan M.; Lepore, Taormina; Smrecak, Trisha; Muskelly, Cameron; Simon, Candice E.N.; Wilson, Robert A.: **TEXTBOOKS, STORY MAPS, AND FOSSIL USE CARDS: A NEED FOR MORE INCLUSIVE NARRATIVES IN LEARNING ABOUT PALEONTOLOGY AND THE HISTORY OF LIFE**

- 225-16 91 Gfatter, Christian\*; Owens, Jeremy: **ASSESSING TRACE METAL INCORPORATION USING A FLOW THROUGH CULTURING SYSTEM FOR BENTHIC FORAMINIFERA**

**SESSION NO. 226**

**D36: Planetary Potpourri (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 226-1 92 Mccarthy, Joseph\*: **LOOKING AT SMALL FAULTS AND FOLDS ON THE FLOOR OF THE CANDOR CHASMA, VALLES MARINERIS, MARS, IN ARCGIS PRO, AND COMPARING IT TO TWO TERRESTRIAL ANALOGUES-THE ARBUCKLE MOUNTAINS OF OKLAHOMA AND THE LABRADOR TROUGH IN QUEBEC**
- 226-2 93 Curtis, Sabrina\*; Rice, Melissa S.; Kraft, Michael D.; Mulcahy, Sean R.; Lapo, Kristiana E.: **SPECTRAL VARIABILITY IN WEATHERED ULTRAMAFIC TERRESTRIAL ANALOGS FOR MARTIAN ROCKS**
- 226-3 94 Lapo, Kristiana E.\*; Rice, Melissa S.; Kraft, Michael D.; Mulcahy, Sean R.; Hoza, Kathleen M.: **FERRIC COATINGS ON MARS ANALOG SANDS: EFFECTS ON REFLECTANCE SPECTRA AND PHOTOMETRY**
- 226-4 95 Weitz, Catherine\*; Lewis, Kevin; Bishop, Janice; Thomson, Bradley J.; Seelos, Kim D.; Arvidson, Raymond; Grant, John A.; Ettenborough, Ivy: **ORBITAL OBSERVATIONS OF THE MARKER BED AT GALE CRATER**
- 226-5 96 Perez-Cortes, Santa\*; Bretzfelder, Jordan; Day, Mackenzie D.: **CHARACTERIZATION OF SCOUR PITS IN THE MEDUSAE FOSSAE FORMATION OF MARS**
- 226-6 97 Herkenhoff, Ken\*; Sullivan, Robert; Newman, Claire E.; Baker, Mariah: **COMPARISON OF VENTIFACT ORIENTATIONS AND RECENT WIND DIRECTION INDICATORS NEAR THE MARS 2020 OCTAVIA E. BUTLER LANDING SITE ON MARS**
- 226-7 98 Mueller, Jason\*; Warner, Nicholas H.: **WATERSHED ANALYSIS OF THE EBERSWALDE DELTA (EARLY HESPERIAN), MARS**
- 226-8 99 Ramo, Kirtee\*: **STRATIGRAPHIC RELATIONSHIP BETWEEN MOTTLED TERRAIN AND DELTAIC MATERIALS OF JEZERO CRATER**
- 226-9 100 Alwmark, Sanna\*; Kah, Linda; Garczynski, Bradley; Scheller, Eva L.; Smith, Rebecca J.; Stack Morgan, Kathryn; Quantin, Cathy: **DETAILED ORBITAL MAPPING HIGHLIGHTS RELATIONSHIPS AMONG JEZERO CRATER FLOOR UNITS**
- 226-10 101 Skjetne, Helle L.\*; Moersch, Jeffrey E.: **INVESTIGATING SOURCES OF SECONDARY CRATER RIM THERMAL INERTIA VARIATIONS ON MARS**
- 226-11 102 Beddingfield, Chloe\*; Cartwright, Richard J.; Patthoff, D. Alex; Moore, Jeff M.; Beyer, Ross: **POLYGONAL IMPACT CRATERS ON IAPETUS**
- 226-12 103 Peckenpough, Juliana\*; Mijum, Moshammat; Stefanou, Michael; Weber, John C.; Tremblay, Marissa: **CONSTRAINING THE AGE OF KENTLAND CRATER (INDIANA, USA) WITH APATITE (U-TH)/HE THERMOCHRONOLOGY**
- 226-13 104 Buck, Roxanne R.\*; Knight, Marisa D.; Premak, Joshua; Bercovici, Antoine D.; Lyson, Tyler R.; Them, Theodore: **TERRESTRIAL MERCURY CONCENTRATION RECORDS ACROSS THE CRETACEOUS-PALEOGENE INTERVAL IN NORTH AMERICA**
- 226-14 105 Taylor, Cassandra\*; Wilson, Paige; Stromberg, Caroline; Wilson Mantilla, Gregory P.: **EXAMINING PALEOCLIMATE ACROSS**

**THE CRETACEOUS-PALEOGENE (K/PG) BOUNDARY IN NORTHEASTERN MONTANA**

- 226-15 106 Kaskes, Pim\*; Stennik, Mariia; Goderis, Steven; Tagle, Roald; Smit, Jan; Claeys, Philippe: **HIGH-RESOLUTION CHEMOSTRATIGRAPHY ACROSS AN INTERMEDIATE CRETACEOUS-PALEOGENE (K-PG) BOUNDARY SITE: MICRO-X-RAY FLUORESCENCE ANALYSIS OF THE IMPACT EJECTA SEQUENCE AT STARKVILLE, USA**
- 226-16 107 Asselta, Jarred\*; Stinchcomb, Gary; Lukens, William E.: **REVISITING THE CRETACEOUS-PALEOGENE BOUNDARY IN WESTERN KENTUCKY, USA**
- 226-17 108 Ross, Catherine\*; Stockli, Daniel F.; Gulick, Sean P.S.; Kaskes, Pim; Smit, Jan; Artemieva, Natalia: **FINDING A SPECIFIC NEEDLE IN A HAYSTACK: TRACING EJECTED ZIRCON FROM THE CHICXULUB IMPACT IN K-PG BOUNDARY SECTIONS**

**SESSION NO. 227**

**D22. Recent Advances in Precambrian Geology (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 227-1 109 Raju, Perumala\*; Mazumder, Rajat: **THE GEOLOGICAL EVOLUTION OF THE ARCHEAN DHARWAR-CRATON**
- 227-2 110 Matos, Ramiro\*: **CRUSTAL EVOLUTION FROM U-PB GEOCHRONOLOGY AND ISOTOPIC CONSTRAINTS OF THE BOLIVIAN PRECAMBRIAN SHIELD**
- 227-3 111 Hernandez, Emilia\*; Sumner, Dawn Y.: **SEAFLOOR PYRITE NODULES IN THE 2.6 GA JEERINAH FORMATION**
- 227-4 112 Nestel, William\*; Medaris, L. Gordon; Malone, David; Craddock, Erica Powers; Craddock, John; Malone, Shawn J.: **SEDIMENTOLOGY, PALEOMAGNETISM AND DETRITAL ZIRCON PROVENANCE OF A PROTEROZOIC METAGRAYWACKE SUCCESSION IN MARATHON COUNTY, WISCONSIN, USA**
- 227-6 114 Seraine, Marina\*; Spencer, Christopher J.: **SECULAR CHANGES IN SEDIMENTARY GEOCHEMISTRY ACROSS THE ARCHEAN-PROTEROZOIC BOUNDARY IN THE FARDEEP CORE OF FENNOSCANDIA**
- 227-7 115 Seraine, Marina\*; Campos, José Eloi Guimarães; Martins-Ferreira, Marco Antonio Caçador; Chemale, Farid; Angelo, Tiago Valim; Spencer, Christopher J.; Bernardes, Leticia Santos: **MULTI-DIMENSIONAL SCALING OF DETRITAL ZIRCON GEOCHRONOLOGY CONSTRAINS BASIN EVOLUTION OF THE LATE MESOPROTEROZOIC PARANOÁ GROUP, CENTRAL BRAZIL**
- 227-8 116 Olson, Trent\*; Peate, David W.; Horkley, L. Kenneth; Clark, Ryan J.: **THE OTTER CREEK IGNEOUS COMPLEX, NW IOWA – 2.7 GA KOMATIITIC MAGMATISM ON THE SOUTHERN MARGIN OF THE SUPERIOR CRATON**
- 227-9 117 Gibson, Timothy\*; Millikin, Alexie; Anderson, Ross; Piepjohn, Karsten; McClelland, William C.; Crowley, James L.; Rooney, Alan D.; Strauss, Justin: **SYNTHESIS OF THE LOWER HECLA HOEK SUCCESSION ACROSS EASTERN SVALBARD: EARLY TONIAN MAGMATISM AND BASIN FORMATION ALONG THE NORTHEASTERN MARGIN OF LAURENTIA**
- 227-10 118 Bykova, Natalia\*; Nagovitsin, Konstantin; Rogov, Vladimir; Maximenko, Vadim; Gill, Benjamin: **THE MESOPROTEROZOIC OF THE OLENEK UPLIFT, NE SIBERIA**
- 227-11 119 Bristol, Katie\*; Sprain, Courtney; Meert, Joseph: **ABSOLUTE PALEOINTENSITY FOR PRECAMBRIAN-AGED DIKES FROM INDIA**

**SESSION NO. 228**

**D28. Recent Advances in Stratigraphy (Posters)**

9:00 AM, Oregon Convention Center, Exhibit Hall A

Authors will be present from 11 AM to 1 PM

Booth #

- 228-1 120 Lewis, Carter\*; Alsleben, Helge; Denne, Richard A.; Henk, Bo: **STRATIGRAPHIC CORRELATION OF THE AUSTIN CHALK USING SPECTRAL GAMMA RAY DATA FROM OUTCROPS IN NORTH-CENTRAL TEXAS**
- 228-2 121 Khatri, Samantha\*; Beatty, W. Lee; Holland, Steven M.: **NONMARINE SEQUENCE-STRATIGRAPHIC ARCHITECTURE OF THE UPPER CRETACEOUS HELL CREEK FORMATION, NEAR MARMARTH, NORTH DAKOTA**
- 228-3 122 Shekut, Samuel\*; Saylor, Joel: **APPLICATION OF HIGH-RESOLUTION, IN-SITU MAJOR ELEMENT ANALYSIS OF SEDIMENTARY STRATA IN THE CENTRAL ANDES TO RECONSTRUCT CLIMOFUNCTIONS**
- 228-4 123 Jackson, Joseph\*; Shimer, Grant: **CHEMOSTRATIGRAPHY OF THE LOWER MEMBER OF THE CHINLE FORMATION, CEDAR CITY, UTAH**
- 228-5 124 Cothren, Hannah\*; Farrell, Thomas; Sundberg, Fred A.; Schmitz, Mark D.; Dehler, Carol: **NEEDS MORE SPICE: REVISITING THE STEPTOEAN POSITIVE ISOTOPIC CARBON EXCURSION IN WESTERN LAURENTIA**

**AFTERNOON ORAL TECHNICAL SESSIONS**

**SESSION NO. 229**

**D1. Recent Advances in Economic Geology**

1:30 PM, Oregon Convention Center, A107–A109

Lucie Mathieu and Cortland Eble, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 229-1 1:35 PM Lehman, Miranda\*; Monecke, Thomas; Kelly, Nigel M.; Pfaff, Katharina; Mercier-Langevin, Patrick: **UNRAVELING BULK-ROCK COMPOSITIONAL CONTROLS ON METAMORPHIC ASSEMBLAGES AT THE LARONDE-PENNA VOLCANOGENIC MASSIVE SULFIDE DEPOSIT**
- 229-2 1:50 PM Kristoffersen, N. Kieran\*; Hattori, Keiko; Simpson, Mark P.: **AMMONIUM MINERALS IN THE ALTERATION HALOS OF EPITHERMAL GOLD-SILVER DEPOSITS IN THE HAURAKI GOLDFIELD, NEW ZEALAND**
- 229-3 2:05 PM Barefoot, Marisa\*; Bilenker, Laura; Hudgins, Tom; Giovannetti-nazario, David: **DEVELOPING A GENETIC MODEL FOR THE TIBES IRON DEPOSIT, PUERTO RICO**
- 229-4 2:20 PM Mathieu, Lucie\*: **NEOARCHEAN MAGMATISM AND ITS IMPORTANCE FOR MINERALIZING PROCESSES**
- 229-5 2:35 PM Rivera, Elyssa\*; Bilenker, Laura; King-Doonan, Elizabeth: **BUILDING A FRAMEWORK FOR INTERPRETING THE MO ISOTOPIC COMPOSITION OF ORE**
- 229-6 2:50 PM Barkoff, Drew\*; Jowitt, Simon: **GEOCHEMISTRY AND PETROGENESIS OF A HYDROTHERMALLY ALTERED EVOLVED RHYOLITE, SOUTHERN WAH WAH MOUNTAINS, UTAH: IMPLICATIONS FOR THE IGNEOUS DISTRIBUTION OF CRITICAL ELEMENTS**
- 3:05 PM **BREAK**
- 229-7 3:20 PM Funk, Jonathan\*; Mauk, Jeffrey; Karl, Nick: **EVOLUTION OF POTASH MINING STRATEGIES IN THE US**
- 229-8 3:35 PM Andrews, William\*: **REE DISTRIBUTION IN UNDERCLAYS FROM TWO PENNSYLVANIAN CORES IN KENTUCKY**
- 229-9 3:50 PM Fatimah, Dian\*; Her Krissanto, Juvens; Alif, M Nur: **BEDROCK CONTROL ON THE CHARACTERISTICS OF LATERITE NICKEL DEPOSITS BLOCK D2-E2, WATURAMBAHA VILLAGE, LASOLO ISLANDS DISTRICT, NORTH KONAWA REGENCY, SOUTHEAST SULAWESI**
- 229-10 4:05 PM Hulett (he/him), Samuel\*; Fugitt, Franklin; Wright, Christopher: **QUALITATIVE RARE EARTH ELEMENT**

AM  
WEDNESDAY

POSTERS



**ANALYSIS OF OHIO UNDERCLAYS USING PORTABLE X-RAY FLUORESCENCE**

229-11 4:20 PM Eble, Cortland\*: **RARE EARTH ELEMENT VARIABILITY WITHIN THE FIRE CLAY COAL BED IN EASTERN KENTUCKY**

229-12 4:35 PM Wynn, Ian\*; Weiland, Thomas; Carter, Burt: **A STUDY IN THE MINERALOGICAL AND AESTHETIC CHARACTERISTICS OF SEDIMENTS IN GANSU PROVINCE, CHINA**

**SESSION NO. 230**

***D12. Coastal and Marine Hydrology in an Age of Rising Seas: From the Margin to the Oceanic Ridge***

1:30 PM, Oregon Convention Center, D137

Christopher Russoniello, Michael Sukop, Martina Rogers, Barret Kurylyk and Shellie Habel, Presiding

1:30 PM **INTRODUCTORY REMARKS**

230-1 1:35 PM Cunningham, William\*: **SELECTED U.S. GEOLOGICAL SURVEY INVESTIGATIONS OF COASTAL AND ISLAND HYDROGEOLOGY**

230-2 1:50 PM Osborne, Andrew; Wilson, Alicia\*: **LARGE-SCALE GROUNDWATER FLOW AND THE MAJOR ION CHEMICAL BUDGETS OF THE OCEAN**

230-3 2:05 PM Zhang, Yipeng\*; Mayer, Alex; Gulley, J.; Martin, Jonathan: **FRESHWATER RESOURCE DEPLETION ON OCEAN ISLANDS AS LAKES FORM AND EXPAND WITH SEA LEVEL RISE**

230-4 2:20 PM Korterud, Caroline\*; Becker, Matthew: **CHARACTERIZING HYDROSTRATIGRAPHY OF A TROPICAL FRINGING REEF, MO'OREA, FRENCH POLYNESIA**

230-5 2:35 PM Guimond, Julia\*; Mohammed, Aaron A.; Walvoord, Michelle A.; Bense, Victor F.; Kurylyk, Barret: **CLIMATE CHANGE IMPACTS ON ARCTIC SUBMARINE GROUNDWATER DISCHARGE**

230-6 2:50 PM Vincent, Jacob L.\*; Wilson, Alicia M.: **PREDICTING THE TIMING AND MAGNITUDE OF SDG IN THE SOUTH ATLANTIC BIGHT USING MACHINE LEARNING**

230-7 3:05 PM Root, Tara\*; Lopez-Trujillo, Dianne; Petkewich, Matthew; McCloskey, Bryan: **DEVELOPMENT OF A WEB-BASED TOOL FOR COASTAL WATER RESOURCES MANAGEMENT**

3:20 PM **DISCUSSION**

3:35 PM **BREAK**

230-8 3:50 PM Russoniello, Christopher\*; Carpinello, Dennis Jesse; Heiss, James: **THE ROLE OF UNSATURATED AQUIFER VOLUME ON SALINIZATION DURING OVERTOPPING**

230-9 4:05 PM Heiss, James\*; Mase, Bryce: **COASTAL AQUIFER RESPONSE TO INCREASED TIDAL FLOODING FROM SEA LEVEL RISE**

230-10 4:20 PM Rogers, Martina\*; Sukop, Michael; Obeysekera, Jayantha: **AQUIFER PARAMETER ESTIMATION USING TIDE-INDUCED WATER TABLE FLUCTUATION IN MIAMI-DADE COUNTY, FLORIDA**

230-11 4:35 PM Sukop, Michael\*; Lau, Kingsley; Rogers, Martina; Obeysekera, Jayantha: **SALTWATER, CONCRETE, AND REBAR: ARE RISING SEAS A THREAT TO COASTAL BUILDINGS?**

230-12 4:50 PM Costa, Ozeas\*; Costa, Eron Talles F.; Barbieri, Ricardo: **EFFECTS OF URBANIZATION AND RIPARIAN VEGETATION DENSITY ON WATER QUALITY OF TWO TROPICAL, MACROTIDAL RIVERS**

230-13 5:05 PM Michael, Holly\*; Xu, Zhongyuan; Hariharan, Jayaram; Passalacqua, Paola; Khan, Mahfuzur R; Ahmed, Kazi Matin; Zahid, Anwar; Paola, Chris; Steel, Elisabeth; Chadwick, Austin J.: **FROM SURFACE TO SUBSURFACE: CONNECTING DEPOSITIONAL PROCESSES**

**AND SURFACE FEATURES TO SUBSURFACE ARCHITECTURE AND CONTAMINANT TRANSPORT IN DELTAIC AQUIFERS**

5:20 PM **CONCLUDING REMARKS**

**SESSION NO. 231**

***T1. Cascadia Subduction Zone Earthquakes: Geologic, Geophysical, and Modeling Constraints on Rupture Timing and Process (GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division; GSA Geophysics and Geodynamics Division; GSA Marine and Coastal Geoscience Division; GSA Geoinformatics and Data Science Division)***

1:30 PM, Oregon Convention Center, Portland Ballroom 257 (Hybrid Room)

Lydia Staisch, Chris Goldfinger, Nora Nieminski, Maureen Walton and Sean Richard LaHusen, Presiding

1:30 PM **INTRODUCTORY REMARKS**

231-1 1:35 PM Tanigawa, Koichiro\*; Sawai, Yuki; Bobrowsky, Peter; Huntley, David H.; Goff, James; Shinozaki, Tetsuya; Itou, Kazumi: **REVISED CHRONOLOGY OF EVENT DEPOSITS BEFORE THE 1700 CASCADIA TSUNAMI LAYERS FROM THE SOUTHWEST COAST OF VANCOUVER ISLAND, CANADA**

231-2 1:50 PM Hong, Isabel\*; Cahill, Niamh; Engelhart, Simon E.; Hawkes, Andrea D.; Padgett, Jason S.; Horton, Benjamin P.: **LAND-LEVEL CHANGES DURING SIX MEGATHRUST EARTHQUAKES OVER THE LAST 3500 YEARS AT THE CASCADIA SUBDUCTION ZONE USING A DIATOM-BASED BAYESIAN TRANSFER FUNCTION (Invited Presentation)**

231-3 2:10 PM Troost, Kathy Goetz\*; Davis, Elizabeth J.; Miller, Ian; Bush, Chelsea; Freeman, Elise; Benson, Mary Alice K.: **RAPID RETREAT OF A POTENTIALLY UPLIFTED COASTAL TERRACE AT RIALTO BEACH, ON THE PACIFIC COAST OF WASHINGTON**

231-4 2:25 PM LaHusen, Sean\*; Perkins, Jonathan; Grant, Alex: **WHAT CAN CASCADIA'S COASTAL LANDSLIDES REVEAL ABOUT COSEISMIC TRIGGERING AND THE PATTERN OF STRONG GROUND MOTION FROM MEGATHRUST EARTHQUAKES?**

231-5 2:40 PM Freeman, Elise\*; Troost, Kathy; Bush, Chelsea; Benson, Mary Alice K.; Davis, Elizabeth J.; Brutzkus, Pamela: **POSSIBLE CO-SEISMIC LANDSLIDE AT RIALTO BEACH, PACIFIC COAST OF WASHINGTON**

231-6 2:55 PM Talaia-Murray, Manique\*; Grant, Alex; Hill, Jenna C.: **MORPHOLOGIC AND TEMPORAL DISTRIBUTION OF SUBMARINE LANDSLIDES ALONG THE CASCADIA MARGIN**

231-7 3:10 PM Patton, Jay\*; Dengler, Lori; Nicolini, Troy; Wilson, Rick: **SEEKING CONSENSUS – THE SOUTHERN CASCADIA WORKING INTEREST GROUP SCWIG**

3:25 PM **BREAK**

231-8 3:35 PM Goldfinger, Chris\*; Walczak, Maureen; Sahakian, Valerie J.; Reilly, Brendan; Valdez Hernandez, Saray: **LOCATION, LOCATION, LOCATION: CASCADIA TURBIDITE STRATIGRAPHY AT THE INTERFACE BETWEEN PALEOSEISMIC AND PALEOCLIMATE RECORDS**

231-9 3:50 PM Pearl, Jessie\*; Black, Bryan; Pringle, Patrick; Sherrod, Brian L.; Angster, Stephen; Johns, Wes: **ESTABLISHING PRECISE AGES FOR PAST CASCADIA SEISMICITY USING MULTIPROXY TREE-RING RECORDS (Invited Presentation)**

231-10 4:10 PM McPhillips, Devin\*; García Suárez, Joaquín; Scharer, Katherine; Asimaki, Domniki: **ROCK PILLARS AS GROUND MOTION CONSTRAINTS IN OREGON AND CALIFORNIA, USA**

231-11 4:25 PM Priest, George\*; Allan, Jonathan: **PALEOSEISMIC CONSTRAINTS ON MAXIMUM COSEISMIC SLIP IN THE**

**CASCADIA SUBDUCTION ZONE, A KEY FACTOR FOR PROBABILISTIC TSUNAMI HAZARD ASSESSMENT (PTHA)**

- 231-12 4:40 PM Ashraf, Asif\*; Filina, Irina: **PROPAGATOR WAKES OF THE JUAN DE FUCA PLATE - ARE THEY WEAKER OR STRONGER THAN THE SURROUNDING OCEANIC CRUST?**
- 231-13 4:55 PM Staisch, Lydia\*; Watt, Janet; Witter, Robert; Perkins, Jonathan; Brothers, Daniel S.; Dura, Tina; Goldfinger, Chris; Grant, Alex; Hawkes, Andrea D.; Hill, Jenna C.; Kelsey, Harvey M.; Sherrod, Brian L.; Engelhart, Simon E.; Enkin, Randy; Gomberg, Joan; Hamilton, Tark; Hong, Isabel; Jaffe, Bruce; Garrison-Laney, Carrie; La Selle, SeanPaul; Meigs, Andrew; Melgar, Diego; Nieminski, Nora; Padgett, Jason S.; Patton, Jason R.; Pearl, Jessie; Pilarczyk, Jessica; Sahakian, Valerie J.; Stanton, Kelsay; Walton, Maureen: **PALEOSEISMIC SURF AND TURF: UPDATES FROM THE USGS POWELL CENTER CASCADIA EARTHQUAKE WORKING GROUP ON SYSTEMATIC INTEGRATION OF ONSHORE AND OFFSHORE RECORDS AND FUTURE DIRECTIONS**
- 5:10 PM **DISCUSSION**

**SESSION NO. 232** 

**T24. The Life and Times of Arc Volcanoes from Bottom to Top II (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

1:30 PM, Oregon Convention Center, A106

Anita Grunder, Thomas Sisson and Kellie Wall, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 232-1 1:35 PM Coombs, Michelle\*; Jicha, Brian: **ERUPTIVE HISTORY AND MAGMATIC EVOLUTION PROCESSES OF LONG-LIVED AKUTAN VOLCANO, EASTERN ALEUTIAN ISLANDS**
- 232-2 1:50 PM Calvert, Andrew\*; Bacon, Charles; Sisson, Thomas: **COMPOSITIONAL PROGRESSION FROM BASALT-ONLY TO BASALT+ANDESITE+DACITE DURING THE 300 KA ERUPTIVE HISTORY OF MT. VENIAMINOF, ALASKA (Invited Presentation)**
- 232-3 2:10 PM Sisson, Thomas\*; Bacon, Charles; Calvert, Andrew; Salters, Vincent: **MOBILE, "DRY" DACITES BY SHALLOW, GABBROIC DIFFERENTIATION OF ARC BASALTS AT MOUNT VENIAMINOF VOLCANO, ALASKA PENINSULA**
- 232-4 2:25 PM Wall, Kellie\*; Grunder, Anita: **AS ONE FLAME CEASES, ANOTHER LIGHTS: MIGRATING VENTS COMPRISE ~3 M.Y. OF MAGMATISM AT THE GOAT ROCKS VOLCANIC COMPLEX, WA CASCADES**
- 232-5 2:40 PM Platt, Bryant\*; Putirka, Keith: **DOES THE ARRIVAL OF RECHARGE MAGMA CONTROL THE TIMING OF VOLCANIC ERUPTIONS? EVIDENCE FOR POST-RECHARGE COOLING IN MINERAL THERMAL PROFILES FROM BROKEOFF VOLCANO, LASSEN VOLCANIC CENTER, CALIFORNIA**
- 232-6 2:55 PM Waters, Laura\*: **CONDITIONS THAT GIVE RISE TO EFFICIENT SEGREGATION AND ERUPTION OF RHYOLITE-OBSIDIANS IN THE CASCADES: A PETROLOGIC STUDY OF RHYOLITES FROM MEDICINE LAKE, SOUTH SISTER, AND LASSEN (Invited Presentation)**
- 232-7 3:15 PM Coulombe, Julie\*; McCanta, Molly C.: **COMPARATIVE GEOCHEMICAL ANALYSIS OF RECENT VOLCANIC FLOWS ON BARVA VOLCANO, COSTA RICA**
- 3:30 PM **BREAK**
- 232-8 3:40 PM Herbst, Thomas\*; Whittington, Alan; Pistone, Mattia; Schiffbauer, James D.; Selly, Tara: **THE VOLCANIC EXPLOSIVE-EFFUSIVE TRANSITION: INSIGHTS FROM A CRYSTALLINITY-BASED PERMEABILITY MODEL**
- 232-9 3:55 PM Aksit, Gui\*; Townsend, Meredith; Harp, Andrew: **INVESTIGATING THE EVOLUTION OF MAGMA**

**PROPERTIES DURING DIKE PROPAGATION AT SUMMER COON VOLCANO, CO**

- 232-10 4:10 PM Kubo Hutchison, Allison\*; Karlstrom, Leif; Mittal, Tushar; Harper, Chris: **OBJECTIVE LINKING OF DIKE SEGMENTS TO EVALUATE MESOSCALE STRUCTURE OF DIKE SWARMS**
- 232-11 4:25 PM Ruggles, Claire\*; Morgan, Sven; Reber, Jacqueline E.: **AN EMPLACEMENT MODEL FOR LOW-VOLUME INTRUSIONS BASED ON THE SHONKIN SAG LACCOLITH, MONTANA**
- 232-12 4:40 PM Mazza, Sarah\*; Stracke, Andreas; Gill, James B.; Kleine, Thorsten: **TRACING DEHYDRATION OF THE SUBDUCTED SLAB WITH TUNGSTEN ISOTOPES IN ARC LAVAS**
- 232-13 4:55 PM Guild, Meghan R.\*; Barnes, Jaime D.: **CARBON & OXYGEN ISOTOPE COMPOSITION OF MANTLE CARBONATES FROM THE NAVAJO VOLCANIC FIELD (COLORADO PLATEAU, USA)**
- 232-14 5:10 PM Andersen, Nathan\*: **INTEGRATING PETROLOGIC AND GEOPHYSICAL PERSPECTIVES ON THE RHYOLITIC MAGMA RESERVOIR AT LAGUNA DEL MAULE, CHILE (Invited Presentation)**

**SESSION NO. 233**

**T25. Metamorphism into the 21st Century II—A Celebration of the Career of Mike Brown (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Geochemical Society)**

1:30 PM, Oregon Convention Center, Portland Ballroom 252 (Hybrid Room)

Chris Yakymchuk, Julia Baldwin and Mark Caddick, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 233-1 1:35 PM Guevara, Victor\*; Smye, Andrew J.; Caddick, Mark; Olsen, Telemak; Searle, Michael P.; Whalen, Lisa M.; Kylander-Clark, Andrew; Waters, David J.; Jercinovic, Michael J.: **A MODERN PULSE OF ULTRAFAST MID-CRUSTAL EXTRUSION AND DIACHRONOUS CRUSTAL MELTING IN THE NANGA PARBAT MASSIF (Invited Presentation)**
- 233-2 1:55 PM Pattison, David\*: **POLYMETAMORPHISM IN THE BUCHAN TYPE AREA, NE SCOTLAND**
- 233-3 2:10 PM Ferrero, Silvio\*; Wannhoff, Iris; Laurent, Oscar; Yakymchuk, Chris; Darling, Robert S.; Wunder, Bernd; Borghini, Alessia; O'Brien, Patrick J.: **EMBRYOS OF TTGS IN GORE MOUNTAIN GARNET MEGACRYSTS FROM WATER-FLUXED MELTING OF THE LOWER CRUST**
- 233-4 2:25 PM Borghini, Alessia\*; Ferrero, Silvio; Nicoli, Gautier; O'Brien, Patrick J.; Laurent, Oscar; Remusat, Laurent; Borghini, Giulio; Milani, Sula: **THE CONTRIBUTION OF DEEPLY SUBDUCTED CONTINENTAL CRUST TO MANTLE METASOMATISM AND DEEP CARBON CYCLE**
- 233-5 2:40 PM Abdale, Lindsey\*: **CORUNDUM GENESIS IN ALUMINOUS LEUCOSOME AT THE BLUE JAY SAPPHIRE OCCURRENCE (BRITISH COLUMBIA, CANADA) AS A RECORD OF METAMORPHISM AND PARTIAL MELTING IN THE MONASHEE COMPLEX**
- 2:55 PM **BREAK**
- 233-6 3:15 PM Hernández Uribe, David\*; Spera, Frank J.; Bohrsen, Wendy; Heinonen, Jussi: **PETROLOGICAL MODELING VS PETROLOGICAL MODELING: A COMPARATIVE STUDY OF TWO PHASE EQUILIBRIUM MODELING TOOLS**
- 233-7 3:30 PM Kendrick, Jillian; Duguet, Manuel; Yakymchuk, Chris\*: **TTG GEOCHEMICAL TRENDS CONTROLLED BY PLAGIOCLASE FRACTIONATION IN A MIDDLE-CRUSTAL MUSH**
- 233-8 3:45 PM Whitney, Donna L.\*; Hamelin, Clementine; Korchinski, Megan; Rey, Patrice F.; Roger, Françoise; Teyssier, Christian; Vervoort, Jeffrey D.: **RECONSTRUCTION OF REGIONAL-SCALE FLOW PATHS OF PARTIALLY-**

- MOLTEN CRUST AS RECORDED BY MIGMATITES AND ECLOGITES**
- 233-9 4:00 PM Dragovic, Besim\*; Guevara, Victor; Caddick, Mark; Inglis, Jeremy; Kylander-Clark, Andrew R.C.: **NEOARCHEAN POLYMETAMORPHISM AND CRUSTAL MELTING DUE TO MAGMATIC HEAT ADVECTION IN THE NORTHERN WYOMING PROVINCE: INSIGHTS FROM GARNET PETROCHRONOLOGY AND THERMAL MODELING**
- 233-10 4:15 PM Guice, George\*; Magalhães, Joana R.; Pinheiro, Marco A.P.; Ferreira, Raianny C.R.; Meira, Vinicius T.; Melo-Silva, Paola de; Ackerson, Michael: **SPINEL-GROUP MINERAL CHEMISTRY AS A RECORD OF MAGMATIC AND METAMORPHIC PROCESSES: EVIDENCE FROM THE MORRO DO ONÇA KOMATIITES, MINAS GERAIS (BRAZIL)**
- 4:30 PM **DISCUSSION**

**SESSION NO. 234**

**T39. Engineering Geology for the Betterment of Society: Honoring the Legacy of Jerome V. De Graff (GSA Environmental and Engineering Geology Division)**

1:30 PM, Oregon Convention Center, Portland Ballroom 254 (Hybrid Room)  
Dennis Staley and Alan Gallegos, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 234-1 1:35 PM Cronin, Vincent S.\*: **GEOETHICS IN ENGINEERING GEOLOGY – A TRIBUTE TO JERRY DE GRAFF**
- 234-2 1:50 PM De Graff, Jerome V.; Staley, Dennis\*; Stock, Greg; Takenaka, Kellen; Gallegos, Alan; Neptune, Chad: **RAINFALL TRIGGERING OF POST-FIRE DEBRIS FLOWS OVER A 28-YEAR PERIOD NEAR EL PORTAL, CALIFORNIA, USA**
- 234-3 2:05 PM Short, William R.\*; Cafferata, Peter H.; Coe, Drew B.R.: **SIXTY YEARS OF POST-FIRE ASSESSMENT AND MONITORING ON NON-FEDERAL LANDS IN CALIFORNIA: WHAT HAVE WE LEARNED?**
- 234-4 2:20 PM Schwartz, Jonathan\*; Oakley, Nina; Alessio, Paul: **ASSESSMENT OF A POST-FIRE DEBRIS FLOW IMPACTING EL CAPITAN WATERSHED, SANTA BARBARA COUNTY, CALIFORNIA, USA**
- 234-5 2:35 PM Neptune, Chad\*; DeGraff, Jerome; Pluhar, Christopher; Lancaster, Jeremy; Staley, Dennis: **RAINFALL THRESHOLDS FOR POST-FIRE DEBRIS FLOW GENERATION, WESTERN SIERRA NEVADA, CA**
- 234-6 2:50 PM Swanson, Brian J.; Lukashov, Stefani\*; Schwartz, Jonathan; Lindsay, Donald; Lancaster, Jeremy: **ASSESSMENT OF LOGISTIC REGRESSION MODEL PERFORMANCE AND PHYSICAL CONTROLS ON 1-9-2018 DEBRIS FLOWS, THOMAS FIRE, CALIFORNIA**
- 234-7 3:05 PM Collins, Brian\*; Corbett, Skye C.; Horton, Elizabeth J.; Gallegos, Alan: **ROCKFALL KINEMATICS FROM MASSIVE ROCK CLIFFS: OUTLIER BOULDERS AND FLYROCK FROM WHITNEY PORTAL, CALIFORNIA ROCKFALLS (Invited Presentation)**
- 234-8 3:25 PM Coe, Jeffrey\*; Collins, Brian; Staley, Dennis: **FIELD RECONNAISSANCE OF GEOLOGY AND ROCK MASS QUALITY ASSOCIATED WITH LANDSLIDES AT BARRY ARM FJORD, PRINCE WILLIAM SOUND, ALASKA**
- 234-9 3:40 PM Kim, Donghui\*; Baek, Hwanjo: **APPLICATION OF 3D SCANNING TECHNIQUES FOR ASSESSING THE ENGINEERING GEOLOGICAL PROPERTIES OF FRACTURED ROCKMASSES**
- 234-10 3:55 PM Wooten, Richard\*; Scheip, Corey M.; Hill, Jesse; Douglas, Thomas J.; Korte, David M.; Cattanach, Bart; Bozdog, G. Nicholas; Isard, Sierra J.: **RESPONSES TO LANDSLIDES AND LANDSLIDE MAPPING ON THE BLUE RIDGE ESCARPMENT, POLK COUNTY, NORTH CAROLINA, USA (Invited Presentation)**

- 234-11 4:15 PM Pluhar, Christopher J.\*; DeGraff, Jerome V.: **GEOHERMAL SOURCE CHARACTERISTICS OF MONO HOT SPRINGS, CALIFORNIA**
- 234-12 4:30 PM Gallegos, Alan\*: **ROCK FALL AS POTENTIAL FOR CAUSE OF THE 2013 RIM WILDFIRE CLAVEY RIVER, CENTRAL CALIFORNIA**
- 234-13 4:45 PM Keaton, Jeffrey\*: **CONSIDERING ENGINEERING GEOLOGY INPUT FOR PROBABILISTIC FLOOD HAZARD ASSESSMENTS**
- 234-14 5:00 PM Burns, Scott\*: **STABILIZATION OF A LANDSLIDE PRONE SLOPE IN LOESS SOIL WITHOUT GRADING AND WALLS**
- 234-15 5:15 PM Karim, Mir\*; Kayal, Jnana Ranjan; Shanker, Daya; Khandaker, Nazrul; Sikder, Arif; Rahman, M. Zillur; Hassan, Muhammad Qumrul: **TECTONIC AND GEOTECHNICAL REVIEW OF BENGAL BASIN FOR SEISMIC RISK ASSESSMENT IN BANGLADESH**

**SESSION NO. 235**

**T59. Effects of Carbonate Minerals on Critical Zone Characteristics and Processes (GSA Karst Division; GSA Hydrogeology Division; National Cave and Karst Research Institute; Karst Waters Institute)**

1:30 PM, Oregon Convention Center, D136 (Hybrid Room)

- Jonathan Martin, Matthew Covington, Laura Toran, Pamela Sullivan and Jennifer Macalady, Presiding
- 1:30 PM **INTRODUCTORY REMARKS**
- 235-1 1:35 PM Covington, Matthew\*; Martin, Jonathan; Toran, Laura; Heffernan, James; Sullivan, Pamela L.; Garcia, Angel; Macalady, Jennifer L.; Graham, Wendy: **DEFINING THE NEED FOR CARBONATE CRITICAL ZONE RESEARCH**
- 235-2 1:50 PM Gao, Yongli\*: **BOUNDARIES AND SCALES OF EXTREME KARST FEATURES IN THE CARBONATE CRITICAL ZONE (Invited Presentation)**
- 235-3 2:10 PM Pierce, Jennifer\*; Huber, David; Ghahremani, Zahra; Molina, Kerry; Minich, Bradford; KaCoursiere, Kyle; Hanif, Tanzila; Flerchinger, Gerald; Bjorneberg, David; Jin, Lixin: **ARE PEDOGENIC CARBONATES IN DRYLAND SOILS A SOLUTION TO CLIMATE CHANGE? EVALUATING THE AMOUNTS, RATES AND PROCESSES OF CARBONATE FORMATION IN AGRICULTURAL AND NATURAL CRITICAL ZONE SYSTEMS**
- 235-4 2:25 PM Engle, Mark\*; Ma, Lin; Valenzuela, Nohemi; Gutierrez, Hugo A.; Torres, Alfredo D.; Ramirez-Valle, Orlando; Darrouzet-Nardi, Anthony: **EXPLORING CONTROLS ON UNSATURATED WATER MOVEMENT IN DRYLAND ENVIRONMENTS: INITIAL INSIGHTS FROM THE DRYLAND CRITICAL ZONE NETWORK CLUSTER**
- 235-5 2:40 PM Soto-Kerans, Nick\*; Gulle, J.; Breithaupt, C.; Nolting, A.; Fernandez-Ibanez, F.; Fullmer, S.; Moore, P.J.; Kerans, C.: **THE IMPORTANCE OF LITHOLOGIC VARIABILITY AND STRATIGRAPHIC ARCHITECTURE IN THE DEVELOPMENT OF EOGENETIC KARST SYSTEMS**
- 235-6 2:55 PM Pain, Andrea\*; Martin, Jonathan: **HYDROGEOLOGIC CONTROLS ON ORGANIC AND INORGANIC CARBON PROCESSES IN KARST SUBTERRANEAN ESTUARIES**
- 3:10 PM **BREAK**
- 235-7 3:20 PM Bosch, Rachel\*: **VULNERABILITY OF CARBONATE CRITICAL ZONES TO EXTREME GEOMORPHIC EVENTS (Invited Presentation)**
- 235-8 3:40 PM Compare, Kyle\*; Ye, Ming: **EXAMINING THE IMPACTS OF A LAKE-DRAINING SINKHOLE EVENT ON THE DOWNGRADIENT AQUIFER**
- 235-9 3:55 PM Oberhelman, Andrew\*; Martin, Jonathan; Flint, Madison: **OCCURRENCE AND FATE OF DISSOLVED METHANE WITHIN THE CARBONATE CRITICAL ZONE OF NORTH-CENTRAL, FLORIDA**



- 235-10 4:10 PM Flint, Madison\*; Martin, Jonathan; Oberhelman, Andrew: **CONTROLS ON N<sub>2</sub>O DYNAMICS AT A CARBONATE-SILICATE CRITICAL ZONE BOUNDARY OF NORTH-CENTRAL, FLORIDA**
- 235-11 4:25 PM Hasenmueller, Elizabeth\*; Levin, Heather; Baraza, Teresa; Montgomery, Ashleigh: **FRESHWATER SALINIZATION IN CARBONATE CRITICAL ZONES (Invited Presentation)**
- 235-12 4:45 PM Sarker, Shishir\*; Fryar, Alan E.: **SUSCEPTIBILITY OF A MOUNTAINOUS KARST SPRING TO CLIMATE AND LAND USE/LANDCOVER CHANGE, LIDDAR BASIN, KASHMIR, INDIA**
- 235-13 5:00 PM Baraza, Teresa\*; Hasenmueller, Elizabeth: **MICROPLASTIC POLLUTION INTRUDES CARBONATE CRITICAL ZONES DURING FLOOD EVENTS**
- 235-14 5:15 PM Aman, Lindsey\*; Toran, Laura; Covington, Matthew: **CONSOLIDATION OF OPEN-SOURCE DATA TOOLS FOR CARBONATE CRITICAL ZONE RESEARCH**

**SESSION NO. 236**  

**T69. Out of This World Lakes (GSA Limnogeology Division; GSA Planetary Geology Division; GSA Quaternary Geology and Geomorphology Division; SEPM (Society for Sedimentary Geology); Geochemical Society; GSA Geobiology and Geomicrobiology Division)**

1:30 PM, Oregon Convention Center, D135

Kathleen Benison, Brenda Bowen and Johan C. Varekamp, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 236-1 1:35 PM Rampe, Elizabeth\*; Bristow, Thomas F.; Blake, David F.; Vaniman, David T.; Ming, Douglas W.; Morris, Richard V.; Yen, Albert S.; Chipera, Steve; Downs, Robert T.; Hazen, Robert M.; Treiman, Allan; Achilles, Cherie N.; Morrison, Shauna; Grotzinger, John; Thorpe, Michael T.; Des Marais, David J.; Craig, Patricia I.; Castle, Nicholas; Downs, Gordon W.; Tu, Valerie M.; Peretyazhko, Tanya S.; Wilson, Michael A.: **CHANGES IN LAKE WATER CHEMISTRY AND DIAGENESIS FROM MINERAL DETECTIONS IN ANCIENT LAKE SEDIMENTS IN GALE CRATER, MARS (Invited Presentation)**
- 236-2 1:55 PM Berger, Jeff A.\*; Gellert, Ralf; King, Penelope L.; McCraig, Michael A.; O'Connell-Cooper, Catherine D.; Schmidt, Mariek E.; Spray, John G.; Thompson, Lucy M.; VanBommel, Scott J.V.; Yen, Albert S.: **ELEMENTAL COMPOSITION AND CHEMICAL EVOLUTION OF SEDIMENTARY ROCKS IN GALE CRATER, MARS: APXS RESULTS FROM THE FIRST 25 KM OF THE ROVER CURIOSITY'S TRAVERSE**
- 236-3 2:10 PM Kodikara, Gayantha\*; McHenry, Lindsay: **POSSIBLE REASONS FOR LIMITED DETECTIONS OF ZEOLITES IN CLOSED BASIN PALEOLAKES ON MARS: LESSONS LEARNED FROM LAKE TECOPA, CALIFORNIA**
- 236-4 2:25 PM Radwin, Mark\*; Bowen, Brenda; Benison, Kathleen: **IRON DIAGENESIS IN WESTERN AUSTRALIA ACID SALINE SEDIMENTS: OBSERVATIONS FROM REFLECTANCE SPECTROSCOPY AND MICROSCOPY**
- 2:40 PM **BREAK**
- 236-5 2:55 PM Pontefract, Alexandra J.\*; Nichols, Floyd; Osburn, Magdalena R.; Carr, Christopher E.: **HABITABILITY AND BIOSIGNATURE PRESERVATION IN A SULFATE BRINE: LESSONS FROM THE "SPOTTED" LAKES (Invited Presentation)**
- 236-6 3:15 PM Doran, Peter\*; Karunatillake, Suniti: **THE MCMURDO DRY VALLEY LAKES, ANTARCTICA, AS ANALOGS FOR MARS LAKES OF THE PAST**
- 236-7 3:30 PM Cauley, Christina\*; Varekamp, Johan; Kuehn, Stephen C.: **EVOLUTION OF PAULINA LAKE (NEWBERRY, OR) OVER THE LAST FEW THOUSAND YEARS: UPDATED TEPHROCHRONOLOGY WITH NEW MICROPROBE ANALYTICAL RESULTS**

- 236-8 3:45 PM Brumberger, Haley\*; Koetter, Sabrina; Thomas, Ellen; Cauley, Christina; Varekamp, Johan: **ENVIRONMENTAL EVOLUTION OF PAULINA LAKE (NEWBERRY, OR) OVER THE LAST 15,000 YEARS**
- 236-9 4:00 PM Gontz, Allen\*; Tibby, John; Marshall, Jonathan; Barr, Cameron; Hofmann, Harald: **INITIAL INSIGHTS INTO THE EVOLUTION AND HYDROLOGY OF FERN GULLY, MINJERRIBAH, AUSTRALIA**
- 236-10 4:15 PM Potter-McIntyre, Sally\*; McCollom, Thomas; Walker, Jordan: **OLD LAKE, NEW INTERPRETATION: A RECORD OF A POTENTIAL JURASSIC COASTAL ACID SALINE LAKE SYSTEM**
- 4:30 PM **CONCLUDING REMARKS**

**SESSION NO. 237**

**T86. New Insights on Arthropod Paleobiology (Paleontological Society)**

1:30 PM, Oregon Convention Center, E141/E142 (Hybrid Room)

Matthew Witte, Rhiannon LaVine, Julien Kimmig and James Lamsdell, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 237-1 1:35 PM Webster, Mark\*: **ONTOGENY AS A CONSTRAINT IN THE EVOLUTION OF THE TRILOBITE GLABELLA (Invited Presentation)**
- 237-2 1:50 PM Eisenhauer, Daniel\*; Webster, Mark: **INTRASPECIFIC MORPHOLOGICAL VARIATION IN LOWER CAMBRIAN DORYPYGID TRILOBITES**
- 237-3 2:05 PM Losso, Sarah\*; Ortega-Hernandez, Javier: **CLASPER-LIKE APPENDAGES IN THE MID-CAMBRIAN TRILOBITE OLENOIDES SERRATUS FROM THE BURGESS SHALE**
- 237-4 2:20 PM Lerosey-Aubril, Rudy\*; Ortega-Hernandez, Javier: **CONVERGENT EVOLUTION OF BODY FLAPS IN STEM-GROUP ARTHROPODS: INSIGHTS FROM A NEW LOBOPODIAN FROM THE MIDDLE CAMBRIAN OF UTAH**
- 237-5 2:35 PM Bicknell, Russell\*; Schmidt, Michel; Edgecombe, Gregory D.; Daley, Allison C.; Melzer, Roland R.; Wroe, Stephen; Paterson, John R.: **EXPLORING ANOMALOCARIS RAPTORIAL APPENDAGES WITH 3D KINEMATICS**
- 237-6 2:50 PM Ortega-Hernandez, Javier\*; Lerosey-Aubril, Rudy; Losso, Sarah; Weaver, James: **NEUROANATOMY IN A MIDDLE CAMBRIAN MOLLUSONIID AND THE ANCESTRAL NERVOUS SYSTEM ORGANIZATION OF CHELICERATES (Invited Presentation)**
- 237-7 3:05 PM Srivastava, Shravaya\*; Hughes, Nigel: **THE STRATIGRAPHIC CONTEXT OF THE LATE CAMBRIAN TRILOBITE WALCOTTASPIS VANHORNEI FROM THE UPPER MISSISSIPPI VALLEY, AND ITS MORPHOLOGICAL VARIATION**
- 237-8 3:20 PM Hopkins, Melanie\*; To, Rebecca: **CONSERVATION AND CHANGE IN SEGMENT NUMBER IN TRILOBITES OVER THE PALEOZOIC (Invited Presentation)**
- 3:35 PM **BREAK**
- 237-9 3:45 PM LaVine, Rhiannon\*; López Carranza, Natalia; Martin, Rene P.; Lieberman, Bruce S.: **PATTERNS OF MORPHOLOGICAL DIVERSITY IN THE PHACOPIID SUBFAMILY ASTEROPTYGINAE (TRILOBITA)**
- 237-10 4:00 PM Vargas-Parra, Ernesto\*; Hopkins, Melanie: **ONTOGENETIC MODULARITY AND METAMORPHOSIS IN AN ORDOVICIAN TRILOBITE**
- 237-11 4:15 PM Ocon, Samantha\*; Lamsdell, James: **A MORPHOMETRIC APPROACH TO HORSESHOE CRAB EVOLUTION**
- 237-12 4:30 PM Lamsdell, James\*; Congreve, Curtis: **SHADOWS OF THE PAST: THE DISJUNCT DISTRIBUTION OF EXTANT HORSESHOE CRABS EXPLAINED THROUGH BIOGEOGRAPHIC ANALYSIS OF FOSSIL TAXA**

- 237-13** 4:45 PM Luque, Javier\*: **CRABS IN AMBER REVEAL AN EARLY COLONIZATION OF FRESHWATER DURING THE CRETACEOUS**
- 237-14** 5:00 PM Martin, Tony\*; Lowery, Melissa; Hall, Michael; Rich, Thomas H.; Morton, Steven; Kool, Lesley; Swinkels, Peter; Vickers-Rich, Patricia: **CRETACEOUS POLAR ARTHROPODS ON WALKABOUTS: NEWLY DISCOVERED ARTHROPOD TRACE FOSSILS FROM THE WONTHAGGI FORMATION (BARREMIAN), VICTORIA, AUSTRALIA**
- 237-15** 5:15 PM Puckett, Mark\*; Hunt, Gene: **EXTREME ENDEMISM OF LATE CRETACEOUS MARINE OSTRACODS IN THE US GULF COASTAL PLAIN**

**SESSION NO. 238**

***T91. Community Ecology and the Fossil Record: Diversity, Ecological Structure, and Paleoenvironmental Responses II (Paleontological Society)***

1:30 PM, Oregon Convention Center, E143/E144

Karma Nanglu and Thomas M. Cullen, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 238-1** 1:35 PM Cole, Selina\*: **QUANTITATIVE, TRAIT-BASED APPROACHES FOR INVESTIGATING NICHE EVOLUTION AND PALEOCOMMUNITY RESTRUCTURING: CASE STUDIES FROM THE CRINOID FOSSIL RECORD**
- 238-2** 1:50 PM Viglietti, Pia\*; Rojas, Alexis; Rosvall, Martin; Davis, Brady; Angielczyk, Kenneth: **A NETWORK-BASED BIOSTRATIGRAPHIC FRAMEWORK FOR THE BEAUFORT GROUP (KAROO SUPERGROUP), SOUTH AFRICA**
- 238-3** 2:05 PM Shaw, Jack O.\*; Briggs, Derek E.G.; Hull, Pincelli M.: **REASSESSING BURGESS SHALE TROPHIC STRUCTURE**
- 238-4** 2:20 PM Smith, Jansen\*; Dieltl, Gregory P.; Ekroos, Johan; Eronen, Jussi; Fred, Marianne; Lawing, Michelle: **USING PALEONTOLOGICAL TRAIT DATA TO EVALUATE TEMPORAL DYNAMICS OF ECOSYSTEM SERVICES**
- 238-5** 2:35 PM Jukar, Advait\*: **THE SIZE-STRUCTURE OF THE HERBIVORE GUILD THROUGH TIME**
- 238-6** 2:50 PM Miller, Joshua\*; Wright, William; Kelly, Abigail; Neale, Bianca; Gaetano, Madison; DeSantis, Larisa; Zazula, Grant D.; Wooller, Matthew J.: **HORSE OVER BISON: DIETARY PREFERENCES OF CARNIVORES IN PLEISTOCENE YUKON**
- 238-7** 3:05 PM Gaetano, Madison\*; Miller, Joshua; Wald, Eric; Druckenmiller, Patrick: **UNGULATES AS MAJOR TAPHONOMIC AGENTS AND BONE RECYCLERS IN AN ARCTIC ECOSYSTEM**
- 3:20 PM **BREAK**
- 238-8** 3:30 PM Sheffield, Sarah\*; Lam, Adriane; Phillips, Stephen F.; Deline, Bradley: **EVOLUTIONARY BIOGEOGRAPHY AND PALEOECOLOGY OF DIPLOPORAN ECHINODERMS ACROSS THE ORDOVICIAN-SILURIAN BOUNDARY**
- 238-9** 3:45 PM Kokesh, Broc\*; Kidwell, Susan; Burgess, Dany E.: **TAXONOMIC SURROGACY OF BENTHIC MACROINVERTEBRATES ALONG DEPTH AND SUBSTRATE GRADIENTS IN THE PUGET SOUND**
- 238-10** 4:00 PM Pruden, Matthew\*; Dieltl, Gregory P.; Handley, John C.; Smith, Jansen: **TOWARDS A MOLLUSC-ONLY GEOHISTORICAL M-AMBI FOR ESTABLISHING REMEDIATION BASELINES IN COASTAL AND ESTUARINE HABITATS**
- 238-11** 4:15 PM Godbold, Amanda\*; Hohmann, Niklas; Jarochovska, Emilia; Kiessling, Wolfgang; Bottjer, David J.: **CHANGES IN COMMUNITY MEMBERSHIP AMONGST PATCH-REEFS OF THE NORIAN-RHAETIAN DACHSTEIN PLATFORM**

- 238-12** 4:30 PM Jeffery, David\*: **OCEAN STRATIFICATION, INTERNAL WAVES, MISSISSIPPIAN MUDMOUNDS, AND THE PERMIAN REEF**
- 4:45 PM **CONCLUDING REMARKS**

**SESSION NO. 239**

***T109. Life's Innovations from the Early Earth to the Search on Modern Mars III: Honoring the Career of Andrew H. Knoll (Paleontological Society; GSA Geobiology and Geomicrobiology Division; GSA Planetary Geology Division; GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology); Geochemical Society)***

1:30 PM, Oregon Convention Center, Portland Ballroom 255 (Hybrid Room)

Julie K. Bartley, Charles Boyce, Linda Kah, Alan Kaufman, Shuhai Xiao and Nora Noffke, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 239-1** 1:40 PM Kah, Linda\*; Bartley, Julie: **LAMINA STRUCTURE IN THE UNDERSTANDING OF STROMATOLITE MORPHOLOGY**
- 239-2** 1:55 PM Gauvey, Kaitlyn\*; Kah, Linda: **WHAT DO CHERT FABRICS TELL US ABOUT PROTEROZOIC MICROFOSSILIFEROUS CHERT?**
- 239-3** 2:10 PM Loron, Corentin\*; Halverson, Galen P.; Rainbird, Robert; Skulski, Tom; Turner, Elizabeth C.; Javaux, Emmanuelle J.: **NEW REPORT OF SHALE-HOSTED ORGANIC-WALLED MICROFOSSILS FROM THE EARLY MESOPROTEROZOIC DISMAL LAKES GROUP IN ARCTIC CANADA**
- 239-4** 2:25 PM Sforna, Marie Catherine\*; Demoulin, Catherine F.; Loron, Corentin; François, Camille; Cornet, Yohan; Beghin, Jérémie; Brocks, Jochen J.; Javaux, Emmanuelle J.: **PRIMARY PRODUCERS IN THE ~1GYRS-OLD MBUJIMAYI SUPERGROUP (DR CONGO)**
- 2:40 PM **BREAK**
- 239-5** 2:55 PM Junium, Christopher\*; Cohen, Phoebe; Porter, Susannah; Agic, Heda: **LESSONS FROM THE CARBON ISOTOPIC COMPOSITION OF SINGLE ORGANIC WALLED MICROFOSSILS**
- 239-6** 3:10 PM Fischer, Woodward\*; Wang, Renee; Shih, Patrick; Eiler, John M.: **EVOLUTION OF CARBON FIXATION IN CYANOBACTERIA DURING PRECAMBRIAN TIME**
- 239-7** 3:25 PM Anderson, Robert\*; Dohm, James M.; Buczkowski, Debra; Wyrick, Danielle: **EARLY NOACHIAN TERRAINS ON MARS: VESTIGES OF THE ORIGIN AND EARLY EVOLUTION OF LIFE?**
- 239-8** 3:40 PM Grotzinger, John\*: **STRATIGRAPHY, SEDIMENTOLOGY, AND DIAGENESIS OF A MARTIAN LACUSTRINE DEPOSIT, MURRAY FORMATION, GALE CRATER, MARS (Invited Presentation)**
- 4:00 PM **COMMENTS FROM ANDREW KNOLL**
- 4:30 PM **CONCLUDING REMARKS**

**SESSION NO. 240**

***T115. Geomorphology and Landscape Evolution of Mars (GSA Quaternary Geology and Geomorphology Division; GSA Karst Division)***

1:30 PM, Oregon Convention Center, Portland Ballroom 256 (Hybrid Room)

Sharon Wilson, Marisa Jasper and Elena Favaro, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 240-1** 1:35 PM Phillips, Michael\*; Viviano, Christina E.; Moersch, Jeffrey E.; Rogers, A. Deanne; McSween, Harry Y.; Seelos, Frank P.: **COMPOSITION OF >4.1GA CRUSTAL BLOCKS NORTHERN HELLAS, MARS**
- 240-2** 1:50 PM Bates, Augustus\*; Goossens, Sander; Karunatilake, Suniti; Ojha, Lujendra; Hood, Don R.; Paladino, Tyler; Lorenzo, Juan M.; Kobs Nawotniak, Shannon: **SUPER-ERUPTIONS**

		<b>IN NORTHWESTERN ARABIA TERRA INDICATE DISTINCT MANTLE EVOLUTION ON EARLY MARS</b>			
240-3	2:05 PM	Adams, Steve*; Soreghan, Gerilyn (Lynn): <b>PARTICLE SIZE DISTRIBUTIONS OF GLACIAL GRINDING EXPERIMENTS AND IMPLICATIONS FOR PAST MARTIAN CLIMATE</b>	241-3	2:10 PM	de Graaff, Sietze J.*; Kaskes, Pim; Dehais, Thomas; Goderis, Steven; Debaille, Vinciane; Ross, Catherine; Gulick, Sean P.S.; Feignon, Jean-Guillaume; Ferrière, Ludovic; Koeberl, Christian; Smit, Jan; Mattielli, Nadine; Claeys, Philippe: <b>NEW INSIGHTS INTO THE FORMATION AND EMPLACEMENT OF IMPACT MELT ROCKS WITHIN THE CHICXULUB IMPACT STRUCTURE, FOLLOWING THE 2016 IODP-ICDP EXPEDITION 364</b>
240-4	2:20 PM	Grau galofre, Anna*; Jellinek, Mark; Osinski, Gordon R.: <b>THE ROLE OF FLUVIAL AND SUBGLACIAL EROSION ON THE FORMATION OF THE MARTIAN VALLEYS (Invited Presentation)</b>	241-4	2:25 PM	Kaskes, Pim*; de Graaff, Sietze; Feignon, Jean-Guillaume; Dehais, Thomas; Goderis, Steven; Ferrière, Ludovic; Koeberl, Christian; Smit, Jan; Wittmann, Axel; Gulick, Sean P.S.; Debaille, Vinciane; Mattielli, Nadine; Claeys, Philippe: <b>SUEVITE EMPLACEMENT WITHIN THE CHICXULUB IMPACT STRUCTURE: NEW INSIGHTS FROM THE 2016 IODP-ICDP EXPEDITION 364 DRILLING</b>
240-5	2:35 PM	Salvatore, Mark*; Sankey, Joel B.; Dean, David J.; Goudge, Timothy; Titus, Timothy; Unema, Joel; Chapline, Daphne; Caster, Joshua: <b>GRAND FALLS, ARIZONA, AS AN ANALOG FOR FLUVIAL EROSION ON MARS (Invited Presentation)</b>	241-5	2:40 PM	Bermudez, Hermann*; Morgan, Joanna V.; Cui, Ying; De Palma, Maurizia: <b>MORPHOLOGY OF IMPACT GLASS EJECTA ASSOCIATED WITH THE CHICXULUB ASTEROID IMPACT: NEW DATA FROM GORGONILLA ISLAND, COLOMBIAN PACIFIC</b>
240-6	2:50 PM	Burdell, Margaret*; Rivera-Hernández, Frances; Palucis, Marisa: <b>CONGLOMERATES IN GALE CRATER: PROVIDING INSIGHTS INTO THE HYDROLOGY OF ANCIENT RIVERS ON MARS</b>	241-6	2:55 PM	Senel, Cem*; Temel, Orkun; Kaskes, Pim; Vellekoop, Johan; Goderis, Steven; Van Hove, Bart; Karatekin, Ozgur: <b>RELATIVE ROLES OF IMPACT-GENERATED AEROSOLS ON PHOTOSYNTHETIC ACTIVITY FOLLOWING THE CHICXULUB ASTEROID IMPACT</b>
240-7	3:05 PM	Cofield, Shannon*; Stack Morgan, Kathryn: <b>GEOLOGIC MAPPING AND STRATIGRAPHIC ANALYSIS OF DELTA REMNANTS AT JEZERO CRATER, MARS</b>		3:10 PM	<b>BREAK</b>
240-8	3:20 PM	Jodhpurkar, Mohini*; Bell, James F.: <b>MAPPING AND INTERPRETING THE NORTHERN FAN DEPOSITS IN JEZERO CRATER, MARS</b>	241-7	3:25 PM	DePalma, Robert*; Oleinik, Anton E.; Burnham, David A.; Gurche, Loren; Klingler, Jeremy; McKinney, Curtis; Cichocki, Frederick; Larson, Peter; Egerton, Victoria; Wogelius, Roy; Edwards, Nicholas; Bergmann, Uwe; Manning, Phillip L.: <b>SEASONAL CALIBRATION OF THE CHICXULUB IMPACT: A HISTOLOGICAL AND INVERTEBRATE BEHAVIORAL APPROACH (Invited Presentation)</b>
240-9	3:35 PM	Cuevas-Quñones, Sara*; Wray, James; Rivera-Hernández, Frances; Adler, Jacob: <b>EVALUATING A POTENTIAL VOLCANO ON THE RIM OF JEZERO CRATER, MARS</b>	241-8	3:45 PM	Lesko, Anna*; Dworkin, Steve I.; Nordt, Lee C.; Leslie, Caitlin E.; Peppe, Daniel; Atchley, Stacy; Stinchcomb, Gary: <b>HYDROLOGIC CONDITIONS ACROSS THE K/PG BOUNDARY, DAWSON CREEK SECTION, BIG BEND NATIONAL PARK, TEXAS</b>
240-10	3:50 PM	Wilson, Sharon*; Warner, Nicholas H.; Mueller, Jason; Grant, John A.; Golombek, Matthew P.; Weitz, Catherine: <b>THE GEOMORPHIC EVOLUTION OF LAVA PLAINS AT THE INSIGHT AND SPIRIT LANDING SITES: COMPARISON OF CRATER RETENTION AGES AND MORPHOMETRY</b>	241-9	4:00 PM	Carvalho, Monica*; Herrera, Fabiany; Wing, Scott; Labandeira, Conrad; Giraldo Cerón, L. Alejandro; Jaramillo, Carlos; de la Parra, Felipe; Caballero-Rodríguez, Dayenari; Silvestro, Daniele; Bayona, Germán: <b>TRANSFORMATIVE EFFECTS OF THE END-CRETACEOUS EVENT ON THE EVOLUTION OF MODERN NEOTROPICAL RAINFORESTS</b>
240-11	4:05 PM	Chojnacki, Matthew*; Edgar, Lauren A.; Edwards, Christopher; Fenton, Lori; Gullikson, Amber L.; Weintraub, Aaron: <b>GEOMORPHOLOGY AND CONTEXT OF ANCIENT BEDFORMS ON MARS</b>	241-10	4:15 PM	Hull, Pincelli M.*: <b>WAITING-OUT THE CRETACEOUS-PALEOGENE MASS EXTINCTION EVENT (Invited Presentation)</b>
240-12	4:20 PM	Landis, Margaret*; Whitten, Jennifer: <b>GEOLOGIC CONTEXT OF THE BRIGHT MARSIS REFLECTOR IN ULTIMI SCOPULI, SOUTH POLAR LAYERED DEPOSITS, MARS</b>	241-11	4:35 PM	Sinnesael, Matthias; Percival, Lawrence*; Schulz, Toni; Vellekoop, Johan; Goderis, Steven; Gao, Yue; Montanari, Alessandro; Coccioni, Roldolfo; Koeberl, Christian; Claeys, Philippe: <b>DEEP-MARINE RECORDS OF DECCAN TRAP VOLCANISM BEFORE, DURING, AND AFTER THE CRETACEOUS-PALEOGENE (K-PG) MASS EXTINCTION</b>
240-13	4:35 PM	Orlando, Elizabeth*; Blaske, Claire H.; Khuller, Aditya; Christensen, Phil: <b>MAPPING EXPOSED DUSTY WATER ICE IN NORTHERN MARTIAN GULLIES</b>	241-12	4:50 PM	Vellekoop, Johan*; Kaskes, Pim; Smit, Jan; Speijer, Robert P.; Claeys, Philippe: <b>RAPID BIOLOGICAL RECOVERY FOLLOWING THE CRETACEOUS-PALEOGENE BOUNDARY CATASTROPHE IN THE MAASTRICHTIAN TYPE AREA</b>
240-14	4:50 PM	Mushkin, Amit*; Sletten, Ronald; Trombotto, Dario; Jigjidsuren, Batbaatar; Amit, Rivka; Halevy, Itay; Morag, Navot; Gillespie, Alan: <b>A TERRESTRIAL BRINE-SEEPAGE ANALOG FOR MARTIAN SLOPE STREAKS NEAR SALAR DE PEDERNALES IN THE ATACAMA DESERT, CHILE</b>	241-13	5:05 PM	Tabor, Clay*; Bardeen, Charles; Coupe, Jousha; Garza, Victoria; Harrison, Cheryl; Krumhardt, Kristen; Levy, Michael; Lovenduski, Nicole; MacLeod, Kenneth G.; Mitra, Siddhartha; Sepúlveda, Julio: <b>INSIGHTS INTO K-PG EXTINCTION MECHANISMS USING AN EARTH SYSTEM MODEL</b>
	5:05 PM	<b>DISCUSSION</b>		5:20 PM	<b>CONCLUDING REMARKS</b>
				5:25 PM	Boyles, Bobby*; Smith, N. Adam: <b>CRETACEOUS-PALEOGENE BOUNDARY SEDIMENTOLOGY: IMPACT EVIDENCE FROM SOUTH CAROLINA</b>

**SESSION NO. 241**

**T119. The Cretaceous–Paleogene Boundary: From Impact Cratering Processes to Mass Extinction Mechanisms (GSA Planetary Geology Division; Paleontological Society; GSA Marine and Coastal Geoscience Division)**

1:30 PM, Oregon Convention Center, D139/D140

Catherine Ross and Pim Kaskes, Presiding

1:30 PM **INTRODUCTORY REMARKS**

241-1 1:35 PM Artemieva, Natalia\*: **CHICXULUB EJECTA: INSIGHT FROM NUMERICAL MODELS (Invited Presentation)**

241-2 1:55 PM Feignon, Jean-Guillaume\*; Schulz, Toni; Ferrière, Ludovic; Goderis, Steven; de Graaff, Sietze; Kaskes, Pim; Dehais, Thomas; Claeys, Philippe; Koeberl, Christian: **DO THE IMPACT MELT ROCKS WITHIN THE CHICXULUB IMPACT STRUCTURE PEAK RING (YUCATÁN PENINSULA, MEXICO) PRESERVE AN IMPACTOR SIGNATURE?**



**SESSION NO. 242**

***T135. Dynamics of the Laurentide Ice Sheet (GSA Quaternary Geology and Geomorphology Division; GSA Marine and Coastal Geoscience Division)***

1:30 PM, Oregon Convention Center, Portland Ballroom 253 (Hybrid Room)

Timothy Fisher and Randall Schaetzl, Presiding

- 242-1 1:30 PM Brouard, Etienne\*; Roy, Martin: **A GIS-APPROACH TO RECONSTRUCTIONS OF THE DEGLACIATION OF THE LAURENTIDE AND INNUITIAN ICE SHEETS SINCE THE LAST GLACIAL MAXIMUM**
- 242-2 1:45 PM Curry, Brandon\*: **CHRONOLOGIES AND DYNAMICS OF INTERLOBATE INTERACTIONS OF THE SOUTHERN MARGIN OF THE LAKE MICHIGAN LOBE (Invited Presentation)**
- 242-3 2:00 PM Colgan, Patrick; Schaetzl, Randall\*: **MAPPING THE INTERLOBATE ZONE BETWEEN THE LAKE MICHIGAN AND SAGINAW LOBES OF THE LAURENTIDE ICE SHEET: IMPLICATIONS FOR LATE WISCONSIN EPISODE ICE DYNAMICS IN SOUTHWESTERN MICHIGAN, USA**
- 242-4 2:15 PM Sodeman, Alexander D.\*; Fisher, Timothy; Loope, Henry: **REEXAMINING THE DEGLACIATION OF THE HURON ERIE LOBE THROUGH SUBGLACIAL MELT-WATER-DERIVED LANDFORMS IN INDIANA, USA (Invited Presentation)**
- 242-5 2:30 PM Carson, Eric\*; Ives, Libby; Stolzman, Kacie C.; Rawling, J. Elmo: **GLACIAL LAKES IN THE FOOTPRINT OF THE SOUTHERN GREEN BAY LOBE OF THE LAURENTIDE ICE SHEET (Invited Presentation)**
- 242-6 2:45 PM Lepper, Kenneth\*: **TESTING PAST CORRELATIONS OF LAKE AGASSIZ'S TINTAH SHORELINE IN NORTHWESTERN MINNESOTA WITH NEW GEOCHRONOLOGY**
- 242-7 3:00 PM Livingstone, Stephen\*; Lewington, Emma L.M.; Clark, Chris D.; Storrar, Robert D.; Sole, Andrew J.; McMartin, Isabelle; Dewald, Nico; Ng, Felix; Vêrité, Jean; Ravier, Edouard: **MELT-WATER LANDFORM PERSPECTIVES ON SUBGLACIAL HYDROLOGICAL PROCESSES: INSIGHTS FROM HIGH-RESOLUTION MAPPING IN NORTHERN CANADA**
- 242-8 3:15 PM Desrosiers, Patrick\*; Ward, Brent; Sacco, Dave; Layton-Matthews, Dan; Elliott, Barrett: **GENESIS OF GLACIOFLUVIAL HUMMOCKS IN SUBGLACIAL MELT-WATER CORRIDORS OF THE SLAVE GEOLOGICAL PROVINCE AND THEIR APPLICATIONS IN DRIFT PROSPECTING**
- 242-9 3:30 PM Roy, Martin\*; Lefebvre-Fortier, Claudie; Dubé-Loubert, Hugo; Schaefer, Joerg M.; Brouard, Etienne; Lévesque, Marc-Antoine; Vallée, Arianne: **EXTENT AND CHRONOLOGY OF THE POSTGLACIAL MARINE INCURSION IN UNGAVA BAY: IMPLICATIONS FOR THE DRAINAGE OF THE GLACIAL LAKES OF THE UNGAVA PENINSULA (NE LAURENTIDE ICE SHEET)**
- 242-10 3:45 PM Hodder, Tyler\*; Gauthier, Michelle; Ross, Martin; Lian, Olav: **NEW STRATIGRAPHIC AND CHRONOLOGICAL CONSTRAINTS IN WESTERN HUDSON BAY LOWLAND, CANADA, AND THEIR IMPLICATIONS FOR THE LAURENTIDE ICE SHEET EVOLUTION**
- 242-12 4:00 PM Dunn, Richard\*; Wright, Stephen F.: **GROUNDING ZONE DEPOSITS ASSOCIATED WITH STREAMING READVANCE OF THE LAURENTIDE ICE SHEET IN THE WINOOSKI VALLEY OF NORTHERN VERMONT**
- 242-13 4:15 PM Prince, Karlee K.\*; Briner, Jason P.; Walcott, Caleb K.; Kozłowski, Andrew L.; Feranec, Robert S.: **NEW RADIOCARBON CONSTRAINTS ON THE ADVANCE AND RETREAT OF THE LAURENTIDE ICE SHEET IN WESTERN NEW YORK, USA**
- 242-14 4:30 PM Wright, Stephen\*: **THE SHATTUCK MOUNTAIN CHANNELS AND POTHoles: EVIDENCE FOR**

**FOCUSED HIGH-VELOCITY SUBGLACIAL STREAMFLOW ACROSS THE NORTHERN GREEN MOUNTAINS, VERMONT, USA**

**SESSION NO. 243**

***T149. Building the Workforce of the 21st Century: Understanding Diversity, Intersectionality, Ethics, and Inclusivity in the Geosciences and Implementing Transformative Change in Our Culture II (GSA Geoscience Education Division; GSA Geology and Society Division; GSA Marine and Coastal Geoscience Division; International Association for Geoscience Diversity; National Association of Geoscience Teachers (NAGT); GSA Soils and Soil Processes Division)***

1:30 PM, Oregon Convention Center, B115/B116 (Hybrid Room)

Elena Miranda, Aradhna Tripathi, Gabriela Mora-Klepeis and Catherine Flowers, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 243-1 1:35 PM Atchison, Christopher\*; Smythe, Wendy; White, Lisa; Bowser, Gillian; Harvey, Richard; Roberts, Nina: **AMPLIFYING THE VOICES OF DIVERSE SCHOLARS TO EMPHASIZE SENSE OF IDENTITY, BELONGING, PLACE, AND SECURITY FOR A MORE INCLUSIVE GEOSCIENCE DISCIPLINE**
- 243-2 1:50 PM Houlton, Heather\*; Landis, Amy E.; Knechtel, Kelly A.: **FOSTERING CULTURE CHANGE AT COLORADO SCHOOL OF MINES THROUGH THE DEVELOPMENT AND IMPLEMENTATION OF THE NEW STRATEGIC PLAN FOR DIVERSITY, INCLUSION, AND ACCESS**
- 243-3 2:05 PM Brown, Megan\*; Manning, Cheryl; Barry, Ashley; Porter-Mareth, Parker: **GEOSCIENCE EMPLOYERS' PERCEPTION OF DISABILITY AND ACCESSIBILITY IN THE WORKPLACE**
- 243-4 2:20 PM Cahoon, Emily\*: **I COULD NEVER WORK FOR THE ENEMY\*: THE IMPORTANCE OF TEACHING ETHICS AND ENVIRONMENTAL RACISM IN THE GEOSCIENCES**
- 243-5 2:35 PM Bradford, Kristie\*: **HOW SEEING WHITE LED ME TO BECOME A JEDI WARRIOR: A MODEL FOR BUILDING THE 21<sup>ST</sup> CENTURY WORKFORCE**
- 2:50 PM **DISCUSSION**
- 3:05 PM **LIGHTNING TALKS**
- 243-6 3:20 PM Ormand, Carol J.\*; Kruse, Sarah; Parsekian, Andrew D.; Slater, Lee; Sumy, Danielle F.; Taber, John: **MAKING GEOSCIENCE RELEVANT: USING GEOPHYSICS TO ADDRESS SOCIETALLY-RELEVANT, URBAN AND ENVIRONMENTAL QUESTIONS IN INTRODUCTORY-LEVEL GEOSCIENCE COURSES**
- 243-7 3:35 PM Duran, Gabriel\*; Scott Price, Onjalé; Aderhold, Kasey; Cohen, Phoebe; Wright, Vashan; Burton, Carlene; Madsen, Stephanie: **DESIGNING AND DEVELOPING THE UNLEARNING RACISM IN GEOSCIENCE (URGE) CURRICULUM**
- 243-8 3:50 PM Martindale, Rowan\*; Nelson, Mariel; Ramos, Evan; Shuck, Brandon; Fakhreddine, Sarah; Tremaine, Darrel M.; Loewy, Staci; Lowery, Christopher M.; Goudge, Timothy; Christeson, Gail; Johnson, Joel P.L.: **LESSONS LEARNED BY THE UT AUSTIN URGE MEGAPOD AND OUR PLAN FOR CONTINUED ACTION**
- 243-9 4:05 PM Stovall, Wendy K.\*; Barnhart, Katherine; Damby, David E.; Ellis, Andria P.; Haider, Saira; Miselis, Jennifer; Moran, Seth; Morriss, Matthew; Phillips, Stephen; Putman, Annie; Reitman, Nadine; Snow, Eleanor; Waite, William: **APPLYING THE LESSONS OF URGE TO A FEDERAL SCIENCE AGENCY – USGS RESPONDS**
- 243-10 4:20 PM Guertin, Laura\*; Ormand, Carol J.; Johnson, Beth A.; Nagy, Elizabeth; Helgers, Karen; van der Hoeven Kraft, Katrien J.; Layou, Karen M.: **ATTRACTING, SUPPORTING, AND PREPARING BIPOC STUDENTS FOR EARLY SUCCESS**

IN GEOSCIENCE: POLICIES, CURRICULAR MATERIALS,  
AND OTHER RESOURCES FROM THE 2YC URGE POD  
4:35 PM DISCUSSION 2  
4:50 PM CONCLUDING REMARKS

**SESSION NO. 244**

**T154. Best Practices in Place-Based Education (National Association of Geoscience Teachers (NAGT); GSA Geoscience Education Division)**

1:30 PM, Oregon Convention Center, B112

Michael Phillips, Steven Semken and Sarah Fortner, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 244-1 1:35 PM Ault, Charles R.\*: **ENDS NOT MEANS: THE AXIOLOGY\* OF PLACE-BASED EDUCATION (Invited Presentation)**
- 244-2 1:55 PM Smythe, Wendy\*: **THE IMPORTANCE OF CONNECTION TO PLACE FOR NATIVE YOUTH IN STEM EDUCATION (Invited Presentation)**
- 244-3 2:15 PM McKinley, Claire C.\*; Showalter, Gordon M.; Crofoot, Thomas L.: **RECOMMENDATIONS FOR ENHANCING PLACE-BASED LEARNING WITH CULTURALLY RESPONSIVE SCHOOLING AND ANTI-RACISM FRAMEWORKS IN GEOSCIENCE EDUCATION PROGRAMS FOR AMERICAN INDIAN AND ALASKA NATIVE STUDENTS (Invited Presentation)**
- 244-4 2:35 PM Chinn, Pauline\*; Winquist, Jared: **PLACE-BASED INDIGENOUS AND HISTORICAL NARRATIVES AS A BEST PRACTICE FOR GEOSCIENCE EDUCATION: BEGIN WITH STORIES, END WITH PURPOSEFUL SCIENCE**
- 244-5 2:50 PM Salisbury, Morgan\*: **DECOLONIZING THE EARTH SCIENCE CLASSROOM: USING VOLCANOES TO TEACH GEOLOGY FROM A NON-EUROCENTRIC VIEWPOINT**
- 244-6 3:05 PM Semken, Steven\*; Adamson, Joni: **THE STORIED SOUTHWEST: A PLACE-BASED COURSE IN LANDSCAPES, LITERATURE, CLIMATE, CULTURE, AND CHANGE**
- 244-7 3:20 PM Angstmann, Julia\*; Williamson, Francesca; Fore, Grant; Sorge, Brandon: **CRITICAL REFLECTION ENHANCES INSTRUCTOR AND STUDENT ENGAGEMENT TO DEEPEN PLACE-BASED LEARNING EXPERIENCES; A PILOT STUDY**
- 3:35 PM **BREAK**
- 244-8 3:45 PM Phillips, Michael\*: **USING PLACE-BASED EDUCATION TO ENHANCE ENGAGEMENT IN INTRODUCTORY AND GENERAL EDUCATION GEOSCIENCE COURSES**
- 244-9 4:00 PM Clary, Renee\*; Nagel, Athena; Shows, Eric: **PLACE-BASED EDUCATION IN ONLINE GEOLOGY COURSES? A GEOSPARCC SUCCESS STORY**
- 244-10 4:15 PM Wang, Ning\*; Stern, Robert: **GEOSPATIAL ORGANIZATION OF GEOSCIENCE VIDEOS USING GOOGLE EARTH GEOED VIDEO LIBRARY (GEGVL)**
- 244-11 4:30 PM Loxton, Jason\*: **STUDENTS PREFER LOCALLY-FOCUSED VIRTUAL FIELD TRIPS; SOCIAL MEDIA DELIVERY IS A LOW-COST WAY OF CREATING THEM**
- 244-12 4:45 PM Kelly, Michael\*; Meyer, Herbert W.; O'Connor, Conni J.; Wolin, Jeff; Slovacek, Mariah: **SMART DEVICE INTERPRETATION AT FLORISSANT FOSSIL BEDS NATIONAL MONUMENT: ENGAGING VISITORS ACROSS MULTIPLE LEVELS OF UNDERSTANDING AND INTEREST**
- 244-13 5:00 PM Sisson, Virginia\*; Hauptvogel, Daniel: **TELLING THE STORY OF EARTH USING PLACED BASED EXERCISES FOR HISTORICAL GEOLOGY**

**SESSION NO. 245**

**T173. Machine Learning for Advancing Data Analysis Toolkit in Geoscience (GSA Geoinformatics and Data Science Division)**

1:30 PM, Oregon Convention Center, B113/B114 (Hybrid Room)

Ziheng Sun, Tao Wen and Shuang Zhang, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 245-1 1:35 PM Asquith, William\*; Killian, Courtney D.: **COVARIATE BUILDER AND MACHINE LEARNING MODELING SOFTWARE TO PREDICT GROUNDWATER LEVELS FOR THE MISSISSIPPI RIVER VALLEY ALLUVIAL AQUIFER**
- 245-2 1:50 PM Pettus, Holly\*; Andrews, Graham: **INDEPENDENT, SEMI-AUTOMATIC CLASSIFICATION OF PETROGRAPHIC FEATURES IN VOLCANIC ROCKS USING FIJI AND WEKA**
- 245-3 2:05 PM Zimmerman, Alex N.\*; Zimmerman, Alex; Dalkilic, Mehmet M.: **QUANTIFYING EFFECTS OF THERMAL CHANGES ON PREDICTED SUITABLE HABITAT OF THE DEEP-SEA CORAL *LOPHELIA PERTUSA***
- 245-4 2:20 PM Wang, Chengshan; Hazen, Robert M.; Stephenson, Michael; Oberhänsli, Roland; Ishwaran, Natarajan; Nash, Susan; Ogg, James\*: **THE DEEP-TIME DIGITAL EARTH (DDE) PROGRAM: DATA-DRIVEN DISCOVERY IN GEOSCIENCE (Invited Presentation)**
- 245-5 2:35 PM Dominguez Vidana, Socorro\*; Goring, Simon; Lenard, Michael; Wofford, Morgan; Thomer, Andrea K.: **MACHINE LEARNING IN THE EARTH SCIENCES: A BROAD SURVEY WITH USE CASES FROM THE THROUGHPUT DATABASE**
- 245-6 2:50 PM Ji, Peng; Profeta, Lucia\*; Lehnert, Kerstin: **IMPROVING MACHINE-READABILITY OF GEOCHEMICAL DATA AND SAMPLE METADATA IN EARTHCHEM/LEPR/TRACEDS/ASTROMAT AND SESAR**
- 245-7 3:05 PM Ma, Xiaogang\*: **TEMPORAL TOPOLOGY FOR NOMINAL AND NUMERICAL ENTITIES THE DEEP-TIME KNOWLEDGE BASE**
- 245-8 3:20 PM Sun, Ziheng\*; Alnaim, Ahmed; Ma, Xiaogang: **GEOWEAVER: OPEN NEW DOOR TO INTUITIVE MANAGEABLE AI WORKFLOW FOR GEOSCIENTISTS**
- 245-9 3:35 PM Lee, Raymond M.\*; Underwood, Kristen; Seybold, Erin; Hamshaw, Scott; Kincaid, Dustin; Rizzo, Donna M.; Li, Li; Perdril, Julia; Abbott, Ben: **BIG DATA IS FINALLY ENOUGH TO EVALUATE ECOSYSTEM VULNERABILITY IN THE ANTHROPOCENE (Invited Presentation)**
- 245-10 3:50 PM Amatulli, Giuseppe\*; García Márquez, Jaime Ricardo; Shen, Longzhu; Kiesel, Jens; Sethi, Tushar; Domisch, Sami: **GLOBAL HYDROGRAPHIES AND THEIR GEOPHYSICAL AND MORPHOLOGICAL PROPERTIES AT 90M RESOLUTION (Invited Presentation)**
- 245-11 4:05 PM Planavsky, Noah\*; Reinhard, Chris; Zhang, Shuang: **ENHANCED CARBONATE WEATHERING AS A MEANS OF CO<sub>2</sub> CAPTURE**
- 245-12 4:20 PM Wen, Tao\*; Chen, Chacha; Zheng, Guanjie; Bandstra, Joel; Brantley, Susan L.: **USING A PHYSICS-BASED MODEL GUIDED NEURAL NETWORK TO PREDICT SOIL REACTION FRONTS**
- 245-13 4:35 PM Zhang, Shuang\*; Planavsky, Noah; Katchinoff, Joachim; Raymond, Peter; Kanzaki, Yoshiki; Reershemius, Tom; Reinhard, Christopher: **INSIGHTS FROM RIVER CHEMISTRY INTO CARBON CAPTURE POTENTIAL THROUGH SURFICIAL ENHANCED ROCK WEATHERING**
- 245-14 4:50 PM Alnaim, Ahmed\*; Sun, Ziheng: **REUSABLE ML MODEL TO ESTIMATE PRODUCED EMISSIONS OF COAL-FIRED POWER PLANTS**
- 245-15 5:05 PM Marmolejo, José\*; McMillan, Nancy; Buenemann, Michaela: **REMOTE SENSING MODELING OF ABANDONED MINES USING SUPPORT VECTOR MACHINE CLASSIFIERS ON MULTISPECTRAL SATELLITE IMAGES IN SOUTHERN NEW MEXICO**

