

# 2020 Program

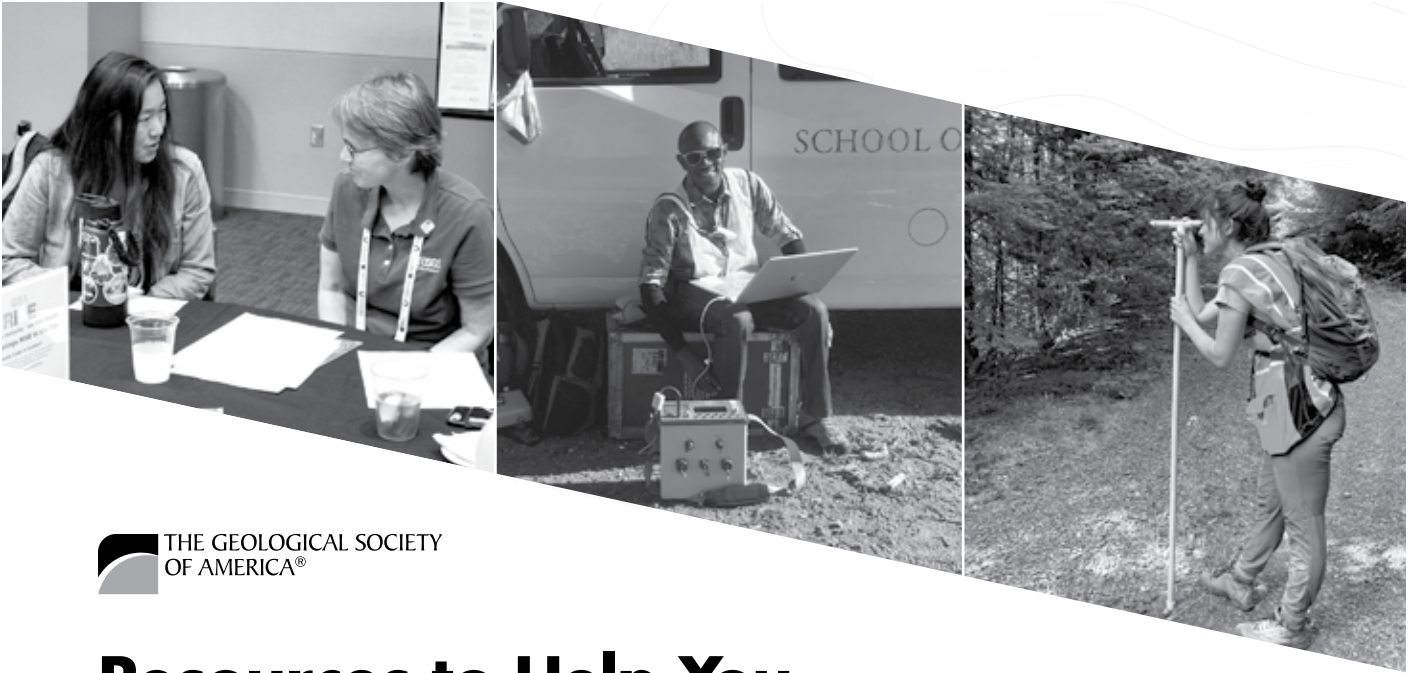
VOL. 52, NO. 1

## South-Central

9–10 March  
Fort Worth, Texas, USA

[www.geosociety.org/sc-mtg](http://www.geosociety.org/sc-mtg)





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*Topographic pattern courtesy of Freepik.com*

**SOUTH-CENTRAL SECTION PROGRAM**  
**54th Annual Meeting of the South-Central Section, GSA**  
**Fort Worth, Texas, USA**  
**9–10 March 2020**  
**[www.geosociety.org/sc-mtg](http://www.geosociety.org/sc-mtg)**

*Geosciences in the Texas You Want*



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## SPONSORS

*We are grateful to the several entities and individuals who made substantial contributions to help underwrite the costs of the meeting. Their names will be prominently displayed at the meeting. Our sponsors as of press time are:*

College of Science and Engineering Texas Christian University, College of Science  
University of Texas at Arlington, College of Science

## NOTICE

By registering for this meeting you have acknowledged that you have read and will comply with the GSA Code of Conduct for Events (full code of conduct listed on inside of back cover). If you have any concerns about behavior that may violate the Code, please contact:

GSA Past President, Robbie Gries, [rrgries@gmail.com](mailto:rrgries@gmail.com)

GSA Ethics and Compliance Officer, Nan Stout, [gsaeventscode@gmail.com](mailto:gsaeventscode@gmail.com)

You may also stop by the registration desk or the GSA Bookstore to have the named individuals directly contacted via phone.

# General Information



## Location

As America's 13th-largest city, Fort Worth is the Texas you want. Visitors can experience the city's vibrant western heritage in the Stockyards National Historic District—complete with the world's only year-round rodeo, authentic saloons, and the world's largest honky-tonk. The renowned Cultural District, less than four miles away, is a haven for art enthusiasts and home to five internationally recognized museums plus the emerging art-filled Foundry District. Premier shopping, dining, and live entertainment can be found in downtown Fort Worth, with more upscale finds at the new Shops at Clearfork. The Trinity River also provides outdoor activities like canoe and kayak tours, stand-up paddling, and 70+ miles of uninterrupted trails. We look forward to welcoming the Geological Society of America to Fort Worth in 2020!

## Venue

The meeting location is the Fort Worth Conference Center (1201 Houston St, Fort Worth, TX 76102), which is across from the Omni Fort Worth Hotel in downtown Fort Worth. Field trips are departing from the main entrance of the Conference Center and workshops are being held in rooms inside the Conference Center. See Field Trip and Workshop section for details.

## Accommodations

A block of rooms has been reserved at the Omni Fort Worth Hotel at 1300 Houston Street, Fort Worth, Texas 76102, USA. Reservations should be made online or by calling Omni Reservations at +1-800-THE-OMNI (toll free) and referencing the group name "Geological Society of America."

## Transportation

For those driving to the conference, Fort Worth is located along interstates I-30 and I-35W. From I-30 take Lancaster Ave exit, keep continue on E Lancaster Avenue, keep right onto Throckmorton Street, than turn right onto W. 11<sup>th</sup> Street (see Fig. 1).

The nearest airports are Dallas-Fort Worth International Airport (DFW) and Dallas Love Field Airport (DAL), located 26 miles and 33 miles from the conference center, respectively. Public transport options from the airports include TEXrail, DART, or TRE.

## Parking

Parking is available in the Fort Worth Convention Parking Garage Convention Center Garage (1200 Houston St, Fort Worth, TX 76102) in proximity to the Fort Worth Conference Center (Fig. 1).

## Weather in the DFW Metroplex

[Source from NWS Dallas Fort Worth <https://www.weather.gov/fwd/dnarrative>]

The Dallas-Fort Worth climate is humid subtropical. The maximum mean temperature in March is ~20°C (68 °F), and the minimum mean temperature is 9°C (48 °F).

Precipitation varies considerably, ranging annually from less than 508 mm (20 inches) to more than 1270 mm (50 inches). Throughout the year, rainfall occurs more frequently during the night. Usually, periods of rainy weather last for only a day or two, and are followed by several days with fair skies.

## North Central Texas Geology

[Source: "A Natural History of North Central Texas"; <https://www.nhnct.org/geology/geo1.html>]

The Dallas-Fort Worth (DFW) metropolitan area is located in North-Central Texas along the western edge of slanting Cretaceous sedimentary rocks on top of Paleozoic rocks (Fig. 2). The Cretaceous sediment layers are exposed in river beds, quarries, and along roads.

Some older sedimentary rocks in the area contain important natural gas resources, especially the Barnett Shale which formed during the Mississippian (359-323 million years ago). The region west of Weatherford (near the western margin of the DFW metropolitan area) consists of Pennsylvanian sedimentary rocks that tilt a few degrees west. These rocks were deformed during the Ouachita orogeny when Gondwana collided with Laurasia to form Pangaea about 300 million years ago. This mountain belt of the Ouachita orogen collapsed as Pangaea broke apart and the Gulf of Mexico basin formed. Sea level rose during mid-Cretaceous time and reached the DFW area about 100 million years ago.

# DOWNTOWN FORT WORTH



**MAIN STREET VISITOR CENTER**  
508 Main Street  
817.698.3300

**STOCKYARDS VISITOR INFORMATION CENTER**  
130 E. Exchange Avenue  
817.624.4741

FORTWORTH.COM

**VISIT FORT WORTH**

Figure 1. Map of downtown Fort Worth with convention center highlighted in red

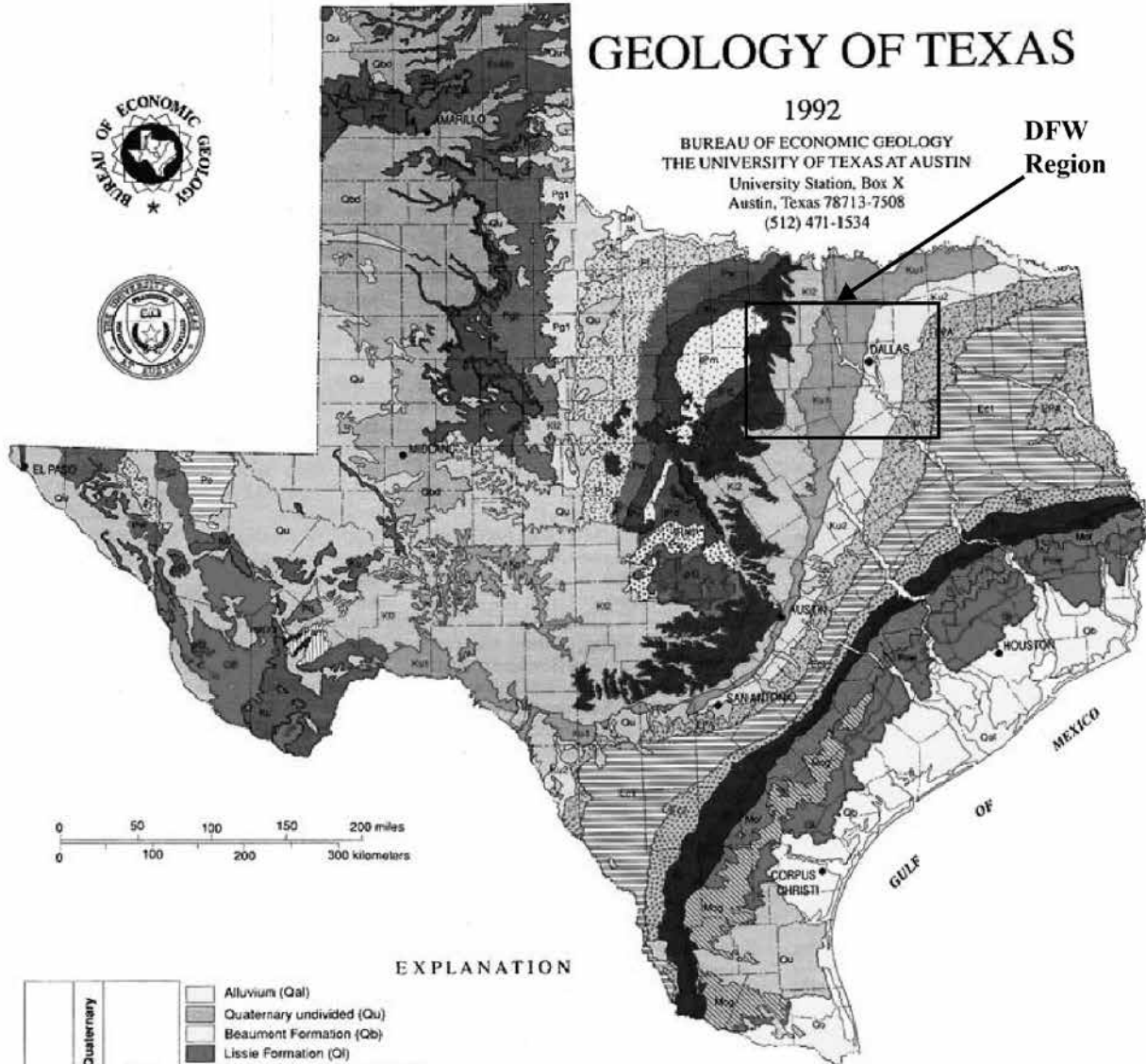


# GEOLOGY OF TEXAS

1992

BUREAU OF ECONOMIC GEOLOGY  
THE UNIVERSITY OF TEXAS AT AUSTIN  
University Station, Box X  
Austin, Texas 78713-7508  
(512) 471-1534

DFW  
Region



## EXPLANATION

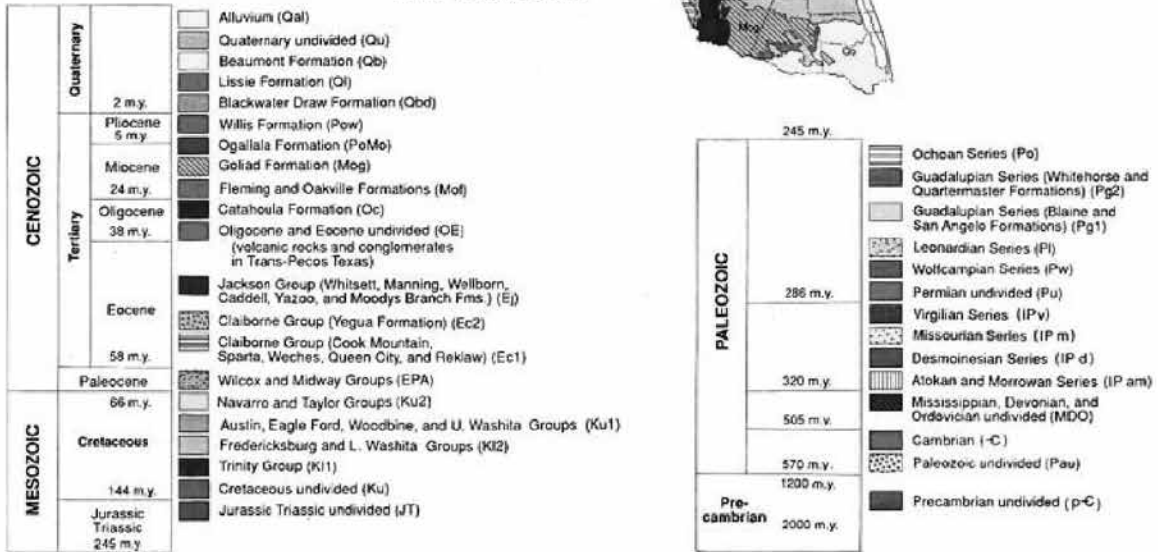


Figure 2. Geologic map of Texas and the DFW metropolitan area (rectangle area)  
[Source: Bureau of Economic Geology, University of Texas in Austin]

## Registration

Registration is required for anyone attending technical sessions, field trips, short courses, or exhibits. Check-in and on-site registration is located in the Ballroom Prefunction Lobby and open during the following times:

Sunday, 8 March	3–6:30 p.m.
Monday, 9 March	7 a.m.–4:30 p.m.
Tuesday, 10 March	7 a.m.–4:30 p.m.

## Fees

On-site registration fees are presented below in U.S. dollars.

	Full Mtg.	One day
Professional Member.....	\$235.....	\$185
Professional Member70+ .....	\$160.....	\$120
Professional Nonmember.....	\$260.....	\$200
Early Career Professional Member .....	\$180.....	\$130
Early Career Professional Nonmember.....	\$190.....	\$140
Student Member .....	\$120.....	\$75
Student Nonmember .....	\$150.....	\$80
K–12 Professional .....	\$110.....	\$60
Guest or Spouse .....	\$60.....	n/a
Field Trip/Workshop Only.....	\$60.....	n/a

Guest registration is intended for non-geoscientists accompanying a registered professional, student or K–12 professional. Guest registration does not include attendance at workshops. All guests, volunteers, exhibitors, GSA staff, service providers and others in attendance are expected to abide by the GSA Events Code of Conduct, which outlines specific expectations for participants at GSA-supported events.

## Cancellations, Changes and Refunds

All requests for additions, changes, and cancellations must have been made in writing to GSA headquarters and received by 10 February 2020. There will be no refunds for cancellations received after this date.

## Meeting App and Abstracts

A web-based app is available for this meeting. This app allows you to view and search the meeting program and create your own schedule of events to attend. You can also view the full abstracts text from this app. Please download the app at <https://gsa.confex.com/gsa/2020SC/meetingapp.cgi>.

## Accessibility

GSA is committed to ensuring full participation for all conference attendees. You may indicate special requirements on your registration form; please inform the local organizing committee of these requirements at least one month prior to the meeting.

## Continuing Education Credits (CEU)

The South-Central Section Meeting offers an excellent opportunity to earn CEUs toward your continuing education requirements for your employer, K–12 school or professional registration. Please check the meeting website after the meeting to download your CEU certificate.

## SPECIAL EVENTS

*Sunday, 8 March*

**Opening Ceremony.** 5–6 p.m., Room 202A. Keynote address by Dr. Cin-Ty Lee, Rice University.

**Welcome Reception.** 6–7:30 p.m., Ballrooms AB. Enjoy snacks and a complimentary beverage while connecting with your colleagues. Each participant receives a coupon for one free beer, wine, or non-alcoholic beverage in their registration packet.

*Monday, 9 March*

**Session Chair Orientation.** 6:50–7:05 a.m., Room 201A. This meeting will include a review of session time management, AV procedures, and other information affecting the conduct of the day's sessions.

**Coffee Break.** 10–11 a.m. and 3–3:45 p.m., Ballroom B.

**Geology Club Officer Meet-Up,** 12:15–1:15 p.m., Room 201A. If you are a geology club officer or are interested in starting a club on your campus plan to Meet-Up and chat with other representatives about their activities, goals, and accomplishments.

**Posters/Exhibits Beer, Wine, and Snacks.** 4–5 p.m., Ballroom B.

*Tuesday, 10 March*

**Session Chair Orientation.** 7–7:15 a.m., Room 201A. This meeting will include a review of session time management, AV procedures, and other information affecting the conduct of the day's sessions.

**GSA Campus Representative Appreciation Breakfast.** 7–8 a.m., Rm 202AB. This complimentary breakfast for Campus Reps is held to say Thank You. If you are a campus representative or are interested in becoming one please plan to attend this celebratory event.

**Coffee Break.** 10–11 a.m., Ballroom B.

**Outstanding Student Presentation Awards Ceremony.** 3:30–4 p.m. Ballroom B. Enjoy light snacks and a complimentary beverage while visiting the poster/exhibit hall. Each participant receives a coupon for one free beer or wine in the registration packet.

**End of Conference Reception.** 3–5 p.m., Ballroom B. Enjoy snacks and a complimentary beverage while connecting with your colleagues. Each participant receives a coupon for one free beer, wine, or non-alcoholic beverage in their registration packet.



## BUSINESS MEETINGS

**GSA South-Central Section Management Board Meeting and Breakfast.** Monday, 9 March, 7:15–8 a.m., Rm 201A.

## TECHNICAL PROGRAM

The Meeting's Technical Program consists of Theme and Discipline Sessions arranged in oral and poster sessions. The Technical Program begins at 8 a.m. and ends at 5:30 p.m., Mon–Tue., 9–10 March. Please direct questions related to the following sessions to the Technical Program Chairs, Cheyenne Xie, x.xie@tcu.edu, or Arne Winguth, awinguth@uta.edu.

### Speaker Ready Room

The Speaker Ready Room is located in Room 203A in the Conference Center, and is available at the following times:

Sunday, 8 March 3–7 p.m.  
Monday, 9 March 6:30 a.m.–5:30 p.m.  
Tuesday, 10 March 6:30 a.m.–3 p.m.

### Oral Presentations

Computers and assistance is available to view presentations. All presentations are displayed as PowerPoint presentations in technical sessions, and presentations should be prepared using a 16:9 ratio. The Speaker Ready Room can also be used to check presentations prior to uploading files. We ask that oral presenters upload their presentations the night prior for morning sessions, and at least 2 hours prior to the beginning of their session for afternoon sessions. Monday morning speakers should upload their talks by 7 a.m. on the same day.

### Poster Presentations

Each poster board is 5 feet x 3.5 feet (landscape), and posters can be hung with removable mounting strips. Posters will be located in Ballroom B adjacent to the exhibitors. Presenters are expected to have their posters up by 8:30 a.m., and they are expected to be present at their posters from 3 to 5 p.m. for posters in sessions that take place on Monday and Tuesday. Presenters should take down their posters at the end of the session. Any posters not taken down will be discarded.

### Session Chair Orientations

Each Session Chair is requested to attend a 15 minute "Session Chairs Orientation" held in Room 201A on the morning of the day on which your session is to take place. This meeting will include a review of session time management, AV procedures, and other information affecting the conduct of the day's sessions.

Session chairs are asked to strictly adhere to the technical program schedule and to limit speakers to their allotted time. If a speaker does not appear for an assigned time slot, session chairs should call a break or discussion period and begin the following presentation at its scheduled time.

A student volunteer is assigned to each oral session. Session chairs are asked to meet with the assigned student volunteer before the start of the session. The volunteers are

there to help the sessions run smoothly and to contact the AV Coordinator in the event of technical problems.

## Technical Program Sessions

**D1. Geophysics and Remote Sensing Applications.** Andrew Katumwehe, andrew.katumwehe@msutexas.edu; Luel Emishaw, leulseg@ostatemail.okstate.edu; Kevin L. Mickus, kevinmickus@missouristate.edu; Esayas Gebremichael, e.gebremichael@tcu.edu.

**D2. Sedimentology and Stratigraphy of the Midcontinent Region (Posters).** Walter L. Manger, manger@uark.edu; Xiangyang Xie, x.xie@tcu.edu; Shaun Prines, s.t.prines@tcu.edu.

**D3. Topics in General Paleontology and Ichnology.** Arthur Busbey, a.busbey@tcu.edu; Patrick Getty, pgetty@collin.edu; Stephen T. Hasiotis, hasiotis@ku.edu.

**D4. The Geoscience Community: Strategies and Practices for Enhancing Diversity, Learning, and Information Sharing.** Brendan Joseph Hanger, brendan.hanger@okstate.edu; Aida Farough, afarough@ksu.edu; Liane M. Stevens, stevenslm@sfasu.edu; Wendi J. W. Williams, wwilliam@southtexascollege.edu; Katherine K. Ellins, kellins@jsg.utexas.edu.

**T1. Open Versus Closed Systems in Diagenesis and Hydrothermal Alteration.** R. Douglas Elmore, University of Oklahoma, delmore@ou.edu; Matt Hamilton, University of Oklahoma, Matt.Hamilton@ou.edu; Katie Garrett, University of Oklahoma, katie-garrett@ou.edu.

**Description:** This session focuses on diagenesis in a variety of rock types, including fine grained siliciclastics, carbonates, and igneous rocks. Studies assess if diagenesis was an open or closed system, using paleomagnetic and other techniques to date diagenetic events, and descriptions of hydrothermal alteration.

**T2. Recent Progress in the Southern Oklahoma Aulacogen.** Matt Hamilton, University of Oklahoma, matt.hamilton@ou.edu; R. Douglas Elmore, University of Oklahoma, delmore@ou.edu; Jonathan D. Price, Midwestern State University, jonathan.price@msutexas.edu.

**Description:** This session presents studies of the Southern Oklahoma Aulacogen, including the generation and emplacement of igneous bodies, development of the rift system, subsequent sedimentation and structural inversion, and relevance to problems in modern and ancient tectonics.

**T3. Unresolved Issues in Integrating Pennsylvanian Stratigraphy, Depositional Systems, and Tectonics in the Eastern Shelf of the Permian Basin.** William A. Ambrose, Bureau of Economic Geology, william.ambrose@beg.utexas.edu; Tucker F. Hentz, Bureau of Economic Geology, tucker.hentz@beg.utexas.edu.

**Description:** This session addresses the complex relationships that exist between Pennsylvanian stratigraphy, depositional systems, and tectonics in the Eastern Shelf of the Permian Basin and their controls on sediment-delivery systems and reservoir distribution in a mature and prolific region in the U.S. southern midcontinent.

**T4. Geophysical Methods and Application.** Jingyi Chen, The University of Tulsa, jingyi-chen@utulsa.edu; Priyank Jaiswal, Oklahoma State University, priyank.jaiswal@okstate.edu; Michael Behm, University of Oklahoma, michael.behm@ou.edu.

**Description:** Geophysical methods can help to solve engineering, geological, and environmental problems. This session includes developments in various geophysical methods and applications (e.g., seismic, gravity, magnetics, GPR, and EM). The developments in numerical modeling techniques are covered as well in this session.

**T5. Recent Advances in Geoscience Research of Northeastern Mexico.** Juan Alonso Ramirez-Fernandez, Universidad Autónoma de Nuevo Leon, alonso\_fct@hotmail.com, juan.ramirezf@uanl.mx; Fernando Velasco-Tapia, Universidad Autónoma de Nuevo Leon, fernando.velascotp@uanl.edu.mx; Uwe Jenchen, Universidad Autónoma de Nuevo Leon, uwe.jenchen@gmail.com.

**Description:** The geology of northeastern Mexico has been studied for many decades. However, in the last few years several investigations have been carried out, improving and, in some cases, making important adjustments to the interpretation of the processes developed since Precambrian times and up to today.

**T7. The Age of American Wastelands: Carboniferous-to-Jurassic Stratigraphy, Sedimentology, and Paleoenvironments of North America.** Neil Tabor, Southern Methodist University, ntabor@smu.edu; John Holbrook, Texas Christian University, john.holbrook@tcu.edu.

**Description:** This session brings together research focused on field and petrographic observations, paleontology, and mineral or chemical analyses to provide new insights to stratigraphy, sedimentology, paleoenvironments, and paleoclimates of Carboniferous–Jurassic North America.

**T8. Permian of the South-Central U.S.: Land and Sea.** Lowell Waite, The University of Texas at Dallas, lowell.waite@utdallas.edu; Alicia Bonar, University of Oklahoma, alicia.bonar@ou.edu; Lily Pfeifer, University of Oklahoma, lspfeifer@ou.edu; Robert J. Stern, The University of Texas at Dallas, rjstern@utdallas.edu.

**Description:** Permian-age sediments of the U.S. mid-continent region of both continental and marine origin provide insight into the last known icehouse-to-greenhouse transition on a vegetated Earth. This session compares and contrast the nature of these sediments as they record changing paleogeographic, climatic, and tectonic conditions through Permian time.

**T11. Mass Extinction in Earth History: New Insights from Paleobiological, Geochemical, and Modeling Studies of Mass Extinction Events.** Arne Winguth, The University of Texas at Arlington, awinguth@uta.edu.

**Description:** This session features recent research of sedimentary, geochemical, paleobiological, and paleogeographical records and modeling studies to improve the understanding of mass extinctions in Earth's history. Presentations are from all earth-science fields, including studies from sedimentary

sections, developments of geochemical techniques, biogeochemical and climate modeling investigations, and syntheses.

**T12. Structural Evolution and Sedimentation along the Western Gulf of Mexico Margin.** Timothy Lawton, The University of Texas at Austin, tim.lawton@beg.utexas.edu; Elisa Fitz-Díaz, Universidad Nacional Autónoma de México, elisaf@geologia.unam.mx; Daniel F. Stockli, The University of Texas at Austin, stockli@jsg.utexas.edu.

**Description:** The Cordilleran orogenic front in Mexico lies within ~40 km of the western Gulf of Mexico, a proximity that has strongly influenced Gulf stratigraphy and sediment-dispersal pathways. This session contains presentations on aspects of Triassic–recent sedimentation, structure, and tectonics of the western Gulf of Mexico and onshore Mexican sedimentary basins.

**T15. Orogenesis and Global Change.** Guangsheng Zhuang, Louisiana State University, gzhuang@lsu.edu.

**Description:** This session aims at promoting our understanding the Earth system by bringing together scientists in the fields of tectonics, structural geology, geophysics, paleoclimatology, and paleoceanography. Topics range from deep geodynamics to surficial processes (uplift, weathering, erosion, climate change, and oceanic circulations, etc.).

**T16. The Role of Geochronology in Constraining the Development of Earth's Lithosphere: Focus on the U.S. South-Central Region, Mexico, and Beyond.** Elizabeth Catlos, The University of Texas at Austin, ejcatlos@jsg.utexas.edu; Rita Economos, Southern Methodist University, reconomos@smu.edu; J. Douglas Walker, University of Kansas, jdwalker@ku.edu.

**Description:** According to community vision documents, our understanding of Earth's geodynamic development is inextricably linked to timing. This session is an avenue for those who apply any dating approach to a wide range of geoscience-related topics to understand the assembly and tectonic evolution of the south-central region of the U.S. and Mexico. Geochronology-related research beyond these borders is also welcome.

**T18. Sedimentology, Geochemistry, Chemostratigraphy, and Geomechanics of Mudrock Systems.** Helge Alsleben, Texas Christian University, h.alsleben@tcu.edu.

**Description:** This session focuses on the sedimentology, geochemistry, chemostratigraphy, and geomechanics of siliciclastic and carbonate-rich mudrock systems. We have presentations that showcase recent advances in our understanding of these economically important rocks.

**T19. Little Minerals, Big Implications.** Nova Mahaffey, The University of Texas at Dallas, nxm154030@utdallas.edu; Leah N. Thompson, The University of Texas at Dallas, sip:ln160230@utdallas.edu; Bob Finkelman, The University of Texas at Dallas, bobf@utdallas.edu.

**Description:** Though inconspicuous, microminerals are not insignificant. Structures, textures, chemistry, and mineral associations observed on the microscale can elucidate the complexity of regional paleoclimate and geochemical controls on paragenetic processes. Clues from microminerals

can point to potential ore deposits or help unravel complex geologic histories. Look small, think big!

**T20. Low-Temperature Geochemistry and Biogeochemical Cycles.** Burke C. Leonce, burke\_leonce1@baylor.edu; Omar R. Harvey, omar.harvey@tcu.edu.

**Description:** This session focuses on the application of geochemical methods in understanding terrestrial and aquatic environments. These are presentations that use trace elements, stable and radiogenic isotopes, molecular biomarkers, spectroscopy, and/or calorimetry to understand biogeochemical processes, including, field/experimental studies focusing on soils, biochar, sediments, and natural and produced waters.

**T23. Hydrogeology and Water Resources.** Gehendra Kharel, Texas Christian University, g.kharel@tcu.edu.

**Description:** Water availability and quality for natural and human consumption are at risk due to changes in climate, land use, policies, economics, and human behaviors, among others. This session presents investigations across spatial and temporal scales from researchers, professionals, students, and stakeholders that relate to quality and quantity of groundwater and surface water and make use of field measurements, social surveys, data analysis and modeling.

**T24. Graduate Student Research across the Geosciences.** Omar R. Harvey, Texas Christian University, omar.harvey@tcu.edu.

**Description:** The session highlights presentations from graduate students whose research may or may not fit in other sessions.

**T29. Undergraduate Student Research (Posters).** *Cosponsor: Council on Undergraduate Research.* Omar R. Harvey, Texas Christian University, omar.harvey@tcu.edu.

**Description:** This poster session presents research conducted by undergraduate students.

## FIELD TRIPS

For additional information, please contact the Field Trip co-chairs, Richard Hanson, r.hanson@tcu.edu, and Helge Alseleben, h.alseleben@tcu.edu.

**F1. A View into the Igneous Rift Materials of the Origins, Emplacement, and Alteration.** Sat.–Sun., 7–8 March. Max.: 20 participants. US\$232. Check in at 7 a.m. on Saturday, 7 March at the 13<sup>th</sup> Street Lobby on Houston Street Side of Fort Worth Convention Center. *Trip departs promptly at 7:30 a.m.*

**Principal Organizer:** Jonathan D. Price, Midwestern State University, jonathan.price@msutexas.edu

**Co-organizers:** Erin Summerlin-Donofrio, Southern Methodist University, esummerlindonofrio@smu.edu; Matthew Hamilton, University of Oklahoma, matt.hamilton@ou.edu; Amber Quevy, Rigaku Americas Corporation, amberquevy@gmail.com; Alexandria Stevenson, Midwestern State University, alexandria.weiskircher@gmail.com

**Description:** This field trip will visit the Wichita Mountains, a region that exposes the plutonic and volcanic products of the Eocambrian Southern Oklahoma Aulacogen.

The field sites will highlight new findings on chemical, temporal, and structural attributes of the mafic and felsic rocks. Predominantly roadside stops with some light hiking. Depart Ft. Worth Saturday, 7 March, afternoon field stops in the central Wichitas, overnight lodging in Lawton, Oklahoma, depart for eastern Wichitas 8 March, morning to early afternoon field stops, return to Ft. Worth for evening reception. Lunch in the field both days.

**F2. Geology of Paleozoic Outcrops in the Hill Country of Central Texas.** Sat.–Sun., 7–8 March. Max.: 20 participants. US\$320. Check in at 6:30 a.m. on Saturday, 7 March at Texas Christian University (TCU), parking lot 6 (visitor parking), east of Amon G. Carter Stadium. Parking passes will be provided. Departure promptly at 7 a.m.

**Principal Organizer:** Bo Henk, Texas Christian University, bhenk@icloud.com

**Description:** This two-day trip will examine outcrops of Cambrian glauconitic sands, Ordovician karsted limestones within a modern cave system, Mississippian black shales, and bioturbated Pennsylvanian silt- and sandstones from Marble Falls to Lake Brownwood, Texas, USA.

**F3. Wanderings in the Pangaean Wastelands of Permo-Triassic West Texas.** Sat.–Sun., 7–8 March. Max.: 20 participants. US\$330. Check in by 4 p.m. and depart by 5 p.m. Saturday, 7 March at the 13<sup>th</sup> Street Lobby on Houston Street Side of the Ft Worth Convention Center.

**Principal Organizer:** John Holbrook, Texas Christian University, john.holbrook@tcu.edu

**Co-organizers:** Neil Tabor, Southern Methodist University, ntabor@mail.smu.edu; Anthony Skaleski, Texas Christian University, a.skaleski@tcu.edu

**Description:** This trip will visit outcrops of the Permo-Triassic section along the Palo Duro Canyon and Caprock state parks and surrounding area and explore a range of dry land river deposits from large to mega floods, large and small desert lakes, and the Permo-Triassic boundary. The field trip will begin and end at the Ft. Worth Convention Center.

**F4. Building Stones of Downtown Fort Worth.** Tues., 10 March. US\$45. Gather at 5 p.m. at the 13<sup>th</sup> Street Lobby on Houston Street Side of Fort Worth Convention Center for introductions, instructions, and to receive the field guide. Trip leaves at 5:30 p.m., and returns 7:30 p.m.

**Principal Organizer:** Tom Dill, tdill@att.net

**Description:** Downtown Fort Worth, well known for abundant brick structures and the brick pavement of Sundance Square, also has a large variety of buildings made with beautiful building stone. This trip will walk through downtown Fort Worth, observing and discussing the building stone, and discussing architecture, history, art, geology, and mineralogy. This is a walking field trip, departing and returning directly from the Fort Worth Convention Center on Tuesday, 10 March. Departure from the Fort Worth Convention Center will be at 5 pm. The trip will be at least 1.5 miles of walking, requiring about two hours.

**F5. Middle and Upper Pennsylvanian Strata of the Fort Worth Basin.** CANCELED

**F6. Geology of the Woodbine Formation in Outcrop along the Shores of Lake Grapevine, North-Central Texas.** Wed., 11 March. Max.: 20 participants. US\$95. Check in at 7:30 a.m. on Wednesday, 11 March Texas Christian University (TCU), parking lot 6 (visitor parking), east of Amon G. Carter Stadium. Parking passes will be provided. Depart at 8 a.m., return at 5 p.m.

**Principal Organizer:** Bo Henk, Texas Christian University, bhenk@icloud.com

**Description:** This one-day trip showcases the Woodbine sands at Lake Grapevine. Participants will see various physical and biogenic sedimentary structures including dinosaur tracks and various trace fossils, which were part of this shallow marine depositional system that was present in the region 90 million years ago.

## Short Courses

**SC1. An Overview of Earth Science Applications in the Shimadzu Institute for Research Technologies.** Sun., 8 March, 10 a.m.–3 p.m., University of Texas-Arlington, Dept of Earth and Environmental Sci, 500 Yates Street, Arlington, TX 76019, Room GS 147. Free.

**Principal Organizer:** Matthew Loocke, University of Texas at Arlington, matthew.loocke@uta.edu.

**Co-organizer:** Jeff Campbell, University of Texas at Arlington, jeff.campbell@uta.edu.

**Description:** This class is designed to provide an introduction for earth scientists to the instrumentation produced by Shimadzu Scientific Instruments and its wide range of applications in the earth sciences. This workshop provides an opportunity to tour the facilities of the Shimadzu Institute for Research Technologies at UTA ([www.uta.edu/sirt](http://www.uta.edu/sirt)), connect with representatives and engineers from Shimadzu, and engage with the experienced earth-science researchers working in our labs.

**SC2. Making Geoscience Animations and Videos and Assessing Them in the Classroom.** Sun., 8 March, 10 a.m.–4 p.m., Room 202CD. Free.

**Instructors:** Robert Stern, University of Texas at Dallas, [rjstern@utdallas.edu](mailto:rjstern@utdallas.edu); Jeffrey Ryan, University of South Florida, [ryan@usf.edu](mailto:ryan@usf.edu); Ning Wang, University of Texas at Dallas, [Ning.Wang@utdallas.edu](mailto:Ning.Wang@utdallas.edu); Siloa Willis, University of Texas Dallas, [Siloa.Willis@utdallas.edu](mailto:Siloa.Willis@utdallas.edu).

**Description:** Developing more and better animations of fundamental earth processes should be a priority, not only because animations generally aid learning but also because the students now moving through our educational system are the most visually stimulated generation that we have ever taught. Geoscientific information and processes are very amenable to treatment using videos and animations, but not enough are being made or assessed in the classroom. This workshop is designed to engage interested geoscientists to make and assess their own geoscience videos and animations. The workshop will stress the importance of identifying target audiences, identifying a suitable topic and carrying out research on it, generating storyboards and narrations, making

and editing videos and animations, and the importance of sound, dissemination, and assessment.

**SC3. Seismic Modeling, Imaging, and Inversion.** Sun., 8 March. 1–5 p.m., Room 201A. US\$50 (includes snacks and course materials),

**Instructor:** Jingyi Chen, The University of Tulsa, [jingyi-chen@utulsa.edu](mailto:jingyi-chen@utulsa.edu).

**Description:** Seismic modeling can help geologists and geophysicists to characterize seismic wave propagation, and plays a very important role in seismic data processing and interpretation. This course will introduce seismic numerical modeling of wave propagation using finite-difference methods in various types of media (e.g., acoustic, elastic, attenuating media), post- and pre-stack reverse time migration for obtaining the geological structure imaging, and inversion of rock properties (full waveform inversion and tomography) using seismic attributes including seismic waveform and traveltime.

**SC4. Mudstones in Core and Thin-Section.** Wed., 11 March. Time and Location to be determined. US\$25.

**Principal Organizer:** Richard Denne, Texas Christian University, [r.denne@tcu.edu](mailto:r.denne@tcu.edu).

**Description:** This course will be an examination of mudstones, particularly unconventional shales, and the methods used to describe them. Participants will become familiar with mudstone lithofacies in core and thin-sections, the geomechanical tools used to estimate rock strength, and the tools that are used to identify the mineralogic and elemental components of mudstones. They will also gain an understanding of how this data can be used to interpret the depositional and diagenetic processes associated with mudstones.

**SC5. I Dig It: Introduction to a Soil Science Education Toolkit for High School Teachers.** Sun., 8 March, 9 a.m.–4 pm., 201B US\$40 (includes snack, lunch, and course material).

**Instructor:** Julie Loisel, [julieloisel@tamu.edu](mailto:julieloisel@tamu.edu).

**Description:** Soils provide food, fibers, and fuel to our growing world population. They also regulate water resources, nitrogen and phosphorous flows, and climate via long-term organic matter and carbon sequestration, in addition to supporting biodiversity. From a global economy standpoint, soils are a cornerstone of all supply chains and jobs involving plants and animals. However, soils remain an unfamiliar topic to both our civil society as well as many stakeholders including land owners, business communities, and many levels of governments. Our team has developed a dozen teaching modules designed to educate Texas high school students about the importance of soils. Each module includes lectures, activities, and additional reading. Everything is available online for both teacher and student. Course content is primarily designed for AP Environmental Sciences and AP Geography students. Many modules integrate interactive cartography lessons; we also designed a year-long capstone project around composting. In this workshop, teachers will learn about soils, explore our teaching modules, test many of our activities, and discuss implementation in their classrooms. This project is funded by the THECB and the National Geographic Society. CPE credits available upon completion.

## STUDENT OPPORTUNITIES

**Roy J. Shlemon Mentors Program in Applied Geoscience.** Mon., 9 March, noon–1:30 p.m., Room 200. GSA student members will have the opportunity to discuss career prospects and challenges with applied geoscientists from various sectors over a FREE lunch. GSA student members will receive priority; any remaining space will be offered to student non-members on first come, first served

**John Mann Mentors Program in Applied Hydrogeology.** Tue., 10 March, noon–1:30 p.m., Room 200. GSA student members interested in applied hydrogeology or hydrology as a career will have the opportunity to network with professionals in these fields over a FREE lunch. GSA student members will receive priority; any remaining space will be offered to student non-members on first come, first served.

### Career Workshop Series

**Geoscience Career Workshop Part 1: Career Planning and Networking.** Mon., 9 March, 9–10 a.m., Room 200. Your job-hunting process should begin with career planning, not when you apply for jobs. This workshop will help you begin this process and will help you to practice your networking skills. This section is highly recommended for freshman, sophomores and juniors. The earlier you start your career planning the better.

**Geoscience Career Workshop Part 2: Geoscience Career Exploration.** Mon., 9 March, 10–11 a.m., Room 200. What do geologists in various sectors earn? What do they do? What are the pros and cons to working in academia, government, and industry? Workshop presenters and professionals in the field will address these issues.

**Geoscience Career Workshop Part 3: Cover Letters, Résumés and CVs.** Tue., 10 March, 9–10 a.m., Room 200. How do you prepare a cover letter? Does your résumé need a good edit? Whether you are currently on the job market or not, learn how to prepare the best résumé possible. You will review numerous examples to help you learn important résumé do's and don'ts.

**Student Volunteers—Work opportunities may earn free registration.** Students interested in volunteering must contact Dr. Helge Alsleben, h.alsleben@tcu.edu.

### Exhibits

Exhibits are located in Ballroom B.  
Set up: Sunday 8 March, 8 a.m.–5 p.m.  
Open: Sunday 8 March, 6–7:30 p.m.  
Open: Monday, 9 March, 8:30 a.m.–5 p.m.  
Open: Tuesday, 10 March, 8:30 a.m.–5 p.m.  
Tear down: Tuesday, 10 March, 5–9 p.m.

### Exhibitors (as of late December)

2021 North-Central/South-Central Joint Meeting  
American Institute of Professional Geologists  
Geological Society of America  
GSA Foundation  
Oklahoma State University/Boone Pickens School of Geology

# Schedule of Events

EVENT	TIME	LOCATION
<b>SATURDAY, 7 MARCH</b>		
F2. Geology of Paleozoic Outcrops in the Hill Country of Central Texas (Field Trip)	6:30 a.m.–11:50 p.m.	Texas Christian University, parking lot 6, east of Stadium
F1. A View into the Igneous Rift Materials of the: Origins, Emplacement, and Alteration (Field Trip)	7 a.m.–11:55 p.m.	13th Street Lobby, Fort Worth Convention Center
F3. Wanderings in the Pangaeian Wastelands of Permo- Triassic West Texas (Field Trip)	4–11:55 p.m.	13th Street Lobby, Fort Worth Convention Center

<b>SUNDAY, 8 MARCH</b>		
SC5. I Dig It: Introduction to a Soil Science Education Toolkit for High School Teachers (Short Course)	9 a.m.–4 p.m.	Meeting Room 201B
SC1. An Overview of Earth Science Applications in the Shimadzu Institute for Research Technologies at The University of Texas at Arlington (Short Course)	10 a.m.–3 p.m.	University of Texas-Arlington, Dept of Earth and Environmental Sci, 500 Yates Street, Arlington, TX 76019, Room GS 147
SC2. Making Geoscience Animations and Videos and Assessing Them in the Classroom (Short Course)	10 a.m.–4 p.m.	Meeting Room 202CD
SC3. Seismic Modeling, Imaging, and Inversion (Short Course)	1–5 p.m.	Meeting Room 201A
Exhibitor Set-Up	8 a.m.–5 p.m.	Ballroom B
Registration	3–6:30 p.m.	Ballroom Prefunction Lobby
Speaker Ready Room	3–7 p.m.	Room 203A
<b>Opening Ceremony.</b> Keynote Address: Dr. Cin-Ty Lee	5–6p.m.	Room 202A
Exhibits Open	6–7:30 p.m.	Ballroom B
<b>Welcome Reception</b>	6–7:30 p.m.	Ballroom C

<b>MONDAY, MARCH 9</b>		
Speaker Ready Room	6:30 a.m.–5:30 p.m.	Meeting Room 203A
Session Chair Orientation	6:50–7:05	Meeting Room 201A
Registration	7 a.m.–4:30 p.m.	Ballroom Prefunction Lobby
GSA South-Central Section Management Board Meeting and Breakfast	7:15–8 a.m.	Meeting Room 201A
<b>Morning Oral Technical Sessions</b>		
D4. The Geoscience Community: Strategies and Practices for Enhancing Diversity, Learning, and Information Sharing	8 a.m.–noon	Meeting Room 201C
T2. Recent Progress in Granites, Rhyolites, and Associated Magmatism	8 a.m.–noon	Meeting Room 202AB
T8. Permian of the South-Central U.S.: Land and Sea	8 a.m.–noon	Meeting Room 202CD



<b>EVENT</b>	<b>TIME</b>	<b>LOCATION</b>
T19. Little Minerals, Big Implications	8 a.m.–noon	Meeting Room 201B
T23. Hydrogeology and Water Resources	8 a.m.–noon	Meeting Room 201A
Exhibits Open	8:30 a.m.–5 p.m.	Ballroom B
Geoscience Career Workshop Part 1: Career Planning and Networking	9–10 a.m.	Meeting Room 200
Geoscience Career Workshop Part 2: Geoscience Career Exploration	10–11 a.m.	Meeting Room 200
Coffee Break	10–11 a.m.	Ballroom B

**Poster Sessions:** *Authors will be present from 3 to 5 p.m.*

D2. Sedimentology and Stratigraphy of the Midcontinent Region (Posters)	8:30 a.m.–5 p.m.	Ballroom B
D3. Topics in General Paleontology and Ichnology (Posters)	8:30 a.m.–5 p.m.	Ballroom B
D4. The Geoscience Community: Strategies and Practices for Enhancing Diversity, Learning, and Information Sharing (Posters)	8:30 a.m.–5 p.m.	Ballroom B
T2. Recent Progress in Granites, Rhyolites, and Associated Magmatism (Posters)	8:30 a.m.–5 p.m.	Ballroom B
T20. Low-Temperature Geochemistry and Biogeochemical Cycles (Posters)	8:30 a.m.–5 p.m.	Ballroom B
T24. Graduate Student Research Across the Geosciences (Posters)	8:30 a.m.–5 p.m.	Ballroom B

Geology Club Officer Meet-Up	12:15–1:15 p.m.	Meeting Room 201A
Roy J. Shlemon Mentors Program in Applied Geoscience	noon–1:30 p.m.	Meeting Room 200

**Afternoon Oral Technical Sessions**

T3. Unresolved Issues in Integrating Pennsylvanian Stratigraphy, Depositional Systems, and Tectonics in the Eastern Shelf of the Permian Basin	1:30–5:30 p.m.	Meeting Room 202AB
T4. Geophysical Methods and Application	1:30–5:30 p.m.	Meeting Room 201C
T11. Mass Extinction in Earth History: New Insights from Paleobiological, Geochemical, and Modeling Studies of Mass Extinction Events	1:30–5:30 p.m.	Meeting Room 201A
T15. Orogenesis and Global Change	1:30–5:30 p.m.	Meeting Room 201B
T18. Sedimentology, Geochemistry, Chemostratigraphy, and Geomechanics of Mudrock Systems	1:30–5:30 p.m.	Meeting Room 202CD
Coffee Break	3–3:45 p.m.	Ballroom B
Posters/Exhibits Beer, Wine, and Snacks	4–5 p.m.	Ballroom B

**TUESDAY, 10 MARCH**

Speaker Ready Room	6:30 a.m.–3 p.m.	Meeting Room 203A
Session Chair Orientation	7–7:15 a.m.	Meeting Room 201A
GSA Campus Representative Appreciation Breakfast	7–8 a.m.	Meeting Room 202AB
Registration	7 a.m.–4:30 p.m.	Ballroom Prefunction Lobby

EVENT	TIME	LOCATION
<b>Morning Oral Technical Sessions</b>		
D1. Geophysics and Remote Sensing Applications	8 a.m.–noon	Meeting Room 201A
T1. Open Versus Closed Systems in Diagenesis and Hydrothermal Alteration	8 a.m.–noon	Meeting Room 202AB
T5. Recent Advances in Geoscience Research of Northeastern Mexico	8 a.m.–noon	Meeting Room 201C
T7. The Age of American Wastelands: Carboniferous-to-Jurassic Stratigraphy, Sedimentology, and Paleoenvironments of North America	8 a.m.–noon	Meeting Room 201B
T16. The Role of Geochronology in Constraining the Development of Earth's Lithosphere: Focus on the U.S. South-Central Region, Mexico, and Beyond	8 a.m.–noon	Meeting Room 202CD
Exhibits Open	8:30 a.m.–5 p.m.	Ballroom B
<b>Poster Sessions: Authors will be present from 3 to 5 p.m.</b>		
T4. Geophysical Methods and Application (Posters)	8:30 a.m.–5 p.m.	Ballroom B
T29. Undergraduate Student Research (Posters)	8:30 a.m.–5 p.m.	Ballroom B
Geoscience Career Workshop Part 3: Cover Letters, Résumés and CVs	9–10 a.m.	Meeting Room 200
Coffee Break	10–11 a.m.	Ballroom B
John Mann Mentors Program in Applied Hydrogeology	noon–1:30 pm	Meeting Room 200
<b>Afternoon Oral Technical Sessions</b>		
D3. Topics in General Paleontology and Ichnology	1:30–5:30 p.m.	Meeting Room 201C
T12. Structural Evolution and Sedimentation along the Western Gulf of Mexico Margin	1:30–5:30 p.m.	Meeting Room 201B
T24. Graduate Student Research Across the Geosciences	1:30–5:30 p.m.	Meeting Room 201A
End of Conference Reception	3–5p.m.	Ballroom B
Outstanding Student Presentation Awards Ceremony	3:30–4 p.m.	Ballroom B
Exhibitor Tear Down	5–9 p.m.	Ballroom B
F4. Building Stones of Downtown Fort Worth (Field Trip)	5–7:30 p.m.	13th Street Lobby, Fort Worth Convention Center

### WEDNESDAY, 11 MARCH

SC4. Mudstones in Core and Thin-Section		Time and Location to be determined
F6. Geology of the Woodbine Formation in Outcrop along the Shores of Lake Grapevine, North-Central Texas (Field Trip)	7:30 a.m.–5 p.m.	Texas Christian University, parking lot 6, east of Stadium

# Technical Sessions

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.

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



## NOTE INDEX SYSTEM

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

\*denotes speaker

## MONDAY, 9 MARCH 2020

### MORNING ORAL TECHNICAL SESSIONS

#### SESSION NO. 1

##### *T2. Recent Progress in Granites, Rhyolites, and Associated Magmatism*

8:00 AM, Fort Worth Convention Center, Meeting Room 202AB

Matt Hamilton, R. Douglas Elmore, Jonathan D. Price, Gary S. Michelfelder and Melanie A. Barnes, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 1-1 8:05 AM Hanson, Richard E.\*; Wall, Corey J.; Schmitz, Mark D.; Price, Jonathan D.; Puckett, Robert E.; Donovan, R. Nowell; Boro, Joseph R.; Eschberger, Amy M.; Toews, Chelsea E.: **CAMBRIAN FELSIC ROCKS EMPLACED DURING VOLUMINOUS BIMODAL MAGMATISM IN THE SOUTHERN OKLAHOMA AULACOGEN: AN OVERVIEW**
- 1-2 8:25 AM Price, Jonathan D.\*: **THE CAMBRIAN WICHITA GRANITE GROUP OF OKLAHOMA; REVIEWING THE MAFIC ASSEMBLAGES OF ITS "LESSER" LITHOSTRATIGRAPHY**
- 1-3 8:45 AM Stevenson, Alexandria M.\*; Price, Jonathan D.: **ANOMALOUS GRANITES WITHIN THE QUANAH GRANITE PLUTON, WICHITA MOUNTAINS, OKLAHOMA**
- 1-4 9:05 AM Hamilton, Matt\*; Weaver, Barry L.; Elmore, R. Douglas: **MESOPROTEROZOIC MAGMATISM IN NORTHEASTERN OKLAHOMA: PETROGENETIC CONSTRAINTS FROM TRACE-ELEMENT GEOCHEMISTRY**
- 9:25 AM **BREAK**
- 1-5 9:40 AM Economos, Rita C.\*: **APATITE AS A RECORDER OF CRYPTIC VOLATILE PROCESSES IN MAGMAS**
- 1-6 10:00 AM Ruefer, Anna C.\*; Befus, Kenneth S.: **EXPERIMENTALLY TESTING EMBAYMENTS AS RECORD KEEPERS OF MAGMATIC ASCENT**
- 1-7 10:20 AM Michelfelder, Gary S.\*; LaRue, Kimberly: **MAGMA-WALL ROCK INTERACTION IN THE ST FRANCOIS MOUNTAINS, MISSOURI: UNRAVELLING MAGMATIC ARCHITECTURE**

#### USING MICROSTRUCTURES AND TRACE ELEMENT GEOCHEMISTRY

- 1-8 10:40 AM Parker, Don F.\*: **HYBRIDIZATION OF MAFIC AND SILICIC MELTS IN POST-CALDERA LAVA OF NEWBERRY VOLCANO, CENTRAL OREGON, USA**

#### SESSION NO. 2

##### *T8. Permian of the South-Central U.S.: Land and Sea*

8:00 AM, Fort Worth Convention Center, Meeting Room 202CD

Lowell Waite, Alicia L. Bonar, Lily S. Pfeifer and Robert J. Stern, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 2-1 8:05 AM Waite, Lowell\*; Stern, Robert; Scotese, Christopher: **ONE IF BY LAND, TWO IF BY SEA: PERMIAN OF THE U.S. SOUTH-CENTRAL REGION**
- 2-2 8:25 AM Scotese, Christopher\*: **THE PERMIAN WORLD: PLATE TECTONICS, PALEOGEOGRAPHY, PALEOCLIMATE, & PALEOBIOGEOGRAPHY**
- 2-3 8:45 AM Tian, Hepeng\*; Fan, Majie; Chamberlain, Kevin R.; Waite, Lowell; Stern, Robert J.: **ZIRCON LA-ICPMS AND CA-TIMS U-PB DATES OF LATE PALEOZOIC VOLCANIC TUFFS IN THE MIDLAND BASIN, WEST TEXAS**
- 2-4 9:05 AM Zambito, James J.\*; Rasbury, Troy; Benison, Kathleen C.; Soreghan, Gerilyn: **STRONTIUM ISOTOPE RATIOS AND BORON ISOTOPIC COMPOSITION OF PERMIAN STRATA IN THE U.S. MID-CONTINENT: INTERPRETING A MARINE GEOCHEMICAL SIGNATURE IN NON-MARINE ENVIRONMENTS OF THE BLAINE FORMATION**
- 2-5 9:25 AM Sims, Eileah R.\*; Belanger, Christina: **MORPHOMETRIC ANALYSIS OF BIOSTRATIGRAPHICALLY SIGNIFICANT FUSULINID FORAMINIFERAN GENUS *TRITICITES* ACROSS THE PENNSYLVANIAN-PERMIAN BOUNDARY IN THE CENTRAL AND SOUTHWESTERN UNITED STATES**
- 9:45 AM **BREAK**
- 2-6 10:00 AM Ivanov, Alexander O.\*; Nestell, Merlynd K.; Nestell, Galina P.: **DIVERSE FISH ASSEMBLAGES FROM THE MIDDLE PERMIAN OF THE APACHE MOUNTAINS, TEXAS**

MONDAY, 9 MARCH

- 2-7 10:20 AM Hiss, Kevin A.\*; Williamson, David B.: **FACIES AND STRATIGRAPHY OF THE SAN ANDRES FORMATION (MID-PERMIAN) PETROLEUM PROVINCE, NORTHWEST SHELF OF THE PERMIAN BASIN, WEST TEXAS: A RESURGENT PLAY**
- 2-8 10:40 AM Brissette, Nic\*: **MAPPING FOR STRATIGRAPHIC TRAPS ON THE COMPLEX EASTERN SHELF**
- 2-9 11:00 AM Case, Zachery T.\*; Nielson, R. LaRell: **STRATIGRAPHIC, DEPOSITIONAL ENVIRONMENTAL AND PALEONTOLOGIC ANALYSIS OF THE HARRISBURG MEMBER OF THE KAIBAB FORMATION IN NORTH CENTRAL ARIZONA**
- 2-10 11:20 AM Dingmore, Lindy\*; Pranter, Matthew; Pigott, John D.; Caf, Abidin B.; Reza, Zuliquar A.: **STRATIGRAPHIC VARIABILITY OF DETRITAL CARBONATES AND ASSOCIATED PETROPHYSICAL PROPERTIES OF THE WOLFCAMP FORMATION, NORTHWEST SHELF, DELAWARE BASIN**
- 11:40 AM **CONCLUDING REMARKS**

### SESSION NO. 3

#### *T19. Little Minerals, Big Implications*

8:00 AM, Fort Worth Convention Center, Meeting Room 201B

Nova Mahaffey, Leah N. Thompson and Robert B. Finkelman, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 3-1 8:05 AM Patty, Tom S.\*: **PERMIAN AGE BEAVERBURK LIMESTONE: LOCATION, CHEMISTRY AND ARCHITECTURAL USES**
- 3-2 8:25 AM Swigart, Joshua James\*; Heo, Joonghyeok: **APPLICATION OF DRILLING FLUID AND PRODUCED WATER TO A SOIL SURFACE CAUSING ALTERATION OF SOIL CHEMICAL PROPERTIES**
- 3-3 8:45 AM Vega, Jordan\*; Gouzie, Douglas R.: **A GEOCHEMICAL INVESTIGATION OF THE BIG FOUR SPRINGS REGION IN SOUTHERN MISSOURI**
- 3-4 9:05 AM Thompson, Leah N.\*; Finkelman, Robert B.; French, David H.; Arbuzov, Sergey I.: **MICROANALYSIS OF A TONSTEIN UNCOVERS A MINERALOGICAL MYSTERY: THE FIRST REPORTED OCCURRENCE OF FERROAN MAGNESITE IN COAL**
- 3-5 9:25 AM Mahaffey, Nova\*; Finkelman, Robert B.: **A JOURNEY TO THE CENTER OF A GEODE: MICROMINERAL DISCOVERIES WITH MACRO-IMPLICATIONS**
- 9:45 AM **BREAK**
- 3-6 10:00 AM Goodsohm, Alexander A.\*; Befus, Kenneth S.: **MONTANA'S CORUNDUM CONUNDRUM: WHAT IS THE PROVENANCE AND ORIGIN OF THE MISSOURI RIVER ALLUVIAL SAPPHIRES?**
- 3-7 10:20 AM Finkelman, Robert B.\*: **HOW DO MINERALS IMPACT HUMAN HEALTH? LET ME COUNT THE WAYS**
- 3-8 10:40 AM Chen, Jianbo\*; Tabor, Neil J.; Griffiths, Neil; Feng, Zhuo: **DECREASING CHEMICAL WEATHERING PROXIES OF DRILLED CORE AND PALEOSOLS IN EASTERN YUNNAN, SW CHINA: DIAGENETIC IMPRINT OR WEAKENED WEATHERING FROM LATE PERMIAN TO THE EARLIEST TRIASSIC?**
- 3-9 11:00 AM Penalozza, Ricardo J.\*; Gottardi, Raphael: **INVESTIGATING FLUID INCLUSIONS AND PATHWAY MIGRATION OF THE EAGLE FORD AND AUSTIN CHALK FORMATIONS**
- 11:20 AM **CONCLUDING REMARKS**

### SESSION NO. 4

#### *T23. Hydrogeology and Water Resources*

8:00 AM, Fort Worth Convention Center, Meeting Room 201A

Gehendra Kharel, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 4-1 8:05 AM Jones, Michael D.\*; Land, Lewis; Veni, George: **ELECTRICAL RESISTIVITY SURVEYS: INITIAL STEPS**

#### **IN CHARACTERIZING THE SAN SOLOMON SPRINGS AQUIFER, FAR WEST TEXAS**

- 4-2 8:25 AM Sproule, Tyler\*; Spinelli, Glenn A.; Wilson, John L.; Mozley, Peter; Fort, Michael; Hinojosa, Johnny; Barnes, Heather; Ciarico, Jared; Salazar, Mercedes: **WELL-TESTING INVESTIGATION OF CEMENTED-FAULT CONTROLS ON SUBSURFACE FLUID FLOW**
- 4-3 8:45 AM Hamilton, Wayne\*; Morrison, Josh; Yelderman, Joe C.: **ASSESSING SUPPLEMENTAL UNCONFINED AQUIFERS AS POTABLE GROUND WATER RESOURCE IN CENTRAL TEXAS, MCLENNAN COUNTY**
- 4-4 9:05 AM Suydam, Alysa\*; Meyer, John; Croskrey, Andrea: **SPATIAL DISTRIBUTION OF THE QUALITY AND QUANTITY OF BRACKISH GROUNDWATER IN FIVE AQUIFERS IN THE CENTRAL PORTION OF THE UPPER COASTAL PLAINS OF TEXAS**
- 9:25 AM **BREAK**
- 4-5 9:40 AM Culver, Madison\*; Halihan, Todd: **DEEP RESISTIVITY EVALUATION OF FAULTED DOLOMITE FOR PUBLIC WATER SUPPLY**
- 4-6 10:00 AM Cardona, Antonio\*; Rivera-Armendariz, Cristian Abraham; Alonso Torres, Socrates; Montes-Avila, Isidro: **HYDROCHEMICAL AND ISOTOPIC CHARACTERIZATION OF GROUNDWATER FLOW SYSTEMS IN NORTH-CENTRAL MEXICO: IMPLICATIONS FOR WATER MANAGEMENT**
- 4-7 10:20 AM Camp, Justin\*; Hunt, Brian B.; Smith, Brian A.: **EVALUATING THE POTENTIAL GROUNDWATER AVAILABILITY WITHIN A LOWER TRINITY AQUIFER WELL FIELD, BALCONES FAULT ZONE, HAYS COUNTY, CENTRAL TEXAS**
- 4-8 10:40 AM Cockrell, Lane P.\*; Hunt, Brian B.; Gary, Robin; Vay, Jackie; Smith, Brian A.; Camp, Justin; Kennedy, Vicky: **HYDROGEOLOGIC ATLAS OF SOUTHWESTERN TRAVIS COUNTY, CENTRAL TEXAS**
- 4-9 11:00 AM Soto-Sanchez, Leslie\*; Cheng, Chu-Lin: **QUANTIFICATION OF GROUNDWATER-SURFACE WATER INTERACTIONS THROUGH HYPORHEIC FLOW STUDY IN LOWER RIO GRANDE, TX**

### SESSION NO. 5

#### *D4. The Geoscience Community: Strategies and Practices for Enhancing Diversity, Learning, and Information Sharing (International Association for Geoscience Diversity; National Association of Geoscience Teachers—Mid-Continent Section)*

8:00 AM, Fort Worth Convention Center, Meeting Room 201C

Brendan Joseph Hanger, Aida Farough, Liane M. Stevens, Wendi J. W. Williams, Katherine K. Ellins and Dana L. Thomas, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 5-1 8:05 AM Shroat-Lewis, René A.\*: **TEACHING PALEOECOLOGY USING EVERYDAY OBJECTS: AN INQUIRY-BASED, HANDS-ON LEARNING EXERCISE IF YOU DO NOT HAVE THE ROCKS**
- 5-2 8:25 AM Ross, Catherine H.\*; Ellins, Katherine K.; Papendieck, Adam S.; Clarke, Julia A.: **GEOSCIENCE AMBASSADORS PROGRAM: MENTORING STUDENTS IN GEOSCIENCE WITHIN HOME COMMUNITIES**
- 5-3 8:45 AM Wang, Ning\*; Stern, Robert; Urquhart, Mary; Ryan, Jeffrey; Waite, Lowell: **GEOSCIENCE EDUCATIONAL VIDEO DESIGN: LESSONS LEARNED FROM ASSESSMENT OF A VIDEO ABOUT THE PERMIAN BASIN**
- 5-4 9:05 AM Campos, Daniel\*: **IMPACT OF SERVING AS A GEOFORCE TEXAS TRIP COORDINATOR ON PROFESSIONAL DEVELOPMENT**
- 9:25 AM **BREAK**
- 5-5 9:40 AM Farough, Aida\*; Kempton, Pamela D.; Spears, Jacqueline; Allen, David: **IMPROVING GEOSCIENCE DIVERSITY AND PARTICIPATION IN KANSAS THROUGH GEOSCIENCE**

**CAREER AMBASSADOR TRAINING (GEOCAT) WORKSHOPS**

- 5-6 10:00 AM Dodge, Rebecca L.\*; Carpenter, Mark: **IMPROVING GEOSCIENCE EDUCATION THROUGH ONLINE TRAINING WITH ENHANCED OUTREACH OPPORTUNITIES**
- 5-7 10:20 AM Catlos, Elizabeth J.\*; Moore, Samuel; Campos, Daniel; Thomas, Dana L.: **UT AUSTIN JACKSON SCHOOL OF GEOSCIENCES ENHANCING DIVERSITY IN GEOSCIENCE GRADUATE EDUCATION (EDGE) PREVIEW: IMPACTS AND PRACTICES**
- 10:40 AM **DELIBERATE BROADENING PARTICIPATION**
- 11:10 AM **CONCLUDING REMARKS**

## POSTER TECHNICAL SESSIONS

**SESSION NO. 6****T2. Recent Progress in Granites, Rhyolites, and Associated Magmatism (Posters)**

8:30 AM, Fort Worth Convention Center, Ballroom B

Authors will be present from 3 to 5 PM

Booth #

- 6-1 1 Lehman, Katelyn M.\*; Hanson, Richard E.: **GEOCHEMISTRY AND PLATE-TECTONIC SETTING OF MESOPROTEROZOIC VOLCANIC UNITS IN THE KONKIEP TERRANE, NAMAQUANATAL OROGENIC BELT, NAMIBIA**
- 6-2 2 LaRue, Kimberly\*; Michelfelder, Gary S.: **PETROLOGY AND GEOCHEMISTRY OF THE 1.32 GA GRANITEVILLE GRANITE, ST FRANCOIS MOUNTAINS, SOUTHEAST MISSOURI**
- 6-3 3 Stevens, Liane M.\*: **CHEMICAL VARIATION IN TOWN MOUNTAIN GRANITE AND ASSIMILATION OF PACKSADDLE DOMAIN XENOLITHS ANALYZED BY HXRF, "THE SLAB" SWIMMING HOLE, LLANO UPLIFT, KINGSLAND, TEXAS**
- 6-4 4 Steger, Jared W.\*; Price, Jonathan D.: **GRANOPHYRE AND THE WICHITA GRANITE GROUP, OKLAHOMA: A LOOK INTO AN EDGY TEXTURE**
- 6-5 5 Newman, Jordan\*; Stern, Robert J.: **A PETROGRAPHIC ANALYSIS OF THE COLD SPRINGS BRECCIA (WICHITA MTS., OKLAHOMA): NEW APPROACHES TO AN OLD PROBLEM**
- 6-6 6 DeBone, Kristin\*; Hanson, Richard E.; Lehman, Thomas M.: **PHREATOMAGMATIC VOLCANIC PROCESSES RECORDED IN A PALEOCENE TUFF-RING COMPLEX, BIG BEND NATIONAL PARK, TRANS-PECOS IGNEOUS PROVINCE, WEST TEXAS**

**SESSION NO. 7****T20. Low-Temperature Geochemistry and Biogeochemical Cycles (Posters)**

8:30 AM, Fort Worth Convention Center, Ballroom B

Authors will be present from 3 to 5 PM

Booth #

- 7-1 7 Wang, Ruimin\*; Lang, Xianguo; Huang, Tianzheng; Shen, Bing: **RECOVERY OF MARINE PRODUCTIVITY AFTER THE SNOWBALL EARTH: EVIDENCE FROM PYRITE IRON ISOTOPES**
- 7-2 8 Abshire, Michelle L.\*; Kuzminov, Amy; Severmann, Silke; Romaniello, Stephen J.; Riedinger, Natascha: **URANIUM ISOTOPES AS A PROXY FOR PRIMARY DEPOSITIONAL REDOX CONDITIONS IN REDEPOSITED SEDIMENTS OF THE NAMIBIAN CONTINENTAL MARGIN**
- 7-3 9 Huang, Tianzheng\*; Shen, Bing: **COMPLEX MG ISOTOPE SYSTEMATICS DURING CHEMICAL WEATHERING**
- 7-4 10 Foote, Jordan M.\*; Fan, Majie; Martin, Aaron J.; Zhu, Lu: **STABLE ISOTOPE COMPOSITIONS OF MODERN SURFACE WATER IN THE SIERRA MADRE OCCIDENTAL, MEXICO**

- 7-5 11 Jones, Christopher Kent\*; Riedinger, Natascha; Melcher, Anne-Christin; Köster, Male; Volz, Jessica; Dohrmann, Ingrid; Henkel, Susann; Kasten, Sabine: **IMPACT OF PHYSICAL PROPERTIES ON BIOGEOCHEMICAL TRACE METAL CYCLING IN MODERN MARINE SURFACE SEDIMENTS OF THE ARGENTINE BASIN**
- 7-6 12 Kee, M. Tyler\*; Pollock, Erik D.; Ruhl, Laura S.: **GEOCHEMICAL AND SR ISOTOPIC SIGNATURE OF WATER-ROCK INTERACTIONS IN CENTRAL ARKANSAS**
- 7-7 13 Bland, Carolyn D.\*; Gallagher, Timothy M.; Breecker, Daniel O.: **NON-DESTRUCTIVE EXPERIMENTS AND MODELING OF CALCIUM CARBONATE FORMATION IN SOILS**

**SESSION NO. 8****T24. Graduate Student Research Across the Geosciences (Posters)**

8:30 AM, Fort Worth Convention Center, Ballroom B

Authors will be present from 3 to 5 PM

Booth #

- 8-1 14 Galle, Travis S.\*; Stevens, Liane M.: **PETROLOGY OF THE GRADATIONAL INTRUSIVE CONTACT BETWEEN THE PACKSADDLE SCHIST AND TOWN MOUNTAIN GRANITE, ENCHANTED ROCK STATE NATURAL AREA, LLANO UPLIFT, CENTRAL TEXAS**
- 8-2 15 Standard, Linnea Clarke\*: **VARIATION OF CLIMATE IN NORTH CENTRAL TEXAS DURING YEARS OF EXTREME-SEVERE DROUGHT**
- 8-3 16 Engelbart, Tyler W.\*; Gouzie, Douglas R.: **CORE AND GEOPHYSICAL ANALYSIS OF BIOGENIC TUFFA DEPOSITS IN THE SPRING RIVER IN NORTHERN ARKANSAS**
- 8-4 17 Zhao, Chen\*; Qinrong, Hu; Wang, Qiming; Zhang, Jing; Slatt, Roger M.: **MULTIPLE APPROACHES TO QUANTIFYING EFFECTIVE POROSITY OF THE DEVONIAN-AGED WOODFORD SHALE IN OKLAHOMA**
- 8-5 18 Martinez-Sacristan, Hernando\*: **THE IMPORTANCE OF GEOLOGY IN GREEN INFRASTRUCTURE: FAR FROM RHETORIC CLOSER TO REALITY**

**SESSION NO. 9****D2. Sedimentology and Stratigraphy of the Midcontinent Region (Posters)**

8:30 AM, Fort Worth Convention Center, Ballroom B

Authors will be present from 3 to 5 PM

Booth #

- 9-1 19 Williams, Billy A.\*; Nestell, Galina P.; Nestell, Merlynd K.: **THE STRATIGRAPHY OF THE UPPER PART OF THE SALESVILLE FORMATION (EARLY MISSOURIAN, PENNSYLVANIAN) NEAR MINERAL WELLS, TEXAS**
- 9-2 20 English, Marissa Margaret\*; Denne, Richard A.: **STRATIGRAPHY AND GEOCHEMISTRY OF THE LOWER CENOMANIAN MANESS SHALE OF EAST TEXAS**
- 9-4 22 Bolix, M. Jace\*; Preston, Dillon Wolfgang; Grecol, Riley P.; Leimer, H. Wayne; Tabor, Neil J.; Michel, Lauren A.: **RECONSTRUCTING THE LATE MISSISSIPPIAN PALEOCLIMATE: STRATIGRAPHY AND XRD ANALYSIS OF THE PENNINGTON FORMATION, SPARTA, TENNESSEE**
- 9-5 23 Richmond, Dean R.\*; Hunt, Tyler C.; Cifelli, Richard L.: **SEDIMENTOLOGY AND DEPOSITIONAL FACIES OF THREE NEWLY DESCRIBED MEMBERS OF THE MORRISON FORMATION IN THE WESTERN PANHANDLE OF OKLAHOMA**
- 9-6 24 Ewing, Thomas E.\*: **INTEGRATED SURFACE AND SUBSURFACE GEOLOGICAL MAPPING OF THE VALLEY OF THE MISSIONS, SAN ANTONIO, TEXAS**

MONDAY, 9 MARCH

**SESSION NO. 10**

**D3. Topics in General Paleontology and Ichnology (Posters)**

8:30 AM, Fort Worth Convention Center, Ballroom B

Authors will be present from 3 to 5 PM

Booth #	
10-1	25 West, Bryanna*; Busbey, Arthur: <b>CAMPANIAN-MAASTRICHTIAN ANKYLOSAURS OF WEST TEXAS</b>
10-2	26 Read, Michael T.*; Nestell, Merlynd K.: <b>KASIMOVIAN-GZHELIAN (LATE PENNSYLVANIAN) CONODONTS FROM THE LOWER AND MIDDLE INFORMAL MEMBERS OF THE RIEPE SPRING LIMESTONE, ELKO COUNTY, NEVADA</b>
10-3	27 McCauley, Christopher M.*; Nestell, Galina P.; Barrick, James E.; Nestell, Merlynd K.: <b>LATE LUDLOW AND PRIDOLI (SILURIAN) FORAMINIFERA FROM THE HENRYHOUSE FORMATION, ARBUCKLE MOUNTAINS, OKLAHOMA</b>
10-4	28 Ivanov, Alexander O.*; Seuss, Barbara: <b>LATE PENNSYLVANIAN FISHES FROM THE FINIS SHALE OF NORTH-CENTRAL TEXAS</b>
10-5	29 Casper, Stephen*; Moss, David K.: <b>GROWTH RATES AND LIFESPANS OF GLYCYMERIS AMERICANA FROM NORTH CAROLINA, USA DURING THE PLIOCENE AND PLEISTOCENE</b>
10-6	30 Birmingham, Margaret A.*; Olcott, Alison N.; Suarez, Marina B.; Beard, K. Christopher: <b>STABLE ISOTOPES ANALYSIS OF ARSINOITHERIUM AND ASSOCIATED FAUNA AND THE IMPLICATIONS ON BIOGEOGRAPHY</b>
10-7	31 O'Neill, Jessica L.*; Nielson, R. LaRell; Read, Michael T.: <b>LAMNIFORM AND CARCHARHINIFORM SHARKS OF THE WECHES FORMATION, NACOGDOCHES COUNTY, TEXAS</b>
10-8	32 Prince, DeAndre Reshaad*; Weil, Anne; Burkett, Ashley: <b>GROUND WATER INFLUENCES DURING FOSSILIZATION</b>
10-9	33 Davis, Britney D.*; Boucher, Lisa D.; Clark, Scott: <b>PERMINERALIZED AND FUSINIZED WOOD FROM THE CRETACEOUS AGUJA FORMATION NEAR TERLINGUA, TEXAS</b>
10-10	34 Tomin, Marissa J.*; Smith, Alison J.; Layzell, Anthony L.: <b>OSTRACODES AS HYDROCLIMATIC INDICATORS IN PLIO-PLEISTOCENE AQUATIC DEPOSITS IN MEADE COUNTY, KANSAS</b>

**SESSION NO. 11**

**D4. The Geoscience Community: Strategies and Practices for Enhancing Diversity, Learning, and Information Sharing (Posters) (International Association for Geoscience Diversity; National Association of Geoscience Teachers—Mid-Continent Section)**

8:30 AM, Fort Worth Convention Center, Ballroom B

Authors will be present from 3 to 5 PM

Booth #	
11-1	35 Martin, Amanda D.*; Shroat-Lewis, René A.: <b>USING AGISOFT® METASHAPE SOFTWARE TO CREATE A 3D DIGITAL REPOSITORY OF ARKANSAS ECONOMIC MINERALS</b>
11-2	36 Faulkner, Melinda G.*; Stevens, Liane M.: <b>INCREASING STUDENT ENGAGEMENT THROUGH FIELD-BASED LEARNING – AN UPDATE</b>

**AFTERNOON  
ORAL TECHNICAL SESSIONS**

**SESSION NO. 12**

**T3. Unresolved Issues in Integrating Pennsylvanian Stratigraphy, Depositional Systems, and Tectonics in the Eastern Shelf of the Permian Basin**

1:30 PM, Fort Worth Convention Center, Meeting Room 202AB

William A. Ambrose and Tucker F. Hentz, Presiding

1:30 PM **INTRODUCTORY REMARKS**

12-1	1:35 PM	Ambrose, William A.*; Hentz, Tucker F.: <b>GEOLOGIC CONTROLS ON STRATAL ARCHITECTURE AND REGIONAL SEDIMENT DISTRIBUTION IN THE CISCO GROUP, EASTERN SHELF OF THE PERMIAN BASIN</b>
12-2	1:55 PM	Ewing, Thomas E.*: <b>LATE PALEOZOIC TECTONIC SETTING OF THE EASTERN SHELF: FROM FAULTED OUACHITA FOREDEEP TO INTRACRATONIC BASIN FLANK WITHIN THE ANCESTRAL ROCKY MOUNTAINS</b>
12-3	2:15 PM	Ditges, Thomas Nico*; Standing, Patricia; Stockli, Daniel F.: <b>DETRITAL ZIRCON U-PB DATA FOR PENNSYLVANIAN SANDSTONES FROM THE EASTERN SHELF OF THE PERMIAN BASIN - INSIGHTS INTO SYN-COLLISIONAL OUACHITA SEDIMENT PROVENANCE AND SEDIMENT ROUTING SYSTEMS</b>
12-4	2:35 PM	Palacios, Fritz C.*: <b>SEDIMENT SUPPLY AND TECTONIC CONTROLS ON THE STRATIGRAPHIC ARCHITECTURE OF THE CISCO GROUP, SOUTHERN EASTERN SHELF OF THE PERMIAN BASIN</b>
	2:55 PM	<b>BREAK</b>
12-5	3:10 PM	Roberts, Andrew K.*: <b>THE PENNSYLVANIAN LOWER STRAWN FORMATION, JACK AND WISE COUNTIES, FORT WORTH BASIN: FACIES DISTRIBUTION AND STRATIGRAPHIC ARCHITECTURE</b>
12-6	3:30 PM	Flaig, Peter P.*; Ambrose, William A.; Hasiotis, Stephen T.: <b>THE RELATIONSHIP OF COASTAL-SHELFAL TIDAL CLASTIC SYSTEMS TO RAMP CARBONATES IN THE UPPER STRAWN REVEALED FROM CORE AND WIRELINE LOGS IN STONEWALL AND KING COUNTIES, PERMIAN BASIN, TEXAS</b>
12-7	3:50 PM	Fu, Qilong*; Ambrose, William A.: <b>LITHOFACIES AND DIAGENETIC FEATURES OF STRAWN CARBONATES AND TANNEHILL SILICICLASTICS IN KING COUNTY, TEXAS: IMPLICATIONS FOR RESERVOIR QUALITY</b>
	4:10 PM	<b>CONCLUDING REMARKS</b>

**SESSION NO. 13**

**T4. Geophysical Methods and Application**

1:30 PM, Fort Worth Convention Center, Meeting Room 201C

Jingyi Chen, Heather R. DeShon, Priyank Jaiswal, Michael Behm, M. Beatrice Magnani and Robert T. Gregory, Presiding

	1:30 PM	<b>INTRODUCTORY REMARKS</b>
13-1	1:35 PM	Wang, Mengxiu*; Chen, Jingyi: <b>FIRST-ARRIVAL TRAVEL-TIME CALCULATION FOR ATTENUATING TILTED TRANSVERSELY ISOTROPIC MEDIA USING A FAST SWEEPING METHOD</b>
13-2	1:55 PM	Bao, Yifei*; Chen, Jingyi; Liu, Xiaobo; Lu, Jun: <b>JOINT ANISOTROPIC AVO INVERSION OF PP AND PS WAVES USING THE EXACT ZOEPPRITZ EQUATIONS</b>
13-3	2:15 PM	Xu, Xiangru*; Chen, Jingyi; Pan, Haojie: <b>SEISMIC ATTENUATION RELATED RESEARCH BY USING THE MODIFIED CHAPMAN MODEL</b>
13-4	2:35 PM	Robison, Annie Paige*; Faulkner, Melinda G.: <b>DELINEATING SUBSURFACE KARST POTENTIAL USING ELECTRICAL RESISTIVITY IN THE SHELL MOUNTAIN REGION, FORT HOOD MILITARY INSTALLATION, TEXAS</b>
	2:55 PM	<b>BREAK</b>
13-5	3:10 PM	Yushendri, Yuda*; Roche, Steve: <b>SONIC LOG PREDICTION USING MULTI-ATTRIBUTE TRANSFORM OF PETROPHYSICAL LOGS</b>
13-6	3:30 PM	DeShon, Heather R.*; Quinones, Louis A.; Jeong, SeongJu; Magnani, M. Beatrice: <b>A SUMMARY OF FORT WORTH BASIN INDUCED EARTHQUAKE SEQUENCES 2008-PRESENT</b>
13-7	3:50 PM	Gregory, Robert T.*: <b>PRECAMBRIAN BASEMENT PENETRATING PALEOZOIC NORMAL FAULTS IN THE</b>



LLANO INLIER AS ANALOGS FOR FAULTS REACTIVATED  
BY OIL AND GAS ACTIVITIES IN THE FORT WORTH BASIN

4:10 PM CONCLUDING REMARKS

**SESSION NO. 14**

**T11. Mass Extinction in Earth History: New Insights from Paleobiological, Geochemical, and Modeling Studies of Mass Extinction Events (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

1:30 PM, Fort Worth Convention Center, Meeting Room 201A

Arne Winguth, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 14-1 1:35 PM Petsios, Elizabeth\*: **ECOLOGICAL TOLERANCE OF END-PERMIAN MASS EXTINCTION SURVIVORS**
- 14-2 1:55 PM Malanoski, Cooper M.\*; Petsios, Elizabeth: **HABITAT AFFINITY OF LINGULID BRACHIOPODS THROUGHOUT THE PHANEROZOIC AS A PROXY FOR OPPORTUNISTIC "DISASTER TAXA" BEHAVIOR**
- 14-3 2:15 PM Gautam, Mitali D.\*; Winguth, Arne; Winguth, Cornelia; Scotese, Christopher; Osen, Angela: **AN ASSEMBLY OF PRESCRIBED BOUNDARY CONDITIONS FOR THE CLIMATE-MODEL SIMULATIONS ACROSS THE PERMO-TRIASSIC BOUNDARY (PTB)**
- 14-4 2:35 PM Brauer, Heather\*; Gautam, Mitali D.; Osen, Angela; Scotese, Christopher; Winguth, Arne; Winguth, Cornelia: **RECOMPILATION OF CLIMATE-SENSITIVE SEDIMENTS ACROSS THE PERMIAN-TRIASSIC BOUNDARY**
- 14-5 2:55 PM Wang, Jiayi\*; Winguth, Arne; Brown, Mikaela: **SEASONALITY AND SEASONAL HYDROLOGICAL CYCLE ANALYSIS OF THE PETM USING CESM1.2**
- 14-6 3:15 PM Winguth, Arne\*; Griffith, Elizabeth M.; Thomas, Ellen; Wang, Jiayi: **COLLAPSE OF THE DEEP-SEA CIRCULATION DURING THE PETM WITH IMPLICATIONS FOR THE EXTINCTION OF BENTHIC FORAMINIFERA**
- 3:35 PM **CONCLUDING REMARKS**

**SESSION NO. 15**

**T15. Orogenesis and Global Change**

1:30 PM, Fort Worth Convention Center, Meeting Room 201B

Guangsheng Zhuang, Presiding

- 15-1 1:30 PM Lang, Xianguo\*; Shen, Bing; Huang, Tianzheng; Wang, Ruimin: **MARINE BIOGEOCHEMICAL CYCLE TRIGGERED THE MARINOAN SNOWBALL EARTH GLACIATION**
- 15-2 1:50 PM Hou, Mingqiu\*; Zhuang, Guangsheng; Wu, Minghao; Ellwood, Brooks B.; Liu, Xiaolei: **EOCENE-OLIGOCENE CLIMATE TRANSITION IN THE SUBTROPIC NORTH AMERICA**
- 15-3 2:10 PM Liang, Jiaqi\*; Leng, Qin; Xiao, Liang; Wang, Li; Hofig, Daianne F.; Zhang, Yi Ge; Yang, Hong: **MULTI-PROXY RECONSTRUCTION OF ANCIENT CO<sub>2</sub> CONCENTRATION FOR EARLY MIOCENE OF INNER MONGOLIA BASED UPON FOSSIL REDWOODS**
- 15-4 2:30 PM Wu, Minghao\*; Zhuang, Guangsheng; Yang, Shengli; Miao, Yunfa; Hou, Mingqiu: **GLACIAL-INTERGLACIAL CYCLES AND HOMINID DEVELOPMENT IN NORTH CHINA DURING EARLY PLEISTOCENE**
- 15-5 2:50 PM Quddusi, Muhammad Hassan\*; Pirouz, Mortaza: **3-D GEOMETRICAL RECONSTRUCTION AND FLEXURAL MODELING OF COLVILLE FORELAND BASIN, NORTHERN ALASKA**
- 15-6 3:10 PM Zhuang, Guangsheng\*: **CONTRASTING PATTERNS OF C3-C4 EVOLUTION IN THE TIBETAN PLATEAU VERSUS SURROUNDING LOWLANDS**

**SESSION NO. 16**

**T18. Sedimentology, Geochemistry, Chemostratigraphy, and Geomechanics of Mudrock Systems**

1:30 PM, Fort Worth Convention Center, Meeting Room 202CD

Helge Alsleben, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 16-1 1:35 PM Lee, Jacquelin Diane\*; Möller, Andreas; Ludvigson, Greg A.; Suarez, Marina B.; McLean, Noah M.; Joeckel, R.M.: **VOLCANOGENIC ZIRCONS FROM MUDROCKS: A NEW TOOL FOR CHRONOSTRATIGRAPHY**
- 16-2 1:55 PM Chakrabarty, Puloma\*; Basu, Asish; Ghosh, Nilotpal: **A GLOBAL HIGH-RESOLUTION <sup>87</sup>SR/<sup>86</sup>SR SEAWATER CURVE FOR THE SOUTH TEXAS EAGLE FORD BLACK SHALE DEPOSITION DURING LATE CRETACEOUS VOLCANISM, THE C-T BOUNDARY AND THE OAE2**
- 16-3 2:15 PM Badru, Al-Baqi\*; Zobia, Mohamed K.: **PALEOENVIRONMENT, KEROGEN TYPE, AND THERMAL MATURITY OF THE WOLFCAMP SHALE IN MARTIN COUNTY, TEXAS**
- 16-4 2:35 PM Balumi, Wakil Bunu\*; Puckette, Jim: **SOURCE ROCK GENESIS AND PALEOREDOX CONDITIONS OF THE NIOBRARA FORMATION, MUSTARD HILL-GRAPE CREEK, CANON CITY, COLORADO**
- 2:55 PM **BREAK**
- 16-5 3:10 PM Clymer, John\*; Abshire, Michelle L.; Riedinger, Natascha: **ANALYSIS OF THE URANIUM/TOTAL ORGANIC CARBON (TOC) RELATIONSHIP IN THE ORGANIC-RICH OHIO SHALE OF EASTERN KENTUCKY**
- 16-6 3:30 PM Hari, Stéphanie\*; Hogancamp, Nicholas Jay: **INTEGRATION OF NUCLEAR MAGNETIC RESONANCE, PETROPHYSICAL LOGS, ROUTINE CORE ANALYSIS, MIC, XRD AND PETROGRAPHY TO CHARACTERIZE MIDDLE BAKKEN ROCK QUALITY IN THE WILLISTON BASIN, NORTH DAKOTA, USA**
- 16-7 3:50 PM Sobhbidari, Farnood\*; Hu, Qinhong: **INVESTIGATING THE FRICTIONAL PROPERTIES OF CONSTITUENT MINERALS OF SHALE FROM THE NANOSCALE TO MICROSCALE USING ATOMIC FORCE MICROSCOPY (AFM)**
- 16-8 4:10 PM Green, Hunter\*; Segvic, Branimir: **GEOCHEMICAL SIGNATURES OF PALEOZOIC SHALES FROM THE MIDLAND BASIN USING MAJOR AND TRACE ELEMENTS: INSIGHTS TO PROVENANCE AND POTENTIAL CRYSTALLINE SOURCE AREAS**
- 4:30 PM **CONCLUDING REMARKS**

**TUESDAY, 10 MARCH 2020**

**MORNING  
ORAL TECHNICAL SESSIONS**

**SESSION NO. 17**

**T1. Open Versus Closed Systems in Diagenesis and Hydrothermal Alteration**

8:00 AM, Fort Worth Convention Center, Meeting Room 202AB

R. Douglas Elmore, Matt Hamilton and Kathryn N. Garrett, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 17-1 8:05 AM Goldstein, Robert H.\*; Mohammadi, Sahar; Hollenbach, Andrew Michael: **HISTORY AND MECHANISMS OF ACTIVE FLUID FLOW THROUGH LOW-PERMEABILITY SEDIMENTARY ROCKS**

TUESDAY, 10 MARCH

- 17-2 8:25 AM Dennie, Devin\*; Pannalal, S. Johari; Manning, Earl B.; Elmore, R. Douglas: **PALEOMAGNETIC TIMING OF DIAGENESIS IN THE UPPER ELLENBURGER GROUP CARBONATES SUGGEST A PERIODICALLY OPEN DIAGENETIC SYSTEM, FORT WORTH BASIN, TEXAS**
- 17-3 8:45 AM Evans, Stacey C.\*; Hamilton, Matt; Elmore, R. Douglas: **TIMING AND ORIGIN OF DOLOMITIZATION IN THE ARBUCKLE GROUP, OKLAHOMA**
- 17-4 9:05 AM Smith, Elizabeth\*; Benton, Alex; Rose, Dustin; Garrett, Kathryn N.; Elmore, R. Douglas: **INTEGRATED DIAGENETIC AND PALEOMAGNETIC STUDY OF THE HAYNESVILLE SHALE**
- 9:25 AM **BREAK**
- 17-5 9:40 AM Elmore, R. Douglas\*; Heij, Gerhard; Roberts, Jennifer M.; Wickard, Alyssa K.: **TESTING WHETHER SHALES ARE OPEN OR CLOSED BASED ON INTEGRATED DIAGENETIC AND PALEOMAGNETIC STUDIES: WOODFORD SHALE AND WOLFCAMP SHALE**
- 17-6 10:00 AM Brikowski, Tom H.\*; Moulding, Ann E.: **CHANGES IN CRUSTAL FLUID CIRCULATION RELATED TO THE END OF DETACHMENT FAULTING, SILVER PEAK/FISH LAKE VALLEY, NEVADA**
- 17-7 10:20 AM Moulding, Ann E.\*; Brikowski, Tom H.: **SPECTRAL INDICATORS OF FLUID CHEMISTRY FROM EFFUSIVE HYDROTHERMAL DEPOSITS IN SILVER PEAK/FISH LAKE VALLEY NEVADA**
- 17-8 10:40 AM Dulin, Shannon A.\*; Evans, Stacey C.; Elmore, R. Douglas; Hamilton, Christina D.; Rohleder, Nicholas: **COMPARATIVE PALEOMAGNETISM AND DIAGENETIC ALTERATION OF IMPACT STRUCTURES THROUGHOUT THE UNITED STATES**
- ARC IN MEXICO: ASERRADERO RHYOLITE FROM CIUDAD VICTORIA, TAMAULIPAS
- 9:45 AM **BREAK**
- 18-6 10:00 AM Flores Martinez, Carlos Alberto\*; Ramirez Fernandez, Juan Alonso; Colas, Vanessa; Alemán Gallardo, Eduardo Alejandro; Reyes Ortega, Nery Orlando: **STRUCTURAL RELATIONS BETWEEN THE VICTORIA SERPENTINITE AND THE CARBONIFEROUS GRANJENO SCHIST IN THE BASEMENT OF THE SIERRA MADRE ORIENTAL, CIUDAD VICTORIA, TAMAULIPAS, MEXICO**
- 18-7 10:20 AM Cossío-Dülmer, Isabel\*; Cossío-Dülmer, Carolina; Velasco Tapia, Fernando; Pichardo-Barrón, Yolanda; Rodríguez-Saavedra, Pedro: **MINERALOGY AND GEOCHEMISTRY OF THE SAN FELIPE FORMATION (UPPER CRETACEOUS) IN THE PEDRO CARRIZALES LOCALITY (RAYONES, NUEVO LEÓN), NORTHEASTERN MÉXICO**
- 18-8 10:40 AM Reyes Ortega, Nery Orlando\*; Chávez-Cabello, Gabriel; Ramírez-Peña, César Francisco: **GEOLOGY AND STRUCTURE OF THE PEÑÓN BLANCO INTRUSIVE COMPLEX, DURANGO, MÉXICO**
- 18-9 11:00 AM Juárez-Arriaga, Edgar\*; Lawton, Timothy F.; Solari, Luigi; Stockli, Daniel F.: **SEDIMENT PROVENANCE AND STRATIGRAPHY OF UPPER CRETACEOUS PROXIMAL FOREDEEP AND WEDGETOP DEPOSITS OF THE MEXICAN FORELAND BASIN, EASTERN MEXICO**
- 11:20 AM **CONCLUDING REMARKS**

**SESSION NO. 19**

***77. The Age of American Wastelands: Carboniferous-to-Jurassic Stratigraphy, Sedimentology, and Paleoenvironments of North America***

8:00 AM, Fort Worth Convention Center, Meeting Room 201B

Neil J. Tabor and John Holbrook, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 19-1 8:05 AM Milleon, Mary E.\*; Tabor, Neil J.: **PENNSYLVANIAN-PERMIAN PALEOENVIRONMENTAL TRENDS FROM LITHOSTRATIGRAPHY, CLAY MINERALOGY, AND STABLE ISOTOPE GEOCHEMISTRY OF THE MADERA AND SANGRE DE CRISTO FORMATIONS, MORA COUNTY, NEW MEXICO**
- 19-2 8:25 AM Michel, Lauren A.\*; McIntosh, Julia A.; Montañez, Isabel P.; Blaylock, Hannah E.; Bolix, M. Jace; Chan, Rachel L.; Ackermann, Mary E.; Grecol, Riley P.; Hillis, Kayla R.; Leimer, H. Wayne; Preston, Dillon Wolfgang; Rosenau, Nicholas A.; Tabor, Neil J.: **PUTTING THE PALEO- IN PALEOCLIMATES: CONSTRAINING THE ROLE OF DIAGENESIS IN TERRESTRIAL PERMO-CARBONIFEROUS PALEOCLIMATE RECONSTRUCTIONS**
- 19-3 8:45 AM Zhu, Lu\*; Tabor, Neil J.: **EARLY PERMIAN ATMOSPHERIC PCO<sub>2</sub> ESTIMATES AND REPRODUCIBILITY OF PALEOSOLS AS ISOTOPIC PROXIES FOR PALEOCLIMATE, EASTERN SHELF OF THE MIDLAND BASIN, NORTH-CENTRAL TEXAS**
- 19-4 9:05 AM McIntosh, Julia A.\*; Hagadorn, James W.; Whiteley, Karen R.; Yusas, Michael; Tabor, Neil J.: **PERMIAN PALEOSOLS OF THE LYKINS FORMATION, COLORADO: FIRST INSIGHTS INTO THE PALEOENVIRONMENT OF AN ERG-PROXIMAL EPICONTINENTAL REDBED SUCCESSION**
- 9:25 AM **BREAK**
- 19-5 9:40 AM Tabor, Neil J.\*: **ASSESSING ARIDITY ACROSS THE PERMIAN LANDS OF NORTH AMERICA**
- 19-6 10:00 AM Gulbranson, Erik L.\*; McIntosh, Julia A.: **MID-LATITUDE AND HIGH-LATITUDE SOIL FORMING PROCESSES DURING THE PERMIAN: PALEOSOL LANDSCAPES FROM ARGENTINA AND ANTARCTICA**

**SESSION NO. 18**

***75. Recent Advances in Geoscience Research of Northeastern Mexico***

8:00 AM, Fort Worth Convention Center, Meeting Room 201C

Juan Alonso Ramirez Fernandez, Fernando Velasco Tapia and Uwe Jenchen, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 18-1 8:05 AM Alemán Gallardo, Eduardo Alejandro\*; Ramirez Fernandez, Juan Alonso; Weber, Bodo; Jenchen, Uwe; Velasco Tapia, Fernando: **NOVILLO METAMORPHIC COMPLEX, HUIZACHAL-PEREGRINA ANTICLINORIUM, TAMAULIPAS, MEXICO: CHARACTERIZATION AND DEVELOPMENT BASED ON WHOLE-ROCK GEOCHEMISTRY AND ND-ISOTOPIC RATIOS**
- 18-2 8:25 AM Ramirez Fernandez, Juan Alonso\*; Cruz Castillo, Denisse; Alemán Gallardo, Eduardo Alejandro; Velasco Tapia, Fernando; Jenchen, Uwe: **PALEOZOIC MAGMATIC ACIDIC ROCKS PRESERVED IN THE BASEMENT OF THE SIERRA MADRE ORIENTAL, CIUDAD VICTORIA, TAMAULIPAS: EVOLUTION OF ORDOVICIAN AND CARBONIFEROUS ARCS ALONG THE NW-MARGIN OF GONDWANA**
- 18-3 8:45 AM Casas Peña, Juan Moisés\*; Alemán Gallardo, Eduardo Alejandro; Ramírez Fernández, Juan Alonso; Velasco Tapia, Fernando; Augustsson, Carita; Weber, Bodo; Frei, Dirk; Jenchen, Uwe: **THE PALEOZOIC SEDIMENTARY SEQUENCE OF TAMATÁN BASIN, NE MEXICO: PROVENANCE AND TECTONIC SETTING**
- 18-4 9:05 AM Martínez López, María de Jesús; Casas Peña, Juan Moisés; Ramírez Fernández, Juan Alonso; Velasco Tapia, Fernando; Montalvo Arrieta, Juan Carlos; Augustsson, Carita; Jenchen, Uwe\*: **THE LAS DELICIAS FM., COAHUILA, MEXICO: PROVENANCE AND TECTONIC SETTING**
- 18-5 9:25 AM Cruz Castillo, Denisse\*; Ramirez Fernandez, Juan Alonso; Velasco Tapia, Fernando; Jenchen, Uwe: **NORTHERNMOST EXPRESSION OF THE GONDWANIC CARBONIFEROUS**

- 19-7 10:20 AM Skaleski, Anthony\*; Walker, Samuel; Holbrook, John: **UNDERSTANDING THE TRIASSIC DOCKUM GROUP OF WEST TEXAS AND NORTHEAST NEW MEXICO IN CONTEXT WITH THE MEGAMONSOON HYPOTHESIS: A PALEOGEOGRAPHIC AND HYDROLOGIC ANALYSIS**
- 19-8 10:40 AM Fortner, John David\*; Tabor, Neil: **NORIAN ARIDIFICATION TRENDS IN THE DIAGENETIC ENVIRONMENT REVEALED THROUGH GEOCHEMICAL ANALYSIS OF CHINLE FORMATION PHYTOSAUR TOOTH DENTIN**
- 11:00 AM **CONCLUDING REMARKS**

**SESSION NO. 20****T16. The Role of Geochronology in Constraining the Development of Earth's Lithosphere: Focus on the U.S. South-Central Region, Mexico, and Beyond (GSA Geochronology Division)**

8:00 AM, Fort Worth Convention Center, Meeting Room 202CD

Elizabeth Catlos, Rita C. Economos and J. Douglas Walker, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 20-1 8:05 AM Jackson, Yasmin Jamalia\*; Economos, Rita C.; Jacobs, Louis; Mateus, Octávio; Gonçalves, António Olímpio: **WHEN DINOSAURS WALKED THROUGH DIAMONDS: CONSTRAINING THE AGE OF EARLY CRETACEOUS FOOTPRINTS IN VOLCANIC CRATER SEDIMENTS**
- 20-2 8:25 AM Dickerson, Patricia W.\*; Stockli, Daniel F.; Hall, Blaine R.; Stockli, Lisa D.; Hanson, Richard E.; Fanning, C. Mark; Rodriguez, Edna: **TIMING OF NEOPROTEROZOIC-E. PALEOZOIC RIFTING, DRIFTING, TERRANE TRANSFER AND VOLCANISM, S. LAURENTIA (DEVILS RIVER UPLIFT, MARATHON BASIN, SOLITARIO)**
- 20-3 8:45 AM withdrawn
- 20-4 9:05 AM Brown, Lauren E.\*; Herman, David J.; Knapp, James H.: **GONDWANAN AFFINITY OF THE WIGGINS UPLIFT? EVIDENCE FOR LATE- TO POST-ALLEGHANIAN TRUNCATION OF THE SOUTHERN APPALACHIANS**
- 9:25 AM **BREAK**
- 20-5 9:40 AM Kasprovicz, Filip A.\*; Alsalem, Ohood; Fan, Majje: **DETERMINING VARIATION OF PALEOZOIC SEDIMENT PROVENANCE IN THE PERMIAN BASIN USING DETRITAL ZIRCON U-PB GEOCHRONOLOGY AND MICROTEXTURES**
- 20-6 10:00 AM Tunin, Zachery Thomas\*; Puckette, James O.: **DETRITAL ZIRCON GEOCHRONOLOGY AND PROVENANCE ANALYSIS OF THE DESMOINESIAN CHEROKEE GROUP SANDSTONES, CHEROKEE PLATFORM, ANADARKO BASIN, OKLAHOMA**
- 20-7 10:20 AM Segvic, Branimir\*; Zaroni, Giovanni; Green, Hunter; Boulesteix, Thomas; Solé, Jesus: **PROVENANCE OF LATE PALEOZOIC FINE SEDIMENT OF THE ANADARKO BASIN (OK) – EVIDENCES FROM K-AR GEOCHRONOLOGY AND REE SYSTEMATICS OF DETRITAL ILLITE**
- 20-8 10:40 AM Prines, Shaun\*; Xie, Xiangyang; Manger, Walter L.: **U-PB DETRITAL ZIRCON SIGNATURE OF THE CARBONIFEROUS DEEP-WATER CLASTIC DEPOSITS IN THE OUACHITA MOUNTAINS AND ITS IMPLICATIONS**
- 11:00 AM **CONCLUDING REMARKS**

**SESSION NO. 21****D1. Geophysics and Remote Sensing Applications (GSA Geophysics and Geodynamics Division; GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division)**

8:00 AM, Fort Worth Convention Center, Meeting Room 201A

Andrew Katumwehe, Luel Emishaw, Kevin L. Mickus and Esayas Gebremichael, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**

- 21-1 8:05 AM Nyalugwe, Victor; Abdelsalam, Mohamed G.\*; Katumwehe, Andrew; Mickus, Kevin L.; Atekwana, Estella A.: **STRUCTURE AND TECTONIC SETTING OF THE CHINGALE IGNEOUS RING COMPLEX, MALAWI FROM AEROMAGNETIC AND SATELLITE GRAVITY DATA: IMPLICATION FOR PRECAMBRIAN TERRANES COLLISION AND CENOZOIC - QUATERNARY RIFTING**
- 21-2 8:25 AM Knapp, James H.\*; Abdelsalam, Mohamed G.: **A MODERATE-RESOLUTION DIGITAL ELEVATION MODEL FOR OKLAHOMA**
- 21-3 8:45 AM Lisenby, Peyton E.\*; Descartes, Jermaine: **LATERAL MOVEMENT ALONG THE RED RIVER, TX-OK BORDER: THE VARIABILITY OF RIVER BEHAVIOR ACROSS ENVIRONMENTAL GRADIENTS**
- 21-4 9:05 AM Dailey, Heather J.\*; Faulkner, Melinda G.: **KARST DEPRESSION CHARACTERIZATION USING LIDAR AND FIELD TRAVERSES: FORT HOOD MILITARY INSTALLATION, TEXAS**
- 21-5 9:25 AM Gonzalez, Juan L.\*; Reger, Brandi; Hardage, Sarah; Skowronek, Russell: **DUNE MIGRATION, PALEOSOLS AND PROJECTILE POINTS: NEW GEOARCHAEOLOGICAL INSIGHTS ON THE SOUTH TEXAS SAND SHEET**
- 21-6 9:45 AM Nanis, Hafid\*; Aly, Mohamed H.: **GIS MULTI-CRITERIA ANALYSIS FOR LANDSLIDE RISK ASSESSMENT APPLIED TO KENYA**
- 10:05 AM **CONCLUDING REMARKS**

**POSTER TECHNICAL SESSIONS****SESSION NO. 22****T4. Geophysical Methods and Application (Posters)**

8:30 AM, Fort Worth Convention Center, Ballroom B

Authors will be present from 3 to 5 PM

Booth #

- 22-1 1 Perkins, Lenora Diane\*; Brown, Wesley; Stafford, Kevin W.: **DELINEATION OF POTENTIAL GEOHAZARDS ALONG FM 2185, CULBERSON COUNTY, TEXAS USING CAPACITIVELY-COUPLED ELECTRICAL RESISTIVITY**
- 22-2 2 Mickus, Kevin L.; Phuyal, Kapil\*: **CRUSTAL STRUCTURE OF THE 2015 GORKHA EARTHQUAKE REGION, CENTRAL NEPAL USING GRAVITY DATA**
- 22-3 3 Quinones, Louis A.\*; DeShon, Heather R.; Hennings, Peter H.; Horne, Elizabeth; Gao, Rebecca: **MODELING INJECTION INDUCED STRESS CHANGES IN THE FORT WORTH BASIN, TEXAS**
- 22-4 4 Jeong, SeongJu\*; Stump, Brian; DeShon, Heather R.: **SPECTRAL CHARACTERISTICS OF GROUND MOTION FROM INDUCED EARTHQUAKES IN THE FORT WORTH BASIN, TEXAS, USING THE GENERALIZED INVERSION TECHNIQUE**
- 22-5 5 Haley, Michael Boyd\*; Ahmed, Mohamed: **MAPPING LAND SUBSIDENCE ALONG THE COASTAL BEND OF TEXAS USING RADAR INTERFEROMETRIC TECHNIQUES**

**SESSION NO. 23****T29. Undergraduate Student Research (Posters) (Council on Undergraduate Research Geosciences Division)**

8:30 AM, Fort Worth Convention Center, Ballroom B

Authors will be present from 3 to 5 PM

Booth #

- 23-1 6 Brasher, Brylee E.\*; Knapp, James H.: **THE HORSE CREEK STRUCTURE: A NEWLY IDENTIFIED FAULT IN NORTHEASTERN OKLAHOMA?**

- 23-2 7 Weilert, Lauren J.\*; Knapp, James H.; Laó-Dávila, Daniel A.: **THE SENECA FAULT (NE OKLAHOMA) REVISITED: DEFORMATION ON THE WESTERN MARGIN OF THE OZARK PLATEAU**
- 23-3 8 DeAtley, Kaitlyn\*; Strack, Cory; Grosskopf, Jacob: **BED-SCALE STRATIGRAPHIC STUDY OF THE STRUCTURALLY COMPLEX UPPER ATOKA FORMATION EXPOSED AT THE PARIS RESERVOIR, PARIS, AR**
- 23-4 9 Clason, Hayden D.\*; Badon, Esther C.; Jones, Keeanah M.; Vetter, Scott; Shervais, John: **ORIGIN AND EVOLUTION OF LATE MIOCENE-PLEISTOCENE BASALT: CENTRAL MOUNT BENNETT HILLS, CENTRAL SNAKE RIVER PLAIN, IDAHO**
- 23-5 10 Adams, Marlie Kate\*; Hanger, Brendan Joseph: **PRELIMINARY PETROGRAPHIC INVESTIGATIONS OF PERIDOTITE XENOLITHS FROM THE VITIM VOLCANIC FIELD, SIBERIA, RUSSIA**
- 23-6 11 Villasenor, Gabriel\*; Catlos, E.J.; Elliott, Brent; Kohut, Milan; Broska, Igor; Etzel, Thomas M.; Kyle, J. Richard; Stockli, Daniel F.: **TIMING OF RIFTING IN THE CENTRAL WESTERN CARPATHIANS POST-VARISCAN OROGENY AND AGES OF SEDIMENTS OVERLYING MELIATA OCEAN OPHIOLITES (SLOVAKIA)**
- 23-7 12 Earley, Jacob\*; McMillan, Margaret E.; Rodriguez-Conde, Ivan: **USING SHORT-RANGE PHOTOGRAMMETRY FOR 3D DIGITAL RECONSTRUCTION OF *ARKANSAURUS FRIDAYI* FOSSIL BONES**
- 23-8 13 Ellard, Jordan\*; Merry, Erin; Kneedy, Sheyanne; Wang, Yulun; Grammer, G. Michael: **ROLE OF DOLOMITIZATION AND SEQUENCE STRATIGRAPHIC FRAMEWORK IN THE DEVELOPMENT AND EVOLUTION OF PORE SYSTEM ARCHITECTURE**
- 23-9 14 Briseno, Alejandra\*; Kulhanek, Denise K.; Ravelo, Ana Christina; Aiello, Ivano: **IODP SITE U1489 CARBONATE RECORDS FROM THE UPPERMOST MIOCENE TO RECENT**
- 23-10 15 Tatge, Emma\*; Kulhanek, Denise K.; Acton, Gary D.: **PLEISTOCENE CALCAREOUS NANNOFOSSIL ASSEMBLAGES FROM THE MOZAMBIQUE CHANNEL**
- 23-11 16 Lam, Amy\*; Longbottom, Todd; Bodiford, Nelli K.; Harvey, Omar R.: **ASSESSING THE RELATIONS BETWEEN THE SURFACE PROPERTIES OF BIOCHARS AND HEAVY METAL SORPTION**
- 23-12 17 Niyitanga Manzi, Marie Aurore\*; Harvey, Omar R.: **EFFECTS OF THE CHEMISTRY OF GRAPHENE OXIDE QUANTUM DOTS AND DENDRIMER NANO-MATERIALS ON THEIR INTERACTION WITH IRON OXIDES SURFACES**
- 23-13 18 Mel, Manyiel\*: **INTERACTION OF CARBOXYLIC ACIDS WITH FRESH AND AGED FERRIHYDRITE, GOETHITE AND HEMATITE: ZWITTERION EFFECTS**
- 23-14 19 Birkett, Brooke A.\*; Pfeifer, Lily S.; Pochat, Stephane; Van Den Driessche, Jean; Soreghan, Gerilyn; Soreghan, Michael J.: **HYPOTHESIZED FREEZING IN LOW-LATITUDE LAKES OF THE EARLY PERMIAN: EXAMPLES FROM THE USCLAS FORMATION, GRAISSESSAC-LODEVE BASIN, FRANCE**
- 23-15 20 Mueller, Jessica Marie\*: **STRATEGIES FOR RECOGNIZING PEDOGENIC LAYERS WHEN VAGUE IN OUTCROP: EXAMPLE FROM THE LOWER-MIDDLE SALAGOU FORMATION, LODÈVE BASIN, FRANCE**
- 23-16 21 Roche, Autumn V.\*; Pfeifer, Lily S.; Soreghan, Gerilyn; Soreghan, Michael J.: **PREDICTING 3D GRAIN SIZE FROM 2D IMAGE ANALYSIS: AN EXPLORATION OF STEREOLOGICAL CORRECTIONS IN SILTY SEDIMENT**
- 23-17 22 Deen, Julie Michelle\*; Mann, Chase Dillion; Garcia, Arturo De Los Santos; Rosscoe, Steven J.: **PRELIMINARY TEXTURAL ANALYSIS OF THE ANTLERS SANDSTONE, TAYLOR COUNTY, TEXAS**
- 23-18 23 Graf, Autumn\*; Hallihan, Todd; Agnew, Robert J.: **RESISTIVITY EVALUATION OF A FIREFIGHTING TRAINING CENTER**
- 23-19 24 Ertons, Melanie\*; Dailey, Heather J.; Faulkner, Melinda G.: **THE ROLE OF ROOT STRUCTURES IN EPIKARSTAL PROCESSES, FORT HOOD MILITARY INSTALLATION, TEXAS**

## AFTERNOON ORAL TECHNICAL SESSIONS

### SESSION NO. 24

**T12. Structural Evolution and Sedimentation along the Western Gulf of Mexico Margin (GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division)**

1:30 PM, Fort Worth Convention Center, Meeting Room 201B

Timothy F. Lawton, Elisa Fitz-Diaz and Daniel F. Stockli, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 24-1 1:35 PM Fitz-Diaz, Elisa\*; Sanz Valencia, Jorge; Palacios García, Norma Betania; Ortega-Gutiérrez, Fernando; Stockli, Daniel F.; Stockli, Lisa D.: **AGE AND STRUCTURE OF THE CHICOMUSELO FOLD BELT, CHIAPAS, MEXICO**
- 24-2 1:55 PM Barboza-Gudiño, José Rafael\*; Jaime Rodríguez, Diego: **PALEO-PACIFIC TRIASSIC-JURASSIC CONTINENTAL SLOPE DEPOSITS TO THE GULF SEDIMENTARY RECORD IN THE SIERRA DE CATORCE, NORTHEASTERN MEXICO**
- 24-3 2:15 PM Ruiz-Arriaga, Daniel\*; Stockli, Daniel F.; Fitz-Diaz, Elisa; Lawton, Timothy F.: **MULTI-STAGE JURASSIC RIFTING IN EASTERN MEXICO AND ITS IMPLICATIONS FOR GULF OF MEXICO OPENING**
- 2:35 PM **BREAK**
- 24-4 2:50 PM Lawton, Timothy F.\*; Fitz-Diaz, Elisa; Stockli, Daniel F.; Juárez-Arriaga, Edgar; Solari, Luigi: **PROVENANCE OF TRIASSIC(?)–JURASSIC RIFT-BASIN SUCCESSIONS, HUIZACHAL–PEREGRINA AND HUAYACOCOTLA UPLIFTS OF EASTERN MEXICO**
- 24-5 3:10 PM Kortyna, Cullen D.\*; Stockli, Daniel F.; Covault, Jacob A.; Lawton, Timothy F.: **SEDIMENT DISPERSAL TO THE LATE CRETACEOUS-PALEOGENE MEXICAN BROKEN FORELAND FROM DETRITAL ZIRCON U-PB GEOCHRONOLOGY**
- 3:30 PM **DISCUSSION**

### SESSION NO. 25

**T24. Graduate Student Research Across the Geosciences**

1:30 PM, Fort Worth Convention Center, Meeting Room 201A

Omar R. Harvey, Presiding

- 25-1 1:30 PM Prykhodko, Gennadii\*; Winguth, Arne: **GEOSPATIAL ANALYSIS OF FLOOD RISK FROM STORM SURGE AND SEA-LEVEL CHANGE ON THE TEXAS COAST**
- 25-2 1:50 PM Donahoo, Michaela\*; Ouamer-ali, Karim; Daoud, Youcef; Djili, Kaddour; Harvey, Omar R.: **DEPTH-SPECIFIC GEOPHYSICAL MODELLING FOR UNDERSTANDING GEOCHEMICAL DYNAMICS IN SOILS**
- 25-3 2:10 PM Pulcinella, Joshua\*: **ASSESSING RELATIVE SEA LEVEL RISE FORECASTING IN THE NORTHERN GULF OF MEXICO FOR EFFECTIVE RISK-BASED PLANNING**
- 25-4 2:30 PM Payblas, Caitlin LeMae\*; Harvey, Omar R.: **ACETATE SORPTION AND DESORPTION ON BOEHMITE SURFACES: THE INFLUENCE OF H<sub>2</sub>O UPON BINDING BEHAVIOR**
- 25-5 2:50 PM Leonce, Burke C.\*; Hockaday, William C.; Harvey, Omar R.: **CALORIMETRIC STUDY OF THE INFLUENCE OF VEGETATIVE FIRES ON THE ADSORPTION CHARACTERISTICS OF DOM**

### SESSION NO. 26

**D3. Topics in General Paleontology and Ichnology**

1:30 PM, Fort Worth Convention Center, Meeting Room 201C

Arthur Busbey, Patrick Getty and Stephen T. Hasiotis, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**

26-1	1:35 PM	Downen, Matthew R.*; Selden, Paul A.; Olcott, Alison N.: <b>GLOWING SPIDERS: THE TAPHONOMIC PATHWAY OF THE AIX-EN-PROVENCE FOSSIL-LAGERSTÄTTE</b>	26-4	2:35 PM	Huttenlocker, Adam*: <b>PROGRESS TOWARD CONSTRAINING CARBONIFEROUS-PERMIAN VERTEBRATE BIOCHRONOLOGY IN WESTERNMOST PANGEA</b>
26-2	1:55 PM	Getty, Patrick*: <b>THE RADIATION OF INSECTS INTO LAKES IN THE EARLY JURASSIC, AS RECORDED BY TRACE FOSSILS FROM THE HARTFORD AND DEERFIELD BASINS OF MASSACHUSETTS</b>	26-5	2:55 PM	Goldstein, Donald H.*: <b>STALKING UNICORNS: REDISCOVERING MISSING TYPES, ANCIENT QUARRIES, AND FORGOTTEN WORK</b>
26-3	2:15 PM	Jacobs, Megan L.*; Martill, David M.; Etches, Steve: <b>A DEEP-BODIED ICHTHYOSAUR (REPTILIA: ICHTHYOSAURIA) FROM THE UPPER JURASSIC KIMMERIDGE CLAY FORMATION OF DORSET, UK: IMPLICATIONS OF RIB CAGE ARCHITECTURE FOR ICHTHYOSAUR PALAEOECOLOGY</b>	26-6	3:15 PM	Grosskopf, Jacob*; Roberts, Candy: <b>USING UNDERGRADUATES AND SMART PHONES TO TRANSLATE A TRACE-RICH HORIZON TO A SCALABLE, MANIPULATABLE TEMPLATE FOR STATISTICAL, INTERPRETIVE, AND ARCHIVAL PURPOSES</b>
				3:35 PM	<b>CONCLUDING REMARKS</b>

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The Geological Society of America (GSA) is a premier, international scientific society whose goals and mission are to advance geoscience research and discovery, to provide service to society and to promote stewardship of Earth, within and beyond the geosciences profession. GSA is committed to providing a professional environment at all of our events, welcoming people from diverse backgrounds and wide-ranging points of view. Attending GSA events is a privilege, and we expect all attendees and participants to live up to our pledge to provide Respectful, Inclusive Scientific Events (RISE).

## Applicability

The Events Code of Conduct (the “Events Code”) applies to all GSA events, including meetings, field trips, short courses, mentorships, and other GSA-supported programs. The Events Code also applies to individuals who submit abstracts and make presentations at oral or poster sessions. All registrants, speakers, session chairs, guests, volunteers, exhibitors, GSA staff, service providers, and others in attendance are expected to abide by this Events Code.

In addition, GSA members, affiliate members, fellows, honorary fellows, and any non-member who participates in a GSA program or activity must comply with GSA’s Code of Ethics. GSA-sponsored programs and activities include, but are not limited to, GSA meetings, publications, honors and awards, as well as appointed, elected, and volunteer positions.

## Expected Behavior – Professional Conduct at Events

- Treat others with respect and consideration.
- Be considerate, collegial, and collaborative.
- If a presenter or session chair indicates that photographs of slides or poster are not allowed, honor this preference.
- Communicate openly, with civil attitudes, critiquing ideas rather than individuals.
- Avoid personal attacks directed toward other event registrants, guests, volunteers, exhibitors, GSA staff, service providers, and all others in attendance.
- If you choose to drink when alcohol is available at GSA events, or consume other legal intoxicants, do so responsibly, safely, and without compromising your duty to act in a professional manner.
- Obey the rules and policies of the meeting venue, hotels, GSA-contracted facility, or any other venue where your meeting badge and GSA affiliation is likely to be displayed.
- Pay attention to your surroundings and other participants. If you notice a dangerous situation or someone in distress, call 911 or alert facility security personnel or GSA staff/ leadership.

## Expected Behavior – Abstracts, Meeting Presentations, and Photography at Meetings

The submission of an abstract implies a sincere intent to attend the meeting and present research. In addition, authors and presenters are expected to:

- Display integrity in disseminating your research.
- Adhere to the content and conclusions of abstracts, as submitted and reviewed.
- Remain gracious by offering collaborators the opportunity for recognition as a co-author.
- Make sure that listed co-authors have made a bona fide contribution to the project, are aware of their inclusion, and have accepted that recognition.
- Be diligent in preparing a polished product that conveys high quality scholarship.
- Take responsibility for choosing whether or not to allow photographs of your slides or posters and communicating your preference to the audience. (If you prefer not to allow photographs, GSA will provide you with tools to communicate your preference, e.g., no-photo image for your slides, talking points)

## Unacceptable Behavior includes but is not limited to:

- Do not engage in harassment, intimidation, bullying, or discrimination in any form.
- Do not make verbal comments related to gender, sexual orientation, disability, physical appearance, body size, race, religion, national origin or any other identified characteristic outlined in the GSA Diversity Position Statement ([https://www.geosociety.org/positions/pos15\\_Diversity.pdf](https://www.geosociety.org/positions/pos15_Diversity.pdf)).
- Do not display nudity and/or sexual images in public spaces or in presentations.
- Do not touch or make physical contact with anyone unless you know the contact is welcome.
- Do not make real or implied threats of, physical, professional or financial harm.
- Do not stalk registrants, guests, volunteers, exhibitors, GSA staff, service providers, or other attendees.
- Do not physically or verbally abuse any registrant, guest, volunteer, exhibitor, GSA staff, service provider, or other attendee.
- Do not disrupt presentations at oral or poster sessions, in the exhibit hall, on field trips, or at other events organized by GSA at the meeting venue, hotels, or other GSA-contracted facilities.
- Do not take pictures or make audio or video recordings after a presenter or convener has communicated that such images are not allowed.
- Do not drink or use other legal intoxicants to the extent that your ability to act professionally is compromised.

## Consequences of Unacceptable Behavior

- Anyone requested to stop unacceptable behavior is expected to comply immediately.
- GSA may take any action(s) deemed necessary and appropriate, including but not limited to the immediate removal from the meeting, field trip, or other event without warning or refund.
- GSA reserves the right to prohibit attendance at any future GSA meeting or other GSA-sponsored event.

## Reporting Unacceptable Behavior

If you experience behavior that appears to violate this policy or you have witnessed such behavior, please immediately notify anyone wearing a RISE button and/or a GSA staff member or a GSA member with a designated leadership position (i.e., GSA President, GSA Councilor, GSA Section Officer, GSA field trip leader). You also may report the behavior by emailing GSA at [ethics@geosociety.org](mailto:ethics@geosociety.org) or by calling (720) 507-7523.

## Recommended Procedures to be followed in an emergency situation:

- Evaluate the situation and if appropriate call 911 or activate a local fire alarm.
- If you witness a crime or behavior that constitutes an immediate or serious threat to public safety, make sure you keep yourself safe. Follow the directions of facility security, public safety personnel, or GSA staff.
- Initiate first aid based on need and your training.
- Provide as much specific information as possible (e.g., nature of incident, precise location, number of people involved) to 911 and emergency responders.

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