



South-Central Section Meeting Program

Vol. 55, No. 1



Edmon Low Library, Oklahoma State University. Photo credit: rseigler0 from Pixabay.

13–14 March
Stillwater, Oklahoma, USA

www.geosociety.org/sc-mtg

2023

Meeting Sponsors

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GSA Connects 2023, held on 15–18 October in Pittsburgh, Pennsylvania, USA, will bring together the geological community to enable you to share your scientific research, network with leaders in the field, and keep your skills relevant in a rapidly changing world.



**Space Request System
(Non-Tech Events) Opens:**
Early April
Abstract Submissions Open:
Early May
Registration Opens:
Early June

<https://community.geosociety.org/gsa2023>

**PROGRAM
FOR
57TH Annual Meeting
SOUTH-CENTRAL SECTION MEETING
GEOLOGICAL SOCIETY OF AMERICA
13–14 MARCH 2023**

**Oklahoma State University Wes Watkins Center
Stillwater, Oklahoma**

*Geosciences at the Crossroads of America: Integrating Geosciences
to Address Complex Problems*

Local Program Committee

General Chair	Todd Halihan
Technical Program Chairs	Ahmed Ismail, Tracy M. Quan
Field Trip Chairs	Jim Puckette, Brandon Spencer
Exhibits/Sponsorship Chairs	Jack Pashin, Lawrence Walker
Student Volunteer Chair	Tingying Xu
Judging Coordinator	Natascha Riedinger

GSA, South-Central Section Officers for 2021–2022

Chair	Todd Halihan
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Past Chairs	Juan Luis Gonzalez/ Chu-Lin Cheng
Secretary/Treasurer	Michael T. DeAngelis
Members-at-Large	Antonio Cardona Benavides, Antony Norman Giles, Wendi J. W. Williams Jay B. Sims, III, Stephen K. Boss, Mohamed Aly

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 back cover). If you have any concerns about behavior that may violate the Code, please contact:

GSA Executive Director and CEO, Melanie Brandt, mbrandt@geosociety.org

GSA Ethics and Compliance Officer, Nan Stout, ethics@geosociety.org

You may also stop by the registration desk or the GSA Bookstore to have the named individuals directly contacted via phone. Registration for the meeting requires full vaccination status, and booster shots are strongly advised. Masks are encouraged for all indoor events associated with this meeting. Please refrain from attending if you have any viral symptoms.



To: Geological Society of America South-Central Section Meeting Attendees

From: Todd Halihan, Chair, South-Central Section

Greetings!

We are so glad to be meeting with you in person in Stillwater this year. Although we as organisms are more like fluid ecosystems full of microbes, it is still good to see each other face to face. We intend to provide a safe, sanitary place for humans to interact and chat about all aspects of geology.

We are trying to bring a bit of culture into the meeting, so hopefully this will add to your experience. Look around and listen, as we plan to have some entertaining elements for you to enjoy.

Whatever geologic realm piques your interest, we hope you enjoy the meeting. These are critical for the development of our scientific community and a number of people have been working hard to make this one a success. Please, reach out if you have any questions.

Looking forward to our time together,

Todd Halihan
South-Central Section Chair
Stillwater, OK

General Information

LOCATION

The 57th Annual Meeting of GSA's South-Central Section will take place in Stillwater, Oklahoma, USA at the Wes Watkins Center of Oklahoma State University, which is located on the scenic shoreline of the Permian Sea, and currently sits at the crossroads of major US highways, US petroleum pipelines, and US ecosystems. The university has provided an intersection of geologic disciplines since the inception of the Boone Pickens School of Geology at Oklahoma State University (OSU) with a history in petroleum, water, and agriculture. The meeting will have a diverse program of workshops, technical sessions, short courses, and field trips that cover a spectrum of geologic disciplines. The meeting is during the spring break for the OSU campus to give some flexibility with facilities. Stillwater is accessible by interstate or air transportation at the Stillwater airport (SWO).

Stillwater is a community of approximately 50,000 people of which the majority are college age. The city is the home of Red Dirt music (roughly a mix of bluegrass, country, and rock) and has had some notable musicians, such as Garth Brooks, start out here. It is also known for Eskimo Joe's restaurants and t-shirt emporium as well as being a big golf destination. The National Wrestling Hall of Fame & Museum is on campus for those interested in the sport. More local information is available at visitstillwater.org.

Visitors interested in Stillwater's history can visit the Washington Irving Trail Museum near Stillwater. The nearby Pawnee Bill's Museum Ranch in Pawnee highlights the old west shows from the end of the 1800s and hosts a herd of buffalo (www.okhistory.org/sites/pawneebill.php). Additionally, a museum of petroleum history exists in nearby Drumright. Be sure to call ahead.

VENUE

The Wes Watkins Center conference site is located on the campus of Oklahoma State University (OSU). As the meeting will occur during the campus spring break period, we will have the facility largely to ourselves. The venue will provide coffee and snacks between meetings. The campus food spots as well as local restaurants are nearby. Most of the meeting activities will be on the first floor, but some rooms in the upper floors will be utilized for events such as the mentor lunches. The TechFest dinner will be held on the third floor. All the field trips will leave from the Wes Watkins Center unless otherwise notified.

TRANSPORTATION

Stillwater is accessible by interstate or air transportation at the Stillwater airport (SWO).

PARKING

Be aware that campus parking rules are enforced during spring break. Several paid parking garages are located across the campus and parking should be available at the Wes Watkins Center. Please pick up a parking tag with your registration. The hotels are a reasonable walk to the campus, so you may want to leave your vehicle there if staying in one of the nearby hotels. Food is available to the south of the union on Washington Street or east of the union adjacent to campus or on Hall of Fame Ave.

DRIVING

From I-35 (Dallas, OKC, Wichita), take the Stillwater Exit (No. 174) for Route OK 51 and travel into Stillwater. Turn left on S. Wester Road and follow the bend to the right onto W. Hall of Fame Avenue. The Wes Watkins Center will be on your left at the intersection of Hall of Fame and Washington. From Route 412 (Tulsa, Arkansas), take the Stillwater Exit from 412. There are actually two Stillwater exit points, the first puts you on a spur piece of the highway and the second will bring you into town. You want to take the last exit for US-177/N. Washington St. Follow Washington St. to Main St (requires a jog to the left, but you stay on the same street). From Main St. take a slight right onto Washington Street when Main St. curves. Follow Washington Street to Hall of Fame and the Wes Watkins Center is on your left.

ACCOMMODATIONS

There are two available locations to book a room: (1) Hampton Inn & Suites Stillwater at 717 E. Hall of Fame Ave., Stillwater, OK 74075, USA. Reservations should be made by calling the hotel at +1 (405) 743-1306. (2) A second block of rooms is reserved at The Atherton Hotel, OSU's boutique hotel, located on the university campus, at a meeting rate of US\$149.95. Reservations for The Atherton should be made by calling the hotel at +1 (405) 744-6835. Both include breakfast with your accommodation.

REGISTRATION

Registration is required for anyone attending technical sessions, field trips, short courses, or exhibits. On-site registration fees are shown below in U.S. dollars.

On-site Rates	Full	1 Day
Professional Member	\$375	\$300
Professional Member 70+	\$300	\$250
Professional Nonmember	\$425	\$325
Early Career Professional	\$200	\$175
Student Member	\$180	\$180
Student Nonmember	\$260	\$260
K-12 professional	\$250	\$225
Guest/Spouse	\$175	\$175
Field Trip Only	\$75	n/a

On-Site Registration Hours and Location

On-Site registration begins at 4 p.m. in the Registration Area in the South Hallway of the Wes Watkins Center on Sunday, March 12 and runs through noon, Tuesday, March 14.

Hours:

Sunday, 12 March	4–7 p.m.
Monday, 13 March	7 a.m.–5 p.m.
Tuesday, 14 March	7 a.m.–6:30 p.m.

Meeting App and Abstracts

A web-based program is available for this meeting. The program allows you to view and search the meeting events and create your own schedule of events to attend. You can also view the full abstracts text from this program. Please download the program at <https://gsa.confex.com/gsa/2023SC/meetingapp.cgi>.

SPECIAL EVENTS

Sunday, 12 March

Welcome Reception. 5–7 p.m., 111 Exhibition Hall, 1st Floor, Wes Watkins Center. Come relax, meet old friends, and make new ones. Enjoy food and drinks. Each participant receives a coupon for one free beverage in their registration packet.

Monday, 13 March

Geoscience Career Workshop Part 1: Career Planning and Networking. 9–10 a.m. Room 308E, Congress Room, Wes Watkins Center. 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.

Break. 9:45–10:15 a.m. Coffee can be found in 111 Exhibition Hall, 1st Floor, Wes Watkins Center.

Geoscience Career Workshop Part 2: Geoscience Career Exploration. 10–11 a.m. Room 308E, Congress Room, Wes Watkins Center. 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.

Roy J. Shlemon Mentor Program in Applied Geoscience. Noon–1:30 p.m. Room 308E, Congress Room, Wes Watkins Center. GSA student members will have the opportunity to discuss career prospects and challenges with professional geoscientists from multiple disciplines over lunch.

Special Symposium. 1:30–4 p.m., Auditorium 110, Wes Watkins Center. Join us to hear talks from Lawrence Walker, ExxonMobil (retired); James Knapp, Oklahoma State University; Joseph Reilly, ExxonMobil Chief Geophysical Scientist (retired); N.R. “Bob” Stewart, ExxonMobil Recruitment (retired); Todd Halihan, Oklahoma State University.

Geology Club Meetup. 2–3 p.m., Room 308E, Congress Room, Wes Watkins Center. If you are a geology club member 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.

Town Hall: What’s Happening at GSA. 3:30–4:30 p.m., Room 109, Wes Watkins. Join us to meet the new GSA Executive Director and CEO Melanie Brandt for greetings and updates on happenings at GSA and a town hall discussion.

GSA South-Central Reception. 5–7 p.m., 112 Exhibition Hall, 1st Floor, Wes Watkins Center. Come relax and discuss the day’s talks and posters. There will be food and drinks. Each participant receives a coupon for one free beverage in their registration packet.

Tuesday, 14 March

Geoscience Career Workshop Part 3: Cover Letters, Résumés and CVs. 9–10 a.m. Room 308E, Congress Room, Wes Watkins Center. 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.

Break. 9:45–10:15 a.m. Coffee can be found in 111 Exhibition Hall, 1st Floor, Wes Watkins Center.

John Mann Mentors in Applied Hydrogeology Program. Noon–1:30 p.m. Room 308E, Congress Room, Wes Watkins Center. GSA student members interested in applied hydrogeology or hydrology as a career will have the opportunity to network with professionals in these fields over lunch.

2023 NGWA Darcy Lecturer. 3:30–4:30 p.m., Auditorium 110, 1st Floor, Wes Watkins Center. Dr. Alicia Wilson, professor of hydrogeology in the School of the Earth, Ocean, and Environment at the University of South Carolina is presenting the Darcy Distinguished Lecture. For more information about the Darcy Lecture series, please visit <https://www.groundwater.org/lecture/darcy/darcy.html>. Sponsored by GSA Hydrogeology Division.

Student Award Ceremony and Reception. 4–5:30 p.m., 111 Exhibition Hall, 1st Floor, Wes Watkins Center. Come find out which students win cash and prizes for their great oral and poster presentations during the meeting. There will be food and drinks. Each participant receives a coupon for one free beverage in their registration packet.

TechFest Dinner. 6–8 p.m., 308E, Congress Room, Room, Wes Watkins Center. A celebration of the technical work of geologists in the South-Central region. The TechFest meeting and dinner is an annual event of Oklahoma State University. The buffet dinner includes a technical talk and an awards program for student poster award winners. Registration to this event is required for attendees.

Business Meetings

South-Central Section Management Board Meeting. Monday, 13 March, 7–8 a.m., Point Four Room, Room 106, 1st Floor, Wes Watkins Center. Breakfast is provided.

South-Central Section Business Meeting. Tuesday, 14 March, 7–8 a.m., Point Four Room, Room 106, 1st Floor, Wes Watkins Center. This meeting is open to the general membership of the South-Central Section.

TECHNICAL PROGRAM

Speaker Ready Room

A speaker ready room is located in Room 206, 2nd Floor, Wes Watkins Center and is available for use at the following times. Computers and assistance will be available to view presentations. We will not have Mac capabilities. All presentations computers will best run PowerPoint presentations.

Speaker Ready Room Hours:

Sunday, 12 March	4–7 p.m.
Monday, 13 March	7–11 a.m., 1–3 p.m.
Tuesday, 14 March	7 a.m.–noon

Poster Venue

Posters are in the 112 Exhibition Hall, 1st Floor, Wes Watkins Center. Presenters are expected to have their posters up by the beginning of the day, and presenters are expected to be with their posters 9–11 a.m. or 3–5 p.m. Check your acceptance notice for exact time. Presenters must remove your poster at the end of the day so the next group will be able to put up their posters.

Breaks

Refreshments and coffee are available 9:45–10:15 a.m., in the 111 Exhibition Hall, 1st Floor, Wes Watkins Center where the posters, vendors, and university booths are located.

Oral Presentations

All presenters are required to plan your oral presentation carefully to adhere to the allotted time. Otherwise, we request that session chairs maintain the scheduling set in the program as a courtesy to all. Presenters can plan on 17 minutes of presentation and three minutes for questions and answers. All oral sessions use one LCD projector and Microsoft PowerPoint software running on a Windows PC platform. There is a speaker ready room located in Room 206, 2nd Floor, Wes Watkins Center where you can view your presentation. Please be prepared with a USB memory device containing your presentation that can be uploaded by the session chair prior to your session 7:30–8 a.m., for morning sessions, and 12:30–1 p.m. for afternoon sessions.

Posters

Each poster board is 48" × 72" for the actual poster (landscape). Posters can be hung with tape, Velcro dots or magnets. We will have supplies in the poster board area, please leave them when you remove your poster. Posters are all located in the 112 Exhibition Hall, Wes Watkins Center east of the area with the vendors, exhibitors, and the break area. Posters are hung by the beginning of each poster session and should be removed at the end of the session, or they may be recycled. Presenters are expected to stand by their posters during the assigned times in the poster sessions schedule and the break (9:45–10:15 am). TechFest posters are encouraged to remain posted until the Tuesday evening banquet.

Theme Sessions

T1. Discovering Earth through a Multi Geophysical Sensor Approach. Luel Emishaw, Oklahoma State University, luel.emishaw@okstate.edu; Andrew Katumwehe, Midwestern State University, andrew.katumwehe@msu-texas.edu; Zelalem Demissie, Wichita State University, zelalem.demissie@wichita.edu; Mohamed Abdel Salem, Oklahoma State University, mohamed.abdel_salem@okstae.edu; Kevin Mickus, Missouri State University, kevinmickus@missouristate.edu.

T2. Geoscience Education Recruitment and Retention: Adapting Pedagogy for Long-term Inclusion, Diversity, and Interest in Geoscience. April Moreno-Ward, Rose State College, mynroux@gmail.com.

T5. Improving Natural Hazard Resilience of the Society. Zelalem Demissie, Wichita State University, zelalem.demissie@wichita.edu; Glyn Rimmington, Wichita State University, glyn.rimmington@gmail.com; Mara Alagic, Wichita State University, mara.alagic@wichita.edu; Atri Dutta, Wichita State University, Atri.Dutta@wichita.edu; Ajita Rattani, Wichita State University, ajita.rattani@wichita.edu.

T6. Geoscience and Hydrology of Your Federal and Other Public Lands: STEM Internships, Research, Science, Mapping, Resource Management, and Education (Posters). Matt Dawson, GSA, mdawson@geosociety.org.

T7. Hydrogeology & Water Resources: Long Term Sustainability and Management. William Andrews, Oklahoma State University, william.andrews@okstate.edu; Robert Mace, Texas State University, robertmace@txstate.edu.

T8. Hydrogeologic Challenges and Roles in Earth Systems. Kevin M. Befus, University of Arkansas Department of Geosciences, kmbefus@uark.edu; John G. Richins, University of Arkansas Department of Geosciences, jgrichin@uark.edu.

T9. Sedimentary Geochemical Characterization of Aquatic Oxygen Dynamics. Natascha Riedinger, Oklahoma State University, natascha.riedinger@okstate.edu; Tracy M. Quan, Oklahoma State University, tracy.quan@okstate.edu. Oral and Posters.

T10. Microbial Interactions with Metal, Mineral, and Nutrient Cycling. Tingying Xu, Oklahoma State University, tingying.xu@okstate.edu; Sabrina Beckmann, Oklahoma State University, sabrina.beckmann@okstate.edu.

T11. Remediation and Management of Produced Water for Beneficial Uses. Babu Fathepure, Oklahoma State University, babu.fathepure@okstate.edu; Mark Krzmarzick, Oklahoma State University, mark.krzmarzick@gmail.com.

T12. Advances in Geologic Carbon Capture and Storage (CCS). Jack Pashin, Oklahoma State University, jack.pashin@okstate.edu; Camelia Knapp, Oklahoma State University, camelia.knapp@okstate.edu.

T15. Geomorphological, sedimentological and pedological archives of human-environmental change. Carlos Cordova, Oklahoma State University, carlos.cordova@okstate.edu.

T16. Shale Lab and Field Projects: Sciences and Techniques on Unconventional Resources. Yulun Wang, Oklahoma State University, yulun.wang@okstate.edu; Carl Symcox, Oklahoma Geological Survey, carl.w.symcox-1@ou.edu; Fengyang Xiong, Oklahoma State University, fxiong@okstate.edu; Jim Puckette, Oklahoma State University, jim.puckette@okstate.edu; Michael Grammer, Oklahoma State University, michael.grammer@okstate.edu; Nicholas Hayman, Oklahoma Geological Survey, hayman@ou.edu; Mileva Radonjic, Oklahoma State University, mileva.radonjic@okstate.edu.

T18. From Pore- to Field-Scale Petrophysical and Elastic Characterization of Rocks and Fluid Flow Simulations. Javier Vilcaez, Oklahoma State University, vilcaez@okstate.edu; Priyank Jaiswal, Oklahoma State University, priyank.jaiswal@okstate.edu.

T19. Tech Fest Undergraduate Student Posters (Posters). Autumn Graf, autumn.graf@okstate.edu

T20. Tech Fest Graduate Student Posters (Posters). Autumn Graf, autumn.graf@okstate.edu

Discipline Sessions

D1. Advances in Geochemistry, Petrology, Sedimentology, and Volcanology. Michelle Abshire, michelle.abshire@vcsu.edu.

D2. Advances in Structural Geology, Geomorphology, Tectonics, and Soils. Daniel Lao-Davila, daniel.lao_davila@okstate.edu

D3. Advances in Paleontology, Geoarcheology, and History of Geology. Ashley Burkett, ashley.burkett@okstate.edu.

Field Trips

All field trips will depart from the Wes Watkins Center North Lot. For additional information, please contact the field trip co-chairs Jim Puckette, jim.puckette@okstate.edu and Brandon Spencer, spbr@okstate.edu.

Pre-Meeting

FT1. Geology of the Wichitas and Slick Hills: Rifts, Ruptures, and Modern Consequences. Sat.-Sun., 11–12 March. Depart 11 March at 7 a.m., return by 5 p.m. on 12 March. US\$254. Brandon Spencer, Oklahoma State University, spbr@okstate.edu; Shannon Dulin, University of Oklahoma, sdulin@ou.edu; Carla Eichler, Oklahoma Geological Survey, carla.eichler@ou.edu; Molly Turko, Turko Tectonics, turkotectonics@gmail.com.

Description: This trip takes attendees to the Wichita uplift in southwestern Oklahoma, where Cambrian rifting processes and Paleozoic deformation resulted in accommodation for the extraordinarily deep Anadarko Basin. In this trip, we will explore the igneous suites, lower Paleozoic stratigraphy, structural styles, and late Paleozoic processes that created one of the mid-continent's most unique geological provinces and petroleum plays.

FT2. Tar Creek Superfund Site Field Trip. A Journey to Metal Contamination and Remediation. Sun., 12 March, 7 a.m.–5 p.m. US\$94. Tingying Xu, Oklahoma State University, tingying.xu@okstate.edu; Robert W. Nairn, University of Oklahoma, nairn@ou.edu; Kato Tsosie Dee, University of Oklahoma, kdee@ou.edu.

Description: This trip highlights Tar Creek as a model system where historic lead-zinc mining resulted in widespread environmental contamination and substantial remediation efforts. We will focus on the hydrological pathways in the Tar Creek watershed, including surface-ground water connections, and the successful development of passive treatment systems for metals retention.

Post-Meeting

FT3. Managed Aquifer Recharge in the Arbuckle Simpson Aquifer. Tues.–Wed., 14–15 March. Depart 14 March at 6 p.m., return at 6 p.m. on 15 March. Students US\$165, based on double occupancy. All others US\$265. Guy Sewell, East Central University, gsewell@ecok.edu; William Andrews, Oklahoma State University, william.andrews@okstate.edu; Madison Culver, Oklahoma State University, madison.culver@okstate.edu; Duane Smith, Oka' Institute, dasmith@ecok.edu.

Description: This field trip will explore the hydrogeology of the Eastern Arbuckle Mountains and Arbuckle-Simpson Aquifer along with a tour of a managed aquifer recharge project of a sole-source aquifer. This site is near the largest natural spring in the state which serves as Ada's source of drinking water.

FT4. Recent to Modern Sedimentary Processes in Northwestern Oklahoma: Caves, Crystals, and Dunes. Wed., 15 March, 7 a.m.–7 p.m. US\$115. Carla Eichler, Oklahoma Geological Survey, carla.eichler@ou.edu; Brandon Spencer, Oklahoma State University, spbr@okstate.edu.

Description: This trip will take attendees to northwestern Oklahoma, where wind and water have created varied landscapes and geological features. We will view aeolian deposits at the sand dunes of Little Sahara, discuss karsting processes in the gypsum caves of Alabaster Caverns, and explore evaporative processes at the Great Salt Plains.

Short Courses

Short courses are offered on Sunday, March 12 and Wednesday, March 15.

SC1. Core Workshop: Introduction to Carbonate and Siliciclastic Depositional Systems for Oil and Gas, Groundwater, and Carbon Capture and Storage. Sun., 12 March, 9 a.m.–1 p.m., Stewart Core Facility Lab. US\$25; US\$10 for students. Michael Grammer, Oklahoma State

University, michael.grammer@okstate.edu; Jim Puckette, Oklahoma State University, jim.puckette@okstate.edu.

SC2. The Future of Geoscience Education: Implementing Technology for Engagement and Recruitment. Sun., 12 March, 9 a.m.–4 p.m. Nobel Research Center, NRC007/008. US\$10. Ashley Burkett, Oklahoma State University, ashley.burkett@okstate.edu; Caitlin Barnes, Oklahoma State University, caitlin.barnes@okstate.edu; Tracy M. Quan, Oklahoma State University, tracy.quan@okstate.edu.

SC3. Field Geophysics. Sun., 12 March, noon–4 p.m., Nobel Research Center, NRC001. US\$25; US\$10 for students. Andrew Katumwehe, Midwestern State University, andrew.katumwehe@msutexas.edu; Ahmed Ismail, Oklahoma State University, ahmed.ismail@okstate.edu.

SC4. High Resolution Site Characterization Technologies used with Direct Push. Sun., 12 March, noon–4 p.m., Room 109, Wes Watkins Center. US\$40. Dan Pipp, Geoprobe Systems, pippd@geoprobe.com; Nick Basore, Geoprobe Systems, basoren@geoprobe.com.

SC5. Geomicrobiology Culturing Strategies: From Sediment to Microbial Culture. Wed., 15 March, 9 a.m.–5 p.m., Noble Research Center, NRC 001. US\$94. Sabrina Beckmann, Oklahoma State University, sabrina.beckmann@okstate.edu; Tingying Xu, Oklahoma State University, tingying.xu@okstate.edu.

SC6. Fundamentals of Petroleum Produced Water Characterization, Treatment, and Disposal into Subsurface. Wed., 15 March, 9 a.m.–5 p.m., Noble Research Center, NRC 002. US\$50. Javier Vilcaez, Oklahoma State University, vilcaez@okstate.edu.

SC7. Fundamentals of Geologic CO₂ Storage. Wed., 15 March, 9 a.m.–1 p.m., Noble Research Center, NRC 007/008. US\$25; US\$10 for students. Jack Pashin, Oklahoma State University, jack.pashin@okstate.edu; Camelia Knapp, Oklahoma State University, camelia.knapp@okstate.edu.

OPPORTUNITIES FOR STUDENTS

Cosponsored by GSA Foundation. For more information, go to www.geosociety.org/mentors/ or contact Jennifer Nocerino, jnocerino@geosociety.org.

Career Mentoring Luncheons

Roy J. Shlemon Mentor Program in Applied Geoscience. Monday, March 13. Room 308E, Congress Room, Wes Watkins Center. GSA student members will have the opportunity to discuss career prospects and challenges with professional geoscientists from multiple disciplines over lunch.

John Mann Mentors in Applied Hydrogeology Program. Tuesday, March 14. Room 308E, Congress Room, Wes Watkins Center. GSA student members interested in applied hydrogeology or hydrology as a career will have the opportunity to network with professionals in these fields over lunch.

Career Workshop Series

Geoscience Career Workshop Part 1: Career Planning and Networking. Mon., 13 March, 9–10 a.m. Room 308E, Congress Room, Wes Watkins Center. 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., 13 March, 10–11 a.m. Room 308E, Congress Room, Wes Watkins Center. 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., 14 March, 9–10 a.m. Room 308E, Congress Room, Wes Watkins Center. 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. Students and early career professionals are welcome to attend the career workshops and no registration is necessary. To learn more about mentors and career workshops, go to <https://www.geosociety.org/mentors/> or contact Jennifer Nocerino at jnocerino@geosociety.org.

Geology Club Meetup

Mon., 13 March, 2–3 pm, March 13 Room 308E, Congress Room, Wes Watkins Center. If you are a geology club member 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.

Student Volunteer Room

Students will meet with the Volunteer Coordinator before the beginning of the meeting for their assignments and training. Students can leave personal items in the room while they are working. Room 101, Wes Watkins Center.

Outstanding Student Presentation Program

This year the GSA awards cash prizes to the best graduate and undergraduate posters and oral presentations. Each student poster will be identified with U or G and there will be a list of all posters in each category provided in your packet so participants can take notes and vote for the best submissions. Votes will be tallied up and the award winners' names will be announced at the awards reception on Tuesday afternoon in the 111 Exhibition Hall.

Spouse and Guest Activities

We have a great lineup of interesting field trips and there are activities to keep busy if they choose not to attend sessions.

OSU campus provides a lovely place for a walk and museums for wrestling and art. Tours are available on Wednesday and Thursday. Please contact <https://orange.okstate.edu/campus-visits/> to arrange a tour.

The Botanic Garden at Oklahoma State University is one of the top botanic gardens in the state. There are trails and a huge variety to see at this top facility.

The Pawnee Bill Museum Ranch is a 20-minute drive north of Stillwater and includes numerous artifacts and antiques as well as a herd of buffalo. Lunch in Pawnee at Click's Steakhouse is also a true Oklahoma experience.

Shopping is available on Perkins Road at several locations or in downtown Stillwater on Main Street. Perkins Road provides a number of big box store and restaurants, while downtown are the smaller more intimate stores and restaurants. Be sure to pick up a new cowboy hat or boots!

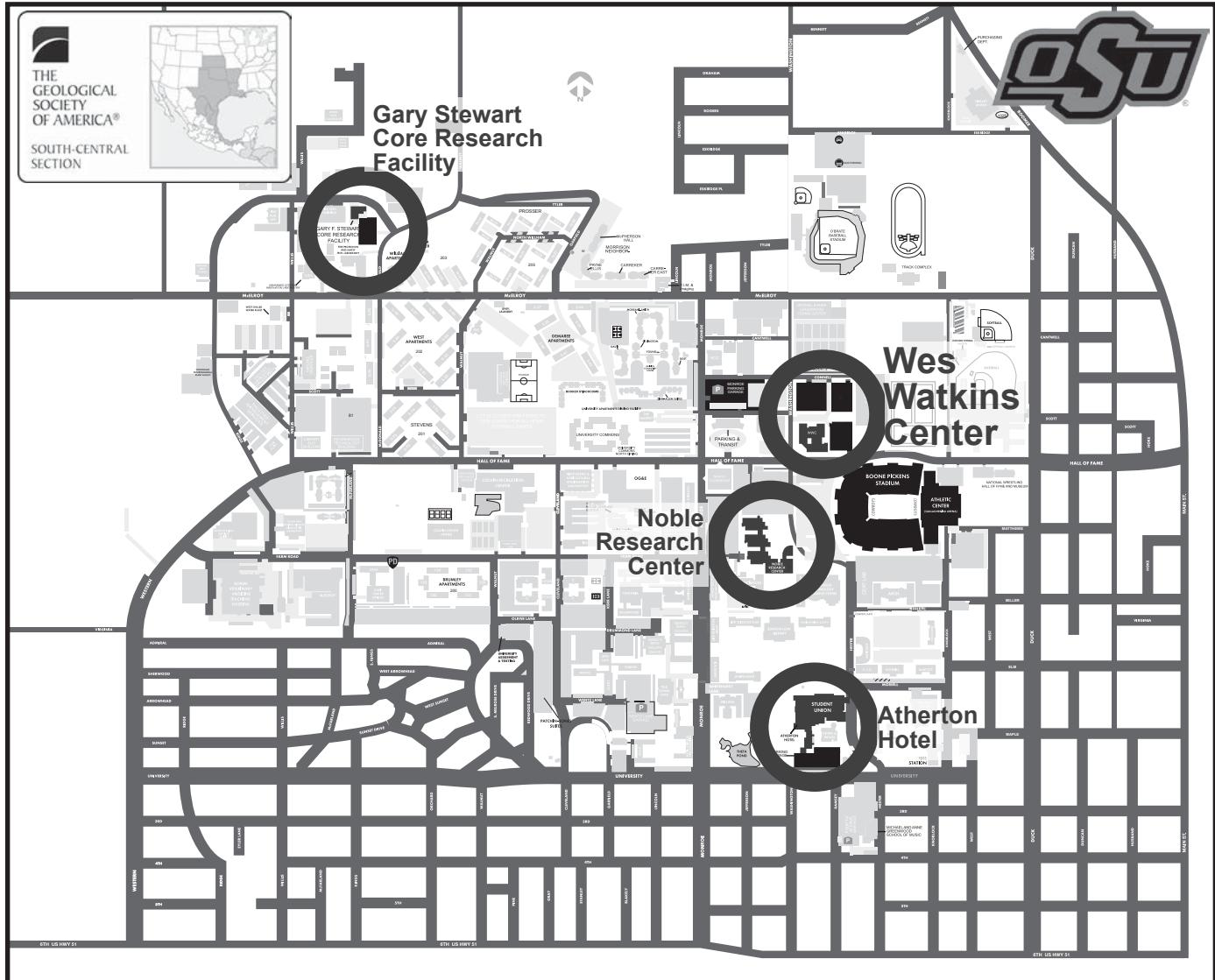
Exhibits, Vendors and Poster Sessions

The Exhibits, Vendors, Posters and breaks are all located in the 111 Exhibition Hall, 1st Floor, Wes Watkins Center. We hope that you take some time to speak with the vendors and exhibitors while viewing the posters and having a mid-morning and mid-afternoon snack.

Sunday, 12 March Exhibits open 5–7 p.m.
Monday, 13 March Exhibits open 8 a.m.–6 p.m.
Tuesday, 14 March Exhibits open 8 a.m.–5:30 p.m.

Exhibitors (as of January)

2024 North-Central/South-Central GSA Meeting
Boone Pickens School of Geology at Oklahoma State University
Geological Society of America Bookstore
Geological Society of America Foundation
Geoprobe
Kimball School Of Geosciences at Midwestern State University
Mid-Continent Geological Library
NGWA University Powered By OSU
University Of Oklahoma
University of Texas at Dallas Geoscience Department



Schedule of Events

EVENT	TIME	LOCATION
SATURDAY, 11 MARCH		
FT1. Geology of the Wichitas and Slick Hills: Rifts, Ruptures, and Modern Consequences DEPARTURE (Field Trip)	6:30–7 a.m.	Wes Watkins Center North Lot
SUNDAY, 12 MARCH		
FT2. Tar Creek Superfund Site Field Trip DEPARTURE (Field Trip)	6:30–7 a.m.	Wes Watkins Center North Lot
SC1. Core Workshop: Introduction to Carbonate and Siliciclastic Depositional Systems for Oil and Gas, Groundwater, and Carbon Capture and Storage (Short Course)	9 a.m.–1 p.m.	Gary Stewart Core Facility Lab
SC2. The Future of Geoscience Education: Implementing Technology for Engagement and Recruitment (Short Course)	9 a.m.–4 p.m.	Noble Research Center, NRC 007/008
SC3. Field Geophysics (Short Course)	noon–4 p.m.	Noble Research Center, NRC 001
SC4. High Resolution Site Characterization Technologies used with Direct Push (Short Course)	noon–4 p.m.	Room 109
Exhibitor Set-up	3–5 p.m.	Exhibition Hall 112
Student Volunteer Room	3:30–7 p.m.	Room 101
Registration Open	4–7 p.m.	South Hallway
Speaker Ready Room Open	4–7 p.m.	Room 206
Exhibits Open	5–7 p.m.	Exhibition Hall 112
Welcome Reception	5–7 p.m.	Exhibition Hall 112
MONDAY, 13 MARCH		
South-Central Section Management Board Meeting	7–8 a.m.	Point Four Room, RM 106
Speaker Ready Room Open	7–11 a.m.	Room 206
Registration Open	7 a.m.–5 p.m.	South Hallway
Student Volunteer Room	7 a.m.–5:30 p.m.	Room 101
Morning Oral Technical Sessions		
D3. Advances in Paleontology, Geoarcheology, and History of Geology	8–9:20 a.m.	Room 108
T8. Hydrogeologic Challenges and Roles in Earth Systems	8–9:20 a.m.	Room 109
T16. Shale Lab and Field Projects: Sciences and Techniques on Unconventional Resources	8 a.m.–noon	Room 110
D1. Advances in Geochemistry, Petrology, Sedimentology, and Volcanology	10 a.m.–noon	Room 108
T11. Remediation and Management of Produced Water for Beneficial Uses	10 a.m.–noon	Room 109
Geoscience Career Workshop Part 1: Career Planning and Networking	9–10 a.m.	Room 308E, Congress Room
Break	9:45–10:15 am	Exhibition Hall 111
Poster Sessions: authors present 9 to 11 AM, or 3 to 5 PM		
T1. Discovering Earth through a Multi Geophysical Sensor Approach (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T2. Geoscience Education Recruitment and Retention: Adapting Pedagogy for Long-Term Inclusion, Diversity, and Interest in Geoscience (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T5. Improving Natural Hazard Resilience of Society (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112

EVENT	TIME	LOCATION
T6. Geoscience and Hydrology of Your Federal and Other Public Lands: STEM Internships, Research, Science, Mapping, Resource Management, and Education (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T7. Hydrogeology and Water Resources: Long-Term Sustainability and Management (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T9. Sedimentary Geochemical Characterization of Aquatic Oxygen Dynamics (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T10. Microbial Interactions with Metal, Mineral, and Nutrient Cycling (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T12. Advances in Geologic Carbon Capture and Storage (CCS) (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T13. Paleoecology of the South-Central United States (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T15. Geomorphological, Sedimentological, and Pedological Archives of Human-Environmental Change (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T18. From Pore- to Field-Scale Petrophysical and Elastic Characterization of Rocks and Fluid Flow Simulations (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
Geoscience Career Workshop Part 2: Geoscience Career Exploration	10–11 a.m.	Room 308E, Congress Room
Speaker Ready Room Closed	11 a.m.–1 p.m.	Room 206
Roy J. Shlemon Mentor Program in Applied Geoscience	noon–1:30 p.m.	Room 308E, Congress Room
Speaker Ready Room Open	1–3 p.m.	Room 206
Afternoon Oral Technical Sessions		
Special Symposia	1:30–4 p.m.	Auditorium 110
T2. Geoscience Education Recruitment and Retention: Adapting Pedagogy for Long-Term Inclusion, Diversity, and Interest in Geoscience	1:30–5 p.m.	Room 108
Geology Club Meetup	2–3 p.m.	Room 308E, Congress Room
Town Hall: What's Happening at GSA	3:30–4:30 p.m.	Room 109
GSA South-Central Reception	5–7 p.m.	Exhibition Hall 112
TUESDAY, 14 MARCH		
South-Central Section Business Meeting	7–8 a.m.	Point Four Room, RM 106
Speaker Ready Room Open	7 a.m.–noon	Room 206
Student Volunteer Room	7 a.m.–5:30 pm	Room 101
Registration Open	7 a.m.–6:30 pm	South Hallway
Exhibits Open	8 a.m.–5:30 pm	Exhibition Hall 112
Morning Oral Technical Sessions		
T7. Hydrogeology and Water Resources: Long-Term Sustainability and Management	8–9:40 a.m.	Room 108
T1. Discovering Earth through a Multi Geophysical Sensor Approach	8–10 a.m.	Room 109
T9. Sedimentary Geochemical Characterization of Aquatic Oxygen Dynamics	8 a.m.–noon	Room 110
T5. Improving Natural Hazard Resilience of Society	10 a.m.–noon	Room 108

EVENT	TIME	LOCATION
Geoscience Career Workshop Part 3: Cover Letters, Résumés and CVs	9–10 a.m.	Room 308E, Congress Room
Break	9:45–10:15 a.m.	Exhibition Hall 111

Poster Sessions: authors present 9 to 11 AM, or 3 to 5 PM

D1. Advances in Geochemistry, Petrology, Sedimentology, and Volcanology (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
D2. Advances in Structural Geology, Geomorphology, Tectonics, and Soils (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
D3. Advances in Paleontology, Geoarcheology, and History of Geology (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T8. Hydrogeologic Challenges and Roles in Earth Systems (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T19. Tech Fest Undergraduate Student Posters (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112
T20. Tech Fest Graduate Student Posters (Posters)	8 a.m.–5 p.m.	Exhibition Hall 112

Afternoon Oral Technical Sessions

D2. Advances in Structural Geology, Geomorphology, Tectonics, and Soils	1:30–4:30 p.m.	Room 108
T10. Microbial Interactions with Metal, Mineral, and Nutrient Cycling	1:30–4:30 p.m.	Room 109
2023 NGWA Darcy Lecturer: Sponsored by GSA Hydrogeology Division	3:30–4:30 p.m.	Auditorium 110
Student Award Ceremony and Reception	4–5:30 p.m.	Exhibition Hall 111
Exhibitor Tear Down	5:30–7 p.m.	Exhibition Hall 112
FT3. Managed Aquifer Recharge in the Arbuckle Simpson Aquifer DEPARTURE (Field Trip)	5:30–6 p.m.	Wes Watkins Center North Lot
TechFest Dinner (Ticketed Event)	6–8 p.m.	Room 308E, Congress Room

WEDNESDAY, 15 MARCH

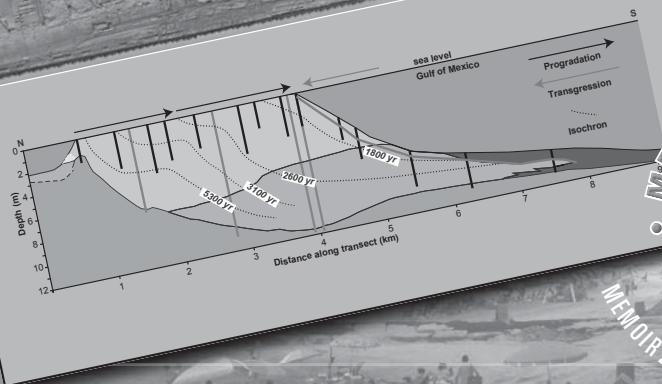
FT4. Recent to Modern Sedimentary Processes in Northwestern Oklahoma: Caves, Crystals, and Dunes DEPARTURE (Field Trip)	6:30–7 a.m.	Wes Watkins Center North Lot
SC7. Fundamentals of Geologic CO ₂ Storage (Short Course)	9 a.m.–1 p.m.	Noble Research Center, NRC 007/008
SC5. Geomicrobiology Culturing Strategies: From Sediment to Microbial Culture	9 a.m.–5 p.m.	Noble Research Center, NRC 001
SC6. Fundamentals of Petroleum Produced Water Characterization, Treatment, and Disposal into Subsurface (Short Course)	9 a.m.–5 p.m.	Noble Research Center, NRC 002

Memoir 221



Holocene Evolution of the Western Louisiana–Texas Coast, USA: Response to Sea-Level Rise and Climate Change

By John B. Anderson, Davin J. Wallace, Antonio B. Rodriguez, Alexander R. Simms, and Kristy T. Milliken



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Global sea-level rise increased during the twentieth century from 1.5 to 3.0 mm/yr and is expected to at least double over the next few decades. The Western Louisiana and Texas coast is especially vulnerable to sea-level rise due to low gradients, high subsidence, and depleted sediment supply. This Memoir describes the regional response of coastal environments to variable rates of sea-level rise and sediment supply during Holocene to modern time. It is based on results from more than six decades of research focused on coastal and nearshore stratigraphic records. The results are a wake-up call for those who underestimate the potential magnitude of coastal change over decadal to centennial time scales, with dramatic changes caused by accelerated sea-level rise and diminished sediment supply.

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NOTE INDEX SYSTEM

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

* denotes speaker

MONDAY, 13 MARCH 2023

ORAL TECHNICAL SESSIONS

SESSION NO. 1

D3. Advances in Paleontology, Geoarcheology, and History of Geology

8:00 AM, Wes Watkins Center, Room 108

Ashley Burkett, Presiding

1-1	8:00 AM	Wilson, Christopher*; Cantell, Gregg: THE LIFE AND LEGACY OF OSCAR MONNIG, AMATEUR METEORITICIST
1-2	8:20 AM	Grosskopf, Jacob*: DENSELY-PACKED HORIZONS OF ASTEROSOMA TRACES IN THE PENNSLYVANIAN-AGE BLOYD FORMATION
1-3	8:40 AM	Wright, Nathan*; Petsios, Elizabeth: ASSESSING TAPHONOMY AND ECOLOGY OF A ISOPOD-INDUCED PARASITE TRACE ON FOSSIL AND MODERN DECAPODS
1-4	9:00 AM	Guthrie, Logan*; Prendergast, Amy; Liu, Zuorui; Comay, Orr; Zyztov, Michal; Motro, Yoav; Belmaker, Miriam: MICROTUS GUENTHERI AS A CLIMATE PROXY FOR THE MIDDLE PLEISTOCENE LEVANT: EVIDENCE FROM CARBON STABLE ISOTOPE ANALYSIS

SESSION NO. 2

T8. Hydrogeologic Challenges and Roles in Earth Systems

8:00 AM, Wes Watkins Center, Room 109

Kevin Befus and John Richins, Presiding

2-1	8:00 AM	Fields, Jon*: TRANSIENT ELECTRICAL RESISTIVITY IMAGING OF AN ENHANCED AQUIFER RECHARGE SITE
2-2	8:20 AM	Jones, Michael*; Covington, Matthew D.; Blackstock, Joshua: CO₂ DYNAMICS IN A CARBONATE CRITICAL ZONE SYSTEM, SAVOY EXPERIMENTAL WATERSHED, ARKANSAS, USA

2-3	8:40 AM	McVea, Jairon*; Yelderman, Joe: UNSTRESSED GROUNDWATER FLOW IN THE BRAZOS RIVER ALLUVIUM AQUIFER WITH IMPLICATIONS FOR TEMPORAL RANGES IN GROUNDWATER TO SURFACE WATER INTERACTIONS
2-4	9:00 AM	Sink, Katharine*: COMPARISON OF TWO LARGE HYDRO METEOROLOGICAL DATASETS FOR THE CONTINENTAL UNITED STATES

SESSION NO. 3

T16. Shale Lab and Field Projects: Sciences and Techniques on Unconventional Resources (GSA Energy Geology Division)

8:00 AM, Wes Watkins Center, Room 110

Yulun Wang, Carl W. Symcox, Fengyang Xiong, Jim Puckette, Michael Grammer, Nicholas Hayman and Mileva Radonjic, Presiding

3-1	8:05 AM	Wang, Yulun*; Grammer, G. Michael; Puckette, James; Pashin, Jack: FACIES ARCHITECTURE AND RESERVOIR CHARACTERISTICS OF THE CANEY SHALE, ARDMORE BASIN, SOUTHERN OKLAHOMA, USA
3-2	8:25 AM	Puckette, James; Brown, Lauren E.; Balumi, Wakil*: IDENTIFYING AUTHIGENIC SILICA ENRICHMENT IN CLAY-RICH MUDROCKS USING X-RAY FLUORESCENCE DERIVED ELEMENTAL CONCENTRATIONS
3-3	8:45 AM	Watkins, Chase*; Puckette, Jim: DEVELOPING A SEQUENCE STRATIGRAPHIC MODEL FOR THE LOWER HENRYHOUSE FORMATION, HUNTON GROUP, SUBSURFACE CENTRAL OKLAHOMA, USING CORE, CUTTINGS DESCRIPTIONS, AND TRIPLE-COMBO AND MICROIMAGING LOGS
3-4	9:05 AM	Break
3-5	9:20 AM	Katende, Allan*; Radonjic, Mileva: THE USE OF RAMAN SPECTROSCOPY IN ASSESSING THERMAL MATURITY OF THE CANEY SHALE IN SOUTHWESTERN OKLAHOMA, USA
	9:40 AM	Xiong, Fengyang*; Rother, Gernot; Radonjic, Mileva: PETROLOGICAL CONTROLS ON DENSITY OF

ADSORPTION PHASE IN SHALES UNDER RESERVOIR CONDITIONS: A CASE STUDY FROM THE LATE MISSISSIPPIAN CANEY SHALE, SOUTHERN OKLAHOMA, USA

3-6 10:00 AM Awejori, Gabriel*: GEOCHEMICAL AND PETROPHYSICAL TRANSFORMATIONS DURING ROCK-FLUID INTERACTIONS IN CANEY FORMATION, SOUTH CENTRAL OKLAHOMA

10:20 AM Concluding Remarks

SESSION NO. 4

D1. Advances in Geochemistry, Petrology, Sedimentology, and Volcanology

10:00 AM, Wes Watkins Center, Room 108

Michelle Abshire, Presiding

4-1 10:00 AM Newman, Jordan*; Stern, Robert; Leybourne, Matthew: COMPARISON OF GEOCHEMICAL FINGERPRINTS OF NON-CUMULATE MAFIC ROCKS IN THE SOUTHERN OKLAHOMA AULACOGEN WITH THOSE OF OTHER LARGE IGNEOUS PROVINCES

4-2 10:20 AM Han, Xiaolin*; Smith, Jon; Blum, Michael: ASYNCHRONOUS DEPOSITION OF THE OGALLALA FORMATION ON THE NORTH AMERICAN HIGH PLAINS FROM DETRITAL ZIRCON U-PB MAXIMUM DEPOSITIONAL AGES

4-3 10:40 AM Suarez, Marina*; Cuellar, Joshua; Snell, Kathryn; Godet, Alexis; Price, Dianna: GEOCHEMICAL ANALYSIS AND PALEOCLIMATE INSIGHTS TO THE CRETACEOUS HENSEL FORMATION, KIMBLE COUNTY, TEXAS

SESSION NO. 5

T11. Remediation and Management of Produced Water for Beneficial Uses (GSA Energy Geology Division)

10:00 AM, Wes Watkins Center, Room 109

Babu Fathepure and Mark Krzmarzick, Presiding

5-1 10:00 AM Ajagbe, Damilare*; Nimeh, Marian; Davis, Ashton; Krzmarzick, Mark; Fathepure, Babu: REIMAGINING PRODUCED WATER AS A RESOURCE THROUGH BIOREMEDIATION

5-2 10:20 AM Alam, Imam*; Fathepure, Babu: CHARACTERIZATION OF METHANOTROPHIC ACTIVITIES BY MICROBIAL COMMUNITY IN ZODLETONE SPRING FOR POTENTIAL MITIGATION OF METHANE EMISSION IN ABANDONED GAS AND OIL WELLS

5-3 10:40 AM Leavitt, David*; Krzmarzick, Mark; Vanneste, Johan; Kim, Seokjhin; Cath, Tzahi; Lampert, David; Atiyeh, Hasan: MEMBRANE DISTILLATION OF CONCENTRATED PRODUCED WATER BRINES FROM OKLAHOMA, TEXAS AND COLORADO

5-4 11:00 AM Pradhan, Sushobhan*; Bhattacherjee, Rupom; Bikkina, Prem: DETERMINATION OF CO₂ SOLUBILITY IN BRINES AND PRODUCED WATERS OF VARIOUS SALINITIES FOR CO₂ EOR AND STORAGE

5-5 11:20 AM Haji Omar, Khalid*: DOLOMITE FILTRATION: A NEW METHOD OF REMOVING TOXIC METALS AND METALLOIDS FROM PETROLEUM PRODUCED WATER

POSTER TECHNICAL SESSIONS

SESSION NO. 6

T1. Discovering Earth through a Multi Geophysical Sensor Approach (Posters) (GSA Energy Geology Division; GSA Geophysics and Geodynamics Division)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 9 to 11 AM

Booth #

6-1 1 Tesfay, Kahsay Nugisse*: PALEOMAGNETIC EVIDENCE OF COUNTERCLOCKWISE ROTATION OF THE DOFAN MAGMATIC SEGMENT: IMPLICATIONS FOR THE TECTONIC HISTORY OF MAIN ETHIOPIAN RIFT

6-2 2 Demissie, Zelalem*: Rimmington, Glyn: SURFACE DISPLACEMENTS MECHANISM OF THE DOBI GRABEN FROM ASAR TIME-SERIES ANALYSIS OF INSAR: IMPLICATIONS FOR THE TECTONIC SETTING IN THE CENTRAL AFAR DEPRESSION, ETHIOPIA

SESSION NO. 7

T2. Geoscience Education Recruitment and Retention: Adapting Pedagogy for Long-Term Inclusion, Diversity, and Interest in Geoscience (Posters) (GSA Geoscience Education Division; GSA Energy Geology Division; GSA Marine and Coastal Geoscience Division)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 9 to 11 AM

Booth #

7-1 3 Salinas, Leslie*: Becerril, Jesus; Jimenez, Alicia: MUSTANG ISLAND: VEGETATION AND SAND DUNES' ROLE IN BARRIER ISLAND PRESERVATION

7-2 4 Moreno-ward, April*; Ratcliff, Daniel; Keller, Rose; Trussell, Frost; Royka, Zakary: AN INTERDISCIPLINARY EVALUATION OF RAIDER CREEK: URBAN RUNOFF IMPACTS ON WATER QUALITY

SESSION NO. 8

T5. Improving Natural Hazard Resilience of Society (Posters) (GSA Geophysics and Geodynamics Division)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 9 to 11 AM

Booth #

8-1 5 Patil, Madhurika; Rattani, Ajita; Demissie, Zelalem*: Dutta, Atri: DEEP LEARNING MODELS FOR NATURAL DISASTER DETECTION & ASSESSMENT

8-2 6 Haridasan, Smitha; Rattani, Ajita; Demissie, Zelalem*: EVALUATION OF LIGHTWEIGHT MODELS FOR WILDFIRE LOCALIZATION

SESSION NO. 9

T6. Geoscience and Hydrology of Your Federal and Other Public Lands: STEM Internships, Research, Science, Mapping, Resource Management, and Education (Posters) (GSA Energy Geology Division)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 9 to 11 AM

Booth #

9-1 7 Price, Jonathan D.*: CONTINUED HIGH RESOLUTION DIGITAL GEOLOGICAL MAPPING IN THE EASTERN WICHITA MOUNTAINS, SOUTHERN OKLAHOMA: POTENTIAL BENEFITS TO FEDERAL LANDS

9-2 8 Thompson, Ann; Rae, Claire Myriah; Garcia, Jessica*: **IMPLEMENTING THE FEDERAL UNSTABLE SLOPE MANAGEMENT PROGRAM FOR GEohAZARDS AT CHIRICAHUA NATIONAL MONUMENT**

SESSION NO. 10

T7. Hydrogeology and Water Resources: Long-Term Sustainability and Management (Posters) (GSA Geophysics and Geodynamics Division)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 9 to 11 AM

Booth #

10-1 9 Ajayi, Toluwalike*; Yelderman, Joe: **APPLICATION OF 2D AND PSEUDO-3D ELECTRICAL RESISTIVITY TOMOGRAPHY IN CHARACTERIZING SUBSURFACE PREFERENTIAL PATHWAYS IN KARST AQUIFERS**

10-2 10 Gary, Marcus*; Marshall, Constance; Sweatt, Taylor; Benhamou, Carole-Lynna; Turner, Austin: **CHARACTERIZATION OF SPRING FLOWS CONTRIBUTING TO INDEPENDENCE CREEK, TERRELL COUNTY, TEXAS**

10-3 11 Gonzalez Sanchez, Heriberto*; Ortiz Enriquez, Octavio; Alonso Torres, Socrates; Cardona, Antonio: **COMBINING PHYSICAL AND CHEMICAL METHODS TO ESTIMATE GROUNDWATER RECHARGE IN AN ALLUVIAL AQUIFER IN SAN LUIS POTOSÍ, MÉXICO**

10-4 12 Sowers, Rebekah*; Yelderman, Joe: **MONITORING THE TRINITY AQUIFER IN MCLENNAN COUNTY, TEXAS: AN ASSESSMENT AND STRATEGY FOR THE STGCD**

10-5 13 Brewer, William*; Yelderman, Joe; Dworkin, Steve: **EVALUATING DEEP GROUNDWATER CONTRIBUTIONS TO SHORT TERM ELEMENT CYCLING**

10-6 14 Watson, Taylor*; Befus, Kevin: **THREE-DIMENSIONAL REPRESENTATION OF GLACIAL TILL HETEROGENEITY AND POTENTIAL PERCHED CONDITIONS IN THE HYDROGEOLOGIC FRAMEWORK OF SEATTLE, WASHINGTON**

10-7 15 Nagaraj, Nakul*; Hunt, Brian B.: **DELINeATION OF SPRINGSHEDS USING POTENTIOMETRIC SURFACES, SOUTHWEST TRAVIS COUNTY, CENTRAL TEXAS**

SESSION NO. 11

T9. Sedimentary Geochemical Characterization of Aquatic Oxygen Dynamics (Posters) (GSA Marine and Coastal Geoscience Division)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 3 to 5 PM

Booth #

11-1 16 Shook, Emma*; Haygood, Lauren; Provenza, Calli; Jones, Chris; Troxel, Autumn; Lichtschlag, Anna; Torres, Marta; Bohrmann, Gerhard; Riedinger, Natascha: **INVESTIGATING THE IMPACT OF VOLCANOGENIC INPUT ON REDOX PROXIES IN THE SCOTIA SEA**

11-2 17 Galvez, Olivia*; Haygood, Lauren; Riedinger, Natascha: **HEAVY METAL DISTRIBUTION IN SANBORN LAKE, OK**

SESSION NO. 12

T10. Microbial Interactions with Metal, Mineral, and Nutrient Cycling (Posters)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 3 to 5 PM

Booth #

12-1 18 Ren, Wei*; Lemen, Kayleen; Tang, Ming; Xu, Tingying: **HOW DOES ZN INFLUENCE THE METALS REMEDIATION OF A NEW MN-OXIDIZING FUNGUS (CURVULARIA LUNATA TC1)?**

12-2 19 Lemen, Kayleen*; Xu, Tingying; Ren, Wei: **REMOVAL OF MIXED HEAVY METALS BY MANGANESE-OXIDIZING FUNGI FOR BIOREMEDIATION OF CONTAMINATED WATER IN OKLAHOMA**

12-3 20 Beckmann, Sabrina; Heathman, Kara; Hallahan, Todd; Xu, Tingying; Massey, Jordon; Lemen, Kayleen; Jones, Adrienne; Ajagbe, Damilare; Alam, Imam; Hess, Kendra; Mukherjee, Swarnali; Dorlon, John; Koza, Collin; Beckmann, Sabrina*: **WHERE DO THE METHANOGENS LIVE IF NOT DOWN-UNDER? MICROBIAL METHANE CYCLING IN AN UNUSUAL 'UPSIDE DOWN' CHEMICAL- GRADIENT IN LIGHTNING LAKE, OKLAHOMA**

SESSION NO. 13

T12. Advances in Geologic Carbon Capture and Storage (CCS) (Posters) (GSA Energy Geology Division; GSA Geophysics and Geodynamics Division)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 3 to 5 PM

Booth #

13-1 21 Samuel, Silas*; Knapp, Camelia C.: **INTEGRATED SEISMIC INVERSION, ROCK PHYSICS MODELING & DATA ANALYTICS FOR CARBON STORAGE**

13-2 22 Pashin, Jack*: **RESERVOIR PRESSURE, WATER CHEMISTRY, AND INJECTIVITY OF PROSPECTIVE CO₂ SINKS IN OKLAHOMA**

13-3 23 Santiago Torres, Alejandra*; Keister, Laura; Qualman, Heather; Zybala, Darlene; Hegazy, Dina; Seitchik, Adam: **MIocene RESERVOIRS OF THE GULF COAST – INCISED VALLEY FILL (IVF) SANDS AND THEIR POTENTIAL FOR COMMERCIAL CO₂ STORAGE**

13-4 24 Venmarathil Sreedhar, Sreejesh*; Knapp, Camelia C.; Knapp, James H.: **CARBON DIOXIDE INJECTION SIMULATION FOR RESERVOIRS IN ANADARKO BASIN**

SESSION NO. 14

T13. Paleoecology of the South-Central United States (Posters)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 3 to 5 PM

Booth #

14-1 25 Roberts, Nicholas P.*; McAdams, Neo E.B.: **CONODONT BIOSTRATIGRAPHY OF THE MIDDLE-UPPER SILURIAN WINK FM. (WRISTEN GROUP) IN THE COBRA FRAZIER CORE, HOWARD COUNTY, TEXAS**

14-2 26 Richmond, Dean R.*; Green, Debra K.; Ramos Berrios, Alanis N.; Bement, Leland C.: **SEDIMENTOLOGY AND DEPOSITIONAL FACIES OF THE LATE PLEISTOCENE MORGAN MAMMOTH SITE IN NORTHERN CADDO COUNTY, OKLAHOMA**

14-3 27 Kay, David*; O'Brien, Haley D.; Gignac, Paul M.: **LIFE STAGE PREDICTION IN ALLIGATOR MISSISSIPIENSIS AND CROCODYLUS ACUTUS USING ALVEOLAR GROWTH**

14-4 28 Hall, Lauren*; Weil, Anne: **EXPLORING SIMILARITY BETWEEN JURASSIC VERTEBRATE ASSEMBLAGES FROM CIMMARON COUNTY, OKLAHOMA**

14-5 29 Holman, Victoria*; Petsios, Elizabeth: **COMPARATIVE ANALYSIS OF PREDATOR-PREY INTERACTIONS AMONGST NATICIDS FROM STONE CITY BLUFF AND LITTLE BRAZOS (CENTRAL-SOUTHEAST TEXAS)**

14-6 30 Vanek, Lucille*; Schmidt, David: **EXPERIMENTAL TAPHONOMY: DETERMINING POSSIBLE LEAF DEGRADATION OF FOSSIL PLANT ASSEMBLAGE ABSTRACT**

14-7 31 Lupia, Richard*; Murphy, Katie; Taylor, Ian: **PALYNOFLORA FROM THE SHORT CANYON MEMBER (ALBIAN, CRETACEOUS) OF THE CEDAR MOUNTAIN FORMATION, EMERY COUNTY, UTAH**

MONDAY

PM

SESSION NO. 15

T15. Geomorphological, Sedimentological, and Pedological Archives of Human-Environmental Change (Posters)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 3 to 5 PM

Booth #

15-1	32	Kibler, Karl*; Lawrence, Ken L.; Eyeington, Ashley M.: HUMAN-INDUCED SEDIMENTATION ON THE NORTH SULPHUR RIVER FLOODPLAIN: GEOARCHAEOLOGICAL INVESTIGATIONS OF A POST-SETTLEMENT ALLUVIUM AT LAKE RALPH HALL, FANNIN COUNTY, TEXAS
15-2	33	Cordova, Carlos*: A GEOGRAPHIC, STRATIGRAPHIC, AND ARCHAEOLOGICAL ASSESSMENT OF LATE PLEISTOCENE MEGAFAUNAL REMAINS IN THE BASIN OF MEXICO
15-3	34	Kelley, Kathleen*; Xie, Guangmao; Lin, Qiang; Belmaker, Miriam: ARCHAIC HOMO SAPIENS IN THE TROPICS 120KYA? UTILIZING THE TAPHONOMY OF SMALL MAMMAL REMAINS TO DETERMINE THE PALEOECOLOGY OF YAHUAI CAVE IN GUANGXI, CHINA IN THE EARLY LATE PLEISTOCENE

SESSION NO. 16

T18. From Pore- to Field-Scale Petrophysical and Elastic Characterization of Rocks and Fluid Flow Simulations (Posters) (GSA Energy Geology Division; GSA Geophysics and Geodynamics Division)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 9 to 11 AM

Booth #

16-1	35	Ishola, Olubukola*; Vilcaez, Javier: THE SIGNIFICANCE OF PORE THROAT LENGTH IN PORE-SCALE FLUID FLOW FROM THE PERSPECTIVE OF BOUNDARY LAYER THEORY
16-2	36	Adetokunbo, Peter*; Sanuade, Oluseun; Mewafy, Farag; Ismail, Ahmed: COMPARATIVE ANALYSIS OF MACHINE LEARNING ALGORITHMS FOR POROSITY MODELING
16-3	37	Ola, Damilola*: Katumwehe, Andrew; Mwongyera, Hillary: USING SEISMIC DATA TO UNDERSTAND RIFT EVOLUTION IN MAGMA POOR RIFTS. AN EXAMPLE OF THE ALBERTINE RIFT
16-4	38	Buentello, Izabelle*; Grammer, G. Michael; Wang, Yulun: IMPLICATIONS FOR UNCONVENTIONAL HYDROCARBON RESERVOIR QUALITY: PORE SYSTEM ARCHITECTURE AND ANALYSIS OF THE CANEY SHALE

ORAL TECHNICAL SESSIONS

SESSION NO. 17

T2. Geoscience Education Recruitment and Retention: Adapting Pedagogy for Long-Term Inclusion, Diversity, and Interest in Geoscience (GSA Geoscience Education Division; GSA Energy Geology Division; GSA Marine and Coastal Geoscience Division)

1:30 PM, Wes Watkins Center, Room 108

April Moreno-ward and Wendi Williams, Presiding

1:30 PM **Introductory Remarks**

17-1	1:40 PM	Quan, Tracy*; Burkett, Ashley; Ismail, Ahmed; Puckette, James O.; Ivey, Toni: INTRODUCING WRANE, AN OUT-
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OF-SCHOOL-TIME LEARNING ECOSYSTEM FOR PRE-UNIVERSITY STUDENTS ON WATER GEOSCIENCE

17-2	2:00 PM	Petsios, Elizabeth*; Anderson, Brendan; Nesmith, Suzanne: UTILIZING IMPLICIT PERCEPTIONS OF CULTURAL SIMILARITY IN TEACHING EVOLUTION – HOW RELIGIOUS STUDENTS' PERCEPTIONS OF THEIR INSTRUCTORS INFLUENCES ACCEPTANCE OF EVOLUTION IN THE CLASSROOM
17-3	2:20 PM	Newman, Jordan*: FEAR AND LOATHING IN THE FIELD: MANAGING ACUTE ANXIETY DISORDER SYMPTOMS DURING FIELD EXERCISES
17-4	2:40 PM	Stern, Robert*; Abdelsalam, Mohamed G.; Brikowski, Tom; Crowley, Clinton; Neal, Cathi; Urquhart, Mary; Yunker, Molly L.: TURNER FALLS, OK: BUILDING AWARENESS OF THE NATURAL ENVIRONMENT IN THE OLDEST (AND MOST CENTRALLY LOCATED) PARK BETWEEN DALLAS-FT. WORTH AND OKLAHOMA CITY
	3:00 PM	Break
17-5	3:15 PM	Hamilton, Wayne*: Yelderman, Joe: AQUIFER PUMP TESTING AS A METHOD TO TEACH HYDROGEOLOGY AT BAYLOR UNIVERSITY—A CASE STUDY
17-6	3:35 PM	Lee, Sunjae*: Salinas, Oziel; Jimenez, Alicia: SAN BERNARDINO AND SAN GABRIEL MOUNTAINS: COMPARING THE RATE OF EROSION AND POSSIBLE CAUSES FOR FASTER EROSION AT THE SAN GABRIEL MOUNTAIN RANGE
17-7	3:55 PM	Sung, Eunjae*: Jimenez, Alicia: SIEVE ANALYSIS: PETROGRAPHIC AND STATISTICAL ANALYSIS ON SOILS FROM POZO DE LUNA WINERY COMPANY
	4:15 PM	Discussion
	4:35 PM	Concluding Remarks

TUESDAY, 14 MARCH 2023

ORAL TECHNICAL SESSIONS

SESSION NO. 18

T1. Discovering Earth through a Multi Geophysical Sensor Approach (GSA Energy Geology Division; GSA Geophysics and Geodynamics Division)

8:00 AM, Wes Watkins Center, Room 109

Luelsegd Emishaw, Andrew Katumwehe, Zelalem Demissie, Mohamed Abdel Salem and Kevin Mickus, Presiding

18-1	8:00 AM	Abdelrahman, Ahmed*: Emishaw, Luelsegd; Abdelsalam, Mohamed G.: ARE CHAD LINEAMENTS DEFORMING THE SAHARAN METACRATON?
18-2	8:20 AM	Beresh, Stephen*: Emishaw, Luelsegd: GRAVIMETRIC ANALYSIS OF THE MID-EGYPTIAN GRABEN ARRAY (MEGA)
18-3	8:40 AM	Crowley, Clinton*: Stern, Robert: FIRST STEPS TOWARDS MAKING AND ASSESSING A VIDEO GEOLOGIC CROSS-SECTION OF THE USA FOR USE IN THE CLASSROOM
18-4	9:00 AM	Emishaw, Luelsegd*: Raj, Rohit: IMAGING GRAVITY MOHO WITH PROBABILISTIC COMPUTATION OF DETERMINISTIC VARIABLES: APPLICATION TO WESTERN PLATEAU OF ETHIOPIA

SESSION NO. 19**T7. Hydrogeology and Water Resources: Long-Term Sustainability and Management (GSA Geophysics and Geodynamics Division)**

8:00 AM, Wes Watkins Center, Room 108

William Andrews and Robert Mace, Presiding

19-1 8:00 AM Mace, Robert E.*: **THE SUSTAINABILITY OF GROUNDWATER IN TEXAS**

19-2 8:20 AM Ismail, Ahmed; Katumwehe, Andrew; Mewafy, Farag*; Puckette, Jim: **GEOPHYSICAL IMAGING AND MONITORING OF THE GROUNDWATER AQUIFER AT THE OKLAHOMA STATE UNIVERSITY GEOLOGY FIELD CAMP FACILITY NEAR CAÑON CITY, COLORADO**

19-3 8:40 AM Cardona, Antonio*; Rivera Armendariz, Cristian Abraham; Muñoz Robles, Carlos Alfonso; Aceves De Alba, Jorge; Castro-Larragoitia, Guillermo Javier: **ARSENIC AND FLUORIDE IN GROUNDWATER OF CALERA, ZACATECAS, MEXICO: IMPLICATIONS FOR WATER MANAGEMENT**

19-4 9:00 AM Green, Ronald*; Bertetti, F. Paul; Sharp, John M.: **SHORT- AND LONG-TERM SUSTAINABILITY OF THE EDWARDS AQUIFER IN CENTRAL TEXAS, USA**

19-5 9:20 AM Peterson, Eric*; DiVincenzo, Ashley; Bosompemaa, Patience; Miller, Joseph; Commander, Okiemute; Sahad, Alhassan: **EFFECTIVENESS OF SATURATED RIPARIAN BUFFERS: A CASE STUDY IN CENTRAL ILLINOIS**

SESSION NO. 20**T9. Sedimentary Geochemical Characterization of Aquatic Oxygen Dynamics (GSA Marine and Coastal Geoscience Division)**

8:00 AM, Wes Watkins Center, Room 110

Natascha Riedinger and Tracy Quan, Presiding

20-1 8:00 AM Ononeme, Oghalomeno*; Burkett, Ashley; Rathburn, Anthony: **ABUNDANCES, DIVERSITY, AND ECOLOGY OF BENTHIC FORAMINIFERA FROM THE SOUTHERN CALIFORNIA BIGHT**

20-2 8:20 AM Burkett, Ashley*; Ford, Trinity: **THE INFLUENCE OF GROWTH RATES ON FORAMINIFERAL STABLE ISOTOPES**

20-3 8:40 AM Hedges, Clayton*; Kamal, Mustafa; Haygood, Lauren; Volz, Jessica; Kasten, Sabine; Riedinger, Natascha: **DETECTING AND MAPPING CONCENTRATIONS OF HEAVY METALS IN THE ARGENTINE BASIN**

20-4 9:00 AM Haygood, Lauren*; Riedinger, Natascha; Jones, Christopher K.; Provenza, Calli; Veresh, Alison; Troxel, Autumn; Huck, Lori; Lichtschlag, Anna; Torres, Marta; Bohrmann, Gerhard: **INVESTIGATING DEEP-WATER CIRCULATION CHANGES ALONG THE EAST SCOTIA SEA**

20-5 9:20 AM Duff, Elaine; Troxel, Autumn; Haygood, Lauren*; Ford, Trinity; Burkett, Ashley; Rathburn, Anthony; Riedinger, Natascha: **TRACKING DEEP-WATER OXYGENATION CHANGES OFFSHORE SOUTHERN CALIFORNIA**

20-6 9:40 AM Riedinger, Natascha*; Zabel, Matthias; Abshire, Michelle; Scholz, Florian: **SOUTH ATLANTIC DEEP-WATER OXYGENATION CHANGES IN THE LATE QUATERNARY**

10:00 AM **Break**

20-7 10:15 AM Quan, Tracy*; Adeboye, Oyeleye O.: **EVALUATING THE RELIABILITY OF USING NITROGEN ISOTOPES AS REDOX PROXIES IN PETROLEUM SYSTEMS: A REVIEW**

20-8 10:35 AM Abshire, Michelle*; Riedinger, Natascha; Clymer, John; Puckette, James: **LATE DEVONIAN BASIN REDOX CONDITIONS REVEALED BY URANIUM GEOCHEMISTRY**

20-9 10:55 AM Balumi, Wakil*; Riedinger, Natascha; Puckette, James: **VOLCANIC-ASH MEDIATED NUTRIENT SUPPLY AND REDOX TRANSITION WITHIN THE CRETACEOUS**

NIOBRARA FORMATION, WESTERN INTERIOR SEAWAY, COLORADO

20-10 11:15 AM Forster, Clayton*; Fekete, Jack; Gottberg, Amy; Suarez, Celina; Suarez, Marina; Sharman, Glenn R.: **EVALUATION OF THE AGE OF DEPOSITION OF THE CEDAR MOUNTAIN FORMATION OF UTAH THROUGH CARBON ISOTOPIC CHEMOSTRATIGRAPHY**

SESSION NO. 21**T5. Improving Natural Hazard Resilience of Society (GSA Geophysics and Geodynamics Division)**

10:00 AM, Wes Watkins Center, Room 108

Zelalem Demissie, Glyn Rimmington, Mara Alagic, Atri Dutta and Ajita Rattani, Presiding

21-1 10:00 AM Dutta, Atri*; Bagai, Rajiv; Demissie, Zelalem; Bowen, Aaron; Sclafani, Maria: **IMPROVING DISASTER LITERACY AMONG MIDDLE SCHOOL STUDENTS FOR ENHANCED COMMUNITY RESILIENCE**

21-2 10:20 AM Rimmington, Glyn; Demissie, Zelalem*: **APPLICATION OF MACHINE LEARNING TO ESTIMATION OF DEATHS, INJURY AND PROPERTY DAMAGE FROM TORNADOS IN DIFFERENT COMMUNITIES**

21-3 10:40 AM Rimmington, Glyn; Alagic, Mara; Demissie, Zelalem*: **UNDERSTANDING EACH OTHER. THE CHALLENGE OF TEAMWORK AMONG RESEARCHERS FROM MULTIPLE DISCIPLINES AND COMMUNICATION WITH COMMUNITIES AFFECTED BY DISASTERS**

21-4 11:00 AM Demissie, Zelalem*; Dutta, Atri; Rattani, Ajita: **THE USE OF DENSE GPS NETWORK, RADAR TECHNOLOGY, AND AI TECHNIQUES TO FORECAST EARLY-STAGE DROUGHT IN KANSAS**

21-5 11:20 AM Filbert, Nathan*; Sclafani, Maria; Kuhlmann, Meghann: **COMMUNITY RESILIENCE REQUIRES COLLABORATION: PROMOTING TRANSDISCIPLINARY RESEARCH TO ADDRESS SOCIOECOLOGICAL HAZARDS**

21-6 11:40 AM Dodds, Henry*; Finkelman, Robert; Nichols, Naomi: **WHAT DO VOLCANOES AND UNCONTROLLED COAL FIRES HAVE IN COMMON?**

TUESDAY AM

POSTER TECHNICAL SESSIONS**SESSION NO. 22****D1. Advances in Geochemistry, Petrology, Sedimentology, and Volcanology (Posters)**

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 3 to 5 PM

Booth #

22-1 1 Stevens, Liane M.*: **CONTEXTUALIZING GEOCHRONOMETERS VIA THIN SECTION SCANS IN ORDER TO CONSTRAIN THE TIMING OF METAMORPHISM AND DEFORMATION DURING THE GRENVILLE OROGENY, LLANO UPLIFT, CENTRAL TEXAS**

22-2 2 Campos, Mary*; Stevens, Liane M.: **PETROGRAPHY AND HXRF GEOCHEMISTRY OF VOLCANIC AND VOLCANICLASTIC UNITS AND ASSOCIATED DIKES IN THE KNIGHT RANGE, GRANT COUNTY, SOUTHWESTERN NEW MEXICO**

22-3 3 Kirk, Chelsee*; Devoir, Nathalie; Price, Jonathan D.: **TOWARDS ONE LAB'S ACCURATE RESOLUTION OF WHOLE-ROCK MAJOR-ELEMENT GEOCHEMISTRY: AN UNDERGRADUATE EFFORT**

SESSION NO. 23

D2. Advances in Structural Geology, Geomorphology, Tectonics, and Soils (Posters)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 3 to 5 PM

Booth #

23-1	4 Martin, Declan*; Bonar, Alicia; Pfeifer, Lily; Soreghan, Gerilyn (Lynn): EXPLORING SILT ORIGINS THROUGH GRAIN SIZE ANALYSIS OF MEDITERRANEAN SOILS AND DUST
23-2	5 Stern, Christina*: BIG BEND RANCH STATE PARK'S FAULT SCARPS AND RIFTING
23-3	6 Thompson, Mark*: THE UPPER CRETACEOUS BIGFOOT EROSIONAL UNCONFORMITY ENABLES DETERMINATION OF THE EXACT POSITION OF THE MID MAASTRICHTIAN SHORELINE IN SOUTH CENTRAL TEXAS
23-4	7 VanderLeest, Rebecca A.*; Eichler, Carla; George, Sarah W.M.: SEDIMENTARY PROVENANCE OF A REGIONAL MIocene-PLIOCENE AEOLIAN AND FLUVIAL DEPOSIT ON THE HIGH PLAINS: EVIDENCE FOR UNROOFING OF THE SANGRE DE CRISTO MOUNTAINS?
23-5	8 Martinez-Sacristan, Hernando*: GEOLOGICAL MYTHS AND LEGENDS OF THE MAGDALENA & CAUCA RIVER VALLEYS IN COLOMBIA

SESSION NO. 24

D3. Advances in Paleontology, Geoarcheology, and History of Geology (Posters)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 3 to 5 PM

Booth #

24-1	9 Killday, Jocelyn*; Schmidt, David: A NEWLY DISCOVERED TRICERATOPS AND IT'S USE FOR TAPHONOMIC AND ALLOMETRIC INTERPRETATIONS
24-2	10 Graddy, Nicolas*; Schmidt, David; Pichelmeyer, Jacob: EVALUATION AND INTERPRETATION OF SURFACE BONE ABNORMALITIES AND DEFORMITIES IN A NEW TRICERATOPS SPECIMEN
24-3	11 Taylor, Ian*; Murphy, Katie; Lupia, Richard: CUPRESSINOXYLON FROM THE MORENO HILL FORMATION (TURONIAN-CONCIAN,CRETACEOUS) OF NEW MEXICO
24-4	12 Murphy, Katie*; Lupia, Richard; Taylor, Ian: PETRIFIED WOOD FROM THE SHORT CANYON MEMBER OF THE CEDAR MOUNTAIN FORMATION: TAXODOXYLON
24-5	13 Paul, Debarpita*; Burkett, Ashley: APPLICATION OF ENVI TO SEM IMAGES OF FORAMINIFERA
24-6	14 Ford, Trenity*; Burkett, Ashley: FORAMINIFERA VOLUMETRICS FROM FOCUS-STACKED MICROSCOPY
24-7	15 Whitesell, Jessica*; Lipscomb, Elizabeth; Burkett, Ashley; Frederick, Daniel: PUGET SOUND FORAMINIFERA: AMMONIA BECCARII, THEIR MUTATIONS AND SEASONAL POPULATIONS

SESSION NO. 25

T8. Hydrogeologic Challenges and Roles in Earth Systems (Posters)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 9 to 11 AM

Booth #

25-1	16 Marshall, Constance*; Hunt, Brian B.: CHARACTERIZING SMALL PERENNIAL SPRINGS DURING DROUGHT CONDITIONS, WESTERN TRAVIS COUNTY, TEXAS
------	--

25-2

17	Richins, John*; Befus, Kevin; Rodgers, Kirk D.: COASTAL GROUNDWATER DISCHARGE SIMULATIONS/MODELS FOR MOBILE BAY
----	--

SESSION NO. 26

T19. Tech Fest Undergraduate Student Posters (Posters)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 9 to 11 AM

Booth #

26-1	18 Sandoval, Daniel*: CORE CORRELATION OF THE EAGLE FORD FORMATION, MAVERICK BASIN, TEXAS
26-2	19 Deen, Joshua*; Burkett, Ashley: BENTHIC FORAMINIFERAL ANALYSES OF EQUATORIAL MID-PLIOTOCENE TRANSITION SEDIMENTS
26-3	20 Yale, Vivian*: Yelderman, Joe: UNDERSTANDING AND INTERPRETING BRAZOS RIVER ALLUVIUM AQUIFER WATER TABLE FLUCTUATIONS TO BETTER MANAGE WATER RESOURCES IN MCLENNAN COUNTY, TEXAS—A CASE STUDY
26-4	21 De Los Santos, Nicolas*: PROCESSES AND METHODOLOGY FOR FORAMINIFERA ANALYSIS
26-5	22 Trussell, Frost*; Tompkins, Emily G.: ABSTRACT OF IGNEOUS ROCK HISTORY
26-6	23 Redman, Brancen*; Xu, Tingying; Ren, Wei: BIOREMEDIATION OF CRUDE OIL BY NATIVE MICROBES
26-7	24 Chatwin, Shannon*: USING AN EXPERIMENTAL RESEARCH PROJECT TO TEACH HIGH-SCHOOL STUDENTS ABOUT ENVIRONMENTAL CONDITIONS AND THE IMPORTANCE OF NATURAL AND ANTHROPOGENIC IMPACTS ON WATER QUALITY
26-8	25 Martinez, Mason; Halihan, Todd*; Smith, Bryston: ACCURACY AND PRECISION IN CHARACTERIZATION OF AQUIFER GEOTHERMAL PROFILES
26-9	26 Harding, Amanda*: Burkett, Ashley: USING VIDEO GAME ENGINES TO BUILD INTERACTIVE VIRTUAL REALITY VISUALIZATIONS FOR OUTREACH AND EDUCATION IN FIELDS OF GEOLOGY

SESSION NO. 27

T20. Tech Fest Graduate Student Posters (Posters)

8:00 AM, Wes Watkins Center, Room 112

Authors will be present from 9 to 11 AM

Booth #

27-1	27 Alam, Md Saiful*; Knapp, Carmelia C.; Knapp, James H.: TIME-LAPSE SEISMIC MONITORING OF A TRANSIENT, FAULT-CONTROLLED THERMOGENIC HYDRATE SYSTEM AT WOOLSEY MOUND, GULF OF MEXICO
27-2	28 Munim, Mustique*; Zhuang, Guangsheng; Elwood, Brooks B.; Henry, Darrell; Looche, Matthew: MOLECULAR AND MINERALOGIC PERSPECTIVES ON THE PALEOBOTANY AND DEPOSITIONAL ENVIRONMENTS OF THE LATEST EOCENE FLORISSANT FORMATION AT CLARE'S QUARRY, TELLER COUNTY, COLORADO, USA
27-3	29 Culver, Madison*; Andrews, William; Sewell, Guy W.; Halihan, Todd: DEVELOPMENT AND LABORATORY TESTING OF NOVEL GROUNDWATER TRACER PARTICLES
27-4	30 Castillo, Anthony*; Katumwehe, Andrew; Mahmud, Kashif; Price, Jonathan D.: USING ERT AND LIDAR TO DETECT VOID SPACE IN CRETACEOUS FORMATIONS AT NATURAL BRIDGE CAVERNS IN COMAL COUNTY, TX
27-5	31 Watkins, Chase*; Puckette, Jim: IRON AND SULFUR CONCENTRATIONS IN THE HUNTON GROUP, CENTRAL OKLAHOMA: ANALYZING THE RELATIONSHIP BETWEEN LITHOLOGY AND CHEMOSTRATIGRAPHY

27-6	32	Walker, Sara*; Self, Stephen; Mittal, Tushar; White, Lionel; Stern, Robert: A NEW LOOK - ANALYZING THE 3D ARCHITECTURE OF COLUMBIA RIVER FLOOD BASALT LAVA FLOWS	28-2	1:50 PM	Eichler, Carla*; Rudolph, Kurt: LATE PALEOZOIC TECTONO-STRATIGRAPHY OF THE MID-CONTINENT: INSIGHTS FROM SUBSIDENCE ANALYSIS
27-7	33	Lipscomb, Elizabeth*; Burkett, Ashley; Whitesell, Jessica; Roark, Erin: USING FORAMINIFERA AS BIOINDICATORS IN BUDD INLET, PUGET SOUND, WASHINGTON, USA	28-3	2:10 PM	Lazar, Melina*; Lao-Davila, Daniel: AUGMENTED CIRCULAR SCANLINE METHOD: FRACTURE NETWORKS IN MISSISSIPPIAN (VISEAN) CARBONATES IN NORTHEASTERN OKLAHOMA
27-8	34	Osuagwu, Bright*: STRUCTURAL MODELING AND PETROPHYSICAL EVALUATION FOR RESERVOIR CHARACTERIZATION OF SEMIWIKI BASIN, WESTERN UGANDA. BRIGHT OSUAGWU AND ANDREW KATUMWEHE			SESSION NO. 29
27-9	35	Elkholy, Sherif*; Lee, Hunjoo P.: MEASUREMENT AND PREDICTION OF P-WAVE VELOCITY UNDER ANISOTROPIC STRESS CONDITIONS FOR SYNTHETIC AND ACTUAL ROCKS			T10. Microbial Interactions with Metal, Mineral, and Nutrient Cycling
27-10	36	Smith, Ollie*; Thomas, John Max; Grosskopf, Jacob: ALONG A PROMINENT BLOYD FORMATION EXPOSURE: ASTEROSOMA MORPHOLOGY AND DISPERSION			1:30 PM, Wes Watkins Center, Room 109
27-11	37	Mily, Farjana monsur*; Abdelsalam, Mohamed G.: IMAGING THE MOHO AND CONRAD CRUSTAL DISCONTINUITY USING THE SPECTRAL ANALYSIS WITH PIECEWISE REGRESSION OF GRAVITY DATA			Tingying Xu and Sabrina Beckmann, Presiding

ORAL TECHNICAL SESSIONS

SESSION NO. 28

D2. Advances in Structural Geology, Geomorphology, Tectonics, and Soils

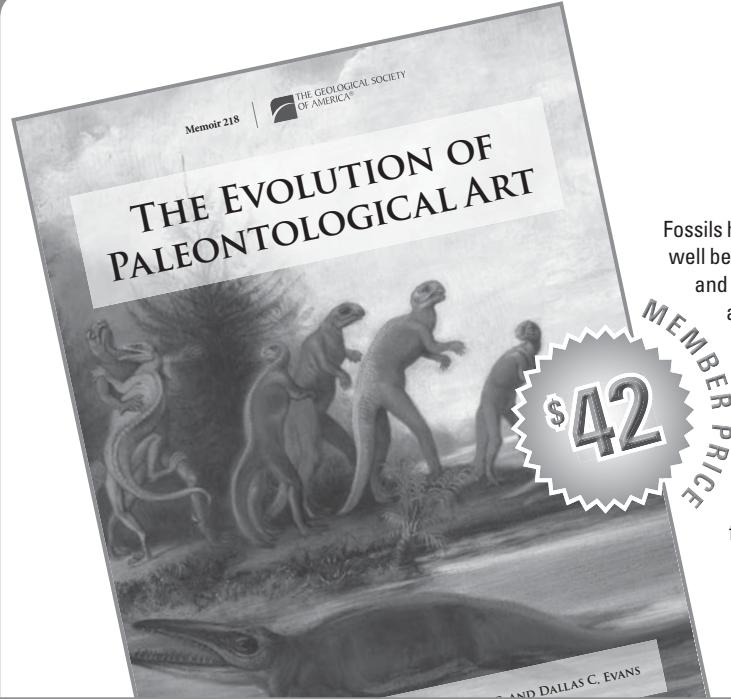
1:30 PM, Wes Watkins Center, Room 108

Daniel Lao-Davila, Presiding

28-1	1:30 PM	Taormina, Rebecca*: COMPARATIVE STUDY OF VERTISOL AND ALFISOL SOIL CHRONOSEQUENCES AT THE CONFLUENCE OF THE BRAZOS AND BOSQUE RIVERS IN CENTRAL TEXAS
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29-1	1:30 PM	Prater, Clay*; Watts, Michael; Anderson, N. John: LANDSCAPE AND MICROBIAL CONTROLS ON LAKE GEOCHEMISTRY IN SW GREENLAND
29-2	1:50 PM	Ghosh, Parna*; Prater, Clay; Jeyasingh, Punidan: OBSERVATIONS ON SCENEDESMUS OBLIQUUS: DOES MAGNESIUM SUPPLY ALTER THE EFFICIENCY OF PHOSPHORUS USE?
29-3	2:10 PM	Beckmann, Sabrina*: MICROBIAL ISOPRENE REDUCTION TIED TO GREENHOUSE GAS REMOVAL IN DEEP-SEA CARBONATES AND EUCALYPTUS-LEAVE SEDIMENTS
29-4	2:30 PM	Massey, Jordon*; Halihan, Todd; Beckmann, Sabrina: IN SITU BIOGENIC GAS PRODUCTION WITHIN A LOW PERMEABILITY LENS
29-5	2:50 PM	Beckmann, Sabrina*; Farag, Ibrahim; Beckmann, Sabrina; Bowen, Malique; Baughan, Christina; Heathman, Kara; Siftar, Zoe; Prouty, Nancy; Biddle, Jennifer: TAMING THE UNCULTURED: MODELING MICROBIAL LIFE UNDER VERY LOW REDOX POTENTIAL IN THE SUBSURFACE AND DEEP-SEA BIOSPHERE
29-6	3:10 PM	Bawa, Maxwell*; Xu, Tingying: EFFECTS OF IONIC STRENGTH ON ARSENATE ADSORPTION TO IRON OXIDES

TUESDAY
PM



The Evolution of Paleontological Art

Edited by Renee M. Clary, Gary D. Rosenberg, and Dallas C. Evans

Fossils have stirred the imagination globally for thousands of years, starting well before they were recognized as the remains of once-living organisms and proxies of former worlds. This volume samples the history of art about fossils and the visual conceptualization of their significance starting with biblical and mythological depictions, extending to renditions of ancient life as it flourished in long-vanished habitats, and on to a modern understanding that fossil art conveys lessons for the betterment of the human condition. The 29 papers and accompanying artwork illustrate how art about fossils has come to be a significant teaching tool, not only about evolution of past life, but also about conservation of our planet for the benefit of future generations.

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SPECIAL PAPER 557

From the Guajira Desert to the Apennines, and from Mediterranean Microplates to the Mexican Killer Asteroid: Honoring the Career of Walter Alvarez

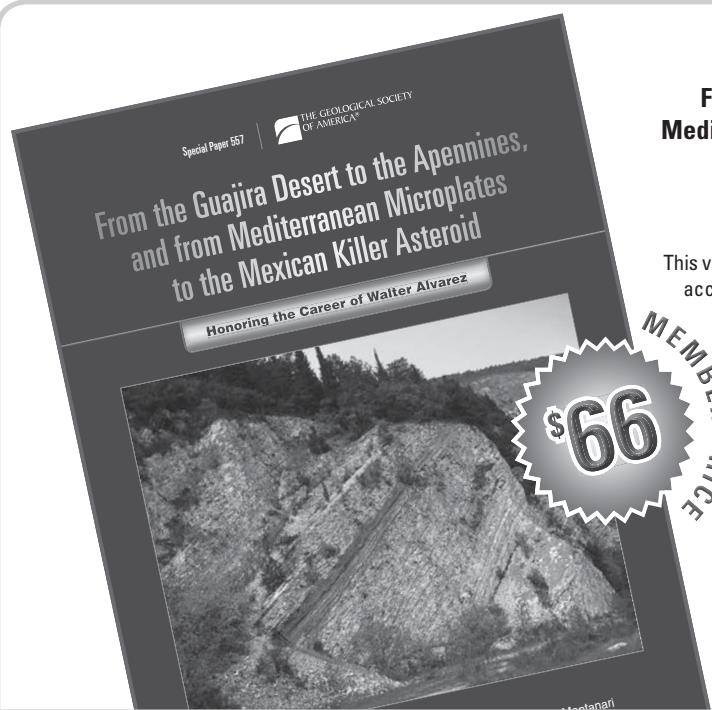
Edited by Christian Koeberl, Philippe Claeys, and Alessandro Montanari

This volume pays tribute to the great career and extensive and varied scientific accomplishments of Walter Alvarez, on the occasion of his 80th birthday in 2020, with a series of papers related to the many topics he covered in the past 60 years: Tectonics of microplates, structural geology, paleomagnetics, Apennine sedimentary sequences, geoarchaeology and Roman volcanics, Big History, and most famously the discovery of evidence for a large asteroidal impact event at the Cretaceous-Tertiary (now Cretaceous-Paleogene) boundary site in Gubbio, Italy, 40 years ago, which started a debate about the connection between meteorite impact and mass extinction. The manuscripts in this Special Paper were written by many of Walter's close collaborators and friends, who have worked with him over the years and participated in many projects he carried out. The papers highlight specific aspects of the research and/or provide a summary of the current advances in the field.

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Index of Authors



How to use the indexing system:

The first number (preceding the dash) represents the session number in which the paper will be presented. The second number (following the dash) indicates the presentation order of the paper within its session.

Example: Green, Ronald ... 19-4*

Find Session #19 in the Technical Session portion of the Program, and look at the fourth paper in the session.

Page numbers are not listed in this index. Refer to session number and order of presentation to locate the author you are searching for.

*Denotes Presenter



A

Abdelrahman, Ahmed 18-2*
Abdelsalam, Mohamed G. 17-4, 18-2, 27-11
Abshire, Michelle 20-6, 20-8*
Aceves De Alba, Jorge 19-3
Adeboye, Oyeleye O. 20-7
Adetokunbo, Peter 16-2*
Ajagbe, Damilare 5-1*, 12-3
Ajayi, Toluwaloke 10-1*
Alagic, Mara 21-3
Alam, Imam 5-2*, 12-3
Alam, Md Saiful 27-1*
Alonso Torres, Socrates 10-3
Anderson, Brendan 17-2
Anderson, N. John 29-1
Andrews, William 27-3
Atiye, Hasan 5-3
Awejori, Gabriel 3-6*

B

Bagai, Rajiv 21-1
Balumi, Wakil 3-2*, 20-9*
Baughan, Christina 29-5
Bawa, Maxwell 29-6*
Becerril, Jesus 7-1
Beckmann, Sabrina 12-3*, 12-3, 29-3*, 29-3, 29-4, 29-5*, 29-5, 29-5*
Befus, Kevin 10-6, 25-2
Belmaker, Miriam 1-4, 15-3
Bement, Leland C. 14-2
Benhamou, Carole-Lynna 10-2
Beresh, Stephen 18-3*
Bertetti, F. Paul 19-4
Bhattacherjee, Rupom 5-4
Biddle, Jennifer 29-5
Bikkina, Prem 5-4
Blackstock, Joshua 2-2
Blum, Michael 4-2
Bohrmann, Gerhard 11-1, 20-4
Bonar, Alicia 23-1
Bosompemaa, Patience 19-5
Bowen, Aaron 21-1
Bowen, Malique 29-5
Brewer, William 10-5*
Brikowski, Tom 17-4
Brown, Lauren E. 3-2
Buentello, Izabelle 16-4*
Burkett, Ashley 17-1, 20-1, 20-2*, 20-5, 24-5, 24-6, 24-7, 26-2, 26-9, 27-7

C

Campos, Mary 22-2*
Cantell, Gregg 1-1
Cardona, Antonio 10-3, 19-3*
Castillo, Anthony 27-4*
Castro-Larragoitia, Guillermo Javier Sr. 19-3
Cath, Tzahi 5-3
Chatwin, Shannon 26-7*

Clymer, John 20-8

Comay, Orr 1-4
Commander, Okiemute 19-5
Cordova, Carlos 15-2*
Covington, Matthew D. 2-2
Crowley, Clinton 17-4, 18-4*
Cuellar, Joshua 4-3
Culver, Madison 27-3*

D

Davis, Ashton 5-1
De Los Santos, Nicolas 26-4*
Deen, Joshua 26-2*
Demissie, Zelalem 6-2*, 8-1*, 8-2*, 21-1, 21-2*, 21-3*, 21-4*
Devoir, Nathalie 22-3
DiVincenzo, Ashley 19-5
Dodds, Henry 21-6*
Dorlon, John IV 12-3
Duff, Elaine 20-5
Dutta, Atri 8-1, 21-1*, 21-4
Dworkin, Steve 10-5

E

Eichler, Carla 23-4, 28-2*
Elkholy, Sherif 27-9*
Ellwood, Brooks B. 27-2
Emishaw, Luelseged 18-2, 18-3, 18-6*
Eyington, Ashley M. 15-1

F

Farag, Ibrahim 29-5
Fathepure, Babu 5-1, 5-2
Fekete, Jack 20-10
Fields, Jon Jr. 2-1*
Filbert, Nathan 21-5*
Finkelman, Robert 21-6
Ford, Trenty 20-2, 20-5, 24-6*
Forster, Clayton 20-10*
Frederick, Daniel 24-7

G

Galvez, Olivia 11-2*
Garcia, Jessica 9-2*
Gary, Marcus 10-2*
George, Sarah W.M. 23-4
Ghosh, Partha 29-2*
Gignac, Paul M. 14-3
Godet, Alexis 4-3
Gonzalez Sanchez, Heriberto 10-3*
Gottberg, Amy 20-10
Graddy, Nicolas 24-2*
Grammer, G. Michael 3-1, 16-4
Green, Debra K. 14-2
Green, Ronald 19-4*
Grosskopf, Jacob 1-2*, 27-10
Guthrie, Logan 1-4*

H

Hajji Omar, Khalid 5-5*
Halihan, Todd 12-3, 26-8*, 27-3, 29-4
Hall, Lauren 14-4*
Hamilton, Wayne 17-5*
Han, Xiaolin 4-2*
Harding, Amanda 26-9*
Haridasan, Smitha 8-2
Haygood, Lauren 11-1, 11-2, 20-3, 20-4*, 20-5*
Heathman, Kara 12-3, 29-5
Hedges, Clayton 20-3*
Hegazy, Dina 13-3
Henry, Darrell 27-2
Hess, Kendra 12-3
Holman, Victoria 14-5*
Huck, Lori 20-4
Hunt, Brian B. 10-7, 25-1

I

Ishola, Olubukola 16-1*
Ismail, Ahmed 16-2, 17-1, 19-2
Ivey, Toni 17-1

J

Jeyasingh, Punidan 29-2
Jimenez, Alicia 7-1, 17-6, 17-7
Jones, Adrienne 12-3
Jones, Chris 11-1
Jones, Christopher K. 20-4
Jones, Michael 2-2*

K

Kamal, Mustafa 20-3
Kasten, Sabine 20-3
Katende, Allan 3-4*
Katumwehe, Andrew 16-3, 19-2, 27-4
Kay, David 14-3*
Keister, Laura 13-3
Keller, Rose 7-2
Kelley, Kathleen 15-3*
Kibler, Karl 15-1*
Killday, Jocelyn 24-1*
Kim, Seokhjin 5-3
Kirk, Chelsee 22-3*
Knapp, Camelia C. 13-1, 13-4, 27-1
Knapp, James H. 13-4, 27-1
Koza, Collin 12-3
Krzmarzick, Mark 5-1, 5-3
Kuhlmann, Meghann 21-5

L

Lampert, David 5-3
Lao-Davila, Daniel 28-3
Lawrence, Ken L. 15-1
Lazar, Melina 28-3*
Leavitt, David 5-3*
Lee, Hunjoo P. 27-9

Lee, Sunjae 17-6*

Lemen, Kayleen 12-1, 12-2*, 12-3
Leybourne, Matthew 4-1
Lichtschlag, Anna 11-1, 20-4
Lin, Qiang 15-3
Lipscomb, Elizabeth 24-7, 27-7*
Liu, Zuorui 1-4
Loocke, Matthew 27-2
Lupia, Richard 14-7*, 24-3, 24-4

M

Mace, Robert E. 19-1*
Mahmud, Kashif 27-4
Marshall, Constance 10-2, 25-1*
Martin, Declan Jr. 23-1*
Martinez, Mason 26-8
Martinez-Sacristan, Hernando 23-5*
Massey, Jordon 12-3, 29-4*
McAdams, Ned E.B. 14-1
McVea, Jairon 2-3*
Mewafy, Farag 16-2, 19-2*
Miller, Joseph 19-5
Mily, Farjana monsurr 27-11*
Mittal, Tushar 27-6
Moreno-ward, April 7-2*
Motro, Yoav 1-4
Mukherjee, Swarnali 12-3
Munim, Mustuque 27-2*
Muñoz Robles, Carlos Alfonso 19-3
Murphy, Katie 14-7, 24-3, 24-4*
Mwongyera, Hillary 16-3

N

Nagaraj, Nakul 10-7*
Neal, Cathi 17-4
Nesmith, Suzanne 17-2
Newman, Jordan 4-1*, 17-3*
Nichols, Naomi 21-6
Nimeh, Marian 5-1

O

O'Brien, Haley D. 14-3
Ola, Damilola 16-3*
Ononeme, Oghalomeno 20-1*
Ortiz Enríquez, Octavio 10-3
Osuagwu, Bright 27-8*

P

Passin, Jack 3-1, 13-2*
Patil, Madhurika 8-1
Paul, Debarpita 24-5*
Peterson, Eric 19-5*
Petrosios, Elizabeth 1-3, 14-5, 17-2*
Pfeifer, Lily 23-1
Pichelmeyer, Jacob 24-2
Pradhan, Sushobhan 5-4*
Prater, Clay 29-1*, 29-2
Prendergast, Amy 1-4
Price, Dianna 4-3

Price, Jonathan D. 9-1*, 22-3, 27-4

Prouty, Nancy 29-5

Provenza, Calli 11-1, 20-4

Puckette, James 3-1, 3-2, 20-8, 20-9

Puckette, James O. 17-1

Puckette, Jim 3-3, 19-2, 27-5

Q

Qualman, Heather 13-3

Quan, Tracy 17-1*, 20-7*

R

Radonjic, Mileva 3-4, 3-5

Rae, Claire Myriah 9-2

Raj, Rohit 18-6

Ramos Berrios, Alanis N. 14-2

Ratcliff, Daniel 7-2

Rathburn, Anthony 20-1, 20-5

Rattani, Ajita 8-1, 8-2, 21-4

Redman, Brancen 26-6*

Reilly, Joseph 18-1*

Ren, Wei 12-1*, 12-2, 26-6

Richins, John 25-2*

Richmond, Dean R. 14-2*

Riedinger, Natascha 11-1, 11-2, 20-3, 20-4,

20-5, 20-6*, 20-8, 20-9

Rimmington, Glyn 6-2, 21-2, 21-3

Rivera Armendariz, Cristian

Abraham 19-3

Roark, Erin 27-7

Roberts, Nicholas P. 14-1*

Rodgers, Kirk D. 25-2

Rother, Gernot 3-5

Royka, Zakary 7-2

Rudolph, Kurt 28-2

S

Sahad, Alhassan 19-5

Salinas, Leslie 7-1*

Salinas, Oziel 17-6

Samuel, Silas 13-1*

Sandoval, Daniel 26-1*

Santiago Torres, Alejandra 13-3*

Sanuade, Oluseun 16-2

Schmidt, David 14-6, 24-1, 24-2

Scholz, Florian 20-6

Sclafani, Maria 21-1, 21-5

Seitchik, Adam 13-3

Self, Stephen 27-6

Sewell, Guy W. 27-3

Sharman, Glenn R. 20-10

Sharp, John M. Jr 19-4

Shook, Emma 11-1*

Siftar, Zoe 29-5

Sink, Katharine 2-4*

Smith, Bryston 26-8

Smith, Jon 4-2

Smith, Ollie 27-10*

Snell, Kathryn 4-3

Soreghan, Gerilyn (Lynn) 23-1

Sowders, Rebekah 10-4*

Stern, Robert 4-1, 17-4*, 18-4, 27-6

Sterns, Christina 23-2*

Stevens, Liane M. 22-1*, 22-2

Stewart, Norman 18-5*

Suarez, Celina 20-10

Suarez, Marina 4-3*, 20-10

Sung, Eunjae 17-7*

Sweatt, Taylor 10-2

T

Tang, Ming 12-1

Taormina, Rebecca 28-1*

Taylor, Ian 14-7, 24-3*, 24-4

Tesfay, Kahsay Nugsse 6-1*

Thomas, John Max 27-10

Thompson, Ann 9-2

Thompson, MARK 23-3*

Tompkins, Emily G. 26-5

Torres, Marta 11-1, 20-4

Troxel, Autumn 11-1, 20-4, 20-5

Trussell, Frost 7-2, 26-5*

Turner, Austin 10-2

U

Urquhart, Mary 17-4

V

VanderLeest, Rebecca A. 23-4*

Vanek, Lucille 14-6*

Vanneste, Johan 5-3

Venmarathil Sreedhar, Sreejesh 13-4*

Veresh, Alison 20-4

Vilcaez, Javier 16-1

Volz, Jessica 20-3

W

Walker, Sara 27-6*

Wang, Yulun 3-1*, 16-4

Watkins, Chase 3-3*, 27-5*

Watson, Taylor 10-6*

Watts, Michael 29-1

Weil, Anne 14-4

White, Lionel 27-6

Whitesell, Jessica 24-7*, 27-7

Wilson, Christopher 1-1*

Wright, Nathan 1-3*

X

Xie, Guangmao 15-3

Xiong, Fengyang 3-5*

Xu, Tingying 12-1, 12-2, 12-3, 26-6, 29-6

Y

Yale, Vivian 26-3*

Yelderman, Joe 2-3, 10-1, 10-4, 10-5, 17-5, 26-3

Yunker, Molly L. 17-4

Z

Zabel, Matthias 20-6

Zhuang, Guangsheng 27-2

Zybala, Darlene 13-3

Zyztov, Michal 1-4