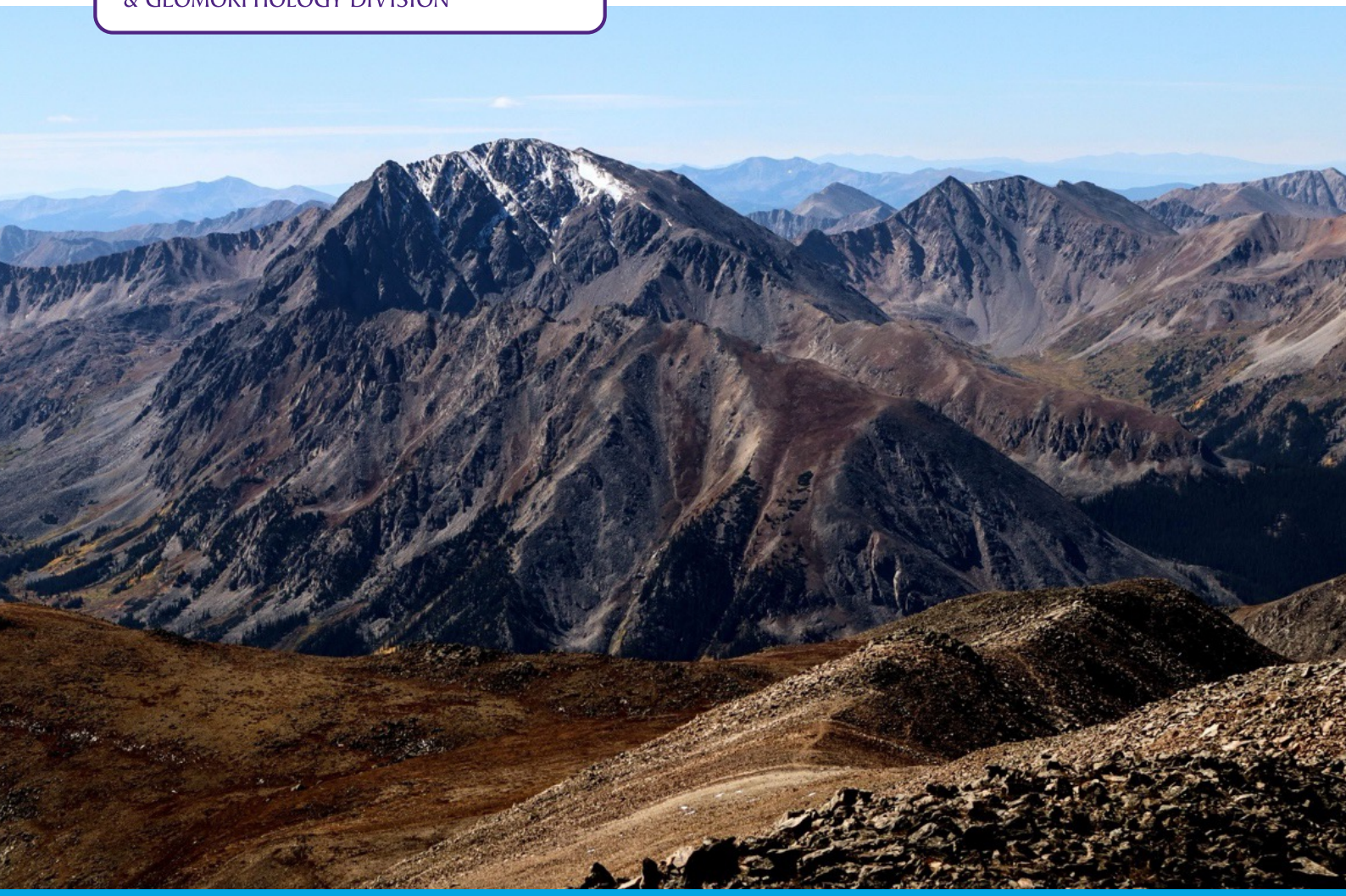
THE GEOLOGICAL SOCIETY OF AMERICA®

QUATERNARY GEOLOGY & GEOMORPHOLOGY DIVISION



GSA Quaternary Geology and Geomorphology Division (QG&G) Newsletter

October 2025, Volume 66, No 1

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A Message from the Chair

We are really looking forward to seeing many of you in San Antonio! Despite a difficult year for our scientific community, the Quaternary Geology and Geomorphology sessions at GSA 2025 are exciting and represent the diverse interests and expertise of our community. Our sessions bridge topics from recent floods to landform evolution–don't miss this opportunity to connect with your colleagues and enjoy the food, culture, and history of San Antonio.

2025 was a devastating year for our scientific community. President Trump's assault on science—particularly climate science—has led to unprecedented funding cuts and layoffs across federally funded agencies and programs, including the U.S. Geological Survey, the Environmental Protection Agency, the USDA, the USDA Forest Service, the National Science Foundation, NASA, and NOAA. For our division, 21% of the 38 recipients of the QG&G Distinguished Career Award (including my father Dr. Ken Pierce), were employed by the USGS.

For NSF alone, grant funding is down by over 50% (New York Times, May 22, 2025), dropping science funding to its lowest levels in at least 35 years. For the Quaternary Geology and Geomorphology community, these cuts have resulted in the loss of our ability to collect and analyze data needed to inform management and protect communities and infrastructure. From January-June of 2025, at least 847 substantive changes were made to federal webpages related to climate change and environmental justice resulting in a 67% decrease in public access (through June 2025, Union of Concerned Scientists). Without stream gage data, how can we protect our communities from extreme floods? Without publicly available databases on wildfire smoke, extreme heat drought, and flooding, how can we continue to conduct science that matters to life and infrastructure?

A generation of scientific talent is also on the brink of being lost. For me personally, the Trump administration removed existing grant funding for two talented post-doctoral researchers and one graduate student; my colleagues at government agencies lost entire teams of researchers. These scientists, and their families, were vital members of our community. In my case, my team was working with producers to improve soil health and increase crop yields. This unprecedented political interference into evidence-driven science jeopardizes the future of US industries and economic growth.

Emerging Activity and Needs:

Given this admittedly bleak national situation, what can we as members of the QG&G division do to support our community? We keep our standards, and our chins, held high. We continue to conduct cutting-edge research that our communities need to make informed decisions about earthquake hazards, flooding, drought, glacial melt, wildfire, sea-level rise, and ecosystem change. We continue to support the next generation of Quaternary scientists and geomorphologists through our mentorship, collaborations, and financial support. Our division leads GSA in student support: in 2025 alone, we awarded over $38,000 to students for their outstanding student research. (Stay tuned-we have an exciting new grant to announce at the 2025 San Antonio Meeting!)

We need to reinforce to our communities that our science does matter. We need to do this not only with our scientific publications, but through effective communication to the public through engagement and outreach. I challenge all of us to make our scientific contributions both interesting and understandable to our families, friends, colleagues and public officials though letters, congressional visits and dinner table conversations. We need to continue to lead innovative and rigorous field experiences for our colleagues and engage in k-12 outreach to inspire the next generation of geoscience students. Finally, we continue to accurately tell the story of our home planet Earth so we can best protect our clean air, water, and soil for generations to come. In the words of David Attenborough, "An understanding of the natural world and what's in it is a source of not only great curiosity but great fulfillment." Let us continue to support each other, and our division's curiosity about the processes and landforms of our home planet Earth.

Thanks to all of you, for all you do to support GSA and our QG&G community.

Looking forward,

Jen Pierce

QG&G chair (2025)

Division Mission

The purpose of the Division is to bring together scientists interested in Quaternary geology and geomorphology, to facilitate presentation and discussion of their problems and ideas, to promote research and publication of results in those fields of geology, and to advise and assist the officers and committees of the Society in matters pertaining to Quaternary geology and geomorphology.

Founded in
1955

QG&G Officers

Chair: Jen Pierce
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Boise State University
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Panel Members

2023-2025 panel
Lee Corbett, University of Vermont
Helen Dow, US Geological Survey
Jason Rech, Miami University

2024-2026 panel
Rachel Atkins, Utah Valley University
Lyman Persico, Whitman College
Jane Willenbring, Stanford University

2025 Joint Technical Program Committee (JTPC) Representatives:
Jen Pierce, Karen Gran, Brad Johnson

QG&G Division Liaison (appointed by GSA President): Rick Ortiz

Announcements

Election results

Congratulations to our newest elected board member, Brad Johnson, 2nd Vice Chair! He will start his term at the GSA 2025 meeting.

Also joining us in 2025-27 is our new Panel! Extend a warm welcome to Josh Galster, Anne MacDonald, and Sylvia Nicovich.

And congratulations to the re-elected board members: Karen Gran (Chair), William Ouimet (1st Vice Chair), and Sarah Schanz (Communications Coordinator).

Save the date: QG&G Awards Ceremony at GSA San Antonio!

No registration or membership required. Free appetizers, drinks, and community. Tuesday, 21 Oct 2025 from 7-11 PM in Henry B. Gonzalez Convention Center, Stars at Night Ballroom 2/3

Connect with QG&G on LinkedIn and social media!

Follow our LinkedIn division showcase page for updates and events

https://www.linkedin.com/showcase/gsa-quaternary-geology-geomorphology-division/?trk=affiliated-pages

Prefer Instagram or Facebook? Not a problem!

@qgg_gsa *@GSAQGG*

Tag us in your science posts!

Want your photo featured in the next QG&G newsletter?

Submit a QG&G related photo here

Photo credit: Sarah Schanz

QG&G 2025 Awards

Congratulations to our 12 student awardees and four professional awardees. Please join us at the QG&G Award Ceremony to celebrate these 16 scientists and their accomplishments and check out their talks at GSA San Antonio!

Save the date: QG&G Award Ceremony, Tuesday, 21 Oct from 7-11pm in the Henry B. Gonzalez Convention Center, Stars at Night Ballroom 2/3. All welcome, no registration required! Food, drinks, and celebration.

Professional awards

Kirk Bryan Award: Alan Nelson, US Geological Survey [retired] and co-authors for their publication

Alan R. Nelson, Christopher B. DuRoss, Robert C. Witter, Harvey M. Kelsey, Simon E. Engelhart, Shannon A. Mahan, Harrison J. Gray, Andrea D. Hawkes, Benjamin P. Horton, and Jason S. Padgett, 2021, A maximum rupture model for the central and southern Cascadia subduction zone—reassessing ages for coastal evidence of megathrust earthquakes and tsunamis: Quaternary Science Reviews, v. 261, 106922. https://doi.org/10.1016/j.quascirev.2021.106922.

Distinguished Career Award: Steven Forman, Baylor University, Texas

Spatial and Temporal Tempo of Aeolian Activity and Potential Fugitive Dust Generation in Former Dust Bowl Drought (DBD) area, Hamilton County, western Kansas, USA. Monday, 20 Oct at 9:30am in 212AB

Gladys W Cole Award: Arjun Heimsath, Arizona State University

Quantifying Geomorphic Processes and Rates of Landscape Evolution. Monday, 20 Oct at 1:40pm in 212AB

Farouk El-Baz Award: Stephen Tooth, Aberystwyth University, Wales

Process, Form and Change in Dryland Rivers: A 25 Year Retrospective. Tuesday, 21 Oct at 9:35am in 212AB

QG&G 2025 Awards

Student awards

Arthur D Howard Award: Matthew Rens.

Denton, Andrews, Porter Glacial Geology Award: Nora Vaughan
Quaternary base level history, valley bottom wetland formation, and carbon storage across tectonic and climatic gradients for the Appalachian Piedmont. Monday, 20 Oct at 3:35pm in 212AB

Donald R Coates Geomorphology Research Award: Kate Drobnich
A Geomorphic Mechanism for Stalling Escarpment Retreat Using Cosmogenic Radionuclides and River Grain Size Measurements, Tuesday 21 Oct from 3:30-5:30pm in Hall 1

Donald R Coates Geomorphology Research Award: Luciano Cardone
Flood Events in the Kentucky River Basin Analyzed by Historical, Hydrological, and Climate Reanalysis Data. Tuesday, 21 Oct from 9-11am in Hall 1

J Hoover Mackin Award: Jason Drebber
Revising Records of Antarctic Ice Sheet Thinning with an Updated in-situ 14C Production Rate. Monday, 20 Oct at 8:05am in 213AB

Marie Morisawa Award: Ashley Ford
Subsurface Dynamics of Microplastics in the Land of Headwaters. Monday, 20 Oct from 3:30-5:30 in Hall 1

Peter Birkeland Soil Geomorphology Award: Adrian Wackett
From Ashes to Atoms: Wildfire Impacts on Organic Carbon and Meteoric 10Be Systematics in the Critical Zone. Wednesday, 22 Oct at 3:40PM in 212AB

Richard B Waitt Research Award for Field-based Research in Surficial Geology or Volcanic Processes: Mathew McCormick
Beyond the Breakwaters: Contrasting the Impacts of Anthropogenic Modifications on Developed and Undeveloped Barrier Islands along the Virginia Coast, USA. Tuesday, 21 Oct at 10:15am in 214A

Shroder Award in Mass Movements: Katherine Braun
Geomorphic History Influences Modern Patterns of Ice-wedge Permafrost Degradation. Sunday, 19 Oct at 8:45am in 213AB

Stanley A Schumm Research Grant Award: Megan Wilson
Influence of Large Wood on In-Channel Sediment Storage after Post-Fire Debris Flows in Basins of Varying Vegetation. Wednesday, 22 Oct at 3:30pm in 211

John A Black Award: Bering Tse
Improving Paleotsunami Recurrence and Inundation Estimates at the Southern End of the Cascadia Subduction Zone. Tuesday, 21 Oct from 3:30-5:30 in Hall 1

Robert K Fahnestock Award: Justin Cerv

Troy L. Péwé Award: Julia Rogerson

Summer updates from our 2023-25 student awardees

Luciano Cardone, 2025 Donald Coates award winner

This was my first summer as a PhD student and it was a great opportunity to advance in my research. I am focusing on floods in the Kentucky River Basin from a geological, geomorphological, and historical perspective; Kentucky's rural communities have been deeply impacted by floods in the past few years, so the topic is timely and supported by an NSF EPSCoR award. This summer, my work was divided into laboratory analyses and fieldwork. My lab research included an extensive literature review, as well as hydrological and climate data collection and analysis. The literature review included a search for cultural reports on "ancient" floods in the Kentucky River Basin; I was able to make some amazing finds in old newspapers and travel journals of early explorers. As a spoiler, I discovered reports that the first Euro-American settlement in Kentucky, located near the city of Harrodsburg today, had to be moved to higher ground due to the flooding between 1774 and 1775. In addition, newspapers were able to describe the impact of the floods in the state capital, Frankfort, and other important cities in the early 20th century in great detail. For example, the Great Flood of 1937 affected the entire Ohio River Valley including the Kentucky River Basin, and around 500,000 people had to leave their homes due to extreme rainfall in late January (nearly 21 inches, almost half of the typical annual mean).

But PhD students do not only live in laboratories! This summer I also took the opportunity to initiate my first fieldwork since enrolling in the UK doctoral program in Fall 2024. Together with my advisors, Dr. Michael McGlue and Dr. Jason Dortch, lab and department colleagues (Drs. Ed Woolery, Ryan Thigpen, and Kevin Woller), and colleagues from Morehead State University (including Drs. Jen O'Keefe, Md. Golam Kibria, and Amy Collick), I've had such a great and fun time out on the Kentucky River floodplains at Floracliff Nature Preserve and Sanctuary. In order to unveil the mysteries of the Kentucky River's more ancient past, we performed GPR surveying, coring, and trenching to identify paleo-flood deposits, that I will characterize sedimentologically and date using several different methods. The fieldwork at Floracliff is still underway, and I expect to be able to have a good flood record from there. The next steps include completing the trench at Floracliff and beginning new field surveys in Estill County (located upstream of the Floracliff site on the Kentucky River) and preparing the samples for the laboratory analysis (radiochemistry, 14C, and OSL dating, grain size analysis and core lithofacies descriptions).

Thanks to the GSA and to the Quaternary Geology and Geomorphology Division, I will be able to take additional steps with my doctoral research, which I hope will make Kentucky more resilient to floods in the future.

Figure 1: GPR survey and vibrocoring on the Kentucky River floodplain at Floracliff

Figure 2: A lot of effort to perform the box coring on the left, and the happiness of holding my first "baby".

Summer updates from our 2023-25 student awardees

Mariel Nelson, 2023 Stanley A. Schumm awardee

This summer I have been in the field and the computer lab! I spent the first half finishing an analysis of how to effectively use lidar time series to map rapidly changing landforms. During the second half, I submitted a manuscript and had my PhD defense! I also co-led a high school outreach program comparing remote sensing methods for measuring coastal sediment transport.

I am graduating at the end of this semester, in December 2025. Find me to chat if you are interested in using geospatial to understand the processes that cause landscapes to evolve—I have expertise in all things high-resolution topography and 3D remote sensing.

Final field site visit to collect drone-based lidar data of two migrating river bends. This is me with my co-advisors Tim Goudge (center) and David Mohrig (right) at noon in the middle of the Houston summer.

Justin Cerv, 2025 Robert K. Fahnestock awardee

To better understand inverse estuarine sediment dynamics, this summer, my lab mate and I conducted fieldwork in Kuwait Bay, a hypersaline, reverse estuary located in the northern Arabian Gulf in May 2025. This fieldwork was a two-week sampling expedition, involving the collection of 204 sediment grab samples throughout Kuwait Bay. It was hot, sweaty, tiring work, but in the end, extremely gratifying! With the support of Kuwait University and vessel transportation provided by the Kuwait Navy, this sampling expedition not only advances our scientific understanding of reverse estuarine sediment dynamics but also fosters lasting academic bonds between the newly formed Marine Science department at Kuwait University and Texas A&M University. None of this would have been possible without the financial support of Robert K. Fahnestock Student Award.

Photo break in between active grab sampling in Kuwait Bay on May 7th, 2025.

Yueyi Che, 2023 Marie Morisawa award winner

I recently graduated from Stanford University with a MS in Earth and Planetary Science. I am starting my PhD this fall at Earth System Science department at the University of California, Irvine. I am so excited to do research on glaciers in Antarctica!

Jason Drebber, 2025 J. Hoover Mackin awardee

I spent the summer processing data and working on a manuscript draft of the research I have been working on for the last year. That project is related to understanding the timing of ice retreat in Antarctica after the Last Glacial Maximum and improving theoretical understanding of in-situ cosmogenic 14C. In addition, I presented at the 25th Radiocarbon conference and participated in PaleoCAMP to learn about paleoclimatology and meet other grad students.

Jason standing nearby some Pleistocene/Holocene Tufas on the shore of Mono Lake in the Sierra Nevada Mountains in California at the beginning of the summer. This was taken while learning about geochemistry during PaleoCAMP.

Matt McCormick, 2025 Richard B. Waitt awardee

My name is Matt McCormick and I am a PhD student at the Virginia Institute of Marine Science. This July, I was able to deploy four Measuring Overwash (or more comically known as MeOw) stations, which measure the sediment bed surface elevation every minute, along Assawoman Island, VA. These stations will help us determine the roles of different cross-shore sediment transport processes associated with both storm events and quiescent conditions along the undeveloped barrier island. This deployment coincided with the hottest (and most mosquito-ridden) iteration of my seasonal fieldwork on the island, which involves a week-long effort of multibeam bathymetry surveys, drone photogrammetry, and sediment sampling.

Matt with a deployed Measuring Overwash (MeOw) station on Assawoman Island, Virginia, USA. Not pictured: the rain, heat and mosquitos.

Megan Wilson, 2025 Stanley A. Schumm awardee

This fall, I'll be starting my second year in the Master's program at Western Washington University, where I study in-channel sediment storage following post-fire debris flows. Earlier this summer, I used lidar differencing to identify areas of aggradation and degradation, helping target field sites across a range of vegetation types—from chaparral- to forest-dominated. I've since been out collecting wood density and grain size data, and I'll spend the rest of the summer analyzing it all in the lab!

THE GEOLOGICAL SOCIETY OF AMERICA®
CONNECTS 2025
SAN ANTONIO, TEXAS, USA 19–22 OCTOBER

QG&G Sponsored Sessions at GSA San Antonio

Sunday, 19 Oct, 2025

8am-5:30pm poster sessions (Hall 1)

- T213. Advancing Earthquake Geology and Surficial Deformation from Geologic Provinces to Political Entities through Multidisciplinary High-Resolution Data
- T202. Emerging Voices in Soil and Paleosol Science
- T27. Geoarchaeology of Sites to Landscapes: Current Research on Long-Term Water and Soil Management and Maladaptation
- T140. Hydroclimate Variability Across Timescales in Western North America: Causes and Consequences
- T225: Toe to Toe: Cordilleran Systems from Trench to Retroarc Domains

8am-noon oral sessions

- T179. Advances in Mountain Hydrology: Connecting Cryosphere, Surface, and Subsurface Processes. Room 213AB.
- T116. Lakes of the World Through Space and Time: Archives of Climate, Paleoenvironments, Ecosystems, Geohazards, and Economic Resources. Room 211.
- T203. Recent Advances in Soil and Paleosol Science. Room 212AB.
- T225. Toe to Toe: Cordilleran Systems from Trench to Retroarc Domains. Room 217C.
- T17. Wildland Fire: An Agent of Geomorphic, Ecologic, and Societal Change. Room 301C.

1:30-5:30pm oral sessions

- T184. Aeolian Systems in Space and Time. Room 212AB.
- T180. Philosophy of Extreme Events and Landscape Evolution on Earth and Other Planets: Thinking Geologically in the Spirit of Victor Baker. Room 213AB.
- T19. Advances in Geospatial Applications for Environmental and Engineering Geology. Room 214B.
- T216. Exploring Feedbacks Between Tectonics and Climate on Lithospheric Evolution using Multidisciplinary Approaches. Room 217C.

2:30-6pm Pardee Symposia (Stars at Night Ballroom B2 & B3)

- P1. Expanding Neurotypical Borders: Building a Future of Inclusion with Disables and Neurodivergent Perspectives in Geoscience.

Monday, 20 Oct, 2025

8am-5:30pm poster sessions (Hall 1)

- T188. Geomorphology and Surface Processes Across the Solar System.
- T20. Dynamics of Natural and Built Environments.

8am-noon oral sessions

- T182. Recent Advances in Glacial Geology, Geomorphology, and Chronology. Room 213AB.
- T191. Soil, Dust, and Everything in Between: Current, Quaternary and Earlier Geological Processes and Records. Room 212AB.
- T213. Advancing Earthquake Geology and Surficial Deformation from Geologic Provinces to Political Entities through Multidisciplinary High-Resolution Data. Room 217D.
- T27. Geoarchaeology of Sites to Landscapes: Current Research on Long-Term Water and Soil Management and Maladaptation, Part 1. Room 214D.
- T16. Landsliding Inventory Mapping and Next Steps: Assessing Susceptibility, Hazard Models, Risk, and Policy. Room 301C.
- T114. New Frontiers in Cave and Karst Science. Room 211.
- T144. New Perspectives on Beringian Paleoecology, Paleoclimate, and Paleoceanography. Room 303C.

1:30-5:30pm oral sessions

- T190. From the Cosmos and Back: Quantifying Processes and Rates of Landscape Change. Room 212AB.
- T181. Quaternary Research to Characterize Environmental and Geological Hazards. Room 213AB.
- T27. Geoarchaeology of Sites to Landscapes: Current Research on Long-Term Water and Soil Management and Maladaptation, Part 2. Room 214D.

Tuesday, 21 Oct, 2025

8-5:30 poster sessions (Hall 1)

- T179. Advances in Mountain Hydrology: Connecting Cryosphere, Surface, and Subsurface Processes.
- T186. Critical Zone Science: Intersection of Processes Linked to Geomorphology, Ecology, Fire, and Climate.
- T190. From the Cosmos and Back: Quantifying Processes and Rates of Landscape Change.
- T181. Quaternary Research to Characterize Environmental and Geological Hazards.
- T195. Delta Evolution from Rivers to the Shelf: Past, Present and Future Perspectives for Society.
- T182. Recent Advances in Glacial Geology, Geomorphology, and Chronology.
- T116. Lakes of the World Through Space and Time: Archives of Climate, Paleoenvironments, Ecosystems, Geohazards, and Economic Resources.
- T181. Quaternary Research to Characterize Environmental and Geological Hazards.
- T117. Recent Advances and New Voices in Marine and Coastal Geosciences.

8am – noon oral sessions

- T183. Advances in Fluvial Processes and Sediment Transport, Part 1. Room 212AB.
- T20. Dynamics of Natural and Built Environments. Room 214A.
- P3. Geoheritage Without Borders: International Perspectives on the Conservation and Celebration of Geodiversity, Part 1. Stars at Night Ballroom B2&B3

1:30-5:30pm oral session.

- T183. Advances in Fluvial Processes and Sediment Transport, Part 2. Room 212AB.
- P3. Geoheritage Without Borders: International Perspectives on the Conservation and Celebration of Geodiversity, Part 2. Stars at Night Ballroom B2&B3
- T196. Reconstruction Earth Surface Processes in Orogenic Systems. Room 303AB.
- T30. Timestamped Biomineralized Structures in Coastal Environmental Monitoring and Cultural Research. Room 214D.

Wednesday, 22 Oct, 2025

8am-5:30pm poster sessions (Hall 1)

- T183. Advances in Fluvial Processes and Sediment Transport
- T184. Aeolian Systems in Time and Space.
- T19. Advances in Geospatial Applications for Environmental and Engineering Geology.
- T114. New Frontiers in Cave and Karst Science.
- T196. Reconstructing Earth Surface Processes in Orogenic Systems.

8am – noon oral sessions

- T188. Geomorphology and Surface Processes Across the Solar System. Room 212AB.
- T117. Recent Advances and New Voices in Marine and Coastal Geoscience. Room 213AB.

1:30-5:30pm oral session.

- T186. Critical Zone Science: Intersection of Processes Linked to Geomorphology, Ecology, Fire, and Climate. Room 212AB.
- T185. Natural and Urban Channel Responses to Disturbance, Management, and Restoration. Room 211.
- T195. Delta Evolution from Rivers to the Shelf: Past, Present and Future Perspectives for Society. Room 303AB.

Contact us for more information

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