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PAGE 4

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President Nathan Niemi
Outlines Vision for 2025
p. 9

MY STORIES, MY SCIENCE

Exploring the Cordilleran
Orogenic Belt
p. 28

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FEATURES

4 | Places That Reveal the Geologic Mind

Grand Canyon, USA: Lumping and Splitting to Make Sense of a (Somewhat) Predictable World
Basil Tikoff and Thomas F. Shipley



Cover: View of North Rim from Yaki Point, Grand Canyon, Arizona. Credit: Doug Meek / Getty Images.

DEPARTMENTS

9 | GSA News & Updates

20 | GSA Section Meetings

24 | GSA Center for Professional Excellence

29 | 2026 GSA Calendar Photo Search

IN EVERY ISSUE

28 | My Stories, My Science

30 | Geology through the Lens

31 | GSA Foundation

PAGE
4





Figure 1. A photo of the Grand Canyon from the south rim. Photo by E.M. Nelson.

Grand Canyon, USA: Lumping and Splitting to Make Sense of a (Somewhat) Predictable World

Basil Tikoff^{*,1} and Thomas F. Shipley²

Geology logline: *The exposures of the Grand Canyon allow conceptual lumping and splitting of the space (rocks units) and time (events); different hypotheses for canyon formation illustrate different conceptual temporal lumping and splitting of the erosional events.*

Cognitive science logline: *Predictability underlies two important geological reasoning processes: (1) Presence versus absence and (2) Lumping versus splitting.*

Standing on the rim of the canyon, you viscerally experience the name—it feels big in a way that pictures do not capture. The immensity of absence, which is the Grand Canyon, is conveyed across all of the senses. For instance, the soundscape of the rim is not silence; you can hear the wind. Yet the sound quality is unfamiliar; absent are the common echoes from nearby surfaces. The space of the canyon is so immense that echoes disappear.

The Grand Canyon's ubiquity in geology and popular culture reflects, in part, the clarity with which stories of time are written in its space. At its most basic, it is a very large hole in the ground. The vast amount of missing rock was eroded by the seemingly small river at the bottom of the canyon. Certainly, part of the grandeur of the canyon lies in its ability to illustrate the power of water to erode vast amounts of stone little by little.

The aesthetic appeal is enhanced by the horizontal geological layers that occur at the same elevations on both sides of the canyon. Other canyons offer one or two layers that can be followed across; for example, the Mississippian Redwall limestone generally forms a steep cliff partway up and the Cambrian Bright Angel shale always forms a flat area near the bottom. In contrast, the Grand Canyon offers an entire section of rock with multiple distinguishable units. Because it is all visible, one can easily take the intellectual leap that the

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horizontal layers were once connected on both sides before the canyon was carved. That symmetry offers a beauty and a predictability, providing an opportunity to think about the past in ways that are both rich and nuanced.

The purpose of this essay, from the cognitive science viewpoint, is to understand how geologists make sense of the world through “unit formation” (lumping) and “segmentation” (splitting; Wertheimer, 1923; English translation in Ellis, 1938). In the cognitive science literature, the terms highlight the creation of a single mental object, or unit, from parts or pieces (i.e., lumping), and the necessary mental cleaving of that object from surrounding things (i.e., splitting). We retain the more informal lumping and splitting categories, because geologists can more likely relate to these terms.

Our life experience and our learned understanding of the physical world indicate the physical world behaves in a regular and predictable way. Here we focus on two psychologically relevant and related dichotomies that arise from that predictability: (1) presence versus absence; and (2) lumping versus splitting. We will address them in order.

PRESENCE VS. ABSENCE

We start with a logical difference between present and absent that has important psychological implications. Every environment contains a finite collection of things that are present, and an infinite set of things that are not present. Wherever you are reading this essay, for example, there are likely no giraffes in sight (as an example of something random). Thus, we have a bias to think about what is present and give little thought to what is absent (i.e., not present) because we could not possibly keep all absent things in mind. However, what is absent can be important, and we do regularly engage with things that are not present if we expect them to be present. We can notice absences, such as no echoes in the soundscape of the canyon’s rim, using predictions based on the regularities of the world. For example, we can notice the rocks that are absent at an angular unconformity because rock beds tend to continue. Thus, the abrupt end of sedimentary beds at the unconformity is a place where the pattern of beds would lead us to expect they would continue. In the absence of their continuation, the geometry requires an explanation (Kellman and Shipley, 1992). That explanation is that rocks had been located above the unconformity, but were eroded. What appears as an obvious feature of the world requires the mind noticing a pattern and then picking up on a break in the pattern. For the mind, “adding” results in something being present, which can be directly noticed. In contrast, “removing” results in absence, which can only be noticed if there remain some clues that it would be predicted to be present.

A canyon is an absence of rocks, which are otherwise predicted to be present. In the Grand Canyon, that prediction can be made from the alignment of layers on the walls of the canyon. “Seeing” that the layers across the canyon used to be connected is a form of perceptual lumping (Kellman and Shipley, 1992). Generally, when a collection of objects co-occur, the mind picks up that regularity and forms a memory of that collection (Saffran et al., 1996). That is, the mind is noticing a predictability about the world and “lumping” objects and/or events together.

LUMPING VS. SPLITTING

Just as presence and absence are related but not perfectly reciprocal in the mind, lumping and splitting are related but not mirrors of each other (see Shipley et al., 2013). Lumping versus splitting is likely familiar territory to most geologists. In almost all scientific fields, there is a tension between focusing on the big picture (“lumping”) versus the details (“splitting”). Large lumps are composed of a hierarchical nesting of smaller lumps, such that theoretical or practical decisions about how to split have direct implications for the size of the lumps.

Lumping and splitting allow the mind to carve out a piece of the world that is cognitively meaningful and manageable—not too big that it overwhelms the mental resources and not too small that it fails to include valuable information. How to lump and split is a stance adopted by a given scientist that may depend on many variables, including the goal of the study, the complexity of the problem, or preferences of the individual scientist. However, this stance is not arbitrary and it has cognitive roots in the expectations and clues that allow predictions.

LUMPING AND SPLITTING ALLOW THE MIND TO CARVE OUT A PIECE OF THE WORLD THAT IS COGNITIVELY MEANINGFUL AND MANAGEABLE—NOT TOO BIG THAT IT OVERWHELMS THE MENTAL RESOURCES AND NOT TOO SMALL THAT IT FAILS TO INCLUDE VALUABLE INFORMATION.

Mental lumping and splitting reflect different perspectives on statistical regularities in the world. Things in the world that tend to co-occur can be lumped and things that act independently should be split. The mind lumps concretely as when perception links together glimpses of an object into a whole; the mind lumps abstractly as when we form categories that allow prediction (e.g., working vs. broken machines). Thus, lumping of elements into a group occurs in cases where the elements within that groups are predictable. In contrast, splitting of elements into separate groups occurs in cases where the relationship between groups is unpredictable.

SPATIAL LUMPING AND SPLITTING

Lumping and splitting occur in space and time. We start with spatial lumping and splitting, because it is easier to explain and it may be mentally easier as well (e.g., Zacks and Tversky, 2001). In space, one can lump objects to form groups (e.g., flock of birds), and one can split an object into parts (e.g., the head, wings, and tail of a bird). Note that we can lump parts into a whole object and split groups into individual objects. In the case of the birds, the lumping of a flock reflects the regularities of birds tending to fly in groups, and the lumping into a single bird reflects the regularity of the common velocity of the various parts as they move through space together. Conversely, splitting reflects breakdown in regularity where it may be difficult to predict a feature of one part from another. For example, one may notice when birds do not fly in the same way, or how the wing moves relative to the other parts of the bird. Splitting separates objects from their surroundings, whether it is the

flock of birds from the environment or the wing from the rest of the bird.

Because lumping reflects regularities, or predictability, it is a mentally efficient way to manage information. For example, one does not need to represent every bird in a flock if one can predict what many are doing from a few. The geological term “unit” reflects the value of lumping so that careful observations at one outcrop may be applied to other outcrops of the same unit without having to engage in extensive observations at each outcrop. Lumping is based on regularities, but these can be statistical regularities rather than identical matches. Likewise, one splits when splitting leads to better predictions about the properties within the new subgroups.

Everyone can lump and split objects at levels sufficient to pick up and use the regularities. The expert can use observed regularities to lump (such as lumping Africa and South America based on coastal shape) where the novice might split, and split where the novice lumps (such as distinguishing marble and quartzite when faced with a white crystalline rock). The old adage about “the best geologist is the one who has seen the most rocks” likely reflects the skill that develops from seeing variation and regularities in rocks to be adept at lumping and splitting objects into useful categories (Holden et al., 2016).

We return to the Grand Canyon to apply these concepts of lumping and splitting. Figure 2 shows an explicit example of lumping into three categories. In this case, the geologist

has lumped all of the flat-lying Paleozoic layers, all of the gently dipping Proterozoic layers, and all of the non-layered units. Splitting, on the other hand, is demonstrated by the recognition of different layers. This example is so obvious to geologists that we do not think about it; we separate rock units even if they have the same lithology or color, by a variety of other criteria that reflect some underlying commonality.

Now consider the across-canyon correlations. The spatial filling in of absent layers across the canyon is obvious to geologists and to some, but not all, novices. What is present are distinct lithologies, arrayed as sheets, that align across the canyon. Connecting the pieces—by spatially lumping the layers on either side—is compelled by the geometry of the layers. The geometry of rocks implies predictability of rocks on either side across the divide.

TEMPORAL LUMPING AND SPLITTING

There is an analogous rationale for lumping and splitting over time. Humans do not keep track of time; we keep track of events (Gibson, 1979). For humans, events are things distinct from the surrounding time (Zacks and Swallow, 2007). Practically, what does this mean? Humans combine objects and changes over time to see a sequence of time as belonging together with a beginning, middle, and end. The lumping is based on regularity, where the predictability of what will happen next binds the event into a whole. For example, “doing the dishes” is a temporally bound event, which has internal predictability based on the regularities in the world (e.g., you cannot dry an object until it is wet). The events of gathering, washing, rising, and drying dishes can be collected together because they tend to co-occur. If you see someone apply soap to a dish, you can anticipate they will rinse it next. The internal predictability allows all the sub-events to be mentally gathered together, and also allows the mental coordination between two individuals to gracefully hand a dish from the person doing the washing to the person doing the drying in the middle of the event.

Lumping parts into whole objects can be achieved using internal consistency, which allows filling in the parts that are missing. Similarly, lumping short events into a longer event allows filling in of missing portions of the event. Both objects and events can be filled in using what is present. The evidence to trigger a filling-in inference varies from in-your-face obvious to subtle, with spatial object completion generally being more obvious than temporal event completion (Zacks and Swallow, 2007).

The lumping of time allows efficient reasoning and allows categorization about the Earth system. The geologic timescale is an important example of how spatial and temporal regularity guides identification; in this case, it is the fossil record that guides lumping. A timescale boundary occurs when the old assemblage of fossils is absent and a new assemblage is present; determining this pattern requires splitting. Whether one utilizes era, period, epoch, or stage depends on the problem that is being addressed.

There is rarely an objective instant that is the boundary between the inside and outside of an event. Even when the boundary is extended in time, it is a useful construct so the mind can treat the event as a whole. Nevertheless, the regular-

Grand Canyon’s three sets of rocks

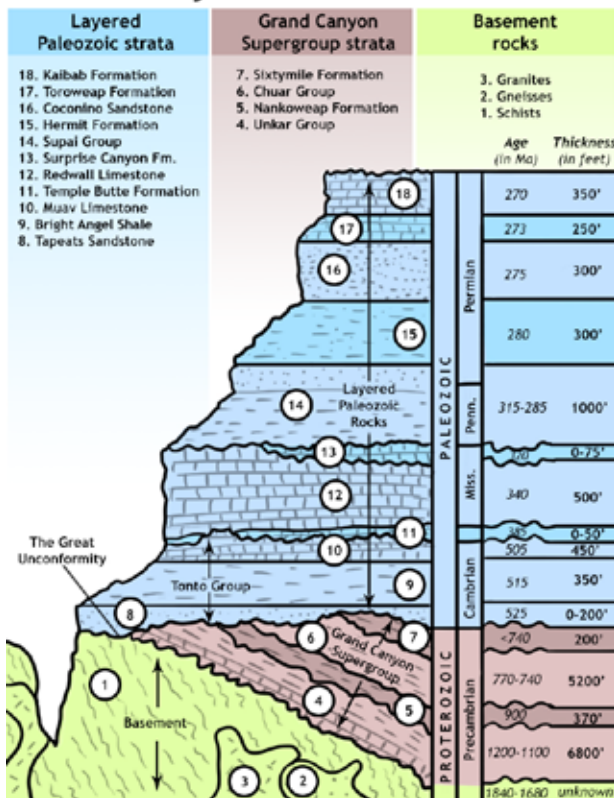


Figure 2. A schematic cross section the Grand Canyon in which lumping of the Paleozoic, Proterozoic, and non-layered Precambrian units was achieved by color coding. From C. Bentley after National Park Service. United States public domain.

ity within the event and the reduced predictability across event boundaries is constructively used by the mind and science.

LUMPING AND SPLITTING IN BOTH SPACE AND TIME

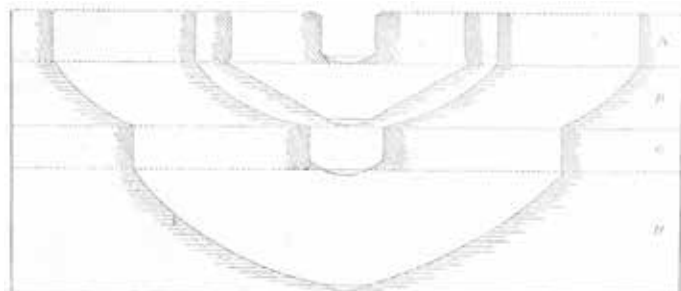
A major issue in geology is that lumping and splitting are intimately connected in both space and time. The intermixture of these concepts is ingrained in most geologists. The Cambrian, for example, is both a geological period and a stratigraphic system. Consider the Paleozoic stratigraphy of the Grand Canyon. The different rock units often look different because they were formed at different times, under different environmental conditions, at different latitudes. So when geologists invoke “space for time” substitutions (e.g., the oldest rocks are at the bottom of the canyon), they often mean that conceptual lumping in space inform lumps in time. This approach works because of the predictability, within a specified time interval, of the deposition of the sediments that would become those rocks.

Time and space also clearly overlap in unconformities (e.g., Siccar Point, Scotland; Shipley and Tikoff, 2024). The presence of unconformities, which are spatial features, has temporal implications. They are a record of missing time. Unconformities require splitting in space into different stratigraphic units and splitting in time into different events, separated by events such as uplift and erosion. In other words, both spatial and temporal predictability is disrupted by unconformities.

LUMPING AND SPLITTING IN MODELS

To more clearly show the role of lumping and splitting, we return to the concept of runnable mental models introduced by Shipley and Tikoff (2025). In cognitive science, a mental model is a mental representation of objects with their respective properties. We expand this definition to “runnable mental models” by distinguishing a representation that can be tested by mentally simulating “what happens if” to a mental model. That is, runnable mental models are analogous to an animation, which a practitioner uses to see what happens as processes within a physical space unfold over time. It is the predictability of events that allows practitioners to build runnable mental models.

Figure 3 provides a relevant example of a runnable model, from Dutton’s 1882 study of the Grand Canyon district. Four sedimentary layers of various thickness and erodibility are shown. Superimposed on this background are four different canyon profiles, each representing the canyon at a different



Development of Canyon Profiles.

Figure 3. A runnable model of canyon development, from Dutton’s (1882, plate 40) study of the Grand Canyon. A and C are more resistant sedimentary layers; B and D are more erodible sedimentary layers.

time, with the oldest profile as the shallowest one. By using the word “development,” Dutton (1882) is communicating a hypothetical “what happens” scenario as water continues to carve the canyon.

There is currently a debate going on about the incision of the Grand Canyon, in which two runnable mental models are in conflict: the young canyon model and the ancient canyon model. The young canyon model suggests that the entire canyon was cut by the southwest-flowing Colorado River in the last six million years (e.g., Pederson, 2008). The ancient canyon model suggests that a portion of the whole canyon—specifically the western part of the canyon—was cut in part in the Late Cretaceous by the northeast-flowing California River (e.g., Flowers et al., 2008; Wernicke, 2011). In this ancient canyon model, other parts of the canyon were cut in the last six million years. We offer the contrasting models not to adjudicate which is better, but rather to employ the difference to emphasize the role of the mind in lumping and splitting based on events rather than objects. Further, we have simplified the actual debate to these two simple endmembers, and we have specifically chosen to not address the implications of the paleochannels (e.g., Young and Crow, 2014) and karst hydrology (e.g., Hill and Polyak, 2020).

The young canyon model illustrates one type of challenge in runnable mental models, which is to apply a process with a slow rate to a long period of time. When asked how a particular landscape evolved, one might consider a particular process acting over geological time—river erosion produces canyons and longer erosion produces deeper canyons. It is the size of the Grand Canyon—and therefore the amount of necessary time to carve the canyon—that is a challenge to mental modeling based on human timescale events. Here, the reasoner might employ analogy to reason from what happens with small amounts of time to project to larger epochs (Tikoff and Shipley, 2024). Mentally “running” the young canyon model is essentially a uniformitarian scaling of small annual erosion to significant depths over the last six million years. In this model, the layers are mentally filled in to provide the impetus for an explanation of what is missing. Similarly, the evolution of the canyon is filled in from a river on the surface to a river a mile below the rim.

The ancient canyon runnable mental model requires splitting. The model is based on thermochronology, a type of data that is not available to the casual observer. Thermochronology is the science of estimating the time over which rocks existed at a specific temperature using the expected diffusional loss of radioactive decay products. The temperatures, in turn, can be predicted from depth in the Earth using an assumed or determined geothermal gradient. That work reveals that rocks at the bottom of the Grand Canyon have been cooling, as they would be if near the surface and not a mile under rocks, for ~70 million years (Flowers et al., 2008; Flowers and Farley, 2012). The absent, but expected, insulation of the rocks is evidence of an earlier canyon. This new data required the creation of a new mental model (Fig. 4). The spatial variability of the thermochronometric data requires splitting the canyon-forming process into three parts (three different events): the early period when much of the western part of the canyon was cut (Late Cretaceous), a middle quiescent

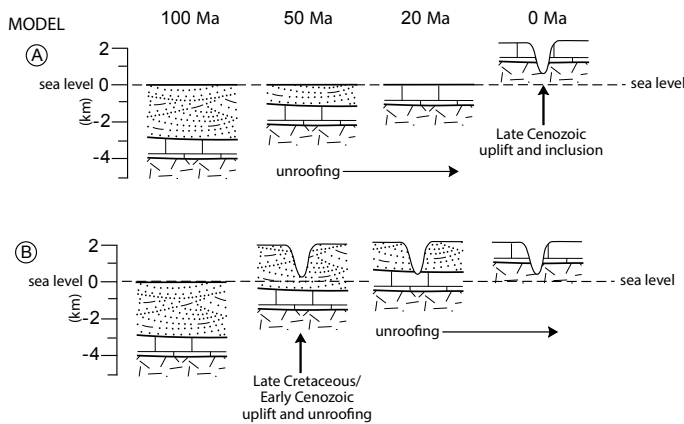


Figure 4. A schematic cartoon showing the development of (A) the young canyon and (B) the ancient canyon for the western part of the Grand Canyon. Figure modified from B. Wernicke.

period (Eocene–Oligocene), and a late period (Late Miocene–present) when other parts of the canyon were cut (Fig. 4).

These models, similar to many tectonic models, are useful because they are a claim to predictability. The young canyon and the ancient canyon are two different runnable mental models for the development of the Grand Canyon, each with a different set of predictions. The disagreement is about the temporal lumping of events: Did the erosion occur in a single event or was it split into a three-part sequence? The difficulty is that the young canyon model provides little predictability of the thermochronology data, which indicates a pre-6 Ma history to some parts of the Grand Canyon (e.g., Flowers et al., 2008; Karlstrom et al., 2014). The present continuity of the Grand Canyon suggests a single spatial unit, as indicated by our name for this grand entirety. This name, however, might bias the mind toward a runnable mental model based on a single event, and challenge the splitting into three events.

CONCLUDING THOUGHT

In these essays, we are making the case for lumping cognitive science and geology because it allows you to see regularities that would have been missed in the splitting. In this combined vision, the Grand Canyon embodies grandness by simultaneously revealing the power of water to erode vast amounts of stone and the mind’s capacity to characterize (by lumping and splitting) across space and time to grasp its story.

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New Horizons for GSA: President Nathan Niemi Outlines Vision for 2025



Dear GSA Members,

My name is Nathan Niemi, and I would like to take this opportunity to introduce myself as I step into the role of Acting President of The Geological Society of America during this somewhat unusual leadership transition at the beginning of 2025. By training, I am a field geologist. My research focuses on active tectonics, particularly in intracontinental settings where diffuse deformation extends far from plate boundaries. I have a longstanding interest in the tectonic evolution of the Basin and Range Province of the U.S. Cordillera, but I have also worked extensively on the active tectonics of the Caucasus Mountains in western Asia and the tectonic uplift of the northern Tibetan Plateau. I have been fortunate to collaborate with interdisciplinary groups of scientists on large-scale infrastructure projects, such as the construction of geodetic networks in the western U.S. that eventually evolved into EarthScope, as well as working in Asia with climate scientists and in the western U.S. with mammal ecologists.

For most of my professional career, I have been on the faculty of the Department of Earth and Environmental Sciences at the University of Michigan, where I currently serve as the Henry Pollack Professor and Director of the University of Michigan Camp Davis Rocky Mountain Field Station.

My connection to GSA began over 30 years ago, when I drove from upstate New York to Boston in a 15-passenger van full of students to attend the annual GSA Meeting in 1993. GSA Graduate Student Research Grants supported my dissertation research, and GSA meetings—especially the 2000 meeting in Reno, Nevada, and its associated field trips—were crucial to my growth as a scientist and to expanding my professional network. I have continued to stay involved with GSA throughout my career, serving on the Research Grants Committee, Publications Committee, Nominations Committee, an ad hoc committee to improve diversity in awards and nominations, multiple Division and GSA awards committees, GSA Council, and the GSA Executive Committee. I am excited to take on the opportunity to lead GSA for the next 18 months and give back to the Society, which has provided so much to me throughout my career.

I especially want to thank Chuck Bailey and Mark Little, who extended their leadership service to GSA for an additional six months. Chuck brought a wealth of energy, ideas, and humor to his term as President (as anyone who attended his Presidential Address at GSA Connects in Anaheim can attest!). In particular, Chuck finalized the sale of ~100 Mountain Press titles to GSA this fall, including the *Geology Rocks!*, *Roadside Geology*, and *Geology Underfoot* series. The overlap between GSA membership and the authorship of these public-facing book series is significant, and this acquisition opens new avenues for GSA to engage in public-facing science. The response from GSA members to this decision has been overwhelmingly positive. I was thrilled to see and hear firsthand the enthusiasm from members at the GSA booth, which showcased the new titles, at the AGU meeting in Washington, D.C., in December.

Chuck also oversaw two successful GSA Connects meetings, in Pittsburgh and Anaheim, implemented a redesign of *GSA Today*, continued the onboarding and development of GSA's then-new ED and CEO, positioned GSA as the official sponsor of the U.S. Geoheritage Committee, and worked tirelessly to enhance and expand GSA membership. He will continue serving GSA in the role of Past President, focusing his efforts on geoheritage and geoscience digital data preservation and dissemination.

The exciting changes Chuck and Mark initiated provide a path for some of the important directions GSA will pursue in the coming year. The acquisition of the Mountain Press series is a bold change that opens up multiple new opportunities for GSA, including expanding the Society's footprint in public-facing science. Beyond editing and publishing the books, GSA will have a new presence in National Parks, through Natural History Association bookstores, and in independent booksellers. These opportunities align well with the integration of the U.S. Geoheritage Committee into GSA. Continuing and integrating the operations and publications from Mountain Press to increase GSA's impact in public-facing science, while leveraging this acquisition to support GSA's other programs and missions, will be a crucial short-term goal.

GSA is also in the first year of a five-year, \$5 million grant from the National Science Foundation to support On To the Future (OTF), GSA's program to support and expand the diversity of students engaged in GSA by providing travel funding to meetings, GSA memberships, mentorship by GSA members, and special sessions with GSA leadership. The ultimate goal of OTF is to expand and diversify the ranks of professional geoscientists. Founded during GSA's 125th anniversary celebration in 2013, securing five additional years of funding to grow this program is a significant achievement. Together with investments and improvements made to the GSA Center for Professional Excellence, GSA is committed to growing and diversifying the geoscience workforce to meet the anticipated shortage of geoscientists—at a time when earth

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scientists are crucial to addressing some of the most important challenges facing society, including water management, critical minerals, and climate change.

As I write this note in late December, my news alerts are abuzz about an imminent government shutdown. I have also received notices about the reorganization of NSF's EAR disciplinary programs, and meetings with colleagues at AGU foreshadow major changes in leadership at governmental science agencies in the coming months. GSA is in the process of filling a Director of Public Policy position, to be based in Washington, D.C. It could not be a more auspicious time to fill this role. We will work diligently to onboard the new Director and begin the vital work of advocating for the earth sciences and their scientific and societal importance.

This coming year will also provide an important opportunity to envision and develop a new permanent headquarters for GSA. Seven years ago, GSA Council embarked on a thoughtful and deliberative process to determine whether GSA's 50-year-old facility in Boulder, Colorado, continued to meet the needs of the Society, its staff, and its members. The decision was ultimately made to sell the headquarters building to the Boulder Housing Authority (BHA), which will redevelop the building into affordable housing for the city of Boulder. The COVID-19 pandemic further changed the nature of the workspace GSA needs, and we have been fortunate to lease our former building from BHA for the past few years. Now, however, is the time to establish a new home for GSA that more effectively meets the needs of the Society's current staff and membership. We are committed to keeping GSA's headquarters in the Front Range and look forward to sharing our plans for a new home.

Of course, presenting outstanding meetings and publishing world-class journals to share and disseminate scientific knowledge remain at the core of GSA's mission. Hopefully, you have already noticed some of the changes underway to improve GSA Connects, strengthen and broaden our Section Meetings, and engage Divisions even more directly in our events. We will con-

tinue to support Penrose Conferences and Thompson Field Forums as venues to present and debate cutting-edge scientific ideas, while also exploring new ways to engage GSA members in field trips and expeditions beyond those associated with our established conferences.

I look forward to seeing you at some of the upcoming events GSA has planned for this year, including five Section Meetings (Southeastern in Harrisonburg, Virginia; Northeastern/North-Central in Erie, Pennsylvania; South-Central in Conway, Arkansas; Rocky Mountain in Provo, Utah; and Cordilleran in Sacramento, California), a GSA Penrose Conference on Eclogites in Space and Time: Bridging the Micro to Planetary Scales, a Thompson Field Forum on The Geology of Cuba: Key for the Tectonic Evolution of the Caribbean-North American Plates, and, of course, GSA's flagship Connects 2025 meeting in San Antonio, Texas. The local organizing committee is already hard at work preparing for this meeting, and we have cast a wide net to put together the most engaging and scientifically diverse meeting possible. Themes for Connects 2025 include Energy and Innovations in the 21st Century, Geology without Boundaries, and From Earth to the Cosmos: Geoscience Beyond Our Planet. I am excited that GSA is pursuing themes relevant to the conference location in San Antonio while strongly reflecting GSA's overarching mission to advance geoscience research and discovery, provide service to society, and be stewards of the Earth.

I hope you are able to catch up with friends and colleagues at one of GSA's events this year; attend a scientific or Penrose session that piques your interest; or participate in a noontime talk or field trip that expands your scientific horizons. I will be attending many of GSA's events this year, and I look forward to talking with you about your vision for GSA, finding out what we are doing well to support our member community, and learning where we can improve. If we are not able to cross paths in person, please feel free to connect with me via email (president@geosociety.org) to share your thoughts or facilitate further conversation.

2024 Outstanding Earth Science Teacher Awards

The National Association of Geoscience Teachers (NAGT) has announced the 2024 Outstanding Earth Science Teacher (OEST) Awards. This annual award recognizes excellence in earth science teaching at the pre-college level. GSA awards the section recipients US\$700 in travel money to attend a GSA meeting and complimentary GSA membership for three years. State winners receive a one-year complimentary GSA membership.

SECTION WINNERS

- **Eastern Section:** David W. Curry, *Newtown Middle School, Pennsylvania*
- **Far Western Section:** Kellyn Hardin, *Porterville High School, California*
- **Northeastern Section:** Anna V. Cotton, *Martha's Vineyard Regional High School, Massachusetts*
- **Pacific Northwest Section:** Bryon Free, *SCIO High School, Oregon*
- **Rocky Mountain Section:** Lesley Urasky, *Saratoga Middle High School, Wyoming*
- **South-Central Section:** Tabetha Hollin, *Ouachita River School District, Acorn Campus, Arkansas*
- **Southeastern Section:** Alicia (Ali) Pressel, *Creekside High School, Florida*

Read more about the section and state winners at <https://nagt.org/nagt/awards/oest/2024.html>

STATE WINNERS

- **Alabama:** Cinthia Moore
- **Arizona:** Lisa Chavez
- **British Columbia:** Clayton Fox
- **Colorado:** Matt Thomas
- **Georgia:** Christine Wallace
- **Montana:** Tom Caffrey
- **New Jersey:** Simone Cella Miller
- **New York:** Michael Fodera
- **North Carolina:** Joshua Roberts
- **South Carolina:** Jimmy Woods
- **Virginia:** Madeleine Rushing Yiznitsky



GSA Division Awards

CONTINENTAL SCIENTIFIC DRILLING DIVISION

Distinguished Lecturers

Nominations due: 25 March

Submit to: Brett M. Carpenter, brett.carpenter@ou.edu

Three awardees will be outstanding scientists who, through a series of lectures at academic institutions, GSA events, and public talks during the year of the award, highlight the outstanding discoveries and science undertaken through continental drilling.

More information: <https://community.geosociety.org/continentaldrilling/awards/distinguished-lecturer-awards>

Mid-Career Award

Nominations due: 31 March

Submit to: Michael.mcglue@uky.edu

The Mid-Career Award is designed to recognize remarkable contributions made by our mid-career members and encourage their continued success. The qualifications for a competitive nominee will be:

1. A mid-career scientist within 11–20 years of receiving the terminal degree.
2. Outstanding contributions to earth and environmental science using continental scientific drilling/coring/subsurface sampling, emphasizing breadth and impact of research, student mentoring successes, and demonstrable efforts at inclusion or community building.
3. Active member of the CSD Division.

More information: <https://community.geosociety.org/continentaldrilling/awards/mid-career-award>

ENERGY GEOLOGY DIVISION

Gilbert H. Cady Award

Nominations due: 1 March

Submit to: Justin Birdwell, jbirdwell@usgs.gov

The Gilbert H. Cady Award, first presented in 1973, recognizes outstanding contributions in the field of coal geology that advance the science both within and outside of North America.

More information: <https://community.geosociety.org/energydivision/awards/cady>

Curtis-Hedberg Award

Nominations due: 31 July

Submit to: Justin Birdwell, jbirdwell@usgs.gov

The Curtis-Hedberg Award will be considered annually in accordance with the bylaws of the Society. The award will be made for outstanding contributions in the field of petroleum geology.

More information: <https://community.geosociety.org/energydivision/awards/curtishedberg>

ENVIRONMENTAL AND ENGINEERING GEOLOGY DIVISION

Edward B. Burwell, Jr. Award

Nominations due: 1 February

Submit to: Wendy Zhou, wzhou@mines.edu

The Edward B. Burwell, Jr. Award, established by the Division in 1968, honors the memory of one of the founding members of the Division and the first chief geologist of the U.S. Army Corps of Engineers. This award is made to the author or authors of a published paper of distinction that advances knowledge concerning principles or practice of engineering geology, or of related fields of applied soil or rock mechanics where the role of geology is emphasized. The paper that receives the award must: (1) deal with engineering geology or a closely related field; and (2) have been published no more than five years prior to its selection. There are no restrictions on the publisher or publishing agency of the paper.

More information: <https://community.geosociety.org/eegdivision/awards/burwell>

Distinguished Practice Award

Nominations due: 31 March

Submit to: Ann Youberg, ayouberg@arizona.edu

The Distinguished Practice Award recognizes outstanding individuals for their continuing contributions to the technical and/or professional stature of environmental and/or engineering geology. A nominee need not be a member of the EEGD, but must have made a major contribution to environmental and/or engineering geology in North America. Each nomination must be accompanied by a written citation.

More information: <https://community.geosociety.org/eegdivision/awards/new-item3>

GEOARCHAEOLOGY DIVISION

Rip Rapp Archaeological Geology Award

Nominations due: 15 February

Submit to: gsa.agd@gmail.com

In 1983, the Division established the Archaeological Geology Division Award for outstanding contributions to the interdisciplinary field of archaeological geology. In 1993, the award was officially renamed the Rip Rapp Archaeological Geology Award in honor of George “Rip” Rapp, Jr. Rapp was one of the primary individuals responsible for establishment of the Division and generously established a Division award fund with the GSA Foundation. Donald L. Johnson was the first recipient of the renamed award. Nominations should include a biographical sketch, a statement of outstanding achievements, and a selected bibliography of the nominee.

More information: <https://community.geosociety.org/geoarchdivision/awards/riprapp>

Claude C. Albritton, Jr. Award**Nominations due:** 15 April**Submit to:** gsa.agd@gmail.com

The Albritton award fund provides scholarships and fellowships for graduate students in the earth sciences or archaeology for research. Recipients of the award are students who have (1) an interest in achieving a master's degree or Ph.D. in earth sciences or archaeology; (2) an interest in applying earth science methods to archaeological research; and (3) an interest in a career in teaching and academic research. Awards in the amount of US\$650 are given in support of thesis or dissertation research, with emphasis on the field and/or laboratory aspects of the research.

More information: <https://community.geosociety.org/geoarchdivision/awards/student/albritton>**Richard Hay Student Paper/Poster Award****Nominations due:** 15 August**Submit to:** gsa.agd@gmail.com

At the 2006 Annual Meeting in Philadelphia, Pennsylvania, USA, the Geoarchaeology Division's management board elected to rename the student travel award for a distinguished scientist in archaeological geology. After consulting with his family, the award was officially named the Richard Hay Student Paper/Poster Award. Hay was a longstanding member of the Division and had a long and distinguished career in sedimentary geology, mineralogy, and archaeological geology. He is particularly well known for his work on the Olduvai Gorge and Laetoli Hominid-bearing sites and was awarded the Division's Rip Rapp Award in 2000. The Division is proud to have our student travel award bear his name.

The award is a travel grant for a student (undergraduate or graduate) presenting a paper or poster at GSA Connects. The grant is competitive and will be awarded based on the evaluation of the scientific merit of the research topic and the clarity of an expanded abstract for the paper or poster prepared by a student for presentation in the Division's technical session at the meeting.

More information: <https://community.geosociety.org/geoarchdivision/awards/student/hay>**GEOBIOLOGY AND GEOMICROBIOLOGY DIVISION****Distinguished Career Award****Nominations due:** 15 February**Submit to:** <https://community.geosociety.org/gbgm/awards/nominations>

The GSA Geobiology and Geomicrobiology Division recognizes three exceptional researchers to receive pre-tenure, post-tenure, and distinguished career awards (or equivalent career stage in a non-tenure-track position) each year. Final nominees will be selected by the GBGM Division representation committee from amongst this pool and awarded based on the nominee's complete portfolio (research, mentoring, service, and leadership).

More information: <https://community.geosociety.org/gbgm/awards/award1>**Excellence Awards****Nominations due:** 15 February**Submit to:** <https://community.geosociety.org/gbgm/awards/nominations>

There are two Excellence Awards: the Pre-Tenure Excellence Award and the Post-Tenure Excellence Award. The nominations for the Pre- and Post-Tenure Awards will be solicited from current Division members and be based, specifically, on excellence in research, mentoring, service, and leadership for the geobiology and geomicrobiology community (appropriate to the candidate's position). From these nominations, the Division management board and appointed Division committee of awards will come to a consensus on the awardees. The awards will consist of both a plaque and an honorary membership to the Division should the awardee not be a current member.

More information: <https://community.geosociety.org/gbgm/awards/award2>**GEOINFORMATICS AND DATA SCIENCE DIVISION****M. Lee Allison Award for Geoinformatics****Nominations due:** 28 February**Submit to:** <https://forms.office.com/r/CEBjb4kWZk>

The M. Lee Allison Award for Geoinformatics will be made to an individual who has contributed in an outstanding manner to geology through the application of the principles of geoinformatics. The individual will be a member of GSA. Normally, a single award will be made annually, but in any particular year it may be withheld if the management board decides that no suitable candidate has been nominated.

More information: <https://community.geosociety.org/geoinformaticsdivision/awards>**GEOLOGY AND HEALTH DIVISION****Meritorious Service Award****Nominations due:** 28 February**Submit to:** Rachel Coyte, rachel.coyte@nmt.edu

The award recognizes outstanding contributions to the mission of the Geology and Health Scientific Division. The awardee must be a member of the Geology and Health Scientific Division.

More information: <https://community.geosociety.org/geologyhealthdivision/events32/upcoming-awards>**GEOLOGY AND SOCIETY DIVISION****E-an Zen Fund for Geoscience Outreach Grant****Applications due:** 10 July**Submit to:** Lily Jackson, Lily.Jackson@uwyo.edu

This is a grant opportunity for Geology and Society Division members interested in developing innovative methods to bring geoscience knowledge to public audiences. Two grants of US\$1,500 each will be awarded to fund projects designed by the applicants to communicate geoscience information to a lay audience with the goal of increasing the understanding of geoscience and its impact on society among nongeoscientists and decision-makers. Applicants may apply as individuals or as groups, depending on the

best fit for their project design. While the grant application requirements are intentionally broad to encourage creative thinking and innovation, review of applications will emphasize the potential for impacting communities that traditionally have not had significant exposure to the geosciences.

More information: <https://community.geosociety.org/gsocdivision/news/zenfund>

GEOPHYSICS AND GEODYNAMICS DIVISION

George P. Woollard Award

Nominations due: 1 February

Submit to: Anjana K. Shah, ashah@usgs.gov

The George P. Woollard Award recognizes outstanding contributions to geology through the application of the principles and techniques of geophysics. A highlight of the presentation is the honorary George P. Woollard Technical Lecture by the recipient before the award ceremony. To submit a nomination, please provide the nominee's name, contact information, and a short paragraph stating the nominee's qualifications, including a short summary of their specific work or outcomes and how these have contributed to geology. A curriculum vitae, if available, helps, but is not required. Award funds are administered by the GSA Foundation.

More information: <https://community.geosociety.org/geophysicsdivision/awards/woollard>

The Seth and Carol Stein Early Career Award in Geophysics and Geodynamics

Nominations due: 1 February

Submit to: Anjana K. Shah, ashah@usgs.gov

The Seth and Carol Stein Early Career Award in Geophysics and Geodynamics is in recognition of significant contributions to geology through the application of geophysics and geodynamics by a young scientist of outstanding ability. Nominated candidates must (1) be either no more than 35 years old or no more than six years beyond receiving a Ph.D. or equivalent; (2) be a current GSA Geophysics and Geodynamics Division member in good standing and have been a Division member in the prior two years; and (3) have either a published or in-press paper in a GSA journal, or have presented a talk or poster at GSA Connects or a GSA Section Meeting. The primary nominator must also be a member of GSA's Geophysics and Geodynamics Division. The nominator should submit the cover sheet (available on the website), the candidate's curriculum vitae, and 2–3 letters of support, preferably in a single PDF.

More information: <https://community.geosociety.org/geophysicsdivision/awards/early-career-award-steins>

GEOSCIENCE EDUCATION DIVISION

Biggs Earth Science Teaching Award

Nominations due: 1 March

Submit to: <https://community.geosociety.org/geodivision/awards/biggsaward>

The Biggs Award recognizes innovative and effective teaching in college-level earth science. Earth science instructors and faculty members from any academic institution engaged in undergraduate education who have been teaching

full time for 10 years or fewer are eligible (part-time teaching is not counted in this requirement). Both peer- and self-nominations will be accepted. This award, administered by the GSA Foundation, is made possible by support from the Donald and Carolyn Biggs Fund, the GSA Geoscience Education Division, and GSA's Education and Outreach Program. An additional travel reimbursement is also available to the recipient to enable him or her to attend the award presentation at GSA Connects.

More information: <https://community.geosociety.org/geodivision/awards/biggsaward>

HISTORY AND PHILOSOPHY OF GEOLOGY DIVISION

Mary C. Rabbitt History and Philosophy of Geology Award

Nominations due: 15 February

Submit to: Christopher Hill, chill2@boisestate.edu

The Mary C. Rabbitt History and Philosophy of Geology Award is presented annually to an individual for exceptional scholarly contributions of fundamental importance to our understanding of the history of the geological sciences. Achievements deserving of the award include, but are not limited to, publication of papers or books that contribute new and profound insights into the history of geology based on original research or a synthesis of existing knowledge. Neither the nominator nor the nominee need be a member of the Division or of GSA. The nomination packet should include (1) a letter detailing the contributions that warrant the award; and (2) the nominee's current curriculum vitae, including name, title, affiliation, education, degrees, honors and awards, major career events, and contributions that warrant the award. Monies for the award are administered by the GSA Foundation.

More information: <https://community.geosociety.org/histphildiv/awards/rabbitt>

Gerald M. and Sue T. Friedman Distinguished Service Award

Nominations due: 15 February

Submit to: Christopher Hill, chill2@boisestate.edu

The Gerald M. and Sue T. Friedman Distinguished Service Award, established in 2005, is presented for exceptional service to the advancement of our knowledge of the history and philosophy of the geological sciences. Neither the nominator nor the nominee has to be a member of the Division or of GSA. The service to the history and philosophy of geology may include, but is not limited to, the discovery of and making available rare source materials; comprehensive bibliographic surveys; organizing meetings and symposia in the history and philosophy of geology; and exceptional service to the Division. The nomination packet should include (1) a letter detailing the contributions that warrant the award; and (2) the nominee's current curriculum vitae, including name, title, affiliation, education, degrees, honors and awards, major career events, and the contributions that warrant the award.

More information: <https://community.geosociety.org/histphildiv/awards/dsa>

History and Philosophy of Geology Student Award**Nominations due:** 9 August**Submit to:** Christopher Hill, chill2@boisestate.edu

The History and Philosophy of Geology Division provides a student award in the amount of US\$1,000 for a paper to be given at GSA Connects. Awards may also be given for second place. Oral presentations are preferred. Faculty advisors may be listed as second author, but not as the lead author of the paper. The proposed paper may be (1) a paper in the history or philosophy of geology; (2) a literature review of ideas for a technical work or thesis/dissertation; or (3) some imaginative aspect of the history or philosophy of geology we have not thought of before. Students should submit an abstract of their proposed talk and a 1,500–2,000-word prospectus for consideration. The Awards Committee will assist the winner(s) with review of abstracts facilitating presentation according to GSA standards.

Currently enrolled undergraduates and graduate students are eligible, as are students who received their degrees at the end of the fall or spring terms immediately preceding GSA Connects. The award is open to all students regardless of discipline, provided the proposed paper is related to the history or philosophy of a geological idea/person.

More information: <https://community.geosociety.org/histphildiv/awards/student>**HYDROGEOLOGY DIVISION****Birdsall-Dreiss Distinguished Lecturer****Nominations due:** 1 February**Submit to:** gsa.hydro.nominations@gmail.com

The lecturer shall be selected based on outstanding contributions to hydrogeology or a closely related field through original research and public communication, and the potential for continued contributions to the profession. The nomination package must include at least one letter of nomination, a copy of the nominee's curriculum vitae, and at least two supporting letters describing the significant contributions or accomplishments constituting the basis for the nomination.

More information: <https://community.geosociety.org/hydrodivision/awards/birdsall>**George Burke Maxey Distinguished Service Award****Nominations due:** 1 February**Submit to:** gsa.hydro.nominations@gmail.com

The award will be made in recognition of distinguished personal service to the hydrogeology profession and to the Hydrogeology Division. The recipient must be a member of the Hydrogeology Division and not have previously received the award. Please submit a letter of nomination that describes the distinguished service that warrants the nomination. Supporting letters are helpful but not required.

More information: <https://community.geosociety.org/hydrodivision/awards/serviceaward>**Kohout Early Career Award****Nominations due:** 1 February**Submit to:** gsa.hydro.nominations@gmail.com

The award will be presented to a distinguished early career scientist (35 years of age or younger throughout the year in which the award is to be presented, or within five years of receiving their highest degree or diploma) for outstanding achievement in contributing to the hydrogeologic profession through original research and service, and for the demonstrated potential for continued excellence throughout their career. The nomination package must include (1) at least one letter of nomination with a description of the significant contributions or accomplishments; (2) a copy of the nominee's curriculum vitae with complete bibliography; and (3) at least four supporting letters.

More information: <https://community.geosociety.org/hydrodivision/awards/kohout>**O.E. Meinzer Award****Nominations due:** 1 February**Submit to:** gsa.hydro.nominations@gmail.com

The O.E. Meinzer Award recognizes the author or authors of a publication or body of publications that have significantly advanced the science of hydrogeology or a closely related field.

The nomination must cite the publication(s) on which the nomination is based and describe the role of the publication(s) in advancing hydrogeology or a closely related discipline. Inclusion of up to three additional third-party letters in support of the nomination is encouraged.

More information: <https://community.geosociety.org/hydrodivision/awards/meinzer>**Schwartz Award for Excellence in Mentoring and Education****Nominations due:** 1 February**Submit to:** gsa.hydro.nominations@gmail.com

The Schwartz Award for Excellence in Mentoring and Education will be considered annually in accordance with the bylaws of the Society. The award will be made to an individual (not multiple or group awardees) in recognition of distinguished personal service to the hydrogeology profession and to the Hydrogeology Division with respect to mentoring and education. The letter of nomination should describe the distinguished service in mentoring and education that warrants the nomination. Supporting letters are helpful but not required.

More information: <https://community.geosociety.org/hydrodivision/awards/schwartz2022>**KARST DIVISION****Karst Division Meritorious Contribution Award****Nominations due:** 31 March**Submit to:** awards.gsakarst@gmail.com;CC Sierra Heimel, heimelsierra@gmail.com

This award is granted to the author of a published paper or body of work of distinction that has significantly influenced the intellectual direction of karst or broadly enhanced

the knowledge of the discipline. If you are submitting a self-nomination, please include a letter of recommendation from a karst professional that can attest to your qualifications. Nominees do not need to be Karst Division members to be eligible for these awards, but it does add merit to the nomination.

Code of Ethics & Professional Conduct.”

More information: <https://community.geosociety.org/karstdivision/awards/new-item>

Karst Division Early Career Award

Nominations due: 31 March

Submit to: awards.gsakarst@gmail.com;

CC Sierra Heimel, heimelsierra@gmail.com

This award is presented to a distinguished scientist (35 or younger throughout the year in which the award is to be presented, or within 5 years of their highest degree or diploma) for outstanding achievement in contributing to the karst profession through original research and service, and for the demonstrated potential for continued excellence throughout their career. If you are submitting a self-nomination, please include a letter of recommendation from a karst professional that can attest to your qualifications. Nominees do not need to be Karst Division members to be eligible for these awards, but it does add merit to the nomination.

More information: <https://community.geosociety.org/karstdivision/awards/new-item>

Karst Division Distinguished Service Award

Nominations due: 31 March

Submit to: awards.gsakarst@gmail.com;

CC Sierra Heimel, heimelsierra@gmail.com

This highly esteemed award is given in recognition of distinguished personal service to the karst profession and to the Karst Division. If you are submitting a self-nomination, please include a letter of recommendation from a karst professional that can attest to your qualifications. Nominees do not need to be Karst Division members to be eligible for these awards, but it does add merit to the nomination.

More information: <https://community.geosociety.org/karstdivision/awards/new-item>

LIMNOGEOLOGY DIVISION

Israel C. Russell Award

Nominations due: 15 February

Submit to: David Finkelstein, finkelstein@hws.edu

The Israel C. Russell Award is awarded for major achievements in limnogeology through contributions in research, teaching, and service. Nominations should consist of a letter describing the nominee's accomplishments in the field of limnogeology (broadly defined and including limnogeology, limnology, and paleolimnology), service to students and teaching, and contributions to GSA, as well as a curriculum vitae.

More information: <https://community.geosociety.org/limnogeologydivision/awards/russell>

Kerry Kelts Research Award

Nominations due: 15 February

Submit to: Jason Price, jasonrprice01@gmail.com

The Kerry Kelts Research Award is for undergraduate or graduate student research related to limnogeology, limnology, or paleolimnology.

More information: <https://community.geosociety.org/limnogeologydivision/awards/kerrykelts>

MINERALOGY, GEOCHEMISTRY, PETROLOGY, AND VOLCANOLOGY (MGPV) DIVISION

MGPV Distinguished Geological Career Award

Nominations due: 31 March

Submit to: J. Alex Speer, jaspeer@minsocam.org

The MGPV Distinguished Geological Career Award will go to an individual who, throughout his/her career, has made distinguished contributions in one or more of the following fields of research: mineralogy, geochemistry, petrology, or volcanology, with emphasis on multidisciplinary, field-based contributions. Nominees need not be citizens or residents of the United States, and membership in The Geological Society of America is not required. The award will not be given posthumously.

More information: <https://community.geosociety.org/mgpvdivision/awards/dgca>

Early Geological Career Award

Nominations due: 31 March

Submit to: J. Alex Speer, jaspeer@minsocam.org

This award will go to an individual near the beginning of his/her professional career who has made distinguished contributions in one or more of the following fields of research: mineralogy, geochemistry, petrology, or volcanology, with emphasis on multidisciplinary, field-based contributions. Nominations are restricted to those who are within eight years past the award of their final degree. Extensions of up to two years will be made for nominees who have taken career breaks for family reasons or caused by serious illness. Nominees need not be citizens or residents of the United States, and membership in The Geological Society of America is not a requirement. The award will not be given posthumously.

More information: <https://community.geosociety.org/mgpvdivision/awards/earlycareer>

PLANETARY GEOLOGY DIVISION

G.K. Gilbert Award

Nominations due: 28 February

Submit to: Marisa Palucis, marisa.c.palucis@dartmouth.edu

The G.K. Gilbert Award will be considered annually in accordance with the bylaws of the Society. The award will be made for outstanding contributions to the solution of a fundamental problem(s) of planetary geology in its broadest sense, including planetary geology, geochemistry, mineralogy, petrology, and tectonics, geophysics, and the field of meteoritics. Such contributions may consist either of a single outstanding publication, or a series of publications that have had great influence on the field.

The award is named for G.K. Gilbert, who over one hundred years ago clearly recognized the importance of a planetary perspective in solving terrestrial geological problems. **More information:** <https://community.geosociety.org/pgd/awards/gilbert>

Pete Mouginis-Mark Prize in Planetary Volcanology Nominations due: 19 June

Submit to: Marisa Palucis, marisa.c.palucis@dartmouth.edu

The Pete Mouginis-Mark Prize in planetary volcanology recognizes outstanding undergraduate and graduate student presentations in planetary volcanology (talks or posters) at the annual GSA Connects meeting. Planetary volcanology, for the purpose of this prize, is defined as research into volcanoes and volcanic processes on the planets (Mercury, Venus, Mars, Moon), asteroids, or the moons of the outer planets. Volcano studies may include the geomorphology and tectonics of summit craters, the lava flows on their flanks, and the deformation of the flanks. Volcanic processes may include numerical modeling of eruptions, as well as petrologic studies of samples from known volcanic areas of the Moon, Mars or asteroids. Remote sensing (spectral, radar, gravity) of volcanoes and their products is also appropriate. Studies of terrestrial volcanoes and volcanic processes are only eligible if the primary focus is on extraterrestrial volcanism. **More information:** <https://community.geosociety.org/pgd/awards/mouginis-mark-prize>

Ronald Greeley Award for Distinguished Service Nominations due: 15 August

Submit to: Jennifer Piatek, piatekjel@ccsu.edu

In 2011, the Planetary Geology Division (PGD) established the Ronald Greeley Award for Distinguished Service. This award may be given to those members of the PGD, and those outside of the Division and GSA, who have rendered exceptional service to the PGD for a multi-year period. The award is not open to currently serving members of the management board but may be awarded to past members of the management board who have provided exceptional service to the PGD after their term on the management board has ended. Nominations for the award, which should include a description of what the nominee has given to the PGD community, may be made by any PGD member to the management board.

More information: <https://community.geosociety.org/pgd/awards/greeley>

Eugene and Carolyn Shoemaker Impact Cratering Award

Nominations due: 16 August

Submit to: https://www.lpi.usra.edu/science/kring/Awards/Shoemaker_Award/

The Shoemaker Award is for undergraduate or graduate students, of any nationality, working in any country, in the disciplines of geology, geophysics, geochemistry, astronomy, or biology. The award, which will include US\$2,500, is to be applied to the study of impact craters, either on Earth or on the other solid bodies in the solar system. Areas of study may include but shall not necessarily be limited to: impact

cratering processes; the bodies (asteroidal or cometary) that make the impacts; or the geological, chemical, or biological results of impact cratering.

More information: <https://community.geosociety.org/pgd/awards/shoemaker>

QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION

Kirk Bryan Award for Research Excellence Nominations due: 1 February

Submit to: Lisa Ely, lisa.ely@cwu.edu

The Kirk Bryan Award is bestowed upon the author or authors of a published paper of distinction advancing the science of geomorphology or some related field, such as Quaternary geology. The paper constituting the basis of the award must fulfill the following requirements: (1) the paper will deal with geomorphology or with a bordering field; and (2) the paper will have been published not more than five years prior to its selection for the award. Nominations should include (1) a letter (1–3 pages long) by the chief nominator outlining the significance and importance of the nominated publication; (2) a copy of the publication; (3) reviews of the publications that have appeared in journals, newsletters, or books (if any); and (4) one or more letters from other supporters of the nomination. Please submit electronically unless hardcopy previously approved.

More information: <https://community.geosociety.org/qggdivision/awards/kirkbryanaward>

Distinguished Career Award

Nominations due: 1 April

Submit to: Lisa Ely, lisa.ely@cwu.edu

The Distinguished Career Award is presented annually to a Quaternary geologist or geomorphologist who has demonstrated excellence in their contributions to science.

Nominations should include (1) a brief biographical sketch; (2) a statement of no more than 200 words describing the candidate's scientific contributions to Quaternary geology and geomorphology; (3) a selected bibliography of no more than 20 titles; and (4) a minimum of four letters from colleagues supporting the nomination. Please submit electronically unless hardcopy previously approved.

More information: <https://community.geosociety.org/qggdivision/awards/distinguished-career>

Farouk El-Baz Award for Desert Research

Nominations due: 1 April

Submit to: Karen Gran, kgran@d.umn.edu

The Farouk El-Baz Award for Desert Research rewards excellence in desert geomorphology research worldwide. It is intended to stimulate research in desert environments by recognizing an individual whose research has significantly advanced the understanding of the Quaternary geology and geomorphology of deserts. Although the award primarily recognizes achievement in desert research, the funds that accompany it may be used for further research. The award is normally given to one person but may be shared by two people if the recognized research was the result of a coequal

partnership. Any scientist from any country may be nominated. Because the award recognizes research excellence, self-nomination is not permitted. Neither nominators nor nominees need be GSA members. Nominations should include (1) a statement of the significance of the nominee's research; (2) a curriculum vitae; (3) letters of support; and (4) copies of no more than five of the nominee's most significant publications related to desert research. Please submit electronically unless hardcopy previously approved. Monies for the award are derived from the annual interest income of the Farouk El-Baz Fund, administered by the GSA Foundation. **More information:** <https://community.geosociety.org/qggdivision/awards/el-baz>

SEDIMENTARY GEOLOGY DIVISION

Laurence L. Sloss Award for Sedimentary Geology

Nominations due: 15 February

Submit to: Joel Saylor, jsaylor@eoas.ubc.ca

The Laurence L. Sloss Award is given annually to a sedimentary geologist whose lifetime achievements best exemplify those of Larry Sloss—i.e., achievements that contribute widely to the field of sedimentary geology and service to GSA. Submit (1) a cover letter describing the nominee's accomplishments in sedimentary geology and contributions to GSA; (2) a curriculum vitae; and (3) any additional supporting letters electronically. Nomination materials remain active for three years. Monies for the award are derived from the annual interest income of the Laurence L. Sloss Award for Sedimentary Geology Fund, administered by the GSA Foundation.

More information: <https://community.geosociety.org/sedimentarygeologydiv/awards/sloss>

Sedimentary Geology Division and Structural Geology and Tectonics Division Joint Award:

Stephen E. Laubach Structural Diagenesis Research Award

Nominations due: 1 May

Submit to: <https://community.geosociety.org/sedimentarygeologydiv/awards/stephen-e-laubach>

The Stephen E. Laubach Structural Diagenesis Research Award promotes research combining structural geology and diagenesis and curriculum development in structural diagenesis. This award addresses the rapidly growing recognition that fracturing, cement precipitation and dissolution, evolving rock mechanical properties, and other structural diagenetic processes can govern recovery of resources and sequestration of material in deeply buried, diagenetically altered and fractured sedimentary rocks. The award highlights the growing need to break down disciplinary boundaries between structural geology and sedimentary petrology, exemplified by the work of Dr. Stephen Laubach and colleagues. Graduate students, postgraduate, and faculty-level researchers are eligible.

More information: <https://community.geosociety.org/sedimentarygeologydiv/awards/stephen-e-laubach>

SOILS AND SOIL PROCESSES DIVISION

Distinguished Service Award

Nominations due: 1 August

Submit to: Steven Driese, Steven_Driese@baylor.edu

The Distinguished Service Award recognizes individuals who have contributed significantly to the advancement of the Division either through service as an officer, service as a chair or member of a committee (or committees), or any other service-related activities (e.g., sponsorship of symposia or topical sessions, field trips, workshops, etc.) that draw positive attention to the research aims and activities of the Division. It includes lifetime membership in the Division.

More information: <https://community.geosociety.org/soilsdivision/awards/soils-and-soil-processes-division-distinguished-service-award>

Peter W. Birkeland Distinguished Career Award

Nominations due: 1 August

Submit to: Steven Driese, Steven_Driese@baylor.edu

The Peter W. Birkeland Distinguished Career Award recognizes individuals who have made outstanding contributions to the general field of soil or paleosol (buried or fossilized soil) science. Dr. Birkeland's main area of research was soil geomorphology, and his steady stream of publications, often with his students, demonstrated the application of pedology to address landform and landscape evolution.

More information: <https://community.geosociety.org/soils-division/awards/peter-w-birkeland-distinguished-career-award>

STRUCTURAL GEOLOGY AND TECTONICS DIVISION

Career Contribution Award

Nominations due: 1 March

Submit to: Mary Hubbard, mary.hubbard@montana.edu

This award is for an individual who throughout his/her career has made numerous distinguished contributions that have clearly advanced the science of structural geology or tectonics. Nominees need not be citizens or residents of the United States, and membership in The Geological Society of America is not required. Nominations should include the following information: (1) name of nominee, present institutional affiliation, and address; (2) summary statement of nominee's major career contributions to the science of structural geology and tectonics; (3) selected key published works of the nominee; and (4) name and address of nominator.

More information: <https://community.geosociety.org/sgt/awards/careercontribution>

Outstanding Publication Award

Nominations due: 1 March

Submit to: Phil Resor, presor@wesleyan.edu

This award is given annually for a published work (paper, book, or map) of exceptional distinction that clearly advances the science of structural geology or tectonics. Nominations should include: (1) a full citation; (2) nomination (as short as a paragraph; letters or reviews may also be included); and (3) the name and address of the nominator.

More information: <https://community.geosociety.org/sgt/awards/outstandingpublication>



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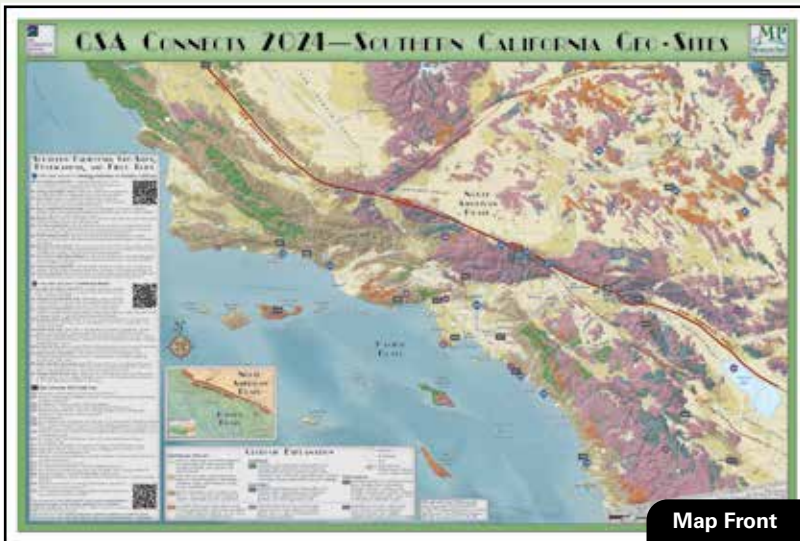
MAP & CHART 107

GSA Connects 2024— Southern California Geo-Sites

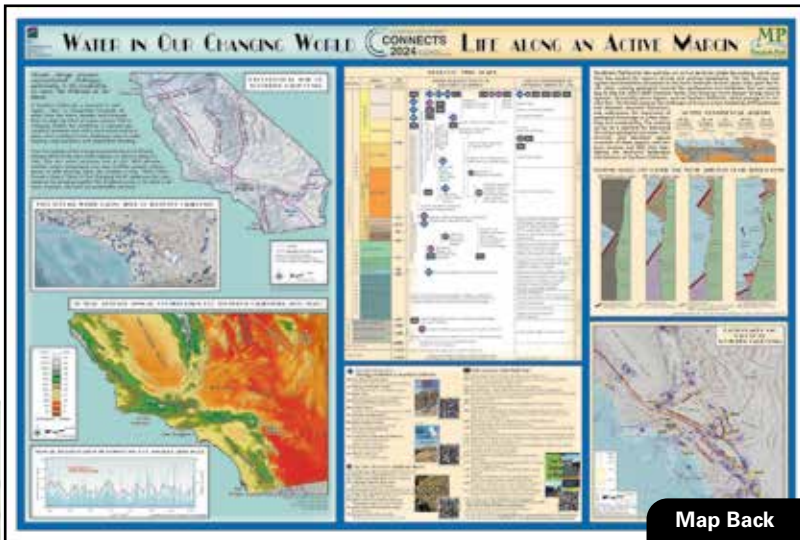
Compiled by Chelsea M. Feeney in collaboration with Christopher M. Bailey

Copublished by GSA and Mountain Press Publishing Company. Inspired by the geology and excitement surrounding GSA Connects 2024 in Anaheim, California, USA, this map showcases southern California geology. The front of the map provides information about geo-sites, including those featured in Connects 2024 trips, and refers you to related papers from GSA Field Guide 70: *From Coastal Geomorphology to Magmatism, Geology Underfoot in Southern California*, and *California Rocks!* The back provides maps and even a geologic time scale, illustrating the “Water in Our Changing World” and “Life along an Active Margin” themes. Indulge your interest in always dynamic southern California with this map! Sheet is 24" × 36" (folded only).

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Map Front



Map Back



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OUTSIDERS

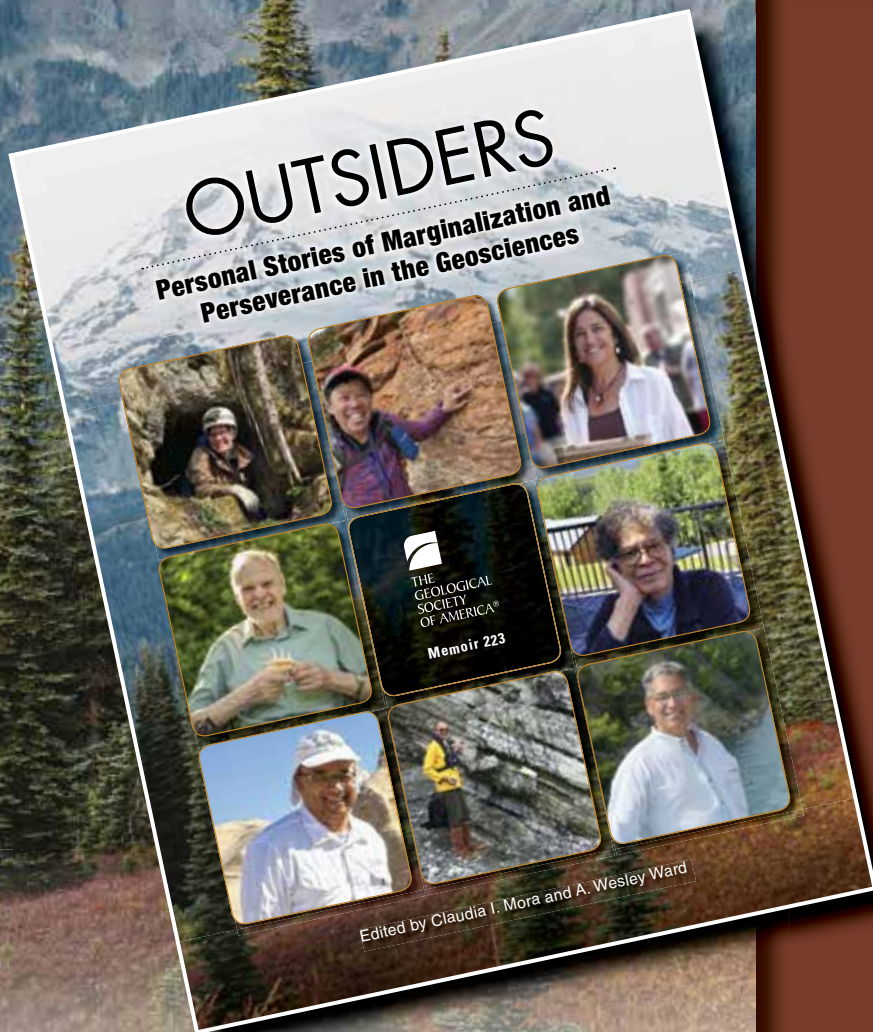
**Personal Stories of
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*Edited by
Claudia I. Mora and A. Wesley Ward*

The geological sciences are among the least diverse of all the sciences. Despite achieving gender parity within our student population, the underrepresentation of women, people of color, and people with disabilities persists across our professional ranks. This book presents autobiographical stories by eight professional earth scientists from underrepresented groups, who persevered in their quests to develop a career in the earth sciences despite experiencing marginalization rooted in prejudice, bias, ignorance, and/or indifference. Their stories are unique and frank and send a message that marginalization is surmountable, a condition to be navigated and to be changed.

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SOUTH-CENTRAL

www.geosociety.org/sc-mtg

9–11 March 2025

**University of Central Arkansas Conference Center
Conway, Arkansas, USA**

HOTELS

Hilton Garden Inn Conway
Home 2 Suites by Hilton Conway

- Early registration deadline: 12 February
- Regular registration deadline: 26 February
- Student Travel Grant application deadline: 12 February
- Cutoff for hotel registration: 17 February

SHORT COURSES:

Machine Learning Applications in Earth Sciences.

Saturday, 8 March, US\$50. CEU: 1.20.

Utility-Scale Geothermal Power: Fundamentals and Arkansas Potential. Saturday, 8 March, US\$25. CEU: 0.40.

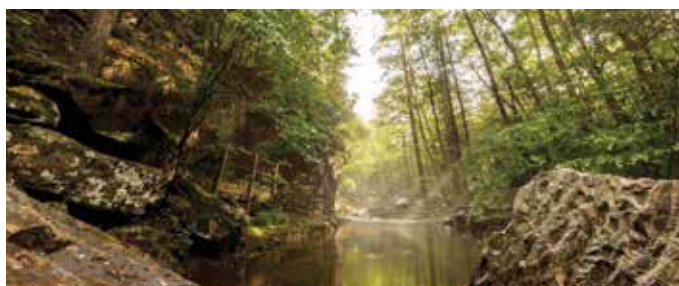
Using R Software to Download and Process Water Quality Portal Datasets. Saturday, 8 March, US\$25. CEU: 0.40.

Enhancing Recruitment and Retention in Undergraduate Geoscience Programs. Sunday, 9 March, US\$25. CEU: 0.40.

LiDAR: A Tool for Geologic and Geohazard Mapping. Sunday, 9 March, US\$25. CEU: 0.30.

Trace Fossils of Arkansas. Sunday, 9 March, US\$10. CEU: 0.20

* For one-day registration, each fee is \$50 less.
For group discounts, contact Jennifer Nocerino at jnocerino@geosociety.org.
Cancellations must be received no less than 30 days prior to the meeting.
Fifty percent of the registration fee will be reimbursed.



SOUTHEASTERN

www.geosociety.org/se-mtg

19–21 March 2025

**Hotel Madison & Shenandoah Valley Conference Center
Harrisonburg, Virginia, USA**

HOTEL

Hotel Madison

- Early registration deadline: 12 February
- Regular registration deadline: 26 February
- Student Travel Grant application deadline: 12 February
- Cutoff for hotel registration: 25 February

SHORT COURSES:

Applied Mineralogy: Implications for Geometallurgy. Wednesday, 19 March, Students: US\$25; Professionals: \$50. CEU: 0.80.

Introduction to Stable Isotopes and Isotope Ratio Mass Spectrometry. Wednesday, 19 March, US\$25. CEU: 0.30.

Elementar IRMS (xION) Ion Source Rebuild Session. Wednesday, 19 March, US\$25. CEU: 0.30.

Bringing Coding Activities into Your Undergraduate Earth Science Classroom. Wednesday, 19 March, US\$25. CEU: 0.30.

Enhancing Science Communication Skills for Geoscientists. Wednesday, 19 March, US\$25. CEU: 0.30.

Exploring Careers in Mineral Sciences, Museum Curation, and Undergraduate Education. Wednesday, 19 March, US\$25. CEU: 0.30.

Fluorescent Dye Tracing: Putting Principles into Practice. Wednesday, 19 March, US\$25. CEU: 0.40.

Classrooms, Careers, and Communities: Maximizing Your TA Experience. Friday, 21 March, US\$25. CEU: 0.20.



NORTHEASTERN/NORTH CENTRAL

www.geosociety.org/ne-mtg

27–30 March 2025

**Bayfront Convention Center
Erie, Pennsylvania, USA**

HOTELS

Sheraton Erie Bayfront
Courtyard Erie Bayfront

- Early registration deadline: 12 February
- Regular registration deadline: 13 March
- Student Travel Grant application deadline: 12 February
- Cutoff for hotel registration: 5 March



CORDILLERIAN

www.geosociety.org/cd-mtg

1–4 April 2025

**Holiday Inn Sacramento
Sacramento, California, USA**

HOTEL

Holiday Inn Sacramento

- Early registration deadline: 12 February
- Regular registration deadline: 13 March
- Student Travel Grant deadline: 12 February
- Cutoff for hotel registration: 10 March

SHORT COURSES

Envision Yourself in the Geosciences: Crafting a Vision for Your Career That Aligns with Your Values. Tuesday, 1 April, Students: US\$25; Professionals: US\$50. CEU: 0.80.

Practical Paleomagnetism. Tuesday, 1 April, Students: US\$25; Professionals: US\$50. CEU: 0.60.

Basic Borehole Geophysical Logs. Tuesday, 1 April, Students: US\$25; Professionals: US\$50. CEU: 0.80.

Wilderness & Remote First Aid for Field Trip Leaders & Research Scientists. Saturday, 5 April, US\$199. CEU: 1.80. Two-day course; participants will receive a WFA certification upon completion.

www.geosociety.org/gsatoday

EARN CEUs
WHEN YOU ATTEND SECTION MEETINGS

Keep your professional license current and stay up-to-date on the latest research in your area of interest. Continuing Education Units are earned when you attend the 2025 Section Meetings, field trips, and short courses.

LEARN MORE ABOUT CEUS:




ROCKY MOUNTAIN

www.geosociety.org/rm-mtg

18–20 May 2025

**Utah Valley Convention Center
Provo, Utah, USA**

HOTEL

Provo Marriott Hotel

- Early registration deadline: 16 April
- Regular registration deadline: 5 May
- Student Travel Grant application deadline: 16 April
- Cutoff for hotel registration: 28 April

SHORT COURSE:

Handheld Analytical Methods for Geological Field Work. Sunday, 18 May, Students: US\$25; Professionals: US\$50. CEU: 0.80.

CONNECT REGIONALLY: EXHIBIT AT OUR 2025 SECTION MEETINGS!

We are excited to offer you the opportunity to exhibit at any of our five regional Section Meetings in 2025. These meetings provide a more focused setting for exhibitors to connect with professionals and researchers all over the country. For exhibitor inquiries for GSA Connects 2025 or any of GSA's Section Meetings, please contact Exhibits@geosociety.org.



CHARTING YOUR GEOSCIENCE JOURNEY

Impactful Mentoring Programs at GSA Section Meetings

GSA student members will have the opportunity to discuss career prospects and challenges with applied geoscientists from various sectors.



SOUTH-CENTRAL MEETING

9–11 March 2025

University of Central
Arkansas Conference
Center
Conway, Arkansas

**Shlemon Mentor
Program**
Monday, 10 March

**Mann Mentor
Program**
Tuesday, 11 March

SOUTHEASTERN MEETING

19–21 March 2025

Hotel Madison &
Shenandoah Valley
Conference Center
Harrisonburg, Virginia,

**Shlemon Mentor
Program**
Thursday, 20 March

**Mann Mentor
Program**
Friday, 21 March

JOINT NORTHEASTERN/ NORTH-CENTRAL MEETING

27–30 March 2025

Bayfront Convention
Center
Erie, Pennsylvania, USA

**Shlemon Mentor
Program**
Friday, 28 March

**Mann Mentor
Program**
Saturday, 29 March

CORDILLERAN MEETING

1–4 April 2025

Holiday Inn Sacramento
Sacramento, California,
USA

**Shlemon Mentor
Program**
Wednesday, 2 April

**Mann Mentor
Program**
Thursday, 3 April

ROCKY MOUNTAIN MEETING

18–20 May 2025

Utah Valley Convention
Center
Provo, Utah, USA

**Shlemon Mentor
Program**
Monday, 19 May

**Mann Mentor
Program**
Tuesday, 20 May

GeoCareers Workshops at GSA Section Meetings

PART 1

CAREER PLANNING & NETWORKING

Your job-hunting process should begin with career planning, not when you apply for jobs. This workshop, recommended for freshmen, sophomores, and juniors, will help you begin this process and practice your networking skills. The earlier you start your career planning the better!

PART 2

GEOSCIENCE CAREER EXPLORATION

What do geologists in various sectors earn? What do they do? What are the pros and cons of working in academia, government, and industry? Workshop presenters and professionals in the field will address these issues.

PART 3

COVER LETTERS, RÉSUMÉS, AND CVS

How do you prepare a cover letter? Does your résumé need a good edit? Whether you are currently in the market for a job or not, learn how to prepare the best résumé possible. You will review numerous examples to help you learn important résumé dos and don'ts.

PAY IT FORWARD AND SERVE AS A MENTOR

Attending one of the 2025 Section Meetings?

Meet with students at round tables or sit on a panel to mentor and offer career advice.

Contact Jessica Harbeson at
jharbeson@geosociety.org or
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ADVENTURE GEOLOGY TOURS

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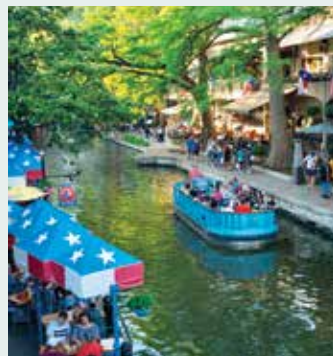
GSA Connects 2025, taking place 19–22 October in San Antonio, Texas, USA, will bring together a broad cross section of scientists from the international geoscience community. As an exhibitor, you will connect with industry representatives, professors, researchers, government employees, and talented students—the future leaders in the geoscience industry and academia.

50% OF ATTENDEES HAVE 11+ YEARS OF EXPERIENCE

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GSA/Chevron Field Trip Grant: A Transformative Experience for Emerging Geoscientists

The GSA/Chevron Field Trip Grant was an invaluable opportunity for geoscience students and early career professionals to gain hands-on field experience while expanding their professional networks. In 2024, 57 awardees embarked on 15 field trips at GSA Connects in Anaheim, California, USA. Here's a look at how this experience impacted a few of the participants.

Connecting Theory to Field Observations

For many participants, the trip they attended provided an opportunity to see theoretical concepts come to life. “The field trip gave me a deeper understanding of depositional systems,” said Mingxi Hu, reflecting on their time at Torrey Pines State Reserve, where they examined the Eocene Delmar, Torrey Sandstone, and Ardath Formations. “Seeing channel and levee facies in person was invaluable for understanding how these systems evolve over time.”



Berenice Plotek shared, “I was completely unaware of how long earthquakes have been monitored in California, or even that events of such low magnitude can be detected. There is a reason why Parkfield is known as the earthquake capital!” She continued, “I work with numerical models, and sometimes, being in the lab, you forget just how tough fieldwork can be!”

Applications of Geosciences in Broader Contexts

The field trips also gave participants a deeper understanding of how academic research intersects with industry applications. Mingxi said, “It was enlightening to see how field-based observations directly inform energy exploration.

This trip gave me a broader perspective on how sedimentological and geochemical data are used in industry.”

The diversity of the group added to the richness of the experience. “It was an incredible chance to connect with fellow graduate students and professionals from across the country,” shared Mingxi. “The conversations sparked new ideas for potential collaborations, especially with those working in the energy sector.”

One of the groups was able to experience private tours at the Jet Propulsion Lab, with attendee Ayobami Oladapo commenting, “The most impactful takeaway was realizing how skills from our field can be applied in ways that extend beyond Earth. This visit reinforced my passion for research and sustainability while also sparking new ideas about the applications of geosciences in broader contexts.”

Building Professional Networks

Beyond the technical knowledge gained, the trips provided numerous networking opportunities. “I had the chance to share long car rides with a faculty member who gave me valuable insights into transitioning from graduate school to an academic career,” commented Eytan Bos Orent. “This conversation, which I had never been able to have before, was incredibly helpful as I navigate my own career path.”





Check out
GSA's Spring Section
Meetings to learn more
about regional field trips at
https://www.geosociety.org/GSA/Events/Section_Meetings/GSA/Sections/current.aspx.

Emma Rogers noted that it was “important to me that I make connections with other like-minded scientists and meet people who work in these settings.” Alexis Wurtemberg was also excited about the opportunity to meet with researchers in Hawai‘i, stating, “This experience provided the chance to collaborate with others who share similar interests.”

Hands-On Learning and Unexpected Challenges

For anyone who has run a field or group trip, it is clear that unexpected challenges always occur (weather, flat tires, keys locked in cars, etc). Seeing professionals adapt, retool, and maneuver around these obstacles is essential training for geoscientists at all levels of their career. The group appreciated the adaptability of the trip leaders when faced with unexpected challenges. Eyton observed, “A snow flurry near Yosemite prevented us from entering the park, but the leaders quickly adapted and organized stops that were just as relevant. They covered topics like volcanology, geothermal energy, and glaciation—demonstrating their ability to think on their feet.”

Sophia Johnson shared, “The trip leaders artfully worked around unexpected weather-related road closures to show our group perspective-shifting rock exposures.”

A Lasting Impact on Research and Career Development

For many, their trip was a milestone that would shape both their academic and professional futures. “This experience expanded my view of depositional systems and gave me a fresh understanding of slope dynamics,” summarized Mingxi. “It reinforced the importance of fieldwork in understanding geological processes and cemented my commitment to pursuing a career in geoscience.”

The groups, which included a mix of graduate students, postdocs, and early career professionals, are now part of an extended network of geoscientists who can share knowledge and collaborate in the future. Sophia stated, “Beyond purely geological dialogue, there was ample time to discuss research philosophies, what the next great discoveries in geoscience may look like, and what participants’ career paths have been.”

Ayobami also noted, “This opportunity did not only enhance my knowledge but also inspired me to think bigger about the role of geosciences in addressing global and interplanetary challenges.”

Interested in Participating in a Future Trip?

Field trips are great for learners of all ages and abilities. This spring, we’re offering a diverse range of field trips at GSA Section Meetings that will give you the opportunity to explore geologic wonders, learn from leading experts, and connect theory with hands-on field observations. Join us as we delve into the Stratigraphy, Structure, and Geomorphology of the Central Appalachians near Harrisonburg, Virginia, where you can explore fault zones and understand complex geological formations. For those with an interest in natural hazards, the Ancient and Modern Landslides of the Eastern Blue Ridge offers an in-depth look at the landslides that have shaped this region.

Explore the iconic Shenandoah National Park and learn about its geological heritage, or go back in time through the End Devonian Mass Extinction in Western New York. For volcanology enthusiasts, don’t miss Exploring the Catskill Clastic Wedge in West Virginia or the Sutter Buttes Volcanic Field Trip in California to see the intersection of volcanism and landscape formation.

Whether you’re looking to build professional networks, explore new research areas, or deepen your fieldwork experience, these trips are designed to enrich your geoscience journey. Where will your next GSA field trip take YOU?



Fuel Your Geoscience Journey: Apply Now for GSA Section Undergraduate Research Grants!

The Geological Society of America is excited to announce the opening of applications for our Section Undergraduate Research Grants! These grants support undergraduate geoscience students conducting original research, providing funding to fuel their curiosity and advance their studies. In 2024, we proudly awarded grants to 12 exceptional students—check out the full list of recipients below and envision yourself joining their ranks next year. This is your chance to bring your research to life and join a growing community of future geoscience leaders!

Find your Section and submit an application today at <https://www.geosociety.org/GSA/GSA/grants/sectionResearch.aspx>.

SUBMISSION DEADLINE: 10 APRIL

CONGRATULATIONS TO THE 2024 SECTION UNDERGRADUATE RESEARCH GRANTEES!

NORTHEASTERN SECTION

Leo Gilbert, Lafayette College
Grace Slezak, Wilkes University
Cassie Aimetti, University of Connecticut

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“I am thankful for grants catered towards undergraduates, to give us a chance to shine at the beginning stages of our academic career, and better prepare us to take on larger projects in graduate school.”

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University of Connecticut,
student recipient

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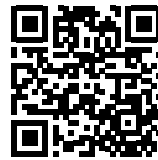
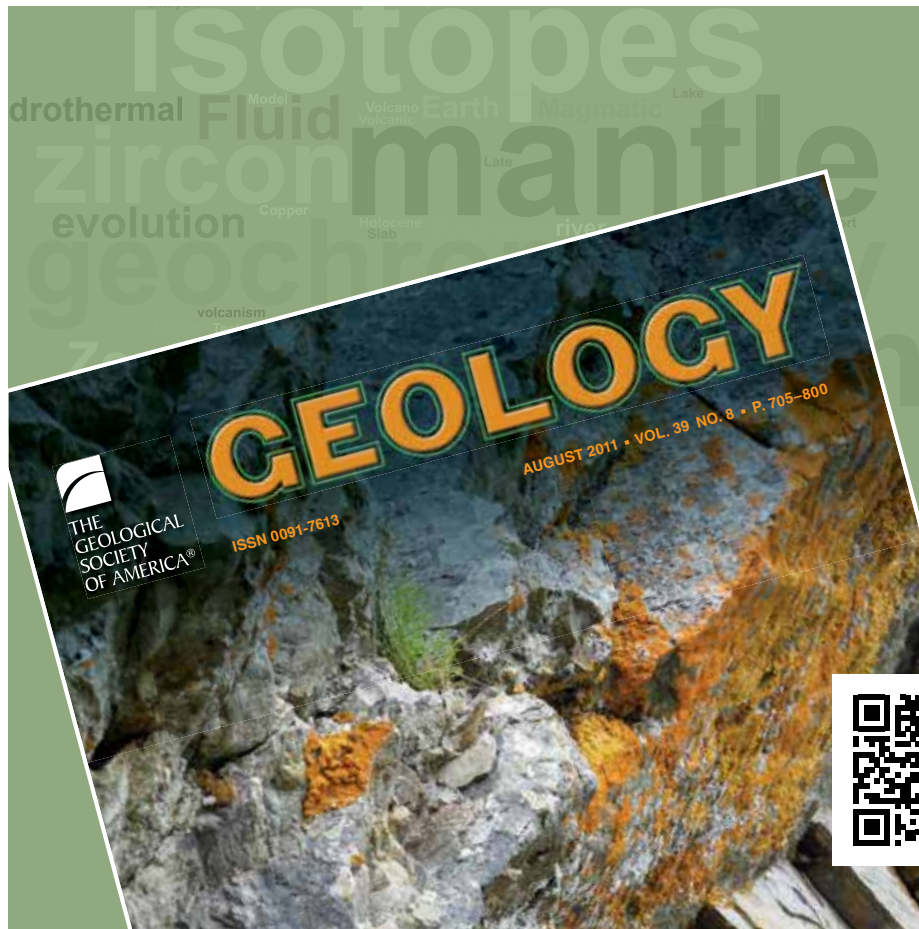
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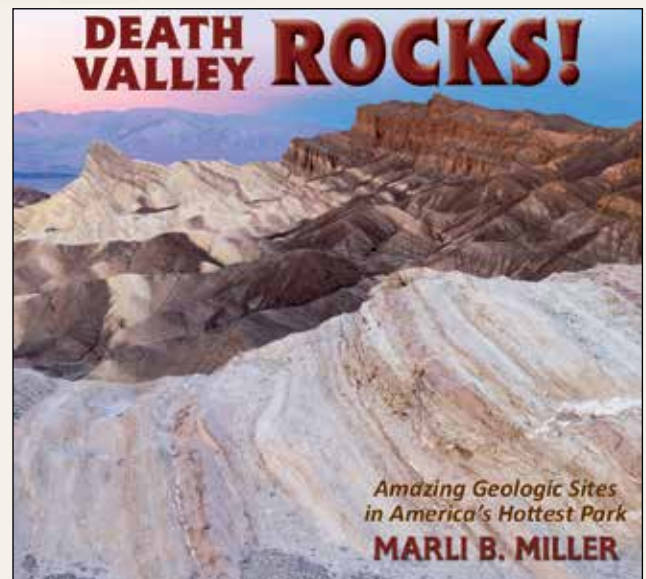
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**THE GEOLOGICAL
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Exploring the Cordilleran Orogenic Belt: How the J. David Lowell Field Camp Scholarship Helped Me Achieve My Geoscience Goals

Alexus Wuertemburg



With the help of the J. David Lowell Field Camp Scholarship, I participated in the 2024 University of Arizona (UofA) field camp. During the five-week field experience in the North American Cordilleran Orogenic Belt, spanning across Arizona, Utah, Wyoming, and Nevada, I gained valuable fieldwork experience that I'll utilize throughout graduate school and my career. UofA field camp gave me the opportunity to participate in a field experience focused on sedimentology and structural geology in areas I haven't traveled to prior. In the field, we identified lithologies of formations, created measured sections, took strike and dip measurements of bedding, used topographic maps to locate ourselves, and mapped contact lines when necessary. We then used this information to construct cross sections, geologic maps, stratigraphic columns, and stereonet. As a final project, we each constructed a regional cross section utilizing previous assignments and geologic maps provided. Through the final project, I was able to see how the Cordilleran Orogenic Belt interactions formed the geology we see today.

In addition to learning the surrounding geology, I also had the opportunity to meet students from different universities. Camping for five weeks and working together in the field, we formed friendships with one another, and I can honestly consider everyone in field camp a friend. From waking up at 6 a.m. for 10+-mile hikes to breaking camp every couple of days, the friendships I formed over these experiences were definitely unlike anything else. As hard as UofA field camp was, I can confidently say I wouldn't have chosen any other one if given the chance. I got to explore and learn about the western United States from very knowledgeable professors, met students from universities all over the country, saw beautiful geology, and learned more than I thought I could in five weeks. Without the J. David Lowell Field Camp Scholarship, I wouldn't have been able to purchase the gear I needed to be successful. Thanks to the scholarship, I was able to purchase a field backpack and hiking boots, contribute to my tuition, and, in addition, receive a Brunton compass. This support allowed me to complete field camp, a requirement in my bachelor's degree, for which I am truly grateful. I am now one step closer to earning my bachelor's degree in geoscience from the University of Arizona and will continue my education in graduate school. Thank you, GSA, for helping me achieve my goal of attending field camp and completing my undergraduate degree!

Apply for a J. David Lowell Field Camp Scholarship

Deadline: 9 April 2025

GSA and the GSA Foundation are pleased to announce that J. David Lowell Field Camp Scholarships will be available to undergraduate geology students for the summer of 2025. These scholarships will provide students with US\$2,000 each to attend the field camp of their choice. Applications are reviewed based on diversity, economic/financial need, and merit.

Learn more at

<https://bit.ly/JDavidLowell>

Questions?

Contact Rebecca Taormina,
rtaormina@geosociety.org.



Alexandria Bradley
J. David Lowell Field Camp Scholar 2023



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Barbara Cuba

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Harold Moritz

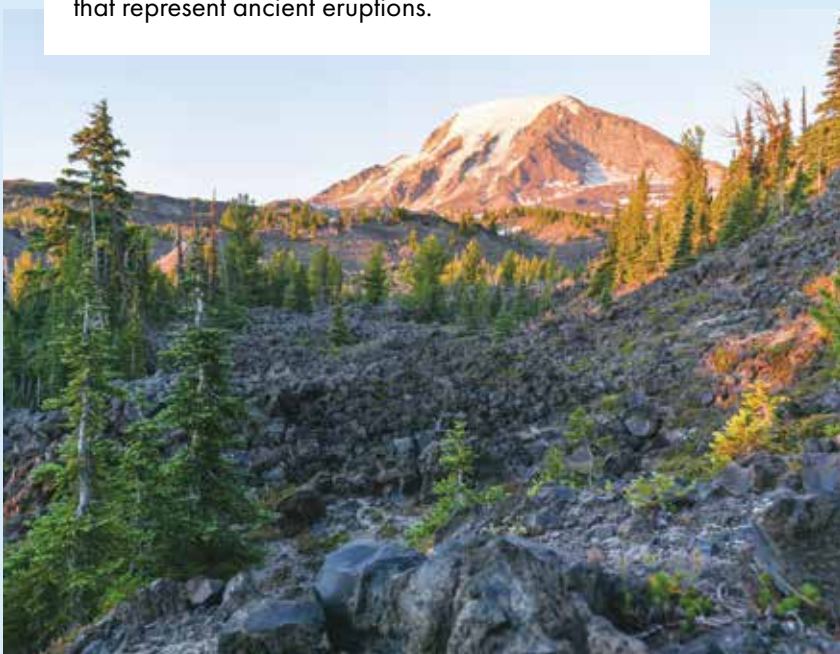
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Deadline: 14 March 2025

By submitting image(s) to the 2026 GSA Calendar Photo Search, you agree to gratis use of your images by GSA in a calendar and in promotional materials. GSA employees are not eligible to enter.



Zach Schierl



GEOLOGY THROUGH THE LENS

Matera's Timeless Legacy

Located on a karstic plateau of the Tertiary-uplifted Apulian Carbonate Platform of Mesozoic African affinity in the Basilicata region of southern Italy (“instep of the boot”), Gaverna di Matera is riddled with thousands of solution caves that, in part, constitute the city of Matera’s Sassi (the “stones”) that is perched on the edge of the gorge. Many caves have Neolithic documentation, and those of Matera have been continually inhabited since the Paleolithic with quarried Renaissance facades over their entrances. Following a period of extreme overcrowding, disease, poverty, and national shame in the twentieth century, Matera emerged as a 1993 UNESCO World Heritage Site and first-class tourist destination.

Dr. Jack B. Share is a geology enthusiast and author of the blog "Written In Stone . . . seen through my lens" (<https://written-in-stone-seen-through-my-lens.blogspot.com/>).

Want your photo to be featured in GSA Today? Email submissions to gsatoday@geosociety.org.



Bridging the Gap: The Bruce R. and Karen H. Clark Fund

Communication is something we all strive to do, yet it can be challenging—especially when translating complex scientific ideas for broader, nonscientific audiences. Here at the Geological Society of America (GSA) Foundation and at GSA, we often communicate by speaking the “language” of geoscience. But GSA’s mission goes beyond internal dialogue. We also aim to “. . . foster public dialogue on geoscience issues and promote the geosciences in the service of humankind.” This is no small task, but it is a vital and worthwhile goal.

The Bruce R. and Karen H. Clark Fund Supporting Geoscience Communication, established in 2015 through the generosity of the Clarks, was created to advance this mission. The fund seeks to bridge the gap between GSA’s members and the nonscientific community, fostering greater understanding of and engagement with the geosciences.

Bruce’s commitment to GSA runs deep. He has served as a GSA Councilor, Treasurer, and Foundation Trustee and has contributed to numerous committees, including chairing the joint GSA/GSAF Investment Committee, where he continues to serve today. Karen is a retired partner of a major international law firm and has been Bruce’s chief editor and communications critic for decades.

Thanks to the Clark Fund, GSA has made significant strides in promoting geoscience in the service of humankind. The fund currently supports GSA’s Science Communication Fellowship, which empowers science writers, journalists, and researchers who are passionate about making geoscience accessible to the nonscientific community. Fellows collaborate with GSA’s marketing and communications team to transform technical research into engaging press releases, blog posts, and podcasts. These efforts help ensure that geoscience resonates far beyond its core community, inspiring broader public understanding and action.



Bruce R. and Karen H. Clark.

We are deeply grateful to the Clarks for their vision and generosity. Their support has expanded GSA’s reach, fostering impactful communication between scientists and society. Together, we are making the geosciences a force for good in addressing the challenges of our world.

For more information, please scan the QR code below, visit <https://gsa-foundation.org>, and of course your donation to the Bruce R. and Karen H. Clark Fund, or any of the other funds we steward, is most welcome.



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DETAILS

Geology editors should expect to handle 200–250 manuscripts each year, with ~35 active manuscripts on any given day. Research interests should be broadly interdisciplinary with specialization in a range of possible disciplines that complement those of continuing editors (but are not limited to) deformation, petrology, petrology (metamorphic), sedimentary geology (siliciclastics), stratigraphy, deformation (crustal and lithosphere), geochemistry (high-temperature isotopes), marine geology, neotectonics, petrology (igneous), planetary geology, Precambrian geology, sedimentary geology (basin analysis), tectonics (erosion and deposition, global, plate motions), tectonophysics (orogeny, sedimentary basins, rifts and rifted margins), and/or thermochronology (high-t).

GSA Bulletin editors should expect to handle 225–375 manuscripts each year, with ~60 active manuscripts on any given day. Preferred research interests include (but are not limited to) tectonics and/or petrology.

Geosphere editors should expect to handle 60–70 manuscripts each year, with ~10 active manuscripts on any given day. Preferred research interests include (but are not limited to) paleontology (vertebrate), petrology, (sedimentary), stratigraphy, sedimentary geology, geochemistry, geodynamics, Precambrian geology, structural geology, tectonics, thermochronology, and/or geochronology.

GSA Today editors should expect to solicit submissions to the journal through interacting with colleagues at meetings and organizing special issues. Preferred research interests include (but are not limited to) paleontology, sedimentary geology, stratigraphy, and/or tectonics.

Editors work from their current locations at work or at home. The positions are considered voluntary, but GSA provides an annual stipend and funds for office expenses.

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- Ensuring stringent peer review.
- Expeditious processing of manuscripts.
- Making final acceptance or rejection decisions after considering reviewer recommendations.
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- Maintaining excellent content by publishing a diverse range of papers.

REQUIRED QUALIFICATIONS

- Experience as an editor or associate editor for a geoscience journal. (Provide details in your application letter.)
- Demonstrated expertise in two or more fields in the geosciences or in interdisciplinary fields broadly related to the geosciences.
- Experience handling a significant editorial workload.
- Ability to make timely decisions.
- Strong willingness to handle paper topics outside of your main research discipline(s).
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Details on the Preferred Qualifications and Evaluation Process for applicants can be found at www.geosociety.org/gsa/pubs/editorsCall. Please contact Bridgette Moore, editing@geosociety.org, with any questions.

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Deadline: 1 April 2025



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