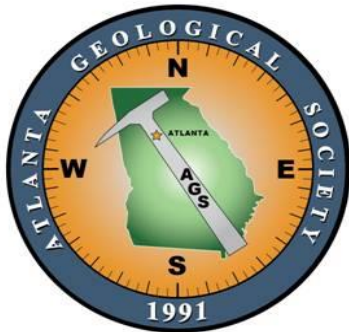
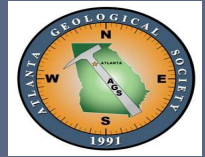


# Atlanta Geological Society Newsletter

## June 2024



### AGS: Atlanta Geological Society

#### Annual membership

- General: \$25
- Student: \$10
- Corporate: \$200
- [Click here to join](#)

**Newsletter deadline:** 15<sup>th</sup> of month  
Send articles & announcements to  
John Clarke, Editor: [ice12jsc@gmail.com](mailto:ice12jsc@gmail.com)



### President's Message

Pamela Gore

The big Georgia geology news this month has been the small earthquake swarm southeast of Lake Lanier on the Chattahoochee River. Between June 6 & 13 2024, four small earthquakes were detected, ranging in magnitude from 2.1 to 2.5. Scott Harris (AGS Vice President) and I went with Dr. Zhigang Peng (Professor of Geophysics at Georgia Tech, who presented at our January AGS meeting) to install six seismometers at various locations near Lake Lanier. We hope to have more information about the quakes soon. This issue of the newsletter features 3, "Show us your AGS T-shirt" articles that describe trips to Scotland, Morocco, and Alaska.

Don't forget **Annual Barbecue Social** is 6pm, Tuesday June 25, 2024, organized and coordinated by our Hospitality Chair and Treasurer, John Salvino. Please remember to bring company swag, books, maps, rocks, fossils, and any other items to donate as door prizes at the event. We are also looking for corporate sponsors to help fund the event. After the barbecue dinner and door prizes, we will proceed to the Fernbank Big Screen Theater to watch the movie *Into America's Wild*, exploring more than 30 uniquely wild locations in 3D.

We still need a few volunteers to help with setting up and taking down tables and chairs, serving dinner and drinks, distributing door prizes, and cleaning up. If you can help, please contact John Salvino. His email and phone number are on the AGS website, <https://atlantageologicalsociety.org/contact-us/>

If you ordered AGS T-shirts or other clothing this spring, you will be able to pick them up at the Barbecue Social. Thanks to John Clarke for organizing the sale. I hope to see you at the Barbecue Social. See page 2 for more information.

### June Meeting

Join us June 25, 2024 @ 6pm for our annual BBQ social

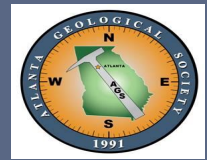
See page 2 for Details

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### AGS Annual BBQ Social—Dining under the Dinosaurs



**When:** Tuesday, June 25, 2024, 600pm

**Where:** Fernbank Museum

**Cost:** Members Free; New Members \$25; Guests \$5 [Click here](#) to pay online. Note: Membership must be current for 2024. To renew your membership, please [click here](#)

**Reservations:** No reservations are needed; however, to ensure we order enough food, please let John Salvino know if you plan to attend and if you are bringing any guests: [johnsalvino@bellsouth.net](mailto:johnsalvino@bellsouth.net)

**Note from hospitality chair John Salvino:** Our menu will include your favorite barbecue chicken and pork, a bun, mac and cheese, BBQ beans, sweet/unsweet tea and cobbler or cookie for dessert. During dinner we will

have our presidential address followed by door prize giveaways; then after dinner, the Big Screen Movie. Please bring your door prize donations: company SWAG, geology books, maps, rocks, fossils, etc. Please note if the prize is for children or adults.

**AGS T-shirt and apparel purchases will be distributed at the meeting**

**NEW**—A variety of technical **Poster Presentations** will be offered during the event.

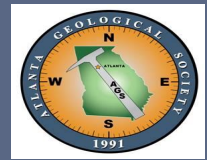
**Movie Presentation:** Membership voted at the May meeting on which movie to view at the social. The winner is *Into America's Wild 3D*, a 45-minute big screen presentation.

**Volunteers needed:** Would you like to MC the event and give away the door prizes? We also need help checking in members and guests, taking dues, setting up/taking down tables and chairs, assisting with door prize tickets, serving dinner and/or drinks and cleaning up the dining room. Please contact John Salvino.

**Sponsors of the 2023 BBQ Social:** Thanks to all who are supporting our annual social including Ben Black of GeoLogic, the City of Atlanta, and AEI Consultants.



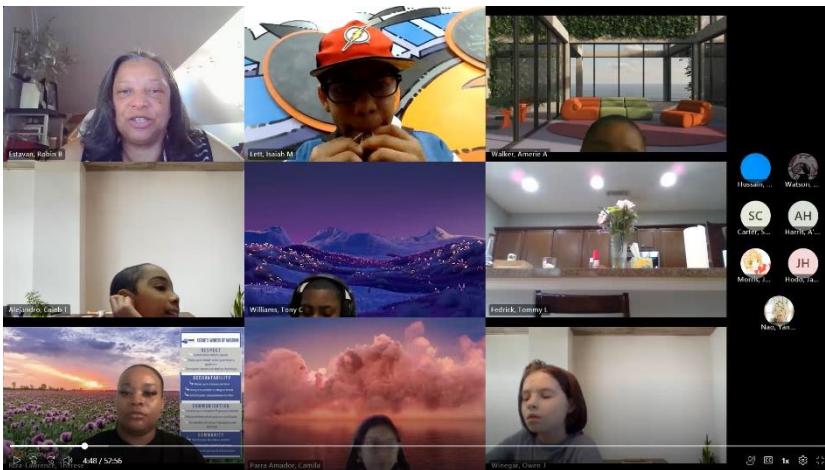
There is still time to participate as a sponsor. Contact [johnsalvino@bellsouth.net](mailto:johnsalvino@bellsouth.net) or [Click here](#) to make a donation.



### Teacher Mini-Grant Report—Mining for Gems

*Robin Estavan, Teacher, Fulton Academy of Virtual Excellence*

Thirty-one 6<sup>th</sup> grade students participated in a lab exercise to mine for gemstones on May 8, 2024. As a result of delayed funding, I was unable to take the students to the Crisson Gold Mine in Dahlonega, Georgia, as originally planned. Instead, I purchased supplies so students could actively participate in a lab mining for gems. The supplies consisted of 38 Gemstone Dig Kits by Diagomlife. The lab session was conducted virtually online. To see the recorded lesson, [click here](#). See following article regarding the mini grant program.



Above left: Teacher Robin Estavan (top left) and students participate in online session to receive instruction and work with gemstone dig kits. Above right: Diagomlife gemstone dig kit.

### Earth Science Mini Grants

*Atlanta Geological Society in cooperation with the Georgia Mineral Society*

The Earth Science Education Mini-grant program provides resources to supplement the K-12 classroom teacher's operating budget. The funds provide opportunities to enhance and enrich Earth Science learning. Grants of up to \$300 may be applied for, with the total amount awarded dependent on available funding. Examples of projects include, but are not limited to:

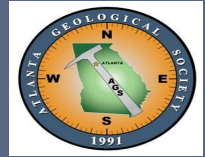
- Purchase of Mineral/Rock/Fossil samples or collections
- Materials and expenses for classroom experiments
- Development or purchase of software for Earth Science subjects
- Computer or GPS hardware purchases
- Earth Science field trip expenses
- Limited on-line service fees to provide geological research access to Internet resources





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Upon completion of the project, a written report of no more than four typed pages or a video no longer than 15 minutes will be submitted to the Atlanta Geological Society Grants and Scholarship Committee at the address below within 1-year of grant award. It is suggested that the report could be student-compiled, teacher-graded, and submitted in a portfolio format. A one-page written summary must accompany any multimedia presentations. A presentation to a general meeting of the Atlanta Geological Society may be requested for any project. This program is open to all elementary, middle and high school earth science/systems classes and teachers within Georgia.

Applications should be submitted on or before September 1 each year. Awards will be announced on September 30. To apply [click here](#).

For further information, please contact:  
William G. Waggener, Grant Coordinator  
Cell 404-354-8752 Email: [waggener90@gmail.com](mailto:waggener90@gmail.com)

## JULY VACATION—NO MEETING OR NEWSLETTER



The AGS will take the month of July off—no meeting or newsletter. There will be a PG workshop on July 27 on the topic of Petrology via Zoom with Steve Stokowski. Keep an eye out for an email announcement for this meeting.

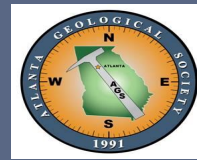
Remember to bring your T-shirt on vacation as you view geo sites of interest. We would love to hear about your adventures and feature it in a newsletter article (with or without your t-shirt!) See everyone in August!

## PG Workshop Schedule

*Ben Black*

Workshops to aid in preparation for the ASBOG exams are offered monthly to AGS members via zoom. The topics are listed below. Contact Ben Black to signup for a session: [Benjamin.black@geologicllc.net](mailto:Benjamin.black@geologicllc.net)

Date	Topic	Speaker
7/27/2024	Petrology	Steve Stokowski
8/24/2024	Karst Geology	Steve Stokowski
9/21/2024	Engineering Geology	Ben Black
10/26/2024 (tentative)	Geophysics	TBD
1/25/2025	Economic Geology	Steve Stokowski



## Job Openings

**Jacobs Engineering** is looking for an **entry-level Geologist** to work on complex site characterization and remediation projects for government and private-sector clients. Based in Atlanta Georgia, you'll work with a multi-disciplinary team consisting of experienced engineers, geologists, and consulting staff on a variety of field and office tasks related to planning and implementing environmental investigation and remediation projects. You'll learn from other experienced staff who are ready to mentor you and gain valuable field experience with environmental sampling techniques and subcontractor oversight, spending about 70 to 90% of your time in the field. You'll balance your field work with some time spent in the office working on data interpretation and visualization, quantitative modeling, report writing, and coordinating field work.

### Qualifications

- Bachelor's or Master's degree in Geology or other geoscience with the ability to attain professional licensure in the state of Georgia
- 0-2 years of experience within environmental consulting or related field
- 40-hr HAZWOPER certification or the ability to obtain this certification
- Be physically fit to perform fieldwork and wear a respirator, if required,
- Ability to travel for field projects up to 70-90% of the time
- Ability to pass a government background check
- Experience with Microsoft Office software
- United States Citizenship Required

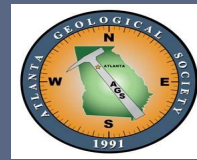
The base salary range for this position is \$48,000.00 to \$63,000.00. Within the range, individual pay is determined by work location and additional factors, including job-related skills, experience, and relevant education or training. For more information and to apply [click here](#).

**American Environmental & Construction Services, Inc. (AECS)** is interested in hiring an entry level (0-3 years) full-time **STAFF GEOLOGIST** to conduct soil and groundwater sampling services, as well as other tasks associated with hazardous waste clean-up, site-remediation, decontamination, and handling of hazardous materials. This position focuses on investigations in the field and offers opportunities to work outdoors in a variety of environments and locations. The ideal candidate should have a good work ethic, be a team player, and should possess a diligent attention to safety. Desired certifications include: environmental science training or experience, HAZMAT transport, CDL driver's license, heavy equipment operation experience or training (as trackers, dozers, backhoes, bobcats, dump trucks, etc.), and OSHA training (HAZWOPER 40 hour). As is the nature of field intensive work, **overnight travel will be required often**.

### Qualifications:

- High School Diploma or equivalency
- Bachelor's degree in Geology or Environmental Science
- Must obtain OSHA (40 hour) Certification within 3 months of hire
- Clean Motor Vehicle Record and Valid Driver's License

Please send resumes to Burton Dixon at: [cbd@amenv.com](mailto:cbd@amenv.com)



### Show Us your AGS T-Shirt--“Postcard from the Laurentian Diaspora” Rob McDowell, Georgia State University

In May, I led a group of intrepid undergrads on a study abroad course entitled, “The Origins of Geology in Scotland.” Having been teaching geology part-time since 1995 and full-time since 2015, I can easily say that this experience was a pinnacle of my career, if not *the* pinnacle. Not only is the scenery of Scotland awe-inspiring, but the geology is, too. More importantly, watching the faces of nine young people, most of whom had never been out of the U.S. or experienced the ocean from anywhere other than Tybee Island, listen to the roar of the North Sea at Siccar Point, or watch cloud shadows slide across the Scottish Highlands, is the kind of thing that gets me out of bed in the morning.

They learned about how the modern science of geology had started in Scotland, where Hutton, Playfair, and Lyell had pondered the landscape and asked all the right questions. A theme that I emphasized before the trip and during was that, in spite of that long plane flight from JFK to Edinburgh, they were geologically back home.

We started with a rather strenuous hike up Arthur’s Seat, a Carboniferous volcanic neck that looms over Edinburgh. Our guide, Scottish geologist Angus Miller, leads such groups for a living through his company, “Geowalks.” Angus led us through the brilliant yellow gorse to the top of Arthur’s Seat, past repeated layers of vesicular basalt and tuff, towards the hard, basaltic peak swarming with tourists blissfully (and sadly) ignorant of the geology.



Next morning, we journeyed to Siccar Point, a remote spot on the Berwickshire coast east of Edinburgh, to see “Hutton’s Unconformity” (photo left). Clambering down a steep grassy slope, following the steps cut into the turf and grasping a thin rope for support, we arrived at the rocky outcrops where vertical Ordovician greywacke is overlain by east-dipping Silurian Old Red Sandstone. It was at Siccar Point that James Hutton came up with his haunting phrase, “we could see no vestige of a beginning, and no prospect of an end.”

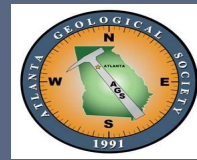
My students were transfixed. They had all scaled Stone Mountain, so a rugged mountain hike like

Arthur’s Seat was not completely foreign. But this, a rocky coastline with soaring cliffs nearby, the North Sea waves crashing against the outcrops and sliding into the deep clefts, and *no one* there but us, was a thrilling new experience.



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They got their first taste of home, the Old Red Sandstone, which is partly equivalent to the Devonian Catskill Delta rocks of the central Appalachians.

We left Edinburgh and headed to Loch Lomond (photo right), where the Highland Boundary Fault, a high-angle reverse fault, has juxtaposed the soft sedimentary rocks of the Midland Valley and the hard metamorphic and igneous rocks of the Scottish Highlands. From one point overlooking the loch, you can stand on a vertical sequence of Old Red alluvial fan conglomerate, look to your left towards the Lowlands, and look to the right into the misty Highlands. Once again, I told my class, we are back home.



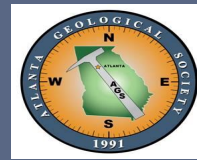
You see, Scotland was originally on the eastern margin of Greenland, and thus on the leading edge of Laurentia (North America) during all its tectonic experiences. During the Paleozoic Taconic and Acadian orogenies, Scotland was at the very center of the action. Before that, however, Proterozoic Scotland was on a passive continental margin like Georgia was and accumulated the same monotonous sequence of continental shelf sediments. An island arc collided with Laurentian Scotland in the Ordovician and metamorphosed those shelf deposits into the slates and schists of the Grampian Highlands. If those events sound familiar, it's because they mimic our own Taconic Orogeny, in which an island arc collided with the southern Laurentian margin and metamorphosed our own monotonous Blue Ridge rocks. Later, the Caledonide Orogeny would push up the Grampian Highlands and turn the Midland Valley into an intermontane basin. Alluvial fans, braided rivers, and playa lakes would fill the intermontane Midlands. The scissor-like closing of Iapetus causing all this excitement would eventually create the Acadian highlands of the central Appalachians, whose western flanks would overlook the Catskill Delta complex of New York, West Virginia, and Pennsylvania.



Being in the center of several major orogenies, Scotland had a lot of explosive igneous activity, such as the caldera eruptions at Ben Nevis and Glen Coe (photo left). Ben Nevis is the highest peak in Britain, and Glen Coe is widely considered to be the most beautiful spot in Scotland. The combination of volcanism, later uplift, and Pleistocene glaciation created a stunning landscape. My students struggled to describe it. Rather than just stand and look, I ordered them to walk down the glen as far as they could and back, a distance of about one mile. They obediently trudged off and scattered in different directions but floated back up.

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From Glen Coe, we headed north to Inverness along the Great Glen fault that cuts across Scotland from Inverness to Ireland. Glaciers eroded the mylonites and cataclasites of the glen into long, magnificent lochs, including Loch Ness. The fault separates the Grampian Highlands from the wild and sparsely populated Northern Highlands, underlain by more Proterozoic meta-sediments derived from the 1.0-billion-year-old Grenville Orogeny, the same one that created the Corbin Gneiss at Lake Allatoona and the Grenvillian basement rocks at Pine Mountain! (Home again, home again...). But the key feature of the Northern Highlands is the Moine Thrust Fault zone which forms the tectonic boundary between the Highlands and Hebridean Terrane. The Moine Thrust places Proterozoic Moine Supergroup rocks on top of Cambrian sedimentary rocks, a puzzle that for decades was called "the Highland Controversy" until detailed mapping by Scottish geologists led to the interpretation of, and first identification of, an "overthrust" fault. This discovery unlocked the geology of the Alps and the Appalachians. Our guide, geologist Pete Harrison of the Northern Highlands Geopark, led us up the steep path to the classic exposure of the Moine Thrust at Knockan Crag (photo right).



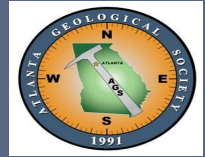
Finally, we visited the Hebridean Terrane, a wide expanse of Archean gneiss that was once attached firmly to Greenland before all these orogenies and rifts (photo below). It is overlain by tens of thousands of feet of reddish conglomerate and sandstone (the Torridonian Group). Rounded granite outcrops cut by mafic dikes, surrounded by green fields led down to the coast. The Hebrides archipelago was barely visible on the horizon, and beyond that was the Atlantic Ocean and Laurentia. Real home.



On the first day in the field, one student commented that she learned more about geology in that first afternoon on Arthur's Seat than she had the entire previous semester taking an online geology class. One student switched her major to geology, and another is contemplating it. The rest have common areas of study like computer science and business. Whatever their future endeavors, I sincerely hope they will never forget their immersion in deep time at Siccar Point, or the humbling silence of Glen Coe, or the bright mist at the far end of Loch Glencoul. I hope their dreams include sea fog rolling in and covering the Northwest Highlands, or hillsides covered with yellow gorse. Most of the students

will forget what a caldera or an alluvial fan is in a few years. That's not important. What's important is that they saw, felt, heard, tasted, and smelled a faraway place on Earth that by its very existence proves the incredible wonder of our science.





### Outcrop of the Month: High Falls State Park

Bill Witherspoon

A surprising number of Georgia's parks and geologic attractions lie within the strip of territory identified as the Cat Square terrane. These include the Elberton Granite batholith, Charlie Elliott Wildlife Center, Indian Springs State Park, and High Falls State Park. A terrane is "a geologic region interpreted to have developed separately from neighboring regions for at least part of its history, implying that it existed a considerable distance from the neighboring regions as it developed.

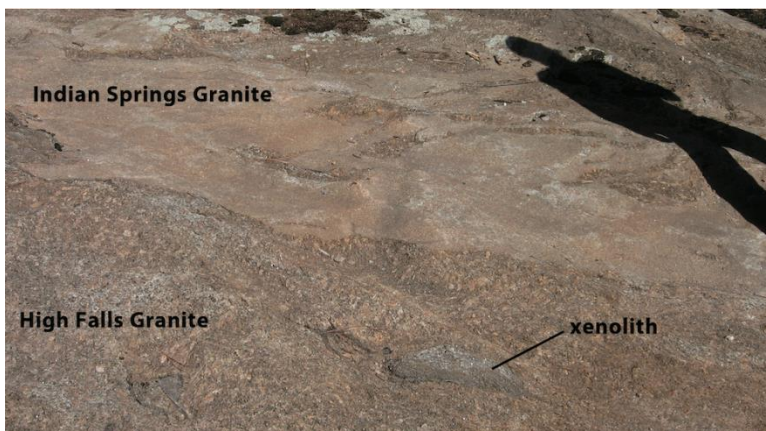
Boundaries between terranes are major faults and possibly former tectonic plate boundaries." (*Roadside Geology of Georgia*, p. 316)



High Falls on the Towaliga River, downstream of the High Falls Road bridge

As we summarized in *Roadside Geology of Georgia*, p. 183:

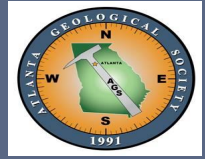
"The Cat Square terrane was deformed and metamorphosed along with the Tugaloo terrane [where Atlanta lies] about 380 to 350 million years ago, but its metasedimentary rocks were derived from a wider variety of sources. A variety of ages taken from zircon minerals indicate that the terrane received sediment from Laurentia and a landmass that had formed in front of Gondwana. A favored interpretation is that the Cat Square terrane represents seafloor that was caught between Laurentia to the west and the Carolina superterrane moving in from the east. It was receiving sediment from both sources until it got caught up in the Neo-Adian mountain building event. Around 300 million years ago very large magma bodies, including the Elberton Granite, intruded the Cat Square terrane."



Pavement outcrop in the picnic area at High Falls State Park.

High Falls State Park is about an hour's drive south of Atlanta, and makes a convenient rest stop for travelers along I-75. Here is the description from p. 264-265.

"High Falls State Park is located about 1.8 miles northeast of exit 198. High Falls Road crosses the Towaliga River on the way to the park, and you can see a dam on the left (north) side of the road, which impounds High Falls Lake. The dam was built in 1904 to provide electrical power to a gristmill and the city of Griffin to the northwest.



“Three rock units of the Cat Square terrane can be seen in a single pavement outcrop in the picnic area on the north side of the road on the east side of the Towaliga River. The main rock type, as throughout the park, is granitic gneiss referred to as High Falls Granite, which has large, elongated crystals of feldspar. Here it contains pieces (xenoliths) of biotite gneiss, the metasedimentary rock of this area that the granite intruded 383 million years ago. The High Falls Granite was itself intruded by the Indian Springs Granite 300 million years ago. This light-colored, fine-grained granite is also exposed at Indian Springs State Park.

“On the right (south) side of the road, High Falls drops approximately 35 feet down over rocky pavement outcrops spanning the river. Hiking trails provide a view of the falls and rocks. The rock exposed along the trails near the falls is the High Falls Granite, with its large, elongated crystals of feldspar.”

### **Recent Earthquakes in North Georgia**

*Drew Kann, The Atlanta Journal-Constitution*

ATLANTA — The Peach State is not typically a hotbed of seismic activity, but residents in pockets of North Georgia have been feeling some unexpected vibrations lately after the area was jolted by four small earthquakes over the last week.

The most recent one, a 2.3 magnitude temblor, happened just after midnight on Monday near the south end of Lake Lanier, according to the U.S. Geological Survey (USGS). It came on the heels of two other earthquakes on June 7 in the same area near the city of Buford — a 2.5 magnitude quake and another of 2.1 magnitude, which shook the area a few hours earlier. Another small quake occurred on June 3 in northwest Georgia outside Dalton.

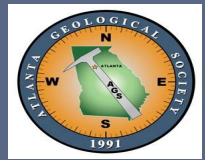
No damage or injuries have been reported from any of the earthquakes, but the seismic events were enough to raise questions: What's triggering the quakes and should we expect more soon? Georgia is located in the middle of the North American Plate, the vast tectonic plate that sits beneath almost all of North America, parts of the Caribbean, Greenland and much of the Atlantic Ocean. Earthquakes — particularly strong ones — are much more likely in places like California, which sit along major plate boundaries.

Still, small earthquakes are fairly common in Georgia, experts say. The state typically experiences between 10 and 20 earthquakes above magnitude 2.0 each year, said Andy Newman, a professor of geophysics at Georgia Tech.

As for what's behind the recent shakes, experts say it is difficult to say. Martin Chapman, a professor of geophysics at Virginia Tech, said Lake Lanier sits near what is known as the Brevard Zone, a major fault system that was active hundreds of millions of years ago when the Appalachian Mountains were forming. But most of those ancient faults are no longer active, and it's more likely that the quakes near Lake Lanier are occurring on minor, unmapped faults in the area, Chapman said in an emailed response.

The other quake near Dalton occurred at the southern end of the Eastern Tennessee Seismic Zone, which regularly experiences small earthquakes. Thomas Pratt, a research geophysicist at the USGS, said it's possible the Northwest Georgia earthquake is linked, but cautioned that quakes in that seismic zone typically occur much deeper below ground than the relatively shallow one that rumbled near Dalton.





Newman and Chapman both said there is evidence tying manmade reservoirs like Lake Lanier, the city of Atlanta's main water source, to earthquakes. Those events, however, usually occur after a reservoir is filled or sees major water level fluctuations. Levels in Lake Lanier have gone up and down at times in its history, but the lake's elevation has remained fairly steady so far this year, data from the U.S. Army Corps of Engineers shows.

The three earthquakes at the lake's southern end represent a "swarm" of seismic activity, but scientists say such clusters are also common. "Generally, if you have one earthquake, the best place to guess where the next earthquake is going to occur is right near the same location," said.

As for whether Georgia could feel more vibrations soon, experts say it's possible — but unlikely — that the small quakes are a precursor to a more damaging event. "My advice would be for folks nearby to not be overly concerned, but at the same time, be aware and prepared for the (unlikely) possibility of a stronger shake," Chapman said.

### Show us your AGS T-Shirt—Alaska Trip

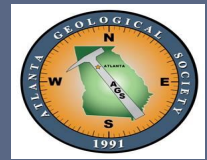
*Ben Bentkowski*

During the last two weeks of May, my wife Kathy and I took a land and sea tour of largest mountain in North America at 20,310 ft amsl. It is the main feature of the Alaskan Range, a 600-mile-long arc of mountains that stretches from the Alaska-Canada border all the way to the Alaska Peninsula. Mt. Denali could be seen up close during an exciting 'flightseeing' excursion, as shown in this view of Denali from the air. In Glacier Bay National Park, the cruise ship paused for extended viewing in sight of the Johns Hopkins glacier that winds down from the Fairweather Mountain range. We were there long enough to see an eagle chillin' on an iceberg and to see ice calving off the glacier.



*Left: Mt Denali from the air. Center: calving at Johns Hopkins Glacier, Glacier Bay. Right: me showing off my T-shirt at Johns Hopkins Glacier.*





### Show Us Your AGS T-Shirt: Morocco's Fossil Trade

John Clarke, AGS Secretary and Newsletter Editor

My wife and I recently returned from a 14-day trip to Morocco. We travelled throughout the country—Rabat, Fez, Erfoud, Ait Benhaddou, Marrakesh, Essaouira, and Casablanca. During the trip, we crossed the [Anti-Atlas](#), [High Atlas](#) and [Middle Atlas](#) mountains, albeit at 60 mph (it's a challenge during a general tour to get special stops for geologic features.) We were able to see the high Atlas Mountains at sunrise during a hot-air balloon ride near Marrakesh (photo at right). A geo-highlight of the trip was visiting fossil shops in and near the Sahara Desert.



*From Wikipedia: More than 50,000 Moroccans earn their living in mining, trading or exporting fossils and the industry itself is worth more than \$40 million annually. The fossil industry has been the source of various concerns. Some commentators worry that the industrial-scale excavations and insufficient governmental regulations are damaging Morocco's paleontological heritage. The export of fossils from Morocco is technically illegal, though the relevant laws are often not sufficient, or not applied in practice. There are also concerns for the safety and welfare of the fossil diggers themselves, who are often paid very little (considerably less than exporters and middlemen) and suffer through difficult working conditions. Scientific concerns have also been raised in that fossils may end up in the marketplace rather than available for scientific research, and that important fossils may be destroyed or neglected and lost due to being deemed to not be of commercial interest.*



Above: Worker polishing a slab containing *Orthoceras* fossils.

I was able to view and purchase fossils that the region is famous for. In Erfoud, on the edge of the Sahara Desert, we visited a large fossil store, that processed and sold more expensive fossils—packaged as coffee tables and larger polished items—mostly Ammonites, Orthoceras, and Trilobites. We were able to see fossils being cut and polished at this facility. As we travelled deeper into the Sahara, we saw many mom-and-pop fossil stores and also saw, pits where fossils are excavated. I visited one of the stores and was digging through boxes in one of the back rooms

with Ammar, the proprietor, but had to cut it short because the tour wanted to get going. I was tempted to purchase a large 12-inch trilobite, but was able to spot the fake, reconstructed portion of

the specimen (vendors will sometimes use car repair puddy to make fakes or to patch incomplete or damaged specimens.) I did purchase a desert rose and a sectioned and polished 3-inch ammonite for 100 dirham (about \$10). Later, I was able to purchase a larger sectioned and polished



Above: Ammar and me at his fossil shop in Erfoud.

# Atlanta Geological Society Newsletter

## June 2024



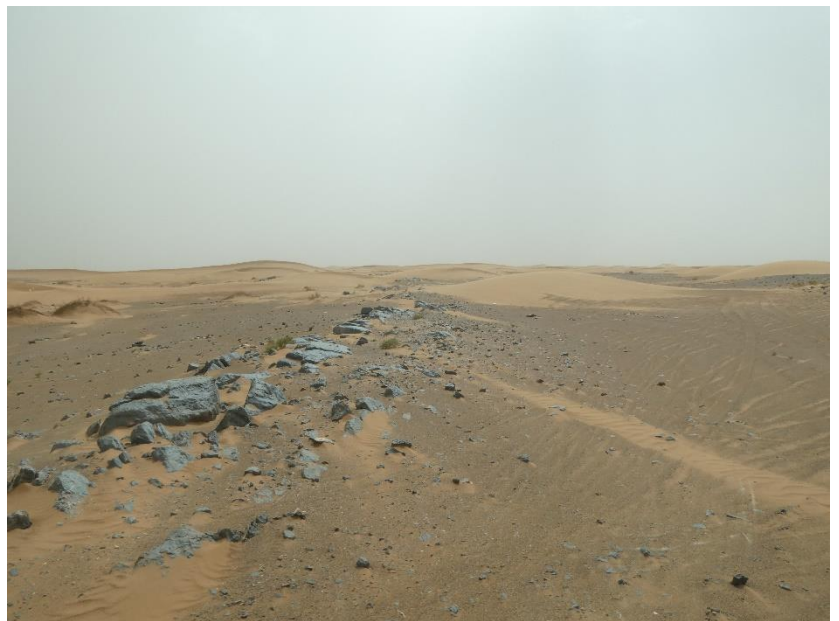
ammonite for 300 dirham (about \$30). A note about the Sahara—it looks just like the surface of Mars. Bedrock surface covered by red silt. We were caught in a sandstorm that suddenly appeared while we were viewing sights on top of a hill and had to quickly retreat to our cars.



Above: During our stay at Erfoud, the sink in our hotel room and at many of the restaurants was a polished slab featuring imbedded fossils. Below: Fossil specimens that I acquired during the trip.

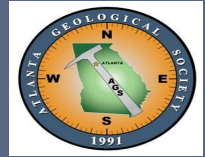


Above: Typical mom and pop fossil store in the Sahara Desert near Erfoud. Below: No, that isn't an image from the Mars Perseverance Rover, it's a photograph from the Sahara Desert south of Erfoud.



REF





### Recent Total Eclipse Inspires a (Way) Backward Look

Jim Renner, P.G.

I enjoyed Ginny Mauldin's article in the May newsletter about the April 8 total solar eclipse. The anxiety she felt as morning clouds threatened her experience of totality mirrored my nervous panic

when clouds blew through Clayton, Georgia as I awaited the moon's transit in front of the sun on August 21, 2017. Thankfully for both of us, the clouds cleared, and we were treated to the mind-blowing spectacle of totality.

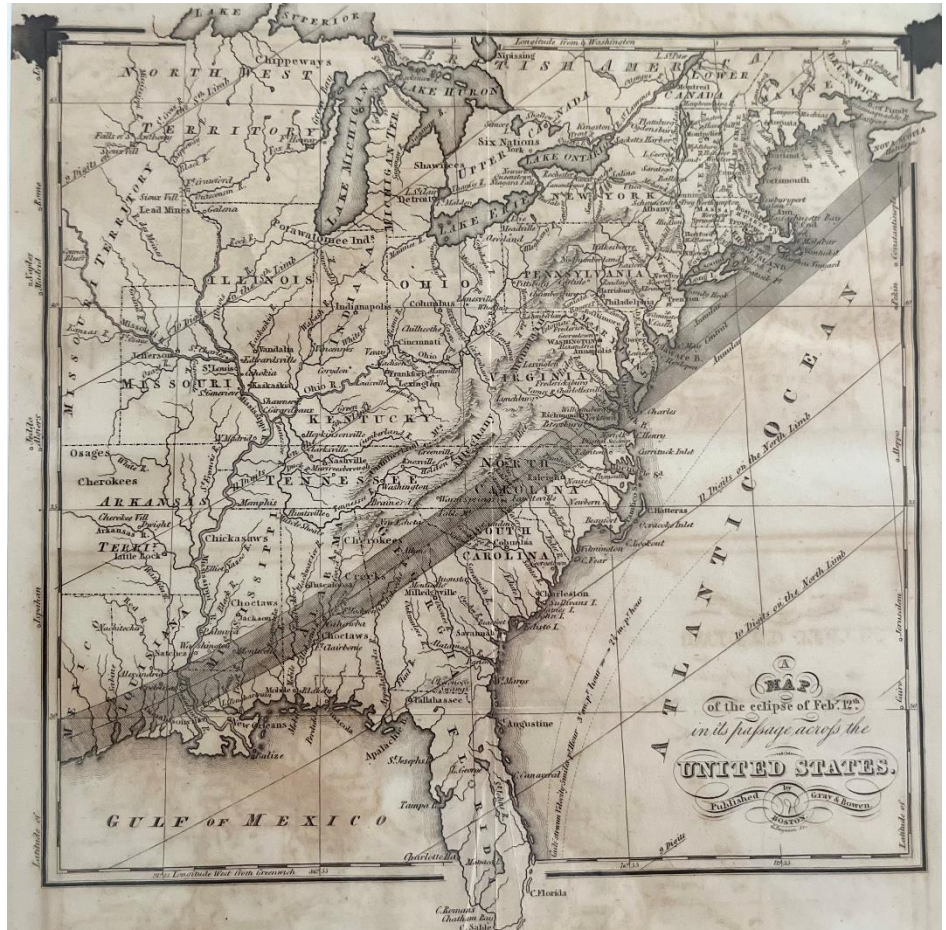
Ginny's account brought to mind my excitement after the 2017 eclipse. Inspired by what I had witnessed, I followed up with a little research on previous eclipses. I

can't recall exactly how I stumbled onto the February 12, 1831 eclipse, but I was intrigued to find out that a map of that eclipse's path in an almanac was the first portrayal of an eclipse on the North American continent.

Eventually, I tracked down *The American Almanac and Repository of Useful Knowledge for the year 1831 second edition*, published by Gray and Bowen of Boston. I was able to acquire a decent copy from a source on Bookfinder.com (the best search vehicle for books of all types).

The map in the Almanac is fascinating for many historical and geographic reasons:

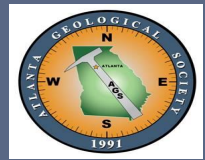
- The path of annularity (the 1831 eclipse was an annular eclipse) passed across the northern part of Georgia, with Athens directly in the middle of the path and Monticello on the southern edge.
- Atlanta would have been in the eclipse path, but it wasn't founded until 6 years later.
- The other Georgia cities and towns depicted on the map comprise an interesting historical snapshot: St. Marys, Darien, Savannah, Milledgeville, Augusta, and... New Echota, the Cherokee capital. It would be roughly 4 years before the Cherokee were forcibly evicted per the Indian Removal Act of 1830.
- Three of the other "Civilized Tribes" - the Chickasaw, Choctaw, and Creek (Muscogee) - are shown as the dominant occupants of the young states of Mississippi and Alabama.





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- Florida is shown on the map, but its status as a territory is not indicated. Florida would not achieve statehood until 1845. No towns are shown other than Tallahassee and St. Augustine, and there is no mention of the Seminole, the fifth "Civilized Tribe".
- Tracing a line on the map west from Georgia, one encounters Alabama, Mississippi, Louisiana, and... Mexico. Texas would not gain independence from Mexico until 1836 and would not become a U.S. state until 1845.
- In 1831 the states of Louisiana, Missouri and Illinois were the frontier, bounded by Mexico and the Arkansas, Missouri, Northwest, and Michigan Territories.
- The northwesternmost town noted on the map is Galena, Illinois, so named for the lead mines of the Upper Mississippi Lead Mine District defined by Congress in 1807.

Information on historical eclipses all over the world can be found at <https://eclipsewise.com>.

Surprisingly, Georgia was in the path of another eclipse just 3 years later. A total eclipse occurred on November 30, 1834, and the path of totality passed through the middle of the state.

The poster for the "Georgia Geology Coast to Coast" event features a background image of a sunset over a mountain range. The text is centered and reads:

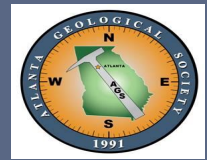
**Georgia Geology  
Coast to Coast**

**R. Scott Harris**  
Planetary Geologist  
Adjunct Researcher University of Georgia  
Sponsored Researcher Brown University  
Consulting Director, Charleston Planetarium  
Instructor, Gwinnett County Public Schools

June 26 – July 4, 2024  
Live-Streaming &  
Local Specimen ID Opportunities  
Details TBA

Friday, July 12, 2024  
8:00 p.m. EDT  
Recorded Film Broadcast  
Broadcast Details TBA

In the bottom right corner of the poster, there is a small inset photo of a man wearing a light blue shirt and a grey cap, smiling.



## Events Calendar

- June 25, 2024, 6pm:** Atlanta Geological Society annual BBQ Social. Contact John Salvino for more information: [johnsalvino@bellsouth.net](mailto:johnsalvino@bellsouth.net)
- July 27, 2024, 10am-12pm:** AGS PG Workshop—Topic: Petrology. Speaker: Steve Stokowski. Zoom only presentation. To join session [click here](#).
- August 15, 2024, 6pm:** Atlanta Geological Society executive committee meeting via zoom.
- August 24, 2024 10am-12pm:** AGS PG Workshop—Topic: Karst. Speaker: Steve Stokowski. Zoom only presentation. To join session [click here](#).
- August 27, 2024, 6pm:** Atlanta Geological Society Monthly Meeting. Speaker: Paulo Hidalgo, Ga State University. Topic: Igneous and volcanic petrology
- September 21, 2024 10am-12pm:** AGS PG Workshop—Topic: Engineering Geology. Speaker: Ben Black. Zoom only presentation. To join session [click here](#).
- September 27, 2024,** Fiber Optic Distributed Sensing as a Window on Subsurface Flow, 2024 Darcy Lecture by Dr. Matt Becker, Virtual
- October 3, 2024, 6pm:** Atlanta Geological Society executive committee meeting via zoom.
- October 4-6, 8am-6pm:** Graves Mountain Open House. For more information [click here](#)
- October 26, 2024 10am-12pm:** AGS PG Workshop—Topic: Geophysics. Speaker: TBD. Zoom only presentation. To join session [click here](#).
- January 15, 2025, 6pm:** Atlanta Geological Society executive committee meeting via zoom.
- January 25, 2025 10am-12pm:** AGS PG Workshop—Topic: Economic Geology. Speaker: Steve Stokowski. Zoom only presentation. To join session [click here](#).

## Fernbank Museum Events

### Upcoming Events

- Fernbank... but Later: Fossil Friday, August 30, 6:00 – 9:00 PM

### Exhibits

- **Flora, Fauna & Flight (March 23 – June 23)** Discover how plants and animals defy gravity through flight in this artistic outdoor exhibit along the nature walkways in WildWoods.
- **A Mirror Maze: Numbers in Nature (Coming soon! June 8 – September 9)** This interactive and immersive exhibit features a life-size mirror maze, that exposes the mathematical patterns that abound in the natural world.

### Fernbank's Giant Screen Theater is OPEN daily. Now Playing

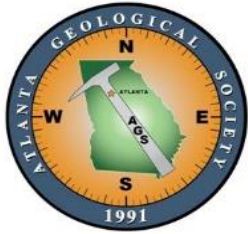
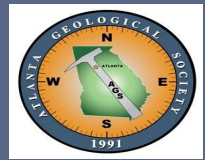
- Superhuman Body: World of Medical Marvels 3D
- The Arctic: Our Last Great Wilderness 3D
- *T. Rex 3D (opening June 21)*

## Tellus Science Museum Events

- June 19, 2024, 12:15pm:** Lunch & learn: Iceland, an island torn apart. Speaker: Dr. Tamie Jovanelly, Berry College. For more information [click here](#).

# Atlanta Geological Society Newsletter

## June 2024



### AGS Annual membership

- General: \$25
- Student: \$10
- Corporate: \$200
- [Click here to join](#)

### AGS Officers

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**Past President:** Vacant

### Our Corporate Sponsors



### AGS Committees and Activities

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