



Greetings! The group photo above includes some of those that attended the [2023 year-end awards ceremony](#). Please check out the link to the awards booklet on our website and see all the great things accomplished this past year. As most of you know, I am finishing out a 6-year commitment as Department Head. I've always labeled myself as a "Reluctant Head", not because of trepidation or unwillingness to do the job or be labeled as an "administrator". It was mostly because, as a once young enthusiastic scientist, I never aspired or thought to become a Department Head. Teaching, mentoring, and conducting research is what really drew me to be a geologist. For those that know me well, you know that if I agree to do something, then I will try to the best of my ability. Now that I have walked in the shoes of being Head, I can really say the department does a great job at meeting our mission, which you may recall is to *"provide the highest-quality teaching and research opportunities to the people in the State of Georgia, the scientific community, and the world."* The opportunity to see all the faculty, staff, and students in action to advance this mission, has truly been an honor. I have a much greater pride in our high level of diversity and achievements in the geosciences. My passions continue and I look forward to returning full time back to what brought me to UGA in the first place. Thank you for trusting me to guide the department. Adam Milewski will take the helm as next Head, and I am confident we will enjoy his leadership and vision for advancing us as the challenges and opportunities in the geosciences are confronted.

Regarding advances in the Schroeder critical zone group, we have successfully completed several projects. Holden Aronson defended his M.S. thesis, where he used cosmogenic nuclides to determine rates of erosion in the South Carolina Piedmont. Andy Darling was also involved in mentoring Holden, and we now have a better understanding of the long-term erosion rates. Compared to the much higher rates during the past 100 years, long term rates are 100 times slower. Holden was recognized as Outstanding M.S. Graduate student of the year, and he served as the captain for the 2023 IBA competition. He is now employed with Murphy Oil in Houston, TX.

Oluwaseun Adeyemi completed his M.S. thesis, where he worked with John Washington at the EPA to determine the relation of clay minerals in the fate and transport of PFAS (the toxic forever chemicals used and found almost everywhere). It appears that the clay-sized minerals in our soils play an important role, depending on the size of the PFAS molecules and soil conditions. Oluwaseun received recognition for his research at the annual meeting of the Clay Minerals Society in Austin, TX, where he was noted for best poster and given a student travel grant.



Oluwaseun has accepted an offer to study at the University of Texas, Dallas to continue research on contaminants in the environment. I continue to collaborate with my fellow critical zone scientists. I have been honored by being selected by the President of Istanbul Technical University to serve on their International Advisory Board. So as you can guess, connections between Turkiye and UGA continue to grow. Below is a picture of the IBA team that I advised. They did not advance to the finals, but the judges complimented them for their effort to develop a play located offshore NW Australia. Thanks to alumni Devon Verellen (Chevron) and Peter Lanzarone (BP) for mentoring the IBA team.



The Geology department had a great showing at the annual symposium for the Center for Undergraduate Research Opportunities (CURO). Our featured undergrads included Margaret

Burdell, Grace Cantele, Sophie Forbes, Jeremiah Funke, Davis Hardin, Jay Mrazek, Natelie Moss, Oskar Zuchner, and Kade McClain. Topics ranged from studies of Antarctic scallops, mercury in Mt. Etna Soils, sclerochronology on Ossabaw Island, deep crust in Italy, craters on Asteroid 4 Vests, cave water chemistry, osteobiography, and paleosediments in the Southeastern United States. We have a truly amazing cohort of undergrads, which are mentored by an equally great group of faculty.



The department has been working closely with the UGA Foundation to expand our endowment portfolio. The endowment enables our graduate students, undergraduates, and faculty to pursue research in the lab and field. Newly established funds include: The Skip and Cris Forsthoft undergraduate research and field school fund (to help with need based students to attend field camp); the Paul and Loretha Thiele graduate fellowship (to assist graduates student research in the discipline of clay science), the John and Barbara Dowd professorship in hydrology (for a faculty member researching in the field of hydrogeology); and the Doug Dvoracek Interdisciplinary Field Program (IFP) scholarship (for need based students participating in the summer IFP). We are extremely grateful to the people who have generously donated to sustain these funds. The Geology department is now on path to continue to grow all its Foundation endowments to benefit everyone in perpetuity. We were profoundly saddened by the passing of Doug Dvoarcek and the establishment of the IFP fund is a fitting tribute to his impact on teaching. Fair well friend.

We are proud to announce Pedro Monarrez (Ph.D. 2019) as our Outstanding Young Alumnus for 2023. Also, we are equally proud to announce Zach Hall (M.S. 1997) as our Distinguished Alumnus. Both Pedro and Zach have championed their careers, while keeping their alma mater in mind as they foster their ties and appreciate the training received at UGA. Other highlights of honor include Doug Crowe being voted by the undergraduates as Teacher of the year and Rob Hawman voted by the graduate students as Professor of the year.



Extreme gratitude is expressed to our Alumni Advisory Board. We had a great meeting this past April in Athens. Charlotte Abrams, Gigi Beaulieu, Jeff Blackmon, Ken Gillon, John Hayden, Daven Mashburn, Vince Matthews, and Kristen Woods participated in the annual meeting. Also present was Grant Eager who chaired the Board. Their advice continues to guide us, particularly this year as we are undergoing the 7-year cycle of program review for SAC accreditation. The alumni weekend event held at Akademia Brewing in Athens, GA was well received, and it was great to see a wide range of UGA Geology generations attending. It was hard to keep up with all the networking amongst the Geology alumni. Needless to say, we will do this again with the hope of expanding the participation and letting people catch up on old times, as well as meet new friends.



Erv Garrison's Geoarchaeology class successfully examined the ivy-covered mound in the front of Marine Science. Their work corroborated historical documents that describe the mound as Confederate earthwork built to protect the road into Athens now called Lumpkin. Students found evidence of potential disturbance by persons around 1995. That evidence is a Lincoln penny of that date 95 cm found down an auger test. Radar data show no internal structure to the mound suggesting it was thrown up as a simple revetment for soldiers and their weapons. Cannons were typically placed in such fortifications. The class found pieces of clear bottle glass with raised letters which were typical of Civil War era glassware/bottles. The glass came from 2 m depth in an auger sounding. Finally, a wood fragment recovered at almost 3 m depth is being dated by AMS-radiocarbon method this week. A report written in large part by the students will be given to the Office of University Architects.

In the Strat Lab, Steve Holland and his group continue their investigation of the stratigraphic paleobiology of nonmarine systems, and the papers are starting to come out, with two in *Geology* in the past year, plus one in *Paleobiology*. Our students were in the field as usual last summer, with post-doc Katie Loughney studying the Miocene of Nevada, Ph.D. student Samantha Khatri in the Cretaceous Hell Creek Formation of Montana, and M.S. student Marjie Cone in the Pennsylvanian Breathitt Group of Kentucky. First-year M.S. student Cade Orchard will begin a project in the Cretaceous Cloverly Formation of Wyoming. Steven Holland checked one off his bucket list last summer, with a week of field work on the Ordovician/Silurian extinction on Anticosti Island in Quebec. We're excited for Katie Loughney, as she has just accepted a faculty position at Murray State University in Kentucky. Together with long-time collaborator Mark Patzkowsky of Penn State University, Steve was recently awarded an NSF grant to lead their field conference on stratigraphic paleobiology. The third installment of this international



conference for graduate students will be held in the Tobacco Root Mountains and Upper Missouri Breaks of Montana in the summer of 2024. Photo caption: Vaureal Falls, Anticosti Island, Quebec.

In the last year, the members of the Center for Planetary Tectonics at UGA (CPT at UGA) have been busy. PhD student Jupiter Cheng along with undergraduate field assistant Jay Mrazek and advisor Christian Klimczak carried out field work in Hawai'i Volcanoes National Park. There, they studied the opening and dilation of fractures associated with the Koa'e Fault System. In the photo they are seen sitting on pahoehoe lava rock with Mauna Loa in the background.



Jupiter received multiple awards during her PhD, including the prestigious Pellas-Ryder award for best student paper in planetary sciences that is jointly sponsored by the Meteoritical Society and the Planetary Geology Division of the Geological Society of America. Jupiter graduated in Spring 2023 and is moving on to a visiting assistant professor position at Appalachian State University. Jupiter Cheng, Sydney Briggs, Stephan (Stevie) Loveless, and Christian Klimczak (from left to right) attended the 54th Lunar and Planetary Science Conference (LPSC) in Houston earlier this spring. Sydney presented her M.S. research on topographic changes

observed along lava channels on Venus, Stevie presented one aspect of his PhD research involving thrust fault-related landforms on Mercury, Jupiter presented on the tectonics on asteroid Vesta, and Christian Klimczak chaired the planetary tectonics and interiors session in which he also presented on tectonic patterns observed on Mercury. CPT also welcomed Abubakar Aliyu to the group. Abubakar will be studying thrust faults in the Colorado Rocky Mountains this summer. Jupiter was recognized as Outstanding Ph.D. graduate student of the year and had taken a position at Appalachian State University, in North Carolina.



This year Bruce Railsback focused on two very different projects. One was generation of a paleoclimatological manuscript summarizing results from twenty-three speleothems from inland Namibia (most papers talk about only one or two speleothems). The other was cataloging and packing decades of samples and thin sections collected by Bruce Railsback, George Brook, Gilles Allard, and Sally Walker for storage in a new Geology Repository organized and overseen by Doug Crowe. The UGA Sand Collection of 439 sands collected by innumerable friends of the Department of Geology is also now housed in the Repository. Meanwhile teaching narrowed down to only GEOL1122 (Earth's History of Global Change) because with Ray Freeman-Lynde's and Sue Goldstein's retirement, Bruce has become the only tenure-track faculty member teaching that course. We've had Dr. Kelly Kronin teaching GEOL1122 to cover added sections, while we propose to the Dean to authorize a hire in this area where the new faculty member could also teach GEOL1122. We are delighted to know that Kelly will be starting a tenure-track position at Georgia State University, Gwinnett campus this fall.

Avishek Dutta established a Geomicrobiology lab at the Department of Geology, UGA. His lab will be equipped with instruments for high-throughput nucleic acid extraction and analysis. Avishek Dutta presented at the Geology Colloquium and was invited to the UGA Department of Marine Sciences to give a talk. He became a topic editor for *Frontiers in Bioengineering and Biotechnology* and is editing a topic on "Xenobiotic and Emerging Contaminants in Ecosystems: Innovative Geo-microbial Strategies for Prevention, Efficient Clean-up and Biosafety" along with his colleagues. The provosts' new dual-career program accommodates faculty who have overlapping academic career goals. To that extent we have been able to hire Avishek's wife, Dr. Srimanti Duttagupta this fall term. She will be teaching sections of environmental geology as well as establishing a research program in her specialty area of environmental chemistry. It is great to get the entire family together in one spot, as Srimanti has been working at San Diego State University. Please visit Avishek's website: <https://duttalab.franklinresearch.uga.edu/>

Mattia Pistone and students did research in Italy, Switzerland, and Germany in Summer 2022. Undergraduate students Jeremiah Funke and Grace Cantele obtained CURO Summer Research Fellowships for fieldwork missions in the Ivrea-Verbano Zone (Western Alps, Italy) and at Mt Etna (Sicily, Italy), respectively. Graduate student Andrew Maendel obtained the ThinkSwiss Fellowship to conduct advanced geochemical analyses of deep crustal rocks at ETH-Zurich. All these students are completing their theses between May and July 2023. Graduate student Carly

Daniel undertook fieldwork at Mt Etna (Italy) and research at the DESY Synchrotron Facility in Hamburg (Germany) in Summer 2022. Carly Daneil, Kaitlyn Hulsey, and Jackson Oakey started as new TAs at the Department of Geology in Fall 2022, and all were awarded the Watts-Wheeler Fellowship, with Kaitlyn conducting research on Stone Mountain granite and Jackson working on Lipari Island (Italy). Mattia obtained \$30k in instructional funds, received the 2023 FYO Award, the 2022 M.G. Michael Award, and was recently awarded the



NSF grant on "The excess gas paradox at volcanoes: does CO₂ favor gas accumulation in mafic magmas?" (\$442,241) by the National Science Foundation – Division of Earth Science – Petrology and Geochemistry Program in May 2023. This year, Mattia was one of the nine presenters at the 10th anniversary event "Roots" at TEDxUGA:

https://www.youtube.com/watch?v=qvVHHZUex3E&ab_channel=TEDxTalks

<https://tedxuga.com/the-event-2023/#x-content-band-8>

As mentioned above, all our faculty and students are busy and being productive. I encourage you to visit our website and faculty web pages to get the latest updates. If a faculty member, student, or alumnus is not mentioned in this newsletter, it does not mean they are idle. I am sure you will be seeing updates for others in the next newsletter. Please stay in touch.

Looking forward to seeing more of you at the next alumni event!

Best,

Paul Schroeder
Professor and Head

