



Ready . . . Set . . . GEO!

NEWSLETTER

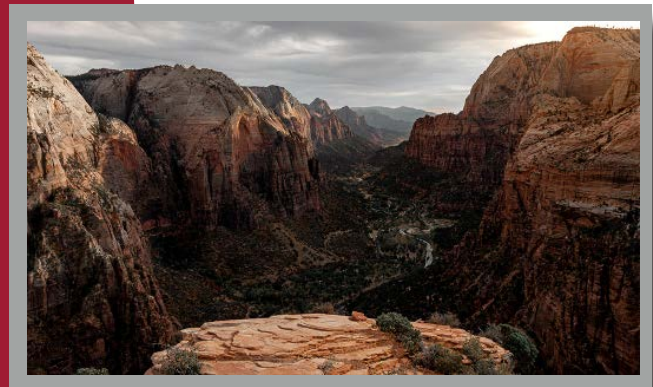
Fall
2022



THE UNIVERSITY OF ALABAMA®
Department of Geological Sciences

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Contact Dr. Delores
Robinson on [LinkedIn](#)
to join the DGS
Alumni Group

Find us on 

Photos provided by faculty, staff,
alumni, and students



A letter from our Chair

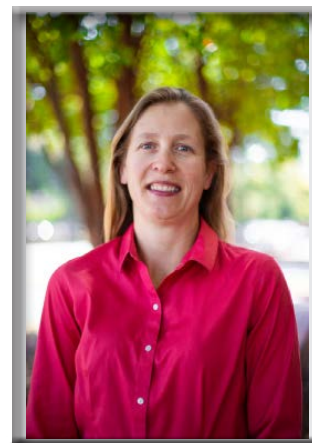
Dr. Delores Robinson



THE UNIVERSITY OF ALABAMA®
Department of Geological Sciences

The Department of Geological Sciences had an excellent year! We were mostly in person throughout the academic year with some flexibility needed during certain times. Happily, our classes, labs and field trips went forward as before....pre-pandemic – our isolation [mostly] ended! Our faculty, staff, graduate students and undergraduate students put forth maximum effort to maintain effective teaching, innovative research, and high-quality publications. For more information on our achievements, please check the “Highlights” section. I am proud of everyone for persisting and bringing joy to the department. I hope that this newsletter updates you on our activities and perhaps entertains you. Roll Tide!

Delores



Faculty and Staff



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Matthew Wielicki
Assistant Professor



Bo Zhang
Associate Professor



Yong Zhang
Professor





Fred Andrus

Professor

I had a productive research sabbatical this past year and now look forward to returning to the classroom and teaching introductory geology, which has

always been my favorite course. The sabbatical began Fall 2021 at the Johannes Gutenberg University in Mainz, Germany where I conducted a month of research funded by the German Academic Exchange Service (DAAD – somewhat like a German equivalent of a Fulbright). There Prof. Bernd Schöne taught me techniques to better resolve microstructures in ancient clam shells as part of a National Science Foundation (NSF)-funded project focused on determining past variation in Bering Sea ice cover. Ph.D. student Christine Bassett continued measurements on these samples after I returned to campus and we will present our results at the upcoming GSA meeting and publish soon.

After returning from Germany, I devoted much of my time to research a bit closer to home in the Gulf of Mexico. I hosted a visiting scientist from Florida working on a NOAA-funded project measuring stable isotopes in oyster shells related to Holocene Gulf sea level rise. After that, I wrote an American Chemical Society Petroleum Research Fund grant proposal to measure the growth rates of coralline algae carbonates at the Flower Garden Banks National Marine Sanctuary. These banks are carbonate-capped salt domes about 100 miles offshore of Galveston, TX. I also applied to NOAA for permission to take additional samples there. I was excited that the grant was funded, and NOAA agreed to host MS student Sarah Olmstead on a research cruise in September where she will collect samples using a remotely operated submarine. Sarah and I also analyzed some of the coralline algae we already had in our possession (thanks to alumnus Hillary Sletten!). Based on these preliminary data, these carbonates grow far slower than similar carbonates from the Mediterranean and Gulf of California, which may have important implication for understanding Gulf of Mexico reef formation processes.

In another local project, albeit on much more ancient materials, Gozde Degirmen (co-advised by me and Tom Tobin) completed and defended her MS thesis. She analyzed the ammonite fossil remains collected in Alabama's Cretaceous Mooreville Chalk. Her research is the first sequential analysis of isotope variation in ammonite aptychi (part of their mouth). Her data give insight into past behavior and environmental conditions. We are all now working on a publication stemming from this research.

I also began laying the groundwork for more research in the

North Pacific, where I have increasingly focused my interests in recent years. The opportunity arose from a videoconference talk I gave for the University of Georgia that was attended by some Canadian archaeologists. We followed up with several conversations concerning research they were conducting on behalf of the Haida nation and Canadian government in Haida Gwaii, British Columbia. I became fascinated with the place and possible opportunities to explore evidence of past climate change. As a result, I traveled there this summer to better understand its unique maritime rainforest environment and rich marine ecosystems. While I have not yet started an official project there, this is a key first step for future work, and I am grateful for the freedom to pursue this new direction.

This time to focus on research also permitted me to explore some new stable isotope lab techniques. For the past few years, I have analyzed nitrogen isotopes from the tiny amounts of organic matter preserved in biominerals, like ancient mollusk shells. This is a novel technique and the technology to make these measurements is still catching up to the theoretical potential. These measurements are useful to assess some types of aquatic pollution, ocean current dynamics, and biological productivity. For example, MS student Jamekia Durrough-Pritchard is comparing nitrogen isotopes in mussels from Alabama river systems and detects patterns linked to agricultural runoff. However, I hit an analytical dead-end on a recent collaboration analyzing fossil clams from Gulf of Mexico sediment cores. Joe Lambert (Alabama Stable Isotope Lab Manager and DGS alumnus) and I pushed our current instruments to their limits but could not measure the isotopes in these samples because they had lost so much organic matter due to diagenesis. As a result, we are working with colleagues at other universities and several mass spectrometer manufacturers to configure a new instrument capable of analyzing minute samples, yet still permit us to analyze large numbers of samples quickly. An NSF proposal will be submitted in coming weeks and we hope it will lead to new capabilities in the Alabama Stable Isotope Lab.

My research benefited from this chance to refocus after so many years in administration. I was able to find the time to wrap up some older projects by publishing four peer-reviewed papers, but the possibilities the sabbatical opened up for future research are more exciting. Now with additional grant funding in place, better analytical tools under development, and several new projects coming into focus, I am optimistic about what this next year will hold.



Ibrahim Çemen

Professor



Fieldwork in Central Anatolia, Turkey

In the 2021-22 academic year, I cautiously enjoyed being around people again and conducting fieldwork. My USGS EDMAP program grant supported two graduate students, Rita Adamec and William Priakos, to conduct field mapping projects in Alabama. Their mapping will provide new data for the geology of the transition zone between the southern Appalachian fold-thrust belt and its foreland basin. One of my MS students, Adrian Wiggins, completed his MS thesis titled "Heat Flow in the Buyuk Menderes Graben, Turkey: Implications for Geothermal Potential of the Graben." Adrian's thesis is the first of, hopefully many, MS thesis related to Geothermal Energy resources. Adrian is now working for a Geothermal Resources development company in Reno, Nevada.

During the fall 2021 semester, I taught GEO 365; Structural Geology, and GEO 403/503; Petroleum System Analysis. In the spring 2022 semester, I taught a new course, GEO 433/533; Tectonics and Sedimentation. I enjoyed being in the classroom again with the students after the hiatus created by the COVID Pandemic.

I am happy to report that my colleague, Elizabeth J. Catlos of the University of Texas at Austin, and I completed editing our first volume of three AGU-Wiley "Tectonics; A Global View" Series books. Volume 1, "*Compressional Tectonics: Plate Convergence to Mountain Building*", will be on sale in printed form during the AGU-Annual Meeting in Chicago in December 2022. The content of the book is as follows:

- Ch. 1; Introduction; **by** Catlos, E. J., and Çemen, I.,
- Ch. 2; Subduction and obduction processes: the fate of oceanic lithosphere revealed by blueschists, eclogites and ophiolites; **by** Agard, P.; Soret, M.; Bonnet, G., Ninkabou, D., Plunder, A., Prigent, C., and Yamato, P.,
- Ch. 3; Genesis of Himalayan stratigraphy and the tectonic development of the thrust belt; **by** Robinson, D. Martin, A.
- Ch. 4; Records of Himalayan Metamorphism and Contractional Tectonics in the central Himalayas (Darondhi Khola, Nepal); **by** Catlos, E. J.
- Ch. 5; Lateral heterogeneity in convergent mountain belt settings; **by** Giri, B., and Hubbard, M.

- Ch. 6; Tectonics of Southeast Anatolian Orogenic Belt; **by** Yilmaz, Y., Yigitbas, E., Çemen, I.,
- Ch. 7; Tectonics of Eastern Anatolian Plateau; Final Stages of Collisional Orogeny in Anatolia; **by** Yilmaz, Y. , Çemen, I., Yigitbas, E.
- Ch. 8; Tectonic Development of the Ankara-Erzincan Suture and Eastern Pontide Mountains, Northeast Anatolia, Turkey **by** Yilmaz, Y., Yigitbas, E., Çemen, I.,
- Ch. 9; A Review of the Dynamics of Subduction Zone Initiation in the Aegean Region; **by** Catlos, E.J. and Çemen, I.
- Ch. 10; When and why the Neo-Tethys ocean begins to subduct along Eurasian margin: a case study from Iran **by** Wan, B., Chu, Y., Chen, L., Zhang, Z.
- Ch. 11; Stratigraphic and Thermal Maturity Evidence for a Break-Back Thrust Sequence in the Southern Appalachian Thrust Belt, Alabama, USA; **by** Pashin, J.,
- Ch. 12; Strain Partitioning along the Ouachita fold-thrust belt Arkoma Basin Transition Zone in Southeastern Oklahoma and Western Arkansas **by** Çemen, I., and Yezerski, D.
- Ch. 13; Extensional Collapse of Orogens: a Review with an example from the Southern Appalachian Orogen **by** Foster, D. A. Chong, M., Goscombe, B., Mueller, P.,

We are now about to complete Volumes II and III, listed below. We plan to have these volumes on sale during the AGU 2023 annual meeting in San Francisco:

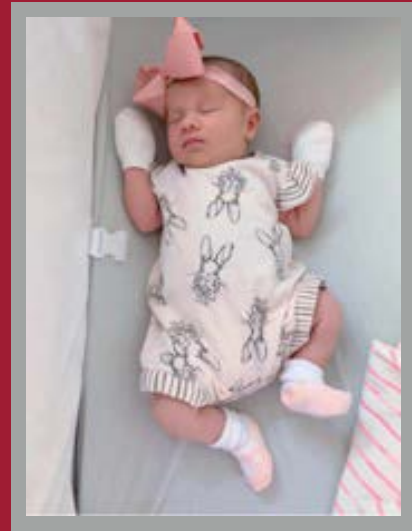
Volume II. Extensional Tectonics: Continental Breakup to Formation of Oceanic Basins;
Edited by Ibrahim Çemen and Elizabeth J. Catlos

Volume III. Strike-slip Tectonics: Oceanic Transform Faults to Continental Plate Boundaries;
Edited by Ibrahim Çemen and Elizabeth J. Catlos



Rona Donahoe

Professor



Rona Donahoe currently has two externally funded research grants and a third project is expected to start this fall. Dusty Hawkins completed his M.S. degree and graduated in May 2022. Three other M.S. students (Steven Young, Jr., Abby Friedman and Alyssa Kandow) have been working hard on their thesis projects and are expected to complete their degree requirements this fall. Ibrahim Okunlola is beginning his second year in the M.S. program, working as a GRA for a DOE project on critical minerals. Kalyn Tew is in the second year of her Ph.D. program while working full-time for Safe State. She will investigate the REE content of coal ash samples as part of her dissertation research. Publications include 8 abstracts with papers presented at the 2021 and 2022 AWRA Conferences, the Goldschmidt Conference and the International Clay Conference, and an article published in Science of the Total Environment. Jim and Rona welcomed a second grandchild to the family in May, spending several weeks in Texas to help with the new arrival. They also enjoyed a relaxing 7-day Hawai'ian cruise immediately after the Goldschmidt Conference, biking down Haleakala on Maui and snorkeling with the dolphins offshore of Kawai'i, along with several other excursions.





Samantha Hansen

George Lindahl III Endowed Professor

Assistant Department Chair

Over the past year, I have continued to serve as Assistant Department Chair, and I spearheaded the department's five-year review. I also took over as the Chair of the IRIS-PASSCAL Standing Committee, which helps oversee instrumentation needs for national and international seismic projects, and I have been actively involved with the upcoming IRIS-UNAVCO merger to form the new Earthscope Consortium. I'm also in the process of submitting/resubmitting several grants for field campaigns in both Antarctica and Greenland, and I have been working with several colleagues at Arizona State University and The University of Leeds to combine seismic constraints with geodynamic modeling to look at how subduction processes may relate to ultra-low velocity zone (ULVZ) structures imaged above the Earth's core-mantle boundary.

The graduate students in my lab, Hesam Saeidi (Ph.D.), Long Ho (Ph.D.), and Kayode Agboola (M.S.), have all made good progress on their research projects. Hesam is working to develop new seismic tomography models for Africa to assess the influence of the Large Low Velocity Province on surface processes, and he recently submitted his first paper. Ryan Haag, one of our undergraduate majors, helped with data processing for the tomographic models. Long is assessing different approaches to automatically detect seismic events and is applying these techniques to signals recorded in East Antarctica. Kayode is building upon some of my previous work to expand ULVZ investigations beneath the southern hemisphere using an extensive dataset from seismic stations deployed throughout Antarctica. All three graduate students plan to present their research at the upcoming American Geophysical Union meeting, which will be held in Chicago in December 2022.

With travel restrictions becoming less of an impedance, it has been nice to have in-person meetings with my friends and colleagues again. Recently, I also took a two-week trip to Namibia. The landscape there is stunning and includes the oldest sand dunes in the world. I also saw all of the Namibian "magnificent seven" during my trip: elephants, buffalo, rhinos, lions, leopards, giraffes, and cheetahs (among many other amazing animals). If you ever have a chance to visit, I highly recommend it!



Sand dunes in Sossusvlei, which are about five million years old



Group photo from the Earthscope Governance Workshop, held in April 2022 in Fort Collins, Colorado



Cheetah at the Namib Carnivore Conservation Center



Harold Stowell

Professor

RadIs Lab



I spent the 2021-2022 academic year teaching Introduction to Mineralogy, Dynamic Earth, and Critical Minerals, and expanding my research in the Southern Appalachians. Much of the remaining time was spent helping graduate students to finish their degrees. This resulted with Hannah Dickson completing her MS during the spring of 2022 and Savanna Gutapfel nearing completion.

During the summer of 2022, I was able to spend time at my house in Colorado, make a week-long trip to Alaska, and make a 22 day transect of the Northwest Passage. The Alaskan and Northwest Passage trips were contract work as a Lindblad Expeditions naturalist on the National Geographic Venture and National Geographic Resolution, respectively. The Northwest Passage trip was an epic adventure which included completion of the earliest recorded passenger trip through the passage, three days of cutting through ~1 meter thick sea ice, introductions to Inuit villages in Nunavut, and numerous polar bear and whale sightings.

Research continued to be a major focus throughout the year. Much of my time was spent on expanding the geochronological and metamorphic databases for the Southern Appalachians. Metamorphic rocks in the southernmost part of the Appalachians preserve rocks with distinctly different temperature and pressure histories. For example, the rocks in North Carolina, were only metamorphosed during the early Paleozoic Taconic orogeny whereas those in Alabama record metamorphic garnet growth during the late Paleozoic Alleghanian orogeny. However, the regional extent of these Alleghanian metamorphic rocks is unknown. Structural data from the Carolina Piedmont have been used to infer viscous flow of high temperature metamorphic rocks during the late Paleozoic. The new data from the southernmost part of the Appalachians in Alabama will provide a test for this hypothesis and possible formulation of new tectonic models.



I continue to work on an on-going project near Wrangell Alaska with sampling of igneous and metamorphic rocks along a traverse across the Coast Mountains batholith that was initiated in British Columbia during the summer of 2019. These samples are being studied in order to reconstruct the magmatic and tectonic history of the largest batholith in the world which stretches from

northern Washington State to the Yukon territory, Canada. Of primary concern is evaluating mechanisms that trigger pulses of magmatic activity or high-flux events which produce most of the plutons in the batholith.

Much of my research continues to focus high precision isotope data from the VG Sector 54 thermal ionization mass spectrometer in the RadIs lab ([https://](https://radis.as.ua.edu)

radis.as.ua.edu). My most recent efforts are to determine the age of garnet growth in metamorphic rocks from continental magmatic arcs exhumed in Fiordland New Zealand and western Cordilleran Coast Mountains, and from thrust sheets in the southernmost Appalachians. Ongoing work is evaluating the

origin of observed high fluxes of magma during brief periods of arc subduction in both of the magmatic systems, and evaluating crustal flow and thrust stacking sequences in the Appalachians.

Finally, I initiated a new project to evaluate graphite deposits in the metamorphic rocks east of Canton, AL. This project is focussed on understanding the spatial extent of the graphite-rich rocks and the genesis of the highly enriched ores. This work is being enabled by a USGS-EDMAP grant for mapping the Mitchell Dam NW Quadrangle, and collaboration with Westwater Resources.

Research over the last several years culminated in several publications during the 2021-2022 academic year. Including, new papers in the Journal of Metamorphic Geology and Journal of Petrology. Both of these were co-authored with my former PhD student Dr. Elizabeth Bollen.



Natasha Dimova

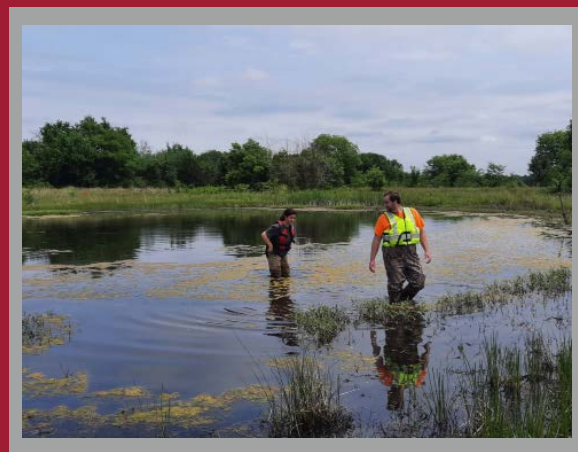
Associate Professor

Our research group had a busy and productive year. Dr. Dini Adyasari, who joined us in the fall 2020 as a post-doctoral fellow, and Dr. Dimova published two papers together. They also gathered a team of distinguished scientists to produce a review publication on the application of radon as a groundwater tracer which is currently under review in *Earth-Science Reviews*. This is a long-coming (and wanted) review by the radon tracer hydrological community. It will include free R-codes for the most used radon mass-balance models for evaluating groundwater discharge in various hydrological environments, including the coastal zone, estuaries, lakes, and river systems. This work aims to set the standard for using radon as a tracer in hydrological studies. Parallel to this effort, Dr. Dimova has been collaborating with Dr. Bochao Xu's research group from the Ocean University of China on a few more publications revealing the results of developing a new method for measuring radon in surface waters. The unique instrumentation was produced and tested in China. Dr. Xu's group is building a prototype of the system for our research lab to be deployed offshore in Mississippi as part of our collaborative project with USM/MSU ongoing submarine groundwater discharge project funded by MBRACE. The new system has significant advantages compared to the currently used instrumentation as it allows for autonomous measurements at up to 40 m depth offshore. This will open new opportunities for tracer studies farther on the continental shelf. We believe that the combination of the free access of radon models via R-code provided by our review paper with the new radon instrument will significantly facilitate the use of radon as a tracer for long-term monitoring by researchers with less technical expertise. We are excited to be one of the driving forces in the new area this method is entering.

During the last week of May, Dr. Adyasari and Dr. Dimova participated in a field expedition that is a current outgoing project in our research group on using radon as a tracer for recharge in a karst aquifer in Oklahoma. This project was established by John Ellis, the first MS graduate student of Dr. Dimova, who is currently a senior hydrogeologist in the Oklahoma-Texas Water Science Center. We are delighted that our students continue working with our group even after graduating. John Ellis is highly successful, respected by his colleagues, and brought considerable funding to his USGS research group.

We were equally very proud of Dr. Adyasari, who accepted a tenure-track position in the Department of Marine and Coastal Studies at TAMU Galveston, TX this spring. Dr. Adyasari is projected to start in January 2023. This confirms that the Gulf Coast institutions see our research, and we look forward to expanding our collaborations with Dr. Adyasari and her new colleagues. We want to see more of our alums following in her footsteps in academia in the future.

Finally, we are excited that our research group is expanding with a new Ph.D. student from Poland. Stanislaw Kurowski, who recently graduated with MS in Marine Science Chemistry from the University in Gdansk, worked with Dr. Dimova in the fall of 2019 while she was on sabbatical at the Black Sea. Stephen Anderson, who became a Ph.D. candidate this summer, will be showing him the ropes during a field expedition our research group projects in the coastal areas of Alabama in August. We highly value the continuity in our research group and work to build an extended research family across boundaries and stay connected.





Alain Plattner

Assistant Professor

Plattner Geophysics Group



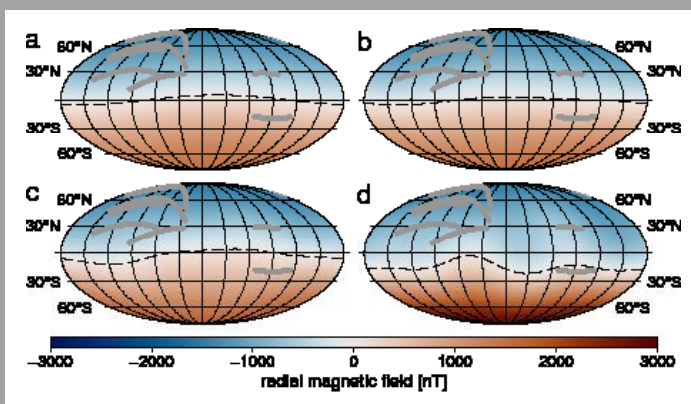
Ground penetrating radar on the summit of the mound at Snow's Bend.

The main focus of my research group is planetary magnetic fields to understand the geology and geologic history of various planetary bodies in our solar system. Our secondary field of study is near-surface geophysics, where we use methods such as ground penetrating radar, electrical resistivity tomography, and induced polarization to study the geologic materials of the shallow-most few tens of feet. This secondary research focus lends itself to collaboration with a wide range of colleagues from different fields including hydrologists, archaeologists, engineers, etc.

Our group currently consists of two Master's students and an incoming PhD student this Fall. My most senior graduate student Alyssa Mills is getting close to graduation (expected this Fall). Alyssa has been studying the core magnetic field of Jupiter's moon Ganymede. After her graduation, Alyssa will start her PhD at Baylor University. My Master's student Ramon Richardson studies the crustal magnetic field of the planet Mercury. His goal is to understand what geologic process created the unevenly distributed crustal magnetic field. A current hypothesis is that asteroid impacts may have locally brought in magnetic carriers. Ramon will test this hypothesis by determining the depth to the magnetic carriers. My incoming student Rezvan Soltanabadi will study the wide range of crustal magnetism found on Mars. Among the questions she is trying to solve are: What geologic processes may have created the weak crustal magnetic fields in Mars' northern hemisphere and whether the geologic processes that created the strong magnetic fields in Mars' southern hemisphere could have released hydrogen gas at a shallow enough depth to feed any potential early life in Mars' subsurface. This work will be funded through a \$490,000 research grant from NASA, which my group received this Summer.

Our group recently submitted an article for publication on Jupiter's moon Ganymede's. Ganymede is the only moon in our solar system with a known active core magnetic field. For the last 20 years, Ganymede's core magnetic field has been thought to be generated by convection deep inside Ganymede's outer core and that a substantial fraction of Ganymede's outer core may not be contributing to the generation of Ganymede's core field. Such a magnetic dynamo would be very different from Earth's

geodynamo, where convection in the entire outer core contributes to Earth's magnetic field. My group challenged these 20 year old results in collaboration with the University of British Columbia, the Planetary Science Institute, and the Jet Propulsion Laboratory. We recently submitted a research article demonstrating that presently-available spacecraft data can not constrain what parts of Ganymede's outer core contribute to its magnetic dynamo. We did, however, show where future spacecraft flybys need to collect magnetic data to solve this open question.



Different possibilities for Ganymede's core magnetic field based on presently-available spacecraft flyby data (gray lines). Dashed black lines show the magnetic equator. (a) A purely dipolar field. (b) A field generated only deep inside Ganymede's outer core. (c) a field generated throughout Ganymede's outer core. (d) A field generated throughout Ganymede's outer core for a larger core radius. All four solutions fit the data equally well.

In collaboration with colleagues from the Department of Anthropology here at the University of Alabama, we published a research article studying the construction phases of a Native American mound at Snow's Bend along the Black Warrior River. We used ground penetrating radar, electrical resistivity tomography, and induced polarization to image the inside of this mound. We found that this mound was built as an extension of an earlier mound and that both construction phases of this mound had the same platform terracing. This finding has implications for the study of how the usage of the same mound may change over generations. My group is also collaborating with colleagues at UA's Department of Biology to image the subsurface of an intermittent stream at the University's Tanglewood Biological Station. The goal of this collaboration is to better understand the drivers behind stream drying in the Coastal Plain headwater streams and how vulnerable these systems are to climate change.



Rebecca Totten

Assistant Professor

Sedimentary Geology and Micropaleontology Lab

This year has been productive for the Sedimentary Geology and Micropaleontology Lab! We moved to a new space and have been processing several hundred samples for dating, microfossil and nannofossil assemblages, particle size, and isotope analysis! We have conducted field work offshore Antarctica and offshore Alabama this year, and one of our team is sailing with IODP to the Iberian margin this fall!

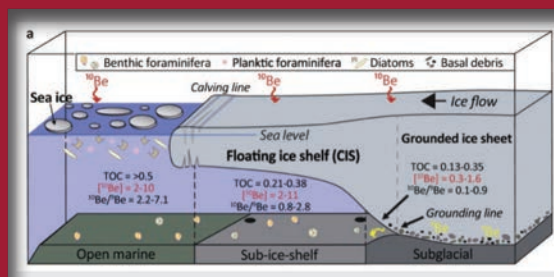
ANTARCTIC RESEARCH: We continue to progress on our NSF-funded Thwaites Glacier project, which is an international collaboration with colleagues across the US and UK to study the past and present stability of the glacier so that we may better predict its future. Our intrepid Ph.D. student Asmara Lehrmann sailed to Antarctica for a second 3-month expedition to



collect samples from the seafloor offshore of the West Antarctic Ice Sheet. Not only did she sample dozens of sediment cores for tiny single-celled protists called foraminifera, but she also collected underway seawater samples for living phytoplankton called diatoms. Many of the areas that our team sampled have never been accessed before, so we will learn all about the ocean and seafloor populations from these samples! After publishing some of our first results about how newly mapped deep ocean troughs serve as conduits of warm deepwater to the glacier in *the Cryosphere* (Hogan et al., 2020), we published new results on meltwater-derived sedimentary deposits offshore the glaciers in *Frontiers in Science* (Lepp et al., 2022). We are publishing in *Nature Geoscience* with unprecedented high-resolution bathymetry collected from an underwater vehicle under the ice during our 2019 research cruise (Graham et al.,

in press). We were able to show that the tides influenced the retreat of the glacier in the recent past, and Thwaites Glacier receded at rates that we have not observed in real time before. This is concerning for the future of the glacier as it continues to accelerate and thin. Asmara will be co-chairing a session on the “Holocene to Historical Context of Recent Ice Loss in the Amundsen Sea Embayment and along the West Antarctic Coast” at the American Geophysical Union this December.

I also collaborated with colleagues from University of Tokyo to analyze samples from offshore the Cosgrove Ice Shelf, Antarctica—which we previously demonstrated retreated in the Mid to Late Holocene due to under-melting by a warm deepwater mass that currently is observed in these basins (Totten Minzoni et al., 2017). We were able to apply a new geochemical technique to the sediment core samples (using Beryllium-10) and demonstrate that direct atmospheric warming also de-stabilized the West Antarctic Ice Sheet in the Early Holocene (~10-6 thousand years ago) due to atmospheric river connections with the warm Tropical Pacific at the time (Sproson et al., 2022, *Nature Communications*). Understanding the different variables that can affect glacial stability through past records of change is imperative to building predictive models of how the ice sheets will change in the future and estimate sea-level rise, which will ultimately impact the Gulf Coast.





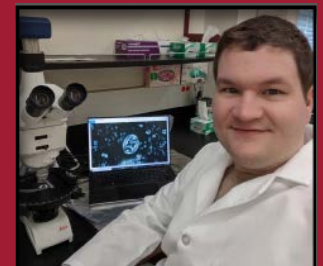
GULF COAST RESEARCH: We are funded by the Bureau of Ocean Energy Management Marine Minerals Program to investigate sediment resources offshore Mississippi, in collaboration with the University of Southern Mississippi. Vibracores and seismic collected in the outer continental shelf offshore Petit Bois and Horn Islands are used to reconstruct coastal evolution since the Pleistocene and characterize volumes of sediment resources--especially sand for beach renourishment efforts--in paleo-valley systems. Dr. Totten leads the microfossil assemblage analysis of sediment cores, which can help fingerprint past environments associated with sedimentary facies to better predict their distribution both laterally and chronologically. Dr. Emily Elliott collaborates on this project (picking lots of forams!) and is now starting a faculty position in UA New College and the Department of Geography this semester!

Dr. Totten and Dr. Elliott have been collecting, describing, and analyzing sediment cores in Mobile Bay, Weeks Bay, and Mississippi Sound. Our research in these study areas has focused on investigating how the bays have evolved since they flooded and formed ~8,000 years ago. We analyze the sediment cores continuously for laser particle size to identify variability in the sand fraction, which corresponds to high energy events such as storm washover from the barriers and floods from the deltas. Dr. Totten and PhD student Asmara Lehrmann have also applied new methods to measure elemental composition and characterize marine vs. terrestrial influence alongside microfossil and stable isotope proxies to reconstruct flood histories for the last 6,000 years (Totten Minzoni et al., 2020; Lehrmann et al., in prep). Ongoing research with USM will investigate the storm history from sediment in study areas behind Dauphin Island, with new piston cores and vibracores collected with Dr. Elliott's Marine Geology class at Dauphin Island Sea Lab this summer!

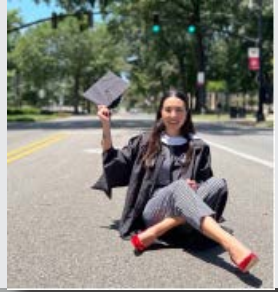
Undergraduate researchers Sasha Epps and Will Farris have quickly gotten their research chops in the new lab while picking foraminifera tests (microscopic shells) for assemblage analysis of sediments offshore Mississippi.



ISTHMUS RESEARCH: Our resident nannofossil expert, Ph.D. student Will Clark, won a grant to sail with the International Ocean Discovery Program (IODP) on an expedition to the Iberian Margin, where he will be develop site biostratigraphy and study the ancient history of the Strait of Gibraltar, which connects the Mediterranean to the Atlantic Ocean. Understanding isthmus history is quickly becoming Will's forte, as his main dissertation project focuses on the paleoceanography of the Central American Seaway and the closing of the Isthmus of Panama from IODP drill cores and the tiny nannofossils contained within the 15- to 25-million-year-old sediment. Will has been diligently counting many thousands of these tiny fossils under the microscope and writing his first manuscript in preparation for his 2-month expedition in October!



Congratulations to the recent DGS Alumni!



Name: **Gozde Degirmen**

Year Graduated from UA: Spring 2022, M.S.

Advisor: Dr. Fred Andrus

Thesis Title: *Sequential Isotopic Analysis of Ammonite Aptychi*

Job Title: Geological Engineer (Major; Ammonite) in General Directorate of Mineral Research and Exploration, Turkey

During almost every moment that I was in the UA, I gained a bunch of experiences about both geologically and culturally. Thanks to both of my advisors, I have gained new perspectives in my geology life. I am going to miss you all. Roll Tide!



Name: **Dr. Jonathan Frame**

Year Graduated from UA: Summer 2022, Ph.D.

Advisor: Dr. Grey Nearing and Dr. Yong Zhang

Thesis Title: *Deep Learning for Operational Streamflow Forecasts: A Long Short-Term Memory Network Rainfall-Runoff Module for The National Water Model*

Job Title: Hydrologist at [Cloud to Street](#)

Describe your current position

I am lucky to be able to continue my PhD research on machine learning for hydrologic modeling. Generally, my current work with Cloud to Street (C2S) involves assimilating satellite observations with hydrology models for accurate flood inundation mapping. [We have an inundation model for the U.S. that is soon to be released](#), and I am beginning to plan for a global model. I just finished building a flood forecasting model for South Sudan. [I also just finished leading a couple of summer research groups at the U.S. National Water Center doing data assimilation and model selection using machine learning for the Next Generation U.S. National Water Model.](#)

How did DGS help prepare you for after graduation?

As a PhD student in DGS I was fortunate to get the opportunity to spend time working at NASA and NOAA. This gave me the opportunity to apply my research in “the real world”. I also made a ton of connections throughout the hydrology community. I was adjacent to, and sometimes involved in, a diverse range of research within DGS, and that has helped me grow as a scientist.

What is your favorite memory from your time at UA?

Too many to pick just one, but getting together with the graduate students after seminar on Fridays.

What advice would you give to those who wish to pursue a similar path?

- 1) Attempt to really learn several different scientific disciplines that may intersect your own. Then come to terms with the limitations of your knowledge, and appreciate the technical expertise of others.
- 2) Develop expertise in a very niche, highly technical and extremely difficult specialty. Bear down and take on the difficult work.
- 3) There is always room to improve your communication skills. This might be the most important part of a successful career in science.
- 4) Have a lot of fun and collaborate with as many people as you can. I think that good scientific breakthroughs come from enthusiastic and engaged researchers.



Name: **Mary Brandon Huetteman**

Year Graduated from UA: Summer 2022, M.S.

Advisor: Dr. Geoff Tick

Thesis Title: *The Effect of Tropical Storm Systems Along Coastal Alabama*

Job Title: Staff Scientist at Thompson Engineering

Describe your current position

I work as a Staff Scientist at Thompson Engineering in their Environmental Division. Being a new employee, I have been working on a little bit of everything such as groundwater well sampling/installation, storm water inspections, watershed management plans, etc. I spend a lot of time in the field which is what I really enjoy doing!

How did DGS help prepare you for after graduation?

The DGS helped give me the knowledge and confidence to be successful in my career. I am especially thankful for Dr. Tick who went above and beyond to keep me on track for my master's thesis even with my research being 4+ hours away from campus and storm dependent.

What is your favorite memory from your time at UA?

Not so much a memory, but I love how everyone in the department really hypes each other up. It is very encouraging to see a community that cares about everybody's research and willing to help in any way.

What advice would you give to those who wish to pursue a similar path?

Make it known what kind of field/work you want to end up in. Odds are, someone may know a company looking for exactly what you want to do. Also, be the squeaky wheel. Do not be afraid to reach out to a company multiple times to show your interest.



Name: **Adrian Wiggins**

Year Graduated from UA: Summer 2022, M.S.

Advisor: Dr. Çemen and Dr. Tick

Thesis Title: *Geothermal Gradient Variations in the Büyük Menderes Graben: Implications for Geothermal Potential of the Graben*

Job Title: Exploration Geology Intern at Ormat Technologies Inc.

Describe your current position

In my current position, I am being trained to perform exploration geology for geothermal resources. I work alongside a world-class team where we combine geochemistry, geophysics, and geology to make assessments of regions with geothermal potential. Ultimately, it will be my job to decide where to drill wells to develop new geothermal powerplants.

How did DGS help prepare you for after graduation?

My MS thesis, coursework, and TA positions provided me with the perfect set of skills needed for a geothermal exploration geology position. This includes everything from learning software for my thesis, like GIS and Leapfrog, to coding with machine learning and statistics applications, to thermodynamics, to fundamentals of geology from teaching structural geology and 101, to carrying out an industry level petroleum project (IBA). Learning how to write a great cover letter and resume also played a big role. Every part of my MS has made me a great geologist candidate in the industry.

What is your favorite memory from your time at UA?

My favorite memories from UA are definitely the big social events in the department. There's nothing better than a beautiful lake day or a tailgate on the Quad with all of my friends in DGS. One funny memory in particular was when Lucas and I pushed a grill from Bevill to the Quad on a wagon with flat tires. It was so difficult, but it was so worth it to grill out with everyone on game day. Roll Tide!

What advice would you give to those who wish to pursue a similar path?

Make a LinkedIn profile and fill it out. Present your work at an important conference for your industry. Connect on with everyone you meet there and send them personal messages after the fact. Find out from them what skills are needed in the industry for the positions you want, **14** and then learn those skills. TL;DR: network extensively and make yourself valuable.



Name: **Ryan Culp**

Year Graduated from UA: Fall 2021, M.S.

Advisor: Dr. Matthew Wielicki

Thesis Title: *Investigation of K-Pg Boundary Sand Bodies at Moscow Landing Alabama, via U-Pb Geochronology: Implications for Late-Cretaceous Drainage and the Chicxulub Impact*

Job Title: Staff Geologist at TRC Companies in Raleigh, NC

Describe your current position

I have worked on a variety of geology projects on the east coast, most recently testing the compaction of the clay liner at a landfill construction site an hour north of Raleigh. Testing the compaction of the liner is important in meeting strict permeability requirements to prevent contaminated water created during landfill use from reaching the groundwater reservoir. I am currently overseeing the installation of monitoring wells at a now-closed paper mill in Western Maryland/Eastern West Virginia.

How did DGS help prepare you for after graduation?

Graduate school at DGS taught me how to manage my time and helped me develop an excellent work ethic. When consulting, you might be on 4 or 5 projects at a time and being able to efficiently delegate time is key to project success. Some of the issues I encountered in graduate school required me to slow down and work the problem. Clients expect solutions to their problems and rely on your expertise to get the job done.

What is your favorite memory from your time at UA?

My favorite memory of being at UA is attending tailgates and hanging out with fellow students during football games. I was brought up as a huge college football fan so being able to attend UA was awesome.

What advice would you give to those who wish to pursue a similar path?

One piece of advice I would give students either coming out of graduate school or undergrad wanting to enter the work force would be to dip your toe in a variety of different projects. You'll never know what you might find interesting. There are many topics that you won't cover in school that might just interest you. As a young career professional, you have a tremendous opportunity to soak up experiences.

Name: **Dr. Shuo Chen**

Year Graduated from UA: Fall 2021, Ph.D.

Advisor: Dr. Yuehan Lu

Thesis Title: *Watershed Export of Dissolved Organic Matter in Response to Anthropogenic and Hydroclimatic Drivers in Subtropical Streams and Rivers*

Job Title: Postdoc Fellow at Idaho State University; Visiting Scholar at University of Georgia



Describe your current position

Currently I am an NSF-funded postdoc fellow at Idaho State University. Because this is a cross-city project in the US, I am physically working in the Odum School of Ecology at the University of Georgia. My study focuses on the spatiotemporal variability in dissolved organic carbon across diverse urban watersheds.

How did DGS help prepare you for after graduation?

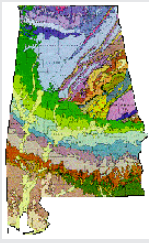
I think my Ph.D. advisor, Dr. Yuehan Lu, helped me the most in pursuing my academic career goals. She continued mentoring me in publishing the third chapter of my dissertation and referring me to other collaborative opportunities, even though I had graduated.

What is your favorite memory from your time at UA?

Being a "fossil hunter" with Dr. Takehito Ikejiri to trace ancient fingerprints (e.g., plant debris, shark teeth, fish bones, and ammonites) from Cretaceous, Devonian or Carboniferous in the southeastern United States. It is amazing to have an expert like Ike around to guide you with the ancient creatures.

What advice would you give to those who wish to pursue a similar path?

If you are preparing for the academic track, please keep in mind that the publication record is so important for the early-career scientist to find a position. Do not hesitate to participate in any networking opportunities to expand your horizons and get connections.



2021 - 2022 Update from the Geological Sciences Advisory Board (GSAB)

This past fiscal year (FY 2021-2022) marked the 20th anniversary of the [GSAB](#)! While continuing to be successful in its goals to support the DGS and students, challenges remained as the pandemic was far from ending owing to the ongoing development of Covid variants. Despite all, the GSAB was able to transition to partial normalcy as we had our first in-person meeting in over two years this past spring at the North Engineering Research Center (NERC) facility on the UA campus. Unfortunately, Covid issues resulted in our fall meeting being held remotely (via Zoom) last October. As in most meetings of the past two years, committee efforts were managed digitally prior to the fall meeting without interruption of our normal committee processes. Accordingly, effective progress was made in finance, scholarship, membership, and mentoring throughout the year.

Dr. Delores Robinson, DGS chair gave a State of the Department report at each meeting and Dr. Joe Messina, Dean of the College of Arts and Sciences, similarly gave a State of the College report at each meeting. The data gained by the GSAB from these presentations were invaluable for background and context for our actions to achieve the goals and objectives of the GSAB.

Membership of the GSAB remained stable over the year with fifty-one members (forty-seven regular and four young professionals) at years end. Although four members retired from the board, a like number of new members were added: Jacob Epperson, Trey Noland, Ed Smith, and Dr. Carl Stock. We continue to solicit new members through a variety of venues such as LinkedIn, Facebook, past graduate lists, and retired faculty. Our



focus is to have a representative mix of graduates and faculty representing a wide range of years which is critical for board understanding of issues facing the department and students. It also allows the board to have the ability to connect with students and faculty for mentoring and developing professional employment opportunities. This is especially true with a dynamic and changing geologic profession in a season of green energy transition and a highly environmentally conscious world.

Considerable discussion and effort was also involved with the GSAB regarding the creation of an international membership category recognizing the differences of international economies of countries of origin. Even with recognition of these differences and with logistical complications being addressed for interactive participation, surveys of current interest from international graduates did not indicate a level reached to pursue further action. A new membership category requires bylaws revision so the motion for this membership category was tabled for future consideration. However, international graduates are strongly encouraged to participate in the GSAB via the existing membership categories.



Vulcan Materials Vance Quarry Visit



The finance committee reported that as of the spring meeting, approximately \$36,000 in GSAB support funds were raised during the year or rolled over from prior year balances. Additionally, \$12,800 was raised from various GSAB endowments for student scholarships. These funds were available for student scholarships and instructional needs throughout the fiscal/academic year. Surprisingly, student scholarship needs this year decreased somewhat because of the pandemic, so distributions were increased for summer field camp expenses, summer scholarships, and instructional needs. Because of these circumstances and the less restricted nature of most GSAB funds, there was considerable discussion during the spring meeting to assure that the fall budget process addresses and includes non-recurring (as needed) field camp scholarships and instructional related expenses. This added focus would be in addition to overall yearly (non-summer) student scholarship and departmental needs. On a cumulative basis, the GSAB has now awarded approximately \$400,000 in annual membership funded student scholarships and a little over \$228,000 in GSAB endowment-based scholarships.

In addition to normal interaction with the finance committee for the annual student scholarships, the scholarship committee has also continued the fundraising efforts for a new GSAB honorary scholarship endowment, which currently remains confidential. As fundraising continues, it is anticipated that a new endowment will be announced during the fall.

The newly formed interim mentoring committee continues to make great progress and has been instrumental in connecting the GSAB with students and faculty. One student has already benefited from the committee by gaining employment in the aggregate industry through mentoring committee contacts. As previously mentioned, changing geoscience careers during the on-going green energy transition and renewed focus on climate and environment throughout the world will result in new and non-traditional roles for geoscientists. The mentoring committee will be very instrumental in bridging communication gaps created during these changing times for geoscientists. Owing to early success and great interest by students, faculty, and board members, it is anticipated that a revision of by-laws will be voted on during the upcoming fall meeting to change the committee status from interim to standing committee status.

Bylaws changes were made during the year in two areas related to the experience gained during the pandemic. With meetings commonly conducted via Zoom or by other electronic methods, the bylaws were updated to address meeting communication and voting formats by electronic means. Even with the probability of in-person meetings returning on an on-going basis, many GSAB members are limited by travel issues and can participate electronically with hybrid electronic/in-person meetings which are becoming the standard. The bylaws also were revised to clarify and include emeritus and young membership members as part of the quorum of 35% "Advisory Board" voting members.

New officers were voted on and installed during the spring meeting with Ralph Hellmich taking over as GSAB Chair, Bob White as Vice-Chair, and Lois George as Secretary - Finance Chair.

Additional committee chairs are Chuck King - Scholarship, Boon Abbott - Membership - Bob White - Mentoring, and Ron Tisdale - Nominating. If the pandemic status does not deteriorate, our fall meeting will be in-person on Monday, October 24th on campus and our spring meeting at Guntersville State Park the following April 27-28, 2023.

Although circumstances did not allow retired UA Arts and Sciences Dean, Robert Olin to attend the spring meeting, in honor of

his past support and participation as

a champion for the GSAB and its activities, an honorary resolution for him was read into the record at the meeting. As a part of this resolution, Dean Olin was awarded emeritus status on the GSAB, the first such status given by the GSAB in its history. When circumstances allow, we hope to present Dean Olin with a framed copy of this resolution.

In conclusion, with the opportunity to meet in-person on campus this past spring, the GSAB seized the occasion to re-establish a few traditions. There was a pre-meeting field trip to the Vulcan Materials quarry at Vance, Alabama, coordinated by past GSAB Chair Chuck King and lead by Vulcan operations personnel; a GSAB dinner gathering the night before the meeting was held at Baumhower's Victory Grille; a post-meeting luncheon/ poster session with students occurred at the Bevil Building; and a post-meeting tour of the Mal Moore Athletic Complex was coordinated by past GSAB Chair Ron Tisdale and lead by Assistant Defensive Coordinator and Safeties Coach Charles Kelly and his daughter Kathleen.



Mal Moore Athletic Facilities Tour

History and Information About the GSAB and How to Help

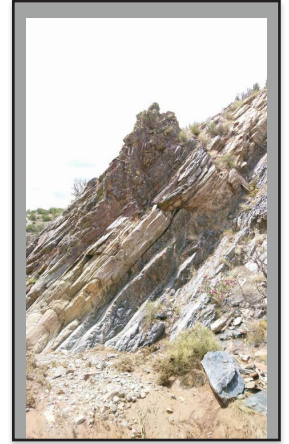
Founded in 2002 and in its twentieth anniversary year, the GSAB consists of membership from alumni, corporate, government, and community that are involved with activity related to the Department of Geosciences and its constituents. This year marks the 20th anniversary of the board. The purpose of the GSAB is to support students, faculty, and staff in the Department of Geological Sciences and serve as a liaison with the business community and government to promote the interests of the Department within the University of Alabama, the state, and the nation. A primary goal of the GSAB is also to help recruit and retain talented, competent, motivated students and faculty. This is accomplished by providing scholarships and identifying employment opportunities for students, and to support and retain talented faculty. Through membership contributions, and corporate matches with related contributions, the GSAB has raised and awarded over \$500,000 that has supported over three hundred scholarships to both undergraduate and graduate students in the Department of Geological Sciences.

The GSAB holds two meetings annually. Traditionally, the GSAB meets in the fall on the University of Alabama campus on the Monday following a home Alabama football weekend, whereas in the spring, the GSAB commonly meets at a location where DGS related student research is taking place, or at a location where there is a concentration of Alabama alumni. These meetings are typically well attended by members and faculty, with students making presentations of their on-going research. Time is always provided for social events that allow student and GSAB member networking, as well as for field trips to research related or local areas of interest.

In addition to the scholarships funded directly from membership and corporate contributions, the Department of Geological Sciences has endowments valued at more than \$3.6 million to benefit student scholarships and the faculty. Of these, the GSAB has recently led in the establishment of endowed scholarships valued at more than \$670,000 to honor faculty and alumni leaders in the Department of Geological Sciences. These include the Douglas Jones - GSAB Endowed Scholarship, the GSAB-Hooks corpus, the Geological Sciences - Gary Hooks Scholarship Endowment, and the Thomas J. Joiner Endowed Scholarship in Geology. Together, these endowed scholarships currently generate more than \$32,000 annually in funds to distribute to graduate and undergraduate students within the department. If you combine that with \$22,500 on average available from membership and corporate contributions annually, the GSAB is intimately involved in the distribution of over \$50,000 in scholarships to deserving and needy students pursuing degrees in the field of Geological Sciences.

If you have a desire to help with our efforts, we would love to have you join the GSAB. You do not have to be a graduate of the University of Alabama Department of Geological Sciences to join the Geological Sciences Advisory Board. Although the majority of the GSAB is composed of alumni of the Department of Geological Sciences, we currently have members from other disciplines such as law and engineering from government and industry representatives who attended other well-respected universities. We also have faculty members from other universities such as Auburn University. If interested in joining or if you have questions regarding the GSAB and/or the Department of Geological Sciences at the University of Alabama, please direct those inquiries to Dr. Delores Robinson, chair of the department, at dmr@ua.edu, 205-348-4034, Ralph Hellmich, GSAB chairperson, at rg20191@outlook.com, 251-979-1369, or Kevin Reid, Director of College Support Boards, College of Arts and Sciences, at krreid@ua.edu, 205-348-7009.

Another Successful (In-Person!) Field Course



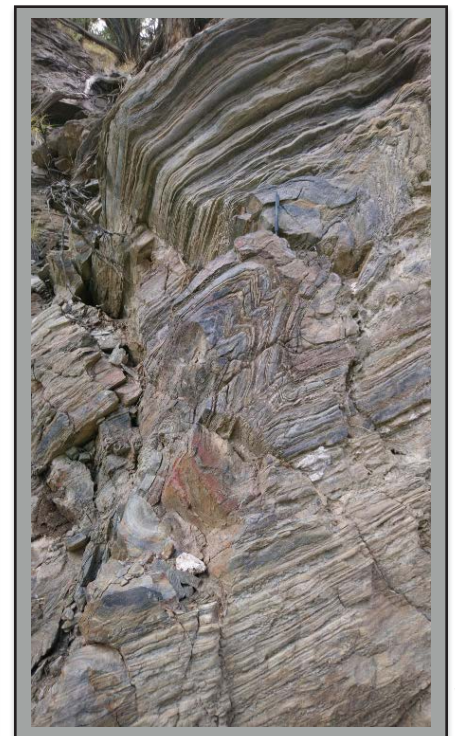
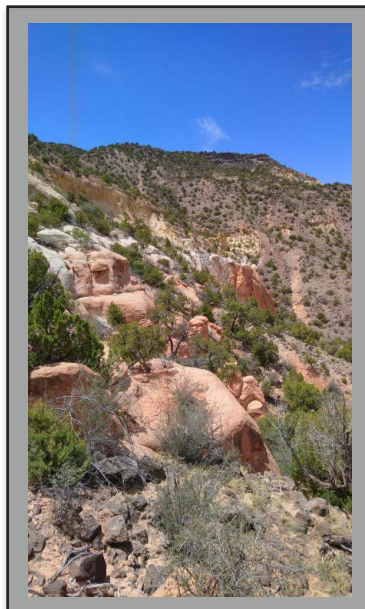
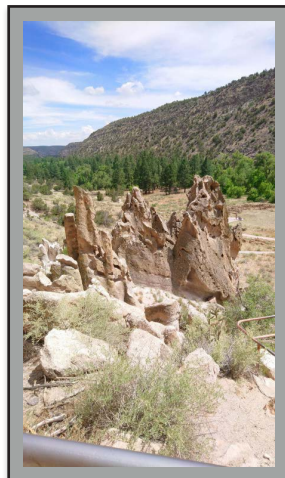
This past June, we completed another successful summer field course (GEO 495) and were able to return to New Mexico for the first time since 2019! The instructors (Kim Genareau and Tom Tobin) were helped by two graduate teaching assistants, Adrian Wiggins and Joel Schiffer. Adrian and Joel helped to motivate the students and provide key instruction on both structural measurements and general field techniques. Their assistance was much appreciated by the instructors.

The 12 UA undergraduates and 2 Auburn undergraduates completed the 6-credit course by developing and honing their skills in the field at several locations throughout northern New Mexico. Mapping exercises were conducted to examine sedimentary, igneous, and metamorphic rocks that had undergone various degrees of deformation. The class spent the first half of the 5-week course camping outside of Albuquerque. For the second half of the course, the class traveled north to their base of operations at the Snow Mansion in the town of Arroyo Seco. The Snow Mansion provided a comfortable and quiet place for students to complete their assignments, while still providing an opportunity to enjoy the culture and natural beauty of New Mexico. The Taos Cow provided an array of unique ice cream flavors for everyone to enjoy in the hot afternoons.

The field course season was not without its challenges. New Mexico has dealt with several large wildland fires in 2022, including the Hermits Peak and Calf Canyon Fires. These fires both started separately in April and eventually merged to become the largest recorded wildfire in modern New Mexico history, consuming over 300,000 acres. This wildfire was located to the east of the field sites for both the igneous and metamorphic portions of the course. The hazards of this and other fires in the region limited our access to several areas typically visited during the field course, including the Valles Caldera. Although the class was able to visit the Bandelier National Monument and observe volcanic deposits, we were unable to camp in the Santa Fe National Forest. Fortunately, much of the wildfire activity was reduced thanks to an early start to the New Mexico monsoon season. The persistent rain was welcomed by the citizens of New Mexico but posed its own hazards to our field course in the form of flash flooding, rockslides, and hazardous hiking conditions.

The students faced the challenges of the field course with positive attitudes, dedication, and teamwork.

I was very proud of all our students and hope they found the summer field course to be a valuable and memorable experience.



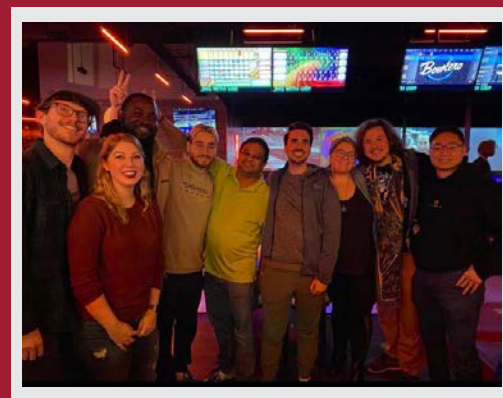


SGE

The Society of Sigma Gamma Epsilon Alpha Chi Chapter

The National Earth Sciences Honor Society, Sigma Gamma Epsilon, has enjoyed a year of growth and restabilizing after the COVID pandemic. The Society of Sigma Gamma Epsilon was established to recognize scholarship and professionalism in the Earth Sciences. It has for its objectives the scholastic, scientific, and professional advancement of its members and the extension of relations of friendship and assistance among colleges and universities which are devoted to the advancement of the Earth Sciences. In the Spring 2022 semester, the club engaged in several activities such as a river clean-up, a camping trip to Tannehill, and movie nights.

We are currently looking for undergraduates (sophomore and up) and graduate students to join our organization. I am currently the treasurer and, as my term comes to a close in the late fall, I will be looking for someone interested in being a club treasurer to take on my position. SGE promotes professional development, academic success, community service, and social involvement within the department and we encourage anyone who is interested to reach out to one of our officers or someone who is active with the club!



We hope to see further success from our members, and the club, going into the Fall 2022 semester!

How to Join:

If you are interested in joining Sigma Gamma Epsilon's Alpha Chi Chapter, please contact the chapter President William Priakos at whpriakos@crimson.ua.edu, Vice President Ryan Hagg at rehaag1@crimson.ua.edu, or Treasurer Nathan Limbaugh at nglimbaugh@crimson.ua.edu.

Eligibility requirements and further information are available at www.sigmagammaepsilon.com.



Alabama Analytical Research Center

2021 - 2022 Update

The transition from 2021 into 2022 has brought new developments and capabilities to the Alabama Analytical Research Center (AARC) in its mission to serve the research needs of the University of Alabama and beyond. Fall of 2021 saw the departure of Carrie Martin from AARC to Research Compliance as well as the retirement of Mary Robinson. In a stroke of good luck AARC was able to bring on Reda Arnold, with over a decade of experience already at UA, to fill the role of Accounting Specialist within AARC. Due to this experience the process of working with the Facility Billing System (FBS), invoicing, and collection of user fees has been further streamlined.

AARC was able to grow its capabilities for the preparation of samples for SEM, TEM, and LEAP in two exciting ways. Acquisition of a new precision saw, polishing/grinding system, and hot mount from Buehler allow staff and users to prepare samples for analysis in house at the center. Additionally, a Struers twin jet electropolishing system was acquired as an alternative method of TEM sample preparation to the traditional ion beam-based methods. This method allows for the creation of more pristine foils free of some of the damage and artifacts left behind from Ga ion beam milling.

Aside from new equipment AARC has been busy furthering educational opportunities at UA with the introduction of MTE 691: Atom Probe Tomography. An initial enrollment of 19 students spanned disciplines including mechanical engineering, metallurgical engineering, materials science, physics, as well as geology. The course was led by the facility director with assistance from AARC materials characterization specialists and license free dongles from CAMECA so that students could gain practical experience in atom probe data analysis.

Have a look at our website to see the capabilities AARC has to offer. Anyone with questions is encouraged to get in touch by email: raholler@ua.edu.

<https://aarc.ua.edu>



Gregory Thompson -
Director



Robert Holler -
Manager



Johnny Goodwin -
Instrumentation Specialist



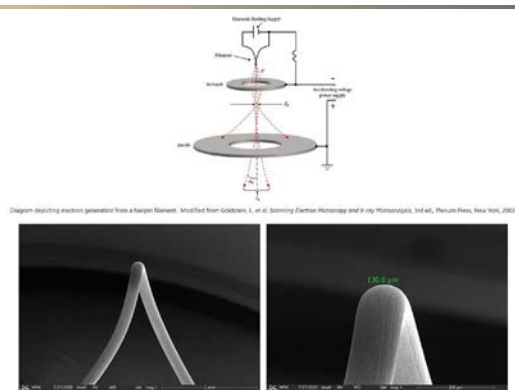
Ilias Bismukhametov -
Materials Characterization
Specialist



San Dab -
Materials Characterization
Specialist



Reda Arnold
Accounting Specialist





Graduate Student Updates



Rita Adamec

Masters Student

My name is Rita Adamec, I am from Houston, Texas and a second year Master's student with Dr. Çemen. I got my BS from NMSU in 2021 focusing on sedimentation and geochronology. While there I participated in an exchange semester in Fairbanks, Alaska where I studied geomorphology of the Arctic. For my thesis at UA I am completing an EdMap project to map the West Blocton East Quadrangle, Alabama, and studying the sedimentation and structural styles of the Valley and

Ridge province of the Appalachians. We have spent LOTS of time in the field over the past year, which is my favorite way to do geology! This past summer I enjoyed my time as an intern at the Geological Survey of Alabama where I worked on a nomenclature reconciliation project across the East Gulf Coastal Plain province of Mississippi, Alabama, and Florida. Since moving to Alabama, I have turned into a real lake junkie and love spending time out on my paddle board, hiking, and golfing.



Kayode Agboola

Masters Student

Hi! I am Kayode from Nigeria. I am a second year master's student working with Dr. Samantha Hansen. I received my BS degree in Applied Geophysics from Obafemi Awolowo University, Nigeria.

My research involves using the tools of seismology to investigate the deep Earth to better understand the processes that have shaped our planet. I am currently investigating for anomalous structure (Ultralow Velocity Zones, ULVZ) just above the core-mantle boundary.

Outside seismology, I enjoy teaching high school Mathematics and recently I have developed interest in swimming and kayaking.



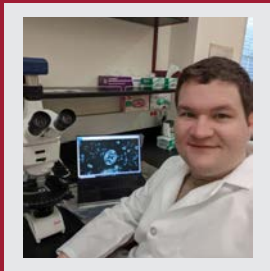
Stephen Anderson

Ph.D. Student

My name is Stephen Anderson, and I am a 4th year Ph.D. candidate in the Material Sciences tri-campus program working with Prof. Natasha Dimova in the Geological Sciences department. I received my BS in Chemical Engineering from UA in 2019 and have been a lifetime fan of Alabama Football, Nintendo, and environmental protection policies.

My current research involves studying the movement of toxic metals through different environmental phases derived from Coal Fired Power Plants (CFPP) and how they travel throughout the Mobile River Basin that encompasses most of the state. Using a combination of hydrological, geochemical, and mathematical processes, my research is analyzing suspended sediment collected from an anthropogenically impacted riverbank for the Mobile-Tensaw Delta to assess concentrations of various metals (including As, Pb, Cd, etc.) commonly associated with CFPP waste.

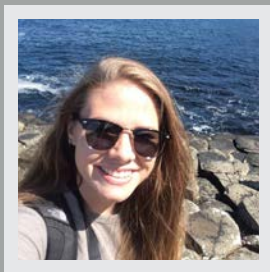
Another section of research includes evaluating compositional differences of sediment cores in Alabama, then using historical ^{210}Pb and anthropogenic ^{137}Cs time markers to produce recent (<120 yr) rates of sedimentation. This work is done to further the understanding the historical processes for sedimentation and heavy metal pollution for the Mobile River Basin in order to help protect and remediate Mobile Bay's diverse watershed.



William Clark

Ph.D. Student

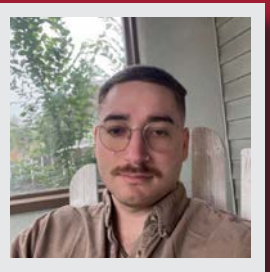
My name is William; I am starting my 3rd year of a Ph.D. as a nannofossil micropaleontologist working under Dr. Rebecca Totten. I am from Mobile Alabama originally where I earned a BA at the University of South Alabama. I went to the University of Nebraska-Lincoln where I earned my MS in Earth Sciences. I am working on paleoenvironmental and oceanographic analysis of the Caribbean Sea during the late Oligocene - early Miocene. My work involves the quantitative analysis of calcareous nannofossil populations, as well as high-resolution biostratigraphy. Recently I was invited to sail with the International Ocean Discovery Program (IODP) on board the Joides Resolution. I will be one of two nannofossil biostratigraphers on board, studying the paleoclimate of the Iberian Margin off the coast of Lisbon, Portugal. We are sailing October - December of this year (2022). My post grad-school plans involve either a job in the petroleum industry as a stratigrapher/biostratigrapher, or in academia in a tenure track position. In my down time I enjoy reading fiction/non-fiction or hiking at either Hurricane Creek or Lake Lurleen.



Chelsea Comans

Ph.D. Student

My name is Chelsea Comans, and I am from Chelsea, Alabama. I graduated from Auburn University in 2018 with a Bachelor of Science in Geosciences and received a Master of Science in Geological Sciences from U.A. in 2021. I am currently a second-year Ph.D. student working with Dr. Thomas Tobin. My research combines vertebrate paleontology and stable isotope geochemistry to answer questions about paleoecology, paleobiology, and mass extinctions of marine vertebrates. Currently, I am using stable nitrogen isotopes measured from enameloid-bound organic matter to quantitatively assess the diets and trophic positions of Late Cretaceous sharks. I also employ tooth morphology (i.e., size and shape) to better understand shark diversification (e.g., extinction and evolution) over time. This research sheds light on how shark diversity was impacted by environmental change and the biotic responses of sharks to environmental fluctuations. By better understanding the past, we can influence conservation policy and protect sharks from extinction. When I am not doing research, I can usually be found reading a Clive Cussler novel or watching reruns of Gilligan's Island.



Isaiah Daum

Masters Student

I'm doing an individual research project with Dr. Cajigas of the Anthropology department. I will be sifting soil samples for artifacts from a mound from Moundville and performing a soil particle size analysis on the soil samples.

I completed an underground gold mining internship for First Majestic Silver Corp at the Jerritt Canyon mine near Elko, Nevada. I took structural measurements underground and made a 3D model of an ore controlling fault.

I am working on my thesis providing a shortening estimate of the Pindos Thrust Belt in Central Greece.



Jordan Faltys

Ph.D. Candidate

Hi! My name is Jordan Faltys, and I am a Ph.D. candidate studying under Dr. Wielicki. I received my BSc in 2013 from NMSU and MSc here at UA in 2020. My research and background focuses on exploring the first 500 million years of Earth's history through terrestrial and extraterrestrial zircon (ZrSiO_4) to investigate the impact history and habitability of early Earth, the Earth-Moon system, and the evolution of Earth's earliest crust. Micro – to – nanoscale inclusions and isotopic variations in zircon have led to developments in: (1) a dynamic model that provides a novel approach to discovering how impacts modify planetary surfaces, (2) [mineral inclusions as geochemical fingerprints to a diverse range of magmatic settings](#), and (3) nanoscale isotopic clustering using atom probe tomography, to better understand chemical variations in impact-formed lunar zircon.

Currently, myself, recent UA alumnus Dr. Jonathan Frame, my advisor Dr. Wielicki, and Dr. Mark Harrison are in the process of submitting our new paper, titled: *The role of impacts on evolved Hadean crust: Implications for plate tectonics and habitability*.

This academic year I plan to finish analyzing lunar zircon samples on the Local Electrode Atom Probe and defend my dissertation. When I have free time, I enjoy golfing and camping, when I am not spoiling my black lab, Moose.



Karena Gill

Ph.D. Candidate

Hello folks, or as we'd say in Belize: wahh gwan! My name is Karena Gill, originally from Belize (Mother Nature's Best Kept Secret!) and I recently defending my dissertation in August of this year. I work with Dr. Marcello Minzoni, where my research focused on characterizing dolomitization of the Smackover Formation in three fields in SW Alabama. I use important analytical methods such as petrography, isotope geochemistry and fluid inclusion microthermometry to understand carbonate diagenesis and dolomitizing fluid composition and origin.

As a part of my scholastic journey, I refurbished a FLUID INC-adapted U.S. Geological Survey gas-flow heating and freezing stage, establishing a joint UA/AU fluid inclusion lab. This was only possible through a kind donation from Dr. Harold Stowell, and in collaboration with Auburn University's Geosciences Department and with the help of Jim Reynolds (CSM).

I recently accepted a position as a NASA Post-Doctoral Research Associate at West Virginia University, working under the direction of Dr. Kathleen Benison. Here I will use the critical skills I learned doing petrography and fluid inclusion studies to develop and test analytical methods for analog chemical sediments for potential return Mars 2020 rocks and sediments. I will also be serving as a team member for the Mars 2020 science team!



Mary Hastings Puckett

Ph.D. Student

Hi y'all! My name is Mary Hastings, and I am a second year Ph.D. student. I am from a small town on the Alabama Gulf Coast named Magnolia Springs, which also happens to be the study site for my dissertation research. In May 2018 I received my B.S. in Geology from the College of Charleston and began my M.S. at UA in fall 2018 with Drs Zhang and Lu. My Ph.D. research is advised by Drs Tick and Zhang and focuses on the mechanisms of surface-groundwater interactions in a spring fed river system as well as water policy. In addition to working on my Ph.D., I am also a full time Geologist in the Groundwater Assessment Program at the Geological Survey of Alabama. In my free time, I love cooking, reading, and being out on the water with my sweet black dog Charlotte.



Asmara Lehrmann

Ph.D. Student

Hi everyone! My name is Asmara Lehrmann and I am a Ph.D. student working with Dr. Becky Totten. A little bit about me: I am from Oshkosh Wisconsin, did my undergrad at Trinity University in San Antonio Texas. In my free-time, I love paddleboarding at Lake Nicol with my sweet dog, Ratu!

My time here at the University of Alabama has been full of travel and incredible experiences; the highlight being the Antarctic cruises that I have participated in in 2020 and 2022. With the [International Thwaites Glacier Collaboration's](#) Thwaites Offshore Research ([THOR](#)) group, I helped collect sediment cores and water samples. My research focuses on determining the oceanographic drivers of Holocene retreat of Thwaites Glacier with foraminifera assemblages.

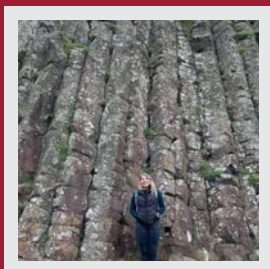
I miss being out there every day! The community that is built from the one month quarantine (in San Francisco, then moved to a beautiful village in Patagonia), and two month cruise is something that cannot be described in words. The scenery of the Amundsen Sea is unreal and breathtaking. Even though this was my second time there, it still felt as magical as my first time. I'm looking forward to working on the samples we collected on this cruise!



Nathan Limbaugh

Ph.D. Student

I'm Nathan Limbaugh; I'm from Saint Charles, Missouri. I received my bachelors and my masters at the Missouri University of Science & Technology and am currently seeking a Ph.D. in planetary geochemistry here at UA under the advisement of Dr. Julia Cartwright. My research focuses on comparing igneous rocks (achondrite meteorites) from Mars and 4 Vesta (an asteroid in the asteroid belt) to well-known mafic rocks from earth, specifically by analyzing the petrology and compositions of melt inclusions within silicates found in these rocks. I've attended the Lunar and Planetary Science, the North-central South-east Joint Regional Geological Society of America, and the Meteoritical Society Conferences this year to present the preliminary findings of my research thus far. My masters research (finished last year) is currently in the works for publication. After graduate school, I will be seeking a post-doctorate position at a research university or institution and further my career towards being either a professor at a research university or a research specialist at a national laboratory. A cool fact about me is that I held rocks from three different planets all at the same time once last semester!!!



Jessie McCraw

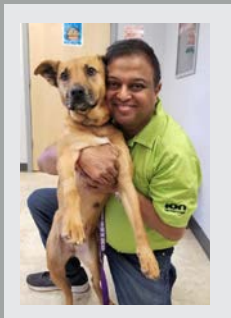
Ph.D. Student

Hi folks! My name is Jessie McCraw, I'm about halfway through my Ph.D. at the University of Alabama! Originally from California, I received my BS from the University of Arizona in 2018, and my MS from Syracuse University in 2020. Before coming to Alabama, I also worked at Badlands National Park in South Dakota.

My research with Dr. Tom Tobin focuses on understanding the environment, ecology, and biology of the extinct ammonites of the Western Interior Seaway. I use light stable isotopes of their shells to reconstruct the water temperatures, their habitats, and hopefully shed light on their intrinsic biological processes.

Last year I was able to give my first talk at GSA in Portland, and this year I'll be heading to the International Symposium on Cephalopods Past and Present in London to give another talk on my research. I also just returned from a summer as a program assistant, medical officer, and lead instructor for the Sternberg Museum of Natural History and their summer science camps! It was a great chance to engage with enthusiastic students and share my love of paleontology all over the country.

For the 2022-2023 academic year, I'm looking forward to working on my new home, hanging out with my lovely cats, and embracing all the recreation that Alabama has to offer, while making progress on my dissertation and continuing to grow as an educator.



Dipanjan Mitra

Ph.D. Student

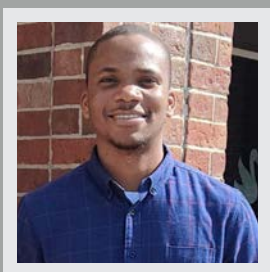
Hi everyone, My name is Dipanjan Mitra. Everyone here calls me DJ. I am 2nd year Ph.D. student working under Dr. Ibrahim Çemen, working on the Black Sea and Caucas Mountain regions in Georgia. Before coming to UA, I used to work in the oil and gas sector. I did my MS from Rice University, Houston, TX in carbonate sequence stratigraphy under Dr. André Droxler, on offshore Myanmar and effects on sedimentation by Climate Change. I also happen to have an MBA from UAB. So if you have any questions related to finance or your portfolio, you can always hit me up. For fun, I like to cook when I am stressed. I also have two dogs that I love to the hilt. I like hiking and camping though I do more camping than hiking. If any of you are planning to go for a camping trip or interested in going for one, please contact me. I haven't been to any conference last year though I intend to change that this year. Plans after grad school, still munching on it.



Rachel Mohr

Ph.D. Student

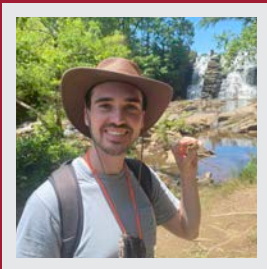
Hello! My name is Rachel Mohr and I am a Ph.D. student in Dr. Tom Tobin's lab. I'm originally from Minnesota and got my B.A. in Geology from Gustavus Adolphus College. I received my M.S. from the University of Alabama in 2018 and also completed the Graduate Certificate in Museum Studies in 2021. My dissertation research focuses on morphometric approaches to the taxonomy of Late Cretaceous ammonites. In particular, I'm working on a morphometric investigation of the *Placenticeras* genus, a group known for its high degree of morphometric variability. I mostly use museum specimens for my research, so I spend a lot of quality time in the collections at the Geological Survey of Alabama, the Alabama Museum of Natural History, and the McWane Science Center. This is my second year as a Graduate Teaching Fellow for the graduate school, so new TAs in the department may encounter me at the GTA training and at other workshops throughout the year.



Abutu Peter

Masters Student

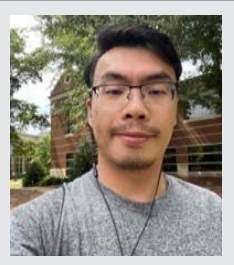
I am Abutu Sunday Peter, a second-year master's student working with Dr. Julia Cartwright. I had my bachelor's degree in Geology from the Obafemi Awolowo University, Nigeria, my home country. Currently, I use magnetic and microscopic techniques to characterize space weathering products and effects in howardites – meteorite regolith breccia from the surface of the asteroid Vesta. Outside of research, I enjoy reading maps, learning about places, and watching the real "football".



William Priakos

Masters Student

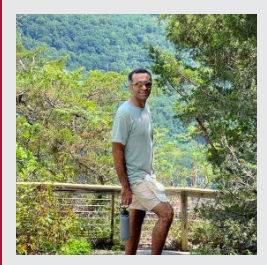
My name is William Priakos and I'm from Southlake, Texas. I'm a current MS Student here at The University of Alabama and I also received my BSG from The University of Alabama in 2021. My thesis advisor is Dr. Ibrahim Cemen and my research involves mapping the Half-Mile Shoals quadrangle in central Alabama, at the southern tip of the Appalachian Mountains. Once the mapping has been completed, I plan to conduct shortening calculations and create a restored state and balanced cross-section across my quadrangle. Over the Summer of 2022 I worked an internship at the Geological Survey of Alabama correlating and resolving Coastal Plain stratigraphy/nomenclature across Mississippi, Alabama, and Florida. I plan on attending two conferences this semester, which are GSA Connects 2022 and the HGS Student Expo. My plans after graduate school consist of me finding a job in the oil/gas industry and applying the skills I've learned.



Yitao Pu

Ph.D. Student

I am Yitao Pu, a Ph.D. student focusing on oil & gas exploration. I am from China and got my Bachelor's and Master's degrees there. My research is basically geophysics, geology and computer science. And I have won a scholarship from SEG this year (80 awards of 265 applicants worldwide), the first one from DGS. I like all kinds of sports, such as soccer, basketball, jogging, and swimming. I am a silent guy but could be noisy sometimes. You are always welcomed to discuss geological sciences with me.

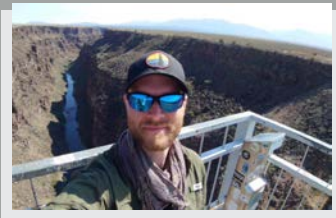


Hesam Saeidi

Ph.D. Student

My name is Hesam and I'm a 4th-year PhD student from Iran. I received my BS in Physics and my MS in Earthquake Seismology from Iran. After graduating with a master's, I worked for 3 years as a Python programmer in my country. I'm a Linux geek who enjoys learning and applying programming languages to the non-tech part of life. When I'm not spending time on my computer, I like camping, hiking. Here is a photo of me on top of the Chimney Rock State Park, NC July 2022.

I'm currently working on my dissertation under the supervision of Dr. Hansen. I'm using earthquakes recorded in Africa to build a 3-D tomographic model of the African mantle. Seismic tomographic models are crucial for tectonic studies and connecting surface geology to subsurface processes. We developed a new model using P phases that carry a new insight into the origin and mechanism of the Cameroon Volcanic Line. I presented this new model at AGU Fall Meeting 2021 in New Orleans. The paper containing this model is submitted to G-Cubed in the Summer of 2022. Starting Fall 2022, I'm going to work on my second paper focusing on comparing P and S tomography models.



Joel Schiffer

Ph.D. Student

Hello! I am Joel, and I'm working with Dr. Robinson in the Himalayan fold-thrust belt of northern Pakistan. I hail from Washington (State) originally, though I have also lived in Texas (BS, 2012) and Norway (MS, 2017) before coming to Alabama in early 2019. For my Ph.D. work, I am investigating the tectonics, structure, and stratigraphy of the Pakistan Himalaya. To this end, I am currently building balanced structural cross-sections through the entire fold-thrust belt to assess its role in the broader Himalayan orogeny and what it can tell us about collisional tectonics. This Summer, I worked as a geology intern for Alabama Graphite Products in Kellyton, AL, and as a TA for our undergraduate field course in northern New Mexico. This Fall, I plan on presenting some of my work at the Himalaya-Karakorum-Tibet (HKT) workshop in Pokhara, Nepal, and publishing my first manuscript. Some of my passions outside of geology include travelling (though it's usually field work or research related), heavy metal, baseball, cars, and tea.



Kalyn Tew

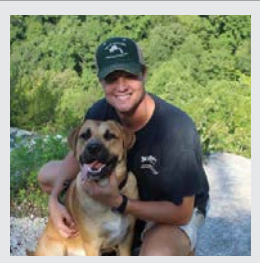
Ph.D. Student

My name is Kalyn Tew and I am in the second year of my Ph.D., working with Dr. Rona Donahoe. I received both my BS and MS from the University of Alabama, and then took a position in Environmental Consulting for a few years. I currently work in the College of Continuing Studies at the University of Alabama as the Environmental Services Manager. After graduate school, I plan to take a position where a large portion of my job would be teaching geology at the college level. I love to educate people about geology!

My research is focused on determining Rare Earth Element (REE) content and phase associations in coal ash collected from impoundments within the Southeastern United States. The first two chapters of my dissertation will be based on geochemical analyses of the coal ash and geologic modeling of the results for two coal ash impoundments. My final chapter will be an economic feasibility study, where I will weigh the benefits and drawbacks of using coal ash as a potential feedstock for REEs in the domestic supply chain. I hope that this research will help electric power companies to find a beneficial reuse for what would otherwise be a waste product.

When I'm not in class, working on my dissertation, or in the office, I love to travel! I am working on making it to all 50 States (I'm about halfway there) and as many countries as I can. I also love to try new foods and eat at amazing restaurants. I have a side Instagram account where I share some of the great dishes that I have tried on my travels, it's a fun hobby!

I am looking forward to another great year, and am hoping to seeing everyone around the Department in the Fall!



Zach Yates

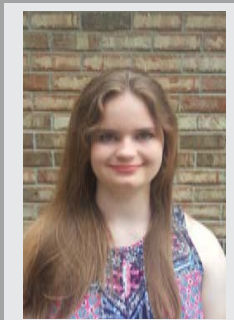
Ph.D. Student

My name is Zach Yates, and I am starting my second year as a Ph.D. student with Dr. Robinson. I completed my B.S. in Geology at Radford University in Virginia, and my M.S. in Geological Science here with Dr. Robinson in 2021. My masters research used detrital zircon geochronology to determine the provenance of sedimentary rocks deposited in Alabama during the Carboniferous Period.

My Ph.D. research focuses on the Paleocene – Eocene evolution of the Tethyan Fold Thrust Belt of Tibet. The goals of my Ph.D. research are to: 1) use detrital zircon geochronology to determine maximum depositional ages and the provenance of Tethyan sedimentary rocks. 2) create geologic maps, four balanced North – South structural cross sections, and determine the minimum amount of shortening across the Tethyan Fold Thrust Belt. And 3) use low temperature thermochronology of (U-Th)/He in zircon and apatite fission track data to determine the cooling history of Tethyan rock units and relate that to deformation and uplift. Hopefully, my research will provide a better understanding of how the Tethyan Fold Thrust Belt evolved during the Paleocene – Eocene portion of the India – Asia collision.



Welcome Our New Graduate Students!



Bethany Cobb Faulk

Masters Student

Hi! I'm Bethany Cobb Faulk, and I am from beautiful Mobile, Alabama. I have two Honors B.S. degrees from the University of South Alabama in Geology and Geography. I'm excited to be starting my Master's degree here at the University of Alabama! I will be working with Dr. Yuehan Lu on geochemical biomarkers across the Cretaceous-Paleogene boundary. After I complete my Master's degree, I plan to pursue a Ph.D. My hobbies include being outdoors, gardening, reading, and sharing coffee and conversations with family and friends!



Stanislaw Kurowski

Ph.D. Student

My name is Stanislaw Kurowski and I am doing Ph.D. with Dr. Natasha Dimova as my supervisor. I studied Organic Chemistry (B.Sc) and Marine Chemistry (M.Sc) in University of Gdansk, Poland. I plan to compare geochemistry of karst structures and estuaries in US and Europe. I like to paddle, sail, hike and collect herbs.



Jason Martinez

Masters Student

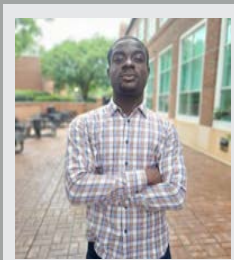
My name is Jason Martinez. I will start focusing on my Masters Degree. My advisor is Kim Genareau, and I will be working with her in researching volcanic lightning. I am a first-generation student. I had only one opportunity to travel outside the country. The country's name that I traveled to is called Guatemala. My favorite food is supreme pizza. What I am exciting about coming into graduate school is that I will be traveling between Tuscaloosa and Huntsville. Not only will I meet new faces and make new connections, but also, I will have the chance to learn volcanology and meteorology while studying at these two cities.



Owen Meeks

Masters Student

Hey, my name is Owen Meeks. I am an incoming Masters student under the advisement of Dr. Harold Stowell. My area of focus is graphitic schist in the NW Mitchell Dam Quadrangle. I received my B.S. from the University of Florida and am married to my amazing wife Bekah. In my free time, I like to watch movies and go bouldering.



Isaac Ogunrinde

Masters Student

Hi! My name is Isaac Ogunrinde. I am an M.S. student working with Professors Kimberly Genareau and Harold Stowell. I will be working in the area of high temperature Geochemistry. I am from Nigeria, and I got my BS from Obafemi Awolowo University, Ile Ife. I love to play soccer in my free times.



Marisa Oppedisano

Masters Student

My name is Marisa Oppedisano. I am an incoming masters student working with Dr. Marcello Minzoni, working on research controls on reservoir quality distribution in the Smackover Formation. I am originally from Pennsylvania, but have been living in Texas, where I received my BS from Baylor University. I am excited to continue to learn and deepen my understanding of geology and to be able to work with some great people. Outside of class, I enjoy hiking and rock-climbing.

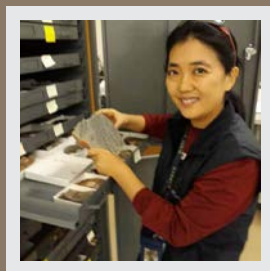
Rezvan Soltanabadi
Advisor: Dr. Alain Plattner

Hossein Gholizadesh
Advisor: Yong Zhang

Bahareh Karimi
Advisor: Dr. Yong Zhang

Olaoluwa Oluwaniyi
Advisor: Dr. Yong Zhang

CONGRATULATIONS DR. YUEHAN LU!!



Dr. Yuehan Lu received The University of Alabama Outstanding Mentor Award given by the Graduate School. Dr. Lu received the award due to the strong letters of support from her former graduate students and her current colleagues.



Congrats Yuehan!

Department Highlights!!

The DGS had a great year. We increased new awards, submitted proposals, publications, student credit hours and enrolled graduate students. We are at the end of our program review and will design a new strategic plan during the fall 2022.

Research: During 2021, DGS faculty has 16 new awards for a total of \$1,459,348. This does not include grants in-force. During the same period, DGS faculty submitted 45 proposals to external federal, state, industry and non-profit entities for a total of \$12,093,411. This is a 27% increase in total dollar amount over 2020-2021.

In 2021, our faculty had a total of 82 papers as authors and coauthors. Out of these 82 papers, 9 had graduate students as first author. Our papers/faculty increased from 3.9 to 4.3 from last year to this year. Our numbers of abstracts were up from 70 from 105. Conference presentations have not totally rebounded from the decrease that occurred during the pandemic.

Teaching: In 2021, the DGS awarded 15 graduate degrees, 1 PhD and 14 MS, an increase of 3 compared to 2020. In 2021, the DGS had 66 enrolled graduate students, an increase of 14 students from 2020. In 2021, the DGS awarded 12 BS, BSG and BA degrees, an increase from 10 in 2020. In 2021, DGS had 73 undergraduate majors, a 2 person decrease from 2020.

The DGS has an upward student enrollment trend in our classes over the past 3 years. Our classes filled throughout the pandemic and we could continue to grow our service offerings if we had more GTAs and a few renewable contract faculty.

Fred Andrus received the Outstanding Commitment to Students Award from the A&S Leadership Board.

Service: DGS faculty served as a member on 27 professional committees and chair of 1, chaired 20 university, college and department committees, and were members of 82 university, college and department committees. We reviewed 121 manuscripts for professional journals, 9 T&P packages for external departments, reviewed 110 proposal submissions to federal agencies, gave 22 invited talks at other universities and institutions, were on the editorial board of 20 journals, and organized 11 sessions at international conferences.

Other: The DGS has made great progress through our Diversity Alliance and participated in the AGU sponsored URGE program. The Geological Sciences Advisory Board (GSAB) continues to be a pillar of our department. During 2021, 2 graduate students were supported through the National Science Foundation Graduate Program and one with a NOAA Knauss Fellowship. Jim Donahoe, a DGS staff member, received the Virgil Parks McKinley Sr. Employee Award.

CONGRATULATIONS GRADUATES!!

FALL 2021

Lucas Nibert (MS)

Ryan Culp (MS)

Chelsea Comans (MS)

Mark Boyd (MS)

Shuo Chen (Ph.D.)

SPRING 2022

Patrick Hawkins (MS)

Mark Henry (MS)

SUMMER 2022

Gozde Degimen (MS)

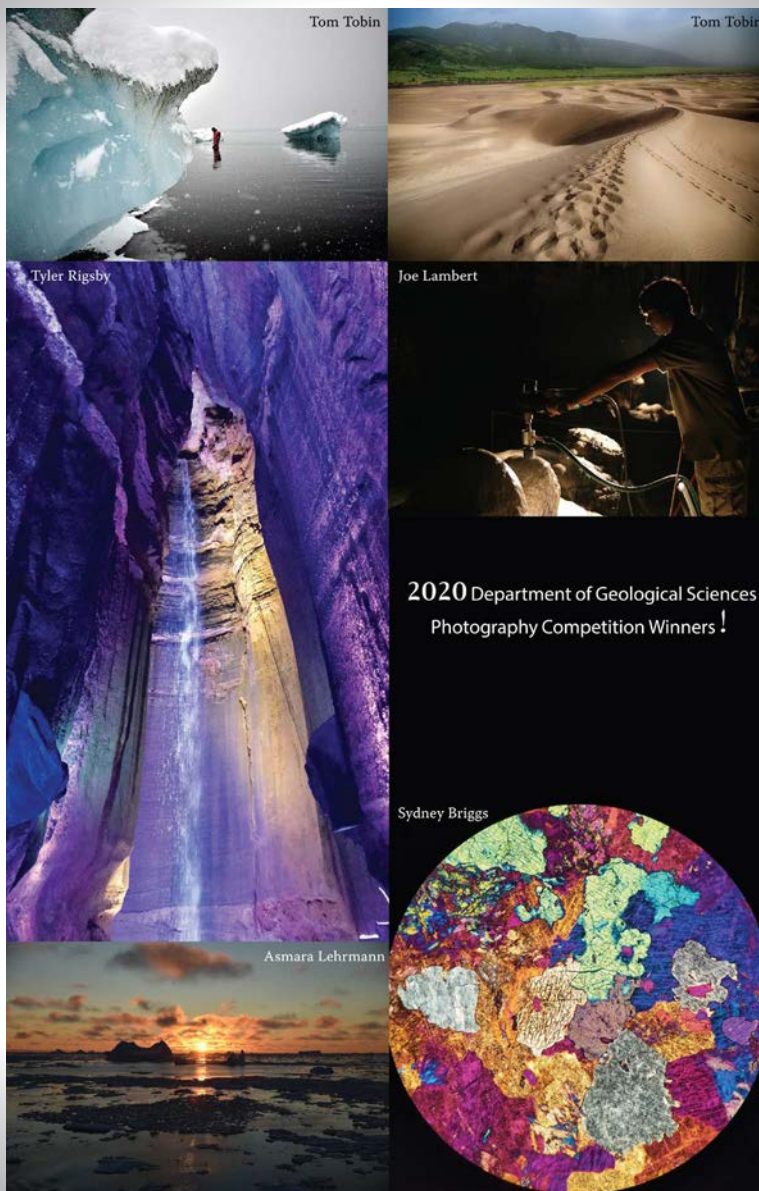
Hannah Dickson (MS)

Logan Qualls (MS)

Mary Brandon Huttemann (MS)

Adrian Wiggins (MS)

Jonathan Frame (Ph.D.)



GIVING

Please consider making a gift to the Department of Geological Sciences today.

Giving is quick, easy, and secure:

In the “Find your fund” search box, you can locate the general [Department of Geological Sciences Gift Fund](#) to help us fund our most urgent needs.

Or you can give to one of our specific funds, including:

[Doug E. Jones/Geological Sciences Advisory Board Fund](#) (scholarship)
[Tom Joiner/Geological Sciences Advisory Board Fund](#) (scholarship)
[Jen Ho Fang Fund](#) (scholarship)
[Walter B. Jones Fund](#) (scholarship)

[W. Gary Hooks/Geological Sciences Advisory Board Fund](#) (scholarship)
[Geology Endowment](#)

[W. Gary Hooks Endowed Fund](#) (student research)

[Richard H. Groshong Fund](#) (field trips)

[Harold H. Stowell Fund](#) (field course)

[P. E. LaMoreaux Fund](#) (international students)

[Wallace C. Johnson Fund](#) (field-based learning)

[Walter B. Jones Fund](#) (geological research in Alabama)

[Nathan L. Green Fund](#) (petrology research)

If you have any questions or would like to discuss other giving opportunities, please email:

Delores Robinson, Department Chair, at dmr@ua.edu.



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