

# eGeotiger

December 2024



AUBURN UNIVERSITY

## Welcome Message from the Department Chair



**It's great to be an Auburn Tiger! And it's great to be an Auburn Geoscientist!** In this newsletter, you will see some of the year's most impactful work from our faculty, staff, students, and alumni. As you can see from the stories, Auburn Geosciences is Going Places! It is a privilege to serve as the Chair of Auburn Geosciences. Our vibrant department is full of dedicated faculty, staff, students, alumni, and community partners who explore dynamic issues of Earth, Environment, and Society.

This year has brought with it some changes to the department. Yet, we remain committed to student excellence, research excellence, and teaching excellence. I wish to thank Dr. Lee for his years of service and vision as our Chair. He was immensely helpful and giving of his time during our leadership transition this summer. This year, we welcomed Dr. Stephanie Shepherd as a new Associate Chair, joining Dr. Haibo Zou in the Associate Chair roles; Dr. Chandana Mitra as the inaugural Director of the ESS PhD program; and Dr. Raphael Gottardi as the new Graduate Program Officer in Geosciences. All are bringing new energy to the department. They are building from the great work of our outgoing department leaders: Dr. Ashraf Uddin and Dr. Luke Marzen, who served admirably for multiple years as GPO and Associate Chair. Because of the leadership and incredible work of our faculty, students, staff, and alumni partners, Auburn Geosciences is well-positioned for continued success.

**We remain focused on student excellence and career preparation.** As a department committed to examining grand challenges in Earth, Environment, and Society, we regularly provide real-world field experiences and learning laboratories where students gain knowledge and make connections between course content and real-world experiences to better prepare them to succeed in their careers, while making meaningful contributions across the globe.

**We remain focused on impactful research with societal impact.** Auburn geoscientists focus on a diversity of research and teaching themes, our core strengths include Earth and Life Through Time; Environmental Geosciences; Geospatial Sciences and Geoinformatics; Natural Resources Exploration; Solid-Earth Processes and Dynamics; and Geoscience Education. We continue to increase our funding success rates, in large part due to our early career faculty, to support dynamic research and education efforts.



# eGeotiger

## Welcome Message from the Department Chair

**We remain committed to the land-grant mission.** As part of the Auburn land-grant mission, we continue to engage with broader communities in Alabama and beyond. Geoscientists regularly provide public talks, training, community events, and K-12 classroom visits. During the 2024-2025 academic year, the Department, along with support from the College of Sciences and Mathematics, is set to support even more science and technology learning experiences through a 35-foot mobile science lab through the new Geo Explorer Lab at Auburn.

**We appreciate our Auburn Geosciences Network across the Globe.** We know that Auburn Geoscientists are all over the world doing impactful work to understand the grand challenges of Earth, Environment, and Society. We encourage you to add your profile to our new Auburn Geosciences Alumni Network story map that will be launching in early 2025.

To add your Auburn Geosciences alumni story to the map (in less than five minutes), please visit: <https://arcg.is/1qCOWqO>.

**We ask for your continued support.** As we reveal our new Strategic Plan “Going Places with Geosciences” later this spring after feedback from our faculty, staff, students and alumni, we look forward to sharing our bold plans to support the future of science and technology with the Geosciences. We welcome your time, talents, and treasures. We welcome financial contributions, especially end of the year giving, to support our department’s bold vision.

Please consider donations to our Geosciences Advisory Board account at:

<https://alumniq.auburn.edu/giving/to/geosciences>

Thank you for all you do to support The Department of Geosciences at Auburn University and beyond. Happy holidays to all, and War Eagle!

With gratitude,  
Tim



# Earth Day 2024

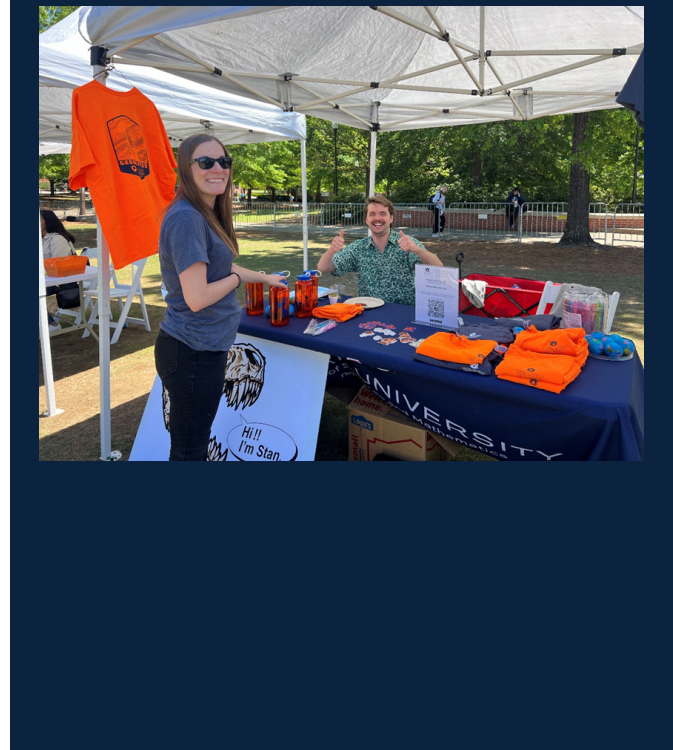
Auburn University celebrated Earth Day 2024 with a vibrant lineup of events, including the Earth Day Extravaganza and activities from the Department of Geosciences and the College of Forestry, Wildlife and Environment (CFWE).

The Earth Day Extravaganza, hosted by the University Program Council at the Student Center Greenspace, featured educational displays, hands-on activities, food, and succulent planting. Highlights included a Tyrannosaurus rex skull and rock-painting sessions for students.

The Department of Geosciences focused on the critical role of geology and geography in environmental protection. Activities showcased the practical applications of minerals in daily life and demonstrated drone technology for research, emphasizing its importance in mapping and data collection.

Ming-Kuo Lee, highlighted the role of geoscience in fostering sustainable living.

The event also introduced a new graduate program focused on climate resiliency through the NSF Research Traineeship (NRT), aimed at training the next generation of climate scientists. Lee expressed pride in the collective efforts of faculty, staff, and students in promoting Earth Day awareness across the campus community.





# 2nd Annual Geoscience Day



The second annual Geoscience Day was held on February 19 at the new Academic Classrooms and Laboratory Complex, offering prospective students a chance to learn about geoscience careers, meet instructors, explore exhibits, and interact with admissions representatives.

The event highlighted the potential impact of geoscience in addressing global challenges like clean water, renewable energy, and sustainability.

Activities included an interactive map exercise with Bonnie Bounds and Adam Payne, a Geography Travel Wheel trivia game with Brandon Ryan, and educational exhibits such as a watershed model by Emma Henderson and a "Mineral Matching Game" by Elyssa Rivera. Stephanie Shepherd, an associate professor, emphasized the foundational importance of geoscience courses like Land and Water.

The event also provided students with opportunities to ask questions about the application process. Following last year's inaugural event, the department saw a 30% increase in undergraduate applications, demonstrating the event's success in attracting prospective students to the field.



# Art Mural Brings Students Together, Builds Lifelong Skills, and Raises Awareness of Climate Resiliency



On September 4, Auburn University unveiled a new mural, *sustainABLE*, in The Edge dining facility, created by a collaboration between four colleges and the Graduate School. The mural, conceptualized and painted by Auburn graduate and undergraduate students, was the culmination of a year-long project led by Professor Chandana Mitra. The initiative, part of the National Science Foundation (NSF) Research Traineeship (NRT) program, aimed to visually communicate the students' research on climate change resilience and sustainability.

The project began with a STEAM science communication workshop and brainstorming sessions to explore how art could convey complex scientific concepts. Professor Wendy DesChene and her art students helped bring the design to life, turning the multidisciplinary ideas into a vibrant mural.

This mural is the product of Auburn's first NRT award and represents a significant achievement in integrating art and science. It showcases the university's commitment to fostering interdisciplinary collaboration and sustainability. The unveiling ceremony was attended by faculty, students, and university leaders, and it aims to spark conversations on climate change and sustainability among students and the wider community.

To learn more about the mural and the NRT program, visit the video here <https://www.youtube.com/watch?v=Eglq514N8ys>



# GIS Spotlight



This summer, the City of Auburn GIS team was honored with a Special Achievement in GIS (SAG) Award at the Esri User Conference. Esri, a leader in geographic information system (GIS) software and mapping, presents this award annually to recognize organizations that set new standards in the GIS community.

The team was nominated by their Esri representative for their innovative work, including projects like the Street Tree Explorer app and the use of drones, which have contributed to building a truly integrated enterprise GIS for the City. You can explore some of their projects at [auburnalabama.org/maps](http://auburnalabama.org/maps). Our very own, Michael Selorm Agbozo, was a key member of this team.

Congratulations to the team!

# Herb Martin

## COSAM Distinguished Alumni Award

by Steven Dixon

### Rooted in Auburn: Herb Martin's Dedication to Education and Community



For Herb Martin, Auburn is more than just a place; it's a community that has shaped his life for over 45 years. His connection began with a visit when his older sister enrolled, and he experienced the excitement of an Auburn football game. That early introduction made a lasting impression, drawing him back when it was time to choose a university. "The values in the Auburn Creed really match the values of my family that I grew up with, and it was just a natural fit," he recalls.

As a geology student in the mid-1970s, Martin was drawn to Auburn's hands-on learning approach, seeking a degree that would provide practical job opportunities. His education set the foundation for a successful career in the oil and gas industry, guided by the dedicated faculty and the then-School of Arts and Sciences. Now residing in Oklahoma, Martin continues to give back to Auburn through his roles on the COSAM Leadership Council and the Geosciences Alumni Board. "It just seemed natural to me... Auburn set the foundation for [my career], and I feel like education is the key," he shares.

Martin's commitment to Auburn extends beyond financial support—he believes in mentoring students and helping them connect their education to real-world careers. "Sometimes when you're in school, it's not necessarily clear how what you're learning is going to be applied to your job... If we can make that a little less obtuse, I think that's another role we can play," he says.

Looking to the future, Martin is excited about the Department of Geosciences' relocation to the new STEM+Ag Complex, set for completion in 2026. This state-of-the-art facility promises cutting-edge research labs and collaborative spaces that will foster greater innovation and engagement between students and faculty. "With the STEM+Ag Complex, we're gaining not just a new building but a space that truly supports innovation," he says. He is also inspired by the vision of the new department chair, whose leadership he believes will propel the department to new heights.

Beyond his professional pursuits, Martin credits his family for their unwavering support throughout his journey. Their encouragement has been instrumental in balancing his career and personal life, allowing him to focus on his passion for Auburn and its community. "We've been really fortunate... Now we're in a position to give back. And honestly, it feels natural to do it—it feels like something we should do," he says.

As he reflects on his journey, Herb Martin remains deeply committed to Auburn's future, confident that the next few years will bring tremendous growth for the Department of Geosciences. "This is a time of great potential, and I'm proud to be a part of it," he shares. His story embodies the enduring spirit of the Auburn family—a legacy of dedication, mentorship, and giving back to ensure a bright future for the next generation.



# Now Open: Tiger Babies Nursing Mother's Room Location: 2100 Beard Eaves Memorial Coliseum

The Auburn Department of Geosciences in collaboration with the Tiger Babies program is pleased to announce the opening of a new Tiger Babies Nursing Mother's Room in the Coliseum in Room 2100.

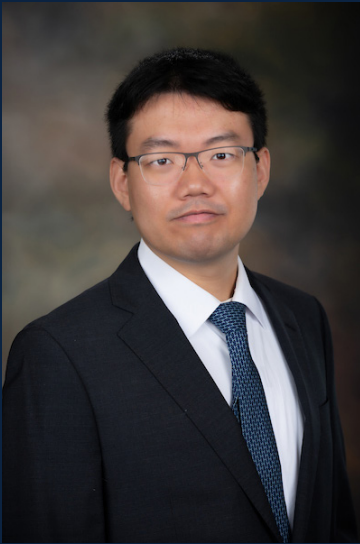
This new room is designed to be a safe and supportive space open to all nursing mothers in Geosciences, the AU community, and official AU visitors.

The Department of Geosciences is pleased to open this space (the only Tiger Babies location on this side of main campus) for working mothers to create a more welcoming and supportive environment for scientists. This is a direct response to graduate students who requested the idea to department leadership.

Ashleigh Rudd, office supervisor in Geosciences, led the effort to design and create this space for mothers. As the photographs show, it is one of the largest and most accommodating spaces for nursing mothers on the main campus. It is equipped with secure controlled access only for women.



# New Faculty in Geosciences



**Luyu Liu**  
**Assistant**  
**Professor**

Dr. Luyu Liu is a transportation geographer who studies public transport and micromobility.

He uses spatial data science and machine learning techniques to understand how to mitigate and overcome car dependency in cities and to promote sustainability, accessibility, and social equity.

He will teach advanced GIS in Spring 2024.



**Greg Burris**  
**Lecturer**

Dr. Gregory Burris is a historical climatologist interested in past climates in areas with limited long run instrumental records.

He uses a variety of mixed methods to reconstruct climate conditions from historical accounts and documents.

Courses he has taught includes Global Systems: Land and Water, Introduction to GIS, Physical Geography, Environmental Science, Biogeography, World Regional Geography, Human Geography, and Map Analysis.



**Meg Veitch**  
**Lecturer**

Dr. Meg (Margaret) Veitch is an invertebrate paleologist, specializing in biomechanics and paleoecology.

Her chosen group of organisms are crinoids, which she studies both in the fossil record and in the modern oceans using SCUBA and submersibles.

Her teaching background covers Oceanography, Earth History, Field methods, Geology and Environment Interactions, and Introduction to Geology. Here at Auburn, she teaching Dynamic Earth and Earth and Life Through Time, while stalking birds on the weekends.



# New Postdoctoral Fellows



**Mohd Shafi Bhat**  
Postdoctoral Fellow

## Research and Teaching Interests

I am interested in fossil vertebrate evolution using their morphology (taxonomy) and bone microstructure (histology) as a proxy to reconstruct their paleobiology (e.g. feeding mechanism, growth regimes, lifestyle adaptations, and evolutionary trends) and paleoecology.

I am especially intrigued about how bone growth varies among different elements of the skeleton and how this has shaped the evolution of animal diversity and lifestyle adaptations.



**Evaldo Renner da Costa Cardoso**  
Postdoctoral Fellow

## Research and Teaching Interests

Over the past years, I have worked with soil contamination by potentially toxic elements (PTE), especially Pb. I am now interested in working with both potentially toxic elements and rare earth elements (REE) as proxies for soil genesis in Antarctica.

The abundance and distribution of REE can reflect past pedogenetic processes, which remain poorly understood when studied solely in the context of major and trace element abundance.

# Destination STEM 2024



The Auburn University Department of Geosciences had an exciting day engaging with over 1,000 students at the COSAM Outreach "Destination STEM" event! Our faculty, staff, and students shared their passion for Earth science through hands-on activities, inspiring future scientists and sparking curiosity.

A special thanks to Dr. Laura Bilenker for coordinating the Geosciences team and making this event a success. The future of science is looking bright!



# Habitat Restoration



A dedicated group of volunteers from Alpha Phi Omega, Auburn Arboretum, and Alabama State Park officials spent a rewarding week of service focused on maintaining and developing habitats for rare and endangered plant species. Dr. Vogel and a group of Geoscience students traveled to DeSoto State Park in North Alabama for this incredible opportunity for community engagement.

Accommodations were provided in cabins and glamping, and all necessary tools were available. Participants learned about invasive species removal and habitat restoration while discovering early spring plants like may apples. Evening activities included cookouts, a crawfish boil, card games, and live music, fostering a sense of community.

This experience offered excellent hands-on training in conservation while enjoying nature and building valuable connections in land stewardship.

# Geo Explorer Auburn Mobile Science Lab Arrives on The Plains

*happy holidays*



**GEO**   
**EXPLORER**  
**LABS**

**Geo Explorer Auburn arrived on campus December 6.** This new vehicle will serve as the world's largest geosciences-themed mobile lab. Thanks to our friends at BamaRV in Opelika for this innovative partnership. Geo Explorer Auburn is a 35-foot solar-powered mobile science lab that visits Alabama K-12 schools and communities to solidify a foundation in science, technology, engineering, and math (STEM). We are a partnership between Auburn University Department of Geosciences, Auburn University College of Sciences and Mathematics, and 15lightyears. Our mission is to broaden participation in science and technology through mobile learning labs so that children, families, educators, and community partners can use scientific thinking and technologies to understand the grand challenges of Earth, environment, and society to engage with our rapidly changing world.

**We expect to be on the road with preview events by March 2015.** Look for updates on social media. Our interior remodel started a few days ago. We'll be wrapping the outside with AU and geo-theme graphics. We'll be heading to Florida to have solar panels installed (for free) with our friends at 15lightyears in mid-January. And alumni taker note! Between Auburn and San Diego... get ready we're taking a road trip to the Esri User Conference in July. We'd love to host some pop-up events with you and your industry partners along the route out west. Stay tuned for more on that in the new year.

**Geosciences Truly is Going Places!** Learn more at [www.geoexplorerlabs.org](http://www.geoexplorerlabs.org).



# Auburn Researchers seek to improve water quality using a holistic approach with \$300k award



Assistant Professor in the Department of Geosciences Stephanie Rogers is leading a project entitled *Inequities in pollution exposure: Examining the relationship between onsite wastewater system prevalence and water contamination*, which takes a holistic approach in understanding the human and environmental risks associated with aging, unmaintained, and/or unregulated onsite wastewater treatment systems (OWTS), or septic systems, in coastal areas of Mississippi (MS) and Alabama (AL). The \$305,944 award has been funded by the Mississippi-Alabama Sea Grant Consortium (MASGC) and includes contributions from the National Oceanic and Atmospheric Administration (NOAA) and appropriations from the state of Alabama.

Three other researchers from the Department of Geosciences at Auburn University will be collaborating on this project with Rogers: Assistant Professors Jake Nelson and Ann Ojeda, as well as Assistant Research Professor, Natalia Malina. Rogers and Nelson will tackle the spatial modeling, vulnerability, and human-environmental interaction components of the study while Ojeda and Malina will focus on model validation through field data collection and the development of new sampling and laboratory analysis strategies for understanding the complex interface between contaminants in surface and groundwater.

# Awards and Recognitions

The Department of Geosciences recognized our students and all their accomplishments of our exceptional students in the academic year 2023-2024.

This year's annual picnic was held on Saturday, April 13th at the E.W. Shell Fisheries Center.

Donations are used in a variety of ways to assist our students and our activities, thanks to gifts from our alumni and other friends of the department.

Scholarships and other honors, such as plaques and cash are one way to honor students who stand out in their fields of study, research, service and or leadership.

We have built a well-organized nomination, application and voting process to ensure the success of our departmental Awards. Thanks to our awards committee members for your hard work and dedication to making this possible. Congratulations and best of luck to all our 2023-2024 award winners!

## Outstanding Leadership Award

Caroline Locker  
Mackenzie Benton  
Brandon Ryan

## Outstanding Junior Award

Lily Miller

## Outstanding Graduate Student Savrda Award

Bryce Hall and Emma Henderson

## Outstanding Graduate Mentor Award

Dr. Ashraf Uddin

## Outstanding Doctoral Student Award

Mallory Jordan

## Harry Merriwether Fellowship

Sukanya Dasgupta

## Research Award

Cooper Caputo  
James Mayes  
Aktarul Ahsan  
Lauren Talkington  
Samantha VanDenburgh

Isabelle Barta  
Mackenzie Benton  
Shifat Monami

## 2023 Fall Travel Award

Md Hasnat Haman  
Dogancan Yasar  
Md Riaz Uddin  
Hang Song

Alexandra Tsalickis  
Sukanya Dasgupta  
Brandon Ryan

## 2024 Spring Travel Award

Isabelle Barta  
Zachary Davis  
Elyssa Rivera  
Sophia Foliano  
Samantha VanDenburgh  
Patricia Solana Gonzalez

Md Hasnat Jaman  
Ansleigh Bright  
Tuhi Saumya  
Jake Swartz

## IBA Award

Mackenzie Benton  
Nipa Chakroborty  
Bryce Hall

Md Hasnat Jaman  
James Mayes

## Diversity Award

Elyssa Rivera

## COSAM Award

## Dean's Medalist

Jake Swartz



# Awards and Recognitions

## 2024 Lilly-Lovelace Distinguished Service Award- Amy Goode



We are excited to announce that Amy Goode, our dedicated Accountant, has been selected to receive this year's prestigious Lilly-Lovelace Distinguished Service Award! This well-deserved recognition honors Amy for her outstanding contributions to the College of Sciences and Mathematics (COSAM) at Auburn University.

The Lilly-Lovelace Award is given annually to staff members who demonstrate exceptional service and play a vital role in the success of our college. While the achievements of our faculty and students often take center stage, the work of staff members like Amy is the foundation that supports their success. Amy's commitment, professionalism, and tireless efforts have made a significant impact on the daily operations of COSAM, and this award is a testament to her dedication.

Established in 2012, the Lilly-Lovelace Award honors the legacies of Eva Lilly and Jan Lovelace, two individuals who gave many years of devoted service to COSAM. Their dedication to the college and its mission lives on through this award, which recognizes staff members who embody the same spirit of excellence and commitment.

Please join us in congratulating Amy on this well-earned honor and thanking her for the invaluable contributions she continues to make to our college!

## Tuhi Saumya receives the LPI Career Development Award



Tuhi Saumya, a graduate student in the Department of Geosciences at Auburn University, was selected as one of nine recipients of the highly competitive 2024 Lunar and Planetary Institute (LPI) Career Development Award. This prestigious honor recognized early-career scientists with exceptional promise in planetary science. Saumya was formally presented the award on March 12, 2024, during the 55th annual Lunar and Planetary Science Conference (LPSC) in Houston, Texas.

Saumya's work in planetary geology, particularly related to the formation of celestial bodies, was a key factor in her selection. Her research contributes to a broader effort to expand scientific knowledge about the Moon, planets, and other bodies within our solar system. The LPI Career Development Award is considered a major milestone for early-career scientists, providing a valuable platform for networking and furthering research within the global planetary science community.

# Awards and Recognitions

## Outstanding Graduate Faculty Award

Dr. Ashraf Uddin, a respected faculty member at Auburn University, was nominated by graduate students for the prestigious Outstanding Graduate Mentor Award 2024. From over 50 nominations, Dr. Uddin was named one of the top five finalists for the award, which recognizes exceptional mentorship and dedication to graduate students.

The award ceremony took place on April 26, 2024, at the Melton Student Center Ballroom, where faculty, students, and university leaders gathered to celebrate excellence in mentorship. Auburn University President Dr. Christopher Roberts and Graduate School Dean Dr. George Flowers were present to honor the nominees and present the awards.

Dr. Uddin's commitment to fostering academic growth and supporting graduate students in their research and professional development earned him this well-deserved recognition.





# Awards and Recognitions



## OTF Mentor Award

Md Riaz Uddin, a PhD student from the Earth and Space Sciences (ESS) department, has been honored with the prestigious 2024 On To the Future (OTF) Mentor Award by the Geological Society of America (GSA). He was recognized at the GSA Annual Conference in Anaheim, California, during the last week of September.

The OTF program aims to increase diversity in geosciences by providing mentorship and career development to underrepresented students. Md Riaz was celebrated for his exceptional mentoring and support of these students, helping them navigate their academic and professional journeys. His recognition highlights his significant role in fostering an inclusive, diverse geoscience community.

We are proud of Md Riaz for this well-deserved recognition of his dedication to both research and mentorship.

# Awards and Recognitions



## Caroline Locker: The Value of Unseen Contributions

Caroline Locker, the Fall 2024 Graduation Marshal for the College of Sciences and Mathematics, is preparing for the next chapter of her academic journey. Passionate about earth sciences, she will pursue a master's degree in Geology at Auburn University, specializing in high-temperature geochemistry.

Originally from Hoover, Alabama, Locker started in Auburn's College of Engineering but soon found her true calling in geology. She was drawn to the Department of Geosciences for its focus on climate and atmospheric research, as well as its smaller class sizes, which provided a more hands-on, personalized education. Locker's involvement extended beyond the classroom—she interned with the Geology Team at Yellowstone National Park, participated in the Auburn University Marching Band, and served as President of the Auburn GeoClub.

Reflecting on her time at Auburn, Locker emphasized the importance of balance, stating that prioritizing her mental and physical well-being allowed her to thrive academically and personally. Inspired by her father, a civil engineer in wastewater management, she aspires to make meaningful, unseen contributions to the geosciences field.

As she continues her studies, Locker's dedication and passion promise a bright future in the industry.



# News from Faculty



## Dr. Mitra elected as first AAG Fellow in the Department of Geosciences at Auburn

Chandana Mitra, an associate professor in the Department of Geosciences at Auburn University, has been elected as an American Association of Geographers (AAG) Fellow. AAG is a nonprofit scientific and educational society that advances the understanding, study and importance of geography and related fields.

She is the first AU Geoscience faculty recognized by AAG for her outstanding scholarly accomplishments and exceptional contributions to the geography community.

This award goes to geographers who have made a significant contribution to advancing geography. Congratulations to Dr. Mitra for her outstanding career achievements!

## Heat illness awareness initiative comes to LaFayette-Valley Times-News



During a special meeting, the LaFayette City Council was introduced to Together Alabama, a program focused on educating communities about heat illness prevention and resilience.

Chandana Mitra, Professor at Auburn University, shared concerning data: last week, Alabama and Georgia experienced temperatures 14 to 17 degrees higher than normal for mid-November. She emphasized that extreme heat, not hurricanes or tornadoes, causes the most deaths in the U.S. each year.

Mitra, along with Kyle Crider, Program Policy Director for the People's Justice Council (PJC), and Professor JoEllen Sefton, spoke about the group's mission to help communities prepare for and cope with heat waves, especially vulnerable groups like outdoor workers, children, and the elderly.

Crider, who works with the Alabama Interfaith Power & Light and the PJC, highlighted the group's role in building community resilience. He explained that protecting people from extreme heat involves both education and action, stressing the importance of proactive measures.

As part of their outreach, Together Alabama uses tools like a large water tank and thermal imaging camera to demonstrate the risks of heat illness and promote prevention methods, such as staying hydrated.

The PJC also encourages simple, low-cost home improvements, like sealing gaps with caulk and weather stripping, which can reduce energy costs and help keep homes cooler during hot weather.

The program's combined focus on education, prevention, and practical solutions aims to protect residents from extreme heat and build long-term resilience in the community.

# News from Faculty



**Dr. Stephanie Shepherd  
Appointed Vice Chair of the USGS  
Advisory Committee on Science Quality  
and Integrity**

Please join us in congratulating Dr. Stephanie Shepherd, who has been appointed Vice Chair of the U.S. Geological Survey (USGS) Advisory Committee on Science Quality and Integrity! This is a significant and prestigious recognition of Dr. Shepherd's national reputation and scholarly contributions in the field of geosciences.

The USGS Advisory Committee on Science Quality and Integrity provides critical support to the Secretary of the Interior and the Director of the USGS in matters related to the integrity, quality, and overall health of USGS science. The committee plays a key role in overseeing and enhancing the work of the USGS Office of Science Quality and Integrity (OSQI), which includes areas such as Scientific Integrity, Science Quality, Fundamental Science Practices, and various educational and research initiatives, including the Office of Tribal Relations and Youth and Education in Science (YES). The OSQI also oversees USGS's programs in STEM, laboratories, postdoctoral research, and the evaluation of research and equipment development for USGS scientists.

In her new role as Vice Chair, Dr. Shepherd will be integral to ensuring the continued excellence of USGS science practices, policy, and programs. This appointment underscores her long-standing commitment to advancing scientific integrity and quality, and her strong collaborations with USGS scientists and projects.

Dr. Shepherd shared a few words about the significance of this honor: "Throughout my academic career, I have relied on data and geologic maps generated by the USGS, as well as developed strong collaborations with USGS scientists. I am incredibly honored to support the excellent work they do as part of this committee."

We are proud of Dr. Shepherd's leadership and the distinguished role she plays in advancing the field of geosciences. Her appointment is a testament to the high regard in which she is held nationally and reflects positively on Auburn Geosciences and the broader academic community.

Please join us in celebrating Dr. Shepherd's achievement and her continued contributions to the advancement of scientific excellence!



# News from Faculty



**Dr. Karen McNeal**  
**Marguerite Schamagle Endowed**  
**Professor**

I write this update from my hotel room in beautiful San Diego as I attend the United States Geological Survey (USGS) Climate Adaptation Science Center (CASC) Futures Forum Meeting. I am inspired to write this update as I participate in this meeting which brings together nine regional CASCs, covering the continental U.S., Alaska, Hawai'i, the U.S.-Affiliated Pacific Islands, and the U.S. Caribbean. I have been engaged for 10 years with the SE CASC where I serve as AU Consortium PI and as a member of the executive leadership team. Additionally, I am PI of the CASC supported Climate Adaptation Scientists of Tomorrow (CAST) Hydroclimate program at AU, which has supported undergraduate student researchers to work with faculty and graduate students in our department for the last three years.



Image taken at the CASC Future Forum Meeting in San Diego.

I have been fortunate to have several students supported by the CASC network including three SE CASC graduate fellows, including Ally Brown - current AU ESSI PhD student. Like a proud mamma, I have been able to observe two of my graduate student alumni lead critical efforts at this meeting: Dr. Stephanie Courtney (AU graduate 2022), Climate Liaison for the United South and Eastern Tribes, and Dr. Elijah Johnson (AU graduate 2023), Oak Ridge Institute for Science and Education (ORISE) Postdoctoral Scholar at the CASC. They have both been pivotal to the meeting's success and contribute to advancing climate science, effective communication, and broadening participation through their leadership roles. I was grateful that we were able to snap a photo of the three of us and go to dinner to catch up amongst the busy meeting, where they both were in high demand.

As I reflect on Stephanie's and Eli's early careers, I cannot help but to also reflect on the successes of all the ESSI graduates from my Geoscience Education and geocognition research lab at AU. Below, I summarize my AU lab's graduates/post-doctoral scholars and show where they currently are in their careers. I want to acknowledge that I am also very proud of the 11 students and post-docs from Mississippi State and North Carolina State that I also had the pleasure to advise, but do not have the space to include here. I am very proud of these students that gave me the privilege of being a part of their journey and I dedicate this entry to them. And, to the five PhD students currently in my lab (Ally Brown, Haylie Mikulak, Hang Song, Obinna Urom, and Tony Williams), I cannot wait to see where you are headed in your future careers!

Follow the GeoCognition Lab Page to learn more about where they are now:  
<https://mcnealgeocog.wixsite.com/website>

# News from Faculty



**Dr. David King**  
**Professor**

During the past year, I continued research in two main areas – one basic and the other applied. In basic research, I work on impact craters and planetary surface processes, and in applied research, I work on projects related to disposal of carbon dioxide and of radioactive waste. This is now the second year of a federally funded project, with Co-PI Ashraf Uddin, on carbon sequestration aspects of a deep drill core in Shelby County, Alabama. There are two new graduate students working with Dr. Uddin and me on this project – Mayes Mayes and Bryce Hall. During this past year, two planetary graduate students, Tuhi Saumya and Pedro Montalvo, finished their degrees. Ms. Saumya is studying for a Ph.D. at Georgia Tech and Pedro Montalvo is working as a planetary geologist in Houston. My planetary student is Patricia Solana who is working also with Dr. Vinamra Agrawal (Los Alamos Labs) on digital modeling of impact structures on Mars.

During 2024, I published two papers on Belize geology; one is a proposal for carbon sequestration from direct air capture within the Corozal Basin and the other is about Belize KPg impact spherules. These days, I teach several courses on a regular basis in our department including

Dynamic Earth, Earth and Life through Time, Lunar and Planetary Geology, Stratigraphy, and a graduate course in Impact and Planetary Geology. I am planning new courses in Alabama Dinosaurs and Impact Geology, both at the undergraduate level.

As I have been for many years, I am the advisor for the student groups, Sigma Gamma Epsilon and the Auburn chapter of the American Association of Petroleum Geologists. This year (2024) was my 41st anniversary as SGE advisor. I have been advisor for AAPG since the chapter started at Auburn in 1986. Also, I continue as the departmental coordinator for the Science Olympiad held on campus each year. Further, thanks to our governor, I have a seat on the Alabama Board of Licensure for Professional Geologists as the member representing academic departments of geology in our state. I am pleased to announce that my book, *Alabama Dinosaurs* (4th ed., 2022), is now published by Sentia Press of Austin, Texas, and is sold via Amazon.com. I am presently writing another book on the Wetumpka impact crater in Elmore County.

My work at Wetumpka impact crater has been recognized in several displays and graphic presentations that are now open to the public in the city of Wetumpka's Crater Discovery Center, which is located in downtown Wetumpka, Alabama, and the Alleyway murals depicting the history of the crater, which are located across the street from the new Discovery Center.

I would really enjoy hearing from former students. I have the same email address as I did when email first came to Auburn – kingdat@auburn.edu. Would really like to know about your career and your recollections of Auburn geology back in the day.

Best wishes...



# News from Faculty

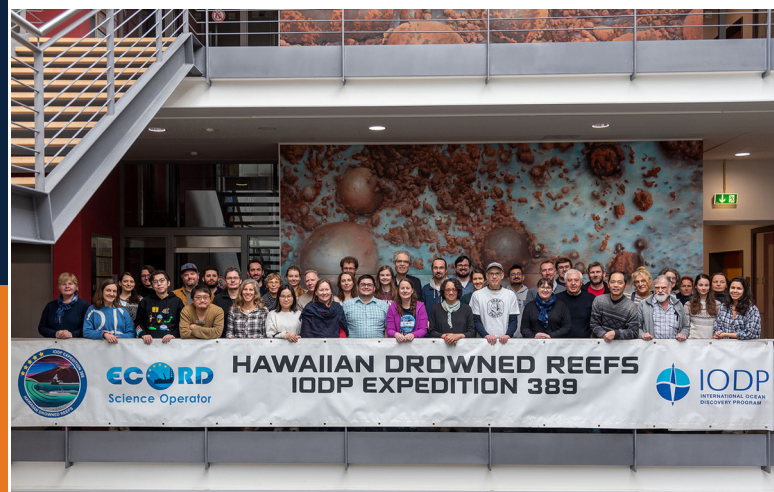


**Department of Geosciences  
Assistant Professor**

Brian Boston's group continued with its work on multiple subduction zones and the Hawai'i hotspot. Brian had the pleasure to spend a month at the Bremen Core Repository at the University of Bremen, Germany as part of the Onshore Science Party for International Ocean Discovery Program Expedition 389.

This project drilled the drowned reefs and basalts surrounding the island of Hawai'i with 16 sites covering five regions, and in Bremen, we were able to split the cores and take initial measurements. The main overall goals were: defining the nature of sea level change in the central Pacific, reconstructing the paleoclimate variability, establishing the geologic and biologic response to sea level changes, and elucidating the subsidence and volcanic history of Hawai'i. It was exciting to finally see what the cores looked like after spending 64 days at sea last year to collect them. Additionally, we had some exciting results come out of the CASIE21 highlighting the first high-resolution image of the plate boundary fault and finding large structural variability located near past earthquake segmentation indicators. MS student Nipa Chakroborty is also working on the CASIE21 dataset to better constrain the role of forearc basin evolution in this tectonic setting. This year, she also received external funding to attend a downhole logging program at the University of Leicester, UK over the summer.

We also welcomed a new PhD student, Madhav Ram, and a new postdoctoral fellow, Ali Üge, this fall semester. Madhav plans to work on geophysical data and the recent scientific drilling around the Hawaiian Islands. Ali is starting to work on seismic reflection data collected offshore Mexico to better understand the Guerrero seismic gap, a quiet region along the trench that has not experienced any large coseismic earthquakes in the last 100 years.





# News from Faculty

News from Bill Hames.... It's been a full year for my teaching and service activities in the Geoscience Department and research activities with students in the Auburn Noble Isotope Mass Analysis Lab (ANIMAL) and the Auburn University Electron Microprobe facility (AU-EMPA). In the spring, twelve undergraduate and graduate students completed the third 'Electron Microprobe Analysis' class. Also in the spring, my proposal for a 'Center for Carbon, its Capture, Use and Storage (C3USA)' was selected for development as one of the new Centers in COSAM. Zach Davis completed his M.S. degree requirements and Aidan Knox began 1 year of undergraduate studies in ANIMAL with support from an Auburn University Undergraduate Research Fellowship. Aktarul Ahsan joined my working group for his Ph.D. studies in Bangladesh, and Kevin Ochola accepted enrollment in our Ph.D. program. In July I travelled to Kenya for three weeks of fieldwork arranged by Mr. Collins Aseto (AU Geo M.S. 2012). Kevin and I travelled with Collins for three weeks in central and eastern Kenya, to places including Nairobi, Nakuru, and Mombasa, and safaris in the National Parks of Samburu, Tsavo, and Hell's Gate. This trip gave opportunities to build opportunities for future work in East Africa with topics from geothermal power production coupled with carbon capture and sequestration (CCS), economic geology, tectonics and stratigraphy. Photos (CW from top right): Kevin Ochola in the East African Rift valley of Hell's Gate NP; Kevin, Bill and Collins at the equator in Nanyuki, Kenya; a young tusker in Samburu NP. Aidan Knox building a new noble gas extraction line; and Zach Davis as he completed his microprobe work and hydrothermal treatment of feldspar samples in Dr. Bilenker's lab.

Best wishes to all! Bill





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We would love to hear from you! Please send your stories to us!  
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