

eGEOTIGER

January 2017

*"New" building,**



*New faces,***



*Same "excellent" department****

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eGEOTIGER

Greetings from the Chair!

The year 2016 was full of challenges interspersed with spurts of elation for our students, faculty, and staff. Our epic move from Petrie Hall to the Beard-Eaves Memorial Coliseum (BEMC) was, and continues to be, exhausting... If you are not aware, last year the Athletics Department initiated an expansion of the north end-zone to Jordan-Hare stadium that required us to move Geology faculty, students and spaces in Petrie Hall (the old field-house to the stadium) to temporary spaces in the BEMC while a new building was built for us. We began moving out small items last spring but the major move took place over the summer, overlapping the start of the fall 2016 term. Many of us, including me, still have unpacked boxes in our offices and labs. The move would have been a disaster without the steady guidance of our Lab Manager Tony Hall. We are all, especially me, greatly indebted to Tony for making the move go as smoothly as it did.

In 2016 our department and our alums felt the loss of Dr. Jack Carrington, our Department's founding Head. I had the pleasure of knowing Jack as we overlapped for a couple of years when I joined the department in 1989. During that time he was the Associate Dean for Academic Affairs for our college. Despite his administrative position, Jack took the time to mentor me in my research in rocks of the Alabama Piedmont and he helped me to learn the ropes of teaching our field methods course, which eventually evolved into what is now our summer field camp course. Dr. Robert Cook, who replaced Jack as department Head, provides a wonderful testament to Dr. Carrington in this edition of the eGeotiger.

This past year was our busiest in recent history for new faculty hires. We hired three new tenure-track faculty and three lecturers, with each applicant requiring multiple skype and on-campus interviews. Two new faculty were hired as part of the university's cluster-hire initiative in Climate-change, Coupled Human and Natural Systems, and Earth Systems Science (CHESS). Dr. Martin Medina-Elizalde (U Mass – Amherst) works in paleoclimatology, oceanography, and climate change and is assembling his stable isotope lab here in the BEMC. Dr. Chris Burton's (USC) research focuses on human-environmental interactions, natural hazards and disasters, social vulnerability, disaster resilience, modeling risk and vulnerability, GIS, geospatial analysis, and global environmental change-related hazards. Dr. Karen McNeal (NCSSU) was hired as part of a new Discipline-Based Science Education Research (DBER) group being formed in the College of Sciences and Mathematics (COSAM). Karen's specialties lie in geoscience education, geocognition, global change education, climate communication, and active learning. Dr. Stefanie Brueckner (Memorial University, Newfoundland) is a lecturer hired to teach courses that Dr. Jim Saunders taught (geochemistry and economic geology) before he retired last December.

Dr. Brueckner's research focuses on economic geology, formation of hydrothermal and metamorphosed ore deposits, mineralogy and textures of (metamorphosed) ore minerals, and analytical chemistry of ore minerals and their isotopes. We hope to launch a search for a tenure-track economic geologist during the 2017-'18 academic year. Dr. Marilyn Vogel (Stanford) was hired as lecturer/coordinator for SCM 1010 Concepts of Science, a core-science course that had previously been under the auspices of the COSAM administrative staff but has been transferred to our Department. Dr. Vogel will also teach GEOL 1110 Earth and Life through Time. Finally, Dr. Adam Payne (OK State U) was hired to teach geography courses due to Daniel McGowin's unexpected resignation this past summer. We are very happy to have each of these impressive folks joining our faculty!

We are finally getting a PhD program in our department! Our proposal for an interdisciplinary PhD program in Earth System Science (ESS) is progressing along quite nicely and we are confident that our first students will enter the program during Fall 2018. Proposing a new degree program at AU is not simple. First we had to gain approval for a proposal through AU's Graduate School and the Provost. It then must be approved by the college and university curriculum committees, and then the AU Board of Trustees. After getting over those hurdles it will then need to be approved by the Alabama Commission on Higher Education (ACHE). We enjoy strong support from COSAM Dean Nick Giordano, and we are very confident in getting all of the above approvals. The degree program is coordinated with faculty and deans in a variety of units across campus, including the School of Forestry and Wildlife Sciences and the colleges of Agriculture, Education, and Engineering, as well as participating departments in our own college (COSAM). As I write this, the proposal is being vetted by the AU curriculum committee. In order to reach this stage in the process, all the new courses for the program had to first be approved, and with 14 of them being proposed this was quite a daunting task. Dr. Ming-Kuo Lee has been coordinating this and Dr. Ron Lewis, Associate Chair for Geology and Chair of our department's curriculum committee has been burning-the-midnight-oil in order to see this process through. We are all deeply indebted to Ming-Kuo and to Ron for all of their steady efforts in this regard. Ron is also the editor of the eGeotiger, so many thanks for this too Ron!

We are all very excited about having acquired some highly sophisticated and sensitive laboratory instrumentation this past year, equipment that will be expected by the most competitive students who are considering our Ph.D. program. Members of our faculty took a measured and entrepreneurial approach - and some good luck too - to land their equipment. Our igneous petrologist, Dr. Haibo Zou,

arranged for two isotope mass spectrometers, a MAT 261 and a MAT 262, to be donated by NASA (Johnson Space Center, Houston, TX). His MAT 262 is already up and running! Dr. Zou's instrument is critical for measurements of Sr, Rb, Nd, U, Pb, and Th, giving us a broad range of geochronological and petrological capabilities. Dr. Bill Hames, our metamorphic petrologist, arranged for donations from Oregon State University and the USGS in Denver, Colorado of two mass spectrometers (MAP 215-50 and MAP-215, respectively) to complement his existing Auburn Noble Isotope Mass Analytical Laboratory (ANIMAL) facility. Dr. Hames also arranged for the donation of a JOEL 5600 Electron Microprobe Analyzer (EMPA) from the University of Colorado – Boulder, and we thank alum Dr. Kevin Mahan (currently at UC-B) for his assistance securing this important instrument. Dr. Martin Medina-Elizalde, our new paleoclimatologist, was awarded a brand-new Thermo 251 stable isotope mass spectrometer as part of his start-up package. Finally, Dr. Karen McNeal brought instrumentation and equipment with her from NCSU and has purchased new eye-tracking equipment and other clinical materials for her new lab. In all, the new equipment if purchased today would be valued at over \$3M. We never could have incorporated all of this equipment into the small spaces we had in Petrie Hall, so our move to the colossus BEMC is a real blessing in regard to much needed space.

So far, I along with others on the steering committee that is planning our new building, called the Interdisciplinary Sciences Building (ISB), have met for 3 two-day workshops and several "Go-To" conference-call meetings. The ISB is being built to house both the Geology and Geography programs and the research and faculty and grad student office spaces that the Department of Biological Sciences currently has in Funchess Hall. You may recall that Funchess is an old, 1960's vintage building that is literally crumbling down, and the administration sees it as an eye-sore that is also potentially hazardous. Combined with Athletics wanting Petrie Hall for a future alumni and recruitment facility, the concept of the ISB came to be. The new building is set to occupy the corner of Roosevelt and Mell Streets. The front-east/west corner will face a planned focal-point round-about with a Tiger Transit terminal, and hence a Starbucks is being planned for a corner of our glass-enclosed foyer/atrium. The atrium will be airy and open and we are planning to install static and active displays. We hope to engage donors for help with the displays, which will include a cast of the Auburn dinosaur currently displayed at the McWane Center in Birmingham. We will have various displays of minerals, rocks, and fossils, and geography will develop some nice displays as well. I have not yet heard what Biological Sciences would display in the atrium, but we agree that active labs will be operating behind glass walls to the atrium showing science in action, exciting students and others who drop in. We are planning several benchmark visits to state-of-the-art science buildings in our region, including Georgia Tech, UT-Knoxville, and others...

Our undergraduate enrollments are definitely on the upswing! Overall undergraduate enrollments in Geology are up 74% and in Geography 22% over those for 2013. Increases in enrollments in two of our core courses last year

were astronomical (GEOG 1010 up 55% and GEOL 1100 up 32%), and these were achieved through superb teaching (Thank you John Hawkins, Dan McGowin and Carmen Brysch!) and additional emphasis on employing undergraduate assistants, paid through revenues from the in-house lab manual for these courses, to support active learning in the classroom. With the addition to our Department of the high-enrollment SCMH 1010 Concepts of Science course, we will enjoy even greater enrollments in 2017, and with them additional revenues from associated course/lab fees and student credit hours. With the University having moved to a new budget model (Responsibility Centered Management, or RCM), which is based largely on student enrollments within the department, the additional enrollments will help to strengthen our position in COSAM and AU.

We are very thankful for your continually increasing gifts to our department that help us to grow! Our Geosciences Advisory Board (GAB) grew to 30 members in 2016, most of whom contributed annual dues as well as additional donations to support awards, scholarships, seminar funds, and our GeoClub. The Board's \$250K Endowed "Fund for Excellence" has grown to nearly \$130K as this was written. Be sure to see in this issue an update on GAB activities written by our newly elected Chair, Jonathan Collier, as well as our featured Board member for 2016, Mr. Larry Prince. Please also see the new pages honoring our student awardees from last year, and see how your gifts are really making a difference!

Another milestone in our Department's history is being reached as I write this – by the time you receive this issue, Mrs. Sheila Arington will be retired after 42 years of dedicated service. All of you know that it has always been Sheila who really ran the Department, and we will all sorely miss her. She promises to visit us frequently but we wish her happiness and security in her retirement.



Mark and Sheila at the retirement ceremony; more on this in the next eGeotiger.

Featured Geosciences Advisory Board Member

The Geoscience Advisory Board (GAB) has served the Department well since its establishment four years ago. We appreciate the interest, guidance, and financial support provided by the Board's members. As a token of our appreciation, last year we began featuring a member in each issue. This year we highlight Larry Prince.

Larry Prince

I am an Auburn man through and through. My family is an Auburn family. My first family member, a great-great uncle, graduated from Auburn in 1915 in Electrical Engineering. Later my grandfather graduated in 1942 (also in Electrical Engineering), my father in 1974, and father-in-law in 1967, my brother in 2006, and my sister in 2010. So when it came time for me to apply for college, I only had to fill out one application. I switched between majors my first few quarters at Auburn, from teaching and working in the chemistry labs, to briskly venturing through the Chemical Engineering program. It was while I was in the Forestry department that I took Dr. Chaney's Global Geography; that was when I found my major. So, in

2004, along with my future wife, I graduated. After taking a couple of years off from school, I applied to the School of Architecture's Master's of Community Planning program and graduated in 2008. My wife, brother, and sister have also received their Master's degrees from Auburn. So this year when it came time for me to apply for my MBA, there was only one choice, Auburn.

I began my career with the School of Forestry and Wildlife Sciences researching land-use change under Dr. Shufen Pan. Using LandSat imagery and aerial photographs, our group documented land-use changes around Mobile Bay since 1974. After funding for my position ended, I was on my way to joining the Navy and attending OCS when a GIS Technician position opened with the City of Opelika in the Light and Power department. Since joining the department, I have transitioned from mapping the electrical distribution system to mapping our fiber to the home deployment, the first in Alabama, and I have now advanced to the title of Distribution Engineer. I am responsible for our distribution automation schemes (smart grid), site development, and distribution system expansion.



I met my wife, Amanda, while at Auburn, where she completed her degree in Human Development and Family Studies, which led her to get her Master's in Education and become a kindergarten teacher. We have been married 7 years and have 2 children, Fischer (4) and Sadie (2). We are lucky to still reside in the Auburn area and live on some land. Fischer loves to play golf, swim, fish, ride his four-wheeler (power wheel), and anything else out on the farm. Sadie loves to swim, talk and sing, play princess and dress up, and ride her four wheeler with her brother. Amanda and I enjoy serving on the Young Life Committee, serving the Walk to End Alzheimer's, working outside, and taking the kids to any Auburn sporting event.

I was asked to join the GAB in its second year, 2014. I am fortunate to have the opportunity to serve on the board and give back to the department that helped me in so many ways. I look forward to seeing the growth of the department and board, reconnecting with old friends and meeting new ones. It is an honor to serve as Treasurer of the Board, and help form a budget that focuses on student growth by providing resources for travel and reaching our fundraising goals.

The Big Move: A Pictorial Essay

So long, Petrie Hall!



Hello Beard-Eaves Memorial Coliseum!



Whew!

GeoClub by John Hawkins

The Geoclub had another successful year since the last eGeotiger issue. Our membership grew this past year and so did our ambitions. The club reaffirmed that outreach programs were an important function that not only benefited the club, but also the Department. In 2016, we continued our involvement with Kay Stone, Outreach Coordinator for AU's Museum of Natural History at the Wehle Center, where several of our students were able to share their excitement for geology with several classes of local sixth graders. In addition to Wehle, we also had a booth at this year's Junior Mad Scientists program. Both of these outreach programs were very successful, and we plan to continue with these as long as we are able. In addition to outreach, there have been multiple opportunities for departmental service projects associated with our recent move to the coliseum. We were able to help make our new location a home. We still have work to do, but we are getting there.

In addition to service projects and our local group activities, this past year we took a trip to Hawaii so our members could see many of the geologic process they only get to read about. John Hawkins and Tony Hall took 8 students to the island of Hawaii (the big island) for 10 days in May. Students visited Waipi'o Valley, the Hawaiian Volcano Observatory, the green sand beaches of Papakolea and the observatory on top of Mauna Kea. A few students even did some cliff diving at South Point (the southernmost point of the U.S.). Students were able to observe the different climates present on the island due to the fact that we spent several days in the rainforest of the north, and then stayed a week in the dry, desert-like southwest. Rest assured that multiple rock samples and sand samples were brought back from this adventure, including samples from the green sand beach. This trip would not have been possible if not for the support the Geoclub receives from the GAB and our department.



Left to right: Lilian Beaman, Sarah Asher, and Anabelle Kline.



Sally Sundbeck and Logan Garner.





Students heading down the trail to Waimea Valley. Left to right-Morgan Barkley, Sam Dixon, Rebekah Mandry, and Rebekah Rawlinson.



Students atop the shield volcano of Mauna Kea.; top row, left to right: Sam Dixon, Tony Hall, Rebekah Rawlinson, Morgan Barkley, Austin Russell, Sally Sundbeck, and Rebekah Rawlinson. Front, Logan Garner and Jeremy Maples.



Logan Garner and Jeremy Maples in Volcanoes National Park.

Not only are trips of this nature important so that our students observe and learn about the geology happening around them, but the trips also allow for students to bond as a group. It is our hope that the connections they are forming now will serve them and our department well into the future.

Editor: In the following articles, students give accounts of a trip to San Salvador, Bahamas, and another trip to Panama. Both of these took place over Spring Break and provided students with important study-abroad experiences.

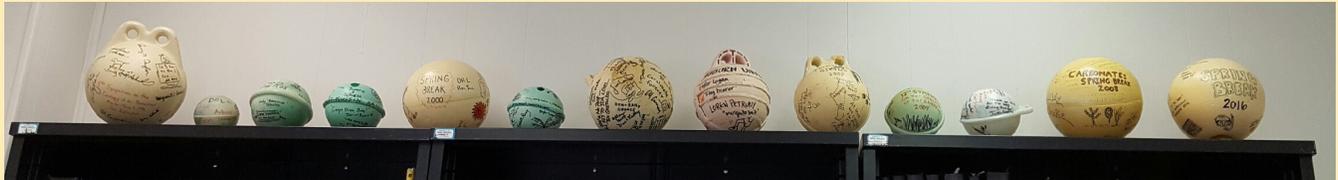
San Salvador!

A note from the trip leader: This was a special trip for me as it took place exactly 30 years after my first trip to the island of San Salvador, a site that was to be the focus of much of my research, particularly in recent years. I have enjoyed combining my research there with field instruction in carbonate depositional processes and facies characteristics via a Directed Study course. (During these trips, the custom has been to find a float on the beach and have everyone sign it as a souvenir: the photo below shows these

floats in my office, recording the last 20 years. You might see your name among these!).

Realizing that, at some point, I should pass the torch to a younger colleague, I asked John Hawkins to come along to help teach the course so that he could learn the ropes. If it turns out that this was my last time teaching the Spring Break course, I could not have asked for a better group of students. They were a good natured,— in spite of a flight delay — hard working, courteous, and fun-loving group.

Ron Lewis



Our Spring Break Trip to the Bahamas

by Anabelle Kline

During Spring Break of 2016, five Geology students -- Karena Gill, Sara Speetjens, Sally Sundbeck, Sarah Asher, and Anabelle Kline were given the opportunity to travel to San Salvador, Bahamas, to study carbonate depositional environments with Dr. Lewis and John Hawkins. We stayed at the Gerace Research Centre (GRC), which used to be the Bahamian Field Station, with other high-school and college students from around the country. Each day we woke up, put on our swim suits, and headed to the cafeteria where we were fed a fantastic meal. After breakfast, we loaded up our snorkel gear, sunscreen, and other gear and headed out into the field.

The trucks we piled into were royal blue and probably the same trucks they used during Dr. Lewis' first San Salvador trip in 1986. The students sat in the bed of the truck on benches trying not to fall out, while Dr. Lewis and John Hawkins rode comfortably in the cab. We rode around and visited Cut Cay, Coast Guard Beach, Sue Point, Cockburn Town and other sites. At most of these locations, we took turns digging a trench to observe the layers of carbonate sand and their gradation. We took samples of sand in baggies with us to analyze at the end of the day once we were in the GRC lab. The first evening, we made grain size cards to use in the field when we were analyzing different sedimentary facies.

At the beginning of the week, we took a boat trip out to a coral reef where we snorkeled to look at the coral while it was still alive. The rest of the trip we mainly looked at fossilized coral, so it was interesting to see the live version. This day trip was when Dr. Lewis taught us how to snorkel, and we quickly learned the secrets of how to clear your snorkel and mask of water after you come up from a dive.

At North Point, we had to hike along a trail to get to the location. Most of the students were struggling to make it, but Dr. Lewis had no problem. We observed a parabolic blow-out

dune that gave way to the bay at a channel at Cut Cay. Here, we snorkeled around, collecting as many different algae samples as we could. We laid them out in the lab and, once they dried out, we analyzed them under a microscope, taking note of the different characteristics.

At Sue Point, we spent most

of the day sitting in the sand drawing sketches of the layered beach facies and fossilized coral, determining relative ages of both. Cockburn Town reef was different than most of the other sites because there was no beach. We made observations at a boat dock, drawing sketches of a 50-foot-long stretch of beach facies, with beers in our hands. There was a fossilized coral reef exposed towards the water, where we observed different corals such as brain coral. One of the days, we wrapped up early and headed to an estuary. We all put on our snorkels and masks and let the water carry us along, picking up conch shells along the way by the handfulls. The estuary went past a beach where we floated for a while and collected shells. The water was so clear you could see straight to the bottom. Another day while we were snorkeling, we were approached by a porpoise and saw a sting ray. Huddled together, we could hear the high-pitched squeal of the porpoise before we would see it, and it came flying out of nowhere straight towards us!



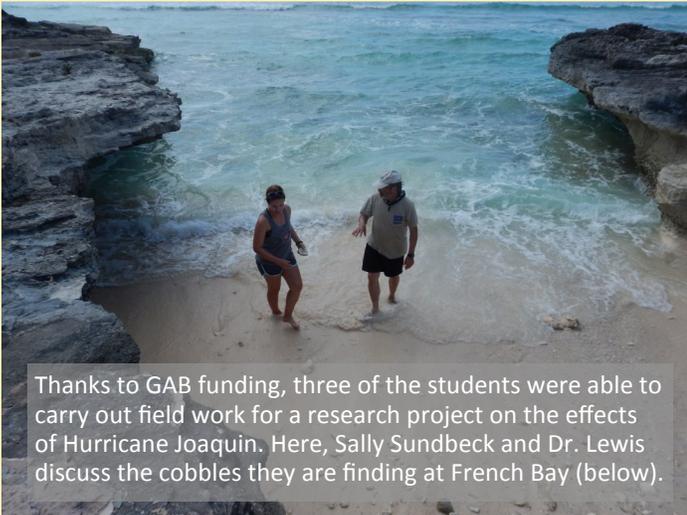
Left to right: Anabelle Kline, Karena Gill, Sara Speetjens, Sally Sundbeck, and Sarah Asher.



Anabelle Kline, Sara Speetjens, and Sarah Asher measuring strike and dip on dune rocks at North Point.



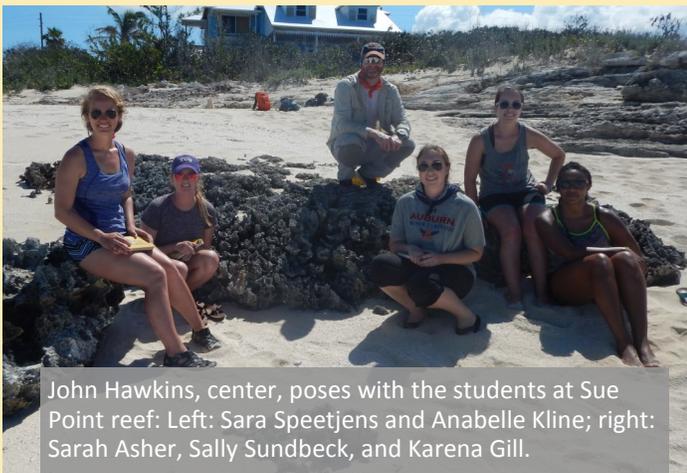
Karena Gill examines cross beds at the Cockburn Town fossil reef.



Thanks to GAB funding, three of the students were able to carry out field work for a research project on the effects of Hurricane Joaquin. Here, Sally Sundbeck and Dr. Lewis discuss the cobbles they are finding at French Bay (below).



Left: Sarah Asher at the wall (~80 ft.)



John Hawkins, center, poses with the students at Sue Point reef: Left: Sara Speetjens and Anabelle Kline; right: Sarah Asher, Sally Sundbeck, and Karena Gill.



Names withheld to protect the innocent.

When we weren't doing research and studying carbonate facies, we were playing cards in the dorm rooms, exploring local restaurants in town, or drinking Kalik beer by the beach bonfire. Dr. Lewis knew all the secrets of the island, so at night you could often find us at the local bar two miles down the road from the GRC. After 30 years, the San Salvador trip will not be the same without Dr. Lewis. At the end of the trip, we were sad to leave the island, but the memories and bug bites we acquired were a good reminder of all we learned and the fun we had.

Panama! by Austin Bush and Seth Greer

Thanks to both Dr. Chandana Mitra and Dr. Daniel McGowin and with collaboration from CATHALAC, both undergraduate and graduate students in the Department of Geosciences had an exciting journey of a lifetime to Panama City, Panama. The students participated in a week long Study Abroad program where they participated in numerous activities, such as learning about how the water management agency of Panama is able to provide clean water to the millions of citizens, as well as visiting rural community projects that sustain and support the local watershed.

The program was designed from the ground up exclusively for the participating students so they could obtain relevant real-world experiences as well as advanced GIS training. At the end of the study, each of the students conducted their own research projects using the knowledge gained from the experience. Much of the students' work addressed rural water security and the climate's impacts on the indigenous groups living in the region.



This was an excellent learning experience that was both fun and educational, with real world examples of many topics that are often discussed in Geoscience courses. Although many of the professionals who the students met spoke English, oftentimes the students were presented with the opportunity to practice their Spanish too. The food was amazing with many unique cultural aspects that the students found both exotic and delicious.



Above, left to right: Taylor Craft (back), Seth Greer, Tracy Bowen, Lacy Kamber, Daniel McGowen, and Austin Bush (also at right).



Cristina Tedman (CATHALAC), Professor (Florida State University), Austin Bush, Lacy Kamber, Daniel McGowin, Seth Greer, Brent Denman, Taylor Craft, Tracy Bowen, Chandana Mitra, Monica Lopez (CATHALAC).

Dr. Mitra: We are excited to announce that this course will be offered again in Spring 2018 as a 3-credit-hour course with the 10-day Spring Break trip imbedded within it. The course will focus on the local culture, human-environmental interactions, water use, and climate-change management. Students will explore climatic variability and the human vulnerability of Panamanians and compare these to global aspects. Through a mix of lectures, hands-on laboratory exercises, and field trips, students will explore the direct and indirect effects of a changing climate on humans, forests, and water resources.

Geosciences wins the Departmental Award for Excellence in Education

by Ron Lewis

The Contest: Members of the Department of Geosciences began work on a proposal February 2016 to apply for a teaching award known as the University Senate Departmental Award for Excellence in Education (DAEE). Quoting from Dr. Don Mulvaney, Chair of the Senate Teaching Effectiveness Committee, the award "... is designed to recognize an academic department for their exceptional commitment to quality education and provides funding at \$10,000 per year for a three-year period during which the honored department will initiate faculty development activities to enhance the culture of continued development of effective practices in teaching and learning."

This is the third year that the DAEE award has been given; previous winners were the Department of Mechanical Engineering in 2014 and the Department of Biosystems Engineering in 2015.

One and only one department is selected from the scores of departments in the university.

We submitted a five-page written proposal early in March and on March 30, we were informed that Geosciences was one of four finalists; we were asked to prepare a 20-minute oral presentation. John Hawkins, Stephanie Shepherd, and I worked hard on this and each of us gave part of the presentation. Later that day, we were informed that we won! The vote of the Departmental Curriculum and Teaching Committee was unanimous!

The Award: The three-year project consists of 5 areas of improvement in our undergraduate Geology and Geography programs:

1. Curriculum and Course Revisions: Currently we teach a capstone course (Senior Seminar) to seniors in both the Geology and Geography programs. Each student in this course creates a résumé and an ePortfolio as well as completing a research project. Waiting until the senior year is not working well, so we determined that students need to get started sooner. Thus, we have created a sophomore-level course in professional development. This will be an introduction to the discipline and will include such things as career paths, undergraduate research opportunities, and internships. We may ask the Board for help with this (see no. 5).

2. Apprenticeship and Student-Student Mentoring: The Apprenticeship Program is designed to provide undergraduate students with the opportunity to become involved in data-based research projects by assisting one of the Department's graduate students with his/her thesis research or other research project. The Mentoring program funds junior and senior majors who provide counsel and assistance to freshman or sophomore majors

3. Infusion of High-Impact, Active-Learning Practices: The Department will encourage its faculty members to modify existing undergraduate courses to take advantage of recent research on how students learn. We are particularly



APPRENTICES: Ethan Burt and Sarah Asher. Wesley Sandlin not shown.



MENTORS: (back row, left to right) Jennifer Lewis, Anabelle Kline; (front row) Kenny Moss and Lilian Beaman. Lyric Peete not shown.

interested in concept-based and project-based teaching, the use of flipped classroom instruction and modern classroom design; we will use COSAM's Engaged Active Student Learning (EASL) classrooms, and will make use of active learning concepts in designing classrooms in the new building.

4. Professional Use of Everyday Technology: This will involve handheld pieces of equipment that students already use in their personal life, such as smartphones, tablets, and laptops, to carry out professional activities such as a field mapping in geology and documenting interviews in human geography. For example, DAEE funds will allow us to expand the use of the iPads in Geology Summer Field Camp and other courses.

5. Increased Involvement of the Geoscience Advisory Board: Through the DAEE initiative and with the help of the board, we plan to make better use of the internship courses in both Geology and Geography, and to expand other professional opportunities for our students.

Spring Picnic and Annual Student Awards by Mark Steltenpohl

At our annual departmental picnic each Spring we hold an awards ceremony to honor our outstanding students. Thanks to gifts from our alums and other friends of the department, donations are used to support our students and our programs in many different ways. One way of recognizing students who distinguish themselves through their academics, research, service, and/or leadership is with scholarships or other types of awards, including plaques and cash. At the picnic we recognize students who received awards in various award categories within our department.



Thanks to the hard work of our departmental Awards Committee (Co-Chairs Phil Chaney and David King, and committee members Chandana Mitra and Chuck Savrda), we have established very well organized nomination, application and voting mechanisms to assure that deserving students are appropriately rewarded for their efforts. We invite our alums to attend each of the Spring picnic and awards ceremonies.

Student Awards 2015-2016

University and Graduate School Awards:

2015 Auburn University Graduate School Outstanding MS thesis: **Xia Li** (Dr. Mitra)

2016 Auburn University Graduate School Outstanding MS Student: **Ziaul Haque** (Dr. Uddin)

2016 Auburn University International Student Association Award: **Nur Ahmed** (Dr. Uddin)

COSAM Awards:

2016 COSAM Outstanding Graduate Student Research Award: **Jason Fisher** (Dr. King)

2016 COSAM Outstanding Undergraduate Student Research Award: **Kelly Kindgren** (Dr. Steltenpohl)

2016 COSAM Undergraduate Research Fellowships: **Kelly Kindgren** and **Morgan Barkley** (Dr. Steltenpohl)

2016 COSAM Dean's Medalist: **Bobby Harris**

2016 COSAM Dean's Outstanding Junior in Geosciences: **Sara Speetjens**

Department of Geosciences Awards:

2016 Charles "Chuck" Savrda Outstanding Graduate Student Award: **Shakura Jahan** (Dr. Uddin)

2016 David Icenogle Student Research Award: **Khalid Hossain**

David W. Icenogle Student Travel Grants and Outstanding Student Awards: **Nicholas Barbre** and **Matthew Hardegree**.

Hargett - Dunston Undergraduate Field Research Award: **Greg Steltenpohl**

Geology Alumni Scholarships:

Sara Speetjens

Joseph Ward

Geosciences Advisory Board Awards:

GAB Outstanding student awardees

Outstanding undergraduate student: **Kelly Kindgren**

Outstanding graduate student: **Trey Singleton**

GAB Research awards:

Jennifer Cartwright

Gregory Steltenpohl

Kayla Griffin

Allen Clements

Karena Gill

Drew Daymond

Jason Fisher

Mustuque Munim

Tadsuda Taksavas

Di Fan

Spencer Waters and Dan Folsie Memorial Awards:

Mustuque Munim

Jennifer Cartwright

Kayla Griffin

Allen Clements

Karena Gill

Drew Daymond

Tadsuda Taksavas

Gregory Steltenpohl

Sally Sundbeck

Sara Speetjens

Sarah Asher

Jian Chen

Di Fan

Jason Fisher

The Chair's Leadership Awards:

Sara Speetjens (GL Undergraduate)

Lainey LeBlanc (GL Graduate)

Austin Bush (GY Graduate)

GAB Travel Grants:

Nur Ahmed

Ziaul Haque

Morgan Barkley

Drew Daymond

Jason Fisher

Shahzad Saffari Ghandehari

David Adrain

Mustuque Mumin

Kelly Kindgren

Shakura Jahan

Robert Singleton

Faculty and Staff Awards 2015-2016

Superhero award: **Bill Hames** Superhero award: **Tony Hall**

Memorial Award for 40 years of service: **Sheila Arington**

Spring Picnic and Annual Student Awards by (cont.)



Shakura Jahan and Chuck Savrda



Sara Speetjens



Kelly Kindgren



Khalid Hossain



Left to right: Jian Chen, Mustuque Munim, Karena Gill, Allen Clements, Jason Fisher, Kayla Griffin, Greg Steltenpohl, Jennifer Cartwright, Tadsuda Taksavasus, Di Fan, Sarah Asher, Sally Sundbeck, and Sara Speetjens with GAB member Jonathon Grimes.



"Superhero" Bill Hames and Lainey Leblanc



Lainey with "Superhero" Tony Hall



Sheila and her rocking chair honoring 40 years of service

INTRODUCING *Christopher Burton*



I am a geographer interested in the application of geospatial analysis and modeling techniques to human-environmental interactions. My academic appointment is part of Auburn's interdisciplinary cluster program and Earth System Science (CHESS), which is supported by Auburn's College of Science and Mathematics, College of Engineering,

School of Forestry and Wildlife Sciences, College of Agriculture, and College of Liberal Arts. My interests include the development of theory, methods, and metrics for the measurement of both vulnerability (characteristics or qualities that create the potential for loss from hazard events) and resilience (the ability of systems to respond to and recover following perturbations from hazard events). Throughout my career, I have published extensively on these topics. My works include the evaluation of the extent to which a quantified measure of social vulnerability can be incorporated into numerical hurricane-impact modeling, the examination of the spatial variability in the vulnerability of residents to potential levee failures in the Sacramento-San Joaquin Delta region of California, and the assessment of the multivariate nature of vulnerability to Cascadia tsunamis. My recent publications focus on advancing our understanding of the multidimensional nature of disaster resilience to hurricane hazards (storm surge, flood, and wind), understanding the drivers of vulnerability to flood disasters in an effort to argue that flood hazard context matters, and achieving a better understanding of the integrated nature of risk from earthquakes.

My long-term research interests were shaped by my personal experiences with a major hazard event (Hurricane Katrina). From 2005 to 2011, I was an integral part of an NSF-funded research initiative from which I gained experience investigating social disparities in hurricane impacts, vulnerability, and resilience along the Mississippi Gulf Coast. It is within this context that I will continue to explore the multifaceted nature of these topics to provide an improved foundation upon which more consistent and equitable approaches to addressing disaster impacts may be based. My future research trajectory is based upon my contemporary interests and is focused on subject matter we know less about in natural hazards and disasters scholarship. This includes, but is not limited to the following:

- * understanding what threats global environmental changes pose for vulnerable communities and what responses are most effective in reducing risk to those communities;

- * understanding the effectiveness of current policies and practices for hazard management and disaster risk reduction;

- * measuring social concepts—vulnerability, resilience, social capital, and recovery;

- * understanding the interdependencies between social, biophysical, and built-environment systems that generate risk, vulnerability, and resilience; and

- * the modeling of cascading effects following damaging hazard events.

Before joining the Auburn Geosciences faculty, I was a Senior Scientist and Coordinator of the Social Vulnerability and Integrated Risk Program at the Global Earthquake Model (GEM) Foundation in Pavia, Italy. Here, my work was part of a global effort to advance the science and technology needed for state-of-the-art seismic risk modeling. It was structured as a partnership between the world's major international organizations involved in disaster risk management (e.g., UNISDR, UNESCO, and the World Bank), country governments (e.g., the United States, United Kingdom, Japan, Australia, New Zealand, Italy, Switzerland, Germany, Chile, Ecuador, Peru, Nepal, and Norway), private organizations (e.g., Arup, Oyo, Munich Re, and Swiss Re), and numerous universities and scientific institutions. During my time at GEM, I had the opportunity to 1) live abroad for an extensive amount of time; 2) travel throughout the world, visiting over thirty countries; 3) conduct field studies throughout the world; 4) work with a multitude of governments, stakeholders, NGO's, and scientists on a global level; and 5) teach and mentor students from all over the world. It is virtually impossible not to bring insight and perspectives gained during this portion of my career into teaching, developing questions for further research, fostering critical discussions, proposing new or opposing points of view for scholarship, or when mentoring students.

INTRODUCING *Stefanie M. Brueckner*

Hello to all! I joined the Department of Geosciences in August 2016 when I was hired as a lecturer with focus on economic geology and geochemistry. I succeeded Jim Saunders after he retired.

I am originally from Germany – born and raised in the eastern (former communist) part, ca. 120 miles south of Berlin. I got a diploma degree in geology/paleontology (equivalent to MSc.) from the University of Mainz, Germany, in 2008 after studying geology for 7.5 years at different German universities and an amazing exchange term at the University of Helsinki, Finland. After graduation, I worked on a 13-month contract for two accessible geo databases (GEOROC and GeoReM) at the Geochemistry Division of The Max-Planck-Institute in Mainz, Germany. This working year provided me the opportunity to consider carefully my next career options and, after some lengthy consideration, I applied to various departments in Canada to pursue a PhD

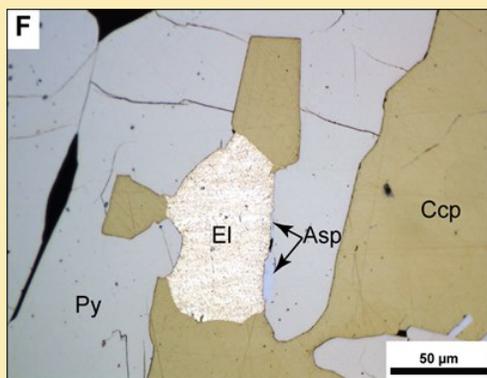
in economic geology. I took the offer from Memorial University of Newfoundland (MUN), Canada. My PhD thesis dealt with the ore mineralogy, ore chemistry, and genesis of a metamorphosed, precious-metal bearing volcanogenic massive sulfide deposit in the Newfoundland Appalachians. Besides analytical work, I spent 4 summers at the deposit and did core logging and underground work. My thesis provided me the great opportunity to combine fieldwork with mineralogy, microscopy and different analytical techniques. I defended successfully in November 2015 and graduated from MUN in 2016.



Fieldwork for my thesis, Newfoundland, Canada.

I am very pleased and thankful for the opportunity the Department of Geosciences provided me by offering me the Lecturer position right after my graduation. I taught two courses in fall 2016: (1) an undergraduate course: Introduction to Geochemistry; and (2) a graduate-level course: Advanced and Environmental Geochemistry. I enjoyed teaching both classes greatly and learned from my students as well. This spring, I'm teaching Economic and Advanced Economic Geology for undergraduate students and graduate students alike.

I was welcomed by all the faculty and staff at the Department when I arrived here, and I appreciate the continuous support I've been receiving from everybody. I look forward to working with faculty, staff, and students here at Auburn this year. I hope to continue teaching the courses I have been teaching and to develop other courses to provide an even better foundation for our Geoscience students.



Ore minerals from my thesis (El - electrum = Au-Ag alloy, Py- pyrite, Ccp - chalcopyrite, Asp - arsenopyrite).

INTRODUCING Karen McNeal

In October of this year, I joined the faculty as a tenured Associate Professor. I was hired as the first Discipline Based Education Research (DBER) Faculty member in the College of Science and Mathematics and the Department of Geosciences at Auburn. Before joining Auburn University, I was an Associate Professor at both Mississippi State University and, most recently, North Carolina State University. I am pleased to be continuing my career at Auburn University where there are so many wonderful teaching and research opportunities. I am honored to join such a great group of colleagues. I am also excited about being a part of all of new developments in the Geoscience Department and having the opportunity to be a part of growing DBER at Auburn.



My research emphasis is in Geoscience Education and Geocognition, and my group investigates teaching and learning challenges in formal and informal settings. We try to understand how students think and learn about the geosciences and the roles of affect (e.g., emotion), cognition, and engagement in the learning process. My group uses a suite of tools including psychomotor tools (e.g., eye-tracking, pupillometry, and skin biosensors), psychometric tools (e.g., concept inventories), and open-ended approaches (e.g., interviews, concept-maps, etc.) to measure people's engagement, conceptual understanding, and perceptions about the Earth. We are interested in addressing a variety of questions, such as: What is the efficacy of active learning classroom settings on student engagement, learning, success and access to the geosciences? How can technology tools such as augmented reality be used in the classroom to support student learning of the geosciences? What are the differences between experts and novices when engaging with, viewing, and interpreting climate change information? How can we better support stakeholders in using web-based tools and climate information to plan for and adapt to future climate scenarios? What are students/the public's engagement, knowledge, perceptions and attitudes about global change and how does instruction/community education impact these factors? What is the role of spatial ability in the geosciences and how do students solve, engage with, and navigate spatial problems? How can we better recruit, retain, and mentor a diverse student population and workforce in the geosciences? How can we best train students to deal with the complex and interdisciplinary Earth system science problems, which have multiple spatial and temporal scales associated with them?

My teaching at Auburn supports both graduate and undergraduate education; I will teach a climate change literacy and communication course this spring and a global change course the following year. I hope to also team teach both a graduate-level Earth system science course and a Conducting Research in the Science Undergraduate Classroom course in the near future, each respectively serving to support the new Interdisciplinary Earth System Science PhD program and the DBER initiative at Auburn.

A little more about me: I grew up in Chicago, Illinois, and completed my undergraduate degree in Marine Science at Eckerd College in St. Petersburg, Florida (where I got away from the cold!) and completed my M.S. in Oceanography and Ph.D. in Geology at Texas A&M University. My husband, Aaron, and I have been married for a little over 10 years. We have two children, Holly (5) and Hunter (2).

INTRODUCING *Martin Medina*

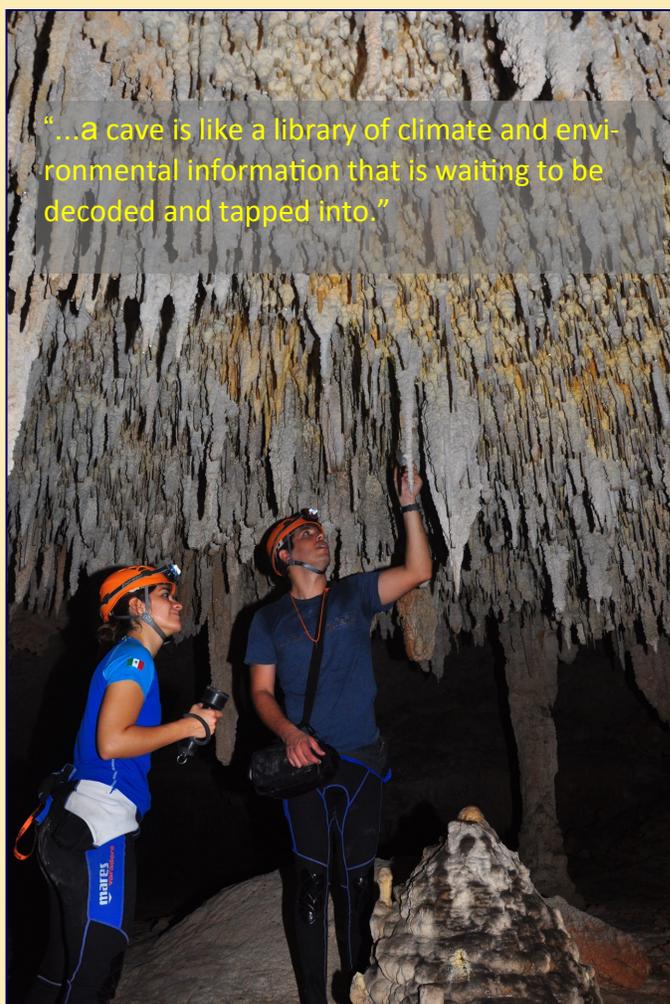
In October of 2016, I joined the Department of Geosciences as a tenure-track Associate Professor in the areas of paleoclimatology, paleoceanography and climate change. Before joining Auburn University, I was a Visiting Assistant Professor in the Department of Geology at Amherst College, and during the years 2012 and 2013 I worked in Mexico as an Assistant Professor at the Water Resources Department in the Center of Scientific Research of Yucatan (CICY). My postdoctoral experience doing independent research was as a NOAA Global-Climate Change Postdoctoral Fellow hosted at UMASS Amherst, and as a postdoctoral researcher at the National Oceanography Centre in Southampton, UK.



I am interested in climate and biological evolution and have expertise in marine biology and paleoclimatology. I believe these areas offer particularly useful information to shape present and future decisions in dealing with climate and environmental change and to achieve a more sustainable future. More specifically, my research focuses in the areas of paleoclimatology and climate change emphasizing (1) the hydrological and thermal sensitivity of tropical regions to shifts in climate forcings (e.g., greenhouse gases) and feedbacks on ecological and geological time scales, and (2) the role of climate change in shaping the development of the Maya and other civilizations in Mesoamerica. My research currently involves exploring and monitoring karst cave systems, including sinkholes, in the Yucatan Peninsula, Cuba and Alabama, with the ultimate goal of understanding the processes of speleothem (cave deposits) formation and how these carbonate deposits change.

I am currently setting up a new paleoclimatology laboratory within the Beard-Eaves Memorial Coliseum, which is equipped with instruments to conduct high-precision stable isotopic analyses from various natural climate archives, including stalagmites, corals and foraminifera. Currently, the paleoclimatology lab is equipped with a Picarro Isotopic Water Analyzer and with a Thermo Delta V Plus Gas Isotope Ratio Mass Spectrometer for high precision stable isotopic analyses of water and carbonate samples.

As a scholar interested in the Earth Sciences I have been motivated by an inquisitive spirit to comprehend natural phenomena and by an innate sense of caring for the environment and its preservation. As an educator and scientist, my desire is to encourage this passion for knowledge and empower students to use it for the benefit of societies under the ideals of social justice and environmental sustainability (knowing that one cannot be achieved without the other). I believe that disseminating high-quality education that also promotes respect among individuals and a harmonious relationship with the environment represents a positive move toward a peaceful, more enlightened, and sustainable world.



Martin Medina and colleague gathering data on the physico-chemical conditions of a cave in Mexico.

Continuing Faculty and Staff

Carmen P. Brysch

I am happy to say that I am in my second year here at Auburn University. I have very much enjoyed the comradery of the department as well as the people I have been able to meet across the University. I have been teaching the Global Geography course, which draws large numbers of undergraduates from all majors. In my Human Geography course, I have seen enrollment numbers increase every semester. Teaching is a great opportunity to share my own geography and the geography of the world, especially with so many students. Hopefully they further develop their appreciation of the world in which we live throughout the semester, and I always say: geography is not going to stop at the end of the semester, geography is all day, every day! I also took on the role of Undergraduate Program Officer for geography. It has been great to advise students and be an advocate for our Geography majors. I am looking forward to a great 2017.



they could attend conferences. In addition to UPO, I continued to serve as Geoclub sponsor. Over the past year we have seen an increase in participation, and we have maintained our standard of commitment to community outreach and departmental service. The Geoclub also upped the ante by taking a trip to Hawaii. (See the Geoclub section in this issue for more detail on this trip). It is always a joy to see our geoscience students' excitement when you show them something in the field that they have only read about.

I also had an exciting year with my geology research projects. I am extremely proud of **Morgan Barkley**, one of my undergraduate students. At the national GSA meeting in Denver, CO, she presented results from our ductile fabric analysis of shear sense indicators in rocks associated with the Alexander City shear zone. She defended our findings well, and made the Department of Geosciences proud. I plan to continue this line of research, and I am currently working with **Chelsea Comans** and **Anabelle Kline**.



Phil Chaney



Another busy year has passed and soon we will be sending another crop of students out into the "real" world. Nick Barbre and Khalid Hossain, my two graduate students, will be joining them as they are both on track to finish this spring. Fortunately, several excellent prospects have contacted me about filling their places in Fall 2017. I am happy to offer a special thanks to the Alabama Office

of Water Resources for funding some of Nick's project on Irrigation in the Wiregrass Region of Alabama. I am especially thankful for all of the geography and geology students (about 10 altogether) who worked on the Lee County 911 address mapping project this year. It was a long, hot, dry summer and fall, but it's almost over at last. Hopefully the AL OWR and LC 911 will provide additional funding for more student projects in 2017.

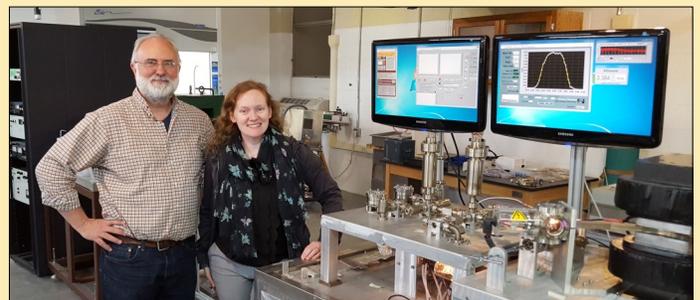
John Hawkins

It was another busy yet rewarding year. During 2016, enrollment for our Dynamic Earth course surpassed 600! That has been one of my teaching goals since I began teaching at Auburn in 2013. The increased enrollment does make for a busy semester, but I do enjoy that aspect of my job. I also had the privilege of serving as UPO (Undergraduate Program Officer) for the geology side of the department. I started the UPO travel award, which provided over \$1000 in travel grants to undergraduate students so that

Travel also seemed to take center stage during 2016. I had the privilege to travel to Africa and lecture on rift valley systems, I assisted Ron Lewis during a study abroad class at San Salvador, Bahamas, and I taught a Dynamic Earth class in Rome for the Auburn Core Curriculum Program. I am fortunate to have the ability to travel and incorporate all of these experiences into my teaching. I am currently working on the Scotland/Ireland study abroad program that we are running this coming summer. I am looking forward to another busy and productive year.

Bill Hames

In 2016 much of my time was devoted to our move to the coliseum, and with groundwork to acquire an electron microprobe (AU-EMPA) from the University of Colorado-Boulder (shown below). We did find time for some field work in Nevada, studying precious metal deposits and metamorphism-extension in metamorphic core complexes.



Bill Hames with Julia Cartwright (visiting professor from the Univ. of Alabama) in the new ANIMAL facility in the coliseum.

David King

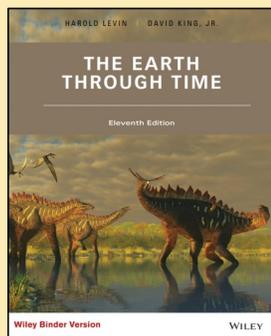
During the past year, we continued research with funding from the following sources: the Belize Natural Energy and the Big Creek Group of companies for stratigraphic research in Belize, NASA through the USGS Flagstaff for work on drill cores taken at Flynn Creek impact structure in Tennessee, the Creek Indian Endowment Committee for research at the Wetumpka impact structure in Elmore County, and funding for work with Alabama teachers on educational outreach at Wetumpka from the AU Outreach Program Office (in collaboration with the AMSTI office in Opelika). New funding is on the way from ACS-PRF for a project with Haibo Zou on detrital zircons in Cretaceous strata in Arkansas.



I have four graduate students this year: **David Adrian** and **Leticia de Marchi** are working on the Flynn Creek impact structure; **Karena Gill** and **Jason Fisher** are working on Belize stratigraphic problems. Karena (shown below) received second place at the National Association of Black Geoscientists Annual Conference (NABG). She is the first Auburn University student to be awarded by the NABG.



Four new papers were published this year, including two in Meteoritics and Planetary Science (Flynn Creek impact breccias and coesite from Lonar crater, India), and, two in the GCAGS Transactions (Wetumpka crater stratigraphy and the Toledo formation of Belize). Also, I co-authored the new edition of widely used textbook *The Earth through Time* along with Harold Levin.

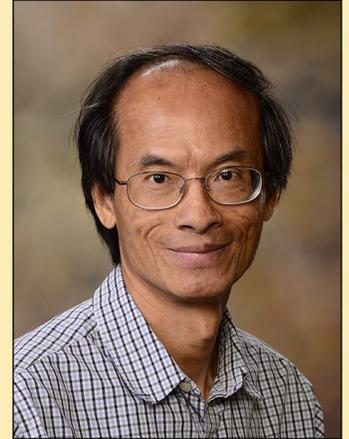


I enjoy hearing from alumni and former students, so keep in touch with our department ... and me. Best wishes.

Ming-Kuo Lee

Along with Geology faculty Jim Saunders and Ashraf Uddin, I continued our NSF-funded project investigating how biomineralization and geochemical sorption work together to remove arsenic and other toxic metals from groundwater at an industrial site in Florida. The NSF grant supported four graduate students for their thesis research: **Shahzad Saffari**, **Brian Miller**, **Eric Levitt**, and **Ted Wilson**. **Shahzad Saffari** (M.S., 2016) finished her outstanding thesis work and moved on to pursue a PhD degree at the University of Maryland.

Graduate student **Allen Clements** continues his Masters project on delineating the recharge zones and flow pathways of complex karst carbonate aquifers at Redstone Arsenal in northern Alabama. Allen has been very successful in getting extramural research funding for his research: > \$5K from the US Army, GSA, GCAGS, CUAHSI, and the Trilogy Foundation. With the efforts by Dr. Zeki Billor, ICP-MS and XRD-XRD research facilities are now fully operating in the department for advancing research and teaching. I also received a new collaborative research grant from NSF's Cyber-security Innovation for Cyber-infrastructure (CICI) Program. I am working with Dr. Jeff Ku (Professor in the Department of Computer Science and Software Engineering) to construct and test an Earth system and climate change data-sharing platform for the realization of effective sharing of data resources. This project will benefit faculty and students in the Geosciences department and Auburn's Climate, Human, and Earth System Science (CHESS) strategic research initiative, allowing researchers to merge, share, and search large Earth, environmental, and socio-economic-health datasets.



Ron Lewis

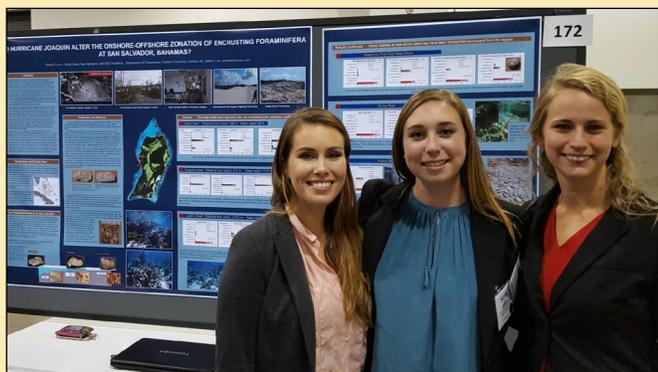
Much of my efforts this past year have focused on the Department's undergraduate majors. In the first few months of 2016, I headed efforts to apply for the University's Departmental Award for Excellence in Education (DAEE) — see article earlier in this issue. We worked very hard on this proposal, but I knew we were a strong department and had a good chance to win. Now that we have won, it is good to see some of the things we planned becoming reality.

The DAEE grant proposal discussed the creation of a sophomore-level course in Professional Development. In connection with this, John Hawkins, Stephanie Shepherd and I obtained funding from the University's ePortfolio program to design this course. We were able to complete this on schedule, and it has been accepted by the University Curriculum Committee, so that it will be taught next fall.

Another interesting curriculum development is that Geology

will have a model allowing our best undergraduates to overlap the BS and MS schedules such that they will get both degrees in 5 years (and yes, they will still do a thesis).

On the research front, I returned to San Salvador with John Hawkins and five students over Spring Break. As it turns out, the trip marked the 30th year anniversary of the first such trip, when I was accompanied by graduate students **Mark Peebles**, **Randy Hunt**, and **Rick Esposito** as well as undergraduate **Rob Carrington**. During our one-week stay on the island last spring, we did the usual carbonate depositional systems course (see article by one of the students, **Anabelle Kline**), but three of the students and I investigated the effects of Hurricane Joaquin, a major storm that had impacted the island directly some 5 1/2 months earlier. We were trying to see if the distribution pattern of encrusting foraminifera established by **Ray Tichenor** (BS 2010) and me and also found by **Chris Smith** (MS 2015) on Cat Island was significantly altered by the storm's 130-mph winds. It was not. The three students assisted in the data collection when we returned, and we reported our findings at the national GSA meeting in Denver. In 2016, new graduate student **Eric Eubanks** joined the team. Eric is my third student from the University of North Carolina at Chapel Hill following **Sarah Sheffield** (MS 2014) and **Chris Smith**, and I am expecting he will be successful as well.



San Salvador research students, left to right: Sally Sunbeck, Sarah Asher, and Sara Speetjens.

Luke Marzen



I am happy to announce that we have started a GIS Fellowship in conjunction with the City of Auburn that comes with a yearly stipend and a tuition waiver. It also provides an excellent opportunity for a student to gain hands-on experience in an internship. Our first Fellow, **Tanya Burton**, started this spring semester. My research with Dr. Art Chappelka (Forestry) and our Ph.D. Student, **Tyler Jones**, continued in mapping urban tree

canopies in 3-D using a multi-scale approach including aerial and terrestrial Lidar as well as stereo photogrammetry. Finally, I am part of a research team funded by the Alabama Agricultural Experiment Station looking at the impact of variable-rate irrigation in precision agriculture.

Chandana Mitra



For me the highlight of 2016 was the travel: the Panama Study Abroad program in spring and a sustainability workshop in India in the summer. The Panama Study Abroad was a great success. Our experiences with the locals and coffee plantation workers during our week-long stay induced a feeling of oneness with the culture and environment of the country.

Three of my graduate students were on the Panama program with me, and we all got excited about the Panama Canal and the way the gates work. The sustainability workshop in India was a great learning and teaching experience with faculty and engineering students, looking at sustainable and ecofriendly measures. Both of these experiences enriched my outlook towards global issues and how to make improvements involving locals and local resources.

Two of my graduate students began working on some exciting research, both focusing on urban sustainability measures. **Austin Bush** is working on rainwater harvesting and storm-water management within Auburn, targeting the multistoried apartment complexes. **Seth Greer's** research is more micro level, focusing on rooftop albedo and energy usage by different buildings within the Auburn University campus. These two projects will be a part of Auburn's CompPlan 2030 and the storm-water management program at AU, respectively. Overall 2016 was a very fruitful and satisfying year for me and my students.

Charles ("Chuck") Savrda

Greetings and best wishes for 2017 from the Beard-Eaves Memorial Coliseum. I am glad that the move out of Petrie Hall is over. Now, I look forward to the next relocation to the new Interdisciplinary Sciences Building, which hopefully will happen before I retire in 2020. Work is progressing well in our new digs. **Drew Daymond** is nearing completion of his MS thesis on the Athens Shale, and new MS student **Justin Brundin** is gearing up to begin his thesis work. Justin, who came to AU after completing his undergraduate degree at Tarleton State University (east Texas), has designed a novel implant program through which he will investigate bioerosion of wood substrates over a time series in an array of contemporary marine and marginal marine settings in and around Dauphin Island, Alabama. Also joining my group is Visiting Scholar **Daniel Sedorko**, a PhD candidate in Geology at Unisinos University, São Leopoldo, Rio Grande do Sul, Brazil. Through June 2017, I will be assisting Daniel with his ichno-sedimentologic study of a Devonian succession in the Paraná Basin, Brazil. My own research remains focused on bedrock bioerosion in modern freshwater aquatic settings (I have grown very fond of insect larvae in this, my first real foray into the realm of neoichnology) and the ichnology of chalk-marl sequences.

All is steady on the home front, although two developments are worthy of note. First, daughter Allison and our new son-in-law, Michael Marshall, were married in November. For now, they reside in the Boulder, CO area, and thus I have another good excuse for periodic travel out west. Daughter and department alum (BS '08) **Amanda** has returned to Auburn from Houston. Having developed both a passion and acumen for teaching, she is now pursuing a Master's degree in Science Education here at AU. It is great to have her back in town!



Chuck (center) with Daniel Sedorko and his wife Kimberly (left) and Justin Brundin and his fiancée Lyndsey (right) at a reception welcoming our Brazilian Visiting Scholar.

Stephanie Shepherd

During the Fall 2016 semester, I had the pleasure of designing and teaching Geographic Field Methods. In this new course, students learned about specific field and laboratory methods for studying landscape properties. We successfully completed a geomorphic stream survey for a small tributary of the Saugahatchee River that flows through the AU Club Golf Course. It was the easiest field work I have ever conducted – we were allowed to borrow golf carts to ferry all the equipment to the survey site!



Geographic Field Methods students Mike Salisbury, Sam Eckes, Jessica Ross, and Andrew Campbell (GEOS Graduate Students) shuttling gear to the stream survey site on the AU Club Golf Course.

I also team taught a course in Stream Restoration with faculty from Crop, Soil, Environmental Science; Fisheries, and Biological Sciences. The course was conceived as a vehicle for teaching undergraduate students about interdisciplinary research and was designed to appeal to students from departments across the University. It was such a success that we plan on teaching it again in Fall 2017.

I am finishing up NSF-funded research in the Buffalo National Scenic River. In January 2017, I took three of my graduate students with me to collaborate with researchers from Desert Research Institute, the Center for Advanced Spatial Technologies at University of Arkansas, and Oberlin College. We collected terrestrial laser scans of bluffs adjacent to the river, dug pits for OSL sampling and soil analysis, and visited a modern landslide deposit. The weather was downright arctic, but we persevered and had a successful field excursion.



Geomorphology Lab Group (Mike Salisbury, Sam Eckes, Dr. Stephanie Shepherd, and Benjamin Swan) hiking to a modern landslide along the Buffalo River, Arkansas.

Mark Steltenpohl

In 2016, I was swamped with administrative responsibilities that kept me far too distant from the things I most enjoy about work -- my research and students. In 2015, COSAM Dean Nick Giordano approved a post-doc position to help me juggle everything. I hired Dr. Chong Ma (U FL), and he has been a tremendous help. Last year, I graduated two MS students, **Dane VanDervoort** (GA Southern U) and **Josh Poole** (W GA State U). I am happy to note that both students are already gainfully employed in exciting field geologic positions (Dane at the State Geological Survey of Alabama and Josh at Welborne Mining). I took on two new students last year, Ms. **Rylleigh Harstad** (Columbus State U) and **John Whitmore** (AU). Both of these students are working on 1:24K quadrangle mapping projects (Roanoke East and Milltown, AL, respectively) along the Brevard fault zone. I also mentored a host of undergraduate students on various research projects.

One project is funded by the National Park Service, mapping the geology of Little River Canyon National Wildlife Preserve. This project is in a spectacular setting with interesting rocks. Fieldwork is made even more enjoyable by alum Herb Martin's ('70) kind offer for us to use his cabin on Lookout Mountain, located between Licksillet and Dog Town, 😊 which is perfectly suited for our basecamp. Undergrads **Ken-ny Moss**, **David Charlton**, and **Bobby Sharp** are helping me with this project. Undergrads **Morgan Barkley** (AU/ COSAM Undergraduate Research Fellowship) and **Greg Steltenpohl** (Hargett-Dunston and Waters-Folse awards) spent part of the summer with me in arctic Norway doing field and geochronology studies of an igneous complex (beached island arc?) that several of my previous students, **Kristen McCall** (2010, now with Exxonmobil) and **Devon Verellon** (2014, now at UGA), discovered in their earlier work. Last spring, **Kelly Kindgren** (2016) attended the annual conference of the European Geosciences Union (EGU) in Vienna, Austria, to present her research on the Moine Supergroup of the Scottish Highlands (photo below) where she had worked during the summer of 2015. Kelly had quite a crowd visiting her poster and I was very proud of her!



On the family front, Laura and I are proud that our son Gregory graduated with his BS in Geology from our department this past August. Greg is seeking employment in the environmental sector. We are also proud of our daughter Natalie who is gainfully employed with Premier Spirit Academy here in Auburn. Granddaughter Adelynn (5) is our absolute delight! Laura continues to enjoy teaching chemistry and physics at Auburn High School. We enjoy traveling and visiting with our families during time away from work.

One of my biggest joys is visiting with those of you who drop in at our tailgates or other events that bring you back to Auburn. Come visit so I can give you a personal tour of our new facilities and equipment here at the BEMC. Meanwhile, best wishes for a happy and healthy 2017!

Ashraf Uddin

The Petroleum Geology (GEOL 5500/6500) course was taught for the second year in Fall 2016 with industry experts who taught their specialized topics of the course. I received a 2016 faculty research grant from the Gulf Coast Association of Geological Societies to work on the upper Cretaceous Tuscaloosa Group.

Ziaul Haque (MS 2016) started a Ph.D. program at the University of Texas at Dallas in August 2016. **Shakura**

Jahan (MS 2016) started a Ph.D. program at Florida State University in August, 2016. **Nur Ahmed** (MS 2016) also started a Ph.D. program at Florida State University. **Mustuque Munim**, recruited in 2015, received research grants from the Geological Society of America for his thesis research on lithofacies and detrital geochronology of a Plio-Pleistocene clastic wedge of the eastern Himalayas. I recruited **Zachary Calhoun** in Fall 2016; he came to us from Wesleyan University, Connecticut.

A paper based on the results from our NSF grant in the Cahaba basin has been published (Uddin, Hames, Peavy, Pashin, 2016, Journal of Sedimentary Research, v. 86, p. 1287–1297).

Our efforts with Imperial Barrel Award (IBA) competition continued in 2016. Here is a picture of the Auburn IBA team of 2016:



The Imperial Barrel Award team for 2016: Jason Fisher, Rylleigh Harstad, Eric Levitt, Karena Gill, and Shakura Jahan.

Lorraine Wolf

The dawn of a New Year and another edition of the eGeotiger finds us in temporary storage as we await the construction of our new building. Goodbye Petrie Hall and hello to the Coliseum. Although not as famous or old as the one in Rome, this one is in comparable shape. We meet the challenge with good spirits and high hopes for the future. The past year saw some notable events for geophysics.

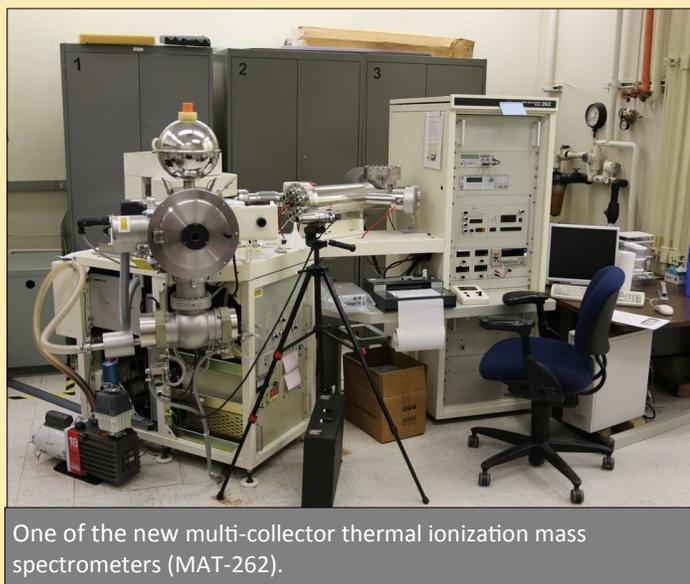
Trey Singleton completed his thesis work on gravity and magnetic modeling a part of central Alabama and discovered what we believe is the location of the Grenville front and its relation to the NY-Alabama magnetic lineament. Degree in hand, he has moved on to a “real” job in Nashville. **Jian Chen** has been making good progress on his thesis, which is focused on clustered seismicity in central Alabama. The state has been experiencing a significant number of earthquakes in a typically aseismic area and he is trying to find why (or at least identify the source). **John Johnson**, a new graduate student, joined the geophysics group this past fall. He is interested in working on seismic and possibly GPR data from the New Madrid seismic zone for his thesis project. We continue to support activities related to geophysics through our student chapter of SEG (Society for Exploration Geophysicists). A final success worth mentioning is our (co-PI with Stephanie Shepherd)

grant from NSF for the purchase of a ground-penetrating radar system.

I continue to serve a limited role in the Department because of my administrative appointment as Director of the University's Undergraduate Research office. This past year, our student symposium showcased over 300 research presentations, and we selected 64 undergraduate research fellows. I am proud to say that there is strong support for undergraduate research in our department and in COSAM.

Haibo Zou

Greetings! I am pleased to report that a thermal ionization mass spectrometer (TIMS, Finnigan MAT 262) donated by NASA Johnson Space Center is operational with flying colors in my metal isotope laboratory. The MAT 262 has begun producing high-precision Sr isotope data. Along with Dr. David King, I was recently funded by the American Chemical Society - Petroleum Research Fund to study the provenance of Cretaceous sandstones of the Arkansas coastal plain using zircon geochronology and petrology. This represents an expansion of my group's research from igneous petrology to sedimentary petrology, and from high-temperature geochemistry to low-temperature geochemistry using isotopes as a powerful and versatile tool. On the volcanology research side, we have expanded our research from the Tibetan Plateau, eastern China, to New Mexico.



Ms. **Katherine Cooper** completed her thesis research on magma evolution at the Wuluke volcano in the northern Tibetan Plateau. She graduated with a Master degree in Geology in Spring 2016 and is working as a Geologist for American Environmental & Construction Service, Alpharetta, Georgia. Ms. **Jennifer Cartwright** is studying the Valles Caldera (New Mexico) for her Master thesis. Jennifer is interested in volatile contents in melt inclusions preserved in crystals of volcanic rocks. Ms. **Sara Speetjens** (BS, 2016, Auburn University) joined our group in August 2016 and is preparing for a thesis proposal. Sara is off to a quick start in her research in radiogenic isotope geochemistry.

News from the Staff

Sheila Arington

I say every year "it has been very busy" in the Department of Geosciences, but I think 2016 really has been the busiest. What should have been eight-hour days turned into nine-hour days. I know that was a personal choice, but to get it all done in a days' work that's what it took. Even though it was very tiring, I loved being there most days.....what I was accomplishing warmed my heart.



In May, Stan and I went on cruise vacation, not realizing I was going to receive my "40th year Rocking Chair at the yearly employee ceremony". I was so disappointed that I was going to miss this event, but to my surprise (thanks to wonderful faculty members), they arranged for me to receive it at our departmental spring picnic! I was so moved and thankful. Moving from Petrie Hall to the Coliseum was challenging but worth it. After 41 years, I got a big, roomy office and nice furniture. I was thrilled! I got my daily exercise walking to faculty/grad student offices all during the day...nice having so much room for offices and labs.

I have enjoyed the year, as usual, with the ever growing department. I am anticipating retirement in 2017, so I am taking in all the moments of this year. The growth of the department is fascinating, and I hope I am a contributing factor to this. Please continue to keep in touch and tell us about your jobs and personal lives. We love hearing from you!

Anthony (Tony) Hall

The past year has been a full one. I spent a better part of the year planning, organizing, preparing and facilitating the move of the Department to the Beard Eaves Memorial Coliseum, our new home for a while. This involved a fair amount of remodeling of the coliseum. With the growth in faculty of our department and expanding programs, this was a necessary move, and we now have more space. However, we are already outgrowing the coliseum.

Another project was renovating Langdon Annex. The two rooms there were being used as storage and now have been converted into classrooms, allowing us to conduct Dynamic Earth Labs and/or Concepts of Science labs.

I was given the opportunity to develop a Dynamic Earth distance learning course, GEOL 1103. This was a great opportunity for me. Fall semester, we offered the first GEOL 1103 course with great success, however, not without its bumps and stumbles.

Also, I continued to split my time after hours between Southern Union State Community College as an Instructor in the Math department and the Athletics department as a sports photographer. War Eagle!!

In Memoriam

Jack Carrington

by Robert Cook

Dr. Carrington had developed the Department of Geology some four years before my arrival in September 1972. He quite correctly realized that Auburn was a Land Grant University without a geology department and, therefore, was a prime target for setting one up. He was then at Birmingham Southern, a college with a high commitment to teaching and essentially no research requirement for its faculty -- a philosophy that he carried to Auburn. The 1972 Auburn teaching faculty consisted of Dr. Carrington (structural geology and field methods), Dr. Ron Taylor (paleontology and things sedimentary), Dr. Greg DeRatmiroff (mineralogy and hard rock geology), Dr. Ray Christopher (paleobotany and mathematical geology) and me (economic geology). The teaching loads were very heavy, there was little support for research, and there was no graduate program, although the promise of one was to be a recruiting tool for faculty expansion over the next five years.

The departmental offices were housed on the 8th floor of Haley center, although all lecture halls and labs were on the second floor of Haley, essentially where they were until recently. Dr. Carrington required a field component to all courses including intro classes. This meant organized multiple-bus field trips toward the end of each quarter, visiting the same old worn out places along highway 280 and trunk county roads for several afternoons. In addition to the emphasis on field experiences, Dr. Carrington wanted the department to have a unique character or feature and that he chose to be paleobotany. There had been a paleobotanist in the department at its very beginning (Elizabeth Cahoon) followed as the years passed by Drs. Christopher, Pierce, Stocky, and finally Gastaldo.

Dr. Carrington was certainly responsible for developing the department into a solid component of the College of Arts and Sciences. He engineered the move of its offices to the second floor of Haley Center, the abandonment of what was known as the cottage (a small house that stood where the present Chemistry Building is located and was supposedly a research facility), and the acquisition of Langdon annex. He ultimately carried forward a proposal for an M.S. program in geology, which was successful on his second attempt. The department received its first NSF grant under his leadership and its first set of PC's were purchased and in place during his tenure as Head. For years there were only two telephones in the department. If a faculty member got a phone call, it was taken in the main office after being buzzed on a departmental intercom system. Finally, after much haggling with the college, each faculty member got a telephone with separate number in each office. He expanded the department to ten faculty and implemented the first several GTA's in support of the new M.S. program.

Finally, many geologists who went on to successful professional or related careers were given their start by Dr. Carrington. These included the above mentioned Drs. Taylor, Christopher, DeRatmiroff, Pierce, Stocky, and Gastaldo, as

well as Jim Burnell, Rolf Aadland, Enid Bittner, Ron Lewis, David King, Dan Womachel, Clayton Gardinier, Ed Newnan, and Nabil Saman. Finally, through Dr. Carrington's wise insight, both Eva Lilly and Sheila Arrington were hired. As all reading this know, without their lifetime of support the department would not have survived to the present day.



And so, from its beginning almost 50 years ago as a tiny component of what was then the College of Arts and Sciences, Dr. Jack Carrington established and moved a growing teaching-oriented department forward to one that was beginning graduate-level research, had attained a faculty nucleus capable of sustained funded research, and was ready to join a new college of sciences and mathematics as an equal departmental member beside biology, chemistry, mathematics, and physics. After stepping down as Department Head in 1984, he strongly supported the Department's move into Petrie Hall, as well as the expansion of the graduate program, including his service on many M.S. committees. He continued to teach undergraduate courses until he retired in 1994.



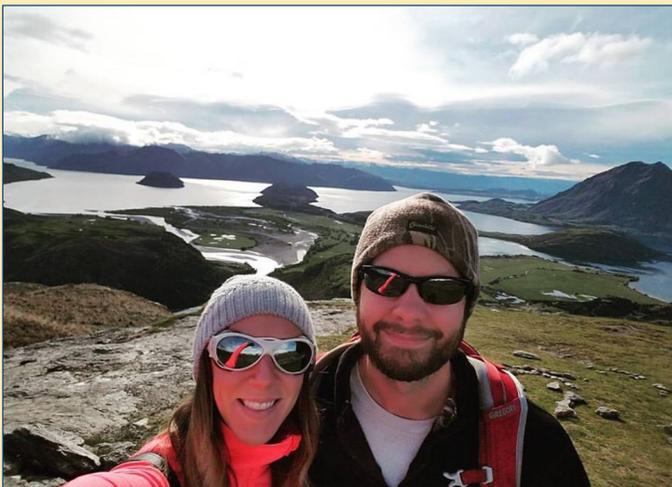
Alumni News

Note to all alumni: Please let us hear from you so we can include you in the next eGeotiger!

Rue Anne Beyer (M.S. 2012). This has been quite an adventure-filled year for me. I kicked off the year traveling to Ouray, CO to try my hand at ice climbing and fell in love with the sport. It's tough and somewhat scary scaling 60-200' walls of ice, but it sure helps sharpen up problem-solving skills when you have to read the ice to make your next move. In March, I spent ten days in Salt Lake City taking a Wilderness First Responder and CPR class through NOLS (National Outdoor Leadership School) and earned my WFR certification and met more fellow climbing enthusiasts. Thankfully, I have not had to use my certification while out in the wilderness yet.

In June, I went with RMI Expeditions down to Ecuador to climb some volcanoes. It was my first trip out of the country. Our group of eight quickly became friends over the trip, and I successfully summited Rucu Pichincha (15,600'), Illiniza Sur (17,300') and Cayambe (18,997') while getting just 200' shy of the summit of Illiniza Norte (at about 16,600'). Illiniza Sur was a major technical climbing challenge for me. The shallowest angle on that mountain was 45 degrees steepening up to vertical walls of mixed rock and ice. I went in full beast mode on that mountain on a one-to-one rope team with a local Ecuadorian guide, and we managed to hit the summit 40 minutes before the rest of the team. Thankfully, my legs got a break on the descent, and I was able to rappel down 2/3 of the mountain. My climbing teammates gave me the climbing nickname "Beast Mode" after that climb. Cayambe, on the other hand, was an endurance challenge as we spent 11 ½ hours ascending to the summit and back down. The trip wasn't all climbing, though, as we also got to experience the local culture around Quito and Otavalo, and we even got to stand on the equator!

My husband, Mike, and I have been thoroughly enjoying our first year of marriage. Although he didn't go with me to



Ecuador, he was cheering me on the whole time and has been incredibly supportive of my mountaineering ambitions. He always has a cake waiting for me when I get home to help put the weight back on that the mountains take. We spent most of our spring and summer weekends hiking and

snowshoeing in Lamoille Canyon in our backyard here in Nevada.

Work is still the same for us. Over the past year, I moved out of underground mining and into the open pit mining. It's a different world working on surface versus underground, but the experience has proved invaluable. I'm currently shadowing our department's manager and learning/assisting on project work with the Gold Quarry pit while also still handling ore control at Emigrant and Genesis pits. Mike has been working hard on his halo exploration project area, Rain (near the Emigrant mine), and just completed a successful drilling program there.

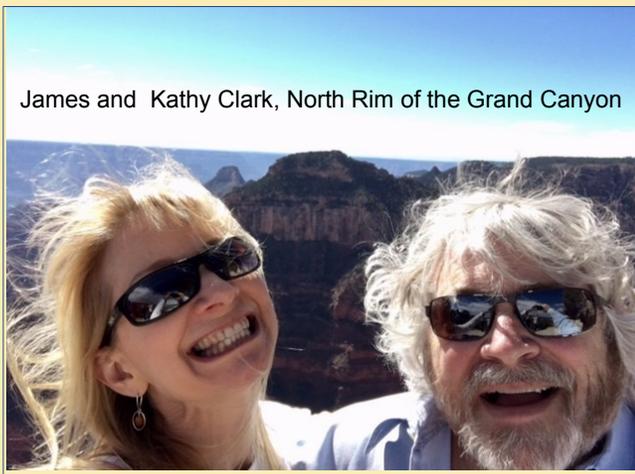
We spent our one-year anniversary taking our delayed honeymoon to New Zealand for 18 days. It was an incredible trip and my second international trip within a few months! I've long been dreaming of traveling there and we

finally saw it through. We spent a few days around Auckland and Wellington touring the Hobbiton movie set and Weta Workshop before hopping a ferry across the Cook Strait to the South Island. There we toured some wineries in the Marlborough wine region and spent several days up in Golden Bay on the beach and hiking around the area. We then drove down the west coast to Wanaka where we toured some more wineries in the Otago region, climbing a waterfall, and hiked some more before heading down to Milford Sound in Fiordland National Park for a couple days. The country is beautiful and the geology was absolutely breathtaking! I can't wait to see where our adventures will take us to next.

James Edward Clark, Jr., P.G. (B.S., Geology & Minors in Chemistry and Civil Engineering, Auburn University, 1972; M.S., Geophysical Sciences (Earth and Atmospheric Sciences), Georgia Institute of Technology, 1977. I have been President and Principal Consultant for GeoHydroLogicPro, LLC, of Beaumont, TX, since 2016. I have forty-five years of experience in engineering and am a technical expert with deep-well technology, regulations, injection wells, and groundwater wells.

This has been an adventurous year for Kathy and myself with field trips in the springtime to quaint Jackson Hole and the majestic Grand Teton National Park in Wyoming. We made our way south to Fossil Butte National Monument in Wyoming, Flaming Gorge National Recreation Area, and the Fossil Quarry Dinosaur National Monument in Utah. We dusted off some final snow of the year at Park City, Utah. In October, we traveled east out of Vegas to the North Rim of the Grand Canyon, Arizona, where we saw a lone gray wolf upon leaving the park. Our base was at Kanab, Utah. We had a full moon view at Bryce Canyon National Park. We hiked the "Narrows" at Zion National Park but stopped before the total deluge of water! A good tip from a local geologist who owns the Kanab coffee shop sent us on a solo jeep trail of the Cottonwood Canyon, Grand Staircase Escalante National Monument in Utah.

I'd like to remember Dr. Jack Carrington who passed away this year. I am very thankful for his mentoring while I was at Auburn. He and I spent almost every Saturday traveling from Auburn to Shelby County, Alabama, doing geology field work my senior year. He was a tireless and giving person and provided the jump-start of my geological career. He was a mentor who will live within me forever.



James and Kathy Clark, North Rim of the Grand Canyon



James at Dinosaur Quarry, Utah (above) and in the Kanab Quadrangle (right).



James making a financial donation the Department.

Dusty Kimbrow (B.A. 2008). After graduation, I received my M.S. from the University of Alabama with an emphasis in fluvial geomorphology. I met my beautiful wife, MacKenzie, at UA, and we moved to Montgomery where I took my first job out of school with the USGS and had a great experience. We drilled shallow groundwater quality monitoring wells for the National Water Quality Assessment Program (NAWQA) in south Alabama, the Tennessee River Valley, and the Mississippi Delta. I am still amazed at how the lithology of a 5 ft. core sample can be so variable. In between drilling expeditions, we surveyed lakes, rivers, and coastal beaches using multi-beam sonar and ground-based LiDAR instruments. This work was for inclusion in the



Coastal National Elevation Dataset (CoNED), and allowed me to travel the gulf and east coasts to places such as the Chandeleur Islands in Louisiana and Fire Island in New York. As much as I enjoyed the travel, our family began to grow (Benjamin, Nate, and Abigail), so we decided it was time to search for more local endeavors. I started with the City of Auburn as Watershed Coordinator in 2014, and worked to ensure our local streams and wetlands are clean and free from pollution. Auburn is one of the fastest growing cities in the nation, so as you can imagine, we stay pretty busy! These days you can find me traipsing through the local creeks collecting water samples or measuring stream-flow in Chewacla Creek. I am very blessed to have a job that pays me to do what I love!

Andy Klein (M.S. 1997). Hello from Houston! An incredible amount of stuff has happened since I graduated from Auburn in 1997, and I won't bore you with 20 years of details. Stay tuned for the memoir. The end result was a Ph.D. from Rice (2002), which led to oil company internships and ultimately a job offer from Anadarko Petroleum, where I've been ever since. Over the last 15 years I have explored the US onshore (Rockies and Appalachia), Deepwater Gulf of

Mexico, West Africa, and currently, following a recent shift to International New Ventures, God only knows. As part of all this, I have traveled to Sierra Leone and Liberia (pre-Ebola), and been fortunate to have attended field trips from Nova Scotia to South Africa. Field trips (the backbone of geological education) are rare these days, so we take what we can get. The last few years have brought major change to the industry, the reactions to which have been interesting (and often painful) to watch. But I live and work in a northern suburb of Houston, so the commute is heavenly by local standards, and Anadarko has been a great place to work.

My wife Ginger (B.S. Geol. Eng. 1995) and I celebrated our 20th wedding anniversary in October! She supported my Ph.D. by working in the environmental industry for seven years. Once I graduated, she passed the work baton to me and opted to stay home and raise two amazing kids. Morgan (b. 2000) is now a junior in high school, is active in theater, and is thinking about college. There should be an Auburn visit in our near future, but we're prepared to accept an Aggie in our family, if necessary. Adrian (b. 2002) is in junior high. He plays guitar with the School of Rock House Band and is currently learning some Zappa. Ginger bravely coordinates all of this and keeps the Klein train on the tracks. We each have a Facebook page (if you want a piece of the daily Klein family saga, follow Ginger), and Ginger recently started an "Insta" for our new adoption @piperkleinpuppen.



Ginger, Adrian, Andy, and Morgan.

In November 2015, Houston alums got a visit from the AU Geoscience roadshow. We all met for dinner at a restaurant near the Galleria, and I was able to reconnect with fellow grad students Rob Locklair and Malcolm Sadler – I had no idea they were here! Mark gave us a nice presentation on the status and future of the department, and Chuck told some jokes. It's nice (and kinda scary) to see that after 20 years, Chuck has not changed.

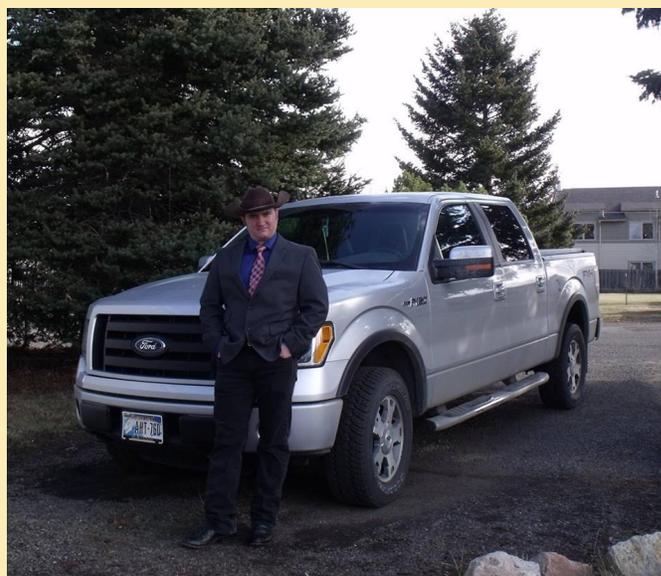
Last Spring, I was finally able to make it to a meeting of the Geosciences Advisory Board. What an honor to be invited to be a part of such a great group! It was a blast getting back in touch with everyone and meeting new faces. It was also impressive and inspirational to see the dedication the members have for the stated goals of the board; it truly is a close-working relationship between AU faculty and students and the business world, and it's really only just begun. I look forward to future meetings and discussion.

Alex McLean (B.S. 2006). Currently I am a student at Montana State University working on graduate studies in vertebrate paleontology. After graduating from Auburn, I spent time working in the oil fields of North Dakota and eastern Montana as an on-site geologist specializing in the Bakken and Three Forks formations. I spent about 4 years collecting samples and monitoring wells before the oil bust happened, and I decided to return to school in 2013. I have since been catching up with courses not available to me at Auburn as well as working on projects involving dinosaur eggs under Dr. David Varrichio. I also got to meet with Dr. Jack Horner several times



Alex with Eric Boardman (left).

and was even at his retirement ceremony earlier this year. I also have appeared in a DVD documentary about dinosaurs and have been featured in the Bozeman Chronicle. As some of you may remember, there was a documentary series released by Midwich Entertainment and the Disney Channel back in the 80s-90s hosted by Gary Owens and Eric Boardman. A few years ago the producer, Richard Jones, started a kickstarter project to help raise funds to release the second DVD release of these specials, and I helped to fund the production so I was able to go to LA and star in it — I wore the same Auburn jacket I had on as a student over a decade ago! Other achievements include completing the Montana Dinosaur Trail, visiting Vernal Utah and Dinosaur National Monument, being a guest lecturer at the Glendive young adult Catholic classes on the topic of God, the Bible, and geologic history, research into ceratopsian skulls, and I did a study on theropod limb ratios I presented at the MSU Earth Science Colloquium of 2015.



Mitchell Moore (M.S. Geology, 2012). After finishing the M.S. program in the Geology and Geography department, I began working with Dr. Jose Vasconcelos in the Civil Engineering department towards a Ph.D. My work there focused on measuring and modeling effects of stormwater runoff from an interstate highway into a forested watershed and stream. I completed that work this past Fall. During that time, I met and married my new best friend, Lorena.



In November, I was hired as a Hydraulic Engineer at the United States Army Corps of Engineers in Fort Shafter, Hawaii. My work here focuses on using the theories of hydrology and hydraulics to support the Civil Works programs at USACE and perform flood-control studies. We use specialized programs and software packages, including those incorporated into GIS databases, to inspect field conditions and develop hydrological and hydraulic computer models to simulate flooding events and design mitigation strategies.

Hawaii is very nice, and we enjoy living here. We do miss Auburn, though, with the charms the town and community offers, as well as the people we have made great connections with over the years.

Brian Odom (B.S.1999). I grew up in Foley, AL, and came to Auburn as an architecture student in the fall of 1995. Quickly realizing in my first year that architecture wasn't for me, I began looking through the Auburn course catalog to see what other majors looked interesting to me. I decided to take classes in business and geology in the fall of 1996, and Dr. Steltenpohl sold me on geology while taking his Physical Geology class. I worked with Dr. Cook on a marble exploration project in Sylacauga, AL, for a Directed Study and was hooked on mining. Unfortunately, the economy was taking a turn for the worst when I graduated in Fall 1999, and a job in mining wasn't meant to be at the time.

I accepted an entry-level position with the IT Corporation just before graduation and moved to Knoxville, TN, on New Year's Eve just before the world was supposed to end due to Y2K. IT Corporation went through a bankruptcy and acquisition in 2002 to become Shaw Environmental and Infrastructure, Inc., which is now CB&I Federal Services. I worked my way up from rig geologist to Site Manager of a large environmental investigation and remediation project at Moody AFB in South Georgia before leaving in 2005 to start a new office in Warner Robins, GA, and become a Project Manager for a company named Solution to Environmental

Problems (STEP), which was based out of Oak Ridge, TN, and performed environmental investigations, remediation, and construction projects mainly in the Southeastern United States. I passed the ASBOG exam in 2006 and am a Licensed Professional Geologist in Georgia, Florida, North Carolina, Tennessee, and Kentucky. STEP was purchased in 2007 by one of the Alaskan Native Corporations named Bristol Bay Native Corporation, and SpecPro Environmental Services, LLC was formed. This same year, I moved our office from Warner Robins, GA, to Richmond Hill, GA, which is a suburb of Savannah. I still live there, where I am manager of that office and a Senior Project Manager for the company. We have grown considerably and now have six companies performing all facets of environmental investigation and remediation, civil, electrical and mechanical construction, and design build construction.

I have spent the past 17 years mostly working on and managing environmental investigation, remediation, and construction projects for the Department of Defense with a five year span of also managing electrical, mechanical, and building envelope construction projects for the Air Force Medical Support Agency. I am currently managing two large fast-paced projects for the Corps of Engineer's Savannah and Omaha Districts to perform investigations for Perfluorinated Compounds, an emerging contaminant, which was released into the environment during usage of firefighting foam. This project includes work on 335 sites at 39 Air Force Bases in 25 different states to fulfill the EPA's CERCLA Site Inspection criteria.



Brian helping a driller on military.com.

I travel extensively to the point that my friends think I travel for a living. I try to make most Auburn home football games and a lot of away games each season. Enjoy sneaking away from work to golf, fish, and travel to new places from time to time.

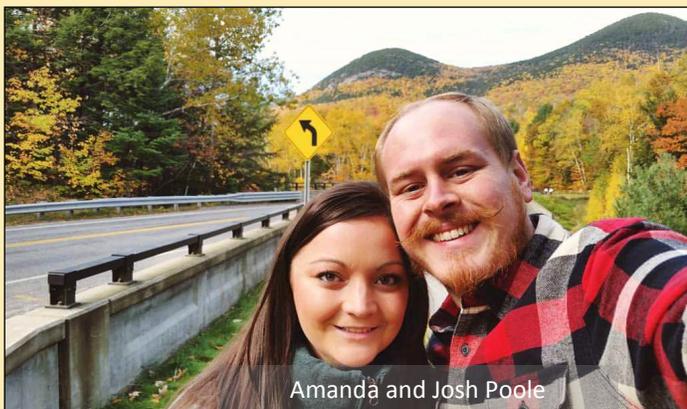


Brian with Wade at an Auburn game.

Holly Pak (MS 2014). Since graduating from Auburn in 2014, I have been living the life of my dreams, on the Gulf Coast. I moved to Daphne with my husband and son, shortly after graduation and began to work on a second Master's in Education. I have been working at the University of South Alabama, for the last two years, as an adjunct Geography Instructor. I teach Physical Geography and World Regional Geography. I love teaching and have also completed a TOEFL certification and have private students that I teach English to, as a second language. I will have the Alabama Department of Education, Secondary Education Teaching certification, in Social Studies, in the Spring. I am doing what I love and allowing students to see the world through regional studies as well as teaching them that Geography is a vast and awesome field of study. I am ever thankful for the instruction and opportunities that I was given at Auburn. My plans for the future include finishing a PhD in a Geoscience-related subject but no definite arrangements have been made. The most exciting news of all is that I was blessed with a precious baby girl in December 2015 and she has been a huge joy each day since. I miss everyone and wish the best to all of my former classmates and colleagues. War Eagle!



Josh Poole (MS 2015). My thesis work included the mapping and understanding of structures associated with the Brevard fault zone, with focus on the kinematics and timing of faults/shear zone in the Eastern Blue Ridge of Alabama. I also developed a new pedagogical application for stereonet in delineating shear direction. After graduating, I joined the faculty of Columbus State University as a Lecturer of Geology for the 2015-2016 academic year, teaching introductory, major-level, and graduate-level geology courses including Physical Geology, Geomorphology, Sedimentology, and Field and Mapping Geology, and was the Physical Geology Lab coordinator. In fall of 2016, I joined Wellborn Mining, a local start-up gold mining company (still



Amanda and Josh Poole

in exploration phase) as their Exploration/Field Research Geologist. My wife and I are still Auburn residents and continue to own/operate the Celtic Traditions School of Irish Dance, while also squeezing in time to travel the world. We still visit the department and are regulars at the football tailgates. War Damn Geology!

Jordan-Leigh Taylor Rhatigan (B.S. 2009 Auburn, M.S. 2012 KU). After graduating from Auburn in the class of 2009, I moved to Lawrence, KS, to begin my M.S. at the University of Kansas under Dr. Daniel Stockli. My thesis work was focused on the Columbia River Basalts of Washington and Idaho and further development and calibration of magnetite (U-Th)/He geochronology. My husband, Caleb, and I met during our graduate work at KU, and in 2011 moved to Austin, TX, where I began working for the University of Texas at Austin and the Bureau of Economic Geology with the Carbon Sequestration Group for the next three



years. In 2014, we decided it was time to move closer to home, and we now reside in Huntsville, where I grew up. I have since changed the focus of my career and now work as an Account Manager for a software company. In February 2016, we welcomed our sweet baby boy, Brooks, who has changed our lives forever! Take care!

Jason Schein (BS 2000, MS 2004). Some of you already know all about this, but others may not, so I'll just briefly bring you up to date. As you may remember, I inherited a small research project that I was able to expand into a multifaceted collaboration with colleagues from the Academy of Natural Science of Philadelphia. We named this project the "Bighorn Basin Dinosaur Project" and led a variety of people on expeditions out west — including college students for course credit, such as Auburn Geology students **Sarah Sheffield**, **David Adrian**, and **Chris Smith**. We teach them everything we can about the natural history, both ancient and modern, of the northern Bighorn Basin.



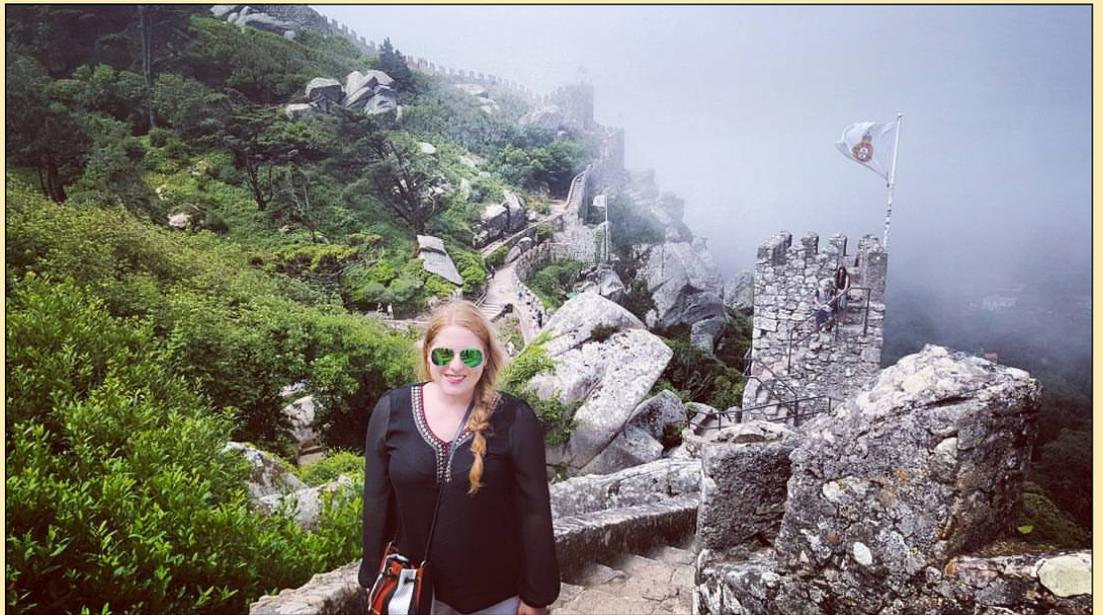
Well, recently I left my position at the New Jersey State Museum to pursue this full time. Over the past several months, I, along with many of the good folks I've been working with in the field for several years now, have formed a new independent, organization: the Bighorn Basin Paleontological Institute.

Please help in spreading the word among your colleagues about this opportunity and see www.BBPaleo.org. Sarah and I and our two children, Jackson and Lilly, are doing fine and are excited about our new venture.

Morgan Shuman (M.S. 2015). I am currently living in Houston, Texas, with my husband, Yassine, and our two cats. I am working at Schlumberger in the Software Integrated Solutions (SIS) segment as a Petroleum Economics Analyst, where I support and provide consulting for economic evaluation and geologic risking software applications. I am taking advantage of my company's global presence to travel internationally as often as possible. In my spare time, I am learning French, doing volunteer work with Houston's refugee resettlement programs, and of course watching Auburn football. War Eagle!

The **BBPI** is a nonprofit 501(c)(3) dedicated to paleontology and earth science research and education. A mainstay of our programming is and will continue to be our annual summer field program. This move to an independent organization means that we can be much more attentive to our research, but also more versatile and engaged in the types of educational programs and partnerships we pursue.

Our first major educational partnership is with Rocky Mountain College. Working with their Department of Geology, we have created a 3-credit course in field paleontology, scheduled to run in conjunction with our 2017 Field Expedition, from July 2-15.



In Memoriam

Mahjabin Rahman by Chandana Mitra

Ms. Mahjabin Rahman, a graduate from the Department of Geosciences died last October in Canada, where she had moved after graduation to be with her husband. She was buried in Dhaka close to her parents' home. She is remembered as a hardworking student, who was a caring individual, always with a smile. Originally from Bangladesh, Mahjabin started at Auburn University in fall 2012 as a Geography graduate student and graduated with a M.Sc. degree in spring 2014.

Mahjabin was passionate about her research, and her thesis titled 'Growth of Alabama urban areas and their impact on changing environmental dynamics' was first of its kind in Alabama. She was able to quantify how cities like Auburn, Madison, and Hoover have grown extensively (400 to 600% more) in just 28 years (1982-2010). She was in the process of applying for admission to a PhD program in Canada. The Geoscience family will remember her fondly always.



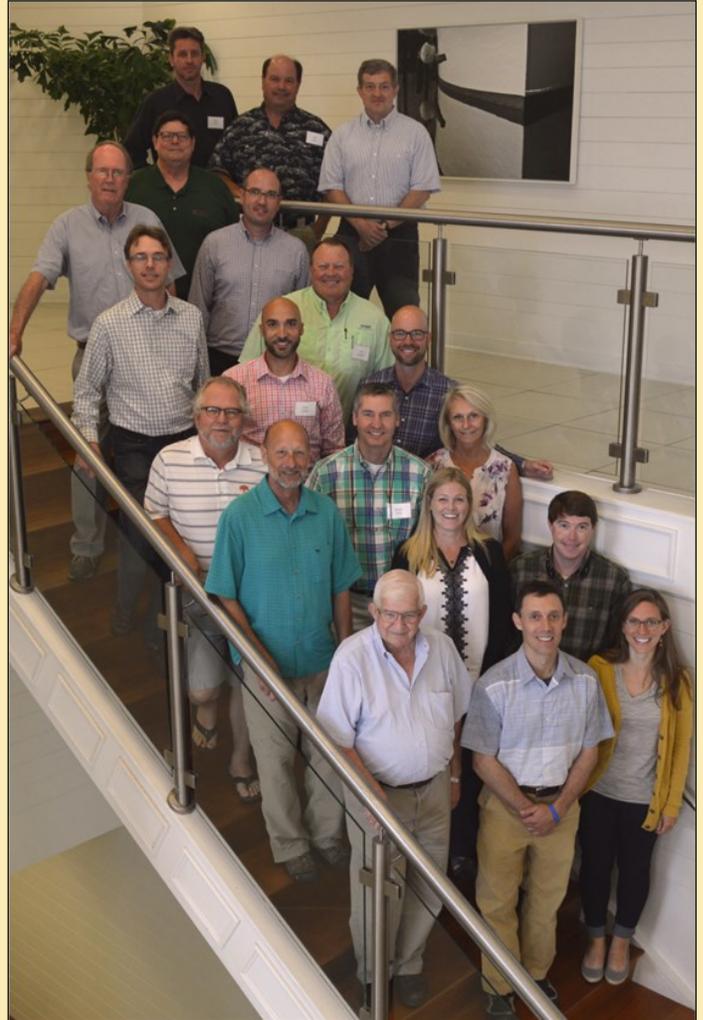
Department of Geosciences Advisory Board

A lot has happened within the Department of Geosciences since the Board's inception in May 2013, and the Geoscience Advisory Board (GAB) is proud to be a participant. Beginning with thirteen professionals, the Board has now grown to more than thirty active members that span across many disciplines within industry and academia. Our goal is to leverage our members' experience, expertise, and financial support to better the lives and futures of the Geoscience students at Auburn University.

The Board's Past Chair, Bob Fousek, along with Department Chair Dr. Mark Steltenpohl, set ambitious objectives early in the Board's development. We are to:

1. Serve as a liaison with the geosciences business community and government entities to promote the interests of the Geoscience Department with Auburn University, the state, and others.
2. Provide assistance to undergraduate and graduate student recruitment efforts through internships and scholarships.
3. Make recommendations to the Department regarding educational programs, courses, and initiatives that provide a competitive advantage to students seeking employment.
4. Assist the Department by providing scholarships, Co-Ops, and internships for students as well as supporting student research to include donations of equipment and software.
5. Establish the Geology and Geography Scholarship Fund to be used for supporting students and instructional activities in the Department.
6. Raise \$25,000 for the endowed Funds for Excellence, to be established by the Board for scholarships, field trips, recruiting, and seminars.
7. Give professional presentations on job opportunities and markets to the Department's students and faculty.

As our second elected Chair, I am excited to say that the Geoscience Advisory Board has met or exceeded all of these objectives and continues to grow. One particular example of our cooperative success is with the endowed Funds for Excellence. This endowment drive, spearheaded by member Laura Folse and managed by the Board's Development Committee, grew from an initial objective of \$25,000 to \$250,000. Wow! What a jump! And, less than one year into the campaign, we are more than half way to our new goal. Incredible! Members are also actively interfacing with the students in the classroom and participating in after-school colloquiums. We provide academic, travel, and recruitment scholarships, and are currently developing scholarships focused on diversity and need. Our newest challenge is to bring social media into the mix to support Co-Ops, internships, and provide some general information about what the Board is doing to involve more alumni. These are exciting times!



Top left to bottom right: Bill Ware, Bill Bauer, Danny Smith, (Alagasco – presenter), Wally McCord, Bob Cook, Andy Klein, Rob Locklair, Joe Howle, Rick Urash, Alex Wood, Herb Martin, Randy West, Daphne Williams, Mark Steltenpohl, Jill Johnson, Larry Prince, Robert Fousek, Jonathan Grimes, and Amanda Savrda; Charles Savrda photographer.

The energy and passion of our members dictate that the Geoscience Advisory Board will continue to grow. To all of our current and past GAB members, "Thank You." To all of you Geoscience students, "Use us. We're here for you." We appreciate this opportunity to serve.

"It's great to be an Auburn Tiger"

WAR EAGLE!!

Jonathan Collier (Chair)
jcollier@energen.com



Geosciences Donor Honor Roll 2016

Thank you! The Department of Geosciences gratefully thanks our generous donors who have supported its students, faculty, research, and programs in fiscal year 2016.

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Graduates of Auburn University value the "Auburn Experience" - the place where we forged friendships, started traditions and laid the foundations for success. From this foundation grows the Geosciences Advisory Board **Fund for Excellence**. The earnings from this permanent endowment will aid the Department of Geosciences in enhancing educational and research capabilities, recruiting exceptional undergraduate and graduate students, growing and enhancing the department's size and reputation, and maximizing employment opportunities for graduates.

Since its inception, many alumni have already made significant contributions to the *Fund for Excellence*. The Geosciences Advisory Board encourages you to consider making one, as well. **Our goal is to reach \$250,000, and we are half-way there!** Making a gift is easy. You can donate online via credit card at www.auburn.edu/cosam/gab.

Get Fired Up... and support the Geosciences Advisory Board Endowed **Fund for Excellence**



enhancing instruction, research, ...

... student recruitment, and career opportunities

GEOSCIENCES
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Making a gift is easy... donate online at www.auburn.edu/cosam/gab

Invest in the Geosciences at Auburn!

State funds and tuition pay only a small part of the costs to recruit and retain the best faculty and graduate students and support the undergraduate programs that are the hallmarks of the Auburn experience. Private funds sustain and enhance these extraordinary opportunities for students and faculty. The Department of Geosciences continues to provide the best possible education for our undergraduate and graduate students. Each year, private support provides the funding that helps support Auburn's margin of excellence. Private giving is now more critical than ever. Please make your gift today via our secure website:

<http://www.auburn.edu/academic/cosam/departments/geosciences/Giving%20to%20the%20Department/>.

We continue to welcome your gifts to any fund in the Department of Geosciences, and we hope you will consider any of the following funding priorities:

Geosciences Department: This unrestricted account provides the Chair with the most flexibility to apply support to the Department's most immediate needs, such as student and faculty travel, research, and equipment.

Geosciences Advisory Board: Our Advisory Board includes alumni, corporate, governmental, and community members who help support students, faculty, and staff in our department. The Board serves as a liaison with the geoscience business community and government entities to promote the interests of our department within Auburn University, the state, and beyond. One goal of the Department is to develop a Ph.D. program in geosciences to further enhance educational, research, and business opportunities for students, faculty, and other stakeholders. The Board helps in our recruiting and retaining the most talented, motivated, and competent students and faculty by providing scholarships, grants-in-aids for research, CO-OPs, and internships, as well as support for our departmental seminar series and the GeoClub. In addition, the Board recently set a goal to raise a \$250,000 "Fund for Excellence" endowment to further support our research and instructional enterprise; see previous page.

Geology Alumni Endowed Scholarship: Provides scholarships for deserving undergraduate students in geology.

Cook Professorship: The Robert B. Cook Endowed Professorship recognizes excellent geology and geography faculty by providing competitive salaries and resources for research, travel, and professional development. Financial support from the Cook Professorship allows us to continue to attract and retain top-quality instructors and researchers. Recipients are exceptional individuals who have earned their recognition through continued outstanding leadership in research, instruction, and outreach.

For questions about creating scholarships and professorships, stock or estate gifts, specific programs, and suggestions on how you can support the Department of Geosciences, please contact:

Tammy B. Hartwell
Director of Development
College of Sciences and Mathematics
Tammy Hartwell
becktam@auburn.edu
(334) 844-1449

Editor: Ronald Lewis, lewisrd@auburn.edu

Delaine Tease, Delaine.tease@auburn.edu

Department of Geosciences
Auburn University
210 Petrie Hall
Auburn, AL 36849-5305
Phone #: 334-844-4282

Website: www.auburn.edu/academic/cosam/departments/geosciences/index.htm

Summer 2016 Field Camp

