

eGEO TIGER

January 2014

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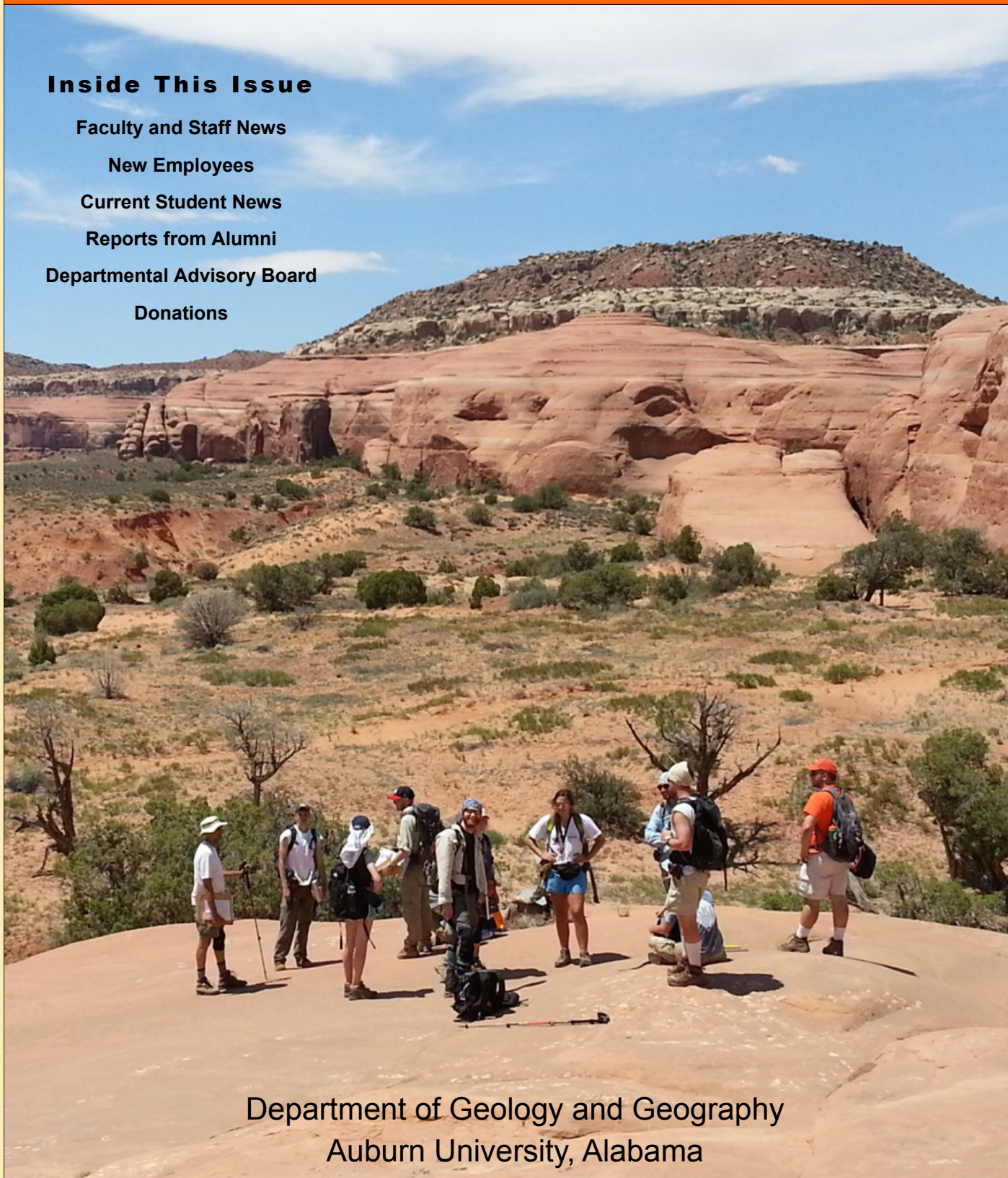
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Department of Geology and Geography
Auburn University, Alabama

eGEOTIGER

Greetings from the Chair!

We are very pleased to re-introduce you to the second edition of the eGeotiger, the Department's official newsletter. The eGeotiger is the electronic offspring of the pre-2007 hardcopy newsletters called the Geotiger that many of you will recall. The first edition of the eGeotiger was distributed back in 2009 and, regrettably, we are four years late with this one. So we have a lot of catching up to do!



First, I should introduce myself and explain the rather unusual path that led me to becoming Chair of the Department of Geology and Geography (GL/GY). During Fall of 2011, Dr. Marie Wooten, the newly elected Dean of the College of Sciences and Mathematics (COSAM), tragically died as she was hit by a car while jogging one morning. Emergency measures caused then-Provost Mary Ellen Mazey to appoint the then-Chair of Geology and Geography, Dr. Charles "Chuck" Savrda, as Interim Dean of COSAM and me as his Interim Chair replacement. A year-long external search for a new Dean of COSAM failed and soon afterward Provost Mazey resigned to take the President's post at Bowling Green University. Chuck must have been doing too good of a job because it was then decided that he should serve as the Interim Dean for two more years, until AU could recruit a new Provost who would then guide another Dean search.

Because Chuck had only two more years left on his rotation as the GL/GY Chair, he opted to resign as Chair. An election was then held by our faculty, and I was selected for the position. I am humbled and honored that our faculty has such confidence in me, and I am really enjoying serving them, COSAM and Auburn. What a blessing it is to be surrounded by such wonderful people!

As you will see in the following pages, we have had a lot of transitions in our staff and faculty. Lost to retirement were Ms. Eva Lilly (after 42 years of service!), Mr. John Simms (25 years), and Ms. Sherry Faust (6 years in GL/GY). This has left our Department's AU corporate memory solely to Ms. Sheila Arington (38 years), who has promised me only to retire when I do :) I am very pleased to report that Ms. Delaine Tease is growing big feet very quickly in order to fill those big shoes vacated by Eva. Delaine has a Bachelor's in Accounting and Master's of Business Administration and had worked for an accounting firm in Columbus, Georgia before joining our department. In addition, Ms. Audrey Hollis came to us from AU Poultry Science to replace Sherry, and she likewise is doing a great job! Finally, Mr. Tony Hall, a BS and MS graduate of our department, recently replaced John Simms who reports to be thoroughly enjoying retirement on his farm up in Moulton, Alabama.

One faculty transition occurred last summer when Lecturer Dr. Jeff Chaumba (Ph.D., University of Georgia) accepted a tenure-track position at the University of North Carolina at Pembroke. Jeff is teaching Mineralogy/Petrology and Economic Geology at Pembroke. We all miss Jeff and wish him and his family all the best in their new lives in North Carolina.

Our department continues to grow in strength and prestige. The Robert B. Cook Endowed Professorship, the first of its kind in the Department of Geology and Geography, was established in 2010 with gifts from dedicated alumni and other friends, and with matching support from AU's central administration. The Professorship honors our former Head Dr. Bob Cook, who in his thirty-five years of service and leadership at Auburn University established a reputation for excellence in undergraduate and graduate instruction, research, and service that centered on mineral resources and other facets of economic geology. Dr. Ming-kuo Lee is the first to be honored as the Robert B. Cook Professor.

In 2010, Dr. David King was named as the program director for Concepts of Science, COSAM's Science course that fulfills one of the two, core-science course requirements for all undergraduate student degree programs here at AU. As a 4-credit hour course that includes both lecture and laboratory, it contributes to strengthening our department's instructional productivity by generating a thousand student credit hours (SCHs) each year. Last Spring Dr. King launched an online version of the course that not only enhances those SCH numbers but also brings revenue to the Department that supports graduate teaching assistantships.

Dr. Lorraine Wolf was named the Director of Undergraduate Research for Auburn University in 2011. She now holds a joint appointment with Geology and Geography and the Office of the Provost. As Director, she is facilitating research and other scholarly experiences for undergraduates across all academic disciplines. Dr. Wolf's joint appointment allowed us to hire Dr. Chaumba to teach physical and historical geology courses. This brought about some much needed relief in faculty teaching loads, which still remain the highest in all of COSAM. Dr. Wolf continues to teach geophysics courses, supervise graduate students, and conduct research related to earthquake hazards. We are currently searching for Jeff's replacement.

Climatologist Dr. Chandana Mitra (Ph.D., University of Georgia), joined our family in Fall 2011. Dr. Mitra's expertise is in the study of precipitation and temperature in heavily populated urban centers, including her hometown of Kolkata, India. Her research uses historical rainfall and temperature data to explore potential associations between the trends in rainfall and urban land-cover change to facilitate better planning and understanding of the changes in the water

budget associated with urban expansion. Dr. Mitra's research is more than just an academic study. "Climate is a part of life," she notes, "We don't do anything without knowing what the weather is. We dress, travel and eat according to the weather, so people need to be more aware of changes with the local, regional, and global climate." For more information, see Dr. Mitra's entry in this issue and visit her Web site at http://www.auburn.edu/cosam/faculty/geology_geography/mitra/index.htm.

We also are pleased to welcome Dr. Yingru Li, a new tenure-track assistant professor, into our department. Dr. Li completed her PhD in geography at the University of Utah while also teaching in the School of Community Health Sciences at the University of Nevada at Las Vegas. Her primary area of research expertise is in economic geography with an emphasis on economic development and regional inequalities in health care outcomes in China. In addition, she has a strong research record in using Geographic Information Systems (GIS) to model retail marketing locations in the U.S. Dr. Li's course offerings appeal to a broad spectrum of AU and COSAM students in particular. This year she is leading her students in Economic Geography, Quantitative Methods of Spatial Analysis, and as a special topic, GIS Applications in Medical Geography.

We are currently searching to hire a geomorphologist. This position is the first of three new faculty lines promised earlier by former Dean Schneller to fulfill requirements for successful implementation of the new MS degree program in geography. It is to be a "bridging position" that blends geology faculty and programs with those in geography. The new hire will mainly teach geomorphology jointly to geology and geography undergraduate and graduate students.

We are most happy to welcome Dr. Chuck Savrda back to our department after nearly three years of service as Interim Dean of COSAM. COSAM administration's loss certainly is our gain, as the same skills that made Chuck such a wonderful Dean also make him a collegial and outstanding member of our community. Chuck currently is enjoying a one-year administrative leave to recharge his scholarly batteries. However, he has already resumed some of his graduate-level instructional duties. We welcome the new Dean of COSAM, Nick Giordano, to Auburn University. Dr. Giordano is a physicist who came to us from Purdue University.

Finally, in addition to this newsletter, we are making other efforts to reconnect with our alums. We have developed a Department of Geology and Geography Advisory Board (GGAB) that includes alumni, corporate, governmental, and community members who help to support our students, faculty, and staff. 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 of our future goals for the department is to develop a Ph.D. program in geosciences. To accomplish this, we must recruit and retain the most talented, motivated, and competent students and faculty. The Board will help by providing scholarships, CO-OPs, and internships for students and by supporting faculty teaching and research. In addition to Board dues, the Board has set a goal to raise \$25,000 for an endowed "Fund for Excellence," which will be used for scholarships, field trips, faculty support, student recruiting, and seminar speakers, to help strengthen our programs. The Board meets twice a year with our first meeting last Spring described in a report below by the presiding Chair Robert Fousek of FMR, Inc. Please contact me (334-844-4282; steltmg@auburn.edu) if you have any questions about the Advisory Board or our Department.

Mark Steltenpohl, Chair



"Roughing it"

Mark and Lars Augland, Ph.D. student at the University of Oslo, having afternoon tea in the Fauske Marble Quarry, Fauske, north Norway, June, 2013.

Cover illustration:

Mark Steltenpohl (left, in knee brace) leading field camp students working an exercise in Mesozoic strata near Moab, Utah, June, 2013.



Faculty News

Toni Alexander

Since the last eGeotiger, there have been significant changes for Geography. We are now permanently housed on the second floor of Haley Center. This allowed for the start and continued success of our MS in Geography degree. Things for me at AU have changed quite a bit as well: I was awarded tenure and promotion in 2011 and also appointed as the Associate Chair for Geography. In addition to providing administrative service to the Department, I continue to teach a wide variety of continuing and new classes within the Geography program as well as in Women's Studies and the Graduate School.



My research continues to evolve in new directions as I direct my long-time interests in marginalized and minority communities toward Latinos in the Alabama BlackBelt; the invisibly disabled in higher education; and women in the STEM (Science Technology, Engineering, & Mathematics) disciplines. As a result of my teaching and research efforts, I was honored with two awards: the Women's Studies Faculty Achievement Award (2012) and the College of Sciences and Mathematics Outstanding Teacher Award (2013). My new MS program students continue to impress me with their work as well; completing MS theses on urban redevelopment in Opelika (**Mackenzie Coan**) and the incorporation of social memory into efforts to promote and preserve Dauphin Island (**Rachael Reeves**). If all goes as planned, my current student, **Holly Park**, will successfully defend her thesis this term, in which she seeks to understand the cultural impacts of Korean immigration to East Alabama and West Georgia. It's an exciting time to be in Geology and Geography at AU!



Delaine Tease and Toni Alexander at the Spring Picnic, 2013

William Bailey

This Fall marks the start of my sixth year as Visiting Assistant Professor in Geography; however, this assignment is not my first at Auburn. In 1989, after a fruitful career in both higher education and K-12, I began a six-year period as an assistant professor of Geography at Auburn. I left AU and, for the next several years, engaged in consulting with various public school systems in Alabama and Georgia to develop and employ GIS technology to plan such things as attendance zones and school bus transportation routes. Although continuing and expanding the scope of my GIS consulting business to include assisting small communities and independent planners in the application of GIS, I returned to the Fulton County, Georgia, public school system for six years and retired in 2004. Since 1999, I have taught Geography part-time at Georgia State University.



As you are well aware, extension/outreach is an important responsibility at AU — for faculty, students, and alumni. In retirement, I have been given an opportunity to take the extension concept a bit further with the Georgia District Exchange Clubs, one of 32 districts in the National Exchange Club organization. Alabama too has one of the 32. The mission of Exchange is fourfold: community service, promotion of Americanism, service to youth, and the prevention of child abuse. There are 42 Georgia District Exchange Clubs with over 2,400 members serving communities in Georgia; and there are over 24,000 members of 800 Exchange Clubs across the United States. Although much of the service delivered by club members to their communities is priceless, money that they raise each year to support community efforts to prevent child abuse is in the millions of dollars, and that amount is simply for one of the four mission components. Perhaps, some of you reading this piece are Exchange Club members; or, find out if your community has an Exchange Club and join it; if not, ask me how to start one.

My two daughters continue to bring me much pleasure. Elaine (Miller) earned the Ph.D. degree at AU several years ago and participates in the management of a Child and Family Development program that she helped develop at AU. She resides in LaGrange, Georgia, with her husband and two children. Kathryn (Nunnolley) earned the AB and MA degrees in English at Alabama and married a native of Heflin, Alabama. She and her husband have two children and reside in Anniston, Alabama, where they serve as Baptist Missionaries. A significant number of my AU students in the early 1990s have become engaged in careers involving their geography training. To them and to all our AU geography alumni, I extend my best wishes for continued success.

Bob Cook

I have been retired now for five full years. It seems like only yesterday that I stopped getting that nice paycheck. Since retiring I have written perhaps ten published articles and have several more "in press," mostly things that I had begun years ago and am finally finishing up. I have been working on a rare earth project for a company named SE Metals and several other precious metal projects both in the southeast and elsewhere. I continue to work on quarries, particularly with respect to water table issues and related sinkholes. My son, Lee, will retire from the Coast Guard after 23 years in a few months. Betty and I took a long postponed trip to Italy, Greece, and Turkey recently. It was great, all but the enormous crowds of tourists everywhere we went. I miss greatly the interaction with students and faculty and enjoy the occasional newsy emails that come my way.



Phil Chaney

My research on natural hazards continued with an investigation of the 27 April 2011 tornado disaster in DeKalb County, Alabama. My research included surveying local residents at the city of Rainsville (near Fort Payne) about their experiences during the tornado. I was subsequently invited to serve as a guest speaker at the University of Alabama during a symposium to commemorate the 1-year anniversary of the tornado disaster in Tuscaloosa. I recently gave an invited lecture at the University of West Florida at Pensacola on Hurricane Hazards, Insurance, and Resilient Development at Dauphin Island. I also worked with Ryan Hile (B.A. Geography, Spring 2013) on a study of earthquake hazards in Salt Lake City, Utah, which was supported by an AU Undergraduate Research Fellowship. Ryan went on to win several outstanding student awards at AU and is currently enrolled in graduate school at the University of Utah.



Bill Hames



This past year was the 10th year of geochronologic research by students and faculty in the Auburn Noble Isotope Mass Analysis Lab (ANIMAL). Auburn area high school students participated in ANIMAL research in 2013, and undergraduate student **Jessica Story** led investigations of the Cretaceous arc volcanic history of Puerto Rico and St. Croix, with presentations at the southeast GSA meeting in San Juan. **Jake Noble Gunn IV** returned to "Our Loveliest Village of the Plains" as a geology graduate student; Jake will be studying argon diffusion in feldspars, with applications to the Proterozoic Grenville orogen as exposed in the Adirondack massif of northern New York. **Di Fan** is a new graduate student who will work on topics in geochronology, who comes to us following completion of her undergraduate studies at the Missouri University of Science and Technology.

With Dr. Billor, the lab hosted the sabbatical research visit of Dr. Senel Ozdamar from Istanbul Technical University. In addition to travelling to San Juan, I also gave research presentations at the 2013 national GSA meeting in Denver and the 2013 Goldschmidt Conference in Florence, Italy. Looking ahead, we're expanding our lab facilities with plans for new mass spectrometry equipment that should come on line in 2014.

Alicia and I are great, our girls are well, and I have a new boxer, our third, named 'Cairo' (sadly, we lost Tucker in 2013). Note to my students about the photo: I'm in the Elysian Fields... this is where I go with my habit of closing my eyes and standing motionless for brief moments during my lectures.

David King

This Fall, I will begin my 34th year of teaching in our department. There have been many changes. For one thing, when I started teaching in the fall quarter 1980, we were all jammed in a small, windowless, airless office block in the second-floor southwest quadrant of Haley Center. In 1985, we moved to our present home in Petrie Hall. Academic quarters changed to



semesters with Fall 2000, and our curricula were rewritten at the same time. Geology merged with Geography a few years ago, and now we have several geography colleagues in our midst. We hope some day to have a geology Ph.D. program. The campus has changed a lot too. For example, there is more green space, more new buildings, a bus system, and no more parking anywhere nearby.

I still teach Physical Geology and Stratigraphy on a regular basis, but gone now are my courses like Engineering Geology and Advanced Stratigraphy. A few years ago, I developed a new course, Lunar and Planetary Geology, which is taught by me on a two-year cycle. I also participate in teaching two graduate courses (Facies Analysis and Cycles in Earth History). I continue to supervise M.S. graduate students (the total is about 25 to date). About 15 years ago, I began teaching some classes outside our department. First, I taught in the Human Odyssey program (1997-1999) and later in the Concepts of Science Program (2003-date). I am now director for the Concepts of Science program in our college. I hire lecture instructors, lab GTAs, and lab assistants for the course (SCMH 1010) and I am in charge of the lab classes year round. About 900 students per year take Concepts of Science as their first core science class. Earlier this year, I launched the first distance learning Concepts of Science section, the only online core science class at Auburn.

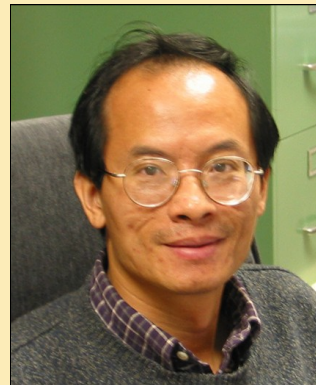
Before coming to Auburn, my research experience had been focused on Paleozoic carbonates. However, I became interested in the sedimentary history of the Mesozoic rocks soon after arriving here. I worked on Coastal Plain stratigraphy for the first fifteen years at Auburn, including Jurassic Smackover carbonates and Upper Cretaceous clastic-chalk facies of the inner Coastal Plain. During the late 1990s, I became more interested in meteoritic impacts and their effects on Earth history, plus planetary geology. So, I switched from work in mainstream sedimentology and stratigraphy to working more on these new areas. I have worked on several projects related to these new areas including Wetumpka impact structure in Alabama, possible impact structures in neighboring states, KT boundary stratigraphy in Belize and adjacent Mexico, and Chesapeake Bay impact crater, Virginia.

I send my very best wishes to all my former students. Hope this finds each of you doing well.



Ming-Kuo Lee

I hold the Robert B. Cook endowed Professorship in the Department. I received the 2008-2009 COSAM Dean's Faculty Research Award in recognition of my research excellence in hydrogeology and environmental geochemistry. I was recently awarded National Science Foundation Rapid Program and British Petroleum grants to investigate the biogeochemical effects of the Deepwater Horizon oil spill on the coastal wetlands. These grants supported several graduate students. **Mike Natter** (M.S., 2012) won the AGU 2011 Outstanding Student Paper Award and COSAM Dean's Graduate Student Research Award. **Jeff Keevan** (M.S., 2012) was awarded Auburn's Best M.S. Graduate Student. **Brian Woodall** (M.S., 2013) and **Kirsten Guerra** (M.S., 2013) also finished their outstanding thesis work in the summer of 2013.



I currently serve as the lead scientist for the NASA-funded Global Climate Change Education (GCCE) Program, designed to improve K12 education in climate change and water resources science. In 2012-2013, I served on two prestigious NSF review panels for the Hydrological Sciences and Water Sustainability and Climate Programs. In the summer of 2013, I acquired two new instruments for the Department with the help of an Auburn IGP equipment grant. The new research facilities, including a Bruker D2 Phaser X-Ray Diffractometer (XRD) for crystal identification and a portable Bruker X-Ray Fluorescence Tracer (XRF) for elemental analysis, will advance research and teaching efforts in areas such as mineralogy, petrology, economic geology, gas and oil-shale geochemistry, environmental geochemistry, bioremediation, and nanotechnology. Current projects undertaken by graduate students include geological and geochemical characterization of gas shales in Black Warrior Basin (**Chris Marlow**), groundwater arsenic contamination in alluvial and coastal aquifers in Bangladesh (**Morgan Shuman**), and bioremediation of arsenic-contaminated groundwater (**Peter Starnes**).

Ron Lewis

Since the last issue of the eGeotiger, my students and I have pursued a wide range of research projects in paleontology. Along with Chuck Savrda and former graduate students **Sean Bingham** (MS 2007) and **Terry Knight** (MS 2007), we have published two more papers on the Upper Cretaceous Ingersoll shale from Phoenix City, AL: one on the amber and its fossils (Cretaceous Research, v. 31, p. 85-93), and the second on the shale's fossil feathers (Palaios, v. 26, p. 364-76).

With a small grant from British Petroleum, students and I investigated deformed foraminifera in the Gulf of Mexico resulting from the Deepwater Horizon oil spill. The Pennsylvanian crinoids found years ago in Oklahoma were subjects of research for **James Thomka** (MS 2010) and **Sarah Sheffield** (MS 2013). And, of course, I have continued my work on the island of San Salvador. I am now emphasizing the foraminifera found encrusting on hard surfaces such as coral

rubble. Work done over the years with **Ray Tichenor** (BS 2010) is now finding its way into print, and experimental work on growth rates is currently underway.

Also, since the last issue, Robin has finished and published a book on her primary linguistic interest, "Language Contact in the Danish West Indies: Giving Jack his Jacket" (Brill) and has been promoted to the rank of Full Professor. My daughter, Anne Marie, completed her Ph.D. at the University of Michigan in mechanical engineering and natural resources and environment, and is now a Congressional Fellow, doing research on energy-related issues for Senator Heidi Heitkamp, North Dakota. Needless to say, I am very proud of both of them.

Yingru Li

This fall, I began my second year as an Assistant Professor of Geography at Auburn University. I'm glad to have the opportunity to provide a summary of my teaching and research. I am an Economic/Urban Geographer with interests in GIS and spatial statistics, public health, retail location, regional inequality, water pollution, and quantitative modeling. My current research uses GIS and spatial statistics to assess the socioeconomic inequalities in childhood obesity in Alabama's Black Belt Region. Also I've been working on projects predicting air temperature of the U.S. and examining the interaction of public health and heavy metal water pollution in China with GIS and statistical modeling. In the past year at AU, I taught Economic Geography, and developed two new method-oriented courses, Quantitative Methods and Spatial Analysis as well as GIS Applications. This fall, besides teaching Economic Geography and Seminar in Geography, I also taught a core curriculum course, Global Geography. I really enjoyed teaching and interacting with students.



Luke Marzen

I am very interested in using the latest geospatial technologies to aid in my research, including airborne and ground based LiDAR. After the 2010 poisoning of Toomer's Oaks, I experimented for the first time with a ground based LiDAR system in order to help digitally preserve a 3-D model of the Oaks. The process involved scanning the Oaks

from several different angles and registering the scans to create a 3-D cloud of millions of points with an accuracy of 2 mm (Figure top right). From this project, an interdisciplinary team was formed and was able to purchase our own Leica C10 HD Laser Scanner. This has led to an interdisciplinary grant through the US Forest Service, where we are investigating tree metrics and urban forests.



Digital 3-D model of an oak tree from Toomer's Corner

Another recent geospatial method that my students and I have been exploring involves a remote sensing technique called Geographic Object Based Image Analysis. This helped lead to a \$363,800 grant from the EPA to map the isolated wetlands for the entire state of Alabama. The process involves developing decision-tree rulesets to automatically group pixels from high-resolution aerial imagery into objects (polygons) representing the extent of the isolated wetlands. Isolated wetlands are unique, because currently, they are not considered under the laws of the federal government, and a lot of folks are interested in trying to protect them from human disturbances. Last, I want to comment that since the last newsletter we have started a new M.S. degree in Geography, and I am happy to report that I have worked closely with **Darrell Rigsby, Rajesh Sawant, Tyler Jones, and Batoul Damghani** as their thesis supervisor and that they have completed their graduate degrees.

Chandana Mitra

I am an Assistant Professor with a specialty in environmental research related to urban areas and the impact of climate change from local to global scales. I teach climatology, GIS, and urban studies. I try to inculcate in my students a global perspective and encourage them to work for a more sustainable way of life.



I am a climatologist by training with a doctorate in urban climate studies from the University of Georgia. My research involves both observational and modeling methods, including use of GIS techniques to quantify urban impacts on precipitation and temperature. My work is geared towards finding adaptation and mitigation techniques to ameliorate the impacts of urbanization processes on microclimate.

I am continuing the research I began in South Asia, which was my area of research for my dissertation. For the dissertation, I analyzed historical rainfall data and explored the potential association between the trends in rainfall and urban built-up area growth. Presently my ongoing projects

in South Asia include measuring urban heat island intensity using temperature data loggers and wetlands to built-up conversion and impacts on microclimate. Through these projects I plan to reach out to the government and public and educate them on urban impacts and help implement mitigation techniques. Near home in Alabama, my projects are urban heat island studies, urban growth and environmental impacts, and estimating water usage and evapo-transpiration of various irrigation systems.

James Norwood

I have thoroughly enjoyed teaching Global, Physical, Latin America and U.S. and Canada Geography at Auburn since 2007. My interest in geography began as a high school senior when I was selected to participate in the International Air Cadet Exchange program. I graduated from the University of North Alabama in January of 1969. Having been commissioned a second lieutenant in infantry, I spent the next nine months at Fort Benning, Georgia. After Infantry Officer Basic Course, Ranger School, and Jump School, I spent a year as platoon leader in Vietnam and Cambodia.



After graduate school at the University of Memphis ('73), I moved to Montgomery, Alabama. For the next 15 years, I was a consultant in urban planning preparing comprehensive plans and Industrial site plans for most Alabama communities. From 1988 to 1998, I held the position of Manager of Industrial Development for CSX Transportation; I was responsible for site locations for industries in Alabama, Mississippi, and Louisiana. For the next five or six years, I wrote grants for communities in Alabama, helping to implement the plans I had prepared years earlier.

I am married to Pam and have three wonderful daughters. My oldest daughter went to Mobile University and my middle daughter to Samford. Our youngest, Ashley (Auburn '07) is currently in the PhD Clinical Psychology program at Auburn. While at Auburn in 2006, Ashley became THE FIRST FEMALE HEAD DRUM MAJOR OF THE AUBURN UNIVERSITY MARCHING BAND!

Jim Saunders

Well, I am winding down my academic career, and want to DO some geology before I retire-retire. I plan on pulling the plug in December 2015 and becoming an emeritus faculty member. My two graduate students **Erin Summerlin** (from UGA) and **Mike Mason** (from UVA) will have finished by then; both are being funded by a new NSF grant to look at the role metallic nanoparticles play in forming super high grade gold-silver ores around volcanoes. We hope to hire somebody to keep this line of research and teaching in economic geology going, as many of our students have gotten good jobs in the mining industry (both industrial minerals and metals).

I began learning this “trade” from Bob Cook in 1975 as a senior at AU, so we have had ~40 years of economic geology as one of our Departmental focal points at AU, and hopefully that will continue. My grad student **Erin Summerlin** just got to go on an all-expenses-paid field trip to gold-silver mines in NV, CA, and AZ organized by the Society of Economic Geologists (SEG) for just 20 students chosen from their international pool of ~2500 student members. She also got a \$2,500 research grant from SEG, \$1,000 grant from SEGSA, and also another \$1,000 grant from the Colorado Scientific Society for her thesis research. I coordinated the technical program for SEG at the national GSA meeting in Charlotte, NC in 2012.

I also continue to serve on the Alumni Advisory Board for UGA’s geology department and serve as the external adviser for their new Student Chapter of the SEG. So this will help continue our strong connection that we have always had with UGA Geology. I got my M.S. at UGA and my old major professor, Gilles Allard, is now 90, and he still comes into the his geology office at least 5 times a week....so look for me to emulate him! I don’t have any specific plans for what I will do when I retire from AU, but I am planning on doing some consulting, expert witnessing, and maybe teaching short courses in ore deposits geochemistry for SEG or mining companies. I still have 3 continents to visit, so maybe I’ll make it to South America, Africa, and Antarctica for work or pleasure.



ABOVE : Jim Saunders at the spring picnic with graduate students Mike Mason and Erin Summerlin.

RIGHT: Jim received the 2013 “superhero” award from the students. Appropriately, given Jim’s research interests, they view him as **Iron Man**.

BELOW: The first recipient of the “superhero” award, Mark Steltenpohl (2012).



Charles (“Chuck”) Savrda

Greetings from Petrie Hall 204. Yes, since August 2013, I am finally back in my regular office after serving 5.5 years as Department Chair and, more recently, nearly 3 years as the Interim Dean of the College of Sciences and Mathematics (COSAM). While I regret the tragedy that led me to the Dean’s Office, I am appreciative of the opportunity I was given to work with a great COSAM staff and to learn more about how the college and university operates. But, I am very pleased to be back working with my colleagues in Geology and Geography. I no longer have to wear a tie every day! I am currently on administrative leave and recharging my scholarly batteries. Over the course of the year, I hope to complete a few postponed research projects, develop proposals for new research, and finish several papers that have been on hold. While I will not return to the classroom “full time” until August 2014, I am teaching (and enjoying) parts of two team-instructed graduate courses this year. Our students are the ones I missed the most during my time in higher administration.



Things are going well on the home front. My wife Diane is enjoying her new role as lead teacher for her pre-school class (4-year-olds). Amanda completed her MS degree in Geological Sciences at the University of South Carolina and has been working for Exxon-Mobile in Houston for the past two years. CeeCee completed her campus missionary work at Vanderbilt and got married to Chad Michael Cunningham in Spring 2012. She moved back to Auburn (virtually next door to us) and is working as a nurse in the mother-baby unit at East Alabama Medical Center. CeeCee and Chad are giving us our first taste of grandparenthood. Judith Marie Cunningham is expected to arrive in March 2014. Allison completed her degree in Human Development and Family Studies at AU in summer 2013. She is now working full time for Camp Wojtyla, which runs Catholic summer camps for middle and high school students in the Colorado Rockies. She lives in Louisville, CO (near Boulder). So, now I can visit when we head out for field camp. Cassie is a high school senior. Next year she plans on pursuing a degree in elementary education at Auburn. She spends some of her spare time learning guitar, singing, and volunteering at Auburn’s Women’s Hope Clinic.

For now, that’s my story. I hope to hear from you and great things about you.

Mark Steltenpohl

My life these days as Chair of the Department seems like a blur. The things I grew to enjoy most during the past 25 years as a faculty member in the Department, like teaching and doing research, have been placed into a holding pattern. “Extra” time to do things for myself or my family is very hard to find. There are far too many nooks and crannies

that need my attention. Most importantly, there is always room to grow and improve our programs. It is a daunting responsibility and obligation to make sure that each and every student, faculty, staff worker, and alumnus is provided with all the necessary tools for their success. I remain flabbergasted at all of the support that everyone has given me. I greatly appreciate everyone’s understanding that all the “no’s” and disappointments” that I have to convey every day are from the “administrator” in me rather than the real me. It is an honor and a privilege to serve this department.



Teaching my courses (physical geology, structural geology, summer field camp, advanced structure, and tectonics) remains a blast! We had another exceptional group of students in the field camp last summer, with some highlights reported herein by one of them, Ms. **Julie Taliaferro**. Anyone concerned about the future of the current generation should spend a few weeks with some of them, 24 hours a day, like I do every summer. It is a real pleasure to engage and work with them. The only downside last summer was me blowing out my left knee during the second week (torn ACL). I’m happy to report that after orthoscopic surgery, my knee and I are doing splendidly and I’m back to my daily running/walking routine. I can’t wait for the 2014 group!



Speaking of superb undergraduate students, I must brag a little about **Kristen McCall** (BS 2012). Kristen maintained a perfect 4.0 GPA while in our department and was awarded an AU Undergraduate Research Fellowship to investigate tectonic evolution of the Caledonian Mountains of arctic Norway, under my supervision. Kristen performed field studies and then dated her mineral samples using isotopic facilities at the University of Oslo. She received COSAM’s 2012 Outstanding Undergraduate Research Award for this work, which was highlighted in the first edition of AUJUS, the AU Journal of Undergraduate Scholarship. She and her colleagues at the University of Oslo and ExxonMobil presented her findings at conferences in Ashville, NC (Geological Society of America) and Vienna, Austria (European Geosciences Union). Kristen’s honors and awards include

scholarships from Vulcan Materials, Robert S. Fousek, AU Honors College Drummond Company, Cunningham Excellence in Environmental Sciences, National Association of Geology Teachers, and COSAM and Geology and Geography. She is our 2011 Outstanding Junior Awardee, Phi Kappa Phi's Outstanding Freshman, and she was nominated for USA-TODAY Student recognition. Kristen currently is pursuing an MS degree from Virginia Tech, and she earned an internship at ExxonMobil in Houston, TX this summer. She plans to work in the petroleum industry researching alternative forms of energy or other new mineral uses. In addition to being academically exceptional, Kristen is a wonderful young lady.

As for my graduate students, **John Hawkins** defended his thesis on southern Appalachian tectonic evolution earlier this term. Much of his fieldwork was done using a kayak to map a large chunk of the Lake Martin shoreline. John has a BS in science education with six years of high school teaching experience. He has taught several sections of our Physical Geology course and students love him, including my son Greg, who was lured into our program thanks to John's teaching. **Joel Abrahams** is wrapping up his thesis on the Brevard fault zone and hopes to defend in early Spring 2014. Joel did an internship with Chesapeake Energy last summer, and they recently offered him a job starting in January 2014. Finally, **Jonny Prouty** is wrapping up his thesis on tectonic evolution of a part of the Caledonian mountains in arctic Norway. Jonny and I will give a presentation on his findings this Spring at EGU in Vienna.

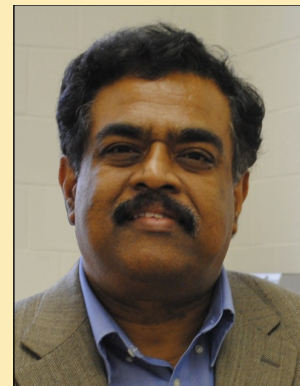
On the home front, I became a grandfather two years ago, and Natalie's daughter, Adelynn, is very dear to "Papa's" heart! As mentioned, my son Gregory, having realized that marine biology is not just about swimming around with sharks and dolphins, is transferring into Geology in Spring 2014. It will be a little weird for both of us to be in the same department, but Dr. Savrda and his daughter Amanda did it. She is thriving at ExxonMobil making good money. Here's to the day my son lands a good job! My wife Laura taught both of our kids at Auburn High School and she survived, so I welcome Greg aboard! Laura still enjoys teaching chemistry and physics at AHS. Together we extend warm greetings to all alumni and friends!

Ashraf Uddin

I joined Auburn University in 1999 after a post-doctoral appointment at the National High Magnetic Field Laboratory, Tallahassee, Florida. I received tenure and promotion to Associate Professor in 2005. I received my promotion to full professor in 2011. I have been serving as the departmental Graduate Program Officer (GPO) since 2007.

I am a sedimentary geologist who is primarily interested in studying clastic wedges eroded from orogenic belts. So far, I have been mostly working on foreland basins in the Himalayas to decipher erosional and tectonic history of the Himalayas and adjacent orogenic belts. Along with Drs. Jim Saunders and Ming-Kuo Lee, I also worked on mineralogical profiling of arsenic contaminants in groundwater in alluvial sediments of the foreland basins of the Himalayas. I have been traveling to south Asia for fieldwork and sample

collection almost every year between the Fall and Spring semesters. Several students have recently completed thesis research on Himalayan sediments funded by the National Science Foundation. **Pranav Kumar** (MS,'04) is now working in Dallas. **Khandaker Zahid** (MS,'05) completed a Ph.D. from the University of South Carolina. He worked as a post-doc for two years in the Bureau of Economic Geology with the University of Texas at Austin. Zahid has recently joined Chevron USA in Houston as an Asset Development Geologist and has two daughters.



M. Shamsudduha (MS,'07) completed a Ph.D. at University College, London, UK. Shams is now working as a Research Fellow with the Institute for Risk and Disaster Reduction at University College London. **Wahid Rahman** (MS,'08) is now working on his Ph.D. at Southern Illinois University on coal geochemistry. **Shahadat Hossain** (MS,'09) has left us to settle in Australia. **Subhadip Mandal** (MS,'09) is now at the University of Alabama for Ph.D work on the tectonics of the western Himalayas. **Raju Sitaula** (MS, '09) is now attending the Colorado School of Mines for Ph.D. research on the Uinta basin, Utah. **Iftekhar Alam** (MS, '11) is in his 3rd year in the Ph.D. program at Oklahoma State University. **Rezaul Huq** and **Khaled Chowdhury** are presently working on their MS work on sediments from Bangladesh and India, respectively.

I have recently started studying the Pennsylvanian clastic wedges of the southern Appalachians. **Tara Peavy** (MS,'08) completed a thesis on the Pottsville sequences and is now working at CE Minerals. She became a proud mother of a daughter on September 13, 2013. Her work planted the seed for a recent NSF grant I received to work with Dr. Bill Hames in the Cahaba and Black Warrior basins to learn the erosional and tectonic history of the southern Appalachians and the Ouachita mountain belts. **Sonnet Gomes** (MS, '12) also completed a thesis on sequence stratigraphy of sediments of the Cahaba basin. Sonnet has recently joined Halliburton. Undergraduate **Jordan Sayers** (BS, '11) who completed research on Cretaceous Tuscaloosa Formation, recently joined Chevron in Houston. Visiting Scholar Dr. **Shams Shaheen** from Egypt received his post-doctoral training here in 2010 on mineralogy and geochemistry of sediments from Lake Manzala, NE Nile Delta, and recently became a Vice Dean of Port Said University at Port-Said, Egypt. **Arden Wells**, a Eugene McDermott scholar from the University of Texas at Dallas spent the summer of 2013 in my lab as an intern working on sediments from arsenic contaminated aquifers from Bangladesh.

I occasionally teach graduate and senior-level courses in basin analysis and cycles through earth history, but I primarily teach introductory courses in physical and historical geology. Since 2011, I have been serving as the faculty advisor of our graduate students who take part in the Imperial Barrel Award (IBA) competition organized by the Gulf Coast

.Association of Geological Societies and the American Association of Petroleum Geologists. Since 2012 I have also been serving as the President of the Alabama Geological Society. I have a family here in Auburn.

Lorraine Wolf



Greetings from the East Wing of Petrie Hall! The "geophysics corner" is proud to announce the arrival this past year of **Justin Cox**. Justin graduated from the University of South Carolina in 2007. After graduating, he worked as a staff geologist with William Lettis and Associates and later with Fugro. Justin has decided to work on a combination of paleoseismic trench investigations

and gravity and magnetic modeling in the New Madrid Seismic zone. Continuing on this year is **Ruhollah Keshvaridoost** (originally from Tehran University) whose thesis is on site response (ground shaking from earthquakes) in the Puget Sound, Washington, area of the Pacific Northwest.

Finishing up this year (May 2013) and now employed at Unit Corporation is **James Taylor**, whose thesis was on collecting and modeling new gravity data from western Washington state. This past year had some news from former students. **Suraj Bajgain** and his wife and son enlarged their family with a new baby girl in 2012. Suraj is doing very well in the PhD program at LSU. **Deblina Bose** is employed at Microseismic Inc. in Houston, and she and her husband welcomed a new baby girl in April this year. Congrats to all the new parents (and what lucky children!)! Other oldies but goodies: **Kelli Hardesty** is still working at ERM in New Orleans (she intended only to stay for a couple years but somehow that voodoo spell won her over); **Jonathan Collier** is in Birmingham, AL, still employed and moving up the proverbial ladder, and his family is growing as well; **Amanda Savrda** is alive and well employed under the "x" in Texas; **Greg Dyer** and his wife **Ann nee Robbins** are also living in Birmingham (last I heard), where he is employed with Southern Company. If you aren't on this list, then you should be! Drop me a line! Funding for students and research was provided this past year by the USGS National Hazard Reduction Program and from M. Tuttle and Associates.

As some of you know, I have been the Director of Undergraduate Research for Auburn University since January 2011. As this is a 60% appointment, I don't get to do as much teaching and research as I would like. But the work is fun, and the students are great. I still retain control (or lack thereof) of the geophysics corner, but I am only able to offer one course per year. This is not keeping up with demand.

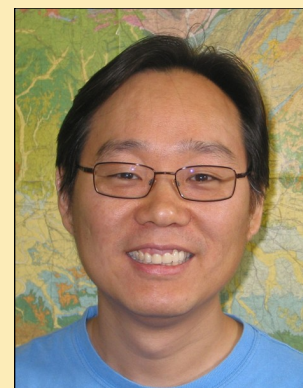
Growth at home (at least in some dimensions) continues. The kids keep getting taller and I get, well, differently shaped. Husband David is still perfect, however. Clara is now 15 (move over--she will be on the road soon), and William has

risen into the teen years of boy-dom (if you know what that is, please tell me). We never remember how old the dog is. David is still teaching in the Chemistry department, and with college tuition forever increasing, retirement is not in the near future.

I would love to hear from any former students, so please e-mail or call!

Haibo Zou

I was elected as a Fellow of Geological Society of America in 2011. I received an NSF grant in 2011 to study the Changbai Volcano on the border of China and North Korea (see photo below). In 2013, I received a grant from the NSF of China to study the Tengchong volcanoes on the border of Burma and China. My recent research focus is on the timescales of magmatic processes and magma plumbing systems under active volcanoes using uranium-thorium disequilibrium in young zircons. I am also working on multiple research fronts simultaneously, including Precambrian ophiolites, Neoproterozoic snowball events constrained by volcanic rocks, plume volcanism, granites, and geochemical modeling. I had a productive year in 2013, with 8 papers published in prestigious journals.



Two graduate students, **Ross Tucker** and **Yang Peng**, received their M.S. degrees in 2011 and 2012, respectively. Ross studied the Daying Shan Volcano, and his results have been published in Lithos in 2013. Ross is now working for TTL, Inc. in Montgomery, AL. Yang studied the Heikong Shan Volcano. She is now a Ph.D. student at University of Texas at Austin. **Mingjia Ma** joined my group in 2012. Mingjia is using Hafnium-Neodymium isotope systematics of the Tengchong volcanic rocks to reveal mantle source enrichment processes.



Staff News

Sheila Arington

As most of you know, in the summer of 1974, Dr. Jack Carrington hired me as a part time secretary in the Department of Geology. The offices were located on the 8th floor of Haley Center in those days. Not long after that, I was offered a full-time position and I accepted... and, as they say, "the rest is history." And yes, surprisingly, I am still here. I have seen many changes in my years here.



For the most part, a lot of the faculty have been here for many years, so it has been a great "home away from home bond" amongst us all. I am sad to say that Eva Lilly and John Simms, who were more than just colleagues to me, retired in 2013, and I miss them dearly. The undergrad and grad students come and go, and I feel they have gotten a great education in Geology/Geography when they graduate. It is a great joy to work with them on a daily basis.

After 39 years, it is difficult to list all the challenges that have taken place in the Department, but the biggest change is technology, of course. It is continually a new learning experience with changes...scanning documents for the need to go "paperless", never-ending emails...the way of communicating now, even though it is nice to pick up the phone and actually talk to someone when you need advice sometimes, and invoices/bills/travel/student records, etc. done electronically. All are a new adventure — in a good way (most of the time). I am excited and hope to continue my last years before my own retirement in this department.

On the home front, Stan and I will celebrate our 38th wedding anniversary in August (he is still the love of my life, my rock and best friend). He is still teaching at Auburn High School and has birthed a wonderful Aquatic Science Program, which I am very proud of. Even with our busy schedules, we try and go on a cruise each summer, and this year we went to Alaska, and it was by far one of the best...I highly recommend it. The last few years have been extremely challenging with our aging parents, but we do the best we can. Our only daughter, Amy, with husband, Nathan and our beautiful two granddaughters, Macy 7 and Ava 3, still live in Florence, AL and continue to flourish in their careers and lives..... Just wish I could see them more often. I am hoping for that during the upcoming AU football season.

Again, my career working in the Department of Geology and Geography is not only a pleasure; it is a big part of my life. I hope I can continue to serve the Department well for a little longer.



Tony Hall

In May, I joined the staff as an Laboratory Teaching Manager. Although I only recently joined the staff, I am not new to Auburn University nor the Department. In 1996, I completed a Bachelor of Science degree in Geology here at Auburn. I continued on to complete a Master of Science degree in 2003, after a short distraction in the Discrete Math Department.

Prior the coming to Auburn University, I was on active duty in the U.S. Air Force, where I was able to travel around the world and gain a vast range of experience. In 1998, I switched to U.S. Air Force Reserve and served for a total of 24 years before retiring as a Major in January 2012.

When I am not hanging around the department, you can find me in one of two locations. A couple of nights a week, I am an Adjunct Instructor in the Math Department at Southern Union State Community College. On the weekends, I am a sports photographer and you can find me on the sidelines of a sporting event photographing the action. War Eagle!!

Audrey Hollis

I grew up in nearby Reel-town, AL., 30 miles west of Auburn, near Lake Martin. I have been employed by Auburn University for 20 years. Prior to working at the Geology and Geography Department, I worked at the Auburn University Poultry Science Department for 10 years. I started working for Geology and Geography in November of 2012, when Eva Lilly retired after 42 years of service.



In my free time I enjoy spending time with family and friends and working on family genealogy with my 85 year old mother. My husband, Chris, and I live in Opelika.

Delaine Tease

I have had a very exciting one year with the Department.

I grew up in Alex City, the Lake Martin area, but have lived in Auburn for so long that I consider myself from here.

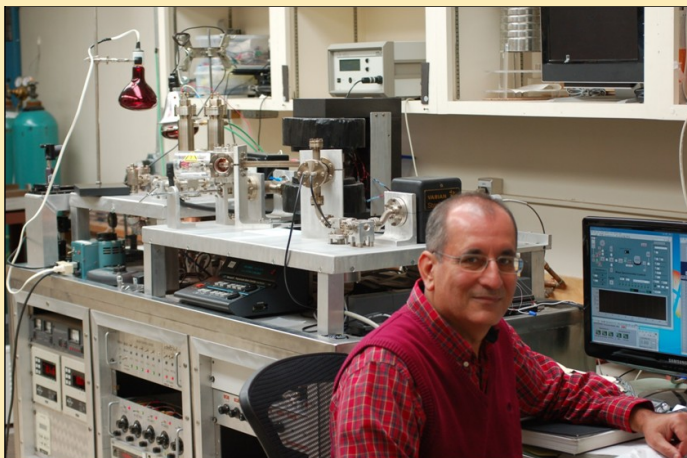
I am the proud mother of two little girls. That would be my biggest accomplishment but besides that I have my Bachelors' in Accounting along with my Masters in Business Administration. I spend most of my time enjoying as many sporting events with the girls as possible.



Zeki Billor

I joined the Department of Geology and Geography in fall of 2007 as a research fellow. Prior to coming to Auburn, I was a geology faculty member of the Department of Engineering Geology, Cukurova University, Turkey. My dissertation research was on the mineralogy and geochemistry of ophiolite and podiform chromite deposits in Turkey. Since coming to Auburn, I have been working with Dr. Hames in the Auburn Noble Isotope Mass Analysis Laboratory (ANIMAL) on sample preparation, software development, and providing high-quality $^{40}\text{Ar}/^{39}\text{Ar}$ age determinations for deciphering Earth's history.

I enjoy working in this lab and the department tremendously because the faculty generously shares knowledge and experience with me, and I enjoy working with and helping students. I am learning something new every day. It is exciting to work in a lab because each sample brings its own geological information and challenges. I am maintaining and expanding my research collaborations with colleagues from Turkey. Some of my new research is on the Cretaceous tectonic evolution of southeastern Turkey and its suture with Arabia (with focus on the Bitlis Suture Zone), and I am also studying Miocene epithermal gold deposits in western Turkey. Dr. Hames and Dr. Saunders recently visited Turkey with me for study in these areas.



I am married to Nedret Billor, a faculty member in the Department of Mathematics and Statistics at Auburn University. We have two sons. Denizcan (20) is a senior in Electrical Engineering at Auburn and Ataman (13) is an eighth grader who loves playing tennis (and his cell phone!). We all love playing tennis, which is a family sport, and are very happy to be a part of the Auburn community.

Field Trip to the Weather Channel

By Dennis Done and Ryan Hile

The students of the climatology class taught by Dr. Chandana Mitra of the Department visited The Weather Channel (TWC) in Atlanta on March 29, 2013. The Weather Channel was established in 1982 with its head office in Atlanta. Atlanta is a hot bed for all kinds of news creation and dissemination, and TWC forms a significant part of that sector. The tour of TWC was led by Daniel Dix, senior weather graphics engineer and meteorologist, who does tornado chasing. He very passionately shared a few stories of his adventures with the students.

Students were shown the recently redesigned broadcast studio and office environment that serves as the heart of TWC's forecasting and media-delivery operations. The group explored TWC's complex as operations were in-progress and met personalities Dr. Greg Forbes and Mr. Paul Goodloe.

This educational journey included an overview of the Global Forecast Center, a partitioned area housing as many as four forecasters who continually update the forecasts for the United States. The next stop, the Severe Weather Center, is where experts like Dr. Forbes deliver commentary on extreme weather situations as they develop.



Auburn University's Climatology class finished their visit by frolicking in the green screen zone of the studio. They were able to watch themselves in the numerous monitors positioned around the workplace as TWC employees teased them with changing computer graphics from remote offices.

Graduate Student News

Graduate Students Present Petroleum Exploration Research



Left to right: Ruhollah Keshvardoost, Erin Summerlin, Joel Abrahams, and Tim Charlton.

Four graduate students in the Department of Geology and Geography recently participated in the Imperial Barrel Award competition in Houston, Texas, organized by the American Association of Petroleum Geologists and the Gulf Coast Association of Geological Societies. Students **Joel Abrahams**, **Tim Charlton**, **Ruhollah Keshvardoost** and **Erin Summerlin** completed an eight-week project on the petroleum prospects of the Danish North Sea. The students analyzed industry-provided geological and geophysical data and presented their findings at the competition and again at a public seminar at the Department on April 25.

Nur Uddin Md. Khaled Chowdhury



Congratulations to **Nur Uddin Md. Khaled Chowdhury** for receiving an AAPG grant in aid through SEAPEX, the South East Asia Petroleum Exploration Society, for his thesis research on the petrofacies and geochronology of Gondwanan rocks in South Asia. Khaled was the only AAPG awardee from the state of Alabama, and he also received a large research

grant from GSA in April. Kaled is shown here in the field in Jharia Basin in Bihar, India. The rocks are alternating arkosic cross-bedded sandstones and laminated mudrocks of an upper Paleozoic Gondwana sequence.

Economic Geology Fieldwork Summer 2013

This summer, **Erin Summerlin** and **Michael Mason** traveled out west to complete fieldwork for their master's theses with Dr. James Saunders. The trio traveled first to Salt Lake City, UT and then arrived in Winnemucca, NV to tour Twin Creeks mine, where Auburn alumna Rue Chitwood currently works. From Winnemucca, the next destination was Silver City, ID, the location of Michael Mason's fieldwork area. On the way to Silver City, the group stopped off at the Buckskin National mine to collect samples for further study related to Dr. Saunders' current NSF grant.



Summerlin and Mason at the adit of Buckskin National mine, NV.

Silver City is a historic mining and "ghost" town in the high desert near the Oregon/Idaho border with approximately 70 standing buildings and no permanent year round residents. While in Silver City, work was done on the Trade Dollar, Dewey, Idaho Tunnel, Morningstar, DeLamar, and Pauper mines and on the Orofino and Poor Man veins. Here, silver selenide and sulfide minerals are present and constitute much of the historic silver ore production of the area. However, gold was also produced during the district's heyday. Mason's thesis will be an investigation of the ore mineralogy, textures, and geochemistry of the mineralization on Florida Mountain, in the Silver City district. The two graduate students became expert "dump pickers" throughout the week in Silver City, and 161 pounds of samples were collected.



Summerlin, Mason, and Saunders standing atop the Pauper mine dump pile, overlooking Silver City.

After Idaho, they made their way to southwestern Colorado to the town of Mancos, about an hour from Four Corners. Mancos is the closest town near Erin Summerlin's thesis research area in the La Plata Mountains. In the historic La Plata mining district, they trekked up to the Allard Tunnel, Copper Hill Glory Hole, and to the Tomahawk, Columbus, Cumberland and May Day/Idaho mines. Here, samples were strategically collected from both porphyry and epithermal systems for Summerlin's thesis on the porphyry to epithermal transition in the La Platas, which will include ore petrography, geochemistry, and S-isotope analyses. Porphyry mineralization contains abundant copper, as well as gold, silver, tellurides, and anomalous platinum group elements, while epithermal mineralization contains mostly gold-silver tellurides.



Summerlin at the Allard Tunnel and Copper Hill Glory Hole, La Plata Mountains, Colorado.

Cheryl Wilkes Attends NASA Planetary Volcanology Field Workshop



If you are looking for a scenic vacation full of geology, the big island of Hawaii is the place to go. My trip to Hawaii was full of a variety of geologic features. A wealth of knowledge was packed into one week!

The NASA Planetary Volcanology Field Workshop is funded my NASA to educate young scientists by comparing remote sensing data on other planetary objects to remote sensing data of Earth. By comparing images of Martian volcanic features to the Hawaii volcano, we can find many commonalities and conclude that Mars volcanoes operate roughly the same way as those on Earth. Many days were spent walking over lava flows and using remote-sensing maps to determine the boundaries between old and new lava flows.

Although we spent a lot of time learning, we also had fun with geology. One day we hiked out to a small beach that was full of olivine-rich sand, also known as green sand. Olivine is a mineral that normally weathers away quickly, so it is a rare treat to be able to see and collect from such a site. One fascinating stop led us to scoria cones off the flanks of Mauna Kea. There we could find xenoliths, which are preexisting

rocks that fall into a magma chamber but do not melt. When erupted, the lava cools around the xenolith, resulting in two or more different kinds of rocks. This is a treat for a geologists.



Of course nothing on that trip could beat seeing flowing lava, any geologists dream. We hiked for about a mile over very young flows that had devoured a neighborhood to get to the coast so we could see lava entering the ocean. Due to lava being explosive as it enters the water, we had to admire the scene from a far distance. The first flow we found was on the small side, but we were all too excited to care. It was an amazing site to be able to see brand new earth being born - even though the cracks beneath our feet glowed from the lava under the surface! We then moved on in search of a bigger flow that we found not too far from the first flow. That flow turned out to be one of the best our professors have ever seen. It was amazing to feel the radiating heat of the lava. Without a bandana, sunglasses, a hat, long sleeves, and gloves, your hair and skin would begin to burn. However, using your rock hammer to reach into that red molten rock that is the youngest rock you will likely ever touch is definitely worth the risk of a burn. We experienced so many unforgettable things, and I hope to experience them again with my family.

Summerlin Attends 11th International SEGF Student Field Course, Receives Grants

Geology graduate student Erin Summerlin recently attended the Society of Economic Geologists Foundation's 11th Student Field Course entitled "Precious Metals Deposits of the Southwestern US." Selection for the program is rigorous: only 19 participants were accepted from the US, Canada, Argentina, Colombia, Brazil, Australia, United Kingdom, Ireland, Germany, Bulgaria, and Mongolia. The course involved a weeklong trip to Nevada, Arizona, and California, visiting both open pit and underground mines that produce precious ores, including gold, silver, copper, and molybdenum. Participants learned key dynamics of both epithermal (low and high sulfidation) and porphyry systems. Students received the opportunity to view these systems in the field, seeing first-hand how to recognize and characterize these deposits from both academic and industry experts. Participants also toured active mines to view daily mining operations, especially the entire milling through refining process. Participating in lectures and discussion with trip leaders and industry professionals was an important and invaluable part of the trip.

Summerlin received three grants during the spring 2013 semester for her thesis entitled "Understanding PGE mineralization at the Allard Stock: Implications for the porphyry to epithermal transition, La Plata Mountains, Colorado." She was awarded \$2500 from the Society of Economic Geologists from the Hugh McKinstry Fund, which supports "study, research, and teaching of the science of economic geology for related projects, with preference given to field and related

laboratory research by graduate students." She received \$1000 from the Colorado Scientific Society's Memorial Research Fund from the Edwin B. Eckel Memorial Fund. Eckel was a famous mining geologist that worked extensively in Colorado and particularly in Summerlin's field area. Summerlin also received \$1000 from the Southeastern Section of the Geological Society of America.

Undergraduate Students



World Food Programme

By Avery Cobb

As one dream has led to another, I somehow find myself here, in Rome, Italy, interning with the world's largest humanitarian agency fighting world hunger. I don't think I ever actually imagined that any of this would have happened to me, but here I am. "They" always asked me what I would do with a degree in geography, and now I have an answer as to what I *am doing*.

At the World Food Programme, you will find me at my desk, quaintly located on the 5th floor of the yellow tower, amongst the rest of the Geographic Information System team, part of the Emergency Preparedness and Response unit. The specific focus of this unit is, in fact, responding to emergencies, and if possible, even foreseeing them and preparing for them in advance. Knowing that I am working on a Bachelor's degree in Geography, you have probably already guessed that I make maps on a daily basis. Yes, it does seem that I am that stereotype, but I'm here to fill you in on the true value of these seemingly mind-numbing projections. It is my job as an intern to produce maps focused on infrastructure, transportation routes, locations of beneficiaries, and sometimes even possible security threats. These maps are necessary to assess every possible method of delivery and every factor that could affect the delivery of life-sustaining food to a community. As much as I am learning from this hands-on experience by manipulating numbers and computer software to depict the situation as accurately as possible, the real significance comes from realizing that every symbol on that map represents a person, or perhaps information that will in some way lead to the delivery of sustenance to an individual. This is indeed a most incredible realization.

In all, I was at the World Food Programme three months beginning at the end of April. It was been incredible to learn how my skills as a Geographer can be put to use in a way that will impact the lives of others. Once again, I must return to dreaming. I can only further imagine that, one day, I will get the opportunity to personally enter the mission field to assist in these efforts and touch the lives of others, because after all, "I [truly] believe in the human touch, which cultivates sympathy with my fellow men and mutual helpfulness and brings happiness for all."

Geology Field Camp

By Julie Taliaferro

Field camp gave me the opportunity to put three years of classroom learning into hands-on practice; it was a challenging experience but one that I wouldn't trade for anything. Not only did the class travel to, and study, the different geologic landscapes of North Carolina, Tennessee, Colorado and Utah (to name a few) but we also developed practical skills needed for a career in geology.



Along with fine-tuning field observation, Brunton compass reading and mapmaking, I benefited from invaluable intrinsic wisdom. Field camp taught me that sinners make the best company, saints make the best grades, and a healthy combination of the two makes the best geologists.

One of the best overall experiences was getting to know so many fellow students in the major. I began field camping vaguely knowing a few people and through campfire celebration and commiseration I now have great friends who I love hanging out with in the classroom as well as out on the town. I am very excited knowing that these are the people I will work with professionally one day.

Field camp is a rite of passage but one that will take you to the snow covered peaks in Rocky Mountain National Park and then to the sun-seared sands in Arches National Park in less than a week. For those of you who have been, I hope this inspires some sweet nostalgia, and for those of you yet to go: "Get fired up!"

Alumni News



Isabel Leon y Leon sampling off the Alabama coast.

Isabel Leon y Leon (BS, 2013) was very active in the Department and participated in research as an undergraduate. Initially she aided graduate student James Thomka with laboratory work on Pennsylvanian crinoids. She won a University Research Fellowship in her sophomore year for her research on abnormalities in foraminifera caused by the 2010 Deepwater Horizon oil spill. This research resulted in several poster presentations at GSA meetings and at the Gulf of Mexico Oil Spill and Ecosystem Science Conference in New Orleans in January 2013. In addition, Isabel received the Department's Outstanding Junior award, was president of the Department's AAPG-SGE chapter, and president of the University's Society of Hispanic Professional Engineers. She also served as a laboratory and teaching assistant for Concepts of Science. Currently Isabel is pursuing her MS degree at Penn State.



Sarah Sheffield (MS 2013) came to us from the University of North Carolina at Chapel Hill, and studied invertebrate paleontology under the direction of Dr. Lewis. She began as a Research Assistant on a BP-funded research project dealing with the response of foraminifera to the Deepwater Horizon oil spill. Her thesis research focused on the Pennsylvanian crinoid *Erisocrinus* and made use of the large collection of specimens previously collected from the Barnsdall Formation. In a novel approach, Sarah used ArcGIS to map the crinoid's skeletal plates. Sarah was recognized for her research by receiving COSAM's MS Research award. She is currently continuing her research in fossil echinoderms as a Ph.D. candidate at the University of Tennessee in Knoxville.

Ray Tichenor (BS 2010) was a very active researcher throughout his undergraduate years, working with Dr. Lewis on the benthic foraminifera found at San Salvador island in the Bahamas. Initially he assisted Jessica Morgan (BS, 2008) on her research with foraminifera associated with sea-grass beds; later Ray concentrated on encrusting foraminifera attached to cobbles. With funding from an Undergraduate Research Fellowship and from the Gerace Research Centre on the island, Ray was able to visit the field area repeatedly, establishing a shore to shelf-edge zonation and co-authoring seven abstracts for oral and poster presentations at professional meetings. Ray went on to East Carolina University (MS 2013) to continue his studies of foraminifera, this time in the Gulf of Mexico. Ray now lives in Houston, where he works in the oil and gas business.

James Thomka (MS 2010) came to us from the University of Tennessee at Martin where he studied with past alumnus Mike Gibson (MS 1983). While at Auburn, he completed his thesis on Pennsylvanian crinoids from Oklahoma under the direction of Dr. Lewis. Since leaving Auburn, he has been continuing his research on Paleozoic stalked echinoderms and sequence stratigraphy while pursuing a PhD at the University of Cincinnati. He is currently in his final year of the program and his dissertation, supervised by Carl Brett, focuses on linkages between stratigraphic and paleoceanographic patterns and the occurrence, preservation, and diversity of echinoderms in eastern North America. Fieldwork for this project has taken him to Alabama, Georgia, Illinois, Indiana, Maryland, New York, Ohio, Pennsylvania, and Tennessee. Since his time at Auburn, James has authored 11 peer-reviewed papers (including four from his Masters thesis), 15 guidebook articles, and 41 abstracts. One recent highlight was a trip to Brussels, Belgium to present at the 14th International Echinoderm Conference at the Royal Academy of Science, adjacent to the Royal Palace. In addition to his research, James has been very involved in mentoring undergraduate student researchers, and has supervised ten projects so far, with topics ranging from sinkholes and sea stacks at the Ordovician-Silurian boundary to paleoecological assessment of an encrusted shell pavement in central Kentucky.

Suraj Bajgain and his wife and son enlarged their family with a new baby girl in 2012. Suraj is doing very well in the PhD program at LSU. **Deblina Bose** is employed at Microseismic Inc. in Houston and she and her husband welcomed a new baby girl in April this year. **Kelli Hardesty** is still working at ERM in New Orleans; **Jonathan Collier** is in Birmingham, AL, still employed and moving up the proverbial ladder. His family is growing as well; **Greg Dyer** and his wife **Ann nee Robbins** are also living in Birmingham where he is employed with Southern Company.



Ryan Hile (BA May 2013), was awarded the 2013 David W. Icenogle Award for Outstanding Senior in Geography. The award is based not only on academic and research credentials, but also on departmental citizenship.

Khandaker Zahid (MS 2005) joins Chevron

After finishing his Masters' degree in 2005 from our department, **Khandaker Zahid** received his Ph.D. degree in Geological Sciences from the University of South Carolina. During the last few years, Zahid has worked at the Texas Bureau of Economic Geology in Austin, Texas. In June 2013, he started at Chevron USA in Houston as an Asset Development Geologist. Zahid has two daughters, one 2-year old and another born this year.



New: The Department of Geology and Geography Advisory Board



Front row, left to right: Benny Nolen, Robert Fousek, Jonathan Grimes, Nathan Sills. Second row: Laura Folve, Joe Howle, Jeff Cowen, Jamey Turner. Third row: Bill Bauer, Jill Johnson, Mike Forester, Randy West. Top row: Kevin Bogdan, Mark Steltenpohl, Alex Wood.

Department of Geology and Geography Advisory Board

By Board Chair Bob Fousek

During the weekend of May 17-18, 2013, the inaugural meeting of the Auburn University Department of Geology and Geography Advisory Board (GGAB) was held in Auburn. Thirteen prospective members from business and academia along with a number of departmental faculty attended. Tammy Hartwell, Director of COSAM Development, and her staff provided great support and hosted breakfast on Saturday morning.

The Board is the brainchild and the result of several years of hard work by Dr. Mark Steltenpohl, Chair, Department of Geology and Geography. The stated objective of the Board is to create a close-working relationship between professional and management leaders in government and business and the faculty and students of the Department. The GGAB plans to accomplish this by:

- Serving as liaisons with the geosciences business community and government entities to promote the interests of the Department with Auburn University, the state, and beyond.
- Provide assistance to undergraduate and graduate student recruitment efforts through internships and scholarships.
- Make recommendations to the Department regarding education programs, courses, and initiatives that provide a competitive advantage to students seeking employment.
- 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.
- Establish the Geology and Geography Scholarship Fund to be used for supporting students and instructional activities in the Department.
- Raise \$25,000 for the endowed Funds for Excellence to be established by the Board for scholarships, field trips, recruiting, and seminars.
- Give professional presentations on job opportunities and markets to the Department's students and faculty.

Members of the Board gathered at the Department on Friday, May 17, 2013, for a tour of the department facilities. The tour included a stop at Dr. Bill Hames' lab, where the group was treated to a demonstration of his "Auburn Noble Isotope Mass Analysis Laboratory" (ANIMAL), which Dr. Hames constructed after coming to Auburn. The tour was followed by a field trip to Chewacla State Park led by Dr. Steltenpohl. Dinner Friday night was at the AU Club and provided a chance for the Board members to socialize and discuss the days' activities, including the observation that the Department is badly in need of additional space, equipment, and software. Equipment needs include a large format, high resolution scanner for maps and a laboratory rock crusher for sample preparation.

Saturday was devoted to formal organization of the Board. The morning meeting began with very detailed presentations by Dr. Steltenpohl on the state of the Department, and by Dr. Chuck Savrda, Interim Dean of the College of Science and Mathematics (COSAM), on the position of the Department within the college. Major points addressed by Dr. Steltenpohl and Dr. Savrda included:

- The Department needs a plan to ensure sufficient space for current and future growth, including adequate space for offices, classrooms, and research laboratories. This needs to include adequate space to house all programs in one building. Currently Geology and Geography are housed in different buildings.
- The Department is last in COSAM by an order of magnitude in Student Credit Hours and Weighted Credit Hours.
- The Department needs to increase recruitment of quality undergraduate and graduate students, along with increased stipends, fellowships, and research opportunities.
- The Department needs additional Graduate Teaching Assistants (GTAs).
- The need to raise endowments to the Department; the current operational funding from the University is insufficient to provide basic maintenance of the facilities and activities.
- The Department needs to initiate a doctoral program.

During a question and answer session, attendees stressed the importance of preparing the Department's students to compete in the job marketplace. This includes an emphasis on developing writing and oral presentation skills, familiarization with numerous software applications, and the ability to apply the knowledge and skills they have developed at Auburn in the job place.

Following lunch, an organizational session of Board members was held. This included an election of interim officers who will serve until regular elections are held at the Spring, 2014, meeting. Elected were: Chair: Bob Fousek

Secretary: Jonathan Grimes

Treasurer: Benny Nolen

A committee was formed to write a charter for the Board. Once the committee has agreed on a draft charter, it will be emailed to all Board members for comments, changes, and remarks. The final charter will be voted on during the fall meeting, scheduled for October 13-14.

Following the organizational meetings, three students made presentations to the Board detailing research they have worked on while enrolled in the Department. The three students and their faculty advisors were Jessica Story, Dr. Hames; Rezaul Huq, Dr. Uddin; and Tyler Jones, Dr. Marzen. The students' grasp of the subject matter and their presentation skills made a lasting impression on the members of the Board. I would like to thank them and their advisors for taking time out from their busy schedules to make the presentations.

Interested in joining the Auburn University Department of Geology and Geography (GGAB) Board? Please contact Board Chair Bob Fousek, bofb32046@aol.com.

Department of Geology and Geography Honor Roll 2013

Thank you! The Department of Geology and Geography gratefully thanks our generous donors who have supported its students, faculty, research, and programs in fiscal year 2013.

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Invest in Geology and Geography 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. Despite the economic downturn, the Department of Geology and Geography 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/geology/Giving%20to%20the%20Department/>.

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

Geology and Geography 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.

Geology and Geography 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; and the Board helps in recruiting and retaining the most talented, motivated, and competent students and faculty by providing scholarships, CO-OPs, and internships for students, as well as supporting faculty teaching and research. In addition, the Board has set a goal to raise a \$25,000 "Fund for Excellence" endowment to allow for scholarships, field trips, faculty support, student recruiting, and seminar speakers, among other things that will help us to attain our goals.

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 Geology and Geography, please contact:

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a place for students, alumni, faculty, and friends to connect!**

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