UGA Geology News



Spring 2009

Letter from the Department Head



Greetings from Athens -

Last year when I wrote this welcome letter we were optimistic that changing economic conditions would lead to increasing enrollment in Geology – that was when the oil prices had gone through the roof. What a crazy year! The expected surge in geology majors did not occur because of the fall in oil prices although two of our graduate stu-

dents landed well-paying jobs in the petroleum industry during that window of opportunity. Although there was no surge in majors, our undergraduate enrollment remained stable and I'm pleased to note that our latest tally shows 36 undergraduate majors. These students are the lifeblood of the department, and so we are pleased with the current enrollment. We would like to increase our enrollment to approximately 50 majors and hope in the coming years to achieve that goal given the increase in industry demand for new geology graduates as reported in the press. Our graduate student population remains stable at 38 students, well down from the 70 students we had during the late 1980's but consistent with the current national and state funding situation.

The budget crisis has dominated our day-to-day activities as I'm sure it has dominated the activities of many of you. UGA was forced to absorb a 10% cut in state funds – the university administration was adamant (thankfully) that there would be no layoffs so the cut was absorbed by leaving positions vacant and cutting the supply and expense budgets of the academic departments. This S&E budget is what funds our day-to-day operations, and was cut a whopping 60%! This has been a very tough year but we have managed to make it through without getting rid of our telephones. For us our biggest budget-related loss was the departure of one of our office staff, April Myers. This position was not filled and we are now down to

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two staff people in our office. At times the office is unmanned as a consequence.

On a brighter note, we are currently having four classrooms renovated. These include the rooms where physical geology is taught on the first floor, where the paleontology classes are

taught on the second floor, and the two classrooms where many of the core courses and graduate courses are



and graduate courses and graduate courses are taught on the third floor. Everyone who took mineralogy or petrology must remember the fine (unusual?) state of the microscope lab with its desks that probably date to the 1960's and its suspect wiring. All this has been torn out, and as I write new desks are being installed. The renovation of the four classrooms is a major improvement for us, and will make instruction more

pleasurable for students and faculty. Although state funds for instruction have dried up, there still remains money available for capitol improvements such as this renovation.

Given the budget situation we have been unable to add any faculty to the department. This situation is one of our most pressing issues because of the graying of our faculty. Moreover, when a faculty member departs or retires, we are unable to fill the position. This is a common problem across Franklin College and in fact, in academia in general. This year we will lose Chris Romanek who is moving to the University of Kentucky to take a position in a new environmental institute. We will sorely miss Chris, and unfortunately we have not been allowed to fill this position.

Given the difficulty of obtaining research grants from national and state sources, we are extremely grateful to our alumni who continue to support our students through donations to the Allard Award, the Berg Scholarship, the Wheeler-Watts scholarship, the Levy award, as well as the general account for Geology. The primary use of all these funds is to support graduate and undergraduate research as well as student travel to scientific meetings. With the budget cuts this year, the alumni funds have been particularly important and have allowed us to support student travel to meetings of the Geological Society of America and the Georgia Geological Society. We are thankful for your past donations and hope that you will continue to support the department in the future. Please stop by the department when you are in Athens and visit our website (http://www.gly.uga.edu). News events as well as weekly seminar schedules are posted there.

Faculty News



Doug Crowe

This has been a transitional year for me, I've finished my yearlong fellowship that allowed me to focus on biological aspects of hot spring microbial communities, and now I'm back in the classroom. The fellowship gave me some time to take some classes, and most importantly to work in Dr. Mary Ann Moran's lab where I learned

how to extract and identify environmental DNA to evaluate community structure. Whether I can continue this line of research remains to be seen, but for now it's where I'm at.

Field School continues to occupy me in the summer, and we look forward to a big group of students this coming May and June in Colorado. If any of you are ever in the area that time of year, stop by, maybe we could go to the Mixing Bowl and argue about contact relations.

Julie, Matt, Kira, and Corinne are all well, Matt is headed off to college in the fall, Kira continues to excel at gymnastics, and Corinne is now talking herself silly. Julie is now working full time

as a nurse practioner in a pediatric practice full time as well as several shifts a month in the ER suturing up those of us who fall down; I don't know how she does it. Hope you all are well.



Erv Garrison

Underwater paleontology continues at the JY Reef site 20 miles offshore of Sapelo Island. This July saw the excavation and recovery of a nearly intact subfossil mandible of an extinct Atlantic Gray Whale. Recent Geology graduate, Jessica Cook Hale (M.S., 2008) and Adjunct Professor Scott Noakes worked on this project with Erv

Garrison. The mandible is currently undergoing stabilization and reassembly at the Michael C. Carlos Museum's conservation laboratory at Emory University. Publications based on this research will be written up this spring and summer. Dr. Noakes gave a paper on this research to the recent meeting of the American Academy of Underwater Sciences (AAUS) at the Georgia Aquarium.



Scott Noakes, Erv Garrison, and students with a mandible of the extinct Atlantic Gray Whale.



An archaeological geophysics project was done for the Cherokee Nation of Oklahoma. In December 2008, Erv Garrison and Jessica Cook Hale completed a two-day geophysical survey of the survey of the site of the first Cherokee Female Seminary which burned in 1887. The second seminary now serves as the oldest, main campus building for Northeastern Oklahoma State University in Tahlequah, Oklahoma, the present-day capitol for the tribe. The survey, using radar and conductivity instruments, was completely successful in locating the buried ruins of this historic building. A conference presentation will be given in May on these results and a report has been sent to the tribal council and planning offices.



Erv Garrison and Jessica Cook Hale conduct a geophysical survey at the first Cherokee Female Seminary in Oklahoma.



Susan Goldstein

I stayed quite busy this past year teaching introductory courses on earth history and micropaleontology. Manuscript and proposal writing seemed to consume endless amounts of time as well. I attended the international protist meeting in Halifax last summer (July, 2008) and GSA in Houston last October. My term as president of the

Cushman Foundation ended with a very festive reception at GSA. I'm always amazed at the huge number of honorary micropaleontologists that turn out for this event! Deniz Altin is making great progress toward finishing her Ph.D., and her first paper should be out by the time you receive this newsletter. I'm also enjoying working with Ellen Brouillette on her M.S. research on forams and pollution. She too is making fantastic progress and is on track to finish this semester. Beth and I traveled to Bonaire last December to do some scuba diving in a beautiful, warm-water setting. The diving was fantastic, and the beaches are a rosy pink from the foram *Homotrema*. I also got to see the columnar dacites on the north end of the island. I tried to photograph some of the many flamingos that live there,

but I have to say that they're incredibly wary! Every time I tried to sneak up on one, it turned and strolled away. I now have a nice photo collection of flamingo derriere. My best to all!



Rob Hawman

This spring, I'll be working on a field project with graduate student Horry Parker. Horry will be using seismic surface waves to image karst in southeast Georgia. I'm also working on a proposal with investigators at Brown University and University of North Carolina at Chapel Hill to image the suture between Laurentia and Gondwana -

this work will tied be in with USArray as it sweeps across the United States and will build in part on my wide-angle seismic work in the southern Appalachians.

On the home front, our son, Peter, will be graduating this Spring from UGA with a degree in landscape architecture. Barbara and I are still playing horn in Athens Symphony. It's fun because we get to see our daughter Elizabeth, a social worker with the state of Georgia, each week at rehearsal in the cello section. Come out and join us for our Pops Concert in May. Gilles Allard will be there, with a tally sheet to keep track of my "bloopers".



Steven Holland

My big adventure this past year was presenting a short course on sequence stratigraphy to students and faculty at the Nanjing Institute of Geology and Paleontology. It was a great opportunity for developing new collaborations, meeting new students, and eating amazing Chinese food. Nothing I've had in the U.S. comes

close. Touring this truly ancient city was remarkable and I was frequently struck by how young our country is in comparison. We got into the field one day to look at a record of foreland basin initiation in the Late Ordovician and I remarked on how similar Chinese geology is to working in the Appalachians, where aggressive growth of vegetation quickly obscures outcrops. The timing of my return trip was fortuitous, as I was in the Shanghai airport when the Szechwan earthquake struck, although I didn't feel it.

I had a short trip to the Bighorn Mountains in Wyoming this summer and was amazed by the amount of snow still on the ground in late July. Outcrops that Mark Patzkowsky and I had described the previous summer were totally buried under snow. I investigated the Jurassic Sundance Formation in the Bighorn Basin one day and may do some integrated sequence stratigraphy and paleoecology on it in the future. David Dubose, one of our undergraduates, is currently doing his senior thesis with me on a well-log correlation project in the Sundance.



Professor Zhang Yuandong (left) and graduate students of the Nanjing Institute for Geology and Paleontology clearing vegetation from an outcrop ... not unlike field work in the southern Appalachians!



A towering cliff of the Bighorn Dolomite in the northern Bighorn Mountains.

Noel Heim graduated this past summer and is now working on his post-doctoral studies with Shanan Peters at Wisconsin. My new masters student, Andrew Zaffos, is studying the relationship of ecological rarity to evolutionary success. Andrew and I are also exploring methods for modeling species niches in the fossil record and plan to use these for a variety of macroevolutionary studies. The two of us are presenting an abstract at this summer's North American Paleontological Convention in Cincinnati. I'm also co-leading a one-day field trip on the type Cincinnatian at that meeting.

My family's doing well. Tish returned to the Southern Ocean in December and January, but worked closer to the ice edge this year. She was studying carbon uptake by ice algae and had a number of close encounters with penguins. Zack and Alex are sports fanatics, with both in fall soccer and spring baseball. As they get older, we have more and more great adventures and I'm thrilled that they love to go exploring on hikes.



Alberto Patiño Douce

This year has flown by, and I am hard pressed to remember exactly how. Here are some of the highlights. Most of my time has gone into writing my forthcoming book "Thermodynamics of the Solar System", which, if all goes well, I will complete by mid 2010 and Cambridge will publish shortly thereafter. This has been, and is, a

tremendous learning experience. I am constantly forced to reexamine and rethink concepts that I thought I already knew, only to find out all that I was still missing. I can only hope that everybody who eventually reads this book (all 800 + pages of it....) learns as much thermal physics and physical-chemistry applied to planetary sciences as I have writing it. For that is the leitmotif of the book: emphasize some of the fundamental physics and physical chemistry that underlie all planetary processes.

I have also been working with Mike Roden in moving forward our research program focused on the evolution and distribution of halogens in the solar system. Right now we have two papers more or less in the fire. One looks at variability of Cl/F ratios among various deep terrestrial reservoirs, and I think we are beginning to conclude that metasomatizing mantle fluids must tap a Cl-rich reservoir that is not readily evident in other mantle lithologies. Another paper is an outgrowth of the senior thesis work by Sara Cox (B.S., 2008), and focuses on the rather unexpected but systematic behavior of halogens in ordinary chondritic meteorites.

Last summer we were able to run the Study Abroad program in Argentina with nine students. Marta will tell you more about it. We had the great luck of having four excellent UGA geology majors in the program (James Crowell-Davis, Lee DeLeo, Adam Sarafian and Will Stephens) with whom we did some neat field exercises mapping plutonic intrusive contacts, a 10-km wide mylonite to ultramylonite zone in the Sierras Pampeanas, and a section of the Precordillera fold and thrust belt that includes lower Paleozoic pillow lavas and marine sediments and Tertiary pyroclastic sequences.

Very recently I had the opportunity to serve in the National Academy of Sciences panel that awards pre- and post-doctoral Ford Foundation fellowships to extremely well qualified candidates from groups that are historically under represented in the U.S. university faculty. This was an honor (I was one of two Earth Scientists in the panel), a lot of work over a very short period of time, and an experience that was both tremendously satisfying and eye-opening.



UGA Geology majors Adam Sarafian (top left), Will Stephens (top right), Lee DeLeo (bottom left), and James Crowell-Davis (bottom right) are proud of their mylonite.



Alberto Patiño Douce tries to raise some extra cash to feed starving Study Abroad students.

On the personal front, Javi is living and working in Atlanta, playing guitar gigs now and then, and thinking of applying to Law School later this year. At home we were saddened by the loss of our beloved cat Chloe. We are left with Ajax, Watson and Kali (all three officially ours), Belle (she used to live with our neighbors, but she moved in with us, to the chagrin of the other three cats), and Buster and Barry, two strays who we care for but who refuse to come in. Assorted opossums, raccoons and little brown birds with no fear and/or a death wish also help empty out the bowls of cat food on our deck.

Marta Patiño Douce



Hello everyone! My year has been busy, and I will say more than usual. I continued to teach GEOL 1121 and GEOL 1122, three sections each semester, Gems during Maymester and three online courses: the online versions of GEOL 1121 and 1122, and GEOL 1011K Introduction to Geo-Sciences I, offered

through eCore. As a member of the Franklin College Diversity and Inclusion Taskforce, I was enlightened to know of the efforts at the college level to make UGA a friendly campus for all who work here. We contributed to the development of initiatives for recruitment and retention of outstanding faculty and students from traditionally underrepresented groups. Hopefully they will be put in place in the near future.

Our Argentina program, which has changed its name to "Explore Earth in Argentina", took nine UGA students from the Pampas Plains in Buenos Aires to the foothills of Mount Aconcagua in the Andes. Alberto already told you about the endeavors of our Geology majors, James Crowell-Davis, Lee DeLeo, Adam Sarafian and Will Stephens. Spanish 2001 was an addition to our offering in 2008, attracting a nice group of students that complemented well with the geology ones. With no doubt, teaching Spanish made the coordination of class time for everyone more complex. We managed to achieve our Geology and Spanish academic objectives successfully thanks to a creative combination of field work with classes in hotel lobbies, a fact that other hotel quests found quite intriguing. David Latimer. from Romance Languages taught the formal Spanish classes. Periodic unscheduled contributions by Alberto, enriched the students' vocabulary in colloquial Argentinean slang. Students worked hard in the field and labs, learning to identify rocks, the environments where they formed and how human intervention has altered landscapes.

Although they had signed up for credits in Geology and/or Spanish, the 2008 Summer program offered the students a unique experience in the social issues that affect a developing country like Argentina. What was a nightmare for me as program director, they absorbed eagerly and analyzed with a very open mind. The political situation in Argentina at our departure was marred by a clash between the rural sector and the government of President Cristina Fernandez. The reason: a considerable hike in taxes to grain exports. The farmers protested by carrying out road blockades that prevented free circulation and the delivery of goods to urban centers. As a result, cities were counting the days to the depletion of their food supplies, while drivers waited in long lines to get gasoline.

On top of the tense political climate, Mount Chaiten in Chile started erupting a few days before our departure from the U.S., and the airport in Buenos Aires closed for a day because of the ash hazard. The pattern of the eruption was not known. Would we be able to fly to meet our carefully planned schedule? When we left, I was still uncertain about how far we could go along the roads in our rented bus, or if we would be able to get enough gasoline to reach all the way to our next booked hotel destination. I did not know about the food situation along the 4000-mile trip either.



Marta Patiño Douce at Lanin National Park, Argentina.

Although this sounds very unsettling, once we were in Argentina, at no time did we feel unsafe. Our bus made it through several road blockades with no incident. Cheers to our soft spoken driver, Osmar, roared after we passed each one. We were also lucky enough to find gasoline when we needed it, and the place where there was none left turned out to be our driver's home town. He had stored an emergency supply at his house, just in case.

At two locations, demonstrations took place very close to our hotels. These were peaceful demonstrations: entire families (mom, dad, baby in stroller, and grandma) were chanting at the City Hall. They were asking both the government and the rural sector to come to an agreement and end the conflict. Against my advice, some students mingled with the public and asked questions trying to understand the protester's views. Despite the broken English and broken Spanish, they came out thrilled with the impression of a country with strong freedom of speech, and the idea that Argentineans are "very Latin (passionate)" in the way they face and try to solve their problems. They are also tough to endure such disruptions.

We were in downtown Buenos Aires when River Plate (one of the major soccer teams in town) won the local championship. Celebration in the streets ensued. Another celebration broke out in the street across our hotel commemorating what would have been the 80th birthday of Che Guevara, the Argentinean icon, who was one of Castro's lieutenants in the 1960's. Yes, there were demonstrations in Buenos Aires as well, and yes, our student were witnesses of the events. How could they miss all that fun!



Bruce Railsback

My research continues to look at speleothems, mostly stalagmites, as potential records of paleoclimate. Much of that work is with George Brook of the Department of Geography, and George has returned this year to his focus to the Wonderwerk stalagmite on which Geology graduate stu-

dent and all-around good guy Ethan Goddard worked long ago. I've also been recruited by some Spanish Earth scientists to work on stalagmites from northwestern Spain, again with the goal of learning something about paleoclimate.

It was a frustrating year from the teaching side, in that my GEOL 8150 (Earth-Surface Geochemistry) class was cancelled on the second day of the semester when enrollment dropped too low to meet University enrollment requirements. As a result, I've taught an extra section of GEOL 1122 this year and thus had the opportunity to persuade affluent non-majors that they are part of the life on an old planet with finite resources and with an environment that is being changed by their actions. In the broader mission of educating or confusing the world, I've continued to add pages to my website called "Fundamentals of Mineralogy and Geochemistry". It's highly recommended to anyone needing help falling asleep at night.

Mike Roden



The most exciting event of the past year was a visit to Istanbul Technical University and Dr. Omer Ecce who has worked closely with our department for many years. We went on a field excursion to southern Turkey to sample alkaline volcanic rocks. A memorable sight was a dog with a spike collar used to ward off wolves. Departmental administration consumed much

of my time, so the past year my research has largely been vicarious through the work of grad students Jeff Chaumba (petrology and geochemistry of ultramafic rocks in the Piedmont), Steve Clark (petrology and geochemistry of diabase dikes in the Piedmont), and Heath McGregor (petrology and geochemistry of dikes at Spanish Peaks). I'm pleased to note that both Steve and Jeff will graduate this year; in fact, Steve's defense is next week. Alberto and I continue to work closely on apatite geochemistry and we are combining data obtained on the microprobe with a model for CI-F-OH partitioning between fluid and apatite that Alberto developed. CI in particular is a fascinating element, which is largely concentrated in the oceans but significant CI still remains in the mantle and may be derived from a primitive reservoir. Once again I taught field school and had the particular joy of shepherding the students out to Canon City, made memorable by a snowy lecture at Great Sand Dunes National Park.



Paul Schroeder

Since 1993, I've been involved with teaching the Honors summer geology program (now called the Interdisciplinary Field Program or IFP). This past summer I had the unique situation of having my own daughter, Hilary in the IFP and she is now one of the many survivors. As the IFP enters its 21st season we are integrating students

from a similar program run by our own UGA-IFP alumna, Nikki Elkins, now at Bowling Green State University.



2008 Honors Interdisciplinary Field Program students standing in the intertidal zone at Point Reyes National Seashore in California. Note the diligent field notebook use. The highly fractured granite cliff is part of the Salinian Block, the geologic province lying west of the main trace of the San Andreas Fault system.

My student, Jay Austin is hitting main strides with his soil gibbsite work by developing numerical models for soil respiration and comparing runs to observations at his USDA-ARS Experiment Station study site in Watkinsville, Georgia. Jay was invited to Greece this fall to participate in a European group meeting focusing on the "critical zone", which includes the physical, chemical, and biological processes shaping and transforming

Earth's outermost thin veneer. I am entering my 2nd year of tenure as Co-Director of the Center for Advanced Ultrastructural Research in Barrow Hall. We've renovated an old darkroom and procured a large screen plasma screen to open our new "Electron Theater". This is the first campus facility that puts an 8seat projection room in with an electron microscopist. The concept puts operators, researchers, and students in an environment that allows easy real-time micro- and nano-viewing of geological and biological specimens. I'm still an Associate Editor for American Mineralogist and have begun my tenure as Vice President of the Clay Minerals Society. This summer, I will be in Montana and Wyoming leading a workshop with Dave Wenner on clays of Yellowstone National Park. Finally, look for a new chapter on Identification of Coal Fire Vent Minerals, coauthored with Chris Fleisher, which will appear in a new Elsevier Atlas "Coal Fires of the World", edited by Glenn Stracher.



Coal fire vent sublimate from an underground fire in Kentucky. Scanning electron false color image reveals elemental sulfur (gray, drusy mineral) and sal ammoniac (purple, NH₄Cl isometric mineral).



Sam Swanson

It is a busy time as we try to end the academic year. Sam is reading the final drafts of theses both from his students (Jennifer Wehby, M.S. candidate thesis topic: nondestructive analysis of mortars at Pompeii; Joelle Freeman, Senior Thesis topic: relation of radon in houses to bedrock geology in Georgia) and others in the department.

Cynthia Hotujec (M.S. candidate, thesis topic: mineralogy of turquoise and other blue minerals from the Blue J site, New Mexico) is also working with Sam and is not far from a final draft as this newsletter goes to press. Kristen Longfellow started her M.S. studies (thesis topic: mineralogy of tourmaline in the Stone Mountain granite) with Sam last fall.

Students from Sam's Earth Materials class (GEOL 3010) class again volunteered work on a research project. The idea is for

students to apply what they are learning in class to a real research project. This year the project was on the mineralogy of pegmatite dikes in the Elberton batholith. Students observed the dikes in the field and made notes about mineralogy. They made thin sections, identified mineral assemblages in the thin sections, and used the microprobe to determine mineral compositions. Results of their work were presented at Southeastern GSA in Florida. Dan Bulger, the teaching assistant for GEOL 3010, presented a paper at the Houston GSA meeting on the concept of using undergraduate research projects in GEOL 3010.

Courtney Kearney (senior thesis with Sam in 2002) gave a talk this spring in our Thursday lecture series. Courtney went to the University of Alaska at Fairbanks after UGA and got a Masters degree. Her research topic was on the remote sensing of volcanic eruptions, a theme she is still working on, this time for a Ph.D. at Bristol University in the United Kingdom. Courtney and Sam had a paper published this year based on her senior thesis (anhydrite in the lavas of Redoubt Volcano, Alaska). In honor of Courtney's visit, Redoubt erupted!

The past year was a banner year for presentations at meetings. Sam and his students had 12 presentations at GSA (national and Southeastern section), the national meeting of the Archaeological Institute of America, and the Carolina Geological Society fall field trip. Sam is currently involved in major writing projects, including a collection of soon-to-be-submitted papers on ultramafic rocks in the southern Appalachians, and a couple of invited papers on granitic rocks (textures and Spruce Pine granites).



Jim Wright

Well, 2008 was another busy year. Gabby Izsak completed his M.S. thesis using U-Pb geochronology of detrital zircons to establish the provenance of the Great Valley Group of northern California. He has shown that the forearc basin strata have an up-section change in provenance consistent with plate boundary parallel trans-

port of the basin during deposition. Mariela Noguera is in the process of writing up her M.S. thesis to be completed this semester. She is also working on a U-Pb detrital zircon study of the Venezuelan passive margin and allochthonous Paleocene/ Eocene flysch units. A large number of undergraduates also participated in this project. A new student, Chris Humphrey, has joined my research group and will be investigating using in situ U-Pb dating of badeleyite from samples of the Caribbean large igneous complex. Along with colleagues from Stanford University, we received NSF funding to investigate the exhumation of the northern Sierra Nevada batholith. Sandra Wyld, students, and I organized sessions and gave presentations at the GSA national and Cordilleran section meetings. On the home front at least one of our home restoration projects has reached a turning point. We finished replastering the living room and our bedroom walls which have now been primed, but of course it will probably be years until we agree on final colors. We also began riding our bicycles in the north Georgia mountains along with the Nitty Gritty bike band (the name is another story). We successfully completed the 3-gap loop several times (Neels, Wolf Pen, and Woody gaps) as well as the other three gaps (Hogpen, Jacks, and Unicoi). We are already beginning the climbing season by doing three gap this March. I am training for the entire 6-gap century ride this fall. Yes, that's 100 miles with over 11,000 feet of climbing.



Sandra Wyld

Hi all. The most notable event of 2008, for me, was that for some mysterious reason members of the publications committee for GSA decided that I might be a good (or willing?) editor for the journal Geology. Nominations, etc., followed and I started learning the ropes of this amazing (but time-consuming) job in the fall. Things

started for real in January of this year. There are four science editors and we each get about one submission per day (!) to deal with (find reviewers, make decisions, etc.). By necessity, we each must handle a significant number of papers on topics that we may only have peripheral knowledge of. This requires a lot of research to identify appropriate reviewers. I'm rapidly getting to know what seems like every geologist in the world (I just contacted someone in Tasmania).

Meanwhile, on other fronts, Meg Kinsella (M.S. student working on a project in the Fox Range of northwest Nevada - pictured at right) landed a fantastic job at an oil company in Oklahoma just as she was writing up her thesis. Understandably, the new job has caused a delay in her finishing, but we hope to see her very interesting study written up, turned in, and published in the near future. In the fall, a new student, James Nuta-



itis, joined the Nevada tectonics program. He'll be working on a project in the East Range near Winnemucca, which we hope will resolve some long-standing questions about the structural evolution of this area. His study will be part of a bigger scale project, extending from northwest Nevada to northwest Utah, which formed the focus of a funding proposal to NSF submitted in the fall by Jim Wright and myself. We hope to hear positive news about this proposal soon.

In the department, I continued to teach the usual things last year, Intro Physical in the fall and Structural Geology in the

spring. Plus I continue to advise our undergraduate majors along with Rob Hawman.

I didn't do any field work last summer, for the first time in quite a while. Instead I stayed in Athens to work on papers and get caught up. Athens is kind of nice in the summer!



Some of our majors emphasizing the shape of folds at Woodall Shoals on the Chattooga River on our 2008 Structure class field trip. We call them folded students.

ciation de l'Exploration Minière du Québec) to give a paper in Quebec City on the History of the Chibougamau Mining Camp. The meeting was well attended with over 2000 participants. As usual, Quebec was assailed by high winds and a constant snow storm.

Gilles just finished teaching a course for LIR (Learning in Retirement) entitled Travel with Gilles. 40 retirees members signed up for the course which took them from the Antarctic to the Arctic and many spots in between...easy travel with no visas, no passports, no long lines at the airport, just looking at slides.

The Gilles and Bernadette Allard Geology Award Fund was doing well and supporting the field work of two graduate students. Eleven grad students have been helped so far. We are grateful for some very substantial contributions by some of our geology alumni. Thanks for your contribution to the Fund! It is a good cause! The current economic depression has reduced the UGA Foundation assets and we hope that it will not affect too much our ability to help students.

Emeritus News

Gilles Allard

Gilles is slowing down with advancing age but still comes to the office 7 days a week (a short session on Saturday and Sunday!). For 17 years he has been working hard as the Secretary Treasurer of the Athens Torch Club. He took the club with 48 members in 1992 and it now boasts 115 members, the largest of 71 clubs in the country. The club had to relocate from the Navy School and Gilles found an excellent venue at the Saint Stephens Anglican Catholic Church hall...a church hall is not surprising considering Gilles' religiosity. Torch Club is a social club that offers no benefits to humanity but only to its members, most of them associated with UGA.

The travels were limited this past year. GAC-MAC in Quebec City in May, always one of the best geological meetings in North America. In late November, he was invited by the AEMQ (Asso-



Over his career, Dr. Gilles Allard amassed a world-class economic geology collection. This collection is now part of the Georgia Museum of Natural History and can be searched at http://www.gly.uga.edu/allardcollection/.

Graduate Student Research and Accomplishments

Coastal Studies

Chester W. Jackson Jr. is studying historical shoreline changes along Georgia's barrier islands and developing new tools to assist with assessing erosion and accretion trends. These GIS-based tools are designed for use with ArcGIS, R, and other open-source GIS software programs. Through both field and digital investigations, the aim is to use these tools to better ascertain long- and short-term patterns of change, determine possible natural and anthropogenic influences, and forecast possible shoreline positions.

Bush, D.M., Jackson, C.W., and Neal, W.J., (in press). Summary of Puerto Rico's vulnerability to coastal hazards, risk, mitigation, and management with examples. GSA Special Paper for Book Volume edited by Joseph Kelley, University of Maine.

Jackson, C.W., Bush, D.M., and Neal, W.J., 2009. The coastal compartment management plan: Using Puerto Rico as a model. Southeastern Geology 46(2):69-84.

Jackson, Chester, Jr., 2009. Assessing historical shoreline changes and erosion hazards using tools developed for ArcGIS and R. NOAA Coastal GeoTools 2009 Conference, March 2-5, 2009, Myrtle Beach, South Carolina.

Jackson, Chester, Alexander, Clark A., Bush, David M., 2009. Assessing shoreline change and coastal hazards for the Georgia coast. Southeastern Geological Society of America Abstracts with Programs, Southeastern Section - 58th Annual Meeting (12-13 March 2009)

Petruccelli, Rochelle F., Jackson, Chester W., Bush, David M., and ALEXANDER, Clark 2009. Historical changes of Goulds Inlet, Georgia, from geospatial analysis of aerial photographs. Southeastern Geological Society of America Abstracts with Programs, Southeastern Section - 58th Annual Meeting (12-13 March 2009)

Legaspi, Rochelle F., Werschmidt, Robert E., Jackson, Chester W., Bush, David M., and Young, Robert S., 2008. Can geomorphic controls of hurricane damage be quantified for a Katrinasize storm? Geological Society of America Abstracts with Programs, Vol. 40, No. 4, p. 76

Legaspi, Rochelle F., Jackson, Chester W., Bush, David M., and Alexander, Clark 2008. Shoreline Response to Changes within a Small-Scale, Mesotidal Inlet System: Goulds Inlet, Georgia. Geological Society of America Abstracts with Programs, 2008 Annual Meeting. Bush, David M., Neal, W.J., Young, Robert S., and Jackson, Chester W. 2008. Student-based, coastal-hazards research in the Caribbean. Geological Society of America Abstracts with Programs, 2008 Annual Meeting.

Jackson, C.W., Alexander, C.R., and Bush, D.M., 2007. Backbarrier shoreline change history: Cumberland Island, GA 1957-2002. Southeastern Geology 45(2):73-85.



Remnants of a ghost forest are visible in the foreground as a mobile dune field overtakes part of the maritime vegetation along the southern end of Cumberland Island. Although, the southern end of Cumberland is currently experiencing accretion along oceanfront beaches, the back-barrier shoreline has suffered from increased erosion. The dune and shoreline environments here are some of the most active on the barrier island.

Environmental Geosciences

Jason Thomas is currently investigating pressure-wave generation of runoff in a convergent zone. He is using subsurface gutter systems installed in a vegetated Piedmont catchment to collect subsurface storm flow generated during large rain events to gain a better understanding of the mechanisms, areas of the watershed, and conditions that generate runoff.



Subsurface gutter system and tipping bucket rain gauge used by Jason Thomas to collect storm flow.

Don Lundy's research interests relate to the migration and recovery of light non-aqueous phase liquids (LNAPLs) in porous and fractured geologic media. His research plans involve laboratory and field investigations that will evaluate methods for measuring LNAPL mobility and modeling LNAPL recoverability from different subsurface environments. He is currently seeking funding from the American Petroleum Institute (API) and the Interstate Technology and Regulatory Council (ITRC).



Lundy, D.A., E. Harvey, and R. Leather, Analysis of bromide tracer tests in an LNAPL smear zone, Abstract offered for the National Groundwater Association Conference and Exposition on Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention, Detection, and Remediation, Cost Mesa, California, November 2-3, 2009. Lundy, D.A. and R. Leather, On the development of LNAPL conceptual site models for risk-based decision-making at petroleum hydrocarbon sites, Paper presented at the National Groundwater Association Conference and Exposition on Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention, Detection, and Remediation, Houston, Texas, November 3-4, 2008.

Lundy, D.A., A conceptual model and semi-analytical solution for multiphase extraction at a vacuum-enhanced LNAPL recovery well, Paper presented at the National Groundwater Association Conference and Exposition on Petroleum Hydrocarbons and Organic Chemicals in Ground Water: Prevention, Detection, and Remediation, Houston, Texas, November 3-4, 2008.

Jim Muckler is currently modeling nitrogen transformations in the vadose zone of a small, primary watershed in the Georgia Piedmont at the USDA-ARS in Watkinsville. He is analyzing soil water samples collected by lysimeters from 4 different depths at EPA-ERD in Athens using spectrometry and ion chromatography and evaluating water movement in the vadose zone using tensiometers. He is constructing nitrogen species profiles as well as iron and dissolved organic carbon profiles in the vadose zone.



Jim Muckler applies a suction on a lysimeter at his field site at the USDA-ARS in Watkinsville, Georgia.

Kathy Schroer continues to work as a student contractor in the nutrients program at EPA's research laboratory. She is co-author (Nzengung, Schroer, and Little) of "Nitrate Attenuation in Wetland Streams Impacted by Agricultural Runoff", to be presented by Dr. Nzengung at the Battelle Bioremediation Symposium, May 5-8, 2009. Kathy plans to defend her dissertation in Fall Semester, 2009.

Steve Fitzpatrick is working on his thesis, entitled "Mapping Flowpaths: Imaging Soil Structure and Flow within a Variable Source Area Ephemeral Network." His field area is at the USDA-ARS in Watkinsville and has implications for water delivery for agricultural purposes and for understanding contaminant transport.

Geoarchaeology

Jennifer Wehby has been working as an archaeologist in Pompeii, Italy, since 2002 and has recently shifted her focus from excavation to the study of ancient architecture. She is studying the composition of lime-based construction mortar from an ancient house to aid in the archaeological interpretation of the structure. She is using x-ray and infrared spectroscopy, including non-destructive portable equipment for the analysis of mortar in situ.



Cynthia Hotujec studies geoarchaeology with a focus on archaeological petrology. Her thesis research involves the mineralogical and geochemical characterization of material collected from prehistoric turquoise mines compared to ancient Puebloan artifacts. This research contributes to a better understanding of the mineralogical variability within turquoise deposits in order to determine provenance of artifacts from archaeological sites throughout New Mexico and the southwest United States.



Sheldon Skaggs is conducting a lead isotope study using thermal ionization mass spectrometry (TIMS) on curse tablets from Roman Carthage and galena ores from northern Tunisia. Lead isotope analysis of the Tunisian ores collected can be separated into three groups. A screening method developed using electron microprobe analysis, X-Ray mapping was used to choose 20 of the 100 curse tablet samples for TIMS based on the number of Ag, Cu, Sb, and Sn inclusions. Using lead isotope ratios, most of the curse tablets were determined to be from Tunisia. Three were determined to come from Sardinia, and another three are most likely the result of mixing Sardinian and Tunisian lead sources. Two others are most likely from unknown mixtures of sources, or are from sources not currently in the lead ore database.

This year Sheldon Skaggs returned about 120 galena samples from field and storage sites in Tunisia. While in Tunisia, he presented a lecture on Geoarchaeology at the University El Manar, Tunis. He organized an archaeology session at the Annual Meeting of the Clay Minerals Society, 235th ACS National Meeting in New Orleans, and a GPR-Slice program workshop at the University of Georgia. He had an article published in the Journal of African Archaeology, and a chapter in Woodland Pottery Sourcing in the Carolina Sandhills. He has also made numerous trips to prepare and analyze these samples with TIMS at the University of North Carolina, Chapel Hill. To support his studies, he is employed at the US EPA as a student contractor.



Sheldon Skaggs at entrance to a French (and perhaps Roman) galena mine.



Galena vein in limestone.

Peter Lanzarone is using ground-penetrating radar at an archaeological and paleontological site in Central Ethiopia to map the vertical and lateral extent of the site's boundaries. He will also be completing the first sediment analysis and radiometric dating for the site in order to formulate an understanding of the regional paleoenvironment at the time of fossil and artifact deposition.

Lanzarone, Peter, 2009, Stone Artifact Illustration: A Dying Art?, SAA Poster Presentation.



Stratigraphic section cut by the Fanta Stream, Addis Ababa, Ethiopia.



Obsidian lithic artifact collected during a surface survey, Sodo, Ethiopia.

Geochemistry

Jay Austin is currently investigating the utility of carbon occluded in the soil minerals gibbsite and goethite found in paleosols as paleobarometers for atmospheric pCO₂. He is using a combination of numerical modeling and field research to compare results for a modern soil to a paleosol.



First 5 cm of the soon to be 150 cm deep pit that will provide samples for testing the diffusion model in buckets and ready for analysis.

Schroeder, P.A., Austin, J.C., and Dowd, J.F., 2006, Estimating long-term soil respiration rates from carbon isotopes occluded in gibbsite: Geochimica et Cosmichimica Acta, v. 70, p. 5692-5697.

Austin, Jason C., Schroeder, Paul A., and Cox, Julia 2007 Radiogenic carbon in goethite from the Upper Ordovician Neda Formation: Implications for re-crystallization, The Clay Minerals Society Annual meeting, Santa Fe, New Mexico. Abstract with programs.

Austin, Jason C., Schroeder, Paul A., and Dowd, John F. 2006 Aluminum substitution in goethite from the Late Ordovician Neda Formation: Implications for environment of formation and post-burial weathering. GSA Abstracts with Programs, Paper No. 221-12, Philadelphia, Pennsylvania.

Austin, J. C., Schroeder, P. A., Dowd, J. F., 2008, Exploring the sensitivity of paleo-pCO₂ models based on the δ^{13} C of pedogenic gibbsite to changing soil variables with depth using numerical models. SoilCritZone Workshop III, Chania, Crete, Greece. Abstracts with programs.

Austin, J. C., Schroeder, P. A., Dowd, J. F., 2008, Determining the sensitivity of paleo-pCO₂ models using the δ^{13} C of carbon occluded in pedogenic gibbsite using Monte Carlo analysis. GSA Abstracts with programs, Paper No. 63-9, Houston, Texas.

Jay received student research and travel grants from the Clay Minerals Society, Geological Society of America, and the International Association of Mathematical Geologists. **Dan Bulger**. In recent years, sequence stratigraphy has proven to be a powerful methodology for prediction of facies and provides a unifying framework for many areas of geologic study including petroleum exploration, sea-level and climate change, and faunal change and ecological structure. Identification of sequence boundaries is a fundamental task in sequence stratigraphy; however, this task can be difficult in carbonates. The primary objectives of my research are to identify clay minerals that convey information concerning the position of sequence boundaries and determine the conditions that influence their occurrence.

Bulger, D., Sequence stratigraphic distribution of the clay mineral corrensite in Mississippian aged limestone: evidence from Tuscumbia-Monteagle Formations, northwest Georgia: Clay Mineral Society 46th Annual Meeting, Billings, Montana, June 2009.

Bulger, D., Susina, D., Sarafin, A., Mosely, J., Miller, J., Stephens, W., Walker, P., Fausnight, C., Fraley, T., and McTigue, K., Mineralogy of pegmatite dikes from the Keystone Blue Quarry Elberton batholith, northeast Georgia and implications for the origin of the pegmatitic texture: GSA Southeastern Section -58th Annual Meeting, St. Petersburg, Florida, March 2009.

Bulger, D. and Swanson, S., Implementation of a voluntary research-based project to enhance undergraduate involvement in the scientific process in mineralogy: GSA Annual Meeting, Houston, Texas, October 2008.

Bulger, D., Chemical characterization of glaucony within a sequence stratigraphic framework: Braggs K-T boundary locality, Lowndes County, Alabama: American Chemical Society 235th National Meeting & Exposition, New Orleans, Louisiana, April, 2008.

Bulger, D., Wehby, J., Freeman, J., Dunbar, K., Cary, R., Parriuello, Augie, Hamilton, D., Gardner, E., Fleischer, C., Swanson, S., Mineralogy of zeolites from the Keystone Blue Quarry, Elberton Batholith, northeast Georgia: GSA Southeastern Section -57th Annual Meeting, Charlotte, North Carolina, April 2008.

Dan was appointed to the Committee on Education (2009-2011) for the Geological Society of America, the Future Faculty Program (2008-2009) of the UGA Center for Teaching and Learning. Dan was also awarded the Outstanding Teaching Assistant Award and the Excellence in Teaching Award from the UGA Graduate School.

Dan was awarded student research grants from the Society of Petrophysicists and Well Log Analysts, Gulf Coast Association of Geological Societies, and the Southeastern Section of the Geological Society of America.

Geophysics

Horry Parker will start research in the field of shallow earth geophysics for his Master's degree. He will test the applicability of Multi-Channel Analysis of Surface Waves (MASW) to detect buried karst features for engineering and environmental studies. The field work will be conducted at the Joseph W. Jones Ecological Research Center in southwest Georgia.

Paleobiology

Ellen Brouillette is studying the response of common coastal benthic foraminifera to heavy metal pollutants. Her research contributes to the understanding and application of foraminifera as bio-indicators in polluted marine environments.

Brouillette, E., Goldstein, S., 2008. An experimental approach to understanding the responses of benthic foraminifera to Cd, Pb, Hg and Zn. GSA Annual Meeting, Abstracts with Programs, 41:367.

Ellen was awarded student research grants from the Cushman Foundation for Foraminiferal Research and the Paleontological Society's Stephen Jay Gould Student Research Fund.

Eleanor Gardner is investigating the roles of sex, age, and depositional environment on taphonomic alteration in avian bones. She is examining changes in bone density, porosity, and diagenesis, such as mineral precipitation and dissolution. She is attempting to correlate these measurements with physical weathering patterns on the bones. Her goal is to link these micro- and macro-level aspects of bird bone taphonomy to develop a better understanding of the avian fossil record.

Gardner, E. and Walker, S., 2009, Linking micro- and macrolevel taphonomic alteration in avian bones as a function of age, sex, and environment. 19th NAPC Abstracts.

Eleanor was awarded student research grants from the Geological Society of America, and the Friends of UGA Marine Institute.

Petrology and Geochemistry

Jeff Chaumba is working on isolated metamorphosed mafic and ultramafic bodies (the Russell Lake Allochthon) in the Piedmont, southern Appalachians. He is using a variety of analytical techniques including oxygen, hydrogen, and Sm-Nd isotopes to shed light on the origin of these bodies. Jeff is thankful to all former students of our Department who make his work easier by conducting their various mapping projects in his field area.

Chaumba, J.B., M.F. Roden, J.E. Cox, and D.E. Crowe, 2008, Relict Igneous Oxygen Isotope Ratios in Rocks from the Russell Lake Allochthon, Southern Appalachians, GSA Abstracts with Programs 40(6):449.



Eleanor Gardner searches for her experiment arrays in a flooded prairie in Fort Myers, Florida. The flooding was substantially higher than anticipated.



Jeff Chaumba analyzes rare earth element columns in the Radiogenic isotope lab, UNC Chapel Hill.

Heath McGregor is determining the relationship between two relatively primitive and distinct types of alkaline dikes (sodic and potassic). These two types of dikes belong to a subgroup of subparallel dikes, which are spatial associated and contemporaneous with stocks of the Spanish Peaks and the Rio Grande rift in south central Colorado. He has completed his fieldwork and is finishing his lab analyses.



Goemmer Butte, a volcanic neck, in the forefront of West and East Spanish Peak stocks in La Veta Colorado



Profile Rock and Devil's Stairway, two dikes radiating from West Spanish Peaks near La Veta, Colorado.

Structural Geology and Tectonics

Mariela Noguera is currently finishing her M.S. thesis, based on provenance studies on Early Cretaceous and Paleogene units in northern Venezuela. She is applying detrital zircon U-Pb geochronology and petrographic techniques to test previous theories about the Cenozoic evolution of the Caribbean plate and its interactions with South America.

Noguera M., C. Stedman, E. First, E. Lord, A. Parrinello, J.E. Wright and F. Urbani. Detrital zircon geochronology of Paleocene/Eocene turbidites from Venezuela and offshore islands: Implications for Late Cretaceous subduction initiation along the Leeward Islands and Aves Ridge. Geological Society of America 2008 Joint Annual Meeting, Houston, Texas.

Noguera M., and J. Wright. 2008. Analysis of provenance of Late Cretaceous – Eocene flysch sequences in Northern Venezuela; Tectonic Implications on the Evolution of the Caribbean. AAPG Search and Discovery, Article #90083.

Mariela was awarded a student research grant from the American Association of Petroleum Geologists.



Set of drag folds along a reverse fault in the Paleocene Guárico Formation, northern Venezuela.

Graduate Theses and Dissertations: 2007-2009

2007

Karen J. Layou, Ph.D., Paleocommunity response to extinction: An example from the Late Ordovician (Mohawkian) of the Appalachian Basin of the Eastern United States. Advisor: Steven Holland

2008

Julie M. Fiser, M.S., Organic biomarkers in active and fossil travertine deposits: Linking the present with the past. Advisor: Chris Romanek.

Noel Heim, Ph.D., The spatial structure of biodiversity in the fossil record: global, continental and regional responses to climate change. Advisor: Steven Holland.

Adam V. Kiehn, M.S., Geochemically fingerprinting specular hematite artifacts and prehistoric mines in southern Africa. Advisor: George Brook (Geography).

Jason D. Nail, M.S., Dithionite-mediated degradation of 2, 4, 6-trinitrotoluene in soils from a former Department of Defense Army Ammunition Plant. Advisor: Valentine Nzengung.

Christian Schrader, Ph.D., Alkaline igneous rocks of Big Bend, Texas: Bone Springs and Rattlesnake Mountain sills. Advisor: Alberto Patiño Douce.

Eric Wysong, M.S., Hurricane effects on molluscan death assemblages and their facies. Advisor: Sally Walker.

2009

Ellen R. Brouillette, M.S., An experimental approach to understand the response of benthic foraminifera to Cd, Pb, Hg, and Zn. Advisor: Susan Goldstein.

Steven D. Clark, M.S., Evidence for high-pressure fractionation of olivine-normative dikes from the Central Atlantic Magmatic Province in Georgia. Advisor: Mike Roden.

Jason B. Thomas, M.S., Pressure Wave Generation of Runoff in a Convergent Zone. Advisor: John Dowd.

Jennifer L. Wehby, M.S., A feasibility study of portable spectroscopy for the analysis of mortar from the House of the Vestals. Advisor: Sam Swanson.

Departmental Awards to Graduate Students

Allard Fund

Justin Miller: Is there a relationship between paleopathology and diversity in burrowing echinoids?

Watts-Wheeler Fund: Research

Deniz Altin: The total evidence approach for phylogenetic reconstruction of selected allogromiid foraminifera, Sapelo Island, Georgia.

Jay Austin: Assessing the sensitivity of paleo-pCO₂ modeling to variations in soil characteristics and biomass input using a finite difference model.

Dan Bulger: Distribution of diagenetic alterations of Mg-rich clay minerals in late Mississippian carbonates within a high-resolution sequence stratigraphic framework: Evidence from the Appalachian Basin.

Elizabeth Gardner: Linking macro-and micro-level taphonomic alteration in avian leg bones as a function of sex age.

Kristen Longfellow: Undercooling in Stone Mountain tourmaline.

Heath McGregor: Petrogenic relationships between the camptonite and minette dikes of the sub-parallel dike systems in the Spanish peaks area near Walsenburg, Colorado.

Justin Miller: Testing the echinoid evolutionary paradigm: Did echinoids evolve burrowing capabilities in order to escape predation?

Watts-Wheeler Fund: Travel

Jason Austin: Determining the sensitivity of paleo-pCO₂ models Using the ∂^{13} C of carbon occluded in pedogenic gibbsite using Monte Carlo analysis. Geological Society of America, Houston.

Ellen Brouillette: An experimental approach to understanding the response of benthic foraminifera to Cd, Hg, Pb, and Zn. Geological Society of America, Houston.

Dan Bulger: Implementation of voluntary research-based project to enhance undergraduate involvement in the scientific process in mineralogy. Geological Society of America, Houston.

Jeff Chaumba: Relict oxygen isotope ratios from the Russell Lake Allochthon Southern Appalachians. Geological Society of America, Houston.

Jason Miller: Utilizing echinoids as environmental indicators from the Lake Eocene Ocala Limestone. Geological Society of America, Houston.

Jennifer Wehby: Near-infrared reflectance spectroscopy for the analysis of mortar in the house of the vestals, Pompeii, Italy. Archaeological Institute of America, Philadelphia.

Jennifer Wehby: Portable infrared spectroscopy in the house of the vestals, Pompeii, Italy. Geological Society of America, Houston.

Alumni/Alumnae

Jessica Allen (M.S., 2003)

I am in my last year of my Ph.D. at the University of Utah. I hope to graduate this summer. I have been studying transgressive-regressive cycles and atypical sequence stratigraphic surfaces in the John Henry Member of the Straight Cliffs Formation in south-central Utah. After graduation, I plan on doing a post-doc at the Energy and Geoscience Institute, a research consortium at the University of Utah. I have also been busy as the Student Representative of the Association for Women Geoscientist, a great organization that works toward promoting women in all fields of geology. In my limited spare time, I have been enjoying the greatest snow on earth.



Alumna Jessica Allen's master's thesis on the habitat of primitive vertebrates was recently featured on the cover of The Sedimentary Record, SEPM's monthly newsletter. Her thesis research was published in Palaios in 2005.



John Allen (B.S., 2002)

My wife Maria (also a UGA grad) and I live in Richmond, Virginia with our 8 month old son Juhani. When I left Athens back in the summer of 2004 I took a job as an exploration geologist with a mineral sands mining company called Iluka Resources. I'm still with Iluka, but I moved into the role of Environmental Officer/ Specialist in 2005. We are currently in the process of opening up a new mine site, so I've been busy getting the permits in line, gathering background data, and conducting site audits.

Spring is upon us, and Maria and I are starting our first real attempt at a vegetable garden. We just set up a rain barrel yesterday and I've got tomato and squash seeds sprouting in the kitchen. Peter Grieco (UGA Geology alumnus) and his wife Stefanie moved to Richmond from New York City last summer. They live in the same neighborhood as us, and are going to pitch in on the garden work with us.

I hope everyone is doing well. If any of my old friends from Geology are ever passing through Richmond, drop me a line. I know several good places to grab a beer!



John Allen and his son Juhani

Brad Allgood (B.S., 2003)

I'm finishing up my M.A. in Film Production at American University in Washington, D.C. I'm also working on a 2-hour special for National Geographic on the migration of early humans out of Africa to air later this year. I'm also working working on several other films and videos for organizations, including a 30-minute segment on the Chesapeake Bay for Maryland Public Television to air on April 25 of this year, as well as short pieces for Wildlife Without Borders, Ashoka, and Friends of the Earth. I hope to go back to Nicaragua this summer to shoot more for a film about the social and environmental impacts of commercial lobster diving on indigenous Miskito populations, although we're still looking to secure completion funds for the project.

David Bacchus (B.S., 1977)

These days I am spending a lot of time in geologic data bases gathering information on legacy wells for fracture characterization from borehole image logs. I continue evaluating electro facies prediction methods, for tracking different geological facies and reservoir flow units. I see UGA friend Marty Robinson each week in an exploration drilling meeting.

Dorinda Gilmore Dallmeyer (B.S., 1973; M.S., 1977)

Dorinda Dallmeyer recently read from her nature writing essays at a fundraising event for the Ogeechee-Canoochee Riverkeeper at Wormsloe Plantation near Savannah. When not sporting bald eagles on her shoulder, Dorinda continues to work at UGA as the director for the Environmental Ethics Certificate Program.



Dorinda Dallmeyer and friend

Randy Drummond (B.S., 1981)

Chief of the Environmental Protection Branch for the Georgia Department of Defense, Army, for 17 years. Ensures EPA compliance for over 10,000 Army National Guard soldiers preparing for deployments in the Global War On Terror. Anniversary this year of 30 years married to Joy Allen Drummond (UGA, B.F.A. in Art/Art Education, December 1980) with two adult and married daughters. Beginning first year of being "empty-nesters" and loving it.

Mack Duncan (B.S., 1968)

Julie and I are now about 95% moved to Athens. The economic downturn has pretty much eliminated the geological consulting work I was doing. I had the good fortune of working in Peru and British Columbia last year. Now I am enjoying retirement as I originally planned.

I spent about four weeks last summer in Montana. With Julie as my field assistant, we revisited my Ph.D map area and searched for minerals. Ultimately we staked mining claims on two deposits: a placer garnet deposit and a Mg-rich chlorite deposit.



Mack Duncan staking claims in Montana

Stephen B. Harper (Ph.D., 1996)

On the teaching front, my typical teaching duties still include sections of Physical Geology and Environmental Geology each semester and Geomorphology every other year. I am teaching Geomorphology lecture and lab this Spring 2009 Semester and have a record enrollment of 18 students. We recently completed a full weekend field trip to the Shenandoah valley of Virginia to tour Endless Caverns and Grand Caverns and also observed differential soil development on stream terraces along the North River. In late March, we took another full weekend field trip to the North Carolina Outer Banks and were joined by 20 students from James Madison University.

I am still the Director of the North Carolina Summer Geology Field Course. I will be teaching the Geology Field Course in New Mexico and Colorado in May and June 2009 for the 11th straight year. For the 2009 field course, our enrollment in the Geology Field Course will be approximately 20 students. Currently, these students hail from Eastern Carolina University, App State, Guilford College, James Madison University, Temple University, Radford University, University of Vermont, and Texas A&M Corpus Christi Campus. This year after about 2 weeks in Abiquiu and Jemez, New Mexico, we will head south for 3 days to the Valley of the Fires and to Carlsbad Caverns before swinging northward to Sipapu-Taos for 18 days and then up to Almont, Colorado for the last week of the field course. After the Field Course concludes this year, I may travel to Southeast Asia and China.

Gayle Levy Hartman (M.S., 2003)

There have been a lot of changes in the last year. I had my daughter Eliana (Hartman; I also added Hartman to my name) last July. I was laid off from my job at an internet start-up last fall, but as a new mom I definitely didn't mind having an extended maternity leave. Eliana is 8 months now and I'm looking for a new job. We're all doing well and I hope everyone else is too.



John Hayden (B.S., 1985)

John Hayden was recently promoted to Vice President, Environment, Safety & Health, for the National Stone, Sand & Gravel Association in Alexandria, Virginia. In the photo below, John, having found out that tequila is made from agave plants, is trying his best to rehydrate himself while doing field work near Kanab, Utah with his wife Janice (BS and MS in geology from Brigham Young University).



Vince Matthews (B.S., 1965; M.S., 1967)

Last year Vince Matthews served on the Executive Committees of the Western States Seismic Policy Council and Association of American State Geologists. He also serves on the national steering committee for the Advanced National Seismic System (ANSS) and the Geologic Advisory Committee for the Department of Geosciences at Colorado State University. He continues to speak on the global natural resource situation and during the past four years has spoken to more than 15,000 Coloradans and several national conferences.

He and wife Susan bought a house in Leadville (elevation 9,452 feet higher than Athens) last Spring and are enjoying it as often as possible. Come visit!

Tony Martin (Ph.D., 1991)

This academic year was another very successful and fulfilling one for me. I am still teaching full-time in the Department of Environmental Studies at Emory, and although I am the Ione paleontologist at Emory, and for much of the Atlanta area, I still am able to contribute in ways that are valuable for the departmental mission, and am very happy with how that's been going lately.

In research news, I gave an invited keynote talk at the Second International Ichnological Congress (Ichnia 2008) in Krákow, Poland last September, and just got back from another invited talk at the Caldwell Conference IV on St. Catherine's Island, Georgia; both talks dealt with trace fossils, of course. Big news is the winning of an international award for Best Paper in Paleontology, co-authored with another UGA alumnus, David Varricchio (M.S., 1989). The paper was about the new species of burrowing dinosaur we described from Montana a few years ago (see last year's newsletter for details); the award was given by the Fundación Conjunto Paleontológico de Teruel-Dinópolis in Turuel, Spain. We were very honored to have received this award, as past winners have been from the University of Califronia at Berkeley, the University of Chicago, Harvard, and the Smithsonian Institution!

In my spare time, I've been writing a book, contracted through Indiana University Press and titled Life Traces of the Georgia Coast. The book will be an overview of the neoichnology of the Georgia barrier islands, including traces made by plants and animals in terrestrial and marginal-marine environments, but written for a popular audience, as well as for colleagues who would like to learn more about how to interpret trace fossils by using modern examples. The expected publication date for the book is sometime in 2010, so be looking for it then.

Ryan Mills (B.S., 2001)

This past spring I completed my M.S. in geology at the University of North Carolina at Chapel Hill. I am now working towards

my Ph.D. at UNC with a focus on igneous petrology and isotope geochemistry.

Mark Mitchell (B.S., 1982; M.S., 1986)

In March of this year, UGA Geology alumnus Mitch Guthrie (B.S., 1988) joined our environmental consulting firm Genesis Project. He will be managing our new office in the Athens area, which will be opening in late summer 2009. In that position, he will manage the activities of one of our largest clients as well as the work in east-northeast Georgia and South Carolina.

Daphne Owens Battle (M.S., 1997)

Daphne Owens Battle has co-founded a new company, Cypress Cultural and Environmental Services, LLC. This company will provide a broader range of environmental services including those related to cultural resources, archaeology, ground penetrating radar, ecology, wetlands, endangered species, NEPA documentation, and structural history. Check out our website under construction at www.cypresscultural.com. She is currently developing a historic context and management plan for the 12,000 acres being developed by the Georgia Department of Transportation for the new port across from Savannah in Jasper County, South Carolina. Other projects have included a battlefield metal detector survey in Chester, Virginia and trail surveys around Atlanta. She has also acquired a used SEM in order to conduct future phytolith studies to continue her graduate school research if she can ever get it running.



Andrew Rindsburg (M.S., 1983)

I have moved to the Livingston, Alabama area to be closer to the University of West Alabama. I had been commuting from Tuscaloosa and am sure glad to have two hours of my life back every day! The house I am renting as caretaker was built in 1848 and is on the Alabama Historical Register; it is called Quietude. At last, I have enough room to sort out my books and papers. Before moving, I gave my Eocene fossils to the McWane Science Center to reduce the clutter. A lot of books have gone to the UWA Library.

Teaching absorbs most of my time, but not all. Last fall, I attended Ichnia 2008, the Second International Congress on Ichnology, in Krákow, Poland, along with Georgia alumnus Tony Martin, and as native speakers of English (and former students of editor Bob Frey) we are helping our Polish friends to edit the proceedings. Closer to home, at the recent Southeastern GSA meeting in St. Petersburg, I took over from Nan Huebner as President of the Southeastern Section of the National Association of Geoscience Teachers — and was delighted to see Gilles and Berne Allard and fellow alumni including Sharon Matthews.

Marty Robinson (M.S., 1975)

Another busy year exploring for oil and gas in the Magic Kingdom. Will probably be here for another two years or so before Annie and I retire to our home on Vashon Island in the Puget Sound just south of Seattle. Son Peter earns a M.S. in astrophysics from the University of Colorado in Boulder this spring and is getting married to Katie Montgomery on July 4, 2009.

Son Kai is a senior at Amherst College and will finish his course work for a degree in economics this December. He successfully defended his New England Small College Athletic Conference springboard diving title in February and made the finals at the NCAA championships (Division III) and placed 4^{th} on the 1 meter and 3^{rd} on the 3 meter.

Stepson Merle Stephey and his wife Sarah are remodeling a home in West Seattle.



Marty Robinson on a recent trip to Brisbane, Australia

Kathy (Fitzpatrick) Sanford (B.S., 1981; M.S., 1982)

Last year I reported from the Bureau of Oil & Gas Regulation in New York's Department of Environmental Conservation that we were expecting a rush of Marcellus Shale drilling. Before that occurs, the Department is evaluating potential environmental impacts associated with the proposed drilling and well stimulation method, which is hydraulic fracturing. I've found myself managing the preparation of a Supplemental Generic Environmental Impact Statement that will examine everything from downhole geology to air emissions. It's a high-profile project, with the prospective area including the Catskills and the watershed for New York City's drinking water supply. Just Google "Marcellus Shale" + "New York" and you'll see what I mean!

Jim and I are still enjoying his retirement, time on the Massachusetts coast, and our two foxhounds.

Jennifer Smith-Engle (Ph.D., 1983)

I am Associate Dean for the College of Science and Technology at Texas A&M University-Corpus Christi, and coordinate Environmental Science M.S. and B.S. programs. As a geological consultant for Nueces County in south Texas, I assist in managing local coastal development along the Gulf of Mexico. Our county probably has the most environmentally protective coastal regulations in the state. I'm also the mom of twins Narra and Dante, nearly six, who have started collections of minerals and fossils and are fascinated by volcanoes, landslides, and other geological disasters.



Argentina Study Abroad



Student Claire Stice demonstrates the fast way to go down steep unconsolidated terrain at Talampaya World Heritage site.



From left to right: Students Lee De Leo, Claire Stice, Will Stephens and Lisa Birnbaum visiting the galleries of Paramillos Mine.



Lisa Birnbaum measures stream velocity, depth and width at Rio Cuarto for a field exercise on stream dynamics.



Fossil find at Ischigualasto World Heritage site. From left to right, students John McNabb, Claire Stice and Jason Adams.



Students attend the outdoor classroom at Rio Seco.



Dr. Susan De Giovanni (University of Rio Cuarto) shows students Adam Sarafian and Will Stephens (hidden) the structures in Pampean soils.



The entire Argentina 2008 group at the "Submarine" landform, Ischigualasto World Heritage Site.



Student James Crowell-Davis records dinosaur characteristics at Ischigualasto Museum, while danger lurks in the background.



Argentina group after studying mass movements in Las Cuevas, High Andes, almost Chile. Dr. Eddy Lavandaio of the Argentina Geological Survey stands next to Alberto Patiño Douce.



Instructor David Latimer and students at work during a Spanish class at the Department of Geology, University of Buenos Aires.

UGA Geology Students Go to Meetings

UGA's Geology program was well represented by students attending various meeting in the 2008-2009 school year. Paul Schroeder again took undergraduate geology majors in his Surficial Processes class (GEOL 3020) on the Georgia Geological Society field trip in October. Students had a chance to network with professionals and visit with peers from other Georgia institutions. Students were active as presenters at national and sectional meetings of the Geological Society of America. Students also presented at other meetings including the Clay Minerals Society, the Archaeological Institute of America, and this summer's North American Paleontological Convention. These presentations ranged from undergraduates giving their first papers to graduate students presenting the conclusion to their studies. This exposure not only provides visibility for our program, but also helps to attract new students. As noted in the Head's welcome letter, the economic crisis has hurt the University. At the departmental level, all travel funds for students and faculty were cut, contrary to the impression given by a recent WSB-2 story. As a consequence, both faculty and students contributed funds to support field trips as well as trips to professional meetings. Both types of trips are vital to our educational mission. The Department of Geology also provided travel support from students from our endowment funds and we thank you all for your contributions to these funds. Future support for student travel is likely to continue to depend on donations to our endowment funds.



Early morning stop on the 2008 Georgia Geological Society fall field trip. UGA undergraduates are shown here looking at the Emerson-Talladega Fault, the Great Smoky Fault, and adjacent Folding and Faulting in Polk and Bartow Counties, Georgia. The smiles are in response to either Dr. Schroeder's bad humor or the lesson in proper use of a hand lens. Remember: back to the sun, chin up, lens hand resting on check bone, and specimen hand moved for optimal focus and light. Photo by undergraduate student Kirk Fraley.



Poster session at Southeastern Geological Society of America meeting in St. Petersburg, Florida. Adam Sarafian and Dan Bulger discuss the nuances of pegmatite dike mineralogy at Elberton, Georgia. The department also hosted an information and recruitment booth at Southeastern GSA. Students Deniz Altin, Kirk Fraley, Joelle Freeman, Kaylin Dunbar, Matt Jarett, Justin Miller, Chester Jackson, alumni Mike Bailey and Polly Bouker, and faculty Paul Schroeder and Gilles Allard were in also in attendance. Photo by undergraduate student Kirk Fraley.

Renovations

The Geology Department has had a significant facelift in the past few years. Our large lecture hall (room 200A) and several rooms on the first floor have been remodeled, including a seminar room and two teaching laboratories.

This year, we were unexpectedly and delightedly asked to renovate our primary teaching labs for our core courses, including the paleontology and historical geology lab in room 218, the petrology lab in room 327, and the structural geology / sedimentary geology lab in room 325.

The renovations in these labs have all required removing all of our teaching collections so that the rooms could be gutted, which has also given us the opportunity to reappraise our collections and make the best use of the space. The graduate students have been incredibly helpful in the entire renovation process, and have pitched in to make the moves go quickly and smoothly.

As this newsletter goes to press, room 218 is finished, room 325 is nearly done, and 327 is in the process of being emptied. By the end of spring semester, we will welcome a complete suite of newly renovated and inviting teaching facilities.



The petrology lab (above) has been turned 90°, with new whiteboards and blackboards, a digital projector, custom-built desks for petrographic microscopes, and custom-built cabinets for microscope storage.



The paleontology lab (left) has new custom-built tables with electrical strips for microscopes and laptop computers, new cabinetry and sink, dimmable lighting, digital projector, whiteboard and blackboard, and a retracting projection screen. We've kept the metal specimen cabinets in back, but even they look better with a fresh coat of paint.

Visit our website at www.gly.uga.edu

Have news or photos?

Send any contributions for the next newsletter to Steve Holland at stratum@uga.edu.

Would you like to donate?

The Geology Department appreciates your financial help. Gifts from alumni and friends benefit the department and especially our students. Endowments directly aid the work of graduate students. For example, the Berg Fund supports students conducting research in geophysics and the Levy Fund supports students whose research is in Marine Geology. The Gilles and Bernadette Allard Fund supports field-based research and was awarded this year to fund field studies in paleobiology and geoarchaeology.

The Watts-Wheeler Fund is instrumental in supporting many of our graduate students in their research and in presenting their work at professional meetings, such as the Geological Society of America. In the past year alone, the Watts-Wheeler Fund has supported the research of seven graduate students and the travel of seven graduate students. As always, our General Fund for undergraduate and graduate programs has benefited all by supporting invited speakers and our open house program for prospective graduate students.

To make a gift to the Geology General Fund, write your check to the ARCH Foundation, and include the code AFASGOL209 and Geology General Fund on the designation line on the check. To make a gift to all other funds, please call Patti Gary at the Department of Geology at (706) 542-2652. Please mail checks to: c/o Patti Gary, Department of Geology, University of Georgia, Athens, GA 30602-2501.

If you prefer to make your gift online, visit us at www.gly.uga.edu and choose Alumni ... Donate. Click the link for The Georgia Fund. From the menu, select the Geology Department in the Franklin College of Arts and Sciences.

We appreciate your generous support of the Geology Department!

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