

Newsletter 2006

Department of Geology East Carolina University

Dear Alumni,

The current academic year has been a good one for ECU Geology. The highlights are surely the promotion of Reide Corbett to Associate Professor with tenure and the promotion of Catherine Rigsby to Full Professor. Promotion only follows years of hard, productive work. These colleagues have received my congratulations and now they can look forward to years of my sending more committee work their way!

We have settled well into our new lab facilities in Flanagan and, of course, we cannot imagine how we used to do our work in our old facilities. As an example, I've had eight students working in the Micropaleo lab during the past few months. Just two years ago they would have been scattered around several rooms in Graham and Terrania and would have missed the opportunity to build the camaraderie amongst graduate students that often continues for entire lifetimes.

Coastal geology, as part of broader coastal studies, continues to be high priority on campus. I am currently involved in writing a proposal for an ECU Institute for Coastal Science and Policy, in which geology would play a significant role. We are also in close communication with the fledgling Coastal Studies Institute located in Manteo. This North Carolina University system institute is hoping to forge close links with ECU and we are discussing the possibility of a joint position between that institute and our department in the general area of sediment and solute dynamics in estuarine and shallow marine systems. Such expertise would nicely complement our current activities at the coast and would help provide linkages to ocean observing research groups located at other North Carolina university system campuses.

In closing, I'll note that now that Earth and Environmental Science is a required course at high schools across North Carolina, in large part due to the efforts of former ECU Geology Chair C.Q. (Charlie) Brown, we are beginning to see the arrival at ECU of students who know what geology is and some of them are thinking of majoring in our chosen subject. That can only be good for ECU Geology but is also good for society as a whole in increasing awareness of our natural environment. Thank you, Charlie, for yet another significant contribution!

My best regards to all of our alumni.

Steve Culver

Contributions to the Alumni, Century Fund and CQ Brown Scholarship Accounts in the 2004-2005 Fiscal Year

Scott Snyder	C.Q. Brown	Michael Indorf
Mark Williams	John Maddry	David Reid
Jack E. Beverly	Scott Hardaway	Scott Hartness
Robert Ross Allen	Wink Winkler	Ron Crowson
Jerry Dominey	Pat Mallette	Lucy Mauger
Mark Katrosh	Ginny Waters	Rick & Adrienne Koehler
Stephen Benton		

Expenditures from the Alumni Account in the 2004-2005 Fiscal Year

Sarah Rice	\$44.59	travel
Jason Jomp	\$565.00	travel
Frank Cataldo	\$460.00	travel
John Ricardo	\$655.00	travel
Kevin Burdette	\$480.41	travel
Stephen Culver	\$736.19	fall graduation and staff development reception
Stephen Culver	\$146.24	"welcome back" luncheon
Michael O'Driscoll	\$961.65	moving expenses
Jim's Liquid Waste	\$50.00	porta-potty for alumni get-together
Piedmont Office Supp	\$34.68	paper goods for luncheons, etc.

BS(P) Graduates

Spring 2005

Brion Byers
Katherine Marciniak

Summer 2005

J. Bradley Elkins
Jason Soban

Fall 2005

Elizabeth Carwell
Lauren Cutrell
Michael Guzman

MS Graduates

Summer 2005

Kevin Burdette
Sarah Rice
Jon Weston-Friedrichs

Fall 2005

John Ricardo

Faculty News

Terri Woods

In June, 2005 I began a major research project entitled: "Ecological Assessment of the Pasquotank County Reverse Osmosis Water Treatment Plant Discharge Site, Albemarle Sound, North Carolina". Geology's part of the project is a subcontract from the Institute of Coastal Marine Research to do the water and sediment analyses. This project requires biweekly collection, filtration, and analysis (for major elements and nutrients) of about 40 water samples from Albemarle Sound and the Pasquotank River. From June-December we also collected sediment cores at 18 sites each month for extrusion, photography and grain-size analysis. We also deployed and periodically downloaded data from Hydrolabs and Acoustic Doppler Current Profilers. When I agreed to participate in this project I realized I would need a lot of help and I currently have a graduate student, Jennifer Smith, running many aspects of the project for me helped by another graduate student and five undergraduates.

I have learned to use the ICP machine in the Geochemistry Lab in Flanagan to analyze concentrations of major cations. The ICP is a glamorous AA machine that analyzes multiple samples that are loaded in a tray serviced by a robotic auto-sampler. It took me a while to figure out the software that runs it (partly because I had to fight my deep-seated distrust of, and lack of facility with, "black boxes"), but in the long run it will allow us to analyze the very large volume of samples we are faced with. Students working on the project are doing the alkalinity and pH determinations by pH meter and the major anion analysis on a chromatograph. We will run the nutrients on Biology's autosampler as soon as it is up and running.

In terms of science education in the public schools, I continued my involvement in Science Olympiad by organizing 5 teams of graduate students to design and administer 5 events at the Regional Tournament held here at ECU. It was a successful day and we plan to use it as a forum for recruiting geology majors starting with next year's competition. I expanded my involvement as a "Fellow" in the Teacher Link Program this year. This program is run out of the Center for Inquiry Based Learning at Duke and funded by a grant from the National Science Foundation. The aim is to connect teachers with scientists, engineers, and mathematicians who can serve as mentors to teachers who are implementing inquiry-based instruction in the classroom. Besides being a reference for teachers, I helped to design the Rocks and Minerals Kit for 4th graders and am helping with the Earth's Crust kit for 6th grade. Finally, I have agreed to serve as a member of the Advisory Board for the Student Science Enrichment Grant Program funded by the Burroughs Wellcome Fund. I'll be reviewing proposals from educators to enhance science education in the public schools.

Last, but not least - my teaching activities. I taught our new course, Mineralogy and Petrology I, for the first time last fall. I really enjoyed combining minerals and rocks in the same basic course. It also allows us to serve the needs of non-geology majors (future teachers, geographers, anthropologists, etc.) better than our old two-semester Mineralogy-Petrology sequence. I also have completed getting my lecture notes for Physical Geology, Oceanography, and even some for Min/Pet I, up on my website. This semester I'm getting the remainder of my Physical Geology materials posted, including lecture outlines and class exercises, so I didn't do a hard-copy course pack this term. This format will make it much easier for me to change my course pack when I change textbooks.

Stephen J. Culver

2006 to 2007 has been an interesting year for me. I now have a new boss, Dean Alan White, who is a botanist. The good news is that Alan almost became a geology major and his interest in geology continues. Stan Riggs and I took him on a two-day field trip to the coast and last week he joined my Paleontology class looking for shark's teeth at Lee Creek mine. I managed to curry favor by salting the area he was searching with a few choice specimens.

As usual, I'm enjoying teaching "Earth and Life through Time" and "Paleontology" and, as usual, I am surprised by the new questions that students spring upon me even though I've been teaching for 30 years. That's what makes teaching interesting and it ensures that complacency does not creep into lectures and labs. I am advising a full complement of graduate students but several of them are getting close to finishing and so I expect that load to decrease a little in the next couple of years. But, then again, it might increase if we are successful in our current lobbying efforts on Capitol Hill. Our six-year, USGS-funded research program on coastal geology is in its final year. This program has funded many graduate students and we are now working to put together a follow-on five-year program, whose funding would also run through the USGS. The new program deals with coastal hazards and is much more interdisciplinary than the program that is about to end.

Biology, Sociology, Economics and Recreation and Leisure Studies would also be involved.

In addition to my work on the coast, I continue to work with my colleagues at the Smithsonian Institution on global patterns of species diversity in benthic foraminifera. This work is funded by the Petroleum Research Fund and it has been very useful in introducing several undergraduate and graduate students to foraminiferal research and the intricacies of database construction, manipulation and management.

Fieldwork is still the thing that makes all of the hard work back at the ranch all worthwhile. I look forward to another couple of weeks this summer at the beautiful Outer Banks!

Best wishes to all.

Reide Corbett

What a great year! I have been busy with plenty of research and some teaching along the way (regardless of what others might say). Our research group has focused efforts on work in North Carolina, Puerto Rico, and the Gulf of Mexico. Some of the exciting and fairly publicized work this year was a research cruise off the Mississippi delta following hurricanes Katrina and Rita. We (Corbett, Walsh, Mallinson, and several students) spent 10 days aboard the research vessel Hatteras, to evaluate the role major weather events like Hurricane Katrina have in the destabilization and redistribution of sediments and chemicals in the coastal waters of Louisiana. Previous data suggests that the materials move fairly quickly into deep waters, but there is little to no information on the transport of these materials during such a significant weather event. We are still working on the samples collected, but can already evaluate the varying amount of influence the two storms had on the sea floor.

We have spent much of our year putting some of the new equipment into action. JP and I, with the efforts of Sophie Dillard (Geology MS student) have been trying to initiate an estuarine observing site in Pamlico Sound. This would involve the real-time

measurement of water quality (temp, salinity, oxygen, etc.), currents, turbidity, and waves in a fairly remote location. We have been working with Joe Luczkovich (Biology) and Mark Sprague (Physics) to evaluate the influence of "benthic weather" on fish migration and spawning habits (monitored acoustically). An interdisciplinary example of cutting edge research at ECU.

We still have on-going groundwater/surface water projects in the Neuse River basin and along the coast of NC. Brad Elkins (Geology MS) has been working diligently the last several months designing and initiating his sampling plan. We hope to provide some information on the magnitude, spatial, and seasonal variation of nitrogen flux from a high agricultural watershed in the Neuse basin. Clay McCoy (Coastal Resources Management, PhD) just completed some research in Onslow Bay assessing the importance of submarine groundwater discharge (much more important than the local rivers). We (Corbett, Spruill – co-authors) hope to submit that work for publication in the next few weeks. In addition, we have continued our work on the OBX to determine the role shallow groundwater flow may have on inlet vulnerability. This work is associated with the larger USGS coastal cooperative.

I am happy to announce that I was granted tenure and promotion to Associate Professor this spring. It is great to see my efforts are recognized by my peers in the department and across campus. I am excited about my future here at ECU!

I look forward to seeing all of you at the annual Pig Pickin' in late April!

Mike O'Driscoll

My second year at ECU began this fall. So far things have been going well and I feel fortunate to be in a place where so many opportunities exist. The teaching opportunities are numerous; this past year I started teaching an Environmental Geology course. In addition, I continue teaching Dynamic Earth and Drainage Basin Hydrology courses. My research efforts have focused on developing a program that examines river-groundwater interactions in the Atlantic Coastal Plain. The goal is to build a process-based understanding of how these river-groundwater systems interact and function in order to help predict how they will respond to various stresses such as increased water demands, land-use changes, and climate change. Several ongoing research projects are focused on the Tar River and some of its tributaries. Dave Mallinson, Kolt Johnson, and I are using ground penetrating radar, physical, and chemical hydrological measurements to help better understand how groundwater is delivered to the Tar River. In January, I began working with a group of ECU biologists to develop an assessment methodology that will be used by the state to characterize the condition of coastal plain watersheds. The goal is to look at stream channel morphology and ecological indicators to determine the effects of urban land-use on stream channels and stream function. This spring semester has been speeding by and I am looking forward to lots of field work this summer. Hope all is well and I hope to see you at the pig pickin'.

Cheers

Stanley R. Riggs, Distinguished Research Professor

I am still actively involved in the ECU/USGS/NCGS North Carolina Coastal Geology Cooperative Program. This major research program deals with the origin and evolutionary development of the NE NC coastal system during the Quaternary glacial and interglacial episodes. This is the last year of the present 6-year program. Consequently, we have been very involved in writing the new proposal for phase II that

will cover the next 5 years and working to get it funded through the US Congress—this is not a good time to be trying to get money out of Washington—that just makes it a bigger challenge. “North Carolina Coastal Hazards: Implications of Climate Change, Sea-Level Rise, and Storms” is being expanded to include more disciplines including researchers from the departments of Biology, Economics, Sociology, Coastal Resource Management, Center for Natural Hazard Research, and Recreation and Leisure Studies. This research program continues to be very exciting and scientifically productive. Wish us some good luck during the coming months as we tangle with Congress.

The NC State Legislature passed a bill this year to establish a Commission on Climate Change, to which I was appointed by the bill. Our first two meetings have been most interesting and challenging. The Commission has a lot of good people on it, but there is a powerful conservative lobby that believes that “if warming is normal, then it would make no sense to adopt costly public policies to stop it----any attempt to stop it would be irrelevant and would harm the economy”. This will be a fun year working with this group—they all should be required to take a few courses in basic geology, resources, and earth dynamics.

In addition, I continue to be involved in numerous programs with the NC Dept. of Transportation, NC. Division of Coastal Management, Cape Hatteras National Seashore, Cape Lookout National Seashore, and the NC Senate and House Committees on the Environment and Natural Resources. My research associate, Dorothea Ames, and I have a series of six books (+/-) on various aspects of the NC coastal system that are in various stages of completion—hopefully they will be done by next years newsletter.

To keep up with the ECU-USGS-NCGS research program, visit both the ECU geology and the USGS websites—some of our progress reports are now on the ECU website (www.ecu.edu/geology/coastal.html; <http://woodshole.er.usgs.gov/project-pages/northcarolina/>). We always look forward to hearing from each of you, or better yet, come out in the field with us—get your feet muddy and your gills wet before they permanently dry out!

Cheers

J.P. Walsh

It has been an exciting year for me. Classes, lab and fieldwork have kept me busy! I substitute taught Sedimentology for Catherine Rigsby again this past Fall and am teaching a graduate-level class this Spring called Land-Sea Interactions. I first taught Land-Sea Interactions last year; this course examines the production, movement and storage of sediment in the Albemarle-Pamlico river system from the Blue Ridge Mountains to the continental slope. Both classes have enabled me to become more familiar with our local environment as well as our undergraduates and graduate students.

I am currently involved in a diversity of projects, several of which are in collaboration with others in the department. For example, Reide Corbett, Dave Mallinson, several graduate students and I recently went to the Gulf of Mexico to collect cores and multibeam (high-resolution bathymetry) data to examine the impact of Hurricane Katrina on Mississippi delta sediment. It was amazing to see the hurricane's effects onshore and offshore. Also, I am working with Culver, Riggs, Mallinson, Corbett and O' Driscoll on the USGS Cooperative project, aimed at understanding coastal sedimentary processes in North Carolina. More specifically, I am co-advising three USGS-funded graduate students (Kat

Marciniak, Arianna Perkins, and Sophie Dillard) who are examining sedimentation dynamics in the Neuse River area and inlet vulnerability along the Outer Banks.

I currently am advising or co-advising a few other students who are working on some exciting projects: (1) Ben Sumners - continental slope sedimentation seaward of the Waipaoa River, New Zealand, (2) Lisa Cowart - shoreline change in the Neuse River estuary, and (3) Katie Ryan - terrestrial sediment accumulation in a coral reef environment, La Parguera, Puerto Rico. Over the past year I have had some interesting research travel to New Zealand, Puerto Rico, the Gulf of Mexico and coastal North Carolina. This year, I hope to spend more time at home working in the lab and enjoying the area!

David Lawrence

Last summer I worked for a while near Great Falls, SC, (David Foster's thesis area) and down toward Flint Hill. I have found a happy hunting ground of geological mysteries, which should occupy me for some time. The Flint Hill anticline has Charlotte terrane gneiss and schist in the core, with limbs of Carolina terrane metavolcanic rocks on both sides. So the metavolcanics are on top of the Charlotte terrane rocks, suggesting a thrust or an unconformity. But yet currently, the contact looks like a strike-slip fault. Tune in next year to see if I have made any progress.

I taught my usual courses, Structural Geology and Dynamic Earth in the fall, and Field Methods and Tectonics this spring. I took a short hop into the present, and actually used PowerPoint for lectures and slides in the freshman course; I'm not sure it caused any surge in learning, but the students seemed to like it.

This summer I am off to Switzerland to oogle the Doldenhorn and Wildhorn nappes, and sample cheeses in the high Alps.

Steve Harper

On the teaching front, my typical teaching semester still includes 2 sections of Dynamic Earth (Geology 1500) and 1 section of Environmental Geology (Geology 1700). As has been the case since I first arrived in the Geology Department in 1992, part of my teaching duties still include training and mentoring our Graduate Teaching Assistants to teach Geology 1501 labs. Our departmental curriculum still has me teaching Geomorphology (Geology 5000-5001) every other spring semester.

I suppose the biggest news item for me is that I am now Director of the North Carolina System-wide Summer Geology Field Course. After Dr. Mauger stepped down in September from serving as the director for more than a decade, Dr. Culver asked me if I wanted this job, and I said "Yes!" This keeps me incredibly busy especially during the spring semester making all the arrangements and communicating with students and staff in disparate locations. I will be in the teaching rotation for the Geology Field Course in New Mexico and Colorado in May and June 2006 for the 8th straight year and will be teaching at the Abiquiu and Taos-Sipapu, NM sites and then travel with the students up to Gunnison, CO. For the 2006 field course, we will have 23 students enrolled in the summer geology field course from 4 universities in North Carolina (ECU, UNC-W, NCSU, and UNC-C) and single students from Texas Christian University, Boston University, and Florida Atlantic University. This will be the 42nd year of the North Carolina System-wide Summer Geology Field Course, which had its original beginnings as strictly a UNC-CH endeavor in 1965, located out of Fort Burgwin Research Center at Rancho de Taos, NM.

I continue to be a passionate field and landscape "film" photographer. I am slowly working on posting the best of my photos on the department website to support my classroom teaching for Dynamic Earth, Environmental Geology, and Geomorphology.

My primary research interest still lies in evaluating the role of mass wasting and surface and sub-surface dissolution in the evolution of tower karst in coastal areas of Krabi and Phang Nga Provinces along the southwest coast of Thailand. I am also looking for approaches to date high sea level stands along the western coast of Thailand, indicated by notches 3-5 meters higher than modern notches. My focus on the high notches is on the "exterior" tufa stalactites that have grown down from the visor of the high notches. Last summer I got to see parts of Phang Nga Bay and Luk Bay that I had never seen before. The December 26, 2004 Tsunami Event did not have a deadly impact in the coastal areas of Krabi Province but still did a lot of damage. Seven months after the tsunami made landfall, the beach profiles in Krabi were still considerably flatter than normal indicating a very large amount of erosive energy was expended on the beaches in this area.

As for other travel plans for the summer of 2006 after I close the 2006 Field Course budget, I would like to visit Yunnan Province in southwest China to check out the pinnacle karst in the Stone Forest (Shilin) just east of Kunming, or, I would like to return to Ha Long Bay in north Vietnam to see more tower karst there that I did not get to see in 2002. Of course I will spend several days in Thailand, primarily in the Krabi coastal areas looking at tower karst. Plus shopping (new flip flops) and visiting friends stops in Singapore and Hong Kong! Perhaps a bit ambitious!!!

Richard Spruill

Greetings from the Spruill clan, and here is a family update. We are doing well and we seem quite busy. Lisa continues with her community involvement projects and she has been instrumental in field camp management. Alex, seventeen, is a rising senior at D. H. Conley High School. He plays in the band and he is a real good 100 m sprinter on the track team. Anna, fifteen, will be a freshman next year at Conley. She has grown tall and beautiful – takes after her mother in looks!

I am a Hydrogeologist! I continue to teach my share of the Freshman Geology courses, along with Mineralogy/Petrology. By the way, we are in our second year of the combined Min/Pet course, which is a year-long hand specimen oriented combined course in Mineralogy and Petrology. Professor Woods and I alternated as instructors for this sequence. I think that the repetition that comes through the year-long sequence is working well for our students. Do you remember the IUGS classification?

My most enjoyable teaching experiences are my two hydrology classes, along with my alternate-year Field Camp teaching. I am still using the board as a teaching tool but I have dramatically updated by teaching methods – I now use colored chalk!!

My research areas are in groundwater resource development. I am currently working on the first Aquifer Storage and Recovery project in NC – for Greenville Utilities Commission – and on a similar project for the City of Wilmington. I have really become involved in resource evaluation and development on the northern end of Hilton Head Island, SC. Large-scale withdrawals from the Floridan Aquifer System (more or less equivalent to the Castle Hayne Aquifer north of the Cape Fear Arch) near Savannah, GA, have caused groundwater flow direction reversals and large head reductions as far north as Hilton Head Island, resulting in both lateral and vertical saltwater intrusion.

I am enjoying my involvement in the NC Board for Licensing of Geologists – next year I will become Chairman of the organization. My focus will be to enhance the image of Geology through a variety of means. Are you a licensed Geologist and do you read our Newsletter? Much of my work with the Board is as a Subject Matter Expert to the Council of Examiners for ASBOG (National Association of Boards of Geology). Use me as a sounding board for any concerns that you might have regarding Licensure and testing for Licensure in NC.

That's all for now. Please plan to attend the end of year Pig Pick'n at our place. Bring your family and plan to spend the day. Details are elsewhere in this Newsletter.

Donald Neal

My list of things to do doesn't seem to get any shorter even though I do get some things done. In addition to newsletter time it is also annual report time and I have to think about what has been accomplished this year and what is still to do. Well, I still teach Dynamic Earth in the Fall and Earth and Life Through Time in the Spring. One would think that with PowerPoint presentations all would be easy. Not so. The presentations are in constant need of tweaking: add a little more here or discard some slides there or cannibalize a couple of presentations into a new one. It never seems to end and so it shouldn't but it does take time. I taught Stratigraphic Analysis in the Fall and Stratigraphy in the Spring. They continue to be fun classes.

Sarah Rice did finish up her Masters on Ordovician chert last summer and is gainfully employed in the D.C. area. Erin Must is finishing up her thesis on the Berea Sandstone in the Griffithsville oil field in southwestern West Virginia. She had a poster session at the GSA meeting in Knoxville last month and should finish this summer. Kristen Frye is trying to bring her Masters' project to a conclusion and will probably finish up this summer also. Kristen had a little trouble getting promised data from the quarry operator so limited her research to a study of the coquina facies of the Yorktown Formation found on the upper bench of the quarry. This location is at the transition from the Yorktown to the Duplin and in an area of faulting. I don't know if all of the questions will be resolved but it is an interesting project.

I am still dabbling in some Coastal Plain rocks looking at the nature of the porosity in the Cenozoic carbonates down around New Bern. The Carboniferous of the Appalachian Basin still holds my interest as well. This spring I presented a poster on the Stovall Ridge gas field in southeastern West Virginia at the GSA meeting in Knoxville. It is a relatively new field with production from Mississippian clastics and carbonates. It looks like a simple case of drilling along an anticline seen in the rocks at the surface. Turns out to be a blind thrust that has upturned strata on the downthrust block and formed a reservoir. Neat stuff!

Last year I reported that I was finishing up my second term as National President of sigma Gamma Epsilon and, in fact, I did and became Past-President. The delegates at the convention didn't want to see me go or maybe they wanted to torture me, so they elected me National Editor of The Compass. I can tell you now that complaining about the problems of publishing a journal and fixing said problems are two different things especially when the main office is half way across the country. We will get things back on track and hopefully catch up the production schedule.

The Southeastern Section of GSA also draws its pound of flesh. I am still the Secretary-Treasurer of the section and that keeps me busy at different times of the year. The only

problem is when GSA busy times and other busy times coincide and I don't know which way is up. But hey, that's life.

For now this is all I can muster in the way of news. I am always glad to hear from you even if I don't respond to all of your emails. Keep well.

Richard L. Mauger

I've continued working on specific aspects of mapping projects that I did in Chihuahua and Colorado. My efforts on the Chihuahua project were devoted to completing a CANVAS version of most of the Los Sauces Quadrangle (done) and working on the mineralogy of a limestone block that got tangled up in a volcanic vent zone and subjected to a high temperature fluorine flux and low temperature inflow of water. I have positively identified tobermorite 11A (optics, XRD patterns, and chemical compositions by microprobe) and thaumasite (optics, XRD patterns, and chemical compositions by microprobe, and an IR pattern). Thaumasite and tobermorite 11A are relatively rare in "rocks", but of great current interest to the cement-concrete industry.

These minerals are thus added to the Zr-garnet (kimzeyite) and ferric thomsonite (a Fe³⁺ zeolite) that had been previously identified. New microprobe compositions and x-ray intensity maps for iron show conclusively that the Fe is in the mineral structure and is not present as crypto- or nanno-size iron-rich grains such as magnetite. I have not found any reference to an Fe-bearing thomsonite or to any Fe-bearing zeolites in the literature. The iron is in 4-fold coordination in the tetrahedral 3d-framework sites in the mineral.

Also, a previously mysterious microcrystalline material was identified as grossularite garnet by XRD. This material shows unmistakable devitrification textures, demonstrating that the garnet was once melted (a glass) and cooled rapidly enough to inhibit grain growth and then devitrify. Rapid decompression as the block was carried upward toward the surface in a volcanic vent zone seems the only reasonable explanation for these textures. The decompression would induce melting and the shallow depth would insure rapid cooling.

For the Colorado project, in my poster session at the GSA national meetings (Salt Lake City), I concluded that the Hunters Hill thrust near Gunnison, CO, is not a thrust, but a high angle fault whose once-exposed trace is now buried by subsequent mass wasting of soft Belden shale from the topographically higher upthrown block. The surface contact of the Belden and underlying younger strata is subhorizontal and marks the boundary between Belden displaced by mass wastage above the contact and a former land surface cut on younger strata below.

In addition I have additional mineralogical and chemical data to support the idea that a cool, shallow brine, derived by dissolution of evaporites in the nearby Eagle Basin, moved into the Italian Mountain area in mid-Oligocene time when the northernmost pluton of the Italian Mountain complex was being emplaced and cooled. Adjacent to the intrusive, dark hornfelses formed through direct contact metamorphic heating and scapolite-diopside skarns formed due to infiltration of the brine heated in the contact zone.

David Mallinson

This last year has kept me running. The USGS project, working up the seismic data in the NC sounds, and ground-penetrating radar data on the islands, in addition to helping collect cores for a number of thesis projects, has occupied much of my time. I'm also collecting a substantial amount of age data (using optically stimulated luminescence analyses) on the old shoreline features that are found on the NC coastal plain, like the Suffolk Scarp for example. I've also been involved with two research cruises with Dr. Corbett and Dr. Walsh. The first cruise, last fall, was to assess the impact of Hurricane Katrina on the seafloor of the Mississippi Delta. We did a great deal of multibeam mapping with our new Reson Seabat 8101, and collected quite a few cores as well. To top that off, there was a session on Katrina at the AGU Ocean Sciences meeting in Honolulu that I had to attend. The most recent cruise was right out in Onslow Bay. Our original destination and objective was to map the valley associated with the Neuse and Pamlico Rivers, which goes offshore beneath Ocracoke Inlet (approximately). The weather had other plans for us

however, so we were forced to stay in Onslow Bay and find some channels there to map. So we collected a good deal of multibeam and seismic data, as well as radon data to try to assess whether the channels are conduits for groundwater. On the other end of the rivers, Dr. O'Driscoll and I are working on the good ol' Tar River, looking at the role of the shallow stratigraphy on the groundwater input into the channel. We're using the GPR to help define the stratigraphy in the channel. All that, combined with teaching and other aspects of this job, plus watching my three kids grow like weeds, has made the last year streak by.

Alumni News

Jack Moody
133 Moody Dr.
Braxton, MS 39044

After graduating in 1970, I attended two years of graduate school at LSU in Baton Rouge, LA. I then taught school in Brockton, MA, for one year before moving to Jackson, MS. I eventually joined the oil industry where I enjoyed 17 years of oil and gas exploration. After the price collapse of 1986 things looked pretty bleak so I took a position with the Mississippi Geologic Survey. I quickly became Division Director of the Energy and Coastal Division. For the first 10 to 12 years we had a ball working the two areas of geology I enjoy most. I initially had to develop our own coastal geologist who was converted over from oil and gas. He turned out to be a very good coastal investigator. Finally, his chance to move on came and I began to search for a replacement. I called Stan Riggs and listed all the areas of skill and expertise I hoped to find. Stan said he knew one of his recent masters students fit the description but he didn't know if I could get him. So I called Keil Schmid in Boston and told him what I was looking for. After a number of phone calls he and his wife drove to Mississippi to take a look. It worked out and he took the job. Now this was a Yankee come deep in the south and all his friends though he lost his mind. When I lost the first coastal geologist I really didn't think I'd find anyone as hard working and really good at all the different responsibilities it took to run that program. I was wrong. Keil came in and did a great job; ECU can be very proud to own Keil as one of its sons. He was here for about 6 years and left his mark of outstanding work. For those 6 years we had two ECU graduates working together and it was a great experience. Due to a change in executive directors of the agency the Energy and Coastal work was phased out and Keil moved on to the private sector. You can believe if coastal ever starts up again, ECU's Keil Schmid will be getting a call from Mississippi.

I am now working for another agency and am in charge of leasing the states oil and gas minerals as well as granting seismic permits. It is good but it doesn't come close to the great research we had going in the good ole days of energy and coastal.

Best Wishes,
Jack Moody

Everyone is invited to the annual
Geology Department
Pig Pickin'

Afternoon of April 29, 2006

Richard Spruill's Back 40

If you need directions, call the Department Office
at 252-328-6360.