



# The School of Geosciences Newsletter

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## Greetings from the Director

2013 was a truly exciting year for the School of Geosciences. It was marked by big changes, new additions, and record enrollments in Geology and Environmental Sciences. Our biggest change is that Geology now has all of its classrooms/labs, faculty offices, graduate student offices, and research space under one roof in Hamilton Hall. We are currently working on decorating Hamilton Hall with maps, posters, rocks, and other Geology display items. If anyone has any suggestions or would like to donate some materials to help us show off our new building, please contact us! Perhaps the biggest surprise of 2013 is that we have moved our Geology Museum off campus. The Geology museum now takes up about 3000 square feet of space within the Lafayette Science Museum (LSM) in downtown Lafayette. Our museum continues to operate autonomously at this new location, but through our partnership with LSM and the city of Lafayette we are developing joint exhibits and displays. The new Geology Museum has become a focal point for research, teaching, education, and outreach. Our target date for the first of a series of grand openings is April 5<sup>th</sup>, 2014. This first opening will include a treasure trove of Jurassic dinosaur fossils, as well as new mineral displays. Dr. James Martin, a world-renown vertebrate paleontologist, officially joined the Geology program as a research professor this year. Jim Martin and Tim Duex, with the help of students, are spearheading our museum efforts. We are also in the beginning stages of developing an exhibit at the museum that highlights petroleum geology. If anyone has any display-worthy materials (old equipment, maps, photos, cores, etc.) they would be willing to donate for a petroleum-focused museum exhibit, please let us know!

We have also made some new hires. Dr. Raphael Gottardi, our new structural geologist, started in Fall 2013. He has already made great strides in teaching in this area. The Department of Physics recently hired a geophysicist, Dr. Gabriele Morra. As part of an effort to build new relationships with Physics, Geology shares 30% of Dr. Morra's time. He is teaching an advanced computing course for Geology this semester. We also hired Dr. Yingfeng Xu as a laboratory technician and scientist. Yingfeng has been instrumental in helping us run and maintain our equipment. We are in the process of interviewing candidates for two additional faculty openings, one in geophysics and the other in hydrological sciences. The latter hire will fill a need for our Environmental Sciences program, but they will also collaborate closely with Geology.

Our student enrollment numbers for Fall 2013 were the highest in a quarter century for Geology. We had 92 geology undergraduate majors and 66 geology graduate students. In only its second year, the Environmental Sciences program grew substantially to 54 undergraduate majors. Despite the increased demands that come with record student enrollments, our faculty have remained productive, pulling in a number of large grants and contracts. Some of these accomplishments are highlighted in this newsletter. In summary, we had a great 2013! I can't say enough good things about our faculty, staff, and students, but perhaps the most important reason for our success is the continued generosity and support of our alumni. Thanks! We hope you enjoy the 2013 School of Geosciences newsletter.

Sincerely,  
David Borrok

## Faculty and Instructor Updates

### David Borrok

In 2013 I taught my first course since arriving at ULL. I was particularly pleased with developing a new graduate-level course in Petroleum Geochemistry. The course also piqued my interest in doing some petroleum geochemistry-related research. Now I'm working with a graduate student, Nick Geyer, on looking at the inorganic chemistry of kerogen within shale source rocks. I've also been working with another graduate student, Christian Monlezun, on a project that combines GIS mapping and remote sensing data with water chemistry information to evaluate storm water management practices. A third graduate student, Komi Lasisi, is working on examining the iron and sulfur geochemistry of a terrestrial volcanic

system and attempting to make comparisons to what we think might have happened with iron and sulfur cycling on Mars.

2013 was a productive year for me. I managed to pull in a couple of new research grants and was able to publish four manuscripts. In addition to chairing technical sessions at the regional and annual meetings of the Geological Society of America, I presented a keynote talk at an international geochemistry meeting in Florence, Italy. Florence was a fun place to visit! The thing I'm most pleased about from 2013, however, is the continued growth and success of our programs, faculty, and students. It has been a pleasure to be a part of it all.

### Gary Kinsland



On the school side, moving from Madison Hall to Hamilton Hall continues to be disorganized, but promises a great future for the Geology program. With improved space comes a facility that actually looks like a real Geology building. I am continuing research with my graduate students on characterizing the coal resources of northern

Louisiana. An interesting turn with this research has tied it to the work I have done with the Chicxulub Impact over the years. We obtained some 3D data from Devon to investigate whether or not we could see coals with seismic imaging. As it turned out, Dan Han and Kaare Egedahl, two students, showed that we can. Rather serendipitously, Kaare, when choosing an horizon upon which to flatten the volume, noted ripples at the K/Pg

boundary with wavelength of about ½ mile and amplitudes 50 feet or more. We immediately postulated: tsunami deposits from the Chicxulub Impact. An image of the ripples is published in GCAGS, Egedahl et al. (2012). Since then, Martell Strong, has further characterized the features and considered the hypothesis in his thesis. Further studies of the K/Pg surface and the uppermost K rocks of northern Louisiana are subjects of several thesis in progress.

On the personal side, our family is deep into volleyball! Both girls, Victoria (13) and Mikaila (14), played volleyball for Episcopal School of Acadiana in 8th and Freshman/JV respectively. Victoria has also chosen to play travel volleyball with Cajun Elite. For those who are not aware "travel ball" involves parents and player traveling to several places in the south on weekends for tournaments. It is really a great experience for all. Fortunately, the tournament schedule didn't start until after hunting season...down year, one hog and one buck.

### Jenneke Visser

Dr. Visser had a very successful year in terms of research funding. In addition to the Cade Wetland Creation project detailed later in this newsletter, her work with Dr. Duke-Sylvester from the Biology department on the vegetation model for the Louisiana Coastal Master Plan continues through funding from the Water Institute of the Gulf. Last summer, Dr. Visser participated in the

coastwide vegetation survey, a joint project with USGS, LDWF, and LSU funded through CPRA. The map of marsh zone distributions stemming from this work will be published soon. She is currently working on a proposal that keeps her involved with the Coastal Reference Monitoring System through a contract with USGS.

## Brian Lock

I have had a personal research interest for some years in the Upper Cretaceous of the area around Del Rio, Texas, including outcrops of the Eagle Ford (locally called the Boquillas Formation). In 2006, Lauren Peschier and I published a paper titled, "Boquillas (Eagle Ford) Upper Slope Sediments, West Texas: Outcrop Analogs for Potential Shale Reservoirs." This predated Petrohawk's discovery well for the Eagle Ford Shale play by a couple of years. Unfortunately, I did not have the prescience (or money) to sign up leases for a few hundred square miles of South Texas.

As a young undergraduate, I spent my first summer in the Cambridge Geology B.A. program as a field assistant with the "Cambridge Spitsbergen Expedition 1964" – the department had a long-standing project for Ph.D. students working on dissertations in the Arctic islands. I assisted John Parker, who later headed up Shell's North Sea operations. Another graduate student that year was Mark Moody-Stuart, who became chairman of Shell. The experience confirmed my passion for field geology and I returned to Spitsbergen in 1969, after finishing my own Ph.D. in Newfoundland – a group from Cambridge was assessing the petroleum potential of Spitsbergen (a.k.a. Svalbard) and the Barents Shelf area for FINA. These two expeditions left me with great memories and a preference for the oil company way of doing things. In 1964 everything was done on foot, including moving the whole camp ten miles at a time, using three or four days as pack animals for every day measuring section. In 1969, we had a small ship (a sealer) for our base, complete with a cook and hot showers and helicopters to visit outcrops! This coming summer, I shall be revisiting the Arctic with a National Geographic expedition cruise. I suspect this will be an even better way to see the area!



**A youthful Brian Lock in the field in Spitsbergen in 1964**



**Wrapped image of Hamilton Hall, new home of the School of Geosciences**

## Carl Richter

Carl Richter spent the past year working on projects related to marine sediment cores recovered from the Equatorial Pacific, the North Atlantic and the West Greenland margin. In addition, he continued work on projects in environmental magnetism, magnetic anisotropy, and geoelectrical imaging. With colleagues from Japan, UC Davis, and former graduate student Emily Guidry, he published results from geomagnetic investigations of Oligocene-Miocene aged sediments from the equatorial Pacific in *Geophysical Journal International* and *G3*. Graduate student, Nikki Gary, is currently finishing up her thesis on deciphering the origin of the environmental signal in these cores using Fourier analysis. Initial results were presented at the 2012 AGU meeting. Major funding from the National Science Foundation for a research project into resolving centennial-scale environmental change and geomagnetic field variability from Iberian Margin sediment drifts was recently obtained in collaboration with Gary Acton (Sam Houston State University). Together with graduate student Lindsey Horton, Carl spent long hours working in the Paleomagnetism Lab at the University of California at Davis in collaboration with Ken Verosub (UC Davis) to collect over 100,000 measurements, which are currently being analyzed for Lindsey's thesis and for future publications. Graduate student, Alexander Dixon, is in the process of finishing up his thesis work on analyzing the anisotropy of magnetic susceptibility on these cores with the goal of determining the current strength and direction of the contourite system on the West Iberian Margin. Results from Lindsey's and Alex's study will be presented at a meeting in Tarifa/Spain in June 2014. Carl was invited to give a talk at the 2013 AGU meeting in San Francisco about the work he and graduate student, Sarah Maxwell, have been conducting on Quaternary high-latitude records of the geomagnetic field recovered from the West Greenland Margin. Together with graduate students, Lauren Stiles and Othman Elhelou, the long-



**Carl Richter changing a U-channel sample in the shielded room at the University of California at Davis. Pass-through cryogenic magnetometer is in the back.**

term project on the environmental impact of heavy-metal pollution using magnetic susceptibility screening, which was started with former student Hannah Vedrines and Bill Schramm from the Louisiana Department of Environmental Quality continues currently in Baton Rouge. Results will be presented at the 2014 GCAGS convention in Lafayette. Graduate students, Mark Etienne and Jeff Etienne, both finished their thesis work and graduated in December. Mark worked on an award-winning (GCAGS first place best poster award) geoelectric study of a contamination plume and Jeff on an undisclosed and secret petroleum industry sponsored project. First exciting data from a new statistical analysis of the frequency of the geomagnetic field reversals through time were presented at the Fall 2013 AGU meeting together with Natalia Sidorovskaia from UL Physics and Irina Rypina from Woods Hole Oceanographic Institutions.

## Brian Schubert

It's been a very busy (and fast!) first year for me in the School of Geosciences. The new stable isotope lab is now set-up in Hamilton Hall and samples are being analyzed. Yingfeng Xu, our new laboratory technician, came to us from the Florida State University Stable Isotope Lab (at the National High Magnetic Field Laboratory). She is preparing samples, running the new equipment, and training users. Yingfeng will also be working to set-up the new Rock Eval pyrolysis instrument that will be installed in the lab this spring. Rose Telus (undergraduate Geology major) began working in the lab in the fall, and Matthew Trahan began his Master's project in January. As for me, I spent a month last summer in far northeastern Siberia as part of a National Sciences Foundation project to study Neogene climate using geochemical analyses of fossil tree rings. In addition to the summer fieldwork, I published a paper on the geochemistry of Early Ordovician rocks, and one reconstructing atmospheric carbon dioxide levels across the Paleocene-Eocene boundary. I also presented work from the lab at the American Geophysical Union Fall Meeting and at the Geosciences Research Symposium for the Department of Energy. Related to this work, the lab received a new grant from the Department of Energy to study carbon isotope fractionation during photosynthesis, and we'll be hiring a postdoctoral researcher to work on this project in the coming year. My family and I loved our first year in Lafayette, went to as many festivals as we could, and are thoroughly enjoying the food! We're looking forward to another great year!



**Brian Schubert conducted fieldwork in the Kolyma River lowlands (Yakutia) in northeast Siberia. Inset shows fossil plant fragments collected from a nearby site.**



**The new Stable Isotope Geochemistry Lab in Hamilton Hall.**

## Tim Duex

This last year has been a continuation of many of the things that were going on previously, including work in Big Bend and hydrology studies in Louisiana as well as the Nepal project. I continue to teach the standard courses as before, including Physical Geology, Mineralogy, Petrology, Geomorphology and Environmental Geology and periodically upper level courses. Field camp was offered this past winter/summer and thankfully there were no major problems. We are planning on offering it again in the summer of 2015 and we would like to have a field camp reunion. It would be fun to get together and trade stories, some of which may even be true, and catch up on current events. Keep checking the Geoscience web site for more information and let me know as soon as possible if you can join in

2015. In terms of the family, all is going well with no major problems. Cathie's recovery from surgery is going well and we've taken several trips now that she is able to travel again. One of those was to Manitou Springs, Colorado, where, in a rare occurrence, I spent more money than she did shopping, mainly for minerals specimens that I use in teaching. Our five grandchildren are growing rapidly and it's a real joy to see them develop and mature and to be able to contribute to their lives in some way. That's about it for now, but keep in touch and come by and visit sometime, perhaps during the GCAGS convention which will be held in Lafayette next October. Good luck to everyone and don't forget to contact me about the Field Camp get together, especially if you are willing to help organize things.

## New Faculty and Staff

### Raphaël Gottardi

Dr. Raphaël Gottardi joined the School of Geosciences faculty as an Assistant Professor in August 2013. Native from France, he received his Master's degree from the University of Lausanne (Switzerland) and PhD in Geology from the University of Minnesota, studying the thermomechanical behavior of the continental crust. Prior to moving to Lafayette, he was an Assistant Professor at the University of Alaska - Anchorage. Dr. Gottardi is interested in tectonic processes affecting the continental crust, including collision, crustal thickening, orogenic collapse, and the development of continental metamorphic core complexes. He has also recently developed an interest in modeling fluid flow and heat transfer in fault zones. Dr. Gottardi combines structural geology, geochemical and geochronological techniques, numerical simulations, microstructural and microfabric analyses to study the evolution and the thermal and mechanical properties of the continental crust. Dr. Gottardi has really enjoyed his first few months living in Louisiana, and he and his wife are looking forward to crawfish season!



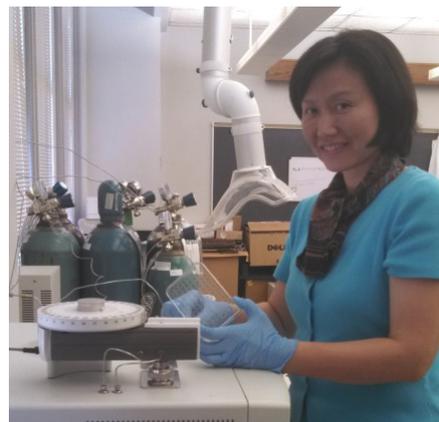
### Gabriele Morra

Dr. Gabriele Morra is a computational geophysicist with a joint appointment in geology and physics, specialized in the physics of the Earth's interior, in particular on its dynamics. He obtained his PhD in geophysics from ETH Zurich in 2005. Since then he has closely collaborated with researchers in computer sciences and in geosciences. He works on a variety of scales, from grain boundary, to global mantle convection and plate tectonics. He devised techniques for modeling subduction dynamics, contributing to the assessments of the energies involved in plate tectonics. He has introduced a new numerical approach in which he uses surface integrals for modeling three-dimensional structures. He applied it to plate tectonics, plume dynamics, stresses in a faulted crust, bubbly flow in volcanic conduits and hydrothermal reservoirs. He recently enlarged his interests to new topics such as (a) the tsunamigenic character of large earthquakes and (b) the evolution of the fractal properties of the Earth tessellation in tectonic plates.



### Yingfeng Xu

I have joined the School of Geosciences as a research technician since September 2013, working with Dr. David Borrok and Dr. Brian Schubert. I am responsible for maintaining and operating the analytical equipment in the School of Geosciences that include an IRMS – Delta V Advantage coupled with a Flash EA for CN analyses, an IC for anions/ions analyses, an ICP-OES for elemental analyses and two other instruments (a XRD and a Rock Eval 6) that will be installed in a few months. Before moving here, I was a lab manager at the FSU Stable Isotope Lab affiliated with the National High Magnetic Field Laboratory. My skills and interests are primarily in maintenance and operating of analytical facility, stable isotope study and trace element analyses, which I hope will add to the growth of our School of Geosciences.



## James E. Martin

*Research Professor; Curator of Paleontology*

Although theoretically retired, Jim had a very busy year. During the spring semester, he taught a biostratigraphy class concerning the stratigraphic distribution of Cretaceous vertebrates along the Missouri River in central South Dakota. He also managed to publish a paper concerning a giant bear in the Pliocene Ringold Formation in the state of Washington.

At the end of the semester, he headed to Oregon to satisfy the requirements of a contract for paleontological survey for the Bonneville Power Administration along the massive power line that transmits electricity from the Columbia River Dam in northern Oregon along the Washington border, across Oregon, to its southern border (final power destination is southern California). In addition to the impact survey, for two weeks in mid-May, an intrepid group of fossil hunters from the School of Geosciences at ULL collected creatures that lived during the Ice Age in the high desert of the Oregon Outback. A field paleontology course was directed by Jim Martin and Cathy Bishop, also an instructor in Geology. The students consisted of four girls and three guys, who braved the arid, windy conditions punctuated with periods of rain and even light snow. They collected over 5000 fossils from a dry lake bed appropriately named Fossil Lake. The Oregon Outback and fossil hunting were new experiences for the Louisiana students, and Fossil Lake did not disappoint - despite extremes in temperature that ranged from freezing to somewhere in the 70's, they hiked and crawled to find exquisitely preserved fossils: from a rare mammoth tooth and several partial bird skulls, to many mammals including horse, camel, fox, gopher, vole, etc. Fossil Lake is the most significant Ice Age site in the Pacific Northwest, and the Louisiana students found more fossils in two weeks than most expeditions find in several years! Our success will result in a similar trip next year. All the fossils collected will be housed in the ULL Geology Museum.

Upon return to Louisiana, Jim became involved in the move of the Geology Museum to new quarters at the Lafayette Science Museum downtown. All specimens have been moved, and curational activities are underway. New displays, including a Jurassic dinosaur display, are planned. Stay tuned for exciting developments!



**Jim Martin (left) and Cathy Bishop (second from right) leading students in the field, hunting for Pleistocene fossils at Fossil Lake, Oregon**



**ULL geology students, assisted by Cathy Bishop, are collecting a delicate fossil fish from the ancient lake beds at Fossil Lake in south-central Oregon.**

## Adjunct Faculty

A major reason why Geology and Environmental Sciences are so successful is that we get a LOT of help from our friends! In this section of the newsletter we honor some of the adjunct contributors to our programs.

### William R. Finley

With a 1974 BS Degree in Geology and a 1975 MS Degree in Geology from USL, Bill's professional career started at Gulf Oil Corp. in New Orleans in 1975, then Forest Oil Corp. in Lafayette in 1979, becoming a free agent in 1990. As an independent, Bill utilized computer applications for geologic mapping and seismic interpretation for Forest Oil, ESRI in Columbia, SC, and Subsurface Consultants & Associates. Bill joined Rozel, LLC in 1996 as a partner, retiring in 2013 to begin a career of academic and public service. Bill currently operates Aquila, LLC from an office in the Oil Center, and is an adjunct professor at ULL.

A member of LGS, NOGS, HGS, AAPG, SWLGS, SEG, and S.I.P.E.S., Bill was the 2008-09 S.I.P.E.S. Vice President of National Energy, the S.I.P.E.S. National President for 2009-10, is currently a Director on the LGS Board, the Technical Program Chairman for the 2014 GCAGS Convention, and recently been appointed to the LA

Board of Professional Geoscientists with professional license oversight in Louisiana.

As a member of the ULL School of Geosciences Advisory Board, Bill's academic service goals include assisting fundraising to aid the Department and associated Student Organizations, and maintaining and improving the geoscience curriculum through an infusion of diverse industry experience with designs to emphasize industry based skills and hands-on experience learning. The initial focus of this effort will concentrate on working with the Imperial Barrel Award team and assisting professors with course work such as Subsurface Mapping, Computer Applications, and Technical Communication among others. All of this is geared toward making the Department and the University a regionally and nationally recognized leader in integrated academic and industry based training to graduate work ready individuals.

### Ken W. Krauss

Dr. Krauss has been an adjunct member of Environmental Sciences since 2012. He is currently employed as a Research Ecologist with the U.S. Geological Survey, National Wetlands Research Center, where he currently serves on M.S. and Ph.D. committees for UL-Lafayette. Dr. Krauss works mostly in forested wetlands (swamp forests and mangroves) and maintains expertise in tree stress physiology, ecosystem water cycling, carbon dynamics, and climate change influences on coastal swamps. Dr. Krauss also focuses on coastal wetland vulnerability related to the loss of soil surface elevation with sea-level rise, and he maintains wetland vulnerability research projects and collaborations throughout the Southeast, parts of Asia, and on several Pacific islands. Studies focus on developing a better understanding of the underlying processes behind elevation losses and gains, with an eye toward conservation. Dr. Krauss also studies wetland restoration, and is interested in determining the success of various projects by assessing functional equivalency of restored wetlands relative to natural wetlands. While Dr. Krauss has lived in Mississippi and Hawaii, he was raised in Lafayette, graduated from Acadiana High School in 1990,



**Dr. Krauss in a coastal swamp forest study site along the Savannah River (Georgia), January 2014**

University of Southwestern Louisiana in 1994, and LSU in 1997. Dr. Krauss returned to Lafayette in 2001, and received a Ph.D. in Biology from UL-Lafayette in 2004. Website: <https://profile.usgs.gov/kraussk>

## William H. Schramm



William H. Schramm attended USL in 1982-84 as a graduate student in geology. He received his Master's Degree in 1984 and immediately became unemployed. After floating around and earning his teaching certificate in Earth Science and General Science K-12

from the University of Wisconsin-Milwaukee, he returned to Louisiana and joined the Louisiana Department of Environmental Quality in 1990. At LDEQ he rose through the ranks from Environmental Specialist to Geologist Supervisor. Throughout his time in Louisiana he has been a member of various geological organizations including the Lafayette Geological Society, New Orleans Geological Society and with the Baton Rouge Geological Society where he twice served as

President and numerous terms on the Board of Directors. He is currently serving his third term as AAPG Delegate representing the BRGS. He presented numerous papers and posters at various meetings, including the Gulf Coast Association of Geological Societies, American Association of Petroleum Geologists, National Ground Water Association conferences, as well as many local events. Beginning in the early 90's he guest lectured at USL/ULL for graduate seminars and various geology classes. In 2005 he was invited to join the faculty as an Adjunct Instructor teaching the Geology 460 Environmental Site Assessment and Remediation class. In 2013 He was invited to become a member of the School of Geosciences Advisory Board. He also provides environmental thesis opportunities and mentorship for graduate students and serves on their committees. A number of his students have earned award recognition through their studies and quite a few have rewarding jobs in the industry.

## Troy Primeaux



Troy works with Dr. Poudel on water quality, and is also growing peppers at the Ira Nelson Horticulture center.

You may or may not have heard of me? I'm the guy that created the *7 Pot Primo*, a world-

record breaking hot pepper. How hot is it? We are talking 1,479,000 Scoville Heat Units (SHU), the measurement of capsaicin in the pepper that correlates to the amount of pain in your mouth. Jalapeno peppers average around 5,000 SHU, so eating one Primo is like consuming almost 300 jalapenos at once! It's a feeling that creeps in and then suddenly hits you like a car-wreck. Literally, for nearly 40 minutes you are that deer in headlights. As your body is taking on a sympathetic nervous system ride of vasodilation and impending doom, all rational thought becomes a scrambled egg of incoherence and the only needle-of-focus threaded is that of one's survival. So, why on earth would anyone choose such torture? Some people run marathons and some chose to simply walk in the park. It's that same endorphin/ enkephalin rush at the end of a race or at the end of the pepper. No pain, no

gain. Burn baby burn, disco inferno! In reality, peppers are very beneficial to your health. No, they won't kill you, even though you may think otherwise at the time. Peppers are loaded with vitamins, specifically vitamins A and C, even more than an apple or orange. They are superb metabolism boosters, aid in circulatory issues, COPD, muscle aches, and many other disorders. Lastly, cancer killing-capsaicin research is currently being conducted and the results are positively shocking. Well, I'm about to break that mold and reinvent, remodel, and improve upon my *7 Pot Primo*. Primo's Peppers and UL Lafayette have teamed up to develop the World's Hottest Pepper, aka the *Ragin Cajun*. The partnership is a natural fit; the "pepper" is a huge part of our school motif and has been a staple of our culture for many generations. How cool, or should I say "hot", would it be to have a record breaking hot pepper here at UL? Not only is it a sensational news story, but the research possibilities are seemingly endless. In the meantime, if you want to learn more about all things peppers and the science of pepper hybridization, please feel free to see me in the School of Geosciences. The running joke in our department is: be careful when trying the homemade Primo hot sauce in the kitchen, and whatever you do, be sure to wash your hands thoroughly after shaking Primo's!

## Research Highlights

### Jenneke Visser Wetland Creation at Cade Research Farm

Dr. Visser, in collaboration with Dr. David Borrok and Dr. Emad Habib, received a grant from the Louisiana Board of Regents to convert eight of the seventeen crawfish research ponds at Cade Farm to a coastal wetlands research facility. Four of the ponds will be converted to freshwater marshes and the other four ponds will be converted to brackish marshes. To protect the local groundwater from salinity a liner system will be installed (bottom photo shows start of the digging for liner placement). Tidal action will be simulated by pumping water between the paired ponds. Common wetland plants will be transplanted in each pond from donor marshes. Several undergraduate students participated in collecting fresh water plants from White Lake Preserve (top photo) and brackish marsh plants from Rockefeller Refuge (middle photos).

Each wetland will be outfitted with standard monitoring equipment, such as a sediment elevation table, accretion plots, vegetation plots and a water level, temperature, and salinity gauge. In addition, the site will have a weather station to measure local precipitation, wind, and air temperature. One undergraduate has designed floating docks that can be used to access the monitoring equipment at flood stage. The installation work on this project is anticipated to be completed by June 2014. A web site will be created to allow students to access gathered monitoring data and to disseminate information about the project. The coastal wetland facility will allow faculty to provide hands-on experience with wetland monitoring to undergraduate students. In addition, the facility will be used for undergraduate and graduate research projects in an easily accessible controlled coastal system.



Collection of freshwater marsh sods at White Lake Preserve.



Collection of brackish marsh plants at Rockefeller Refuge.

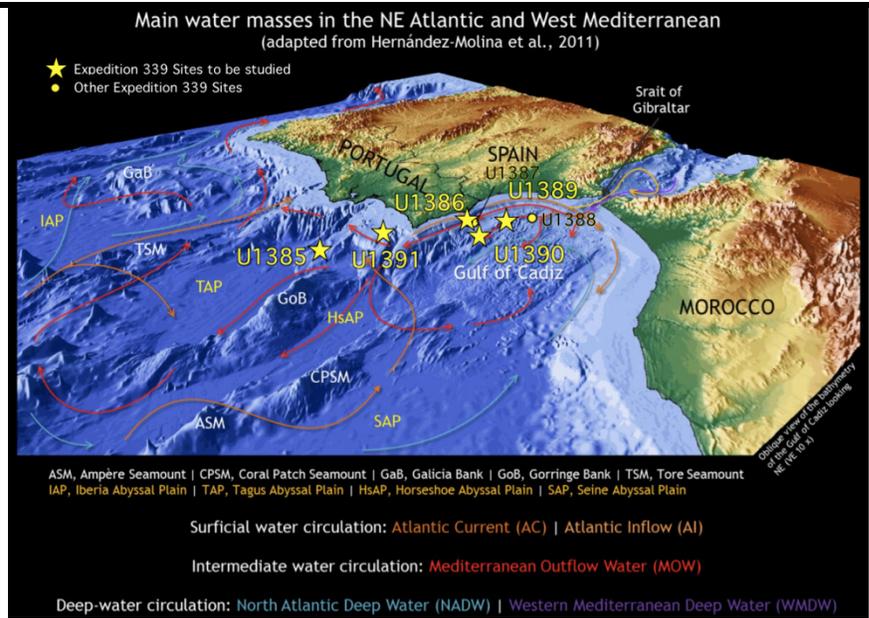


Dr. Visser at Cade Research Farm

# Carl Richter, IOP Expedition 339

Carl Richter was awarded \$200,000 funding from the National Science Foundation in collaboration with Gary Acton from Sam Houston State University in Texas to work on sediment cores recovered along the coasts of Spain and Portugal by the Integrated Ocean Drilling Program (right). The main objectives are to investigate the influence of Mediterranean Outflow Water (MOW) on global ocean circulation, climate, and contourite formation and growth, and to construct a marine reference section of Pleistocene climate variability for the Northeastern Atlantic comparable to polar ice records. Because the warm, salty

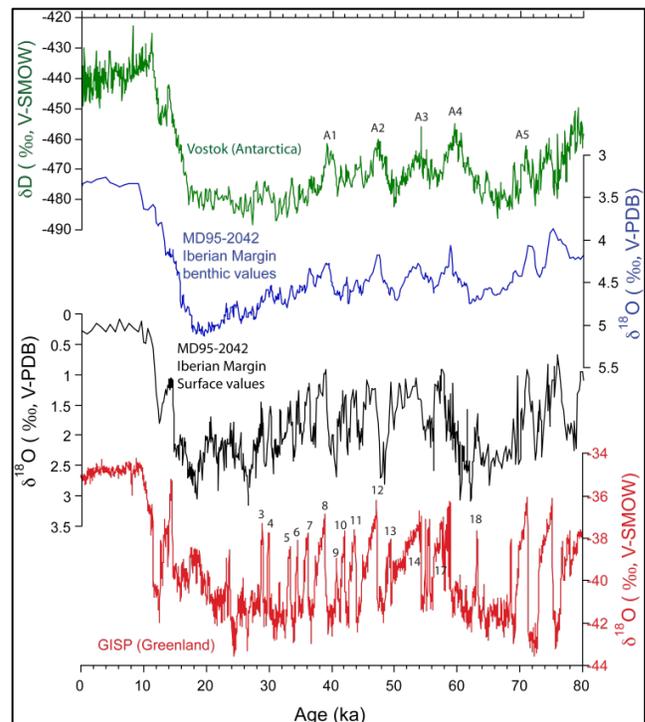
MOW flows through the Straits of Gibraltar, the scientific objectives extend to factors that influence the Gibraltar gateway, including regional tectonics and sea-level changes. Ultimately, the goals are to use the diverse geological, geophysical, and geochemical information recorded in the thick sedimentary section to piece together, at ultra-high resolution, the past few million years of Earth's history along the Iberian Margin (Figure below). The primary observations to be used are paleomagnetic and rock magnetic data collected continuously every 1 cm along ~100 U-channel samples, and a plethora of shipboard data that include natural gamma radiation (NGR), magnetic susceptibility, digital images with 50 μm resolution, color reflectance, density, carbonate percentages, and pore-water chemistry. These data will be integrated with high-resolution stable isotope studies, CT scans, and XRF core scan data that are being collected in collaborative studies. The project has started with graduate students Alex Dixon and Lindsey Horton working on different aspects of the project.



IODP Expedition 339 drill sites and the circulation of the main water masse.



Top: view of shipboard paleomagnetism lab during IODP Expedition 339. Right: Correlation of GISP ice core  $\delta^{18}O$  (in red) to planktic  $\delta^{18}O$  record (in black) of Core MD95-2042 (Shackleton et al., 2004), and resulting correlation of Vostock  $\delta D$  (in green) and benthic  $\delta^{18}O$  of Core MD95-2042, which is close to the IODP Expedition 339 sites. (Figure taken from Stow et al., 2011)



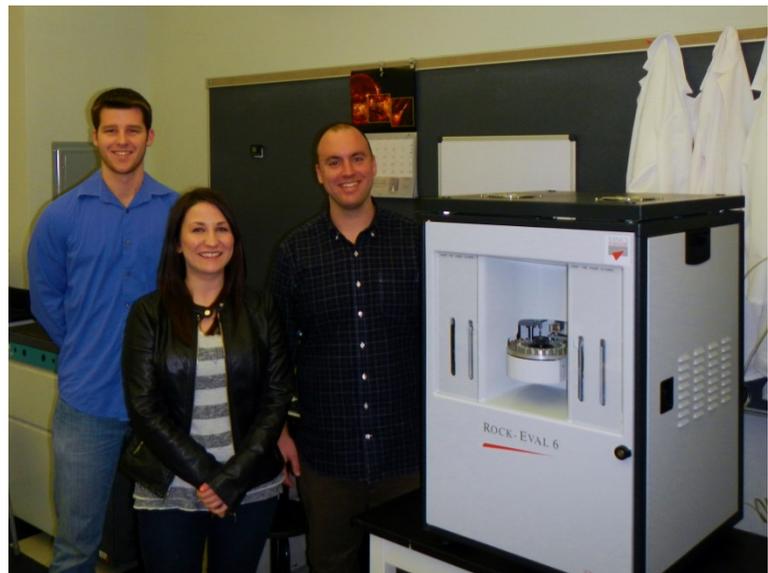
## Durga D. Poudel, Mississippi River Basin Initiative Watershed Water Quality Monitoring in Bayou Chene and Lacassine

Dr. Poudel continues to lead the Mississippi River Basin Initiative (MRBI) Watershed Water Quality Monitoring in Bayou Chene and Lacassine Bayou in Louisiana in 2013. As a part of the Mississippi River Basin Healthy Watershed Initiative, this project is funded by LDEQ for water quality monitoring of 12-digit HUCs in Bayou Chene and Lacassine Bayou in southwestern Louisiana. Weekly field monitoring and collection of water samples for laboratory determination from 4 monitoring locations in Bayou Chene and 5 in Lacassine Bayou started in July 2012 and will continue until the end of June 2014. While field monitoring includes the field measurement of DO, turbidity, conductivity, pH and surface water temperatures, laboratory analyses of water samples include the determination of TS, TDS, TSS, BOD5, Cl, SO4, Fl, TKN, NO3-N, NO2-N, TP, and SRP. Highly elevated

concentrations of suspended solids are observed in the water bodies, especially in the months of March and April when rice crops are planted and the rice fields are drained; dissolved oxygen levels are found to be declining following the surge of suspended sediments in the water bodies. It appears that water quality of these water bodies can be significantly improved by managing rice-field drainage waters during the months of March and April. In addition to practicing other Best Management Practices (BMPs), to minimize sediment loads to Bayous from rice fields, rice growers can retain floodwater 7-14 days in rice fields after planting rice. This will allow enough time for sediments to settle down in the fields, and reduce sediment loads emerging from rice-fields in Bayou Chene and Lacassine Bayou.

## Brian Lock, Rock Eval Instrumentation

Last year, Brian Lock, David Borrok and Brian Schubert put together an equipment grant proposal to the Louisiana Board of Regents. We requested roughly \$250,000 to purchase a Rock Eval® analyser. This is a tool for measurement of source rock (and therefore also of shale reservoir rocks) properties including organic content, maturity level, kerogen types etc. The equipment is manufactured in Europe and has only recently arrived – it was set up in the department in late February. We shall have the facilities for graduate and faculty research and hope to get involved in projects where we gain access to study material (conventional cores, primarily) in exchange for providing data. I hope to see multiple thesis projects emerge. Our technician, Yingfeng Xu, will be an invaluable resource, since I have trouble making a toaster work!



Graduate students Daniel Sutton, Jin Watkins and Chris Murley next to the new Rock Eval® analyser.

# 2013 Field Camp Photo Gallery



## Gifts to the School

We would like to thank all those who donated to Geology in 2013

### ☞ Donations up to \$1000 ☞

*Core Laboratories LP*

*Carmen Nezat*

*Jane Estes Jackson*

*Douglas Mendelson*

*Gary P. Huffman*

*Linda T. Reif*

*James D. Gamble*

*Exxon Mobil Foundation match*

### ☞ Donations \$1000 to \$5000 ☞

*Tim Dore Stock Donation*

*BP foundation match*

*William Finley Non-Endowed Scholarship*

*Kelley Poret*

*Mary Broussard*

*Chevron Humankind match*

*Michael J. Quinn*

*Freeport-McMoran match*

*Wilkinson Family Foundation*

### ☞ Donations \$5000 to \$10,000 ☞

*David B. Sturlese*

### ☞ Donations > \$10,000 ☞

*William Finley Endowed Scholarship*

# Honors and Awards to Faculty and Students

## *Faculty*

**Brian Lock** - Good friends were kind enough to nominate me for the Distinguished Service Award from AAPG, presented in absentia at the Pittsburgh convention. This was much appreciated although little deserved. My thanks go to those responsible! Brian was also awarded a GCS-SEPM Honorary Membership. Brian Lock's paper on Cretaceous storm deposits in West Texas received Third Place Best Paper award from the GCAGS Annual Convention in New Orleans in October, 2013.

**Brian Schubert and Jenneke Visser** were both awarded the Certificate of Achievement in Research and Sponsored Activities from ULL. **Brian Schubert** received the 2013 Best University Research Award, Department of Energy, Basic Energy Sciences.

### *Graduate Geology Students*

**Marathon Oil Scholarship**  
*Joseph Morris, DeShawn Sutton*

**Nolan Badeaux Scholarship**  
*Cody Cannon, Jade Bujard, Jacob Whitson*

**Bernard Endowment Scholarship**  
*Kin Tchen*

**Gulf Oil Foundation Scholarship**  
*Jacob Juneau*

**Eberhart E. Leschin Scholarship**  
*Ayokomi Lasisi*

**Morris Endowed Scholarship**  
*Jaco Whitson*

**Bill Paine/LGS Endowment Scholarship**  
*Jason Dayley, Brian Fisher, Jin Watkins, Hong Huang, Jacob Juneau*

**Pogo Producing C. Scholarship**  
*Terri Bannister*

**Paul Toce Geology Endowment Scholarship**  
*Kin Tchen, Gage Seaux, Bo McDougald*

**Wilkinson Family Scholarship**  
*Todd Landry, Anthony Day*

### *Undergraduate Environmental Science Students*

**Antoine Benton Memorial Scholarship**  
*Kyle Saucier*

**Joel B. Bernard Scholarship**  
*Matthew Greene*

**Martial F. Billeaud Scholarship**  
*Bryce Landreneau*

**Charles & Julia Walker Bourque Scholarship**  
*Mikayla Meaux*

**Farmers Merchants Bank Scholarship**  
*Courtney Poirier*

**Dr. Jorge Gonzales-Dean Joel Fletcher Scholarship**  
*Fabiane Santos Neto*

**Sigmond Solymosy Scholarship**  
*Karl Simon, Timothy Stears, Rodney Pulliam*

**South Louisiana Mid-Winter Fair Association Scholarship**  
*Courtney Poirier*

**Charles Joseph Miller & Vivian Melancon Miller Scholarship**  
*Zoe Huval, Kyle Landeta*

# A trip down memory lane...



Bill Paine and Monte Gimbrede with students on a field trip



Left: Bill Paine - Right: Engineering faculty 1950's or early 1960's (date not recorded) Geology faculty italicized: Row 1, left to right: Cambre, Wallace, *Mc Campbell*, Zurburg, Hall, Chieri, Stevens. Row 2: Uhl, Connell, *Kessinger*, *Gimbrede*, Troxler, Larue, Grove, Jobe. Row 3: Morse, Clark, *Wood*, Szabo, Jenkins, Repsha, Domingue, Fournet, Pereda, Moore, Madany, Wallis, Bliss. Row 4: Harding, Averitt, *Paine*

# Degrees Granted -2013

## Fall 2013

### Bachelor of Science in Geology

*Cody J. Cannon, Chad M. Hebert, Jacob C. Juneau, Corbett J. LeBouef IV,  
Ben J. Lissard, Chase H. Ratley*

### Bachelor of Science in Environmental Sciences

*Mariana Goodwin, Daniel Lafleur, Kathryn Leboeuf, Jacquelyn Levan, Virginia Soileau*

### Master of Science in Geology

*Nicholas A. Bearb, Elisabeth L. Boudreaux-Papa, Jeff S. Etienne, Mark R. Etienne  
Michael T. Lahey, Samantha E. Leone, Martell A. Strong, Beau C. Andrepont*

\*\*\*\*\*

## Spring 2013

### Bachelor of Science in Geology

*Alexander R. Bancroft, Matthew E. Bieber, David B. Burley  
William K. Hagood Jr., Blake S. Johnson, Chase Joubert  
Austin R. Shotwell, Grady L. Elmore, Ansley Robinson*

### Bachelor of Science in Environmental Sciences

*Michael Atkinson, Lacy Bellanger, David "Dirt" Boulanger, Phillip Breaux,  
Andrew Chutz, Jason Faulk, Amanda Kasson, Blake Locascio, Anthony Patin  
Mary Payne, Priscilla Punch*

### Master of Science in Geology

*Christopher Hatamian*

## In Memoriam

### Kevin Charles McNamara *(March 12, 1943 to January 21, 2014)*

Born in 1943 to the late Lawrence and Carolina McNamara in New Orleans, Louisiana, Kevin graduated from Fortier High School and then earned a bachelor's degree in Geology at the University of Southwestern Louisiana in Lafayette. After two years of post-graduate study at USL, he went on to a successful four-decade career in petroleum geology, focusing primarily on the Louisiana coast (Amoco, Onshore Oil, Louisiana Land & Exploration, Goodrich Exploration Ltd). Kevin was elected to the USL Foundation board of directors in 1987. Later in his career, Kevin and his wife Veronica provided support for an endowed professorship: the Kevin C. and Veronica Charles McNamara Endowed Professorship in Geology. In addition to earth science, Kevin enjoyed dancing,

entertaining his grandchildren, amateur philosophy, and devising awful puns. He loved listening to and connecting with everyone, and his infectious smile and laughter were a gift to all those around him. He was a rare gem. Kevin is survived by son Jason, of Houston; daughter Casey Landry and husband Ted, of Kingwood; son Kyle and wife Amy, of Alexandria, Virginia; and their mother Ronnie, as well as six grandchildren: Charlotte, Abigail, Patrick, Caroline, Luke, and Finn. He is also survived by his special friend Sharon Vermillion, sister Patricia LaFleur, step-sister Kim Foley, and many adored nieces and nephews. His brother Robert predeceased him.

### Mike O'Brien

One of our geology graduate students who conducted research in Big Bend National Park, Mike O'Brien, passed away during field work in the Sierra Quemada area on June 7, 2013 at age 25. Mike was a dedicated and hardworking student who wanted to finish his thesis and pursue his dream to become a geologist. The summer months can have very high temperatures in Big Bend.

This, combined with the remote and rugged terrain of the park, can make the desert a very difficult and unforgiving environment. He will be missed tremendously by those of us who knew him and of course by his family and friends. A scholarship fund is being set up in his name to fund field safety and equipment needs.

### John R. Fisco

John Ronald Fisco, 62, of Midland, Texas passed away on February 19, 2014. John was born in Boston, Massachusetts on November 29, 1951. He graduated from Franklin High School in Franklin, Wisconsin. He received an undergraduate degree in Geology from the University of Wisconsin in Oshkosh, Wisconsin. John also received a Master's Degree from the University of Southwestern Louisiana (USL) in Lafayette, Louisiana. He married Yvonne Vidrine on June 7, 1980 in Washington, LA. They have been married for 33 years. John, a Licensed Professional Geologist, worked for TXO in Midland, Texas. In 1992, he founded his own oil and gas company, High Plains Exploration. He later founded Fisco Minerals. John was an AAPG Certified Petroleum Geologist, a member of the American Association of Petroleum Geologists (AAPG), a member of the West Texas Geological Society (WTGS), and also a member of the Society for Sedimentary Geology (SEPM). He enjoyed gem and mineral collecting, fishing, hiking, and

passionately sharing his knowledge of the geological formations of the earth. John was an avid Green Bay Packers fan. He was a devoted volunteer at St. Ann's Catholic School, Summer Mummies, Midland Community Theater (MCT), and the Midland High School Band. John loved spending time with his family, friends and pets. He is preceded in death by his father, Ronald John Fisco and his beloved grandparents. John is survived by his wife, Yvonne Vidrine Fisco; daughter, Stefanie Rose Fisco and husband Evan Paul Langlinais, and daughter, Michelle Marie Fisco; mother, Catherine Fisco Kluever; brothers, Joe Fisco and wife Cathy Fisco, Steve Fisco and wife Jan Fisco, Michael Fisco and wife Abby Fisco; sisters Annette Holtz and husband Dave Holtz, Jeannine Kawczynski and husband Rick Kawczynski, Christine Mather and husband Scott Mather; godparents John Ciulla and wife Lena Ciulla; and by numerous uncles, aunts, nieces and nephews.

## Upcoming Events



### AAPG UL Lafayette Geology Alumni Reception

The AAPG Annual Convention & Exhibition is coming up. It will take place from Sunday, April 6th through Wednesday, April 9th in Houston, TX. On Monday, April 7th, there will be a UL Lafayette Alumni Party. This will be a great opportunity for students to network with current professionals who attended UL Lafayette.

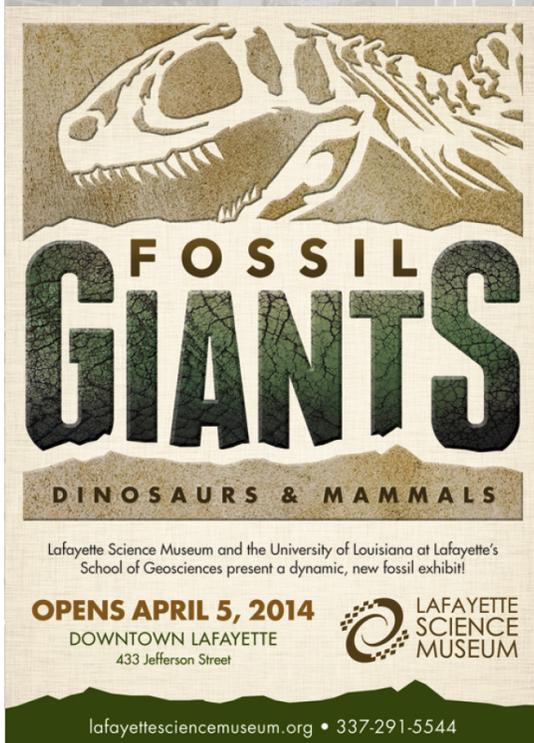


### Gulf Coast Association of Geological Societies

The 64th Annual Convention of the Gulf Coast Association of Geological Societies and the Gulf Coast Section of SEPM will be hosted from October 5 to 7, 2014, by the Lafayette Geological Society at the Cajundome Convention Center in Lafayette, Louisiana.

### UL Geology Museum

Come to the museum! The Geology museum has moved to downtown Lafayette, to 3000 square feet of space within the Lafayette Science Museum. The first exhibit, dedicated to Jurassic dinosaurs, will open on April 5<sup>th</sup>.





Contacting the  
School of Geosciences

Let us know where you are and what you are doing! We will include brief updates in the next newsletter.

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([Nadean@louisiana.edu](mailto:Nadean@louisiana.edu))

or Pauline Greene  
([geology@louisiana.edu](mailto:geology@louisiana.edu))



<https://www.facebook.com/geosciences.ullafayette>

Please follow the link below to update your alumni contact information and leave your e-mail address, so we can send you the newsletter electronically in the future!  
<http://louisianaalumni.org/updateprofile>

## How to support Geology or Environmental Science

Donations can be made using the foundation website, <http://www.ullafayettefoundation.org/> or call the foundation at (337-482-0700). We encourage **Geology** donors to use one of the funds described below. Please contact UL Geology directly if you have a question or if you require special arrangements.

1. **The UL Lafayette Geology Faculty & Student Development Fund (#21654)**. This is a non-endowed fund that is designed to support the immediate financial needs of the Geology program. We suggest that donations under \$1000 be directed here.
2. **The UL Geology Growth Fund (#21676)**. This is an endowed account that is designed to grow over time to support the long-term needs of the Geology program. We suggest that donations greater than \$1000 be directed here.
3. We encourage **Environmental Science** donors to use the **UL Lafayette Environmental Science Fund (#05681-2)**. This is a non-endowed fund that will help to support the immediate needs of the Environmental Sciences program. We hope to develop and open an endowed fund for long-term growth in the future.