Students in GEOL 2254 (Practical Mineralogy) inspecting the gypsum crystal formations from atop the mesa at Glass (Gloss) Mountain State Park, Major County, OK. In this field trip, students also visited the Salt Plains National Wildlife Refuge in Alfalfa County OK for several hours of crystal digging, giving the students a chance to examine crystallization in the present day and extrapolate their findings to evaluate past environments. Dr. Tracy Quan who directed the field trip is in the grey jacket and wide-brimmed hat third from the far right.

A Message from the Interim Head
Eliot Atekwana

Greetings to all alumni and friends of the Boone Pickens School of Geology at Oklahoma State University! The Boone Pickens School of Geology experienced a 40% faculty growth in 2012. Dr. Michael Grammer the Chesapeake Energy Corporation Chair of Petroleum Geoscience and Dr. Mohamed Abdelsalam, the Pickens Chair of Geophysics, started in August. They were both introduced to you in our 2011 News Letter. We welcome Dr. Joseph F. Donoghue and Dr. Jack C. Pashin.

Dr. Donoghue joined the School in August as an Associate Professor. He obtained his B.S. degree from Princeton University, M.S. from American University and Ph.D. from University of Southern California. He is a certified professional geologist in the State of Florida. Dr. Donoghue is a
sedimentologist. His research interests are in environmental geology, causes and effects of sea-level and climate change, geology and geomorphology of coastal and aquatic environments, Quaternary geology and geochronology. He has conducted research on the effect of climate change on coastal systems and infrastructure, paleostorm history of NW Florida, northern Gulf of Mexico sea-level change and the evolution of coastal barriers in the northern Gulf of Mexico and on sedimentary environments and paleogeography of the Florida Inner Continental Shelf.

Dr. Pashin joined the School as a Professor and the Devon Chair of Basin Research in January 2013. Dr. Pashin’s research interests are in sedimentary geology, coalbed methane, shale gas, conventional reservoirs, geologic carbon sinks, structural geology and basin analysis. He has conducted research in a variety of fields, most notably in unconventional gas exploration and development (coal and shale), conventional hydrocarbon reservoirs, and geologic CO₂ storage. In addition to his research in energy and CO₂ storage, he has also conducted research in structural geology, basin analysis, hydrology, petrology, and geochemistry.

In addition to the new faculty we are also expanding our research capabilities with the addition of two postdoctoral fellows and one research scientist. Dr. Dave Bridges is a new postdoctoral fellow in the Geophysics and Tectonics Research Group working under the supervision of Dr. Abdelsalam. Dr. Igor Broun is a microbiologist working in the Biogeophysics Laboratory with Dr. Estella Atekwana. Dr. Gamal Abdel Aal is a research scientist working in the Biogeophysics Laboratory under the supervision of Dr. Estella Atekwana.

In the immediate future, we are concentrating on filling the new position of the Head of the School. The position is open, and we hope to fill it before the 2013 academic year.

The number of B.S. degrees awarded in Geology dropped to 17 from the high of 24 in 2011. We anticipate increasing this number in the near future as enrollment increases. We graduated 21 students with M.S. degree which is up from 14 in 2012. This mostly reflects our efforts to help those who have been “hanging around” to complete their degrees. We graduated no Ph.D. students in 2012; however, we have 2 Ph.D. students expected to graduate in the next year.

Geology faculty were awarded about $700,000 in new grants between July 1, 2011 and June 30, 2012. Although this is down about $300,000 from last year, we expect the number to increase significantly with the addition of our 4 new faculty hires. On the other hand, grant expenditures (amount of money spent on research) increased from last year by 100,000 to slightly above 600,000 and reflect increase research productivity of our faculty and students.
Geology Field Camp, May & June 2012

By Jim Puckette

The 2012 field camp was blessed with dry and mild weather. We would have welcomed precipitation in any form to help mitigate the effects of drought in the southern Rockies. Enrollment in 2012 was capped at sixty students and camp filled in late 2011. Students from fifteen different colleges and universities attended including twenty seven from OSU, and thirty three from the other fourteen schools, which included Appalachian State, Arkansas Tech, Georgia Southern, Grand Valley State, James Madison, Midwestern State, Montclair, Purdue, Texas A&M Corpus Christi, Tarleton State, University of Northern Iowa, University of Texas Dallas, University of Tennessee Kingsville, and University of Texas San Antonio. Our outstanding teaching assistants were Ms. Sahar Mohammadi, Andrew Snider and Andrew Katumwehe. Our camp maintenance man was Jumping Jack Colpitt named for his constantly high energy level. Jack and Anne Miller wrote and performed a ballad extolling the many positive aspects of field camp. Tim Sickbert served again as our capable medical officer and fortunately only had to deal with minor complaints. Our two capable cooks, Ms. Michelle Leach and Jana Van Pelt, kept the kitchen running smoothly and provided tasty, healthy and filling meals. Michelle and Jan were assisted by Jack Colpitt and Ms. Lauren Guidry, whose skills as a dishwasher will serve her well if she decides geoscience is not her chosen profession. Fulltime faculty were Chester Wallace, a retired Colorado mapper, Rick Hobbs, Amarillo College, George Bolling, University of Colorado, Colorado Springs and Jim Puckette.

Ms. Tiny Striegel of Canon City, our benefactor and camp Grande Dame, graced us weekly to visit with the staff and students and read her poetry. Tiny as expected, was her usual charming self and quickly embraced by the new students.

Field projects in 2012 included Phantom Canyon/Gnat Hollow, Grape Creek, Mixing Bowl, Big Orange, Red Canyon Park, Blue Ridge and Twin Mountain. Under the guidance of Andrew Katumwehe and Tim Sickbert, the geophysical exercise concentrated on imaging the alluvial aquifer along Eightmile Creek where it crosses the camp property. Field trips included Cripple Creek and Victor, Pikes Peak, Great Sand Dunes National Park, and Leadville. For
the first time in many years, it did snow on the group when we were in Leadville. Thanks to a generous contribution from Mr. Rick Hauschild, improvements were made to the dishwashing house including the addition of two, on-demand water heaters and a storage tank. We will continue to make improvements this summer and hope to add a fire-suppression system in the kitchen as well as a new refrigerator. These improvements are necessary and welcome as we filled the 2013 camp in October 2012 with 60 students and have a waiting list of additional out-of-state students who wish to attend. As always, we welcome visitors and encourage any camp alumni to visit and reminisce with us about the fond times spent at field camp.

Summer field camp begins on May 21 and ends on June 22. It promises to be an exciting summer so please remember if you are in the area, stop by and visit. For directions, email Jim.Puckette@okstate.edu.

2012 Awards

Priyank Jaiswal was awarded the Arts and Sciences Junior Faculty Award for Scholarly Excellence. The photo shows from left: Michael Long, Lindsey Smith Smith, Priyank Jaiswal and Karaca.

Dr Jim Puckette was awarded the Outreach Faculty Excellence Award. The award is being given by Dr. David Henneberry.

International Field Work in Ethiopia

By Mohamed Abdelsalam

Miss Kourtney Buckley, a senior student at Oklahoma State University Boone Pickens School of Geology was one of four US students who visited Ethiopia in the summer of 2012 working on a project entitled “Modeling Drainage Incision on the Ethiopian Plateau”. The project was funded by the National Science Foundation – Office of International Science and Engineering – International Experience for Students (NSF-OISE-IRES). The US students joined four students from Addis Ababa University and Gondor University in Ethiopia in three weeks long geoscientific activities that involved three-day workshop entitled “Geography and Geology of the Nile System with special emphasis of the Blue Nile” in Addis Ababa University followed by two weeks field work in the Ethiopian Plateau. The project is meant to provide US students with international research experience in the geosciences by conducting cutting-edge research with peers in other countries.

Field activities focused on the Southeastern Plateau close to the Afar Depression where US and Ethiopian students were involved in geological and geomorphological mapping as well as examining geological structures that might have
controlled the evolution of drainage system on the Ethiopian Plateau. Miss Buckley successfully collected and analyzed geological data that led her to present her results in Charlotte, NC during the 2012 Geological Society of America Annual Meeting “Buckley, K., Faber, E., Yirgu, G., and Abdelsalam, M.G. 2012. Rift outer hanging wall extensional styles: An example from the Afar Depression, Ethiopia. Geological Society of America (GSA) Annual Meeting, Charlotte, NC. Research activities of US and Ethiopian students were supervised by Dr. Mohamed Abdelsalam who joined Boone Pickens School of Geology in the fall of 2012 together with Drs. Gezahegn Yirgu and Balemwal Atanfu of Addis Ababa University and Dr. Dawit Lebanie of Gondor University.

JVB’s Hydrodays 2012 hosted by OSU Geology

By Todd Halihan

The 2012 rendition of Hydrodays was being hosted by OSU in beautiful Connerville, OK. The general trip was a hydrogeologic tour of the Arbuckle-Simpson aquifer. Additionally, we visited the EPA Groundwater Lab in Ada and Randall Ross (OSU Alum and Pettyjohn student). Dr. Jay Famiglietti presented the Birdsall-Dreiss lecture during the fieldtrip (along with a piano performance while we waited for the AV equipment to cooperate). Several universities participated along with state and federal folks from a range of agencies. It was a great experience for our students. The trip was April 12-14, 2012 and was supported by the Thornhill Group (another OSU alum). The best quote of the trip was, “I didn’t realize that Oklahoma had so many beautiful places.” This year’s trip is being hosted by Texas down in San Antonio.

Boone Pickens School of Geology – Head “Emeritus”

As many of you know I have been away this year on sabbatical in The Netherlands. I will return to Stillwater in August in time to begin teaching in the Fall semester. However, I have asked our new Dean, Dr. Bret Danilowicz, not to reappoint me as Head of the Boone Pickens School of Geology upon my return. It is with some regret but a great deal of relief that I have made this personal decision to step out of any administrative role at the University. The decision was made more than two years ago when I discussed it with the executive group of the Advisory Board and the then Dean of Arts and Sciences, Dr. Peter Sherwood. Dr. Sherwood kindly supported my application for a sabbatical leave during my final year as Head, which I am now enjoying.

It has been a great honor to serve as Head of the Boone Pickens School of Geology these past eight years. When I started in 2005 we were a small, mainly undergraduate department with 10 to 11 faculty and a relatively small M.S. graduate program. We are now a medium sized to large School with 14 full time professors, several actively teaching adjunct faculty, a large graduate student enrollment, an active Ph.D. program, several associated research scientists, and more than twice the number of undergraduate students. Many other changes have taken place, I hope mostly for the good. Most importantly we are increasing our impact on the national and international stage for our research and our ability to supply highly educated professionals to the water resourced and petroleum industries.

None of this would have been possible without the dedication, hard work, and sometimes sacrifice of our alumni and friends. You were the ones who stepped up and found the money to rebuild our Field Camp when it was destroyed by a flood in 2006. You were the ones that made it possible for us to take full advantage of several large bequests by Mr. Boone Pickens to the University. You are the ones who continue to support our School by your presence at important events, your advice and guidance, your influence with state and university officials, your continuing to hire our graduates, and of course by your financial gifts.

I will continue to be proud of the Boone Pickens School of Geology and I will do whatever I can to promote the School as a faculty member and alumnus. I hope that all of you will continue your generosity to the School and I look forward to seeing you from time to time.

Best wishes,
Jay M. Gregg (M.S. Geology, 1976).
Mohamed Abdelsalam: Hello everyone. This is my first year in the Boone Pickens School of Geology at Oklahoma State University. I joined the School as the Boone Pickens Chair of Applied Geophysics and Professor of Geology in the fall of 2012 coming from the Department of Geological Sciences and Engineering at Missouri University of Science and Technology. My family and I are settling down alright here in Stillwater and we are already part of the School’s family.

Allow me to introduce myself. I grew up in the Sudan and got a BS and MS from the University of Khartoum, Sudan. I moved to the US in the Spring of 1988 to work towards my PhD in the Department of Geosciences at the University of Texas at Dallas where I stayed until 2006 as a PhD student, a Research Scientist and an Assistant Professor. My research focuses on Geodynamics and Geospatial Science. Currently, I have a couple of projects funded by Statoil and expertise can be of use to you.

On the family front, my wife Mahasin and I have 4 children. Our oldest daughter Hala is at OSU and taking course to start a MS in Geology in the BPSOG, our son Montasir is a college senior, Hiam is in the Stillwater High School and Hiba is in the Junior High.

Eliot Atekwana: Greetings to all alumni and friends! I report to you a successful 2012. I continue to teach, maintain an active research program and supervise students. This year, in addition to serving as interim head of the school, I taught Isotope Geochemistry and Advance Studies in Geology in the spring and Geochemistry and Research Methods and Techniques in Geosciences in the fall. I also supervised MS thesis and Doctoral Dissertation in the spring and fall semesters.

This year, our hands-on laboratory/field component to the Geochemistry course involved investigating the quality of surface water in and around the city of Stillwater. The aim was to determine if the quality of surface water met the US EPA drinking water standards. The students who were divided into groups measured physical and chemical parameters of streams, ponds and lakes, and collected water which was later analyzed for major cations and anions in our geochemistry laboratory in the HBRC. The students had to evaluate the different surface water systems (streams, ponds, lakes) and assess causes for possible water quality impairment. The students compared their results with the drinking water standards and found that more than 95% of the samples were compliant with the standards.

This exercise culminated into interesting and insightful reports about the project findings. The report was designed to fulfill the writing component of the course. The international research experience involved one OSU student (Wes Rutelonis), a student from Arkansas Tech (Scott Meier) and three students from the University of Botswana. This is the third and final year of a three year project to provide international research experience to US graduate and undergraduate students funded by the National Science Foundation. In all, the field campaign was very successful.

This year, I was elected a fellow of the Geological Society of America and a member of the Joint Technical Program Committee in the Hydrologic Division. I was involved with the publication of three research articles in Bigeochemistry, Palaeogeography, Palaeoclimatology, Palaeoecology and the Journal of African Earth Sciences. My students, collaborators and I presented seven abstracts at the GSA annual meeting and 1 abstract at the American Geophysical Union. My students presented their research at the Boone Pickens School of Geology Fall Tech Conference.

Dr. Estella Atekwana and I along with our students and collaborators continue to work on our projects funded by Chevron Energy Technology Company and the National Science Foundation. I continue to work with and mentor my students Pride Abongwa (PhD), Eric Seeger, Morgan
Estella Atekwana: Greetings to all alumni and friends! I hope this newsletter meets you all in good health. I keep saying that this is the year that I slow down. However, this never seems to happen. 2012 continued to be an extremely busy year for me as usual with lots of travelling. It was also a very exciting and productive year for me. We are winding down our activities related to the PRIDE project. The PRIDE team has given us the opportunity to critically examine biogeophysical signatures at organic rich contaminated field sites. We have submitted two papers for publication based on our results.

In January I presented a talk to the Geo-physical Society of Oklahoma City on “Petroleum Biogeophysics - from oil field microbial processes to oil bioremediation”. In May, I presented a talk at Stanford University on “Looking for Geophysical Signs of Life”. June found me in Botswana together with two OSU students – Kyle Obenberger and Khumo Leseane. We were joined in Botswana by Dr. Kevin Mickus of Missouri State and Dr. John Hogan and a PhD student from Missouri University of Science & Technology. This was the first field season for the NSF sponsored Science and Technolo-gy Center "C-DEBI", The Center for Dark Biosphere Investigations at University of Southern California and the NSF Funded program in Forest Ecosystems at Alabama A&M University.

In October I spent two days at Monterey Bay attending a C-DEBI all hands workshop hosted by the University of Southern California as part of my Advisory board duties. I then flew to New Jersey for three days where I was co-convening a GeoPRISMS (Geodynamic Processes at Rifled and Subducting Margins) science implementation workshop. We selected key areas along different segments of the East African Rift System where more studies are needed to examine the role of fluids, vola- tiles, and preexisting structures on rift initiation. In December, I attended the Ameri-can Geophysical Union (AGU) Annual meeting and my research group presented five papers.

During the winter semester 2012, I taught a course on Electrical and Electromagnetic Methods in Exploration. I had a great group of students and we capped the course with a 2 1/2 day short course on magnetotelluric methods in exploration. We had a company representative from Geometrics Inc. in California offer the short course which also had a field component. MT techniques are increasingly being used in oil and gas exploration in frontier basins as well as for sub-salt and sub-basalt imaging. In the fall I taught a course in Introduction to Geophysical Exploration Methods. This course introduces students to the different geophysical techniques used in exploration. It includes a hands-on component that exposes the students to the different geophysical instruments including: seismic, gravity, electrical resistivity/induced polariza-tion, magnetotelluric, different electromagnetic induction instruments, self potential and geophysical well logs, etc.

Darin Boardman: My research over the past year has revolved around Carboniferous conodont and ammonoid biostratigraphy and sequence stratigraphy. Included in my research is a published paper on Bashkirian-Moscovian boundary biostratig-ra phy: Pennsylvanian (Atokan) Ammonoids from the Magoffin Member of the Four Corners Formation, Easter Ken-tucky: Work, D. M., Mason, C. E., and Boardman, D. R., II, 2012: Journal of Paleontology, V. 86, No. 3, p. 403-416. Additionally, in conjunction with EOG Resources and the Oklahoma Geological Survey I have begun a joint research project of Pennsylvanian marine condensed sections of the Anadarko Basin in an attempt to develop a model for high resolution sequence stratigraphy. Field Work for this project has already been completed. Jared Morris a master’s student is helping in these research efforts as his thesis research topic. Field research into the Mississippian outcrops of the Ozark Plateau continues and several papers are near completion with
Jeffrey Byrnes: Over the past year, I have been continuing to develop my courses, research program, and collaborations with external colleagues in industry and academia. In addition to my standard teaching responsibilities, I also developed and conducted a training program for use of the OSU LIDAR Core Facility that I direct.

Being at OSU, an ever-increasing portion of my efforts are directed toward petroleum-related work. My consulting work for a small Texas-based company continues to expand, involving geophysical/geochronology as PI on an interdisciplinary DoD project "Effect of Near-Term Sea-Level Rise on Coastal Infrastructure." We are revising the final report and working on several journal papers resulting from that field and modeling project.

Rise on Coastal Infrastructure.” We are revising the final report and working on several journal papers resulting from that field and modeling project.

Mike Grammer: Dear Alums and Friends of OSU Geology – my first semester here at OSU has been as rewarding as I expected, and also quite eventful. On the teaching end, this past Fall I taught a graduate level class in Carbonates with a total of 23 students in the class, which was the largest graduate level course I have ever taught. Speaking of carbonate classes, Jay Gregg and I are hoping to capitalize on our collective carbonate backgrounds and are planning to offer 3 graduate level classes directly related to carbonates (Carbonate Depos-
Jay Gregg: In 2010 when Dean Sherwood asked me to take another term as Head of the Boone Pickens School of Geology I asked that two conditions be placed on it. First, that it be reduced to a three year term, not five years, and second that I be granted a sabbatical during one of those years. So after completing my seventh year as Head of the School I began a sabbatical working on Shell Global Solutions, Carbonate Research team here in Rijswijk, The Netherlands. This has been quite an experience both in terms of reorienting my mind back toward carbonate research (something I did too little of during the past few years) and an adventure in a country where I do not speak the language. (I do speak a bit of German, but it does you no good in Holl-land!) So between the wooden shoes and windmills it has been a great international experience.

I have a very nice apartment in the city center of The Hague, a short train ride from work. The Hague is the most international city in the world. More than 50% of the population is foreign to The Netherlands. Every language can be heard spoken, from Spanish to Mandarin and every type of restaurant can be found from Argentine to Indonesian. Public transportation will take you everywhere. The beach is about 20 minutes away by tram. Amsterdam about 45 minutes away by train, and in between is Schiphol Airport. There is a large wooded park a few minutes away for long quiet walks. The Dutch Parliament is five minutes walk away as are the International Courts of Justice. Oh, and Queen Beatrix’s residence is a 10 minute walk from my apartment, but she has yet to invite me over for tea.

From the research end of things we were able to successfully get the Mississippian Reservoirs Consortium up and running and had our project kick-off meeting in November. We have a total of 11 companies who have joined the consortium to date (Chesapeake Energy, Devon Energy, Marathon Oil Company, Newfield Exploration, SandRidge Energy, Longfellow Energy, Red Fork Energy, Tip Top Energy (Si- nopec), Chaparral Energy, Unit Corporation, and SM Energy), and as of right now, it appears that we will have at least 11 graduate students working on the project.

I am still working on getting my lab set up and going. In addition to a reference library for students, the lab will include petrographic microscopes with image analysis capability, a probe minipermeameter, and the capability to measure sonic velocity values on core plugs at confining pressures to tie to pore system architecture and permeability. All of these will be used to continue our work in carbonate reservoir characterization.

Along with my work here at OSU, I have also been back to Michigan several times this Fall, getting the last of my students successfully graduated, as well working on the final technical report for a 3-year RPSEA project focused on the stratigraphic control of hydrothermal dolomite reservoirs away from major fault zones. The last of my Michigan students were working on carbonate reservoirs either associated with the above RPSEA project or in the EagleFord down in south-central Texas or the Bone Springs in the Permian Basin.

I have 4 new graduate students here at OSU that I am very excited about (Stephanie LeBlanc from Baylor, Buddy Price from Western Kentucky, Amanda Mackey-Childress from OSU who are all MS students, and Beth VandenBerg from Cornell and Western Michigan University who has transferred in to work on her PhD). All of these students will be working on some aspect of the Mississippian project. I will likely pick up one or two more this Fall as we are getting quite a large number of outstanding applications.

As far as field work: I have a trip planned to the Bahamas in June and will likely be heading back to the Paradox Basin (and possibly the Guadalupes Mountains) in the near future. As an aside, in case any of you might have an interest, I also plan to put together a week-long, onboard ship field seminar to the Bahamas just for OSU alumni in the near future. So drop me a line if you are interested.

In the meantime, I have enjoyed meeting a number of you at various BPSG functions already, and look forward to getting to know many more of you in the near future.

In late August Mickey came over for a week and we spent our time seeing the city and traveling around Holland including to Amsterdam and a visit to Anne Frank’s house. In September my daughter, Tricia and I met in Schiphol Airport and flew to Rome for a long weekend before she left for a conference north of the “Eternal City” and I back to The Netherlands. She stopped for a few days on her return journey and gave a presentation for the Shell Basin Tectonics team here in Rijswijk (upstairs). Mickey returned in mid December and we traveled to Köln in the North Rhineland for the German Christmas Markets. What fun! Then by train to “The City of Lights” (Paris) for Christmas with our Niece and her family. And back to Den Haag by train for New Years.

So how do I get the time off for all of this? Well, this is Europe and they do believe in lots of vacation time. Eight weeks of it in fact! Mickey and I are planning a cruise up the Rhine from Amsterdam to Basel, Switzerland in late May and June. That is something that Herb Davis recommended that we do.

So, on to the work side of things. Last Spring I worked hard to get as many of my graduate students out the door as possible.
before I left. Morgan Unrast finished her thesis on the comparison of depositional and diagenetic settings between the Mississippian mudmounds on the Cherokee Platform and the Waulsortian mudmounds in Ireland. Jackie Berryman finished her thesis on the geochemistry of carbonate cements in fractures in the Woodford Shale. And Natalie Gentry finished her thesis on mineralization of the Arbuckle dolomites in the Davis, Oklahoma area. After leaving for The Netherlands I continued to work with Cesar Silva and Brian Smith, making good use of Skype, and they finished their theses on the West Carney Hunton Field, defending when I came home over the Thanksgiving holiday.

That leaves only Sahar Mohammad, who is starting her Ph.D. thesis on the Mississippian. I am particularly looking forward to hitting the ground running on the Mississippian project that we have started when I return and recruiting my next group of students and start a few more projects.

**Todd Halihan:** 2012 was another busy year. Tyler Swinea and Drew Dressler defended their Masters Theses. Tyler is now working for Chesapeake and Drew is working in Denver for QEP.

In May, we conducted field work in New Mexico at the Tierra Amarilla mound springs evaluating free convective processes in faults. We then continued our gravel work in Oklahoma in the Barren Fork area looking at phosphorous transport in the subsurface. In August, we headed to Colorado to work on tank experiments for Chevron.

At GSA, I have continued my role as Emcee at the student reception along with my duties as a board member for the Hydrogeology Division. For 2013 I am the chair of the Hydrogeology Division. Organizing the meetings and keeping track of the division functions is an entertaining pursuit.

Aestus, LLC continues to evaluate contaminated sites using OSU intellectual property developed in my lab. This has been their busiest year and growth seems likely it will continue.

On the home front, my home hydro lab demonstrated how low the lake level can go in a drought. I collected some data on the property this year, but I still don’t think I will beat Pettyjohn for the total number of piezometers on my site. Martha still wants to do more home repair and improvement. My son, Maclain, is seven now and is interested in World War II. We’ll see if he learns the lessons from history.

**Mary Hileman:** I am pleased to begin my fifth year as Adjunct Assistant Professor in the Boone Pickens School of Geology. This past year I began teaching two courses each semester instead of one, as I had done from 2009 through 2011.

Every semester I teach GEOL 3413, Petroleum Geology for Engineers. This is the initial core course for the Minor in Petroleum Engineering. It is an entry-level geology course for engineering students who have no prior training in Geology. Although the course starts with the basics of rocks and minerals, Earth structure and plate tectonics, the topics quickly move on to basic well log analysis, sedimentary depositional systems, sequence stratigraphy, drilling and completion techniques, horizontal drilling, geophysics, hydrocarbon geochemistry, basics of hydrocarbon reservoirs, well economics and risk analysis. The lab each week gives students hands-on experience with rocks, well log interpretation, structural and stratigraphic mapping. A field trip provides students the opportunity to observe channel sandstones and use a portable natural gamma spectrometer to record values across an outcrop that later are graphed and compared with nearby well logs. For the term project, students work in teams to prepare a prospect package to include: cross-sections, net pay isopach and structure maps, geologic interpretation, economic evaluation and proposed drilling package. Each team makes a formal power point presentation and is evaluated for data interpretation and logic of their proposed deal. Each semester the class is full (22 students).

Geology of the National Parks (GEOL 3043) is the completely revised version of “Geology of Scenic Regions” that continues to be a popular elective Geology course for Junior and Senior non-science majors. The focus for this course is to learn and understand basic geologic concepts using 22 of the U.S. National Parks as examples. The influence of plate tectonics on the development of North America is a central theme for this course. In addition to 3 exams, students are required to write a six to eight page term paper that is a Guidebook to the Geology of a National Park or National Monument of their choice that is not covered in lecture. This course was taught twice in 2012 because historically it had been offered in the spring, but will now be taught annually in the fall semester. Enrollment grew from 42 students in the spring to 55 students in the fall term.

This spring I am teaching “Advanced Well Log Interpretation”. I feel privileged to teach a course that Dr. Puckette has taught for many years. This course is the expansion of a popular course for graduate students (GEOL 5353) taught for many years. During the development of the undergraduate Minor in Petroleum Engineering, Advance Well Log Analysis became a core course, was given a new designation (GEOL 4323) and is the final Geology course required for this Minor. At the time GEOL 4323 was created, it was opened to upper division Geology majors. This course has always been popular in BPSG and interest in well log interpretation has grown tremendously even more than when it was taught last year. This semester there are 63 students enrolled: 16 graduate students in GEOL 5353 and 47 undergraduate students (27 engineering and 20 geology students) enrolled in GEOL 4323. The combined GEOL 4323/5353 meets once a week, for a 2 ½ hour evening lecture, discussion and problem solving session. Topics cover evaluation of both the standard suite of vertical hole wireline well logs, as well as modern microimaging logs run in lateral boreholes. In addition to lecture and discussion, eight homework assignments provide opportunities for students to become capable of independent, fundamental, reliable analysis of standard wireline logs and to use principles of evaluation to solve subsurface geological problems. The homework problems provided for graduate students (GEOL 5353) are more challenging, and require additional analysis and critical thinking. I believe my 14 years experience as a petroleum geologist and exploration experience this year, but I still don’t think I
manager has prepared me to teach this course.

Finally, in 2012, I was privileged to serve on the Masters Thesis Committees for: Mr. Alex Fitzgerald and Mr. John Gage (Spring 2012) as well as Mr. Malachi Lopez and Mr. Cody Bacon (Fall 2012).

Priyank Jaiswal: Honestly, I do not know where 2012 went! It started with Samiya, an ExxonMobil sponsored student, trying to wind up her two publications and it ended with Fathiya, another ExxonMobil sponsored student, getting ready to defend. In between the two girls came Bertha (50K seismic thumper donated by US Alliance), my accidentally getting fired by OSU because of last name confusion (I got rehired though), start of the Rediscovering Oklahoma (Red OK) project with Gary Stewart and Bob Springman, the 300K DOE grant to study hydrates in the Gulf of Mexico, Mississippian Consortium, three journal papers, three conference abstract, two new PhDs, three new MSs, and the Arts and Sciences Junior Faculty Award.

The computational seismology lab keeps growing but surprising we feel we are always behind. Petrel and Decision Space upgraded their software and automatically downgraded our infrastructure. Landmark moved to a new Java interface. Hampson Russell has new algorithms. If these were not enough Khemraj wants to get into 3D-3C, Pouyan wants to stress test every carbonate sample in the Mid-Continent, Iftekhar wants to do shear-wave tomography, Brandy wants to learn Move, Jason wants to analyze fractures with Lidar, and Brooke is getting ready to invert surface waves. Brooke is from Kansas. The surface wave package was developed at the Kansas Geological Survey. She feels she is connected to surface waves at a metaphysical level. We will see...Meanwhile, let us just pray that Ganesh, the MS student from computer science system who got roped into system administration, maintains his sanity through all this. I do not know why but I feel like a hamster on the wheel.

Daniel A. Laó Dávila: Another year has passed. Last year I taught Geology and Human Affairs to 250 students, Structural Geology to 24 students and Advanced Structural Geology to 6 graduate students.

Last March I traveled to Vienna, Austria to present a talk titled "Collisional zones in Puerto Rico " at the European Geosciences Union. I also participated in the NSF sponsored GeoPRISMS East African Rift Planning Workshop in Morristown, New Jersey and gave an invited presentation at the University of Oklahoma.

My research group is very active. The paper "Cretaceous-Paleogene thrust emplacement of serpentinite in southwestern Puerto Rico" was published in the GSA Bulletin. Two abstracts were accepted for presentation at the GSA-Southeastern Annual Meeting in San Juan, Puerto Rico. Erin Roehrig (M.S. student) continues to make tremendous progress. She has presented her research of fracture formation and propagation at the AGU Annual Meeting in San Francisco, and at the AAGP Student Expo in Houston. She is scheduled to finish her degree in the summer and has accepted an offer to work for Marathon. Estella Atekwana, Mohamed Abdelsalam, and I, along with graduate students, have formed the Tectonics and Geophysics Group, which meets biweekly to discuss recent research. Feel free to join and participate!

Jack Pashin: As the latest addition to the faculty of the Boone Pickens School of Geology, I would like to thank everybody for making my move to Stillwater and transition into academia a memorable and enjoyable experience. The move was quite entertaining, considering that our possessions were packed into a whopping 370 boxes and filled all but 4 feet of a 70-foot moving van. My wife Janyth and I hope to finish unpacking sometime before the end of 2019.

My research focuses on a wide range of topics in sedimentary geology, structural geology, tectonics, energy resources, and energy technology. For the past 24 years I worked at the Geological Survey of Alabama, where I led the energy research program and served as an Associate Director. Throughout my career I have been driven by opportunities to involve students and staff in innovative research programs focusing on emerging energy resource plays and technologies.

In January I began a new career as Professor and Devon Petroleum Corporation Chair of Basin Research in the Boone Pickens School of Geology. This semester I am teaching Basin Evolution, and next semester I will teach a course on Unconventional Petroleum Reservoirs. The students here at OSU are fantastic, and I’m pleased to be off to a running start.

Schlumberger has kindly donated 27 seats of PetroMod software to the School of Geology in support of the Basin Evolution class. This is a wonderful development because the School now has robust 1-D, 2-D, and 3-D basin modeling and petroleum system modeling capabilities. The software, moreover, integrates with the Petrel software that is already deployed in the department.
My research includes a variety of projects. This year I am wrapping up a DOE-sponsored project on the characterization and management of Black Warrior coalbed methane reservoirs. Another project on CO2-enhanced oil recovery in the eastern Gulf of Mexico basin that is being conducted in partnership with UAB, Denbury Resources, and Southern Company also is in the closing stages. I am participating in some new CO2-enhanced coalbed methane and shale gas recovery projects in the Appalachians, which are sponsored by DOE and Virginia Tech and hosted by CNX Gas. To add to all the excitement, Jim Puckette and I are beginning a 2-year initiative on shale characterization that is sponsored by RPSEA (Research Partnership to Secure Energy for America). This initiative involves researchers in the new Petroleum Engineering program in the School of Chemical Engineering, and I am involved in a number of interdisciplinary initiatives that are intended to broaden the scope of energy outreach and research at OSU. Feel free to stop by and say hello next time you are in Stillwater, and please don’t hesitate to call or e-mail if I can be of assistance.

Jim Puckette: It is said that time passes more quickly with age and 2012 seemed to affirm this old adage. For me, the year presented unique opportunities to continue research and learn. In October, I was fortunate to travel to China, where I represented the Mississippian research team and presented some of our findings at a workshop hosted by the Chinese University of Petroleum (East) in Qingdao/Huadong. As one who had not been to China, this was an exciting event. Fortunately, Qingdao is on the coast and we were blessed with sea breezes that allowed us to escape the air quality issues that plague Beijing. The presentation was mostly a summation of the ongoing and completed research of Darwin, Cory Godwin, Min Zhao and Morgan Unrast.

The M.S. students that I am fortunate to mentor graduated at a pace that equaled 2011. Jeff Cook completed his thesis on the Tussy (Desmoinesian) sandstones in Love and Carter Counties, OK and demonstrated how careful core-driven determination of depositional environment and reservoir characterization can facilitate successful exploration and development. Following graduation, Jeff took a position with Texland Petroleum in Fort Worth. The Anadarko Basin was the subject of two theses completed in 2012.

Tim Phillips completed his thesis on the stratigraphic framework and reservoir characteristics of the “Springer” gas-bearing sandstones in the eastern Anadarko Basin. Tim is employed with Newfield Exploration in Tulsa, but has shelved his Springer gas prospects and is prospecting more liuids-prone reservoirs while natural gas prices remain soft. Alex Fitzjarrell worked on the northern shelf of the Anadarko Basin and completed his thesis on the Tonkawa Sandstone in Roger Mills and Ellis Counties. Alex began applying his thesis work immediately at XTO Energy in Fort Worth where it is told that he is exploring the Tonkawa Sandstone. Cody Bacon investigated the stratigraphy and reservoir characteristics of the “Cleveland” sandstones in central Oklahoma. Cody discovered that when these sandstone bodies are placed in a sequence stratigraphic framework constrained by core shales, that most of the sandstone bodies in central Oklahoma labeled “Cleveland” are in fact in the Marmaton interval. Following this revelation, Cody left Oklahoma of his own accord to work for Concho Resources in Midland. David Milburn chose northern Louisiana as the location of his thesis topic. David worked on the thick Cotton Valley Sandstone section in Vernon Field, Jackson Parish, where he described textbook tidal-flat deposits in the Cotton Valley interval and related reservoir properties to diagenetic history and facies. David is not pursuing the overpressured-dry-gas reservoirs in the Cotton Valley, but is working for Mid-Continent Well Logging in Oklahoma City. I was fortunate to coadvise Dan Bassett, who completed his thesis on chemostratigraphy in the Permian Basin under the mentorship of Dr. Anna Cruse at Samson Resources. Dan is employed at SM Energy in Tulsa.

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My research work into the utilization of nitrogen isotopes as paleoredox and paleoenvironmental proxies is continuing to expand and develop. My lab is still progressing in our analysis of the nitrogen cycle through the Cretaceous-Paleogene mass extinction, a project sponsored by the NSF. We are starting to get some interesting data about how the carbon and nitrogen cycles were altered and the timing of their recovery after the K-Pg boundary, which was recently presented at the American Geophysical Union (AGU) Fall Meeting. I have also continued to use nitrogen isotopes to investigate the paleoredox changes and nitrogen dynamics at other periods of time; I have recently published papers in Nature Geoscience and Paleocceanography on these topics in conjunction with collaborators from several institutions. The projects in the Black Sea, Copano Bay, and Southern Kansas coal layers are still ongoing.

I have also continued to investigate the use of nitrogen isotopes as paleoredox...
proxies in hydrocarbon systems with the goal of using them to evaluate depositional conditions. My student Ekenemolise Adigwe graduated from the Master’s program this past year, and her research into comparing the nitrogen isotope signatures of the Woodford Shale and the Caney Shale appear to indicate a distinct difference in the δ¹⁵N values between the two units. Based on her research, we believe that this difference to have resulted from deposition under different water column redox conditions: anoxic for the Woodford Shale, and suboxic for the Caney Shale, which is confirmed by what is known about the geologic history of these two units. As a result, I think that nitrogen isotopes can be a powerful proxy for depositional conditions even under highly altered conditions. My current graduate student, Keith Rivera, is continuing this line of research, looking at the effect of different levels of maturity on the nitrogen isotope proxy in the Woodford Shale. I look forward to assisting with the geochemical analyses for the new Mississippian Consortium and the planned Unconventional Hydrocarbon Center.

I have continued to teach GEOL 1114 Physical Geology in the Spring, and GEOL 2254 Practical Mineralogy in the Fall. This past Fall saw record numbers of students in mineralogy, which made the class a challenge to organize and execute, but I also managed to introduce a new field trip to see the Glass Mountains and go crystal digging in the Salt Flats. Judging from the haul of selenite crystals brought back on the bus, the students had a great time. Along with the undergraduate courses, I also taught GEOL 5573 Marine Biogeochemical Cycles, which analyzes the interactions between geological processes, biological activity, and the chemical cycling for a range of elements in marine systems, including hydrocarbon-producing systems. In addition to teaching formal courses, I have also participated in several outreach opportunities, including National Lab Day, the Oklahoma EPSCoR Women in Science Conference, and the first annual Boone Pickens School of Geology Tech Conference. I also am working with an educational consultant and the School of Rock to create an interactive educational activity for secondary school students; we recently gave a couple of presentations about the creation and details of this activity at the AGU Fall Meeting.

As always, there is never a dull moment in the Boone Pickens School of Geology. I am so happy to be working with the students, faculty, and staff here, and am looking forward to the year to come.

Sandy Earls: This past August was the 16th anniversary of when I first started working for the School of Geology. On August first I received a promotion to Administrative Assistant for the School of Geology. I moved into the other office and the door is always open, no appointment needed. I took a couple of mini vacations. In May Pete and I took trips around the state to visit places we have not yet gotten to. There are still more that we want to see. In June, we traveled to Kansas for my family reunion. I had hoped to have someone else voted in as the Secretary/Treasurer, but that did not happen. They did not even accept other nominations. In November, we were able to take a week off and go to south Texas. I tried to time it while several of the faculty and students were attending GSA and SEG. We still want to make a trip to New Mexico and back to see family in Tennessee. I do not know that those will both happen this next year, but hopefully at least one will. Pete and I will be celebrating our 30th wedding anniversary in November 2013, so we may take one of the trips for that.

We did not make much progress on the house renovations this year. We had other expenses that came up. Hopefully we will be able to get some things done this year. I have also been working on needlework to hang in the new office. It takes time, but will get there soon.

We have a new full time person, Tabitha Schneider, working from my old desk and she will be working with the student records, graduate applications, and several other things once her training is complete. Having her has helped me out a great deal and allowed me to take off in November and will hopefully allow me to be able to take a little more vacation time off in the future.

Tabitha Schneider: I am the new Administrative Support Specialist to the new Administrative Assistant, Sandy Earls. I came to the School of Geology in September 2012. Part of my duties in the office includes student filing, organizing graduate applications, and doing inventory but I am in the process of being trained in many other areas as well.

I studied public administration at Mid-America Christian University in Oklahoma City. I graduated with a bachelor’s degree in December of 2011. I plan to begin a Master’s program in Higher Education Administration at the same college beginning in February of 2013. I am a native Oklahoman from Spiro, where most of my family still resides. My husband, John, and I have been married 7 years and moved to the Stillwater area in May 2012. We have two children, Elijah, 7 and Allison, 5, and we live just south of Stillwater in Perkins. We are members of the First Baptist church in Perkins. In my spare time, I enjoy spending time with my family, attending Boy Scout meetings with my son, and reading as much and as often as I can.

Tim Sickbert: The Devon Labs have by-and-large reached maturity: the work the labs have required over the last year have mostly been maintenance: updating software, cycling in new computer hardware and migrating older computers to space the faculty provide for the students’ use in research and modeling. Time and use are taking their toll and some of the facilities: we are applying for one-time student-technology-fee grants from the college to replace worn-out whiteboards in classrooms and dead batteries in our instructional laptops. Long-term, our laptops will not have enough processing power for the software, and we will probably have to step up and build a computer-teaching lab.

With increased enrollment, more faculty, and the ongoing, new, and proposed consortia, space for students, faculty, equipment, classes, labs, and samples is all at a premium. Again looking for funding internally first, we are also applying for another
student-technology-fee grant to upgrade a lecture hall in the Noble Research Center (NRC108) to reduce the lecture load in our teaching labs. This would provide a more suitable venue for lectures and also allow students more time and flexibility in the labs.

The Field Camp Class of 2012 was a great group to work with and—aside from ongoing drought—the weather was most cooperative. With a cabin roof damaged by a falling limb during the off-season, Dr. Puckette demonstrated how much roof maintenance can be achieved with pieces of lost cabins salvaged from the creek, along with a bit of creative engineering. Although I am now somewhat trained, I hope that any limbs that do fall miss the cabins.

A Message From the Geology Advisory Board Chair

Fellow Cowboys and Cowgirls,

Let me first start by thanking the faculty, Eliot Atekwana - Interim Head of the Department, Bret Danilowicz - Dean of Arts and Sciences, OSU Foundation, Mr. Boone Pickens, the Geology Advisory Board and the Executive Committee for all of their hard work, collaboration, energy and commitment to continue to move the Boone Pickens School of Geology (BPSG) forward toward the goal of making the Boone Pickens School of Geology one of the top institutions in the areas of energy and environment. It has been a tremendously rewarding experience and an honor to serve as your Chairman. I have been fortunate to get to work with a very talented and passionate group of people.

Our Advisory Board has been very busy throughout the year in what has turned out to be a somewhat unique time. This year we have seen a change in leadership in both the College of Arts and Sciences and the Boone Pickens School of Geology, and a change in our liaison to OSU Foundation. The new Dean of Arts and Sciences, Bret Danilowicz, has hit the ground running. He is bringing new ideas and a "can do" attitude while working with the BPSG and Advisory Board to find creative solutions to address some of our issues. One of those issues being the vacant Department Head position. While we are in the process of actively searching for a new Head of the Department, Eliot Atekwana has become interim Department Head. He has brought a new perspective and has taken up the challenge to continue to progress the department. This year we are excited to see the culmination of years of work with the arrival of 4 new faculty members. We are already starting to see some benefits from these talented individuals.

Our Board has accomplished many joint objectives with the BPSG including initiating the Mississippian Consortium, the 2nd running of Bring a Cowboy to Work program, and the continued progress of the Strategic Plan. We also continue to support the BPSG through fundraising campaigns to fund the Department's many needs. Our Advisory Board has not only become the envy of other OSU departments but is also becoming the envy of other geology departments. I continue to be amazed at the passion and generosity our alumni have toward OSU and the BPSG. Our alums are truly a special group.

While we have made strong strides toward our goals and there are numerous accomplishments to be proud of, there is still a significant amount of work to be done. I encourage you to become an active member of the Advisory Board and to become involved with the many exciting things going on in the BPSG. Our Advisory Board has come a long way through the commitment of a small group of the geology alums (<10%) being actively involved. We can use your help, your ideas and your energy. If you are attending the Annual banquet on April 6th please consider coming to the annual Advisory Board meeting from 12-3pm that day at the Noble Research Center. As always if you have any questions feel free to contact me at rely@alpinegasco.com.

In closing, I want to thank Jason Caniglia, ex-OSU Foundation, for his years of work and dedication to the Advisory Board and the Boone Pickens School of Geology. His always optimistic outlook and camaraderie will be missed.

Sincerely,

Rick Ely
UPCOMING OSU GEOLOGY EVENTS

Annual OSU Geology Advisory Board Meeting
Saturday, April 6, 2013 at 12:00 Noon
001 Noble Research Center on the OSU Campus
a lunch will be served

Annual Alumni Banquet
The Faculty, Staff and Students of The Oklahoma State University
Boone Pickens School of Geology cordially invite you to attend the
Reception and Alumni Banquet on Saturday, April 6, 2013
The Reception and Banquet will be held on campus at the Conoco-Phillips Alumni Center
The reception will begin at 6:00 and includes a cash bar
The Banquet will be from 7:00-9:00 pm in the Click Alumni Hall
Banquet Speaker: Donald D. Humphreys, Senior Vice President and Principal Financial Officer, ExxonMobil (Retired)
To make your reservations to attend the banquet,
Call Sandy Earls at the School of Geology, 405-744-6358
There is no cost to attend the banquet (with the exception of the cash bar!!)

OSU Student AAPG Chapter 3rd Annual Golf Scramble
Silverhorn Golf Club of Oklahoma City, 11411 N Kelly Avenue, on Sunday, April 7th
$100 per person or $40 for a group of four, Registration @ 1:00 pm Tee off @2:00 pm
Prizes awarded to 1st, 2nd, and 3rd place winners along with closest to pin and longest drive!
Contact: Andrew Snider (andrew.snider@okstate.edu)

A Final Message and Request
Please consider helping OSU Geology – your contributions go a long way toward furthering our goals of teaching, applied research, and providing the next generation of America’s geological workforce. Below you will find a listing of various funds and a brief description of what these funds are used for.

- Alumni Advisory Board Graduate Fellowship (22-87150) – This fund is for those wishing to pledge at the level of $1,000 for the next five years for a total of $5,000. To help support graduate students.
- Alumni Geology Graduate Fellowship (22-99300) – To help support graduate students.
- Faculty Recruitment & Retention Fund (22-84850) – To help hire and retain highly qualified faculty.
- Geology Unrestricted (22-39600) – Used for funding the alumni banquet, newsletters, bringing in excellent graduate students and in general helping the School of Geology function on a day to day basis.
- Geoscience Education Chair in Honor of Dr. Jim Puckette (22-98980) – Fund for a Faculty Chair.
- Jim Higgins Memorial Fund (22-99920) – Memorial fund set up in Jim Higgins name to help support students during their study at OSU.
- Erik Mason Graduate Fellowship (22-84950) – To aid graduate students during their study.
- Dr. Wayne Pettyjohn Hydrogeologist Graduate Fellowship (22-86850) – To help support graduate students.
- School of Geology Student Enrichment (22-90050) – To help support student travel to present at conferences.
- John W. Shelton Graduate Fellowship (22-86850) – To help support graduate students.
- Gary F. Stewart Scholarship Fund (22-28700 – To help support sophomore, juniors and seniors working toward a Bachelor’s or Master’s degree in Geology with a petroleum focus.

(Please make checks payable to OSU Foundation).
- Please bill my gift of $________________ to my credit card.

Name __________________________
Address __________________________
City/State/Zip _________________________
Phone __________________________ Email __________________________

□ My gift of $___________ is enclosed

□ I pledge a total of $___________ to be paid
Beginning: __________________________ Ending: __________________________
□ Monthly □ Quarterly □ Semi Annually □ Annually
Signature: __________________________
□ I want my bank account charged automatically. Please send me the necessary bank draft forms

Oklahoma State University Foundation OSUgiving.com
P.O. Box 1749/Stillwater, OK 74076-1749 405-385-5100 Your gift may be tax deductible.
Erin Roehrig (M.S. student) conducting thesis research on fracture formation and propagation from hydration of serpentinite, Mayaguez, Puerto Rico.

Oklahoma State University
Boone Pickens School of Geology
105 Noble Research Center
Stillwater, OK 74078
USA

Address Service Requested