(From left to right) Wesley Prater (OSU undergraduate), Kevin Vélez-Rosado (University of Puerto Rico, Manyaguez), Amy Pritt (OSU undergraduate), and Alejandra Santiago-Torres (University of Puerto Rico) say “Go Pokes” from the Shire River in the Liwonde National Park in southern Malawi. The students conducted research with Dr. Laó-Dávila as part of the School’s International Research Experiences for Students program in Malawi funded by the National Science Foundation.
IN THIS ISSUE

Department Head’s Welcome  3
Faculty Honors and Awards  4
Student Honors and Awards  4
Field Camp News  5
Freshmen and New Graduate Students Field Trip  6
Spotlight on International Research  7
News from Faculty  8
News from Staff  17
Spotlight on Students  19
Spotlight on Student Organizations  22
Congratulations to our 2016 Graduates  24
A Message from the Boone Pickens School of Geology Advisory Board  25
Focus: Alumni Awards  26
Focus: Upcoming Events at the School of Geology  26
Focus: A Final Message and Request from the Boone Pickens School of Geology  27

Geology fieldtrip to The Arbuckle Mountains: Students from the GEOL 1114 class sitting on the Woodford Shale (Hunton Anticline Quarry).
Greetings from the Department Head
Estella Atekwana

2016 continued to be a difficult year for us due to the low oil prices. However, things appear to be looking brighter this year with the price of oil trading at ~$53/barrel, up ~30% from this time last year. Nonetheless, we continue to move forward and we had another record year. We added one new faculty in seismic exploration, Dr. Ahmed Ismail who joined us from Schlumberger (please see article in this issue). Dr. Ismail has broad research interests in applied geophysics ranging from environmental and engineering geophysics to archaeological geophysics, and most importantly to exploration geophysics. Our students, faculty and alums continue to win honors on campus and at national meetings and publish groundbreaking research. This year, our students and faculty presented 100 papers at regional, national, and international meetings, with our students winning best poster awards. We published 43 peer-reviewed papers in prestigious international journals and we saw record numbers of undergraduate students engaged in research. Of course the drop in oil prices is also affecting us and we are experiencing a drop in our grant production numbers. Nevertheless, our faculty continue to submit grants and although funding is down we had a record $3.7M in grant expenditure from faculty research activities. We continue to see declines in our undergraduate student enrollments which now stands at 101 down from 150 students in 2015. In 2016 we saw the smallest freshman class in almost a decade (9 students) but we are optimistic based on our fall 2017 applications and we have embarked on an aggressive recruitment effort. On the other hand, our graduate enrollments remain strong at 93 (23 PhDs and 70 MS) and we remain the second largest graduate program in the College of Arts and Sciences and the largest graduate program in STEM in the College. Graduate applications remain strong and we continue to receive applications from top tier geoscience programs nationwide and internationally (including Princeton!!). We again ran our Freshman Field trip this year with funding provided by Concho Resources Inc. Dr. Puckette led the two-day trip to Southern Oklahoma Aulacogen and the students were introduced to the geology of the Wichita Mountains and the rifing and filling of the Southern Oklahoma Aulacogen.

This year we graduated 38 BS, 16 MS students, and for the first time since the inception of our PhD program we graduated 4 PhD students. We spent $332,764 on undergraduate student scholarships and graduate student fellowships. Because of your generosity, students are able to have access to a world-class education in the Boone Pickens School of Geology (Thank you!!).

Our Mississippian Consortium is winding down and an AAPG Memoir detailing the results of the different projects completed under the consortium is in preparation and will be coming out soon. Watch out for this very special volume to see the excellent work that our students and faculty engaged in the consortium have done.

Six companies recruited in the School this year, and for the first time in almost 8 years ExxonMobil and ConocoPhillips came back to recruit. A major goal of the School was to bring back the majors. We are delighted that this finally happened. It took a lot of hard work from the faculty and students to turn our program around. Several students had offers and some had multiple offers. Our students are also seeing opportunities in the environmental industry and the USGS. Our hydrogeology course this fall saw its largest enrollment in a decade with ~44 students. Environmental geology this spring also saw an uptick in enrollment with 42 students in the class (even though the class meets at 7:30 am in the morning).

Last year I indicated that we had gone online with some of our courses. I am happy to report that we taught four online courses in 2016 (Geology and Human Affairs; Earthquakes; Volcanoes and Disasters; Historical Geology; and National Parks). Geology and Human Affairs and National Parks are both in high demand and we now teach them every semester with total enrollments exceeding 200 students each semester. We are currently developing two more courses (Oceanography and Environmental Geology) to put online.

Finally, the faculty and the advisory board worked on a strategic plan that will chart our course for the next ten years. We are preparing an abbreviated version to be put on the School’s webpage. We also had an external review in October. We are waiting for the final report which will tell us how well we are doing and where opportunities for growth exist.

Be sure to stop by the department so we can show you around. We love to hear from you, so keep in touch.
Recognition and Awards

Dr. John Bradford (left), President Society of Exploration Geophysicists (SEG) and Dr. Estella Atekwana receiving the 2016 SEG Outstanding Educator Award (photo courtesy, SEG).

Dr. Claudia Mora (left), President Geological Society of America (GSA) and Dr. Estella Atekwana receiving the GSA Fellow (photo courtesy, GSA).

Buddy Price (MS 2015): Awarded the A.I. Levorsen Award from AAPG for talk stemming from MS thesis. Advisor: Dr. Grammer

Taylor Thompson (MS 2016): Awarded Best Poster Planalp Award from AAPG Mid-Continent for talk stemming from MS thesis. Advisor: Dr. Grammer

Mercy Achang: Oklahoma Geological Foundation Davis Fellowship, Foundation, Kate and Takken Fellowship, $5000. Advisor: Dr. Pashin

Michelle Lutiker receives the NSF Graduate Research Fellowship Award and is currently pursuing a PhD and working with Dr. Natascha Riedinger to investigate uranium depletion in organic-rich Devonian-age shale and assist in determining depositional and diagenetic processes at work in ancient North American interior seaways.

Mercy Achang: Society of Petrophysics and Well Log Analysis (SPWLA) Scholarship, 2016, $3000

Mercy Achang: US Science Support Program Travel Grant to the UK, $1500

Mercy Achang: National Association of Black Geoscientist (NABG), Award, $400

Georgina Lukoczki: Oklahoma Geological Foundation Davis Fellowship, $2500 Advisor: Dr. Gregg

Ashley Dupont: 2016 AAPG Grants-in-Aid, $2500. Advisor: Dr. Grammer

Aaron Prock: 2016 AAPG Grants-in-Aid, $3000. Advisor: Dr. Quan


Michelle Lutiker: Tulsa Geological Society Foundation Outstanding Geoscience Student, $1500. Advisor: Dr. Riedinger

PhD student Khemraj Shukla received the Best Graduate Student Poster Award at the 2016 XEDE (Extreme Engineering and Discovery Environment) conference. Khemraj is supervised by Dr. Priyank Jaiswal.

Shawna Parks received the 2015-2016 Best MS Thesis Award for her project titled: Remote sensing analysis and implications for groundwater resources in the Kharga Basin, Egypt and supervised by Dr. Jeffrey Byrnes. Her thesis manuscript was recently published in the Journal of African Earth Sciences.
The 2016 field camp was enjoyable and successful with 66 students attending. The contingent included 43 students from OSU and 23 students from 10 other schools. Outside institutions represented included Arkansas Tech, Southern Mississippi, Bloomsburg (PA), Wayland Baptist, Sam Houston State, Midwestern State, Eastern Illinois, Eastern Michigan, University of Wisconsin, Milwaukee, and Middle Tennessee State. Camp started cool and damp, but the summer was climatically mild without any excessively hot days. Precipitation patterns were normal, which allowed us to visit field areas rendered unreachable by the 2015 flooding. Field projects in 2016 included Phantom Canyon/Grat Hollow, Grape Creek, Mixing Bowl, Big Orange, Red Canyon Park, Blue Ridge and Twin Mountain. Field trips included Cripple Creek and Victor, Pikes Peak, Great Sand Dunes National Park, and Leadville. In the Cripple Creek and Victor area, we visited the CC&V Gold Mine and stopped at the overlook to watch excavation of the new pit northeast of the Cresson pit. Afterwards, a group toured the Molly Kathleen Gold Mine and for some this was their first underground trip. Our motoring up Pikes Peak was uneventful and while we learned that the new vans have sufficient engine breaking for safety, female van drivers are the coolest as evidenced by the lowest temperature brakes at the Glen Cove safety check station. While in the Colorado Springs area, we hiked Pulpit Rock next to the University of Colorado-Colorado Springs campus to see the ash-rich early Tertiary sedimentary rocks. We visited Great Sand Dunes National Park on a beautiful cool and sunny day with little wind. In these ideal conditions, a group of about twenty climbed the tallest dune. The rest of us enjoyed wading in Medano Creek, relaxing in the cool climate of the San Luis valley and admiring the magnificent scenery of the Sangre De Christo Mountains. At Leadville, Newmont Mining gave a tour of their water treatment facility that removes metals from the acidic mine waters draining from the YAK Tunnel. Newmont personnel outlined the physical and chemical processes used to clean the water and restore the pH before it is discharged into the Arkansas River watershed. We also tested the pH of the water in one of the catchments below a sulfide dump, collected mineral specimens on the Irene dump, and toured the National Mining Museum. The 2016 faculty were George Bolling, Rick Hobbs, Jim Puckette and Chet Wallace. Teaching Assistants were Josh York and Bryan Clappe. Tim Sickbert and Andrew Fletcher were our medical officer and custodian, respectively. Michelle Leach and Jan Van Pelt were our wonderful cooks. Ms. Tiny Striegel of Canon City, an honorary alumnus of the Boone Pickens School of Geology and camp benefactor, enlightened us with her ninety three years of wisdom. Demand for field schools remains high and the 2017 OSU Field camp roster filled in late September.
The Freshmen and New graduate Student Field Trip was held October 22 and 23rd, 2016. This is the second year we are running this field trip and hope to make it an annual event. In addition, this year, we decided to include new graduate students as well. The weather was beautiful and the geology great, so what more could one ask? After we set up camp at Lake Murray, we drove close to Sulphur in the Arbuckle Mountains to collect fossils from the Bromide Formation. Next we went west on Goddard Youth Camp Road to the famous “Hunton Anticline” where we examined the Bois d’Arc Limestone and the Woodford Shale. After that stop, we reversed our path and travelled to the Chickasaw National Recreation Area. We visited the Travertine Nature Center, hiked to Antelope spring and Buffalo Spring and visited Vendome Well. Leaving Sulphur, we traveled west to U.S. Highway 77, which we took into the Arbuckle Anticline and the Turner Falls overlook. Following U.S 77 south, we joined I-35 and made our last stop of the day to examine the Woodford Shale in the McAlister Cemetery shale pit at Overbrook, Oklahoma. We made it to camp after dark following a quick stop in Overbrook to buy a cigarette lighter so we could light a campfire. On this leg of the trip, we discovered that as smokers are rare these days, finding a lighter or matches is not as easy as it once was. That evening we enjoyed a nice fire and a meal of delicious hot dogs and fruit, followed by roasted marshmallows for dessert. The next morning, we broke camp and drove to Ardmore for breakfast. Leaving Ardmore we traveled west on U.S. 70 through Lone Grove and Ringling to Waurika. We left the highway in Waurika to make a circle around the Jefferson County Courthouse, to see if the building material had geologic significance to Oklahoma. From Waurika we traveled to Randlett and I-44 a.k.a. the H.E. Bailey Turnpike. We traveled I-44 to Ardmore for an early lunch and a break before entering the Wichita Mountains. In the uplift area, we first visited Medicine Park to view from a distance the contact between the Mt. Scott Granite and the Mt. Sheridan Gabbro, which weather differently and as a result, host different vegetation. From Medicine Park we drove up Mt. Scott and examined the different rock types evident from the summit. Next, we visited the Post Oak Conglomerate before stopping at the Wichita Mountain Wildlife Refuge Visitors Center. After relaxing bit and learning about the flora, fauna and geology of the refuge, we headed west on OK State Highway 49 to Panther Creek, where we stopped and examined the Glen Mountain Layered Complex. From Panther Creek we drove to French Lake, our last stop, to examine the intrusive contact between younger Quanah Granite and the older Glen Mountain Layered Complex. We made quick stops at the Visitors Center and Chickasha comfort station on I-44 before returning to Stillwater tired, but satisfied, after two long days in the field in southern Oklahoma. We acknowledge support from Concho Resources Inc., for funding the field trip and other field trips in the School.
We are excited about our experiences in Malawi. Last year, Amy Pritt and Wesley Prater, two students from the Boone Pickens School of Geology at Oklahoma State University, and Alejandra Santiago-Torres and Kevin Vélez Rosado, two students from the University of Puerto Rico, Mayagüez, accompanied Dr. Laó Dávila in a 1-month field excursion in southern Malawi to better understand the role of pre-existing structures on the architecture of new faults created by rifting. They collaborated with colleagues of the Malawi Geological Survey Department and Malawi University of Science and Technology. Structural and geological mapping in the northern escarpment of the Shire Valley, was conducted to determine if current extension was being accommodated along the faults of the Jurassic Rift. In addition, the contacts between border faults and the ring complexes in the Zomba area were characterized to determine if the occurrence of the intrusions had an effect on the orientation of the faults. Preliminary results of this research were presented in the Geological Society of America Annual Meeting and Exposition in Denver, Colorado and in the American Geophysical Union Meeting in San Francisco at the end of the year. We will return this year to Malawi with 5 new students to the southern part of the rift to study the evolution of the Bilila-Mkatakata Fault. This material is based upon work supported by the National Science Foundation under Grant No. II-1358150.
Dr. Mohamed Abdelsalam
Professor; Boone Pickens Chair; Graduate Coordinator

Hello everyone. I am starting my fifth year in the Boone Pickens School of Geology at Oklahoma State University and I am looking forward to many years to come. 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. I am proud to see that my son Montasir has finished his BS degree in the Boone Pickens School of Geology. It is a great feeling.

I taught the graduate course Spectral Signal Processing and Application in the spring of last year with 6 graduate students and Geomorphology in the fall of last year as well with 36 undergraduate students. Currently, I am teaching Igneous and Metamorphic Petrology with 51 students. This was my first time teaching Geomorphology and igneous and metamorphic Petrology. It is a wonderful experience for me.

As the graduate advisor of the School of Geology I am delighted to see the steady interest in our graduate program. We have received over 100 applications for the spring and fall semesters of 2016. This year we have received 85 applications for the fall semester 2017 admission. Many of these applications are of high-quality and they come from schools in all parts of the US as well as other countries. Currently, our enrolled graduate students are from half of the states in the US in addition to 20 other countries. We had 63 theses defense since I became the graduate advisor in July 2013. The current enrollment in our graduate program stands at 24 PhD students and 64 MS students.

The Tectonics Research Group at the School of Geology, which is a research collaboration between my colleagues Drs. Estella Atekwana and Daniel Dao Davila and me, is growing stronger with the involvement of 5 PhD students, 10 MS students and 5 undergraduate students. We have a proposals submitted to National Science Foundation (NSF) to study the Western Branch of the East African Rift System. It is great to see my Geodynamic and Geospatial Science Lab populated with active graduate and undergraduate students. We have been working on enabling the lab for new technologies including SeroVision (for three-dimensional capture of geological outcrops using terrestrial photogrammetry) and Interferometric Synthetic Aperture Radar (InSAR) (for mm scale surface change including crustal deformation using Satellite RADAR data). Currently, we have 10 broadband seismic stations deployed around Stillwater, OK for active faults mapping as part of the research of PhD student Tim Sickbert. Please come over and visit. I would love to hear from you regarding research ideas and how my lab and expertise can be of use to you.

Dr. Eliot Atekwana
Professor; Stable Isotope Geochemistry; Hydrogeology

Greetings to all alumni and friends! I report to you a successful 2016 in teaching and research. At OSU, I taught GEOL 5433-Isotope Geochemistry. I taught Geology and Human Affairs - GEOL 1014, Special Problems in Earth Science - GEOL 4990, Master’s Thesis- GEOL 5000, Research Methods and Techniques in Geosciences-GEOL 5243, Advanced Studies in Geology - GEOL 5990.

My collaborators, students and I made four presentations at scientific meetings and published papers in the Journal of Hydrology: Regional Studies, Hydrological Processes, and Science of The Total Environment. I continue to work with our students and collaborators to wrap up projects funded by Newfield Exploration Company, Chevron Energy Technology Company and the National Science Foundation. My MS student, Nicole Paizis successfully defended her thesis and is now gainfully employed with USGS. I continue to work MS students, Krystal Heibel, Charles Missi, and Chris Laviolette and two undergraduate students. I served on 2 MS thesis and 2 PhD dissertation committees during the year.
In September there was some flurry of activity around here following the September 3, 2016 Mw 5.8 Pawnee earthquake. I went out with several of students to investigate liquefaction features associated with the earthquake. It turns out that the liquefaction features were all located in areas underlain by Quaternary alluvial sediments of the Arkansas River and the Black Bear Creek. We now know that areas underlain by Quaternary alluvial deposits in central Oklahoma are zones of potential surface deformation for any future large earthquakes. We also obtained a NSF-RAPID grant and acquired some magnetotelluric data to map any saline fluids associated with the seismicity.

My research group continues to be very active and my PhD student Andrew Katumwehe successfully defended his dissertation. MS students Sundeep Sharma (MS now with Devon) and JK Harding (now with Chesapeake) and Emanuel Njinju (starting PhD at Virginia Tech) all defended their MS thesis. Two new students joined my research group David Beckendorff (Texas A&M) and Micah Mayle (Missouri State) joined my research group. I also have three undergraduate students working with me.

On the home front, Kyra is in Dubai for another year. Kyle now works in North Carolina, Nissi my nephew is a sophomore at OSU and Fungtu is a sophomore at Georgia Tech.

Please drop by to say hello when next you are in Stillwater. I hope to see many of you at the banquet on March 25th, 2016!!
(with Taylor Thompson, OSU MS as a co-author). Ahmed El Belasy (PhD student on joint program with Mansoura University in Cairo) continues his work on the Cretaceous of the Sinai Peninsula, and has also gotten started on an additional project studying the triolite reservoirs of the MISS along with Buddy Price (DVN, OSU MS). CJ Appelth (MS) is starting to wrap up another regional sequence stratigraphic study of the MISS in a more distal position than previous workers. Elizabeth Elium (MS) is starting to work the MISS along with Matt Pranter at OU where we are doing regional correlations using Artificial Neural Networks and building 2D reservoir models on a sub-regional scale. Jim Karsten, our most recent MS student in the group, will be starting a quarry-based 3D modeling study of exposed Silurian reef deposits on the edges of the Michigan Basin. We also had a former PhD student of mine join us for an 8 month post-doc from Beni Suef University in Egypt. Dr. Yasser Salam continues to work the Cretaceous of the Sinai, as well as the Eocene of the Red Sea.

In addition to the normal faculty activities, I also taught two PetroSkills courses on carbonate reservoir characterization this year, one in London with 8 different companies and one in Venezuela for Repsol. It never ceases to amaze me how much the work being done here at OSU is being followed by folks from around the world, as I inevitably get questions on various things we are doing here at OSU, especially with respect to the Mississippian unconventional reservoirs.

On that front, the AAPG Memoir we have in process stemming from our MISS Consortium as well as workers throughout the region should be finished up and in print by the end of the year. So far we have not been able to get a MISS Phase II underway, but we continue to modify our direction there and also to pursue other consortia ideas in and out of the region. The economy in the industry is still not back at a level where companies are funding these types of research programs, but with the potential to leverage other companies funding as part of a consortium, we remain cautiously optimistic in getting another consortium going soon.

As always, please stop by and say hello anytime you are in Stillwater. Wishing everyone the best for the coming year.
As always I am looking forward to seeing many of you when you visit. Best wishes to everyone.

**Dr. Todd Halihan**

**Professor; Hydrogeophysics; Hydrogeology of Fractured and Karstic Aquifers**

For Dr. Halihan, 2016 was a year of international variability. Work continued with Dr. Paulo Galvão of Brazil who got his doctorate from the University of Sao Paulo while at OSU before gaining a position as a professor in Brazil at the Federal University of Ouro Preto. Dr. Antonio Cardona Benavides of San Luis Potosi University spent the year at OSU working on carbonate flow and will be running a theme session at GSA South-Central with Dr. Halihan on Petroleum and Water Interactions in Mexico’s South-Central Region. Dr. Caitlin Barnes completed her Ph.D. with Dr. Halihan working on a systematic evaluation of the hydraulics of induced seismicity across USGS defined areas. Her work is in review and may impact how we look at the hydraulics of these areas. She continues her work as the program coordinator of the OSUTeach program. Jon Fields completed his M.S. working on the hydrogeophysics of lagoon effluent application in karst and is now working for OK DEQ. There are still a bunch of M.S. and undergrad students working on projects. Hope to send a few out in May!

Dr. Halihan’s company, Aestus, LLC (www.aestusllc.com), continues to evaluate contaminated sites using OSU intellectual property developed in the lab. Lauren Guidry, a former student of Dr. Halihan’s, now works for the company, along with the rest of the crew evaluating sites around the globe. Work also continues with the state of Oklahoma as part of the Coordinating Council on Seismic Activity. Things are much quieter on the seismic front, and the state has a new seismologist, so Dr. Halihan is expecting quieter times ahead.

On the home front, the Halihan home continues to host parties for the department. Martha is still teaching over at OSU Chemistry and enjoying about 300 undergrads per semester. She will attempt an online chemistry course in the fall. Dr. Halihan’s son, Maclain, is taller at 11 than his father was when he went into high school; this could be trouble for the good doctor.

**Dr. Mary Hileman**

**Visiting Assistant Professor; Sedimentology; Petroleum Geology**

The 2016-2017 school year marks my ninth year as a faculty member of the Boone Pickens School of Geology. I started teaching one course each semester in the Spring of 2009 and began teaching full-time in the Spring of 2011. I am currently a full-time Visiting Assistant Professor with responsibility for teaching 6 courses each year.

This year I rewrote the Geology of the National Parks course (GEOL 3043) to take it online. This 3 hour basic Geology course is a popular elective for Junior and Senior non-science majors. The focus for this course is to understand basic geologic concepts and scientific methodology, using 26 of the U. S. National Parks as examples. By moving the course online, the enrollment has increased significantly. In the Fall 2015, when this course was taught face-to-face, only 39 students were enrolled. The online enrollment for Fall 2016 and Spring 2017 has been a total of 150 students. Maximum enrollment of 75 students per semester is controlled by the fact that, as a Natural Science Distribution course, there is a required written component. Students write a 4 page research Term Paper on the geology of a National Park not covered in lecture. Use of grading rubrics enable equivalent grading for parks with geology as different as Gates of the Arctic, Lassen, Glacier, Arches and Everglades National Parks.

**October 2016: The School of Geology Hydrogeology course is a bit larger. The willing volunteers for the course fieldtrip did not include some of the approximately 45 students in the course. Wayne Pettyjohn (far left) is still providing his home wellfield for students to get trained.**
Consequently, grading of 75 papers requires a significant time commitment. My primary teaching responsibility is to be the Geology faculty link to the Minor in Petroleum Engineering. I wrote and teach the initial required course for the Minor: GEOL 3413 – Petroleum Geology for Engineers. This practical course begins with mineral and rock identification and ends with a group term project presentation that recommends drilling 3 infill wells, giving project reserves, ROI evaluation and terms for participation in the project. Class size for this course has declined with oil prices and employment trends in the industry. For the 2016 – 2017 school year, with Petroleum Engineering concurring, it was determined that this course be offered once a year, in the Fall semester. In the Fall 2016, 29 engineers were enrolled. We anticipate that enrollment in the Fall 2017 will have 2 lab sections for a total of 50 students.

The second Geology sequence course offered to Petroleum Engineering Minor students is GEOL 4323 – Applied Well Log Analysis for Engineers. This course was first offered to Engineering students who completed GEOL 3413, in the Spring 2010. Although this course was offered both semesters in 2014 and 2015, due to the decline in enrollment, it is now offered once a year, in Spring. Enrollment in the Spring 2017 is currently 23 engineering students.

Lectures for GEOL 5353 (Advanced Well Log Analysis for Graduate Geology students) and GEOL 4323 are offered at the same time – once a week for 3 hours in the evening for lecture, discussion and problem solving. Topics in GEOL 4323/5353 cover evaluation of the standard suite of vertical hole wireline well logs, introduction to petrophysical evaluation, as well as modern microimaging logs run in lateral boreholes, and current BPSG research about unconventional reservoirs. Graduate students have parallel assignments with the Engineering students, but are given more challenging logs and problems for evaluation.

In addition to weekly homework assignments, graduate students have four additional challenging homework problems. These include: (1) interpretation of an overturned and faulted fold (correlation problem), (2) proper Gamma Ray Shale Volume (Vsh) calculation of a glauconite-rich sandstone, (3) porosity evaluation of an oolitic carbonate reservoir, and (4) a short paper to evaluate log curve responses to natural fractures in a carbonate reservoir. There are currently 15 graduate students enrolled in this course.

Finally, I teach GEOL 4313 – Introduction to Well Log Analysis for undergraduate Geology majors (spring semester). This course covers the fundamentals of standard wireline log interpretation to solve subsurface problems. Because this class meets twice a week, there is ample time for discussion and practice of techniques. This spring, there are 20 students enrolled in this course.

I currently am the Thesis Advisor for 2 Master’s Degree students and I am a member of 12 Master’s Thesis Committees. I am also the Faculty Advisor for the OSU Student Chapter of SPWLA (the Society of Professional Well Log Analysts).

Dr. Ahmed Ismail
Assistant Professor; Exploration Seismology, Azimuthal Anisotropy, Fractured Reservoir Characterization, Near Surface Geophysics

Greetings everybody! I joined the Boone Pickens School of Geology at Oklahoma State University last fall. We moved to Stillwater from Denver, Colorado. It is my family’s third move in twelve years and we are all trying to adjust to our new Stillwater community. My wife and I are originally from Egypt. My four wonderful daughters are born in the United States; one in Missouri, two in Illinois, and one in Colorado. I am not sure if we will have a new family member in Oklahoma or not.

I got my Bachelor and Master degrees in applied geophysics from Egypt and earned my PhD in geophysics from Missouri University of Science & Technology (MS&T). My PhD project focused on Luxor City in Egypt, (a place that hosts one-third of the world’s archaeological monuments) integrating geophysical and hydrological techniques to investigate the causes of the rise in groundwater level and increase in salinity leading to deterioration of Luxor monuments. I was able to model the groundwater flow direction, locate the cause of the increase in salinity, and articulate a plan to resolve the problem permanently.

I continued as a postdoctoral fellow at MS&T for a year and half with a shift in research focus to active and passive seismic surface wave inversion to derive shear wave velocity of the near surface. We used shear wave velocity to study the stability of highways and bridges to derive soil amplification/shaking maps used for seismic risk analysis. Following my postdoctoral employment, I joined the Illinois State Geological Survey (ISGS) at the University of Illinois at Urbana Champaign as a seismologist leading their high-resolution seismic program. During this time, I upgraded the land streamer seismic acquisition and the seismic analysis processes for better characterization of glacial deposits and groundwater aquifers.

I spent the best time of my career, seven years, at ISGS, nonetheless my passion for learning more about seismic exploration drove me to move to the oil industry and I joined Schlumberger Inc. in Denver. I was fortunate to be part of the seismic multicomponent group that dealt mainly with time and depth imaging as well as joint inversion of compressional and converted mode seismic data for a better reservoir characterization. I enjoyed learning the leading technologies and interacting with world-class geophysicists across the globe.

Despite my great learning experience in Schlumberger over four years, my passion for teaching, research, interaction with students, and community service was never met. At that time of my career, I had a unique combination of research, teaching and industry experience, co-authored over 20 published articles and abstracts and was invited reviewer of numerous international scientific journals. All of these led me to think of another move to a place where I can better utilize all my previous experiences and fulfill most if not all of my passion.

I moved from Schlumberger to OSU last fall. My research at Oklahoma State
University will focus on advancing the multicomponent seismic exploration for better characterization of anisotropic reservoirs. We will investigate the different mode-converted seismic waves and the more information that can be derived from these modes for better reservoir characterization. Parallel to that, we will work on advancing the use of pure and mode-converted shear waves in groundwater exploration, aquifer characterization, seismic hazards analysis and geotechnical site characterization. I have started working on establishing an exploration geophysics lab that will combine seismic acquisition system and analysis software.

I started the work on designing a multicomponent seismic land streamer to speed up the acquisition of P- and S-wave seismic data for imaging the upper few hundred meters of the subsurface. I have acquired five workstations running industry-standard software for seismic processing, interpretation and inversion including ProMax, Kingdom Suite, Petrel and HampsonRussell. I am in the process of acquiring the Omega software from Schlumberger mainly to analyze converted mode seismic data. I have recruited two MS students and they are both working on projects related to seismic processing and interpretation using ProMax and Petrel Software. During the past few months, I was able to submit three abstracts; the first one was presented at the NRIAG conference in Egypt, the second one was presented at the AGU annual meeting in San Francisco and the third one will be presented at the SAGEEP conference in Denver this March. I also submitted one peer reviewed journal paper and a book chapter. Regarding teaching, I taught my first class at OSU, Introduction to geophysical exploration with 17 students. It was a successful class and I received very positive evaluation from the students. Out of the seventeen students that attended the class, five students showed interest in undergraduate research with me and two other students showed interest in going for MS degree in geophysics under my supervision. Thanks for giving me the opportunity to join the OSU family and I look forward to working with our distinguished OSU students and scientists for many more years to come. Drop by when next you are in town for a tour of our new geophysics lab.

Dr. Priyank Jaiswal
Assistant Professor; Seismology, Inverse Theory, Petroleum Systems; Gas Hydrates

Howdy folks. From Egypt to Pawnee, 2016 was exciting. Here is how it went. The highlight of 2016 was our data acquisition trip to Egypt. NSF and USAID had jointly funded a research project to look into their acquirers in Western Desert. We were supposed to use the same tools and techniques as in hydrocarbon exploration and look for water. We did exactly the same. 10 miles south of the city of Al-Kharga, we laid out the most advanced wireless seismic equipment along a 4km long seismic profile. Field acquisition always has a curveball somewhere. This time it was our source. Nothing worked on sand. We had to improvise. We got a crane, took a 1Tonne weight 100ft high and aimed the drop precisely on a 1sq ft steel plate below. Bang! We collected the most awesome data and now we think we have found a new acquirer below what is currently known. Then in May, I headed over to Japan to sample sediments from 3km long core that we cut from the Indian ocean in 2014. This was to understand the carbonate compensation depth (CCD) in deep oceans. The contrasts in the two projects was as much as the cultures of their host countries, Japan and Egypt. Later in the year, the 5.8 Mw Pawnee Earthquake happened, which set many of us scrambling for data. OSU was lucky in that Bob Springman, an alumnus and a long-time friend, let us look over the 3D volume acquired over Pawnee sometimes ago. The dataset opened my eyes to how amazingly full of character is the Oklahoma’s basement.

Last year, I got tenured, which means I have really committed myself to this academician’s world for the rest of my life. Last fall I graduated my first PhD student. The near-surface imaging tool that we developed through his thesis is now being considered by a few groups for commercial purposes. Being a co-editor of the AAPG Memoir on the Mississippiian Carbonates was another memorable experience. I hope 2017 turns out to be as productive and exciting if not more.

Dr. Daniel A. Laó Dévilla
Assistant Professor; Structural Geology; Plate Tectonics; Fault Slip Analysis and Carribbean Geology

Hello to all alumni and friends of the Boone Pickens School of Geology. This year has been very busy in the Structural Geology realm at the School. I have contributed in teaching 42 students from the Structural Geology course, and 23 students from the Plate Tectonics course. I also ran a Geologic Field Course to Puerto Rico in which 11 students participated. I am supervising two graduate students on research. Sam Dawson successfully defended his thesis on the effects of Precambrian structures on new rifting in northern Malawi and is now working in Austin, Texas with Drilling Info. Ines Barrios Galindo is investigating active tectonics in western Puerto Rico, and Steven Johnson is working on border faults of southern Malawi.

Research continued in East Africa. Four students and I travelled to Malawi for 4 weeks to conduct research of continental rift initiation in Malawi. The students learned about tectonics in one of the best places to study continental rifting and then presented their research at the American Geophysical Union Fall Meeting in San Francisco, and at the Geological Society of America in Denver. We will return this year with 5 new students to the southern part
of the rift to study the evolution of the Bilila-Mkatala Fault. I am the co-author of 2 published papers in the Journal of African Earth Sciences, and Tectonophysics. My students and I also presented 4 conference papers in national meetings American Geophysical Union Fall Meeting and the Geological Society of America. We look forward to continue to conduct high-quality research, advanced education, and service to Oklahoma and the world.

Dr. Jack Pashin
Professor; Devon Chair of Basin Research; Sedimentary Geology; Coalbed Methane; Shalegas; Structural Geology, Basin Analysis

This was an eventful year in which a variety of old activities were wrapped up, and new ones were begun. Last year I taught Basin Evolution, in which we explored the geological aspects of sedimentary basins, including tectonics, burial history, sedimentary architecture, hydrodynamics, and petroleum systems. I also taught the Geology of Unconventional Reservoirs, in which students learn about everything from coalbed methane and shale reservoirs to gas hydrates.

A CO₂-enhanced shale gas and coalbed methane recovery project has been completed in the southern Appalachians, which was sponsored by DOE and Virginia Tech and hosted by CNX Gas. A highlight of the program was that injecting a small quantity of CO₂ had a strong effect on the recovery of natural gas liquids from shale. A RPSEA project that was led by Jim Puckette also has been completed that critically assessed procedures for the evaluation of shale reservoirs. A CO₂-enhanced oil recovery program in the Anadarko Basin is approaching completion that deploys unmanned aerial vehicles for monitoring of oilfield operations. Last year I was awarded a new project on geological characterization and CO₂ storage potential of the eastern Gulf of Mexico shelf. Currently I am developing a new program on a power plant in Mississippi that is using enhanced oil recovery and saline formation storage technology to develop what could be the world’s first zero emission coal-fired power facility. The Unconventional Hydrocarbon Cooperative (UHC) is up and running and is a vehicle for collaboration among the diverse researchers in science and engineering at OSU and the development of cooperative programs with industry. Please visit our website at http://geology.okstate.edu/uhc for further information on UHC activities and membership.

Several students completed theses on a range of topics. Kyrsti Cecil studied the sedimentology and petrology of Devonian chert in the Woodford Shale and the Arkansas Novaculite and defined an upwelling-dominated sedimentary system that spanned the shelf-ocean transition. Mark Jensen completed a thesis on the Anadarko Basin that challenges long-held ideas on the stratigraphic expression of cyclicity in the Pennsylvanian System. And Justin Spears completed a study of the Goddard Shale that sheds new light on the depositional processes governing the deposition of mud-rich petroleum source rocks and reservoirs.

This was an exceptionally busy year for service activities, which include a range of committee activities around the university and various geological societies. I am a member of the U.S. delegation to an ISO committee that is developing standards for CO₂-enhanced oil recovery, and committee activities took me to a range of exotic destinations, including Oslo, Amsterdam, Laramie, and Sapporo. I also gave a series of workshops in Xuzhou, China and am developing a research partnership on unconventional coal and shale reservoirs with the China University of Mining and Technology. However, last year ended on a very difficult note with the unexpected passing of my wife, Janyth, and I appreciate the exceptional sympathy and support I received from everybody associated with the Boone Pickens School of Geology.

Of course, feel free to stop by and say hello next time you are in town, and please don’t hesitate to call or e-mail.

Dr. Jim Puckette
Associate Professor; Geoscience Education Chair; Petroleum Geology

The year 2016 was different for me as I was on sabbatical leave for the spring term. Despite being on sabbatical, I did not travel, but reserved that for the summer following field camp and the fall. However, not teaching a semester allowed almost complete dedication to research and as a result, an opportunity to prepare manuscripts for publication. During the spring and continuing into the summer and fall, our research group, including students, OSU faculty and collaborating non-OSU faculty and professionals worked on a number of manuscripts, mostly related to the Mississippian limestone in outcrop in the Ozarks and subsurface of northern Oklahoma. Students defending their theses in 2016 included Eli Reese and Joey Dineen. Eli examined the geochemical signature of the Woodford Shale in the western Arkoma basin, comparing it with the signature of the shale in the eastern Anadarko basin to determine the influence of local depositional processes on the regional signature. Joey examined the stratigraphy of the St. Joe Group in northern Arkansas to determine if the southward thinning of the Kinderhookian-lower Osagean carbonate section was the result of basinward deepening and condensation, or onlap of a forebulge associated with incipient Ouachita tectonism.

Summer 2016 marked my twenty first year teaching field camp, so to celebrate, Jennifer convinced me to cruise to Alaska. As a result of that thoroughly enjoyable experience, students in introductory geology courses were exposed to a bit of glacial geology. In the fall, we traveled to
Italy to examine the relationship between architecture and geology. Observations from this trip were integrated into several courses and students were shown why the stone used in Rome is quite different than stone used in Florence or Venice. In November, I traveled to New Mexico and examined disseminated porphyry copper and gold deposits of the Copper Flat mine near Truth and Consequences and base metal, barite and fluor spar mineralization in the Hansonburg district. The year culminated with a trip over the winter break to Cameroon to visit family and examine volcanic terrain in the South West province.

In 2017, we will continue to research the Mississippian interval and emphasize conodont biostratigraphy, isotopic signatures, and the transition from inner ramp carbonate sections to more basinal siliciclastic dominated ones. Other research areas include student projects on the Medrano sandstone, Springer sandstone, Cleveland sandstone, Skinner sandstone, Marmaton Group, upper Morrow sandstone and the Rush Springs Sandstone. In addition, I am fortunate to serve on thesis and dissertation committees for M.S. and Ph.D. students researching diverse and interesting topics, an experience that allows me to continue learning. With that in mind, I wish to express appreciation to our alumni and friends who offer support for our research by contributing data, funding scholarships and fellowships, and mentoring students.

Dr. Tracy Quan
Associate Professor; Geochemistry, Stable Isotope Geochemistry; Organic Paleoceanography and Sedimentary Geochemistry

2016 turned out to be a bit of a quiet year, though I certainly was busy starting new projects and continuing to work on others. My lab welcomed a new PhD student, Leye Adeboye, who will work on the geochemical analyses of Mississippi Lime carbonate reservoir samples. A similar project was started by Kristen Sigl, an undergraduate student who won an OSU Wentz Undergraduate Research Grant to study petroleum source biomarkers in the Mississippi Lime. Graduate student Aaron Prock started his second year researching carbon in reservoir water samples from the Black Warrior Basin coalbed methane play, and my collaborators and I presented a few posters and talks from that project at national conferences. I continue to mentor several undergraduate students participating in undergraduate research. I also started to make plans for a sabbatical year in 2017-2018, and hope to participate on a research cruise off of southern Australia as part of my activities.

Lower undergraduate enrollment in the BPSoG means that my run of consecutive semesters spent teaching Practical Mineralogy ended as of the Fall 2016 finals week. While I will miss the routine of teaching a class I am so familiar with, I admit that it’s nice to have a little relief from crystallography and phase diagrams. My graduate-level Organic Geochemistry class was also very successful, and the students and I had several interesting discussions about petroleum, biomarkers, and environmental topics.

Other activities included participating in National Lab Day, the OK EPSCoR Women in Science Conference, and the Oklahoma Geology ‘major’ for Grandparent’s University with Jim Puckette. I was elected secretary/treasurer for OSU’s Women’s Faculty Council. I was also honored to be a nominee for the Blavatnik National Award for Young Scientists in the area of Physical Science and Engineering. I’ve got several exciting projects planned for 2017, so hopefully next year will not be so quiet!

Dr. Natasha Riedinger
Assistant Professor; Marine Systems; Sedimentary Geochemistry; Biogeochemical Cycles

It is amazing how fast time flies when you are having fun; it was a busy but very productive year for me and my biogeochemistry group. During the spring semester I spent the majority of my time writing papers and research proposals, and some traveling - I chaired a session at ASLO Ocean Science Meeting in New Orleans. In fall, I was selected to be part of the he U.S.
Advisory Committee for Scientific Ocean Drilling (USAC) – which is a national committee that advises in scientific ocean drilling. This is a very exciting opportunity to work alongside some of the best deep-sea drilling researchers in the US. Also in fall 2016, my first PhD student, and previous undergraduate researcher in my lab, started - Michelle Lutiker. Because every story has two sides, even in the realm of geochemistry – Michelle is investigating both sides of the sometimes bumpy relationship between organic carbon and uranium in black shales. In December my first MS student here at OSU, Jessica Cofrancesco, graduated. She completed her thesis answering the question on how depositional dynamics can impact paleo-redox proxies – the relationship between metal distribution and lateral re-deposition related organic matter accumulation using sample from the upwelling system off southwest Africa. I am also very thrilled that the lab is now in almost complete running mode. We already produced some interesting data with fascinating scientific outcomes; for example, in cooperation with medical researchers from Oklahoma University we provided analytical dataset for a cancer research that uses specific heavy metals. The outcomes were published in December.

On a different note – in fall I also tried to “resurrect” the Department’s research vessel, which had suffered some slight weather-induced damaged. It is equipped and prepared for core sampling in lakes and coastal environments and would be great for undergraduate courses. Justin Steinmann, a Master’s student in my lab who is exploring new stratigraphic geochemical tools for limestone deposits, spent his free time helping with the boat. He was able to make minor repairs and find a boat mechanic who could take care of the rest. Finally, in early December we were ready for a test run on the Lake Carl Blackwell. With some additional help from Braden Hrencher (Estella’s lab) and Doug Ashe (biogeochem lab) we managed to get the boat out on the lake – and safely returned. Although we encountered a few more minor problems, I am confident that we will have the boat up and running by the beginning of the fall 2017 semester. I hope to establish a course where undergraduate student can take samples in one of the nearby lakes and learn how to conduct a research project all the way, from sampling to writing up the data.

Dr. Javier Vilcaez
Assistant Professor; Computational Modeling; Earth Resources; Environment

It is my hope that this letter finds you well. I would like to first share with you the research accomplishments of my research group, last year we published two peer-reviewed papers. One with Babak Shabani (PhD student) as first author. Pouyan Ebrahimi and Babak Shabani (PhD students) made oral presentations about their researches on the environmental impacts of hydraulic fracturing wastewater disposal and enhanced hydrocarbon recovery at the Geological Society of America (GSA 2016) national meeting held in Denver. I made two presentations about the research done by Joshua York, and Tristan Seabeck (MS students) on geological carbon dioxide storage, one at the American Chemical Society (251st ACS) national meeting held in San Diego, and another at the American Geophysical Union (AGU 2016) national meeting held in Baltimore. Overall I am happy with the progress made by my research group, two more papers are under preparation, and I have many new ideas to advance our research. I submitted a number of research proposals to national science foundations in 2016, I am keeping my fingers crossed to have at least one of my pending research proposals funded. The number of invitations to speak in other universities is increasing fast, I made four invited talks in 2016. These invitations are being very helpful to build some connection.

About my teaching, in 2016 I taught contaminant transport to graduate students, and geochemistry to graduate and undergraduate students. The courses I teach have both theoretical and computational components. At the completion of the courses I teach, students become familiar with principles of groundwater flow and geochemistry as well as with computational methods to effectively manage groundwater resources and predict the fate of contaminants.

A few words about my research program which currently focuses on the numerical modeling and microbiological aspects of geological carbon dioxide storage and hydraulic fracturing wastewater disposal into deep geological formations. Our research program combines the use of advanced pore-, core- and field-scale numerical simulations, and lab-scale experimentation of multiphase biogeochemical reactive transport processes at deep geological formation conditions. Our objective is to develop new technologies and provide new information to enhance the recovery of energy resources and to minimize the environmental impact of such activities. Feel free to contact us to exchange information or discuss potential research projects.


and Ph.D. students about their research and helped them design the experiments and point out the possible breakthrough of their projects. It is fun to work with students, especially, when I have a chance to share my knowledge with them.

On my family side, my younger daughter was born on March 2016. We were very excited about this. She brings tons of fun to my family every day.

Dr. Tao Wu
Geochemistry Lab Coordinator
Greetings everyone! Time is running so fast. This is already my second year to serve in the Boone Pickens School of Geology (BPSoG) as a lab coordinator for geochemistry lab. I am keeping myself busy on two major areas.

The first, I try to maintain the lab equipment in a good condition on a daily basis. For instance, some of the instruments, like Isotope ratio mass spectrometer (IRMS) coupled with combustion elemental analyzer (EA), need to be on all the time. One of my daily mission is to check the pump, ensure that ion source is working properly and I also need to run some of tests, like standard on/off test, to make sure the standard deviation of the results is within the estimate.

The second, I closely interact with students and postdoc to not only help them correctly use the instruments and equipment in the lab, but also teach them the good habits to perform experiments. For instance, I am very strict on making standards for ion chromatography. I teach students how to make standards correctly. I observe what they do when they make standards. I encourage them when they do right and correct them when they do wrong. I also tell them why they do wrong and the possible consequence if they do this step wrong. I am also interested in involving students’ research projects. I have already discussed with several master and Ph.D. students about their research and helped them design the experiments and point out the possible breakthrough of their projects. It is fun to work with students, especially, when I have a chance to share my knowledge with them.

On my family side, my younger daughter was born on March 2016. We were very excited about this. She brings tons of fun to my family every day.

Ms. Sheri Orr
Sr. Academic Counselor
Hello and happy 2017! 2016 brought about another year of exciting changes (as well as challenges) for the Boone Pickens School of Geology undergraduate program! With the downturn in the petroleum industry, we defiantly noticed a drop in majors and are now hovering just over 100.

The past year saw another round of curriculum changes, primarily trying to increase our number of web courses; such as Geology of the National Parks and our new class Earthquakes, Volcanoes, & Disasters, as well as offering an online version of GEOL 1224 in the fall (while keeping a face-to-face section in the spring).

The number of students participating in undergraduate research has remained steady, with 16 students enrolled in research in the Fall 2016 and 17 students enrolled in Spring 2017. This does not account for the freshmen/sophomores who are working in or shadowing our research labs but not enrolled for credit.

As we look toward 2017-2018, we are excited to continue offering more online courses (potentially environmental Geology and oceanography) and we hope to see a rise in our undergraduate enrollment – even if just by a few students. Though enrollment is down, we have doubled our recruiting efforts and have offered 6 scholarships to admitted freshmen for 2017-2018 in hopes of recruiting them to OSU and we’ll offer quite a few scholarships for returning students to help them complete their degrees from the Boone Pickens School of Geology. Lastly, we’rre proud to have thirty-four undergraduate candidates up for graduation this Spring and Summer 2017!

As always, Go Pokes!

Ms. Sandy Earls
Administrative Assistant
Hello all! Another year has gone by and I am not sure where it went. There have been a lot of changes on campus with the new Banner system that is in place. I am still trying to figure out how everything works. Anytime something goes wrong we simply say it’s banners fault.

We once again went to visit family in Tennessee in November. We also spent a little time in the Great Smoky Mountains revisiting some of the sights from our Honeymoon to celebrate out 33rd anniversary. We were glad that we got to visit since they have had the devastating fires. We actually could smell smoke the last few days in
Chattanooga from other fires all around. My family luckily was not impacted.

Another year is upon us and still look forward to another year of working with the alumni, students, staff, faculty and friends of the Boone Pickens School of Geology. I am however getting a little closer to retirement. I hope you will stop by the department next time you are in town, just to say hi!

This past July my family and I were finally able to find a new house and get moved in over the 4th of July weekend. The house we found is between Perkins and Stillwater but still in the Perkins School District. It is a beautiful place and my daughter is excited because it has a couple of acres and she was able to bring up her horse from Spiro.

The kids are growing up way too fast, Elijah recently turned 11 years old and this is his last year as a Cub Scout. This past weekend, he went on an overnight camping trip at the Wichita Mountain Wildlife Refuge. It was his first without me and of course he had a blast while I was a nervous wreck.

Allison had her 9th birthday last week and I was able to surprise her with cupcakes during our Wednesday night class at church. She and the other girls in class loved it and I wasn’t in quite as much trouble as I should have been since I forgot to get them in time to take to school.

The last four and half years have been a blessing to me and my family. I have enjoyed my time here at the Boone Pickens School of Geology. It is with conflicting emotions and not a little bit of sadness that I announce my resignation. It has been a pleasure working with all of you and I want to thank you for making my time here an experience to remember. I will leave my contact information with Sandy in case anyone needs to contact me once my university email is cancelled.
Georgina (Gina) Lukoczi (PhD Candidate)

Dissertation Title: Multi-phase dolomitization and recrystallization of Middle Triassic shallow marine-peritidal carbonates of southwestern Hungary

I am a second year PhD Student at the Boone Pickens School of Geology working under the supervision of Dr. Jay M. Gregg. I am studying dolomitization and dolomite recrystallization processes of Middle Triassic carbonates of the Mecsek Mountains and Villány Hills, in southwest Hungary. My research goal is to develop a generally applicable system of criteria for recognizing dolomite recrystallization, a common problem when studying dolomite hosted hydrocarbon reservoirs.

Aspects of dolomitization have been the focus of my work for several years. I have gained experience as a research assistant in the Analytical Chemistry and Geoanalytical Research Group at the Szentágothai Research Centre of the University of Pécs (Pécs, Hungary), and later at the Geological, Geophysical and Space Science Research Group of the Hungarian Academy of Sciences at Eötvös University (Budapest, Hungary). I also received a research award in 2013 from the Campus Hungary Scholarship Program for a research fellowship at the University of Alberta, in Edmonton, Canada.

I started studying the dolomites of the Mecsek Mountains and Villány Hills in 2011, in Hungary; however, making progress has been difficult due to a lack of funding. Nevertheless, I have been strongly committed to completing this research. I joined the PhD program of Oklahoma State University in January 2016. Here I was given the opportunity to continue working on the ‘Mecsek Dolomite Project’. I plan to apply a novel approach to the problem of dolomite recrystallization using state-of-the-art analytical tools that are available for the research community in the US, including synchrotron x-ray and neutron diffractometry, as well as the excellent research facilities of the Boone Pickens School of Geology.

During my Master’s thesis research at the University of Szeged, in Hungary, I studied hydrocarbon migration as preserved in fluid inclusions in the calcite-filled fracture system of Jurassic calcareous marls in the Mecsek Mountains of Hungary. The results of this research were published in the Bulletin of the Hungarian Geological Society. Since the completion of my Master’s degree, I have been actively involved in further study of hydrocarbon migration in the Mecsek, which resulted in a second publication in the same journal, and a third article is in preparation for publication in an international journal. I also published a critical review about some paleogeographical problems in the area of the Mecsek Mountains in the regional journal ‘Central European Geology’, and co-authored two articles about the dolomitization history of Triassic carbonates in the Transdanubian Range, which were published in internationally recognized journals (Facies, International Journal of Earth Sciences).

Since finishing my Master’s program, I have presented the results of my MS thesis research and the preliminary results of my ongoing research on the dolomites of the Mecsek Mountains and Villány Hills at nine regional and international conferences. In addition, I presented the results of an OSU class project at the Annual Meeting of the Geological Society of America.

After earning my PhD degree, I intend to pursue career in academia in a renowned university preferably either in North America or in Europe.

I am indebted to the Alumni of the Boone Pickens School of Geology for their financial support provided as conference travel support from the Student Enrichment Fund, and as scholarships from the Skinner Scholarship and Martin Family Foundation for the current academic year.

Paul Charbonneau (MS Candidate)

I still remember the day when I was in class on September 11, 2001 and our professor told all of us to stop what we were doing and turn on the news. What I saw before my eyes was both heartbreaking and enraging to me. I graduated 2 years later from military school, and enlisted into the United States Marine Corps infantry shortly thereafter. I am both humbled and thankful for all the life lessons and friendships that were made during my time with 3rd Battalion 5th Marines. Two combat deployments later, and after obtaining the rank of E-5, I decided that it was time to go home. The first few months home was a completely new experience for me, and I missed a sense of comrades. My next life experience led me straight back to the same austere conditions I had left behind in the Marines. Working private security contracts for the United States State Department at embassies in the Middle
East offered a unique experience. I was able to work with a very diverse group of individuals and cultures to obtain our goals for the region. Once I was finally home sick, I began to think about what to do with my life from that point. When I came home, most of my friends had already graduated from college, had jobs, and even families. I have a very determined personality and knew that my future had to be to use my military education funds to pay for my college education. I knew that I loved the outdoors, and I was already very familiar with topographic maps from my time in the military sector. Having a keen interest in science and a love of the outdoors led me straight to the realm of geology. My first course had my mind working overtime wondering how all these exotic landforms on Earth came to be here, and when they came into existence. I knew that I wanted to pursue my undergraduate degree in Geology and thus the coursework began. I had the opportunity to meet many amazing students and professors during my undergraduate time, but it was not always easy for me to feel like I fit in. As a combat veteran, I felt like I was always looked at a bit differently. I already knew my personality and sense of humor was very different from most of the students around me, but that it was not necessarily a bad thing. I am also a pretty goofy and funny guy, so once the so called “ice was broken” I felt very comfortable. Many of the projects in geology require a team to work together, and there is no more comfortable place for me to work in than a team environment. After long grueling nights studying for all of the undergraduate exams, I graduated Cum Laude in December 2015 and applied to the graduate program. I am currently pursuing my master’s degree under Dr. Jack Pashin and have begun working on my thesis. My thesis is focused on assessing the subsurface storage capacity of CO2 in the Eastern Gulf of Mexico (EGOM). Our research is important because there has already been success in subsurface storage of CO2 from other studies. Most of my project will be focused on identifying prospective lithological storage units by analyzing well logs, then outlining the extent of the storage area with 2D seismic surveys. Although I will be seeking employment in the oil and gas sector, I understand the need to keep our environmental footprint as small as possible. I am very grateful for the staff and all of the professors at the Boone Pickens School of Geology for all of their hard work and dedication to the geology program, so thank you and thanks to the alumni and donors for making our department better every year. My family has been a large source of my strength and perseverance, so I have to thank my wife Rebecca for being an amazing mother to our children and an incredible wife. You are my number one rock!

“I am very grateful for the staff and all of the professors at the Boone Pickens School of Geology for all of their hard work and dedication to the geology program, so thank you and thanks to the alumni and donors for making our department better every year”.

Josh Bedell’s journey to graduating with a Bachelor’s of Science with honors in Geology has been trying and unexpected to say the least. More importantly, though, it has been life fulfilling and rewarding beyond measure. Upon graduating high school, Josh was accepted into Cornell University in Ithaca, New York. Initially, he was accepted for academics, but later was recruited to play football there as well. Upon returning from his college visit at Cornell, Josh found out that his high school sweetheart, Callie, was pregnant. Before that happened, Josh and Callie had an understanding that they weren’t going to stay together during college due to the difficulties of a long distance relationship. So the news of a baby was a shock to the both of them to say the least. Josh had a decision to make, he could both go to an Ivy League school and fulfill his dreams of playing Division 1 football, or he could stay home, marry Callie and begin the long and strenuous journey of parenthood. Although Josh and Callie were deeply
concerned about how this would affect their future, they knew there was only one true decision. So Josh stayed home and scrambled to figure out his in state collegiate options. That was when it happened, a perfectly timed phone call from Dr. Jim Puckette offering Josh a substantial scholarship that would allow him to attend another excellent university debt free. This blessing allowed Josh and Callie time to plan their wedding and begin looking for a place to live. Josh and Callie were married a week before school started and moved into a house in Yukon, Oklahoma. This is when Josh began his wonderful and exciting journey at OSU. Although, it did change Josh’s future, it was a positive change, and it was instrumental in molding him into a good man and more importantly a strong and loving husband and father. Josh believes God’s hand was on him the entire time as he gave up a great opportunity in Cornell for his new family which led to an unbelievable opportunity at OSU. Josh is fully confident that no other institution in the country would have given him more opportunities, professional training, and academic prestige than Oklahoma State University. The support that the Boone Pickens School of Geology faculty, staff, and students gave to Josh was instrumental in his professional and academic success. He can’t stress enough how the geology faculty are a direct cause for his accomplishments as they have continually pushed and encouraged Josh to be the best student and professional that he can be. Josh is most impressed however, that the BPSoG faculty haven’t gotten tired of him constantly harassing and pestering them with his questions and ideas. He believes that this is likely the biggest miracle of his entire journey.

Josh was introduced to research by Dr. Halihan and was given an opportunity to conduct groundwater investigations over the OSU Polo Club’s water well that was contaminated by an underlying salt strata that had up-coned due to over pumping. Later, Josh began his honor’s thesis with Dr. Pashin which is titled “Assessing the Hydrocarbon Potential of the Green River Formation Shales Utilizing Petrological Analysis.” Josh has also been heavily involved in OSU’s AAPG student chapter, first he was vice president for a year and is now the current president. Since Josh has been in a leadership position, AAPG’s average meeting attendance has increased from 15 people per meeting to 48 people per meeting. AAPG has hosted dozens of industry professionals and several great networking events including the first ever OSU AAPG Prospect Presentation which had a record AAPG student chapter attendance of 105 people. Most importantly, Josh and the rest of the AAPG leadership have raised over $10,000 for the student chapter giving them the ability to continue their mission for several years to come. Throughout all of this, Josh has maintained a total GPA of 3.60 and a geology GPA of 3.90 and will graduate with a BS with honors this spring after just three short years, while also taking additional petroleum engineering and geography classes. Over the years, Josh has received several prominent scholarships and awards including the Purdie Research Scholarship, which is the largest undergraduate research scholarship offered by OSU. Josh is now extremely excited to continue his education at OSU, where he will begin his master’s degree in the fall. He will work under Dr. Ismail, and will study multi-component seismic data in order to determine subsurface lithology and to conduct azimuthal anisotropy analysis to interpret fracture magnitude and orientation. In the meantime, Josh will finish his final semester and then work for ConocoPhillips this summer as a geoscience intern. Josh and Callie were finally able to move to Stillwater last year after Josh’s nearly 2 years of commuting 3 hours a day for school and work. Most importantly, they are now the loving parents of not just one daughter but two! Josh, Callie, Carolina, and Channing are now Pokes for life and are thrilled for the opportunities at OSU to come! They can state confidently that there is no place they would rather be!
SPOTLIGHT ON STUDENT ORGANIZATIONS

Society of Exploration Geophysicists Student Chapter at Oklahoma State University

President: Luel Emishaw
Faculty Advisor: Dr. Priyank Jaiswal

The Society of Exploration Geophysicists (SEG) Student Chapter at Oklahoma State University had an exciting start to the 2016 academic year promoting geophysics and student involvement. We hosted the SEG Honorary Lecturer Scott Michell in Fall 2016 to provide opportunities for students to learn about recent innovations and technology in the geosciences. Scott participated in a student lead Q&A session followed by his talk “Subsalt Imaging: Snapshots in Time, Reflections, and next Steps”. Both were excellent opportunities for students to communicate with an industry professional on topics from career development to seismic imaging. Elections were also held signifying a passing of the torch from Sundeep Sharma to recent President Luelsged Emishaw and his officers: Ewin Fektovich (Vice President), Nathan Campbell (Treasurer), Micah Mayle (Secretary), and Ines Barrios Galindez (Social Outreach Chair).

In Spring 2017 we will be hosting a joint AAPG/ SEG ConocoPhillips Geoscience and Engineering Tech Fest alongside OSU Student Chapters of American of Association of Petroleum Geologists and Society of Petrophysicists and Well Log Analysts to provide an opportunity for students to present their current research and promote their work to industry professionals. A series of Python workshops will also be hosted later in the Spring of the 2017. It will be led by PhD. candidate in geology Afshin Aghayan and will allow students to add computational skills making them more competitive as a job candidate and researcher.

American Association of Petroleum Geologists Student Chapter at Oklahoma State University

President: Josh Bedell
Faculty Advisor: Dr. Michael Grammer

The OSU Student Chapter of the American Association of Petroleum Geologists (AAPG) is also active in the department and is thriving with 120 members and an average attendance of 48 people per meeting. The organization is currently holding a speaker series where they will be hosting industry professionals from all over the Mid-Continent, including experts in the fields of geology, geophysics, engineering, land/title, and everything in between. The goal of this series is to fully develop our students into oil and gas specialists, with a well-rounded understanding of all the industry’s major scientific and business components. In the fall of 2016 we were able to host Tim Munson of Spartan Resources, Cody Knepper of Nutech Energy, Roberto Wagner of Chesapeake Energy, and the 14 geoscience professionals from the Oklahoma City Geological Society. Moreover, AAPG has conducted fundraisers through the school and held toy drives for the children at Stillwater Medical Center. This fall AAPG partnered with SPE, SPWLA, and AAGE and raised over $1400 for our Angel Tree project and was able to provide Christmas for 12 children. They also have developed a refund program for students that attend student expos, present posters, and participate in other academic/professional related activities. AAPG also partnered with ConocoPhillips this fall and hosted the ConocoPhillips Math and Science Night where we hosted over 230 students and 400 total attendees.

Furthermore, AAPG also partnered with the Wonderatorium in Stillwater and hosted geology themed activities for kids during the month of January. Additionally, AAPG hosts numerous software short courses, resume workshops, field trips, and other professional development events throughout the year. Last spring, AAPG held the first ever AAPG Prospect Presentation, where two
Josh Bedell speaking to students during the ConocPhillips Math and Science Night

independents presented oil prospects and then students were divided into teams with either a professional geologist, petroleum engineer, Landman, or professor as their advisor and then evaluated each prospect during a barbeque feast and decided how they would invest their “one million” dollars. This event had a record attendance of 105 people with professionals from all over Oklahoma, and according to Dr. Puckette, it could have been the largest AAPG Student Chapter sponsored event in the history of our geology department. AAPG will be hosting the 2nd Annual AAPG Prospect Presentation this spring with plans of it being even bigger and better than the first one as they have already raised $8,000 for the event. AAPG, along with the Oklahoma State Geological Society (OSUGS), sponsors a dinner meeting called the Triple Junction Function here at OSU for the Tulsa and Oklahoma City Geological Societies. An oral presentation from a nationally/internationally recognized speaker is the highlight of the dinner meeting and this year AAPG and OSUGS plan to continue this wonderful tradition by hosting the 20th Annual Triple Junction Function. Historically, the AAPG chapter officers are graduate students in the School of Geology but often active undergraduates take part in leading the student chapter.

Association for Women Geoscientists

President: Michelle Lutiker
Faculty Advisor: Dr. Tracy Quan

AWG’s mission is to encourage the participation of women in the geosciences, to exchange educational, technical and professional information, and to enhance the professional growth and advancement of women in the geosciences. We have worked to fulfill this mission over the past year with our involvement in several activities, one of which was the EPSCOR Women in Science Conference (WISC) this past spring. The WISC was a great success. We helped young girls from all over the state of Oklahoma learn how the rock cycle works through a hands-on demonstration using crayons.

Additionally, AWG members took two field trips this past spring. The first was to the Wichita Mountains. Our hiking group included students from all stages in their college career, from freshmen to doctoral students. We enjoyed some fresh air, climbing and checking out evidence of Oklahoma’s rifting past. We also hosted a well-attended field trip to the Catoosa Test Facility in Jennings, Oklahoma where we were treated to a tour of the rig and facilities on site. AWG is looking forward to another great year!
CONGRATULATIONS TO OUR 2016 GRADUATES

Masters of Science Graduates

Bradley Beckwith Advisor: Dr. Tracy Quan
Jessica Cofrancesco Advisor: Dr. Natascha Riedinger
Sam Dawson Advisor: Dr. Daniel Laó Dávila
Ashley Dupont Advisor: Dr. Michael Grammer
Jon Fields Advisor: Dr. Todd Halihan
Lara Jaeckel Advisor: Dr. Michael Grammer
Mark Jensen Advisor: Dr. Jack Pashin
Emmanuel Njinju Advisor Dr. Estella Atekwana
Nicole Paizis Advisor: Dr. Eliot Atekwana
Shawna Parks Advisor: Dr. Jeffrey Byrnes
Eli Reese Advisor: Dr. Jim Puckette
Sundeep Sharma Advisors: Dr. Estella Atekwana Dr. Priyank Jaiswal
Scott Shelley Advisor: Michael Grammer
Justin Spears Dr. Jack Pashin
Brittney Temple Advisor: Dr. Jay Gregg
Taylor Thomson Dr. Michael Grammer

Doctor of Philosophy Graduates

Iftekhar Alam Advisor: Dr. Priyank Jaiswal
Andrew Katumwehe Advisors: Dr. Estella Atekwana Dr. Mohamed Abdelsalam
Sahar Mohammadi Advisor: Dr. Jay Gregg
Beth Vanden Berg Dr. Michael Grammer

Left-Right: Beth Vanden Berg (PhD), Andrew Katumwehe (PhD), Shawna Parks (MS), and Emmanuel Njinju (MS) during the spring 2016 graduation.
A Message from Boone Pickens School of Geology Advisory Board

Gary W Ford, 2016-2017 Alumni Advisory Board Chair

Why have a Geology Advisory Board and what does it do?

Sometimes I think it is a good idea to stop and evaluate where you’ve been and why you went that direction, so I thought it time to do the same with the BPSoSG Advisory Board.

The current iteration of an alumni advisory group, the BPSoSG Advisory Board, was formed back in 2002. The Board held its first organized meeting held on campus April 22, 2006, consisting of an initial 41, who agreed to serve on the Board. Later that year, the Board adopted formal bylaws to focus and govern the group. I think it is important that the original Advisory Board purpose, as stated in the Bylaws, be re-stated and used as a bench mark as to how the Board is doing; is it living up to its stated purpose?

The BPSoSG Advisory Board comprised of alumni and friends of the School shall be an active and vigorous group engaged to advise, assist and advocate for the faculty and students and the School in defining and attaining their academic, career and mission goals.

The purpose of this Advisory Board shall include, but not be limited to the following:

- To advise the faculty of the School of Geology and the administration of Oklahoma State University on the needs of the people and industries that are served by the school; particularly in regard to the curriculum to be taught to the students who will be employed in industry, academia and government and to the direction of research that is undertaken by the faculty and students.

- To mentor undergraduate and graduate students regarding the profession of geology and its practice, and to introduce students to appropriate professional organizations and encourage their participation in these organizations.

- To provide a network of contacts to those students seeking employment in industry, academia or government and for their further career development.

- To advocate for, encourage and promote hiring of OSU School of Geology graduates within industry, academia and government.

- To assist with fundraising efforts for both specific research endeavors and for the overall development of the School and its students, in coordination with the OSU Foundation.

- To maintain the traditional sense of camaraderie and community among the students, faculty, alumni and friends of the School of Geology.

- To advise on matters regarding changing industry cultures or politics that may have an effect on the future of the School or its students, faculty and alumni.

- To advise and assist on other such issues as may be suggested by the School, Faculty, or University and to advocate for the School in the general public.

In looking over 2016-2017, the Board has accomplished many things:

- Held monthly teleconference calls to facilitate communication between Faculty and Board members.

- Held bi-yearly meetings on Campus to allow face-to-face interaction between Faculty and Board members.

- Assisted faculty in completion of a comprehensive revised 10 year Strategic Plan that will be used to guide the BPSoSG for future success.

- Continued “Take a Cowboy to Work” program allowing students to visit with and observe geologist in their day-to-day jobs.

- Provided funding for students to attend professional regional meetings.

- Formed Environmental/Water Resources committee to bring focus to those industries.

- Advised the Administration on benefits of forming a Petroleum Geosciences Director position to strengthen BPSoSG Petroleum Geosciences program.

- Worked with OSU Foundation in raising funds for Core Facility Building campaign.

- Participated in a department review by an external review committee on how to achieve the School’s goals.

- Fall Advisory Board meeting held on campus during Home Football weekend.

- Host Annual Alumni Spring Banquet and assist in funding for the event.

- Bring alumni, faculty and friends of the School together during offsite event.

- Provide Graduate student scholarships.

- Started effort in seeking out new members amongst younger alumni to join and become active members of the Geology Advisory Board.

In my view, the Advisory Board is continuing to fulfill its purpose as envisioned by the first Board back in 2006, by adding value and support to the School. This success is due to the many Geology Advisory Board members who give their time, efforts, resources and funding, helping to making the BPSoSG a great place to study geology! If you are not a Board member and would like to be considered for membership, please contact Dr. Estella Atekwana.

Many thanks to all involved with the Board.

Go Pokes and Rock on!

Gary W. Ford
UPCOMING EVENTS AT THE SCHOOL OF GEOLOGY

Advisory Board meeting: Saturday, March 25th 2017, at 9:30 am 001 Noble Research Center, OSU - Stillwater Campus

2017 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, March 25th, 2017. The Reception and Banquet will be held on campus at Gallagher Iba Arena “O” Club. The reception will begin at 5:30 pm and includes a cash bar and student posters. The Banquet will be from 6:30-9:00 pm in the “O” Club. Dress code is business formal with a splash of orange. To make your reservations to attend the banquet, Call Sandy Earls at the Boone Pickens School of Geology, 405.744.6358 or Kimberly Anglin 405.385.0702. There is no cost to attend the banquet (with the exception of the cash bar) but table sponsorships will be appreciated.

Congratulations to Jon Glass for the 2016 Geology Distinguish Alumnus

Congratulations to Terry Hollrah for the GAAC 2016 Bootstrap Award

Congratulations to Dr. Gary Stewart for receiving the GAAC Honorary Life Membership Award

Congratulations to Dr. John Shelton for receiving the Oklahoma Geological Foundation Legends Award
I WOULD LIKE TO MAKE A DIFFERENCE AT OSU BY SUPPORTING:

THE BOONE PICKENS SCHOOL OF GEOLOGY

YOUR PASSION:

☐ GEOLOGY DEPARTMENT FUND (22-39600)
Provides unrestricted source of funds for the Geology Department and supports the greatest needs of students, faculty, and departmental priorities.

☐ GEOLOGY STUDENT ENRICHMENT FUND (22-90050)
This fund is critical to the enrichment of the student experience and provides resources to students for travel and conference attendance.

☐ GEOLOGY SCHOLARSHIP FUND (22-46900)
Supports undergraduate scholarships for Geology students.

☐ ALUMNI GEOLOGY GRADUATE FELLOWSHIP (22-99300)
Supports graduate student fellowships for Geology students.

☐ PETROLEUM GEOSCIENCES INITIATIVES FUND (22-85650)
This is a new fund created to support the Director of Petroleum Geosciences and the Petroleum Committee with outreach to the petroleum industry. Our goal is to have OSU better represented to major oil and gas companies and in professional associations.

☐ GEOLOGY CORE RESEARCH FACILITY FUND (22-88180)
Completing the Core Facility will allow our students and faculty the ability to expand the focus of research, partner with industry, and have an overall better educational experience.

Have you included OSU Foundation in your estate plan?

Have you looked to see if your or your spouse’s employer will match your contribution and double your impact? See a list of matching employers at OSUgiving.com/matching

YOUR INFORMATION:

Name

Spouse Name

Address

City

State

Zip

Phone

Email

Employer

Title

Spouse Phone

Spouse Email

YOUR GIFT: I WOULD LIKE TO MAKE A TOTAL GIFT OR PLEDGE OF: $  

FREQUENCY:

☐ one-time  ☐ in monthly installments of $_____

Pledged for:  ☐ 1 yr  ☐ 2 yr  ☐ 3 yr  ☐ 4 yr  ☐ 5 yr  ☐ indefinite

Beginning: ______ (mm/yyyy) Ending: ______ (mm/yyyy)

* Pledge reminders will be sent based on your fulfillment schedule.

PAYMENT:

☐ My check, payable to OSU Foundation is enclosed

☐ Please charge my credit/debit card

Card Number

Exp. Date

Name on Card

CVC Code

Signature

To make a gift over the phone or online, please call 800.622.4678 or visit: OSUgiving.com

PLEASE SEND YOUR PAYMENT TO:

OSU FOUNDATION
P.O. Box 258818 | Oklahoma City, OK 73125-8818

*Gifts to the OSU Foundation may be tax deductible.
Freshman Field Trip on Mt Scott, October 23, 2016

Boone Pickens
School of Geology

2016-2017 Newsletter
Oklahoma State University