Graduate students and faculty on a carbonate field trip to the Guadalupe Mountains in West Texas, Fall 2017; El Capitan in upper right corner of photograph. Rear row from left to right: Ibukunoluwa Bode-Omoleye, Alejandra Santiago-Torres, Destinee Reddick, Sabrina Halli. Front Row from left to right: Joshua Bedell, Professor Jay Gregg, Jim Karsten, Elizabeth Elium, Maria Riestroffer, Chase Watkins, Georgina Lukoczki, Yulun Wang, and Professor Mike Grammer
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Scenes from Malawi during the 2017 International Research Experience for Students, which was funded by the National Science Foundation and awarded to Drs. Daniel Laó Dávila and Estella Atekwana.
Greetings from the Interim School Head

Jack Pashin

2017 was an exceptional year for the Boone Pickens School of Geology, and 2018 is shaping up to be another great year. This has been a year of exceptional student and faculty achievement, and the School continues to march forward with a series of new milestones.

Our latest faculty hire is Dr. Brendan Hanger, who has come from the Australian National University in Canberra. Brendan is our first Teaching Assistant Professor, which is a new position dedicated to undergraduate education. His expertise is in igneous and metamorphic petrology, mineralogy, and field geology, and he has been instrumental in enhancing and revamping our introductory course offerings and providing a broad range of courses that are essential for a solid geological education.

Estella and Eliot Atekwana, who helped anchor our school for many years, have taken new positions at the University of Delaware. We miss them greatly and wish them the very best in their new endeavors. Eliot and Estella have both served the School as Head and have provided a wealth of teaching and research expertise that was critical for building our geochemistry and geophysics programs. Estella is now Dean of the College of Earth, Ocean, and Environment at Delaware, and Eliot is continuing his teaching and research activities with a new professorship at that institution. Fortunately, they remain in the OSU fold, retaining adjunct positions in the Boone Pickens School of Geology.

This was a very productive year for the School, with students and faculty presenting 104 papers at technical meetings and winning awards for their presentations. We published 63 peer-reviewed papers in international journals and books, and 17 of those papers were senior-authored by our students. The student papers are posted on a wall in the atrium of the Noble Research Center, so please stop by and take a look when you are on campus. These publications portray the quality of our research program, which is far-reaching and remains healthy with nearly $3.0 million in active research grants. These grants support many students and are important for giving them advanced skills, developing collaborations with peers and stakeholders, and learning how to participate in the discourse that drives today’s most relevant research initiatives.

Enrollment in the School has declined, primarily because of limited employment in the energy sector. Industry is turning around, and we will need to market our programs strategically to strengthen enrollment. We now have 152 students in the Boone Pickens School of Geology, with 75 undergraduates, 53 M.S. students, and 24 Ph.D. students. Many undergraduates will graduate this year, which underscores the need for us to bolster our recruitment efforts. Graduate applications remain strong, and we continue receiving applications from students in leading geoscience programs both domestically and internationally.

We graduated 37 students with B.S. degrees in 2017. At the graduate level, we produced 13 graduates with M.S. degrees and 1 graduate with a Ph.D. degree. Students in the Boone Pickens School of Geology are supported by a broad range of teaching assistantships, research assistantships, fellowships and scholarships.

We graciously thank our donors, whose generosity ensures that our students are supported and receive an education of exceptional quality. These donations are essential for the operation of the School, and without them our capabilities would be nowhere near what they are today.

Our students are well-recognized, having won an incredible number of awards in 2017 and 2018. And we can boast championship bragging rights, having topped the world in the number of AAPG Foundation Grants in Aid awarded two years in a row! We lead a good pack, having won 9 grants in 2017; the Colorado School of Mines placed 2nd with 7 grants, and Louisiana State University, Texas A&M, and the University of Kansas tied for 3rd with 4 grants each. In 2018, our students led with 8 grants; the University of Manchester placed 2nd with 7 grants, and the China University of Petroleum, Colorado School of Mines, Rice University, and West Virginia University tied for 3rd, each with 5 grants.

The Boone Pickens School of Geology continues to attract recruiters from major and independent petroleum companies. Six companies visited during the Fall, including Chesapeake, Concho, ConocoPhillips, Devon, ExxonMobil, and WPX. This is a strong showing that demonstrates the desirability of students in the Boone Pickens School of Geology, especially considering the challenges the energy industry faces. We deeply appreciate their consideration of OSU geology students, who are hard working and are eager to grasp opportunities and perform the job at hand.

Perhaps the biggest news is that the Gary F. Stewart Core Research facility is in the late design stages, and construction is expected to begin this summer. The OSU Foundation worked tirelessly raise $2.2 million toward the construction of the facility, and we thank the alumni, corporations, and other stakeholders who have contributed so generously to help make this facility a reality. The facility will be located in the northwestern part of campus, north of McElroy Road near the intersection of West Tyler Avenue and McDonald Street. We are quite excited about the Core Research Facility, which will provide much needed space to store, lay out, describe, and analyze cores. Space also will be dedicated to drill and cut rocks for analysis, and a clean lab will enable core analysis. A conference room at the facility will be used for classes, seminars, and core workshops. A dedication ceremony was held in the atrium of the Noble Research Center on November 8th prior to the OSU-Kansas State football game. The OSU Foundation helped organize the dedication, and student research posters were displayed around the atrium. The dedication was well attended, and the ceremony was heartwarming and moving. The facility is named for Gary F. Stewart, who as many of you know, is a Professor Emeritus in the Boone Pickens School of Geology and a beloved faculty member. He was honored with testimonials from alumni, faculty, and administrators, including Dean Bret Danilowicz of the College of Arts and Sciences. Dr. Stewart was recognized as a friend, colleague, teacher, and mentor. Dr. Stewart addressed the crowd with words that were softspoken, deliberate, grateful, and emotive. Indeed, there was not a dry eye in the room. After the dedication, attendees visited the future site of the core facility.
Graduate Student Honors and Awards

2017 AAPG Foundation Grants-In-Aid
Mercy Achang
Oyeleye Adeboye
Justin Allen
Phillip Bailey
Ibukunoluwa Bode-Omoleye
John Gray
Georgina Lukoczki
Yulun Wang
Liang Xue

2018 AAPG Foundation Grants-In-Aid
Mercy Achang
Ibukunoluwa Bode-Omoleye
Gina Dunseith
Jim Karsten
Georgina Lukoczki
Jenny Meng
Alejandra Santiago-Torres
Chase Watkins

2017 A. I. Levorsen Award, AAPG Midcontinent Section (Best Oral Presentation)
Buddy Price (MS, 2015)

2017 Geological Society of America Best Poster Award – Sedimentary Geology Division
Tadesse Alemu

2017 Herbert G. & Shirley A. Davis Oklahoma City Geological Foundation Scholarship
Oyeleye Adeboye
Justin Allen

2017 Imperial Barrell Award Team
Oyeleye Adeboye
Ines Barrios
David Beckendorf
Xitong Hu
Kevin Toth

2017 National Association of Black Geologists Scholarship
Tadesse Alemu

2017 Oklahoma Geological Foundation Suzanne Takken Memorial Fellowship
Ibukunoluwa Bode-Omoleye

2017 Oklahoma Geological Foundation Frederick M. Black Field Camp Grant
Toby Williams

2017 Oklahoma Geological Foundation Field Camp Grants
Christina Arszulowicz
Kaitlyn Beard
Dalton Cooper
Courtney Dunn
Clay Fitzgerald
Reagan Francisco
Spencer Harris
Romulo Jimenez
Nick Johnson
Jessica Juenger
Tanner Linden
Micah Morgan
William Mynatt
Kyle Nitz
Huston Poe
Ian Rusthoven
Kristen Sigl
Jerrod Smith

2017 Planalp Best Poster Award, AAPG Midcontinent Section
Taylor Thompson (MS 2016)

2017 Society of Petrophysicists and Well Log Analysts Scholarship
Mercy Achang

2017 Tulsa Geological Society Outstanding Student
Josh Bedell

2017 US Science Support Program Travel Grant to the United Kingdom
Mercy Achang
It is hard to believe, but 2017 marked the 68th year for field geology along Eightmile Creek near Cañon City, Colorado. 2017 was an uneventful and delightful year for field geology. The weather was mostly mild, no severe thunderstorms forced us to huddle in low places, the cactus flies (gnats) were scarce and our cooks, Jan Van Pelt and Sabrina Hicks, did their best to make certain no one lost weight. Sixty-two (62) students attended, including 33 from OSU and 29 from other institutions including Arkansas Tech, Cal State Sacramento, Eastern Michigan, Georgia Southern, Indiana Purdue Fort Wayne, Midwestern State, Sam Houston State, Sul Ross State, University of Texas at Arlington and University of Texas at Dallas.

Camp started with cool weather and slowly warmed through the session. Field projects in 2017 included Phantom Canyon/Gnat Hollow, Grape Creek, Indian Springs Ranch, Mixing Bowl, Big Orange, Red Canyon Park, Blue Ridge and Twin Mountain. Field trips to Cripple Creek and Victor, Pikes Peak, Great Sand Dunes National Park, and Leadville provided scenic breaks from the demanding fieldwork. In the Cripple Creek and Victor area, we visited the CC&V Gold Mine and stopped at the recently opened overlook to watch excavation of the North Cresson pit. Afterwards, a group toured the Mollie Kathleen Gold Mine and were delighted with the mining experience. This year’s trip up Pikes Peak was similar to 2016 in that our women drivers are still the coolest as evidenced by their van’s lower temperature brakes at the Glen Cove safety check station. Because of overflowing crowds at Garden of the Gods and a lack parking for our vans, we drove through the park and stopped only at the visitor’s center. Afterwards, we enjoyed a hike up Pulpit Rock and spent some time analyzing the ash-rich early Tertiary sedimentary rocks that make up the feature. We visited Great Sand Dunes National Park on a beautiful mild and sunny day with little wind. In these ideal conditions, a group of about twenty climbed the tallest dune while the rest of our group enjoyed wading in Medano Creek and relaxing in the park and taking in the stunning vistas of the magnificent 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. While in the Leadville district, we collected water from a catchment below a sulfide dump, collected mineral specimens, toured the National Mining Museum and of course, threw snowballs.

The fulltime faculty for the 2017 camp were George Bolling, Rick Hobbs, and Jim Puckette. Shorter-term faculty included Natascha Riedinger who assisted with measuring section and Ahmed Ismail who supervised the geophysics project. Teaching Assistants were Michelle Abshire, Curt Carter, Gina Lukowczki, and Justin Steinmann. Tim Sickbert managed the camp and served as our medical officer. Tim also was the master griller for our weekend cookouts, which gave Jan and Sabrina a well-deserved break. Ms. Tiny Striegel of Cañon City, the poet laureate of field camp and an honorary alumnus of the Boone Pickens School of Geology, enlightened us with her ninety-four years of wisdom by reading poetry during supper. Numerous guests visited the camp including former students, friends of OSU, neighboring ranchers and other property owners where we conduct field exercises. We encourage you to visit during the 2018 camp, which begins May 21 and ends June 22.
Ms. Dorothy (Tiny) Striegel, Honorary Alumnus of the Boone Pickens School of Geology has been selected for the Fremont County, Colorado Hall of Fame. Ms. Striegel, who is “Tiny” to all who know her, is being honored for her long service to the Cañon City community, her generous support of the Cañon Campus of the Pueblo Community College, and her dedication to continued learning through adult education courses and unwavering support of summer geology field schools.

Though not a graduate of OSU, through family connections that extend back to 1949 and Oklahoma A & M, Tiny has become a champion for OSU along the Front Range of the Rocky Mountains. In 1990, Tiny and her late husband Ernie donated a portion of the family ranch near Cañon City to the OSU Foundation to be a permanent home for the Les Houston Geology Field Camp. The camp is named in honor of her father Mr. Les Huston, who along with Tiny’s mother, were an integral part of the Oklahoma Geology Camp for several decades beginning in 1949.

Tiny is a fulltime asset to the camp, as she acts as our agent when dealing with state and county officials and helps maintain the camp’s relationship with her longtime ranching family friends who give us access to their property. This diminutive (under 5 feet tall) 90+ year-young lady, who holds many titles connected to camp, annually recites poetry to a crowd of sixty mostly <22 year old, field-dirty and tired students in the camp dining hall. Not only do the students respect Tiny, they embrace her as camp Poet Laureate and their temporarily adopted great grandmother. Because of her dedicated service to the OSU Les Huston Field Camp and support of OSU in general, Tiny is regarded by many as the longest serving unpaid OSU employee in Colorado.

—Jim Puckette
GEOL 1114 Arbuckles Field Trip

On two different Saturdays in October and November the Physical Geology class headed down I-35 to explore the geology of the Arbuckles and Sulphur. Approximately 55 students went on each day and the stops included two scenic outlooks on I-35, the Hunton Anticline near the Lake of the Arbuckles and the Vendome Artesian Well in the Chickasaw National Recreation Area, Sulphur. The aim of the trip was to introduce field geology to the students, with tasks including rock identification, sketching folds and interpreting geological features.

Students had the chance to see an unconformity, small- and large-scale folding and an artesian well. I was joined on one trip by Dr. Natascha Riedinger, and numerous TAs on each trip. For the incoming freshman geology majors it was a great opportunity to experience the field for the first time. However, most of the students are not geologists, so Physical Geology is both their first and last geology course, but these students came away with a better understanding of geology, and the ability to explain some of the outcrops along I-35, which will stick with them. On the 2nd trip we managed to time a stop at the A&W in Davis with the last three minutes of the Cowboy comeback victory over Iowa State, much to the excitement of many students.

—Brendan Hanger
Guadalupe Mountains Field Trip

An OSU carbonate field trip was run to the Guadalupe Mountains of west Texas and Southeastern New Mexico over Fall Break, October 19-22. The trip was lead by Jay Gregg and Mike Grammer for the graduate students in the Advanced Carbonate Petrology & Geochemistry class as well as other carbonate students in the School. During the trip we visited the Permian Capitan reef, back-reef, and basinal facies, as well as a half-day excursion through Carlsbad Caverns.

After a full day drive to Carlsbad the group stayed at Stevens Motel in Carlsbad, the classic motel that has hosted innumerable geology field trips over the past 60 years or more. The first morning was spent on the Tansill-equivalent upper Capitan Reef exposure at the mouth of Dark Canyon, just south of Carlsbad. After about a half hour on the exposure a field trip from University of Kansas pulled up. Apparently the BPSoG was not the only group who thought that this was a good weekend to spend in the Guadalupes! Continuing into Dark Canyon both proximal and distal back reef outcrops in the Yates and Tansill formations were visited. These contain partially to completely dolomitized microbial laminates, pisolites, evidence of evaporates and beautifully exposed teepee structures. The afternoon of the first day was spent touring Carlsbad Caverns.

Day two of the field trip started with a visit to road cuts of the Castile Anhydrite followed by a visit to McKittrick Canyon. Here the students hiked the famed “Reef Trail” up the face of the Capitan Reef. They had an assignment to complete for the carbonate diagenesis class. Drs. Grammer and Gregg, having both undergone recent knee surgery, took the ‘easy’ trail up the canyon to the stone lodge built by the famous petroleum geologist, Wallace Pratt, in the early 20th century. It was Wallace Pratt who donated 5,632 acres, including McKittrick Canyon, to the people of the United States, forming the core of Guadalupe Mountains National Park. Mr. Pratt was not at home but Mike and Jay had a nice time sitting on his front porch.

The afternoon of day two was spent visiting road cuts of the fore-reef and basinal facies as we drove through Guadalupe Pass. This included excellent exposures of calcareous shale source beds (now unconventional reservoirs) and conventional sandstone reservoirs in the Delaware Mountain Group. The Field trip ended on the Salt Plains west of the pass with a spectacular view of the Capitan and Goat Seep reefs and adjacent back reef-facies exposed on the Guadalupe escarpment. As the sun went down at the end of the day the field trippers drove back to Carlsbad for supper and a final night at Stevens Motel. The next morning the long journey back to Stillwater was started.

If your company is interested in organizing an excursion to the Guadalupes, a must for anyone working the Permian Basin, contact Mike Grammer or Jay Gregg. We can put together a professional field trip of two to five days duration (not including travel) and our rates will be a lot lower than that charged by the commercial outfits. Especially for alumni and friends!

—Jay Gregg

Dr. Grammer and students posing in front of a panorama of the Capitan reef-slope complex in the Guadalupe Mountains, west Texas.

Spectacular stalactites and stalagmites in Carlsbad Caverns, New Mexico.
The Tectonics Research Group at the School of Geology which is a research collaboration between my colleague Dr. Daniel Laó Dávila and myself is growing stronger with the involvement of 5 PhD students, 10 MS students and 5 undergraduate students. We have (in collaboration with Dr. Ahmed Ismail) a proposal submitted to National Science Foundation (NSF) to secure funding to continue involving Boone Pickens School of Geology students studying 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 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 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.

At this moment, we have seen initial floor plans and construction details and hope to finalize everything within the coming weeks, followed quickly by the initiation of the construction phase. This will be an incredibly valuable facility for us here in the BPSG – for teaching at the undergraduate and graduate levels, research, and outreach initiatives. I am sorry to have missed the Celebration in November (I was in Europe teaching a short course that had been scheduled early last year), but everything I heard indicates is was a very successful and enjoyable time. Thanks again to everyone who has helped make this initiative a reality.

In addition to the Core Facility plans and working with my students, I have spent quite a bit of time (over the last 2 years) as the lead editor on two special publications: GSA Special Paper 531 on Paleozoic Resources of the Michigan Basin, and AAPG Memoir 116 on Mississippian Reservoirs of the Mid-Continent of the U.S.. Dealing with both organizations, scores of authors, 2-3 reviewers for each paper, plus the papers from our group has been an enormous task. That said, as I write this, the GSA volume will be printed next month and we are hoping the AAPG Memoir will be printed this summer. It will be a welcome finish to what I think will be two very important special volumes, especially the AAPG Memoir with the spotlight on the BPSG (both with fellow editors Jay Gregg, Jim Puckette and Priyank Jaiswal) as well as the numerous OSU students who are lead authors and co-authors on more than half the papers in the volume.

This last year, our group was able to go to two world class outcrop locations to study carbonate depositional systems and sequence stratigraphy. In the Spring, we went to the Paradox Basin in SW Utah for several days of Pennsylvanian carbonates, phylloid algal buildups and high resolution sequence stratigraphy from a reservoir characterization standpoint. We were joined on our trip by group alums Miranda Childress and Buddy Price, both of whom have been very supportive of the group over the last few years. Buddy and Miranda’s industry experience was very helpful in discussions with the current group of students on the potential applications of what we were examining. In the Fall, we joined Jay Gregg and his group
for a trip to the Guadalupe Mountains – another successful trip to world class outcrops that I know many of you have also visited during your career.

My group has a few newcomers that joined us in the Fall. Mckensie Mitsdarffer (MS student) joins us from Texas A&M and will be working on the Wolfcamp in the Permian Basin. Maria Reistroffer (MS student) did her undergraduate work at the University of Texas at Austin – she will be working on the Bakken in the Williston Basin. Alejandra Santiago Torres (MS student), University of Puerto Rico, is working on Silurian-aged carbonate slope deposits in Indiana, and Sabrina Halli, a Fulbright scholar here to work on a MS, is working with Jay and myself on the diagenesis of Mississippian rocks in Arkansas.

Our two Egyptian colleagues, Yasser Salama (post-doc from Beni Suef University) and Ahmed El Belasy (PhD student from Mansoura University) both returned home this year – we will miss them as both contributed a lot to the technical expertise and collegiality of our group. PhD students Ibukun Bode and Yulin Wang will be finishing up their studies this year, as will MS students C.J. Appelseth, Elizabeth Elium and Jim Karsten. Looks like a very exciting year with the wrap up of some superb student research and the beginnings of some very interesting new projects.

As always, we wish all of you the best for the new year, and invite you to stop by and see what we are doing any time you are in Stillwater.

Dr. Jay Gregg
Professor; V. Brown Monnett Chair of Petroleum Geology, Carbonate Petrology, Sedimentology and Sedimentary
Greetings to all of the alumni and friends of the BPSog!

This year was one of advising graduate students, finishing up projects, and teaching. I am now advising four graduate students: Jordan Ray, who is finishing up a thesis on the Silurian Hunton Group dolomites here in Oklahoma. Phil Bailey is working on the Lower Ordovician Arbuckle Group dolomites, also in Oklahoma. Gina Dunseith is working on hydrothermal dolomites in the Middle Ordovician Trenton/Black River formations in the Michigan Basin. Gina Lukoczki is working on the Triassic dolomites of southwestern Hungary. Gina L. is doing some very sophisticated crystallographic work on her dolomites and has submitted a successful proposal to do synchrotron diffraction work at the Advanced Photon Source at Argonne National Laboratory. Several papers with graduate students are coming out in the upcoming AAPG Special Publication 116 on the Mississippian of the Mid-Continent are now on line on DataPages. These include two papers with newly minted Ph.D. Sahar Mohammadi. I am wrapping up what probably will be my last paper on the Mississippian of Ireland. This work is with colleagues at the University of Missouri and in Ireland. With this paper I will conclude twenty-two years of research on the geology of the Emerald Isle. There is no better place to do field work than Ireland. If you don’t mind a bit of rain there is nothing on the island that will bite you, sting you, or give you a rash and there is always a friendly pub and frothy pint at the end of the day!

I have been teaching the usual courses and developing a new course. I taught Evolution of the Earth (Historical Geology) last Spring Semester and again on-line in the Fall Semester (although Gina Lukoczki did most of the heavy lifting). Advanced Carbonates also was taught in the Fall Semester and included a field trip to the Guadalupe Mountains of west Texas and southeastern New Mexico. This year I am developing a new course with Brendan Hanger titled “Exploring Earth: An Introduction to Geology”. This will replace the old “Geology and Human Affairs” course. The main difference will be that the new course will be three credits with lab instead of four credits. It also will place more emphasis on climate change-paleoclimatology and have a section on planetary geology. This course will be offered next Fall.

I had a month long sojourn to Europe last summer. On July 10 I flew to London to meet up with Gina Lukoczki who was running clumped isotope analyses on her samples in Cedric John’s laboratory at Imperial College. While there I took a side trip to Oxford University to meet up with a colleague, Cathy Hollis. We had lunch in a snug at the Eagle and Child Pub on St. Giles’ Street. Famously, this was the meeting place of the “Inkings” early in the 20th century. This small group of Oxfordites included C. S. Lewis and J. R. R. Tolkien. They discussed literature, philosophy, and theology. Cathy and I discussed dolomite. After London I flew to Budapest to meet up with Gina again along with Professors János Haas and Tamás Budai and several days inspecting Gina’s dissertation field area in the Mecsek Mountains and Villány Hills of southwestern Hungary. We stayed in Pécs, a beautiful university town at the southern edge of the Mecsek Mountains. In addition to Triassic (and some Jurassic) carbonates, this is Hungary’s wine country, which is even more of a reason for a field trip there. On returning to Budapest, Gina gave me a walking tour of her hometown of Pest, on the left bank of the Danube River (Buda is on the right bank).

After a week in Hungary I flew on to Dublin, to meet Mickey and spend a few days there and then about ten days traveling west to a remote B&B on the north coast of County Mayo for a few days. Then, on to County Donegal and travel
March 2017: Dr. Halihan teaching water sampling at Lightning Lake in his backyard. Dr. Riedinger brought her students out for chemical sampling.

Why do OSU Hydro profs always turn their yards into labs? Wayne Pettyjohn left Halihan this past year, so hopefully he can do a decent job in Wayne’s absence.

As always I am looking forward to seeing many of you when you visit. Best wishes to everyone.
Dr. Brendan Hanger

Teaching Assistant Professor; Igneous and Metamorphic Petrology, Mineralogy, Field Geology, Geoscience Education

G’Day. I arrived in early August to begin as a Teaching Assistant Professor with a focus on igneous and metamorphic petrology, mineralogy, field geology and introductory classes. It was a big move coming from the Australian National University, Canberra where I had been for nine years, firstly as a graduate student, and then as a lecturer. I’m originally from Melbourne, Australia and I did my undergraduate studies in geology, chemistry and chemical engineering at Monash University. After that I headed to the Australian National University, Canberra where I completed a PhD in Mantle Petrology, looking at how changes in the redox state and fluid activity in the deep mantle could affect the stability of diamond, though I mainly looked garnet peridotite. Whilst I was looking at samples from South Africa, I spent most of my in experimental and analytical laboratories. During my PhD, I had many opportunities to TA courses in petrology and introductory geology, and developed a real passion for educating students about the Earth. After finishing my PhD I was lucky enough to get an opportunity as a lecturer at the Australian National University for 2.5 years, where I taught a range of courses including petrology, mineralogy, geochemistry, hydrogeology and introductory geology, as well as lots of field geology.

My role in the Boone Pickens School of Geology is a unique and developing role. My major focus is on undergraduate education and therefore I will be aiming to constantly improve and update aspects of our program, starting with my own courses. Last fall I taught Physical Geology and Mineralogy, whilst I’m currently teaching Igneous and Metamorphic Petrology, Volcanology and a freshman honors course on Earth Resources, and I’ve also covered part of Marine Geology. This coming summer will also be the first of many years teaching field camp, which is another part of my role. During my interview I spent a few days out at camp, and I’m very excited to get back there in May for a full camp, especially I have already taught many of the students who will be there. All of this has been very fun, but not without challenges, and it keeps me constantly busy. So far there have been a number of field trips including the Arbuckles (Physical Geology), Glass Mountain/Salt Flats (Mineralogy) and the Wichita Mountains (Igneous Petrology), and I’m constantly looking for new ideas of where I can take students. Most of the courses I am teaching are being completely overhauled, and I’m very keen to integrate more geochemistry and field geology into igneous and metamorphic petrology, as well as more quantitative aspects into all my teaching. Developing new courses is also part of my role, and so far I have reintroduced volcanology after a multi-year hiatus. Next fall will see an economic geology course taught for the first time since the 90s, bringing in a focus of traditional and developing mineral and metal resources. We have also developed ‘Exploring Earth: An Introduction to Geology’, to replace ‘Geology and Human Affairs’ from fall 2018, and I will be writing a new lab course to complement this. I’m also planning to develop new labs for Physical Geology and hope to add some fun new activities for the students (and TAs). I’m also expected to help develop our TAs as teachers, and from next year onwards I will be aiming to improve their teaching ability, and thus student learning. Next year will be another big year, and I’ve also got some ideas for developing a few more student field experiences, including potential study abroad courses as well trips to see some of the geological highlights of the USA.

Whilst the first months in Stillwater have been hectic, I have also had the chance to relax and try new things, including going to both football and basketball games. I must admit it is hard to understand a football game that is somehow much faster and much slower than the Australian Rules Football I am used to watching, and I was happy to find that I can watch cricket on TV easily enough. I have also spent many hours enjoying cycling the rolling hills around Stillwater, and survived winter temperatures well anything I had previously experienced. If you want to know more about myself or my role, or know where I can get some good rocks for teaching some of my courses (new or old), feel free to contact me.

Dr. Mary Hileman

Visiting Assistant Professor; Sedimentology; Petroleum Geology

The 2017-2018 school year marks my tenth 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.

1) Geology of the National Parks (GEOL 3043): This popular elective Online course for Junior and Senior non-science majors, is offered twice a year (Fall and Spring semesters). The focus for this course is to understand basic geologic concepts and scientific methodology, using 26 of the U. S. National Parks as examples. I prepare and record the lecture videos, as well as write the quizzes and exams. The online enrollment for Fall 2017 and Spring 2018 has increased from 75 students last academic year to 100 students both semesters this year. The factor limiting enrollment for this Natural Science Distribution course is the A & S College required written component. For this course, students write a 4 page research Term Paper on the geology of one of 17 National Parks not covered in lecture. This paper includes: a Thesis Statement, an Outline and Bibliography, First Draft and Final Draft. Use of grading rubrics enables equivalent grading for parks with geology as different as Gates of the
Arctic, Lassen, Glacier, Arches and Everglades National Parks. I am fortunate to have a proficient graduate student TA-reader who does the grading. Plans are to double class enrollment to 200 by adding a second graduate student grader for the Fall semester 2018.

2) Petroleum Geology for Engineers (GEOL 3413): This is the initial course required for the Minor in Petroleum Engineering. 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. Last year it was decided to offer this course only in the Fall semester. In the Fall of 2017, 28 engineers were enrolled. We will continue to offer 2 lab sections to allow for enrollment increases.

3) Applied Well Log Analysis for Engineers (GEOL 4323): This is the second Geology sequence course offered to Petroleum Engineering Minor students. This course was first offered to Engineering students who completed GEOL 3413, in the Spring 2010. It meets once a week for 3 hours in the evening for lecture, discussion and problem solving. Topics cover evaluation of the standard suite of vertical hole wireline well logs, introduction to petrophysical evaluation, as well as modern microimaging logs and current BPSG research about unconventional reservoirs. This course is now offered in Spring. Enrollment in the Spring 2018 is currently 21 engineering students.

4) Advanced Well Log Analysis for Graduate Geology students (GEOL 5353): The lectures for this course are held at the same time as GEOL 4323. Graduate students have similar homework assignments as Engineering students, however, they 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 oomoldic carbonate reservoir, and (4) a short paper to evaluate log curve responses of natural fractures in a carbonate reservoir.

5) Introduction to Well Log Analysis (GEOL 4313): This course covers the fundamentals of standard wireline log interpretation to solve subsurface problems. Topics include evaluation of the standard suite of vertical hole wireline well logs, introduction to petrophysical evaluation, as well as modern microimaging logs. Because this class meets twice a week, there is ample time for discussion and practice of techniques. In the Spring 2018, there are 10 undergraduate Geology students enrolled in this course.

I currently am the Thesis Advisor for one Master’s Degree student, Alex Ahmadian, who plans to finish his thesis in the summer 2018. My first MS Thesis student, Brent Battle, completed his Thesis in the Fall 2017. I also serve as a member of 10 Master’s Thesis Committees. Finally, I am the Faculty Advisor for the OSU Student Chapter of SPWLA (the Society of Professional Well Log Analysts).

I continued teaching my “Introduction to Geophysical Exploration” class, which I consider a very important class to BPSG students as it introduces them to the world of geophysics and, for most of them, is the first geophysics class they have had in their life. In this class, students learn about different geophysical methods including gravity, magnetic, electric, electromagnetic, and seismic and their geological, hydrological, and engineering applications. I work in this class on correcting the common misconception about geophysics as the complex branch of geoscience that deals with extensive math and physics. I rather introduce geophysics to them as an interesting field of geoscience that utilizes our basic understanding of physics and geology to draw images of the earth subsurface. Students learned how different geophysical methods work and how to select the appropriate method to solve the geological problem at hand. Students were also able to better understand the advantages and limitations of geophysics. A good number of the students that attended this class have shown interest in undergraduate and graduate research in geophysics.

Last summer, Xitian Aneke and Evin Fekovich (MS students) worked with me to assemble our first seismic land streamer. We designed the land streamer to acquire high-resolution P-wave seismic reflection data for hydrological and engineering applications. We used this land streamer in Malawi last summer with Dr. Atekwana and Micah Mayle (MS student). We conducted integrated geo-electrical and seismic reflection surveys for groundwater exploration at the Child Legacy Facility in central Malawi. A non-profit organization working in Malawi funded the project. Kevin Talley, an OSU Alumni and a member of this organization, has assisted us to apply for the fund and coordinate with the client in Malawi. Micah Mayle (MS student) is using the acquired data from Malawi in his MS thesis. This Malawi study was my only funded project of 2017, as none of my other four submitted research proposals received funding. I have submitted two proposals as a PI to USGS and the Petroleum Research Fund, and two other proposals as a Co-PI to NSF and DOE. Though this was a bit disappointing I will
continue to create, revise, and submit my research proposals in the hopes of obtaining future funding.

Three of my graduate students, Salman Abbasi (PhD student), Josh Bedell, and William Neely (MS students) have received 3D3C seismic volumes over the STACK Play in Oklahoma donated by Devon to use in their thesis research. William Neely is working on PP-PS joint seismic interpretation to improve seismic characterization of the play, Salman Abbasi is working on PP-PS joint inversion to resolve fluid saturation type in key formations within the play, and Josh Bedell is working on the seismic detection of fractures within the “Mississippian” carbonate sequence of the STACK. The three students are working together and forming a promising multicomponent seismic research group. The other two graduate students who defended their research proposals, Xtian Aneke and Evin Fetkovich (MS students) are making good progress on their research that utilizes high-resolution P and S-wave seismic reflection for characterizing a complex glacial aquifer in Illinois. They will likely defend their thesis and graduate this year. For undergraduate research, I was fortunate enough to supervise the research of five undergraduate students including, Ryan Thomas, Kenneth Preston, William Neely, William Mynatt and Nicholas Johnson. Working on undergraduate research is a great experience because projects are small and have short-term project time frames that allow you to see the product of the research faster. I enjoyed teaching these students some basics of the scientific research method and I enjoyed having them develop interest in graduate research.

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

2017 went fast between papers, proposal and teaching. Two events in particular were very exciting. First was my visit to Italy for a continental drilling workshop organized by a group of researchers who have been wanting to drill into the Moho transition zone at the foothills of Alps in Northern Italy (Ivrea-Verbano Zone). It was not the unique geophysical setting of this zone but the multidimensional approach of the organizers that impressed and inspired me. The scientific goals were meant to advance not only the geophysical characterization frontier but also the overall understanding of physical, chemical and microbiological processes in the deep crust. After three days of discussions and debates, the participants agreed to drill a shallow hole of ~1000m, and a deep hole of ~4000m to best address the multidisciplinary nature of the research questions with the amount of monies that will be potentially available. The spirit of comradery and cooperation between the participants was truly amazing. I am now working with a German group on designing a deep seismic experiment for placing the two boreholes appropriately. A part of me wants to bring the experience back home and drill into Oklahoma’s basement. After all, there is a lot that we do not know about our own backyard.

The other exciting part was being able to see how nanopores can effect seismic velocities. A rock property dataset put together by one of Mike students, Beth, had fascinated me since her PhD defense. With Mike’s help, my PhD student, Rohit, and I started digging into it in early 2017. After a few failed attempts, we came up with a finding that might have a huge impact on the interpretation of seismic velocities in unconventional reservoirs. We put a paper together and sent it for review for a SEPM special volume on rock properties. We also got Devon excited on this topic and received a small grant from them to examine if nanopores are affecting seismic velocities in one of their producing reservoirs.

I was pleased that our paper “Effect of capillary pressure on seismic velocities,” delivered by PhD student Khemraj Shukla made it to the top 39 papers in the 2017 SEG annual meeting in Houston (https://seg.org/Annual-Meeting-2017/Top-39).

Hope 2018 will be as exciting, if not more.
Dr. Daniel A. Laó Dávila

Associate Professor; Structural Geology; Plate Tectonics; Fault Slip Analysis and Caribbean Geology

Hola to all alumni and friends of the Boone Pickens School of Geology. Thank you for your support. We have accomplished many things this year at the School. I have contributed in teaching 26 students from the Structural Geology course, and 160 students from the Geology and Human Affairs course. I supervised 5 undergraduate students and three graduate students on research. Inés Barrios Galindez is about to finish her M.S. degree. She is finding signals of active tectonics using geomorphic indices in western Puerto Rico. Steven Johnson is close to submitting his manuscript on the effect of Pre-existing structures on the formation of new normal faults during continental rifting. Likewise, new graduate student Estefanny Dávalos will locate the best geothermal prospects in the Malawi Rift.

Research continued in the East Africa Rift System and in Oklahoma. Five students, Dr. Estella Atekwana, and I travelled to Malawi for 4 weeks to conduct research of continental rift initiation in Malawi. This work constitutes the last year of the National Science Foundation grant awarded to us. 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 New Orleans. I was invited to give presentations to the Oklahoma Engineers Association, and at the University of Puerto Rico. I am also the co-author of 2 published papers in the AEI proceedings, and Tectonophysics. My students and I also presented 15 conference papers in the American Geophysical Union Fall Meeting, the Geological Society of America, the 2017 GeoPRISMS Theoretical and Experimental Institute on Rift Initiation and Evolution, the Symposium on the Application of Geophysics to Engineering and Environmental Problems, the South-Central Section Geological Society of America, the Michigan Academy of Science, Arts, and Letters 2017 Conference, and the Joint 52nd North-eastern Annual Section / 51st North-Central Annual Section Meeting Geological Society of America. We look forward to continue to conduct high-quality research, advanced education, and service to Oklahoma and the world.

Graduate students Sam Martin (left), Conn Wethington, (center), and Stone Urban (right) describe core of Cretaceous siliciclastic strata in the eastern Gulf of Mexico Basin in east-central Mississippi. This research is part of a DOE-funded, multi-institutional initiative (CarbonSAFE) that includes Dr. Pashin’s research group and is determining the applicability of new power generation and CO₂ storage technologies.

Students from the BPSG, University of Puerto Rico and the Malawi University of Science and Technology and a scientist from the Malawi Geological Survey pose above the valley of the Malawi Rift as part of the 2017 International Research Experience for Students funded by the National Science Foundation to Drs. Daniel Laó-Dávila and Estella Atekwana.
A project focused on drilling three geological characterization wells at a power plant in Mississippi that is facilitating CO₂-enhanced oil recovery and saline formation storage technology. M.S. students Conn Wethington, Stone Urban, and Sam Martin are conducting a broad range of geological analyses under this project, and the formations we are analyzing have average porosity of 30% and permeability as high as 16 Darcies at depths approaching 6,000 ft.

Mercy Achang (Ph.D. candidate) is performing a critical analysis on using crushed rock samples to determine permeability in shale that is providing insight on basic analytical procedures, the utility of moisture equilibration of samples, and the use of nuclear magnetic resonance to identify changes in pore architecture induced by crushing across a range of particle sizes.

Three students completed Master’s theses on a range of topics in 2017. Zak Ward studied the sedimentology and petrology of the Cline-Wolfcamp interval in the Midland Basin and provided new insight on depositional architecture and cyclicity. Danielle Martin characterized the large concretionary carbonate masses at the McAlister Quarry in the Criner Hills of southern Oklahoma, and demonstrated that these masses have a diagenetic history that spans the geologic evolution of the region. And Bradley Jackson analyzed the heavy oil accumulation in Gilbertown Field in southwest Alabama, and found a large volume of untapped oil using a range of techniques for the analysis of low-resistivity, low-contrast formations containing glauconite.

This was an exceptionally busy year for service activities, which include a range of committee activities in various geological organizations. I am a member of the U.S. delegation to an ISO committee that is developing standards for CO₂-enhanced oil recovery, as well as a National Academies of Science panel that is analyzing future directions for the USGS Energy Resources Program. I attended a coiled-bore methane symposium at the China University of Geosciences in Beijing, China and have developed a research partnership on unconventional coal and shale reservoirs with the China University of Mining and Technology.

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.
looking forward to incorporating new normal University workload, and I am sabbatical has been a nice break from my where I am spending the second half of my dissertation committees of 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.

Gypsum, Keechi Hills, Cement Oklahoma. Garrett left his beloved Healdton-Lone Grove area in southern Oklahoma to work in Houston for Quantico Energy Solutions.

Ethan Hill’s defense was the final one of 2017. Ethan used core and wireline logs to construct a shelf to basin stratigraphic framework of Mississippian strata in east-central Oklahoma. Ethan now works for Hoss Geosciences and is becoming an expert on the Anadarko basin. Continuing research topics include the Medrano sandstone, Springer-Goddard interval, Cleveland sandstone, Mississippian limestone, Cherokee Group sandstones, fault distribution and oil fields in northern Oklahoma, Osage Layton/Cottage Grove sandstone, upper Morrow sandstone and the Union Valley-Cromwell interval. In addition, I am fortunate to serve on a number of M.S. thesis and Ph.D. dissertation committees of 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.

He is an expert on the Anadarko basin. 

Dr. Tracy Quan preparing core for geochemical analysis on the Joides Resolution during Internationa...
include chemical characterization of the produced water from the Black Warrior Basin coalbed methane play, and paleoredox conditions during the Cretaceous-Paleogene mass extinction.

Before I left on sabbatical, I taught a slightly revamped GEOL 1114 course in the Spring, as well as the graduate class in Marine Geochemical Cycles. A new addition to my teaching load next fall will be an online Introduction to Oceanography class, which I am currently preparing. I’m aiming for a course that is both fun and informative, and I have some pretty interesting class projects planned.

Unfortunately, I will miss seeing everyone at the Alumni Banquet this year, but I will be back to my normal OSU schedule in the Fall, with lots of stories to tell.

Greetings! Another productive and exciting year has passed. During the spring semester I spent the majority of my time writing manuscripts and research proposals, and of course teaching. Additionally to my Marine Geology class, I also ‘hosted’ the undergraduate reading and writing club again. During that semester the students had to work on a project: get samples, analyze them, and present the results in front of some peer and faculty from the Boone Pickens School of Geology. For this purpose we went to the famous ‘Halihal Lake’. With a lot of help from Dr. Halihal the students were able to collect several water samples (lake inflow, outflow, groundwater, etc.). All samples were analyzed for trace metal contents by the students. One of the undergraduate students, Chris Jones, who participated in this club also stayed on as an undergraduate researcher in my lab. The graduate students in my lab are also very productive: Michelle Abshire (former Lutker) presented results of her work on uranium and organic matter correlation at the Goldschmidt conference in Paris, France in August. In January my second PhD student, Steve Saboda, started; and during summer my second Master student, Justin Steinmann, graduated. He completed his thesis regarding chemostratigraphic tools applied on Mississippian Limestone deposits. The results were presented at the AAPG meeting (Houston) and also at the Goldschmidt conference. I am also very excited to report that I was able to add another major instrument to my lab – a carbon and sulfur analyzer (ELTRA 2000). We can now analyze quite rapid total carbon and inorganic carbon (and thus calculate the amount of organic carbon) in the sediment and rock samples.

After visiting the field camp in Colorado again for a week, I spent the rest of the summer in Germany - I was awarded a research fellowship at the Hanse-Wissenschaftskolleg (HWK) in Delmenhorst, an Institute for Advanced Studies. There, I used the time to focus on writing manuscripts and proposals, and I also networked with many German and international scientists. For example, working with a scientist from Oregon State University, Dr. Marta Torres, who was also a HWK fellow resulted in the submission of an abstract to the American Geophysical Union (AGU). The AGU meeting took place in New Orleans in December where I presented a crossover-dataset of geochemical and geophysical data, using paleomagnetic data to identify deep-subsurface massive (authigenic) carbonate layers in active continental margin sediments.

I am also still a member of the he U.S. Advisory Committee for Scientific Ocean Drilling (USAC) – which is a national committee that advises on scientific ocean drilling. We have two meetings per year summer and winter and our last winter meeting took place at the University of Texas at Austin, where we had the chance to see the new pressure-core sampling facility to sample gas-rich (gas tight) cores.

I am keeping this article slightly shorter, because I am currently at sea in the South Atlantic on the German research vessel RV SONNE. We are studying biogeochemical changes in marine sediments related to sedimentary events. For example, we took samples from coarse grained, well sorted contourites, that is, current-driven deposits, to see how the deposition of sediments with high porosity affects the geochemical signals within these sediments. And we explored the geochemical signals of massive, rapidly deposited drift bodies.

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

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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 review.

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preparation, and I have many new ideas to advance our research. I submitted a number of research proposals to national science foundations in 2017, 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 2017. These invitations are being very helpful to build some connection.

About my teaching, in 2017 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.

**NEWS FROM THE STAFF**

**Dr. Tao Wu**

**Geochemistry Lab Coordinator**

Hello everyone! I cannot believe that it has been the third year since I start to serve in Boone Pickens School of Geology (BPSoG) as a lab coordinator for geochemistry lab.

It was very busy and productive for me in 2017. Our instruments in the geochemistry lab generated tons of important data for both our faculty and students, as well as our colleagues from outside of the university. For instance, I used our lab workhorse, Isotope ratio mass spectrometer (IRMS) coupled with combustion elemental analyzer (EA), to analyze the total organic carbon and total nitrogen, as well as organic carbon isotope and nitrogen isotope, which tells us the basic geochemical condition of rocks or sediments, as well as the story of history of paleoenvironment. I also used IRMS coupled with high temperature conversion elemental analyzer (TC/EA) to generate hydrogen and oxygen isotope from local rain water, which helps me understand the difference between the change of local and the globe environment. Besides the IRMS, other instruments like ICP-OES, gas chromatography and ion chromatography were also widely used to serve for our faculties and students in the past year.

In addition, I have good news that I just fixed our gas bench system. This instrument combined with IRMS will give our department the ability to analyze the C isotope in carbonate, which is widely used to understand the geochemical and biogeochemical process in the certain geological time scale.

Meanwhile, I work closely with faculty and give them the research support for their projects. I also interacted with students to not only help them correctly use the instruments and equipment in the lab, but also teach them the theories behind the instrument analysis, lab safety and good laboratory practice. I hope my work is not just to teach students how to work with certain instruments, but also to broaden their knowledge on analytical chemistry, lab safety and professionalism, which may give them a long-term impact on their future work in company. It is always my pleasure to see the success of students.

**Ms. Sheri Orr**

**Sr. Academic Counselor**

Happy 2018 to our Alumni and friends! I’m so excited to tell you about changes coming to the Boone Pickens School of Geology undergraduate program in the next year. While our undergraduate enrollment is still down, our approximate 75 undergraduate students are enjoying the more intimate classroom discussions/experiences as well as remaining very active in undergraduate research (~13 enrolled in research experiences but we know there were at least a handful more participating).

We are enthusiastic about our upcoming curriculum changes, including three new proposed Geology options: Pre-Law, Environmental Geology, and Petroleum Geology. It is our goal to offer a diverse curriculum within each of these options that will support students with
their intended career objectives, while also assisting us in recruiting larger numbers of students who are looking for career-specific degree programs. The Undergraduate Committee and I worked long and hard to identify which Geology (and non-Geology) courses best fit each curriculum, and we’re eager to launch our new degrees in the Fall 2018.

We are excited to introduce into the curriculum some new and diverse Geology electives, such as: *Introduction to Oceanography*, *Geobiology*, and *Exploring Earth: An Introduction to Geology* (replacing Geology and Human Affairs for non-majors). Additionally, we are excited to re-introduce into the curriculum classes such as: *Planetary Geology* and *Economic Geology*, and I really hope we’ll be able to offer *Paleontology* again soon, too! Several of these courses will be offered online, as it’s important for us to keep evolving and adapting... much like planet Earth! (See what I did there? I’ve got geology jokes for days!)

Thanks to some outstanding undergraduate student leaders, we’re increasing our recruitment efforts and working with CAS Outreach to publish new marketing materials and have targeted visits to large, Oklahoma high schools (this is still in the works). The number of admitted freshmen for Fall 2018 is fairly large, so we’re doing what we can to make sure they call OSU “home” for the next four years... which is good, because we had 25 students graduate in summer/fall 2017 and expect 16 more to graduate this spring/summer 2018!

Here’s hoping you are all happy and healthy.

As always, Go Pokes!

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**Mr. Tim Sickbert**  
*Laboratory Coordinator*

The Boone Pickens School of Geology has been fortunate to be able to continuously upgrade and improve the technology that we provide in support of our students’ coursework, research, and conference presentations. With increasing enrollment in online classes, we have purchased software (Camtasia) for faculty to record material for web presentation; and a GoPro Hero 5 Black action video camera with accessories to bring the field to the screen. In addition, we replaced our old RTK GNSS/GPS system with a new Leica GS14 bundle for high-precision, high-accuracy field survey work. And finally, we acquired two new wide-format printers, a 36” HP DesignJet T520 for draft and day-to-day work, and a 44” HP DesignJet T5270 for photo-quality reproduction.

On the personal side, I continue my research into seismicity in Oklahoma. I am making good progress, am presenting at local conferences and workshops, and anticipate having two manuscripts submitted by the time you read this.

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**Ms. Sandy Earls**  
*Administrative Assistant*

Another year has come and gone. I am now in my 21st year with the School. It seems that there are new changes every year. We have had a staff member leave (Tabitha) and a new staff member come on board (Heather). Training on the new system at the University continues. Every day is a new learning experience as they are still tweaking how things work. I look forward to working with the alumni, students, staff, faculty and friends of the Boone Pickens School of Geology during 2018.

We took a short trip to South Padre Island in March and it was great walking on the beach. A much needed break and I was able to get it in before Tabitha left. We did not take our fall trip to family this year as there was just too much going on. I did take a week off in November, but just caught up on my needlework and reading. Pete and I are hoping to get a couple of home projects completed this year. Pete will also be undergoing some major dental work which he is not looking forward too!

I hope you will stop by the department next time you are in town, just to say hi!
Greetings! I am a recent addition to the department and commonly referred to as “the new Tabitha.” Professionally, my mission has been to make the office structure, student/fiscal files, and storage of goods more efficient and electronic. I staffed with the director of University archives in order to learn the procedures regarding university data. I wanted all resolutions to be in accordance with University policy. Since my introduction to the department in late April 2017, I have scanned and backed up over 14 years of student files into hard drives. With my student worker, Bella Martinez, we have backed up and properly disposed of over 22 years of general files that filled up cabinets in storage rooms. These storage rooms will ultimately become additional workspaces for the growing department.

Speaking of additional space, another accomplishment I steered was the creation of three more desks. As our new PhD program continues to grow and thrive, some students used graduate cubicle or lab spaces, while others were together in a PhD office. This was problematic; so I presented my plan to the department head, who consulted the dean for authorization and release of necessary funds. Once approved, Sandy and I were able to surplus, move furniture, buy desks, and provide a space for three PhD students. The final implementation of the project will house six additional students in the workspace. Placing the students in one centralized location is beneficial to their emotional stability, social networks, and educational success. We look forward to accommodations improving throughout the years. The primary motivation for departmental improvements is that I am also a Cowgirl, obtaining my Bachelors of Arts in Psychology with a minor in Sociology on this very campus. I am a champion of equality and exceptionality; I believe our students are and deserve the very best.

My personal life includes being an active volunteer in the community, an artist, an avid gamer, a Skywarn and SpotterNetwork Certified storm spotter (feel free to like “Tornado Hunters” on Facebook), and a widowed mother of three busy teens. I believe that even the most mundane of positions in life give one opportunity and growth. We should always strive to be and do our best, regardless of the circumstances placed before us. The students, staff, and faculty are so dedicated; the entire geology community inspires me to do and be more. I am grateful for my time here at the Boone Pickens School of Geology. It has been another fantastic and exciting school year here on campus at the Boone Pickens School of Geology. I am currently a junior here at Oklahoma State University and on track to graduate in the Spring of 2019! I am pursuing a degree in Human Resource Management. I have been the Geology department’s student worker since August of 2015. Almost three years have come and gone, and I have enjoyed every task, conversation, and experience that has taken place in 105 Noble Research Center.

I typically handle day-to-day office duties such as answering phone calls, filing paperwork into the appropriate accounts, scanning and copying documents, and running on-campus errands. Occasionally I help set up refreshments and/or accommodations for departmental events such as our back-to-school barbeque for faculty, staff and students. Another aspect of this job that I enjoy is assisting professors like Dr. Quan when she asked me to help her fill up water balloons for an educational demonstration she would later present. Although I am not a Geology student I have learned a great deal from this job. I am grateful for the opportunity to get to interact with professors, my coworkers, and the graduate and undergraduate Geology students who often visit the office.

During this past year, we got a new staff member – Heather! She has been a great addition to the department. When she first arrived before summer break, I helped answer any questions she had about the department, the office, and our individual duties to the best of my ability. Once I returned in the fall, we got our spring cleaning done early as I assisted Sandy with the cleaning of some vacant faculty offices and the re-arranging of the student lounge. I recently got all of the filing up to date and did a considerable amount of shredding for Dr. Puckette. Things around the office have been going smoothly this Spring and we will soon begin preparations for the annual Geology Banquet in April. I look forward to what the next year brings for all of us at the Boone Pickens School of Geology.
SPOTLIGHT ON UNDERGRADUATES

Kristen Sigl

College of Arts and Sciences Outstanding Senior for the Boone Pickens School of Geology

Kristen Sigl is graduating with a Bachelor of Science in Geology and a minor in Geography. Throughout her time at OSU, Kristen has held executive positions in three campus student organizations: the American Association of Petroleum Geologists (AAPG), the Society of Petrophysicists and Well Log Analysts (SPWLA), and the American Institute of Professional Geologists (AIPG). She was also a recipient of the Wentz Research Grant. Upon graduation, Kristen plans to pursue her Master of Science in Geology.

Bill Mynatt

Boone Pickens School of Geology Outstanding Senior

Bill Mynatt is a graduating with a B.S. in Geology and a minor in history. In his time at Oklahoma State, he has been on the founding executive team of the Society of Petrophysicists and Well Log Analysts (SPWLA) and American Institute of Professional Geologists (AIPG). Bill has also been active in the American Association of Petroleum Geologists (AAPG) student chapter. After graduation he plans to attend graduate school to earn his Master’s degree before pursuing a career in the oil and gas industry.

Senior Erin Heilman, who calls Third Lake, Illinois home, has an undergraduate career that blends service with academic achievement. As an undergraduate scholar, Erin is researching the role of the Mughese Shear Zone in Cenozoic Rifting along the Rukwa-Malawi Segment of the East African Rift. This study examines the role of the pre-existing Mughese Shear Zone in the recent rifting in the Rukwa and Malawi rifts and how the shear zone supports the model of oblique extension as the dominant opening mechanism of the rift. Erin has been running 3D magnetic data inversions to examine the crustal structure of the rift and the heat flow present in the area to understand more about the rifting mechanics and processes occurring. Erin is active in AAPG, SEG and the Tectonics Research Group at OSU, is also completing a minor in math, and still took time to help rebuild homes in the poorest counties in Appalachia. Erin has received numerous scholarships and awards including the prestigious and highly competitive Niblack Research Scholarship that provides a year of funding to conduct independent research. Erin plans to continue her work in geophysics as a doctoral student at the University of Texas – Austin working jointly with the Jackson School of Geosciences and the University of Texas Institute for Geophysics.

Erin Hellman

Niblack Research Scholar
Hello, my name is Chris Jones and I am an undergraduate geology major at OSU. My home has always been Oklahoma, but, for the first 5 weeks of 2018, I resided on the German research vessel RV SONNE. I must say that the ship now has a permanent place in my heart, for being at sea was an awesome, inspiring experience. Aside from the incredible sunsets and delicious food, I was living in a microcosm of marine science. Every day I learned something new, whether it be how to cut open a gravity core or what a nepheloid layer is and how it relates to contouritic currents in the South Atlantic. Seeing the interaction of multiple fields of science further strengthened my passion and commitment to being not only an academic scientist, but an everyday one as well.

My days at sea often started and ended rather similarly - with the alarm on my watch ringing incessantly and a spectacular sunset and night sky. I would rise up, take a shower, and go to 7 am breakfast. Contrary to what may be expected, conversation in the early hours of the morning can in truth be stimulating. Topics ranging from preliminary results, favorite foods, and kicker (foosball) techniques were a staple at the table during meals throughout the day. Most of the time, however, was not spent eating but working diligently in the lab.

I was a member of the biogeochemistry group, the one that focused on the interaction and effect that microbial life has on chemical signals recorded in the geological record. The rest of the group consisted of Dr. Natascha Riedinger from OSU and Masters and Ph.D. students from German universities as well as a lab technician from the Alfred Wegener Institute in Germany. We took many measurements on board including dissolved sulfide and iron, alkalinity, phosphate, ammonium, silica, and other parameters for the pore water we extracted from the cores. I even got samples from two box corers all for myself!

One of the best things about geology is how international the profession is. Consider the Boone Pickens School of Geology—we have students from across the world. It was the
same on the ship, and it led to so many interesting interactions. I learned about dancing traditions in Argentina, school life in Bavaria, and traditional food dishes in different parts of Nigeria. On top of this, I got to see how geology affects people in these regions based on what they study or are interested in. For example, many of the members of my group are interested in marine geochemistry because they grew up and live near the sea. This was so cool because I am not quite well acquainted with the ocean since we seem to lack sea coasts in Oklahoma. However, I am very interested in studying past oceans which are well preserved in our rock record. This was a great connection as we got to discuss how processes now are recorded in sedimentary rocks millions of years old.

A fascinating aspect of the expedition was delving into German culture. This involved the music played in the lab (an interesting mix of rock and electronic), card games, and food. I also got to see Montevideo, Uruguay and Buenos Aires, Argentina during the days we were in port. Here I had my first experience of South America and it was absolutely awesome. I have always loved traveling, and being immersed in the food, sounds, and lives of these cities was wonderful. I had possibly the best pizza ever, or I was the hungriest I had been in a while. I definitely loved the meats served at the restaurants near the meat market in Montevideo. On the ship I tried my first ox tail, chicken and cow liver, and duck. Of those, the duck was the most tender and the ox tail the most well flavored, especially in stew!

While experiencing new cultures and making new friends was a large part of my time on the RV SONNE, the greatest impact was from the lab work and knowledge I have gained. Geology is set apart from the other sciences because it combines them all in a tangible way. You can easily see a mountain, but not the atoms that it is composed of. I got my hands dirty exploring marine geology by touching the sediments and seeing their outward appearance before determining the chemistry behind it. Thanks to the support of undergraduate research at OSU, I fell into this opportunity and I am not sure I even realize the full scope of what I have been fortunate enough to take part in.
CONGRATULATIONS TO OUR 2017 GRADUATES!

BACHELOR OF SCIENCE
Connor Adams
Joshua Bedell
Spencer Brookover
Clayton Burgess
Hunter Cook
Nicholas Crain
Keith Crawford
Cole Dyer
Devan Grubb
Cody Hawkins
Robert Langston
Adam Lin
Richard Miller
William Neely
Sean Pogue
Nicholas Sandella
Christina Arszulowicz
Kaitlyn Beard
Dalton Cooper
Andrew Corbett
Caitlin Drenthe
Clayborn Fitzgerald
Reagan Francisco
Spencer Harris
Cole Hatchel
Romulo Jimenez
Tanner Linden
Micah Morgan
Kenneth Preston
Erin Riley
Douglas Rodwell
Ian Rusthoven
Jerrod Smith
Nicolas Studebaker
Tyler Tandy
Toby Williams
Ethan Wilson
Huston Poe

MASTER OF SCIENCE
Jordan Harding
Bradley Jackson
Timothy Janousek
Zakory Ward
Krystal Heibel
Folarin Kolawole
Danielle Martin
Mandalynn Wilber
Andrew Fletcher
Ethan Hill
John Hunt
Garrett Powell
Justin Steinman

DOCTOR OF PHILOSOPHY
Cory Godwin
A Message from the Boone Pickens School of Geology Advisory Board

Mike Kuykendall, 2017-2018 Alumni Advisory Board Chair

Greetings from the BPSoG Alumni Advisory Board! The 2017 – 2018 academic school year has flown by, so we must be having fun, and/or staying busy. I believe it has been, and continues to be, both.

The BPSoG Alumni Advisory Board is collection of interested and engaged geology alumni who have continued to serve the groups mission and purposes since 2006. Last year’s Board Chair, Gary Ford, shared these in his GeoVista message, and they are worthy to include here again as a reminder of our mission as alumni and what makes everyone’s involvement so important.

• The BPSoG Advisory Board is comprised of alumni and friends of the School and are 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 includes 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.

Geoscience jobs have begun to rebound from the last couple of years and a significant and important on-campus building project, the “Gary F. Stewart Core Research Facility” in full swing. It too has been a transitional year with the search for a new Department Head and several key faculty members.

As you can see from this newsletter it has also been a fantastic year regarding student, faculty, and department achievements, as well as many new and exciting opportunities. BPSoG graduate students are “setting the curve” when it comes to nation-wide top academic awards. Congratulations and thanks to all who have worked so very hard and dedicated themselves to academic and personal excellence—you represent all that is great about OSU and the BPSoG.

The BPSoG future continues to look very bright! It’s a great time to be an OSU Cowboy and a great time to be a part of the Alumni Advisory Board. Collectively we can achieve even greater goals and continue to build on the firm foundation and heritage that is ours as graduates of the BPSoG. I invite you to be a part!

All the best…..and GO POKES!

—Mike Kuykendall
UPCOMING EVENT AT THE SCHOOL OF GEOLOGY

Advisory Board meeting: Saturday, April 7th 2018, at 9:30 am 001 Noble Research Center, OSU - Stillwater Campus

2018 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 7th, 2018. The Reception and Banquet will be held on campus at the ConocoPhillips Alumni Center. 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. 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. There is no cost to attend the banquet (with the exception of the cash bar) but table sponsorships will be appreciated.
Attendees enjoying refreshments and student research posters before the dedication ceremony.

And so the ceremony begins...

Bret Danilowicz, Dean of the College of Arts and Sciences, kicks off the ceremony.

Professor Stewart gratefully holds the audience rapt with reminiscences and a deep sense of honor.

Alumni Advisory Board President Mike Kuykendall addresses the audience.

Professor Jack Pashin, Interim Head of the Boone Pickens School of Geology, thanks Gary Stewart and sums things up.

Attendees navigate the future site of the Gary F. Stewart Core Research Facility.
Location of the Gary F. Stewart Core Research Facility (orange star) at the intersection of West Tyler Avenue and North McDonald Street.

Thank you to our Major Donors!

Kent A. and Nancy Bowker
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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

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Preliminary rendering of the Gary F. Stewart Core Research Facility

Boone Pickens
School of Geology

2017-2018 Newsletter
Oklahoma State University