

# EARTH & ENVIRONMENTAL SCIENCES



2014 DEPARTMENT NEWSLETTER

**UK**  
UNIVERSITY OF  
**KENTUCKY**  
College of Arts & Sciences  
Department of Earth &  
Environmental Sciences



# GREETINGS FROM THE DEPARTMENT CHAIR



Dear UK Geology alumni and friends,

We hope this finds you and yours healthy and happy! Another year has flown by. As in previous years, 2014 brought several successes and some setbacks – it seems like it's always two steps forward and

one step back in academia. In terms of steps forward: we saw a 50% jump in the number of Geology majors in one year, largely the result of recruiting efforts by Dr. Rebecca Freeman (Lecturer and Director of Undergraduate Studies). I won't spoil the excitement by giving away all the great 2014 news here, but will point you to sections of the newsletter that highlight the year's events. As usual, our outstanding graduate and undergraduate students continue to garner academic awards, fellowships, internships, and jobs in industry (p. 4). In spite of losing two young faculty members, we are as of this writing in the throes of two faculty searches that will put us in better shape than when we started. This academic year we hope to fill faculty positions in Petroleum Geosystems and Stable Isotope Geochemistry.

Steve Sullivan (B.S. 1979, M.S. 1982) stepped down as Alumni Advisory Board Chair – we greatly appreciate Steve's service over the past few years, and we greatly appreciate his continued generous support of our development efforts. Mr. Wendell Overcash (B.S. 1977, J.D. 1980) enthusiastically agreed to step up and serve as the new Board Chair. Brief bios for new Board members and brief bios for new Board members Brint Camp, Mike Borque, and Bill Spies. We conducted two alumni-supported field trips in 2014, one to

the Permian Basin sponsored by Pioneer Natural Resources, and another to Death Valley and the Mojave Desert supported by the Haynes field trip fund (p. 8). Our alumni continue to set an example for their remarkable levels of giving and support (p. 13), and are the model for other departments in the College of Arts and Sciences as endowments become an ever more important source of operating funds in public higher education. Pioneer Natural Resources, led by Tom Spalding (B.S. '80, M.S. '82) (with support from a dozen other alumni currently working at Pioneer), continues to direct facilities and research support to UK Geology, allowing us to train the next generation of industry geoscientists. We brought in an impressive list of guest speakers for the Rast-Holbrook endowed seminar series (p. 11), which serves to educate our students and showcase the Department.

Often when I meet other faculty members on campus and they find out I'm a department chair, they often shake their heads and say something like "Oh man, I'm sorry, being a chair is the worst job on campus". My reply to them is: "I have a GREAT job!" I continue to be amazed at the enthusiasm and support of our alumni, and the enthusiasm of our students. Professors come and go at a university, but alumni and students (future alumni) are the mainstay of the University of Kentucky and Department of Earth and Environmental Sciences. Working with students and alumni is the best part of my job – no matter how challenging things are at the University, I continue to be inspired by your affection and support for UK. Here's to another year and a half as Chair, and working with you all in seeing the Department grow and thrive.

Sincerely,  
Dave Moecher  
UK Geology Professor and Chair

## Regular Faculty

Sean Bemis, Assist. Prof.  
Frank Ettensohn, Prof.  
Alan Fryar, Assoc. Prof.  
Michael McGlue, Assist. Prof.  
David Moecher, Prof.  
Dhananjay Ravat, Prof.  
Kevin Yeager, Assoc. Prof.  
Ed Woolery, Prof.

## Staff

Adrienne Gilley, Dept. Manager  
Pete Idstein, Academic Lab Coordinator  
Kim Schindler, Lab Manager  
Mary Spencer, Librarian

## Lecturers

Dr. Rebecca Freeman  
Dr. Kent Ratajeski

## Emeritus Faculty

William Blackburn  
Bruce Moore  
Kieran O'Hara  
Sue Rimmer  
Lyle Sendlein  
Ron Street  
William Thomas  
John Thrailkill

## Adjunct Faculty

Jim Cobb, KGS  
John Hickman, KGS  
Jim Hower, CAER  
Cortland Eble, KGS  
Rick Bowersox, KGS  
Marty Parris, KGS  
Tom Robl, CAER  
Jerry Weisenfluh, KGS  
Steve Greb, KGS  
Zhenming Wang, KGS  
Junfeng Zhu, KGS  
Chris Groves, WKU

COVER PHOTO: UK Geology students in their outdoor classroom at the foot of the Sierra Nevada Mtns. Photo by Dom Sparkling from the Spring Break 2014 Geology field trip to eastern California.



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## STAY CONNECTED...

You can keep track of department events, the Rast-Holbrook seminar schedule, our contact information, and alumni events via the department web page:

[ees.as.uky.edu](http://ees.as.uky.edu)

## AND KEEP IN TOUCH

Please let us know if your address or contact information change. Send a note to, email, or call Adrienne Gilley, the Department Manager



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ABOVE: UK Geology student Mike Priddy explaining the geology of the Spirit Mtn. Batholith. Each group of students made a similar presentation for their leg of the field trip. Man in tan cap at right is Prof. Rod Metcalf (UNLV).

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ABOVE: L-R: Emma Larkin, Patrick Baldwin, Bailee Hodelka, Patrick Whalen, Marie Cooper, Patrick Ryan. These students participated in the Pioneer Natural Resources field trip in West Texas.



# DEGREES AND AWARDS

## UNDERGRADUATE DEGREES

### **Bachelor of Sciences**

Caleb Essex  
Joseph Lucas  
Joseph Moore  
Patrick Whalen

### **Bachelor of Arts**

Jordan Bratcher  
Bailee Hodelka  
Anna Muncy  
Brittany Shelton

## GRADUATE DEGREES

### Master of Science (with thesis advisor and placement as of Jan. 2015)

Clayton Brengman, M.S.: “Instrument Correction and Dynamic Site Profile Validation at the Central United States Seismic Observatory, New Madrid Seismic Zone” (Edward Woolery) (Pioneer Natural Resources internship summer 2015)

Corey Burkett, M.S.: “Late Quaternary Crustal Deformation at the Apex of the Mount McKinley Restraining Bend of the Denali Fault, Alaska” (Sean Bemis)

Sara Federschmidt, M.S.: “Paleoseismic and Structural Characterization of the Hines Creek Fault: Denali National Park and Preserve, Alaska” (Sean Bemis)

Michelle Johnston, M.S.: “A Petrographic Characterization of the Leatherwood Coal Bed in Eastern Kentucky” (Jim Hower) (Geoscientist, ConocoPhillips)

Evan Kelly, M.S.: “Age of the Walden Creek Group, western Blue Ridge Province: Resolving a Decades-Old Controversy via Detrital Mineral Geochronology and Sedimentary Provenance Analysis” (Dave Moecher) (Geoscientist, Pioneer Natural Resources)

Alice O’Bryan, M.S.: “The Nature and Origin of Cyclicity in the Cleveland Member of the Ohio Shale (upper Devonian), Northeastern Kentucky” (Frank Ettensohn) (Geoscientist, ConocoPhillips)

Alice Orton, M.S.: “Science and Public Policy of Earthquake Hazard Mitigation in the New Madrid Seismic Zone” (Edward Woolery) (L&L Environmental, Inc.)

Mahnaz Sepehrmanesh, M.S.: “Application of the Kalman Filter on Full Tensor Gravity Data around the Vinton Salt Dome, Louisiana” (Dhananjay Ravat)

Daniel F. Spaulding, M.S.: “Geology of the West Half of the Cove Creek Gap Quadrangle and Adjacent Area, Western North Carolina: Insights into Western Great Smoky Mountains Tectonometamorphism” (Dave Moecher) (Geoscientist, Pioneer Natural Resources)

Laurel Walker, M.S.: “Determining Hillslope Diffusion rates in a Boreal Forest: Quaternary Fluvial Terraces in the Nenana River Valley, Central, Alaska Range” (Sean Bemis) (Adjunct Prof., Capital University)

Phil Wolfe, M.S.: “Holocene Sedimentary Responses to Growth Faulting in a Back-Barrier Setting: East Matagorda Peninsula, Texas” (Kevin Yeager) (Geologist, Sandridge Energy)

Olivia Woodruff, M.S.: “Temporal and Spatial Characterization of Macondo 252 Signatures in Gulf of Mexico Shelf and Slope Sediments” (Kevin Yeager) (Geoscientist, Pioneer Natural Resources)



# DEGREES AND AWARDS

## UNDERGRADUATE AWARDS

### **PIRTLE OUTSTANDING SENIOR SCHOLARSHIP**

Jacob Lee

### **GLENN RICE MEMORIAL TUITION SCHOLARSHIP**

Taylor Chapman                      Alicia Solomon  
Garnie Haynes                        J.P. Sparr

### **SIGMA GAMMA EPSILON TARR AWARD**

Caleb Essex

### **HUDNALL FIELD CAMP SCHOLARSHIP**

Hudnall Field Camp Scholarships are supported by the Hudnall Field Camp Endowment and are awarded to UK Geology majors attending UK's geology field camp. The award covers most of the student fees, and range in value from \$1000 to \$1500

Caleb Essex                              Michael Priddy  
Jarred Grider                            Courtney Slone  
Chase Lockhart                        Brittany Shelton  
Joseph Lucas                            Patrick Taylor  
Joseph Moore                            Alexander Vukmer  
Anna Muncy                                Patrick Whalen  
William Pierskalla

### **PIONEER SCHOLARS**

Bailee Hodelka  
Victoria Oberc  
Meredith O'Dell

### **BROWN-MCFARLAN FUND TRAVEL AWARD**

Clay Atcher  
Bailee Hodelka  
Michael Priddy  
J.P. Sparr

## GRADUATE AWARDS

### **PIRTLE SUMMER GRADUATE FELLOWSHIPS**

Ashley Bandy  
Ben Currens  
Ann Hislop  
Timothy Pryshlak

### **BOONE SUMMER FELLOWSHIP**

Levent Akinci                            Leah Newman  
Emma Larkin                             Mahnaz  
Cole Musial                                Sepehrmanesh

### **FERM GRADUATE RESERACH AWARD**

Ann Fendick                              Cole Musial  
Trent Garrison                         Leah Newman  
Ann Hislop                                Timothy Pryshlak  
Deon Knights                            Lucas Rohrer

### **BROWN-MCFARLAN FUND TRAVEL AWARD**

Ashley Bandy                            James McCulla  
Clayton Brengman                     Cole Musial  
Corey Burkett                            Timothy Pryshlak  
Ben Currens                              Lucas Rohrer  
Julie Floyd                                Mahnaz Sepehrmanesh  
Trent Garrison

### **OUTSTANDING TA AWARDS**

Emma Larkin  
Cara Peterman  
Lucas Rohrer



UK Geology students in Death Valley National Park, spring 2014 field trip.



# STUDENT ACHIEVEMENTS

## UK GEOLOGY GRADUATE STUDENT EDWARD LO TO SPEND A YEAR AS A FULBRIGHT FELLOW IN BRAZIL



I was born in Chicago but raised near Atlanta. I started pursuing my MS degree at UK in August 2014 under Dr. Michael McGlue and Dr. Kevin Yeager. My interests in wetlands grew through undergraduate

sedimentology courses and volunteerism at Louisiana State University. I subsequently applied for and received a Fulbright grant to spend nine months in the Pantanal, the world's largest freshwater wetland, building international research with colleagues Dr. Aguinaldo Silva and Dr. Ivan Bergier in western Brazil. I will synthesize how the Pantanal's geology, hydrology, and

ecology relate to each other, and I will investigate the Quaternary environmental history and depositional patterns of a lake basin in northern Pantanal. I am most excited to find out if there is any sedimentary and/or geochemical evidence for hydrologic extremes (floods and droughts) in the lake strata. Conducting earth science outreach with a local technical school and traditional fishing communities will add a cultural component to my experience. Wetlands are important to biodiversity and global biogeochemical cycles, but they are increasingly endangered by anthropogenic impacts and climate change. This long-term experience will generate scientific insights that will help guide conservation planning and sustainable development strategies.

## PATRICK WHALEN

### NAGT/USGS COOPERATIVE SUMMER FIELD TRAINING INTERNSHIP 2014

This summer I was given the opportunity to work with volcanologist at the Cascade Volcano Observatory (CVO) in Vancouver Washington. Here volcanologists, hydrologists, seismologists, chemists, engineers, and many others monitor and study active volcanoes. The geologists I worked with research the eruptive histories of active volcanoes.

This work is part of ongoing efforts to understand volcanoes and to develop hazard maps and information. I worked on Mount St. Helens, Mt. Hood, and Mt. Shasta. While the work I did was limited to these three volcanoes in my free time I visited many others.

During the first month of work I spent time studying the stratigraphy of deposits and the eruptive history for Mt. Shasta. We spent over a week in the field doing stratigraphy, collecting pumice samples, collecting paleomagnetic samples, and we gave a work shop for the local community on Mt. Shasta. I fielded questions and talked about what we are doing and why. Working at Mt. Shasta I learned how careful science is conducted.

At Mt. Hood we looked at lava flows, pyroclastic flows, lahar deposits, debris flows and some tephra falls. We mapped and collected samples for age dating that will be used in a new geologic map. Working at Mt. Hood showed me how much and how quickly volcanic landscapes change.

In the latter part of the summer I added to a data repository for Mt. Shasta, installed a seismometer at Mount St. Helens, did stratigraphy and grain size analysis of the 1980 Mt. St. Helens deposits and installed a tiltmeter in the crater at Mt. St. Helens. Much of the work requires sharing information for accurate and honest assessments.

I was impressed with the interconnectedness of the work done at the USGS -CVO. Sedimentologists work with engineers and hydrologists to understand lahars and gas geochemists work with deformation geologists to interpret behaviors of volcanoes. Overall my summer internship taught me about how science is done in the field and what the products are. I gained greater insights into techniques and methods I can use in my own work.



Cooper Ridge Spur, Mt. Hood, Oregon



## UNDERGRADUATE RESEARCH IN GEOLOGY AT UK RAMPS UP

As competition for graduate school admission increases, we have come to realize that it is increasingly important for our top undergraduates to have research experience before they graduate. With the generous (and we hope, ongoing) support of our alumni we have recently awarded the first round of “Alumni Undergraduate Research Fellowships”. We hope to be able to award at least one or two every semester and summer session. Even before the launch of this new internally-funded program, our undergraduates have been busy in the lab and in the field.

Dr. Sean Bemis’s NSF-funded research group has incorporated undergraduate researchers every summer since his arrival in the department. Rising senior and non-traditional student Mike Priddy was the lucky selection for summer 2014. Dr. Bemis’s primary field area is Alaska and field work generally involves helicoptering into remote areas, camping under primitive conditions, climbing mountains, and dodging bears—in short, everything a UK EES undergraduate is trained to want to do! Mike presented his research “Shortening at the western end of the Mount McKinley restraining bend: Preliminary slip rate and along-strike changes associated with the Chedotlothna Fault, Denali National Park and Preserve, Alaska” at the GSA meeting in Vancouver. Previous summer’s undergraduate researchers Josh DeVore and Patrick Taylor also presented their research on active faults in the Alaska Range at AGU, and Josh is now in graduate school at Ohio State. Undergraduates Sean Rohrer and Jennifer Whitney have helped in the Bemis lab by processing rocks for cosmogenic exposure dating and compiling GIS datasets. Joining a collaborative project with students from 4 separate institutions, undergraduate Joseph Lucas worked on Dr. Bemis’ ongoing San Andreas fault studies during Summer 2014.

Junior J.P. Sparr, known already for his keen eye for unusual fossil finds, demonstrated this skill in the fall of 2013 when he discovered an unusual crinoid garden exposed along a bedding plane in a creek. Working with faculty member Dr. Rebecca Freeman, he mapped this occurrence while braving miserable weather and gunfire from an out-of-season hunter. Ah, field work in Kentucky! He presented two aspects of his work at two different conferences during the spring of 2014. At the National Council on Undergraduate Research he presented “Rapid burial and unusual preservation of a crinoid garden in the Mississippian Borden Formation of south central Kentucky”. He presented “Snapshot of phosphate nodule formation in the Mississippian Borden Formation, Kentucky: A crinoid obrution event as a source of phosphorus” at the North Central section meeting of GSA.

Meanwhile, rising Senior Bailee Hodelka wrote a grant proposal for summer 2014 and received funding from UK’s Undergraduate Research program.

Bailee spent the summer processing samples from an ODP core for foraminifera. She was very successful at finding the little bugs and spent many long hours at the microscope counting and sorting. She presented her findings in an hour-long seminar at the Kentucky Geological Survey, where she is a student worker. She also presented a poster at AGU: “Tiny fossils, big impact: Sedimentology of a foraminifera-enriched detachment horizon of a large retrogressive submarine landslide in the Gulf of Mexico”.

The Kentucky Geological Survey also played a key role in encouraging Junior Clay Atcher’s research during the spring of 2014. Clay investigated the possibility of using a salt tracer solution to improve electrical resistivity imaging of karst conduits. Clay carried out this research at the Kentucky Horse Park and the successful initial results resulted in a well-attended poster at the national GSA meeting in Vancouver: “A test of combining time-lapse electrical resistivity imaging and salt injection for locating karst conduits”.

Rising Senior Jake Lee spent summer 2014 in a rather different way, mapping the Peach Spring Tuff in Arizona through a NSF Research Experience for Undergraduates Program administered through Vanderbilt and Mercyhurst Universities. Jake got to meet fellow undergraduates from all around the country. He also got to demonstrate that, when it comes to field mapping, UK EES undergraduates really know what they are doing! He presented his work at the national GSA meeting in Vancouver as a poster: “Implications of eruptive, erosive, and depositional processes prior to a super eruption in the Southern Black Mountains”.

Dr. Mike McGlue and the Pioneer lab are a relatively new addition to the program but already a number of undergraduates have done paid and voluntary research. Taylor Chapman, Joseph Lucas, and Alyssa Eliopolous spent summer and fall 2014 working on everything from seismic surveys to conodonts to organic geochemistry in support of UK-Pioneer collaborative research on Pennsylvanian shales from west Texas. Victoria Oberc is currently working on a project aimed at understanding Holocene paleoenvironments in western Brazil. Both Vicki and Taylor will present the results of their research at conferences in the near future. This spring, the Pioneer lab welcomes Meredith O’Dell, an EES junior who will work on a shale geochemistry and petroleum geology project as a Chellgren Student Fellow.

Our increased emphasis on undergraduate research is off to a good start, and we hope that with the implementation of the new Undergraduate Research Fellowships and your support, more and more of our talented students will be able to take advantage of this valuable educational experience! Stay tuned for results of the new fellowships next year!



# FIELD TRIPS

## PIONEER-PERMIAN BASIN FIELD TRIP

Pioneer Natural Resources and UK-EES conducted a joint field trip to visit some classic exposures of Pennsylvanian and Mississippian shelf and slope marine sedimentary rocks in Texas and New Mexico in November. The week-long trip was expertly led by Pioneer petroleum geoscientists Lowell Waite and Bo Henk. Lowell and Bo provided several key lectures on paleogeography, tectonics, and climate of the western USA during the Paleozoic, as well as an update on Midland Basin Wolfcamp D shale research. Highlights of the field trip included: (1) up-close views of shelf cyclothems, Waulsortian mud mounds, and Woodford-equivalent [Devonian] deepwater shales exposed in the Sacramento Mountains; (2) examination of deepwater turbidites, the Rader debris flow, and El Capitan in the Guadalupe Mountains; and (3) an excursion to Carlsbad Caverns National Park to learn more about karst processes, soft sediment deformation, and pisolite formation. The department was represented by students Patrick Baldwin, Marie Cooper, Bailee Hodelka, Emma Larkin, Patrick Ryan, Patrick Whalen and by Pioneer Professor Mike McGlue. Many stimulating discussions were had on the rocks and everyone learned a lot! Olivia Woodruff, a recent UK-EES alum currently employed as a



Lowell Waite (second from right) and UK Geology students in West Texas.

geologist at Pioneer, participated in the trip and led an excellent discussion of geosteering for the group. Tom Spalding, UK-EES alumni board member and Vice President at Pioneer, visited the group in the Sacramento Mountains and emphasized translating insights from the outcrop for improving interpretations of subsurface datasets like cores and well logs. Pioneer graciously funded the participation of UK students and faculty – thank you so much!

## SPRING BREAK 2014 FIELD TRIP MOJAVE DESERT-DEATH VALLEY- SIERRA NEVADA

Rather than heading to the beach for spring break, the 14 UK Geology students listed below flew to Las Vegas to undertake a weeklong geology field trip in eastern California. Professors Dave Moecher and Sean Bemis were co-directors of the trip, which was largely planned by the students. The UK group was also fortunate to be guided by Prof. Rod Metcalf (UNLV Dept. Earth Science and UK alumnus) through the first few days and help with equipment and logistics. Five groups of students were each tasked with preparing a route, a list of field trip stops, readings, and a poster for the five regions to be explored: the Colorado River Extensional Corridor, Owens Valley-Sierra Nevada Mtns., Long Valley Caldera, Death Valley, and the State Line overthrust belt. The students did an incredible job and made the trip an unforgettable experience. The trip was made possible by generous donations from Elizabeth Haynes, Kit Clemons, Butch Butler, Drs. Tom and Natasha Becker, and Dr. Brian Cook to the Haynes Field Trip Fund.  
Graduate Students: Ben Currens, Ann Hislop, Emma Larkin, James McCulla, Leah Newman  
Undergraduate Students: Bailey Hodelka, Ann Muncy,

Grondall Potter, Mike Priddy, Sean Rohrer, Clay Seckinger, Brittany Shelton, Courtney Slone, Dominic Sparkling



UK Geology students in the Alabama Hills at the foot of the Sierran Nevada Mountains



## A NEW TRADITION:

### THE EES OPEN HOUSE IN SLONE BUILDING

As a big state school, our introductory level courses tend to be large and therefore are taught in rather anonymous lecture halls. Unless the students attend our office hours, they have no occasion to get a sense of what goes on in our department. This situation is especially unfortunate because we need to recruit majors from this pool.

Beginning in the spring of 2014, we decided to remedy this situation with an open house held on a late Thursday afternoon for two hours. Students enrolled in our 100 and 200 level courses were offered extra credit for attending, but we were all surprised at how enthusiastically they participated. Students were given a worksheet where they could document their attendance at four different activities/demonstrations by writing a short summary of what they did, and then collecting the signature of a faculty member or graduate student for verification.

Our initial spring 2014 event drew 135 students. We advertised the fall 2014 event more heavily and also decided to offer more extra credit for students who brought a friend. We ended up with 274 students roaming the halls of Slone which was wonderfully overwhelming!

Faculty and graduate students opened their laboratories and organized demonstrations. The first floor got a lot of business as students examined cores in the SERL2 lab and tested water samples in the Hydrology Lab. Dr. Mike McGlue and students (particularly MS candidate Patrick Baldwin) also demonstrated XRF analysis of core in the Pioneer lab, and this "X-Ray Gun" was especially cited by student reports as a source of fascination. We lured the students upstairs with the promise of generous snacks in the third-floor student computer lab, where the Geology Club members were waiting to tell them how much fun it is to be a Geology major. Dr. Rebecca Freeman, Director of

Undergraduate Studies, took names of potential majors downstairs, but the Geology Club managed to collect twice as many names up on the third floor during the Fall 2014 event.

Other activities included a stream table demonstration, a really fun photographic 3-D reconstruction of the students by Dr. Sean Bemis and graduate students, and examination of thin sections in the Petrology lab. The stable isotope lab was open for those students interested in climate change, and upstairs in the Geophysics lab, students generated seismic energy by jumping up and down and stomping and were able to see the waves generated on a big-screen TV set up by Dr. Ed Woolery and students. The fun extended outdoors where academic coordinator Pete Idstein carried out his ever-popular volcano demonstrations... in reality, exploding plastic bottles of liquid nitrogen in vats of cold water, complete with "tephra" (marshmallows and plastic duckies).

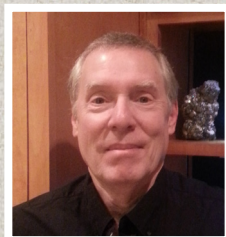
We believe this initiative is one factor in our sudden increase in the number of majors, and we are particularly pleased that we have been able to recruit some students from demographics that traditionally are not represented heavily in Geology.

We have seen some other positive outcomes of this event. Those teaching introductory courses have seen increased participation in office hours and review sessions after the Open House, apparently because the students now know where we are! Many of our majors have also remarked that they enjoyed seeing what goes on in laboratories that they generally do not have access to. Finally, we followed up via email with the "friends", advertising our 100 level classes that fulfill their UKCore Natural and Physical Science requirement. Most of these classes have had subsequent increases in enrollment.



# NEW ALUMNI BOARD MEMBERS

## WILLIAM SPIES



William Spies (wspies@charter.net) (member 2014- present) received his B.S. and M.S. degree in Geology from UK in 1975 and 1977, respectively. His graduate work concentrated on lateral and vertical distribution of major and minor elements in the No. 11 coal

seam of the western Kentucky coal field, under the supervision of Drs. William Dennen, Irving Fisher, and John Thrailkill. Bill worked part-time positions at the KGS and the Institute for Mining Minerals Research. He started his full-time position in 1977 at Amoco in New Orleans as an Exploration Geologist working

south Louisiana. In 1980 Bill left New Orleans and moved to Dallas where he worked first for Supron Energy Corp. and Hunt Petroleum as an Exploration and Development Geologist within the Gulf Coast, East Texas and Rocky Mountain Regions. He retired from Hunt Petroleum in 2008. Bill met his wife Diane in Dallas. They were married in 1982 and have one son, Andrew. Bill was a member of AAPG for 35 years and a Certified Petroleum Geologist. Currently, he spends his time as a volunteer at a church, nature center, and a food pantry. He and his wife do domestic and international travel and collect mineral specimens when possible. He also oversees the family's charitable accounts.

## MICHAEL BOURQUE



Michael Bourque (lamyridge@yahoo.com) received his B.S. Geology degree from UK in 1974 and earned his M.S. in Geology from the University of Illinois in 1977. While at UK, Dr. Vincent Nelson inspired a passion for field work, mentored Mike in the

Department and helped secure a part-time position for Mike at the Kentucky Geological Survey under the direction of Lou Ponsetto. Mike held summer positions with Amoco and Exxon. He began full-time work at Shell Oil in 1978 in New Orleans as an exploration geologist. He developed new prospects in the deep water of Gulf of Mexico, a play Shell has consistently led. New Orleans is also where he met Marsha, also an

oil geologist and now consulting for ARAMCO. They married in 1980 and have one daughter, Veronica. Transferring to Houston in 1989, Mike continued deep water exploration on a global scale, particularly in The Philippines, China, Malaysia, Brazil, Nigeria, and Angola. His last position was leading a Russia New Ventures team while based in The Hague, The Netherlands. Mike retired from Shell in 2008. Most recently, he has consulted for Pemex, the Mexican national oil company. Mike is a member of AAPG and GSA. Mike and Marsha enjoy travel to places with wonderful geologic stories to see and learn. His favorite hobby is star-gazing from his observatory in Santa Fe, NM. Mike became a member of the EES Alumni Advisory Board in 2014.

## BRINT CAMP



Brint Camp (bcamp@mhrproduction.com) received his B.S. degree in geology in 1977. Brint was inspired to get into geology by John Avila, a neighbor and the Senior Geologist for Ashland Exploration. Summer field camp up Cement Creek in Crested

Butte, Colorado was the highlight of his college experience. He also has great memories of the many field trips, including the Frisbee football games that always broke out at every opportunity. After graduation, Brint worked for 10 years with EQT as a Senior Geologist. He was responsible for developing oil fields in Kentucky where he increased production to record levels. He also was on the CBM team that developed the first commercial CBM project in the Appalachian Basin in SW Virginia. After working as a geologist, Brint spent the next seven years

as Superintendent of Production for EQT. He was responsible for production from 5000 wells in five states.

Brint left EQT in 1994 and started up Evan Energy with the Massey family in Kingsport Tn. As COO, they partnered with Duke Energy to build a 150 mile pipeline system thru Kentucky, Virginia and Tennessee. This opened up areas in southeastern Kentucky and southwest Virginia for development. Evan Energy was acquired by Magnum Hunter in 2004 and Brint came back home to Lexington with that acquisition. Brint oversaw the operations including 200 well drilling programs.

Brint lives in northern Madison County with his wife Connie. They have 5 kids, two still in college at UK. Hobbies include taking care of an extensive flower garden, cooking and having a good glass of wine enjoying both.



# SEMINAR SPEAKERS & ALUMNI RECOGNITION

## RAST-HOLBROOK SEMINAR SPEAKERS 2014

### Spring 2014

Dr. James Cobb, Kentucky Geological Survey, "Research Highlights: Looking Back at 45 years in Geology"

Prof. Mike May, Western Kentucky University, "Chesterian and Basal Pennsylvanian Unconventional to Conventional Petroleum Reservoirs in South Central Kentucky"

Prof. David Green, Denison University, "Confusion Range Synclinorium: a Fold-Thrust Belt in the Sevier Hinterland of western Utah"

Prof. Jamie Levine, Appalachian State University, "Syndeformational partial melting in migmatites and evidence for strain-induced melting"

Dr. Mauricio Perillo, University of Texas, "Understanding sediment transport and deposition in deep-water environments"

Andrew Barth, Purdue University, Indianapolis, "Diverse Zircon Types in the Big Bear Intrusive Suite and Implications for Arc Magma Generation and Melt Evolution"

Dr. Greg Hempen, Association of Environmental and Engineering Geologists Distinguished Speaker, "What's my Line? Site Assessment!"

Dr. Autumn Oczkowski, U.S. Environmental Protection Agency, "Human Impacts on Coastal Environments: Expect the Unexpected"

Prof. Laura Wasylenki, Indiana University, "Metal Isotopes in Geochemical Cycles"

### Fall 2014

Prof. Frank Ethensohn, University of Kentucky, "Saving the World: Reflections on the U.S. Government and Energy Security"

Prof. Brooke Crowley, University of Cincinnati, "Reviving Ghosts: Reconstructing the Ecology of Recently Extinct Megafauna from Madagascar"

Prof. Nicholas Pinter, Southern Illinois University, "Rivers and Flooding in the 21st Century"

Dr. Martin Chapman, Virginia Tech University, "The August 23, 2011 Mineral, Virginia Earthquake: Source and Wave Propagation Effects"

Lowell Waite, Pioneer Natural Resources, "The Petroleum Industry and Great American Shale Revolution: A 30+ Year Perspective"

Prof. Jeffery Stone, Indiana State University, "Coherent Late Holocene Climate-Driven Shifts in lake Thermal Structure: Evidence from the Rocky Mountains"

Prof. Jennifer Francis, Rutgers University, "Rapid Arctic Warming and Extreme Weather Events in Mid-Latitudes: Are They Connected?"

Prof. Ryan Shackleton, West Virginia University, "Survey of the Current Status of Digital Field Mapping Tools, Examples, and Future Directions"

Prof. Franco Marcantonio, Texas A&M, "Radiogenic Isotopes as Tracers of Dust Provenance and Flux in the Pacific Ocean"

Prof. Gary Pavlis, Indiana University, "New Constraints on the Geometry of the Juan De Fuca/Farallon Slab from the Earthscope USArray"

Dr. Junfeng Zhu, University of Kentucky, "Application of LiDAR Data for Fine-Scale Hydrologic Feature Delineation"

## UK GEOLOGY ALUMNI RECOGNITIONS

**Dr. Bridget R. Scanlon** (UK Ph.D. 1985), currently a Senior Research Scientist at the Texas Bureau of Economic Geology, was named a Fellow of the American Geophysical Union for her research in hydrogeology. Additional details on Dr. Scanlon's research can be found at: [beg.utexas.edu/personnel\\_ext.php?id=70](http://beg.utexas.edu/personnel_ext.php?id=70)

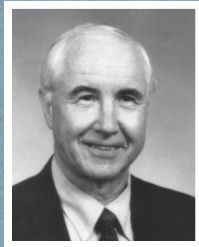
**Prof. Jack Pashin** (UK M.S. 1985, Ph.D. 1990), currently the Devon Professor in the School of Geology at Oklahoma State University, received the Gilbert

Cady Award from the Coal Geology Division of the Geological Society of America. Additional details on Dr. Pashin's background can be found at: [geology.ok-state.edu/people/2-uncategorised/134-jpashin-home](http://geology.ok-state.edu/people/2-uncategorised/134-jpashin-home)

**Dr. Steve Greb** (UK M.S., 1985, Ph.D. 1992) of the Kentucky Geological Survey received the Gordon H. Wood Jr. Memorial Award from the Eastern Section of the American Association of Petroleum Geologists. Additional details about Dr. Greb can be found at: [uky.edu/KGS/about/biographies/grebbio.htm](http://uky.edu/KGS/about/biographies/grebbio.htm)



# DISTINGUISHED ALUMNI AWARDS



## DR. DONALD HANEY

Don Haney was perhaps most widely known as the 11th State Geologist of Kentucky and Director of the Kentucky Geological Survey from 1978 to 1999, the longest tenure of any Kentucky state geologist.

Don received his BS and MS degrees in geology from UK and the PhD from the University of Tennessee. Don's tenure as state geologist was marked by great progress in coal assessment, groundwater research, mine subsidence programs, earthquake monitoring, and the construction of databases to serve the public. Don was one of the principal authors of the National Geologic Mapping Act passed by the 102nd Congress in 1992. Don achieved

the highest levels in his profession, serving as president of the Association of American State Geologists and president of the American Geological Institute. Don served on many national

committees for the Geological Society of America (GSA), Association of American State Geologists (AASG), American Geosciences Institute (AGI), American Association of Petroleum Geologists (AAPG), and the USGS. He was very well known and greatly admired in the geological community. He was chair of the Board on Earth Sciences and Resources for the National Research Council, one of geology's most prestigious appointments. Don was stationed in the Philippines as an intelligence specialist in the U.S. Army from 1953 to 1956. It is impossible to capture in these few words the profound impact of his accomplishments on Kentucky, but every map, publication, and online database that he made possible result in better decisions and wiser use of our land and resources, which will continue forever. All the honors, awards, and accomplishments that Don Haney achieved do not tell the story of his warm, friendly, outgoing personality and his love of people and politics.

[Abridged from recognition statement by Dr. Jim Cobb, State Geologist Emeritus, Kentucky Geological Survey. The full citation can be found at: [ees/as/uky/edu/alumni/](http://ees/as/uky/edu/alumni/).]



Mrs. Donald Haney (center) with Dr. Jim Cobb (right) and Board Chair Wendell Overcash

## ELIZABETH A. HAYNES

Liz Haynes graduated from Centre College in 1988 with a BA in political science and French. She received her MS in geology in 2000 from UK. Liz was employed by BHP Billiton Petroleum and is currently at Conoco-Phillips. Liz is a member of AAPG, Women's Energy Network, GSA, Society of Exploration Geologists, Perth Geological Society and the Houston Geological Society. Liz was the chair of the Geology Alumni Advisory Board from 2005 to 2012, during which time she re-invigorated board activities. She established the Haynes Field Trip Fund in Geological Sciences that assists the department by providing financial support for various field activities.



2014 Distinguished Alumna Elizabeth Haynes and Board Chair Wendell Overcash

## TOM SPALDING

Tom received the B.S. in Geology in 1980 and the M.S. in 1982 under the guidance of Prof. Bill MacQuown. Tom has been with Pioneer Natural Resources since 1997 and is currently



2014 Distinguished Alumnus Tom Spalding and Board Chair Wendell Overcash

is a Vice-President. Tom has also spent 16 years with Mobil as an exploration and production geoscientist. Memberships include AAPG since 1981 and current or past memberships in the Dallas Geological Society, Houston Geological Society and the New Orleans Geological Society. Tom has been an individual donor to Geology at UK and was instrumental in securing significant financial support for the Department from Pioneer Natural Resources.



The following individuals are thanked for their generosity and willingness to support our student-centered teaching and research mission.

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## PAUL RODRIGUEZ: FULBRIGHT GRADUATE FELLOW



I am a Bolivian physicist dreaming to improve science and technology in my country. I was born in La Paz, I obtained my B.Sc from San Andrés University (UMSA), and an MBA from UPB. Before graduation I worked as a High School Teacher, Teacher Assistant and Research Assistant. In

my professional life I worked in the Bolivian Nuclear Science Institute (IBTEN), in a Bolivian-Venezuelan petroleum company (YPFB Petroandina SAM) and SAExploration. Even though it was tough to study, to work and to take care of him, I am proud to be a

single father of a wonderful 16 year old young man. Until now, my greatest achievement was to study in the U.S. as a Fulbright fellow, however it is a goal in process until I could earn my PhD. in Geophysics. I am interested in geophysics exploration methods such as gravimetry or magnetometry, and especially in magnetotellurics, because it can give us additional information of the underground where seismic data are not good, as anticlines or uneven topography. In the future, I would like to help science loving children who want to study nature. I would like to obtain the resources and means to offer scholarships to them, and replicate the actions and welfare that allow me to be here.



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## SUPPORT OPPORTUNITIES

Your support of the UK Department of Earth & Environmental Sciences helps provide opportunities for our outstanding undergraduate and graduate students. All contributions to the department are tax deductible.

### RAST-HOLBROOK FUND

Supports the department seminar program, an opportunity for students to interact with researchers outside the department

### GEOFUND

Supports general departmental needs including undergraduate and graduate scholarships

### WALLACE HAGAN SCHOLARSHIP FUND

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Supports student travel on field trips

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Provides resources for graduate student recruitment and alumni development functions

### GEOLOGY SUPPORT FUND

Supports initiatives for long-term quality of the department

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