Dear UK Geology Alumni and Friends,

2016 was another year of major progress for the Department of Earth and Environmental Sciences at UK. As 2017 begins we can look back on a year of growth and vitality for our program.

Our faculty size expanded by three this year, returning us to the position we were at in the mid-1980s (13 regular faculty, one senior lecturer, and two Research Professors). We added Professors Andrea Erhardt, Keely O’Farrell, and Sora Kim (please see their biographical sketches on pp. 6-7). Drs. Jim Hower (of the UK Center for Applied Energy Research) and Bill Haneberg (new Director of the Kentucky Geological Survey and 13th State Geologist of Kentucky) joined us as Research Professors. More faculty should translate into more research grants, more graduate student research opportunities, and more graduate degrees. To that end, we are making a fundraising push in 2017 to expand our endowments that help support graduate students (see the announcement on p.8 for our campaign for 2017).

We continue to emphasize field-based instruction and learning. This past calendar saw major field trips to Maine to examine classic northern Appalachian stratigraphy and structure, and to the Sierra Nevada range in California to examine Pleistocene glacial lake deposits for environmental change research. Both of these trips were supported by generous donations to the Liz Haynes Field Trip fund and the Wendell Overcash Scholarship fund. Please see the highlight stories on pp. 9 and 10.

By the time you read this we will be well into 2017, which is the 125th Anniversary of the Geology program at UK. That’s a really big deal folks! Geology has played a major role in Kentucky from the early days of the Kentucky Geological Survey (est. 1854) to the creation of the Geology Department (1892) to today. Our alumni play key roles in the public and private sector statewide, nationally, and even internationally. We are writing a department history now, but just one little trivia tidbit: Prof. Arthur Miller was the first chair of the Geology Department, first dean of the College of Arts and Sciences, and the first football coach at UK! And they say it’s challenging being a chair today!

We plan three alumni receptions in 2017 to celebrate the 125th Anniversary: in Houston at the Annual Convention and Exhibition of AAPG April 3; in Crested butte at Cement Creek Ranch on July 2; and in Lexington October 5. Please try and attend one of these events to show your support and catch up with other Geology alumni.

We are so fortunate to have a supportive group of alumni advocating on our behalf, hiring our students, and providing financial support for our teaching and research mission. There remains much financial uncertainty in higher education and the state continues to modify its funding formula. This trickles down to undergraduate and graduate support. Fortunately, our endowments help insulate us from some of the disruptions that negatively impact other degree programs at UK. Please consider supporting our endowments that we use to recruit, support, and retain top students.

With much appreciation,

Dave Moecher  
Alumni Professor and Chair

Greetings from the Department Chair

Earth & Environmental Sciences
2016 Department Newsletter

Table of Contents
2 Chair’s Letter
3-4 Degrees and Awards
5-6 New Faculty
7 Rast-Holbrook Seminar Speakers
8 Alumni News
9-10 Field Trips
11-12 Pictures
13 Distinguished Alumni
14 2016 Donations
15 Support Opportunities

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

And Keep in Touch!
Please let us know if your address or contact information changes. Send a note to, email, or call Adrienne Gilley, the EES Department Manager.

Adrienne Gilley  
Department of Earth & Environmental Sciences  
University of Kentucky  
101 A Stone Bldg.  
Lexington KY 40506-0053  
adrienne.gilley@uky.edu  
(859) 257-5568

Like Us on Facebook!  
@UKEarthandEnvironmentalSciences

Regular Faculty
Sean Berns, Assistant Professor
Andrea Erhardt, Assistant Professor
Frank Ettensohn, Professor
Rebecca Freeman, Assistant Professor
Alan Fryar, Associate Professor
Sora Kim, Assistant Professor
Michael McGuire, Assistant Professor
David Moecher, Professor
Keely O’Farrell, Assistant Professor
Dhananjay Ravat, Assistant Professor
Ryan Thigpen, Assistant Professor
Kevin Yeager, Associate Professor
Ed Woolery, Professor

Staff
Rich Dabundo, Stable Isotope Technician
Adrienne Gilley, Dept. Manager
Pete Idstein, Academic Lab Coordinator
Joseph Lucas, Lab Manager

Adjunct Faculty
John Hickman, KGS  
Jim Hower, CAER  
Conrad Eble, KGS  
Rick Bowersox, KGS  
Mary Parris, KGS  
Tom Robl, CAER  
Jerry Weisenfluh, KGS  
Steve Greb, KGS  
Zhenming Wang, KGS  
Junfeng Zhu, KGS

Part-Time Instructors
Summer Brown

Lecturers
Dr. Kent Ratajeski

Emeritus Faculty
William Blackburn
Bruce Moore
Kieran O’Hara
Sue Rimmer
Lyle Sendlein
Ron Street
William Thomas

Cover Photo: Clara Fucker hikes through the High Sierras with the EES 480/730 field trip, fall 2016.

2016 Department Newsletter
2
GRADUATE DEGREES
(with thesis advisor and placement as of Jan. 2017)

SPRING 2016:

Patrick Baldwin, M.S.: “Lithostratigraphic and geochemical characterization of the Upper Pennsylvanian ‘Wolfcamp D’ shale, Midland Basin (USA)” (M. McGlue) (Penhall Technologies)

James McCulla, M.S.: “Dating Deformation in the Palmer Zone of Transpression, Central Massachusetts: Temporal Constraints on Models for Progressive Deformation in the Middle Crust” (D. Moecher) (Pioneer Natural Resources)

Fidele Nsonguf Tibouo, M.S.: “Use and Evaluation of LiDAR for Mapping Sinkholes in Royal Spring Groundwater Basin” (A. Fryar)

SUMMER 2016:

Ashley Bandy, PhD: “Mobility of Escherichia Coli in Karst Terrains, Kentucky, USA” (Part-Time Instructor, University of Kentucky)

Marie Cooper, M.S.: “Investigation of the Claiborne Aquifer System Hydrostratigraphy Using Integrated Geophysical Methods: Jackson Purchase, Kentucky” (E. Woolery) (Northern Kentucky University)


Emma Larkin, M.S.: “Field, Geochronologic, and Geochemical Constraints on the Late Precambrian to Early Paleozoic Terrane Accretion in the Southern Appalachian Blue Ridge Province” (D. Moecher) (Kentucky Environmental and Energy Cabinet)

FALL 2016:

Kade Carlson, M.S.: Paleoearthquakes of the Past ~ 6000 Years at the Dead Mouse Site, West-Central Denali Fault at the Nenana River, Alaska (S. Bemis) (SLR Consulting)

Brett Howell, M.S.: “Spring Responses to Storms and Seasonal Variations in Recharge in the Middle Atlas Region of Morocco” (A. Fryar)

Ann Fendick, M.S.: “Denali in a box: analog experiment modeled after a natural setting provide insight on gentle restraining bend deformation” (S. Bemis) (Quantum Spatial)

Paul Rodriguez Ashihama, M.S.: Development of Semi-Automated Methodologies for Discriminating Between Natural and Manmade Seismic Events Using the OIINK Seismic Array. (E. Woolery)

Wei Ji, M.S.: Sedimentary Responses to Growth Fault Slip and Clay Shrink and Swell Induced Elevation Variations: East Matagorda Peninsula, Texas (K. Yeager)

Patrick Ryan, M.S.: Stratigraphic, Geochemical and Well Log Analysis of the Wolfcamp-D Unconventional Play in the Central Midland Basin, Texas (M. McGlue) (Matador Resources)

GRADUATE AWARDS

PIRTLE SUMMER GRADUATE FELLOWSHIPS
Rachel Durham
Jeremy Eddy
Ann Hislop
Wei Ji
Edward Lo
Jason Merrick
Michael Vadman

FERM GRADUATE RESEARCH AWARD
Ashley Bandy
Kade Carlson
Clara Rucker
Ann Hislop

BROWN-MCFARLAN FUND TRAVEL AWARD
Ashley Bandy
Joseph Lucas
Zac Perlman
Cara Peterman
Patrick Whalen

OUTSTANDING TA AWARD
Rachel Durham
Michael Vadman

BACHELOR OF ARTS

Christopher Bond
Erika Emrick
Michael Jax
Chase Lockhardt
Sean Rohrer
Dominic Sparkling

BACHELOR OF SCIENCES

Edwin Cheong
Jason Orr
Alicia Solomon

Sigma Gamma Epsilon Tarr Award recipient Matt Cecil (right) with past Tarr Award recipient and UK Alumnus Dr. Drew Andrews of the Kentucky Geological Society.

Darion Carden receiving ASK Scholarship from alumna Dr. Susan Erikson, who established the scholarship to support female students in geosciences.

L-R: Dr. Dave Moecher, Darion Carden, Dr. Susan Erikson, Dr. Rebecca Freeman.
Andrea Erhardt

Dr. Andrea Erhardt joined the faculty as a stable isotope geochemist in August 2016. Her overarching interests revolve around understanding how the carbon cycle responds to climate change using isotopic and elemental tracers. Through her experiences at the Colorado School of Mines (M.S.), Stanford University (Ph.D.), and a postdoc at the University of Cambridge in England, she has built a repertoire of isotope systems, including calcium, strontium, lead, molybdenum, carbon, and oxygen, along with experience in petroleum geology. At UK, she is the co-director of the Stable Isotope Laboratory, focusing on measuring carbon, oxygen, and nitrogen isotopes in bulk sediments and carbonates.

Her research approaches the carbon cycle from multiple vantages, including paleoceanography, speleothem reconstructions, and carbonate diagenesis. For her PhD work, she utilized productivity indicators, such as marine barite, along with carbon and lead isotopes to look at changes in ocean productivity and seawater chemistry during periods of climatic change. She is expanding this work into carbon isotopes in both carbonates and organic carbon to look at the paleoceanography of Pennsylvanian and Permian aged rocks. Additionally, she has been developing the measurement of calcium isotopes in speleothems to quantitatively reconstruct precipitation patterns over the Holocene, specifically in relationship to the Asian monsoon. She also has a strong interest in carbonate cements, as these are both a poorly understood source of carbon burial and can be used as tools to reconstruct water chemistry. A desire for a better understanding of the driving controls on diagenetic carbonate formation and dissolution has prompted her to develop projects with industry partners to look at the impact of brine injection into paleo-karst systems.

Andrea teaches courses in Low Temperature Geochemistry and co-teaches Stable Isotopes in the Environment and hopes to develop new courses in paleoclimate and isotope geochemistry methods.

Sora Kim

Dr. Sora Kim joined the faculty as an assistant professor in April 2016. She earned her Ph.D. from University of California Santa Cruz, was a postdoctoral researcher at University of Wyoming, and the Chamberlin Fellow at University of Chicago. Her research explores ecological responses to environmental change during periods of climate change. She is an interdisciplinary scientist who intersects aspects of geology, oceanography, ecology, physiology, and biochemistry. Sora’s primary scientific tool is stable isotope analysis and she has over 15 years of experience with isotope ratio mass spectrometers. Past projects for Sora include a captive shark experiment to determine biological parameters, a study of Eocene Arctic Ocean salinity, a biochemical and evolutionary comparison of whale ear bones, and changes in nutrient cycling prompted by climate. Her current projects include community structure and shark size distribution across latitudinal gradients during the Eocene, the Drake Passage opening and thermal isolation of Antarctica, linkages between hormone regulation and nutrient uptake in mammals, and in collaboration with Dr. Mike McClure, ecological changes in the eastern Sierras during Holocene climate change.

Sora has taken a keen interest in our graduate students’ professional development and established a scientific communication course that covered reading primary literature, honing writing skills, making scientific illustrations, creating a professional website, giving a scientific presentation, and creating a professional resume/CV. Sora will also co-teach Stable Isotopes in the Environment with Dr. Erhardt in Spring 2017, which has graduate students enrolled! from EES, other Arts & Sciences departments, and multiple colleges at UK.

Keely O’Farrell

Dr. Keely O’Farrell joined the faculty in August 2016. She is a geophysicist working on numerical models of Earth dynamics. Her work focuses on the fluid dynamics of Earth and planetary mantles and their surface manifestations. Keely completed her Master’s work in atmospheric physics, focusing on data assimilation methods for wind tracers, before continuing on to do a Ph.D. in geophysics at the University of Toronto in the physics department. Her Ph.D. research focused on modeling whole-mantle convection in different numerical models in an attempt to reduce the computational costs of running planetary models in the right parameter range. Her work lead to the development of scaling equations to adjust the mean temperature of plane-layer models to emulate the hotter temperatures found in full spherical shell convection. Before her appointment at UK, Keely was completing a postdoc at University College London in London, England. While there she worked on methods to infer mantle viscosity using gravitational anomalies by comparing observational data and numerically predicted models. This work uses seismic tomography data as proxies for density structure in the Earth in order to predict Earth’s gravitational potential and plate motions and its dependence on mantle viscosity structure.

Recently, Keely has been exploring the plume structure inside the Earth to see if it is possible to track plumes from their source up to the surface. Using 3D seismic tomography data Keely and her colleagues have developed an algorithm to trace the minimum seismic velocity values (associated with hotter mantle) up through the mantle. This fall, Keely taught a new course in Quantitative Methods for graduate students, which focused on teaching programming skills for students to use in their research. This spring, Keely will be bringing back our UKCore Quantitative Foundations course and co-teaching the Fundamental Geophysics course.
Greetings to All Alumni and Friends,

For the last three years, it has been my honor and privilege to serve as chairman of the Geology Department’s Alumni Advisory Board. My overarching reasons for joining the Board have been to “pay it back” to an organization that was most important to my career and to “pay it forward” in order for students to attain their goals. EES enjoys strong leadership, excellent faculty and generous alumni support. Dean Kornbluh considers your Board as the “poster child” as the college attempts to replicate similar organizations for other academic departments. However, success is not an accident, the reason EES can offer a “value added” to its students is that there has been a history of generosity exhibited by alumni and friends.

Your Board meets twice a year and last October we were briefed on all endowment and gift accounts. EES has 12 endowment funds but most are restricted use and not available for direct student support. At this meeting, three student presentations were made, all of which personalized the need for direct student support. Presenters made clear the difficulty in paying for school, suffering academically due to working long hours and serious concerns about accumulating burdensome long-term debt. EES’s direct student support is not at levels of our institutional peers and there is concern that EES will lag in its recruitment of prospective students.

Fortunately, some 50 years ago, George Pirtle established a fellowship fund that was specifically designed to provide this support. The Board did vote, in October, to make the Pirtle Fellowship fund its priority fundraising recipient. Specific fundraising goals for the Pirtle Fellowship fund are:

- Increase EES’s donor base to 125 alumni and friends.
- Raise $125,000 in 2017 for the Pirtle Fellowship gift fund.
- Increase the endowment fund to $1,000,000 over the next 10 years with major gifts and bequests.

Board members have financed three reunions or receptions this year. I trust that while we all have a chance to relive old times, share in past experiences and to collectively refresh what EES has meant to each and all of us; please consider the needs of your alma mater. Come and join us in Houston, Crested Butte or Lexington as we celebrate the 125th Anniversary of the Geology Department (est. 1892). We have a long history! Since joining the Board, I have witnessed the generosity of many alumni and friends, endowments have been established, bequests planned and corporate support increased. Much good has been accomplished. I now challenge each of you to help preserve our national reputation and join me in “paying it back” or “paying it forward.” Please consider showing your support this year by making a contribution to the Pirtle Fellowship fund.

Thank you,

Wendell H. Overcash,
BS ’77 JD ’80
Geology Alumni Advisory Board, Chair
FIELD TRIPS AND OTHER STUDENT EVENTS

FIELD TRIPS

AAG IMPERIAL BARREL AWARD COMPETITION 2016

The 2016 AAG Imperial Barrel Award Competition bore witness to an important breakthrough for the fledgling Petroleum Geosystems program in EES. Under the direction of John Hickman, Ryan Thigpen, Summer Brown, and Mike McGlue, the EES team achieved their first podium in our three-year history of participation in this important international petroleum exploration competition. This feat was particularly remarkable because the team was comprised of only four students (five-student teams are typical). The 2016 team, led by MS-students Samantha Burk, Bailee Hodelka, Emma Larkin, and Patrick Whalen, immersed themselves for weeks in a challenging dataset from the Cooper Basin (Australia) and very nearly unseated Penn State to take the Eastern Section competition. Comments from the judges were glowing, and the team received high praise for their risk assessment of a complex petroleum system. The second place finish also caught the attention of ExxonMobil, who invited UK graduates to a regional recruiting event last spring as a result. The team benefitted from guidance from geoscientists at Pioneer Natural Resources, faculty in EES, and the KGS Energy and Minerals Section.

2017 promises to bring new challenges to our IBA team, but with a new technical computing cluster in Slone, we aim to improve upon the 2016 result and put our program’s name on the map in the Eastern Section. Alumni support of the Petroleum Geosystems program and the IBA team has been critical – we thank everyone who has lent their time and expertise to helping current EES students reach their goals!

FIELD TRIP TO EASTERN SIERRA NEVADA MTNS., CA, FALL 2016

Professors Ed Woolery and Mike McGlue accompanied 11 UK Geology undergraduate and graduate students on a cross-country trip to June Lake in the Sierra Nevada Range. The trip was part of a new course, EES 480/625, Applied Geophysics – Glacial and Quaternary Geology, which was offered for the first time in Fall 2016. The goal of this field trip course was to train students in geophysics (acquisition and interpretation of seismic reflection data) through research projects on June Lake (CA) and the Meeman Selby site in the Mississippi embayment. In California, the UK team used high-resolution seismic profiling and sediment coring to assess late Pleistocene and Holocene climatic, volcanic, and ecological change recorded in the fine-scale stratigraphy of glacial lake sediments. The course was co-taught by Ed and Mike, taking advantage of their respective expertise in reflection seismology and lacustrine stratigraphy, respectively. The “advance team” (Ed and students Joseph Lucas and Zac Perlman) transported field equipment that would permit high-resolution seismic reflection studies and core samples of lake sediments to be collected. These datasets were processed and interpreted by the class members for their final poster projects, which were presented in December. Several of the class members, led by doctoral student Eva Lyon, used data from the June Lake expedition for presentations at the PACLIM (Pacific Grove, CA) and central US GSA section (Pittsburgh, PA) meetings in March. Eva anticipates using some of these data in her dissertation, and a first publication is already being planned. The department’s geophysical field toolkit is ever expanding, and Ed and Mike intend to offer the course in the future, perhaps focusing on different glacial and fluvial landscapes in the USA.

This field trip was supported by the Wendell Overcash field experiences and Elizabeth Haynes field trip funds. If you feel strongly about the value of field-based geoscience education then please consider making a donation to either of these funds as part of our “125 for 125” 2017 fundraising campaign.

MAINE GEOLOGY FIELD TRIP, MAY 2016

Fifteen hardy and enthusiastic UK geology students braved everything from 80 degree heat to 30 degree snow and wind as we drove from the Maine coast to northern Maine wilderness (and almost to Canada) exploring the bedrock geology of Maine. It’s a different world from Kentucky up there, in terms of geology and accents. But that’s why we go! This field trip was mostly student-led – groups of students were responsible for one or two days of field trip stops. This includes planning the route, finding camping spots, assembling maps and figures, preparing a poster, and presenting an overview of the geology for the day. The students do a great job, which is very rewarding for an instructor to see. These field trips are made possible by generous alumni donations to the Elizabeth Haynes Field Trip fund. Please consider including this fund in your annual giving plans to UK.

STRUCTURAL GEOLOGY FIELD TRIP, SPRING 2016

Students in Dr. Ryan Thigpen’s Structural Geology class pose for a picture in Linville Gorge, North Carolina.

Bill Pierskalla, Darion Carden, Christopher Bond, Adan Nolte, Ryan Parks, Emily-Jane Godfrey, Craig Floyd, Nathaniel Swallow, Meredith O’Dell, Patrick Whalen, Dibya Koirala, Ethan Davis, Matthew Nass and Dr. Ryan Thigpen.
EES GEOSCIENTISTS IN ACTION

Dr. Ryan Thigpen collecting samples in a fault zone in northwest Scotland. Ryan’s research attempts to understand how the crust deforms, based on field observations and computer models.

Dr. Ryan Thigpen’s summer 2016 field season group in the Tetons.

L-R: Rachel Hoar, Dr. Thigpen, Patrick Whalen and Stephanie Sparks.

The group was collecting samples for geochronology to determine the uplift rate along the Teton Fault, which is the M.S. thesis project of Rachel Hoar.

Patrick Whalen, standing next to a distal deposit of West Elk Breccia about five miles east of Gunnison on U.S. 50.

Andrew Holcomb (above) and Paul Rodriguez Asihama (right) working on installing seismic stations in eastern Kentucky. These stations are part of an array of new seismometers that the Kentucky Geological Survey recently installed in eastern Kentucky to monitor background seismicity in anticipation of future potential hydraulic fracturing associated with development of the Berea unconventional petroleum play.

Clara Rucker hikes through the High Sierras with the EES 480/730 field trip, fall 2016.
Dr. Bridget Scanlon

(UK Ph.D., 1985)

Dr. Bridget Scanlon, currently of the Texas Bureau of Economic Geology, is the 2016 UK Geology Distinguished Alumna.

Bridget was raised on a farm in County Kerry, Ireland, and became interested in geology during her undergraduate program at Trinity College in Dublin. Initially she focused on high temperature geochemistry but realized there may be more opportunities in hydrogeology. As an undergraduate, she spent two summers with the Irish Geological Survey as a field assistant, and afterwards attended the University of Alabama for a Master's degree under the supervision of Dr. Philip LaMoreaux. Her thesis work that characterized flow and transport in dry karst systems of the Northern portion of the Edwards Aquifer of Central Texas. She was involved in detailed studies related to low-level radioactive waste disposal in West Texas, work that characterized flow and transport in dry environments and that evaluated engineered covers for the Environmental Protection Agency. She has conducted field studies in the High Plains aquifer related to recharge and contaminant transport. Her work has integrated field studies, laboratory analyses, and numerical modeling to assess problems related to groundwater resources. Her recent work has expanded into water and energy issues related to oil and gas production from shale plays and electricity generation. She is also involved with studies that examine the applications of satellite data and global models to better understand the global water cycle. As leader of the Sustainable Groundwater Resources Program at the Bureau of Economic Geology, her research involves ongoing projects in the United States and abroad. She currently holds the William L. Fisher Research Chair within the Jackson School of Geosciences at The University of Texas.

Bridget has authored over 100 professional publications and numerous reports. An active member in several professional societies, she was the 2007-2008 Birdsall-Dreiss Distinguished Lecturer for the Geological Society of America, is a Fellow of the Geological Society of America and the American Geophysical Union, a 2016 recipient of the M. King Hubbert Award from the National Ground Water Association, and a 2016 inductee to the National Academy of Engineering.

The foundation of Bridget's interdisciplinary approach to hydrogeology was laid at UK, where as a graduate student she interacted with engineers and soil scientists while conducting both laboratory and field investigations. She has benefitted from many opportunities to work in various fields throughout her research career and is grateful for the collaborative environment of the Bureau of Economic Geology and the support of the Jackson School.

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

**EES GEO FUND**
Ms. Alma H. Paty
Dr. Peter W. Whaley
Ms. Julie Furr Floyd
Bush Garden Club, in Memory of Mr. Gerald Markowitz
Mr. Timothy D. Elam
Mrs. Wendy Ray Schultz
Mr. Benjamin Thomas Kirkland
Ms. Mei Zhang
Ms. Olivia Paige Woodruff
Mr. David C. Metzner
Ms. Paige Neal and Mr. Daniel Spaulding
Mr. Michael T. Currie
Mr. James Kennedy McCullia
Mr. James L. Pear, in Memory of Dr. W.C. MacOwen, Jr.
Mr. Cai Butler II
Dr. Hiram A. Norton, Jr.
Mr. Evan Allen Kelly
Mr. Michael W. Bourque
Mr. Curtis G. Hull
Dr. Gary W. Jacobs
Mr. Donald Franklin Loughry, Jr.
Mr. Brian Scott

**Glenn Rice Memorial Scholarship Fund**
Dr. William M. Andrews, Jr.
Mr. Thomas Stephen Deen
Mr. William and Mrs. Diane Spies

**Rast-Holbrook Research and Seminar Fund**
Mr. James W. Thornton, Jr.

**Pirtle Gift Fund**
Mr. Jay G. Henthorne, Jr.
Mr. George W. Pirtle
Mr. Kenneth G. Smith
Mr. Michael W. Bourque
Dr. Kenneth E. Neavel
Mr. and Mrs. David Vance
Mr. and Mrs. Kristopher Clemmons
Mr. Curt Hull

**Elizabeth A. Haynes Field Trip Fund**
Patricia S. Robbert and Stan Goldberg, in Memory of Mr. Gerald Markowitz
Mrs. Thomas and Natasha Becker
Mr. and Mrs. Rod Stafford
Ms. Lila Salvatore, in Memory of Mr. Gerald Markowitz
Mr. Christopher P. Hettinger
Mr. Eric J. Dew
Ms. Elizabeth A. Haynes

**Geological Sciences Development Fund**
Mr. Stephen B. Sullivan
Mr. Ralph O. Wilson II
Mr. Richard E. Phillips
Mr. and Mrs. Kristopher Clemmons
Dr. Peter W. Whaley
Mr. Wendell H. Overcash

**Geology Support Fund**
Mr. Clay Audry Wilcox
Mr. Ralph O. Wilson II
Mr. Kenyon V. Pavona
Mrs. Wendy Ray Schultz

**Alumni Professorship Fund**
Mr. Timothy D. Elam
Mr. Kenyon V. Pavona
Ms. Alma H. Paty
Dr. and Mrs. Hubert E. King, Jr.
Dr. Alan E. Fryar

**Wendell H. Overcash EES Student Travel Scholarship Fund**
Mr. Wendell H. Overcash

**Jay G. Henthorne, Jr., Scholarship Fund**
Mr. Jay G. Henthorne, Jr.

**Boone Graduate Fellowship Fund**
Mr. and Mrs. Matt and Jill Gregory

**Corporate Support**
Chevron Corporation
ExxonMobile Foundation
Pioneer Natural Resources
Huntington Ingalls Industries
Continental Resources
Shell Oil Company
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**
Supports undergraduate scholarships.

**GLENN RICE MEMORIAL FUND**
Supports undergraduate tuition scholarships.

**HAYNES FIELD-TRIP SCHOLARSHIP FUND**
Supports student travel on field trips.

**DEVELOPMENT FUND**
Provides resources for graduate student recruitment and alumni development functions.

**GEOLOGY SUPPORT FUND**
Supports initiatives for long-term quality of the department.

**PIRTLE FELLOWSHIP GIFT FUND**
Provides summer stipends for academically qualified graduate students.

**WALLACE HAGAN SCHOLARSHIP FUND**
Supports undergraduate scholarships.

**GLENN RICE MEMORIAL FUND**
Supports undergraduate tuition scholarships.

**HAYNES FIELD-TRIP SCHOLARSHIP FUND**
Supports student travel on field trips.

**DEVELOPMENT FUND**
Provides resources for graduate student recruitment and alumni development functions.