KU’s Extreme Explorers
Greetings alumni and friends of the Department, and welcome to the 2010 issue of the G-Hawker. We’re pleased to share with you the continuing progress and many successes of the KU Department of Geology. As I begin my second year as Chair, I can look back to my first year and sincerely say that it has been a joy to work with such amazing faculty members, talented staff, excellent students and supportive alumni. This has been an exciting year and a challenging one for me personally. I quickly discovered that former Chair Bob Goldstein left some enormous shoes to fill! At the same time, the Department’s progress has been thrilling to see. Our future is bright, and I’m looking forward to the next four years of my term as Chair.

In this issue of the G-Hawker, we’re pleased to highlight the innovative work KU Geology faculty members are doing in exploring the surface of the earth. We’re shining the spotlight on the research of Associate Professor Jen Roberts and her geomicrobiology colleagues, on Professor J. Douglas Walker, and on assistant professors Gene Rankey, Leigh Steams and Mike Taylor. However, given the creativity, level of excellence and productivity of our entire faculty, we could just have easily written about every member of the Department.

Meanwhile, our scientific excellence gains new supporters every day. KU geologists brought in $7.4 million in stimulus money from the American Recovery and Reinvestment Act. Our researchers are unraveling the mysteries of the first amber fossils discovered in Africa, and they are devising new methods of studying life 700 million years ago, among many other projects. At the same time, our students are travelling the world in pursuit of their own research. We also continue to work hard to grow and improve, and are searching for the right person to fill the Ritchie Professorship in Sedimentary Geology.

I’m delighted to report that the high quality of teaching in the Department continues to be recognized and celebrated. For example, Associate Professor J.F. “Rick” Devlin was just awarded a Kemper Fellowships for Teaching Excellence. Our paleontology doctoral program and our other programs maintain their top rankings in both the news media and industry. Field Camp is thriving and still introducing students to the up-close-and-personal side of geology.

Our faculty continues to be productive and successful. Our student population is growing. Our Diversity Program is succeeding. The number of all applicants we’re seeing and the quality of our applicant pool are both increasing. Our students are not having any trouble maintaining their lead in grants and awards, winning more than students at other universities.

The most exciting news I have to report is that we’re making good progress on solving what we refer to as our “Lindley Problem.” As we reported in the last issue of the G-Hawker, the long-time home of the Department is showing signs of serious age. Built in 1943, the building can’t meet the infrastructure needs of 21st Century geologists. The Department has also outgrown its space in Lindley and is now forced to work out of four separate buildings – a setup that understandably makes collaboration extremely difficult.

Our fundraising campaign in support of a renovated and expanded Lindley is well underway. Thank you to all who have given so generously! We continue to refine our building plans and to expand our vision for KU Geology’s future. With enthusiastic support from the University and the College of Liberal Arts and Sciences, the Department is better positioned today than ever before to create a world-class facility. However, the next few years are vital ones for the Department because our window of opportunity is now.

As always, KU Geology alumni remain vital partners with the Department. We won’t succeed without your interest and your support. Thank you for everything you do! And, don’t forget that the Department will be hosting receptions at AAPG and GSA as we do every year. I’m looking forward to seeing you there. Go G-Hawks!

Luis A. González, Chair
The G-Hawker is published annually by the University of Kansas Department of Geology as a resource for alumni and friends. Contact information for the Department is 1475 Jayhawk Blvd., 120 Lindley Hall, Lawrence, KS 66045, (785) 864-5628, egravatt@ku.edu, http://www.geo.ku.edu. Articles may be reprinted or edited for reuse without special permission from the editor or the Department. Editorial, publication, and distribution costs are underwritten by the Krueger Fund of the Geology Associates Program of the Kansas University Endowment Association.

Devlin Wins
2010 Kemper Award celebrates teaching excellence.

The Mission
Eric and Lisa Vogl take up the Lindley Hall challenge.

Geologic Art
Hand-drawn masterpieces continue to teach.

Extreme Explorers
KU geologists use every tool available to explore the earth’s surface. For example, they examine glaciers through GPS receivers deployed on the ice (cover photo) and satellite images (above). Traveling from the Arctic to the Bahamas and Tibet, we take a close look at the research of four G-Hawk explorers.

Stimulating Work
Faculty members win $7.4 million in federal stimulus grants.

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Rapid Response

Michael H. Taylor, assistant professor, and A. J. Herrs, a graduate student, brought their LiDAR equipment and expertise to Baja California soon after a 7.2 magnitude quake struck the region.

Two people were killed, 233 were injured and hundreds of millions of dollars in property was damaged in the April 4 earthquake near Mexicali, Mexico. It was the strongest quake to hit the region along the U.S.-Mexico border in more than a century. Aftershocks were still rattling the area when Taylor and Herrs arrived.

The two used LiDAR technology to create a map of the quake’s fault scarp. Their work was the first to archive an earthquake rupture with sub-centimeter resolution.

A fault scarp is the slope or steep bank created when a fault moves and causes an earthquake. LiDAR — Light Detection and Ranging — uses laser pulses to measure the properties of an area. Similar to radar, LiDAR uses much shorter wavelengths to create its image.

“This method can accurately determine the amount of motion during an earthquake and accurately follow any ongoing deformation of the surface,” says J. Douglas Walker, professor of geology. “That tells us a lot about how the fault is behaving.” Walker was co-principal investigator for the project.

Geologists need to respond rapidly to earthquakes because erosion can quickly degrade fault scarps and make it difficult to understand how and why a fault moved.

“At that point, the fault was as fresh as it was ever going to be,” Walker said.

Taylor and Herrs worked with a team of researchers from the University of California-Davis and the Center for Scientific Research and Higher Education in Ensenada, Mexico.
Ancient Mysteries

Alison Olcott Marshall, assistant professor of paleobiogeochronology, unveiled new findings on chemical fossils at the Goldschmidt Conference in June. Her research has created the clearest picture yet of life on Earth 700 million years ago.

Her work focuses on “Snowball Earth” — a period at the end of the Precambrian era when geochemists speculate the world was covered from pole to pole with glacial ice and organisms lived exclusively in water. At that time, life was primarily single-celled.

To draw a picture of that environment, Olcott Marshall examines biomarkers, the chemical remnants of the organisms’ cell walls. The chemical complexes left behind from the cell walls are more abundant and more easily classified than body fossils within the samples.

Her work led her to southeastern Brazil where she studied stable sedimentary rock from the Precambrian era. She took samples from exploratory drilling that went half a mile deep and reached into the core of black shale that lay at the bottom of a sea 700 million years ago.

“The one caveat with biomarkers, or chemical fossils, is that there is always a danger of contamination,” Olcott Marshall says.

Her preliminary tests using a machine that analyzes chemical compounds by molecular weight could have questionable results because of contamination from material of a later period. By using Raman spectroscopy, Marshall also measured the subtle nuances of vibration occurring at the molecular level. Her high-resolution results showed two previously undetected distinctions in time generations.

Olcott Marshall joined the KU Geology faculty in 2008. Her lab is pursuing several ongoing research programs, including the chemotaxonomy of oil shales, carbon preservation in modern marine environments and proterozoic signs of life.

The Goldschmidt Conference is sponsored by multiple international geochemical societies and is named for Victor Goldschmidt (1888-1947), the Swiss-Norwegian scientist and father of geochemistry. The conference is hosted by the University of Tennessee and Oak Ridge National Laboratory and features scientific breakthroughs regarding the Earth, energy and the environment.

High Marks

The Department continues to be ranked highly by both industry and the news media. EnCana puts KU Geology at the top of its list, tied for its Number 1 ranking with the Colorado School of Mines. Chevron and ExxonMobil rank KU Geology near the head of their top tier of schools. ConocoPhillips ranks KU Geology 5th out of their 30 top schools in the geosciences. Meanwhile, U.S. News and World Report’s 2011 rankings place the doctoral program in paleontology as 4th among public universities and 7th among all universities.

EarthChem Provides Answers

It’s hard to find the right image to describe EarthChem, www.earthchem.org. In one sense, this unique portal is a one-stop shop for all kinds of geochemical data. But EarthChem also is a cornucopia of delights. Geologists who access its data sets (600,000 and growing) are like kids in a candy store.

“No one person could do what we’re doing,” says KU Geology Professor J. Douglas Walker, co-principal investigator. “If you are exploring patterns, or if you want to deal with tens of thousands of samples at a time, this is the only way you’re going to be able to do it.”

The project’s mission is to provide easy access to as much geochemical data as possible. As of this writing, the portal provides access to data from PetDB, NavDat, GEOROC, SedDB and SESAR.

EarthChem is only the latest in KU Geology’s 15 years of work in geoinformatics – a discipline that seeks to harness huge masses of data. This newest project has already helped shift the debate over the origins of volcanic and plutonic rocks, which were once thought to be geochemically different.

“What we’re showing through EarthChem is that this is not true,” Walker says. “It’s all the same stuff, and that completely changes how you view the process of igneous activity.”

EarthChem was launched in 2005. NSF just renewed its grant, which means the project will go forward at least until 2015. KU systems specialist Jason Ash is working with Walker on the project. KU Geology partnered with Columbia University’s Lamont-Doherty Earth Observatory on EarthChem. Kerstin Lehner, a senior research scientist at the observatory, is co-principal investigator.
See You There!

Alumni receptions have been scheduled for at least three cities through 2012. For most of these events, you’ll have to check the convention programs for specific times and locations. We look forward to seeing you.

AAPG 2011, April 10-13 – Houston, Texas. The reception is on Tuesday, April 12, 2011. 5:30-7:30 p.m. Location to be announced.

GSA 2011, Oct. 9-12 – Minneapolis, Minn. The reception will be on Monday, Oct. 10, 2011.

AAPG 2012, April 22-25 – Long Beach, Calif. The reception will be on Monday, April 23, 2012.

Amber Insights

Graduate student Erin Saupe, former post-doctoral student Vincent Perrichot and Professor Paul Selden played key roles this year in unravelling the mysteries of the first amber fossils discovered in Africa. Twenty researchers from around the world are investigating the find.

Discovered in Ethiopia, the amber-encased insects are helping scientists understand the evolutionary history and biological distribution of these insects’ lineages. The KU team worked on ants and spiders.

One specimen is the second-oldest sheet-web weaving spider (Linyphiidae) discovered to date and only the third fossil spider species to be described from the African continent. Similarly, the ant is one of the oldest representatives of this now diverse and ecologically dominant group. Most ambers are found in North America and Eurasia, while few have been found on the southern continents like Africa that once formed the Gondwana land mass.

The research was published in the April 5 edition of the Proceedings of the National Academy of Sciences.

Digital Debut

After 50 years and 50 volumes, the bible of the paleontology community has made its online debut. KU’s Paleontological Institute released the entire Treatise on Invertebrate Paleontology in digital form in 2010. The Treatise is available in searchable pdf files located at www.paleo.ku.edu/treatise.

Downloadable pdf chapters of current volumes cost $30 per chapter for current volumes and $20 for older volumes. Table of Contents, References, and Index are freely available for most volumes. These chapters encompass coherent parts, and don’t necessarily correspond to the original Treatise chapters.

CD’s of each volume are being sold for the cost of the printed book. These are available for current and out-of-print volumes. Superseded volumes are available for $30 per CD.

The entire Treatise series is being offered on a single DVD at a savings of 30 percent from the cost of the printed book collection. All 50 volumes, including out-of-print, superseded parts and unavailable volumes cost $1,670.

The entire Treatise series is also being offered on 39 CDs that are decorated with fossil images from each volume. These can be purchased for $1,720. This includes all 50 volumes, including out of print and superseded parts.

Kudos

The Geological Society of America has given Rolfe Mandel, a geoarcheologist and senior scientist at the Kansas Geological Survey, the Kirk Bryan Award. The prize celebrates excellence in publication and honors Mandel’s Geomorphology article on buried soils in Kansas and Nebraska stream valleys that could contain evidence of hunting, cooking and other human activities 9,000 or more years ago.

Jeff Wolfe (BS ’83) was elected to the University of Kansas Alumni Association’s national board of directors in June. Wolfe, of Meridian, Idaho, is the president and CEO of Carpool, U.S.A.

Graduate student Erin Young, Professor Bob Goldstein and Professor Evan Franseen tied for the Best Poster Session Presentation at the Society for Sedimentary Geology 2010 New Orleans meeting.
International Success

KU’s annual ceremony for graduating international students turned into a celebration of all things G-Hawk this year. The two top honors at the May event were taken by Associate Professor Diane Kamola, and Yaser Abdullah Alzayer, who had just graduated with a bachelor of science in geology.

Gurler, who is from Turkey, was chosen from the more WKDQLQWHUQDWLRQDOVWXGHQWVDW.8WRUHFHLYHWKH&ODUN Coan International Student Leadership Award. Coan led the 2I¿FHRI,QWHUQDWLRQDO6WXGHQWVDQG6FKRODU6HUYLFHVIRU HDUVEHIRUHUHWLULQJLQ “The Clark Coan Award recognizes a certain type of spirit – an attitude of service and a desire to make the world better – that does not necessarily show up on a resume,” said Joe Potts, the current director of the international student of -¿FH³7KHDZDUGZLQQHUVDUHSHRSOHZKRVWDQGRXWIURPWKH crowd because of their dedication to serving others.”

In presenting the Coan Award to Gurler, Potts said, “The common theme of her life is her commitment to bringing people together.”

At her home university in Turkey, Gurler was the president of the Radio Broadcasting Society. At KU, she has served as social chair and public relations chair of the International Student Association and as program coordinator for the international student office.

Gurler said she was deeply honored to receive the award.

Alzayer, from Saudi Arabia and the former president of KU’s International Student Association, presented the keynote speech. The only student to speak, Alzayer graduated with departmental honors for his senior thesis work and with distinction from the College of Liberal Arts and Sciences. Only the top 10 percent of the more than 17,000 students in the College receive that honor.

Alzayer had to scramble to get to the event. He delivered his address mere minutes after completing his last final exam at KU.

“The idea of graduating from KU has induced many mixed feelings within me,” he told the group. “Pride and happiness in what I have accomplished is mixed with sad feelings from realizing that we are about to depart from our home for the last four years and go on our separate ways. I have not had much time to reflect upon the time I spent here, but I know one thing for sure: I have experienced a tremendous amount of personal and intellectual growth.”

Alzayer said he almost never felt homesick at KU. “Not because I have not missed my family and home country, but because of the incredible support from my fellow international and American Jayhawks, I felt this was home.”

He closed his speech by urging the graduating students to excel and take pride in their achievements.

“Be proud to be a Jayhawk.”

Leading the Way

Six of the 15 members of the 2010-2011 Governing Council of the Society for Sedimentary Geology are either KU faculty members or have strong KU ties. Helping to lead SEPM for the coming year are Associate Professor Diane Kamola, secretary-treasurer of the organization; and Associate Professor Steve Hasiotis, Professor Evan Franseen and Assistant Professor Gene Rankey. Along with KU Ecology and Evolutionary Biology Professor Edith Taylor, all four are serving as councilors. KU Geology Courtesy Professor Tim Carr is the president of the SEPM Foundation. A former scientist at the Kansas Geological Survey, Carr is the Marshal Miller Professor of Energy at West Virginia University.

Coffee Break Science

Discoveries can come at the unlikeliest of moments, including a coffee break. It was a discussion over coffee at the fall meeting of the American Geophysical Union in 2007 that helped KU Geologist Leigh Stearns and Benjamin Smith of the University of Washington produce a breakthrough.

Smith had observed flooding in subglacial lakes in 2005 underneath Byrd Glacier in Antarctica. Stearns had evidence that the East Antarctic glacier had undergone a puzzling speedup, spurring forward in the same way a person might if he stepped on a banana peel.

It wasn’t until the two sat down over coffee that they realized the events occurred at the same time—a realization that produced what Nature Geoscience called “a pivotal paper.” (For more on this, see p. 25)
ROSS BLACK
Associate Professor

One highlight of the last year was the graduation of Ramzy Al-Zayer with his PhD from the Department. George Tsolfias was his co-advisor. Ramzy has been a geophysicist with Saudi Aramco for many years, working mainly on the Saudi peninsula and in surrounding offshore areas. As many of our alumni know, in onshore seismic exploration in Saudi Arabia, static time shifts due to highly variable near-surface geological conditions are a major problem. They cause blurring of the seismic image and errors in the geometry and location of exploration targets. With financial, field, and processing support from Aramco, Ramzy investigated new approaches to improving on the long-standing “frozen model” of static corrections for the peninsula. The frozen model is a regional mathematical function based on a grid of thousands of shallow boreholes shot for velocity. Ramzy’s new approach is based on shallow, high-resolution seismic reflection and refraction techniques, optimized to address the statics issues associated with surface or near-surface features such as sand dunes, buried karst, and wadis.

On the teaching front, I’m still doing Geophysics, Geophysical Data Analysis, Seismic Exploration, and History of the Earth on a regular rotation. However, last fall Don Steeples filled in for me for a good portion of the Geophysics class. Thanks Don!

J.F. Develin
Associate Professor

Research continued to be productive, with five peer-reviewed papers being published, seven presentations and three posters given. The senior graduate students in hydrogeology have really hit their stride. It’s becoming hard to keep up with the thesis chapters and papers. At this rate, some of them might actually graduate. Sad as I am to see them go, I have two new students arriving in fall 2010, so we must make room.

The program is receiving national and international attention these days. I was twice invited to chair conference sessions in 2010, one in Florida at the Nielsen field school, and one in Zurich, Switzerland, at the Groundwater Quality 2010 meeting. The presentation given at the latter conference led to an invitation to publish a paper in a special issue of the Journal of Contaminant Hydrology later this fall. In addition, I was invited to China to give presentations at the China University of Geosciences and at PetroChina, and to collaborate on a reactive barrier project in Beijing that is in the planning stages.

The funding situation also is promising. My Colorado State University collaborators and I won a sizable SERDP (Department of Defense Strategic Environmental Research and Development Program) grant, leading to new research into diffusion in porous media. Also, as the velocity probes (a tool I developed with my students for measuring groundwater velocity in situ) gain exposure and credibility, opportunities are presenting themselves for involvement in various projects around the country and abroad.

This past year was especially busy and rewarding on the teaching front. The schedule has me teaching all my regular courses in the fall. Last year I added two new courses. As luck would have it, they also had to be offered in the fall (I take all responsibility for that). You might think that teaching that many courses at once is an adventure in self-flagellation, and you would not be entirely wrong. Somehow I got through it, and overlooking some minor glitches, I am pleased with the results. The extra courses were in flow modeling with MODFLOW, and surface analysis of iron with Raman spectroscopy, co-taught with Craig Marshall. The benefits of the first course have already shown up in thesis work, and the second course has generated a manuscript authored by the entire class. Last year I mentioned a virtual field trip I was developing. That is now done and available to download onto an iPod. The trip is a three-hour tour of surface water related features in the Lawrence area. Students can drive to a site, watch a little video, sometimes do a little exercise, and drive on to the next site. The finished product was presented at an IDS short course offered late last spring, and was enthusiastically received.

Jen Roberts displays the rifle she carried on Svalbard to protect her research party from the local wildlife. Roberts reports that she never had to fire a shot.

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Carl McElwee, a senior hydrogeologist in the Department, retired in late 2009, and I certainly miss him. His insights and quantitative talents were a great help to me through the years. Without him down the hall, the job will be a little be harder, and you know it won’t be any less busy in the classroom. They say change is the “only constant.” Well, with students turning over, research ramping up, and teaching adjusting to new realities, the coming year should be a fascinating one, replete with that lonely constant.

**David Fowle**  
**Associate Professor**

What an interesting year it has been. Many new faces have arrived in the laboratory, including Mark Villarreal, Breanna Huff and Ben Haring. They have all settled in nicely at KU, and their projects represent new directions for the laboratory. It has been a good year for funding in our laboratory, with a new National Science Foundation grant and co-investigator status on the new Department of Energy funded carbon dioxide sequestration project in Kansas ($5 million). Jennifer Roberts and I have made a new push to develop techniques in our lab and on campus to investigate how suitable various reservoir and seal rocks are for carbon sequestration. We hope that this may result in more DOE and private sector funding. This year also represented the first year the Geobiology field course was offered, Jennifer Roberts and Alison Olcott Marshall led the charge, but all of the Geobiology faculty members participated. It was nice have an integrated undergraduate/graduate field experience. I believe that the students all learned a lot and had a great time.

**Evan Franseen**  
**Professor and Senior Scientist**

If I’m writing this update on activities, then it means that another field season has just been completed, and it has been a fun one. Two students, Kate Knoph and Raff Sweeney, started master’s thesis projects in Spain, and Li Zhaoli, a PhD student, returned to Spain for his second season of fieldwork on an ExxonMobil-funded project. Diana Ortega-Ariza, a PhD student, started her study of various locations around the world to quantify sea-level histories by beginning in Puerto Rico and the Dominican Republic. Diana’s project is one that I’ve had in the back of my mind since I first started working in Spain many years ago. So, I’m looking forward to expanding my horizons into the new research areas that her project will open up.

The fall of 2009 saw Chris Lipinski complete his master’s project on microbial/ooidic carbonates in Spain and move on to a job with Chevron. KU had a good showing at the AAPG annual meeting in New Orleans in April of 2010, and I was involved in five graduate student presentations there. I was also involved with others at KU in the initial stages of putting together an industrial consortium for the KU carbonate group. We had an “official” rolling out of the prospectus at the AAPG meeting. We are optimistically keeping our fingers crossed that this effort will bear abundant fruit soon.

On the teaching front, Bob Goldstein and I taught a regional field geology course and led a field trip over spring break in 2010 to the Sacramento and Guadalupe Mountains of New Mexico and Texas for KU and the University of Puerto Rico-Mayagüez. It was a great group, and I always enjoy returning to those classic areas.

Finally, I will start a sabbatical in the fall of 2010. I’m looking forward to using that time to write up the many papers that have been waiting to be finished and working on further development of our carbonate industrial consortium effort.

**Bob Goldstein**  
**Merrill W. Haas Distinguished Professor**

Last year was my first since rotating off as Department Chair, and I took full advantage of the extra time. During fall semester, I continued to teach Stratigraphy but was now able to add Geology 101: Introduction to Geology back into my repertoire. I had almost forgotten how much fun it was to teach so many students at one time. Although the size of the 411-student class was a formidable challenge, students quickly became engaged in learning about geology. In fact sometimes, there was so much discussion and Q & A going on that I had a hard time getting to my lecture material. The end result was a great experience for me, a realization of how much I missed teaching the Introduction to Geology course, and the many new majors recruited for Geology.

Teaching during spring semester involved co-teaching the Guadalupe-Sacramento field course with Evan Franseen. We used this as an opportunity to further our diversity initiative with University of Puerto Rico-Mayagüez. Pre-trip lectures were done over our video conferencing system, so all of the UPRM students and faculty had the same preparation before the field trip, then we simply met somewhere in the middle, kind of (Carrizozo, New Mexico, to be exact).

In addition to teaching, research has been very rewarding this year, with a great group of graduate students making excellent progress on a wide range of projects. We’ve got some nice new grants to support students. Quite a number of new papers are now out or in press. Finally, all of the carbonates people at KU are starting the Kansas Interdisciplinary Carbonates Consortium (KICC) to augment interactions between our carbonate program and industry. As is usual, I’ve been doing a lot of traveling for fieldwork, talks, short courses, and meetings. I try to drag Cindy along whenever possible, and she still seems to enjoy our travels.

**Luis A. González**  
**Chair and Associate Professor**

As usual 2009-10 was very busy. Laboratory Manager Greg Cane continues to maintain The W. M. Keck Paleoen-
environmental and Environmental Stable Isotope Laboratory as one of the most highly regarded laboratories in the US. The laboratory keeps busy nearly 24/7 due to the use by KU Geology faculty and graduate students, and colleagues in other departments and universities.

Since taking the Chairpersonship I have reduced the size of my research group. Marina Suarez completed her PhD in fall 2009, and is currently a postdoctoral fellow at John Hopkins University. Most recently she accepted a tenure track assistant professor position at the University of Texas in San Antonio. Her twin sister, Celina Suarez, defended in the spring of 2010 and headed to Boise, Idaho, to continue work on dinosaur bone and teeth chemistry. Julie Retrum was plagued by health problems that delayed her completion. This fall she left to do her postdoc in Minnesota. Undergraduate honor student Rebecca Totten, now a PhD student at Rice, continues to work with us in transforming her senior thesis into a publishable manuscript to be submitted to a high profile journal. Alvin Bonilla (MS University of Puerto Rico) continues his work on Aptian-Albian chemosтратigraphy of the Caribbean, with detours that took him to Greenland, an internship at NSF, and this fall he headed to the Dominican Republic (I’ll be there with him 😉). Alejandra Rodriguez-Delgado joined our group in the fall of 2009 and is making good progress on her thesis project on a Miocene-Pliocene reef complex in Isla de Mona, PR.

Sahudi and the kids continue to do well. Monica (at KU), Raquel (at Julliard), and Daniel (at Free State HS) are doing wonderful and continue to be source of pride and joy (lots of both).

Stephen T. Hasiotis
Associate Professor

This year has been quite interesting with many twists and turns. However, I’m still moving forward. I have an abundance of students who are writing theses as papers with much success in getting them published in peer-reviewed journals. I also have been doing a fair bit of my own writing, while editing the journal PALAIOS. Two more years in my next term and then I hand it off to someone else. Ecology and Evolutionary Biology Professor Edie Taylor, my coeditor, has been great to work with and will be sorely missed as she finishes her term this year. I have learned a great deal from her. I also finally received an NSF grant for three years to do fieldwork in Antarctica to study Devonian to Jurassic rock sequences and evaluate the response of soil biota and the endobenthos to two warming trends, one cooling trend, and the greatest mass extinction of all time. I go to the ice in November 2010 and return in February 2011. Our results should be interesting, and I am pleased to carry on the tradition of fieldwork in Antarctica as was done by emeritus professors Ernest Angino, Albert Rowell, and Randy Van Schmus.

Diane Kamola
Associate Professor

I continued to teach the undergraduate course in sedimentology and surface processes, as well as a graduate seminar in Basin Analysis. Both classes had large enrollments, and kept me quite busy. In conjunction with the basins class, I co-taught (with Danny Stockli) a field seminar on Sedimentary Basins and Tectonics of the Colorado Plateau. We had over 20 students (our largest enrollment ever), and saw some fantastic rocks. Sorry, no exciting stories about flash floods this year, but we all had a great time. I added a field trip to the sedimentology course, and took interested undergraduates to northwestern Arkansas to look at the Paleozoic section. I am still coordinating the department’s TA schedule, and oversee the Fundamentals of Geology Laboratory (Geology 103). We now have 17 half-time TA positions in the Department, and nine of those TAs teach a section of 103.

As part of my research, I continue to work on stratal patterns in foreland basins. This spring, one of my graduate students, Kathryn Hoffmeister, and I presented some of our results in a paper at AAPG. Additional results will be presented at the AAPG ICE in Calgary this fall. In addition to the foreland basin studies, Doug Walker, Danny Stockli and I are collaborating on a geological/thermochronologic study of the eastern Lava Mountains, Almond Mountain, and southern Slate Range of eastern California. My contribution to this project is the stratigraphic analysis of this region.

I was also elected as Secretary/Treasurer of SEPM. We had our first council meeting in conjunction with the 2010 AAPG annual meeting. I am excited about this position, and can tell the next two years will be extra busy, but very rewarding.

Bruce S. Lieberman
Professor and Senior Curator
Division of Invertebrate Paleontology

The most noteworthy activity this past academic year was the completion and 2010 publication of my book Prehistoric Life: Evolution and the Fossil Record by Wiley-Blackwell Publishing. It is very sad that my co-author, the late Roger Kaesler, could not be here to see it come out, although I am very happy and honored to have been able to have worked with him on this.

There were some enjoyable travel experiences this past year. For instance, I was very fortunate to get invited, all expenses paid, to participate in a symposium held in the Azores in honor of Darwin’s 200th birthday. To put it mildly, it was an excellent opportunity to interact with famous evolutionary scientists on a beautiful island in the middle of the Atlantic Ocean. At the opposite end of the climate extreme, although still an enjoyable experience, was an invited visit to the University of Minnesota as their Darwin Day speaker in Febru-
Gwen Macpherson
Associate Professor

It has been another very good year for groundwater studies in the Aqueous Geochemistry and Plasma Analytical Laboratories. Three graduate students are now working with me on various projects: Misha Tsypin and Michael Robbins are exploring the frontier of reasons for increasing CO2 in shallow groundwater, and Carla Whisner is embarking on a new project of mine, developing methods of remotely characterizing groundwater in dangerous regions, specifically Afghanistan, in order to improve the environmental security of those regions. Two undergraduates finished their research projects on the Konza Prairie, Breanna Huff (BS, Honors ‘10) and Karen Ohmes (BS ‘10), and both presented their results at GSA in Portland, October 2009. I also saw the graduation (aka departure) of another undergraduate, Jessica Dean (BA, geography), who had worked for me on the Konza project for several years. I’m sorry to see them go, but very proud of their accomplishments and wish them well! I have now hired two more undergraduates to help with the Konza project, so the labs are hopping.

I presented work at the International Applied Geochemistry Symposium in May 2009, in Fredericton, New Brunswick, Canada, and at GSA in Portland, as well as traveled to a couple of universities (and the KGS!) to present seminars on the increasing groundwater CO2 phenomenon. I also served on an NSF review panel in November.

In late December, I traveled with my two daughters to explore Guatemala and Belize. I’m interested in the karst landscape there as a potential tropical analog to the Konza Prairie, my long-time research site. This is still a work in progress, as I find ways to expand the investigation of shallow groundwater CO2 around the world.

My teaching load became heavy this year, as I took over teaching physical hydrogeology and its lab because of Carl McElwee’s retirement. I also taught chemical and microbial hydrogeology without Jen Roberts (on teaching leave), but with a couple of guest appearances by Dave Fowle (thanks, Dave!). I am hopeful that the economy will make it possible to look for an additional hydrogeologist to add to our now small faculty group, and bring some of the new and exciting approaches being developed in groundwater flow and modeling.

In addition to graduate teaching, of course, I still carry my weight with undergraduate courses. The online Oceanography course (first offered Spring 2010) was time-consuming to set up, but in the end, quite fun. Besides communicating the basics of oceanography through digital lecture format, I provided opportunities for online discussions about current events in oceanography. We considered things like the flooding of Florida, development of a catch-share program to reduce overfishing while maintaining the fishing industry, underwater skyscrapers as the housing of the future, as well as many other topics.

One of my graduate students, Misha, reminded me that May 2010 was the 20th anniversary of my first sampling trip to the Konza Prairie. In honor of that, here is a poem by Robert Burns, “Here’s his Health in Water:” “Altho’ my back be at the wa’,/ And tho’ he be the fautor;/ Altho’ my back be at the wa’,/ Yet, here’s his health in water./ O wae gas by his wanton sides./ Sae brawlie’s he could flatter,/ Till for his sake I’m slighted sair,/ And dree the kintra clatter;/ But tho’ my back be at the wa’;/ And tho’ he be the fautor;/ But tho’ my back be at the wa’,/ Yet here’s his health in water!”

Craig Marshall
Assistant Professor

My Raman spectroscopy laboratory has been up and running for the last 12 months. A number of publications have come from my laboratory, including a paper published in Nature. I am currently sharing a student with Assistant Professor Alison Olcott Marshall, investigating the chemical nature of the earliest putative microfossils to determine their biological or non-biological origin and mode of emplacement.

Alison Olcott Marshall
Assistant Professor

This year marked the first year I had students in my lab, and what a difference! Things have really been hopping, thanks to the presence of Juli Emry and Vincent Nowaczewski. Juli’s doing her PhD research on biosignatures in the Archean, and is co-advised by Craig Marshall. Vincent is doing his master’s research on biotic changes recorded in Devonian rocks from Oklahoma. Vincent was also, I am pleased to report, the recipient of an ExxonMobil Student Research award. We’ve all spent a busy year in the field and in the lab, collecting rocks and data.
Highlights of the year were a fall term that had me teaching my first introductory level Earth history at KU. The class was quite daunting, with 170 students filling the lecture hall. That made this spring’s petrology class of 25 (which I’m told is the largest petrology class we’ve had) look rather small.

After fieldwork in the European Alps last summer and a sampling trip to the Green River Basin, Wyo., in fall, the projects in metamorphic geochronology and detrital provenance are starting to roll. More good news is that a PhD and an MS student will start to work on my projects and populate the lab. I am looking forward to further collaborations within KU and outside over the next year.

On a personal note, this last winter made me truly appreciate the colleagues and friends I’ve made within the Department, and their friendly support and help. I am very grateful to have found such a home at KU and in Lawrence.
Gene Rankey stands next to brush that residents of an atoll in Kiribati piled up in an attempt to slow the ocean’s encroachment.

...from the Burgess Shale and Utah. Erin Sause and I saw the publication of our papers on amber spiders, from the Miocene of the Dominican Republic, Cretaceous of France, and also our contribution towards a 20-author paper on the first African amber with inclusions, from the Cretaceous of Ethiopia, which came out in the Proceedings of the National Academy of Sciences of the USA. My work continues on Jurassic arachnids from China, and the last year saw the publication of a paper on harvestmen (Opiliones) and one on the earliest haplogyne spiders, both in Naturwissenschaften.

I shall be going to China again this year, to Nanjing to work on more material and presenting papers at two conferences. I was also pleased to see the culmination of many years’ work reviewing the whole field of spider fossils, in a publication with my former postdoc David Penney in Biological Reviews. One more selection from publications: the Japanese translation of my Evolution of Fossil Ecosystems book with John Nudds.

I continued to teach Prehistoric Life in the summer and fall semesters, but new to me this year was teaching Paleontology, while Steve Hasiotis was on sabbatical leave. I decided to write the whole course from scratch using a newly published textbook -- a good thing to keep the material bang up to date for the students. It will also be useful to have more than one person who can offer this course. Last summer I took a three-week study tour round the dinosaur and other sites of mainly Wyoming and Colorado, not forgetting Yellowstone, of course. It has been a few years since I was last there, and it’s interesting to see how hot springs change so much, especially Mammoth.

The Paleontological Institute had some great launches in the past year. At last, the whole of the Treatise on Invertebrate Paleontology is now available in digital form. Moving into creating a Treatise online database is making slower progress, but a number of NSF-funded research projects are using the Treatise as a test domain for extracting text from biosystematic literature.

Leigh Stearns
Assistant Professor

Having completed my first full year at KU, I’m starting to feel settled here in Lawrence. Last summer I spent about two months in Greenland on four different projects.

In May of 2009, I used my KU New Faculty funds to test a ground-based LiDAR on Helheim Glacier in East Greenland. Repeat LiDAR measurements can track small-scale displacements, and we were interested in finding the point where Helheim Glacier began to float (and would be influenced by tidal motions).

In June and August, I participated in an NSF-funded project measuring small-scale surface motions of Helheim and Kangerdlugssuaq glaciers in East Greenland (two of the largest and fastest flowing glaciers in Greenland). We deployed about 20 GPS instruments on the ice surface and are particularly interested in how the glacier accelerates during discrete events (iceberg calving, tidal motion, weather patterns, temperature changes, supraglacial lake drainage). We left seven GPS units on the ice over the winter, and it will be exciting to start looking at the seasonal components of ice velocity.

In July and August, I worked with oceanographers from Woods Hole in a recently funded NSF project. We’re trying to understand the interaction between fjord circulation and glacier dynamics (we had a paper in the January edition of Nature Geoscience about this work).

In September, I spent the month on an icebreaker (owned by Greenpeace) that traveled to one of the most inaccessible parts of Northeastern Greenland to study the dynamics of Nioghalvfjerdsfjorden. (Translation: 79.5N glacier. Very creative of the Danes!). There is a high geothermal heat flux under this glacier, and it is below sea level until almost the ice divide, making it a unique glacier to study.

This past summer, I continued research on Helheim and Kangerdlugssuaq glaciers in East Greenland – both the GPS work and the oceanography work. I headed to West Greenland to study the dynamics of another rapidly thinning glacier, Upernavik Glacier. I also traveled to Alaska to work with the U.S. Army Corps of Engineers and investigate why Hubbard Glacier occasionally advances into its fjord, consequently flooding the nearby town of Yakutat.

Aside from my research, I taught a Graduate Glaciology course and Honor’s Glaciers and Climate tutorial in the fall, and an Environmental Geology course in the spring. In an attempt to maintain some balance to academia, I just started volunteering at the Douglas County Jail (so far I’m helping with a writing class and hope to start a ‘doing (geologic) time’ class). I ran the Lawrence Marathon this past April, and hope to find time to train for the Kansas City Marathon in the fall.
Don Steeples
McGee Distinguished Professor

I have pretty much disengaged from research, as my last PhD student finished in December 2008. Last fall I taught Geophysics and this spring I’m teaching Earthquakes and Natural Disasters to 687 students. We have arranged several disasters during the winter and spring to keep students engaged in learning for that course.

Last fall, I was awarded Honorary Membership in the Society of Exploration Geophysicists, after having been awarded Life Membership in 1996. I’m only the 8th person in the history of the SEG to receive both Honorary Membership and Awarded Life Membership.

Daniel F. Stockli
Associate Professor

It’s been a decade since I interviewed at KU and over nine years since Lisa and I moved to Lawrence in 2001. Things continue to prosper and my research program and group continue to grow. So when is the next sabbatical again? It’s been a good year for my research group and IGL with record productivity and plenty of work to keep us busy. The highlight of the past year undoubtedly has been the receipt of a $4.2 million grant from the Department of Energy’s geothermal program. The grant will not only fund exciting new research and development in terms of innovative geothermal exploration, but will also give graduate and undergraduate students hands-on training and experience in renewable energy exploration. In addition, the grant also provided us with the funds to acquire and install a new high-resolution ICP-MS in the IGL laboratory. That alone feels like Christmas! We are also very fortunate to continue our work in Colombia in collaboration with Ecopetrol, providing ample opportunities for undergraduate, graduate and post-doctoral employment and research.

My research group currently includes seven undergraduate research assistants, 11 graduate students, and four post-doctoral scholars, in addition to the senior personnel (Roman Kislityn and me). Clearly things are going extremely well with respect to my research program.

I have continued to teach the second half of KU’s field camp and have firmly established our annual June presence at the “Western Field Station” in Dyer, Nev. We have become a fixture out there. This summer marked the seventh year of taking students out west for the final two weeks of KU field camp.

Mike Taylor
Assistant Professor

In addition to my students’ work, I continue my research on the geomorphic response to active extensional, contractual, and strike-slip tectonics in Tibet, the Himalayas, the Andes, and most recently Baja, Mexico.

This year has been full of new discoveries, in particular the recent Easter earthquake in northern Mexico has provided us with an exceptional experiment and the opportunity to be the first to archive an earthquake rupture with sub centimeter resolution. The fieldwork in Baja, Mexico, proved challenging, but extremely worthwhile. The Mexican government and our colleagues from CICESE and a group of UCLA undergraduate students were wonderful and a delight to work with in the field.

My students’ work in Tibet, Kansas, and the Andes are yielding interesting results. Kurt Sundell’s work on active metamorphic core complexes in Tibet has yielded an impressive dataset since his arrival last fall. Together we collected over 50 samples for U-Th/He work in collaboration with Danny Stockli. Richard Styron finished his first field season on the Tibetan plateau and is headed back to China this fall along with a new master’s student, Andrew McCallister. They’ll begin work on a recently funded NSF project investigating active strike-slip and extensional structures. Richard published an article in EOS and has a manuscript in review with Geosphere.

AJ Herrs completed his Brandy Lake project and graduated with a master’s degree with honors. Yaser Al Zayer completed his bachelor’s degree in geology, including a senior thesis looking at fault slip rates in the Andes. Yaser’s work demonstrates how the subducting Nazca slab can influence the deformation style observed in the upper plate.
George Tsoflias
Associate Professor

Greetings from Europe! As I write this update I am concluding my year long sabbatical leave overseas. My wife Sarah and I moved to Lausanne, Switzerland, in August of last year where I worked for four months with colleagues at the Institute of Geophysics, University of Lausanne, on inverse methods for ground-penetrating radar (GPR) characterization of fractures. Next, I spent six months at Politecnico di Torino, Italy, where I had the opportunity to work on a variety of research projects, including joint use/inversion of GPR and seismic guided waves, geophysical monitoring of water infiltration in sandy soils, and seismic and radar imaging of Alpine glaciers. Literally, a high point of the sabbatical research was conducting fieldwork at Point Helbronner, 3,462 m (11,358 ft) elevation, just below Mont Blanc. I spent the last couple weeks of my sabbatical near Almeria, Spain, where KU students and I are using GPR to image reef facies architectures in 3D and improve understanding of the reservoir quality potential of microbial carbonates.

During the past year at KU, we continued to make progress on near-surface geophysical research and technology development. Thanks to the work of my students and continued collaborations with colleagues in Geology, as well as countless emails and Internet video conferences at all times of the day and night, we managed to publish several papers including the first ever study of GPR detection of bacteria in water-saturated sands. We presented results of KU research in numerous conferences nationally and internationally, and I was fortunate to have two new U.S. Department of Energy grants funded.

This past year has been a truly exceptional year that has already re-shaped my professional goals and future outlook. This sabbatical experience has also reinforced my appreciation of two exceptional places, KU and Lawrence Kan., which I am fortunate to call home.

J. Douglas Walker
Professor

The year has gone well. We have completed work on NAVDAT (navdat.org). After about eight years of work, we have reached our main goals of data entry and data mining. The EarthChem (earthchem.org and earthchemportal.org) project is still cranking away. We have been informed that the project will be funded for another five-year cycle, and we continue a lot of geochemical community outreach.

I am also working on several field-based projects. My EarthScope project with George Tsoflias and Eric Kirby is nearing completion. In a year, KU graduate student Willy Rittase should graduate. He is doing a great job, with many interesting results. My collaborative NSF project with Nancy Riggs of Northern Arizona University and Andy Barth of Indiana University-Purdue University, Indianapolis, on Triassic igneous rocks in northern Mexico and California is also going well. I have had a student from Northern Arizona in the lab for a few weeks, and he will be returning soon to do more isotope work, as well as starting some zircon dating.

We continue to work with the terrestrial laser scanner/ LiDAR at KU Geology and the Kansas Geological Survey. Student A.J. Herrs just finished his master’s thesis on a couple of sink-holes near Hutchinson. In addition, A.J. worked with several other groups around the US and in Mexico to get data related to a variety of topics. A.J. and Mike had a great trip to northern Mexico to scan scarps after the recent earthquake south of Mexicali.

Anthony Walton
Associate Professor

I spent the past year teaching my normal courses and working on developing the US continental scientific drilling (CSD) community. In August 2009, Geology 360 followed the same grooves worn during past years, with only minor exceptions. In 2009, 28 students enrolled, but the August 2010 enrollment jumped to 42 students. This has necessitated some changes, chiefly having Diane Kamola and I team teaching the course. The large number of students also forced adjustments such as having groups work separately for some exercises. Rather than having two distinct sections, Diane and I provided a unified experience for the students to enable them to come back as a more-or-less cohesive group, ready to work together in future courses.

Meanwhile, 18 students in the joint petroleum engineering-design–geology reservoir-characterization course (team taught with Don Green) studied two water flood units in the Campo oil field in Baca County, Colorado. The students actually may have found an economic quantity of bypassed oil in one of the units. Murfin Drilling Co., of Wichita, was our partner for this course. Don and I are open to studying any field in this course, so any G-Hawker alumni with a small oil field on which they have good data should get in touch. We especially like to work with Kansas operators or on Kansas fields.

As chairman of the board of DOSECC (Drilling, Observation and Sampling of the Earths Continental Crust, www.dosecc.org), a consortium of universities and other research institutions that exists to promote CSD, I have been organizing workshops to outline the major scientific advances possible only through samples and data from scientific boreholes. DOSECC is trying to build the community of interested scientists so that the US CSD community can be competitive in its proposals with the rest of the world, and funding agencies will smooth the way for expensive, but vital projects. A workshop in June 2009 identified key areas of science where drilling is necessary. The workshop in June 2010 was designed to implement recommendations of the previous meeting and was a useful dialog between the community and various NSF officials.
KU Geology Prospers

Climbing enrollments and a thriving program are among the signs of success at KU Geology.

Enrollment Climbs

A bit of hustle, some strategically placed tables, generous alumni and strong programs are helping the Department buck the national trend of declining enrollments in the geosciences.

Since 1999 the median size of geoscience departments in terms of student enrollment has declined steadily, The American Geological Institute reports in its 2009 study, “The Status of the Geoscience Workforce.” It is only in the most recent year that geoscience enrollments have bumped up.

By 2008 the median number of students per department throughout the nation had dropped to 45, according to the report. At KU, student enrollment nearly doubled in the same period. In 1999 student enrollment in the Department was 118. In 2008 that number had climbed to 196.

“Things are working out well for us in terms of student recruiting,” says Robert Goldstein, The Merrill W. Haas Distinguished Professor of Geology.

The Department faces different challenges in recruiting undergraduate and graduate students. On the undergraduate side, the biggest problem is a dearth of high school geoscience classes. “Very few students come out of high school in our nation with an interest in the geosciences,” Goldstein says.

To counter that problem, members of the Geology faculty make PowerPoint presentations to high school principals and guidance counselors when they visit the University. Posters chronicling the success of KU Geology graduates are also distributed to the educators.

The most effective time to recruit new geology majors, though, hasn’t been when students are still in high school; it’s been when they’ve already made the transition to college. The Department’s most successful strategy has proven to be the brief presentations on geoscience careers that professors make in their introductory geology courses.

Classes such as Earthquakes and Natural Disasters, DNA to Dinosaurs, and the History of the Earth are used by undergraduates to fulfill some of their general education requirements. With enrollments nearing 1,000 students in some of these geology courses, faculty members have a captive and interested audience.

“We’ve got this great soapbox to talk about the geosciences,” Goldstein says.

The Department has been able to measure its success by counting the number of hits received on career material posted on each class web site. In a class of 300 students, for example, the career presentation can immediately draw as many as a thousand hits as students return repeatedly to view the material.

“All we really need to do is to make them aware that
Program Thrives

The Department’s Diversity Program is entering its fourth year thanks to support from the ExxonMobil Foundation and the work of energetic KU faculty members.

The ultimate goal of this initiative is to bring more Latino students into the geosciences by funneling them from the University of Puerto Rico at Mayagüez to graduate programs in the United States. Currently, only a miniscule number of Latinos are geoscientists, says Department Chair Luis González.

“With the makeup of the country changing to become more diverse, it is essential to bring that diversity to the discipline of geology,” González says.

The program seeks to prepare students from the Mayagüez campus for graduate study on the mainland by putting them in situations where they learn with other graduate students in the continental United States, González says. To do this, the program brings the students to work in university laboratories on research projects and on their senior theses.

Students in the program also have the opportunity to join KU field trips. Such learning adventures have included a trip to study outcrops of Miocene and Pliocene carbonate rocks in southeastern Spain. Faculty members from both universities attended the trip, which included hands-on exercises as well as lectures. The program has also included joint field trips to the Dominican Republic, Puerto Rico, West Texas and New Mexico. KU faculty members also travel to Puerto Rico to give talks and teach short courses to large numbers of UPRM students.

Already five of the program’s students have joined KU Geology’s graduate programs. “This is an impressive segment of our graduate student population,” says Professor Bob Goldstein. “They are doing well and being very successful.”

Two other students aided by the diversity initiative have gone to graduate school at the University of Wisconsin and several have joined geoscience programs at other universities.

The Department’s connection to the Mayagüez campus was cemented after González joined the KU faculty. He earned his BS at the 13,000-student campus in Mayagüez, taught at the university, and maintains close ties with the faculty there. Goldstein, González, and Associate Professor George Tsoulias proposed the program to ExxonMobil, the corporation funded the program, and many KU faculty members have contributed to the effort ever since. The Geology Department on the Mayagüez campus is the largest research and teaching earth sciences department in the Caribbean.

Diversity Program participants Alejandra Rodriguez-Delgado, far left, and Diana Ortega-Ariza, far right, smile after picking up their grants and awards. Center are Luis González and fellow winner Rafferty Sweeney.
Geology Wins Stimulus Grants

Bob Goldstein works on the go. Goldstein is one of four faculty members collaborating on a stimulus project with the Kansas Geological Survey.

Federal stimulus funding totaling $7.4 million is flowing into the Department of Geology and the Kansas Geological Survey. With these grants, KU geologists are testing innovative methods of exploring for geothermal energy and seeking a better understanding of CO₂ sequestration.

Of the total, $2.4 million is financing a three-year geothermal project headed by Associate Professor Daniel Stockli. Professor J. Douglas Walker is also working on this collaborative effort. KU and its partners, the University of Oklahoma and the Sierra Geothermal Power Corp, are providing some funding for the project, which will cost a total of $4.2 million.

KU’s geothermal project is one of only 24 such efforts that are being funded by the U.S. Department of Energy under its Innovative Exploration and Drilling Program.

“The United States is blessed with vast geothermal resources, which hold enormous potential to heat our homes and power our economy,” Energy Secretary Steven Chu says in a written statement. “These investments in America’s technological innovation will allow us to capture more of this clean, carbon free energy at a lower cost than ever before. We will create thousands of jobs, boost our economy and help to jumpstart the geothermal industry across the United States.”

KU is testing a new approach to exploring for geothermal energy in Nevada’s Clayton Valley, about 150 miles southeast of Reno. Prospecting for hot springs and other heat reservoirs that can power electrical plants isn’t easy, Walker says.

“In the past in geothermal, people looked for steam coming out of the ground,” Walker says. “We said: Let’s not worry about whether there are any surface manifestations of heat. Let’s think about the geology of the subsurface first and then go forward from there.”

Stockli says the project’s most innovative aspects include its use of 3-D thermochronometry and the integration of geology and geophysics. The KU geologists plan to create detailed 3-D maps of the surface and subsurface, and to provide an assessment of the 4-D temperature history of the region’s geothermal resources.

Thermochronometry reads radioisotopic signatures preserved in minerals and rocks and creates a history of how the rock’s temperature changed over time. 4-D refers to a geologic feature’s height, depth, width and evolution over time.

This data will be used to determine the best sites for test drilling. Core samples and well data from the test holes will then enable the team to predict the geothermal potential of the area.

“This tells us how long lived is a thermal anomaly,” Stockli says. “If something is very short lived, it might not be a very good site for a geothermal power plant.”

This kind of analysis is as important economically as it is scientifically. Financiers often hesitate to invest in geother-
mal plants because geologists haven’t yet been able to consistently predict the performance of geothermal resources.

“If the recovery act money helps get the industry over this barrier of being able to get financing, then I think you’ll see big growth in the use of geothermal,” Walker says.

The project will also provide invaluable training to undergraduate and graduate students. Participating students will come from the Department and from the Department’s Diversity Program at the University of Puerto Rico in Mayagüez. Students will be engaged in every phase of the project, learning mapping, temperature analysis and drilling.

“They’ll be out there with hard hats on,” Stockli says. “Training the next generation is important.”

If Stockli, Walker and the rest of their team is successful, they will have honed this new method of exploring for geothermal energy, but success could do much more than that.

“If the exploration work identifies viable geothermal resources, then the economic impact will include long-term employment and significant development potential for the local region,” Stockli says.

The second project is being spearheaded by the Kansas Geological Survey and has been funded by a $5 million stimulus grant—the largest grant the KGS has ever received.

This project will determine whether a nearly depleted oil and gas field in south-central Kansas and an underlying aquifer can permanently and safely store the greenhouse gas carbon dioxide. KU geologists will also test the effectiveness of using the sequestered carbon dioxide to squeeze more oil and gas out of the field than traditional methods could recover.

The field is the Wellington Oil and Gas Field. In production since 1927, the Sumner County field has produced 20 million barrels of oil. Researchers will evaluate the reservoir’s capacity to hold carbon dioxide by drilling and using other geophysical methods. There are no current plans to sequester the gas underground. This project is in the evaluation rather than the implementation phase.

The three-year project is a collaborative effort between KGS, the Department of Geology and two Wichita-based companies, BEREXCO Inc. and Bittersweet Energy Inc.

“CO₂ sequestration is in the early phase of implementation globally,” says Lynn Watney, a senior scientific fellow at the KGS and one of the project’s principal investigators. “We will be evaluating the sequestration capacity of depleted oil fields and deep saline aquifers and will be aiming to develop an effective carbon-sequestration model that is tailored to Kansas industry and economy.”

The Geology Department’s job is to study the sustainability of using the Ozark Plateau Aquifer System to sequester CO₂. This highly saline aquifer is mainly composed of rocks of the Arbuckle Group that are 4,000 feet beneath the surface of a 17-county area of Kansas. The aquifer is too saline to be used for other purposes and is isolated from freshwater aquifers by impermeable rock.

“This study will help us understand the different mechanisms that result in subsurface CO₂ sequestration and evaluate risks associated with leakage of injected CO₂,” says Saibal Bhattacharya, an assistant scientist at KGS and principal investigator on the project.

Geology Department faculty members are evaluating the aquifer’s potential to accept large amounts of carbon dioxide and studying what will happen once the gas has been stored underground.

“A lot of basic work needs to be done,” says Professor Bob Goldstein, one of the four faculty members working on the project. “We need to evaluate whether the formation is competent to hold CO₂, and what will happen to the pore system in the rock. Will the pore space remain the same or become clogged up with mineral precipitates? Will microbial reactions transform that CO₂ into methane bubbles that block pore space, or will permeability be enhanced through the dissolution of minerals?”

Goldstein is examining the fluid flow history of the aquifer. Professor Evan Franseen is working on the stratigraphy of the rock. Associate Professor David Fowle and Associate Professor Jennifer Roberts are researching several questions, including the chemical and microbial reactions that take place once the CO₂ is injected into the aquifer.

Carbon dioxide sequestration may provide new opportunities for both KU geologists and the state. If proven to be technically feasible, sequestration could even launch a new industry. Kansas’ geology and location make it a prime candidate for sequestration because the Wellington Oil and Gas Field, the Ozark Plateau Aquifer System, and many other oil and gas fields in the state are located near multiple sources of carbon emissions.

Goldstein says KU is getting in on the “ground floor” of what may become a huge industry.

“We’re hoping this will develop into something larger,” he says. “We expect that this is probably going to be one of the major things in the world that geologists will be doing—finding ways to sequester CO₂ underground. This is probably the least expensive way of getting CO₂ from the tailpipe and the smokestack out of the environment.”
**Field Camps 2010**

Beautiful weather and eager students greeted this year’s three KU Geology field camps. The regular summer field camps (Geology 560 and 561) were quite successful, with none of the sickness or bad weather we experienced last year. Because of all the rain last year there must be a lot more rodents because 560 saw an enormous number of rattle snakes. Geology 360 ran over late summer and was very successful and had record enrollment.

Because of budget constraints, we ran 560 and 561 with only one faculty member with the students at one time, but still with 2 TA’s. This is the first time in years that we have run camp this way. Assistant Professor Mike Taylor taught the first two weeks of 560, and Doug Walker taught the last one at the Cañon City, Colo., field station. Teaching assistants were Joe Miller and Richard Styron.

There was also a bit of a change in that the students were introduced to computer/GIS based mapping during 560. We did this to expose all KU students to this aspect of fieldwork. In the past, we started the computer mapping at the beginning of 561 (second course). However, because some students stop at the end of 560 not all got a dose of computers in the field. We also had several students from outside KU taking the course. They came from Grand Valley State, Arkansas Tech, Fredonia, and Columbia University.

Associate Professor Diane Kamola taught the first week of 561 and Associate Professor Dan Stockli taught the second two weeks. TA’s for that course were Tandis Bigoli and Jesse Thompson. We also changed this class around a bit in that Diane took the students to southern Utah to the Henry Mountains and Capitol Reef for mapping in that area. Dan, as usual, took them out to the Dyer, Nev., area for two weeks of mapping in that region. The KU camp continues to assemble an extensive map of a research area that had not been previously studied. This gives the students real-world experience in mapping and establishing stratigraphy in a new area.

Geology 360 had an enrollment of 39 in August, with six staff members. This was the biggest group in the 13-year history of the class. The two-week introductory field course for beginning geology majors again visited sites in Kansas, Colorado, Utah, and Wyoming. Because of the large enrollment, Kamola joined Associate Professor Tony Walton to team teach the class. The group traveled in a caravan of seven vehicles, camping most nights as the weather ranged from hot and humid in Kansas to frost on the tents during several nights in Wyoming.

The class teaches rudimentary field techniques for mapping and describing stratigraphic sections while exposing the students to many kinds of rocks, several new minerals, igneous intrusions, sedimentary facies in the Pennsylvanian and Cretaceous across a broad area, structural geology, tectonic provinces, and geomorphologic features and concepts, especially the features of mountain glaciation and river erosion.

The 360 students also hiked the Great Sand Dunes, climbed Mount Washburn in Yellowstone National Park, and viewed the Perseid Meteor Shower while camping at a high-altitude campsite remote from light pollution. This experience introduces students to a variety of features they will study in a more abstract way in future classes, and builds camaraderie among the participants.

The success of KU’s field courses is made possible by the generous support of the Geology Associates program.

- J. Douglas Walker and Tony Walton

**Golden Hammer Award**

Emily Hernandez-Goldstein won the 2010 Golden Hammer Award for her work in 561. The annual award is given the student who does the best job with the mapping projects, is excellent in dealing with establishing new stratigraphy and understanding the map areas, is enthusiastic, and contributes to the intellectual development of the group.

**Real Science**

Geology 561 students Nate Corbin and Jackie Walden made the leap from classroom exercise to real science this November. Their work and their classmates’ work during their Field Camp experience in Nevada formed the basis of their poster presentation at the national GSA conference in Denver. The presentation is co-authored by the other 561 undergraduate students, TA’s Tandis Bigoli and Jesse Thompson, and the class instructor, Associate Professor Danny Stockli.

“We treat the last two weeks of Geology 561 as the real thing, exposing students to a real research-style science project and environment, and teaching them how to tackle a new, challenging project from scratch,” Stockli says.
Top, In Geology 360, Brian Klipp and Mallory Stevenson work on a map near Fort Carson, Colo. Top right, Geology 360 students look for fossil flies in the Creede Formation, Creede Caldera in Colorado. This year they set a record by finding 8 fossil flies. Bottom, The Geology 360 class poses on top of Twin Mountain.
Leigh Stearns and a colleague place GPS units on Kangerdlugssuaq Glacier in Greenland. Kangerdlugssuaq and Helheim Glacier, another of Stearn’s research interests, are located on the country’s east coast. Ice covers 1.8 million sq. km of Greenland, creating a frigid expanse 14 times the size of England.
Extreme Explorers
How KU Geologists Study the Surface of the Earth

KU geologists use everything from a seal swimming through the ocean to the data captured by satellites and the Space Shuttle to study the surface of the Earth. Research is undertaken at the infinitesimal scale of a single micron to the enormity of continents.

The Department’s explorers do their work standing in a river bed in South America, pacing a tiny island in the South Pacific, crouching on the ice craked surface of a glacier in the Arctic, and manipulating samples in the closed environment of an anaerobic chamber on KU’s West Campus, among many other places.

At some point in their work, though, Geology faculty members and students also sit down at computers to represent their findings visually. They spend hours analyzing and transforming raw data into a multitude of maps, charts, graphs and tools like interferograms – 21st-century images that make visible the motion of ground.

Exploring the surface of the Earth is a varied task. But every step of the process brings the Department closer to its quest to grow the world’s supplies of energy and overcome global environmental problems. Every member of the Department takes a role in this far-flung enterprise on the surface of our planet. Here are just a few examples.

At the Infinitesimal

KU’s geobiologists often work on a scale so tiny that a single blood cell can dwarf the subjects of their research. They can examine subjects as small as 1 micron wide. A human red blood cell can be as large as 8 microns in diameter.

Although their work explores the surface of the Earth through its tiniest inhabitants, these geologists are tackling the biggest problems facing humanity today. These include the search for oil, the quest for a better understanding of climate change, and the development of more efficient methods to clean up pollution.

Associate Professor David Fowle investigates the links between microbial ecology and geochemical processes in locations like Indonesia, Panama and around the United States. Assistant Professor Alison Olcott Marshall uses organic geochemistry to explore the preservation and distribution of life in Earth’s past and present. Craig Marshall applies geospectroscopy to questions about the state and preservation of carbon.

A tour of Associate Professor Jen Robert’s lab provides a good look at how research on the micron scale proceeds. Roberts and her graduate students follow a simple pattern of work: They take samples of water, sediment, soil or rock; transport the samples to their lab in the Multidisciplinary Research Building on KU’s West Campus; and perform chemical and microbiological analyses on the material. The results help them form hypotheses, which they then test in experiments.

“These microbial systems are very complex, so experiments allow us to deconvolute them,” Roberts says. “In the lab, we can distill them down into much simpler systems, so we can understand exactly what is going on in the bigger system.”

The lab’s groundbreaking work on dolomite is one illustration of the value of experiments. Dolomite presents a perplexing problem for geologists because this key oil and gas reservoir rock does not form today at the same rate or scale that it formed in ancient times.

“We have tons and tons of dolomite in the ancient, but in the modern, we have very few environments where it forms,” Robert says.

Roberts and her students approached the problem by taking samples from an aquifer near Bemidji, Minn., that
had been contaminated with crude oil. Such an anaerobic environment had previously been thought to be inhospitable to the formation of dolomite. An analysis of the samples, though, uncovered microorganisms that were coated in tiny bits of the mineral.

“These microorganisms come from the domain Archaea. Living in extreme environments like hot springs and petroleum deposits, Archaea weren’t even identified by scientists until the late 1970s. Their apparent role in dolomite formation came as a surprise.

Working in an anaerobic chamber in her lab, Roberts and her students were able to recreate the same conditions that existed in the field and to test what happened when the variables changed. They tested whether dolomite would form in the presence of Archaea, other kinds of microorganisms or with no microorganisms present. They discovered that the Archaea facilitated the creation of dolomite at low temperature.

The importance of these microorganisms also helps explain why dolomite is such a good reservoir rock. Archaea often produce methane. As the microorganisms (and the dolomite forming on them) become buried in the ground, the methane bubbles out.

“It’s a way the microorganism actually produces the reservoir,” Roberts says. “They are producing the gas that keeps all of this pore space open that hydrocarbon can seep into later.”

Roberts’ Geomicrobiology Lab is both humble and exotic in appearance. On one bench, a plastic tub covered with metal foil is filled with gently bubbling water and looks a little like a home fish tank, without the fish of course. This experiment, though, is anything but humble. A graduate student is reproducing the conditions microorganisms face in a gently burbling stream.

In another room, the black gloves that allow access to the anaerobic chamber hang ready and waiting for a researcher’s hands. In a room darkened by blackout curtains over the windows, researchers use an epifluorescence microscope to examine the morphology—the form and structure—of microorganisms. The special microscope enables KU geologists to examine microorganisms that have been stained with fluorescent dyes, which can instantly reveal such key facts as whether the organisms are dead or alive.

Roberts and her students also make use of KU’s transmission electron microscope and the scanning electron microscope, which are housed in Haworth Hall on the central campus.

“The microscope affords us the ability to see what that very small environment looks like,” she says. “We can examine how the microorganism associates with the surface of a mineral. Does it attach? Are there a bunch of microorganisms stuck there, or only a few?”

The view through these instruments is mesmerizing, Roberts admits. “It can definitely take you to another world.”

Grains of Truth

When William Blake contemplated seeing “the world in a grain of sand” in an 1803 poem, he had no way of knowing that geologists like KU’s Gene Rankey would one day be able to explore the Earth by doing just that.

An assistant professor, Rankey and his students research carbonate sedimentary systems and their dynamics through a variety of methods. Satellites like QuickBird and Landsat provide overviews of study areas. Running a boat through the study area and deploying instruments like pressure-sensing wave gauges and a type of sonar called an Acoustic Doppler Current Profiler supply data about the waves, tides and currents. Global Positioning System (GPS) units are employed to measure shoreline position and elevation. Microscopes, including scanning electron microscopes, are used to examine and characterize grains. Sediment samples, in-person observations of plant and animal life, and cores complete, as Rankey quips, “the arrows in our quiver.”

One of the focuses of his work is the study of ooids—spherical calcium carbonate grains most commonly found in shallow tropical seas like those in the Bahamas. Like tiny hailstones, ooids are grains of sand that form by the build up of layers around a nucleus.
When ooids are buried under additional sediment, the grains can cement together to form oolite, a rock found in many water reservoirs and the largest oil fields in the world, like the Ghawar Field in Saudi Arabia. Stretching about 200 miles by 16 miles and covering 1.3 million acres, Ghawar had already produced 60 billion barrels by the end of 2005.

By studying how oolitic shoals form today, Rankey provides petroleum geologists with signposts to help them find and understand the reservoirs that lay deep underneath the surface. Ooids and oolitic shoals also provide geologists with detailed information about paleo climate and paleo oceanography, and oceanic and atmospheric chemistry, among other topics. “They record much of Earth history,” Rankey says.

Much of his work has taken place in the ooid-rich sands of the Bahamas. In a November 2009 paper published with a former student, however, he reported the first discovery of recent ooids in the Pacific Ocean.

Found on Aitutaki Atoll in the Cook Islands, these ooids were discovered in the part of the Pacific where the water has some of the highest carbonate supersaturation levels in the region. The waters in the ooid-rich Bahamas are also supersaturated. “That’s probably a limiting factor,” Rankey says. The find was significant because it provided yet another glimpse into the past.

“We provided a modern analogue of the processes that have controlled the distribution of ooids over the past 600 million years,” he says.

Rankey’s research has turned him into a kind of “sandologist,” a joking term he readily accepts. That expertise in how shorelines form and erode recently brought Rankey to the attention of the Republic of Kiribati. The former British colony was once called the Gilbert Islands and is best known as the site of the Battle of Tarawa during World War II.

However, Kiribati’s leaders worry their republic may one day be known for something even more devastating. The nation’s president says he fears that rising sea levels will make Kiribati the first country in the world to be obliterated because of climate change.

The republic encompasses 33 atolls, about 2 million miles of water and a landmass that amounts to pinpoints of coral in a vast ocean. The actual land that the 100,000 Kirabitis inhabit is so small it could fit inside the borders of New York City. Most of the islands are no more than 3 to 4 meters above sea level.

With the help of grants from the National Science Foundation and KU, Rankey and a student worked with the staff of a Kiribati ministry to conduct a detailed study of two of the country’s atolls. They wanted to answer a variety of questions. Are shorelines changing? If so, how rapidly are they changing? How do the rates of change vary, spatially and temporally? What controls these changes?

What they discovered is that the rate of change in the islands’ shorelines increased dramatically between 2005 and 2009, relative to changes recorded over a longer period of time. However, the researchers couldn’t immediately determine whether that was the result of short-term factors or a manifestation of increasingly rising sea levels. The KU researchers were also unable to immediately evaluate the impact of the oscillation between the El Niño and La Niña—phenomena that change the winds and weather in the South Pacific about every five years.

Rankey compares his work in Kiribati to that of a doctor monitoring a critically ill patient. His job is to understand what is occurring and to make a prognosis. In the case of Kiribati, there aren’t enough data yet to say what might happen in the future.

“I think we need more work,” Rankey says. Although his first NSF grant on this project has run out, Rankey expects to continue the research.

**Icy Solutions**

While some KU geologists are studying the impact of rising sea levels in the tropics, others are looking at the poles to research the cause. Glaciologist Leigh Stearns, an assistant professor, is working in the world’s coldest regions to better understand the dynamics of one contributor to rising sea levels—outlet glaciers.
Outlet glaciers drain the ice sheets in Greenland and Antarctica, which contain 87 percent of the world’s fresh water. If those massive ice sheets were ever to completely collapse, global sea level would rise by 63.9 meters, or nearly 210 feet. Even a small increase in the discharge from the ice sheets could threaten people in low-lying islands and coastal regions. Today, ice discharge through outlet glaciers accounts for about 70 percent of the mass lost from Greenland and about 90 percent of the mass lost from Antarctica.

“The biggest uncertainty in sea level rise projections right now is what the ice sheets will do,” Stearns says. “I’m trying to model how glaciers are flowing, so we can come up with projections of how they will change in the future.”

To study these dynamics, Stearns employs a variety of methods. She uses radar systems developed by The Center for Remote Sensing of Ice Sheets, a Science and Technology Center established by NSF and headquartered at KU. She analyzes data from NASA satellites such as ICESat and TERRA.

To monitor glacial flow and validate the data collected by remote sensors, Stearns installs networks of GPS receivers on and around the glaciers. Stearns has also worked with seismologists to study the seismic signatures created when icebergs calve off and crash into the ocean. Readings on air conditions above glaciers are collected by weather stations set up on and near the glaciers. Instruments deployed from boats or moored underwater measure ocean conditions at the front of glaciers.

Recently she collaborated with oceanographers who monitored ocean depth, temperature and other variables by attaching sensors to the necks of seals. The sea mammals collected data as they migrated from their breeding grounds in Nova Scotia to the fjords of Greenland.

“We’re getting data any way we can,” Stearns says.

Understanding the interaction between glaciers and the ocean is one key to creating better models of the changing climate.

“We’ve noticed in the past 10 years that a lot of glaciers, particularly in Greenland have sped up,” Stearns says. “Like a conveyor belt, they’re transporting more ice into the ocean. What we’re trying to figure out is why. What we don’t know is whether it’s the increasing surface temperature that is causing the change, or a change in ocean circulation that brings warmer water to the front of these fjord-terminating glaciers.”

This matters because different causes will have different long-term impacts. “As these glaciers accelerate, they often retreat,” Stearns says. “They move backwards closer to the ice sheets. If they continue this process, they might retreat out of the ocean. If the ocean is the problem, the glaciers might re-stabilize if they are no longer floating in the water. If it’s the air temperature, we might see a different kind of progression northward across the ice sheet.”

Until recently the dangerous, iceberg-filled waters of Greenland’s fjords made it difficult for geologists to collect data on underwater conditions. The seals, however, felt right at home. The data these energetic mammals collected helped Stearns and her colleagues discover that the Helheim Glacier in East Greenland has been taking a surprisingly warm bath, probably for years.

In a February 2009 report in Nature Geoscience, the group noted that winds appeared to be keeping the water in the 3,000-foot-deep Sermilik Fjord as warm as 40°F. The fjord links the Helheim to the Irminger Sea. The constant influx of warm water is melting the underwater surface of Helheim, a process that could also be occurring at other outlet glaciers.

Stearns has also been able to take advantage of a new satellite system to gain insight into glaciers in the Antarctic. Glaciologists have long known that there are lakes underneath glaciers, but they assumed the lakes were stagnant. It wasn’t until recently that scientists learned that water periodically drains from these lakes, creating a subglacial flood.

The 2003 launch of the ICESat ice, cloud, and land
elevation laser altimeter satellite provided an even better profile of the subglacial lake system. ICESat measures surface elevation, at centimeter-scale precision. When water moves at the bottom of the ice sheet, there is often a detectable inflation or deflation of the surface of the ice. Using this technique, Stearns and Benjamin Smith of the University of Washington were able to provide the first direct evidence that subglacial floods accelerate the motion of glaciers.

They determined that the Byrd Glacier in Antarctica sped up at the same time that a subglacial flood was recorded by ICESat. During the event, the velocity of the ice increased by 10 percent, and the glacier discharged about 8 percent more mass than normal.

Stearns hopes to do more work in Antarctica. In her office in Lindley Hall, maps of these coldest and least populated places on Earth surround her desk. Photographs of the eerily blue glacial ice and the brick red sedimentary rock of Greenland decorate her walls. She says she feels fortunate to be able to work in these locations—places she calls some of the most “jaw-droppingly beautiful” on Earth.

Tectonic Meaning

The not-so-quiet Earth is at the center of Assistant Professor Mike Taylor’s work. Today he is using a combination of methods to bring new discoveries to the field of neotectonics—a sub-discipline of tectonics that studies the current and recent motions and deformation of the planet’s crust.

“I am first and foremost a field geologist,” Taylor says. But because his research subjects—orogenic belts—are so massive, he also needs the perspective a scientist can only get from space. Orogenic belts are the vast tracts of rock that become severely deformed when Earth’s tectonic plates shift and collide.

“I study mountain belts and how they evolve over time,” Taylor says. “The way these mountain belts generally form is through earthquakes and slip along regional fault systems.”

From an academic point of view, the study of these processes provides invaluable information about how the Earth’s crust changes and mountains evolve. From the point of view of the millions of people who live in these regions, however, the topic is a little more personal. Understanding mountain building brings a greater understanding of how earthquakes work and when or where they might occur.

Taylor’s research tools range from the humble and hands on—standing in a river, for example, and taking a sample of sand—to interferograms and digital elevation models that he creates from data and images collected by satellites and the Space Shuttle.

“These are the lenses I use to look at mountain belts,” he says. “Through these tools, I’m able to quantify, in some cases, with millimeter precision how fast a given fault is moving.”

The images and data for interferograms and digital models are collected by synthetic aperture radar deployed on the European Space Agency’s ERS1 and ERS2 satellites. An 11-day mission of the Space Shuttle Endeavour also used this radar technology in 2000 to map more than 90 percent of the globe’s landmass outside of the polar regions.

The technology employs multiple images to enable neotectonics experts like Taylor to study how the Earth’s crust is bulging and moving. To do this, Taylor analyzes images from radar passes taken over the same spot on Earth at two different times. The passes can be separated by as much as 10 years, he says.

“If there has been significant strain accumulation across that time span, I should be able to see it with these data,” he says. “I look at the phase change between one radar image and the next. That phase change is proportional to the amount of displacement on the Earth. I’m able to quantify how much the Earth is deforming.”

This kind of radar is also helping Taylor create digital elevation models that provide startlingly vivid 3-D models...
of the Earth’s surface. The technology works much like the method director James Cameron used to create the movie Avatar.

That 2009 science fiction epic achieves its 3-D effects by shooting each scene from two slightly different perspectives. When viewed through special glasses, the two images appear as a single, three-dimensional picture. To create digital elevation models, Taylor takes the two images created by the double passes of the radar and processes them into a single 3-D data set.

All of this high-flying imagery is aided by fieldwork. By getting his hands dirty, Taylor can determine the slip history of the surface deformations he detected from space. His method starts with a simple step: “Once I determine an offset landform using satellite images, I travel to it, dig a pit and grab samples of sand to determine its age,” he says.

When analyzed by an accelerator mass spectrometer to measure the abundance of cosmogenic isotopes, the samples help to bracket the age of the movement of the fault. Cosmogenic isotopes are formed by the interaction between cosmic rays and atoms in the soils that blanket the surface of the Earth.

“I can date the time at which an alluvial fan or river terrace was exposed to the sun,” he says. “That gives me a proxy for when that fault uplifted the landscape in the past.”

To date, much of Taylor’s focus has been on the Himalayas and Tibetan Plateau. In this research, Taylor took on the conventional wisdom that once declared that the interior of the Tibetan Plateau was tectonically dead. Taylor and his colleagues discovered something far different.

“We found large fault systems cutting very young sediments,” he says. “We found that deformation is spatially distributed throughout the entire Himalayas and the Tibetan Plateau.”

Taylor also verified that the faults are moving at high rates today. Recently, for example, a 7.0 magnitude earthquake struck on one of the faults in central Tibet studied by Taylor.

“These fundamental observations indicate that conventional wisdom had to be reevaluated,” Taylor says.

In a June 2009 Geosphere article, Taylor and a colleague reported that they had created an interactive map of more than 900 active faults and folds in the Himalayan-Tibetan orogen and its immediate surrounding regions. All of these are capable of generating large earthquakes.

Taylor’s current research has taken him to South America where he is studying how fast a portion of the eastern side of the Andes is thrusting over the continent. By taking sand samples, he is able to date the timing of uplift for several fluvial terraces.

“We’re going to produce the first cosmogenic ages in Argentina and the Colombian Andes using depth profiles,” he says. “I date the uplifted fluvial terraces. I’m also able to use a digital elevation model to measure precisely how much that terrace has been uplifted.”

The melding of fieldwork with high tech is the perfect way to look for answers in neotectonics, Taylor says. “I have a foot in each door. I’m trained as a field geologist, but I love using this kind of technology.”

The Kansas Connection

Lawrence, Kan., is the center of everything, at least where the Windows version of Google Earth is concerned.

When you open the virtual 3-D globe and geographic information system and zoom in without changing the coordinates, the view centers on the hometown of the University of Kansas. Zoom in close enough, and you will see a bird’s-eye view of Meadowbrook Apartments in west Lawrence.

Brian McClendon, the director of engineering for Google Earth and a vice president at Google, set the location because he grew up in Lawrence, got his engineering degree from KU in 1986 and lived in the apartment complex.

Not to be outdone, fellow KU engineering graduate Dan Webb centered the Mac version of Google Earth on his hometown of Chanute, specifically on the corner of Lincoln and Main. Chanute is in Neosho County in the southeast corner of the state. In a post in the official Google Mac Blog, Webb explained, “I guess you could say that Brian’s shenanigans inspired my own.”
Inspiring the Future

A little more than 20 years ago, J.F. “Rick” Devlin attended his first lecture by John Cherry. The room was dark, and the audience was focused on the projection screen where Cherry moved smoothly and effortlessly through his slides. His style and message were perfectly matched, and for Devlin it felt like stepping out of a fog and into a clear day. Cherry presented advanced scientific data and concepts, but used them as teasers leading up to the great reveals: the implications for practical work.

“He was riveting,” Devlin says of Cherry. “His lectures were so easy to follow and interesting that your attention never waned, yet they contained cutting edge material. Everybody was mesmerized by him.”

That was the first of many lectures by Cherry that Devlin attended, first as a graduate student at the University of Waterloo, then as short-course organizer, and later as a colleague. Through Cherry’s influence, and the inspiration of other professors, Devlin’s career path took an unplanned turn. Instead of pursuing a future in industry, Devlin decided on a career in academia. The chance to do research was enticing, but Devlin also wanted to pass on the joy of learning as he had experienced it.

Fast forward to Aug. 20, 2010. Now an associate geology professor at KU, Devlin was teaching the first session of his Geomorphology class in Lindley Hall. He was startled when several men wearing business suits poked their heads through the door, and then walked into his classroom.

Representatives of the William T. Kemper Foundation and KU Endowment, these men make up KU’s annual “Surprise Patrol.” Their mission that day was to award Devlin a Kemper Fellowship for Teaching Excellence, and to celebrate the fact that Devlin was fulfilling his mission as a teacher. This year seven KU faculty members received the Fellowship, which comes with a $7,500 check.

“It’s a great honor and I am very, very grateful for receiving it,” Devlin says.

As grateful as he is for the award, though, Devlin says the Geology Department has many dedicated and talented teachers, so his first reaction was: “Why me?”

Officials from KU and the Kemper Foundation don’t have any trouble answering that question. They praise Devlin for his innovative approach to teaching and his dedication to helping students connect scientific theory with real-world situations.

To encourage discussion in large classes, for example, Devlin gives out playing cards to students who participate. “After each lecture, students redeem those cards for bonus points toward their final grade,” the Kemper citation reads. “For the final lecture, Devlin adds a best poker hand concept. Students with a semester’s worth of exceptional cards hands may earn a few more points.”

In Devlin’s classes, lectures and labs are amplified by field trips and computer presentations, including electronic field guides. Interest in Devlin’s methods have lead to the publication of several papers on his approach to teaching, including one in The Journal of Geoscience Education on an exercise he uses in geomorphology.

“Rather than settling for textbook lectures or recycling course outlines from past courses,” the citation notes, “Devlin decides on a story he wishes to tell in a course and then proceeds meticulously to plan a series of lectures to tell that story as the term unfolds.”

Devlin came to KU after earning a BS in chemistry and MS in geology from Queen’s University in Kingston, Canada. He received a PhD in 1994 in earth sciences from the University of Waterloo in Ontario, Canada. Besides his Geomorphology course, his other undergraduate teaching duties include a class in Environmental Geology and supervising undergraduate research projects. Devlin’s graduate-level courses include Contaminant Transport and Topics in Groundwater Remediation and Modeling.

He also maintains active research programs examining many problems, including the development of a groundwater velocity probe for aquifer characterization, studying reactivity and permeability of granular iron used for groundwater remediation, and other in situ remediation technologies such as bioremediation.

For Devlin, teaching is about building the future.

“The point of teaching for me is to pass on to students the skills and knowledge of science. It’s in my interest and in the interest of my field that they learn to do this in a way that advances the field now and when I’m finished with it, or when it is finished with me. It’s one step in passing the torch.”

As Cherry once energized him, Devlin is stirring the enthusiasm of students. Those who sit in Devlin’s classes today may well go on to transform the lives of generations of students to come.
Creating Connections

Clubs help Geology students perform a multitude of tasks. They provide opportunities for students to gain leadership experience, hone their educational skills, learn about career paths, and help the geosciences become more inclusive. Clubs also provide scholarships, research support, and funding for professional development, but most important of all, student clubs help foster a family feeling within the Department.

The Geology Club (which includes Sigma Gamma Epsilon), and the student chapters of the American Association of Petroleum Geologists, the Society of Exploration Geophysicists, and the Association for Women Geoscientists do all of this and much more, say students involved in the organizations.

KU’s AAPG chapter helps students attend the organization’s annual convention by paying for travel, lodging and convention fees. The money comes from a grant from Chevron and the local chapter’s fundraising efforts. The chapter also sponsors departmental picnics and parties, throws a food drive and brings in industry speakers.

“I don’t know what I’m going to do yet after I graduate, but oil is a possibility,” says Blair Benson, president of KU’s AAPG chapter. “That’s why being in the club has helped. It has given me information about the fields I can go into. I’ve really enjoyed being part of AAPG.”

The Osage Chapter of the Association for Women Geoscientists covers Kansas and parts of Missouri and Arkansas, but most participants are from KU, says Cori Myers, co-president.

The group’s mission is to promote women in the geosciences. Membership in the association is open to all students.

The chapter’s outreach efforts target middle schools because girls tend to drop out of the sciences during adolescence, says Erin Saupe, co-president of the chapter. Among the chapter’s many activities are judging middle school science fairs and working with the regional Science Olympiad. The chapter hosts a volcano lab at the Expanding Your Horizons event for middle school girls at Emporia State University and works at the Women in Science Day at Washburn University in Topeka. Chapter members even help Girl Scouts in the Kansas City region get their Rocks Rock badge.

For the Department, the chapter hosts a wine and cheese reception every December. Scholarships and research funding for both undergraduates and graduate students are provided through the money the chapter raises from their local events, a matching grant from their national association, and from Chevron.

Saupe says working with the association has helped her develop her leadership and educational skills, and allowed her to do something else.

“I think it’s important because I want to give back,” Saupe says. “I don’t want to be a researcher isolated in my lab.”

Perhaps the most important role the clubs play is to help build personal connections between students. “We try to have fun activities for the Department,” says Benson.

Those activities include fall and spring picnics, a Halloween party and Thanksgiving luncheon. This year the Geology Club produced KU Geology sweatshirts.

The social aspects of the clubs are as important as the professional opportunities these organizations provide, Benson says.

The spring picnic, for example, gives students and faculty members an opportunity to let go of end-of-semester stress. All of the events provide members of the Department with opportunities to build friendships.

This is particularly important when students are new to campus — a situation Benson remembers well. “When I moved here from Virginia, I was really nervous. I was used to being around people I knew. It was very unnerving to come here.”

Getting involved in clubs helped her build friendships, says Benson, who is studying geophysics and geoarcheology.

“We’re like a big family in this Department,” she says. “I know everybody in stratigraphy, everyone in paleo and in all the other programs. It’s really a big family, and that’s nice.”
There are many reasons to do geology. There is the challenge of tackling tough intellectual problems, the excitement of pushing the boundaries of methods and of human understanding. These are common to all sciences, but many of us were drawn to this particular science through a love of adventure, and the lure of remote and beautiful places. Opportunities for adventure and exploration have become increasingly rare with the continued study of a finite Earth. However, the chance to combine intellectual and geographical exploration does come around.

A fellow graduate student, Kurt Sundell, and I had the good fortune to travel to Tibet with Assistant Professor Mike Taylor to study a controversial type of continental rift that has been inferred to exist in western Tibet. Their initial results had been well received by the geologic community but were still provisional. We were to travel to the rift, locally known as the Lunggar Shan, and map the area in more detail, as well as take samples back to KU for analysis. This information would tell us much about the rates and style of faulting in the Lunggar Shan rift, and hopefully give us insight into the development of these enigmatic fault systems.

We arrived in Lhasa and met with collaborators from the Chinese Academy of Sciences and other American institutions. After several breathless days of preparation, we left the Lhasa valley and drove west for two days in the gorge of the Yarlung Tsangpo River, the headwaters of the Brahmaputra, before turning north into the interior of the Tibetan Plateau for another long day of travel along rarely used dirt tracks.

The landscape opened up when we climbed out of the canyon, and signs of human habitation gave way to sparse vegetation. The small river valley settlements and their barley fields and cow pastures gave way to isolated groups of nomadic yak and sheep herders on the lower slopes of the mountains. Eventually, the glaciated peaks bounding the Lunggar Shan rift valley rose over the lower surrounding ranges, and we set up camp as the sun passed behind the icy range.

The fieldwork was tough but satisfying. Days were spent mapping the accessible parts of the mountains and collecting samples for later analysis. We also worked in the faulted alluvial fans at its base, digging pits in the fans to sample the material and estimate the ages of the faulted surfaces. Nights were spent sitting in the cooking tent, discussing the geology and getting to know our colleagues, as well as the Tibetan drivers and guides that accompanied us.

After several weeks, the party broke up as the scientists from the other American schools headed back. The KU group and support crew moved south, to a possible southern extension of the Lunggar Shan rift. This portion of the project will make up a big chunk of my dissertation work, and I was excited and a bit intimidated. Unlike the north, which had seen previous work by the group, this area was entirely unmapped, so we had little to build upon. But a picture began to emerge as we spent days hiking up the mountains and studying the fault scarps in the moraines at the base of the range. The southern rift did indeed share many similarities with its northern neighbor, but some of the field relationships were different and unexpected. As is so often the case in science, an investigation leads to more questions.

Eventually, Dr. Taylor returned to Kansas, and our group was smaller still: just Kurt, our guide Tentzen, our supply truck driver Deng Ju, and me. It is remarkable how well we all got to know each other, spending day after day together, even though language difficulties meant we could barely speak to these Tibetan men.

Finally, our field campaign also came to an end. The journey away from civilization was played in reverse, punctuated by our arrival in Beijing after almost two months in the wilderness. We came away successful, having answered many questions about the region’s geology while raising others that can only be answered by the next trip to the field.

- Richard Styron

Student Kurt Sundell surveys the fresh snow on the southern Lunggar Shan rift in Tibet.
Up Close and Personal

Let’s be honest: Scientists don’t always make the best communicators.

But if we don’t communicate the results of our work to the people who need the information, we might as well not do it in the first place.

The Kansas Geological Survey is charged with studying and reporting on the state’s geology. One audience for that information is policy-makers, the people who make decisions about the state’s natural resources. But it can be tough to communicate this often technical and sometimes uncertain information in a way that policy-makers can use.

Every June for the past 16 years, the Survey has worked to bridge that gap by taking about 50 legislators, agency heads, business leaders, environmentalists, and educators on a three-day field trip called the Kansas Field Conference. The purpose is to give them first-hand exposure to the most important resource issues facing the state. The Kansas Water Office, Kansas Department of Wildlife and Parks, and Kansas Department of Transportation co-sponsor the trip.

Long-time attendees include people like Carl Holmes, chair of the Utilities Committee in the Kansas House of Representatives; Janis Lee, state senator; and Mike Hayden, former governor and current secretary of the Kansas Department of Wildlife and Parks.

Field trips are old hat to geologists, but not to this crowd. They get excited about visiting a drill rig, going into an underground mine, or even collecting fossils. They also get to ask questions and talk policy with experts. In the process, they learn more than they could in a 60-minute legislative hearing in Topeka.

The 2010 trip illustrates the impact of visiting the field. This trip focused on the connections between water and energy (rather than considering them separately, a more typical approach). An early stop was John Redmond Reservoir in Coffey County, which has lost 40 percent of its water-holding capacity as it has filled with sediment. Today, much of the lake is less than six feet deep. In many places you could walk across it (if you didn’t sink too far into the silt at the bottom).

To explore the situation, the group boarded black hawk helicopters (as part of a training mission for the Kansas National Guard) and flew over the reservoir, then up the Neosho River that feeds the lake. From the air, they could clearly see stream banks caving in and dumping more sediment into the lake. Staff from the Kansas Water Office provided commentary and answered questions.

That jaunt was followed by a trip to the Wolf Creek nuclear power plant on the banks of Coffey County Lake. As concerns about greenhouse gas emissions grow, expanding nuclear power plants like Wolf Creek looks increasingly attractive. But staff from Westar Energy ticked off the challenges: New nuclear plants are incredibly expensive. Coffey County Lake and John Redmond don’t contain enough water to cool a new unit at Wolf Creek.

Nuclear power isn’t the only place where issues of water and energy intersect. On the second day of the trip, the group toured the Coffeyville oil refinery and adjacent fertilizer plant. Both are sources of the greenhouse gas carbon dioxide. One way to deal with excess CO2 is to capture the gas and sequester it underground. However, the group learned that the easy fix comes with a cost: It will take lots of additional energy, which will, of course, require more water. Once the CO2 is underground, it will also have to be monitored to make sure it doesn’t enter shallow aquifers and create issues for drinking-water supplies. Field trip participants attended a panel discussion on sequestration and received an update on current sequestration projects in Kansas.

The trip also took policy makers to the Tallgrass Prairie National Preserve north of Strong City, the Kansas Army Ammunition Plant near Parsons, and Toronto Lake in Wilson County.

Shane Lyle, senior research assistant at the Survey, who is working on a master’s degree in geohydrology at KU, led the trip. Don Steeples, McGee Distinguished Professor in the Geology Department, is a regular. As is Ed Martinko, head of the Kansas Biological Survey.

The trip was the idea of Lee Gerhard, a KU Geology Department alum and head of the Survey from 1986 to 2000. Over the years, the field conference has received awards for its effectiveness, and been copied by other state surveys.

But probably most important, the trip has inserted more science into policy making in Kansas. Policy-makers regularly refer to their field conference experiences as they debate legislation. They call people they met on the trip and ask questions. The result is better-informed decisions about the state’s water, energy, and environment – and that affects us all.

Rex Buchanan
Interim Director, Kansas Geological Survey
A Note From The Chair

As I close in on my second year as Chair of the Geology Associates Advisory Board, I have been thinking about a paradox that the Geology Department has been dealing with for some time. Let me explain.

Since I was a PhD student in the mid 70’s, the Department has grown substantially in size, scope and stature. With the support of the University, College and the Geology Associates, the Department has accomplished much, including the:

- Creation of a Geobiology program that is rapidly gaining national and international attention;
- Strengthening of the Carbonate Geology program so that it is now recognized by peers and industry as the leading carbonate program in the U.S. and one of the top programs in the world;
- Revitalizing of Tectonics and Geochemistry with new hires and state-of-the-art laboratories that are propelling these programs to the forefront of their disciplines.

To the Department’s credit, these accomplishments have been made without compromising its national ranking in Paleontology, or the quality of its work in Geophysics and Hydrogeology. Faculty and student publications, grants, faculty and student awards and the placement of its graduates have all been steadily improving.

However, I was struck by what I saw last October when several Associates and I toured the Department. We were confronted by the paradox of the Department’s world-class quality vs. the struggles faculty, staff and students face daily because of its scattered, and sometimes second-class, facilities.

I know we all have memories of Lindley. The place hasn’t changed much over the years. The basement now has usable lab and office spaces, but the pipes still clang and the power and water supplies can’t meet the needs of today’s researchers. This isn’t surprising, given the fact that Lindley was completed during World War II. Lindley’s other problem is that it is too small.

To tour the rest of the Department, we hopped in our cars and headed to West Campus on the other side of Iowa Street. After passing Moore Hall, which houses the KGS, adjunct faculty and a few grad students, and making a couple of wrong turns, we arrived at MR. B (the Multidisciplinary Research Building), which houses 5 faculty, 10 graduate students, and a number of state-of-the-art labs.

We met faculty members and students who enthusiastically explained their research projects, but also talked about their frustration with needing to travel back and forth to Lindley numerous times each week. Next we traveled to the other side of West Campus to Nichols Hall, which houses several faculty and graduate students. In Nichols, we saw an impressive new lab. You would be amazed at the speed, the quality and resolution in dating and analyzing rocks these days.

At the end of the tour, I concluded that despite being separated in four buildings, the Department is blessed with faculty who are innovative in research and aggressive in securing funding. That said, however, the Department is not nearly as productive or collaborative as it could be if faculty and students did not have to travel between facilities all the time. In today’s world, so many areas of research are interdisciplinary that frequent interaction is an essential factor in developing top quality research programs and graduates.

How do we solve this problem? The Department, Geology Associates and the University want to affect a solution that both provides the best education for future generations of geoscientists and creates world-renowned centers of excellence for research in geology, energy and the environment.

The good news is that the Department and University are working toward a solution. One building plan has already been created as we reported last year. More comprehensive approaches are now being discussed. I am encouraged by financial commitments that have already been made by KU’s Provost, the College and by generous gifts from alumni and members of the Geology Associates. Some of those gifts have come with company matches.

As far as we have come toward fulfilling the vision of creating a world-class Department, however, we still have a long way to go. I have already given an initial gift. I hope you will join me. Think about what you can donate so that all G-Hawkers will have the resources they need to fulfill their potential.

- Jim Funk
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All alumni and friends of the Department of Geology at the University of Kansas become Geology Associates when they make a donation to the Department. Many of these individuals have contributed to funds established by the University of Kansas Endowment Association to provide support for various special purposes and activities of the Department. The category of Geology Life Associate has been established to provide special recognition in gratitude to those Associates who have donated $5,000 or more since the Geology Associates organization was formed in 1968. This list will be published in each issue of the G-Hawker in order to repeatedly convey our thanks for the generosity of these men and women.

Note: If you do not see your name here and believe it should be, please contact Luis González (lgonalez@ku.edu) or Liz Gravatt (egravatt@ku.edu) so that we may correct our records.

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Alumni Give Back

Donations Take the Department of Geology to the Next Level of Excellence.

Vogls Boost Lindley Hall Project

Eric and Lisa Smith Vogl are Jayhawks on a mission. They want to help push KU Geology’s already excellent program to the next level of success, and they intend to help the Department build the infrastructure needed to do it.

To fulfill their quest, the Houston couple have donated a major gift to expand and renovate Lindley Hall. Eric (MS ’80) is a manager for ExxonMobil Exploration Company. Originally from Kansas City, Lisa earned a BS in journalism from KU in 1981, and is a homemaker.

“People in the geosciences recognize that KU has one of the premier geology departments in the country and the world,” says Eric. “It’s just not fitting for a department of that quality not to have premier resources.”

Built in 1943, Lindley Hall lacks the temperature control, and electrical and water infrastructure needed to support 21st Century research. “The current condition of Lindley Hall is below the standards of other geology departments in the U.S. and departments at KU,” Eric says. “There are safety issues in the current building, and there are basic functionality issues.”

The Department has also outgrown Lindley, and faculty and students are scattered throughout campus in four different buildings. “In a science like geology, collaboration of the entire faculty, staff and students is critical,” he says. “Face-to-face communication is the best and most thorough form of communication. When your department is scattered around campus, it becomes a mission to go meet somebody, and one tends to err on the side of lazy human nature and avoid that. Whereas telephone phone calls and emails are useful media, sometimes personal interaction is required to resolve issues.”

Eric fondly remembers when he was a student and was able to walk down the hall and chat about research problems with professors. Today’s KU Geology students may not be able to do that in all instances.

With uncertain facilities, KU Geology may also one day have problems retaining faculty members, he says. “I’m concerned that particularly the younger members of the faculty will view the quality of the facilities as part of an incentive to depart. Conversely, if we are trying to hire someone, and we tour Lindley Hall, it’s a bit embarrassing.”

Eric has been a member of the Geology Associates Advisory Board for five years. He and Lisa are also Geology Life Associates. The couple have given repeatedly to the Ernest Angino Geochemistry Scholarship Fund. Angino was Eric’s advisor at KU.

Born in Delaware, Eric grew up in Amherst, Mass. He earned his BS in Earth Science in 1978 from the University of New Hampshire. After finishing his master’s at KU, he took his first professional job and began what was to become a 30-year career with Exxon. Eric started in the production department in Lafayette, La., where he did production scale prospect mapping and drawing.

In the years that followed, he traveled the world for Exxon, moving from Lafayette to New Orleans to Houston...
and to London, and finally heading back to Houston. Along the way, Eric worked in exploration, development, and production in the Gulf of Mexico, onshore Louisiana, West Africa, Venezuela, continental Europe, North Africa, United States, Canada, Australia, and Indonesia.

He first became a supervisor in 1990 and since has held many managerial positions, including advisor to the vice president for Continental Europe Exploration, planning manager for the president of ExxonMobil’s Upstream Research Co., and project manager for the United States, Canada, Australia, Indonesia, and Europe for the ExxonMobil Development Co. In February 2010, he took over his newest position as manager for Africa and South America New Opportunity Identification.

Lisa is a homemaker. She also volunteers at Kingwood High School and The National Charity League. The couple has three children. The youngest, Jennifer, 16, is a sophomore in high school. Derek, 19, is pursing a baseball career and has enrolled in San Jacinto College in Houston. Kyle, 23, earned an electrical engineering degree from the University of Texas in 2009, and now works for ExxonMobil Pipeline Co.

Besides their support for KU Geology, Eric and Lisa have also made donations for the KU School of Journalism.

Giving back to KU is important, Eric says. “I’ve had an exceptionally successful career here at ExxonMobil. The education the Department provided me laid the foundation for me to get the job. This is the least we can do for the University and the Department.

Dixons Pay It Forward

Steve and Maggie Dixon of Oklahoma City believe in the concept of “paying it forward.” Celebrated as far back as 317 BC and turned into the center point of 21st Century books and movies, “paying it forward” means to repay a good deed by doing something wonderful for someone else. Instead of repaying a loan to the lender, for example, you pay it forward to another person in need.

Steve (BS ’80) and Maggie are providing unrestricted support to KU Geology so today’s students can reap the benefits of a top-notch education in the geosciences, just like Steve did decades ago.

Steve is the Executive Vice President of Operations and Geosciences and Chief Operating Officer of Chesapeake Energy Corp., the largest independent producer of natural gas in the United States.

“I have great gratitude to the Department where I earned my degree and started my career,” Steve says. “I’ve been very fortunate in my work experience and couldn’t have done it without the Department. I’m very, very fortunate and happy to be able to pay it forward.”

Steve has served on the Geology Associates Advisory Board for about five years. It’s a role he is pleased to take on.

“I think it’s important that the Department maintain a robust and relevant program,” Steve says. “We need to train skilled, new professionals, and I’d like for KU to be a part of that. I got involved because I wanted to keep my finger on the pulse of the Department and help wherever I could. I’m very happy the department’s doing well and want it to do well in the future.”

After graduating from KU, Steve was a geologist with Beren Corp. in Wichita, Kan. From 1983 to 1990, he served as a geologic consultant, working out of Wichita. In 1991, he joined Chesapeake as vice president-exploration, staying in that position for five years before taking over as senior vice president-production.

Among many other achievements, Steve helped Chesapeake pioneer horizontal drilling. He was instrumental in refining geosteering, the delicate science of keeping a sideways drilling operation locked onto the right path.

In 2006, Steve was promoted to executive vice president of operations and chief operating officer. In February 2010, he took over his current position.

The KU Geology faculty honored Steve in 2008 with the Industry Haworth Award, which is named for the first chair of the Department of Geology.

Maggie manages the family’s real estate investments, runs their household and is an active community volunteer.

The couple have four children: Ian, a KU engineering graduate; Claire; Caitlin; and Luke. They also have two grandchildren and a third grandchild on the way.

“I’m very fortunate,” Steve says. “I’m just a lucky guy.”
Hiemstras Say Thanks

Erik and Christy Hiemstra of Houston only have one regret about the financial support they’ve given to the Department of Geology. They regret they didn’t start doing it sooner.

Only seven years out of KU, the two geology alumni are enthusiastic donors to the H.A. and Elsie Ireland Scholarship Fund and Imogene Herndon Scholarship Fund. Erik (MS ’03) and Christy (BS ’01, MBA ’03) received support from these scholarships when they were at KU.

“I’m giving money because I got money, and I got the money at a time when I had very little,” Erik says. “We started donating relatively recently, and it’s something I wish we would have started earlier. There’s lots of ways to spend your money. Some of them are frivolous and some bear fruit. This is the latter, and I think it’s money well spent.”

Christy worked part time while she was an undergraduate at KU. She says she feels like she is repaying a debt. “They helped us get through, so we thought we’d repay the favor. We want to support the school that supported us. The Geology Department is also the reason we’re at where we are today, and why we’re at the point in our lives when we can donate.”

Erik, a petroleum geologist at ConocoPhillips, and Christy, a human resources consultant at Marathon Oil Company, are also pleased because both of their companies match their donations.

“That works out well for the University,” Christy says. Christy and Erik say they value their time in the Department. The technical knowledge they learned helps them every day on their jobs.

“Above and beyond that, the camaraderie I built up, the friends I had in grad school are so important,” Erik says. “I worked with some of these people on my first job. The friendships we built up in grad school continued into my career, and they are my close friends now. That camaraderie also extended to the faculty. I’m still close friends with many of them.”

Erik visits campus frequently. On many of his visits, he takes advantage of the Department’s expertise in carbonate sedimentology and works on technical problems in the Stable Isotope Laboratory run by Chair Luis A. González. Erik also visits as a recruiter for ConocoPhillips.

“I get to see how the candidates from KU stack up against candidates from other schools,” Erik says. “I truly think KU is right at the top of the list.”

Erik grew up in Grand Rapids, Mich., and attended nearby Hope College for his bachelor’s degree. Christy grew up in Olathe, Kan., in suburban Kansas City. After graduating from KU, Erik worked as a petroleum geologist at Chevron, and Christy worked for the State of California.

The couple’s commitment to KU also comes from another, rather key, personal experience they had while studying geology. Although they were in the same Department, Christy was an undergraduate and Erik a graduate student. The two never crossed paths until they traveled to Cañon City, Colo., to attend Field Camp.

“Field Camp holds a special place for us,” Christy said.

Erik says, “Without Field Camp, I don’t think we would have met. We got to know each other out there.”

Today the couple has two children. Emma is 2 ½, and Will is 1.

Headquartered in Houston, this KU family lives amid thousands of University of Texas, Texas A & M, and Texas Tech alumni. That makes it difficult to get tickets to football and basketball games when KU is in town. “But somehow, we manage to attend almost every game when KU is playing in Texas,” Christy says.
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Dee W. Roy
Sylvie Johnson Rueff & Glenn W. Garneau
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ExxonMobil Foundation
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Max L. & Aliene W. Krueger Fund
Kirsten (Kise) Krueger LaMontagne

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Maurice & Vicki Bryant Townsend

Pratt Geology Fund (Geophysics)
William W. & Nancy Schnelli
Hambleton

Ralph C. Lamb, Jr. Geology Scholarship
Sarah Lamb

Raymond C. & Lilian B. Moore Fund in Geology
ExxonMobil Foundation
Stuart & Harriet Grossman
Joseph R. Pierson Jr.

Raymond C. & Lilian B. Moore Scholarship in Geology
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Universities are the creations of human beings.
--Deane W. Malott, former KU Chancellor, 1952

One man may do much to shape an institution;
only many men can build an institution.
--Clyde Kenneth Hyder, Snow of Kansas, 1954

Reconnaissance on the geology of Kansas was done by many, from the Frenchman M. Veniard de Bourmont in 1724 through Edwin James and his crude geologic map in 1823 and the first two geological surveys of the state performed by Benjamin Franklin Mudge (1864) and George Clinton Swallow (1865). However, prior to the Geo-Troika Plus One, little was actually known about the geology of the state.

The real geologic studies began in 1890 during Francis Huntington Snow’s first year as University chancellor when he enticed Samuel Wendell Williston to KU. Before becoming chancellor, Snow had taught natural science at KU. Williston, who had a PhD and MD, was brought to KU to teach paleontology. Edgar Henry Summerfield Bailey, a PhD chemist, had already joined the faculty in 1883 and was teaching mineralogy. Forming the third part of the Geo-Troika was Erasmus Haworth, a PhD from Johns Hopkins, who was teaching at Iowa’s Penn College (now William Penn University). Snow had convinced Haworth to come to KU in 1892 to teach geology. Haworth was hired to be professor of Physical Geology and Mineralogy and head of the newly created Department of Geology. Williston, Bailey and Haworth were the Geo-Troika - the paleontologist, the mineralogist, and the geologist. With The Plus One, Chancellor Snow, they formed the Department.

In 1889, the Kansas Legislature created the third geological survey and decided to put it at KU with the chancellor as ex officio director (Buchanan, 1989). The Geo-Troika became the staff of the loosely organized geological survey, while The Plus One served as its titular head. The stage was set.

Quick progress, however, was difficult. The Legislature did not provide funds for operation of the Survey, insisting that the University fund it from their appropriations. Funding for operation of the Survey was not provided for another six years. At that time, Haworth finally assumed the title of State Geologist and Director.

The Geo-Troika worked well together. Snow, the natural scientist with a stature of 5 feet 6 inches, was described as a successful teacher. “He was friendly, he was kind, he was patient, he was honest, he was lucid and forceful in speech, he was enthusiastic, and above all and under all was his manliness and fearlessness.” (Hyder, 1953, p. 116). He carried these traits over in his roles as an administrator and scientist. Snow put together a science team of note and was well respected. At the inauguration of his successor as chancellor, the audience gave Snow a standing ovation.

Bailey was described by his former student H.P. Cady as having good judgment, which enabled him to build the Department of Chemistry from next to nothing to one well supplied and equipped. Bailey had an unfailing kindness to students, a good judgment in selecting helpers, and a kindly way with his staff (Anon., 1925, p. 57). He was a loveable man. He spent time in Germany studying and was fluent in German. Bailey also started a collection of material that eventually became KU’s University Archives.

Williston was described as a “robust man striding across the university campus, ruddy complexioned, broad shouldered, 5 feet 10 inches tall, and weighing about 185 pounds (Shor, 1971, p. 178). He urged students to do research and frequently suggested and outlined work for them. He was a father figure to them as well. He was also instrumental in founding KU’s School of Medicine and served as the school’s first dean.

Haworth also was a successful teacher and not only trained those in geology and mining, but “gave to many hundreds of university students some knowledge and a lasting interest in the subject matter of geology (Moore, 1933, p. 339). Haworth was a capable and inspiring teacher and
earned the nickname of “Daddy” from students.

In addition to the plaudits these four men received as teachers, all were top-notch researchers. In addition to all his other activities, Snow published 129 papers and wrote 28 unpublished manuscripts. Bailey published more than 100 scientific papers on a variety of subjects. Haworth published 70 papers and books. Williston was the most prolific, publishing 300 books and papers in his career. Of that total, more than 135 were published during the 12 years he was at KU.

All of them served their profession in Kansas as well. Snow, Bailey, and Williston were presidents of the Kansas Academy of Science in 1874-75, 1893 and 1897. Haworth was a life member.

When Haworth began teaching at KU, he immediately set out to reorganize the course offerings undergraduates were required to take to obtain a degree in geology. The courses had prerequisites and almost every course met daily and had a laboratory. The course work generally was divided into hardrock geology, taught by Haworth, and softrock, taught by Williston. Field work in Kansas also was required of advanced students. Graduate courses included Advanced Mineralogy (Haworth), Advanced Petrography (Haworth), Dynamic Geology (Haworth), Special Work in Paleontology (Williston), and Field Work in Geology, Mineralogy and Petrography (Haworth or Williston).

By the turn of the century, the Department had produced several bachelor degrees, two masters, and one doctorate. Haworth—the man who would later become the longest serving chair of the Department of Geology—received his first master’s degree. Under the supervision of Chemistry Department faculty member George E. Patrick, Haworth worked on the lead and zinc deposits of southeastern Kansas and received his master’s in 1884. The other master’s student was Charles H. Grover who did a thesis on mineralogy under the direction of Bailey in 1895. The first doctorate was granted in 1899 to Joshua William Beede for his dissertation on “Carboniferous Invertebrates.” Beede worked for the Survey and was one of Williston’s students.

Under Haworth’s leadership, the Survey began publishing the volume series. Prior to this series, Haworth had published in the Kansas University Quarterly and in Transactions of the Kansas Academy of Science papers on Kansas chert rocks, minerals, coal, lead and zinc, and limonite.

The first Survey volume was on the geology of eastern Kansas and appeared in 1896 with 15 chapters. Eight were written by Haworth. Volume II was issued in 1897 and focused on the geology of western Kansas. It was organized and partly written by Haworth. Volume III was issued in 1898, focused on coal and was written by Haworth and W.R. Crane. Williston, with help from C.E. McClung and W.N. Logan, authored volume IV (Part I) on Upper Cretaceous paleontology. With help from Joshua W. Beede and Alban Stewart, Williston finished Volume VI (Part II) on Carboniferous and Cretaceous paleontology. Volume V, issued in 1899, was written by G.P. Grimsley and E.H.S. Bailey and was on gypsum and gypsum cement. Volume VII, issued in 1902, was written by Bailey and was a special report on the mineral waters. Volume VIII was on lead and zinc by Haworth and others (1904) and IX was a Special Report on Oil and Gas by Haworth and numerous authors (1908). Included was an up-to-date multicolored geologic map of the state prepared under the direction of Haworth. As indicated by the topics of the Survey publications, the emphasis during these foundation years was on stratigraphy/paleontology and mineral resources.

By the turn of the 20th century, the productive years of the Geo-Troika were nearly over. Chancellor Snow stepped down in 1901, Williston left for the University of Chicago in 1902, and Bailey turned his full-time attention to the Chemistry Department. With Bailey and Haworth as the only members of the Geo-Troika remaining at KU, a new phase began in the University’s geology programs. Soon stratigraphy and paleontology were the Department’s specialties. With the arrival of R.C. Moore in 1916, the “new program” was in place, essentially forming the emphasis of the Department and Survey for the remainder of the 20th Century.

The University recognized the contributions of the Geo-Troika Plus One by naming buildings after Snow, Bailey and Haworth on the main campus. Williston was honored with the Williston-McClung Seminar Series at the KU Medical Center in Kansas City.

Acknowledgments: Carolyn Berneking kindly shared thoughts about her grandfather Edgar Bailey, Ed Dizerega provided information about his great grandfather Erasmus Haworth, and Nancy Huiston, the Director of the University of Kansas Medical Center Archives and the Clendening History of Medicine Museum, shared information on Samuel Williston.

- Dan Merriam
Departmental Historian

References
In Appreciation

I’ve known Bill Hambleton for about 65 years as a fellow student, colleague, supervisor and friend. In some ways, he is intense, demanding and purposeful, but in other ways, he is considerate, understanding and warm. Bill is an able scientist, an effective teacher, and an excellent administrator.

Gene Budig, then KU chancellor, said of Bill when he retired in 1986:

In basic and applied research, and always in close cooperation with KU’s academic programs, he has been a respected leader. He is a good friend and an outstanding colleague.

Bill was born in 1921 in Lancaster, Penn., prior to World War II and received his BS in chemistry from Franklin and Marshall College in Lancaster. During WWII, Bill served in the U.S. Army in the European Theatre, seeing combat in the Battle of the Bulge and earning a Bronze Star and battlefield promotion to sergeant. After the war, he returned to school under the GI Bill of Rights and earned his masters degree in geology from Northwestern University. While at Northwestern, he met Robert Dreyer, who enticed him to KU to do a PhD.

He and his wife, Nancy, took the train from Chicago to Lawrence and were transported to Sunflower. The old WWII ordnance plant east of Lawrence had been converted to living quarters for KU students. The apartment was Spartan, grim and hot, and Nancy wanted to leave, but they stayed and have lived in Lawrence ever since.

Bill completed his doctorate (in geology and a minor in physics) in 1951 with a dissertation on Petrographic Study of Kansas Coals, which was published in 1953 by the Kansas Survey as Bulletin 102, part 1. While Bill was a student, Nancy was a chemist with the Kansas Geological Survey. Upon completion of his academic studies in 1951, he joined the KU faculty as an assistant professor.

His teaching included courses in Geophysics, Optical Mineralogy, Petrography, and Economic Geology. His first year saw him teaching Metalliferous Economic Geology, Petrography, Ore Petrography, and Advanced Petrography. He went on to teach Mineralogy, Optical Mineralogy, Geophysics, Nonmetalliferous Economic Geology, Principles of Economic Geology, Exploration Geophysics and Gravity.

He even had his turn at running the KU geology field camp in Colorado in the summers from 1950 to 1954. In his busy schedule, he found time to supervise one doctoral student and five master students in the mid-1950s.

With his teaching and administrative duties, Bill had limited time to devote to research, however, in the early part of his career he did manage to do some. After completing his doctoral dissertation, he conducted a magnetic geophysical study in Wilson and Woodson counties, reviewed geophysical activities in Kansas, and edited Symposium on Geophysics in Kansas—all published by the Kansas Geological Survey.

Although his research and teaching were exemplary, his forte was administration. In 1954 Bill joined the Kansas Geological Survey as assistant director and gradually took over the administrative duties of running the Survey, becoming the director de facto. His manner was such that within a few months he was not only accepted by the older, established scientists but the younger ones, too. He advanced from assistant director to associate director in 1956 and became director on Frank Foley’s retirement in 1970.

Bill not only had the ability to solve small day-to-day problems, he had a visionary overview of science and the role the Survey should take at KU, the state of Kansas, and the nation. With all his administrative skills, however, he never forgot his roots in the subject matter. He maintained his interest in and his function as the State Geologist of Kansas.

All of his decisions were not universally accepted by those working with him or for him. For the most part, however, they were prophetic and not meant to be popular. Bill could see changes coming, and he adjusted the individuals and organization to meet them. This included the computer revolution. In this way, Bill kept ahead of the changes and always was prepared for the future.

He was also active in University affairs, serving as associate dean of the Graduate School and associate dean of Faculties. He was on many committees and served on the Board of Directors for the Center for Research and chaired the Senate Council. He also served as energy advisor to Kansas governors Robert Docking and Robert Bennett, and President Jimmy Carter.

Bill was especially active in professional and government committees, serving on many commissions, councils and task forces. He was the governor’s representative on the Interstate Oil and Gas Compact Commission, an advisory committee for the Federal Power Commission, a National Academy of Sciences committee on industrial waste and another on disposal of radioactive waste in salt. He was on the Kansas Energy Council, Energy Advisory Task Force for the
City of Wichita, the Kansas Water Authority and the Governor’s Task Force on Water Resources. He also served on numerous professional committees for the American Geological Institute, American Association of Petroleum Geologists and the Association of American State Geologists.

Bill also gave his time to community service, serving on the KU School of Fine Arts Advisory Board, the Lawrence Chamber of Commerce, KU Alumni Association and the Plymouth Congregational Church among others. As an anonymous commentator quoted in the 2006 G-Hawker said:

Arguably, no director of the Kansas Geological Survey (KGS) has had more long-lived influence on public policy than Bill Hambleton ... During Hambleton’s tenure, the Survey took center stage in state politics for the first time and would set a new standard for KGS involvement with policy.

In many ways, Bill is also a modern renaissance man with a wide range of interests. His fascination with geology led him to create a geological interpretation of the landscapes painted by the art masters. He prepared a lecture on the topic that has always been well received.

Bill also proved to be an excellent writer. Through the years, he prepared a series of essays to be used as introductions at civic or legislative group meetings. The subject of these essays span from music to conservation, preservation and pollution to the law. All are thought provoking. Some of the more notable speeches have been collected in a volume and published by the Survey.

Each year in February, Bill organized a St. Barbara’s Day celebration in recognition of the patron saint of geologists to honor women geologists. Speakers included Dallas Peck, then the director of the U.S. Geological Survey; Nancy Pruett, then with the Sandia National Laboratories; Genevieve Atwood, the director of the Utah Geological and Mineral Survey and State Geologist of Utah from 1981-89; and Debbie Carter, then the head of the National Coal Resources Data Systems.

Bill has received many honors. An addition to the Kansas Geological Survey complex on KU’s West Campus was named the William W. Hambleton Hall in his honor. In 1987, he received the Department of Geology’s Haworth Distinguished Alumni Award. He oversaw the expansion of the Well Sample Library building in Wichita.

When he turned over the reins of the Survey to his successor on retirement Jan. 31, 1986, the Survey was arguably the best state geological survey in the United States.

Bill has remained active in retirement. In addition to acting as a docent at KU’s Spencer Museum of Art, he has kept in touch with his geological roots. He is working on another introduction to a forthcoming KGS-sponsored meeting and preparing a historical perspective on his tenure as Director of the Survey.

Bill was a dedicated Survey director with definite ideas on where and how to go, and gently and sometimes not so gently, he steered the research and destiny of others. He inherited an ongoing program in several areas, so under his administration other avenues of research could be explored. He told me in 2008 that he wants to be remembered as the one who developed people to do things and created an environment in which to do it.

Bill is fortunate to have as a partner and a companion, his loving wife Nancy, who has supported his efforts in addition to keeping up with her own interests. Bill and Nancy have two children, Ann and Jeff. Meanwhile, Nancy has been active in civic affairs. Among other things, she served on the Lawrence City Commission and as mayor of the city. She is also a professional chemist, who provided Bill with practical and professional advice. They make a great team.

The University and the Department have benefited greatly from Bill’s hard work. We are thankful for all Bill has done.

- Dan Merriam
Department Historian

Additional Reading


With the introduction of computers and digital cameras, publications with artistic and accurate geologic sketches have become a rarity. Has much of this art and data been lost? A quick survey of publications from the 20th Century shows that good examples of these beautiful and scientifically significant works still exist. Among the most important are the drawings produced in books by geologists Philip B. King, Hans Cloos, Jean Goguel and Raymond C. Moore, among others. The technique and artistic quality of the work varies from individual to individual and by subject. There are geologists with an artistic bent, and there are professional artists who capture geology in their work.

Geologists regularly sketch situations in the field and draw panoramas, profiles, cross sections and fossils. Many of these works are done in field notebooks or notepads, and in earlier days, were completed with such care and attention to detail that they became integral parts of publications. Some of the better field illustrations were reproduced in reports, especially those by W.H. Holmes, Louis Agassiz and Amadeus Grabau. These images were used for their artistic beauty, or because they illustrated what the author wanted to convey to the reader.

Some field geologists sketched or drew what they wanted to record in the field and completed the illustration in the lab or office. Moore developed a technique of photographing a subject in the field and then inking on the photograph when he returned to his office. The photograph was purposely faded leaving only the ink drawing.

Moore was a master at drawing and could have been a professional artist had he chosen to do so. Many of his sketches were used in field excursion guides, such as his drawings of Coronado Heights in Saline County, a mound of Dakota Sandstone overlying the softer Permian shales. Samuel Williston also made excellent landscape drawings, although few have survived. His rendition of Monument Rocks (Niobrara Chalk, Cretaceous) in Gove County is a good example of his artistic work.

Walther Schwarzacher, a visiting scientist at the Kansas Survey in 1967-68, was a cyclothem expert and showed the topographic expression of a series of them in the Loferer Steinberge in his native Austria. Closer to home, W. R. Crane, an assistant geologist with the Survey in the late 19th Century, depicted the “horsebacks” in a coal mine at Weir City, Kan. He included a scale in the drawing, which was helpful to the reader.

Cross sections, too, were a method of presenting the geologic relationships, as shown in a paper by Erasmus Haworth, the first state geologist of the third Kansas Survey. Haworth was not an accomplished artist, however, and his sister-in-law Hattie prepared most of his illustrations for publication.

Many of the articles for the *Treatise on Invertebrate Paleontology* and paleo textbooks contain drawings by paleontologists. Two fine geo-artists for the *Treatise* were Jack Koenig (MS ‘51) and Roger Williams (MS ’66). Meanwhile, Moore was the master at drawing animals in their natural habitat. The long-used paleo textbook written by Moore, Lalicker and Fischer is mostly illustrated by the authors’ own drawings. Some of them recreated the environments in which animals lived, such as the one by Moore. Alfred G. Fischer did a drawing of modern cephalopods with a school of squid in the background.

Reconstruction of ancient environments is a special talent because artists have to use their imagination. This is perhaps the most demanding task for an artistic geologist or paleontologist. Several, however, had a knack for reconstructions, including Moore, Koenig and Sydney Prentice. Moore’s work, of course, is well-known. Koenig was the graphic artist for the *Treatise on Invertebrate Paleontology* for several years. Prentice (KU 1896) drew the restoration of the Cretaceous animals and the bird *Hesperornis* under Samuel Williston’s “immediate and constant supervision” for his articles in Volume IV of the University Geological Survey.

These are just a few examples that show how the graphic talent of geologists has not been completely lost.

- Dan Merriam
Department Historian

For Further Reading

Degrees Awarded: December 2009 - May 2010

**Graduate Degrees**

Ramzy Mohammed Al-Zayer  
PhD  
“Modeling the Near-Surface Using High-Resolution Seismic Data”

Ezra Kulczycki  
PhD  
“The Impact of Microbial Chelates on Mineral Weathering and Microbial Metabolic Activity”

Celina A. Suarez  
PhD  
“Geochemical Approaches to the Study of Life and Death of Dinosaurs from the Early Cretaceous Cedar Mountain Formation, Utah”

Marina B. Suarez  
PhD  
“Global Hydrologic Perspectives on the Mid-Cretaceous Greenhouse Climate (Aptian-Albian)”

Robert A. DePalma  
MS  
“Geology, Taphonomy, and Paleoecology of a Unique Upper Cretaceous Bonebed Near the Cretaceous-Tertiary Boundary in South Dakota”

Amanda R. Falk  
MS  
“Interpreting Behavior from Early Cretaceous Bird Tracks and the Morphology of Bird Feet and Trackways”

Erin E. Saupe Finley  
MS  
“Biogeography and Evolution of the Araneae: A Synthetic Approach”

Travis R. Glauser  
MS  
“Thermochronometric Investigation of Multiple Unconformities and Post-Depositional Thermal History of a Fault Block in the Northern Western Desert, Egypt”

Andrew J. Herrs  
MS  
“Quantifying Surface Subsidence Along US Highway 50, Reno County, KS Using Terrestrial LiDAR”

Christopher J. Lipinski  
MS  
“Stratigraphy of Upper Miocene Oolite-Microbialite-Coralgal Reef Sequences of the Terminal Carbonate Complex: Southeast Spain”

David J. LoBue  
MS  
“Ichnatoxonomic Assessment of Mazon Creek Area Trace Fossils, Illinois, USA”

Rebekah C. Ost  
MS  
“Stratal Patterns of the Williams Fork (Hunter Canyon) Formation, Piceance Basin, Colorado”

**Undergraduate Degrees**

Patrick Kyle McKenna  
BA

Wyatt J. Urban  
BA

†Yaser Abdullah H. Al Zayer  
BS

Cynthia Theresa Blanton  
BS

Chad Anthony Counts  
BS

Ben Avery Geller  
BS

Adam S. Goldsmith  
BS

Maxwell S. Hire  
BS

*Breanna Leone Huff  
BS

Nicholas R. Laskares  
BS

Aleksander Peter McElroy  
BS

Matthew Anthony Neal  
BS

Kelechi Chinonso Okoronkwo  
BS

Theodore W. Pfau  
BS

Preston L. Rogers  
BS

†Spencer Mark Seman  
BS

James Evan Stone  
BS

Jonelle Desiree Truitt  
BS

Melissa Ann Veltri  
BS

Randol Louis Wehrbein  
BS

Jessica Idell Wiele  
BS

David Fletcher Wright  
BS

*Graduated with Departmental Honors
†Graduated with Highest Distinction
Dinosaurs and Doctorates
Twins Earn Degrees

Sylvia Suarez knew her twin daughters’ dinosaur hunts might be more than a phase when their grade-school teacher quietly informed her that the girls needed to stop digging holes in the school playground.

This past spring, Celina and Marina Suarez, daughters of Sylvia and Arturo Suarez of San Antonio, graduated with doctorates in geology from KU. They are the first in their family to earn doctoral degrees.

Their parents, both educators — Sylvia a retired elementary teacher and Arturo superintendent of a charter school — say they saw early clues of the twins’ passion for geology. Arturo frequently found his shop tools missing. The twins were using them to dig in the family’s backyard. When the backyard produced nothing, the twins moved on to other sites, eventually learning playgrounds were off limits.

Their dinosaur hunts began when their mother took them to museums where I first encountered dinosaurs and to the zoo and the botanical center where I became interested in plants and animals and their relationships,” Marina says. They also hiked with their parents, “where there were plenty of good south Texas Cretaceous rocks and fossils.”

Marina, two minutes younger than her twin, completed her doctoral degree in fall 2009. She is the Morten K. and Jane Blaustein Post-doctoral Fellow at Johns Hopkins University in the earth and planetary sciences department. In fall 2011, Marina will return to San Antonio to begin a tenure track position as an assistant professor at the University of Texas-San Antonio.

Celina, too, remembered childhood day trips as an early influence in her love of science but adds, “In the second grade, we did a dinosaur section, and I never really grew out of the ‘I want to be a paleontologist phase.’” Now, I still use fossils including dinosaurs in my research, but I examine the chemical make-up of the bones and teeth to tell me about the past environment, climate and habits of the animals.”

Her dissertation examined the chemical composition of dinosaur bones and teeth to reconstruct climatic conditions that led to dinosaur evolution and extinction. After graduation, Celina headed to Boise, Idaho, to continue her research.

Marina specializes in the stable isotopic composition of the Earth’s layers. Her dissertation examined the climate and hydrology of the Cretaceous period. “I want to understand how the earth functioned in the past to help us understand how it will function in the future.”

Despite a mutual dislike of chemistry, both are geochemists. Celina says, “I hate chemistry, or did as an undergraduate.” Marina agrees. Yet as they settled into research for their master’s degrees at Temple University in Philadelphia, both began to find chemistry interesting and never looked back.

They selected KU for doctoral study after attending a professional geology convention and meeting Geology Chair Luis González, González specializes in paleo-climate research, an area that fit their academic interests. KU’s geology department graduate programs in sedimentology/stratigraphy and paleontology are ranked among the top 10 in the nation. With Gonzalez’s encouragement, the twins packed their rock collections and computers and came to Kansas.

It is happenstance, the twins say, that they have followed similar career paths from high school through college to graduate school. Their twin decisions on graduate schools, “just kind of happened,” Marina says. “I had no desire consciously to choose a different school. We both had the same attributes in mind with respect to what we wanted for grad school.”

Celina adds, “We do want to stay close professionally. Our individual expertise complements each other well, and we obviously work well together.”

Last spring marked the first long-term separation the twins had experienced since kindergarten. They found themselves on the phone and e-mailing daily. “It wasn’t easy,” Celina says.

As youngsters, they dressed in twin outfits but as young professionals, they aren’t interested in looking alike, although they are mirror twins — Celina is right-handed; Marina, left-handed.

The twins are the oldest of four daughters, the youngest of whom, a mathematician, died from injuries suffered when she was hit by a car while training for a cross-country team at Texas Lutheran University in Seguin. Their sister Bettina has a master’s degree in psychology and works for the U.S. Justice Department in Dallas. The twins are graduates of John Marshall High School in San Antonio.

- Mary Jane Dunlap
## 2009-2010 Grants and Awards to Students

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
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<tbody>
<tr>
<td>Blair Benson</td>
<td>Geological Society of America</td>
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<tr>
<td>Alvin Bonilla</td>
<td>American Association of Petroleum Geologists: Alexander &amp; Geraldine Wanek Memorial Grant</td>
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<td></td>
<td>Society for Sedimentary Geology: Robert J. and Ruth A. Weimer Student Research Grant</td>
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<tr>
<td>Daniel Doolittle</td>
<td>Geological Society of America</td>
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<tr>
<td>Sarah Evans</td>
<td>Sigma-Xi, The Scientific Research Society</td>
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<tr>
<td>Wes Gapp</td>
<td>The Association of Earth Science Clubs of Greater Kansas City</td>
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<tr>
<td>Breanna Huff</td>
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<tr>
<td>Jonathan Knapp</td>
<td>Explorers Club Foundation</td>
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<tr>
<td>Katharine Knoph</td>
<td>American Association of Petroleum Geologists: Robert K. Goldhammer Memorial Grant</td>
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<td></td>
<td>SIPES Foundation</td>
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<tr>
<td>Charity Lander</td>
<td>Geological Society of America</td>
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<tr>
<td>Joe Miller</td>
<td>Geological Society of America</td>
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<tr>
<td>Robin Moore</td>
<td>Geological Society of America</td>
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<tr>
<td>Cori Myers</td>
<td>AMNH Richard Gilder Graduate School Collections Grant</td>
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<tr>
<td>Vincent Nowaczewski</td>
<td>ExxonMobil Global Geoscience Recruiting Grant</td>
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<tr>
<td>Diana Ortega-Ariza</td>
<td>American Association of Petroleum Geologists: Susan Takken Memorial Grant</td>
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<td>Society for Sedimentary Geology: Gerald Friedman Award</td>
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<tr>
<td>Aimee Scheffer</td>
<td>Drilling, Observation and Sampling of the Earths Continental Crust (DOSECC): Grant in Scientific Drilling</td>
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<tr>
<td>Peter Schillig</td>
<td>Sigma-Xi, The Scientific Research Society</td>
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<tr>
<td>Richard Styron</td>
<td>Geological Society of America</td>
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<tr>
<td>Raff Sweeney</td>
<td>American Association of Petroleum Geologists</td>
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<tr>
<td>Jordan Leigh Taylor</td>
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<tr>
<td>Misha Tyspin</td>
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2010 HONORS BANQUET

The Department of Geology faculty, staff, and students met for the annual Honors Banquet on May 7, 2010. The following honors, fellowships, scholarships, and awards were announced:

GRADUATE SCHOLARSHIPS

Joseph Patterson Scholarship
Jose Velez
James A. & Rowena E. Peoples Scholarship
Kwan Yee Cheng

UNDERGRADUATE SCHOLARSHIPS

Frederick T. Holden Scholarship
Clinton Brumm  Tyler Fry
Chris Perll    Richard Rockell
Dean McGee Scholarship
Trevor Barth    Edward Morehouse
Alee Waggoner Memorial Scholarship
Trevor Barth    Edward Morehouse

GEOLGY 360 SCHOLARSHIPS

Frederick T. Holden Scholarship
Gabe Creason  Kayla Fox
Matt Green    Tricia Klein
Blake Miller  Matthew Miller
Edward Morehouse    Emily Parsons
Pam Silvestri  Marco Valloto
Andrew Vohs

FIELD CAMP SCHOLARSHIPS

Bradley Memorial Scholarship
Chris Clemmons
Louis F. & Bets Dellwig Field Camp Scholarship
Nathan Corbin  Tyler Fry
Hilary Kelly  Karen Ohmes
Scott Wooten

Imogene Herndon Scholarship
Jessica Savage
Lehman Scholarship
Craig Hendrix  Brian Ortega
Ray P. Walters Scholarship
Andrew Connolly  Jacqueline Walden

The Erasmus Haworth Award winners celebrate their success. L to R., Andrew “A.J.” Herrs, Jesse D. Thompson, Breanna Huff, Spencer Seman, Luis González and Paul A. Kenward.

JAN F. & MARY VAN SANT
GEOLOGY EXCELLENCE AWARD
David A. Fowle

LEO M. & ROBERT M. ORTH WATER RESOURCES SCHOLARSHIP
Gwen Macpherson

ERASMUS HAWORTH HONOR AWARDS

Outstanding Senior Student
Breanna Huff  Spencer Seman

Outstanding Master’s Student
Andrew J. Herrs  Jesse D. Thompson

Outstanding Doctoral Student
Paul A. Kenward

ASSOCIATION FOR WOMEN GEOSCIENTISTS SCHOLARSHIP

Juli Emry  Breanna Huff
Diana Ortega-Ariza  Alejandra Rodriguez-Delgado

SUMMER SUPPORT

Ernest Angino Scholarship
Mason Burgess  Juli Emry
Mikhail Tsypin
Lloyd Henbest Scholarship
Amanda Falk  Wade Jones
David Riese
Roscoe G. Jackson Graduate Research Award
Kathryn Hoffmeister
Roger L. Kaesler Memorial Award
Ian Wes Gapp
Ralph C. Lamb, Jr. Geology Fund Award
David LoBue  Michael Robbins
Marathon Oil Student Support Award
Rafferty Sweeney
Dean McGee Scholarship
Evan Burgnesi  Ian Bowen
Sarah Evans  Ece Gurler
Paul Kenward  Joeseph Miller
Edgardo Pujols
Merriam Graduate Student Research Award
Alejandra Rodriguez-Delgado
R. C. Moore Scholarship
Ian Wes Gapp  Maggie Simmons
Joseph Patterson Scholarship
Natalie Garven  Robin Moore
Peter Schillig  Jordan-Leigh Taylor
James A. & Rowena E. Peoples Scholarship
Katharine Knoph  Richard Styron
Kurt Sundell
Stelbar Oil Student Support Award
Diana Ortega-Ariza
1948

MEEEK, MARILYN SCHNACKEL, 3136 S. 47th St., Kansas City, KS 66109. BS ‘48. Retired clerical staff for Heart of America Council and Boy Scouts of America.

1949

MANN, RAYMOND KEITH. 18535 Melissa Springs Dr., Tomball, TX 77375-8740. BS ‘49. Because I know that some of you knew her, I must inform you that Delores, my beloved wife of 65 years, passed away on December 16, 2009, as a result of an earlier stroke. We married during WWII and she was my companion when I returned to KU and during a 32-year career as a petroleum geologist.

1950

ALLEN, C. ROGER, 4219 Wimbledon Dr., Lawrence, KS 66047-2034. BS ’50. Always flattering to place my name in the g-Hawker, among the elite. Still have rocks on my mind. Dan Merriam would possibly, gladly, testify to that. Retired in ’87. Everything I do now is a hobby. Blessed with four sons, seven grandkids and 4 great-grandkids ad infinitum.

HARBAUGH, JOHN W., 683 Salvatierra St., Stanford, CA 94305-8539. MS ’50, BS ’48. I’m still professionally involved. In part my focus involves managing an oil and gas royalty trust under the aegis of Harbaugh Mineral Lands LLC, with operations in Oklahoma and the Texas Panhandle. The company also functions as a producer. There is a frontier in the region with respect to truly deep production, which provides a challenge in southwestern Kansas and particularly in the Texas Panhandle, so deep plays continue to evolve, although slowly. In a totally different context, I’ve been involved in the geomorphic effects of sea level changes coupled with recent uplift in several disparate regions, one in our nearby coastal area in the Santa Cruz Mountains that define the San Francisco Peninsula in back of Stanford and Palo Alto, and another in the High Arctic, most recently in Svalbard, the Arctic islands governed by Norway that lie between 78 and 81 degrees north latitude in the Arctic Ocean. There is an eerie parallel between the well-preserved, upraised wave-cut benches in both regions, although the root causes differ, presumably stemming in part from isostatic rebound associated with erosion in the Santa Cruz Mountains, and isostatic rebound associated with partial deglaciation in Svalbard. I should add that wife, Audrey, and I recently traveled to Svalbard on a Russian icebreaker, which was a fascinating experience given the incredible landscape that includes sea ice, large ice sheets and valley glaciers. On the family front, my three granddaughters continue to progress. The eldest, Erin, is a Foreign Service officer with the US State Department in Washington. The middle granddaughter, Danica, has recently founded a company that focuses on DNA analysis of botanicals used in drug manufacture as well as in other industrial processes. The company’s focus stems from her PhD dissertation at UC Berkeley that she completed three years ago. I should add that she has an 18-month-old daughter, Taylor, so that I am now a great-grandfather, a milestone that is both pleasing and sobering. The youngest granddaugh-

ter, Emily, will spend the forthcoming academic year in Portugal teaching English. My how they grow! In a KU context, I had an extended conversation in April with KU’s new Chancellor, Bernadette Gray-Little. She is a very personable lady with impressive administrative skills.

THALMAN, ALBERT L., PO Box 900, Newcastle, OK 73065. BS ’50. Retired petroleum geologist.

TRAUTMAN, FRANK S., 600 Morningside Dr., Zionsville, IN 46077. Non-degree ’50. Field work in geophysics/education.

1951

DUFFORD, ALVIN E., PO Box 897, Evergreen, CO 80437. MS ’51. I retired 20 years ago after a long career in oil exploration. During retirement I have enjoyed playing tennis and performing in orchestras and small musical ensembles (as a classical violinist). My wife, Jeri, and I have watched our 3 sons grow up, settle into successful careers and expand their own families. The past few years we are delighted to see our 3 grandchildren grow into productive adults. I still love observing geology and topography as we travel across the country. Driving through northeastern Kansas is still a thrill, as the scenery invokes many fond memories of our wonderful years at graduate school in Lawrence.

JONES, ROBERT L. 22725 N. Dusty Trail Blvd., Sun City West, AZ 85375. BS ’51. Wife Jo-Anne is busy as church cantor, president of Benevilla Community Care, Auxiliary. We both sing in the West Valley Chorale. Bob plays in the Sun City Concert Band. Bob is a director in PGRA in Sun City West, which is our quasi-government. He heads up committees for water and roads, safety and traffic. He is also a member of the Maricopa County Planning and Zoning Commission and the Arizona Oil and Gas Commission.

TAPPAN, GEORGE H., 3618 High green Dr., Kingwood, TX 77339. BS ’51. Attended the graduation of grandson, Taylor Adams Tappan, in May.
What a high to be on campus again with all the students milling around. Taylor, a third-generation Jayhawk with grandparents on both sides, did his degrees in Geography and Spanish. The Geography Department reception in Lindley took me home again. The ceremony was thrilling for an old-timer to relive, watching the students walk down the hill, and enjoying the close-ups on the marvelous screen from the stadium. The chancellor’s speech far exceeded anything that could have been imported by a “dignitary” from outside. Way to go, KU!

1952

HAYNES, EDWARD H., 93 Oakbrush St., Pagosa Springs, CO 81224-8435. MS ’52, BS ’51. 59 years since graduation. Scary to think how many KU geologists weren’t even born then, but it’s nice to have all those foreign jungles and deserts behind me. Also great to know I’ll never have to go back to Irian Jaya or have troubles with Sumatran tigers scaring my field party. Also good memories of fishing off a drill rig in the Orinoco delta and diving for lobster off Trinidad; mustn’t leave out salmon fishing in Alaska!

1954

BEAM, RICHARD A., 4105 Steven Dr., Edmond, OK 73013. BS ’54. Idell and I have been living in Edmond, OK since retiring from Chevron in 1986. I play at golf occasionally, and Idell plays tennis 2 days a week. We enjoy dancing and belong to several dance clubs in the Oklahoma City area.

DOUGLASS, M. R. “Bob”, 42 Shadow Ln., Dostrohon, LA 70047. MS ’54, BS ’53. Still active with a full time client. Always fun and challenging. Lots of luck. The Department looks like it is thriving. Enjoyed the visit with you at AAPG.

RITCHIE, A. SCOTT, Ritchie Exploration, Inc., PO Box 783188, Wichita, KS 67278-3188. BS ’54. Exploring western Kansas for new reserves and producing our successes.

1955

SMITH, RICHARD D., 125 N. Market, Ste. 1120, Wichita, KS 67202. BS ’54. President of Range Oil Company.

DENNY, L. M. (MICK), 3509 Shell, Midland, TX 79707. BS ’55. I lost my wife (Lee) of 57 years in April of 2009.

PERRY, JAMES W., 21208 Road P3, Cortez, CO 81321-9639. BS ’55. Wife, Norma, and I just celebrated our 50th anniversary. We’re enjoying the wonders of the Four Corners area.

1956

BROOKS, GAIL GORDON, 38 Bosun Terr., Whitby, Porirua City, New Zealand. BS ’56. Now retired to a sprawling Spanish-style home looking down on the Pauatahanui Inlet. Just north of Wellington. My wife and I had 5 children (4 living), 9 grandchildren and 1 great-grandchild is only two months away.

HODSON, WARREN G., 411 Liberty Lake Dr., Vestavia Hills, AL 35242. BS ’53, MS ’56. Retired USGS geologist.

RICHARD, JAMES, 15500 Wrand Dr., Yukon, OK 73116. BS ’56. Retired from exploration geology, mostly in OK, TX and KS. Worked for Pan American, International Nuclear and as an independent.

1957

KLEIN, GEORGE DEVRIES, SED-STRAT Geoscience Consultants, Inc., 17424 W. Grand Pkwy., Ste. 127, Sugar Land, TX 77479. MA ’57. Still consulting in the petroleum industry. With global economic uncertainties and the national recession, I have spent the last 17 months consulting only on international projects based in Houston. Domestic activity has slowed. At the suggestion of Bill Fischer (PhD ’61), I wrote and published my memoirs: ROCKNocker: A Geologists Memoir. (CCB Publishing) in which a long chapter describes my two years at KU. Dan Merriam’s books on the KU geology department’s history and R.C. Moore were useful resource references when writing that chapter. See you in Houston and at AAPG. Not going to GSA. My best regards all round.

WINCHELL, RICHARD L., 4021 Lennox Blvd., New Orleans, LA 70131. MS ’57. Retired from Exxon.

1958

BALL, LAWRENCE (LARRY) P., 2240 Bald Eagle Ct., Cool, CA 95614. BS ’58. Well I guess it is about time I sat down and did this. Every time I get the G-Hawker, I admonish myself for not writing. I was never able to use my degree because in 1958 the oil companies had an overabundance of us geologists. I took a management trainee job with Goodyear Tire and Rubber and then came back to Lawrence and worked for Hallmark Cards as a production supervisor. After serving my recall duty at Richards Gebaur in KC during the Berlin crisis, I spent a couple of years recruiting engineers for aerospace companies and ended up in personnel at General Dynamics in Pomona, Calif. My next adventure was to initiate a combined Human Resources Department for the 6 Claremont Colleges. That was fun, but the money was scarce, so I went to work for Armstrong Nurseries in Ontario, Calif., and eventually became the general manager. Three generations of the Armstrong
family decided to declare war on each other, and I resigned along with 10 other managers. After an extended sabbatical in the mountains above Elsinore, Calif., I got antsy and found a position as director of human resources at Gold- en State Foods, purveyor of everything a McDonald’s franchise needed. After that, I was hired by a company named Stoody in Rowland Heights, Calif., that manufactured hard facing welding rods. I had a fun time as director of human resources dueling with the Laborer’s Union. There have been other adventures but to make a long story short, I gained enough knowledge about human resources that my experience became valuable to attorneys representing both sides in employment related trials concerning issues like sexual harassment and wrongful discharge. I formed my own company (HRMN) and acquired several small companies on a retainer basis to help them with their HR issues. An attorney friend asked if I would serve as an expert witness, and I said sure. I have enjoyed a relatively suc- cessful career in this field. I currently live in a little town in the gold country in northern Calif. I have three kids, my daughter Kimberly is married with two great kids of her own, Craig is an electrical contractor married with a son and a daughter, and my son Christian is living in Phoenix putting his fiancé through ASU to become a teacher. Kimberly and Craig live in South Lake Tahoe, Calif., which is only 1 ½ hour from my home. Life is good. My wife, Linda, and I take our horses and spend a couple of winter months every year in Wickenburg, Ariz. We enjoy our second community of friends there and ride our horses into the desert at least 2-3 times a week. Sorry I have rambled on like this, but since I have not done this in the past, there is a lot to tell. If any of you remember me, drop a line or give me a call. I recently visited Mt. Oread for a reunion at Battenfield Hall where I spent my freshman year. Paul Enos was kind enough to take me under his wing and introduce me around. It had been 52 years since I graduated. The campus looked decidedly different. I plan to be sure it doesn’t take that long for me to return.

DICKSON, WILLIAM, R. 2609 Lee Anna Drive, West Plains, MO 65775. BA ’58. Jean and I are still at the same address. Nothing new here. I had a birthday in June, turned 79.

1959

COLLINS, DONALD N., PO Box 3427, Evergreen, CO 80437-3427. MS ’59. My wife, Lynne, and I continue to enjoy life in the hill country of Colorado. We live close to our children and grandchildren.

KITLEN, LARRY W., 2302 Horse-shoe Bend, Temple, TX 76502. BS ’59. Retired Production Engineer with Kingwood Oil and Southland Corp.

1960

DODSON (ANDERSON), BAR- BARA J., 1306 N. Northshore Blvd., Wichita, KS 67212. BS ’60. I continue to enjoy life and retirement with some travel and many hobbies. Many fond memories of KU.

HABIB, DANIEL, 24 Toni Ct., Plain- view, NY 11803-3022. MA ’60. Retired in 2007 after 42 years at Queens College enjoying publishing books on dinosaurs and birds! Last one was with McGraw-Hill. Best wishes to all.

PETERSEN, CLARK H., 14421 SE 183rd St., Renton WA 98058-9212. BS ’60. Retired in 2004. Now evaluating exploration and development stage mining companies for investment. Focus on precious metals, rare earths and strategic alloy elements in Greenland and North America. Visitors to Seattle area are welcome to call (425-226-1211), or contact me (petersenclark@comcast.net) if interested in a field trip to a local geological site as my guest.

PIVONKA, JIM, PO Box 751, LaCrosse, KS 67548. BA ’60. I am looking forward to another field camp reunion.


WALTON, SR., ROBERT G., 2431 S. Xenon Way, Lakewood, CO 80228. Retired from the oil and gas industry.

1961

ADAMS, LARRY W., 12080 E. Nunn Rd., Athol, ID 83801. BS ’60, MS ’61. Enjoying retirement on our 20 acres in north Idaho. Our 3 children and 10 grandchildren all live in the Coeur d’Alene, ID area. I still do a little consulting work for my former company and others.

ANGINO, ERNEST 4605 Grove Dr., Lawrence, KS 66049. PhD ’61, MS ’58. All going well with Ernie. Still researching and writing articles about postal history. Brief episode health wise due to medication complications, as of July 8 all cleared up. Granddaughter now a sophomore at KU. Grandsons (6, 3) lots of fun. Keeps one physically fit. I keep running into adults who have taken my Oceanography course in days gone by – more than I know. Usually can remember face, not the name. Love to hear from any of my graduate students and about their accomplishments. E-mail address (rockdoc@sunflower. com) is open all the time.

FISHBURN, MAURICE D., 9800 Rosewalk St., Bakersfield, CA 93311. MS ’61. Still enjoying retirement. Volunteer with Janet at the Westside Oil Museum in Taft. Finished a couple of books for the museum to be sold, with sales going to the museum. Spend summers in Coeur d’Alene, Idaho. We spend time with Larry and Alice Adams, who live here.

FISHER, WILLIAM L., 8705 Ridge- hill Dr., Austin, TX 78759. PhD ’61, MS ’58. Still in full-time teaching and research at UT Austin. No longer with any administrative responsibilities. Supervising 6 graduate students. Still do substantial consulting, particularly with Petrobras.

GROSSMAN, STUART, 5627 Jack- wood St., Houston, TX 77096. PhD ’61. I’ve been retired since 1993. I know I worked for Exxon, but I’m not too sure what I did there. See what happens when you get old?
SIEGEL, FREDERIC R., 4353 Yuma St. NW, Washington, DC 20016-2027. PhD ’61, MS ’58. Felisita and I returned from France in July after visiting our granddaughter Naomi who is spending a semester at the Georgia Tech campus in Metz doing chemical engineering courses plus a course in French and French culture. We also had our grandchildren from Atlanta, Coby and Noa, in Washington for a week in June and had a great visit to the Luray Caverns in Virginia plus other activities. We have one grandchild Solomon, who lives 5 miles away, so that he spends time with us each week. In addition to this, I have been writing and on July 20 published the book *The Exploding Population Bomb: Societies Under Stress - Corrective Strategies and Solutions*. A book I published with Springer in 2008 (*Demands of Expanding Populations Development Planning - Clean Air, Safe Water, Fertile Soil*) was priced at about $118, which hasn’t helped sales. This new book is available for Kindle and at Amazon.com for $9.99.

1963

HARRIS, LEMAN D., 656 Touchmark Ct., Edmond, OK 73003. BS ’60, MS ’63. I am retired from Tinker AFB near Oklahoma City where I was employed as an environmental engineer for 14 years. Basically my job was to ensure that all hazardous waste generated on the base was properly collected, disposed or recycled. During my tenure, the base received zero violations of hazardous waste regulations and the waste stream was reduced from about 13,000 tons/yr to about 3,000 tons/yr. In my last full year of employment, 2002, the environmental program at Tinker AFB was chosen as the best in the Department of Defense. I am enjoying retirement in which I continue to promote my Biodiversity Scholarship Fund at the KU Natural History Museum. Judy and I help “Greatest Generation” residents of our retirement community write and tell their life stories in monthly storytelling sessions. In November we collect the stories and publish a book *As We Lived It*. Volume Four is scheduled to be published this fall. The storytellers include WWII veterans, Great Depression Era survivors, and those with other compelling life experiences. Proceeds of book sales go to the Touchmark Foundation, which promotes the health and well being of seniors. After 6 years as a navigator/bombardier in the U.S. Air Force, the first part of my career was devoted to oil and gas exploration with Exxon, Getty and others; then 7 years with the U.S. Geological Survey. That employment was with the outfit recently known as the Minerals Management Service. Believe me, it was a much different agency in the 1970s. Even having lunch with a contractor was prohibited. I had an interesting and varied career, and I have the KU departments of Geology and Engineering to thank. Thank You!

1962

EMERY, PHILIP A., 4475 C. R. 25, Mt. Home, AR 72653. MS ’62, BS ’60. Part-time hydrologist, US Army Corps of Engineers; Part-time consulting geo-hydrologist; director’s rep. for Alaska and District Chief, USGS.

KEIM, JACK D., 3804 Stockade Ct., Lawrence, KS 66049-2144. BS ’62. Retired from the PI at KU 8 years ago, and I am still kicking about in those “golden” years.

1965

NIVEN, DAVID. 99 Raptor Point Rd., Golden, CO 80403. BS ’65. Things about the same; hanging in there. Finally retired from teaching, a good run with no regrets. As time goes by, health becomes news, and the good news is my cardio now seems stable, and I have a terrific right knee replacement. Missed last ski season but will be back at it this year. One last thing, I’m restoring a small sailboat (16’) that I built in New Orleans 40 years ago. Tracked it down and bought it from the 5th owner, up in Marquette, Mich.

1964

HOLLWEG, WILLIAM A., 7 Knotwood Ct., The Woodlands, TX 77389. MS ’64. Petroleum geologist with Mobil.
1966

NICHOLS, JIM, PO Box 546, Verdi, NV 89439. BS ’66. Retired civil engineer.

REID, SUE TOMLINSON, 1000 W. Storey, Midland, TX 79701-6108. BS ’66. Have been consulting for 35+ years and still at it. Have been active with local geological societies, past president of both Permian Basin Section SEPM and the West Texas Geological Societies and am an honorary life member of both. Have slowed down a bit in the field though.

1968


1969

FOX, WAYNE, 15 Perhall Ct., Baltimore, MD 21236. BS ’69. I retired from my position as program manager of the Groundwater and Solid Waste Program, US Army Public Health Command on Aug 31, 2010. Future endeavors include spending time with 6 grandchildren; church, environmental, and community volunteer work; and travel.

GOGEL, TONY, 9904 Cherokee Ln., Leawood, KS 66206. MS ’69.

1971

MOSE, DOUG, 4700 Groves Ln., Fairfax, VA 22030. PhD ’71, MS ’68. My wife and I both work at my University. We both plan to retire in December 2012, so as to move to a country home in rural Central Virginia.

1972

PODREBARACK, TOM, 6425 Westheimer #2316, Houston, TX 77057. BS ’72. I have been working as a geologist in the oil and gas business in Houston for almost 35 years. Currently working for XTO Energy/ExxonMobil in south Louisiana. Outside of work, I bicycled the MS 150 from Houston to Austin last April.

1973

KNOLL, KENNETH M., 3 Twin Springs Dr., Arlington, TX 76016. PhD ’73. I’ve had 6 careers: asst. professor of Geology at Winona State College, MN; exploration geologist with Shell Oil Co. – Alaska; director of geoscience Training, N & S Americas, BP Exploration; director of management/science training, Petronas, Malaysia; president, Spectrum Business Coaching, Denver; president, Metal Rehab Technologies, Inc., Arlington, TX. Married to Vera Barnes Knoll for 48 years. Two daughters: Kristina – partner in electrical engineering firm, San Francisco; Angelique – Technical writer, geophysical firm, Denver. 3 grandchildren. Staying active!

SIMMS, D. FAY SLIMMER, 30441 Old Hwy. 112, Poteau, OK 74953. MA ’73. Son Alexander (Alex) recently took a position with the Geology Dept. at University of California – Santa Barbara. Daughter-in-law Andrea (Annie) raising their 3+ sons (4th due in July 2010). Son James (Jim) practicing general law in Tahlequah and also occasional oil and gas title law and land man duties.

1974

LEWIS, RICHARD D., 97 Betts, Stafford, VA. BS ’74. Great pleasure in my current career of identifying and funding emerging science and technology areas. Enjoy yachting and rowing interests. Farm on the Potomac seems to be a sink for time, as docks and seawalls are always under repairs. Appreciate KU education, even class of Prof. Peoples, which is used as a starting point of understanding many materials under dynamic loads. Still attempting to be refunded for Prof. Merrill’s nearly worthless strat-sed course which was a watered down Fortran class. More reason for a peer review syllabus in undergraduate courses. Just finished my 5th advanced degree, and with the new GI Bill can return for the 6th after retirement.

SPENCER (SOULE), MARY ALICE, 1001 Senora Ave., Billings, MT 59105. MS ’74. We continue our custom of taking the train to and from New York state to visit my mother, now 92 years old. I find it a relaxing way to travel. I am still volunteering as a docent at the Yellowstone Art Museum, especially helping with hands-on art workshops for kids 5-12 years old. John (Iowa State, geology) helped finish construction of the Montana Audubon Conservation Education Center, which offers classes for Billings students. On Father’s Day, Billings had a tornado, which touched down less than 2 miles from our house, leaving several inches of hail on our property and damaging our roof. It totally destroyed one small business building and ripped the roof off the multipurpose arena at the fairgrounds. Even spending 4 years in Kansas, this is the closest I’ve ever been to a tornado. Yikes!

1975

SIMMS, JOHN J., 31 Serrania Dr., Edgewood, NM 82015. MS ’75. See Simms, D. Fay Slimmer (’73).

1977

McBRIDE, DAVID J., 2533 Brazillia Ct., Punta Gorda, FL 33950. PhD ’77, MS ’74. Dave and Carolyn moved to Florida in the fall of 2009. Dave has served on the Charter Review Committee for the City of Punta Gorda and currently serves on the Canal Advisory Committee for the city and the canal district. He also volunteers with the Punta Gorda Police Department Marine Patrol. Dave and Carolyn are members of the Charlotte Harbor Parrot Head Club where they pursue their love of Trop Rock Music and help raise funds for local charities. They also enjoy cruising on their boat as members of the PGislangers Cruising Club where Dave is a board member and education co-chair. Carolyn is currently serving as acting Secretary. Dave and Carolyn are also members of the Navigator Boat Club and worked on the Peace River Clean Up community service project the past two springs. Dave continues to play congas and assorted other percussion instruments at local venues on a selected basis with various Trop
Rock Artists. Both Carolyn and Dave continue to play steel drums together for their own enjoyment. Dave and Carolyn’s son Donald was married last fall to Renata Paglio of Portland, Maine. Donald and Renata live in Stamford, Conn., where Donald works for Gemini Tankers.

ZOLLER, JEFFREY R., PO Box 30, Hoisington, KS 67544-0030. BS ’77. Wife: Jettie Zoller. Member of: AAPG, Kansas Geological Society. State Kansas Geological License #125.

1978

DANIEL, JOHN, 582 Palace Parkway, Spring Creek, NV 89815. BS ’78. Hydrologist with the Bureau of Land Management.

MATHEWS, WILBERT L., PO Box 663, Sea Point, Cape Town, South Africa 8060. BS ’75, MS ’78. I am still living in Cape Town, South Africa. I resigned from Welltec A/S but have business connections with the Welltec Angola entity. I was certified by the South African government as a debt counselor. I provide debt counselling (pro bono) to low income South Africans who are over-indebted (often to loan sharks so this can be tricky). I founded the media production company Flat Mountain Productions Pty Limited (www.flatmountainproductions.co.za). We completed filming a full-length movie, “The Profitiers” in May. The DVD should be released by the time the 2010 G-Hawker is published.

SMITH, JERRY A., 401 S. Nineiron, Wichita, KS 67235. BS ’78. Independent petroleum geologist.

STANLEY, GEORGE, 1900 Alvina Dr., Missoula, MT 59802. PhD ’78. Doing new research in China and teaching/researching at U of Montana, one of the greatest places Barbara and I have ever known! Enjoy being on the KU Geology Associates Board. Live in Missoula with Barbara and Rocky the dog, where we do serious things like kayaking, canoeing and fishing.

John Klein (BS ’77) and Craig Slawson (BS ’80)

1979

DANIEL, FAITH BEAVER, 582 Palace Parkway, Spring Creek, NV 89815. BS ’79. See John Daniel. ’78.

DEUBEL, DARRELLA, 4230 Worcester Dr, Fairfax, VA 22032. Non-degree ’79. Darrella is semi-retired, only working one day a week as financial secretary at their church. This leaves her plenty of time to pursue hobbies of cooking and sewing. She and Tom also enjoy square dancing and are vice-presidents of their local club, Merry Notes. They recently were elected to serve as secretary of WASCA (Washington Area Square Dancers Cooperative Association) which organizes a well-known festival in March and promotes square dancing in the DC/Northern Virginia/Maryland area. They have attended two National Square Dance Conventions—Wichita in 2008 and, most recently, Louisville where they performed with the Capitol Squares exhibition team. You can catch videos of the Capitol Squares on You Tube. Last year Capitol Squares also performed at the New England Square Dance Convention in Sturbridge, Mass. Being a square dancer gives Darrella plenty of chances to sew outfits to fit the festival themes or one that suits her taste. She also makes vests and ties for Tom to match her outfits. When not sewing square dance clothes, she sews and creates items to sell at local craft shows.

ENGLEMAN, MARY, 18 Lakeside Blvd., Wichita, KS 67207. MS ’79, BS ’76. Andy (Kemmer) and I are still in Wichita, still in the oil business, with our youngest (Riley) still in high school! We spend lots of time on the golf course. Our son Dodge finished his collegiate golf at Stanford and is turning pro this summer, our daughter Callie plays for Yale’s golf team, and Riley lettered as a freshman in high school. At 6’6”, he plays a lot of basketball too! I always look forward to my G-Hawker and catching up on all the news! Rock Chalk!!

WALLACE, RON, 3650 Garrards Crossing, Roswell, GA 30075. MS ’79. Holly and I are doing well. We both had minor surgery this year, and the medical bills are almost paid. We retired both Wendy and Sophie from Happy Tails. This is an organization where we visit different types of facilities (nursing homes, senior centers, assisted living facilities, hospitals) with our dogs. We’ve been in the organization for 10 years, and I still visit one of the facilities on an informal basis with Wendy. This year I’m national vice-president with AIPG. I’m the main contact with our sections. In October we are planning an environmental geology field day at Tellus Science Museum. We will have demonstrations on hollow stem auger and direct push drilling, vacuum trucks, surface geophysics, groundwater sampling, slug tests, soil description, chemical oxidation and surfactant treatment and proper laboratory procedures. We’re expecting a good turn out of geology students from the different universities across the state. For the ones that are familiar with ITRC and their training, I’m on the LNAPL team, and we are finishing up this year on web-based training and next year we start classroom training. The training will be 2 days, and we plan to offer it 3 times a year for the next 2-3 years, so we may be coming to a place near you.

1980

MACKE, JOHN, 5367 Yarger Circle Dr., St. Louis, MO 63129. Non-degree ’80. Analyst with USAF.

SLAWSON, CRAIG, 17556 Cherryville Rd., Greenwood Village, CO 80121. BS ’80. Vice President of Slawson Exploration.
THOMPSON, JIM, TEI, 316 W Indiana Ave., Chesterton, IN 46304. BS '80. My oldest daughter, Noel, had our 1st granddaughter (making 2 grandkids). My middle daughter, Paige, is entering grad school at BYU, and youngest (Casey) is entering her junior year at Utah. Unfortunately, no geologists in the family yet. I still am sailing on Lake Michigan, but primarily training for triathlons. My wife and I will vacation this August in Alaska.

1981

FILKINS, DAVID, 4955 Pintail Ct., Frederick, MD 21703. BS '81. Youngest daughter Gwendolyn is a senior in high school. Oldest daughter Elizabeth is a senior at KU getting her degree in Early Childhood Education.

FILKINS (BRINKMEYER), DENISE, 4955 Pintail Ct., Frederick, MD 21703. BS '81. See David Filkins (above).

1984

FRANZ, RICHARD (RICK) H., Bayshore High School, 5401 34th St. W., Bradenton, FL 34210. MS '84. I will be entering my 23rd year this August at BHS. I have taught earth/space science, chemistry, general science, astronomy, and most recently, physical science. This will be the 5th year of the Freshman Center at BHS, which I have been a member of since its inception. Freshman Physical Science is now a core curriculum course in Manatee County. It is foundational to preparing students to take chemistry and physics later on. In addition to the strong emphasis on projects and technology, advanced study skills are now being incorporated into the course. To this end, I attended the AVID 2010 Summer Institute in Orlando, FL. Study skills (Cornell notes) and blended learning will be incorporated into my teaching based upon the training/resources obtained at this institute.

1985

DEUBEL, TOM, 4230 Worcester Dr, Fairfax, VA 22032. MS '85. Tom works for Booz Allen Hamilton as a business analyst doing requirements analysis on a contract at the DEA (Drug Enforcement Administration). He has served as a deacon at church and enjoys writing articles on John Calvin for the church newsletter. When he and Darrella were in grad school, they took square dance lessons from Karl Edwards, professor of education at KU. They are enjoying the friendships and exercise they get from square dancing, which is “friendship set to music.”

HAGEMAN, STEVE, 1641 Russ Cornett Rd., Boone, NC 28607. BS '85. Last year I got married to Dr. Elizabeth Miller, an applied linguist at UNC Charlotte. This year I was promoted to full Professor at Appalachian State University. Things are good in Boone, NC.

HOGAN, PATRICK, 70 Doubloon Dr., Slidell, LA 70461. BS '85. Oceanographer, Naval Research Laboratory.

NASH, CARRIE KEENAN, 540 Campo Way, Superior, CO 80027. BS '85. Loan consultant/sales manager with WR Starkey.

1986

KILLEN, DAVID, 1116 Melody Garden, Cypress, TX 77429. BS '83, MS '86. Environmental consultant with Malcolm Pirnie, Inc.

1987

BLACK, BRIAN ALLEN, 3050 Chelsea Ln., Acworth, GA 30102. BS '87. Not much to report this go-round – a little older, hopefully a smidge wiser, no end to my faults yet in sight… Everyone’s doing well, and as the song says: She bid me to take life easy, as the grass grows on the weirs… and been trying to follow that very sage advice as the shadows lengthen. Just got back from the Lake District (again!) and we headed to Port Canaveral and a Disney Cruise in September, so got to see some Honister slate (lasts 300-500 years as a roofing slate they say, volcanic ash, don’t cha know) in the slate mine between Barrowdale and Buttermere and did a little carbonate diagenesis evaluations while lounging on the deck with 1,000+ children running about semi-wild and keeping a weather eye out for Ariel. Hmmm… Buick Regal Grand and 330,000 miles (to the Moon!), sad that the Shuttle program is winding down, just climbed down through Dante’s Inferno and am on my way up the mountain in Purgatorio, and finally realized what FQDN actually means...
AWARDS. The university has also funded and the family is growing. Good news '92. We are all doing well in Miami, ANDERSON, WILLIAM (BILL), 3095 Bird Ave., Miami, FL 33133. BS '92. We are all doing well in Miami, and the family is growing. Good news on the research front. My lab was awarded one new IRMS system (H/D cont.-flow) and a new CRDS TOC system, from the last round of NSF-MRI awards. The university has also funded the construction of a new home for the Stable Isotope Lab in the new Marine Science building. COLGAN, PATRICK M., 335 Bridge Street NW, #1801, Grand Rapids, MI 49504. MS '92. Kelly and I moved in to a condo in Grand Rapids. We are downsizing! I continue to teach geo-morphology and other subjects. Have recently begun research on carbon storage in alluvial valleys. Kelly and I are celebrating our 20th anniversary. We got married during my first semester at KU in 1990. Hope all is well! HANNA, STEFANIE S. T., 6199 Crescent Rim Dr., Ozawkie, KS 66070. BS '92. SICS, AVARS V., 8925 Millstone Dr., Lenexa, KS 66220. BS '92. I've been working as an analyst at a top rated international products liability law firm for the past 14 years. I'm involved with identifying and developing expert witnesses to testify on behalf of our firm's clients in personal injury litigation. I work extensively with industrial sand and aluminum manufacturers on cases involving silicosis, asbestosis, exposure to bauxite dust, alumina reduction and smelting, and red mud production and remediation. Prior to that, I spent two years working as project geologist with an environmental consulting firm based out of Denver, CO. I spend my spare time hanging out with my wife Heather and our two boys, Talis (5) and Otomars (3). 1993 CATTANEO, PETER, Syracuse University, Dept. of Earth Sciences, 204 Heroy, Geology Lab, Syracuse, NY 13244. BS '93. To follow/see projects I've worked on please visit http://earth-sciences.syr.edu/people/staff/staff.html REETZ, BILL, A Better Earth, Inc., 11261 238th St., Lawrence, KS 66044. BS '93. Owner of A Better Earth, Inc. BROOKSHIER, MATT, 4004 Hoadly St. SE, Tumwater, WA 98501. BS '95. Back to the dam work. 1995 CUNNINGHAM, KEVIN J., USGS, 3110 SW 9th Ave., Fort Lauderdale, FL 33315. PhD '95. Research Hydrogeologist with the US Geological Survey. JEFFERSON, ROBERT, GX Technology, 225 E. 16th Ave., Ste. 1200, Denver, CO 80203. MS '95. Geophysicist with GX Technology. 1996 BERGMANN, BRYAN, 2304 Melody Ln., Waukesha, WI 53186. MS '96. Project hydrogeologist with RMT, Inc. LeBEAU, JAY, 86 Brookside Tr., Bayfield, CO 81122. MS '96. Geologist with Red Willow Production Co. LINDGREN, ED, 3911 W. 100th Terr., Overland Park, KS 66207. MS '96. Associate geologist with Burns & McDonnell Engineering Company, Inc. 1997 CARLSON, KRIS, 2319 SE Libra Ave., Topeka, KS 66605. BA '97. Vice President of Plumbing By Carlson, Inc. 2001 ROHS, RENEE, 206 N. Munn Ave., Maryville, MO 64468. PhD '01. The 2009-2010 academic year has been a full one to say the least. In my 10th year at Northwest Missouri State University, we had the opportunity to develop and offer a field geology course in Scotland and Ireland. After initial reconnaissance during the summer 2009, we started to put together a field guide and develop the associated materials and exercises. The field sites included historic locations such as Siccar Point, breath-taking sites such as the Cliffs of Moher, and linked stops that transition through metamorphic isograds to understand tectonic events to highlight just a few. In May 2010 we took 10 students, 2 faculty, and 2 non-credit seeking individuals for 17 days in Scotland and Ireland. It was a blast, and the geology seemed to be better every day. Even the nightly grading of field notebooks was satisfying because you could see the progress that students were making. We plan to
make a few minor changes and offer the course again in 2012. At the combined regional meeting of the South-Central and North-Central sections of GSA in Branson, I was able to host a session honoring Randy Van Schmus. The session had a great turnout both in presentations and attendance. We even had presenters, Renata and Mauro, who travelled from Brazil to join us. Needless to say, it was terrific to see everyone, and make a few new friends as well.

SHAFFER, JOHN T., 15919 Parkside Dr., Houston, TX 77059. BS ’01. Isotope geochemist at the University of Houston.

2002

SPIKES, KYLE, University of Texas at Austin, Dept. of Geological Science, 1 University Station C1100, Austin, TX 78712-0254. MS ’02, BS ’01. Assistant Professor at UT Austin.

HEATH, WINFIELD SCOTT, 2121 West 39th St., Apt. 22, Kearney, NE 68845. MA Museum Studies ’02, MS ’01. Exhibit Designer for the Hastings Museum of Natural and Cultural History.

2003

KOZUCH, MARIANNE, Center for Environmental & Human Toxicology, 471 Mowry Rd., Gainesville, FL 32611. PhD ’03. I continue to conduct analysis by GC-MS, primarily for fatty acids in human blood as related to type-1 diabetes. By the end of summer 2010, I hope to be measuring for contaminants from the Gulf of Mexico that are the result of the BP oil spill in water, soil, and fish tissue. Son Dominick will be 11 soon, already half grown!

2004

JOHNSON, TROY, 1721 Normal Hill, Edmond, OK 73034. MS ‘04. I recently started a new job at Chesapeake Energy working as a geologist in the Eagle Ford Shale of South Texas. On the family side, our son Luke just turned 2, and we are all enjoying life in the Oklahoma City area.

RITTER, MATT, 13200 Wild Basin Way, Broomfield, CO 80020. MS ’04. Lisa and I welcomed our second daughter, June Elizabeth, on June 26, 2010, and 9 lb 7 oz, 22" long. Big sister Addison (almost 2 years old) doesn’t understand that the new baby can’t play with her yet, but loves her anyways. Everyone is happy and healthy and enjoying Denver! I’ve been with Anadarko Petroleum Corporation since leaving Lawrence and have been busy this year putting together a horizontal Niobrara program in the DJ Basin.

STIGALL, ALYCIA, Dept. of Geological Sciences, Ohio University, 316 Clippinger Laboratories, Athens, OH 45701. MS ’01, PhD ’04. This year has been a busy and productive year for our family. One of the benefits of being married paleontologists is that we can usually travel together for most conference and field trips. Our travels now include Max, who turned 1 in March. This year we have been in Australia for the International Brachiopod Congress and field work, Scotland and England for the International Palaeontological Congress, China to present research and participate in a workshop on Quantitative Paleontology, and Namibia for field work on Jurassic lakes. The travel has been really exciting, but we do enjoy coming home to Athens and Ohio University. Dan recently acquired additional laboratory space. Both of our research programs are booming with good grad students and new papers in 2010. We look forward to seeing everyone at the alumni reception at GSA!

2005

DESMOND, JOHN (JACK) P., 2839 Lowell Blvd., Denver, CO 80211. BS ’05. Geophysicist with Sky Research, Inc.

DIDERICKSEN, BRAD, 1405A Prince St., Houston, TX 77008. MS ’05. Petroleum geologist and basin modeler with Chevron ETC. Tina, Mya and I moved from California to Houston at the beginning of 2010.

2006

ENGARD, BRETT, GZA, 104 West 29th Ar., 10th Floor, New York, NY 10005. BS ’01, MS ’06. Assistant Project Manager for GZA.

JOHNSON, BRADY, 2203 W. Idaho St. #102, Boise, ID 83702. BS ’06. Graduate student at Boise State University.

ROCKE, BENJAMIN, 1529 Baypointe Dr., Newport Beach, CA 92680. BS ’06. Geologist with Bering Exploration.

2007

BULLER, CODY, 2612 NW 66th St., Oklahoma City, OK 73116. BS ’07. Petroleum Geologist with Devon Energy.

2008

HUNNINGHAKE, AMANDA, BA ’08. 11881 Gulf Pointe Dr., #B21, Houston, TX 77089. I’ve just finished up my first year of teaching and must admit I loved it. While teaching, I met my fiancé Michael. We plan to get married next July. I enjoy Houston, but I’m hoping to be attending Colorado State in fall 2011. I’m taking several courses now in hopes of improving my chances to be accepted at CO State. I hope everyone is doing as well as I am! ROCK CHALK!

2009

PFAU, THEODORE, 28730 Hospital Dr., Paola, KS 66071. BS ’09. Mudlogger with Horizon Well Logging, LLC.

RICE, DANIEL, 136 Autumn Woods Dr., Lacombe, LA 70445. MS ’09. Earth scientist with Chevron Corporation.
“An Amazing Outpouring”
Old Friends and a Small Town Transform Tragedy

When KU alumnus Alec Waggoner died in a bicycle accident on Oct. 26, 2008, the residents of Alec’s hometown of Beloit, Kan., grieved hard. The geology graduate was only 23, and in this small town, everybody knows everybody. But this story isn’t about the tragedy; this is about what happened next.

Overland Park attorney Jay Heidrick knew Alec from the moment he was born. Jay was 7 years old at the time. “We grew up together,” Jay says. “Our families were and remain close. He was a little brother to me.”

When Alec died, everyone wanted to do something. “When people hear about things like this, the first thought is: ‘What can I do?’” Jay says. “Some people send flowers. Some people make things or take over food, and some people are just there with the family. I wanted to figure out a way to do something that was more permanent, that would not only show my respect for Alec, but would also potentially turn a tragedy into something that would benefit someone else.”

Alec’s parents, Rex and Pat Waggoner, and brother, Egan, were telling friends and family they could honor Alec by donating to a scholarship fund. After all, Alec had already earned a BS in geology from KU. He was only seven months away from receiving an MS from Syracuse University where he studied thermochronology and tectonics. He had already been accepted into the doctoral program at the University of California in Santa Barbara.

In only two weeks, Alec’s family collected close to $11,000 for a scholarship, but they couldn’t yet cope with making the decisions that were required to turn the donations into a bona fide scholarship. There were so many questions: Who would get the scholarship? Would it exist in perpetuity or be given out all at once?

“I approached them a week or two after the funeral and said this scholarship is something I want to do, if you’ll give me permission to do it,” Jay says. The family quickly agreed.

At the time, Jay’s wife Missy was working at KU Endowment, the University’s fund-raising foundation. She helped the family work out the details of the new Alec Waggoner Memorial Scholarship Fund.

They sent some of the money they had collected to Syracuse for a scholarship in Alec’s name. The family also decided to create an endowed scholarship fund at KU that would support undergraduates who shared Alec’s passion for science and life.

An endowed scholarship lasts in perpetuity as the principal is re-invested year after year, while a portion of the earnings are used to help students. However, a scholarship can’t be endowed with less than $30,000, and the folks of Beloit were far short of that goal. That’s when Jay went to work.

He announced the scholarship on a Facebook page friends had created called “We Love You Alec Waggoner, RIP.” “Then I started writing letters and talking to people in the community, and to friends of the family,” Jay says.

“Some people I asked for $3,000, and some I asked for $100. I asked for whatever I could get my hands on, and people responded. It was an amazing outpouring of support.”

Missy, who grew up in Minnesota, wasn’t surprised at the way Beloit responded. “It’s a very tight-knit community. They take care of each other in the best of times and in the most difficult of times.”

But raising money isn’t easy in a difficult economy. Because they were still $3,000 short of their goal, Jay decided to do something drastic. He decided to enter a marathon, even though he had never run one before.

As he trained for the race, Jay sent emails seeking sponsors from the 1,000 employees at his law firm, Polsinelli Shughart. The response was heartwarming. “Probably the most inspiring donation was from a lady whose husband had just been laid off from work. She wasn’t even a secretary. I think she worked in office services somewhere, but she still gave me $1 a mile. I don’t even know who she is. I’ve never met her in my life.”

One week short of the year anniversary of Alec’s death, his beloved friend ran 26 miles, 385 yards in Kansas City, completing the first marathon of his life. In the process, Jay raised $5,200 to push the fundraising campaign for Alec’s scholarship over the top. “I hope he would have been proud of me,” Jay says.

Six months later, KU sophomores Trevor J. Barth of Ottawa, Kan., and Edward R. Morehouse of Lawrence became the first students to receive the Alec Waggoner Memorial Scholarship. They won’t be the last.

No scholarship can ever be too large. You can make a contribution to the Alec Waggoner Scholarship at www.kuen-dowment.org/givenow/. Type the name of the scholarship in the purpose-of-gift box.

Jay Heidrick walks off the Kansas City marathon course arm in arm with Alec’s parents, Rex and Pat.
MEMORIALS

Beate Mocek
Research Associate

The Department of Geology has announced that KU Geology Research Associate Beate Mocek passed away on July 8, 2010, at the University of Kansas Hospital in Kansas City, Kan., at the age of 48. Beate and her husband, Assistant Professor Andreas Möller, joined the KU Geology faculty in January 2008, and she very quickly became a very valued and appreciated member of the Department.

“Our dear friend and colleague will be very dearly missed,” says Associate Professor Danny Stockli. “Beate is leaving a huge void in our personal and professional lives.”

Beate was born March 16, 1962, in Krefeld-Uerdingen, Germany, the daughter of Horst Mocek and Lieselotte Coers. Beate earned a degree in geology from the Universität Mainz and a doctorate in mineralogy from Universität Hannover, both in Germany. On July 31, 1998, she and Andreas wed in Sydney, Australia, where both were working at the University of New South Wales. After their return from Australia, Beate first was a post-doctoral scholar in Mainz and then a research associate at Uni Potsdam until coming to Lawrence.

At KU, Beate served as both a research associate and as technical director of the Cosmogenic Nuclide Extraction Laboratory. She worked closely with several faculty members in the Tectonics Group and patiently and passionately supported student researchers in the CNL Laboratory. She was a meticulous scientist and excellent geochemist. Primarily interested in petrology and geochemistry, Beate’s own research interests focused on rare earth element characteristics of different volcanic and metamorphic rocks to decipher the geotectonic environment of the formation and evolution of these rocks. She was also investigating mantle peridotites to track mantle composition and mantle fertility through time. The geochemistry of rare earth elements was her scientific passion during her entire career.

Beate published numerous papers and monographs and made many conference presentations. Her professional experience included serving as the lab manager for the geochemistry labs at the Institut für Geowissenschaften, Universität Potsdam; a post-doctoral fellow at the Max-Planck Institute of Chemistry in the Mainz Department of Geochemistry; a visiting research associate at the University of New South Wales in Australia; a post-doctoral fellow at GEOMAR, the Research Center for Marine Geosciences, University of Kiel; a research assistant at the Department of Geology and Mineralogy at the University of Erlangen; and a research assistant at the University of Hannover.

She was a member of Deutsche Mineralogische Gesellschaft, Geological Society of America and Geochemical Society. Beate was also a long-time mentor for women in the natural sciences and a participant in the Mentoring Program of the Max Planck Society.

The family has established a memorial scholarship in Germany. Donations would be appreciated to establish the Beate Mocek Foundation. For information on how to donate, contact Stockli or Möller.

Howard O’Connor (MS ’59)
Kansas Geological Survey

Howard Grant O’Connor, 87, died Sept. 8, 2010, at his home in Brandon Woods in Lawrence, Kan. Howard worked for the Kansas Geological Survey from June 1948 until he retired in February 1989 as a senior geologist and geohydrologist.

The son of Grant and Elizabeth Poulsen O’Connor, he was born in Kansas City, Kan., and graduated from Washington Rural High School there in 1941. He served in World War II as a medic in the U.S. Army and attained the rank of staff sergeant before earning his bachelor’s degree in geology from Kansas State University in 1948.

A lifetime honorary member of the Kansas Groundwater Association, Howard was also a lifetime member of the Kansas State Geology Advisory Council. He was active in The Endacott Society at KU and a member of the Community Mental Health Center. In 1990, he received the Pioneer Award from Bert Nash.

Howard was a member of the American Legion Dorsey-Liberty Post 14 in Lawrence and a longtime member of Plymouth Congregational Church where he was a Stephen minister for nine years.

His wife, Virginia Ruth Wollenberg, preceded him in death in 1994. Howard is survived by a daughter, Peggy Vierthaler and husband Stephen; a son, Robert; and seven grandchildren.
Hubert “Hub” Hall (BS ’49)

Hubert “Hub” Hall, 82, of Lecompton, Kan., passed away on Sept. 25, 2010, at Lawrence Memorial Hospital. Hub was a retired ExxonMobil geologist, an enthusiastic supporter of the Department and longtime alumni leader.

He chaired the Geology Associates Advisory Board from 1990 to 1994. Hub and his wife, Kathleen McBride Hall, also established the Laudon Fund in honor of his mentor Professor Lowell Laudon. The fund provides financial support for field trips.

In 2006, Hub became only the second person to receive the Department’s Legacy Award, which honors benefactors who forge legacies that will help geology students for generations. The award recognized his generous support of the Department and his inspired leadership of the Advisory Board.

“For several decades, Hub was a tireless advocate of KU Geology,” says former Advisory Board Chair Scott Adams. “He made a deep personal commitment to inspiring and motivating KU Geology students, especially in field geology.

“Through his direct support of KU field programs, Hub made it possible for current and future generations of students to experience geologic field work at its best, and to utilize modern field and lab equipment to further their studies. All of us on the KU Geology Associates Advisory Board were extremely grateful for Hub’s contributions.”

Chair Luis González praised Hub’s dedication to KU Geology.

“I met him at my first Geology Associates Advisory Board meeting and was impressed by his support and love for our Department. Hub will be missed by all of us.”

Hub was born on July 29, 1928, in Berkeley, Calif., to E. Raymond and Mary Harkey Hall. He moved with his family to Lawrence in June 1944 when his father took over as director of KU’s Natural History Museum and as chair of the Department of Zoology. At KU, he not only got an education and a lifelong Jayhawk spirit, but he also met Kathy. She earned a BA in education from KU in 1949. He served in the U.S. Army during the Korean War and earned a master’s and doctorate from the University of Wisconsin.

Hub’s career in industry began in 1952 in Tulsa, Okla., where he worked for what was then called Standard Oil Company of New Jersey (now ExxonMobil). In his more than three decades as a petroleum geologist with Exxon, Hub explored for oil and gas all over the world, including postings in France, England, Spain and Argentina. From 1965 to 1970, Hub and Kathy lived in Singapore where Kathy taught in the American School. For Hub, the city was home base for the exploration of Southeast Asia.

At Exxon, Hub led the corporation’s exploration of Malaysia, the southeastern United States, the Middle East, North Africa, Ireland and England. His work resulted in major oil and gas discoveries offshore of Malaysia and in the North Sea. His career also took him to Tehran, Iran, where he witnessed the beginning of the Iranian Revolution in the late 1970s.

Hub retired from Exxon in 1986 while on assignment in London. Three years later, he and Kathy moved to the woods outside of Lecompton, Kan.

Even after he retired, Hub retained his love of geology. In a 2007 interview, he recalled that geology provided him with delightful puzzles to solve every day. “I love trying to figure out what happened in the world in the past, what you can do about it, how you can use it, and how you can apply it,” Hub said.

In the 1990s, Hub not only served on the Geology Associates Advisory Board, but also as chair of the KU Natural History Museum Board. He was a member of the KU Endowment Chancellors Club and Outlook Society, and a life member of the Lecompton Historical Society and the Douglas County Historical Society.

Both he and Kathy also worked to restore and preserve the tallgrass prairie and other endangered wildlife habitats. The couple gave 116 acres of land in rural Lecompton to KU Endowment to establish the Hall Nature Preserve.

The Preserve is situated on uplands, about a mile south of the Kansas River, northwest of Lawrence. The soils are generally thin, and there are outcrops of the Oread and Lecompton Limestone. Small acreages of high-quality tallgrass prairie can also be found on the Preserve, as well as prairie that has been grazed by cattle and cultivated for crops.

Hub is survived by Kathy; two brothers, William J., of Urbana, Ill., and Benjamin D., of Bellevue, Wash.; and several nieces, nephews and great-nieces and -nephews.
The death of **Julius M. “Jim” Cocke (non-degree ’67),** of Norman, Okla., was reported to the Department. Jim died Jan. 7, 2000, after a long illness.

**Nan Cocke,** 67, Julius Cocke’s wife, died June 16, 2010, after a brief illness. She worked as a research assistant at the Kansas Geological Survey while her husband was studying at KU.

**Paul C. Franks, (PhD ’66),** 79, of Tulsa, Okla., died Aug. 26, 2010, after a long battle with cancer. He was a University of Tulsa professor of geology.

**Elden C. Jones, (BS ’51),** 85, of Prairie Village, Kan., died June 22, 2010.

**James O. Martin (BS ’51),** a retired high school teacher, died Dec. 27, 2009.

**William McBee, Jr. (MS ’48),** 88, died in Tulsa, Okla., on April 18, 2010. He worked as a geologist all his life and passed on to his German geology books! On trips, we stopped at just about every road cut so he could teach me how these rocks came to be in this formation.” William was born in Dewar, Okla., and he was a member of the First Baptist Church in downtown Tulsa for many years. He was preceded in death by his first wife, Madge; his parents, Bud and Nelle; and his brother George. William is survived by his wife, Dorothy; and his two daughters, Patricia Lufholm of Midland, Texas; Peggy Nicholls of Calgary, Canada; his son, William “Bill” (Kerry) of Denver, Colo.; seven grandchildren, thirteen great-grandchildren, and one great-great-granddaughter.

**Robert W. Parkhurst (MS ’58) passed away in February 2010. He worked as a geologist in Louisiana and Southeast Asia for almost 50 years.**

**Walter I. “Flip” Phillips, Jr. (BS ’84),** 49, of Wichita, Kan., died May 28, 2010, after a short struggle with cancer. After graduating from KU, Flip worked under the supervision of Bo Darrah, learning production and exploration in Colorado, Kansas, Wyoming, Montana and North Dakota. For the last 25 years, he was a Kansas explorer, including buying others existing production to develop. From 1988 until his death, Flip worked as the production manager and production supervisor for Pintail Petroleum, Ltd., of Wichita. Because of his excellent track record, Flip was able to sell his many 3-D seismic ideas to Pintail’s management and partners. On Feb. 21, 2009, Flip married his longtime friend and soul mate, Lan Hanzlick. The two loved to hunt and watch wells together. Just before his death, they completed their dream house at The Moorings at Crystal Lake in Wichita. Flip is survived by his wife Lana, children Jarrod and Jessica Phillips of Derby, step-children Chelsea and Courtney Hanzlick of Wichita and Justin Hanzlick of Augusta, Kan., among many others.

**Lawrence M. Tougaw II (BS ’54),** of Littleton, Colo., passed away June 12, 2010, after a long battle with lung disease.

**Prescott “Pete” Underwood (BS ‘51, MS ‘55),** 82, died March 11, 2010, in Sheridan, WY. Pete was born and grew up in Lawrence, Kan. He served in the U.S. Army of Occupation in Japan from 1946 to 1948. He later worked as a petroleum geologist in Texas, Utah and Colorado with the Dowell, Gulf and Pure Oil companies. In 1962, Pete and his wife Sally Jane Smith settled in Sheridan. In Wyoming, he served as a professor of geology at Sheridan College from 1966 to 1987. From 1954 through 2006, he also provided consulting services in petroleum geology. He loved prospecting for oil in the Big Horn and Powder River Basins. After Sally’s death, Pete married his high school sweetheart, Bertha (Kay) Simms. Kay died in 1998. Pete is survived by two daughters, Sandra Jean Underwood of Bozeman, Mont., and Janine Marie Underwood of Portland, Ore.; and two sisters, Sarah Black of Ponte Vedra Beach, Fla.; and Jane Baker of Eureka Springs, Ark.
Faculty and Staff: Academic Year 2010-2011

FACULTY

ROSS A. BLACK, Associate Professor; Ph.D., University of Wyoming, 1990; geophysics, reflection seismology.

J. F. DEVLIN, Associate Professor; Ph.D., University of Waterloo, 1994; hydrogeology/contaminant transport.

DAVID A. FOWLE, Associate Professor; Ph.D., University of Notre Dame, 2000; geomicrobiology, aqueous geochemistry, limnology.

EVAN K. FRANSEEN, Professor; Ph.D., University of Wisconsin, 1989; carbonates, sequence stratigraphy.

ROBERT H. GOLDSTEIN, Merrill Haas Distinguished Professor; Ph.D., University of Wisconsin, 1986; sequence stratigraphy, diagenesis, fluid inclusion studies of carbonates.

LUIS A. GONZÁLEZ, Associate Professor and Chair; Ph.D., University of Michigan, 1989; stable isotopes, carbonate geochemistry, and diagenesis, paleoclimate.

STEPHEN T. HASIOTIS, Associate Professor; Ph.D., University of Colorado at Boulder, 1997; paleontology, ichnology, sequence stratigraphy, terrestrial paleoecology.

DIANE L. KAMOLA, Associate Professor; Ph.D., University of Georgia, 1989; sequence stratigraphy, basin analysis, clastic sedimentology.

BRUCE S. LIEBERMAN, Professor; Ph.D., Columbia University, 1994; paleontology, Cambrian radiation.

GWENDOLYN L. MACPHERSON, Associate Professor; Ph.D., University of Texas at Austin, 1989; hydrogeology.

ALISON OLCCOTT MARSHALL, Assistant Professor; Ph.D., University of Southern California, Los Angeles, 2006; paleobiogeochronology.

CRAIG P. MARSHALL, Assistant Professor; Ph.D., University of Technology, Sydney, Australia, 2001; organic geochemistry.

ANDREAS MÖLLER, Assistant Professor; Ph.D., University of Kiel, Germany, 1996; mineralogy, isotope geochemistry.

EUGENE C. RANKEY, Assistant Professor; Ph.D., The University of Kansas, 1996; sedimentary systems, coastal geomorphology.

JENNIFER A. ROBERTS, Associate Professor; Ph.D., The University of Texas at Austin, 2000; microbial hydrogeology.

PAUL A. SELDEN, Gulf-Hedberg Distinguished Professor, Director, Paleontological Institute; Ph.D., Cantab, 1979; paleoecology of arthropods (especially Chelicerata and Miliopoda), paleoecology.

LEIGH STEARNS, Assistant Professor; Ph.D., The University of Maine, 2007; glaciology.

DON W. STEEPS, McGee Distinguished Professor; Ph.D., Stanford University, 1975; shallow seismic reflection, crustal analyses, and microearthquake recording.

DANIEL F. STOCKLI, Associate Professor; Ph.D., Stanford University, 1999; thermochronology, structural geology.

MICHAEL H. TAYLOR, Assistant Professor; Ph.D., University of California, Los Angeles, 2004; neotectonics and continental deformation.

GEORGE P. TSOFILAS, Associate Professor; Ph.D., The University of Texas at Austin, 1999; geophysics, hydrogeophysics, ground-penetrating radar.

J. DOUGLAS WALKER, Professor; Ph.D., Massachusetts Institute of Technology, 1985; structural geology, geochronology, tectonics.

ANTHONY W. WALTON, Associate Professor; Ph.D., University of Texas at Austin, 1972; sedimentology of siliciclastic and volcaniclastic rocks.

MUSEUM OF INVERTEBRATE PALEONTOLOGY

TALIA KARIM, Collection Manager; Ph.D., University of Iowa, 2008; Ordovician trilobites.

EMERITUS FACULTY

ERNEST E. ANGINO, Emeritus Professor; Ph.D., University of Kansas, 1961; geochemistry.

LOUIS F. BELLWIG, Emeritus Professor; Ph.D., University of Michigan, 1954; structural geology, geology of evaporites.

WAKEFIELD DORT, Jr., Emeritus Professor; Ph.D., Stanford University, 1955; geophysics; Pleistocene geology, archaeological geology.

PAUL ENOS, Emeritus Distinguished Professor; Ph.D., Yale University, 1965; carbonate geology.

WILLIAM W. HAMBLET, Emeritus Professor; Former Director – KGS; Ph.D., University of Kansas, 1951.

CARL D. McELWEE, Emeritus Professor; Ph.D., University of Kansas, 1971; physical hydrogeology, geophysics.

RICHARD A. ROBISON, Emeritus Distinguished Professor; Ph.D., University of Texas at Austin, 1962; paleontology.

ALBERT J. ROWELL, Emeritus Professor, Senior Curator, Museum of Invertebrate Paleontology; Ph.D., Leeds, 1953; quantitative methods in geology. Paleontolgy, Antarctic geology.

WILLIAM R. VAN SCHMUS, Emeritus Distinguished Professor; Ph.D., University of California at Los Angeles, 1964; geochemistry, meteorites, geochronology.

PALEONTOLOGICAL INSTITUTE

MIKE CORMACK, Information Specialist; Ph.D., Philosophy, University of Kansas, 1999.

JILL HARDESTY, Assistant Editor; BA, French; BS, Secondary Education, University of Kansas, 1988; MA, Art History, University of Kansas, 1992.

DENISE MAYS, Office Manager; BS, Business Administration, Mars Hill College, 1980.

SUPPORT NUCLEUS

JOE ANDREW, Research Associate, 2009-present.

JASON ASH, Information Specialist I, 2006-present.

GREG CANE, Laboratory Manager, 2007-present.

JENNA COKER, Office Manager, 2001-present.

VOLANDA DAVIS, Student Affairs Manager, 1998-present.

WAYNE DICKERSON, Research Technician, 2008-present.

BADR GHORBAL, Post Doctoral Researcher, 2009-present.

ELIZABETH K. GRAVATT, Alumni Coordinator, 1998-present.

SALLY HAYDEN, Research Assistant, 2004-present.

ROMAN KISLITSYN, Laboratory Technician, 2007-present.

JUNSHENG NIE, Post Doctoral Researcher, 2010-present.

IAN J. ROWELL, Information Specialist, 1981-present.

NATHAN SHIRE, Information Specialist, 2010-present.

MARTIN STEIN, Post Doctoral Researcher, 2010-present.

LISA D. STOCKLI, Laboratory Manager, 2001-present.

MISTY STROUD, Post Doctoral Researcher, 2010-present.

CHARLES VERDEL, Post Doctoral Researcher, 2010-present.

GWETHALYN WILLIAMS, Front Office Assistant, 2002-present.

COURTESY & ADJUNCT FACULTY

ANDREA E. BROOKFIELD, Assistant Scientist, KGS.

JAMES BUTLER, Senior Scientist, KGS.

TIM CARR, Distinguished Professor, West Virginia University.

JOHN DOVETON, Senior Scientist, KGS.

GISELA DRESHOFF, Adjunct Associate Professor, Emeritus.

MIKE ENGEL, Associate Professor – Associate Curator, Ecology & Evolutionary Biology.

LEE GERHARD, Senior Scientist Emeritus, KGS.

JOHN GOSSE, Adjunct Associate Professor, Dalhousie University.

DAVID W. GRAHAM, Adjunct Professor, KU Department of Geology.

WILLIAM C. JOHNSON, Professor, KU Department of Geography.

LEONARD KRISHTALKA, Director, Natural History Museum & Biodiversity Res. Ctr.; Professor, Ecology & Evolutionary Biology.

GREG LUDVIGSON, Associate Scientist, KGS.

ROLFE MANDELL, Associate Scientist, KGS.

LARRY D. MARTIN, Professor, Ecology & Evolutionary Biology; Sr. Curator, Natural History Museum & Biodiversity Res. Ctr.

P. ALLEN MACFARLANE, Assistant Scientist, KGS.

MICHAEL T. MEYER, Hydrologist, USGS.

RICHARD MILLER, Associate Scientist, KGS.

MARIOS A. SOPHOCLEOUS, Senior Scientist, KGS.

EDIH TAYLOR, Professor, Ecology & Evolutionary Biology; Curator, Natural History Museum & Biodiversity Res. Ctr.

THOMAS N. TAYLOR, Distinguished Professor, Ecology & Evolutionary Biology; Curator, Natural History Museum and Biodiversity Res. Center.

W. LYNN WATNEY, Senior Scientist Fellow, KGS.

DONALD O. WHITTEMORE, Senior Scientist Fellow, KGS.
Department of Geology Contact Information

Alumni, Geology Associates and other inquiries: Liz Gravatt (see “Support Nucleus” below)
G-Hawker Editor: Diane Silver; dsswriter@sunflower.com; (785) 766-2187

Departmental Faculty | E-Mail | Phone
--- | --- | ---
Ross A. Black | black@ku.edu | 785-864-2740
J. F. Devlin | jfdevlin@ku.edu | 785-864-4994 or 785-864-2913
David A. Fowle | fowle@ku.edu | 785-864-2128 or 785-864-1955
Evan K. Franseen | evanf@kgs.ku.edu | 785-864-2723 or 785-864-2072
Robert H. Goldstein | gold@ku.edu | 785-864-2738
Luis A. González | lgonzalez@ku.edu | 785-864-2743 or 785-864-7750
Stephen T. Hasiotis | hasiotis@ku.edu | 785-864-4941
Diane L. Kamola | kamola@ku.edu | 785-864-2724 or 785-864-7712
Bruce S. Lieberman | lieberer@ku.edu | 785-864-2741
Gwen L. Macpherson | glmac@ku.edu | 785-864-2742
Alison Olcott Marshall | olcott@ku.edu | 785-864-2943 or 785-864-1917
Craig P. Marshall | cmarshall@ku.edu | 785-864-4974
Andreas Möller | amoller@ku.edu | 785-864-2727
Eugene C. Rankey | rankey@ku.edu | 785-864-4971
Jennifer A. Roberts | jenrob@ku.edu | 785-864-1960
Paul A. Selden | selden@ku.edu | 785-864-7251
Leigh Stearns | stearns@ku.edu | 785-864-4202
Don W. Steeples | don@ku.edu | 785-864-2730
Daniel F. Stockli | stockli@ku.edu | 785-864-4995 or 785-864-7714
Michael H. Taylor | mht@ku.edu | 785-864-5828
George P. Tsotlias | tsotlias@ku.edu | 785-864-4584
J. Douglas Walker | jdwalker@ku.edu | 785-864-2735 or 785-864-7711
Anthony W. Walton | twalton@ku.edu | 785-864-2726

Museum of Invertebrate Paleontology

Talia Karim | jkarim@ku.edu | 785-864-2747

Emeritus Faculty

Ernest E. Angino | rockdoc@sunflower.com | 785-864-2736
Louis F. Døllev | (none available) | 785-864-2618
Wakefield Dort, Jr. | (none available) | 785-864-2729
Paul Enos | enos@ku.edu | 785-864-2744
William W. Hambleton | wwhamble@ku.edu | 785-864-3965
Carl D. McElwee | cmeelwee@ku.edu | 785-864-2728
Richard A. Robison | roobison@ku.edu | 785-864-2739
Albert J. Rowell | arowell@ku.edu | 785-864-2747
W. R. Van Schmus | rvschmus@ku.edu | 785-864-2727 or 785-864-3676

Paleontological Institute

Mike Cormack | msc@ku.edu | 785-864-2737
Jill Hardesty | jillh@ku.edu | 785-864-2737
Denise Mayse | dmayse@ku.edu | 785-864-3338

Support Nucleus

Joe Andrew | jandrew@ku.edu | 785-864-4974
Jason Ash | jasonash@ku.edu | 785-864-2750
Greg Cane | 785-864-4974
Jenna Coker | jcoker@ku.edu | 785-864-4976
Yolanda Davis | yolanda@ku.edu | 785-864-4975
Wayne Dickerson | wdickerson@kgs.ku.edu | 785-864-4974 or 785-864-3965

Badr Gorbal | bghorb@ku.edu | 785-864-4974
Elizabeth K. Gravatt | egravatt@ku.edu | 785-864-5628
Sally Hayden | srhayden@ku.edu | 785-864-2730
Roman Kislitsyn | rkislits@ku.edu | 785-864-7657
Junsheng Nie | 785-864-4974
Ian Rowell | i-rowell@ku.edu | 785-864-2732
Nathan Shire | nshire@ku.edu | 785-864-4974
Martin Stein | martinStein@ku.edu | 785-864-2751
Lisa Stockli | lstockli@ku.edu | 785-864-2725 or 785-864-7714

Misty Stroud | 785-864-4974
Masato Ueshima | mueshima@ku.edu | 785-864-4974
Charles Verdel | cverdel@ku.edu | 785-864-4974
Gwethalyn Williams | lys@ku.edu | 785-864-4974

Courtesey & Adjunct Faculty

Andrea Brookfield | abrookfield@ku.edu | 785-864-2199
James Butler | jbutler@ku.edu | 785-864-2116
Tim Carr | tim.carr@mail.wvu.edu | 604-293-5603
John Doveton | loghaw@ku.edu | 785-864-2100
Gisela Dreschhoff | giselas@ku.edu | 785-312-5363
Mike Engel | msengel@ku.edu | 785-864-2319
Lee Gerhard | lgerhard@ku.edu | 785-864-2195
John Gosse | jgosse@is.da.CA | 902-494-6632
David Graham | dwgraham@ku.edu | 785-864-4974
William Johnson | wcj@ku.edu | 785-864-5548
Leonard Kirschalka | kirschalka@ku.edu | 785-864-4540
Greg Ludvigson | gludvigson@ku.edu | 785-864-2734
Rolfe Mandel | mandel@ku.edu | 785-864-2171
Larry Martin | ldmartin@ku.edu | 785-864-5639
P. Allen Macfarlane | dowser@ku.edu | 785-864-2068
Michael Meyer | mmeyer@usgs.gov | 785-864-3965
Richard Miller | rdmiller@ku.edu | 785-864-2091
Marios Sophocleous | marios@ku.edu | 785-864-2113
Edith Taylor | etaylor@ku.edu | 785-864-3621
Thomas Taylor | ttaylor@ku.edu | 785-864-3625
W. Lynn Watney | lwatney@ku.edu | 785-864-2184
Donald Whittemore | dwhit@ku.edu | 785-864-2182

Liz Gravatt (see “Support Nucleus” below)
The former geology students listed below are lost as far as the alumni database is concerned. Please look through the list to see if you recognize anyone. If you have news of them, let us know. We’re interested in addresses, name changes, employer names and addresses or anything else you can tell us. We’d love to retire these folks from the land of the lost.

1941-1950
Ted Beaver, BS ’50
Robert M. Castator, BS’49
James D. Chappell, BS’41, Meng
Albert J. Hanners, ‘43
Walter L. Hurt, ’48
Robert James Mann, ’45
Ernest E. Pelzer, ’50
George H. Spivey, ’50

1951-1960
Neal R. Alleman, BS’52
Roger Arbour, ’60
Allen N. Bates, ’57
Charles E. Beardside, ’60
William L. Brown, MA’54
William J. Conklin, ’56
Victor C. Cope Jr., BS’56
Darrell E. Davis, ’56
Thomas L. Downs, BA’56
Robert John Emmanuel, ’51
James Ray Strickland, ’51
Charles J. Sloanaker, MS’51
Herman Ewers Simpson, ’59
Homer U. Ries, ’51
The former geology students listed below are lost as far as the alumni database is concerned. Please look through the list to see if you recognize anyone. If you have news of them, let us know. We’re interested in addresses, name changes, employer names and addresses or anything else you can tell us. We’d love to retire these folks from the land of the lost.

1961-1970
Ibrahim Abl El Wahid, MS’63
Jimmie Dean Bowman, ’61
Eugene O. Bowser, ’61
David S. Brumbaugh, ’68
Dean K. Bryson, ’63
Earl H. Budke Jr., ’68
John J. Coblé, ’68
Faramarz Frouzan, ’63
Robert Jacob Garrecht, ’64
Karl Lesley Geller, ’67
Carolyn Lee Griffin, ’68
Reginald V. Hickers, MS ’62
Peter W. Huelsenbeck, ’64
John Huh, BA ’68
Robert Clement Koch, ’64
Tom L. Knight, ’64
Tommy R. McKellar, MS’62
Mustafa A. Mitwalli, ’61
Harry W. Mueller III, ’68
Theodore Neague, ’69
Tomohide Nohara, ’67
Albert F. Noonan, ’67
Yacoub Ahmad Qandil, BA’59,M.S’61
Charles G. Roberts, ’69
Richard Harvey Roda, ’63
Luis R. Rodriguez, MS’69
Malcolm B. Roy, MS’66
Tyrone Robertson, BS’69
Dennis Wayne Slater, ’69
Robert Louis Steineck, ’69
Bruce Allan Thompson, ’69
Thomas L. Teer, ’69
Howard C. Thornton, Jr., BA’67
Clyde T. Williams, BA’62

1971-1980
Yacoub Al-Allahi, ’74
Gholamhosien Bangali, ’74
Faustin Bangole-Yenvou, BS’75
Carlos A. Belfort, ’71
 Bipinkumar Bhatt, ’74
J. Dennis Brewer, ’80
Andra D. Cohran, ’81
Roy E. Cox, ’76
Jafar Dirim, ’73
Maria B. Edwards, ’74
Abdurrazak A. Endisha, BS’79
Susan L. Fezie, ’76
James Hontos, ’73
Dale D. Hudson, BS’74
Daniel T. Jenkins, ’76
Edward L. Leanhard, BS’79
Sandra R. Malmberg, ’80
James E. Mathewson, ’75
Stephen McGie, ’79
Marvin B. McKinney, ’73
J. Peter Mills, MS ’73,PHD ’74
Adam Morawski, BS ’77
Francois R. Nguyen, MS ’78
Yaw Ntiamoah-Agyakwa, ’79
Adeleke Odetola, BS ’72
Kyle D. Parker, ’80
Robert E. Plump, BGS’75
Maryette Hanson Rogers,’75
Robert E. Plump, BGS’75
Brett Edward Engel, ’83
Usama M. Fergiani, ’82
Eric D. Goldman, ’86
Mark Wayne Grommash, ’82
Alexander Hagens, ’89
Donald H. Harrison, Jr., ’81
Jason C. Heath, ’90
Dennis G. Hintz, ’80

1981-1990
Talat Younis Abdullah, MS’84
Zulifiki Ab Rahim, BS’85
Keyvan Alaladeh, ’89
Gregory Bown Andersen, ’82
Chait H. Basoocak, ’81
Victoria Bennett, ’90
Barbara Biggers, ’85
Carol Dixon Brinton, ’81
Jeffrey A. Burke, ’84
Mehmetten A. Busili, BS’82
Edward Le Carper, ’85
Scott Dennis Coon, ’83
Randy Louis Corey, ’81
Bruce A. Cox, ’82
Richard James Cox, ’81
Troy Randal Curran, ’85
David C. Daniel, ’82
Rodziah Haji Daud, BS’86
Pablo Alfonso Delgado, ’86
Ute Doring, ’90
Mary Wier Dossett, ’83
Rene Christine Elwood, ‘81
Brett Edward Engel, ’83
Usama M. Fergiani, ’82
Mark Wayne Grommash, ’82
Alexander Hagens, ’89
Donald H. Harrison, Jr., ’81
Jason C. Heath, ’90
Dennis G. Hintz, ’80
Hann-Chen Huang, ’80
Steve Kuoyi Huang, ’82
Dan R. James, ’82
Jeffrey Lee Jones, ’89
Susan C. Kent, ’81
David Alan Kvan, ’82
Mastura Abdul Malik, BS’86
Jeffery Scott McCoy, ’83
Andrea Lou McEachern, ’82
Kevin Earl McFarland, ’82
Kamal T. Moghadam, ’85
Muftah Giama Mohamed, ’83
Ali Muftah Mshirab, ’82
Soheila Nasser, BS ’83
Rebecca D. Oswald, ’83
George C. Outlaw, ’83
Mitch R. Powers, ’90
Reyes Jacobo Quesada, ’86
Kim G. Richtmire, ’87
Charles E. Schabel, ’81
Miloos Veleckovsky, MS ’85
Michael A. Wheeler, ’84
Stephen E. Wimsan, ’81
Di Zhou, PhD ’85
Mark Hamilton Ziegler, ’81
Timothy J. Zolowski, ’81

1991-2000
Todd Alan Campbell, ’91
Tyan-Ming Chu, PhD’96
Aaron W. Cox, ’95
Joseph John Keeling, ’92
Margaret S. Mills, MS ’92, PhD ’94
Stephanie Ann Ruegnitz, ’92

The 2010 G-Hawker
Publisher: Luis A. González
Adviser: Robert H. Goldstein
Editor: Diane Silver
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Contributors: Diane Silver, Rex Buchanan, Doug Walker, Tony Walton, Jim Funk, Richard Styron, Mary Jane Dunlap


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Looking for Lost G-Hawks
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