YEAR IN REVIEW 2015–2016

Department of Geology

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
School of Earth, Society, and Environment

Spring Field Course Returns to World-Class Sedimentary Sequences in Western Ireland

Group sketching superb cliff exposures of a Carboniferous mud diapir, Kilkee, County Clare

The 2016 Geology 415/515 Field Class took place in County Clare, Western Ireland May 16-29th and was led by Professor Jim Best, accompanied by Dr. Drew Phillips and Nathan Webb from the Illinois State Geological Survey. Twenty-seven students from Illinois teamed up on a joint trip with 16 students and two Faculty from the University of Nebraska-Lincoln, and visited a wide range of significant sites.

The class examined the sedimentology and evolution of the Carboniferous Shannon sedimentary basin and focused on the world-class coastal exposures of sediments along the County Clare coastline. These outcrops display a range of sedimentary environments from carbonate platform to deep basinal black shales, and from deep sea turbidites to fluvio-deltaic successions, as well as a wide array of synsedimentary and tectonic deformation features.

Several locations also permitted the group to examine the deposits of Quaternary glaciations in the area. This year, the depositional processes and deposits of these sediments were examined, allowing the group to build a story concerning the evolution of this sedimentary basin and both the large and small scale controls on

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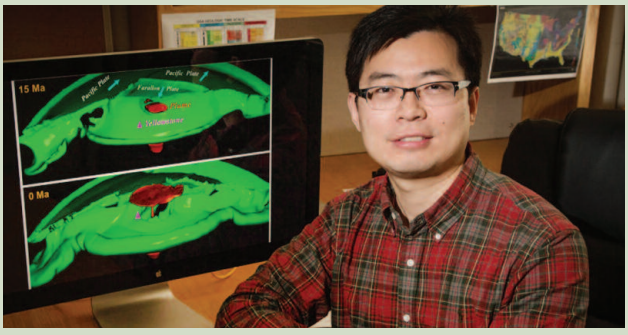
Spotlight on Faculty: Lijun Liu



Prof. Lijun Liu's research and work has put him at the leading edge of his discipline this year and has earned him both recognition and numerous accolades, including the Jason Morgan Early Career award from the American Geophysical Union and a CAREER grant from the National Science Foundation.

One of his most significant contributions to the field recently is his research on the origin of the Yellowstone magmatic system, which yielded a ground breaking study that will possibly change the way scientists think about Yellowstone's volcanic formation and activities.

The main goal of the study was to examine whether the initiation and subsequent development of the Yellowstone volcanic system was driven by a mantle plume. Using the Blue Waters supercomputer at the National Center for Supercomputing Applications at the U. of I., Liu's team created a computer model that replicated both the plate tectonic history of the surface and the geophysi-

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Letter from the Head

Dear Alumni and Friends,

Several exciting developments in the Department of Geology have been on my mind recently. Foremost among these is the immense success of the new faculty who have joined the department over the past four years. I have bragged before in these pages about the talents of our new faculty; now we are beginning to see that talent bloom. At the forefront of this cadre of new assistant professors is Lijun Liu, who arrived in 2012. As we explain elsewhere in this newsletter, Lijun's research has really taken off in the last few years, with several NSF grants, a number of highly cited publications, the Jason Morgan award from the American Geophysical Union, and a prestigious CAREER grant from the National Science Foundation (NSF). Jessica Conroy, who has been with us three years, scored a hat trick this spring: Three NSF grants awarded in one semester! Trish Gregg, currently at the end of year two, will be serving in the prestigious and demanding role of Chief Scientist on a month-long deep-sea research cruise on the R/V Atlantis to study the 8 20'N Seamount Chain west of the East Pacific Rise. She, too, has succeeded in getting a major NSF grant funded. Jenny Druhan and Willy Guenthner, having completed one year as assistant professors, already have some research funding in place and are developing an impressive array of new research projects, several of them leveraging synergies with senior faculty. Our new lecturer, Jackie Wittmer Malinowski, has channeled her boundless energy toward reviving our Paleontology course, teaching several other key courses, advising several undergraduate research projects, doing outreach to the local community, working to maintain our fossil collections, and other tasks. All of our new faculty are energetic and charismatic in the classroom, bring fresh ideas to the curriculum, and are helping to revamp and revitalize courses. These are merely the major highlights that come to mind as I write—you can meet these fantastic professors and learn more on your next visit to campus. I should also mention that our staff transition, after Marilyn Whalen's retirement in December, has gone very well thanks to the tireless efforts and unfailingly positive attitude of Ms. Lana Holben. Overall, the atmosphere in the department is very lively these days and the injection of new ideas and energy is invigorating.

More broadly, we are trying to infuse our courses with more active learning, including a renewed emphasis on field geology, more group-based problem solving, more project-based learning, and more critical thinking.

The department has been working to revise teaching methods and take advantage of new pedagogical approaches. One of the big challenges of teaching in the Big Ten is that large classes are unavoidable, at least at the introductory level. These large classes tend to be lecture-dominated and therefore may be less interesting and less effective than is ideal. Our Geology 107 course serves about 100 students, from new Geology majors to civil engineering students, each semester. As part of an NSF-funded project that aims to upgrade the large class experience, GEOL 107 has incorporated more "active learning" methods, and uses technology that allows quiz questions and opinion polls to be displayed, and student responses tallied, in seconds. This keeps students thinking, and using what they have just learned. More broadly, we are trying to infuse our courses with more active learning, including a renewed emphasis on field geology, more group-based problem solving, more project-based learning, and more critical thinking.

The Natural History Building renovation is progressing rapidly, and by the time you read this, the project will be nearly complete. We include an update elsewhere in this newsletter. We are beginning to plan our return move into our home on the quad, and a few of us will be making regular inspection tours this summer to ensure that everything gets done according to plan. Many of you have given generously to the Natural History Building Renovation fund; we are very grateful for the gifts that comprise a substantial, and essential, part of the array of funding sources that make the project possible. I encourage everyone else to consider a gift to the NHB fund; this is our greatest need at present. To make an online gift to the Natural History Building Renovation Fund, you may do so by visiting the department web page (www.geology.illinois.edu) and clicking on the "GIVE" link in the upper right corner. If you need help with any method of donation, feel free to call the department at (217) 333-3540.

As I complete the end of my five-year term as head of the department, I am happy to say that the LAS Dean asked me to stay on as head, and I have accepted. I look forward to serving the students, faculty, alumni, and staff of the department, and the State of Illinois, in the future. Please do stop by to visit, join our LinkedIn group, and/or send me an update periodically.

All the best to you and yours,

Tom Johnson

Tom Johnson

Year in Review is published once a year by the Department of Geology, University of Illinois Urbana-Champaign, to highlight the activities and accomplishments within our department and feature news from our alumni and friends.
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Spring Field Course Returns to World-Class Sedimentary Sequences in Western Ireland

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basin evolution. The scale of the outcrops also enabled the sediments to be viewed and examined as subsurface reservoirs and allowed discussions on modeling the heterogeneity of such deposits in the subsurface. The group also spent one day examining the archaeology of the Burren, a unique limestone terrain in the north of County Clare that bears witness to the human settlement of the region from Neolithic to modern times.

The field class included group field and evening seminars from all participants, in teams that fostered collaboration between the two university groups, and culminated in 3-day individual mapping and research projects. The group was able to enjoy superb Irish spring weather this year (only one day of rain in the whole trip) whilst much of the rest of northwestern Europe was receiving records levels of rainfall! The trip was supported financially by generous donations from Shell and Chevron, and provided an unforgettable geological, archeological and cultural experience for all. At the end of the trip, it was evident that many will return to Ireland to visit once again in the future!

Logging and examining sediments of an ancient submarine fan, near Ross, County Clare

Spotlight on Faculty: Lijun Liu *(continued from page 1)*

cal image of the Earth's interior. Liu's computer model accounted for the last 40 million years, beginning prior to even the earliest signs of Yellowstone's volcanism. The simulations showed that a mantle plume would have been blocked from traveling upward toward the surface by subducted tectonic plates, meaning that a plume could not have played a significant role in forming Yellowstone, a significant contrast to what previous studies have proposed.

"Our model covered the entire history of Yellowstone volcanic activity," said Liu, "This study is the first to use a high-performance supercomputer to interpret the layers of complicated geophysical data underlying Yellowstone. Our physical model is more sophisticated and realistic than previous studies, because we simultaneously consider many more relevant dynamic processes." These findings were published in the journal *Geophysical Research Letters.*

Several lines of research are currently under way in Liu's group. One of these is to continue looking for a final solution for the origin of Yellowstone. Another major project is to understand the subduction history in South America and the tectonic evolution of the Andes Mountain; the team has already obtained several important results. In a third project, Liu attempts to quantitatively couple the temporally varying mantle dynamics with surface landscape evolution, which represents a new frontier in geophysical research.

Liu's research has garnered recognition nationally and internationally, and his willingness and ability to think outside the box and approach his research in a way that incorporates multiple disciplines has earned him the praise of colleagues. He was named the recipient of the Jason Morgan Early Career Award in 2015, an award for significant early-career contributions in tectonophysics.

"In his career thus far, he has produced an impressive array of scientific contributions based upon his holistic approach of integrating diverse suites of geological and geophysical observations with advanced numerical methods that model the dynamics of the deep Earth," says Dave Stegman from the Scripps Institution of Oceanography, "Lijun has pushed forward to generate geographically referenced, three-dimensional spherical dynamic models that evolve through tens of millions of years and yield appropriate deformations from the scales of mineral grains to tectonic plates. Yet the real pioneering aspect of this effort is that the models can evolve either forward from a time in history or backward from the present day."

Liu has also received an NSF CAREER Award, a highly prestigious five-year grant "to support the early career-development activities of those teacher-scholars who most effectively integrate research and education within the context of their organization". This supports Liu to investigate the causes and consequences of flat-slab subduction, an unusual tectonic process that affects continental geology in many prominent ways.

Department head Tom Johnson was thrilled to hear of both of these honors: "Lijun has quickly developed a very strong research and teaching career here at Illinois. I find his work on geodynamic models of subduction-affected regions both fascinating and compelling. His work ties together geophysical, tectonic, magmatic, and even geomorphic observations in regional, integrative models. He is also a thoughtful and charismatic instructor, helping to improve geoscience teaching methods. We are excited to have him on the Geology faculty at Illinois!"

Department names recipients of 2014, 2015 Alumni Achievement Awards

The department has awarded the 2014 and 2015 Alumni Achievement Awards, respectively, to Dr. John Shelton (M.S. '51, Ph.D. '53) and Dr. John A. Cherry (Ph.D. '66). Each was selected for outstanding contributions to his field and for embodying the Department's success in preparing students for careers in industry and academia.

Doris and John Shelton with Tom Johnson at the November 2014 award presentation.

John Shelton

The son of an elementary school teacher and a school superintendent, Shelton was born in Bellmead, Texas in 1928. He graduated from Baylor in 1949 with a bachelor's degree in math and a minor in geology, and then went on to the University of Illinois to begin work on a master's degree in geology. He continued his education at Illinois, pursuing a Ph.D., with his wife Doris as his summer field assistant. In 1952 he received the Shell Fellowship and accepted a position with Shell in 1953. Upon leaving Shell in 1963 he moved to Oklahoma State University where he was a professor of geology for 17 years, researching and educating in the fields of sedimentology, stratigraphy, structural geology, and basin analysis.

In 1974, he began working part time on research projects during summers for ERICO, a company newly formed by Oklahoma State alumnus Paul McDaniel. ERICO eventually was bought out by Petroleum Information and became ERICO P.I., but Shelton, McDaniel and others from the original company re-grouped to form Masera, a Tulsa-based company that specialized in in-depth regional geological studies.

As the sheer volume of data utilized in both his and others' research underscored the need for digitization across the industry, Shelton, as project manager, began work on developing a digital repository for the American Association of Petroleum Geologists (AAPG). He was the driving force behind the creation of Datapages, AAPG's digital library, and Search and Discovery, its petroleum geoscience website, professional achievements that earned him AAPG's prestigious Sidney Powers award in 2011.

Distinguished Department alumnus Jack Threet (John's contemporary in the Department and later Exploration Vice President of Shell) remarks, "Shelton's single-handedly leading AAPG into the digital world of products and services is probably his best-known achievement, but his achievements at Shell in both operations and research were many, as were those later-on throughout his career in academia and professional societies. Besides that, he is a heck of a nice guy, always a modest team player who never once "tooted his own horn"!

Shelton visited the Illinois campus to receive the Alumni Achievement award on November 6th, 2014, with his wife, Doris —married now for over sixty years.

Department head Tom Johnson says, "We always enjoy seeing John and Doris at our AAPG receptions, but it was wonderful to welcome them back to Champaign-Urbana for the presentation of the award. Doris brought two loaves of homemade zucchini bread—the best I have ever had, all the way from Tulsa! John's contributions to energy companies, academia, and AAPG are varied, visionary, and highly valuable."

John Cherry

Cherry's path toward hydrology began with his pursuit of his undergraduate degree in geological engineering at the University of Saskatchewan. His interest specifically in groundwater and groundwater contamination was sparked by several experiences throughout his educational career. In the summer after his sophomore year, Cherry worked with Dr. Earl Christiansen on a research program on groundwater geology at the Saskatchewan Research Council in Saskatoon, located on the University of Saskatchewan campus. Upon graduation, Cherry went to the University of California, Berkeley, for a Masters degree and then in 1964 arrived at the University of Illinois to pursue his Ph.D. He met Dr. Robert Farvolden, who was on the Illinois faculty at the time and was instrumental in forming Cherry's overall philosophy towards hydrogeology. Farvolden later hired Cherry at the University of Waterloo in 1971 to lead the efforts directed at groundwater contamination.

"When I began my focus on groundwater contamination there was almost no interest in this field in the broader scientific community. The literature was sparse and most of the groundwater contamination problems that we recognize as important

John Cherry receives the 2015 Alumni Acheivement award from Tom Johnson.

today were not known at that time," Cherry says. "One of my most important accomplishments was the co-authorship of the textbook *'GROUNDWATER'* published in 1979, which quickly became widely used for teaching and professional practice. I was most fortunate to team up on this project with my co-author, Dr. Allan Freeze, whom I had met at the University of California, Berkeley."

Cherry revolutionized groundwater research by developing, through strongly collaborative efforts, innovative field measurement approaches and methods that integrate drilling and subsurface instrumentation with conceptual modeling. In the 1980s, he established the Borden Groundwater Field Research Facility and his research was influential in convincing policy makers to adopt new conceptualizations for groundwater management and remediation of industrial contamination. In 1993, Prof. Cherry was invited to present and answer questions on the effectiveness of pump-and-treat remediation of groundwater to a committee of the U.S. Senate and U.S. House of Representatives. This was part of a process that resulted in new groundwater remediation guidelines and approaches in the United States and other countries, e.g., United States Environmental Protection Agency (USEPA) Technical Impracticability waivers and a Handbook on the notoriously difficult dense, non-aqueous phase liquids by Environment UK. The scientific framework for clean-up efforts and monitoring approaches recommended by Professor Cherry has been implemented in many areas with groundwater contamination worldwide.

"The Department of Geology has been a leader in hydrogeology for many decades, and our campus, including the Department of Civil and Environmental Engineering, the Illinois State Water Survey, and the Illinois State Geological Survey, is major center for hydrology research," says Tom Johnson, Department head, "Having used the Freeze and Cherry textbook as both a student and a professor, I know that the hydrogeology community has been very fortunate to have such a clear and rigorous resource. The community has greatly benefitted from John's many contributions, including recent work to provide a scientific basis for accurately assessing the impacts of high-volume hydrofracturing operations on groundwater resources."

Cherry is currently a distinguished professor emeritus in the Department of Earth and Environmental Sciences at the University of Waterloo in Ontario, Canada, Cherry continues to conduct research and provide research leadership as the director of the University Consortium for Field-Focused Groundwater Contamination Research that he established in 1988. He is also an adjunct professor at the University of Guelph, and an associate director of the G360 Centre for Groundwater Research.

Donor Profile: Michael Bourque

Michael Bourque (M.S. '77), a 30 year retiree of Shell Oil, will have a faculty office named in recognition of his generous donation to renovate the Natural History Building. "My enthusiasm to be part of the interior makeover was amplified after walking through the construction site in 2015. While I fondly remember the character and history of the old office layout, the new design offers many exciting opportunities for the Geology Department."

Michael earned a B.S in Geology from the University of Kentucky in 1974. He worked for 8 months for Amoco Oil in New Orleans as a geophysical technician before beginning graduate studies at the University of Illinois in the fall of 1975. He worked the summer of 1976 for Exxon in Baytown, TX. He earned his M.S. in Geology December, 1977.

Michael began full-time work at Shell Oil in 1978 in New Orleans as an exploration geologist. He developed several successful oil and gas prospects in the deep water of the Gulf of Mexico, a play in which Shell has consistently led the industry. New Orleans is also where he met Marsha, also an oil geologist and now a consultant for ARAMCO. They married in 1980 and have one daughter, Veronica. Transferring to Houston in 1989, Mike continued deep water exploration on a global scale, defining new opportunities in The Philippines, India, China, Malaysia, Nigeria, Brazil, and Angola. His last position was leading a Russia New Ventures team while posted in The Hague, The Netherlands. Mike retired from Shell in 2008. Most recently, he has consulted for Pemex, the Mexican national oil company. Mike and Marsha reside in Houston and have a summer home in Santa Fe, NM. They enjoy travelling, especially to places with wonderful geologic stories to see and learn. His favorite hobbies are creating stained glass art and star-gazing from his observatory in Santa Fe.

NHB renovation nears completion!!!

The Natural History Building project is nearly complete. Department of Geology faculty, staff, and students eagerly await the department's return to its traditional home on the main quad, and look forward to working in a model of 21st century learning and research.

The original building was dedicated on November 16th, 1892. The four story Victorian Gothic structure was designed by the renowned Nathan Ricker—an Illinois alumnus who received the first architecture degree granted in the United States, and who went on to found the Architecture Department at the University of Illinois. Major additions were added in 1908 and 1921. The building was considered a hallmark of elegance in architecture on the Illinois campus and served students and faculty well for over one hundred years. Initially, the building held the State Natural History Survey, the State Entomologist, and the American Culture Museum. It evolved over the years into a mostly academic building, housing the Department of Geology on floors 1 and 2 and Biology teaching facilities on floors 3 and 4. The Natural History Museum occupied large areas on floors 3 and 4 until it closed over ten years ago.

During the building's long history, various additions were inserted into the original structure to accommodate the needs of a vigorously growing university. Some of you will recall the somewhat odd offices that were built into a space originally occupied by a staircase. The creaky stairs with the beautifully carved wooden handrail in the 1892 (north) wing once had a mirror image staircase, about ten feet to the east. This was removed long ago to make space for offices. In order to maximize utilization of the space, one office was placed between floors 2 and 3 and was accessible only by a door from a stairway landing. The office above it had a raised floor about two feet above the hallway level; one had to climb a small set of three stairs to reach the doorway! Courtyard spaces on both sides of the central auditorium were filled in, one story high, to house laboratories and offices, and parts of hallways were filled in to make additional teaching and office space. Up until the 1980s, a portion of the first floor housed the "catacombs", a warren of tiny, windowless graduate student offices.

After over one hundred years of heavy use, add-ons, miscellaneous renovation, repurposing, and trauma (fires in 1897 and 1990 and termite infestations), the venerable building was still functioning reasonably well in 2010, but was due for a major renovation and upgrades to its old infrastructure.

In 2010, serious structural deficiencies related to errors in construction of the 1908 addition were discovered. Geology Department head Tom Johnson recalls, "One weekend, we were informed that a crew would be x-raying the floors. That seemed rather odd! We soon learned that the x-ray images showed the "re-bar" in the floors was too widely spaced. Safety concerns led to closure of roughly 40% of the building, displacing faculty offices, research labs and classrooms. A renovation had been proposed for an indefinite time in the future, but the closure led to the need to do a complete renovation of the building as quickly as possible.

A new vision for NHB was developed. Repairs to the 1908 floors required removal of most interior walls, which in turn allowed major design changes, with some freedom to change wall locations and room usage, and the ability to incorporate completely new, efficient building systems from the ground up. It was decided that all three departments of the School of Earth, Society, and Environment (SESE) should have their main office areas together in the building. The School of Integrative Biology (SIB) teaching complex would continue to occupy the same square footage it occupied before 2010. After considering several possible configurations, it was decided that SIB would occupy the 1892 (north) wing from top to bottom, with SESE taking the remainder to the south. The main objective of the new plans was to create a building that lends itself to the needs of a 21st century teaching and research institution while improving the appearance of the historic exterior (via removal of the old window air conditioners and a fire escape) and retaining the general feel of the historic interior. The renovation of the 148,000 square-foot Natural History Building will create a dynamic learning environment that supports the latest methods in teaching and research while also reflecting the long, distinguished history of the University of Illinois.

And so a complex demolition process began in spring of 2014 to "gut" the interior and make way for the new and improved version of the building. This phase included careful removal of historic doors, much of the hardwood floors, and other woodwork to be placed back into the building later. For months, a steady stream of debris poured out of the building into dumpsters, as walls, flooring, and other components were demolished. This process uncovered some 107 year-old footprints in the concrete in various places. Some of you have already read, in the Winter 2015 LAS Newsletter, that we became aware that NHB contained a time capsule from 1892. Demolition also uncovered some unwelcome surprises. Damage from the 1990 fire was more extensive than expected; this led to delays, as repairs were designed and huge new beams were fabricated and installed. Overall, though, there were only a few major surprises, and the construction delays and budget increases were not severe.

As of Summer, 2016, work to construct the new spaces is nearing completion. Most of you will remember the "courtyard" areas north and south of the central lecture hall. These spaces, formerly occupied by single-

story laboratories, are now filled all the way to the fourth floor, and will house several state-of-the-art laboratories for specialized research in areas including geophysics, geochemistry, sedimentology, earth materials, geomicrobiology, and remote sensing. The central auditorium area will continue to be a lecture hall, but other classrooms have been designed to facilitate project-based learning and collaborative group work, and will be outfitted with technology that allows each group to display its work to all students in the entire classroom. Specialized teaching facilities will include a room dedicated to petrographic microscopes, a computer-based classroom for weather and geographic information systems (GIS) classes, a sediment flume, and a data visualization facility. The large vaulted chamber that once served as the Natural History Museum will become the new student commons. At this point, walls are finished, the new electrical, plumbing, and HVAC components are mostly in place, and we can begin to visualize the final appearance of all the spaces.

The estimated completion date is currently January 15th, 2017. As construction wraps up, all the academic units involved in NHB are intensifying their fund raising efforts in support of the project. Donations from alumni and friends of the university play an increasingly critical role in what happens on campus, including renovation of our venerable, iconic buildings. The main quadrangle boasts a collection of historic buildings that have served Illinois students for generations, but are reaching the age where major renovations are due. Lincoln Hall underwent renovation a few years ago, and the building is now stunningly beautiful. That project was completed with strong donor support, and likewise the NHB campaign is now in full swing. A significant portion of the project is reliant on gifts from alumni and friends like you. Support from the State of Illinois provides 12% of the University of Illinois budget and the rest comes from tuition, private support, and grants/contracts from outside agencies.

As with Lincoln Hall, the College of Liberal Arts and Sciences is offering a unique opportunity for alumni and others to invest in the future of the Natural History Building and also leave a legacy for future generations. Major gifts ($25,000 and more, including corporate matches) are eligible for naming opportunities, and pledges can be paid over a five year period. Several Geology spaces, including the petrographic microscopes lab, the mass spectrometry lab, and some offices, have been named. Other rooms such as the sedimentology lab, the student commons, and other prominent spaces are still available. Please consider how you might support future research, teaching and outreach activities in our department and this landmark building. Is there a former or current faculty member you would like to honor? Would you like to expand your personal legacy? The NHB renovation fund welcomes gifts at all levels and the Department of Geology appreciates the gifts of alumni who have already invested in this project. For more information, please visit www.geology.illinois.edu and clink on the "Make a Gift" link. If you have questions or comments, please contact Tom Johnson, Department Head, or Jean Driscoll, Senior Director of Development in the College of Liberal Arts & Sciences. Thank you for your partnership in this endeavor!

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Faculty and Students Earn Teaching Awards

It was another outstanding year for the faculty and teaching assistants in the Department of Geology, as they continue to be recognized for excellence in their teaching endeavors.

Sixteen Department of Geology instructors were named to the University's List of Teachers Ranked as Excellent for the spring and fall 2015 semesters.

The rankings are released every semester and are based on student evaluations maintained by the Center for Teaching Excellence on the Illinois Campus. Faculty appearing on this list includes Stephen Altaner, Jessica Conroy, Patricia Gregg, Ann Long, Craig Lundstrom, Jackie Malinowski, Steve Marshak, and Michael Stewart.

Graduate students named to the list for their work as teaching assistants in the department were Derek Lichtner, Melinda Higley, Vlad Iordache, Jing Jin, Joel Mackinney, Nicholas Martin, Rachel Oien, and Erin Murphy.

Six instructors received the highest ranking of "outstanding," including Steve Altaner, Patricia Gregg, Melinda Higley, Vlad Iordache, Joel Mackinney, Rachel Oein. Jessica Conroy, Derek Lichtner, and Erin Murphy.

Lana Holben with Dean Brian Ross at the LAS awards ceremony

Holben Staff Award

Lana Holben, the Office Manager for both SESE and Department of Geology, received the 2015-2016 LAS Staff Award at the LAS Awards ceremony on March 2nd, 2016. The LAS Staff Award was established in 1993 by the College of Liberal Arts and Sciences to identify and honor selected staff members for their outstanding contributions to the college.

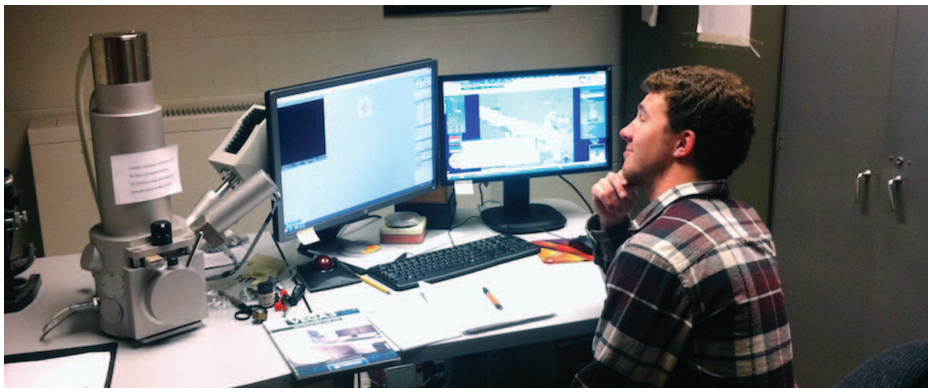
Lana was hired in March 2012, and has served both SESE and Geology in several key roles, including coordinating course scheduling and leading the staff team that makes the annual SESE Convocation ceremony run so smoothly. She has also passed her 5th Anniversary as UIUC employee.

She was lauded by multiple nominators for her extreme work ethic and upbeat and welcoming presence no matter the work load. This spring, the workload was especially heavy following the retirement of Marilyn Whalen at the end of 2015. We are extremely lucky to have Lana in the Department of Geology!!!

Hayden Murray (Ph.D. 1951) to be inducted into the National Mining Hall of Fame

The National Mining Hall of Fame announced Dr. Hayden Murray, esteemed alumnus of the Department, has been selected for induction posthumously into the National Mining Hall of Fame. Dr. Murray was an internationally recognized expert on applied clay mineralogy. Born in Kewanee, Illinois, Haydn earned BS, MS, and PhD degrees in the Department. After completing his doctorate in 1951, he joined the Indiana University faculty in a joint position with the Indiana Geological Survey. From 1957 to 1973, he worked for Georgia Kaolin Company, eventually becoming Executive Vice President and Chief Operating Officer. He returned to Indiana University in 1973 as Geology Department Head, where he created the first academic program in applied clay science in the US. He published more than 200 peer-reviewed papers over his career. His 96 PhD and MS students have gone on to hold critical positions in industry, government, and academia. Haydn was elected into the National Academy of Engineering, and served as President of the Clay Minerals Society, the Society for Mining, Metallurgy and Exploration, and the American Institute of Professional Geologists.

Department Acquires New Electron Microscope



A new scanning electron microscope (SEM) was acquired in December. The purchase was funded in part by funds from the Ralph E. Grim endowment.

The electron microscope with X-ray analysis system allows researchers to image geological samples and create elemental composition maps of them. An electron beam is focused at the sample, causing electrons and X-rays from the individual atoms to emanate and be detected.

"It's great for seeing the element distributions among different minerals as well as the compositional zoning within an individual grain," said Prof. Craig Lundstrom, "We can then use the map to determine a quantitative mineral composition, rivaling the much more complicated and expensive electron microprobe often used in geology."

The new instrument replaces the previous SEM, which was nearly thirty years old and required special high voltage power and chilled water to operate. The new SEM, which only needs a standard electrical outlet for power, makes for simple use and has become a regular part of undergraduate lab classes. The SEM was used in Lundstrom's Intro to Petrology class in the Spring semester by students for their lab project.

"It's a very easy instrument to use because the students can do an X-ray map showing the chemical compositions of all the phases in a rock thin section," said Lundstrom.

High schoolers observe fluvial processes and study glacial materials and bedrock in their canoe trip in the Middle Fork of the Vermillion River

Exposing high school students to Illinois Geology: Middle Fork canoe trips!

Each semester Prof. Michael Stewart runs a field trip for Earth Sciences classes from the local high schools. With the help of graduate students and undergraduates in the Department of Geology, Prof. Stewart leads the classes on a canoeing excursion down a 6-mile stretch of the Middle Fork of the Vermillion River, Illinois' first State Scenic River and a designated National Wild and Scenic River.

Along the river corridor, the students observe glacial till exposed in the bluffs towering tens of meters over cut banks, and then walk on gravel bars composed of glacial boulders derived from these same bluffs. They hunt out a variety of glacially derived boulders leading to discussions about erosion of the cut banks and the glacial history of central Illinois. As the trip continues downstream, the stream cuts deeper through the tills exposing portions of a Pennsylvanian cyclothem. Although no coal is exposed along this stretch of river, the students do have opportunity to hunt for fossils in the silty sandstones and mudstones of the Modesto Formation while learning about cyclothem deposition during cyclical sea level changes.

This stretch of the Middle Fork also passes a decommissioned coal power plant, with coal ash impoundments looming over the banks of the river. Students observe firsthand the potential hazard offered by these ponds—groundwater seepage along the banks has an observable sheen, and the deterioration of bank stabilization efforts where the ash impoundments sit close to the cut banks spark discussions of potential impacts to both the Vermillion River ecosystem and economic benefits to east central Illinois.

At the end of the trip, students and staff are often wet from the river and tired from the day's paddling. But all come away with a greater appreciation for this very important stream, and geologic history it records here in East Central Illinois. The trip is generously funded by Royal Dutch Shell Oil Company.

Best receives AGU Fellowship

Threet Professor Jim Best received his American Geophysical Union Fellowship from AGU President and Director of the Scripps Institute of Oceanography Professor Margaret Leinen (BS '69) at the Annual Meeting of the AGU, San Francisco, December 16th 2015. AGU Fellowships are bestowed on 0.1% of the AGU membership each year, and are awarded for exceptional contributions to Earth and space sciences as valued by their peers and vetted by section and focus group committees. Best has held the Jack C. Threet and Richard L. Threet Endowed Professorship in Sedimentary Geology since 2006. He was recognized by AGU 'for pioneering the investigation of fluid flow and bedforms, and field quantification of large rivers, their morphology and flow structure'. Leinen is a graduate of Illinois, fellow of the AAAS, a past assistant director of geosciences and coordinator of environmental research at NSF, and has recently been appointed as a US Science Envoy by the US Department of State with a focus on ocean science in Latin America, East Asia and the Pacific.

Geology student to attend Oxford as a Marshall Scholar

Geology student Leah Matchett has been named a Marshall Scholar and is one of more than 30 students from the United States selected for postgraduate study at a university in the United Kingdom.

A senior pursuing a double major in Global Studies and Geology, Matchett is an accomplished student and researcher in both of her chosen fields. In her geology capacity, she has worked the past two years with the U.S. Geological Survey, serving as lead author for a journal submission that quantifies how stream restorations lower nitrate loads. She has also served as an environmental science intern for the U.S. Consulate in China, where she published a brochure analyzing air quality in China. She also presented her award-winning research on statistical climate change modeling to Illinois legislators. As part of her major in global studies she has worked with the U.S. State Department's Bureau of International Security and Nonproliferation, where she was a co-author of an article for State magazine on securing chemical weapons in Libya.

Matchett sees her two fields as interconnected, particularly when it comes to bringing hard science to policy making.

"I believe that we desperately need a firm commitment to science based policy in both the national and international arenas," Matchett says. "My majors started out as different fields, but over time they grew more and more related. So often I meet policy makers who do not have a clear understanding of scientific fact, or scientists who are not doing a good enough job communicating the political implications of their research."

Her future goals include returning to the U.S. to continue her work on nuclear security issues, either within the federal government or with a nonproliferation-related think tank.

A note to all: Department alumni have established a "UIUC Geology Alumni" group on LinkedIn, a popular professional networking site (www.linkedin.com). There are currently 115 members, covering a wide range of employment, geographical area, and age. LinkedIn is a good way to keep track of your professional network.

Rebecca Alberts (BS '13) will complete her MS at the University of Ohio investigating the gabbroic section of the Oman Ophiolite this May and then move to the University of Victoria, British Columbia to pursue a PhD.

Elizabeth Armstrong Meister (BS '07, MS '14) has a faculty appointment at Danville Area Community College teaching Chemistry. She hopes she'll be able to teach Earth Science as well, in the future.

Anirban Basu (PhD '13) is taking a faculty position, Lecturer in Earth Sciences, at Royal Holloway, University of London. Royal Holloway is ranked 19th in the UK by the Times Higher Education World University Rankings for 2015–16, and is particularly high in the Earth Sciences research rankings.

Dave Beedy (BS '00, MS '02) is currently STEM Coordinator at the Elmhurst School district in the greater Chicago area. Dave has been teaching science and/or coordinating science education since 2002.

Dylan Canavan (BS '98, MS '00) is teaching science at Hinsdale High School west of Chicago. Dylan was at a recent GSA meeting and is enjoying teaching earth science.

Doug Cowin (BS '84) is currently with ARCADIS, a well-known environmental consulting firm in the Chicago area. Doug has been on campus, recruiting geologists and engineers in the past year.

Stacey Durley (BS '89) is currently Project Manager at Tetra Tech, an environmental consulting firm in Chicago.

David Fike (BS '01) was promoted to Associate Professor at Washington University in St. Louis in 2014. David has built a very successful research program at Wash U, and leads the Stable Isotope Biogeochemistry Group, which focuses on using geochemical analyses.

Ted Flynn (PhD '11) continues to work at Argonne National Lab. Ted is a microbial ecologist working in the Biosciences Division who specializes in understanding the links between microorganisms and biogeochemical cycling of elements.

Ashley Howell (BS '11) is at ExxonMobil with the deepwater Mexico Exploration Team. Ashley earned her MS at Louisiana State University before moving to Houston.

Hani Khoury (PhD '79) has taught at the University of Jordan, Amman for 37 years, serving several terms as department chair and two terms as Vice Dean of the Faculty of Science. Hani attended the 2015 GSA annual meeting in Baltimore and has been exploring common research interests and a potential sabbatical at U of I. He continues to publish articles related to clay mineralogy and some unique, world-famous mineral associations related to combustion-related metamorphism in Jordan.

Joe Jakupcak (BS '72) retired after 39 years in the classroom teaching high school geology and ecology. He is in his 4th year as the guided hike leader at Starved Rock Lodge where he leads 5-mile hikes every weekend through Starved Rock State Park, Utica, IL.

Douglas Mose (BS '65) just retired after a distinguished career in geology and chemistry that spanned over forty years. After receiving his Ph.D. in 1971 from University of Kansas, advised by Illinois Geology Alum Pat Bickford (Ph.D. 1960), he pursued an academic career, including 15 years as Geology Department Chair at George Mason University, followed by 25 years in the Chemistry Department as Professor of Environmental Chemistry. He is now, with wife Josephine and son Edward, involved in an environmental services firm in northern VA (www.MoseServices.com). Over the past 10 years, they time-share travel, rehabilitate homes into rentals, operate their country farm on weekends, and entertain old and new friends that visit in the Washington DC/Northern Virginia area. "If you remember my time at UI (1963-1965), please come and visit."

Conor Neal (MS '14) is currently working for the EPA in the Chicago area. He serves as a Resources Conservation and Recovery Act (RCRA) Corrective Action Project Manager responsible for planning, coordinating, managing and/or overseeing RCRA corrective action work at hazardous waste facilities.

Andrew Ostendorf (BS '10) was hired in 2010 out of the Wasatch-Uinta Field Camp by Newmont as a underground mine geologist. He did ore control, drill planning/core logging, and geological modelling. In 2013, he changed companies and went to Barrick where he now works as a resource geologist. This job entails building and estimating the resource models for current operations and working to develop other potential projects in the region.

Martin Palkovic (MS '15) is in the Denver area working with Terracon as an engineering technician performing civil engineering/engineering geology work.

Mauricio Perillo (PhD '13) is at ExxonMobil Upstream Research Company as a Geoscience Associate in Process Stratigraphy. We were happy to see Mauricio in May, when he visited to attend his wife's Ph.D. defense and do a recruiting presentation for ExxonMobil.

Dan and Karen (Lamb) Petersen (BS '84) got in touch this year: after Dan graduated, he went to the University of Cincinnati and received a Ph.D. in Sedimentology. Since that time, he has worked in the environmental consulting world. Karen is Director of Training for Siemens Building Technologies. They have two kids, including a daughter studying electrical engineering here at U of I.

Paul Potter (MS '59) has been awarded AAPG's highest honor, the Sidney Powers Memorial Award. Although Paul's U of I degree was in statistics, he is a geologist and award-winning professor emeritus at the University of Cincinnati. After Paul received his Ph.D. from the Univ. of Chicago, his first position was at the Illinois State Geological Survey, where he focused on sedimentary deposits in the Paleozoic, Mesozoic, and Pleistocene. Paul returned to campus in November 2013 to present a colloquium talk, "Precambrian Paleotopography in the Eastern Midwest and Ontario—-Possible Analogs for Canada, Brazil, and Africa"

Jay Scheevel (BS '79) is Chief Geologist for Matrix Oil in western Colorado.

Carl Steffenson (BS '80) retired from BP recently and is now doing consulting work with Viking GeoSolutions LLC, offering Mexico and Carbonate/Siliciclastic expertise.

Cameron Stewart (BS '15) went off to Indiana University for graduate study and is currently doing a summer internship in Denver with Whiting Petroleum.

Anna Sutton (BS '01, MS '03) works as a Project Geologist for Stantec in Lombard, Illinois. Anna was on campus recently for the North-Central GSA meeting, where she represented the American Institute of Professional Geologists.

Send us your personal and professional updates by e-mailing us at geology@illinois.edu or by regular mail to:

Department of Geology
University of Illinois at Urbana-Champaign
156 Computing Applications Building, MC-235
605 E. Springfield Avenue
Champaign, IL 61820

Please include degree(s) earned and year, along with your current affiliation.

Stay Connected

To help us assure that you receive future issues of our newsletter and other communications from our department, Geology alumni are encouraged to update their contact information with the University of Illinois Alumni Association via email to alumni@illinois.edu or if you prefer to call, 217-333-1471, 800-355-2586. You can also update your information directly by going to www.uialumninetwork.org and clicking on the blue alumni sign-in here button. This is especially important as we look to communicate more electronically in the future.

IN MEMORIUM

Richard Allen Laidley (BS, '57) died December 21st, 2015 at the age of 86. He was a pilot in the Arizona Air National Guard from 1957 to 1966, when he moved to Houston, Texas to work for NASA. Later in his career with NASA he was the Chief Flight Instructor for the Johnson Spacecraft Center pilots and astronauts, and Chief Test Pilot at JSC NASA Houston. He was also the initial Chief of the Shuttle Chase Program at The NASA Dryden Flight Research Center, Edwards Air Force Base, California.

H. Rich Lane (BS '64) died on October 16, 2015. After his time at Illinois, Rich earned his M.S. and Ph.D. degrees in the Geology from the University of Iowa. Rich worked at Amoco Production Company for 28 years, becoming Manager of Technical Services. In 1997, he took a position with the National Science Foundation, and over 18 years he served as program director for the Sedimentary Geology and Paleobiology (SGP) Program, as well as helping lead the Advancing Digitization of Biodiversity Collections Program, Coastal SEES Program, and Genealogy of Life Program.

Robert A. Linka (BS, '73) died April 10, 2016. He graduated in 1973 from the University of Illinois, where he served in the Navy ROTC. He joined the United States Navy and was on active duty for 8 years and with the Reserves for over 20 years. Bob worked as an engineer for Lockheed Martin for 30 years.

Michael Thomas Lukert (BS, '60) died on January 1, 2016 at the age of 78. After receiving his BS from U of I in 1960 and an MS from Northern Illinois University in 1962, he earned his Ph.D. from Case Western Reserve in 1973. He began teaching Geology in 1967 at what was then Edinboro State College in Pennsylvania. He retired from the Geoscience department of Edinboro University after 32 years of teaching in 1999.

Joseph E. Nadeau (BS, '65) died on June 26, 2015 at the age of 72. After earning his PhD from Washington State, he became a professor at Rider University in New Jersey, where he worked for 35 years until he retired in 2008 as the Dean of the College of Liberal Arts, Education and Sciences. Joe loved traveling as much as his work and enjoyed the opportunities to teach and do research in the Czech Republic, Yellowstone, Bermuda, and Honduras, among other places.

Rudolf B. "Rudy" Siegert (BS, '56) died on Wednesday, October 14, 2015 at the age of 81. After earning his BS at Illinois, he served as 2nd Lieutenant in the U.S. Army and then attended graduate school at Texas A&M University, where he received his Master's Degree in Petroleum Geology in 1961. Rudy worked in the oil and gas industry for more than 54 years. While his early career began with Texaco, he was an independent geologist for 45 years.

Charles Winthrop Spencer II (MS, '55), known by friends as Chuck and by his family as Bud, died on January 10, 2016, at the age of 85. Chuck's career in geology spanned over forty years and brought him around the world, from the southern Appalachians to the Grand Canyon to Brazil, Hungary, Russia and back again. Throughout his lifetime, he worked for both the USGS and Texaco and often said he had the perfect job because he got paid to do something he loved doing anyway.

Eugene Griffin Williams (MS, '52) died on March 28, 2016 at the age of 90. Eugene started at Penn State in 1952 as an Instructor of Geology and rose through the ranks to Professor of Geology in 1966. His areas of research were physical stratigraphy, tectonostratigraphy (specifically the sedimentary rocks of the Allegheny Plateau), and the history and philosophy of the geological sciences. His research contributed to the understanding of the origin and nature of the coal and clay deposits of the region and the causes of acidity in mine waters. He retired in 1982 as Professor Emeritus.

No further information:
Howard Vactor (BS, '48)
Phillip H. Gerbert (BS, '53)
Ronald P. Willis (PhD, '53)

Faculty
Stephen Altaner (Associate Professor)
Alison Anders (Associate Professor)
Jay Bass (Ralph E. Grim Professor of Geology)
Jim Best (Threet Professor)
Jessica Conroy (Assistant Professor)
Jennifer Druhan (Assistant Professor)
Bruce Fouke (Professor)
Patricia Gregg (Assistant Professor)
William Guenthner (Assistant Professor)
Feng Sheng Hu (Ralph E. Grim Professor of Geology and Associate Dean, LAS)
Tom Johnson (Professor and Head)
Lijun Liu (Assistant Professor)
Craig Lundstrom (Professor)
Steve Marshak (Professor & Director of the School of Earth, Society & Environment)
Gary Parker (W. Hilton Johnson Professor)
Xiaodong Song (Professor)
Wendy Yang (Assistant Professor)

Specialized Faculty
Eileen Herrstrom (Lecturer, Curator)
Stephen Hurst (Research Programmer)
Ann Long (Teaching Lab Specialist)
Jacalyn Wittmer Malinowksi (Lecturer)
J. Cory Pettijohn (Research Assistant Professor)
Rob Sanford (Research Associate Professor)
Michael Stewart (Clinical Assistant Professor)
Jonathan Tomkin (Research Scientist & Associate Director, School of Earth, Society, and Environment)

Affiliate Faculty
Stanley Ambrose (Professor, Anthropology)
Marcelo Garcia (Yeh Endowed Chair in Civil Engineering)
Scott Olsen (Associate Professor, Civil and Environmental Engineering)
Surangi Punyasena (Assistant Professor, Plant Biology)
Bruce Rhoads (Professor, Geography)

Adjunct Faculty
Ercan Alp
Kurtis Burmeister
Todd Cole
Brandon Curry
Robert Finley
Leon Follmer
David Grimley
Sam Heads
Dennis Kolata
Hannes E. Leetaru
Andrew Phillips
George Roadcap
William Shilts
Wolfgang Sturhahn
Scott Wilkerson

Emeritus Faculty
Thomas F. Anderson
Craig Bethke
Daniel B. Blake
Chu-Yung Chen
Wang-Ping Chen
Donald L. Graf
Ralph Langenheim
Albert Nieto
Sue Kieffer
Tommy Phillips
George Klein

Department Support Staff
Lana Holben (Assistant to Head)

Around the Department

Alison Anders has earned tenure and a promotion to Associate Professor! "I'm looking forward to a long career at the University of Illinois and a sabbatical at the University of Alaska at Fairbanks in the short term," she said. As part of a major NSF-sponsored project, the Intensively Managed Landscapes Critical Zone Observatory, Alison's group has been making great progress in understanding the evolution of the landscapes of central Illinois from the end of the most recent glaciation through the profound changes in land-use brought about by European settlement. She plans to build on this work by considering landscape evolution in the Midwest US in the more distant past and in modeling glacial erosion and deposition and GIS analysis of landscapes shaped by glaciers.

Jay Bass has returned to normal faculty duties after several years as director of the COMPRES consortium (http://compres.us/). COMPRES is a community-based consortium that supports high-pressure earth materials research and enables the next generation of high-pressure science on world-class equipment and facilities. It facilitates the operation of synchrotron x-ray beam lines, the development of new technologies for high-pressure research, and advocates for science and educational programs. Jay became director in 2010 and successfully secured a 5-year renewal of NSF funding for COMPRES, totaling over $20 million, that will take the consortium through 2017.

Craig Bethke (Prof. Emeritus) reports he has returned to Champaign after a four-year stint at Stanford University, in Palo Alto, California. Craig now heads Aqueous Solutions LLC, a company that develops and markets The Geochemist's Workbench® and the ChemPlugin.ORG software packages. Aqueous' offices are in the center of resurgent downtown Champaign, which has undergone an economic rebirth in the past five years and is now bursting at the seams with restaurants, bars, and coffee shops.

Jessica Conroy received two NSF grants to investigate tropical Pacific climate and paleoclimate, and one to study loess deposits of Illinois. Conroy lab students are continuing to do great work, launching the lab in new directions with investigations of the paleoclimate record, limnology, and microbiology of hypersaline lakes of Kiritimati, development of new chronologies for last glacial loess deposits of Illinois, and deeply probing the climatic controls on the stable isotopic composition of Galápagos rainfall. Jessica and her husband William Guenthner, also Assistant Professor in the Department, welcomed their son, Rex, into the world on September 4, 2015.

Jennifer Druhan has had a busy year with the start of two major field projects- one in Colorado as part of a DOE funded study on soil carbon stability, and one in the Eel River Critical Zone Observatory using the newly installed vadose zone monitoring system. Jenny has been on an impromptu seminar circuit, giving talks at five US and two international universities since arriving at UIUC.

Patricia Gregg will be serving as Chief Scientist on a month-long deep-sea research cruise on the R/V Atlantis to study the 8° 20'N Seamount Chain west of the East Pacific Rise. The cruise will occur in November and December, 2016, and aims to improve understanding of mid-ocean ridge magmatism-specifically, how melts are generated and migrate across hundreds of kilometers through the upper mantle to reach the narrow ridge axis. The study involves 8 days of underway Geophysics (multibeam sonar, gravity, and magnetometer) and 17 days of on-station sampling (Alvin Dives, AUV Sentry Dives, Dredge hauls, and 3-5 TowCam Dives).

William Guenthner co-chaired a thermochronology session at GSA and gave invited talks at AGU and Utah State University. In the Spring, he taught a new course, Geochronology, submitted a couple of manuscripts on new research, and received funding from NSF for a new collaborative research project with Dr. Elizabeth Holley at Colorado School of Mines. The project will look at the formation ages of jasperoid bodies associated with gold ores in Nevada using (U-Th)/He dates from Fe-oxide phases. He and his wife Jessica Conroy, also Assistant Professor in the Department, welcomed their first child, Rex, in September. "He's certainly keeping us on our toes!" he said.

Eileen Herrstrom spent Fall 2015 developing an online version of our course GEOL 104 Geology of the National Parks. This had been a successful traditional course for us, but it has not been offered for several years. More and more students are looking for online classes, especially ones during the second eight weeks of the semester, so GEOL 104 will be offered in the second half of Spring 2016. Eileen edited an electronic textbook to accompany the course, using material available online, mostly from the National Park Service and USGS websites.

Jim Kirkpatrick (Prof. Emeritus) was elected as a Fellow of the American Association for the Advancement of Science (AAAS). AAAS fellows are elected in recognition of their contributions to innovation, education, and scientific leadership. The tradition of electing AAAS Fellows began in 1874 to recognize members for their scientifically or socially distinguished efforts to advance science or its applications.

George Devries Klein (Prof. Emeritus) retired to Guam two year ago fully expecting to watch the sea turtles, coconut crabs, and conches wiz by him sitting on the beach or snorkeling in a tropical lagoon. Instead, a local hydrogeologist got Klein interested in the issue of climate change. After a lot of reading and discussions with local experts, Klein was invited to present a talk, "Some Geological Aspects of Long- and Short-term Climate Change" at the 2016 University of Guam Island Sustainability Conference this past April. That led to two more presentations, one at the Western Pacific Water and Environmental Research Institute, and the other at the University of Guam Marine Sciences Laboratory. A paper on the science aspects was published in AAPG's online journal, Search and Discovery (http://www.searchanddiscovery.com/pdfz/documents/2016/70217klein/ndx_klein.pdf.html).

Steve Marshak was honored by the Department of Geosciences at the University of Arizona as its Alumni Achievement Award recipient. He traveled to Tucson in September, 2015 to receive the award. Steve and his wife Kathy took the opportunity to visit former Illinois Geology Department head Fred Donath and his wife Mavis, who live in Tucson. Fred spoke to Steve and Kathy about the many changes in the Geology Department at UIUC that took place when Fred was Head; during his tenure at Illinois, more than a dozen new faculty joined the department, and the research programs and courses available in the department broadened significantly.

Gary Parker has been awarded the 2016 Hunter Rouse Hydraulic Engineering Award by the American Society of Civil Engineers; the award, given by the American Society of Civil Engineers, recognizes outstanding contributions to hydraulics and waterways. In selecting Gary for this award, the committee particularly noted his contributions to the refinement of the foundation of fluvial hydraulics and river engineering. His oral presentation "Turbidity Currents That Co-Evolve With Channels Over Lengths as Much as 1000 km: How Can They Do it?" was named the Outstanding Oral Presentation of the SEPM Symposium at the 2015 AAPG annual convention and expo in Denver. Gary has also been selected to receive a Moore visiting professorship at the California Institute of Technology for part of next academic year.

Rob Sanford served as the Microbial Ecology Division head for the American Society of Microbiology this past year. He also served on the EPA-STAR graduate fellowship review panel. "This provided me with quite a bit of insight into what strategies may work best when applying for this award. I encourage all interested graduate students to come talk to me," Rob said. He's also been involved with many different projects; from evaluating microbial evolution in a microfluidic device (with Bruce Fouke's group) to examining the impact of surface temperature fluctuation on nitrogen-cycle processes in agricultural soil (with Wendy Yang, Joanne Chee-Sanford and collaborators at University of Tennessee and Georgia Tech). Rob also worked closely with Al Valocchi and Charlie Werth (UT-Austin) on the dynamics of metal reduction and chlorinated solvent degradation in porous media.

Jonathan Tompkin devoted much of his time last year to the Illinois WIDER project, an NSF sponsored program to improve STEM education on campus. "We should teach like we do research— in teams, using the established (learning) science, and employing appropriate technology," he says. Eleven departments and schools are involved, and the program aims to improve the learning experience of every science and engineering undergraduate.

Colloquium Speakers for Fall 2015 and Spring 2016

Fall 2015

September 3
"Teaching like a scientist: Instructional change in Geology"
Alison Anders and Jonathan Tomkin, UIUC

September 10
Ralph E. Grim Lecture
"What do calcium carbonate and gypsum tell us about the lives of fishes and jellyfishes?"
Mike Kingsford, James Cook Univ., Australia

September 17
"Mammoths and mastodons in the Great Lakes: New data on the chronology and paleoecology of extinction."
Chris Widga, Illinois State Museum

September 24
Richard Hay Lecture
"Intracontinental earthquakes: spatiotemporal patterns and hazard assessment"
Mian Liu, University of Missouri

October 1
R. James Kirkpatrick Lecture
"The assembly and eruption of explosive volcanic centers: A high energy end-member of multiphase flow"
Joe Dufek, Georgia Tech

October 8
Ralph E. Grim Lecture
"Very long-wavelength mantle convection, supercontinent cycles, and mantle structure evolution for the last 500 Ma"
Shijie Zhong, University of Colorado

October 15
Glenn and Susan Buckley Lecture
"Evaluating water sustainability across the High Plains Aquifer using process-based hydrology models"
Dave Hyndman, Michigan State Univ.

October 22
"Paleotopography of the precambrian surface of Illinois"
Hannes Leetaru, Illinois State Geological Survey

October 29
"Tambora 1815: Geology, history, and climate change"
Gillen D'Arcy Wood, UIUC

November 5
Richard Hay Lecture
"Density, topography and erosion: the physics of links between mantle flow, surface processes, climate and density variations in the Earth's crust"
Jean Braun, University Joseph Fourier - Grenoble

November 12
2nd Annual Phillips Lecture in Paleoscience
"A haystack from a needle: Past ecosystem structure from isotopes and biomarkers"
Kate Freeman, Penn State

November 19
"The core inside the Earth's inner core: signals from seismic noise interferometry"
Xiaodong Song, UIUC Geology

December 3
Glenn and Susan Buckley Lecture
2015 Dept. of Geology Alumni Achievement Award Presentation
"Environmental issues for shale gas development: A hydrogeological perspective"
John A. Cherry, Univ. of Guelph and Univ. of Waterloo

Spring 2016

January 28
"Meandering Rivers in Bedrock"
Gary Parker, UIUC

February 4
"The Illinois Episode Glaciation in Illinois: Recent Findings"
David Grimley, ISGS

February 11
R. James Kirkpatrick Lecture
"Deformation of Kilauea Volcano: Slow slip events and periodic dike intrusions"
Emily Montgomery-Brown, USGS Menlo Park

February 18
The Darcy Lecture (National Ground Water Association)
"Seeing things differently: Rethinking the relationship between data and models"
Ty Ferré, Univ. of Arizona

March 3
Ralph E. Grim Lecture
"Cleaning up the muddy Minnesota River: Incorporating geomorphic history into watershed management"
Karen Gran, University of Minnesota at Duluth

March 10
Richard L. Hay Lecture
"Non-Traditional Seismology: from Sediment Transport to Earthquake Hazards"
Victor Tsai, Cal Tech (Seismology)

March 17
"Glaciers and Their Hummocks"
Peter Moore, Iowa State University

March 31
Ralph E. Grim Lecture
"Missed connection: Ignimbrite seeking plutonic relationship"
Drew Coleman, University of North Carolina

April 7
Mineralogical Society of America Distinguished Lecturer
"Just how stable are you? Relationships between cratonic surface histories, kimberlites, and mantle dynamics"
Rebecca Flowers, University of Colorado at Boulder

April 14
"Slab Rollback and the tectonics of the western Mediterranean"
Max Bezada, University of Minnesota

April 21
"A River of Giants - Fossil vertebrates from the Cretaceous Kem Kem region of Morocco"
Nizar Ibrahim, University of Chicago

April 26
"The Impact of Climate Change on the Glaciers of Patagonia and Tierra Del Fuego
Dr. Jorge Rabassa, Universidad Nacional de Tierra del Fuego

Student Awards

On April 28th, the department gathered for its annual awards celebration. Students honored were:

Tiffany Vlahopoulos received the Outstanding Geology Senior Student Award, presented to an undergraduate student who has shown both academic excellence as well as department participation.

Jia Wang won the Estwing Pick Award, presented annually in the Spring to an undergraduate who will attend field camp that summer. The principal criterion is academic achievement in geology courses and in cognate science and mathematics courses. Consideration is also given to involvement in undergraduate research and to participation in departmental activities. The award is an Estwing Pick given by the Estwing Corporation.

Rachel Oien received the Harriet Wallace Award, presented to an Outstanding Woman Graduate based on academic performance and research performance in the memory of Harriet Wallace, past librarian in the Department of Geology.

Eric Prokocki received James R. Kirkpatrick Award, a college award for a graduate student for their research efforts, established to honor past Department Head, James R. Kirkpatrick.

Vlad Iordache and **Mike DeLucia** were recognized as Outstanding TAs, based on ICES results and faculty supervisors' comments.

Kalin Howell received the Shell Oil Sedimentology/Stratigraphy Award, and **Jing Jin** earned the Shell Oil Geophysics Award.

Grants

Michael DeLucia, Joel MacKinney, Naomi Wasserman, Nick Martin, Yan Zhan, Jiashun Hu , Quan Zhou , Eric Prokocki, Haley Cabaniss, and **Julia Cisneros** received the Morris Leighton Research Grant.

Stephanie Mager, Nick Martin, Rachel Oien, Michael DeLucia, Matt Bizjack, Haley Cabaniss, Julia Cisneros, and **Yan Zhan** received Jackson Geology Graduate Student Research Awards.

Noah Jemison and **Yuchen Liu** received Winslow Research Grants.

Melinda Higley received the Sohl Award for Reasearch.

2015 Geology Faculty Publications

ANDERS

Anders, A.M., Nesbitt, S.W. Altitudinal precipitation gradients in the tropics from tropical rainfall measuring mission (TRMM) precipitation radar. *Journal of Hydrometeorology*, 16, 441-448

Neal, C.W.M., **Anders, A.M.** Suspended sediment supply dominated by bank erosion in a low-gradient agricultural watershed, Wildcat Slough, Fisher, Illinois, United States. *Journal of Soil and Water Conservation*, 70, 145-155.

BASS

Bass, J.D., Zhang, J.S. Mineral Physics: Techniques for measuring high P/T elasticity. In: *Treatise of Geophysics, 2nd Edition*, Edited by Price, G.D., Schubert, J., Elsevier B.V., Amsterdam Netherlands.

Becker, T.W., **Bass, J.,** Blichert-Toft, J., Derry, L., Lee, C.-T., Tyburczy, J., Vance, D., Yokoyama, Y. Appreciation of peer reviewers for 2014. *Geochemistry, Geophysics, Geosystems.*

Zhang, J.S., **Bass, J.D.,** Zhu, G. Single-crystal Brillouin spectroscopy with CO2 laser heating and variable q. *Review of Scientific Instruments*, 86, 063905.

BEST

Blettler, M.C.M., Amsler, M.L., Ezcurra de Drago, I., Espinola, L.A., Eberle, E., Paira, A., **Best, J.L.,** Parsons, D.R., Drago, E.E. The impact of significant input of fine sediment on benthic fauna at tributary junctions: A case study of the Bermejo-Paraguay River confluence, Argentina. *Ecohydrology*, 8, 340-352.

Burpee A.P., Slingerland, R.L., Edmonds, D.A., Parsons, D., **Best, J.,** Cederberg, J., McGuffin, A., Caldwell, R.L., Nijhuis, A., Royce, J. 2015. Grain size control on the morphology and stratigraphy of river-dominated deltas. *Journal of Sedimentary Research*, 85, 699-714.

Hackney, C., **Best, J.,** Leyland, J., Darby, S.E., Parsons, D., Aalto, R., Nicholas, A. Modulation of outer bank erosion by slump blocks: disentangling the protective and destructive role of failed material on the three-dimensional flow structures. *Geophysical Research Letters*, 42, 10,663-10,670.

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Degrees conferred in 2015-2016

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Ronald W. Cash, *"Multibeam Echosounding as a Tool for Mapping Geologic Features, Bathymetry and Modern Vents, Yellowstone National Park, Wyoming*

Noah E. Jemison, *"Uranium Isotopic Fractionation Induced by U(VI) Adsorption Onto Common Aquifer Minerals"*

Derek T. Lichtner, *"Turbulent Interactions between Stream Flow and Near-Subsurface Flow: A Laboratory Approach Using Particle Image Velocimetry and Refractive Index Matching"*

Stephanie A. Napieralski, *"Intact Soil Core Experiments Reveal that Temperature and Depth Influence Microbial Community Function and Impact the Fate of Nitrogenous Fertilizer Amendments"*

December 2015
None

May 2016

Matthew T. Bizjack, *"Investigating Uranium Mobility Using Stable Isotope Partitioning of 238U/ 235U and a Reactive Transport Model"*

Kiel G. Keller, (Applied Master's) *"Environmental Summary of the Dynegy Vermilion Power Station, Oakwood, IL"*

Joel S. MacKinney, *"Antimony Isotopes as Indicators of Redox Reactions in Aqueous Systems: Fractionation During Sb(V) Reduction by Sulfide and Isotope Exchange Kinetics Between Dissolved Sb(III) and Sb(V)"*

Nicholas J. Martin, *"Precipitation Amount, Altitude, and Moisture Trajectory Effects on the Stable Isotopic Composition of Precipitation in the Galápagos Islands"*

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