

# Department of Geology

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

## Geology goes global

Department faculty members have hit the road, pursuing projects that cross disciplines and cultures, putting the University of Illinois at the forefront of earth sciences on an international level. The impact of the Department's research and educational efforts is being felt worldwide through a series of collaborations between U. of I. and universities and organizations abroad. Here's a glimpse at some of the efforts of just a few of our globetrotting faculty:

### Bangladesh:

Prof. Jim Best's time in Bangladesh has been spent both in the field and in the classroom. As part of an ongoing three-year project, Best and colleagues from the University of Birmingham and the University of Southampton have been looking at scour holes in some of Bangladesh's greatest rivers, including the Brahmaputra. Using seismic surveying, and later this year the Department's parametric echo sounder (see story on page 1), Best and colleagues have been looking at the morphology and migration of the scour holes, with the ultimate goal of coming up with guidelines and a numerical model that can reproduce the subsurface structure of such scour holes when they are infilled by later sedimentation.

The project has been funded by the Universities of Birmingham and Southampton, through the UK National Environment Research Council, and has also received support from the Center for Environmental and Geographic Information Services in Dhaka, Bangladesh, bringing together scientists from the UK,



Jim Best teaching in Bangladesh



Boat dredging water in Bangladesh as part of Jim best's research

Bangladesh, and the United States.

"The commerce, the stability, and even social practices in Bangladesh all revolve around water, so it's vital to collaborate with researchers who live and work there on this project," says Best. "It's been fascinating to study the various rivers and witness how the community engages with and is affected by the rivers."

In February 2014, Best also taught in a field school as part of an NSF funded project called BanglaPIRE, that is headed by scientists from Lamont-Doherty and Vanderbilt universities. This project is an international effort to bring together scholars in both the physical and social sciences to better understand the dynamics of the world's largest delta, the Ganges-Brahmaputra-Meghna Delta (GBMD). The field school was attended

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## State of the art technology on new research boat



PHOTO CREDIT ALEX BYRK

The Department's new state of the art research boat on Lewis Lake

Over the past eight years, Department researchers in river and lake morphology and sedimentology have been steadily building a collection of state-of-the-science field research equipment, all of which will be able to now be deployed using in the Department's new research boat, the RV Wabash, generously gifted entirely by an alum and Department donor.

Through a series of projects funded by the National Science Foundation and contributions from several industrial and academic partners, Professors Jim Best, Gary Parker, Marcelo Garcia, and Bruce Rhoads have gathered an assortment of cutting edge instruments, including a multibeam echosounder, that can be used to better study the morphology of rivers and lakes, as well as their fluid dynamics and subsurface sedimentary structure. The result of an NSF grant, the Shallow Water Multibeam Echo-sounding System uses 512 beams (a traditional echosounder usually uses just one beam) to map out the

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## LETTER FROM THE HEAD

### Dear Alumni and Friends,

This newsletter is coming to you later than normal, and here is why: we are in the midst of exciting, yet challenging, transitions in the Department of Geology. We've cleared some big hurdles this year, and are preparing the department toward a very bright future. Please join me in celebrating our accomplishments and thanking a few of the people who have made them possible.

**Faculty Hiring.** The first great success of the year was continued hiring of the next generation of Geology faculty. I am proud to say we hired two new assistant professors and one lecturer this year, and all three new hires are excellent scientists and educators. The lecturer, Dr. Jackie Wittmer, a Paleontologist/Stratigrapher, has been with us for several months already, teaching key courses and playing a central role in moving our collections (see below). Dr. Patricia Gregg, our new Assistant Professor of Geophysics, began just weeks ago but is already an energetic and positive presence. Dr. Jennifer Druhan, our Hydrogeology hire, will join us in about a year, and is sure to inject additional new energy into the department. These three join Profs. Lijun Liu, Jessica Conroy, and William Guenther to make an impressive cluster of young faculty who will help determine the course of the department for decades to come.

Hiring new faculty is probably the single most critical thing we do as we strive to evolve the department and build its future. It is also a very complex process. After receiving approval from the Dean for a faculty search, we advertise internationally, receive perhaps a hundred applications, request and review reference letters, decide on a final interview list, plan and complete interviews (each taking two days), debate and decide

on our top choice, negotiate startup funding and other issues, then celebrate when our offer is accepted! Completing just one faculty search in a given year requires a significant effort; doing THREE in one year is exceptional for a department of our size. But we managed to pull it off, and hired some of the best scholars in the business. I would like to thank Profs. Jim Best, Xiaodong Song, and Bruce Fouke, the search committee chairs, for the innumerable hours they spent running the searches, and also Marilyn Whalen, who organized the interviews and played other key roles in the search process.

**The NHB Project:** A second great success is progress made on the Natural History Building renovation project. Amazingly, we are now completely moved to our temporary spaces and the construction has begun! This past year, we designed and renovated temporary spaces for our laboratories and classrooms, packed up and moved our many specimens and pieces of equipment into them, and got (almost) everything operational again. I'll never forget the sight of our \$700,000 multicollector ICP-MS loaded on a forklift, gingerly motoring across the street to Burrill Hall! Relocating our many cabinets full of teaching and research specimens was also a big job. Eileen Herrstrom, Jackie Wittmer, Ann Long and a small army of undergraduate students worked many hours to look through the collections, pack them up, and reassemble them in the Davenport Hall classrooms and storage rooms. After everything of value was moved out of NHB, we dealt with the legacies of long ago. Remember that bottle of toxic liquid you left behind in the lab when you graduated, perhaps decades ago? Well, we found it and disposed of it (thanks go to grad students Gideon Bartov and Ted Grimm for extra help).

The extensive design work on "the new NHB" is now essentially finished. As most of you have heard, the renovation project involves almost a complete gutting of the building's interior. Accordingly, every room belonging to the department had to be carefully considered and de-

signed, to create state-of-the-art facilities to support the next decades of learning and research. We are extremely grateful for the superhuman efforts of Scott Morris, Associate Director for Operations in SESE, in all aspects of the NHB project. Scott has been the glue that has held the project together. His constant attention to detail has allowed us to succeed in a very complex and challenging project.

**Your Role in the NHB Project.** Now that the NHB plans are complete, we are turning our attention to the financial picture. As you know, the 2007 discovery of a one hundred-year-old construction defect in the NHB floors caught us by surprise. Ruth Watkins, our former LAS Dean, worked hard to quickly line up funding from several sources on campus to get the NHB project started a few years ago. One component of the funding picture was projected gifts from alumni, friends, and corporations. Such gifts have been increasingly critical to success of all universities nationwide, both public and private. In the Department of Geology, we are very fortunate to have a strong tradition of alumni giving. With the NHB project, the projected gifts have allowed us to pursue world class designs for classrooms, laboratories, offices and other incredible work areas, but we need your help.

Please consider supporting the NHB project at whatever level you can. We will be reaching out to alumni and friends like you to discuss funding opportunities related to this historical building and thank you in advance for your interest in learning more. We've devoted the last few pages of this year's newsletter to share the excitement of the NHB project and offer naming and pledging opportunities. We welcome you to contact us if you have any questions or comments. The newly restored and upgraded facility will serve our campus into the next century. This is your chance to support "thy happy children of the future" and make your mark on the new NHB!

Please come visit campus when you can and let us know when you're here!

All the best to you and yours,

*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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## Geology goes global

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by both American and Bangladeshi students and examined the interaction of sedimentation and tectonics across the Delta.

“The exchange of both academic and cultural ideas is essential in this particular project and I think makes us better scientists overall,” says Best.

### Norway and Sweden:

Prof. Alison Anders returned to Norway and Sweden this summer, studying the geomorphic development of the Scandinavian Mountains. Anders co-taught the course, “Environment and Society in a Changing Arctic,” last year through a collaboration with Stockholm’s Royal Institute of Technology (KTH) as part of the INSPIRE program, the Illinois-Sweden Program for Educational and Research Exchange. As a result of her teaching the course, Anders connected with several colleagues in Stockholm also interested in surface erosion and landscape evolution and together they obtained funding from Stockholm University and the Swedish Research Council to look at passive margin development in the glaciated Scandinavian Mountains.

“Basically, there’s a bit of a controversy about when the Scandis actually became a high mountain range. We were looking at whether or not some of the more flat surfaces formed in the recent geologic past, and whether they experienced tectonic uplift and/or erosion” says Anders, “The work is somewhat similar to my work in Western Gats mountain Range of India, but in a completely different climate.”

The project is still in its beginning stages. Anders worked with Brad Goodfellow, a postdoctoral student the University of Stockholm, as well as Rachel Oien, University of Illinois doctoral student, who is using the data collected to put together a numerical landscape evolution model for the mountains. They hope to then apply for an NSF grant to support further work. Anders also taught

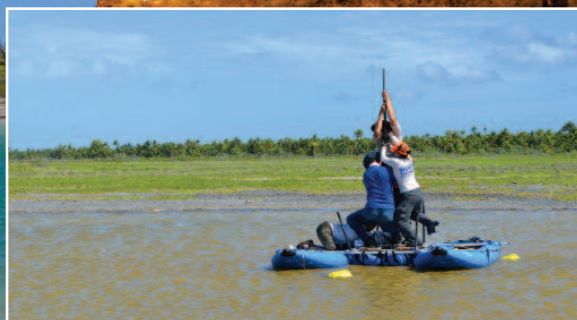
PHOTO CREDIT: JESSICA CONROY



Jessica Conroy's team retrieving a lake sediment core near Christmas Island.

PhD student Melinda Higley measuring water chemistry near Christmas Island

PHOTO CREDIT: MELINDA HIGLEY



the INSPIRE class again while working on the project, instructing students from both U of I and KTH.

“INSPIRE has offered me an opportunity to both teach and do research at an international and interdisciplinary level,” says Anders, “I have never been part of a class that was so truly interdisciplinary, and I feel that that atmosphere really contributes to high level work and scholarship.”

### Chile:

Meanwhile, on the other side of the world, the Torres del Paine national park in Patagonia was the site of Prof. Craig Lundstrom’s latest research. Working with the University of Chile, Lundstrom and two Illinois grad students as well as several Chilean undergrads spent three weeks last January hiking out in the Patagonia terrain, collecting rock samples and studying a granite pluton. The pluton in this region has been spectacularly exposed by glaciation—2km vertical cliffs of granite with an underlying mafic complex—which makes it one of the best places to study how granites are made on earth.

“The work was physically demanding, to say the least. We had to hike in with food and hiking out carrying hundreds of pounds of rock,” says Lundstrom, “I lost 25 lbs despite eating well!”

The group has since performed various petrological and geochemical analyses on the over 160 samples they brought back, with the aim of testing Lundstrom’s hypothesis that granite plutons form by a top down process of adding small sills

and having temperature gradients play a key role in how magma compositions evolve. Their results appear to support the hypothesis and Lundstrom’s student Norbert Gajos will soon finish his master’s thesis and submit a paper that presents the work.

### Christmas Island:

On a small island in the central Pacific Ocean, just north of the equator, Prof. Jessica Conroy spent several weeks this past July retrieving sediment cores from Christmas Island’s lakes and ponds. The festively named island is situated in a unique part of the ocean of that is particularly fascinating to paleoclimatologists, as the area is where the weather pattern known as El Niño begins.

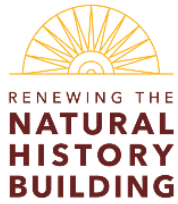
Conroy and her colleagues from the Illinois State Geological Survey and the University of Hawaii will examine the cores of sediment in coming months, looking at the variability of calcium carbonate microfossils, and analyzing oxygen isotopes, as well as measuring the salinity of the collected samples to get an idea of the area’s climate before there was a historical record. Her team will also investigate pollen preserved in the sediment to understand how vegetation interacted with changing temperatures.

“The ultimate goal is to get a more comprehensive understanding and to fill in the gaps of the record of climate change,” says Conroy.

The project was initially funded by the University of Illinois Campus Research Board, and Conroy hopes to use the collected data to obtain an NSF grant for continued work in this exciting location.



## Donor Profile



**D**ennis Coleman (Ph.D. '76), founder of Isotech Laboratories in Champaign, generously donated funds to support the development of a Geochemistry Lab in the newly designed Natural History Building.

"Having seen significant growth in the isotope geochemistry program in recent years, and knowing that the building problems encountered would put a severe drain on financial resources, I wanted to do what I could to help maintain that growth curve."

After completing his Ph.D. at the U. of I. in 1976, Coleman continued to work at the Illinois State Geological Survey in various research and administrative capacities. In 1985, he and three colleagues founded Isotech Laboratories, Inc., a laboratory focused on providing isotope analysis for the oil and gas industries, environmental organizations, and government organizations. The lab quickly gained recognition for its high quality work and its development of IsoTubes®, which over the years have standardized the collection of gas samples in the industry. The company was acquired by Weatherford Labs in 2011. Isotech employs over fifty people in Champaign and has satellite labs in Egypt, Brazil, Australia, Oman, Saudi Arabia, and Canada.

## Kieffer garners awards, publishes book

**R**ecently retired Sue Kieffer, Walgreen Professor Emeritus, published her book, "*Dynamics of Disaster*" (W.W. Norton, 2013) last fall to glowing reviews.

The book focuses on the relationship between natural disasters and geological dynamics and on how such knowledge of those dynamics can improve the ways in which humans prepare for, cope with, and survive major environmental events. Kieffer wrote the book with the general public in mind, citing the need for stronger science communication with people outside the research community.

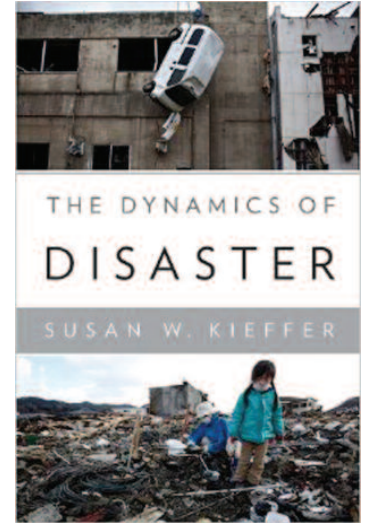
"Most of the policy makers and voting citizens are not scientists. They are intelligent people who need information, but we don't make it easy for them to access or read our research journals," said Kieffer, "A different style of writing is required to reach out to them. At first I found it very difficult to write without using equations and graphs, and to get rid of writing in the passive voice, which is how I was trained to write research science. That's the main reason that I started doing my *GeologyInMotion.com* blog—it helped free up my writing style, and I think made my writing easier to digest for nonscientists."

The book is garnering praise from scientific journals and the mainstream media, with Kirkus calling the book "sharp, timely, slightly terrifying science writing." Kieffer was also interviewed by *Salon*, the popular internet news magazine, in which she spoke about disaster preparedness, climate change, and popular understanding of natural disasters.

"The attention has been both surprising and gratifying, but I still get anxious when I hear that a new review is in the works. I am grateful for the colleagues and strangers who have taken time to read and review it," she said.

Kieffer has also been named the first female recipient of the Penrose Medal of the Geological Society of America, which is the highest award offered by the Society and goes to a recipient who has made "outstanding original contributions or achievements that mark a major advance in the science of geology." The award has been given to one individual every year since 1927. Additionally, she's been elected to the American Philosophical Society, to which only 20 members are elected per year. The APS was founded by Benjamin Franklin, and members have included Charles Darwin, Robert Frost, and Margaret Mead, and from UIUC, John Bardeen and Carle Woese.

You can find more about Kieffer and her research at her blog *GeologyInMotion.com*.



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## Albert Hsui

Albert Hsui, Emeritus Professor of Geophysics passed away in December of 2013 in Palo Alto, CA.

Hsui joined the Department in 1980 after completing his Ph.D. at Cornell University and his post-doctoral studies MIT. His research focused on a broad range of geodynamical subjects, from the gravitational constant to the evolution of subduction arcs, mantle convection and planetary interiors. He was particularly interested in teaching and in bringing computer simulation and quantitative methods to the classroom, and it was Illinois' supercomputer that initially attracted him to campus.

Hsui also developed a new introductory geology course that fulfills the university's quantitative reasoning course requirement. To make this course possible, Hsui had to write a new lab book that gives students the opportunity to use math in the context of solving geological problems. Hsui retired from the University of Illinois Department of Geology in 2005 and moved to Hong Kong before returning to California.

He was also a longtime practitioner of Tai-Chi, and taught the martial art through the Division of Campus Recreation for several years. His office in NHB was notable for being hidden directly behind the large Bison at the north entrance to the building.

"Prof. Hsui was a kind and quietly brilliant person who contributed in important ways to the research, teaching, and administrative success of the department. Every department should have a Tai-Chi master, calm and thoughtful, among the faculty. We've missed him since he retired and moved on to other endeavors, and we now share a greater loss with his family," said Tom Johnson, Head of the Department.

## Barbara J. (Schenck) Collins

Barbara J. (Schenck) Collins, an alumna with a long and distinguished teaching career, passed away on April 30, 2013. She was the first woman to earn a doctorate degree in the study of geology at the University of Illinois.

Collins received a Ph.D. in clay mineralogy under Dr. Ralph Grim's mentorship in 1955 and was the first person to produce transmission electron micrographs of about 25 different clay minerals so that their crystalline structures could be detected. Before her Ph.D. studies, all images of clay minerals lacked any evidence of crystal structure and appeared as opaque clumps. Interestingly, her thesis almost never came to fruition. After becoming engaged to her husband in 1954, she wrote a letter to Dr. Grim, telling him that she would not be finishing her Ph.D. as she was planning to assist her husband, Larry (Lorence) Collins, who was pursuing his own graduate studies in geology. When she returned to campus, Dr. Grim ignored even having received her letter and simply stated that it was time for her to propose a thesis topic and to get started on it.

After completing her degree at Illinois, Collins joined her husband in Germany, where he was stationed as an intelligence officer in the U.S. Air Force. After two years abroad, Collins and her husband returned to the Illinois campus, where she taught mineralogy for engineers one semester. During that time, she took a course with the Botany Department and discovered a new passion, which led her to pursue an additional degree in botany. The university, however, would not give her a second Ph.D. because she already



had a Ph.D. but instead afforded her an M.S. degree in botany to give her credit for her coursework.

She went on to teach biology, botany, and microbiology in the Biology Department of California Lutheran University for 50 years before retiring in the spring of 2013. During her tenure there, she was named the recipient of the national Sears-Roebuck Foundation Teaching Excellence and Campus Leadership Award in 1991, the Professor of the Year in 1996, and the recipient of the President's Award for Teaching Excellence in 2007.

Collins wrote an autobiographical book, *You Lead A Mean Trail* (Lutheran University Press, 2012), which includes stories of her travels through Europe and climbing Mt. Whitney, her nature conservation work, and her experiences raising five children while working in academia. She and her husband developed five wildflower identification websites with more than 10,000 color images, which can be found at <http://www.clunet.edu/wf>.

In addition to Larry, Collins is survived by their children Glenn, Greg, Kevin and Rachel. She was preceded in death by their daughter Beth. Her work as a trailblazer in both the fields of geology and botany will leave a lasting impact.

# Welcome to the newest members of the Department of Geology

The department's infusion of new blood continues this year with several new hires, all of whom bring unique experiences and background to uphold the fundamental standards of excellence we set here in the department. The demographic shifts you see in the department reflect those in the field, and we're excited about the influx of new ideas and new directions even as we stay true to our core values of research, education, and stewardship.

## Q&A with Jenny Druhan, Assistant Professor

**Q. Can you give us a bit of your background? What degrees do you hold?**

**A.** I hold a Ph.D. in earth sciences from Berkeley, an M.S. from the University of Arizona, and my B.S. from the University of North Carolina.

**Q. What are your research interests?**

**A.** I am an NSF postdoctoral fellow at Stanford University and I spend most of my time developing reactive transport models and complementary experiments to consider the relationship between flow through porous media, chemical reactivity and stable isotope fractionation. Recently, I have been working with Kate Maher to develop a new kind of reactive transport modeling short course (<https://starttrtm.stanford.edu>) that I'm really excited about (and hope some UIUC folks will attend!)

**Q. What drew you to the Illinois campus?**

**A.** I was drawn to join the faculty at UIUC because of the strong, multidisciplinary strength in hydrology across campus, coupled with extensive stable isotope facilities. I am really very excited for this unique combination and I am looking forward to getting started!

## Q&A with Trish Gregg, Assistant Professor

**Q. Can you give us a bit of your background? What degrees do you hold?**

**A.** I grew up nearby in Missouri and received my B.S. in Geology and Geophysics from the University of Missouri – Rolla (now Missouri S&T). After completing my bachelor's degree, I worked as a Project Manager and Associate Engineer for Sprint in Overland Park, KS. I received my Ph.D. in Marine Geophysics from the Massachusetts Institute of Technology / Woods Hole Oceanographic Institution Joint Program, then

received a National Science Foundation Postdoctoral Fellowship, which I split between the Lamont Doherty Earth Observatory at Columbia University and Oregon State University.

**Q. What are your research interests?**

**A.** I am fascinated by planetary volcanism, not only the hazards associated with living on and near active volcanoes, but also the dynamics of melt generation within the crust and mantle, transporting that melt to form magma reservoirs in the crust, and the mechanics triggering a volcanic eruption. My research areas span submarine volcanism at mid-ocean ridges, supervolcanic systems such as Yellowstone, and planetary volcanism. My research utilizes geodynamic modeling to synthesize large geological, geophysical, and geochemical datasets to better understand volcanic systems. I am very excited about new projects and fieldwork at Toba supervolcano in Indonesia and Taupo supervolcano in New Zealand, with collaborators at Oregon State University. I also have an upcoming field expedition funded by the National Science Foundation to investigate a 200 km-long seamount chain (the 8° 20'N Seamounts) adjacent to the East Pacific Rise. This 30-day field expedition includes 15 dives in the DSV Alvin, which we will be using to sample and map discrete lava flows and morphological features such as calderas.

**Q. What drew you to the Illinois campus?**

**A.** I have long been aware of the outstanding scientific research and computing infrastructure at UIUC, as well as its strong tradition in Earth Sciences education. During my visit, I was very impressed by the commitment of the faculty and administration to supporting cutting-edge research while providing an exemplary education at the undergraduate and graduate level. I look forward to working

with Jay, Xiaodong, and Lijun to further develop an excellent geophysics and geodynamics curriculum and research center. Also, I am very excited to join a department that is so vibrant and engaged. I look forward to being inspired and motivated by the exceptional colleagues I will have at UIUC and in particular the large cohort of junior faculty members.

## Q&A with Jaclyn M. Wittmer Malinowski, Assistant Professor

**Q. Can you give us a bit of your background? What degrees do you hold?**

**A.** I grew up in St. Louis, Missouri and I went to Beloit College in Beloit, WI where I graduated with a B.S. in Geology with Honors. I received my M.S. in Geology from the University of Cincinnati in 2009 and I have recently received my Ph.D. from the Department of Geosciences at Virginia Tech in Blacksburg, VA.

**Q. What are your research interests?**

**A.** I am a stratigraphic paleobiologist, which basically means that I am a sedimentologist, stratigrapher, and a paleontologist all wrapped up in one person. My research focuses on using fossils to refine sequence stratigraphic interpretations of sedimentary basins by quantitatively reconstructing environmental changes, such as relative changes in sea level. I have worked in carbonate systems such as San Salvador Island, the Bahamas where I have looked at the preservation potential of different organisms across different environmental conditions. The majority of my research has focused on the siliciclastic basin of the Po Plain in northeastern Italy where I have employed jointly sequence stratigraphy and quantitative paleontological techniques. Additionally, my research interests have taken me to Nova Scotia, San Juan Islands, and to the superb Ordovician seas of the Cincinnati Arch area (Kentucky, Ohio, and Indiana).

**Q. What drew you to Illinois campus?**

**A.** I was drawn to UIUC because of the strong commitment to teaching while being an active and productive tier 1

research institution. I love teaching Geology to all levels and I am so happy to be part of the department's impact on both the research and student community. I hope to

provide an engaging and field-based learning environment for both undergraduate and graduate students across many disciplines in Geology while being at UIUC.

## Illinois hosts historic CMS meeting

The 50th Anniversary Annual Meeting of The Clay Minerals Society was held in early October of 2013 at the University of Illinois to resounding success, with over two hundred scientists from over half the US states and nearly 30 different countries in attendance.

Professor Steve Altaner was on the Organizing Committee as the Field Trips Chair and led two geology field trips for the meeting: an all-day trip to Starved Rock and Matthiessen State Parks, and a half day trip on to the Fithian Illite and Morrow Plots.

"U of I was selected for this important anniversary meeting because it was the academic and professional home of Professor Ralph E. Grim, who was a professor in the Department of Geology from 1948 to 1967 and a research scientist at the Illinois State Geological Survey for 17 years before that," says Altaner. "He is considered one of the founding fathers of the science of clay mineralogy and of The Clay Minerals Society. The field trips offered a wonderful opportunity to showcase some of the geological structures in Illinois that served as the foundation of Grim's work as well as a chance to visit some every scenically beautiful places."

Altaner and a group of CMS members boarded a bus in the early morning of October 6 and set out for the Starved Rock and Matthiessen State Parks, making several stops along the way to view various rock and sediment outcroppings. At the Lake Bloomington Spillway, the group viewed glacial tills from the Illinois and Wisconsin Episodes of glaciation as well

PHOTO CREDIT: BRIAN STIETHEN



Steve Altaner leads part of the Clay Minerals Society's field trip to the Fithian Illite

as examples of paleosol, ancient soil buried under sediment. Once at the state park, the group hiked several miles through rocky terrain, viewing the Ordovician St. Peter Sandstone, an extremely pure quartz sandstone, and taking the opportunity to look for and collect various fossils along the Vermillion River. The group also examined the park's stunning river gorges, dramatic waterfalls, and impressive cliffs, observing specifically the evidence left behind by the Quaternary floods of melting glaciers. Throughout the trip, Altaner and his colleague Shane Butler (M.S. 2007) provided background on the legend of Starved Rock, the historic Illinois & Michigan Canal, and the development of the more recent lock and dam along the Illinois River.

Altaner also led the half-day trip on October 10 to more local sites. That trip visited campus's well-known Morrow plots, the oldest continually used experimental agricultural fields in the USA and

the second oldest in the world, and the Fithian illite, which outcrops next to the Salt Fork of the Vermillion River. Participants were able to examine and collect samples of the Fithian illite—the very same type of clay mineral in the very same location where Grim and his colleagues first collected and identified it.

The meeting brought back several Illinois alumni to campus, including Eric Daniels (M.S. '89, Ph.D. '92), Linda Bonnell (Ph.D. '90), Rob Lander (Ph.D. '91), Jay Matthews (M.S. '88, Ph.D. '92), and Georg Grathoff (Ph.D. '72). Additionally, former Dept. of Geology professor Jim Kirkpatrick (Ph.D., 1972) and former Dept. of Geology post-doc Andrey Kalinichev attended the meeting. Kalinichev received the George W. Brindley Lecture Award, which is intended to recognize a clay scientist who will infuse the Society with new ideas, someone who is both a dynamic speaker and involved in innovative research.

"The University was honored to host this exciting event, and the department was proud to be a sponsor. Many thanks go out to Prof. Emeritus Joe Stucki and Prof. Steve Altaner for their organizing efforts. The clay mineralogy tradition lives on at Illinois!" says Tom Johnson, Head of the Department.

A guide for both field trips, written by Altaner, can be found on the meeting's website at [http://www.clays.org/annual%20meeting/50th\\_annual\\_meeting\\_website/program.html](http://www.clays.org/annual%20meeting/50th_annual_meeting_website/program.html).

## Hay receives Alumni Achievement Award

**W**illiam W. (Bill) Hay (M.S. '58) was selected by faculty members to receive the 2013 Alumni Achievement Award, highlighting his work in sedimentary, paleoclimatic, paleoceanographic, and climate studies, among others, and a career that has stretched the globe. An enthusiastic educator and world traveling researcher, Hay epitomizes the Department of Geology's core missions of research, education, and engagement.

Hay was born October 12, 1934, in Dallas, Texas, but it was a visit to Colorado and time spent with his grandmother's collections of rocks and minerals that first sparked his interest in geology. He was the youngest member of his high school graduating class at just 16, and entered Southern Methodist University, embarking on a pre-med curriculum. Through an exchange program, Hay was able to study in Cold War Germany for his junior year. He graduated with his B.S. in Biology in 1955, and although he had plans to enter the Geology program at the University of Illinois immediately, a discussion with George White, the department head at the time, led him to accept a fellowship to the University of Zurich in Switzerland for a year. After



William W. (Bill) Hay, recipient of the 2013 Alumni Achievement Award

returning to the States, Hay entered the Geology program at U. of I. and graduated with his M.S. in 1958, with a thesis on Tertiary ostracods from southwestern France. He went on to earn his Ph.D. from Stanford University in 1960, studying fossils on the coastal plain of Mexico.

After a year of postdoctoral study at the University of Basel, Switzerland, he began his professional career at the University of Illinois in Urbana in 1960.

Throughout his fifty-plus year career, he has served stateside as a faculty member at the U. of I., the University of Miami (where he was Dean of Rosenstiel School of Marine and Atmospheric Science from 1976 to 1980), and the University of Colorado, while internationally, he has worked with at GEOMAR, a marine geological research institute attached to Christian-Albrecht's-Universitt, Kiel, Germany; the Institute of Earth Sciences,

University of Utrecht, The Netherlands; the Institute for Baltic Sea Research in Warnemünde, Germany; the University of Vienna; and University in Greifswald, Germany. His research has taken him from the shores of the Caribbean to the Sorbonne in countryside of France to the Mideast, and pretty much everywhere in between.

Hay also served in leadership roles of major national or international organizations. From 1979 to 1982 he served as President of Joint Oceanographic Institutions, Inc., which had been recently formed to manage the large, complex Deep Sea Drilling Program. Other roles included the Ocean Sciences Board of the US National Research Council and the International Oceanographic Foundation. He has authored or co-authored over 260 scientific papers and in 2012 he published a book, *Experimenting on a Small Planet—A Scholarly Entertainment* (Copernicus, 2012) about past and future climate change.

"Bill Hay possesses an amazing intellectual energy that shows in his publication record and in the list of leadership positions he held over his long career," says Tom Johnson, Head of the Department of Geology. "We witnessed this energy last fall, when Bill visited to receive his award and deliver a lecture in our weekly colloquium. It was a tour de force, and I am still amazed that he made it through 82 slides in 50 minutes!"

## Faculty and Students Earn Teaching Awards

**I**t 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.

Fifteen Department of Geology instructors were named to the University's List of Teachers Ranked as Excellent for the spring and fall 2013 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 and academic professionals appearing on this list include Stephen Altaner, Jim Best, Tom Johnson, Lijun

Liu, Ann Long, Craig Lundstrom, Steve Marshak, Rob Sandford, and Michael Stewart.

Graduate students Alexander Bryk, Stephanie Mager, Ryanne Ardisana, Norbert Gajos, Kelsey Kehoe, were named to the list for their work as teaching assistants in the department.

Six instructors received the highest ranking of "outstanding." Stephen Altaner and Michael Stewart took top honors in the spring semester while Brook Eickhoff, Kelsey Kehoe, and Tom Johnson earned this ranking in the fall semester. Stephanie Mager received this ranking for her work in both the spring and fall semesters.



## Geology students head to the Highlands

This past May, students and faculty trekked to Scotland, the birthplace of geology and home to stunning geological wonders, as part of the Geology 415/515 field course.

Besides allowing students to visit the place where James Hutton, the founding father of geology, first came up with his theories on rock formation, the trip also continued the Department's own tradition of student field study in Scotland. In the 1970s and '80s, the late Prof. Dennis Wood ran an annual field course in the Highlands, attracting students from across the country.

"We wanted to go back to Scotland this year because we wanted to expose our students to the huge variety of geological wonders in the country," says Prof. Steve Marshak, who, together with Prof. Michael Stewart, Prof. Craig Lundstrom, Adj. Prof. Kurt Burmeister, and Dr. Steve Hurst led twenty-five undergraduate and graduate students for the eight-day interdisciplinary expedition.



Illini geologists standing on the Moine thrust, near the northern tip of Scotland.

The trip, funded in part by a generous gift from Shell Oil Company, provides an opportunity to apply classroom concepts to the real world. After a semester of lectures on campus, the group flew to Edinburgh, and then headed to the island of Skye, an area of northern Scotland known for its breathtaking mountainsides and rocky slopes. Under the supervision of Profs. Lundstrom and Stewart, the students learned about layered mafic intrusions, about granite formation, and about Cenozoic rifting.

From there, the group headed north to the small town of Ullapool in the Scottish

Highlands and looked at structures associated with the formation of the Caledonian orogen, and had the opportunity to study the mylonites of the Moine Thrust.

The department offers a different version of the trip, under the masthead of Geology 415/515 every year. Destinations in recent years have included Curaçao, Cyprus, Ireland, and Arizona. "Over the years, our alumni have told us that field trips are foundational to their understanding of geology and incredible learning experiences that prepared them for future fieldwork," says Marshak.

## New Lecture Series Honors Tom Phillips

Dr. Tom Phillips, University of Illinois Professor Emeritus of Plant Biology and Geology, is recognized internationally for his visionary research into the evolution of land plants and the ecology of plant communities from the Devonian through the Pennsylvanian Periods. By integrating American and European fossil collections, he established the evolutionary trajectory of ferns and their relatives spanning 35 million years. Dr. Phillips' pioneering research also revealed the ecological relationships of ancient plant communities—what actually grew in the swamps of the Carboniferous Period and how plants and insects interacted. His numerous published papers in biological and geological journals have deeply influenced the scholarly community. Dr. Phillips was a Guggenheim Fellow, NAS Exchange Scientist to the U.S.S.R. and Gilbert H. Cady Awardee (Coal Geology), and was invited to join the National Academy of Sciences in 1999. He cultivated a generation of scholars, many of whom now hold leading positions at universities and research institutes.

In recognition of his many contributions, the Department of Plant Biology and Department of Geology have established the **Phillips Lecture in Paleoscience** with the inaugural lecture to be held October 30, 2014 featuring Dr. Andrew H. Knoll, Fisher Professor of Natural History and Professor of Earth and Planetary Sciences at Harvard University, as speaker.

We hope that Geology Alumni touched by Tom's career will help us build an endowment for the Phillips Lecture in Paleoscience. Your generosity will help us honor his contributions to the vitality of plant biology, geology, and interdisciplinary research and education at Illinois. Gifts to the Phillips Lecture Fund may be made online at [uif.uillinois.edu/gifts](http://uif.uillinois.edu/gifts) or made payable the University of Illinois Foundation and mailed to University of Illinois Foundation, 1305 West Green Street, MC-386, Urbana, IL 61801. Please indicate that the gift is in support of the Phillips Lecture Fund #338152.

## Ralph Early Grim: A Not so Ugly American

by Ralph L. Langenheim

*Editor's Note: "Windows into the Past" is a regular feature of the Year in Review contributed by Professor Emeritus Ralph L. Langenheim. Ralph's writing represents a long-serving faculty member's recollections and his perspectives of the Department's past.*

An entire book would be necessary to do justice to Ralph Early Grim's 60-year career at Illinois; here I focus on some of his international activities. In all, he made seven trips around the world and became closely involved in foreign lands (though not quite as intimately involved as Homer Atkins, the main character of the famous 1958 Novel, *The Ugly American*). He played an important role in opening up important mineral resources in various nations around the world; what follows are just a few of the highlights.

In 1968, Grim set up, in Viet Nam, a parallel to his highly successful Ivory Coast Program (see the 2012 Department newsletter for a description of his key role developing the mineral resources of that country). Development and Resources (D&R) Corporation had a major AID (Agency for International Development) contract to assess the total resources of South Vietnam and to set up a program for their post-war development. Grim was to conduct a research project that would "assess the total resources of South Vietnam and...set up a program for development." Upon arrival in Saigon he found that the university geology department consisted of a 30-year-old professor who had a year of training in Paris, an assistant who had no training outside of Vietnam, a few students, and no equipment. Thankfully the collections had been transported from headquarters in Hanoi to Saigon.

Grim hired a plane to make a swing through a low mountain area north of Saigon—the only region likely to have mineral deposits—and found the region untouched by the war. An overall reconnaissance of the Central Highlands, followed by a road trip twenty miles north to a potential

bauxite deposit, uncovered no important mines nor deposits. However, Grim and his companions were impressed with the large number of funeral processions they saw along the highway. It turned out these were Viet Cong heading south for the Tet offensive. That night he and everyone else in Saigon suffered a sleepless night. Expecting to leave the following day, after a good dinner and a stroll to view the decorations for Tet, the Vietnamese New Year's Day, Grim had packed his bags. Instead he awoke to a blaring announcement of a North Vietnamese attack on the U.S. Embassy, the imposition of a curfew and the closure of the airport as the U.S. and Vietnamese military countered the Tet offensive. It proved impossible to telephone the U.S. so his wife, and the University, were left with no news other than a message through the State Department reporting that Grim was safe. The situation lasted for ten days after which AID informed him that, if he could get to the airport in an hour, they would put him on a plane to Bangkok.

His trip home to Urbana took fifty-two hours, during which Grim never had a chance to shed his clothes nor sleep in a bed. After he arrived in Chicago, to his chagrin he found there was no room on Ozark Airlines to Champaign. He managed to sneak on to a fully booked train by bribing the porter to put his bag in the lounge and then slipping through the exit door. Incidentally, Grim reports having done this many times. Thus, Grim made it home from South Vietnam.

Grim's subsequent report pointed out that metal deposits would be unlikely in the sedimentary rocks underlying South Vietnam. He wrote that he had observed only "a very small coal deposit and an even smaller copper mine," and stated that "industrial minerals are abundant, bauxite may be present...petroleum might be present." In 1979 Grim pondered: "I wonder what happened to my report and all the other reports D&R left behind at the close of the war. I hope they have been useful to the present regime." As of 2014 South Vietnam has little mineral industry and petroleum is indeed being developed offshore.



This formal photograph of Ralph Grim is the frontispiece of his 689 page, *Memoirs of Ralph Early Grim*, preserved in the University of Illinois Library archives. Unfortunately I found it impossible to find photographs of Grim at work, but, to be fair, Grim was a very formal person.

In 1969, following his escape from South Vietnam, Grim decided that after one of his periodic trips to the Ivory Coast he would also visit South Africa, New Zealand and Australia to study clay deposits and to visit research laboratories. Arriving in Johannesburg, South Africa, the Grimms were met by representatives of G&W Base and Industrial Minerals, a diversified company founded by Arnold Weedon and his son Des Weedon, that mines and processes industrial minerals including bentonite, limestone, silica and kaolin.

During what was to become an around the world trip, Grim visited the Grahamstown kaolin deposit with Tony Greyville of Des Weedon's staff to help clean up "water rights and tax matters," and to examine another kaolin deposit 200 miles north of Capetown where he found kaolin preserved in less than commercial valuable quantity. A bentonite deposit north of Durban, in Northern Natal Province, Grim also designated sub-commercial but simultaneously regarded it as having much geologic interest because the volcanic glass (perlite) had, in places, been altered to bentonite and in other places transformed to kaolinite. The question: Was this caused by differences in the perlite, the altering gas vapor, or the ability of the alteration process to remove or leave behind alkalines or alkaline earth compounds?

During the latter part of the trip, Grim examined clay deposits for the Georgia Kaolin Company, both in the vicinity of Perth, Australia and in the Bay of Islands area in New Zealand. Grim found the latter area's reserves to be scanty and of poor

quality so Georgia Kaolin turned down the operation.

Grim's international travels continued into the 1970's. In 1971 he visited a kaolin deposit in Brazil north of the mouth of the Amazon River for Georgia Kaolin. The deposit consisted of beds as much as 20 feet thick covering a large area adjacent to a navigable river, the Jari. However, the kaolin was very fine-grained and thus poorly suited for some uses. Georgia Kaolin opted out but the owner has subsequently developed the deposit. Grim predicted that minerals would be found all over Brazil and also that offshore oil would be discovered. Today Brazil is indeed a leading producer of offshore oil; some ambitious Illinois alumni have helped drive this success!

That same year, 1971, Weedon visited the United States and attended a Georgia

conference in regard to the Grahamstown deposits with Grim. Grim subsequently returned Weedon's visit with a trip to South Africa where he stayed with the Weedons and observed the politics of apartheid. He also visited G&W Base Metals in Zululand and the Cape Province and also examined a barite mine at Warmabad, Namibia.

Ralph Early Grim was a superior geologist, and of course, his long career at Illinois left an important legacy. His tenure at the Illinois State Geological Survey began in 1931. In 1948 he became a research professor of geology at the University of Illinois. He served as Head of the Clay Section at the ISGS until 1958 and retired from the University of Illinois as Professor Emeritus in 1967. He received an honorary Ph.D. from the University in 1984. He died in 1989 in Urbana. While Grim is oftentimes referred to as called the

"Father of Clay Mineralogy," I would call him the Carolus Linnaeus of clay. His memory lives on, partly in the form of the endowed Grim Professorship, which has helped to enhance scholarship and teaching in Mineralogy and Sedimentary Geology for decades.

At the urging of his wife, Frances E. Grim, Ralph Grim wrote an 889 page, unpublished manuscript, *Memoirs of Ralph Early Grim*. Mrs. Grim rescued the manuscript after his death, had it typed verbatim, bound and distributed to the Department of Geology, the University Archives, and selected associates. This memoir, Grim's papers in the University Archives, Departmental records, and my memories are the principal sources for this essay.

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## State of the Art *(continued from page 1)*

bottom of rivers and lakes to a resolution of several centimeters, allowing researchers to determine the nature of a river or lake bed in incredible detail. Additionally, acoustic Doppler current profilers use sound to measure the velocity of the river flow, while a parametric echosounder uses acoustics to penetrate through sediment to reveal the structure of the layers of mud and sand. All of these devices can now be used along with a high resolution GPS system on board the RV Wabash.

"We have amassed an incredible suite of field instrumentation for studying rivers and lakes, but floods don't obey a calendar where we can run this equipment from boats that are either rented or borrowed," says Jim Best, Jack C. Threet & Richard L. Threet Professor of Sedimentary Geology. "We really needed one of our own."

Roscoe Jackson (M.S. '73, Ph.D. '75), an alum who conducted pioneering work on the Wabash River during his doctoral research at Illinois, has been a regular vis-

itor to the department and generously offered financial support to provide a boat that would meet the Department's research needs.

The addition of the boat has allowed several projects to move ahead, including research work on the Wabash River, the Mississippi River, Yellowstone Lake and the Chicago Ship Canal.

"Having all this fantastic equipment and the boat has allowed us to form an advanced research facility, one that we can use and that can be used by others" says Best, "We can pursue fieldwork opportunities that would not have otherwise been possible and it allows our thriving graduate research group a chance to work with some really impressive technology."

Along with all these new opportunities, of course, came the need to both manage the new equipment and organize fieldwork. Enter Mike Reed, the new Fieldwork Research Specialist for the School of Earth, Society and the Environment (SESE), whose duties include the

maintenance and upkeep of the equipment, preparing the research boat for scientific and contracted survey work, captaining the survey vessels, acting as Health and Safety officer and providing the technical lead on all survey documentation and protocol.

"Mike's role is essential in our research and in utilizing all this equipment to the best of our abilities," says Best.

Prof. Stephen Marshak, Director of SESE, sees the Department's latest acquisition as just the latest effort by Department researchers to make an impact across disciplines and throughout the world.

"The sedimentology and surface processes group here at the U of I straddles geology, geography, civil and mechanical engineering, and we've developed a world renowned research reputation in sedimentary processes," says Marshak, "The research being done now with the access to this equipment solidifies and enhances that reputation."

## IN MEMORIAM

**Dale C. Anderson (B.S. '61)** died March 12, 2014 at his home in Ninilchik Alaska, at the age of 73. Born in Chicago, Sept. 11, 1940, he grew up in Libertyville, Ill. He graduated from the University of Illinois in 1961, as well as the Air Force ROTC program, receiving a commission as 2nd Lieutenant in the Air Force, ultimately reaching the rank of Captain. He served as a consultant to the Newport News Shipbuilding & Drydock Co., then to the Army at Fort Eustis and Fort Lee. Concurrently he pursued his dream of becoming a nationally known and respected expert in Military & Patriotic antiques, and spent the next 30 years in the antique business with his along with his wife Debbie.

**Jack R. Century (B.S. '51, M.S. '52)** died April 18, 2014, at age 84. He was employed by Amoco as a petroleum geologist, until he became an independent petroleum consultant in 1973. After his retirement as a petroleum consultant in 1995, he continued to be active as an environmental geologist, and in in 2008, Jack was trained as an official presenter of "An Inconvenient Truth" in Montreal by The Climate Project, Canada, an Al Gore environmental organization.

**Lee Clayton (Ph.D., '65)** died on May 7, 2014, at the age of 76. He studied geology as an undergraduate and master's student at the University of North Dakota. He continued researching glacial geology in New Zealand as a Fulbright Scholar, eventually completing his PhD studies at the University of Illinois and beginning his career as a glacial geologist at the University of North Dakota. In 1979, he went to Madison, WI, to work as Professor of Geology at the Wisconsin Geological and Natural History Survey, where he worked until his retirement in 2007.

**Robert W. Coster (B.S. '56)** died on March 19, 2014, at the age of 80. He graduated from the University of Illinois in 1955 and attained a law degree from John Marshall Law School in Chicago, IL in 1962. He practiced law in Chicago until his retirement in 1999.

**Richard M. Forester (M.S. '72, Ph.D. '75)** died on March 27, 2014 at the age of 55. The Department was shocked and saddened to learn of his early passing. He was a leader in the use of nonmarine ostracode species as indicators of present and past hydrologic conditions. After receiving his master's degree working with Tom Anderson and his Ph.D. with Philip Sandberg, he moved on to the U.S. Geological Survey in Lakewood. Rick worked on paleohydrologic and paleoclimatic studies of the

American Southwest, led the USGS Yucca Mountain Climate Program from 1991 to 2000, and was elected an AAAS fellow in 2005. A special session will be held in his honor at GSA this year.

**John M. Henton, Jr., (B.S. '48, M.A. '49)** died on September 16, 2013 at the age of 88. He graduated in 1949 with a Master's degree in Petroleum Geology from the U. of I. Jack's career which spanned 36 years and positions from staff geologist to recruiter, living with his wife Dorothy in Wyoming, Colorado, Mississippi, Illinois, and Louisiana.

**Donald O. Johnson (Ph.D. '72)** died on July 1, 2014 at the age of 72. He earned his Ph.D. in coal geology from the U. of I. and had a long career working at Argonne Laboratory and with land reclamation.

**Willard (Bill) C. Lacy (M.S. '40)** died December 7, 2013 at the age of 97. He first gained prominence as Chief Geologist of Cerro de Pasco Corporation's operations in Peru, where he participated in the discovery of some of the most famous and productive copper mines in the world. In 1955, he began an academic career at the University of Arizona, and, and was eventually the Head of the Department of Mining and Geological Engineering. In 1971, he took a new position as Foundation Professor of Geology at James Cook University in Townsville, Queensland, where he taught mineral economics, economic geology, and geotechnical engineering. Dr. Lacy retired from full-time teaching in 1981, but continued an active practice of mineral consulting and lecturing for private clients, governments and educational institutions throughout the world.

**Morris "Brud" W. Leighton (B.S. '47)**, Chief Emeritus of the Illinois Geological Survey, died on April 11, 2014 at the age 87. He began his career with Standard Oil of New Jersey/Esso in Tulsa, Okla., leading into a distinguished 32-year career as a geologist and manager which took him around the world with his high-school sweetheart and loving wife (Jean Bosley Leighton) and family in tow. Upon retirement from Esso, Brud began a second career serving the Illinois State Geological Survey as its chief for 11 years and remained active in with Urbana Rotary, the Illinois State Geological Survey, University of Illinois Department of Geology, Association of American State Geologists, Geological Society of America and American Association of Petroleum Geologists.

**Mary Louise McCommons (B.C. '47)** died on August 15, 2013 at the age of 87. She earned a degree in Geology at the U. of I., where she met William E (Bill) McCommons whom she married in 1947. Bill and Mary moved to Dallas in 1952 with their four sons where he subsequently established his own oil and gas exploration company. Whenever she should, she helped in drafting drilling prospect maps. Mary was a member of the Dallas Petroleum Club, the Dallas Geological and Geophysical Auxiliary and the Delta Zeta sorority.

**James Bruno Risatti, Jr. (Ph.D. '78)** died on August 29, 2013 at the age of 72. He joined the Illinois State Geological Survey as a Geochemist in the Organic Geochemistry Section and spent his career there studying the presence of PCB's and PCB degradation in groundwater. He applied his research to various pollution remediation projects including the Hudson River Dredging Project and was invited to present his research at the Gordon Conference. He retired from the Geological Survey as the Section Head of the Organic Geochemistry Section in 2006. Jim was also an adjunct professor at Northwestern University and Indiana University.

**Richard A. Upton (B.S. '51)** died on July 28, 2013 at the age of 84. He graduated with a degree in petroleum geology and started his career with the Carter Oil Co. which later became part of Exxon. Eventually his work brought him to New Orleans, and later he joined Delta Drilling Co. and then Valero Co. in San Antonio as a Senior Vice President. He retired in 1988 and moved his wife back to Louisiana to be with their two sons and their families.

**Paul S. Wingard (Ph.D. '61)** died on June 11, 2014 at the age of 84. He worked for the U.S. Geological Survey before he taught geology at Kansas State University and the University of Akron, the latter where he was Associate Dean of the College of Liberal Arts & Sciences and Professor of Geology. He also served several terms of elected office for the Stow-Munroe Falls School Board, Stow City Council, and Ohio State House of Representatives.

**William Terry Herbert Wright (Ph.D. '70)** died on September 6, 2013 at the age of 70. He earned his BS in Geology from Middlebury College 65. His PhD. in Geology from Univ. of Illinois led to a position as a professor at Sonoma State College.

## 2010s

**Becca Alberts (B.S. '13)** is attending grad school at Ohio University.

**Sam Dwyer (B.S. '09, M.S. '11)** continues as one of our recent graduates working at Shell in Houston. Sam visited in fall 2013 as the recruiter for Shell, interviewed several of our graduate students, and gave a presentation about careers at the company.

**Jessica Palmer (M.S. '10)** is also working for Shell in Houston, and visited the department to help recruit Illinois students for Shell.

**Amanda Raddatz (M.S. '10)**, now at Oxy, reports that she is "working on the CO2 sourcing team for enhanced oil recovery. I'm exploring for CO2 instead of oil!"

**Zhen Xu (Ph.D. '11)** is using his geophysical skills in his job as Research and Exploration Geophysicist, PetroTechnical Services, at Schlumberger in Houston. He just passed the three year mark with the company.

**Katelyn Zatwarnicki (M.S. '14)** is now working for Aqueous Solutions, Inc. in Champaign and is helping to roll out The Geochemist's Workbench Student Edition.

## 2000s

**Scott Lepley (B.S. '02)** and **Vineeth Madhavan (M.S. '09)** continue to work for BP in Houston, and made a recruiting visit in fall 2013.

**Amanda Peters (B.S. '09)** recently took a job with Halliburton in Houston.

## 1990s

**Dave Finkelstein (Ph.D. '97)** now holds an assistant professor position at the Hobart and William Smith Colleges in upstate New York, after stints at UMASS, Tennessee, Indiana, and Miami. Congrats Dave! As it turns out, the Geoscience Department at Hobart and William Smith now has a cluster of Illinois alumni, including Tara Curtin, now Associate Professor, and Neil Laird, the Department Chair, who earned his Ph.D. in Atmospheric Sciences here at Illinois.

## 1980s

**Rik Lantz (B.S. '82)** is living in Chicago and working as a Program Manager for Sullivan International Group. He served on the Scientific and Technical Committee for the Third International Conference on Sustainable Remediation, which takes place in Ferraro, Italy in September.

**Pius Weibel (M.S. '82)** retired recently from the ISGS. Pius has been active in local politics recently, serving on the county board.

## 1970s

**Jim Cobb (B.S. '71, Ph.D. '81)** stepped down in June as the Kentucky State Geologist, and Director, of Kentucky Geological Survey. Jim visited the department to give the weekly colloquium "Forty-five Years in Geology: Looking Back at Highlights from Research" on April 3rd, 2014. In summer, 2014, he went to work with the China Earthquake Administration in Gansu Province China. He notes that as of last spring, the Directors of the Geological Surveys of Kentucky, Illinois, and Indiana were all

Illinois Alumni! Jim is about to receive, as is Don McKay, the Presidential Award from the Eastern Section of AAPG!

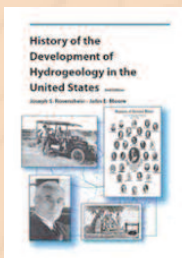
**Don McKay (M.S. '75, Ph.D. '77)** retired in May from his position as Director of the Illinois State Geological Survey after 38 years of service to the ISGS and 6 years as Director. Don is about to receive the Presidential Award from the Eastern Section of AAPG in September!

**John Steinmetz (B.S. '69, M.S. '75)** the third of our troika of state geologists, is currently Director of the Indiana Geological Survey and State Geologist of Indiana.

**Owen White (Ph.D. '71)** got in touch this year. After receiving his doctoral degree, he taught for years at the University of Waterloo, then moved to the Ontario Geological Survey. Owen recently made a gift of his Illinois academic regalia, which he purchased for graduation in 1971, and we will bestow it upon a deserving PhD recipient. Owen notes that in his day Prof. George White was keenly aware that graduate students from abroad who returned to teach in their home countries had difficulty acquiring regalia to proudly represent Illinois internationally.

## 1960s

**Lorence Collins (Ph.D. '59)** published a 109-page article in the electronic journal Myrmekite with the following title: Origin of myrmekite as it relates to K-, Na-, and Ca-metasomatism and the metasomatic origin of some granite masses where myrmekite occurs. <http://www.csun.edu/~vcgeo005/Nr56Metaso.pdf>.



**J.S. Rosenzhein (Ph.D. '67)** and **J.E. Moore (Ph.D. '60)** prepared a book "History of Hydrogeology in the United States 2<sup>nd</sup> Edition." It traces the development of hydrogeology from 1776 to 2010 and provides a comprehensive perspective on the development of the science, discusses education and

influence of professional societies, and explores groundwater contamination and chemical hydrology. Many Illinois graduates helped in the preparation of the book, including George White (professor of Geology), George B. Maxey (professor of Geology), Williams Back (B.S. '48), John Bredehoeft (Ph.D. '62), and Jack Sharp (Ph.D. '74). Copies of the book can be purchased from the National Groundwater Association for \$50, members \$40.

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

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Champaign, IL 61820

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

## Faculty

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

## Affiliate Faculty

Stanley Ambrose (Professor, Anthropology)  
Kenneth T. Christensen (Kritzer Faculty Scholar & Associate Professor, Mechanical Science and Engineering)  
Marcelo Garcia (Seiss Professor, Civil and Environmental Engineering)  
Scott Olsen (Associate Professor, Civil and Environmental Engineering)  
Surangi Punyasena (Assistant Professor, Plant Biology)  
Bruce Rhoads (Head Department of Geography)

## Research and Teaching Staff

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

## Adjunct Faculty

Ercan Alp  
Kurtis Burmeister  
Brandon Curry  
Robert Finley  
Leon Follmer  
Dennis Kolata  
Hannes Leetaru  
Thomas Phillips  
George S. Roadcap  
William Shiels  
Wolfgang Sturhahn  
Scott M. Wikerson

## Research Grants Active in 2013

### U.S. AIR FORCE

**Xiaodong Song**—Joint Inversion of Crustal and Uppermost Mantle Structure in Western China

**Xiaodong Song**—Surface Wave Attenuation in Tibetan Plateau from Ambient Noise

### ARGONNE NATIONAL LABS

**Jay Bass**—High-Resolution Inelastic X-ray Scattering at High P&T: A New Capability for the COMPRES Community

**Robert Sanford**—Assessment of Anaerobic Metal Reducing Anaeromyxobacter Populations in DOE Relevant Radionuclide Impacted Scenarios

### ENVIROMIN, INC

**Tom Johnson**—Selenium Stable Isotope Analysis for Enviromin

### EXXON-MOBIL

**Jim Best**—The Sedimentology of Tidally-Influenced Fluvial Bars in High-energy River Systems: the Modern Columbia River

**Jim Best**—Sedimentology of Fluvial-Tidal Meander Deposits

**William Guenther**—Raman Spectroscopy Dating in Detrital Zircons and Correlations with Zircon (U-Th)/He Dates

### GEL LABORATORIES, LLC

**Tom Johnson**—Measurement of Chromium Stable Isotope Ratios

### ISOTECH LABORATORIES, INC

**Tom Johnson**—Strontium (Sr) Isotope Analyses Using Multiple-Collector Inductively Coupled Plasma Spectrometry (M-ICP-MS)

### MICHIGAN STATE UNIVERSITY

**Robert Sanford** - Growth of Chlororespiring Bacteria to High Cell Densities for Use in Bioaugmentation

### NASA

**Tom Johnson**—Tracking Earth's Early Oxygenation Using Chromium Isotopes

### NASA SHARED SERVICES CENTER

**Sue Kieffer**—An Experimental Investigation Of Conditions Conducive To Groove And Ridge Formation At Double Layer Ejecta Craters On Mars

### NATIONAL ENERGY TECHNOLOGY LABORATORY

**Bruce Fouke**—Recovery Act: Understanding the Impact of CO<sub>2</sub> Injection on the Subsurface Microbial Community in an Illinois Basin CCS Reservoir: Integrated Student Training in Geoscience and Geomicrobiology

### NATIONAL SCIENCE FOUNDATION

**Alison Anders**—Co-evolution of Orographic Precipitation Patterns and Topography in the Western Ghats, India

**Jay Bass**—Consortium for Materials Properties Research in Earth Sciences (COMPRES): National Facilities and Infrastructure Development for High-Pressure Geosciences Research

**Jay Bass**—Community Facilities and Infrastructure for High-Pressure Mineral Physics and Geosciences: COMPRES II

**Jay Bass**—Collaborative Research: High Pressure Calibration at High Temperatures

**Jay Bass**—Sound Velocities and Elasticity of Deep-Earth Materials at High Pressures and Temperatures

**Jim Best**—Collaborative Research: Modifications of Turbulent Boundary Layer Structure by Wall permeability and Surface Subsurface Interactions: An Innovative Experimental Approach

**Jim Best**—Collaborative Research: Role of Interfacial Turbulence in Hypoheic Exchange and Fine Particle Dynamics

**Jim Best, Marcelo Garcia, and Bruce Rhoads** - Morphodynamics of Complex Meander Bends on Large Rivers

**Lijun Liu** - Deciphering the Origin of Intra-Plate Volcanism in the Pacific Northwest Using Geodynamic Models with Data Assimilation

**Craig Lundstrom** - Collaborative Proposal: Integrated Investigations of Isotopic Fractionation in Magmatic Systems

**Craig Lundstrom**—Collaborative Research: Investigating MORB differentiation through non-traditional stable isotope analyses

**Steve Marshak**—Collaborative Research: Structure and Dynamics of the North American Craton - An Earthscope Swath from the Ozarks to the Grenville Front

**Xiaodong Song**—Theoretical and Observational Studies of Surface Wave Attenuation From Ambient Noise

### SHELL INTERNATIONAL

**Gary Parker**—Numerical and Experimental Modeling of Tidal Morphodynamics Stratigraphy

### TOTAL E&P RECHERCHE DEVELOPPMENT

**Bruce Fouke**—Depositional Diagenetic and Microbial Controls on the Three-Dimensional Distribution of Porosity and Permeability Within Travertine Reservoir Analogs

### TOYOTA MOTOR ENGINEERING & MANUFACTURING NORTH AMERICA INC

**Jay Bass**—Photon Dispersion Characterization by Brillouin Light Scattering

### U.S. DEPARTMENT OF ENERGY

**Jay Bass**—Aqueous Geochemistry at High Pressures and Temperature

**Tom Johnson**—Microbial Oxidation of Hg(0): Its Effect on Hg Stable Isotope Fractionation and Methylmercury Production

**Tom Johnson**—Exploratory Research Mercury Stable Isotopes as Indicators of the Biogeochemical Cycling of Mercury

**Craig Lundstrom and Tom Johnson**—Development Of U Isotope Fractionation As An Indicator Of U(VI) Reduction In Uranium Plumes

**Robert Sanford**—MURMoT: Design and Application of Microbial Uranium Reduction Monitoring Tools

### U.S. GEOLOGICAL SURVEY

**Jim Best**—Surficial Geology of the Wabash Island Quadrangle Gallatin County IL Posey County IN and Union County KY

### UNIVERSITY OF BRIGHTON

**Jim Best**—Morphodynamics and Sedimentology of the Tidally-Influenced Fluvial Zone TIFZ

### UNIVERSITY OF HULL

**Jim Best**—Climatic and Autogenic Controls on the Morphodynamics of Mega-Rivers Modeling Sediment Flux in the Alluvial Transfer Zone

**Jim Best**—PES System Surveys of the Columbia River

**Jim Best**—Quantification and Modeling of Bedform Dynamics in Unsteady Flows

### UNIVERSITY OF TENNESSEE

**Robert Sanford**—Towards Predictive Understanding of Nitrogen Flux in Soils

### U.S. DEPARTMENT OF ENERGY

**Tom Johnson**—Microbial Oxidation of Hg(0): Its Effect on Hg Stable Isotope Fractionation and Methylmercury Production

### UTRECHT UNIVERSITY

**Tom Johnson**—Selenium Stable Isotope Analyses Using Mass Spectrometer Facility

## 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](mailto: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](http://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.

## Colloquium Speakers for Fall 2013 and Spring 2014

### Fall 2013

#### September 6

Joel Cutcher-Gershenfeld, National Center for Supercomputing Applications  
"Cyberinfrastructure for the Geosciences: Stakeholder Alignment for EarthCube"

#### September 13

Suzan van der Lee, Northwestern University  
"Upper Mantle Structure East of the Rocky Mountains from USArray Seismic Data"

#### September 27

Xiaodong Song, Univ. of Illinois, Dept. of Geology  
"One's Noise is Another's Signal: Imaging of the Earth's Interior with Seismic Ambient Noise."

#### October 4

"Are We Headed Toward a Return to Cretaceous Climate?"  
*The Glenn and Susan Buckley Lecture in Environmental Geology*  
Bill Hay (M.S., 1958, Illinois) University of Colorado Department of Geology Alumni Achievement Award Recipient

#### October 11

Gianluca Blois, Univ. of Illinois, Dept. of Geology  
"Investigating Geophysical Flows Coupling Physical Modeling and Cutting-edge Flow Measurement Techniques: Current and Future Challenges."

#### October 18

David Mohrig, Univ. of Texas, Austin  
"Building Landscapes: Comparing Transport by Channels on the Coastal Plain, in the Deep Ocean, and on Other Planets"

#### October 25

*The Richard L. Hay Lecture*  
Peter Michael, Univ. of Tulsa  
"Cycling of H<sub>2</sub>O and Chlorine in the Earth"

#### November 1

Margarete Jadamec, Brown University  
"Three-dimensional Mantle Flow and its Role in the Transport of Geochemical Signatures in Subduction Zones"

#### November 8

Wendy Yang, Univ. of Illinois, Plant Biology and Geology  
"Iron as a Driver of Redox Sensitive Biogeochemical Cycling in Terrestrial Ecosystems"

### November 15

Paul Potter, Univ. of Cincinnati  
Rachel Walker, Countrymark Energy Resources  
"Precambrian Paleotopography in the Eastern Midwest and Ontario—Possible Analogs for Canada, Brazil, and Africa"

### December 6

John Isbell, Univ. of Wisconsin at Milwaukee  
"The Glaciation of Pangea during the late Paleozoic Ice Age"

### Spring 2014

#### January 23

Eva De Boever, KU Leuven  
"Travertines Ain't No Cheddar - What's the Story Behind the Holes?"

#### January 30

Sara Mitchell, College of the Holy Cross  
"Glacial Cirques and the Link Between Climate and Mountain Range Height"

#### February 6

*The R. James Kirkpatrick Lecture*  
Jonathan Lees, Univ. of North Carolina, Chapel Hill  
"Boom-chugga-lugga in Russia and Guatemala: Kitchen Seismology of Exploding Volcanoes"

#### February 13

Pamela Burnley, Univ. of Nevada, Las Vegas  
"The Pattern of Stress Distribution in Rocks and its Impact on Foliation, Fracture and Flow"

#### February 27

*The Glenn and Susan Buckley Lecture*  
Max Berkelhammer, Univ. of Illinois Chicago  
"Quantifying Terrestrial Gross Primary Production Using Carbonyl Sulfide Fluxes"

#### March 5

*The National Ground Water Association Darcy Lecture*  
Dorte Wildenschild, Oregon State University  
"Optimizing Capillary Trapping as a Carbon Dioxide Mitigation Strategy: Pore-Scale Findings in Support of Larger-Scale Implementation"

#### March 6

*The GSA Hydrogeology Division Birdsall-Dreiss Lecture*  
Larry Band, Univ. of North Carolina, Chapel Hill  
"Critical Zone Processes at the Watershed Scale: Hydroclimate and Groundwater Flowpath Mediated Evolution of Forest Canopy Patterns"

### March 13

Ahmed Elbanna, Univ. of Illinois, Civil Engineering  
"A Physics Based Model for Fault Gouge: Comminution, Thermal Softening, and Strain Localization"

### March 20

*The Richard L. Hay Lecture*  
Brandon Schmandt, Univ. of New Mexico  
"Seismic Structure of the Western U.S. Mantle and the Origin of the Yellowstone Hotspot"

### April 3

Jim Cobb, Director, Kentucky Geological Survey  
"Forty-five Years in Geology: Looking Back at Highlights from Research"

### April 10

Drew Phillips, Illinois State Geological Survey  
"The Meadow Bank Lineament of the Wabash Valley: Neotectonism or a Unique Example of Torrential Erosion?"

### April 17

Craig Grimes, Ohio University  
"Plagiogranites, Zircons, and Isotopes: What Conditions Are Just Right for Creating Felsic Melts from Mafic Oceanic Crust?"

### April 24

*Ralph E. Grim Lecture*  
Justin Dodd, Northern Illinois University  
"Rapid Monsoon Onset During the Middle-Pleistocene in the Southwestern US: Evidence from Diatom Oxygen Isotope Values"

### May 1

Kate Huntington, University of Washington  
"Insights Into Plateau Uplift and Paleoclimate From Clumped Isotopes"

## Degrees Conferred in 2013-14

### Bachelor of Science Degrees

#### August 2013

Cory Hunter  
Emily Ross  
Ryan Sisson

#### December 2013

Michael Glynn  
Patrick Hu  
Phoebe Miller  
Christopher Ricely

#### May 2014

Robert Geringer  
Evan Gragg  
Vlad Iordache  
Mi Yen Kim  
Samantha Newman  
William Renwick  
Maxwell Schaper

### Master of Science Degrees

#### August 2013

**Stefanie Domrois**, "The Midcontinent exposed: Precambrian basement topography, and fault-and-fold zones, within the cratonic platform of the United States"

**Johanna Gemperline**, "Controls on the extent of the Laurentide Ice Sheet in Southern Illinois"

**Mary Seid**, "Tectonics of the Wolf Creek Fault Zone, southern Illinois: A consequence of Late Paleozoic transpression and transtension at the southeastern end of the Ste. Genevieve Fault System"

#### May 2014

**Ryanne Ardisana**, "Chromatophore tissue density and skeletal density banding as a measure of the adaptive response of healthy corals to environmental change"

**Norbert Gajos**, "Spatially controlled Fe isotope variations at Torres Del Paine"

**Armando Hermsillo**, "Investigating flat-slab subduction underneath South America using 4D numerical simulations"

**Conor Neal**, "Suspended sediment supply dominated by channel processes in a low-gradient agricultural watershed, Wildcat Slough, Fisher, IL USA"

**Katelyn Zatznicki**, "Modeling effective isotopic fractionation in groundwater aquifers with heterogeneous reaction rates"

### Doctor of Philosophy Degrees

#### December 2013

**Xiangli Wang**, "Chromium and uranium isotopic exchange kinetics and isotope fractionation during oxidation of tetravalent uranium by dissolved oxygen"

## Publications

- Abraham, J.P., Baringer, M., Bindoff, N., Boyer, T., Cheng, L.J., Church, J.A., Conroy, J.L., Domingues, C.M., Fasullo, J.T., Gilson, J., Goni, G., Good, S., Gorman, J.M., Gouretski, V., Isjii, M., Johnson, G.C., Kizu, S., Lyman, J.M., MacDonald A., W.J. Minkowycz, Mof-fitt, S.E., Palmer, M., Piola, A., Re-seghetti, F., Trenberth, K.E., Velicogna, I., Wijffels, S.E., Willis, J. A review of global ocean heat content observations: Implications for climate change. *Review of Geophysics*. DOI: 10.1002/rog.20022.
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- Conroy, J.L., Cobb, K.M., and D. Noone. Precipitation isotope variability across the tropical Pacific in the SWING2 model simulations. *Journal of Geophysical Research-Atmospheres*. DOI: 10.1002/jgrd.50412.
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- Deonarine, A., Bartov, G., Johnson, T.M., Ruhl, L., Vengosh, A., Hsu-Kim, H. Environmental impacts of the Tennessee Valley Authority Kingston coal ash spill. 2. effect of coal ash on methylmercury in historically contaminated river sediments. *Environmental Science and Technology*. 47.4, 2100-2108.
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The 2014 **Annual Research Review** was held at the Illini Union on February 21<sup>st</sup>, highlighting research posters from all three departments in the School of Earth, Society and the Environment. This symposium provides students, faculty, and staff with an opportunity to showcase new research ideas in a casual and open environment. The Department of Geology awarded **Abigail Asangba** first place for her poster, "Reconstruction of Ancient Microbial Biodiversity and Metabolism from Fossil Travertine." Derek Lichtner's poster "Flow Beneath River Bedforms in Coarse Sediments" earned second place, while Norbert Gajos took third place with his poster, "Spatially Controlled Fe Isotope Variations at Torres del Paine."

**Jay Bass** has accepted an invitation to be an Editor of *Geochemistry, Geophysics, Geosystems* (G-Cubed), the flagship interdisciplinary journal of the American Geophysical Union.

**Jessica Conroy** was awarded the Arnold O. Beckman Research Award from the UIUC Campus Research Board for her proposal, 'Development of a new, high-resolution paleoclimate record from Kiritimati lake sediments. She was also selected from a competitive pool of young climate change scholars to attend DISCCRS VIII, an NSF-funded workshop aimed at fostering interdisciplinary climate change scholarship. Finally, she also gave the 33rd annual Osgood Memorial Lecture, at her undergraduate alma mater, The College of Wooster. This lectureship brings a scientist interested in paleontology and/or stratigraphy to the campus each year to lecture and meet with students.

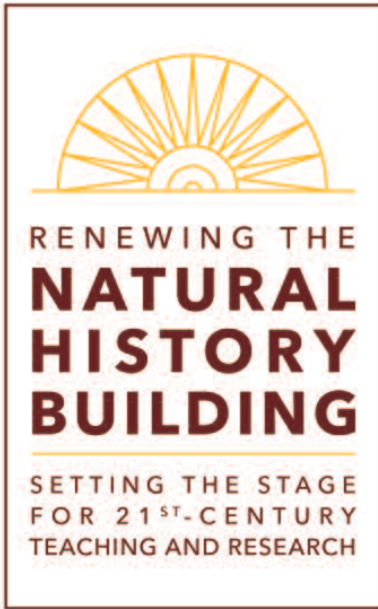
**Jim Best** was co-organizer of the 10th Intentional Conference on Fluvial Sedimentology held at the University of Leeds, July 14-19, 2013 and also ran a post-conference field trip (July 20-24) to Western Ireland for this conference entitled 'Fluvio-deltaic sedimentation in the Western Irish Namurian Basin of County Clare, Ireland: facies, sedimentary heterogeneity and controls on deposition.' He also attended and presented papers, and was a member of the scientific organizing committee, for the 4th International Workshop on Marine and River Dune Dynamics, Bruges, April 15-17, 2013.

**George Devries Klein**, Emeritus Professor, has retired from consulting and relocated to Guam. Feel free to visit.

**Lijun Liu** gave several invited colloquium talks, at Southern Illinois University, Purdue University, St. Louis University, and Northwestern University. He was interviewed by *Science News* and the *Earth Magazine*.

**Steve Marshak** enters his third year with the OIINK project, the Ozark Illinois Indiana Kentucky Flexible Array Experiment, an NSF funded consortium of universities working to improve understanding of lithospheric scale structures of North America's stable craton.

**Alyssa Shiel**, after a three year postdoctoral fellowship in the Department of Geology working with Tom Johnson and Craig Lundstrom, will leave to join the faculty of Oregon State University starting August 2014.



## SCHOOL OF EARTH, SOCIETY, AND ENVIRONMENT (SESE) NAMING OPPORTUNITIES



Opportunities exist to name an entire floor in the Natural History Building.  
1st Floor: \$3 million | 2nd Floor: \$5 million | 3rd Floor: \$4 million | 4th Floor: \$2 million

### \$1,000,000

- **SESE Hub:** This spectacular space will be the primary gathering area for students, faculty, and staff in SESE—the Departments of Geology, Atmospheric Science, and Geography and Geographic Information Science. This large gathering area will include work tables, light tables, white boards, and lounge areas. It will occupy the vaulted chamber of the former Natural History Museum, and will be the central public space for SESE.

### \$750,000

- **Large Flexible Classroom:** Designed for active learning, group/collaborative learning, and project-based learning, this classroom will be used by a wide range of SESE classes with up to 90 students. The furnishings are designed to accommodate both traditional teaching styles and modern collaborative-learning teaching styles with heavy technology use and visualization of work to share. The space can be separated into two 60- and 30-student classrooms. (2,000 students per year)

- **Large Lecture Hall:** This large lecture hall for 350 students will be used for classes from all colleges across the entire campus. Class assignments will be made at the campus level. This space will also be available for special events such as major invited guest lectures and film showings. (7,000 students per year)

### \$500,000

- **Sedimentology Research Lab:** This will be a large laboratory complex that will be the central focus of research and student training in sedimentology. The area will include sample and core preparation facilities, computer facilities, and a flume table for studying sediment transport.
- **Clean Lab:** This will be an ultra-clean facility for preparation of specimens for geochemical analysis. It will have special air and water supplies and metal-free construction to keep specimens free of contamination. Several geology research groups carrying out geochemical measurements will use this facility.
- **SESE Gateway Display Area:** This will be the expanded hall area, outside of the large lecture hall. It will have polished stones, illustrating various rock types, embedded in the floor, and video screens on the wall that will display earth-related images.
- **The Garden of Rocks:** This will be an outdoor landscaped area, at the south end of the building, that will display slabs or rocks of sufficient size that textures and structures will be visible.

### \$250,000

- **Laboratories (seven opportunities at this level):**

» The Student Microscopy Lab will be equipped with petrographic microscopes so students can learn mineralogy, sedimentary petrology, and igneous and metamorphic petrology using state-of-the-art equipment. The microscopes will have video-capture capabilities so students can share observations with their group. (650 students per year)

» The Bio-Geochemical Research Lab will be a wet-lab research facility equipped with fume hoods and lab benches for carrying out modern bio-geochemical analysis and paleoclimate studies.

» The Isotope Lab will be a specialized facility equipped with state-of-the-art mass spectrometers for geochemical and hydrogeological research. (Named the Coleman-Liu Geochronology Laboratory.)

» The Geophysics and Tectonics Research Lab will be equipped for computational, electronic, or analytical research in geophysics, structural geology, and related fields.

» The Geographic Information Science (GIS) and Weather Lab will be set up for state-of-the-art computer instruction in GIS and weather analysis and forecasting. (1,000 students per year)

» The Visualization Lab will be used for visualizing and analyzing data collected by NASA and other satellite information systems.

» The Instrumentation Learning Lab will be used to teach students to build and use meteorological instrumentation. (700 students per year)

- **Geomicrobiology Research Facility:** This lab will be designed for modern analysis of microbes in the Earth System. It will be specialized to carry out culturing experiments and DNA analysis of samples from subsurface (groundwater and hydrocarbon reservoirs) and surface environments.

- **Flexible Classroom:** This general assignment classroom contains the latest concepts of flexible furnishings. Desks can be arranged in rows for traditional lectures, or in circles or arcs for student collaboration. (1,000 students per year)

*(opportunities continued)*

# Gift/Pledge Commitment



Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_

**Pledges of support shall be satisfied by gifts from the Donor over a period of time not to exceed five (5) years. We will accept five year pledges through 2015. Pledges to be completed on or before Dec. 31, 2020.**

Pledge Amount: \$ \_\_\_\_\_  
 Pledge Length: \_\_\_\_\_ (maximum five years)  
 Installment: \$ \_\_\_\_\_  
 Frequency:  Semi-annually  Quarterly  Other \_\_\_\_\_

*I pledge and agree to fulfill the following commitment to the University of Illinois Foundation to be used to support the Natural History Building Renovation Fund #337834. The Foundation will send statements summarizing the status of my pledge according to the agreed upon schedule.*

3

\_\_\_\_\_  
*donor signature* \_\_\_\_\_  
*date*

\_\_\_\_\_  
*donor signature* \_\_\_\_\_  
*date*

Pledge payments should be made payable and sent to:

**University of Illinois Foundation**  
 Attention: NHB Renovation Fund #337834  
 Harker Hall  
 1305 West Green Street  
 Urbana, IL 61801-2962

*Gifts to the University of Illinois Foundation are tax deductible to the extent provided by law.*

20140602



## School of Earth, Society, and Environment Gift Chart

NUMBER OF GIFTS NEEDED	AMOUNT	CUMULATIVE TOTAL
1	\$1,000,000	\$1,000,000
2	\$750,000	\$2,500,000
2	\$500,000	\$3,500,000
6	\$250,000	\$5,000,000
8	\$100,000	\$5,800,000
10	\$50,000	\$6,300,000
28	\$25,000	\$7,000,000

## Department of Geology

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			ment & Technology

## STUDENT AWARDS

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

**Andrew Reinhard** and **Richard Vachula** won the Estwing Pick Awards, presented annually in the Spring to undergraduates 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.

**Jin Zhang** 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.

**Gideon Bartov** 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.

**Kelsey Kehoe** and **Stephanie Mager** were recognized as Outstanding TAs, based on ICES results and faculty supervisors' comments.

**Laura DeMott, Stephanie Mager, and Rachel Oien** received Morris Leighton research grants. The Fund was established in 1971 in memory of Morris M. Leighton at the request of his family. Morris M. Leighton was an assistant professor of geology at Illinois and a geologist for the Illinois State Geological Survey from 1919-1923. In 1923, Morris M. Leighton was appointed Chief of the Illinois State Geological Survey and served in that capacity until his retirement in 1954. He held the title of Chief Emeritus of the Illinois State Geological Survey until he passed away in 1971.

**Ryan Arnott, Jing Jin, Derek Lichtner, Conor Neal, and Eric Prokocki** were the recipients of the Roscoe Jackson Award, designated to support needs of graduate students who are pursuing thesis research. Dr. Jackson has been a strong supporter of research in the department over the years.

**Erin Murphy** received the Sohl Award for Research, which supports research by graduate students in the Department of Geology with preference for support of paleontologic fieldwork by graduate students.