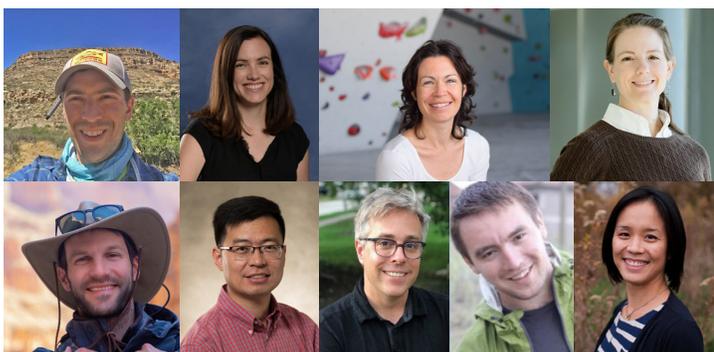




Ten extraordinary years of challenge and success: a retrospective



Faculty hired since 2011: Max Christie, Jess Conroy, Jenny Druhan, Trish Gregg, Willy Guenther, Lijun Liu, Cory Pettijohn, Cristi Proistosescu, and Wendy Yang.

As we welcome **Craig Lundstrom** as our new department head and close the book on **Tom Johnson's** time at the helm, this is a good opportunity to look back over the past 10 years and take stock of an extraordinary time, with many challenges and successes.

Ten years ago, the department was crammed into the north end of NHB, following the south and west wings being condemned in June 2010 after the discovery of defective floor construction dating to 1908. Fortunately, then-Chancellor **Phyllis Wise** committed to renovating the entire building, and LAS Dean **Ruth Watkins** secured funding commitments from at least seven different sources to enable the project to proceed.

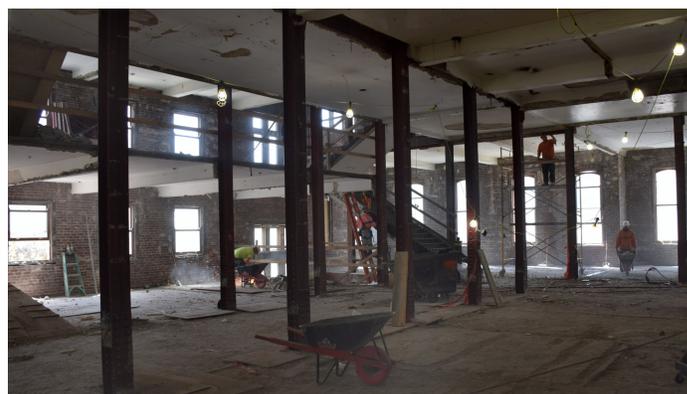
At the same time, the alliance of geology and sister departments atmospheric sciences and geography to form the School of Earth, Society, and Environment (SESE) was gaining steam after the school's formation in 2007. However, the school suffered from physical separation of the departments, with geography located in Davenport Hall and atmospheric sciences a quarter mile away. We had wished for a way to bring all of SESE under one roof, and our wish came true—in the form of a monumental renovation effort!

The challenging process of designing the “New NHB” within the limitations of the existing building footprint went forward, with superhuman efforts by SESE associate director **Scott Morris**, SESE director **Steve Marshak**, the

SESE department heads, and many others. The department, and all of its many laboratories, possessions and collections, moved out of the building in fall 2013, and the demolition phase began the following year.

In the midst of all the disruption of those tumultuous years, miraculous successes were achieved in faculty hiring. **Lijun Liu** (geophysics) joined us in 2012; **Wendy Yang** (biogeochemistry); **Jess Conroy** (paleoclimate) and **Willy Guenther** (thermochronology/tectonics) joined in 2013; **Trish Gregg** (geophysics) and **Cory Pettijohn** (ecohydrology and online education) joined in 2014; **Jenny Druhan** (hydrogeology) joined in 2015; **Max Christie** (paleontology and stratigraphy) joined in 2017; and **Cristi Proistosescu** (climate; 75% Atmospheric Science and 25% Geology) joined in 2019. This group has garnered a very impressive list of awards and major grants and has moved the department forward into new and exciting areas of teaching and research. They are rising to become the new backbone of the department, with several of them promoted to associate professor and all of them taking leadership roles as committee chairs and/or major contributors to decision-making on campus. In another very positive development, **Lana Holben** stepped into the role of assistant to the head in 2015; she has enthusiastically and very successfully mastered this key role at the center of department operations.

Continued on page 15



The third floor south hallway of NHB in 2015. Creation of new floors on top of the defective 1908 floors required a complete gutting of the building's interior and replacement with modern infrastructure. The result is a functionally new building in the original structural shell.

Letter from the head

Hello all!

I am writing my first newsletter blurb, having just started my third month as department head. I took over with the department in great shape after 10 years under Tom's leadership—a big thanks to him from all in the department. The new job? Well, the little tasks never seem to end—I cross things off the list but the list keeps growing downward faster. Funny, it seems analogous to my research work that proposes granitic intrusions grow from the top down, adding magma on their undersides. But I digress...

As you know, COVID-19 has impacted everyone heavily over the past 1½ years. After running classes online or in hybrid mode during the 2020-2021 academic year, this year has seen the return to in-person classes, albeit with masks in place. It has been awesome to have the energy of students back in NHB and, personally, it is so much more rewarding to teach a class in person with a mask than online using Zoom! Yes, there are going to be pretty big impacts on the University budget over the coming years, but all in all we have weathered the storm quite well.

Things are going well in the department with several big news items to report. Over the summer, we saw promotions of **Lijun Liu** to professor and **Jenny Druhan** to associate professor. Congratulations to both! These two are part of the amazing set of young professors that we have in the department. The stars are the limit with this group and the department future is bright. We are searching for an assistant professor in geophysics/seismology this fall and we hope to continue this streak of great hires. Also, we successfully shepherded the new online masters program through the university system and the Illinois Board of Higher Education—this program will positively impact the department in many ways and we look forward to these students being part of our community starting in Fall 2022.

This first fall semester for me is a time for proposing ideas and listening to feedback from faculty, students, and alumni as we seek to grow and attain higher goals for the department. There is a tremendous push within the university and society as a whole for DEI (diversity, equity, and inclusion) and we know that geology as a field is among the least diverse sciences. Thus, we are addressing this issue on many fronts from faculty searches to recruitment of grad students. Notable is the fact that based on percentage changes over the last decade, the geology graduate student population has diversified more than any other in LAS! But we need to keep the momentum and continue to diversify in both undergraduate and graduate student populations and faculty.

We continue to enjoy the benefits of the new NHB and are trying to use this as a magnet for increasing undergraduate majors. With NHB fundraising behind us, we are turning our focus to strengthening our education and research programs, and serving a larger number of students in more ways. Among the ongoing areas of need are funding for field trips and undergraduate scholarships (see details elsewhere in this newsletter). Our corporate support for the GEOL415/515 class has largely vanished and having funds to bring the cost within reach of Illinois students helps us provide this incredible experience to them. With the rising costs of undergraduate education, we see the development of undergrad scholarships a way of attracting more students into being geology majors. These are just two of the giving opportunities within the department. The department is extremely grateful for the many donations from alumni and friends over the past year.

To see a list of current high-priority giving opportunities and/or to make an online gift, please visit the department's giving page (geology.illinois.edu/giving). See page 4 of this newsletter for other options, and if you need help with any method of donation, feel free to call the department at (217) 333-3540.

Please drop in whenever you are in the area—we love to catch up with our alumni and friends! Our LinkedIn group, “UIUC Geology Alumni” has surpassed 300 members and is increasingly helpful as a way for our alumni to connect, and to recruit or search for job opportunities—if you're not a member already, please join. And as always, we love to hear from you when you send your news to us at geology@illinois.edu.

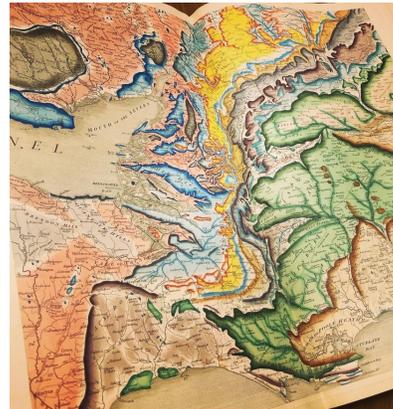


Craig Lundstrom, department head

All the best,
Craig

Geology rare books collection exhibit planned

Many of you know that the department owns a world-class collection of rare books, including original copies of some of the most famous books from the foundations of geology as a science. Professors **Willy Guenther** and **Gillen Wood** will present an exhibit of historic texts in the Rare Book and Manuscript Library (RBML). Entitled “In Search of Lost Time,” the exhibit will focus on the evolution of ideas related to deep-time and the age of the Earth from the 18th to the 21st century. Works will include books and manuscripts by Buffon, Brongniart, Cuvier, Hutton, Rutherford, and Smith. The exhibit, opening in early 2022, will be open to the public. If you plan to visit campus and would like to learn more, please stop by and reach out to Willy for more information.



Detail of Bath, England and surroundings from William Smith’s “Strata of England and Wales.”

ALUMNA SPOTLIGHT: Tricia Santogrossi

Hailing from a Springfield family that is so strongly tied to this university that it “bleeds orange and blue,” **Tricia Santogrossi** built a distinguished, 45-year career in the oil and gas industry.

Reflecting on her time at Illinois, she says, “It prepared me very well for my career.

My background helped get me a 1975 summer internship at Shell’s Bellaire Research Center (BRC). I was offered a full-time position at the end of the summer—a bit unexpected and unusual. Then I was hand-selected by the chief geologist of Shell’s Alaska/Pacific division to work there; he had been impressed by my understanding of facies!” That led directly to a career-defining assignment as one of the few geologists, at the time, tasked with the interpretation of seismic data. “This area of expertise allowed me to showcase my work at the first invitational Seismic Stratigraphic (Geologic) Workshop, where I was one of only seven “young” delegates, the only young presenter, and the only female attendee.” This feat of being the only female/geologist presenter was repeated at the second such conference in 1984. Tricia continued with “very fulfilling work” in the industry as a pioneering seismic stratigrapher and woman geoscientist working for four multi-national companies beginning with 15 years (1976-91) at Shell working in various U.S. locations and three foreign countries. “Highlights of my time there included supervisors who supported me and saw that I got plum assignments, and one who tried unsuccessfully to block a promotion at four years to senior geologist—one of only four who received this honor so early.” Tricia served as appraisal team lead for the Mars Field, the largest-ever discovery in the Gulf of Mexico. “The work was so confidential that I had a vault-locked office to which only I had a key. I used technology that I had developed at BRC to very quickly solve a shallow water flow in early Mars wells and materially advanced our understanding and increased the reserves of



several of the 14 key reservoirs.”

The time was not without drama related to sexist attitudes by some men who attempted (unsuccessfully!) to downplay Tricia’s talents and leadership skills. But she persisted, and in 1991 returned to Houston to work for Marathon, building her own team of five scientists steeped in the art of seismic stratigraphic interpretation. She moved to Arco Vastar Oil and Gas, and moved on to be chief geologist at two successive consulting firms, before being recruited by Statoil to work in London for the first (2005) of nine years to help prepare necessary technologies for the company to return to the Gulf of Mexico and a Houston office. After successfully beating breast cancer while she maintained her full work schedule in 2012, she left Statoil in late 2013. Soon she learned of a rare opportunity to join a high-tech group, Geophysical Insights, that used proprietary software to enable simultaneous “multi-attribute” analysis to reveal rock properties/facies directly from seismic data. Several projects demonstrated an unprecedented ability to distinguish rock units and infer their properties.

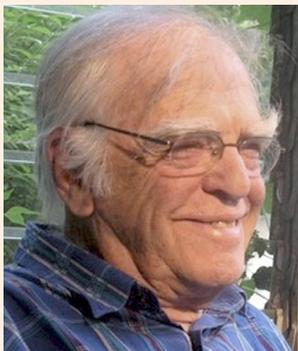
During this intense and varied career in the industry, Tricia found time to return to the UIUC campus (one of 17 different grad schools) as a recruiter and later a campus representative for Shell.

In 2020, Tricia eased into retirement and, so far, has not been pulled back into work by the recruiters. She lives in Houston with Joe Delasko, her husband of 29 years. In addition to her professional duties, she has always found time for volunteer work, receiving a Woman of Excellence Award from the Federation of Houston Professional Women in recognition of her co-development of a literacy program for women.

In summing up her career, Tricia says, “The key lessons have been to think positively, be opportunistic and accomplishment oriented; and to maintain a healthy network of colleagues and friends.”

Langenheim Scholarship Initiative

Please join in (donations matched)!



Professor Ralph Langenheim

The department is very happy to announce the creation of the **Ralph Langenheim** scholarship for undergraduate geology majors. Through the generosity of **Michael Bourque** (MS, '78), a \$25,000 endowment has been established to fund the scholarship in perpetuity. Mike chose to honor Ralph, his graduate mentor, after

reflecting on his experience at Illinois: "In the field, Ralph was generous with his time and guidance. In the lab, he helped me stay focused with an effective mixture of critique and praise, often delivered with his trademark wry humor. I laughed a lot, but I worked harder."

The department is aware that a number of alumni and friends with connections to Ralph would like to join in expanding the endowment. As an extra incentive, Mike has pledged to match additional donations up to a maximum of \$25,000. The match expires in August 2022, so please join in soon! [See below for donation instructions.](#)

Outstanding Graduate Student Award fund created to honor **Jim Kirkpatrick**



Professor Jim Kirkpatrick (PhD, '72)

Through a generous gift by **Suzanne Mahlburg Kay** (BS, '69; MS, '72) and Robert W. Kay, an endowment has been established to fund, in perpetuity, an annual award of at least \$1,000 to an outstanding graduate student in the department. Sue was inspired to donate in Jim's honor by their shared experiences as

graduate students and long term friendship and common scientific interests. Many people were connected with Jim through his 35-year association with Illinois as a student, a faculty member, and an administrator, and all are invited to contribute to this new endowment. [See below for donation instructions.](#)

Give to the Department of Geology!

Your gifts to the department help support students, sustain excellence, and allow us to pursue new initiatives.

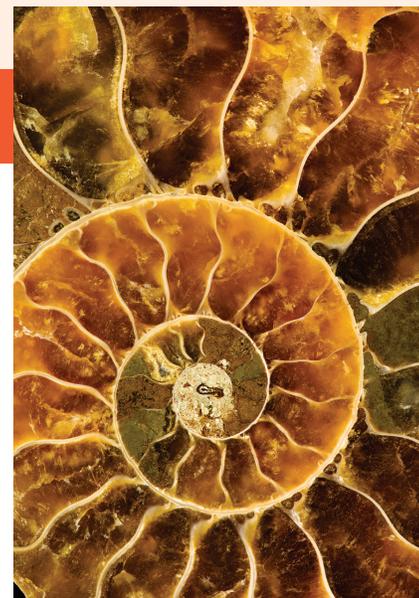
WAYS TO GIVE:

- 1) Visit geology.illinois.edu and navigate to the alumni page or the [Give Now](#) page.
- 2) **By Mail:** The newsletter does not have a reply envelope this year; please call us at (217) 333-3540 if you would like us to send one to you. Please make gifts by check or money order payable to the "University of Illinois Foundation." Please also include a short note stating the designation of your gift (including fund number if possible).

Mail to:

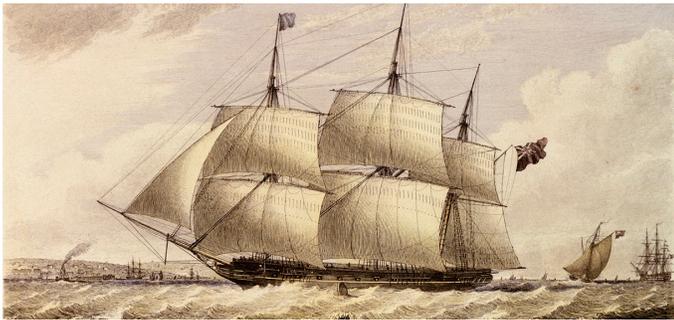
University of Illinois Foundation
P.O. Box 734500
Chicago, IL 60673-4500

- 3) **By Phone:** Please call the LAS Office of Advancement at (217) 333-7108, and indicate that you wish to make a gift to the Department of Geology.



The Oceans 1876 project: Professor Gillen Wood – Carnegie Fellowship

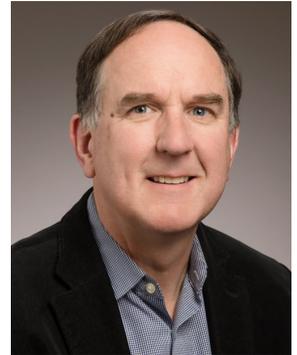
On a four-year voyage from 1872-76, the iconic British research vessel *HMS Challenger* identified the world's major ocean basins and currents and 4,700 new species of marine creatures and plants. Most of these physical specimens are housed at the Natural History Museum in London. This *Challenger* archive offers a unique historical baseline for measuring environmental change in the oceans, including water temperatures, chemistry, and species distribution. Professor **Gillen Wood** and his team at NCSA are collaborating with curators and archivists at the British Natural History Museum to create a fully modernized *Challenger* database and website to improve both public access and the research potential of the collection. Gillen was awarded a 2021 Andrew Carnegie Fellowship for this work.



The HMS Challenger

The *Oceans 1876* Project comprises a database making *Challenger's* voluminous marine data accessible, and a book, under contract with Princeton University Press, to re-evaluate the mission and its urgent relevance to our current crisis of ocean deterioration. The project as a whole innovates research paradigms in the humanities toward engagement with the Earth sciences, while also activating the extraordinary potential of Big Data.

To mark the 150-year anniversary of the *Challenger* mission, the goals of the *Oceans 1876* project are to contribute to public understanding of the current crisis condition of the world's oceans; to offer vital historical context to an environmental emergency too often viewed solely from the perspective of the present; and to demonstrate in the most vivid and persuasive terms the full impact of modern industrialization and population growth on marine life.



Dr. Gillen Wood, professor of English and geology

Department developing new master's program to be offered online

The department of geology is developing a new MS degree in environmental geoscience that is designed to be completed online (but including an in-person internship in as many cases as possible). The new program, planned to launch in fall 2022, has been approved after a rigorous review process extending all the way up to the Illinois Board of Higher Education. The program is designed to meet the high demand for advanced geology expertise used in applied industry sectors, including groundwater modeling, contaminant migration characterization, geophysics, and "big data" analysis.

The new program is one of three connected, synergistic MS programs, with two sister programs being developed by the Departments of Atmospheric Sciences and Geography and GIS. Spin-up funding is being supplied by a grant from the Provost's "Investment for Growth" (IFG) Program. The combined SESE effort will enhance geology's new program by providing shared courses, specialized courses in certain key areas, and a larger

group of faculty and staff collaborating to achieve overall program success. Teaching assistant professor Dr. **Cory Pettijohn**, coordinator of the program, will advise students on their coursework and a required, rigorous, final capstone project. Ideally, these projects will involve internships or other practical work with partners such as the Illinois State Geological Survey and environmental consulting firms.

Overall, geology's new MS degree program will provide a high-quality, cutting-edge degree while welcoming a more diverse cross-section of learners previously unable to pursue a graduate degree program on campus.



Teaching assistant professor Cory Pettijohn

FACULTY SPOTLIGHT: Michael Stewart



Professor Michael Stewart

Ask any recent geology major, “Which professor is most central to the department of geology’s undergraduate programs?” and the answer will likely be “Stewart!” Clinical associate professor **Michael Stewart** joined the Illinois geology faculty in 2003, after completing his PhD in igneous petrology at Duke University and teaching there for a few years. The

“clinical” part of his title arises from an emphasis on practical instruction, which in his case this means field geology. He has been the department’s central field instructor, playing a leading role in the summer field course, the spring semester GEOL 415/515 field course, and various other field efforts. He is currently director of the Wasatch-Uinta field camp consortium, which now serves UIUC, Wisconsin (Madison), Minnesota (Duluth), Nebraska, and Purdue.

Professor **Trish Gregg**, who attending the 2018 Scotland spring field course, commented: “To say that Michael is an effective instructor in the field is an understatement. His rapport with his students is outstanding. Michael has a process for each field stop that includes: (1) providing a brief overview; (2) allowing students to observe, take notes, sketch, and explore; (3) checking in with students to answer questions and guide inquiry; (4) leading the students in a guided discussion; and (5) debriefing the students and helping them to synthesize and contextualize their findings... I am particularly impressed by how well he juggles the logistical and safety aspects of leading 22 students through Scotland while remaining focused on the learning goals.”

But to label him “the field guy” is to understate his central role in the geology major. A typical undergraduate geology student has more contact with professor Stewart than any other person in the department, and it is not



Professor Stewart demonstrating the arts of sketching and geological interpretation in Akaki Canyon, Cyprus.



Climbing Knockan Crag in the Northwest Highlands of Scotland on the May, 2018 field course to find the Moine Thrust where the Proterozoic Moine Schist is thrust over Ordovician and Cambrian strata. This was a key locality in “the Northwest Controversy”, the famously heated debate between Lapworth, on one side, and Geike and Murchison on the other (who wrongly believed the Moine schist was younger).

uncommon that a student has taken GEOL 208 (earth History), 432 (Mineralogy), 460 (Geochemistry), and 417 (Field Camp) with him. He also serves as academic advisor to about one third of them, and he has an ongoing research program: Some of our top undergraduate students choose to do senior thesis projects with him. A 2014 paper published from one such project earned best student paper awards from both the Meteoritical Society and the Geological Society of America.

Alumni and current students speak fondly of professor Stewart and his impact on their education and career. Allison Greaney ('14) sums it up this way: “What I believe sets professor Stewart apart is that he cares deeply. Not just about the knowledge that he passes on, but that his students take that knowledge, grow with it, and become successful in their lives and careers because of it.” His office is very commonly occupied by two or three students intensely working on problem sets or having thoughtful discussions about their research. Brooke Dykstra ('21) commented on his teaching style: “In the classroom, Dr. Stewart communicates to his students that he is interested in more than the grade on an assignment; he is looking to have stimulating conversations with us about real scientific principles as well as is promoting an environment of honest and respectful debate... Homework assignments in his classes are often thought-provoking, reinforcing the discussion of the past week’s lectures beyond superficial understanding.”

Professor Stewart describes his approach to teaching in simple terms: “I love to learn about the earth and how it operates, so when I teach I’m sharing with my students what I find to be fascinating ideas. I believe my students are also driven by curiosity, so we have a wonderful relationship where I respect them as burgeoning scientists, and treat them as people who share my love of earth sciences. This makes me excited to teach and be interested in my students.”

GRADUATE STUDENT PROFILE: Nooreen Meghani



Nooreen enjoyed her work as a Teaching Assistant at the Wasatch-Uinta Field Camp in summer, 2021.

We caught up with fourth-year PhD student **Nooreen Meghani**, a geomorphologist in Alison Anders' research group:

What is your current research focus?

I'm currently working on understanding how rivers form in flat, post-glacial landscapes (like Illinois!). As a geomorphologist, I'm interested in how rivers respond to different perturbations in the landscape—something usually investigated in tectonically active and steep landscapes (not like Illinois!). We don't know a whole lot about what happens when you don't have active uplift to drive river incision—and actually, we tend to think that not a lot happens. But, we know that glaciers filled in the pre-existing river systems in Illinois and surrounding states and if not a lot happened, we shouldn't have rivers here now. I've been working with remote sensing data and soils data for the whole 'Central lowlands' (northern states from Ohio to the Dakotas) to disentangle the history of river development here, and

work to fill in this pretty big gap in our understanding of fluvial systems.

Describe your favorite moment in the field.

A lot of my work is done on the computer because I'm looking at large-scale patterns, but every once in a while I get to be part of something extraordinary! In 2019 the Conroy lab needed a field assistant for work they were doing on Kiritimati (a two-hour flight south of Hawaii), and I got to go. It's definitely the most remote place I've ever been, and it was incredibly fun to help fellow graduate students with their data collection. We spent two weeks collecting and describing cores of lake sediments all around the island, and I felt so lucky to be in this profession! I get to go places I would never have gone otherwise and meet all kinds of people, while helping push the scientific ball forward.

Could you tell us about the most fulfilling experience you have had at Illinois?

This past summer I got to be a teaching assistant at the Wasatch-Uinta field camp WUFC, (of which UIUC is a consortium member) after a year of remote learning due to the COVID-19 pandemic. Teaching in the field is by far my favorite thing to do, and getting to be back outside with students after the isolation and uncertainty of COVID-19 was just glorious. Being able to see and interact with rocks in the field is so important for our students, and that's never been more apparent than now. WUFC is also very committed to accessibility and diversity, and working with such a diverse group of students was deeply fulfilling. It's clear that if we (geoscientists) want to improve the diversity of our field we need to be prepared to meet people where they are. That challenge is really exciting to me, and getting to be a part of the solution makes me glad to be a geoscientist.

Faculty, student, and staff awards

Associate professor Jenny Druhan received an NSF CAREER Grant entitled: Unlocking the isotopic signatures of weathering recorded in rivers through isotope-enabled reactive transport. Her work, largely centered around the Eel River in Northern California, has been pivotal in understanding how rock, water, and chemical systems interact.

Jenny Druhan was also selected by the College of LAS to be a 2021-2022 Helen Corley Petit Scholar.

Senior Rishi Chandra was awarded a National Science Foundation Graduate Research Fellowship. Rishi graduated in May 2021 with a BS in planetary science, the very first awarded from UIUC.

Geology and plant biology professor **Wendy Yang** was selected for the LAS Dean's Award for Excellence in Undergraduate Teaching.

Professor **Lijun Liu** has been selected to be an associate of the UIUC Center for Advanced Study (CAS) for academic year 2021-2022.

Professor **Gillen Wood** was recently awarded a 2021 Andrew Carnegie Fellowship for his project 'Oceans 1876' (see page 5).

Department Fossil Collections Get a Big Upgrade



Dr. Sam Heads and his assistant, Jared Thomas, stand by some of the department's collections in the excellent space they are moving into.

The Department of Geology fossil collections are moving into an excellent new home at the Illinois Natural History Survey (INHS)! Paleontologist and INHS scientist Dr. **Sam Heads** has spearheaded the effort to save the collections and get them proper care- after ten years of storage in sub-par conditions. They moved out of NHB before the big renovation, went to an off-campus warehouse, were moved to a second warehouse, and were eventually moved into INHS space. Sam and his assistant **Jared Thomas** have worked to begin restoring the collections, and are preparing to move them into the Prairie Research Institute's Center for Paleontology. Sam is director of this center, which is located in clean, well-lighted, climate-controlled space in the Forbes Natural History Building at

the south end of campus. As many of you know, the department has important specimens from the collections of A.H. Worthen, T. E. Savage, Harold Wanless, and others. Sam has secured upgraded cabinets for the most important specimens. Jared is working to improve the condition of the specimens, after moving them out of the warehouse. Ultimately, the Center for Paleontology will include an electronic specimen database, high quality displays, and



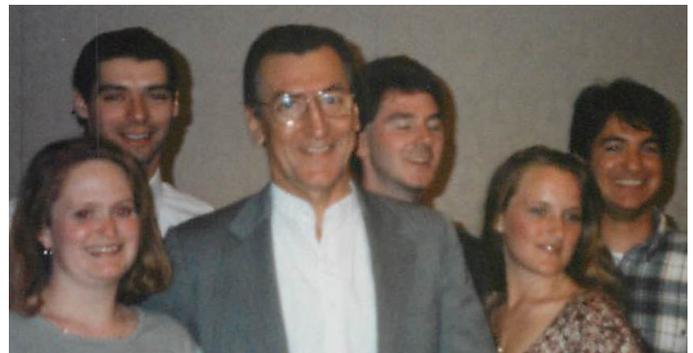
*Holotype of *Abrotocrinus unicus* (crinoid - "sea lily") from the A.H. Worthen collection.*

space for visitors. Dr. **Dennis Kolata** (PhD, '73; long-time ISGS geologist) explained the importance of this initiative: "Reorganization of the collections and development of the facilities are still underway, but it is obvious that the new Center for Paleontology is on track to be a major asset for students and faculty for years to come." The department has been very fortunate that Sam and Jared are able to pursue this work, and we have tapped alumni donations to provide a significant portion of Jared's salary. Thanks to you all for making these efforts possible!

Remembering professor Alberto S. Nieto

Professor emeritus Alberto S. Nieto, 83, passed away Aug. 30, 2021 at his home in Champaign. Alberto taught engineering geology in the department for 25 years and retired in 1999. Born in Tacna, Peru, he left South America to earn his MS at Washington University in St. Louis. He then came to Illinois for his PhD in geology. When he completed his degree in 1974, he stayed to teach in both geology and civil engineering. His work ranged widely across engineering geology and geotechnical engineering and included slope stability, mechanical properties of soil and rock, and coal mine-related land subsidence. **Todd Cole** (BS, '93 geology; PhD, '08 civil engineering), a former graduate student under professor Nieto, remembered, "He was my advisor and mentor. He was also a very good friend. He had a very charming and disarming personality; this would aid in gaining access to a quarry or outcrop during field trips... There are many words to describe Alberto, but dull would never be one." Professor Emeritus **Steve Marshak** recalled his former

colleague: "Alberto was a kind and thoughtful man who respected integrity, candor, and modesty. I always enjoyed chatting with him about geology, Peru, and many other topics. His many positive contributions to the department—as a geoscientist and as a colleague—will be remembered fondly."



Professor Nieto with students at the 1995 spring geology banquet.

Around the department



Professor Alison Anders and her group collected cores from Glacial Lake Douglas near Camargo, Illinois, in 2021.

Alison Anders and her research group worked hard to stay healthy, connected, and productive during this pandemic year. They published and presented on a range of topics including spatial patterns of glacial erosion, evolution of Midwestern river networks following glaciation, and carbon storage in sediments. They welcomed a new MS student, Andy Margason, and a new undergrad, Brian D'Souza to the group. They are excited that field work is ramping up again and look forward to collecting sediment cores and tracing sediment movement in fields, channels, and floodplains this year.

Jenny Druhan's research team is delighted to welcome post-doc Barbara Esteves and PhD student Jinyu Wang. This summer was largely occupied by installation of a new "RiverLab" facility, the first of its kind in the U.S., which places an aqueous geochemistry laboratory in the field to function semi-autonomously and relay data in real time from the Sangamon River. PhD student Jon Golla had a successful summer at the Institut de Physique du Globe in Paris where he learned to measure stable silicon isotope ratios, and post-doc Hasan Khan accepted a position as an assistant professor in petroleum engineering at King Fahd University in Saudi Arabia.

Bruce Fouke continues to serve as director of the Illinois Carver Biotechnology Center (CBC), which has just completed a \$2.7M investment in constructing a microscopy-to-omics research facility that several geology faculty and students are utilizing. The CBC also played an important role in the Illinois SHIELD COVID-19 response and monitoring program. Multiple publications from the Fouke Lab Group on coral reef, hot spring, Roman aqueduct, oil field, and kidney stone geobiology have included three journal covers and reporting in *Scientific American* and *Discovery Magazine*. Bruce's online Coursera Emergence of Life course continues to grow, now having reached more than 400,000 students and lifelong learners from 154 countries around the world.

Trish Gregg reports that, in spite of COVID-19 obstacles, research progress has been great with several published articles and attendance at online meetings and workshops. Gregg group members are hoping travel opens up in the coming year because Trish has been awarded a new NSF grant to investigate Sierra Negra Volcano in the Galapagos and they have postponed trips to Hawaii, Alaska, and New Zealand. Trish is helping with media and outreach for the DSV Alvin submarine upgrade and was featured in the Emmy-nominated PBS *Changing Seas* episode, "Alvin: Pioneer of the Deep." Finally, the Gregg Lab worked hard on the diversity, equity, and inclusion and graduate climate committees to develop best practices to support our amazing students.

After the pandemic year, things are (mostly, thankfully) back to normal in **Willy Guenther's** research group. PhD students Olivia Thurston and Jenna Kaempfer submitted multiple manuscripts. Olivia graduated in May and is off to a postdoc position at Indiana University. Willy and lab manager Linda Angeloni have brought the lab back to life after pandemic-related shutdowns with a new and vastly improved software interface for the noble gas line. Willy and Olivia attended (fully vaccinated) and contributed to the Grand Canyon Field Forum in April, a conference and research trip carried out via rafts on the Colorado River in the canyon.

Since switching to emeritus status, **Steve Marshak** remains involved in several geological endeavors. His final PhD student graduated, but he remains a member of several other PhD committees. He has also been collaborating with other faculty and students on research topics, has taught short courses, and finished writing a new textbook (on natural disasters). Steve enjoyed participating in a COVID-delayed GSA field forum that involved a raft trip down the Grand Canyon to study the Great Unconformity.

Jonathan Tomkin taught his classes both in-person and online this year. He is very proud of the students who came to class throughout the semester, very impressed by the U of I coronavirus test that kept the university safe, and very grateful to the global researchers who created the astounding vaccines.

While the pandemic slowed down field and lab research activities for **Wendy Yang** and her research group this past year, the publication pipeline kept flowing with nine peer-reviewed articles published in major journals. Yang led a Department of Energy Bioenergy Research Center working group on understanding and optimizing plant-microbe interactions for sustainable bioenergy crops and landscapes. Wendy served on many committees from department to campus levels, including the Provost's Academic Affairs Task Force for COVID-19 contingency planning, and completed a three-year term on the Office of the Provost's Teaching Advancement Board.

Alumni News

1950s

John Shelton, (MS, '51; PhD, '53) and his wife Doris “have made major changes in our lifestyle, from homeowners in Tulsa to occupants in an independent-living facility in The Woodlands- in a forest about 30 miles north of the heart of Houston.” The Sheltons enjoy being near several family members in the Houston area. John recently concluded over 18 years of volunteer work developing and curating AAPG’s digital products.

1960s

John Hawley, (PhD, '62) wrote to the department in February: “At 88.4, I continue to do as much research as I can manage in the southern New Mexico-West Texas-Chihuahua region; but continued [health issues] have prevented any type of active field work. That said, ongoing stimuli from colleagues keeps the ancient mind from total decay.”

1970s

Jim Granath, (BS, '71; MS, '73) continues to live in Colorado and consult on oil and gas projects, including a recent enigmatic and structurally complex find that has him working with professor Tom Johnson and a student to use strontium isotopes to unravel the stratigraphy.

1980s

Bryant Korn, (BS, '81) retired after 40 years working at Texaco/Chevron in oil and gas exploration. His work allowed him to travel the world, highlighted by eight years in Australia and six years in Indonesia. During Bryant’s final eight years he was the corporate global exploration representative for Eurasia, the Middle East, and the Mediterranean/North Africa.

David Bieler, (PhD, '83) will be retiring next May as professor of geology and Wortham Professor of Engineering and the Liberal Arts at Centenary College of Louisiana.

Jefferson Gilkeson, (BS, '85) obtained his MBA from UIUC in 1988. Since 2005, he has moved in the direction of information technology management and auditing for federal government agencies. He has worked for the EPA and NASA, and is currently Director of IT Audits for the Department of the Interior.

1990s

Laura Keefer, (BS, '90) has worked at the Illinois State Water Survey for 35 years and is currently the Illinois state hydrologist. She earned her MS in fluvial geomorphology, working with Bruce Rhoads in geography here at UIUC. Much of her works has been sediment-related, but she has ably covered a vast array of different tasks in her years at the ISWS.

Rob Lander, (PhD, '91) and **Linda Bonnell, (PhD, '90)** continue to run their consulting firm, Geocosm, LLC out of Durango, Colorado. Rob and Linda presented a short course for department students in 2017, and this led ISGS scientist Jared Freiburg to use their suite of software for his work on carbon dioxide sequestration in sandstones of the Illinois basin. Recently Rob and Linda generously donated a software license for continued training of students by Jared and others.

2000s

James Cokinos, (BS, '02) has joined Xcalibur Geophysics, a mining/oil and gas service company headquartered in Spain. He was also recently added to the UIUC geology alumni board — he leads the communications subgroup and is our super-speedy LinkedIn administrator.

Jeremy Bellucci, (BS, '06) is still in Stockholm, Sweden. After graduating from Illinois, he earned his PhD from University of Maryland. His work with isotope geochemistry, moon rocks, and meteorites led him to the Swedish Museum of Natural History and he has built quite an impressive publication record. Most recently, Jeremy has moved into the data science world, working for Mentimeter in Stockholm.

2010s

Juan Contreras, (BS, '10) has been working for Newmont Mining in Winnemucca, Nevada and Cripple Creek, Colorado since 2011, and most recently is working as senior financial analyst out of Cripple Creek.

Norbert Gajos, (BS, '11; MS, '14) is a scientist at Pacific Northwest National Lab (six years), Richland, Washington. He specializes in researching and analyzing radioactive isotopes in environmental samples via mass spectrometry. In his free time, he enjoys hiking, fishing, climbing, and mushrooming in the Pacific Northwest.

Drew Reinhard, (BS, '14) is now staff scientist at Los Alamos National Laboratory.

Conor Neal, (MS, '14) recently transferred to EPA Region 10 in Seattle, Washington, where he works as a remedial project manager in the Superfund Program. Conor married his wife, Natalie, in a small ceremony on December 19, 2020, in Seattle.

Rachel Oien, (MS, '16) completed her PhD at the University of Aberdeen this summer. Rachel will be a lecturer at Aberdeen for the fall 2021 semester, and then she will begin a postdoc at the University of Buffalo, New York, working with the ISMIP6 crew on the Greenland Ice Sheet.

Jessica Hinton, (MS, '16) is now working as a geologist for the Army Corps of Engineers in Nashville, Tennessee. She works on foundation remediation programs for mega-construction projects, as well as erosion mitigation of streambanks along the Tennessee and Cumberland River

systems. Jessica is also developing web-based applications for displaying and analyzing 3D models of Corps construction projects. Prior to joining the Corps, Jessica earned a second MS degree in engineering and technology management from the Colorado School of Mines, with a focus in project management.

Isaac Foli, (BS, '17) Isaac's position at Sandia National Laboratories involves supporting the DOE Waste Isolation

Pilot Plant (WIPP), America's only licensed and operating deep geologic repository for transuranic radioactive waste. **Eric Prokocki, (PhD, '17)** took up a position as assistant professor of marine and environmental geology at Florida Atlantic University, in August 2020.

Dana Drinkall, (BS, '19) is pursuing a master's degree in volcanic/slope stability hazards at Idaho State.

Alumni obituaries

Ann Hartshorn Johannes (BS, '48) passed away July 8, 2021. Ann worked for Shell Oil Company in Lake Charles, Louisiana, where she and her husband Erwin met. Erwin and Ann moved to Covington, Indiana, in 1956. Ann later worked as the librarian at Covington High School. Erwin and Ann were U.S. and world travelers, enjoying many cross-country skiing, hiking, and biking trips.

Stuart Grossman (BS, '52; MS, '53) passed away August 10, 2020, at the age of 92. After service in the United States Army, Stuart obtained his PhD as a micro paleontologist at the University of Kansas and then furthered his education at the University of Texas Marine Institute at Port Aransas. He joined Humble Oil's research center (now ExxonMobil) in 1960 where he enjoyed a very successful career with various departments, including its Gulf of Mexico offshore exploration activities, for more than 33 years. Stuart and his wife Harriet spent more than 55 happy years together.

Scott H. Phillips (MS, '54) passed away January 2, 2021. After graduation, Scott's professional career took him down several pathways, including working for Chevron, Fields Energy Resources, Inc., and Memorial Group Bank. He was also a leader in many community and professional organizations. He also served as chairman of the board of directors of the American Petroleum Refiners Association (1978-1980), chairman of the Houston American Petroleum Institute (1976-1978), and he was awarded the Distinguished Alumni Award from the University of Kansas in 1983. Scott and his wife Dorothy celebrated 63 years of marriage together.

Margaret J. (Lucas) Rogers (MS, '55; PhD, '57) passed away October 11, 2020. She had lived in Dursley, Gloucestershire, England, as recently as 2007. She completed her dissertation under Harold Wanless, and published, in the *SEPM Journal of Paleontology* (1965), "A Revision of the Species of Nonmarine Bivalvia from the Upper Carboniferous of Eastern North America" that was cited several times in recent years.

Donald R. Williams (MS, '62) passed away September 12, 2020, at the age of 91. Donald was a rancher, author, and retired geologist. A native Nebraskan, Don spent the summers there, where he could pursue his passions of fishing, fossil hunting, and arrow-head hunting. After graduating from Illinois, he was hired by Monsanto, and later he worked for energy company Kerr-McGee. Over the years, he worked and lived in Midlands, Texas; Oklahoma City, Oklahoma; and Canada. Donald and his beloved wife, Elaine, enjoyed 69 years of marriage together.

Albert L. Guber (PhD, '62) passed away January 16, 2021, at the age of 85. Al was born in Heidelberg, Pennsylvania, and received a BS from the University of Pittsburg in 1958. He served on the faculty of the Department of Geosciences at Penn State for 34 years and retired in 1996 as professor emeritus of geology. He was the recipient of Penn State's highest teaching awards, but was best known as the developer and director of Penn State's Marine Sciences Program off-campus course at Wallops Island, Virginia. Al was an accomplished amateur wine maker, a Master gardener, and an avid sports fan alongside his late wife of 52 years, Nancy Marie.

Christopher T. Ledvina (BS, '74) passed away on December 11, 2020. Chris completed a senior thesis on Ordovician stratigraphy in southern Nevada under Ralph Langenheim. While working as an underground miner with the Old Ben Coal Company in southern Illinois in 1978, Chris was caught in a rock fall that left him paralyzed from the waist down. But this accident did not quench his passion for coal mining; in 1987 he teamed with a partner and opened a mine near Oakland, Illinois. He completed an MS degree in mining geology at Northeastern Illinois University (Chicago) in 1988 and a PhD in civil engineering at Northwestern in 1991, and then taught geology at Northeastern Illinois University for a number of years. His greatest accomplishment, however, was opening the National Coal Museum at the former Old Ben Mine 25 near West Frankfort, Illinois. Between 1996 and 2000 approximately 70,000 visitors toured the workings 600 feet below the surface (occasionally led by Chris in his wheelchair); one very memorable tour included a group from the department.

Roy H. Spitzer (BS, '71; MS, '77) passed away February 3, 2021. After completing his BS degree, he went to work in Billings, Montana, where he met Mike, his best friend of 50 years. He returned to the U of I and earned a MS degree in Engineering Geology in 1977. Roy thought he was lucky to have "the best job ever" as a consulting engineering geologist, working for several firms in Billings, Denver, and Longmont. He was very active and pursued many interests including rocks, music, horses, rodeo, sailing, hunting, fishing, and basketball (which he played until he was nearly 70). Roy married his wife Debbie in 1991 and they raised three great kids together.

Degrees and Student Awards

Estwing Award

Garret Frank

Wallace Field Camp Awards to Women Geology Students

Brooke Dykstra
Lauren Gardiner

R. James Kirkpatrick Award for Outstanding Graduate Research in Geology

Olivia Thurston

Harriet Wallace Outstanding Woman Graduate Student Award

D. Allie Wyman

Harriet Wallace Outstanding Woman Undergraduate Student Award

Brooke Dykstra

Harriet Wallace Geology Graduate Student Service Award

Nooreen Meghani

Harriet Wallace Geology Undergraduate Student Service Award

Brooke Dykstra

Outstanding Graduate Teaching Assistant Award

Spring 2020: Karoline Bruckel
Fall 2020: Jack Albright

Outstanding Senior Award

Ryan Oeste
Jinyu Wang

Morris Leighton Research Grants

Mahta Ansari
Karoline Bruckel
Christopher Campe

Jackson Geology Graduate Student Research Awards

Mahta Ansari
Christopher Campe
Zebin Cao
Mingfei Chen
Shaelynn Kaufman
Nicole Murray
Diandian Peng
Alexandra Sanchez
Hannah Veldhuizen
Yaoyi Wang

Midwest Alumni Undergraduate Research Grants

Ryan Oeste
Matthew Stiegman

DEGREES DEFERRED IN 2020-2021

BACHELOR OF SCIENCE DEGREES

August 2020

Jesse Chavez
Cameron DeSilva
Claire Williams

December 2020

Joseph Soto
Kyle Spindler

May 2021

David Drabeck
Nicholas Karahalios
William Lenihan
Alexandra Mandybur
Matthias Schurz
Jinyu Wang

DOCTORAL DEGREES

August 2020

Michael DeLucia, "Insight from Thermochronology, Magnetotellurics, and Structural Analysis into the Tectonic Evolution of the Ozark Dome-Illinois Basin Region, Midcontinent USA"

Naomi Wasserman, "Exploring Te, Sb, and Se Stable Isotopes as Indicators of Elemental Mobility"

Yan Zhan, "Modeling Volcanic Unrest by Data Assimilation"

December 2020

Jingtao Lai, "Constraining Tectonic and Climatic Controls on Glacial/Postglacial Landscape Evolution Using Numerical Modeling"

May 2021

Ching Chang, "Understanding Topographic Evolution of Continents with Landscape Evolution Simulations: The Case of North America"

Julia Cisneros, "The Morphology of Alluvial Sand Dunes"

Olivia Thurston, "Complexities of (UTh)/He Zircon Thermochronology through the Lens of Zonation and Deep Time"

D. Allie Wyman, "Exploring Last Millennium Tropical Pacific Hydrology: Insights from Climate Models, Proxy Data, and Proxy System Modeling"

Join us for virtual geology alumni events!

The department has conducted two virtual geology alumni gatherings on Zoom, and plans to do a few more in the coming months. We advertise them via email, so if you have not received invitations, please contact the department at geology@illinois.edu to update your email address.

Department directory and list of excellent teachers

Faculty (Academic Year 20-21)

Stephen Altaner (associate professor and associate head)
Alison Anders (associate professor)
Jim Best (Jack and Richard Threet professor)
Jessica Conroy (associate professor)
Jennifer Druhan (assistant professor)
Bruce Fouke (professor)
Patricia Gregg (associate professor)
William Guenther (assistant professor)
Tom Johnson (professor and head)
Lijun Liu (associate professor)
Craig Lundstrom (professor)
Gary Parker (W. Hilton Johnson professor)
Cristian Proistosescu (assistant professor)
Gillen Wood (professor)
Wendy Yang (associate professor)

Specialized faculty

Max Christie (lecturer)
Ann Long (teaching lab specialist)
J. Cory Pettijohn (teaching assistant professor)

Rob Sanford (research associate professor)
Michael Stewart (clinical associate professor)
Jonathan Tomkin (research associate professor and associate director, School of Earth, Society & Environment)

Affiliate faculty

Stanley Ambrose (professor, anthropology)
Leonardo Chamorro (associate professor, mechanical science and engineering)
Marcelo Garcia (Seiss professor, civil and environmental engineering)
Scott Olsen (associate professor, civil and environmental engineering)
Surangi Punyasena (associate professor, plant biology)
Bruce Rhoads (professor, geography)

Adjunct faculty

Ercan Alp
Kurtis Burmeister
Todd Cole
Brandon Curry

David Grimley
Sam Heads
Dennis Kolata
Hannes E. Leetaru
Andrew Phillips
George Roadcap
William Shilts
Wolfgang Sturhahn
Scott Wilkerson

Emeritus faculty

Thomas F. Anderson
Jay Bass
Craig Bethke
Daniel B. Blake
Chu-Yung Chen
Wang-Ping Chen
Donald L. Graf
Feng Sheng Hu
Sue Kieffer
Steve Marshak
Albert Nieto
Xiaodong Song

Department support staff

Lana Holben (assistant to head)

Teachers listed as excellent

These instructors were ranked highly based on student course evaluations.

Fall 2020

Jack Albright – TA 107
Steve Altaner – 118
* Kalini Bruckel – TA 432
* Max Christie – 143, 208
* Jess Conroy – 484
Jenny Druhan – 470
Trish Gregg – 350
* Jenna Kaempfer – TA 411
Lijun Liu – 593
Cory Pettijohn – 117
* Michael Stewart – 432, 460

Spring 2021

* Jack Albright – TA 333
Alison Anders – 593
Jim Best – 440
Kalini Bruckel – TA 107
Max Christie – 440
* Trish Gregg – 450
Rob Sanford – 591
* Allie Wyman – TA 208
Hongyu Xiao – TA 107

Summer 2021

Cory Pettijohn – 117
* Michael Stewart – 417

T.A. - Teaching assistant

**The instructor ratings were outstanding*

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(July 2020 - June 2021)

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Ten year retrospective, continued

Another extremely positive development during the years of NHB renovation was reconstitution of the department's alumni advisory board in 2016. The previous alumni board had been in hiatus since 2007, after completing a tremendously successful fund-raising campaign. The new group of about 20 alumni meets twice each year to support the department through fund-raising and providing advice on department strategy.

In 2017, after three years of carefully monitoring NHB design and construction (and at times correcting it), the department moved into its beautiful new, and yet historic, spaces. The official re-dedication of NHB in November welcomed over 150 geology alumni and friends. Throughout the NHB project, a large number of geology alumni and friends donated to the NHB fund-raising campaign—a critical component of the project—and ultimately raised close to a million dollars.

With the three departments of SESE together in NHB, collaborations between the departments have grown, including joint efforts to establish “3+2” degree programs with universities in China, development of three



The Threet Gateway, including new rock and mineral display cases on the east side of the third floor. Most geology faculty offices are located here, forming “Geology Row.”

synergistic online MS degree programs (see page 5), and an annual SESE Research Symposium.

The COVID-19 pandemic has been the final, dramatic chapter of this ten-year period. Geology students, staff, and faculty adjusted, innovated, struggled, and persisted for two and a half semesters of pandemic-impacted education. The department's high level of online education expertise prior to the pandemic positioned it well to meet various challenges, including the challenge of teaching field methods on Zoom!

With an extraordinary ten-year period of dramatic challenges and development of both physical and human capital, the department is ready to embark on new initiatives and reach new levels of excellence!



The ground floor west hallway in 2010. Aluminum jacks had been installed as an extra safety measure to ensure the safety of students passing through to access the big lecture hall. Although the floors in the 1908 wing had survived 102 years without incident, they were structurally deficient and were replaced during the renovation.



DEPARTMENT OF GEOLOGY

SCHOOL OF EARTH, SOCIETY & ENVIRONMENT

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2020-2021 Colloquium speakers

- **Sep. 3, 2020:** “Adventures in Undergraduate Research,” Max Christie, UIUC
- **Sep. 10:** “Hydrological and deformational processes governing transient seasonal slip in large, slow-moving landslides,” Noah Finnegan, UC Santa Cruz
- **Sep. 17:** “Microbiological and metagenomic insights into the biogeochemical weathering of Fe(II)-minerals by chemolithotrophic bacteria,” Stephanie Napieralski, University of Wisconsin
- **Sep. 24:** “The Inevitable Evolution of Non-dendritic Drainage Networks Toward Dendricity: How do they Do it?,” Gary Parker, UIUC
- **Oct. 1:** “Seismic imaging of the Aleutian-Alaska subduction zone with details,” Xiaotao Yang, Purdue
- **Oct. 8:** “On the Reliability of the EL NIÑO-Southern Oscillation Over the Last Millennium,” Sylvia Dee, Rice University
- **Oct. 15:** “Enhanced Rock Weathering: Basalt Amendment for Carbon Dioxide Reduction in Agriculture,” Iisa Kantola, UIUC, Energy Biosciences Institute
- **Oct. 21:** “Extinction at the end-Cretaceous set the origin of modern Neotropical rainforests,” Carlos Jaramillo, Smithsonian Tropical Research Institute, Phillips Lecture (noon)
- **Oct. 22:** Graduate Student Lightning Talks
- **Nov. 4:** “From soil formation to ecosystem nutrition: what can we learn about Critical Zone processes from metal stable isotope in large rivers?,” Julien Bouchez, Institut de Physique du Globe de Paris
- **Nov. 12:** “Can we decode postglacial landscapes using modern ice-sheet beds?,” Nick Holschuh, Amherst College
- **Nov. 19:** “Looking into the subsurface: A geophysical investigation of a unique set of ‘spotted’ hypersaline lakes in British Columbia,” Canada Mitchell Barklage, ISGS
- **Dec. 2:** “Supervolcanoes and their deposits: insights into the dynamics of large magma reservoirs,” Olivier Bachmann, ETH, Zurich
- **Jan. 28, 2021:** Diversity, Equity, Inclusion Committee Report and Discussion
- **Feb. 4:** “P/Ca in carbonates as a proxy for alkalinity and phosphate levels on early Earth,” Miquela Ingalls, Penn State
- **Feb. 11:** “Rocks for Jocks or Geology for Geniuses?” Jonathan Tomkin, UIUC
- **Feb. 18:** “Lightning Talks on Teaching and Learning in Fall 2020”
- **Feb. 25:** “How do shallow water carbonates record changes in global sea level and carbon cycling?” Adam Maloof, Princeton
- **Mar. 4:** Film Screening of “Picture a Scientist,” Host: Diversity, Equity and Inclusion Committee of the Geology Department
- **Mar. 11:** “Earthquakes, Extruding Crust, and Transient Motion: Using Geodesy to Unravel the Tectonics of the Alaska Convergent Margin,” Julie Elliott, Purdue
- **Mar. 18:** “Environmental Cleanups in Soda Springs, ID and other stories from an early career geologist,” Conor Neal, Environmental Protection Agency
- **Mar. 25:** “The Extraordinary Eruptive and Magmatic Complexities of the Huckleberry Ridge Tuff, Yellowstone,” Colin Wilson, Victoria University, Wellington NZ
- **April 8:** “Molecular Modeling for Teaching and Research: Especially Isotope Fractionation,” Jason Boettger, University of Texas at El Paso
- **April 15:** Grad Student Lighting Talks
- **April 22:** “Recent hazards cascades in high mountains – examples from North America and High Mountain Asia,” Dan Shugar, Univ. of Calgary
- **April 29:** LAS Dean’s Distinguished Lecture, “Slavery, Science, and the Eugenic Impulse: Re-Examining Charles B. Davenport’s Race-Crossing Studies,” Rana Hogarth, UIUC, Department of History
- **May 6:** “East Asian subduction dynamics and lithosphere evolution since the Jurassic,” Lijun Liu, UIUC