

EARTH AND ATMOSPHERIC SCIENCES

EAS

newsletter

SPRING 2020



NOTE FROM THE CHAIR



To say that there have been changes in Earth and Atmospheric Sciences since our last newsletter would be an understatement.

I write this on March 23, as the coronavirus pandemic is gaining ground and producing changes in how Indiana University operates on almost an hourly basis. Classes have been moved online through the summer if not longer, graduation has been indefinitely

postponed, and the governor has issued a stay-at-home policy for the state. Even our capstone Field Geology in Montana must be taught online this year. We will see where these events lead in our next newsletter.

Meanwhile, a lot of other changes have happened in EAS, many of them quite exciting. The Geological Sciences Building is undergoing a complete renovation. Earlier in 2019, the Indiana Geological and Water Survey moved temporarily to another building while their wing was renovated and in January we moved into their space while work is done on the rest of the building. In addition to a complete makeover, the building will be completely replumbed and rewired. If the IGWS space is an indicator, the building will be a much better place to work.

Several faculty members retired since our last newsletter: Jim Brophy, Ed Ripley, David Bish, Bob Wintsch, and Gary Pavlis. They have made tremendous contributions to the department, both intellectually and as people, and they are greatly missed. Jim Brophy served as department chair until he retired at the end of December. Special thanks to Jim for guiding the department through the last four years.

Over that same time, we recruited several new faculty members: Travis O'Brien, Ben Kravitz, Shelby Rader, Jess Miller-Camp, and, just a few days ago, Andrea Stevens-Goddard. Andrea, who is a basin analyst, will be the inaugural Lee J. Suttner Professor.

We were very sad to learn of the passing of emeritus professor Bob Dodd. Bob was a paleoecologist and pioneer in applying geochemical techniques to the reconstruction of ancient environments. He grew up in Bloomington and attended IU before getting a PhD at CalTech in 1961. He returned to IU as faculty in 1965 after two years at Texaco. Bob was an active emeritus since his retirement in 1997.

The Indiana Geological Field Station in Montana celebrated its 70th Anniversary in 2019. Over 150 alums converged on Deiss Hall, as the Quonset hut is now known, to celebrate with directors Jim Handschy and Bruce Douglas. We look forward to 70 more years of the best geological field school in the country.

Finally, Claudia Johnson and Jim Handschy were both elected Fellows of the Geological Society of America at the fall 2019 meeting. Congratulations on this well-deserved recognition.

With all of this, it has been hard to keep up since I started as chair in January, but I look forward to an exciting four years to come.

David Polly
Bloomington, Indiana
April 6, 2020



NEWSLETTER of the
DEPARTMENT OF EARTH AND ATMOSPHERIC SCIENCES

FACULTY

Simon Brassell Professor
Bruce Douglas Senior Lecturer
Doug Edmonds Assistant Professor
Erika Elswick Senior Lecturer
Michael Hamburger Professor
Jim Handschy Professor of Practice
Ed Herrmann Associate Research Scientist
Claudia Johnson Professor
Kaj Johnson Associate Professor
Chanh Kieu Assistant Professor
Cody Kirkpatrick Lecturer
Ben Kravitz Assistant Professor
Jess Miller-Camp Assistant Research Scientist
Jackson Njau Assistant Professor
Travis O'Brien Assistant Professor
David Polly Professor
Shelby Rader Assistant Research Scientist
Peter Sauer Assistant Scientist
Juergen Schieber Professor
Arndt Schimmelmann Senior Scientist
Paul Staten Assistant Professor
Brian Yanites Assistant Professor
Chen Zhu Professor

Chair: David Polly

<https://earth.indiana.edu/>

College of **Arts + Sciences**

Executive Dean: Rick Van Kooten

Executive Director of Advancement: Travis Paulin

Director of Alumni Relations: Vanessa Cloe

<https://college.indiana.edu/>

STAFF

Ted Boardman IT Manager
Ruth Droppo Graphic and Web Design Specialist
Dianne Dupree Administrative Secretary, Chair's Assistant
Nora Ferstead Purchasing and Travel Representative
Carol Glaze Fiscal Officer
Teeka Eleese Gray Undergraduate Advisor
John Hettle Facilities Administrator
Jian Liu EAS Librarian
Amanda McKinney Program and Financial Coordinator
Bryan Roberts Graduate Services Coordinator
Terry Stigall Geophysics Technician
Mark Toensing IUGFS Resident Manager
Ben Underwood Technical Manager, SIRF Lab
John Walker IT Technical Specialist

EMERITI FACULTY

Abhijit Basu, David Bish, Jim Brophy, David Dilcher, Enrique Merino, Gary Pavlis, Lisa Pratt, Ed Ripley, Lee Suttner, Bob Wintsch



renovations



WE HAVE A TEMPORARY HOME

The move into Phase 1 of the renovation was largely a routine process. There were certainly errors made along the way. It has always been my experience that Earth and Atmospheric Sciences personnel, as well as those working with us from the College of Arts and Sciences were flexible, adaptable, and willing to persist through frustrations and complications. Everyone worked together to find solutions. Temporary occupancy is of course never ideal but I think it is worth noting that we were once told it was not possible to do what we have now accomplished. I would say congratulations are in order to everyone now residing in Phase 1.



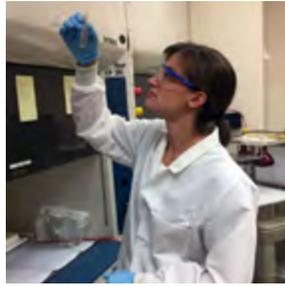
Those involved in coordinating the moves are appreciative of everyone's tolerance and patience. However, we are not finished, and efforts are still underway to complete things in all areas.

- John Hettle, Facilities Administrator



SHELBY RADER

Dr. Shelby Rader is a trace metal geochemist who originally hails from Irvine, KY. Shelby attended the Gatton Academy and ultimately received her bachelor's degree in geology and chemistry from WKU before obtaining her doctorate in geochemistry from the University of Arizona. Afterwards, Shelby completed a postdoctoral researcher position at the University of Massachusetts Lowell before moving to Indiana University. Through her research, Shelby is able to observe how large-scale geologic processes, both from the past and currently, alter the geochemistry of our environment, which ultimately impacts plant and animal life, our resources, and us.



TRAVIS O'BRIEN



Travis O'Brien was previously a career scientist at Lawrence Berkeley Lab and a long-time inhabitant of the California Bay Area. His research uses climate models, long-term observations, and statistical analysis to understand what controls year-to-year variations in weather phenomena and the impacts of climate change. He and his husband are enthusiastic new Hoosiers and have been thoroughly enjoying the wonderful community, beautiful scenery, and variable weather in Bloomington.

new faces

BEN KRAVITZ

Ben Kravitz arrived here just over a year ago, having previously been a staff scientist at Pacific Northwest National Laboratory in Richland, Washington. Having grown up in Indiana and spent the better part of his life in this state, he happily says that it's great to be back home.



Ben's research interests focus on climate modeling of large perturbations to the climate system: basically, when you push the climate system, how does it respond? His main area of research is in climate engineering, or deliberate, temporary modification of the climate system to counteract some of the effects of climate change. Ben puts various climate engineering scenarios into climate models to try to understand what might happen, all in service of quantifying the benefits and risks of modifying the climate. His other areas of interest include climate system teleconnections (how changes in one part of the world can affect totally different parts of the world), aerosols, climate model emulation, and wind energy.

Ben enjoys spending his free time with his wife and his dog. He loves to cook. Ben and his wife are first-time homeowners, so he is discovering everything about that, both good and bad.

CHRISTINA FRIBERG



Christina Friberg is a North American archaeologist and post-doctoral research scholar in EAS. Originally from the New York area, she earned her PhD at the University of California, Santa Barbara before coming to Indiana. Her research focuses on the pre-contact Midwestern US, specifically on issues of sociopolitical complexity, craft production, and the organization of everyday life in Mississippian societies (AD 1050 – 1450). She investigates these research questions through geophysical reconnaissance, targeted excavation, and various analytical methods, compiling multiple lines of evidence on architectural techniques, lithic tool industries, pottery traditions, and site chronologies. Here at IU, she is employing these research questions and methods at Angel Mound State Historic Site in Vanderberg County, Indiana. She is currently calculating the energetic investment involved in building the site's 11 earthen mounds and evaluating its implication for the level of Angel's sociopolitical organization based on volumetric calculations from drone LiDAR data collected and processed by her co-authors: David Massey (PhD candidate, Geography), Ed Herrmann (EAS Research Scientist), and Quinn Lewis (former EAS postdoc). Christina's first book, titled *The Making of Mississippian Tradition*, will be published through The University Press of Florida in fall 2020.

accomplishments



Senior Scientist Arndt Schimmelmann received a Fulbright Scholarship to develop stable isotope food matrix reference materials at the Jozef Stefan Institute in Ljubljana, Slovenia



David Polly was an Edward P. Bass Distinguished Visiting Environmental Scholar at the Yale Institute for Biospheric Studies in New Haven, Connecticut.



Paul Staten received a CLIVAR Early Career Scientist Leadership Award for his contributions to leading community activities to advance science on the role of the ocean in climate variability and predictability.



Chanh Kieu received a Young Investigator Award from the Office of Naval Research, including a four-year research grant.



Chen Zhu was elected Fellow of the Geochemical Society.



Claudia Johnson and Jim Handschy were both elected Fellows of the Geological Society of America.



Juergen Scheiber received the Outstanding Educator Award from the American Association of Petroleum Geologists for his teaching of geological research in the field.



Erika Elswick is completing a term as President of the National Earth Science Honor Society (Sigma Gamma Epsilon), an organization with more than 200 chapters at universities across the country. Erika was the first female president of the group and presided over its 100th anniversary meeting.



Jackson Njau is serving as President of the East African Association of Paleoanthropology and Paleontology, an organization that plays a key role in the study of human origins.

retirements



JIM BROPHY

Jim Brophy is happily retired as of December 31, 2019. He came out of retirement three weeks later to teach Optical Mineralogy which had 20 students enrolled. Teaching this course is hard work, as he has never taught the course before, but he is enjoying being with the students.

Jim is currently developing an on-line version of EAS-G 103 which he hopes will be successful when he hands it off to another faculty member.

Jim and his wife, Evelyn have purchased 3 acres of waterfront property in West Bath, ME, which is approximately 40 miles north of Portland, ME, and are currently building a reproduction early 1800s Greek Revival-style house. The Bophys plan to put their current house on the market in April and permanently move to Maine sometime in mid-July.

When Jim is not working on EAS-G 103 (which is very time consuming), or prepping for and teaching Optical Mineralogy (which is even more time consuming), he is fixing up his current house, getting it ready to put on the market.



Treks in Provence: Geology, History, and Culture in Southern France

Due to concerns for the health and safety of IU students, the “Treks in Provence” class is cancelled for summer 2020. We hope to be able to offer it again in summer 2021.

EXPLORE PROVENCE

In this course, students spend three weeks discovering Provence: integrating aspects of geology, environmental science, language, history, and culture in an exploration of the iconic landscape and culture of Provence. Starting in the city of Aix-en-Provence with its many fountains, they travel throughout the region, staying in a twelfth century chateau and visiting the magnificent markets and famous agriculture and winemaking that inspired “Mediterranean Cuisine.” They view the turquoise blue waters of the Mediterranean from Marseilles, experience the rural culture and Roman sites of the Rhone Valley, hike the mountains of Haute Provence, and wonder at the ammonite fossils and animal tracks in the Provençal Alps.

The combination of high mountains of the Alpes-Maritimes, the sienna-colored Provençal foothills, the dry Mediterranean climate, and the rugged coast of the Côte d’Azur has created one of the world’s most iconic landscapes of Europe. Occupied by Celts, Greeks and Romans, Arabs and Franks, Italians and Germans, visited by millions of tourists, armies, and refugees, the area of Provence is one of the crossroads of Europe. Made famous by the art of Paul Cézanne, Vincent Van Gogh, and Pablo Picasso, the writers Marcel Pagnol and Frédéric Mistral, and now recognized as one of the culinary capitals of the world, Provence offers an ideal site for interdisciplinary education.

This summer course is an exploration of the magnificent landscapes, culture, and history of Provence.

This is an IUB College-administered Program: 3 credits of EAS-E 190 (N&M) The Evolving Earth or FRIT-F 225 (A&H) Foreign Study in France for on-site field course (Summer I).

Days: June 3 – 22, 2020

Faculty Leaders:

Kelly Sax, French and Italian
Michael Hamburger, Earth and Atmospheric Sciences

Program Organization:

Treks in Provence is a three-week, field-based exploration of the landscape and culture of Provence (taught in English) and an introduction to the history, culture, geography and geology of the area.

This course is part of IU’s Bicentennial Grand Expeditions program.

spring 20 colloquia

January 13: First day of classes - no colloquium

Thursday, January 16: Faculty search talk
Time: 2:30-3:30. Location: S201 (Survey room 2022)

January 20: Martin Luther King Day - no colloquium

Tuesday January 21: Faculty search talk
Time: 2:30-3:30. Location: S201 (Survey room 2022)

Monday January 27: Faculty search talk

Wednesday January 29: Faculty search talk
Time: 4:00-5:00. Location: S201 (Survey room 2022)

February 3: Faculty search talk

February 10: Dr. Xuesong ZHANG, Pacific Northwest National Laboratory.
Title: *Coupling Terrestrial and Aquatic Ecosystem Processes to Support Sustainable Watershed Management.*

February 17: P. David Polly, Chair of Earth and Atmospheric Sciences.
Title: *Research of the Dynamic Earth cluster.*

Janet McCabe, Director of IU's Environmental Resilience Institute.
Title: *IU's Environmental Resilience Institute: Recent Developments and New Opportunities.*

February 24: Ben Kravitz, Earth and Atmospheric Sciences.
Title: *Dynamic downscaling modeling of climate in Midwest USA.*

Chen Zhu, Earth and Atmospheric Sciences.
Title: *Futurewater.indiana.edu – a cyberinfrastructure for climate change adaptation research, teaching, and service to the society.*

March 2: Heather Golden, US EPA.
Title: *Wetlandscapes: Gatekeepers of streamflow and water quality across multi-scale watershed.*

March 9: Doug Edmonds, Earth and Atmospheric Sciences.
Title: *The movement of sediment through hillslopes and rivers revealed by drone-based lidar.*

March 16: No colloquium, Spring Break

March 23: THESE TALKS WERE CANCELLED DUE TO COVID-19. Natasha MacBean, IU Department of Geography.
Title: *Modeling Vegetation Change in the 21st Century and Beyond.*

Travis O'Brien, Earth and Atmospheric Sciences.
Title: *Phenomenon-focused Understanding of Extremes in the Present and Future Climates.*

March 30: THIS TALK WAS CANCELLED DUE TO COVID-19. Dr. Tara Smiley, Earth and Atmospheric Sciences.
Title: *Biodiversity in a changing landscape: modern and past perspectives.*

April 6: THIS TALK WAS CANCELLED DUE TO COVID-19. P. David Polly, Earth and Atmospheric Sciences.
Title: *Evolution, environment, and deep time: understanding the links between organisms and environmental change.*

Wednesday, April 15: THIS TALK WAS CANCELLED DUE TO COVID-19. Tudor Lecture in Geophysics.

Thursday, April 16: Reed Maxwell, Ph.D. 2020 Henry Darcy Distinguished Lecturer. This lecture will be held on Zoom (details TBA)

The Henry Darcy Distinguished Lecture Series in Groundwater Science fosters interest and excellence in groundwater science and technology. It was established in 1986 and named in honor of Henry Darcy of France for his 1856 investigations that established the physical basis upon which groundwater hydrogeology has been studied ever since.

Each year, a panel of scientists and engineers invites an outstanding groundwater professional to share his or her work with their peers and students through this lecture series. The Darcy Lecture Series is most often presented at universities and professional associations throughout the world.

<https://www.groundwater.org/lecture/darcy/darcy.html>

April 20: THIS TALK WAS CANCELLED DUE TO COVID-19. Stephan Toby, Earth and Atmospheric Sciences

May 4: No Colloquium, Final Exam Week

Inquiries should be directed to Professor Chen Zhu (chenzhu@indiana.edu)

hello alumni!

(we'd love to hear from you)

Are you an alumnus or alumna of the Department of Earth and Atmospheric Sciences
(formerly the Department of Geological Sciences)?

Would you like to update your contact information?

If so, please visit our online form and send us some stories, news about your
employment or address or just chat.

<https://earth.indiana.edu/forms/share-your-story.html>



VISIT US ON SOCIAL MEDIA

Website: earth.indiana.edu

Twitter: @IU_EAS

Facebook: <https://www.facebook.com/IUEarth>

Indiana University College of Arts + Sciences
2020 Alumni Newsletter of the
Department of Earth and Atmospheric Sciences

This newsletter is published by the
Department of Earth and Atmospheric Sciences
in cooperation with the

College of **Arts + Sciences**

to encourage alumni interest in and support for
Indiana University.



INDIANA UNIVERSITY