

F A L L 2 0 1 5

the Department of Earth & Environmental Sciences Newsletter



2015 Earth & Environmental Sciences Alumni Advisory Board Meeting

Success! This year's EES Alumni Advisory Board meeting was kicked off with a field trip for alums, faculty, and students on Sunday afternoon with pizza at the Airliner Sunday evening. The field trip participants heard about graduate student work being done in the department while visiting the Stone Mill Quarry and Wildcat Den State Park. The trip was a great success and will be run again next year with the annual meeting. Thanks to everyone who participated!

Inside this issue...

Faculty profiles:

Bill Barnhart
Assistant Professor

Mary Kosloski
Lecturer

Where are they now?

Dick Baker
Professor Emeritus

Amy Sullivan
BS 1983, MS 1986

Student and
Researcher
profiles:

**Conodonts,
trilobites, and
zircons...oh my!**

Note from EES Department Executive Officer Tom Foster

The Department has continued to flourish during the past year. Four new faculty members joined us: Edie Haj (hydrogeology), Bill Barnhart (geophysics), Mary Kosloski (paleontology) and Kate Tierney (stratigraphy.) However, some faculty also departed: Adam Ward (hydrogeology) moved to Indiana University while Nancy Budd (paleontology) and You-Kuan Zhang (hydrogeology) retired. Notable awards this year include: Assistant Professor Brad Cramer received a prestigious CAREER grant from NSF to continue his work on precision stratigraphy and Professor Nancy Budd was awarded the SEPM Moore Medal for Excellence in Paleontology. Finally, on the hard-rock side of the department, our new JEOL microprobe became operational this summer and is a truly a state-of-the-art facility.

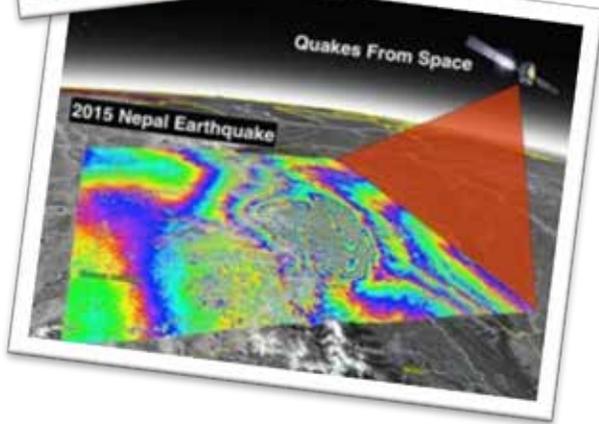


Faculty Profile:

Bill Barnhart, Assistant Professor

My research group's interests largely revolve around active tectonics, earthquakes, and measuring subtle motions of the Earth's surface from space. Our research is guided by a desire to better understand the physics and kinematics of common natural disasters and short-term geological evolution. We currently have projects assessing the large-scale seismotectonics of the Middle East, human-induced earthquakes in the USA, and real-time impacts of catastrophic earthquakes for disaster response.

On the teaching front, I have taken the reigns of the department's Geophysics and Remote Sensing courses. I am also introducing new courses focused on quantitative methods in the geosciences and advanced studies of active tectonics.



Faculty Profile:

Mary Koloski, Lecturer

I am broadly interested in how biotic and abiotic factors interact to influence the evolution of shape. My work integrates paleontological methodology and data (repair scar studies, stable isotope geochemistry, and morphometrics) with ecological methodology (such as predation experiments, mark-recapture data, and observational studies) to determine the forces that both drive and constrain morphological evolution within clades of marine mollusks.

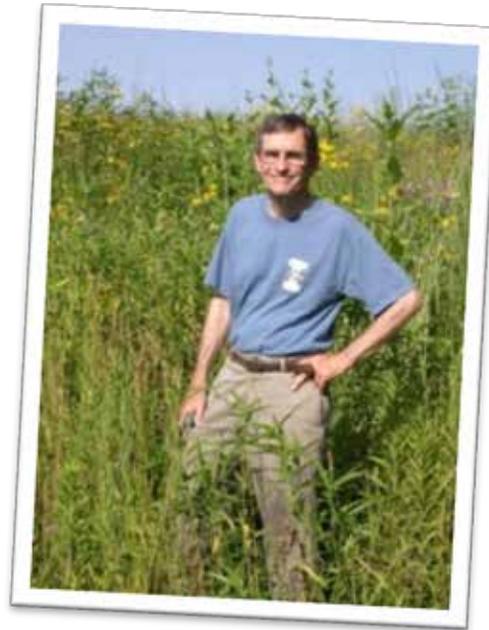
I am currently teaching Marine Ecosystems and Conservation, an upper level course where we examine how organisms adapt and how community structure evolves in different marine habitats. We also discuss conservation measures that can be used to maintain ecosystem function. Additionally, I am team teaching Introduction to Earth Science and Natural Disasters.



Professor Emeritus Profile:

Dick Baker

Professor Emeritus
2000-present
Professor of Geology
1982-2000
Associate Professor of Geology
1975-1981
Assistant Professor of Geology
1970-1974



I continue to work on research projects, and last year co-authored a paper with former student Laura Strickland on the most amazing site of my career—the “Snowmastodon Site” in Colorado. I plan to start research on plant remains from nearby wetlands this winter, and I am helping 2 graduate students from other universities work on Quaternary fossil plants, one from a site in central Iowa and another in Nebraska.

Caring for our 130 acres of prairie, savanna, closed forest, wetlands, and ponds (purchased in 1999 from Bill Furnish) is truly a full-time job in itself. Invasive species threaten to take over, and my aim is to preserve its natural environment. This beautiful setting lies ca. 30 miles east of Iowa City and overlooks the Cedar River.

Undergraduate Student Profile:

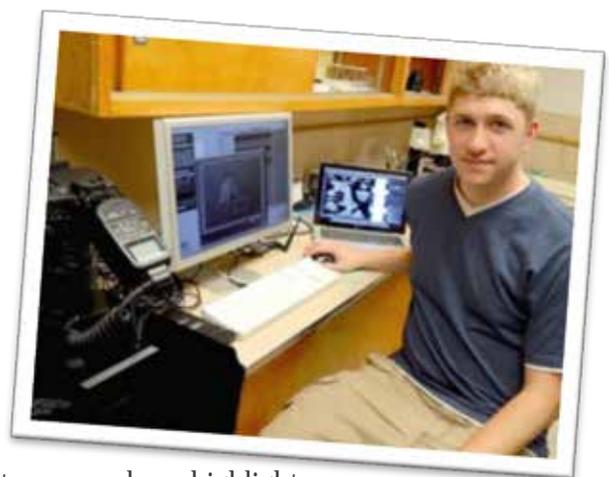
Dean Hester – BS 2016

Advisor: Jonathan Adrain

Research topic: Systematics, affinity, and biostratigraphic utility of the Early Ordovician trilobite *Amblycranium* Ross, from the Great Basin, western US

Experiences I value at UI: I have really enjoyed the faculty at the University of Iowa, they are very approachable, and our Earth and Environmental science program is very interconnected. I have friendships with many of the TAs and graduate students. Field work in Montana was also a highlight of my time at the University. It was a great way to learn and get to know professors.

Future plans: When I graduate at the end of this year, I plan on attending graduate school to receive my Master's and PhD degree in vertebrate paleontology down the road. I hope to work in Academia or to be a paleontologist for a state or museum.



Researcher Profile:

Alyssa Bancroft – Postdoctoral Research Scholar

Advisor: Brad Cramer

Research topic: Currently working on the ACS-PRF Grant – Resolving the Silurian Petroleum System on the Western Margin of the Appalachian Basin

Experiences I value at UI: It is a pleasure to work at an institution that has a rich history of conodont biostratigraphic research. With Brad, I have had the opportunity to set-up a lab to process conodonts for biostratigraphic studies and to continue with my own research. I am also very fortunate to be working with a diverse group of students (PhD, MS, and undergraduates) on various lower Paleozoic chronostratigraphic research.

Future plans: My post-doc at the University of Iowa ends next summer (2016), and I am in the process of applying for other post-doc positions as well as faculty positions.



Graduate Student Profile:

Will Ward – PhD student

Advisor: Bill McClelland

Research topic: Structural and geochronologic evidence for terrane migration along the Canadian Arctic Margin

Experiences I value at UI: The aspect I most value from my time at the University of Iowa is the diversity of field experiences that were available to me that have made me a better geologist. In the past four years I have taken classes within the Earth and Environmental Sciences Department that have allowed me to measure stratigraphy in Virginia, look at massive tuff deposits at Chiricahua National Monument, investigate copper deposits in northern Michigan, tour open pit mines in Minnesota and Colorado, classify reef facies in Texas, examine ancient oceanic crust in the Appalachian Mountains, look for the suture between Precambrian cratons in Wyoming, and explore a Precambrian Caldera in Missouri. In addition, I was given the chance to participate in an international collaborative project, CASE 15 (Curium Arctic Structural Events), to better understand the tectonic history of arctic Alaska. As part of the CASE 15 project an Iowa undergraduate and I spent a month in northern Yukon in Ivvavik National Park to map local geology and collect igneous and detrital zircon samples that will be incorporated into my dissertation.

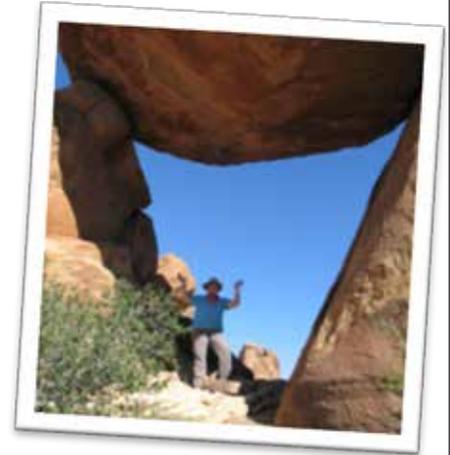
Future plans: I plan to graduate in the spring of 2016. I'm currently looking for a post-doctoral or professorial position in fields related to geochronology, tectonics and structural geology.



Alumni Profile:

Amy Sullivan

Shell
2001-present
Mobil/ExxonMobil
1987-2000
1986 M.S. Geology, UI
1983 B.S. Geology, UI
1978 B.A. Anthropology and the Classics, UI



I just finished a visit to Iowa City for the October EESDAB meeting. I gave a talk on “Modern Oil Exploration” to the undergraduate course: 'Energy and Society: The History and Science of Oil', taught by Brad Cramer and Tyler Priest. I also gave the Departmental Seminar on the same topic with more geology included! The talk focused on the upstream engineering and geoscience technology required to discover and develop global hydrocarbon projects. It focused on offshore deepwater seismic imaging, well drilling and new global plays such as the pre-salt carbonates in the Santos Basin of offshore Brazil and the Gulf of Mexico. The EESDAB Departmental field trip was outstanding and was a great opportunity to meet students in the field. The Advisory Board meeting was very interactive and had specific ideas to invigorate activities in the department. Steve Schutter and I, both living in Houston, will be reaching out to

departmental alumni in our geographic area.

I have been with Shell since 2001 and have 29 years of petroleum industry experience. Prior to Shell, I worked for Mobil for 13 years and then for ExxonMobil. My “technical home” is production geology focusing on turbidite and clastic sedimentology. Currently, I am a Geological Advisor for the Gulf of Mexico. I recently completed a global assignment to improve Shell’s global deepwater project delivery. I am married to Joe Sullivan, who is a University of Iowa graduate with a B.A in religion and a B.S. in philosophy. Joe also has a M.S. in economics from the University of California at Santa Barbara. We love to hike all types of terrain, enjoy bird watching, and keep an extensive garden in semi-tropical Houston. Most of all, we are delighted to be reconnecting to the University and EESDAB!!

Undergraduate Student Profile:

Dan Alberts – BS 2015

Advisor: Emily Finzel

Research topic: Sedimentology and provenance of Middle-Late Pennsylvanian strata from the Appalachian Foreland Basin in Western Maryland

Experiences I value at UI: Learning the intricacies of mineral separation and geochronology with hands-on experience and being able to talk to professors and learn with very close student-teacher relationships.

Future plans: My plans for the future include graduate school and hopefully a job in industry further down the road. I also hope to be able to return to the University of Arizona and pursue an opportunity to work in their Laserchron lab.



News & Upcoming Events

Please join us at the GSA All-Alumni Event on Monday, November 2nd, from 7:00 pm-9:30 pm at the Hilton Baltimore Key Ballroom 7-8. The plan is to meet at the event and then travel to a local establishment for drinks and food. Hope to see you there!

Upcoming presentations at GSA in Baltimore...

- Cenozoic Evolution of Tropical Biota and Environments I, II, III: Three Sessions Honoring the Contributions of Ann F. Budd
- Jonathan Adrain, Professor - Digitized systematics: New paradigms in imaging, data searching, and publication transform paleontological taxonomy
- Terryl Bandy, Undergraduate - Portable X-ray fluorescence (pXRF) as a field tool for high-resolution global biogeochemical studies
- Wentao Cao, PhD student - Partial melting of ultrahigh-pressure eclogites from the North-East Greenland Caledonides
- Brad Cramer, Assistant Professor - What's a few cm's between friends?: Paleobiogeographic diachroneity and the GSSP concept at the Devonian-Carboniferous Boundary
- Brad Cramer, Assistant Professor - IGCP 591 and the legacy of two decades of IGCP projects on our understanding of the Early to Middle Paleozoic world
- Erika Danielsen - The Marcellus subgroup composite type section, in the type area, central New York State
- Emily Finzel, Assistant Professor - Provenance of Jurassic to Miocene strata on the western Alaska Peninsula
- Tom Foster, Professor - Local control of reaction affinity in rocks with porphyroblasts
- Tyler Hedeem, MS student - Provenance response to flat-slab subduction as recorded in detrital zircon signatures from the southern Alaskan forearc basin



AAPG Fall Field Trip

The annual AAPG fall field trip focused on Laramide basins and uplifts in southeastern Wyoming this year. Twelve graduate students of the AAPG student chapter along with faculty members Jane Gilotti and Bill McClelland drove west on I-80 to visit outcrops of the Laramie thrust, Laramie anorthosite complex and overlying Paleozoic rocks, and the Cheyenne belt. Geologic discussions ranged from outcrop details to lithosphere-scale structure. AAPG business was conducted by the campfire at Veedauwoo.

News & Upcoming Events (cont.)

- Dean Hester, Undergraduate - Systematics, Affinity, and Biostratigraphic Utility Of The Early Ordovician Trilobite *Amblycranium* Ross, From The Great Basin, Western USA
- Diar Ibrahim, PhD student - U/Pb detrital zircon geochronology and provenance of the middle Ordovician St. Peter Sandstone and Starved Rock Formation, Iowa
- Kyle Kissock, MS student - Provenance of Early-Middle Pennsylvanian Sandstones of the midcontinent: detrital zircon evidence for the unroofing of Appalachian orogenies in Iowa
- Neo McAdams, PhD student - Recognition of the Late Aeronian, Valgu and Ireviken carbon isotope excursions in the Illinois Basin, midcontinent United States
- Bill McClelland, Professor - Evidence for a Paleozoic strike-slip orogen on the North American Arctic margin
- Zach Miller, Undergraduate - Provenance of Pennsylvanian Aged Strata from the Appalachian Foreland Basin in Eastern Pennsylvania and Western Maryland
- Stephan Oborny, PhD student - Depositional build-and-fill within the Zarah Subgroup (Upper Pennsylvanian, Missourian Stage) of Miami County, Kansas: Integrated lithostratigraphy, biostratigraphy, $\delta^{13}\text{C}_{\text{carb}}$ chemostratigraphy, and geophysical well-log data
- Mark Reagan, Professor - Source Evolution After Subduction Initiation as Recorded in the Izu-Bonin-Mariana Fore-arc Crust
- David Tarailo, PhD student - Was the P-T recovery delayed on land? A comparison with the K-Pg record
- Chris Waid, MS student - Conodont biostratigraphy and carbon isotope chemostratigraphy of the Llandovery (Silurian) Blanding, Hopkinton, Scotch Grove, and LaPorte City formations of Iowa (NW Illinois Basin)
- Will Ward, PhD student - Timing of Deformation and Metamorphism in the Pearya Terrane from U-Pb SIMS Analysis of Monazite and Titanite



Congratulations!

PhD student Diar Ibrahim won the “**Best Poster Award**” at the 3rd Annual Homecoming Poster Event in the Earth & Environmental Science Department. The title of his poster is, “*High-resolution sequence stratigraphy and provenance of the Ordovician St. Peter Sandstone in Iowa and Illinois: Insights into the evolution of mid-continental intracratonic basins of North America*”

News & Upcoming Events (cont.)

Presentations at other meetings...

- Chris Brochu, Professor - New sharp-nosed crocodiles (Mecistops) from the Mio-Pliocene of the Lake Turkana Basin of Kenya and the transition from broad to slender snouts in crocodylids at the meeting for the Society of Vertebrate Paleontology (SVP)
- Jessica Miller-Camp, PhD student - The interplay of snout length and feeding ecology between alligatoroids and other co-occurring crocodyliforms at the meeting for the Society of Vertebrate Paleontology (SVP)
- David Tarailo, PhD student - Phylogenetic clustering and geographic dispersal among Permo-Triassic Tetrapods at the meeting for the Society of Vertebrate Paleontology (SVP)
- Bill Barnhart, Assistant Professor - InSAR Analysis of Induced Seismicity: Examples From Southern Colorado at the American Geophysical Union meeting (AGU)
- Bill Barnhart, Assistant Professor - Misbehaving Faults: The Expanding Role of Geodetic Imaging in Unraveling Unexpected Fault Slip Behavior at the American Geophysical Union meeting (AGU)
- David Peate, Professor - Generation of Northern Parana High Ti/Y Basalts By Progressive Lithospheric Thinning Above a "Gough"-like Mantle Source at the American Geophysical Union meeting (AGU)

News about recent graduates...

- Jessica Miller-Camp, PhD ABD, will be starting a job as the Museum Scientist for the Department of Earth Sciences at the University of California, Riverside in November.

EES T-shirts and Polos

Department T-shirts are now available online in four colors: yellow, gold, light gray, and dark gray. T-shirts are available in long- and short-sleeves and have a department logo on the front and a cross-section of the Manson Impact crater on the back. Polos have just the logo on the front. Orders can be placed online and must be received by November 15.

Available in Women's sizes, too!



To place an order, use the group order form at these websites:

T-shirts: <https://www.customink.com/g/sbs0-00aa-k327>

Polos: <https://www.customink.com/g/sbs0-00aa-k3c3>

After the order form closes on November 15, shirts will be sent to the department and then we will send them to you.

News & Upcoming Events (cont.)

- Max Dehio, BS 2015, is working for ARI Environmental in Chicago.
- Sierra Isard, MS 2014, is working for the North Carolina Geological Survey in the Ashville Regional Office.
- Jackie Ferraro, MS 2013, is working at CTL Group in Chicago.
- Marc Spencer, PhD 2013, moved to Central Michigan University, where he is an Assistant Professor in the Department of Anatomy.
- Shawn Malone, PhD 2012, began a tenure-track Assistant Professor position at Ball State University.
- Julia McHugh, PhD 2012, moved to the Western Colorado Museum, where she is curator.
- Eric Wilberg, PhD 2012, and Eugenia Gold, MS 2011, moved to the Department of Anatomical Sciences at Stony Brook University. Eric had been a visiting assistant professor at Georgia Southern, and Eugenia just finished her PhD at the American Museum of Natural History.
- Nathan Smith, MS 2005, recently moved from Howard University where he was an assistant professor to the Dinosaur Institute at the Natural History Museum of Los Angeles County as an associate curator.

EES Pint Glasses & Mugs

The AAPG Student Chapter is now selling pint glasses and mugs with the EES logo for fundraising! Both are top rack dishwasher safe.

To place an order, complete the order form below and send it along with your payment (cash or check only) to the address below:

AAPG Student Chapter
 c/o Erika Danielsen
 115 Trowbridge Hall
 University of Iowa
 Iowa City, IA 52242

Orders must be received by December 1 and will be shipped in time for the holiday season. Please make checks payable to University of Iowa AAPG Student Chapter.



# of EES pint glasses	_____ (\$10 each)	Shipping address:
# of EES pint glasses	_____ (\$15 each)	Name _____
Shipping and handling	+ \$5.00	Street _____
Total due	_____	City, State, Zip _____
Email address: _____		Phone #: _____

New format for the newsletter!

We are delighted to introduce our new Department of Earth & Environmental Sciences Newsletter! In our continuing effort to reinvigorate alumni-department relations, we responded to alumni feedback by reformatting the newsletter. The new format allows us to better highlight the accomplishments of our faculty, staff, and students, as well as including more images. In addition, a newsletter will be published three times a year, so that we can keep folks abreast of current department happenings. Comments or questions about the newsletter? Please contact Emily Finzel (emily-finzel@uiowa.edu)

Keep in touch!

Check out the new Alumni & Friends portion of our website. It is still under construction, but parts of it are online now! If your contact information is out of date, please email the department (geology@uiowa.edu) or visit the Update Contact Information page on the alumni portion of the department website.



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