

Spring 2015

Earth News, v38, Spring 2015

University of Northern Iowa. Department of Earth Science.

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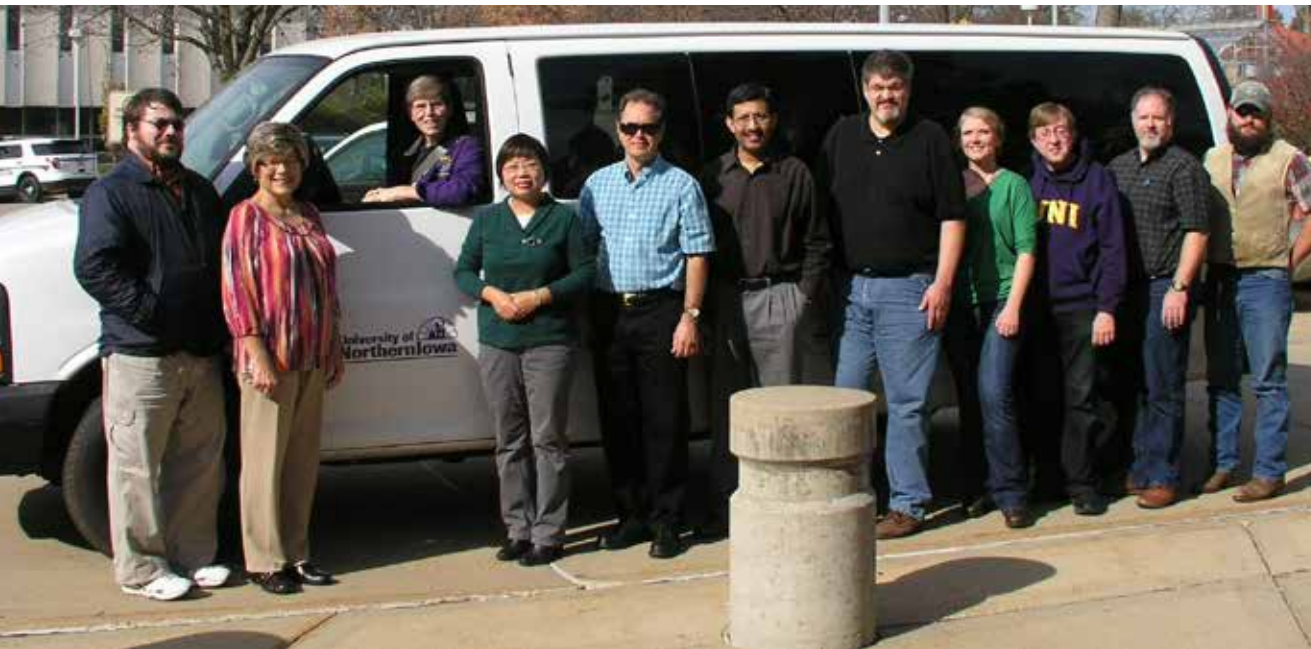
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DEPARTMENT OF EARTH SCIENCE

EARTH NEWS

VOL 38 spring 2015





Earth Science faculty and staff (L-R)
Mike Stevens, Nora Janssen, Siobahn Morgan, Xinhua Shen, Alan Czarnetzki, Mohammad Iqbal, Kyle Gray, Alexa Sedlacek, Thomas Hockey, Lee Potter, Chad Heinzl

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From *the* Department Head
SIOBAHN MORGAN

Dear Alumni and Friends of the Earth Science Department,

I hope you've had a wonderful year! One of my resolutions is to be not so verbose – I've looked at previous newsletters and my message just seems to go on forever. So I'll just stick to the highlights.

Geology, Astronomy and Air Quality Minors coming back!

During the cutbacks of 2012, we lost the various minors in our department that were discipline specific. Now we are proposing that they be re-instated, and they should become active in fall 2016. We are also going to propose a new Environmental Science Minor, since our current major is so popular.

New Air Quality Specialist!

We were also successful in the hiring of Dr. Xinhua Shen, an Air Quality/ Meteorologist who is bringing a record of research and student mentoring into our new Environmental Science Program.

Popular New Major!

The Environmental Science BA program became available in fall 2013. As of this time (January 2015), we have had four students graduate with the degree, and 21 are currently in the program. By far, this degree has been instrumental in bringing in new students.

Award winning chapter of SGE!

For the third year in a row, our chapter of Sigma Gamma Epsilon has been the recipient of the "Quality Chapter Award". Considering only about four or so chapters out of the 200+ in the country earn that title, I think the students are doing an exceptional job!

We got a van!

As you can see from the group picture, the department is now the proud owner of a 15-passenger van that we've been using pretty much every weekend since we got it. This is a great asset for the department and is due to the generosity of Charles "Dick" Shane (1911-2012). I never met Mr. Shane, but he was someone who was interested in the earth sciences, and a friend of Emeritus Professor Lynn Brant. So it was a great surprise to learn that our department was a benefactor of his estate.

New Summer Course for Teachers!

The first offering of the "Iowa Geological Resources" Workshop for teachers was a success in summer 2014. 18 teachers took part in the on-line and summer field course, and the next one will be offered this summer.

Earth Science Week Celebration!

We have continued our wonderful relationship with BMC Limestone Aggregate Ltd by helping them with the annual Sunday at the Quarry event (separate article about that enclosed). But in addition we also hosted an event on campus – "Bad Movie" nights. Dr. Alexa Sedlacek tackled the many problems of "Jurassic Park", Dr. Alan Czarnetzki unraveled the science of "Twister" and I blew apart "Armageddon". I'm not sure what we'll tackle next year, but it will no doubt be quite painful.....

In addition to the above items, we've continued our "regular" jobs of teaching, advising, and mentoring our students, carrying out research projects, serving on committees, attending conferences, recruiting new majors, and generally staying as busy as ever.



I'm not sure if I succeeded in my intention to keep it "short and sweet", but I think I'll use a few words to mention a new addition to the Morgan family, Buffy the shaggy beast. Yes I got a new dog, or as I like to say, a reason to take a walk at 6:00 AM. You'll have to check my Facebook page for any pictures of Buffy, and while you are doing that, please do check out the departmental FB page as well as the alumni page/group.

As always, if anyone wants to come by for a visit, please do stop by. It is always great to catch up with our friends.

NEWS

from the faculty *and* staff



ALAN CZARNETZKI
PROFESSOR OF METEOROLOGY

I hope all friends of the Department are doing well! One highlight of the past year for me was a long planned, guided, Canadian fishing trip with my brother in June. We had a great time and caught a lot of fish. We also had a few unexpected adventures, such as our boat motor breaking down late in the day in the middle of a very remote lake and wondering if we would spend the night sleeping with the bears and wood ticks on shore. Thankfully, we were able to eventually flag down another boat and get towed back to the boat landing, which was about 10 km away.

I'm happy to welcome Dr. Xinhua Shen as a colleague in our department. She is a new Assistant Professor of Air Quality and Meteorology and has a strong background in atmospheric chemistry. We are proposing a new minor in Air Quality and hope to build it up in the coming years.

As was the case at this time last year, the Climate Prediction Center's (CPC) outlook for temperatures and precipitation provides no good indication of what we can expect in the Midwest for the upcoming winter season. Their best assessment is that warm/cool/normal temperatures and wet/dry/normal precipitation are all equally likely in Iowa for

the December 2014 through February 2015 winter season.

As in recent years, the University of Northern Iowa's IMPACT program, of which I am a team member, offered a 2-week summer institute in July for middle and high school teachers to learn about the science inquiry process through use of GLOBE (Global Learning and Observations to Benefit the Environment) and STORM Project (Science center for Teaching, Outreach, and Research on Meteorology) resources. I worked with the group on weather analysis and forecasting concepts as an authentic use of inquiry in science. We continue to work with our IMPACT participants throughout the academic year. If you are a middle or high school teacher, please visit http://www.uni.edu/ietti/impact/about_impact/ for details about the programming we will be offering in summer 2015.

Best wishes to all!



PAULA EVEN
INSTRUCTOR



KYLE GRAY
ASSOCIATE PROFESSOR OF EARTH
SCIENCE AND SCIENCE ED

As usual, I've been busy. Over the summer I participated in two workshops for teachers including a geology workshop with Chad Heinzl. Our visit to the Devonian Fossil Gorge in Coralville was almost cancelled due to flooding along the Iowa River, but the Maquoketa Caves were dry and everyone had a great time. I also completed a peer-reviewed curriculum unit on streams. If you are a teacher, check out serc.carleton.edu/integrate/index.html for teaching ideas. These resources are aimed at the undergrad level, but many can be adapted to high school or middle school. Like past years, I continue teaching the Inquiry into Earth and Space Science course for the elementary education majors. This fall Aaron Spurr started teaching a section of the course, and we have had fun brainstorming new ways to teach the course. Since I arrived at UNI I have also wanted to teach a course on geologic hazards. This coming fall I get to fulfill that dream by teaching a section of Intro to Geology with a hazards focus. If you are teaching, drop me an email and let me know how you are doing.



CHAD HEINZEL
ASSOCIATE PROFESSOR
OF GEOLOGY

A full moon cast its radiant light upon the Mediterranean Sea (June 2014, 11:35PM, 22° C). Sixteen UNI Environment, Technology and Society Capstone students and I have successfully climbed Stromboli. We were able to cast our eyes upon three minor, yet beautiful eruptions as the ground shook, fine to coarse ash drifted upon our climbing helmets, sweat stung our eyes and the Earth spoke. As we 'skied' down the volcano's eastern flank, lights from the Calabrian coastline blended into the star-filled night sky. Eventually, we arrived back into town as our legs quivered from the eight hour adventure. Time was then spent emptying our shoes of approximately fifty kilograms of ash and Italian plant fauna. Our small double-decked boat waited patiently albeit nervously, as each hiker found their way aboard for the ride back to Lipari. After the captain finished smiling fondly towards all of the female passengers, he used the intercom to express concern of an impending storm and his desire to get us all home safely. Most of the UNI students took a seat on the upper deck as the boat sped away from the port. Suddenly, a rare lighting storm began to pursue our small boat as we filled our bellies with

chocolate, McVities biscuits, and water. The developing panorama behind our speeding boat was surreal, large cumulonimbus clouds were aglow from a diverse array of light sources - lava spouts, a full moon, and sea to sky lighting! Not to be outdone, the sea produced strange faint spheres of light within our boat's wake. It was as if our vessel was creating a new universe as we plunged forward into the darkness of the night. However, upon further inspection we discovered that our displaced energy was exciting a vast number of bioluminescent jellyfish. The Earth continues to amaze those who are willing and able to listen. As our department evolves, I believe that it is our responsibility to help our majors and non-majors obtain a) the knowledge necessary to understand the Earth's processes AND b) the experiences that create a desire to apply their education towards making the world a better place. If you ever are near UNI or Reinbeck be sure to check in! Have a great year!



THOMAS HOCKEY
PROFESSOR OF ASTRONOMY



MOHAMMAD IQBAL
PROFESSOR OF GEOLOGY



NORA JANSSEN
DEPARTMENT SECRETARY

NEWS

from the faculty *and* staff



LEE POTTER
INSTRUCTOR

courses that all elementary education majors take. I hadn't taught a science content course since the Lab School closed in 2012 and have realized I really missed it.

My two children will be moving on to the next stage of their lives next year. My daughter, Sarah, will be a 7th grader and moving to the junior high. She is a little nervous about the move, but that's understandable. My son, Will, is a senior this year, so he is in the college exploration mode. As of now he has his school selected. It's very difficult to believe all of these years have gone by so quickly. It seems like such a short time ago when he was getting ready to start kindergarten.

I've enjoyed getting to know our majors better in upper level courses including Environmental Geology and Sedimentary Geology. I taught the latter during fall 2014, and enjoyed working with 11 enthusiastic students. We worked on measuring and describing outcrops in the field, and enjoyed a personalized tour of Raymond Quarry (BMC Aggregates L.C.) from Sherman Lundy.

With regards to research, it has been a busy year! I submitted a manuscript to Geology last spring, and it was published in the September 2014 issue. In fact, I submitted the revisions for this paper while at Ohio State University continuing strontium isotope research with two students, Chad Dentlinger and Robert Spielbauer, last June.



AARON SPURR
INSTRUCTOR OF SCIENCE ED
AND FIELD EXP. COORDINATOR

I have a dual appointment on campus. About half of my week is filled with supervising Level 2 field experience students in secondary classrooms throughout the area. The other half is spent teaching Inquiry into Earth and Space Science and Current Technologies in Science Teaching. This is my first time teaching Inquiry and I find I'm really enjoying it. It is one of the core science



ALEXA SEDLACEK
ASSISTANT PROFESSOR
OF GEOLOGY

It has been over a year since I last wrote for this newsletter, and at that point I was in the midst of a whirlwind first semester. I hope you are all doing well! It has been an interesting and productive year, and the Cedar Valley now feels like home to Patrick, Penelope, and me. I continue to enjoy teaching Earth History, and work closely with my teaching assistants to develop Earth History's laboratory activities. I'm fortunate to work with such capable and independent students.

This year, Penelope began daycare and Patrick started working in the Office of Admissions at UNI! It is nice to get a cup of coffee with Patrick during the day. Penny is an active toddler, and she enjoys coming to the department to roar at the T. rex skull. Her favorite games involve pirates, dinosaurs, and cooking, and she is an avid reader. Her favorite day of the week is Panther Friday. A highlight of the year was picking apples at Wilson's Apple Orchard near Iowa City. I learned that when you tell a 2-year old to pick apples, she will pick all the apples that she sees. We left with 40 lbs of apples that day.

Warm wishes!



XINHUA SHEN
ASSISTANT PROFESSOR OF
METEOROLOGY AND AIR QUALITY

Xinhua Shen joined the University of Northern Iowa as an Assistant Professor of Meteorology/Air quality in the Department of Earth Science in August, 2014. Dr. Shen completed her Ph.D. in Atmospheric Science at Colorado State University. Her research focuses on air quality modeling and measurement. She has been participating in several National Science Foundation sponsored projects, including measurements of compositions of fog water, aerosols and trace gases that were collected from various locations, simulations of air quality using WRF (Weather Research and Forecasting) and CAMx (Comprehensive Air quality Model with extensions) modeling system. Dr. Shen teaches courses Elements of Weather, Air Quality, Air Dispersion Modeling, Measurement and Analysis of Air Quality. Currently she is participating in a Department of Energy sponsored project on air pollution control technology.



STEVE SMITH
LAB TECHNICIAN



MIKE STEVENS
INSTRUCTOR



WAYNE ANDERSON

PROFESSOR EMERITUS OF GEOLOGY & DEPARTMENT HEAD

1970-1995

Image : Wayne I. Anderson, Appalachian Trail, Great Smoky Mountains National Park, April, 2014.

I extend greetings to UNI graduates and friends. Thanks for providing updated information for the Earth Science Newsletter. I always enjoy reading about UNI graduates and their careers.

Jan and I continue to enjoy retirement and splitting time between Iowa and Colorado. We know the interstate system between Iowa and Colorado pretty well by now. We worked in a two-week trip to North Carolina in April, primarily for birding. Jan added the Brown-headed Nuthatch and Clapper Rail to her life list. Visits to Great Smoky Mountains National Park and the Wright Brothers National Memorial were both enjoyable and educational.

Summer in Colorado involved visits by family and grandkids, plus our usual treks to mountain lakes and special places with Colorado friends. When we arrived at our Colorado cabin in June, we were visited on a regular basis by a local bobcat. It showed little fear at first and seemed to think that we were trespassing on its

territory. Eventually, the bobcat found us to be uninteresting and quit coming by. The summer of 2014 was much wetter than normal in southern Colorado. Consequently, wildflowers were abundant all summer, and there were very few forest fires. In addition, the local ranchers had excellent yields of "Wet-Mountain Valley Hay." Hay is the principal crop in the local area, and it is in high demand as feed for horses.

During the past year, Jan and I discovered The Great Courses, educational DVDs with lectures by college professors on a wide variety of subjects. Yes, the courses really are great! We have watched several by now on a wide variety of topics: astronomy, geology, history, linguistics, music, nutrition, photography, religion, and more. Of course, a real plus is that there are no tests and very little homework.



LYNN BRANT

PROFESSOR EMERITUS OF GEOLOGY

Isn't that a fine-looking loaf of bread? I got a bread book for Christmas and I've been trying to make loaves that look as nice as those pictured on its pages. Of course, you have no idea how it tastes. When it came to providing a picture to go along with this newsletter greeting, a loaf of bread looks better than my face.

I continue to write, speak a bit, do a little research, and travel. But I like to try new experiences. For instance, at the end of this past growing season I went to my compost pile with shovel in hand and a big glass jar. Digging into that black dirt I saw little critters scampering for cover as I grabbed up a few handfuls to put in the jar. Back in my study I could view the container at leisure with a hand lens.

Compost is a lively mixture of material and organisms. The most active things in there are sow bugs, which are crustaceans related to crabs and lobsters. They sport something like seven pairs of legs and they scurry into the darkness when I turn on the light. There are orange-colored centipedes about an inch long that can turn 180 degrees in a small radius and meet their own tail going in the opposite direction. Millipedes, with

even more legs but moving more slowly, also live there. Tiny snails, pseudoscorpions, itsy bitsy white insects (maybe springtails), nematode worms, and more can provide the observer with a real education.

Every now and then I throw in some dead leaves from the back yard for the sow bugs, and they reduce them to a network of veins in just hours. They like apple leaves but not so much the oak leaf in there. And a little fresh air from my aquarium pump seems to invigorate them all from time to time.

Retirement is great and now you can see what it's like. You too, may some day find yourself staring into a bunch of compost.

Best wishes and have a good year.



JIM WALTERS

PROFESSOR EMERITUS OF GEOLOGY
& DEPARTMENT HEAD 1995-2010

Image : Jim and Bonnie kayaking in an ice cave near the terminus of the Valdez Glacier, Valdez, Alaska. Summer 2014

After two years of phased retirement, I am now fully retired. I have been spending time doing things around the house and yard that I had put off for the last several years, so that has been good. Also, I have time to do some reading and traveling. I still come in to the office a few times a week; mostly to do work on SGE stuff, since I am still National Secretary-Treasurer. Lately I have been spending time on the planning of the SGE Biennial Convention and Centennial Celebration to be held the end of March at the University of Kansas, where it all started (Alpha Chapter) back in 1915.

Last winter Bonnie and I spent some time in Florida, and we liked it so much that we have decided to head down there again this winter. And it sure is nice to not be in Iowa during the winter. Last summer we traveled to Alaska and revisited many of the places we have been to in previous years. But it was different because I wasn't doing any research at my patterned ground sites along the Denali Highway or the wetlands in the Tanana Flats. We also

met up with our daughter, son-in-law, and grandkids and rented a house in Girdwood, south of Anchorage, to use as a base for exploring some of the Kenai Peninsula. We had a wonderful time, with unusually nice weather (most of the time), and we will probably plan another adventure like that for this coming summer.

I enjoy visiting with and hearing from former students and I wish everyone all the best.

SUMMER UNDERGRADUATE RESEARCH OPENS DOORS

Chad Dentlinger and Robert Spielbauer, both UNI Earth and Environmental Science majors, accompanied me to Ohio State University's Columbus campus last June. Chad received a Summer Undergraduate Research Project Award (SURP) to work with me through the summer, and Bob came to gain laboratory experience. Before we left, Chad drilled individual carbonate rock samples in the rock preparation room in our department. He took great care to select the best possible areas to sample, and worked through nearly 40 samples. We spent a week at OSU's Radiogenic Isotope Lab, housed in the School of Earth Sciences. There, our rock powders were washed, dissolved, and separated for their strontium component in a clean lab, and resulting samples were run on a Thermal Ionization Mass Spectrometer. Both Chad and Bob left with an appreciation for the enormous amount of work that goes into a single strontium data point published in the literature. In addition to hard work in the lab, I took them to some of my favorite haunts, including Buckeye Donuts, North Star Café, and Jeni's Splendid Ice Creams. If you are ever in Columbus, make sure to give these places a try.

The purpose of our research is to analyze the strontium isotopic composition of two carbonate rock successions from Turkey. These samples were collected by Dr. John Groves, and they were deposited in a shallow marine setting during and after the largest mass extinction in Earth's history. In the aftermath of the Late Permian mass extinction, global temperatures soared, and it took nearly 5 million years for ecosystems to recover. Strontium isotopes can provide information regarding the rate of continental weathering, which increases as temperatures

increase. Our goal is to capture changes in the rate of strontium rise, which likely reflects changes in continental weathering. Linking global climate change to continental weathering may provide insights into why it took so long for life to recover from this particular extinction event. The results of our work last summer will be presented at future scientific meetings, including the Geological Society of America's regional or national meetings.

I will continue to involve our students in research opportunities, and hope to take a student to work on the Permian-Triassic age rocks found in the Great Basin region of Utah and Nevada. From there, I will undoubtedly take another group of students back to Ohio State to work in the lab. One of my goals is to involve students in primary research, because this involvement helps students better understand the breadth of a discipline and the depth that research entails. It also provides students with the confidence to speak about their project as an expert. Confidence, when well-earned and backed with experience, can open doors.

By Dr. Alexa Sedlacek



Bob Spielbauer



Chad Dentlinger



Summer Research Group

HYDROLOGY NEWS



Sushil Tuladhar and Dr. Mohammad Iqbal

CEDAR FALLS | One University of Northern Iowa scientist is adding to a statewide body of research that should help keep harmful farm runoff from entering the Gulf of Mexico.

Mohammad Iqbal, a hydrologist in the department of earth science, won an \$85,000 grant from the Iowa Nutrient Research Center to study runoff from farm fields into the Cedar River system. He's the only researcher from UNI to receive a piece of the \$1.5 million pot awarded by the Legislature to evaluate how Iowa's agricultural practices affect the environment.

"If we help keep Iowa water bodies clean, we're helping the Gulf," Iqbal said.

After the snow melts, Iqbal and a team of student researchers will begin testing farm ditches and creeks that run into the Cedar River. They'll test 18 "hot spots" and dozens of farm fields from Charles City to La Porte City for nitrogen and phosphorous, nutrients commonly found in fertilizers.

Iqbal's team will test points on farm ditches and slopes, measuring the amount of nutrients escaping from fields and into rivers. They will take visual surveys of the land, noting whether fields use buffer crops that can stop nutrients from escaping into waterways.

"We have had support from farmers. We're on a fact-finding mission," said Iqbal.

Over the past few decades, higher concentrations of these nutrients are depleting oxygen in the water, creating a so-called "Dead Zone" in the Gulf of Mexico where aquatic life cannot survive. Nine other research groups, including some from Iowa State University and the University of Iowa, are conducting studies on topics like corn yield, stream bed and bank erosion and the benefits of cover crops. Together, the body of research will help Iowa filter out its contribution to the Dead Zone.

It's Iqbal's ultimate goal that the center will develop "a nutrient budget" to show what is moving through the river system so farmers understand how best to apply fertilizer to crops.

Sushil Tuladhar, a UNI graduate student, is Iqbal's right-hand man in this study, which is also his master's thesis. He studied cancer-causing arsenic groundwater pollution in southern Nepal, his home country.

"The place where I'm from we don't really think nutrients are a problem in our water sources," Tuladhar said. "But when I came here I looked at the river, and it looks clean compared to Nepal. But nutrients have been a great issue in Iowa, and it's no doubt it's contributing to the nutrients in the Gulf."

The hypoxic zone forms each summer and can extend up to eighty miles offshore, stretching from the mouth of the Mississippi River westward to Texas coastal waters. In 2007, the size of the zone was 7,900 miles.

Iowa and 12 other Mississippi-border states were spurred into action in 2008 by the U.S. Environmental Protection Agency to form a nationwide task force studying the issue. The task force aims to reduce that zone to less than 1,900 miles.

It set a lofty goal of reducing the pounds of nitrogen and phosphorus reaching the Gulf by 45 percent by 2015. That's a benchmark states are unlikely to reach since the

EPA has not OK'd all the states' nutrient reduction strategies.

In 2012, Gov. Terry Branstad released the Iowa Nutrient Reduction Strategy. It called for voluntary efforts by farmers and sewage plant operators to keep Iowa's rivers clean and recommended research continue into finding better ways to reduce pollutants. Some environmental groups have been critical of the strategy's soft approach in relying upon farmer's discretion to change their practices.

"But just because you write a bill, water doesn't clean up tomorrow," said John Lawrence, head of the Iowa Nutrient Research Center at ISU. "My concern with regulation is oftentimes it's written and has unintended consequences. ... A strategy that's voluntary allows more flexibility." Iowa is ahead of most states tasked to come up with a strategy for improving water quality.

Lawrence said Iowa was second to submit its strategy and is further along in funding research and action in watersheds.

"We're putting together a summary of what that progress has been for public view as well," he said.

Story Courtesy of The Waterloo Courier



Ashley Worthy working in the lab on spatial and temporal distribution of nitrogen in the Cedar River Watershed as part of her Summer Undergraduate Research Project Award (SURP)

ALUMNI IN RESIDENCE



Nicholas Page, UNI Alum and UNI President Ruud

Alumni to return to UNI for Alumni in Residence program

CEDAR FALLS, Iowa -- Each spring departments at the University of Northern Iowa select distinguished graduates to participate in the Alumni in Residence program. These accomplished alumni return to campus to speak with students about their professional experiences and help them understand the connection between the theory they learn in the classroom and the practice in the professional world. Alumni also meet with faculty groups to discuss current trends and issues in the workplace, tour campus and visit with student organizations about how extracurricular experiences may open doors during their job searches. In addition, they

are invited to attend a joint luncheon hosted by the UNI Alumni Association and UNI Foundation. The selection of alumni participants and their Alumni in Residence experience is coordinated by each college. The 2014 class included Earth Science Department '02 Alumni, Nicholas Page, Senior Environmental Specialist, Iowa Department of Natural Resources.

IMPACT **Impacting Achievement with Collaborations and Technology (the IMPACT Program)** *By Alan Czarnetzki, IMPACT management team member*

The IMPACT Program began its ninth year of programming in July 2014 through funding from the Iowa Board of Regents' Title IIA Improving Teacher Quality State Grant Program for Higher Education. The grant management team at UNI includes Doreen Hayek and Lori Seawel (Information Technology Services – Educational Technology), Marcy Seavey (UNI's STEM Coordinator), Eve Halligan (Iowa Academy of Sciences) and Alan Czarnetzki (Earth Science). Nine middle and high school teachers are participating in the 2014-2015 program year. Participants attended a two week summer institute on the UNI campus in July 2014 and are receiving on-going support via the Iowa Communications Network, webinars, and school visits by the grant management team. The goal of IMPACT is to provide participating teachers with sustained, intensive professional development that

results in demonstrable and measurable improvement in student academic achievement in mathematics and science. The content areas we focused on were weather analysis and forecasting (using materials developed by the STORM Project in the Department of Earth Science), GLOBE (Global Learning and Observations to Benefit the Environment) protocols for making scientific measurements, and inquiry techniques for the science classroom. Participating teachers develop two Technology Integration Action Plans (TIAP) for their classroom using STORM and GLOBE content. Many of the current and past participants will be presenting on implementation of their TIAPs and the resulting student projects at the Spotlight on Technology Day, scheduled for February 26, 2015, on the UNI campus. IMPACT participants receive a modest stipend and can register for graduate credit.



If you are a middle or high school teacher, please visit http://www.uni.edu/ietti/impact/about_impact/ for details about the programming IMPACT will be offering in summer 2015.

SUNDAY at the QUARRY

Sunday October 5th kicked off the celebration of Earth Science Week with the generosity of BMC Aggregates opening up their Morgan Quarry site near Dewar. This year's theme was "Our Natural Resources: A River Runs Through It", and the Earth Science Department was well prepared to provide a wide range of educational activities, hand-outs and first-hand knowledge of Iowa's geological and water resources to the many visitors to the site. Also on hand were a wide variety of local groups to help educate the public about geological resources and treasures, such as fossils and a variety of minerals, along with water resource information.

An estimated 700 guests braved the brisk October weather to venture into the quarry, where Emeritus Professors of Geology, Lynn Brant and James Walters, pointed out the various stratigraphic structures. Alexa

Sedlacek and Lee Potter were also on hand to provide valuable information to the visitors who ventured down to the quarry. There were also the opportunities for collectors to tackle the various rock piles provided, to search for fossils, calcite minerals, and nifty looking rocks. The wide variety of educational displays and activities were presented by Kyle Gray, Aaron Spurr, Siobahn Morgan, and student helpers including Terra Perez, Eddy Todd, Paige LaPlant and Candice Kucera. These included some dinosaur coloring pages and a quiz about rock and mineral sources for common items found in the house and industry. Sushil Tuladhar also provided a display outlining the water resources in Black Hawk County.

On campus Earth Science Week was celebrated with the showing of "Bad Science Movies". Three big-budget movies over the course of 3 evenings were shown

to over 100 students, accompanied by critical commentary from Alan Czarnetzki ("Twister"), Alexa Sedlacek ("Jurassic Park"), and Siobahn Morgan ("Armageddon") to illustrate the "small" problems with some of the content. Given Hollywood's track record, there will likely be many more "Bad Science Movies" showings during future Earth Science Weeks. We hope to see you at the quarry or the movies in 2015.



Dr. Walters with visitors at Morgan Quarry



Dr. Kyle Gray using an Iowa geological map to show where different types of rocks are found in Iowa

Candice Kucera, Paige LaPlant and Terra Perez helping children make rock "monsters"

STUDENT SPOTLIGHT ROXI WOODSIDE

Roxi Woodside, a senior studying earth science and environmental science is expected to graduate this upcoming May. She is currently the secretary of Sigma Gamma Epsilon (SGE) and the Panther Marching Band.

Coming from the small town of Pleasantville, Iowa, the transition to a university like UNI felt natural, she said. When she first arrived, she noticed Cedar Falls' hallmark cold temperatures and UNI's campus life.

"I made some really good friends there. I now think it has gotten smaller over the years, and I still have some really good friends," she said.

She also said the connection with professors at UNI was key to making college a better experience. "You get to spend a lot of one-on-one time with the professors. Most of them really do try and help and get to know you very well. That makes college a lot more bearable in my opinion," she said.

Woodside belongs to several campus organizations. "Panther Marching Band was so much fun. I loved it. It was hard work but it was a great time," she said. Her experience with SGE was also a valuable experience.

"SGE, I think that you can make connections there, and gain friends to help you through classes. You know people in your major and you can work together with homework. If I didn't have that organization, I may not have known anyone and couldn't get together to do homework." she said.

Regarding academics, Woodside chose the Earth Science Department based on a quick revelation that she discovered over the phone.

"I chose the Earth Science Department right before my sophomore year. My sister was studying for finals at [The University of] Iowa and I had already gone home for the summer. I had taken "Elements of Weather" and loved it. She called me at three in the morning asking me about weather related things so I told her all of the stuff I learned and the phone was silent. Then after a pause she says she didn't need to know all of that, just the basics. I realized that I remembered what I had learned and actually enjoyed learning it," Woodside said.

Woodside completed an internship that she says was great job experience. Although it was required for her major, she admits had she not done it, she would not have learned as much as she would have had otherwise.

After college, she hopes to join the Environmental Protection Agency (EPA) in order to deal more directly with environmental issues such as air quality.



IOWA GEOLOGICAL SUMMER WORKSHOP

The Earth Science Department joined forces with the Iowa Limestone Producers Association (ILPA – www.limestone.org) to provide Iowa’s in-service with meaningful/applied learning experiences. Upon the successful completion of the course, teachers earned two UNI graduate credits. This course was based on the work of Drs. James Walters (UNI/ILPA, Geology of Iowa Summer Workshop) and Wayne Anderson’s (Iowa’s Geological Past). The new course was taught in a hybrid format through weekly on-line presentations and an intensive three day field course. Drs. Gray and Heinzel led, 18 PreK-12 teachers from across Iowa through Iowa’s dynamic geologic history by exploring quarries, prairies, caves, and hands-on laboratories. Sherman Lundy (Basic Materials Corp.) and others provided the teachers with an excellent behind-the-scenes viewpoint of Iowa’s important aggregate industry. Martin Marietta Materials graciously gave the teachers buckets for collecting class-

room samples. Kaylene Carney and James Caldwell (USGS) helped the teachers learn how to access useful, national to local, data capable of strengthening classroom activities. Julie Falcon (NRCS) provided insight into accessing resources and knowledge with respect to conservation. Finally, Stephanie Surine and Phil Kerr (Iowa Geological Survey) facilitated access to the Devonian Fossil Gorge. It was an amazing experience that we hope to continue to provide in subsequent years, as the importance of understanding and using our natural resources continues to increase!



Karen, Kipp and Charlie at the Maquoketa Caves.

Teresa, Dr. Gray and Becky at the Devonian Fossil Gorge



BR L-R: Teresa Putnam, Teresa Steensma, Chad Heinzel, Alaina Appley, Audrey Roth, Kyle Gray, Pete Waltz, Wayne Noelck, Charlie Gardner, Kipp Schuler

MR L-R: Noel Clark, Carrie Taylor, Karen MacVey, Becky Davis, Trevor Kittleson

FR L-R: Nannette Fladung, Lori Trevino, Nick Brown, Charlotte McDermott



Tom Blume displaying fossils from the area.

ALUMNI SPOTLIGHT

CARA WRIGHT

Since graduating in 2013 with a B.S in Geology, Cara Wright has been successful in working for the state government in Minnesota by ensuring environmental protection, a career that Wright feels is critical to human health. She attributes this passion to UNI.

"I enjoyed working on projects and homework with our closeknit geology group and I liked that classes were small so that we got personal attention and could feel comfortable asking questions, which made for a great learning environment," Wright said.

She also attributes the attention to research based learning a positive experience in her educational career. "I also liked working with Dr. Walters to complete my undergraduate research in which we planned a Bank Erosion Hazard Index study and I got to present it to the Dry Run Creek Watershed Board," she said.

Wright was also a part of several on campus organizations while at UNI. She was a member of the Golden Key International Honor Society, The National Society of Collegiate Scholars, Phi Eta Sigma National Honor Society, The University of Northern Iowa Honors Program and Sigma Gamma Epsilon.

Wright has not been out of the university setting for long, but she is already finding success in the field. In her current position, Wright is responsible for interpreting and enforcing

Minnesota Pollution Control Agency permits, a job that requires working with a wide variety of media. MPCA is an agency that Wright holds in high regard for their efforts in the environment, and also one that she is proud to serve.

"I love being part of an agency whose focus is protecting human health and the environment. The work I do helps preserve the cleanliness of our rivers, lakes, and groundwater, which I feel is important and makes it easy to go to work every day," Wright states.

In the future, Wright hopes to stay with the MPCA while moving around the agency in order to learn how to better protect the environment.

She offers advice to struggling graduates who wish to find a job in their field.

"It took me a year, probably hundreds of applications, and many interviews, but I love my job and I could not have found a better first job! It can take persistence and a lot of effort, but you shouldn't give up or settle for a job you don't really want," Wright said.



SGE

It's been another great year for SGE! We became involved with a new event, gained some new members, and also some non-members were involved with a lot of our meetings and events! We have quite the incoming group of members this year. It will be exciting to see what comes from it. Many members of SGE graduated over the last year. We hope they are all doing well and are confident that they will accomplish many wonderful things.

Over the last year we have added eight new members to the Chapter. These members are quickly becoming regulars at meetings and events. Currently the officers are Brita Berry, President, Robert Spielbauer, Vice President, Roxanne Woodside, Secretary, and Joseph Reinders, Treasurer. The elections are held every year in April.

There have been a few events we have helped out with this year. Sunday at the Quarry was the first one. We helped with rock identification, and also provided additional learning about the Earth's processes. Another event that we participated in was the Halloween House put on by the American Chemical Society at UNI. This event helps

educate children in fun and festive ways. We taught children the fundamentals of volcanoes by showing them various volcano pictures. Slides were projected of planets, stars & other terrestrial bodies. We also had a collection of rocks set out to help children with identification. The stream table was used to teach them about many different processes including sediment transportation, water shaping the environment, flooding, and the interaction with living organisms. We also used the tornado machine to teach students how tornadoes form. We also gave out coloring pages and calcite crystals! "Movie Nights" were held during Earth Science week! We took popular science fiction movies and discussed what was science based and what was really NOT science based.

We have done a few fun things throughout the semester as a group. As usual, the biggest event of the semester was our welcome back lunch! We had movie nights and a night where we went out to eat! We also had our annual holiday party and gift exchange! We are currently trying to design SGE shirts as well!

This year is also special because it is SGE's 100th anniversary! We are hoping that some

of our members will attend the convention this year in Kansas. There seems to always be tons of things going on here with the Gamma Sigma Chapter of SGE! We are always looking for more people to get involved whether they are members or not. We have a couple things planned for this spring too! Make sure to follow us on Facebook to see what we're up to and how things are going! www.facebook.com/unisge

Thank you for your support, and we hope your year has gone as great as ours!

Brita Berry
Chapter President



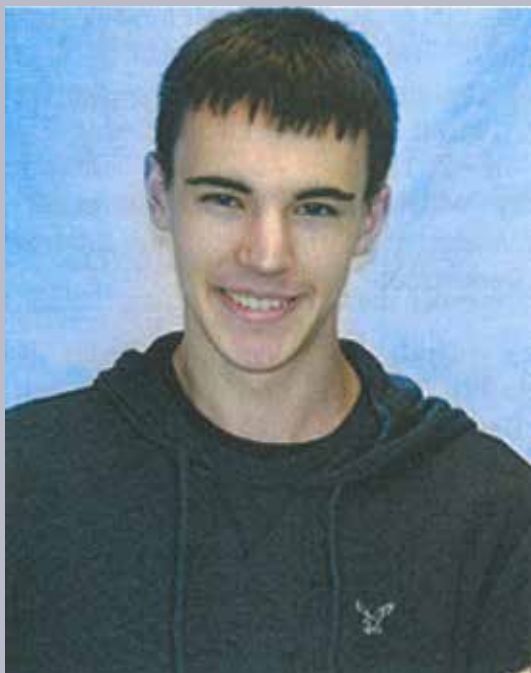
Bob Spielbauer, Larry Shonk, Taylor Garton, Terra Perez, Katie Patrick, Brita Berry, Joe Reinders and Roxi Woodside



Bob Spielbauer, Vice President
Brita Berry, President
Roxi Woodside, Secretary
Joseph Reinders, Treasurer

IN MEMORIAM

JARED D. TRIMBLE



Jared D. Trimble, 20 of Cedar Falls, died Sunday, March 30, 2014, at Sartori Memorial Hospital in Cedar Falls. He was born October 5, 1993 in Waterloo, the son of Darin and Annette (Matthias) Trimble. Jared graduated from Cedar Falls High School in 2012 and attended the University of Northern Iowa, where he was a Teaching Assistant in the Earth and Environmental Science Department. Jared was a model UNI student who had made the Dean's List every semester as an environmental science major. His professors and friends knew he had a future full of opportunities. He is missed by the entire UNI community.

Survivors include his parents of Cedar Falls; his sister, Kaitlin Trimble, of Cedar Falls; his fiancé, Jordan Derhammer, of Cedar Falls; his maternal grandparents, Virgil & Mary Matthias, of Readlyn, Iowa and his paternal grandparents, David & Donna Trimble, of Fairbank, Iowa.

Jared was preceded in death by his maternal grandmother, Carol Matthias, and his great grandparents.

SEMINARS

SPRING 2014

Dr. Christopher Ruehl

Lawrence Berkeley National Lab &
University of San Francisco
*The Effects of Atmospheric Particulate Organic
Matter on Climate and Human Health*

Dr. Jessica Sagona

Rutgers University
Getting Particular about the Matter of Air Quality: Viewing Particulate Matter from the Ground and Space

Dr. Brian Viner

Savannah River National Laboratory
*Applying Atmospheric Transport Models to
Regions with Complex Ground Cover*

Dr. Ken Ridgway

Purdue University
Earth Science and Communities: Great Earthquakes to Wild Rice

Dr. Timothy Logan

University of North Dakota
*Applications of an Aerosol Classification Method
to the Study of Aerosol Variability and the Aerosol
Indirect Effect*

Dr. Xinhua Shen

Prairie View A & M University
*Characterization of Air Quality in
Houston Based on Observations and
Model Simulations*

Jorgen Rose

Political Science Major, UNI
Muddied Waters: Examining Iowa's Water Policies and Practices

Dr. James Walters

Department of Earth Science, UNI
*Reconstructing Northeast Iowa's
Periglacial Environment*

FALL 2014

Roxi Woodside

Earth & Environmental Science Major, UNI
Air Quality Monitoring in Polk County, Iowa

Dr. Alan Czarnetzki &

Dr. Xinhua Shen

Department of Earth Science, UNI
Research and Internship Opportunities: Meteorology and Air Quality

STUDENT RESEARCH

Earth Science Week Event – Good/Bad Science at the Movies

Dr. Alexa Sedlacek

Jurassic Park

Dr. Alan Czarnetzki

Twister

Dr. Siobahn Morgan

Armageddon

Dr. Thomas Hockey & Dr. Siobahn Morgan

Department of Earth Science, UNI
Research and Internship Opportunities: Astronomy

Chad Dentlinger, & Ashley Worthy

Earth and Environmental Science
Majors, UNI
Summer Undergraduate Research Projects (SURP)

Dr. Kyle Gray

Department of Earth Science, UNI
The Long Road to UNI - Research on Volcanoes, Contamination, and Teaching

INTERNSHIPS

Nathan Jacobsen

Earth Science
UNI Museum
Museum Intern
Spring 2014

Jake Damon-Gilchrist

Earth Science & Environmental Science
George Wyth State Park
Conservation Aide
Summer 2014

Hannah Loy

Earth Science & Environmental Science
Cedar Valley Arboretum & Botanical Center
Horticulture Intern
Summer 2014

Aaron Schroeder

Earth Science & Environmental Science
Fort Atkinson City Maintenance
Department Assistant
Summer 2014

Roxanne Woodside

Earth Science & Environmental Science
Outreach Program Associate
Polk County Idle Reduction Project
Summer 2014

National Council on Undergraduate Research (NCUR)

April 3-5, 2014

University of Kentucky,
Lexington, KY

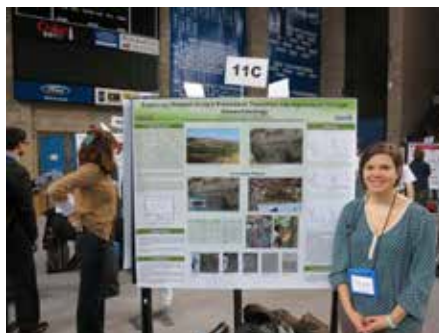
John Chesley and Dr. Chad Heinzl

A GIS Interdisciplinary Investigation of Neolithic Sites and their relation to the Environment around the Belice River Valley in Western Sicily



Victoria Arreola and Dr. Chad Heinzl

Exploring Western Sicily's Prehistoric Transition into Agriculture through Geoarchaeology



Honors Research Conference

April 12, 2014

University of Northern Iowa

Nathan Jacobsen

Studying Suspended Sediment, Turbidity, and Depth in the Dry Run Creek Watershed (Dr. Mohammad Iqbal, Earth Science)

Ariel Williams

Excavation and Stratigraphic Analysis Surrounding a Late Nineteenth Century Boiler House (Dr. Don Gaff, Sociology, Anthropology, and Criminology)

The Geological Society of America (GSA) - North Central Regional Annual Meeting

April 24-25, 2014

Lincoln, Nebraska

Collin Barker &

Dr. Mohammad Iqbal

Seasonal Shift in Nitrogen Storage from Agricultural Lands to Surface Water Bodies

CHAS Summer Undergraduate Research Symposium

August 1, 2014

University of Northern Iowa

Chad J. Dentlinger &

Dr. Alexa R.C. Sedlacek

Strontium Isotope Stratigraphy of the Permian-Triassic Boundary of Taskent, Turkey: Stage One – Determining Preservation of Seawater Trends

Ashley Worthy and

Dr. Mohammad Iqbal

Movement of Agriculturally Derived Nitrate from Its Source to Surface Water: Mitchell and Floyd Counties, Iowa

Earth Science Department Seminar November 10, 2014

University of Northern Iowa

Chad Dentlinger

Summer Undergraduate Research Projects (SURP)

Strontium Isotope Stratigraphy of the Permian-Triassic Boundary of Taskent, Turkey: Stage One – Determining Preservation of Seawater Trends

Ashley Worthy

Summer Undergraduate Research Projects (SURP)

Movement of Agriculturally Derived Nitrate from Its Source to Surface Water: Mitchell and Floyd Counties, Iowa

SCHOLARSHIPS

Colin Barker

B.A. Geology
Wayne and Jan Anderson Summer Field
Camp Award

John Beaumont

B.A. Earth Science
Jan Harken Scholarship, Jared Trimble
Memorial Scholarship

Madison Beeler

B.A. Earth Science Teaching
Bill & Teri Brecht Scholarship, Jessica Allen
Terri Scholarship, Albert A. Potter Endowed
Scholarship

John Chesley

B.S. Geology
W.A. Tarr Award, Academic
Achievement Award

Zachary Creery

B.A. Environmental Science
Donald and Marguerite McKay Scholarship

Chad Dentlinger

B.A. Earth Science and
B.A. Environmental Science
Charles J. Hearst Scholarship, Summer
Undergraduate Research Program (SURP)
Scholarship, Students First Scholarship
Nominee

Taylor Garton

B.A. Earth Science
CNS Earth Science Scholarship

Robin Griffith

B.A. Earth Science
Donald and Marguerite McKay Scholarship

Kent Isaacson

B.A. Earth Science and
B.A. Environmental Science
Students First Scholarship Nominee

Nathan Jacobsen

B.A. Earth Science
Academic Achievement Award

Caitlin Kelly

B.A. Earth Science and B.A. Anthropology
Student Opportunities for Academic
Research (SOAR) Award

Paige LaPlant

B.A. Earth Science and
B.A. Environmental Science
CNS Earth Science Scholarship

Kathryn Patrick

B.A. Earth Science
Donald and Marguerite McKay Scholarship

Maddie Pike

B.S. Geology
Academic Achievement Award

Joseph Reinders

B.S. Geology and B.S. Biology: Biomedical
CNS Earth Science Scholarship, Student
Opportunities for Academic Research
(SOAR) Award and Wayne and Jan Anderson
Summer Field Camp Scholarship

Nolan Sagan

B.A. Environmental Science
CNS Earth Science Scholarship

Alison Schell

B.A. Earth Science and B.S. Geology
CNS Earth Science Scholarship, Academic
Achievement Award

Robert Spielbauer

B.A. Environmental Science and B.A. Biology:
Ecology & Evolution
CNS Earth Science Scholarship, C.W. Lantz
Scholarship, Academic Achievement Award

Aaron Stolley

B.A. Geology
Wayne and Jan Anderson Summer Field
Camp Scholarship

Levi Tinderholt

B.A. Geology
Wayne and Jan Anderson Summer Field
Camp Scholarship

Jared Trimble

B.A. Environmental Science
Charles J. Hearst Scholarship, C.W. Lantz
Scholarship Nominee, Academic
Achievement Award

Ariel Williams

B.A. Earth Science – Interpretive Naturalist
and B.A. Anthropology
Purple and Old Gold Award, Academic
Achievement Award

Roxanne Woodside

B.A. Earth Science and B.A.
Environmental Science
Larry A. Kelsey Memorial Scholarship,
Clifford McCollum Scholarship Nominee

Ashley Worthy

B.A. Earth Science and B.A.
Environmental Science
Louise Hearst Speer Memorial Scholarship
and Summer Undergraduate Research
Program (SURP) Scholarship

GRADUATES

2014

Spring 2014 Graduates – 11

Nathan Jacobsen – BA Earth Science
Stephanie Hogan – BA Earth Science & Earth
Science Teaching
Stephanie Perrin – BA Earth Science Teaching
Maddie Pike – BS Geology
John Chesley – BS Geology
Alison Schell – BS Geology & BA Earth
Science
Ariel Williams – BA Earth Science Interpretive
Naturalist & BA Anthropology
Victoria Arreola – BA Earth Science
Cynthia Meehan – BA Earth Science
Lorraine Scarf – BA Earth Science & Environ-
mental Science
Alysia Grant – BA Earth Science & Environ-
mental Science

Summer 2014 Graduates – 3

Colin Barker – BA Geology
Hannah Loy – BA Earth Science & Environ-
mental Science
Dillon Vosika – BA Earth Science

Fall 2014 – 6

Aaron Stolley – BA Geology
Vyla Eagen – BA Earth Science
Jade Dierks – BA Earth Science
Kevin Rupp – BA Earth Science
Mitchell Glawe – BA Earth Science
Levi Tinderholt – BA Geology

1970's

ELDON BIRD

B.A. Earth Science ('70)
M.A. Earth Science ('72)
Bettendorf, IA

Retired Educator

MARK BOLSON

B.A. Geology ('73)
Thornton, CO

Retired from Ball Aerospace Corp.

Member of the Westminster Colorado Elks Lodge and Past Exalted Ruler. Currently the Colorado State Elks Association New Lodge Chairman.

BILL BRECHT

B.A. Earth Science Teaching ('72)
Saint Charles, MO 63301

I retired from teaching earth science in 2002 after 30 years at Jefferson Middle School in St. Charles. Since then, I have been working part time as the director of the museum at the Lewis & Clark Boat House in St. Charles. Other interests include living history reenacting and classic cars. My wife Teri (UNI '73) is a retired elementary/middle school teacher. We enjoyed visiting the campus in September and attending the Scholarship Appreciation Luncheon with Siobahn and Maddie Beeler, our scholarship recipient.

RANDALL A. ECKEBRECHT (RANDY)

B.A. Geology ('75)
Homestead, FL

Advanced Science Teacher
ASPIRA Leadership and College
Preparatory Academy

Retired from the U.S. Navy in 1995 after twenty years of service to my country as an Intelligence Collection Operator/Analyst at different stations around the world; surface combatants, aircraft and submarines. Greatest time of my life. Married a Spanish senorita, finally settled down in 1984, and have two sons and three grandchildren. Retired in 1995 and worked as a security manager for a few years, then decided to pass on my knowledge and love of science as a teacher. This is my eighth year teaching,

and getting ready to retire for a second (and final) time in two more years. Then travel the U.S. looking for fossils, agates, and crystals; and making jewelry. Special Note: Looking for 1974 graduate Mike Roache, my best friend. Give me a call if out there.

NORM MEADER

B.A. Geology ('73) M.S. ('77)
Tucson, AZ

Administrative Associate for the
Geophysics Group
Retired from the University of Arizona

This year I stayed in Arizona and didn't get out to travel much. I've spent most of the year defending the San Pedro Valley and trying to protect it, a never-ending job. I've enjoyed building a network of conservation friends and working with organizations dedicated to protecting the land, including some rancher groups like the Malpai Borderlands Group and Altar Valley Conservation Alliance. Bridging the gap between traditional conservation and ranching is challenging. I still enjoy my little cottage in the desert and working with valley members on building community and working together, something that's missing in much of modern society. My UNI buddy and geology graduate Russ Jacobson will be in Tucson again in early February for the Tucson Gem and Mineral Show, and we'll be out looking at fossils and minerals together.

RONALD A. PETERSON

B.A. General Science ('69)
M.A. Earth Science ('74)
Albuquerque, NM

Retired Army Civilian

With retirement, I've been able to do some traveling. I now own the family farm in MN, so make frequent trips there, often going through IA. I finally got around to seeing the Grand Canyon this last year; I'd previously only seen it through an airliner window (impressive both ways). I've also been to Scotland, where I happened upon the church where economist Adam Smith was buried, and one of the ladies was proud to point his grave out to me. Then, Stockholm, Sweden, a most beautiful city. In Sweden, as in any major city, there's bound to be a street named after Father of Taxonomy Carl Linnaeus. Several (non-scientific) Swedes

I talked to said with pride that he was widely known in Sweden, and I think they were extremely pleased when I told them that he was known worldwide. Another trip was to Berlin, a fascinating and interesting city. It was easy to find foods in the styles of other countries, but not easy to find plain German food. I was able to find the Glienicke Bridge, where spies were exchanged between East and West Germany; sometimes, the site is used for movies, other times other bridges represent it. This last year, a trip to Copenhagen, Denmark, followed by Skaneateles and Goteborg (Southern and Western Sweden). I was excited to find I was in the area where astronomer Tycho Brahe lived his early life. He was Danish, but the land where he lived is now part of Sweden. It was pleasant looking across the strait between Sweden and Denmark at Ven Island where Tycho had a couple of observatories. Legend there is that the entire island was deeded to Tycho by the king, though a net search doesn't seem to verify that. Travels continue, London and vicinity this next year.

STEVE LITTLE

B.A. Earth Science Teaching ('76)
M.A. ('86)
Clive, IA

8th Science Teacher
West Des Moines Community Schools

After 38 years of science teaching I have reached my MAX. As Aaron Rodgers (QB of the Green Bay Packers) once said it's now time to R-E-L-A-X. I'm retiring in June, 2015. I then can spend time with Julie (my significant other of 10+ years), golf until the snow flies, attend Packer events/practices/games, and do volunteer work.

1980's

BARBARA BERQUAM

B.A. Earth Science ('88)
M.A. Earth Science ('91)
Swisher, IA

Retired, Playing with grandkids

After living in Cedar Falls for 15 years, my husband and I sold our house via Zillow, and moved in July, 2014, to a 13 acre property near Swisher, IA. We are enjoying multigenerational living as we jointly own the property with our oldest son and daughter-in-law. We interact with our three young grandchildren daily, unless of course we are traveling away from home. We planted fruit trees and vines and anticipate adding to our fledgling orchard in 2015. Spring chores will include developing a vegetable garden and landscaping around our ranch-style home. Jim and I love traveling during the colder months of the year. We recently returned home after a trip to Gulf Shores, AL. We are off to Mexico for a couple weeks in January then to Florida for a couple weeks in February. Our multigenerational arrangement makes it easy to pack up and hit the road, knowing the house and property are in good hands. I have great memories of trips and time spent with Earth Science Department staff and students at UNI over 20 years ago. It seems like just yesterday! These many happy memories always bring a smile to my face. May you all experience good health and interesting travels.

KIM BUELT

B.A. Earth Science Education ('89), M.A. Science Education ('93)
Cedar Rapids, IA

HS Associate Principal
Linn-Mar Community Schools

I am currently in my 26th year at Linn-Mar HS, having taught Earth Science and Chemistry the first 18 years and now Associate Principal for 8 years. My son is a junior at ISU, studying Civil Engineering. My husband & I enjoy camping, fishing, traveling, and walking the family beagle, Cu (Copper)!

RAYMOND FRIEDRICHSEN

B.A. Geology ('85)
M.A. Technology & Electronics ('89)
M.B.A. Dominguez Hills, Carson, CA ('00)
M.Sc Hydrogeology, California State University, Los Angeles ('05)

Upon completing my BA in Geology I worked a year in the oil fields (1985-86) in Western Oklahoma as a mud logger and drilling fluids engineer. With the oil

field work drying up, I returned to The University of Northern Iowa completing a Masters in Technology and Electronics. Upon completing my Master's degree I moved to Redondo Beach, CA (a suburb of Los Angeles) and worked as an Environmental Geologist for Groundwater Technology as a Groundwater and Remediation Specialist for six years (1989 to 1995). I then moved to Thrifty Oil Co. located in Santa Fe Springs as a Senior Project Manager in charge of Underground Storage Tanks (UST) Corrective Action and Remediation Operations. I was employed with Thrifty Oil for nine years (1995 to 2004). With the war on terrorism in America currently escalating, I resigned and took a full time position with the Army Reserves as a Network Administrator and Intelligence Supervisor. Prior to entering college, I served in the United States Army for seven years working in Military Intelligence and Special Operational Forces. After completing my BA in Geology I enlisted in the Army Reserve and served as a reservist until 2005 when I accepted an active duty position with the Army Reserves as a Network Administrator, Cryptographer and Cyber Intelligence supervisor. I was then later promoted to E-9 serving as both Staff Sergeant Major and Command Sergeant Major. My last command was with the 311th Signal Command in Costa Mesa, CA with our headquarters located in Fort Shafter, HI. During this assignment I was assigned to the Operations and Training Section (G-3) conducting Counter-Terrorism and Cyber Intelligence Operations. I retired from the US Army with 35 years of service in August 2013. Currently, I do some consulting as a hydrogeologist but mostly enjoy my retirement. My daughter, Stephanie will be finishing here third year in Bio-Engineering at El Camino College and will be transferring to either University of California at Los Angeles (UCLA) or University of California at Santa Cruz (UCSC) in the fall of 2015.

1990s

JAD BEAN

B.A. Environmental Geology ('99)
B.A. Biology ('99)

Network Systems Administrator
City of Raleigh, North Carolina

After several years of struggling in the groundwater cleanup industry, I've now transitioned into IT. The salary, hours, and benefits are better. With all due respect to the excellent instructors I had in the Earth Science department, I wish I had majored in Computer Science instead of Geology.

BRADLEY BLOCK

B.A. Earth Science and Natural History Interpretation ('93)
Custer, SD

Chief of Interpretation
National Park Service -Jewel Cave National Monument

Bradley entered his seventh year of work at Jewel Cave National Monument in the Black Hills of western South Dakota. He continues to enjoy working for the National Park Service.

These past three years, his focus has been on the remodeling of the visitor center exhibits. Working with Harpers Ferry Center and Split Rock Studios, the multi-year project finally came to completion in January 2014. Not only did the exhibits and displays witness a complete "overhaul," but the final interpretive outcome has definitely captured the attention of thousands of visitors. Most important, the new visitor center experience also includes several engaging ways to incorporate accessibility into the exhibitry. Ranging from tactile displays to touch-screen monitors, from audio-described videos to interpretive hand wands, visitors with limited mobility or site impairments can still experience educational moments inside the facility.

The project received Second Place in the Interior Exhibit Category for the Interpretive Media Awards by the National Association for Interpretation. The award commended the Monument, Harpers Ferry Center, and Split Rock Studios for using multiple interpretive techniques. It also forever showcased the exhibit project as being one of the best of the best within the field of interpretation.

When not working on the exhibit project, Bradley has been pursuing a new youth program for teenagers ... Teen Ranger Program. Other efforts included a new bird checklist for the monument and an updated wildflower checklist with evasive species information. In a comical way, Bradley was instrumental in the development of a Facebook Page for Jewel Cave; Bradley does not even own a cell phone, nor does he interact with social media. Nonetheless, he worked directly with two seasonal staff members to create a social media site for the monument.

To say the least, Bradley has been keeping himself busy with an assortment of interpretive projects and working with an exceptional staff to create enhanced visitor experiences.

In his personal time, Bradley continues to serve as the Scoutmaster for Troop 25 in

Custer, SD. His son, Logan, earned the Life rank this past fall and is currently working on his Eagle requirements. Bradley also works as an assistant football coach for the Custer Football Program (varsity), and he stays active with his side business ... The Writing on the Wall ... where he creates personal resumes, newsletters, and other publications for his clients.

Bradley's wife, Cherri, is still with the Custer School District. She is an English teacher and also the head coach for the cheerleading program. His children, Logan and Darian, turned 15 and 12 this past summer. Their interests range from cross country to volley ball, from track to dance class, and from theater to summer sports. Like many families, the entire Block household remains frantically busy each year with commitments ... yet having fun!

For those headed west on vacation, feel free to contact Bradley for information about the beautiful Black Hills. Better yet, give him a call and arrange for a visit. If you graduated in the early 1990s, he would love to see you again.

Best wishes for 2015!

JENNIFER ERICH

B.S. Geology ('96)
Houston, TX

Commercial Advisor
ExxonMobil Exploration

Hello fellow alumni! The year 2015 marks a few major milestones, I will have my 15th anniversary at ExxonMobil in April and in November will be my 15th wedding anniversary! I recently changed roles at work and I am really enjoying the new assignment. I will miss working Argentina Operations, but now I am in a global Commercial Advisor role. This job is very business- based, where I am responsible for negotiating with other oil companies or governments to gain access to new acreage or sell down some of our existing acreage. I don't need much Geology in this job, but it's a very good career move and I love the travel! Andy is still doing great at ConocoPhillips and Miranda says that math and science are her favorite two subjects in 2nd grade! That makes me proud, of course. Hope you are all doing well, I always enjoy seeing your updates!

AMY FREIBERG MILLER

B.A. Earth Science ('99)
Faribault, MN

RN, Emergency Department
District One Hospital

This past year I transitioned into the Emergency Department which has opened many opportunities for growth and continued education. I have a lot to learn but am enjoying it. Jeremy and I celebrated our 16th wedding anniversary in July. The kids continue to grow with Isaac being 12, Noah 10, and Hannah is 7. They make every day interesting and some a challenge! Best wishes to everyone in your life adventures!

DE ANNA TIBBEN

B.A. Earth Science Teaching ('92)
M.A. Science Education ('94)
Nevada, Iowa

AHS Earth Science Teacher
Ames Community Schools

Life is good. Not much new - still married, still have kids at home, still teaching at AHS, and still a Panther for Life! :)

2000's

LANA ARTZ-MCCOMB

B.A. Earth Science: Natural History
Interpretation ('09)

Environmental Specialist
Iowa Department of Natural Resources

After spending a cumulative total of 3 years as an AmeriCorps Keepers of the Land member working at Springbrook Conservation Education Center and 2 years working for the Kansas City, Kansas Public School District as an environmental educator, I've earned a permanent DNR position with the Air Quality Bureau.

JONNIE BECKER

B.A. Earth Science Education ('03)
M.A. Secondary Science Education ('09)
Boone, IA

Operations Manager of Iowa Learning
Online and Iowa Department of Education

The Becker family took the leap and moved south. Although I live in Cyclone territory now, I am a Panther forever. I took the big step and left teaching in the classroom. I pursued a position that would help me influence change for the state. I now help the Department of Education: Iowa

Learning Online team service students across Iowa with a high quality online learning. I saw how my own school and many around me were using cheap and easy programs to get kids through the hard classes. I watched too many kids get offered Physics or Chemistry online as a way to escape having to actually think in my face to face classes. Then, I found that Iowa Learning Online does the quality learning online instead. I couldn't watch my art as an Iowa teacher be replaced by a crappy giant private company. So, I have dedicated myself to the solution to this born right here in my own backyard. This change has been really rewarding. I have witnessed first-hand how my efforts not only help kids but help small schools keep their doors open. Helping Iowa communities keep their schools and opening doors for so many more has been awesome. I guess being such a tech nerd has really started to kick in. However, I hope to return to UNI and help teach our next wave of science educators one day. I used to think a doctorate was off the table, but perhaps I will take that on too. My family, Charlie and the two kids, are doing great. I can tell my oldest has her mother's mind for science and math. My youngest is a wild tender heart. Husband, is patient and has become a wonderful cook. For more updates follow me on Twitter as I always have something to say. @jonniebecker

KADEN BORSETH

B.A. Earth Science ('05)
Decatur GA

Education Programs Manager - Earth Science
Fernbank Museum of Natural History
Hi Everyone! There's no big news from me. Just enjoying the Georgia outdoors through camping, hiking, and rock climbing as much as I can... and of course working. I'm still having fun teaching various Earth Science programs and running the teen volunteer program at Fernbank Museum. Sending my best wishes to the Earth Science department and grads!

KRISTIN (JORGENSEN) FITTJE

B.A. Science Teaching, Astronomy minor
('08)
Omaha, NE

7th Grade Science Teacher
Omaha Public Schools

I've been teaching science to 7th graders at George W. Norris Middle School in Omaha for seven years. My husband and I are expecting our first baby in late April.

MOLLY HANSON

B.A. Earth Science with Geology Minor ('09)
Des Moines, IA

Naturalist/Environmental Education
Coordinator
Madison County Conservation Board

I live a double life staying active and living in Des Moines and working in Winterset and throughout Madison County. I currently serve as Vice Chair on the Board of Directors for Iowa Rivers Revival (a river advocacy group) and am an Ambassador for the Young Professionals Connection. I'm also involved with Mentor Iowa and a local book club. In my free time I'm still playing soccer in a co-ed adult league. Our team name is D.M.V., the Des Moines Velociraptors. I'm happy to report that I am healthy, happy and am attempting to remain unfazed about my upcoming 10 year high school reunion next summer.

BREE MCCLENNING GONZALEZ

B.S. Geology and B.A. Earth Science ('09)
Kingsville, TX

Lecturer

Texas A&M University-Kingsville
Howdy from Texas! I just started my third year of teaching at TAMUK and am keeping busy each semester with fifteen credit hours of geology and geography courses. The past two summers I have had the opportunity to teach potential first-generation college students about science, which has been a lot of fun. In addition, my husband and I welcomed our son into this world this past July. He is growing fast and keeps us on our toes. Hopefully he will be a geologist when he grows up, but I think his dad hopes he will be an engineer like him.

SCOTT MENSEN

B.A. Earth Science ('04)
Boynton Beach, FL

QC/Lab Manager
Universal Engineering Sciences, Inc.

JACK L. NORTHRUP

B.A. Earth Science Education ('01)
Council Bluffs, IA

Planetarium Director
King Science and Technology
Magnet Center

I was recently elected to President of Great Plains Planetarium Association at our annual conference in Arlington, Texas. This last summer, because of a month of

renovation at the planetarium, I had time to take a couple of graduate courses at the University of Nebraska at Omaha. I am enjoying my thirteenth year at King Science teaching Astronomy 5-8 and IT Essentials.

ELIZABETH ROHRET

B.A. Earth Science ('03)
Ames, IA

Monitor Tech Clinical
Mary Greeley Medical Center

After teaching Earth and physical science for a few years and working at the Iowa DNR for several more, I entered the healthcare field as a cardiac monitor technologist interpreting EKG rhythms. In two years, I'll have my RN. I am also in training at Circle Sanctuary to become ordained as a Wiccan minister. I volunteer at Iowa Science Bowl as a state tournament judge; I also volunteer at a halfway house for women leaving prison. In 2015, Dr. Sam Wormley and I will be developing and hosting a radio talk show on KHOI Ames Community Radio; we'll be discussing science topics in the style of NPR's "Car Talk".

2010'S

STEPHANIE HOGAN

B.A. Earth Science & Earth Science
Teaching ('14)
Republic of Korea

Science Teacher
MPoly Language Institute

Hello everyone! I recently graduated in May after finishing my student teaching in Korea. I decided to come back to Korea and teach science at an academy, which is an after-school school. I teach physics, chemistry, earth science, and biology to middle school students. I recently applied to attend graduate school at Dongguk University in Seoul, and I was accepted into the Renewable Energy Program! I will be a student again in March 2015.

JESSICA OTT

B.A. Earth Science ('12)

Substitute Teacher

I am currently a mom of two, substitute teaching in Perry and Greene County Schools. I am in the Army now as a CBRN specialist (Chemical, Biological Radiological and Nuclear Specialist). I am also back at school in the DMACC 2+2 program for

elementary teaching.
Hope all is well.

ALYSIA OWENS

B.A. Earth Science, B.A.
Environmental Science ('14)
Cedar Falls, IA

Metals Prep Analyst
TestAmerica

Ryan and I had our wedding in August. We adopted one of the kittens we were fostering for the Small Animal Rescue Team of Iowa (a rescue run by a fellow alumni). So now Rhea (cat #1) has a cool sidekick. Working at TestAmerica, I get to prepare all of the air filters, water samples, soil samples, etc., that are being tested for a variety of metals, which is pretty cool to see. Our goal is to move to New Zealand in approximately four years, so we are working hard to save money/pay off loans to make our transition more manageable.

MADDIE PIKE

B.S. Geology ('14)
College Station, TX

I am currently enrolled in the graduate program for geology at Texas A&M University conducting research on foraminiferal evolution during the Late Cretaceous.

DUSTIN QUADE

Geology B.A. ('13)
Des Moines, IA

Construction Materials Technician
Terracon Consultants

CARA WRIGHT

B.S. Geology ('13)
Maplewood, MN

Environmental Specialist
Minnesota Pollution Control Agency

I work in wastewater compliance & enforcement for water quality of the state of Minnesota Metro region. I am loving my job, the people I work with, and the people I am meeting in beautiful Minnesota. It took me a year to find a job, but it was well worth the wait and I couldn't have asked for a better job in a better place!



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GIFTS from Alumni & Friends

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- BMC Aggregates, LC
- Edward & Heather Bertch
- William & Teresa Brecht
- Shirley Cropper
- Iowa Limestone Producers Association, Inc.
- Sherm & Beverly Lundy
- Charlotte & Adam McDermott
- Larry R. Silka
- Linda Sliefert
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