New Course for GEOS Undergraduate Majors: Preparation for Field Camp

UA Geosciences now has more than 200 majors. When, last year, we asked our majors to list their greatest needs in becoming prepared to enter the field of geosciences, they responded: 1) more research experience; 2) more perspective on career planning; 3) more preparation for geology field camp. In response to “more preparation for field camp,” George Davis designed a course entitled “Interpreting Outcrops and Geologic Contacts” (GEOS 496e) and engaged 26 undergraduates in geological mapping during spring semester, 2014. More than half of these students will be taking field camp this summer in programs that include UA, Indiana University, South Dakota School of Mines, and others.

George and his students departed from the Gould-Simpson loading dock almost every Friday at high noon for an afternoon of mapping, and supplemented this with some Saturday trips as well. Map areas were close by, in the Tucson, Catalina, and Rincon Mountains. During the course of the semester, the students mapped folded and faulted Cretaceous sedimentary rocks; tilted and dike-intruded volcanic rocks; Basin and Range faulting; intrusive contacts between granite and schist; and, of course, a detachment fault with both ugly and beautiful fault rocks. All the mapping and field notebook management was completed in the field, including cross sections: The nemesis of field camp directors is trying to convince students that they need to put color and measurement symbols on the map from the beginning, not waiting until the end of the day or the end of the week!

Facebook testimonials suggest that the students had a good time, except perhaps on the final day of mapping, which was a final exam mapping project. George reports that teaching this course was unusually satisfying because the mapping experiences, combined with constant feedback to students throughout the course, resulted in obvious advances in skill and capacity. Most importantly, the students developed a mindset for what geological mapping is all about; how to approach geological mapping from the first minute of a project; and what constitutes a finished product.

The jury is still out on the degree of impact of this course, but we will soon find out when students return from field camp later this summer. Then we can determine how best to modify and enhance our approach to helping undergraduates prepare for field camp.
Foresummer in the Old Pueblo brings anticipation of the monsoon and an end to an eventful and productive 2013–14 academic year. Jay Quade deserves huge thanks for taking on the job of Department Head in 2012–13, and filling his shoes is not easy. But being surrounded by colleagues who are not only some of the best scientists in the world but who also support each another and genuinely believe in our program makes this job easy. Okay, not easy, but worthwhile. I thank my lucky stars for the quality of my colleagues (faculty, researchers, staff, and students) that I have the privilege to work with in our department.

Our academic programs are doing great. Our undergraduate majors now number 220 (up from 60 in 2006), and many of our classes are bursting at the seams. We’re hiring a new undergraduate academic advisor to help make our students’ experience even better, and we will soon launch a campaign to increase undergraduate participation in research. Our graduate program is as strong as ever, attracting outstanding students from all over the world who go on to academic, industry, and other types of positions of which we are proud.

We garnered several well-deserved faculty awards this year, including University Distinguished Professor to Andy Cohen, Regents Professor to Jonathan Overpeck, and the 1885 Society Distinguished Scholar Award to Joellen Russell. Our faculty’s research continues to succeed by any measure, and although I could fill pages bragging about this, I can only mention a few here:

- Paul Kapp is wrapping up leadership of a major four-year, multi-institution study of the Indo-Asian collision/suture zone (and don’t get him started talking about wind erosion).
- Joellen Russell is leading the modeling component of the Southern Ocean Carbon and Climate Observations and Modeling project (SOCOM), a $21M-collaborative project (under final consideration by NSF Polar Programs) between Arizona, Princeton, Scripps, Washington and MBARI.
- Andy Cohen is leading a $10M multidisciplinary international drilling program studying climate and hominid evolution in East Africa.
- Karl Flessa is leading a historic experiment on some of the first Colorado River flow to make it to the Gulf of California in more than 50 years. (See page 3.)
- Bob Downs is leading groundbreaking contributions to understanding Martian mineralogy with the Curiosity Rover.
- Julie Cole is leading unprecedented ENSO and global climate reconstructions from Galapagos coral reefs.
- Roy Johnson is leading a powerful 3D seismic analysis collaboration with Hyperdynamics on the West African rifted margin.
- All the while, the blue glow of argon plasma illuminates a steady stream of new geochronologic discoveries being made in George Gehrels’ Arizona Laserchron Center.
- Unfortunately for us, one of our great icons of UA Geophysics, George Zandt, has decided to retire at the end of 2014. George has had a tremendous impact on our geophysics and tectonics programs, and although we can no longer make him teach classes and serve on committees, we’re hoping that he will stick around a long time and contribute in many important ways.

Other goings-on include:

- Jay Quade and Mihai Ducea will lead an outstanding crop of Field Camp students through an integrated perspective of western US Cordillera this July.
- Our department’s community outreach is organized, amped up, and impactful, thanks to efforts of volunteers and Outreach Coordinator Phil Stokes. (See page 14.)
- Led by Adam Hudson and Shaunna Morrison, our graduate students ran a great 42nd (!) annual GeoDaze conference and Earthweek, featuring plenary speakers volcano seismologist Stephanie Prejean of the USGS, and Science editor-in-chief Marcia McNutt. (See page 12.)
- Bob Krantz (MS ’83, PhD ’86) teamed up with faculty to teach a shortcourse on 3D visualization in seismology and tectonics, inspiring a new departmental initiative to establish a “Computational Earth” facility for Geosciences for modeling, visualization and big data. (See page 7.)
- Our Department put its best face forward for a septennial Academic Program Review, and George Davis led us fearlessly through a successful and year-long scrutiny of virtually every aspect of our program, with positive reviews by a visiting committee.
- We held several receptions for alumni including a big event in Houston for SEG led by Marc Sbar, a Front Range reception starring Jay Quade, our inaugural Phoenix reception featuring Paul Kapp, a big Geosciences welcome party in downtown Tucson, a GSA/Denver-area alumni reception, an all-SEES reception at AGU, and the all-schools reception at AAPG.
- The Gould-Simpson lobby is enjoying a long-awaited “refreshing” and will soon feature several giant polished slabs of igneous and metamorphic rocks donated by Arizona Tile.

Although UA Geosciences is doing well in so many respects, as you all know, recent budget cuts have made things difficult. Support from our alumni and friends has never meant as much as it does right now, from field supplies for student labs, to merit-scholarships for our department’s new undergraduate program fee, to funds to leverage new faculty positions from the University. As we move into 2015, UA Geosciences is planning a coordinated capital campaign to ensure our continued success in cutting-edge, integrative geoscience, and some of you will be hearing from us for help with this. In the meantime, please consider making a gift today, to help maintain the legacy of UA Geosciences and our unique high-quality, high-impact, collegial, and collaborative program. — Pete Reiners

From The Department Head
University of Arizona scientists Karl Flessa and Ed Glenn and a binational team of scientists will monitor the effects of an engineered spring flood to bring water to the parched Colorado River delta.

The pulse flow of water into the dry lower reaches of the Colorado River began March 23.

“This allocation of environmental water to the Colorado River Delta in Mexico is unprecedented,” said Flessa, UA professor of geosciences and co-chief scientist of the monitoring effort. “We need to learn how to actively manage habitats at this scale. The scientific monitoring of the pulse flow and its aftermath will help us do so.”

Upstream dams and water diversions for farms and cities in both countries have dried up most of the river south of the border. With the exception of a few wet years, the river has not reached the Gulf of California since 1960.

The U.S. and Mexico will release about 105,000 acre-feet of water, approximately 0.7 percent of the river’s annual flow, into the delta below Morelos Dam, which straddles the U.S.-Mexico border just west of Yuma. An acre-foot of water is 325,900 gallons.

“We’re trying to simulate a spring flood, even though the amount of water is small compared to the natural spring floods of the era before the dams, when the river regularly flowed over its banks and formed extensive wetlands and forests of cottonwoods,” Flessa said.

This engineered spring flood is one outcome of Minute 319, a 2012 addition to the 1944 U.S.-Mexico Water Treaty.

The agreement is a framework for cooperation that provides multiple benefits for Colorado River water users in both countries, including environmental flows to the delta. Minute 319 identifies criteria for sharing of future water shortages and surpluses between the two countries, allows storage of Mexican water in Lake Mead and funds improvements to Mexican irrigation infrastructure.

The five-year program to monitor the environmental results of the pulse flow is being supported by government agencies and environmental groups in both countries, under the auspices of the International Boundary and Water Commission.

The monitoring team includes scientists from the UA, the Universidad Autónoma de Baja California, the U.S. Geological Survey, the U.S. Bureau of Reclamation, The Nature Conservancy, the Tucson-based Sonoran Institute and the Ensenada-based Pronatura Noroeste.

“The pulse flow is a vital part of our ongoing restoration efforts. We know that relatively small amounts of water can make a big difference in the health of the delta region,” said Francisco Zamora Arroyo, director of the Colorado River Delta Legacy Program at the Sonoran Institute.

Glenn, a UA professor emeritus of soil, water and environmental science, is leading the vegetation and remote-sensing teams. The pulse flow is designed to stimulate the growth of the delta’s natural vegetation by dispersing native seeds and fostering their growth by raising the water table in the vicinity of the river’s now-dry channel.

New growth will create the habitats that support wildlife. Close to 380 bird species are expected to benefit from this return of water to the delta, said UA alumnus Osvel Hinojosa, the water and wetlands program director at Pronatura Noroeste.

“We’re all energized by such big science that could have such a big outcome for restoration on the delta and in dryland rivers elsewhere,” Flessa said. “Ed Glenn and I have been working on the delta for more than 20 years and this is a dream come true. People told us this would never happen – and here it is.”

The UA and its partners in the Colorado River Minute 319 Binational Partnership received a U.S. Department of Interior 2013 Partners in Conservation Award in January. Glenn accepted the award on behalf of the UA.
Each year during GeoDaze, the Geosciences advisory board meets in Tucson. As part of this meeting, they select the annual recipient of the Distinguished Alumni Award. Here, the past four recipients tell us a bit about themselves.

2011 Elizabeth Anthony (MS ‘79, PhD ‘86)
Libby Anthony is on the faculty at the University of Texas, El Paso, Department of Geological Sciences. She has three ongoing research interests:

- The East African Rift and its utilization for geothermal energy. She and a number of colleagues have graduated Kenyan geologists over the last few years. They have returned to Kenya to form the Geothermal Development Corporation. Google GDC and, please, be impressed with their international connections and dedication to geothermal energy and its potential for clean and sustainable energy.
- Professor Anthony has been very involved in modeling Gulf of Mexico opening and petroleum reserves associated with this event. She has worked with Bill Dickinson (Geosciences professor emeritus) and Bob Stern, as well as colleagues from the University of Texas at Austin to understand the shallow and deep-water oil reserves.
- Her third interest is the lithosphere and asthenosphere structure of western North America. We live in an area of high elevation and abundant normal faulting. She, with colleagues from France, Europe, and Japan are studying the composition and rheology of this region.

In addition to research, Professor Anthony has promoted the establishment of the Spencer R. Titley Graduate Student Fellowship. She encourages all who learned so much from Spence to contribute. She is also very proud to say that her TA for Undergraduate Petrology this semester is Warren Allen (BS ’13), who did a senior thesis with George Davis on the pseudotachylites in the Catalinas. A proud tradition lives on!

2012 Douglas Silver (MS ‘80)
Douglas Silver has focused his career on the issue of mineral valuations. After graduating from the University of Arizona with an MS in economic geology, he worked as an exploration geologist for the Anaconda Copper Company. His involvement in the discovery of the Silver Creek Molybdenum deposit, Colorado, coincided with Anaconda’s decision to create a fully-dedicated acquisitions group, and he was transferred to Anaconda’s headquarters in Denver, Colorado in 1982. As the youngest member of this team, Mr. Silver was responsible for all of the core acquisition activities, including, but not limited to, technically profiling project opportunities, conducting due diligence investigations and creating economic valuation models.

After leaving Anaconda, Mr. Silver established a unique consulting practice designed to assist mining executives and boards of directors in making better-informed decisions. His private company, Balfour Holdings, was involved in a wide array of global assignments for clients ranging from business development, behavioral profiling of competing bidders, raising money, transaction negotiations, investor relations activities and special board-level requests.

During his career, Mr. Silver has worked for the Anaconda Copper Company, Noranda Exploration, Metals Economics Group, Bond International Gold, Pincock, Allen and Holt, Balfour Holdings, and International Royalty Corporation. He sits on the Board of Directors for several public companies as well as on advisory boards for the University of Arizona’s College of Engineering, for the Department of Mining & Geological Engineering, the Lowell Institute of Minerals Resources, and for the Women’s Mining Coalition.
2013 Steven Lingrey (PhD ‘82)

I was born and raised in southern California. I became aware of rocks as a boy since my grandpa had told me that anywhere I go, I should come back with a rock. We had a bin in our backyard that contained a collection of these rocks from various (mostly California) places. My grandpa’s father had been a Swedish stonemason, so he had learned a bit about minerals that he passed onto me; the micas were my favorites.

Years later (1971) as an undirected Occidental College freshman in northern Los Angeles, the 6.6M San Fernando earthquake acted as a focusing event that drew me into a geology course. I declared geology as my major the next year and my rock collecting resumed. Dr. Joe Birman warned me that becoming a geologist was dangerous: “Steve, we will give you a good geological education. We will teach you all the rules of geology. But, you really need to go to graduate school and learn that there are exceptions to every rule of geology.”

Starting graduate school just down the road from Oxy at the University of Southern California was pivotal. The Oxy profs had been slow to believe in the plate tectonics revolution, so Dr. Greg Davis’ 1974 Geotectonics course was a major eye-opener. Greg followed this with a structural mapping class that was two parts humiliating and three parts brilliant. I became fascinated with the process of building a structural interpretation from field data. Greg emphasized that a simple pencil was a structural geologist’s most important scientific instrument. He taught me to aggressively speculate and draw out my emerging structural interpretations. He also cautioned: “Never forget, however, that this is the most important end (pointing to the eraser).” I was amazed at how often one had to get it wrong before one got it right.

With the USC structural boot camp behind me, I entered the University of Arizona PhD program under Dr. George Davis in 1977. George has an intense passion for structures in the field. I became infected by this passion and learned the concept of “sick-fun”: the idea that a seemingly tedious effort of collecting masses of ambiguous structural data could in the long run organize itself into a compelling and beautiful structural story.

In 1981, I took my passion for resolving structural problems to Exxon’s research center in Houston, Texas, and I have been associated with this organization for the past 30 years. In California and Arizona, it was the arrangement of rocks in the field that posed the structural conundrums to be resolved. In the energy industry, however, it is their massive collection of seismic data that became my “field area” and bottomless source of structural problems to unravel. Structural restorations and 3D faulted frameworks are my special interests. So after having worked to clarify structural puzzles on all continents, I now retire from Exxon and return to Tucson as a new adjunct to the Department of Geosciences. I am eager to see what the next 30 years of geology have to offer.

2014 Lawrence Archibald (MS ‘82)

Larry Archibald has over 30 years of technical and executive leadership experience in the oil and natural gas industry. He earned a bachelor’s degree in geology from Colgate University in 1979, a master’s degree in geosciences from the University of Arizona in 1982 and an MBA from Regis College in 1986.

He started his career as a geologist with Amoco in Denver in 1982, and during the 1990s, he worked for Amoco in Houston on a number of international exploration programs. Between 1999 and 2006, his exploration management roles with BP included leadership of programs covering the Gulf of Mexico deepwater, Gulf of Mexico Shelf, Norway, Angola, and worldwide new ventures, and was vice president of Russia offshore exploration. In addition, Mr. Archibald held positions in corporate and exploration planning in BP and in Amoco. He joined ConocoPhillips in Houston in 2008 as vice president of Exploration and is presently senior vice president of Exploration.

Mr. Archibald serves as a ConocoPhillips executive sponsor at The University of Texas and serves on The University of Texas/Jackson School Advisory Board. He is a member of the American Association of Petroleum Geologists.
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Many thanks to the alumni, friends, and corporations listed below for their generosity and support.
(Gifts listed below were received between 4/16/2013 and 4/30/2014.)

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3D Structural Interpretation Workshop

Bob Krantz (MS ’83, PhD ’86), Principal Structural Geologist at ConocoPhillips, co-convened a prestigious Hedberg Conference (AAPG) in Reno, Nevada in June, 2013. The focus was 3D Structural Interpretation, as viewed through the eyes and gray matter of structural geologists and seismologists (industry and academia), and several cognitive scientists who have become students of the 3D thinking of structural geologists. Part of the emphasis was the strategic need for geologists with high-level capacities in 3D visualization and thinking, and an encouragement for creating learning environments (both in academia and industry) that help enhance these capacities.

Based on the success of the Hedberg Conference, Bob, partnering with Roy Johnson and George Davis, led a two-day UA Geosciences workshop in 3D Structural Interpretation. Geosciences Support Systems Analyst Kiriaki Xiluri-Lauria did the impossible in preparation, setting up 15 work stations in Gould-Simpson so that the 15 graduate students participating in this experience could work with state-of-the-art software in carrying out exercises in 3D modeling and visualization.

A major focus of the workshop was deciphering the structural geometry of the Hat Creek Fault System in northern California, an active tectonic system made famous by Bob Krantz’s investigations and field workshops. George Davis contributed insights into 3D thinking through presenting and interpreting the power of visual metaphor in teaching structural geology and enhancing 3D visualization skills.

Bob Krantz speaks to the group at the 3D Structural Interpretation Workshop. Photo by Alicia Saposnik
With Your Support: The William R. Dickinson Field Trip Fund

Tectonics Research Group Trip
by Devon Orme, PhD student

The UA Tectonics Research Group participated in a field trip with the Stanford Project on Deep-water Depositional Systems (SPODDS) graduate research group in the Department of Geological and Environmental Sciences at Stanford University this past April.

The University of Arizona Tectonics Research Group and the Stanford Project on Deep-water Depositional Systems at Donner Pass Summit, Sierra Nevada, California. Photo by Devon Orme

The trip stemmed from a desire to better understand ancient convergent margins, namely the development of an accretionary forearc system. Many of the UA and Stanford participants work on various aspects of these systems across the world, which led to engaging discussions on the outcrop.

PhD student Andrew Laskowski standing for scale in front of turbidites in the Great Valley forearc basin. Photo by Devon Orme

The trip was led by Dr. Stephan Graham, the foremost expert on Great Valley Forearc stratigraphy and current Associate Dean for Academic Affairs and Welton Joseph and Maud L’Anphere Crook Professor with the School of Earth Sciences at Stanford University. UA participants wish to thank all those who contributed to the William R. Dickinson Field Trip Support fund and made the trip possible! UA Geosciences participants were professors Barbara Carrapa and Peter DeCelless; graduate students Devon Orme, Kate Metcalf, Andrew Laskowski, Ross Waldrip, Ryan Leary, Elizabeth Balgord, Jay Chapman and Ted Cross, and postdoctoral researcher Peter Lippert.

Tectonic Geodesy Group Trip
by Joshua Spinler, PhD student

The University of Arizona Tectonic Geodesy Group offers hands-on experience to students interested in studying active tectonics using GPS geodesy by operating GPS equipment, and collecting and processing GPS data. With generous funding from the William R. Dickinson Field Trip Fund, the GPS Processing Seminar course (GEOS 596F), consisting of three graduate and three undergraduate students, conducted campaign GPS data collection in Joshua Tree National Park in October, 2013. Each student played a vital role in carefully planning the GPS campaign, and over a period of 6 days, the group occupied 21 campaign GPS sites located within the park and the immediate surrounding region. Participating students learned to deploy and operate campaign GPS equipment, gained familiarity with two different types of geodetic monuments, and learned to process the collected data in the UA Tectonic Geodesy Lab.

This field trip, and the data collected, is part of a longer-term study aimed at understanding the complex southern San Andreas Fault system and its relationship to the eastern California shear zone. The University of Arizona's Joshua Tree Integrative GPS Network (JOIGN) consists of 21 campaign GPS stations that have now each been occupied between four and 10 times since the fall of 2005, providing the UA Tectonic Geodesy Lab with a rich data set with which to interpret the complexities of the region.

Though the course met during the fall 2013 semester, the research group, led by undergraduates Lily Jackson and Harry Linang, continued their work through the Spring 2014 semester, ultimately leading to the presentation of a poster of their work at the annual GeoDaze Symposium. Course participants were Professor Richard Bennett and visiting professor G. Esteban Vázquez; graduate students Kat Compton, Phillip McFarland, and Joshua Spinler; and undergraduates Siti Nurul Izzati Mohd Haata, Lily Jackson, and Harry Linang.
Geosciences has a lot to be proud of: a booming undergraduate program, highly-ranked graduate program, award-winning professors, inspiring community outreach, and integrative cutting-edge research. And we need the support of our alumni and friends now more than ever. Be a part of the UA Geosciences legacy and help sustain our mission-critical programs in one of the ways below:

**Engaging our Students**

- **$150:** Merit-aid support for one semester of one undergraduate student’s Geosciences program fee
- **$200:** Support for one graduate student to attend beginning-of-year Grand Canyon field trip
- **$250:** Stipend for officers of Society of Earth Science Students (SESS) (undergraduate geology club)
- **$500:** Quarterly support for graduate student Geoclub
- **$750:** Send a student to a national AGU or GSA Meeting
- **$15,000:** Endowed Leadership Fund for Society of Earth Science Students (SESS) (undergrad geology club)
- **Greatest Need — Every bit helps! Examples:**
  - Rock hammers, hand lenses, GPS, Bruntons for student fieldwork, suite of petrology or paleontology teaching specimens, passenger van rental for local field trips, funds for undergraduate research projects.

**Enhancing our Impact**

- **$250:** Supplies for outreach demonstrations (volcano, stream table, mineral ID tools, fossils)
- **$350:** Supplies for American Indian Science and Engineering Society Geosciences Outreach Program
- **$600:** Support for a visiting distinguished UA Geosciences Colloquium Series speaker
- **$1,000:** Graduate student assistantship stipend for major community outreach event
- **$1,500:** Installation of 4’ x 8’ slab of translucent onyx donated by Arizona Tile for Gould-Simpson lobby
- **$2,150:** Suite of petrologic thin-sections for petrology classes
- **$3,000:** Lighting for six new 5’ x 10’ polished slabs of migmatite, pegmatite, schist, and granite donated by Arizona Tile for Gould-Simpson lobby
- **$4,500:** September alumni reception and welcome-back party in Tucson sponsorship
- **$5,000:** New high-end workstation computer for geophysics, geodynamics, and climate modeling
- **$5,500:** New petrographic microscope for Geosciences courses and student research
- **$90,000:** Development of “Computational Earth” computing facility
- **Greatest Need — Every bit helps! Examples:**
  - Rock saw blades, alumni development support, Field Camp supplies, Departmental field trip support, weekly colloquium speaker series, Director of Graduate Studies stipend, international research collaboration seed funds, support for international student/postdoc/researcher exchanges.
Venturing off the beaten path, finding his way by reading maps, and looking for benchmarks using a compass were passions for my brother. He understood the language of maps as a pictorial language that communicates with lines, colors and graphic symbols. This was how my brother, Kevin Reid Gregory, came to love maps and to study maps to navigate the land around him.

Using maps as a two dimensional tool that helped him visualize and understand the Earth’s surface became his life work and also his life-long hobby. As an avid hiker, mostly in his home state of Colorado but also many of the states in the Southwest, my brother found a joy in finding unique trails and historical designations. He had a relentless pace when he hiked, leaving in the dust all of those who dared accompany him on his weekly adventures. He worked at Intra Search, Inc., a professional imaging source for mapping, in Greenwood Village, Colorado, working on hand-drawn topographical, geological, environmental and survey maps.

Over the years he collected over 1,000 maps from USGS, which allowed him to navigate and enjoy his short but fulfilling life, taken by a rare form of cancer at a young 58. His sense of humor and his jokester ways made him someone to be remembered by fellow workers, hikers and a large extended family. He became a caregiver for his father in his last few years, even though he was going through his own devastating medical problems, but he always managed to go on a walk, hike or stroll using his maps.

Kevin’s ashes were spread in his beloved Rocky Mountains near Kenosha Pass southwest of Denver, overlooking South Park. I donated his collection of maps to UA Geosciences with the hope that they will be used by students, faculty and anyone who has a love of maps, and by those who are learning about the geography of the land. I hope some might travel to see all the wonders that the maps showed my brother, as well as share in the understanding of our planet and the joy that it brought to my beloved brother.
Forging Ahead: The Lowell Institute for Mineral Resources

by Isabel Fay, (MS ’10, PhD ’14)

The University of Arizona has led America in mineral resources education and research for 125 years. In 1994, UA Geosciences took the lead in forming the Center for Mineral Resources, bringing the economic geology program in geosciences into partnership with the US Geological Survey and a number of mining companies. In 2005, this Center for Mineral Resources coalesced with mining-related programs in the Colleges of Engineering and Public Health to form the Lowell Institute for Mineral Resources (IMR). With major support from Science Foundation Arizona and industry partners, and additional generous support from J.D. Lowell and others, the IMR now spans 10 UA colleges and 26 UA departments, and involves more than 260 UA faculty and staff as well as academics, government organizations, NGOs, and mining industry professionals from Lima to Ulaanbaatar. Interdisciplinary research continues to grow today as the IMR leads America in studying everything from novel methods of reclaiming old mining sites to finding new supplies of copper and other critical metals to mineral law.

UA Geosciences supports the IMR with research towards a sustainable, environmentally responsible supply of mineral resources for the future, as well as hosting an IMR cornerstone: the Lowell Program in Economic Geology.

Since its inception in 2000, the Lowell Program in Economic Geology has broadened and intensified graduate and professional training related to the geology of mineral resources. Lowell Program field courses in ore deposit geology have reached more than 900 students and professional geologists worldwide, with three more offerings in the coming academic year (ore deposit mapping, Cu-Au(-Mo) systems, structural geology). In the last six years, more than 35 geology graduate students at UA have benefited from IMR support through the Lowell Program and Science Foundation Arizona. Here is a snapshot of some of the projects of the May 2014 graduates:

Aryn Hoge’s structural reconstruction of part of the complex Eureka district (Nevada) not only helped to establish the geometry of the complex Jackson–Lawton–Bowman fault system, but elucidated its relationship to multiple episodes of hydrothermal alteration, including the Carlin-type gold deposits in the district. Aryn is finishing her MS and intends to work in the mining industry. Her project was supported by Barrick Gold.

Ada Dominguez performed paleogeographic reconstructions through 600 million years of Earth history to correlate porphyry, sediment-hosted, and iron oxide-copper-gold deposits with paleoclimate zones and examine the connection between ore deposits and climate. After her MS is done, Ada plans to work with BP in Houston. Her research was supported by an NSF fellowship program through the UA Graduate College.

James Girardi studied magmatic fluxes in North and South American Cordilleran batholiths and their relationship to iron oxide(-copper-gold deposits). After graduating with his PhD, he will join BP in Houston. His research has been supported by the USGS, NSF, Science Foundation Arizona, the Arizona Geological Society, and Freeport-McMoRan.

Geosciences’ current work with the IMR also includes ongoing studies on the 4-D evolution and metallogeny of the northern and southern Basin and Range; the geology of ore deposits from Nevada to Chile and beyond; the crystal chemistry and structure of thiospinel, REE, and other minerals; the geochemistry of metals in geologic environments; the feasibility of recovering metals from byproduct and anthropogenic sources; the geochemistry of thallium and other metals of exploration and environmental interest; and applications of mineralogy to mine engineering, public health, geoarchaeology, and environmental sciences. Look for further interdisciplinary developments in mineral resources research and teaching through the IMR in the coming academic year!

For further information, please contact:

Dr. Mark Barton
Professor of Geosciences and Associate Director,
Lowell Institute for Mineral Resources
mdbarton@email.arizona.edu

Dr. Eric Seedorff
Associate Professor of Geosciences and Director,
Lowell Program in Economic Geology
seedorff@email.arizona.edu

The University of Arizona, Tucson
Lowell Institute for Mineral Resources
GeoDaze 2014 at a glance:

- 31 oral presentations
- 23 poster presentations
- $6,100 in prize money awarded
- 40 individual and corporate sponsors
- An all-EarthWeek poster session with posters from Atmospheric Sciences, Geosciences, Hydrology and Water Resources, School of Natural Resources & the Environment and Soil, Water & Environmental Science displayed simultaneously
- GeoDaze Keynote Speaker: Stephanie Prejean, USGS, “Forecasting Eruptions at Alaskan Volcanoes: High Stakes Science in Real Time”
- EarthWeek Plenary Speaker: Marcia McNutt, Science, “Entering the Era of the Geosciences”

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**GeoDaze Awards**

<table>
<thead>
<tr>
<th>Award</th>
<th>Prize</th>
<th>Recipient</th>
<th>Award Sponsor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best Overall GeoDaze Presentation</td>
<td>$2,000</td>
<td>Kendra Murray</td>
<td>Errol L. Montgomery &amp; Associates</td>
</tr>
<tr>
<td>2nd Best Overall Presentation</td>
<td>$1,000</td>
<td>Isabel Fay</td>
<td>BP</td>
</tr>
<tr>
<td>Best Undergraduate Talk</td>
<td>$500</td>
<td>Alexandria Will-Cole</td>
<td>Chevron</td>
</tr>
<tr>
<td>Best Geophysics Talk</td>
<td>$300</td>
<td>Josh Spinler</td>
<td>Sonshine Exploration</td>
</tr>
<tr>
<td>Best Climate and Paleoclimate Talk</td>
<td>$300</td>
<td>Paul Goddard</td>
<td>Balfour Holdings</td>
</tr>
<tr>
<td>Best Economic Geology Talk</td>
<td>$500</td>
<td>James Girardi</td>
<td>John Guilbert &amp; Jan Harelson</td>
</tr>
<tr>
<td>Best Tectonics and Geochemistry Talk</td>
<td>$300</td>
<td>Devon Orme</td>
<td>Terrence Gerlach &amp; A. Litasi-Gerlach</td>
</tr>
<tr>
<td>Best Overall GeoDaze Poster</td>
<td>$500</td>
<td>Gloria Jimenez</td>
<td>Gerard &amp; Byoung Sun Beaudoin</td>
</tr>
<tr>
<td>2nd Place GeoDaze Poster</td>
<td>$300</td>
<td>Simone Runyon</td>
<td>Miles G. Shaw</td>
</tr>
<tr>
<td>3rd Place GeoDaze Poster</td>
<td>$100</td>
<td>Phillip McFarland</td>
<td>Sarah Lynn Peyton &amp; Richard J. Bottjer</td>
</tr>
<tr>
<td>Best Undergraduate Poster</td>
<td>$300</td>
<td>Mohd Faiz Hassim</td>
<td>Peter L. Kresan</td>
</tr>
</tbody>
</table>

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L to R: GeoDaze co-chair Adam Hudson, EarthWeek speaker Marcia McNutt (Science), GeoDaze speaker Stephanie Prejean (USGS), and GeoDaze co-chair Shaunna Morrison. Photo by Devon Orme

Graduate student Phillip McFarland, undergraduates Harry Linang and Lily Jackson, and graduate student Josh Spinler help present the poster resulting from the GPS Processing Seminar (see page 8) at the GeoDaze poster session.

Geosciences undergraduate Mariah Romero-Armenta (l) and graduate student Devon Orme stand beside Mariah’s first-ever scientific poster at the GeoDaze poster session.

Geosciences undergraduate Mariah Romero-Armenta (l) and graduate student Devon Orme stand beside Mariah’s first-ever scientific poster at the GeoDaze poster session.
GeoDaze Field Trip: The San Pedro Valley

by Alexis Licht and Ross Waldrip

Participants of the 2014 GeoDaze fieldtrip went to Teran Wash in the San Pedro Valley at the southern foot of the Galiuro Mountains east of Tucson. Teran Basin exposes Proterozoic through Pliocene units and the deformation and sedimentary rocks exposed provide an excellent display of the tectonic history of southern Arizona. The purpose of the field trip was to showcase Oligocene lacustrine and alluvial fan sediments, the Mineta and San Manuel Formations, which provide important clues into the mid Cenozoic tectonic setting of southern Arizona.

Professor Jay Quade from the UA Department of Geosciences organized the fieldtrip, with Geosciences graduate student Ross Waldrip and post-doctoral researcher Alexis Licht leading. Forty people, including several senior geologists, adjunct faculty, and graduate and undergraduate students, attended the field trip. The trip addressed a large array of geological topics, such as Cretaceous and Cenozoic deformation in southern Arizona, paleoaltimetry methods, lacustrine sedimentary facies, and how to dig out 15-passenger vans stuck in a wash (the undergraduate students were outstanding help).

Both the Mineta and San Manuel Formations are unique in documenting the early and late phases of basin formation caused by the evolution of the Catalina-Rincon Metamorphic Core Complex and the dismemberment of the earlier Cretaceous highs. New data and observations were presented that hypothesized that these highlands were once connected with the Sevier Fold Thrust Belt through to the central Mexican highlands and constituted a former ‘Mexicanoplano.’

The weather was perfect, cool and sunny. The participants were eager and understanding in the face of difficulties with traction. Everyone was able to leave with a better understanding of tectonic history of southern Arizona.

GeoDaze sponsors are included on the donors pages of this newsletter. Thank you for making GeoDaze happen!

Mark your calendars for GeoDaze 2015
April 9 - 11

We thank our Advisory Board members for their time, effort, and contributions to our program!
On February 8, UA hosted 54 participants for the fifth annual Saturday Science Academy. This year’s theme was Astonishing Astrobiology. The purpose of the event was to have a UA STEM-related outreach event hosted by students targeting underrepresented 7th-8th grade students from local middle schools. Fifty middle school students attended, and 20 UA undergraduate and graduate students from Geosciences, Astronomy and Planetary Sciences, Molecular & Cellular Biology, Soil, Water & Environmental Science, Journalism, and Fine Arts volunteered at the event.

The event featured keynote speaker Martin Pepper (Geosciences PhD student), who spoke about setting goals and accomplishing what you want to in life, as well as several hands-on activities for the students. Activities included a soil texturing session led by SWES graduate student Asma El Ouni (materials graciously supplied by SWES club), a rock and fossils exhibit incorporating micro and macro fossils led by Geosciences undergraduate student Lily Jackson and the Society of Earth Science Students club and a habitable planets demonstration by the Astronomy club. SWES graduate student Gary Trubl coordinated the event and is already planning the next Saturday Science Academy for fall, 2014.

Tucson Gem and Mineral Show

While volunteering at the Tucson Gem and Mineral Show, Geosciences senior and outgoing Society of Earth Science Students club president Lily Jackson met Ray Fairbank. Mr. Fairbank was looking for an opportunity to donate his mineral and fossil collection for education and outreach. It was a perfect match, and Lily gratefully accepted, picking up the collection a few weeks later.

Mr. Fairbank started the Mid American Paleontology Society in 1974 along with his late wife and her two siblings. He has a long-standing interest in collecting fossils and minerals and is passionate about young people and their education. Originally from Montana, Mr. Fairbank worked as an engineer for John Deere and has his name on nine patents.
Fall Scholarships
Sarah Baxter, PSM student, SRK Consulting Scholarship, $6,000
Jordon Bright, PhD Student Sulzer Scholarship $4,601
Christopher Cooper, PhD Student Sumner Scholarship $4,601
Ursula Ginster, PhD Student ConocoPhillips Scholarship $4,601
Adam Hudson, PhD Student ConocoPhillips Scholarship $4,601
Sydnie Lemieux, BS Student Kenneth Lovstrom Scholarship $2,684
Phillip McFarland, MS Student ConocoPhillips Scholarship $4,170
Martin Pepper, PhD Student Sulzer Scholarship $4,727
Andrea Stevens, PhD Student ConocoPhillips Scholarship $4,601
Hector Zamora, PhD Student Sulzer Scholarship $4,601
A total of $45,187 was awarded

Spring Scholarships
Jordon Bright, PhD Student Sulzer Scholarship $4,601
Rachel Cajigas, PhD Student Sulzer Scholarship $4,601
Russell Edge, PhD Student ConocoPhillips Scholarship $4,727
Ursula Ginster, PhD Student ConocoPhillips Scholarship $4,601
Mohd Faiz Hassim, BS Student David Moore Scholarship $751
Adam Hudson, PhD Student ConocoPhillips Scholarship $4,601
Ryan Leary, PhD Student ConocoPhillips Scholarship $4,727
Jared Olyphant, PhD Student ConocoPhillips Scholarship $4,601
Alissa Scire, PhD Student ConocoPhillips Scholarship $4,727
Preston Smith, BS Student Research David Moore Scholarship $633.60
Kevin M. Ward, PhD Student Sulzer Scholarship $4,601
James Worthington, PhD Student ConocoPhillips Scholarship $4,601
A total of $47,772.60 was awarded

Summer Scholarships
Elizabeth Balgord, PhD Student
Peter J. Coney Scholarship $1,500
Brandon Bishop, PhD Student
John & Nancy Sumner Scholarship $1,500
Alejandro Blanco-Ocampo, PhD Student
Chevron Scholarship $1,500
James Chapman, PhD Student
Chevron Scholarship $1,500
Kathleen Compton, PhD Student
John & Nancy Sumner Scholarship $1,500
Christopher Cooper, PhD Student
John & Nancy Sumner Scholarship $1,500
Jonathan Delph, PhD Student
Peter J. Coney Scholarship $1,500
Ursula Ginster, PhD Student
Chevron Diversity Scholarship $1,500
Paul Goddard, PhD Student
John & Nancy Sumner Scholarship $1,500
Elin Harris-Parks, MS Student
Paul S. Martin Scholarship $1,500
Adam Hudson, PhD Student
Paul S. Martin Scholarship $1,500
Jennifer Kielhofer, PhD Student
Chernoff Family Field Experiences Scholarship $1,500
Matthew King, PhD Student
Chernoff Family Field Experiences Scholarship $1,500
Barbara Lafuente, PhD Student
Chevron Diversity Scholarship $1,500
Andrew Laskowski, PhD Student
Chevron Scholarship $1,500
Garrison Loope, PhD Student Paul S. Martin Scholarship $1,500
Phillip McFarland, MS Student John & Nancy Sumner Scholarship $1,500
Kate Metcalf, PhD Student Chevron Scholarship $1,235
Kate Metcalf, PhD Student
Peter J. Coney Scholarship $265
Devon Orme, PhD Student
Chevron Diversity Scholarship $1,000, Chevron Scholarship $500
Luke Parsons, PhD Student
Chernoff Family Field Experiences Scholarship $1,500
Martin Pepper, PhD Student
Chevron Scholarship $1,500
Cheryl Peyer, PhD Student Chevron Scholarship $1,500
Benjamin Schumer, PhD Student
Chernoff Family Field Experiences Scholarship $1,500
Andrea Stevens, PhD Student Chevron Scholarship $1,500
Kevin M. Ward, PhD Student John & Nancy Sumner Scholarship $1,500
Zachary Williams, PhD Student Paul S. Martin Scholarship $1,500
A total of $39,000 was awarded

Field Camp Scholarships
Elizabeth Balgord, PhD Student
SRK Consulting Scholarship, $6,000
Jordon Bright, PhD Student Sulzer Scholarship $4,601
Christopher Cooper, PhD Student Sumner Scholarship $4,601
Ursula Ginster, PhD Student ConocoPhillips Scholarship $4,601
Adam Hudson, PhD Student ConocoPhillips Scholarship $4,601
Sydnie Lemieux, BS Student Kenneth Lovstrom Scholarship $2,684
Phillip McFarland, MS Student ConocoPhillips Scholarship $4,170
Martin Pepper, PhD Student Sulzer Scholarship $4,727
Andrea Stevens, PhD Student ConocoPhillips Scholarship $4,601
Hector Zamora, PhD Student Sulzer Scholarship $4,601
A total of $45,187 was awarded

Galileo Circle Scholarships
The following students received a $1000 scholarship from donors to the College of Science Galileo Circle.
Ted Cross, MS Student
Jonathan Delph, PhD Student
Paul Goddard, PhD Student
Elin Harris-Parks, MS Student
Mohd Faiz Hassim, BS Student
Rachel Cajigas, PhD Student
E. V. Mayo Fellowship $2,500
Laurel Karten, BS Student
E. V. Mayo Fellowship $2,500
Zach McIntire, BS Student
E. V. Mayo Fellowship $2,500
Karl Peterson, BS Student
Rueben & Myron Winslow $2,500
Jose Ramirez, BS Student
Rueben & Myron Winslow $2,500
Jessica Rudd, BS Student
A. W. Vorhees Geology Scholarship $2,500
A total of $15,000 was awarded
For GeoDaze awards, please see page 12.

**Students**

**Kathleen Compton**, PhD student, is interning with the American Geophysical Union in their Public Affairs office. AGU Public Affairs facilitates interaction between AGU members and policy-shapers and decision-makers. She is helping to organize the third AGU Science Policy Conference and will be in D.C. through the conference dates, June 16-18. Kat also received a PEO Scholar Award (see sidebar, page 17).

PhD students **Jonathan Delph** and **Kevin M. Ward** represented the University of Arizona Geophysical Society at the Student Challenge Bowl hosted by the Denver Geophysical Society and the Society of Exploration Geophysicists in Denver and won! They competed against eight teams from BYU, the University of Colorado and Colorado School of Mines. The University of Arizona Geophysical Society sponsored Jonathan and Kevin for the competition. They are invited to compete in the International Student Challenge Bowl Competition at the SEG conference in Denver in October and will receive hotel, airfare, meal allowance, and a four-day pass to the SEG conference. University of Arizona attendees at SEG are encouraged to come support Kevin and Jonathan!

**Lily Jackson**, Bachelor of Science student, was named the Department of Geosciences outstanding senior.

**Caitlin Orem**, PhD student, won first place for her talk at the UA School of Earth and Environmental Sciences’ EarthWeek plenary session.

**Devon Orme**, PhD student, received the following awards: American Association for Petroleum Geologists (AAPG) Student Research Grant, 2014; Society for Sedimentary Geology (SEPM) Student Research Grant, 2014; and American Geophysical Union (AGU) Outstanding Student Paper Award, 2013.

**Cody Routson**, PhD student, received a Science Foundation Arizona Bisgrove Post-doctoral Fellowship for the fall.

**Louis Shanley**, Bachelor of Science student, received an honors research grant for summer 2014 from the UA Honors College.

**Ben Schumer**, PhD student, won the Mineralogical Society of America Crystallography Award for his project, “Electron Density and Bonding in Chalcogenides: An Extension of Pauling’s Rules.” The competition is open to students, post-docs and early career professors and scientists, and is a very distinguished early career award for mineralogy. Incidentally, last year’s prize was awarded to **Arianna Gleason-Holbrook** (BS ‘03).

**Andrea Stevens**, PhD student, won a National Science Foundation Graduate Research Fellowship Program award.

**Sarah Truebe**, PhD student, received a $5,000 CLIMAS Climate and Society Award for a dissertation project.

**James Worthington**, PhD student, was awarded a Fulbright award to conduct research in Germany for a year.

**Hector Zamora**, PhD student, will receive a University of Arizona Water Sustainability Graduate Fellowship for 2014-2015, funded through the state Technology and Research Initiative Fund (TRIF). The Award is offered by the UA’s Water Sustainability Program, Water Resources Research Center.

**Faculty**

Adjunct Professor **Ricardo Alonso** (University of Salta, Argentina), was awarded the Federico Ahlfeld Prize by the Mineralogical Association of Argentina. Dr. Alonso is a regular collaborator with geologists and geophysicists from the Department of Geosciences on projects in Argentina.

**Andrew Cohen** was named a University Distinguished Professor for his exceptional contributions to undergraduate education at the University of Arizona.

**Jonathan Overpeck** was appointed as a Regents’ Professor.

**Joellen Russell**’s PhD graduate student in the Department of Planetary Sciences, Juan Lora, was recently awarded the prestigious 2014 Gerard P. Kuiper Award. In addition, Joellen received the 1885 Society Distinguished Scholar Award, sponsored by the University of Arizona Executive Office of the President. She has been appointed to the U.S. Carbon Cycle Science Program’s Carbon Cycle Scientific Steering Group (CCSSG), which provides individual as well as broad scientific and application input to the Carbon Cycle Interagency Working Group as it develops and administers carbon cycle science programs within the federal government. Joellen has also been appointed to the International CLIVAR (CLIVAR/CliC/SCAR) Southern Ocean Panel. The Southern Ocean Panel is cosponsored by the Scientific Committee on Antarctic Research, and the World Climate Research Programme’s Climate and Cryosphere and Climate Variability and Predictability Programmes. Joellen had two University of Arizona NASA Space Grant Fellows this year: Jessica Rudd (Dept. of Geosciences); and Angelica Alvarez (Dept. of Neuroscience) jointly sponsored by AEGIS (Arizona Environmental Grid Infrastructure Service). Both students presented posters at this year’s GeoDaze Symposium and the NASA Space Grant Symposium. Finally Joellen has been invited to give a keynote address to the AAPG/SEPM Hedberg Conference on “Latitudinal Controls on Stratigraphic Models and Sedimentary Concepts” this September.

**Eric Seedorff** received the Geosciences Advisory Board’s 2014 Outstanding Faculty award.

**Spencer Titley** received the SME/AIME Mineral Industry Education Award. (See alumni news, page 19 for a photo and details.)

**Staff**

**Sharon Bouck**, principal accountant, won an Award of Excellence from the College of Science Staff Advisory Council.
Kathleen Compton, PhD student, received the Philanthropic Educational Organization (PEO) Scholar Award. This prestigious award was established in 1991 by the PEO Sisterhood to provide substantial merit-based awards for women of the United States and Canada who are pursuing a doctoral-level degree at an accredited college or university.

The P.E.O. Sisterhood, founded January 21, 1869 at Iowa Wesleyan College, Mount Pleasant, Iowa, is a philanthropic educational organization interested in bringing increased opportunities for higher education to women. There are approximately 6,000 local chapters in the United States and Canada with nearly a quarter of a million active members.

Geosciences boasts five additional recent PEO scholars: Isabel Fay (‘14), Kendra Murray, Jill Onken, Diane Thompson (‘13), and Sarah Truebe.

Geosciences Adds Sixth PEO Scholar

Bachelor of Science

Ali Al Subait
Mohammed Alabkari
Alaa Alam
Ahmed Mohammed Albabrani
Ahmed Alghuraybi
Abdulrahman Aljarbou
Warren Allen
Izzati Binti Mohd Haata
Gurudas Bock
Clay Campbell
Ariel Carreon
Michael DeYoung
Adrien Di Domizio
Joshua Dufek
Rachel Feuerbach
Zachary Figueroa
Mohammed Ghallab

Amber Keske
Jesse Krug
Deirdre Labounty
Sydnie Lemieux
Leandra Marshall
Jesse Martinez
Trevor McKellar
Yasmin Azalya Mohd Zaharudin
John Moore
Preston Smith
Lindsay Spencer
Simon Stickroth
Mauricio Town
Wan Fadhillah Binti Wan Mohd Hanizan
Matthew Wander
Arthur Wickham
Chelsea Yanez

Master of Science, Professional Science Master, & Doctor of Philosophy

To see this listing with research topics, please see geo.arizona.edu/Grads1314.

Erica Renee Bigio, PhD 2013
Thomas Swetnam, advisor

Cullen D. Kortyna, MS 2013
Peter DeCelles, advisor

Elias Morgan Bloch, PhD 2013
Jiba Ganguly, advisor

Mauro Joel Melgar Pauc, MS 2014
Eric Seedorff, advisor

Ada R. Dominguez, MS 2014
Mark Barton, advisor

Jason D. Mizer, PSM 2013
Mark Barton, advisor

Russ Edge, PhD 2014
Roy Johnson, advisor

Clayton S. Painter, PhD 2013
Barbara Carrapa, advisor

Nathan Samuel Evenson, MS 2013
Peter Reiners, advisor

Mark E. Pecha, MS 2013
George Gehrels, advisor

Hannah Isabel Fay, PhD 2014
Mark Barton, advisor

Carson A. Richardson, MS 2014
Eric Seedorff, advisor

James Daniel Girardi, PhD 2014
Mark Barton, advisor

Cody Craig Routson, PhD 2014
Jonathan Overpeck and Connie Woodhouse, advisors

William Rexford Guenthner, PhD 2013
Peter Reiners, advisor

Simone E. Runyon, MS 2013
Mark Barton, advisor

Aryn Kinley Hoge, MS 2014
Eric Seedorff, advisor

Diane Thompson, PhD 2013
Julia Cole, Advisor
Alumni News

Patricia Alvarado (PhD '06) won the 2012 L’Oréal-UNESCO National Award for Women in Science in collaboration with CONICET (Argentina’s National Scientific and Technical Research Council). The award recognizes and supports work by Argentinian women in science and promotes the participation of women in science nationwide. Patricia won the award for her project, “Seismic hazards in Argentina from historic to modern broadband records of damaging earthquakes.” Through this project, Patricia designed a system to map ground motion, based on earthquakes that occurred earlier in Argentina, predicting areas of higher and lower seismic hazard. The implementation of this system will not only help save lives, but will provide essential information when constructing bridges, power plants, and more.

Alex Bump (PhD ‘01) writes, “We’ve managed to base ourselves in London for the last five years and counting, and we love that. Sort of like going home to New England, only with castles and 5,000 years of history. And the girls are acquiring good accents!”

Ron Corbett (MS ‘72) retired from Cyprus Amax Minerals in 1998 and has spent the last 15 years in western Colorado. Now Ron and Gail have moved back to southern Arizona, where they recently celebrated their 44th anniversary. Life is good in Green Valley.

M. Stephen Enders (PhD ‘00) was selected as the 2013 recipient of the Ben F. Dickerson, III Award by the Society for Mining, Metallurgy & Exploration Inc. (SME). (See photo, opposite page).

Kyle House (MS ‘91, PhD ‘96), in collaboration with with Phil Pearthree (MS ‘82, PhD ‘90) and Michael E. Perkins, received the Geological Society of America’s Kirk Bryan Award for Research Excellence for the paper “Stratigraphic evidence for the role of lake spillover in the inception of the lower Colorado River in southern Nevada and western Arizona.”

Naomi E. Levin (MS ‘02) won the 2013 GSA Young Scientist Award (Donath Medal).

David Melendrez (MS, ’91) writes, “I just passed 18 years at the NASA Johnson Space Center in Houston, TX. I am now a business unit manager in the JSC Astromaterials Research and Exploration Science (ARES) directorate, overseeing a small team developing mission concepts for robotic exploration of the Moon, Mars, and asteroids.”

Chris Notgrass (BS ‘91) writes, “I had the fortunate opportunity to travel while in Europe (even a six-month adventure vacation to Afghanistan). While abroad, I also completed a MS in Occupational Safety and Health, with a concentration in Environmental Management.

Gene Suemnicht (MS ’77) writes, “I worked for Unocal Geothermal for 17+ years after leaving UA and then around the industry, eventually settling as Exploration and Development Manager for ORMAT. I finally linked up with Paul Brophy a long-time friend and colleague who founded EGS in 1995. I still get to do some remote forays. They usually involve less climbing than the Catalinas but still include some mapping and a lot of geochemical sampling. We are currently doing wellsite supervision for a project on the Island of Montserrat in the Lesser Antilles. Our drillsite is the small cleared spot in the lower center built on the flank of the Soufriere Hills volcano right up against the block/ash flows and lahars that wiped out the capitol city of Plymouth in 1995-96. The volcano still interrupts us occasionally. It has experienced major eruptive pulses every three years. The last big pulse was in 2010. Always good to be close to the action.”

Kimberly Tait (PhD ’07) was awarded the Young Scientist Award from the Mineralogical Association of Canada. Kim was also recently named the the inaugural Teck Chair in Mineralogy by the Royal Ontario Museum.

Saw Clarance Thacpaw (MS ‘60) retired as a geology professor at Rangoon University, Myanmar. Since retiring, he has been working with retired professor friends from the English, botany, engineering, and law departments at Rangoon University to translate the English dictionary into the Karen language. Saw is married to a professor of nursing and has two daughters and a son.

Lara Wagner (PhD ‘05) recently joined the geophysics staff of the Carnegie Institution for Science, Department of Terrestrial Magnetism.
Spencer R. Titley (PhD ’58), emeritus Geosciences professor, was honored at the annual conference of Society of Mining, Metallurgy and Exploration Geology held in Salt Lake City in February. Spence was the 2013-2014 recipient of the SME/AIME Mineral Industry Education Award.

UA alumni Will Wilkinson (PhD ’81) who nominated Spence for the award, Corolla (Cori) Hoag (MS ’91), Stephen Enders (PhD ’00, MS ’81), and Robert Schafer (MS ’80) (l to r above) were on hand to celebrate Spence’s well-deserved recognition. (Spencer Titley in photo center.)

Steve Enders was also recognized by the Mining & Exploration Division of SME and received the 2013-2014 Ben F. Dickerson Award, recognizing his professionalism and contributions to the mining industry. SME represents over 15,000 members in the mining, exploration and processing industries. Photo by Bill Cronin, courtesy of SME.

The following 17 UA alumni attended the Exploration Roundup Conference in Vancouver in January 2014:

Front row, left to right: Joey Wilkins (BS ’85), George Sanders (’76), Eric Jensen (PhD ’03), John-Mark Staude (PhD ’95), Brooke Clements (MS ’91)

Back Row Left to Right: Wojtek Wodzicki (PhD ’95), Louis Lepry Jr. (MS ’81), Bill Williams (PhD ’92), Jean Cline (MS ’86), Clancy Wendt (MS ’78), James Lang (PhD ’91), Matthew Gray (MS ’88), Steve Enders (PhD ’00), Peter Megaw (PhD ’90), Moira Smith (PhD ’90), David Lajack (’94-’96), Chris Greenhoot (MS ’00)

Memorials

Willard C. “Bill” Lacy passed away on December 7, 2013, having celebrated his 97th birthday. He graduated from DePauw University and the University of Illinois. With World War II on the horizon, Bill interrupted a Harvard PhD program to take a job with Titanium Alloy Manufacturing Company to search for rutile, zircon and tantalum, materials that were critical to the war effort. Bill eventually enlisted in the Navy and was assigned to the Naval Aviation Supply Depot in Oakland, CA. As the war ended, Bill went to work for the Cerro de Pasco Copper Company in Peru, where he rose to chief geologist in 1953. In 1955, Bill returned to the United States and was appointed professor of geology at the University of Arizona, where he established and served as the head of a combined Department of Mining and Geological Engineering.

Kenneth L. Zonge, Founder of Zonge Engineering & Research Organization and a friend of the Department of Geosciences, passed away on November 21, 2013. Ken was a pioneer in electrical geophysics and influenced much in the application of electrical and electromagnetic geophysics, creating many tools that are now standards in exploration. Ken’s many accomplishments include developing the complex resistivity method. Based on this idea, he founded Zonge Engineering & Research in 1972. He also developed the world’s first field-portable, digital electrical geophysical receiver in 1977, and greatly contributed to the commercial application of Controlled Source Audio-frequency Magnetotellurics (CSAMT) and Complex Resistivity (CR) services as practical exploration tools. Ken’s instruments from 20 years ago are among the best in the industry and are still competitive today.
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