

Field Notes

Newsletter of the Department of Earth & Environmental Sciences

Departmental News

Many changes and noteworthy events have occurred in the Department since the last alumni newsletter was published in 2005. We are excited to announce that **Laura Rademacher** will be promoted to the rank of Associate Professor in September of this year and will become a tenured member of the University effective September of 2010.

A new major in Environmental Sciences has been added to the curriculum and **Anne Fisher** and **Jason Dupere** will be our first two Environmental Sciences graduates this May. The Department is now home to all Environmental Studies majors. With the addition of these two major programs to the department offerings it seemed logical to recognize them in the departmental name. Therefore, the name of the department was changed from the Department of Geosciences to the **Department of Earth & Environmental Sciences**.

With the addition of the Environmental Studies major and the new Environmental Sciences major the number of students in the Department has increased significantly. When this Newsletter was written the Department was home to thirty-four majors and minors, one of our highest totals in many years. Although most are Californians, others have come from five other states [Florida, Hawaii, Nevada, Texas, and Washington, and two of our majors are international students.

We have also instituted an undergraduate research experience and/or internship requirement for each of the major programs. Even before this requirement was put in place many of our graduates were pursuing research projects and internships. We are particularly pleased that several of our students have presented the results of their research at the Cordilleran section meetings of the Geological Society of America as well as on campus at the Pacific Undergraduate Research & Creativity Conference. This year **Anne Fisher**, and **Win McLaughlin** will be presenting posters at the Cordilleran section meeting in Vancouver, BC.

With the encouragement and support from **Laura Rademacher** and **Kurtis Burmeister**, who both

joined the Department in the fall of 2005, our majors are now actively involved in two student organizations. Kurtis is the faculty advisor for the League of Extraordinary Geologists and Laura is the faculty advisor to the Students for Environmental Action [SEA]. Laura and Kurt obtained a \$150K grant from the National Science Foundation and with help from the Division of Student Life developed and successfully implemented a new residential learning community with an environmental theme ~ Residence for Earth and

Environmental Living and Learning. The Department submitted an application to establish a chapter of Sigma Gamma Epsilon, the national Earth Sciences honor society in 2007. A site visit was conducted in the spring of 2008 and on May 1, the Eta Upsilon chapter of Sigma Gamma Epsilon will be formally established at Pacific, one of only two chapters in California.

The Department was very pleased that **Lydia Fox** was the recipient of the Faye and Alex G. Spanos Distinguished Teaching Award this year. Each year the College honors one member of the faculty who has distinguished themselves by demonstrating outstanding teaching and mentoring of students. We thank the many alumni who sent in supporting statements that were submitted as part of the nominating package. The Department has now had four faculty recognized for distinguished teaching. Prior recipients include Stanley Volbrecht, Gene Pearson, and Curtis Kramer.

We are always happy to see you back on campus. **John Vernon** ('91) just visited campus with the St. Anne's [Lodi] science club. He is their volunteer leader/organizer. **Shayne Zurilgen** ('97) was one of the event coordinators in the Science Olympiad that



Left to right, Daryl Mar, David Giovanonni, Jerome Kief, Win McLaughlin, Kimi Matsushima, Gabby McDaniels, Andi Ellis, Chris Brown, Anne Fisher, Jason Dupere, Chienyen Yang, Angela Uys, Carly Hashimoto, Kari McLaughlin, Kaitlin Colafrancesco

was held on campus in March. In the past two years **Vanessa Barberis** ('07), **Eric Brown** ('00), **Sadek Deregga** ('84) and **William Fahmy** ('79) presented lectures in the Department. We would also like to thank those of you who have contributed so generously to the Department over the years. Through your generosity our students benefit from the endowed scholarship funds honoring Stanley G. Volbrecht and Irving Pasternack. We are also pleased to recognize an outstanding sophomore with the Delbert Brown Award, outstanding seniors with the John Stitch and William Christensen Awards, and new initiates of Sigma Gamma Epsilon with the J.L. McNey SGE Fellowship.

We were overwhelmed by your response to the request for information for inclusion in this Newsletter. Over 80 alumni (almost 40% of our known alumni) submitted written updates and photos, and more of you indicated that you had gotten our email. To avoid any problems with spam or other misuse of contact information, we decided not to print email addresses or other contact information in the Newsletter. We will be happy to provide contact information, if you wish. Just email, write or **Gene Pearson** epearson@pacific.edu and let him know who you are trying to contact.

GEOS 65, Geology of Hawaii



Student Organizations Faculty Activities



The **League of Extraordinary Geologists** was formally established in 2007-08. This year under the able leadership of President **Kari McLaughlin**, a junior majoring in geology, LEG has held weekly meetings,

monthly movie nights [geology must play a role in the plot], and a field trip to Kings Canyon. This Spring LEG is finalizing the design for a club T-shirt.



Students for Environmental Action was founded in 1999 as an effort to bring a campus-wide recycling program to Pacific. Led

by Environmental Science majors **Kaitlen Colafrancesco** and **Anne Fisher** SEA has educated and entertained students through environmental films, speakers, and an annual Earth Day event in which live music, free food, arts and crafts, and groups such as the Sierra Club are present. In recent years, SEA students conducting an audit of the solid waste generated on campus discovered that upwards of 80% of the waste generated on campus was either recyclable or compostable materials. SEA also hosts e-recycling on campus in an effort to educate students about the proper disposal of electronics.

The **Residence for Earth & Environmental Living and Learning (REELL)**, led by Environmental Science major **Kaitlen Colafrancesco** held its first Water Week from March 30 to April 3, 2009. This event featured a Tap Water pledge challenging the campus community to eliminate their use of disposable plastic water bottles. Over 600 of those who signed the pledge were given a free KleenKanteen. Co-sponsored by REI and the Darin Jon AVEDA Studio, the event also featured a tap water vs. bottled water taste test, daily films on water issues, and speakers.



Lydia Fox

Lydia Fox continues to provide leadership for the Department. Now in her 10th year as Department Chair, Lydia makes sure that the Department is well represented in the College and receives its share of University and College monies.

Nationally, Lydia continues to play a leadership role in the Council on Undergraduate Research. She was the co-Chair for the 2008 CUR National Conference held last summer. She recently received an NSF grant to support a series of national faculty development workshops designed to help new faculty establish undergraduate research programs. At Pacific she founded the Pacific Undergraduate Research & Creativity Conference which celebrates the research and original creative activity of undergraduate students from across the campus. She continues to be the driving force behind PURCC, now in its ninth year.

Last year, Lydia served as the Chair of the University Academic Council and is now enjoying a bit more free time. She found a way to fill much of that and recently served as one of the three faculty members on the Presidential Search Committee which resulted in the hiring of Dr. Pam Eibeck as Pacific's twenty-fourth President. Lydia also serves as a leader on the WASC accreditation committee which is preparing the self-study report in preparation for the next WASC accreditation visits in 2010 and 2012.

On a sad note, Lydia's husband, David, passed away in July.

Kurtis Burmeister

Kurt is still actively working in the northern Appalachian Hudson Valley fold-thrust belt of southeastern New York. His work recently produced a paper examining the relationships between magnetic fabrics and penetrative strain in deformed sandstone that was accepted for publication by the *Journal of Structural Geology*. Kurt's next project in New York is to combine his

map of the Rosendale segment of the fold-thrust belt with a map of the region immediately to the north compiled by Steve Marshak to produce a digital 1:10,000 scale map in GIS format that will be nearly 10 feet long! Kurt is also co-advising a PhD student at the University of Illinois who is examining along-strike changes in deformation intensity in the Hudson Valley.

Kurt also continued his work in Japan. In February, he was invited to participate in the Third Kanto Asperity Project International Workshop at the University of Chiba to present some of his research results and to help develop new scientific initiatives in the seismically active Tokyo Bay region. Kurt returned to Japan in March to participate in a research cruise off the coast of east-central Japan. Here, Kurt and his colleagues from the University of Tsukuba and the University of Texas conducted a series of dives to depths between 2.5 to 4 km in the deep sea submersible SHINKAI 6500 to examine active structures in the Nankai accretionary prism. This work has already produced a manuscript on seismically triggered submarine debris flows. Kurt is also preparing a manuscript on the structural trends in the accretionary prism that will contain a unique set of geologic maps compiled from the submarine's camera feeds.



In July, Kurt helped Environmental Science major **Kaitlen Colafrancesco** sample spring waters in the Tuolumne Meadows region of Yosemite National Park. In October, Kurt presented a new method for constructing geologic cross sections at the annual Geological Society of America meeting in Houston,

GEOS 105, Paleontology in the Field



Texas, before spending several days at the University of Texas Austin working with Geology Major **Kari McLaughlin** on her senior thesis research. Kari is using the crystallinity of illite in samples collected in the Nankai Trough to determine the amount and timing of exhumation associated with active faulting in the accretionary prism.

Kurt also managed to squeeze in a lot of time in the field with students outside of his normal course-related field trips. In March, he assisted Laura with her Geology of Hawaii course on their week-long field trip to the main island. In April, Kurt led a group of students into a very remote corner of central Nevada where they meet up with groups from Chico State University and Sonoma State University and spent a long weekend collecting trace fossils that mark the Precambrian/Cambrian boundary and studying the ecology of Cambrian and Ordovician reefs. Through his appointment at the University of Illinois, Kurt also continued his work as the co-director of the Wasatch-Uinta Summer Field Camp. The Wasatch-Uinta program, run out of Park City, Utah, is a six-week course that enrolls 40-50 students each year from the University of Illinois, University of Wisconsin, University of Iowa, Michigan State University, and the University of Minnesota Duluth. For more on camp, see:

<http://www.fieldcamp.org/>

Laura Rademacher

This year, Laura & Kurt, along with Steve Jacobson from Housing and Greek Life, were awarded a \$150,000 grant from the NSF to develop **REELL**, a new residential learning community for students interested in Earth and Environmental Sciences in Grace Covell Residence Hall. The program currently has more than 20 participants, but looks as though it will expand considerably next year. One of the community's big accomplishments this year was creating a campaign to help encourage Pacific students, faculty, and staff to eliminate their use of disposable water bottles on campus.

Laura developed & taught Geology of Hawaii in spring 2007 and 2008, which includes a 8-day field trip to the big island to view geologic processes in action. As an added bonus, Laura arranged for Professors from Cornell College and Mills College, along with graduate and undergraduate geology students from the University of Illinois to tag along



MBARI - Seamounts '07 Expedition

on these trips. The added input from these volunteers added amazing new dimensions to the experience.

Watch a Geology of Hawaii Movie
Go to www.youtube.com
Search for "Geology of Hawaii 2007"

Laura's various research projects investigating the environmental impacts of wildfires in California continue to yield interesting results (including 2 recent papers) and have involved many of our E&ES majors. These student researchers participated in field- and lab-based aspects of these projects and presented their results at meetings of the American Geophysical Union and the Geological Society of America. In addition, Laura is working with MBARI to develop a new proxy for estimating the magnitude and impacts of ocean acidification by examining the geochemical composition of deep-sea

corals. She also continues to investigate the water resource issues that face the western US.

Gene Pearson

Gene Pearson is completing his 38th year at Pacific. He continues to update his courses. Last summer he was a participant in a Cutting Edge Workshop "Teaching Geomorphology in the 21st Century" which was held at Colorado State University in Ft. Collins, Colorado. In mid-May he is attending a Cutting Edge Workshop titled "Teaching about Energy in Geoscience Courses: Current Research and Pedagogy" to prepare for his Spring 2010 Freshman Seminar course on sustainability.

Gene remains active in the Geosciences teaching community. He is completing his first term as the Secretary/treasurer of the National Association of Geoscience Teachers and stand for re-election in May. In his role as treasurer he helped the Association to implement policies which govern the investment and use of the endowed funds.

In 2006-2007 Gene served as Chair of the College Dean search committee. The search resulted in the hiring of Tom Krise, the current dean of the College. He continues to chair the University Athletics Advisory Board and has served as the faculty advisor to Mortar Board since 1990. He and his wife Maryann, regularly enjoy visits with granddaughter Renny in Seattle and grandson Dominic in Huntington Beach.



Left to right, Laura Rademacher, Kurt Burmeister, Lydia Fox and Gene Pearson