



**DEPARTMENT NEWS**

As we get ready for the American Geophysical Union conference next week, it is time to get out our department newsletter. The AGU meeting in San Francisco is the last big event and fitting conclusion of another productive year. All faculty and many students will be presenting and showcasing the exciting research conducted in the department.

It is always fun to look back and realize that in a year that just seemed like a blur of classes, meetings, and reports, a lot got accomplished after all. Enrolment in our programs continues to grow and a record 23 undergraduate and 14 graduate students received their degrees in 2015.



*Some Geo grads at Spring 2015 Commencement.*

The department’s success in recruiting students and getting them to graduate, excel, and find jobs or go on to graduate school is getting national attention. We were invited to participate in the

*Summit on the Future of Undergraduate Geoscience Education* because, in the words of organizer Sharon Mosher, Dean of the Jackson School of Geoscience at the University of Texas at Austin, “*your department graduates more undergraduate geoscience students than most departments in the country*” including those at much larger universities with many times the faculty. New great students keep joining. The picture above shows our new geo majors in Rob Negrini’s Physical Geology class at the Zzyzx Desert Studies Center before heading out in the field for the day.

As always we are proud of our students’ achievements. A definite highlight was the 2015 **AAPG Imperial Barrel Award** competition.



*The winning 2015 AAPG Imperial Barrel Award Team - Nick Moreno, Matt VanGrinsven, Jeff Kimber, Eric Heaton, and Jordan Martin. Their faculty advisor was Jan Gillespie.*

The CSUB Geology team and advisor **Jan Gillespie** took second place in the West Coast competition, beating teams from San Diego State, Northridge, CalPoly Pomona, FresnoState, Portland State University, and UC Santa Barbara!

In addition to our work with students, the department is meaningfully engaged in the local and our profession communities. We hosted the Fall 2015 Field Conference of the Far Western Section of the National Association of Geoscience Teachers, as well as teacher workshops in Bakersfield and at the California Science Teachers Association meeting in Sacramento.



*A group of high school teachers from throughout California learning about San Joaquin Valley geology and teaching honors geology classes.*

We also hosted the **CSUB 60+ Club**, a cheerful and inquisitive group of retired folks who volunteer and support the university, as part of their week-long Elder College focusing on Earth Science.



*Elizabeth Powers and students giving an overview of research in the CREST lab to the CSUB 60+ Club.*

Faculty expertise is always in demand from the news media. We talked to TV stations and

newspapers about topics as diverse as mudslides, groundwater depletion, land subsidence, steam injection, emergency preparedness, and El Nino.

We are bracing ourselves for the transition to the semester system which is scheduled for Fall 2016, along with the introduction of a new General Education program. We used this for some minor revisions to our curriculum but our main goal is to make the transition as smooth as possible for students caught in the middle.

With ever-increasing numbers of students and regular faculty partly bought out by grants or for other activities, covering all our classes remains a constant challenge. We are very lucky to have **David Miller** as a new full-time lecturer who is doing a great job covering several core classes. We also have a great pool of part-time lecturers from the community who are stepping in and covering classes as needed. They include **Tim Elam, Scott Frystak, Alyssa Kaess, Katie O'Sullivan, Brian Pitts, and Gregg Wilkerson**. Last but not least, our capable graduate teaching assistants **Alana Crown, Marc Halling, Eric Heaton, Janine Roza, Spencer Schroer, and Matt VanGrinsven** help the faculty with labs and large classes.



*OMG! A rare photo of almost all full-time faculty and staff. From the left, Adam, Chris, Rob, Bob, part-time lecturer and alumna Katie O'Sullivan, Dirk, Elizabeth, Jan, Sue, Sarah, and Graham. David Miller is missing.*

#### FACULTY AND STAFF NEWS

**Graham Andrews** 2015 has been another busy year of teaching and research here at CSUB. This year Dr. Brown and I went on a fieldtrip to examine rhyolites in Namibia and attended a conference in Mexico. I and graduate student Nick

Moreno did fieldwork in Mexico in August; Nick and his colleagues Alana Crown and Linda Anderson will finish their MS theses in June 2016. Research in the Sierra Nevada and Sierra Madre Occidental mountains continues, and we have generated the first results from my ocean-drilling cruise in 2014.



*Just another day in the field in Namibia.*

**Dirk Baron** Now in my second year of my second term as department chair I spend a lot of my time in meetings, writing reports, and preparing for CSUB's transition to a semester system and a new General Education program which both will roll out in Fall 2016. The department chair job is never fun, but our capable staff (**Elizabeth Powers** and **Sue Holt**) and everybody pitching in when needed make things manageable.

A highlight from this year was recognition with the 2014 CSUB Faculty Leadership and Service Award.



*With CSUB President Mitchell, new provost Jenny Zorn, and Academic Senate Chair Jackie Kegley at the 2015 University Day.*

Another was setting up a new X-ray diffractometer funded through a grant National Science Foundation Major Research

Instrumentation program was successful. The PANalytical (formerly Philips) Empyrean instrument is now set up and already used by students and faculty. It complements the other grant-funded state-of-the-art research labs in the department.



*Students working on the new Empyrean XRD*

The high school dual-credit honors geology classes that Jan and I support continue to go strong with about 350 students taking them each year. Many of our new majors are coming out of these classes. The classes attract interest from around the state and even around the country. We organized several workshops for teachers who are interested in offering similar classes at their schools. Continued generous support from Chevron for the high school classes is much appreciated.



*Students from alumnus Jon Walker's North High School Honors Geology class on a field trip to Yosemite. Field trips such as this are one of the activities made possible by support from Chevron and the community.*

**Sarah Brown** Since last fall I have been working on several research projects (mostly involving zircon and apatite analysis) from multiple regions, including: the Izu-Bonin Arc, the Sierra Madre Occidental in Mexico, the Coast Mountains in British Columbia, the southern Sierra Nevada, and Baja California. Trips this year included lab visits to UCLA and University of Arizona to do geochronological analyses and a field trip to Namibia which was fantastic. I am working in the department to help with equipment and analyses.

**Janice Gillespie** 2015 has been a wild ride! The winter and spring were busy with teaching the petroleum classes and working with the IBA team. The team was awesome this year, taking second place in the West Coast Division! We are all really proud of them! In addition, I was a member of the expert committee for the California fracking/well stimulation bill, SB4. The expert group was headquartered at Lawrence Livermore National Labs and I had the great good fortune to work with some outstanding scientists from all over North America on the monitoring program. As my research in carbon capture and storage winds down, I have been focusing more on mapping salinity trends in some of the deeper aquifers in the San Joaquin Valley—the stated purpose is to determine which waters require protection from oil and gas production and exploration activities but a secondary goal is to inventory our usable groundwater supplies as the great drought lingers on.

As a result of my research in deep aquifer salinity and my work on SB4, I was approached by the US Geological Survey. They are working on the California regional aquifer study. It is a five-year project; the goal of which is to establish a regional monitoring program in the oil-bearing basins throughout the state. They offered me a position as a research scientist and it seemed like too exciting a project to pass up. So, if all goes well with the contract, I will be leaving CSUB after this academic year to work with the state and the USGS for a couple of years or so before retirement. The department is certainly going through some turnover!



*Jan gets some expert help exploring the geology in the hills northeast of Bakersfield*

**Junhua “Adam” Guo** It’s a busy year for me. I taught one graduate course “Advanced Stratigraphy” in the winter and two undergraduate courses in the spring, “How the Earth works” and “California Geology and Society”. I also led one field trip to study the outcrops of the Ventura Basin along the freeway 33 to Ojai. Spring of 2016, I will teach a graduate class “Advanced Sedimentology” and one undergraduate class “The Dangerous Earth”. In the January of this year, I was invited to present my previous research in the monthly SJGS meeting. In this summer, I participated in the REVUS UP program by working together with six high-school students on the Tulare Lake sediments. Clay mineralogy assemblages indicate a good and potential correlation between the precipitation in the Sierra Nevada Mountains and the content ratio of illite to smectite. The samples are courtesy of Dr. Rob Negrini. Thank you, Rob. In order to get my research going, I attended the Cascadia Seimogenic Zone ocean drilling workshop held in

the end of April in the University of Washington, Seattle. The travel was funded by U.S. IODP office. I really appreciate that. In the workshop week, finally I heard the answer for my application to sail the IODP Expedition 359 (Maldives Monsoon). I had the good luck to be chosen as an onboard scientist member. And my participation has also been strongly supported and encouraged by the department. Thank you, Dr. Baron, for finding my substitute to teach my class this fall.

Maldives Monsoon is my second IODP cruise. The port-call was in Darwin, Australia from the First to the Fifth of October. We spent two weeks on traveling to Maldives by sea. The geology in Maldives is greatly dominated by carbonates. The growth and drowning of the platforms is crucial to this island-country's future, because all islands are just one or two meters above the sea level. The purpose of this expedition is to study the mutual play between the growth and drowning of the platform, the Maldives Monsoon and the Maldives Current driven by the monsoon. The drilling kept giving us more interesting discoveries. I plan to research the possible aragonite cycles resulting from the sea-level change using samples in the basinal site. Also I want to investigate the carbonate diagenesis processes in the platform and the drift sediments. The results will help elucidate how the diagenesis related to the sea-level change and what cement caused the extremely high P-wave velocities, high grain density, and low porosities.



*Adam hard at work with core samples on the JOIDES Resolution*

This year, I served on several graduate students' thesis committee. Three of them defended in this spring or this summer. My advisee David Kay defended before I left for the IODP cruise. Currently, three students are still working on their thesis with me. Christine is continuing to perform clay mineralogy analyses on Tulare Lake sediments and anticipated to finish by the next spring. Jeff has been working on the clay diagenesis of the Santos Shale Formation. Obeyd is a CREST master student starting this fall. His project is to study the content variation of aragonite in the Kardiva Channel, Maldives. Grant, our XRD laboratory undergraduate research assistant, has been working hard to keep the lab running well. Thank you all for your hard work to advance our research forward.

At home, my family happily welcomed a new member "Dania" in the end of this July. Because I would be gone two months for the expedition in this fall, thankfully grandpa came and gave us a big help taking care of our young kids. Buying a house to completely settle down in a new place is really a pain. Fortunately, we financed and moved into a new house in this summer. Angelina and her sisters really like this new home because of the large backyard. Belinda also started to go to school (TK) with her two sister this fall.

**Bob Horton** The past year has been interesting to say the least. Although participating in the Faculty Early Retirement Program while working as part of the CREST team, for the first time in over thirty years I taught no classes. (It is actually pretty nice to set my own schedule and work on what I want, with no committee meetings, administrative chores, or other distractions.) As a result, the year began with my vacating the third floor office I occupied for the last twenty-five years and moving into the back of the SEM Lab on the first floor. The relative quiet down here is nice but I miss the day-to-day interactions and excitement of the third floor. However, I am happy to report that the SEM has been used quite extensively during the last year, not only by my group but also by other faculty members and their students. I have stayed busy working with my remaining graduate students. Diem Nguyen and Olawale Olabisi

finished their theses and defended last winter. Diem's paper, submitted to the Geological Society of London's Special Publication series, has been revised and we are awaiting their final decision on whether or not it will be accepted. Alyssa Kaess and Stephanie Caffee presented their work at the Pacific Section AAPG meeting in Oxnard, and Stephanie was invited to present her work at a special session at the national AAPG meeting in Denver (her's was the only student presentation in a session that featured presentations by the top researchers in sandstone petrology). Meanwhile, Alyssa presented a paper based on her experiences in our summer REVS-UP program in an educational session at the AGU fall meeting in San Francisco. Alyssa and Stephanie will likely have defended their theses by the time this newsletter is published, so I'm now focusing on getting research results written up and submitted while also preparing some easy-to-follow SEM instructions for those who will be inheriting this wonderful instrument. And, as some of my colleagues in the department are considering following me out the door, I feel confident that our recently hired replacements will continue the tradition of excellence for which our department is known, both within the local geological community and the wider academic environment. Finally, although I will be officially retired once the CREST Phase I Project ends next summer, I was elected to the Presidency of the Pacific Section AAPG; I started this three-year commitment (President Elect, President, Past President) in August, so even though I'll soon enter the realm of Professor Emeritus status, I'll be around for a while yet...

**Chris Krugh.** This past year was a busy one on both the teaching and research fronts. I had the opportunity to develop two new courses in my area of expertise. In Spring quarter, I taught Geomorphology for a great group of undergraduate students that included majors from Geology, Environmental Resource Management, and Natural Sciences. This course investigates Earth's landscapes and focuses on the physical and chemical processes that shape them. Students were able to closely examine many of these processes, and the resulting landforms, on a field

trip to Owens Valley. This fall I taught Earth Surface Processes, a graduate-level course that examined recent research and topics relevant to the southern Sierra Nevada. The class field trip focused on scouting the Kern River Gorge for geomorphic features and stratigraphic evidence to help constrain the tectonic and geomorphologic evolution of the region; one of the primary research objectives of the CSUB CREST Phase II proposal that was submitted to NSF in June. We were also able to examine the week-old aftermath of the Hwy 58 debris flows that occurred this past October.



*Chris inspecting deposits and damage from a debris flow that blocked Hwy 58. He was interviewed for several TV news stories on possible El Nino related hazards such as this.*

My research group has been very active this past year. In January, Kathy Randall successfully defended her MS Thesis research on deformation bands associated with the Ruby's Inn thrust fault in southern Utah. Jordan Martin has wrapped up field mapping of sand injectites in the Panoche Hills. He is currently performing detailed petrographic analyses to better constrain source lithologies and the mechanisms responsible for injectite formation. Marc Halling visited the Berkeley Geochronology Center to learn how to pick apatite crystals for (U-Th)/He analysis and is currently awaiting the results to help place constraints on the evolution of the Sierra Nevada frontal fault zone. Kristin Koehler's stream channel profile analyses will provide additional constraints on the relationship between footwall topography and fault array evolution. Incoming MS student Blake Foreshee has begun work on a project to constrain the exhumation history of the

Greenhorn Mountains using low-temperature thermochronometry and tectonic geomorphology. Definitely exciting times at CSUB!

The arrival of a new Zeiss Axio Imager A2m microscope brings fission track analytical capabilities to CSUB. This piece of equipment can be used to generate new datasets about rock uplift and exhumation as well as constrain the thermal history of basin sediments. I am looking forward to putting it to good use on current and future research projects.

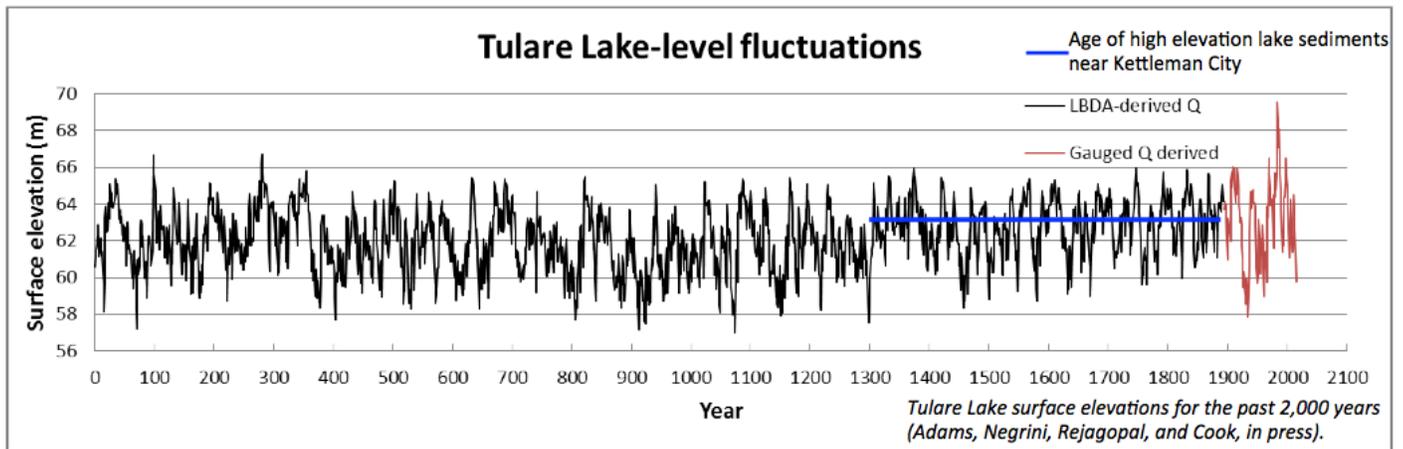
**David Miller** It's been a great first year. I taught Physical, Historical, Mineralogy, Petrology, and Sed/Strat and got to know many of the Geology majors. In Sed/Strat, we worked on several field projects including reuniting the volcanoes split asunder by the Garlock fault by correlating distinctive volcanoclastic strata in the Lava Mountains and Jawbone Canyon area. I am working with several students collecting clast count and paleocurrent data from fluvial conglomerates to better understand Cenozoic paleodrainage evolution in the southern Sierra.



*David in his element - teaching students in the field.*

**Rob Negrini** is having a busy and productive final year as a Professor at CSU Bakersfield, splitting his duties between teaching, research, and Directorship of the nascent CSUB California Energy Research Center (CERC). Seven of Rob's M.S. students graduated after finishing their M.S. theses this year (James Lopez, Lindsey Medina, Kelsey Padilla, Brandon Jackson, Jeremiah Reagan, Janine Roza, and Matt Van Grinsven). All of these students were supported in one way or the other on the National Science Foundation CREST grant awarded primarily to the Geological Sciences department and all of these theses will contribute significantly to seven peer-reviewed articles, two of which have already come out in the *Journal of Geophysical Research* and *Quaternary International (QI)*, two of which have been accepted pending revision in *Quaternary Research*, and two of which will be submitted in early 2016 to a *Special Paper of the Geological Society of America* and to *Quaternary International*. Rob was also a coauthor on a paper accepted for publication by *Water Resources Research* with K. Adams and S. Rajagopal of the Desert Research Institute of the University of Nevada and E. Cook of Columbia University. He was also named an Outstanding Reviewer for *QI*.

The above research activity was centered on water resources in the southern Sierra Nevada/San Joaquin Valley over the past few tens of thousands of years, mostly inferred from reconstructions based on geological evidence for variations in the surface elevation of Tulare Lake over that time. Highlights included the identification of a 1,000-yr drought starting ~7,500 years ago and the close correspondence demonstrated between Sierran precipitation and sea-surface temperatures in the Pacific Ocean. These results were based on Ashleigh Blunt's M.S. thesis (2013) and were featured in a Bakersfield Californian article by Lois Henry in November of this year. More recent results included an annually resolved Tulare Lake-level record for the past 2,000 years based on a hydrologic balance model constrained by tree-rings, a record validated by trench-based mapping and dating of Tulare Lake sediments near Kettleman City, CA (see figure below).



Rob's students continue to have an international presence. Janine Roza presented her research on the paleomagnetic secular variation dating of Tulare Lake sediments (conducted with Brandon Jackson, Eric Heaton, and Logan Prosser) at the European Geophysical Union meeting in Vienna, Austria this past April. Janine is now a Ph.D. student at the Scripps Oceanographic Institute working under Lisa Tauxe. Her dissertation study will include field work in Hawaii and Antarctica. Rachel Tiner and Maryanne Bobbitt were invited back to the Chilean Andes this past summer by Chilean geologists and palynologists to conduct mapping in support of Rachel and their research. Rachel returned in October to present her preliminary results at the Geologico Congresso de Chile in Coquimbo.

Rob's efforts to get CSUB CERC off the ground include assembling a team of 20 researchers from UC Davis, CSU Fresno, and UC Cooperative Extension in a CSUB-led proposal to the US Department of Agriculture to study the use of brackish groundwater and oil field formation water after treatment in agriculture to mitigate drought. If funded, a variety of research will be conducted including inventory of supplies, efficacy of treatment technologies, chemistry of groundwater and agricultural products, etc. Half of the \$20M budget will support 10 CSUB faculty members and their students for 8 years in the Petroleum Engineering, Geological Sciences, Biology, Chemistry, and Economics programs. Buoyed by this effort, CSUB CERC is planning an

oil/water nexus conference involving industry, academics, and community groups, with the California Independent Petroleum Association for this coming April.

Rob also was the principal author of the NSF CREST renewal program, which, if funded, will also support research and student mentorship in Petroleum Engineering, Geological Sciences, Biology, and Statistics for another five years to the tune of \$5M. Finally, in the spirit of "leaving behind a better place than the one you arrived", a sentiment that seems to drive all Geology faculty members, Rob is attempting to find external funds to support CERC faculty and students for the foreseeable future. This includes membership in the "WET" NSF Industry/University Collaborative Research Center along with Temple University, the University of Arizona, and ASU, and it includes applying to become a CSU-wide research center funded by the state of California to foster energy research throughout the California State University system.

Negrini found time in his busy schedule to teach "The Dangerous Earth", a geologic hazards course for the CSUB Honors program, Physical Geology, and Exploration Geophysics. All three courses had field trips (see cover photo).

Finally, Rob and his wife Jana spent a well-deserved couple of weeks on Vancouver Island and Orcas Island in the Pacific Northwest in late August. Highlights included watching a black bear munch on whatever it found in a rotted log on the

beach near Tofino, VI, kayaking to dinner near Nanaimo, VI, and enjoying a stay at the only cabin on a solitary cove on Orcas Island.

## DONATIONS

Nothing will make Rob Negrini happier than to see more alumni donating to the Department this year. Please, please, please, step up to the plate and give generously. Your tax-deductible donations will be spent responsibly on student-supported causes like defraying the cost of summer field camp, student travel to meetings, etc.



*CSUB Students enjoying a quiet moment during field camp in Montana. Almost all students are supported for their capstone experience through scholarships from the CE Strange Endowment and donations added to it over the years.*

In this time of ever-shrinking state funding for the CSUs, support from the community and our alumni becomes essential for maintaining the quality of the educational experience of our students. We gratefully acknowledge donations to the Department from the following (all in alphabetical order and all very much appreciated):

**Corporations and Organizations:** Aera Energy, American Petroleum Institute, California Resources Corporation, Chevron, Oxy, Pacific Section AAPG, PennState/AfricaArray, San Joaquin Geological Society.

**Individuals** John Coash, Florn Core, Gene Hershberger, Sandra and Dan Steward

Apologies if we forgot someone, let us know so we can acknowledge you in next year's newsletter.

Thanks!



*Donations supported a new stream table that will be used for classes and outreach activities.*

*Donations also contributed to converting room 334, the former mineralogy/petrology classroom into a research lab. These classes, along with other core classes will now be taught in an updated and more functional room 336.*



*Donations like the Fiddler Endowment and others also allow us to maintain and enrich field trips for almost all classes. This is David Miller's Historical Geology class.*

## STUDENT NEWS

Out of a record number of students graduating this year, **Karla Lopez** was the Spring 2015 Outstanding Graduate in Geology. **Zach Martindale** won the first place in the CSUB Student Research Competition.

Notable scholarship recipients include **Alyssa Kaess** for the **James Weddle Scholarship**, **Sade Hake** for the **Jazz Festival Scholarship**, **Jordan Martin** and **Sam Gonzalez** **Chevron Scholarships**, and **Marc Halling** for the **Church Scholarship**.

The **CSUB Geology Club** had another busy year volunteering in K-12 schools and at CSUB outreach events. Join the club's site on Facebook to keep up on club activities, and job and scholarship opportunities. Mark your calendars for the



**March 5, 2015 Geo Club BBQ.** Look out for more information as this comes closer.



Students traveled extensively for research and presented their work at national and international conferences.

**Rachel Tiner** and **Maryanne Bobbitt** went

back to Chile for more field work and to

present their work at an international conference there.



## ALUMNI NEWS

We are updating our alumni list. Let us know what you have been up to! We have entries going back to 1972, but only 23% with current email addresses. For 60% of our alums, we have some information on what they did after graduation.

Of the BS graduates that we have information for, 48% went into the oil and gas industry, 22% into environmental services and hydrology, 12% education, 17% went on to grad school, 1% mining.

Of the MS graduates that we have information for, 59% went into the oil and gas industry, 29% into environmental services and hydrology, 8% education, 2% went on to grad school, 2% mining.

Please contact Sue Holt [sholt3@csub.edu](mailto:sholt3@csub.edu) to update your career and contact information.

## CLASS OF 2015 BS

**Joseph Gonzalez** is working at ChemTrace.

**Phillip Herrera** is working at oil field service company, JD Rush.

**Zuniga Medrano** is working at California Resources Corporation.

**Jordan Rendel** is a teacher at Delano Middle School.

**Christopher Cook, Blake Foreshee, Karla Lopez,** and **Obeyd Mohammadi** began an MS at CSUB.

**Javier Montejano,** and **Azael Salinas** have gone on to pursue an MS at other institutions

Others include: **Roberto De La Rosa, Juan Arellano, Efrain Pimentel, Arunjit Shergill, Brett Thompsett, Taylor Stewart (BA), Andrew Kimbell,** and **Nick Murdoch.**

## CLASS OF 2015 MS

**Stephanie Unruh, Lindsey Medina, Kelsey Padilla, Jeremiah Reagan** are working at Envirotech.

**Kathleen Randall, Gregory Thompson** are working at Chevron.

**Henry Iwuh, Dustin Leavitt** are working at the California Division of Oil, Gas, and Geothermal Resources

**Ryan D'Cruz and Kenneth Kay** are working at California Resources Corporation.

**Janine Roza** is working on a PhD at Scripps.

**Zachary Martindale** is working on a PhD at University of Houston.

Others include: **Roger Ward**



*At the 2015 Graduate Commencement*

# Donations

This fall **The Economist** ranked CSUB 10<sup>th</sup> out of over 1,200 US colleges in its first-ever college rating. The ranking is based on value added in terms of "earnings above expectations" of graduates. That's salaries of graduates above what would be expected based on general indicators such as SAT scores and socio-economic background of students coming to CSUB. Clearly, an education from CSUB provides an exceptional value. We suspect that Geology alumni contribute significantly to the overall strong earnings of the university's graduates.

We are working hard to give current students the same valuable education that you received. Donations from alumni allow us to enrich classes and other student experiences beyond what state funding alone can provide.

**➔ This is your chance to give back and make a difference for current students! ➔**

Please make your check payable to **CSUB Foundation** and indicate that it is for the **Geology Department Trust Account TR036**. Indicate the specific cause you want your donation to go to below on this form.

**Return to the address on the back of this page, to the attention of Dirk Baron.**

Name:

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Please indicate if you want your donation to go to one of these specific causes:

- Sam Gonzalez Memorial Scholarship** (to support students who after exploring other fields have discovered Geology as their calling)
- Student Scholarships (will be added to the CE Strange Scholarship Fund)**
- Field Activities (will be added to the Claude Fiddler Field Endowment)**
- Undergraduate Student Research**
- Unrestricted to support current needs identified by department faculty**

**Thank You!**

Rank	%ile	College	State	Expected earnings	Median earnings	Over/Under
1	99	Washington and Lee University	VA	\$55,223	\$77,600	\$22,377
2	99	Babson College	MA	\$65,170	\$85,500	\$20,330
3	99	Villanova University	PA	\$60,455	\$73,700	\$13,245
4	99	Harvard University	MA	\$74,466	\$87,200	\$12,734
5	99	Bentley University	MA	\$62,327	\$74,900	\$12,573
6	99	Otis College of Art and Design	CA	\$29,562	\$42,000	\$12,438
7	99	Lehigh University	PA	\$64,559	\$76,800	\$12,241
8	99	Alderson Broaddus University	WV	\$31,766	\$43,400	\$11,634
9	99	Texas A & M International Univer...	TX	\$33,692	\$45,200	\$11,508
10	99	California State University-Bakers...	CA	\$37,025	\$48,100	\$11,075
11	99	Holy Family University	PA	\$39,408	\$49,900	\$10,492

Check out the complete rankings and a companion article here:  
<http://www.economist.com/blogs/graphicdetail/2015/10/value-university>

<http://www.economist.com/news/united-states/21677231-new-federal-data-reveal-which-colleges-do-most-their-graduates-pay-packets-they-are>



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**Geological Sciences Department**  
**Fall 2015 Newsletter inside**

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