



DEPARTMENT NEWS

As we are already starting CSUB's second semester it is high time get our Fall 2016 Department Newsletter out and look back at another eventful year. On top of record numbers of students and graduates and the implementation of the new semester schedule, the year also saw significant staffing changes. We welcomed **Tony Rathburn**, a new senior faculty member who was hired to take **Rob Negrini**'s position. It's hard to believe and we are still somewhat in denial, but Rob and **Bob Horton** retired at the end of the 15/16 academic year. **Graham Andrews** and **Sarah Brown** also left to take new jobs at West Virginia University. **Katie O'Sullivan** is a new full-time lecturer.

Mark your calendars for the **February 24 Geology Club BBQ** to connect with the department. We are hoping to see many alumni and friends sharing stories and meeting old and new faculty and current students.

We are currently conducting a search to fill Graham's position. Look out for announcements of seminar talks for this position and for other upcoming searches. Alumni and community input on the candidates is welcome. We are lucky to have part timers **Alyssa Kaess**, **Steve Kiouses**, **Nick Moreno**, **Brian Pitts**, and **Gregg Wilkerson** helping to cover our classes while we hire new tenure-track faculty.

With all the changes, one constant is the steady stream of motivated and capable students coming through our programs. It is fun to watch them grow and succeed and we are very proud of their accomplishments. Read about students winning competitive GSA and AAPG awards and getting accepted into top graduate programs in the **Student News** and **Alumni News** sections later in the newsletter.

Enrollment in our classes and programs continues at high levels. The picture above shows our fall

CSUB Geology Club BBQ

Enjoy the company of students, alumni, and faculty, and friends.

Share stories from the old days in CSUB Geology

Welcome now faculty

**Lengthwise Brewpub
7700 District Boulevard
February 24, 2016, 7 pm**

**For tickets contact Elizabeth Powers
epowers@csub.edu, 661-654-3274**

Physical Geology class at Rainbow Basin on their three-day field trip to the Mojave Desert. In the 2015/2016 academic year we awarded a record 36 BS and MS Geology degrees, more than much larger CSU campuses such as Northridge, Fullerton, or Long Beach!



Some of the BS Geology graduates before the Spring 2016 Commencement

Despite all work that went into CSUB's change to a semester system, faculty had a very productive year in their scholarship and continued pursuit of external funding from very competitive programs. Faculty published nine papers in top journals, most with CSUB students as co-authors. They have also been busy writing grant proposals and winning major external funding for department activities. The definite highlight was the \$5.6 million Phase II award from the **National Science Foundation's Centers for Research Excellence in Science and Technology** program. The grant will provide five years of additional support for student and faculty research and for preparing our students for competitive top graduate programs. The renewal validates the excellent work faculty and students did with our initial \$5 million NSF CREST grant that came to a close this year. **Rob Negrini** was the lead for both efforts.



2016 CSUB RESEARCH EXCELLENCE AWARDS AWARD PERIOD FY 2014-2015

**Millionaire Club
Awardees for 2014-2015**

Department of Social Work Robert Negrini	Randy Schultz Jorge Talamantes
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**Gold Award for Excellence in Sponsored Programs
Awardees for 2014-2015**

Dirk Baron Melissa Danforth Imeh Ebong Mark Evans Phyllis Heintz Anna Jacobsen Carl Kloock	Charles Lam Yeunjoo Lee Charles MacQuarrie Lou Montano Mark Novack Jesse Quintanilla Imelda Simos-Valdez
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**Silver Award for Excellence in Sponsored Programs
Awardees for 2014-2015**

Tony Alteparmakian Yiannis Ampatzidis Graham Andrews Steve Bacon Jesus Esquibel Joe Fiedler	Isolde Francis Abbas Grammy Ron Hughes Dodie Hyatt Saeed Jafarzadeh Kathleen Knutzen	Yangsuk Ko William Krugh Rose McCleary Eduardo Montoya Judy Pedro Danielle Solano
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**Bronze Award for Excellence in Sponsored Programs
Awardees for 2014-2015**

Cesar Aguilar Andy Alali Yiannis Ampatzidis Graham Andrews Anne Duran Sarah Forester	Vladimir Gasparyan Junhua Guo Antje Lauer Karlo Lopez Marit MacArthur R. Brandon Pratt	Matt Rich Dayanand Saini Amber Stokes Brian Street
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Geology faculty's grant writing success was recognized at the 2016 CSUB Research Excellence Awards.

Faculty expertise was in demand by the local news media. Chris Krugh and Tony Rathburn appeared on local TV to talk about landslides, earthquakes, and rising CO2 levels in the atmosphere. Jan featured prominently on national TV in the NOVA episode *Treasures of the Earth: Power!*



The CSUB team continues to do well at the AAGP's Imperial Barrel Award competition. Last year's team was Charlie Gomez, Christopher Cook, Nick Mitchell, and Richard Mcguire (not pictured).

FACULTY AND STAFF NEWS

Dirk Baron I am now in my third and last year of a second department chair term. A lot of time continues to go into meetings and never-ending paperwork and scrambling to deal with our constantly changing staffing situation. Watching our students succeed makes all worthwhile. I am grateful for our wonderful staff and other faculty pitching in whenever needed but will be happy to hand the reigns to Tony who will take over next year.

One highlight last year was participating in the 2016 **Summit on the Future of Undergraduate Geoscience Education** at the University of Texas at Austin. It was great to talk to other department chairs and receive recognition for our success in recruiting and graduating students. There was a lot of interest in our dual-credit Honors Geology classes at local high schools. We now have about 550 students at seven schools taking these rigorous, year-long classes every year. Many new majors first became interested in geology through these classes. A summer class open to all Kern High School District students taught by Ridgeview teacher Steve Kiouses was new this year. CSUB graduate students Kristin Koehler, Abby Martens, Karla Lopez, and Steve Anderson came along on a multi-day trip to the Eastern Sierra and talked to high school students about their research in the area and the geology program at CSUB.



North High School students on their overnight field trip to Yosemite.

As for working with students at CSUB, it was great to see Cristina Rivas defending her MS thesis on a geochemical investigation of the suitability of the Vedder Formation in the McKittrick oil field for proposed carbon sequestration. This should be the first of three defenses of projects investigating San Joaquin Valley formations for this purpose.



As a CSUB volcanologist, Abby Martens has the full attention of high school students when explaining textures and flow patterns at Obsidian Dome.

In scholarly activity, I was a co-PI on a \$500,000 grant from the Department of Defense that will bring a micro-CT scanner to CSUB. This instrument allows high-resolution 3D imaging of solid objects like sediment cores and open up many new research opportunities and complement our existing SEM and XRD labs. Watch out for more on this very cool new instrument in the next newsletter. Our latest instrument, the top-of-the-line Panalytical Empyrean XRD, is already used for many research projects on San Joaquin Valley formations, Adam's samples from the an IODP core taken in the Maldives in the Indian Ocean, and materials science projects from new engineering faculty.



Dirk with his wife Sarah on the top of Kelso Dunes on the Physical Geology field trip

Janice Gillespie continues her work for the USGS and is advising students on research projects. She was featured prominently on TV in the NOVA *Treasures of the Earth: Power* documentary.

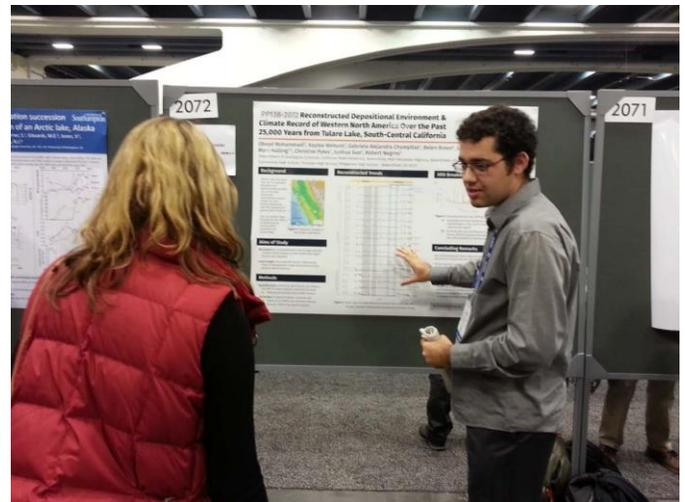


Junhua “Adam” Guo Last year, I taught four classes including Advanced Sedimentology, Applied Clay Mineralogy, Dangerous Earth, and Sedimentation/Stratigraphy. I also led several field trips to visit some sedimentation outcrops in the surrounding area of Bakersfield, e.g. Paleocene to Miocene Ventura Basin outcrops along the Highway 33, Ridge Basin sedimentation, Kern River formation. In the past year, I have been co-advising and supervising five graduate students and serve on five graduate thesis committees. Currently, I am still supervising three students. Jeff Kimber changed his topic from Santos Shale research to Tulare Lake paleo-environment study. He is anticipated to finish by this coming summer. Christine Pyles has been working on the mineralogical response of Tulare Lake sediments to the paleoclimate since Late Pleistocene in California. Nick Mitchell is a new CREST student. His thesis is to investigate the paleo-depositional environment of Santos Shale Formation. He has finished the fundamental mineralogy characterization for this formation. Samples were sent for XRF analysis in the last month. Next he will start ICP-MS trace element testing. He is anticipated to finish by the summer of 2017. Obeyd Mohammadi is another CREST student working on the Maldives paleo-oceanography study by researching the aragonite variations and major/minor/trace elements in the Maldives marine sediments collected from IODP Expedition 359. He is anticipated to finish by the summer 2017, too. I am also a co-supervisor with Dr. Baron for Karla Lopez.

My scholarship performance was recognized by the GRASP office CSUB with a research excellence (2014-15) award. This summer I supervised six high students working on the Tulare Lake sediments mineralogy investigation for the REVSUP project

funded by Chevron. The results were presented at the AGU 2016 Fall Meeting. Undergraduate student David-Allen Alvarez won the second place in the oral presentation competition and the first place in the poster competition at the 2016 CSUB Student Research Competition. Obeyd Mohammadi also won a \$2,000 Student Research Scholarship. His competition will be next spring.

I went on the IODP Expedition 359, working as a physical property specialist last fall in Maldives. This January after I returned from the expedition, I submitted my post-cruise research proposal. And \$15,000 was awarded for that. In total, \$62,578 was awarded so far from NSF and IODP for expedition support and post-cruise study. In April, I attended the post-cruise editing meeting and sampling part of IODP Expedition 359 at Texas A&M University. And around 1200 samples were received for the post-cruise research. Graduate student, Obeyd Mohammadi, has been working on those samples and has made good progress. The onboard results were published as a preliminary report in the IODP Proceedings online and a summarization paper were published on Scientific Reports. Additionally, five abstracts were submitted by students and/or collaborators to national and international conferences, such as GSA annual meeting in Denver, and AGU fall meeting in San Francisco. Because the CREST Phase II renewal was approved for the next five years, as one major participant, I will be facing another busy and productive year!



Obeyd Mohammadi presenting his research at the Fall 2016 Meeting of the American Geophysical Union.

Chris Krugh This past year was another busy one! Students in my research group have been active in a number of exciting projects involving basin analysis, structural geology, tectonics, and geomorphology. Jordan Martin successfully defended his MS thesis research on the physical characteristics of sand injectites within the Panoche Giant Injection Complex. Marc Halling and Kristin Koehler continued their investigation on the displacement history of the Southern Sierra Nevada Frontal Fault Zone through the use of low-temperature thermochronometry, fracture data, and stream profile analysis. Jordan, Marc, and Kristin presented their work at several scientific meetings including CSUB, AGU, and GSA. Blake Foreshee and Spencer Schroer continued stream profile analysis of the lower Kern River and Caliente Creek watersheds. This work will be used to help constrain the landscape response to tectonic processes operating in the southern Sierra Nevada. Blake Foreshee was a participant in the CSUB Student Research Scholars Program as well as a recipient of a 2016 Research Grant from the Geological Society of America! Maryanne Bobbitt recently joined the research group and will build on previous work by mapping geomorphic landforms (aided by airborne LIDAR data) and dating key features within the lower Kern River. These research projects are part of the CSUB CREST Phase II research grant awarded by NSF and will serve as a resource for my Geomorphology, Earth Surface Processes, and Structural Geology/Tectonics courses at CSUB.

David Miller continues to teach Earth Materials I and II (the new Min/Pet sequence) and has also been working with a group of students on a research project investigating the paleodrainage evolution in the Southern Sierra Nevada and Tehachapi Mountains and implications for the provenance of oil and groundwater reservoirs in the southeastern San Joaquin Basin.



Tony Gallagher, Darby Scanlon, Rick Fewtrell, and Carlos Montejo presenting with David Miller

They are looking at non-marine conglomerates and relict stream channels. David and his students presented this work at the Fall 2016 AGU and GSA meetings.

Katie O'Sullivan This year is my first year as a full-time lecturer so I've been pretty busy teaching. So far I've taught Physical Geology, Introduction to Field Methods, California Geology, Introduction to Earth Science, Geochemistry, and Planetary Geology.



On the Physical Geology field trip to the Mojave Desert.

Last semester the Physical Geology class included a 3-day field trip to Zzyxx where students learned about geological processes around the Mojave National Preserve, Kern Canyon, and Rainbow Basin areas. We had about 70 people total on the trip, including Geology Club members and people from the community. Everyone had fun while learning!



On the Introduction the Field Methods trip

Students in the Introduction to Field Methods class experienced an epic windstorm the first night of the field trip. Tents were blowing sideways, sand was blowing too hard to get out of the sleeping bag, and a sand dune about 1 foot high had moved into our campsite by morning. We all survived and had enough energy the next day to use the proper suite of geologic mapping tools.

Tony Rathburn After a bit of a delay I finally arrived at CSUB (from Indiana) this August, well after my very large pile of boxes containing my lab gear, research samples and office materials. I had a lot of much appreciated help from staff, faculty and students dealing with these boxes and helping me make the transition to Bakersfield. I still have many boxes to unpack, but I am thoroughly enjoying my return to California. As a means of introduction, I am a marine geologist and micropaleontologist whose research interests include methane seeps; oxygen-poor, organic rich seafloor environments, microfossil proxies for paleoenvironmental conditions, paleoceanography and climate change. As the new Director for the California Well Sample Repository, I look forward to working with the Repository Board and staff to meet the challenges of space and funding. This Fall semester I taught the introductory course, “Dangerous Earth,” and a grad level course entitled “Early Life On Earth.” In the future, I plan to reintroduce paleontology and oceanography-oriented courses at all levels. I am very excited to be here, learning the ropes and working with the Department and other folks at CSUB and the community. I look forward to meeting you all at upcoming Departmental and geology community events.



Tony enjoying the Physical Geology field trip to the Mojave Desert.

Sue Holt I am starting my third year at CSUB and in the Geological Sciences Department, as the Administrative Support Coordinator. I couldn't begin to give a brief description of what I do everyday, as the tasks are so varied, and each day is different from the one before. But, I love what I do, and never have a dull moment. My favorite aspect of this position is interacting with the great students we have in our department, and trying to help them navigate the ever-shifting terrain of rules, deadlines, and forms. We are a relatively small department, which means I know many students by name, and most by sight, and are able to interact with them with more than just a nod and a “Hi” when I pass them in

the hall. The faculty, lecturers, and staff I work with each day are very easy to get along with and have created a very cohesive group. Principles of Physical Geology was my favorite class at UCSB, I think I should have stuck with it as a major!

Elizabeth Powers was honored (somewhat belatedly) by President Mitchell and Provost Zorn for 15 years of much-appreciated service as the department's Instructional Technician!



Brian Pitts has been teaching our upper division General Education CA Geology and Water and the West and took several of the pictures in this newsletter including the group photo on the cover.



Brian in a lava tube on the Physical Geology field trip. Check out the many great pictures he took on the CSUB

Geology Club Facebook page.



Most of the department faculty, emeritus faculty, and staff in Fall 2016.

DONATIONS

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.



The annual Zzyzx field trip with our Physical Geology class is one of the activities supported by the Claude Fiddler Field Endowment.

Individuals John Coash, Florn Core, Joe Dunworthy, Gene Hershberger, Lorence and Donna Moore, Rob Negrini, Sandra and Dan Steward, Terry and Donna Thompson.

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



Geology students and faculty showing a group of elementary school students our new stream table purchased from community donations and used in classes and outreach activities.

STUDENT NEWS

The talent and hard work of our students allows them to win prestigious and highly competitive national awards. **Blake Foreshee** won one of the **Geological Society of America Student Research Grants**. **Sade Haake** received one of only 20 **GSA/ExxonMobil Field Camp Scholarships**. **Abby Martens** won a grant from the **National Center for Airborne Laser Mapping** for a Lidar survey of the Inyo Craters area and structural analysis of obsidian lava surfaces.

Sade Haake was the outstanding BS Geology graduate. He is now working on his MS Geology in the department, fully supported by an NSF CREST fellowship.



Eric Heaton was the outstanding MS Geology graduate and was inducted into the CSUB Roadrunner Society.



Alyssa Kaess's MS Geology thesis was the outstanding graduate paper of the School of Natural Sciences, Mathematics and Engineering. Alyssa was accepted into the Ph.D. program at West Virginia University.

David-Allen Alvarez, Jordan Martin, and Rachel Tiner won their respective categories at the 2016 **CSUB Student Research Competition**. **Nick Moreno, and Eric Heaton** placed second and third.



Some of the Geology students presenting at the CSUB Student Research Competition

Students continue to travel the world for research and summer experiences. **Morgan Kayser, Darby Scanlon, and Grant Obenshain** participated in an **International Water Resources Institute in The Hague, Netherlands** with funding from the CSUB Helen Hawks Honors program and the CSUB Extended University. Read more about their experience and library presentation in The Runner Newspaper <http://therunneronline.com/?p=14022>



Morgan, Darby, and Grant (with President Mitchell) at their presentation in the Walter Stiern Library



Janet Arroyo (in the front on the right on the flight to South Africa) was the latest student to participate in the



PennState/AfricaArray Geophysics Field School. This program has provided tremendous support and opportunities for our students.

2016 San Joaquin Geological Society Scholarship Winners: Dawn Fine, Sade Haake, Kent Kuehl, Jesus Robles, Jesus Gutierrez, Kathleen Halle, Valerie Petela, Scott Savko, Kevin Wright.



SJGS officers Greg Gordon, Dan Schwartz, and Kurt Neher with scholarship winners.

2016 H. Victor and Virginia C. Church Scholarships: Erin Walter, Favour Epuna, Grant Obenshain, Laura Estenssoro, Megan Varga, Morgan Kayser, Valeria Petela, Virginia Rodriguez, Sade Haake, Kevin Wright, Dylan Young.

2016 C.E. Strange Scholarship: Alva Torrento, Anthony Fenderson, David Alvarez, Jesus Robles, Karol Casas, Kent Keuhl, Kevin Wright, Laua Estenssoro, Maynor Lopez, Sade Haake, Scott Savko, Valerie Petela

Fairie Decker Memorial Scholarship – Virginia Rodriguez

Theodore Decker Memorial Scholarship – Favour Epuna

Jeanette Haskin Merit Scholarship – Megan Varga

Warner and Pamela Williams Scholarship – Darby Scanlon

ALUMNI NEWS

We awarded a record 36 degrees in the 2015/2016 academic year.

The following received a **BS Geology** since the last newsletter: Roberto De La Rosa, Phillip Herrera, Andrew Kimbrell, Victor Medrano, Obeyd Mohammadi, Javier Montejano, Nichols Murdoch, Christopher Baker, Jeffrey Whitson, Elizabeth McNamara, Rogelio Arellano, Jr., Sade Haake, James Fordham, Gabriela Plascencia, Maryanne Bobbitt, David Alvarez, Gerardo Vallejo, Kevin Wright, Brynn Galindo, Jose Gonzalez, Jose

Alvarez, Diana Salinas, Zach Wolpe, Firehiwat Andualem.

The following received a **MS Geology** since the last newsletter: Eric Heaton, David Kong, Nick Moreno, Rachel Tiner, Alana Crown, Kristin Koehler, Dawn Fetzer, Cristina Rivas, Jordan Martin, Paul Bowles.



Geology graduate students and faculty at the 2016 Graduate Commencement

Recent MS Geology theses:

Rachel Tiner: Geophysical, and geochemical constraints on the age and paleoclimate implications of two Holocene lacustrine cores from the headwater region of the Claro River, Elqui Province, Coquimbo Region, Chile

Paul Bowles: Relative Timing of Structure Growth since the Deposition of the Amnicola Clay, Elk Hills, California

Nick Moreno: U-Pb and $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology of rhyolitic tuffs and lavas of the Sierra Madre Occidental silicic large igneous province: Insights into Eocene-Oligocene silicic volcanism from a new sample transect, Chihuahua and Durango border region, northern Mexico

Dawn Fetzer: Study of Summer Lake, OR BB3-I Core via Biogeochemical Molecular and Isotopic Analysis for Paleoclimate Reconstruction

David Kong: Establishing the base of underground sources of drinking water (USDW) using geophysical logs and chemical reports in the southern San Joaquin Basin, CA

Cristina Rivas: An Experimental Approach to Quantifying the Effects of the Injection of Supercritical CO_2 into Sedimentary Rocks and Formation Brines in the San Joaquin Valley,

California: Vedder Formation, Rio Bravo Oil Field

Alana Crown: Detrital zircon geochronology of roof pendants, southern Sierra Nevada batholith, Tulare County, California: Insights into Paleoproterozoic through Cretaceous provenance of the western margin of Cordilleran North America and its Cretaceous syn-magmatic architecture

Jordan Martin: Sand Injectite Architecture and Petrographic Characteristics of the Panoche Giant Injection Complex (PGIC), Panoche Hills, California

Eric Heaton: Paleontological, Geochemical and Geophysical Climate Proxies in Late Pleistocene Lacustrine Sediments from Summer Lake, Oregon, Western Great Basin

Christine Piles: Sediment Provenance and Paleoenvironmental Change since 25ka in Western North America: Constrained by the Evolution of Clay Minerals of Tulare Lake, California

Martin Jimenez, BS 2014, just completed his MS Geology at PennState. His thesis was on *Controls on sand-body distributions and connectivity in the shallow-marine Fox Hills Sandstone and lower Lance Formation (Upper Cretaceous, Great Divide and Washakie basins, Wyoming)*. He is now a Geologist with Batelle in Columbus, Ohio.



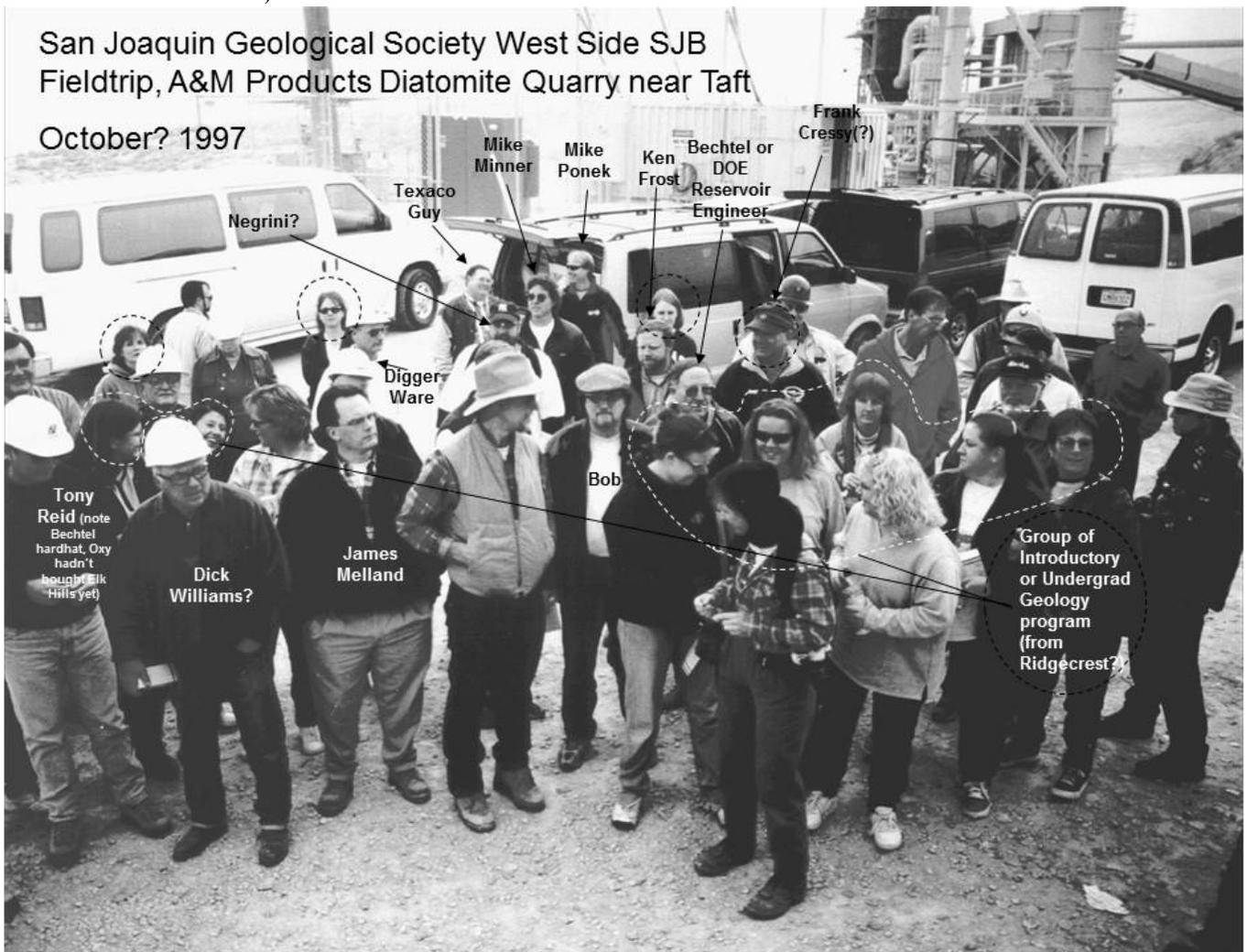
Alex Nicosia, BS 2013, completed her MS Geology at the University of Alabama and is now a Geologist with the Kansas Department of Health and Environment.

Anne Draucker BS
 2003, MS 2007, is
 the 2016/2017
 President of the
 Association of
 American Petroleum
 Geologist's Energy
 Minerals Division.
 Anne is also a Petrophysicist with Chevron in
 Bakersfield.



One of the many outreach activities of the CSUB Geology Club.

Physical Geology students after successfully mapping the Skyline Tuff and a fault in Rainbow Basin.



Dan Steward, BS 1992, MS 1997, sent this picture from a San Joaquin Geological Society field trip, ca. 1997, and tried to identify participants. We would love to see more pictures from the old days!

Donations

We are proud that CSUB continues to be recognized in national studies and was recently ranked No. 3 nationwide in terms of “Upward Mobility” of graduates. Check out the New York Times article on the study <https://www.nytimes.com/2017/01/18/opinion/sunday/americas-great-working-class-colleges.htm> . We know that their education has served our alumni well and are sure that Geology graduates make a significant contribution to CSUB’s overall success and recognition as one of “America’s great working-class colleges”. We are trying to maintain this success against the tremendous enrollment growth and stagnant state-funding in recent years. Additional outside support is critical if we want to give our current students the exceptional educational experience that we hope our alumni experienced during their time here. Faculty are doing their part, bringing in major external funding from highly competitive federal grants. Industry partners, folks from the community, and many alumni have also stepped up.

It’s now your time to step up and give back!

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:

Affiliation (if applicable):

Address:

City, State, Zip Code:

Email:

Please indicate the amount you want to donate:

\$100 \$500 \$1,000 \$2,500 \$5,000

Other _____

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

- 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**

- Other?** _____

The New York Times

An Upward Mobility Top 10

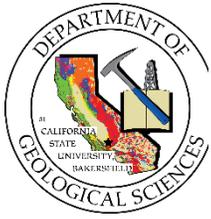
Colleges ranked by percent of students from the bottom fifth of the income distribution who end up in the top three-fifths.

1. New Jersey Institute of Technology	85%
2. Penn	82%
3. Cal State, Bakersfield	81%
4. University of California, Irvine	81%
5. Cal Poly Pomona	82%
6. Xavier of Louisiana	80%
7. Stony Brook	79%
8. San Jose State	79%
9. Baruch	79%
10. Cal State, Long Beach	78%



We hear stories around the boat by the pond at Zzyzx from early CSUB Geology field trips. Maybe someone wants to share them for future newsletter?

Thank You!



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CSUB Geological Sciences Department
Fall 2016 Newsletter inside
