



# NEWS FROM THE EARTH & PLANETARY SCIENCES DEPARTMENT AT UC SANTA CRUZ

## FALL 2024



Photo by: Jackie Williams



*Department Chair Matthew Clapham*

## Chair's welcome

Dear Friends of EPS,

Welcome to our 2024 newsletter, which contains all of the latest and greatest news from the department and your fellow alums. We have an especially large alumni update section this year, so make sure to check out what everyone has been up to. We love hearing from you, so please stay in touch and let us know about your accomplishments.

It was fantastic seeing some of you at our reunion in October! We enjoyed great weather and good conversations at the receptions in the EMS building and on field trips to West Cliff, Año Nuevo, and the Pigeon Point area. We hope the grad student poster session and early (early-ish) career faculty flash talks gave you a nice update of the exciting research ongoing here in EPS. We'll do another reunion in a few years but, in the meantime, keep an eye out for other alumni events, some in Santa Cruz and some perhaps in your neck of the woods!

We also announced a major fundraising campaign at the reunion, with the goal to raise \$2.5 million dollars, which would roughly be a doubling of our endowed funds that support students and research in the department. Thanks to your generosity, we've already made good progress toward that goal, but we still have a ways to go. Keep an eye out for an end-of-year matching opportunity to support field camp through the Weber-Holt Fund, and for more initiatives in 2025. If you're thinking about giving as the end of the year approaches, your donations to EPS have a huge impact and enable us to make a difference in our students' lives.

Our parade of retirements continued over the last year, with both Elise Knittle and Hilde Schwartz hanging up the chalk. Elise estimated that she's taught mineralogy to more students than anyone else in the US, and her mineral physics research connected the department's geological strengths to begin our rise to excellence in geophysics. It's hard to understate the impact that Elise had on decades of EPS students! Speaking of impact, I'm sure many of you have fond memories (or perhaps nightmares!) of mapping New Idria or the Poleta Folds with Hilde. Hilde was the foundation of our field program for more than 20 years, guiding close to a thousand students through their first experience with geological mapping.

While we've had a flurry of retirements in the last few years, we were able to do a search in seismology this past year. That search yielded a great pool of candidates, and we successfully recruited two new colleagues. Ethan Williams (starting 2025) uses fiber optic sensing methods to study fault structure, ocean waves, and basically

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**Editors: Gary Griggs & Allison Curtis**

**Emails: [griggs@ucsc.edu](mailto:griggs@ucsc.edu) &**

**[akcurtis@ucsc.edu](mailto:akcurtis@ucsc.edu)**

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Scan here!

[www.linkedin.com/company/ucsc-eps/](https://www.linkedin.com/company/ucsc-eps/)



## Chair's welcome - continued

anything that creates vibrations. Jonathan Wolf (starting 2026) is all about the mantle, especially deep mantle structure and properties. We're excited about what they'll bring to the department!

This year's AGU fall meeting is in Washington DC, and we're excited to catch up at our annual alumni reunion on Tuesday December 10 from 6-8:30 PM at the Logan Tavern on P Street near Logan Circle. We'd love to see you if you live in the DC area – the event is open to all!

This will be my last chair's welcome message, as my term is ending in June. It's been an honor to serve the department and I've enjoyed the work, but I'm also looking forward to having some more time for my own projects as a regular faculty member! The next chair is to be determined, but the department will be in good hands.

As always, we're pleased to share our latest news and updates, and I hope this newsletter rekindles some fond memories from your time at UCSC.



*West cliff field trip during the EPS Alumni Reunion*

Best wishes,

Matthew Clapham

PLEASE JOIN US FOR THE  
2024 EPS ALUMNI RECEPTION  
AT AGU IN  
WASHINGTON DC

TUESDAY, DECEMBER 10TH 6-8:30PM

LOGAN TAVERN



LOGAN  
TAVERN

est. 2003

1423 P STREET NW  
WASHINGTON, DC 20005

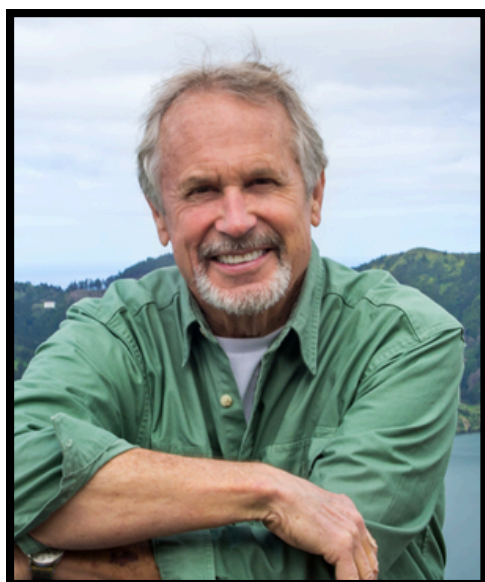
# Department News



**Professor Francis Nimmo** elected to prestigious fellowship of UK's Royal Society



**Professor Slawek Tulaczyk** named Honorary Fellow of the Polish Geomorphological Society



**Professor Gary Griggs** was elected to chair the California Ocean Sciences Trust and also served on the California Ocean Protection Council's 2024 Sea-Level Rise Task Force. In September he published his 14th book: California Catastrophes - The Natural Disaster History of the Golden State.



**Postdoc Will Steinhardt** won the 2024 Jason P. Morgan Early Career Award for innovative earthquake-physics research through a combination of research, education, and outreach activities.





# GEODES Update

Hello from GEODES!

**GEODES** (Geoscientists Encouraging Openness & Diversity in the Earth Sciences) is a student-run organization in the EPS department whose main goals are to foster community, facilitate professional development, and address diversity, equity, and inclusion (DEI) issues in the Earth sciences. GEODES was founded in 2015 to support our department's diverse student population, build community, and provide professional development opportunities. Here we reflect on our events from the past year and discuss future plans to continue to bolster our organizational goals.

**To foster community**, GEODES spent a day exploring Santa Cruz with our new graduate students to help establish more of a community and cohort bond. Participants went on a hike in Henry Cowell, led by UCSC EPS alum Emily Tekler who works in the park, followed by lunch, time at Bonny Doon Beach, and happy hour at Humble Sea with other grads. We plan to continue to foster community and encourage department bonding with future hikes (with both graduate and undergraduate students), an outing to the Santa Cruz natural history museum, and a camping trip in the spring quarter.

**To facilitate professional development**, GEODES ran a two part math refresher series with the aim to help undergraduates in learning or remembering math concepts which are applicable in the pursuit of their geoscience degrees and future careers. Participants presented math concepts and helped students complete example problems and current homework questions to ensure their success in classes. This was the second year in a row in which this refresher took place and we aim to continue this series. Additionally, GEODES held a Qualifying Exam event to help graduate students understand the process of qualifying for PhD candidacy in this department. This November, GEODES will be assisting with a Graduate School Preparation series for undergraduates. This will include a panel in which graduate students with a range of experiences will speak on their paths to graduate studies.

Additionally, GEODES will hold a seminar in the winter quarter to assist students with the basics of job hunting.

**To address diversity, equity, and inclusion (DEI)** issues in the Earth sciences, GEODES will be putting on an Introduction to Camping workshop which outlines the basics of camping and being outside, during the spring quarter. This type of work is a necessary component of many geology careers and the aim of this event will be to increase students' comfort and knowledge with this type of recreation which they might not have been exposed to before. GEODES will also be inviting multiple speakers to speak on DEI issues and initiatives in order to expand the knowledge of these problems and potential mitigation strategies in our department.

We look forward to this year's events and are excited to continue working to build community both in our department and in geosciences as a whole, as well as striving to promote diversity, equity, and inclusion in our field. If you have any questions or suggestions please reach out ([ucscgeodes@gmail.com](mailto:ucscgeodes@gmail.com))! Learn more at <https://ucscgeodes.wixsite.com/home>.



*New Grads Day at the top of the observation deck in Henry Cowell State Park.*

Love,

**GEODES** 

# Honoring Elise Knittle: A Legacy in Earth & Planetary Sciences

Elise Knittle retired in 2024 after 36 years as a faculty member in the Earth & Planetary Sciences Department at the University of California, Santa Cruz (UCSC). She arrived at UCSC in July 1988, directly following the completion of her PhD in Geophysics at UC Berkeley. At the time, the department was relatively small, with only 13 or 14 faculty members, and Knittle was among the first hires in what would become a significant expansion of the department in the 1990s.

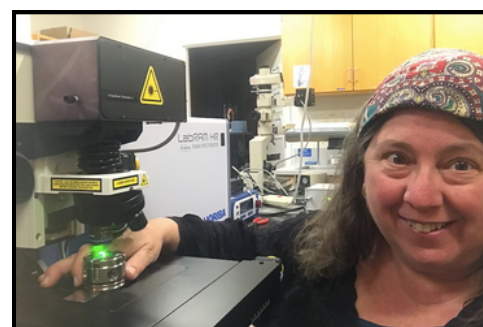
Knittle's research focused on high-pressure, high-temperature experimental mineral physics, specifically studying the properties of minerals and rocks under the extreme conditions of the Earth's mantle, using the diamond cell technique. At UCSC, she helped establish a lab dedicated to cutting-edge Raman and infrared spectroscopy capabilities through the diamond cell. This lab will continue under the leadership of Quentin Williams, who is not retiring. Highlights of Knittle's research career include demonstrating that the core and lowermost mantle can chemically react under the extreme pressure and temperature conditions of the core-mantle boundary, making the first measurement of the bulk modulus of Bridgmanite (the primary mineral of the lower mantle), conducting the first in-situ measurements of Raman spectra of a carbonatite magma at simultaneous pressure and temperature conditions, and conducting numerous studies on the role of volatiles in mantle mineral physics. Throughout her career, she greatly enjoyed working with many talented graduate students in her lab and is proud of their accomplishments.

Knittle was also deeply committed to teaching and spent much of her career instructing a wide variety of courses. She found joy in teaching and interacting with students, and the energy of working with young people helped keep her feeling youthful. The one constant in her teaching was the Mineralogy course, later rebranded as "The Earth as a Chemical System," which she began teaching in January 1989. She is likely to have taught more students in Mineralogy than any other professor in the United States, given the size of the UCSC Earth Sciences major. In addition to Mineralogy, Knittle

initially taught several geophysics courses, including a survey course on the solar system ("The Solar System"), an introductory geophysics course co-taught with Rob Coe ("Planet Earth"), and an undergraduate/graduate course called "Geodynamics," which eventually evolved into one of the Planetary Science courses. She also taught Soil Mechanics a few times. In the early 2000s, as the department expanded and other geophysics faculty members were hired, Knittle transitioned to teaching more geology-oriented courses. She taught "California Geology" from 2006 to 2023 and "Igneous and Metamorphic Petrology" until her retirement.

Knittle served as the Department Chair of the Earth & Planetary Sciences Department from 2000 to 2006. Later in her career, she contributed to the Baskin School of Engineering by serving as an external chair for several departments. She chaired the combined Department of Applied Mathematics and Statistics, the now-separated Department of Applied Mathematics, the Department of Statistics, and most recently, the Department of Biomolecular Engineering. Knittle found great satisfaction in these leadership roles and was proud to give back to UCSC, a place that had provided so much to her throughout her long and fulfilling career.

*Elise Knittle  
working in the  
lab.*



*Elise Knittle  
when she first  
arrived at  
UCSC.*



# EPS Research

## Gary Griggs - Research Profile

While my graduate school research was focused on deep-sea sediments off the coast of Oregon and somewhat unknowingly uncovered the first sea floor evidence of the giant Cascadia Subduction Zone earthquake, my trajectory changed on arriving at UCSC in September 1968. We had no research vessel, and heading back out to some distant ocean seemed less appealing than studying both the land and the marine environment of central California.

While I continue to teach Oceanography that I first taught back in 1969, my research and teaching path soon veered away from deep-sea sediments into natural hazards. From the 1960s into the 1980s this included earthquakes and faulting, landslides and floods, as well as other surface processes. One catalyst for this research and teaching, which in those early years included Environmental Geology and Hydrology, was the series of natural disasters that took place during those years: the El Niño of 1978; the 100-year rainstorm of early 1982 that generated ~18,000 debris flows in the greater San Francisco Bay area damaging or destroying ~6,300 homes and leading to 33 fatalities; the largest El Niño in half a



century in early 1983 that left major damage along the Santa Cruz shoreline as well as along the entire coast of California; the 1989 Loma Prieta earthquake that left downtown Santa Cruz in shambles and also damaged or destroyed many homes in the Santa Cruz Mountains. This list continues to the present, with the damaging coastal storms of the 2022-2023 and 2023-2024 winters, which all were areas of my research, teaching and writing.

Over the decades I have observed after watching community responses to these geologic hazards, that most people seem to have collective amnesia or short disaster memories. The flood, fire, or earthquake becomes history, and we often tend to rebuild in the same hazardous locations, or newcomers arrive and naively buy that property or the rebuilt home with little or no knowledge of its history. For years, I have been asked to speak about the natural disaster history of the area to the Santa Cruz County Board of Realtors. Having observed, studied and photographed many of these events, I have a lot of images of hazardous locations with damaged or destroyed homes that I use in my presentations to this group. I have gotten some interesting responses from the attending realtors about homes they recognize, and in some cases, recently sold. Most of them generally don't have any geologic backgrounds, and it's safe to say that the geologic history always seems to come as a shock.

## Gary Griggs - Research Profile

With the El Niños and extreme coastal storms that began in the 1980s and have continued intermittently to the present (particularly periods of very large waves coincident with very high tides and elevated sea levels from El Niño events), the risks to existing coastal development and proposed construction, whether private homes & businesses or public infrastructure, have become increasingly apparent. Layered on top of these short-term extreme events has been a gradual but accelerating global rise in sea level, which will not only affect the shoreline of California but coasts around the world. It has been these processes and these events that have captured my interest over the past four decades and shifted my research and teaching to coastal processes and hazards. I couldn't have been in a better place to study these issues than at UC Santa Cruz where these damaging events are happening just a few minutes from the campus and two blocks from where we live.

The extreme waves and high tides of early January overtopped West Cliff Drive and damaged the walking path and roadway, closing both for over a year with repairs still underway. These same events wreaked havoc on the Capitola Esplanade, which is built literally on the sand, and even brought President Joe Biden to town. The developments on the beach in Rio Del Mar suffered similar wave and debris impacts.

While there are some who think that these events are one-time affairs and not likely to be repeated again soon, the truth is that there is a long history – long, like over 175 years – of similar events and damage. All indications from these historic records and what we know about a changing climate is that the future will be more problematic with rising sea level and evidence of increasing wave heights. In September I had a new book published, *California Catastrophes – The Natural Disaster History of the Golden State* – which covers the last 175 years or so of California's geologic instability. This follows a similar more geographically-focused 2018 book – *Between Paradise and Peril – The Natural Disaster History of the Monterey Bay Region*.

We are fortunate to live in California where these issues are front and center with the state investing significant resources in research to better understand the coastal hazards and risks of the past, present and future. An assessment of rising seas in California is now carried out every five years to provide state and local government agencies the most updated scientific information on future sea level rise. This is in striking contrast to Florida where the governor and state legislators recently passed a bill to eliminate the words “climate change” from most existing state laws.



As I start into my 57th year at UCSC I feel very fortunate to have landed here right out of graduate school and have also been fortunate to have been able to mentor 77 graduate students beginning with Jim Hein, Jerry Weber and Rich Farrington back in 1969, who went on to their own successful careers.



Gary Griggs



# EPS Research

## Paul Koch – Global Adventures in Paleoecology

How animals and plants might respond to climate change and other human impacts is a pressing concern. And knowledge of the ecological, physiological, and evolutionary mechanisms that organisms used to meet large- scale change in the past is crucial if we hope to understand the processes shaping the history of the biosphere. When confronted with an environmental challenge, do organisms adapt, move, or go extinct? And if they stay in place, what aspects of their behavior or physiology might have changed to make this possible?

Such questions have motivated Professor Paul Koch and many of his mentees for over 20 years. The main analytical tool they use is isotopic biogeochemistry, though they often integrate morphological methods and increasingly turn to modern and ancient DNA to reconstruct population evolution and demography. At UC Santa Cruz, work on fossils of extant species, which falls within the emerging disciplines of historical ecology and conservation paleobiology, began with the PhD research of Rob Burton (instructor, CSU Monterey Bay) and Seth Newsome (professor of biology, Univ. of New Mexico) on modern and fossil seals, and that of Kena Fox-Dobbs (professor of environmental studies & sciences, Univ. of Puget Sound) on the ancient diets of California condors. Below are three more recent efforts.

Unraveling the ecology and population biology of ancient marine mammals in Antarctica's Ross Sea has been a major focus of the lab, especially former Ocean Sciences PhD student Emily Brault (now a researcher in biotech). Emily, Seth, former EPS PhD student Rachel Reid (geosciences research scientist, Virginia Tech), EPS and Anthropology double-major Jon Nye (Earth sciences PhD, UC Riverside; now an isotope specialist, U.S. Customs), and Koch, all did field seasons collecting fur, bone, and other tissues from mummified southern elephant, Weddell, and crabeater seals in the Dry Valleys region of Antarctica (Figure 1). An extensive radiocarbon campaign revealed that elephant seals, which are exceedingly rare in the Ross Sea today, made extensive use of its beaches from 7000 to 1000 years

ago. Ancient DNA showed that these animals were not seasonal migrants from any existing elephant seal colony (all at much lower latitudes); rather they were an independent breeding colony that rose to perhaps 200,000 individuals and then collapsed. Most of our samples were shed fur, but a study of skeletons from Inexpressible Island (where Scott's Northern Party were forced to overwinter in 1911) indicates that, at least just before their decline, elephant seals weren't breeding on the coast but perhaps were hauling out there to molt.



*Figure 1 (a) Emily Brault and Jon Nye collecting fossil seals spit out into Wright Valley by the Wilson Piedmont Glacier.*



*(B) Paul Koch perplexed by too many seal parts at Explorer's Cove at the mouth of Taylor Valley.*

## Paul Koch – Global Adventures in Paleoecology

Nitrogen isotope data from the elephant seals signal greater marine productivity prior to 1000 years ago, and geomorphology indicates that the beaches elephant seals frequented were ice-free, unlike today where land-fast ice extends miles into the Ross Sea at many sites, even in the summer. Emily's isotopic work on Weddell seals confirms the drop in productivity over the last millennium, though their diets seem to have been unaffected. In contrast, crabeater seals, which today are hyper-specialized on the krill that thrive in the thick pack-ice of the current Ross Sea, consumed a surprising amount of higher trophic level prey until about 300 years ago. The overall picture is one of surprising dynamism, with elephant seals rapidly exploiting the region when it opened at the end of the last glacial, only to retreat as cooling returned 1000 years ago; crabeater seals adapting to these changes by shifting their resource base; and Weddell seals more or less chugging through unphased, though how these modern ice-crack specialists dealt with a less icy Ross Sea remains a mystery.

While Rachel Reid was essential to our Antarctic field work, her core PhD research was conducted closer to home, on the beaches, coastal prairies, and nearby forests of Central California. She investigated how much modern coyotes relied on marine resources, and whether or not they did so earlier in the Holocene. The carbon and nitrogen isotope composition of sea food is different from that of

terrestrial food, so she had a natural tracer of diet to take back into the near time fossil record.

Coyotes are wily animals, and directly sampling their tissues to assess isotopic values would have been tough. Instead, for more than a year, Rachel walked 5 mile transects from the coast to inland at Año Nuevo State Park and Younger Lagoon, collecting scat (Figure 2a). An isotopic sample was taken from each scat, after which each sample was cleaned of “matrix” so she could quantify the presence of bones, hair, plants, etc. to obtain an independent estimate of diet (Figure 2b). Her ancient coyote samples came from archaeological sites spanning the last few thousand years, from Morro Bay in the south to Montara State Beach in the north.

At the modern sites, Rachel found evidence for marine resource use only at Año Nuevo, the site of a large modern northern elephant seal breeding colony. Specimens from the Younger Lagoon transect were entirely terrestrial. None of the coyotes from the six archeological sites showed isotopic evidence of marine resource use. Humans may have blocked coyote access to these sites, some of which hosted seal rookeries. A few large carnivores (grizzly bears and mountain lions) did feed on seals and large marine fish, so they may have also driven off coyotes too. In any case, the situation at mainland seal rookeries today might be historically unusual, with neither humans nor large



*Figure 2. a) Rachel Reid tracking coyote scats in Año Nuevo State Park.*



*b) A scat sample after cleaning and ready for picking and counting.*



## Paul Koch – Global Adventures in Paleoecology

carnivores preying heavily on seals, thus opening up these sites for coyote scavenging. And since 2015, coyotes on the coast north of San Francisco are now hunting and killing seals. So abundant sea food, scavenged or hunted, may be partially fueling the continued expansion of coyotes in coastal regions today.

Finally, a collaboration with former EEB PhD student Justin Yeakel (associate professor of life & environmental sciences, UC Merced) and anthropology professor Nate Dominy (now at Dartmouth) led in another direction entirely, ancient Egypt. Justin used the temporal record of animal representation in hieroglyphics (Figure 3) to document the stepwise erosion of wild animal diversity in the Nile Valley generated by both bouts of aridification and human population growth. He created network models to represent wild animal food webs and uncovered how these ecosystems became increasingly fragile as biodiversity dropped. The system became highly unstable in the last two centuries. The study introduced new approaches to understand changes in stability and illuminated how climate change and human pressures interact to destabilize ecosystems.

Ongoing studies in the Koch lab by EPS PhD students and undergraduate mentees are investigating the response of lizards to glacial-to-Holocene climate change and mid-Holocene human arrivals on Ibiza (Adrienne Ricker), the (paleo)ecology of animals that thrive in human environments (Max Pearson), and explorations in marine mammal ecology using metal isotopes (Tessa Holzmann). Stay tuned.



*Paul Koch*



*Figure 3. The Two Dog Palette, a carved siltstone palette (~5,150 BP) depicting a wild animal hunt, with a mix species species (the framing wild dogs, lions, ostrich, ibex, giraffe, etc.) and mythical creatures.*



# ALUMNI REUNION WEEKEND 2024

Thank you to everyone who attended the EPS Alumni Reunion on October 4-6, 2024!



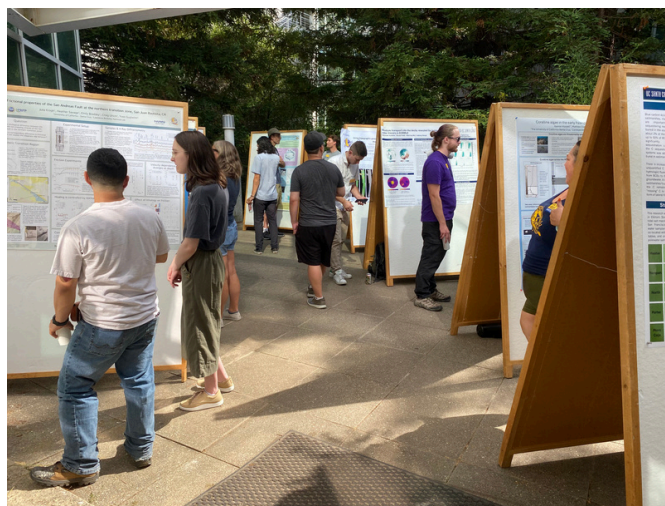
Jennifer Fish shows off the EPS Memory Board from 1960-present



Professor Myriam Telus presenting a flash talk



(left to right) Chuck Lawson, Gary Griggs, Jim Hein, Dan Orange, and Andy Fisher



Research posters



EPS Alumni Career & Life Stories Panel



Luncheon with faculty, grad students, alumni, researchers, and staff



# Undergraduate Awards

## **COLLEGE SERVICE AWARD BY COLLEGE NINE**

FRANCIS JOSHUA LOPEZ

## **THE LATINOS IN TECH SCHOLARSHIP FROM THE HISPANIC SILICON VALLEY FOUNDATION**

KIMBERLY PORRAS

## **VAN VLIERDEN AND THE OSTER RE-ENTRY SCHOLARSHIPS**

RUNE NORDENHAUG

## **LOCAL IMPACT AWARD FOR THE SANTA CRUZ LAUNCHPAD BUSINESS PITCH COMPETITION FOR THE PLATFORM “DONETODAY”**

COLBY ADAMS

## **UNDERGRADUATE RESEARCH IN SCIENCE & TECHNOLOGY (URST) AWARD**

NICO CHAVEZ

EMILY PIPER

LILY WELSH

## **AMERICAN GEOPHYSICAL UNION’S MICHAEL H. FREILICH STUDENT VISUALIZATION COMPETITION - GRAND PRIZE WINNER**

ZOË SIMAN-TOV

## **SANTA CRUZ GEM AND MINERAL SOCIETY SCHOLARSHIP**

MARTI LOGAN

## **GERALD WEBER AND SUSANNE HOLT FUND AWARD**

AMY HULSMAN

DENALI PEARSON

JACK TAYLOR

## **HOLLY DAY BARNETT SCHOLARSHIP**

VALERIA GALINDO-EGUARITE

## **EARTH’S ENVIRONMENT FUND AWARD**

JACK TAYLOR

VALERIA GALINDO-EGUARITE

## **ELI SILVER EARTH & PLANETARY SCIENCE OPPORTUNITIES FUND UNDERGRADUATE AWARD**

JORDAN BADEN

## **GARY GRIGGS ENDOWMENT FOR STUDENT RESEARCH SUPPORT FUND AWARD**

EMILE LENOIR

SAMANTHA RODRIGUEZ ROSTEN

RYLEE LOOPER

## **SUPPORT FOR UNDERGRADUATE RESEARCH IN GEOLOGY AND ENVIRONMENTAL SCIENCE (SURGES) FUND AWARD**

COLIN ZERFASS

VICTORIA GONZALEZ

# UNDERGRADUATE DEGREES

Colby Paul Adams  
 Eric Rogers Ahler\*  
 Melissa Giselle Andrade\*  
 Anecia Rose Arguello\*  
 Jacqueline Barragan\*  
 Cole Blackstone Batliner  
 Tess Kathryn Beckon\*  
 Azarely Bedolla Gutierrez\*  
 Ava Luisa Bivins  
 Jasen Emahjai Bradford  
 Mallory Glenn Byers\*  
 Skyler Rose Calender  
 Zeus Campuzano  
 Joaquin Emery Carlson\*  
 Camila Castaneda Calzada\*  
 Karen Citlalli Cazares  
 Jadon Jun Wai Chan  
 Ethan Chiu  
 Heide Anna Covington\*  
 Hannah Maria Crawford  
 Aidan Charles Curry  
 Joseph Daniel Cusenza  
 Owen Benjamin Davies  
 Sarah Christine Dunwoody\*\*  
 Matthew Thomas Eckstrom\*\*  
 Ytxzae Enriquez  
 Nicholas Duncan Flint  
 Margarete Nilza Furlanetto  
 Melanie Aninion Gagucas\*  
 Valeria Galindo-Eguiarte  
 Daniela Galvez  
 Anthony Sebastian Garcia

Edwin Garcia Franco  
 Matthew Stephen Geller\*  
 Aydin Francis Gillespie  
 Martin Alexander Gonzalez\*\*  
 Mary Rose Griffin  
 Phillip Thayer Grote  
 Anson Guan  
 Alyssa Kate Hachmann\*  
 Lucas Joseph Hamlyn  
 Amy Noel Lacombe Hulsman  
 Andrew Sando Isaac  
 Anne Louise Kelly  
 Emerald Kwang\*  
 Ryan Lee  
 Emilie Rebecca Lenoir  
 Jennifer Noemi Lopez  
 Jackie Mai  
 Christian James Markey  
 David William Mccurdy\*\*  
 Nikki Katherine Metevia\*\*  
 Celine Moradi  
 Peter Viet Nguyen\*\*  
 Lance Michael Northup\*  
 Diana Ochoa  
 Lucas Benjamin Ognibene  
 Jake Kerim Paget\*  
 Uma Rita Pant\*\*  
 Denali Hunter Pearson\*  
 Elizabeth Anne Pechulis\*\*  
 Kim Nicole Porras\*  
 Kristine Prelich\*  
 Connor Gabriel Rickson

Levi Dailey Robbins\*  
 Emmanuel Francisco Rojas  
 Elliot K Rost\*  
 Cody Shaun Russo\*  
 Paola Santos  
 Cauley Joseph Schulz  
 Isabelle Maru Shapiro\*\*  
 Zoë Eden Siman-Tov\*  
 Celine M Slaton  
 Mckaila L Smith  
 Jocelyn Solano\*  
 Ruixuan Song  
 Giovanni Sosa Legaspi\*\*  
 Natalie Elysia Swift\*  
 Jack David Taylor\*\*  
 Emily Rose Tekler  
 Seth Heisey Tenscher\*\*  
 Ethan J Tran  
 Emily Alice Treece\*\*  
 Jennifer Valadez  
 Rosa Rafaela Valdez Herrera  
 Martin Vale  
 Emilio Izaak Vega Carreno  
 Arend R Verfaillie  
 Ryan Zenjiro Wakugawa\*  
 Xavier Junsok Warren  
 Otis Wickenhaeuser  
 Maya Lillian Wood\*  
 Alexander Yixin Yu  
 Jackson Kent Yurek\*

\* Graduated with honors

\*\* Graduated with highest honors



## Graduate Awards

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**UT AUSTIN'S EARTH SCIENCE  
EXCELLENCE POSTDOCTORAL  
FELLOWSHIP**

AMANDA DONALDSON

**POST-EXPEDITION ACTIVITY AWARD  
FROM THE US SCIENCE SUPPORT  
PROGRAM**

KRISTIN DICKERSON

**"SCIENCE WITH NEO SURVEYOR"  
WORKSHOP TRAVEL FUND AWARD**

PRAN HYSENI

**"PRESIDENTIAL AWARD" FROM THE  
ASTRONOMICAL LEAGUE FOR  
ESTABLISHING THE FIRST-EVER  
SCIENCE CENTER IN KOSOVO**

PRAN HYSENI

**KEELEY COASTAL SCHOLAR AWARD  
FOR UNDERREPRESENTED UCSC  
STUDENTS**

LEAH VAN DYKE

**FOUNDATION OF AMERICAN  
INSTITUTE OF PROFESSIONAL  
GEOLOGISTS (AIPG) WILLIAM SIOK  
GRADUATE SCHOLARSHIP**

JIM JACOBS

**CHANCELLOR'S DISSERTATION YEAR  
FELLOWSHIP**

LAUREN GIGGY

**ACHIEVEMENT REWARDS FOR  
COLLEGE SCIENTISTS (ARCS)  
FELLOWSHIP**

TERRA GANEY

**BEST OVERALL PRESENTATION AT THE  
UCSC GRADUATE SYMPOSIUM 2024**

BRYNNA DOWNEY

**AARON AND ELIZABETH WATERS  
RESEARCH AWARD**

SAM KODAMA

**EPS DEPARTMENTAL OUTSTANDING  
TA AWARD**

EM SCHNORR

*HONORABLE MENTIONS:*

*ADRIENNE RICKER*

*KEENAN HASSELL*

*WILL CHAPMAN*

# GRADUATE DEGREES

**Travis Alongi**

Ph.D. (Fall 2023)

Understanding Fault Damage and Slip with Marine Seismic Methods

**Kristina Okamoto**

Ph.D. (Fall 2023)

Lessons in Earthquake Physics from the 2011 Prague, Oklahoma Earthquake Sequence

**Linfeng Wan**

Ph.D. (Winter 2024)

Exploring Planetary Atmospheres in the JWST Era: Pluto's Emission and Sub-Neptune's Transmission

**Garrett Zeff**

Ph.D. (Spring 2024)

Hydrogen and carbon bearing geomaterials at nonambient conditions

**Will Chapman**

Ph.D. (Spring 2024)

Rivers as records of land use history, climate, and lithology

**Brynna Downey**

Ph.D. (Spring 2024)

The Tidal Evolution of the Moon, Callisto, and Titan

**Amanda Donaldson**

Ph.D. (Summer 2024)

Microclimatic Controls on Critical Zone Development and Ecohydrologic Functions

**Maddie Wood**

Ph.D. (Summer 2024)

Seawater strontium responses to short-timescale carbon cycle changes

**Huiyun Guo**

Ph.D. (Summer 2024)

Understanding Fault Zone Properties and Earthquake Triggering with Seismology, Geology and Hydrogeology

**Jake Tidwell**

M.S. (Winter 2024)

Physicochemical Properties of Escanaba Trough Sediments

**Gracie Pearsall**

M.S. (Winter 2024)

Detecting and Predicting Hot Moments of Methane Emissions from Coastal Wetlands

**Michelle Rothman**

M.S. (Spring 2024)

Lichen as a Bioindicator of Atmospheric Mercury Deposition and Emissions: A Study of the Sulphur Bank Mercury Mine and New Almadén Mercury District

**Courtney Stratton**

M.S. (Spring 2024)

Forecasting Marine Heatwaves in the Northeast Pacific Ocean: A Comparative Analysis of Machine Learning Approaches

**Lauren Hashman**

M.S. (Spring 2024)

Quantifying Atmospheric Microplastic Concentrations at Two Sites in California



# The Earth and Planetary Sciences Advisory Council

The EPS Advisory Council (EPS-AC) was formed in 2012, providing a forum for accomplished alumni to help EPS achieve networking and fundraising goals. We are grateful to our EPS-AC members, who have generously agreed to share their time, energy, and expertise on behalf of our community. Your EPS-AC chair is Stefano Mazzoni - please let them know if you have ideas, questions or suggestions: [stefano00038@yahoo.com](mailto:stefano00038@yahoo.com).

We thank members of the current EPS Advisory Council for help in networking and development! Following are brief bios of current EPS-AC members, including backgrounds and interests.

## **Kevin Biddle, B.S. 1973**

I received a B.S. degree in Earth Sciences from UCSC in 1973 and then, thanks to a recommendation from Jerry Weber, went to work for the USGS in Menlo Park. I stayed with the Survey for a year and a bit before moving to Rice University in Houston for graduate school. At Rice I acquired a MA degree (1976) working on modern lagoon sediments and a PhD (1979) focused on carbonates in the Dolomite Alps of northern Italy. After Rice, I went to work for Exxon in their Houston research lab in the Basin Analysis group. I stayed with Exxon (now ExxonMobil) for 36 years working in research, exploration, field development, and as an advisor at corporate headquarters. I finished my career as the Exploration Director of ExxonMobil International in London, retiring in 2014. I currently live in Houston and Taos, New Mexico, and am an adjunct professor at Rice University teaching classes that address risk and uncertainty in the subsurface. I also work with a colleague in Poland on natural-gas supply to eastern Europe.

## **Jon Erskine, M.S. 1998**

I earned my MS in Earth Sciences from UCSC in 1998 working with Andy Fisher applying borehole geophysics and geostatistics to map a coastal aquifer system in the former Fort Ord area of Monterey, California. From there I became a California Professional Geologist and Certified Hydrogeologist in 2001 while working for Geomatrix Consultants of

## **Jon Erskine - continued**

Oakland in the environmental industry. In 2008, I completely shifted gears and entered the mining and construction industry to work for Graniterock of Watsonville, where I have been ever since. The move enabled me to return to live in the Santa Cruz area and learn a type of geology career that I previously knew nothing about while applying all the tools I have learned along the way. I find the geology of the Monterey Bay area fascinating and I've had the opportunity to share by leading field trips for UCSC's Geology Club and collaborating on San Andreas Fault hydrogeology research with EPS Professor Emily Brodsky and PhD student Lian Xue (2016). I've worked with numerous talented Slug geologists over the years and value the knowledge, enthusiasm, and professional camaraderie UCSC EPS has provided.

## **Richard Gordon, B.A. 1975**

I graduated from UCSC (Stevenson College) in 1975 with a BA in geophysics, which was an individual self-designed major with Rob Coe, Eli Silver, and Bob Garrison as members of my committee. I then obtained an MS (1977) and PhD (1979) in geophysics from Stanford. After a year of post-Ph.D. teaching and research at Stanford, I joined the faculty of Geological Sciences at Northwestern University for 15 years. I have now been at Rice University for 26 years as the Keck Professor of Geophysics. My research interests are in global tectonics with my main tools being

## Advisory Council Members - continued

### **Richard Gordon - continued**

marine geophysics, space geodesy, paleomagnetism, and numerical modeling. Two of my former Ph.D. students have gone on to become fellows of the AGU. I am especially proud of my work with students and colleagues in recognizing and describing diffuse plate boundaries in the world's oceans, especially the Indian Ocean, which I believe fundamentally changed our understanding of how plate tectonics works in the oceans. My main non-science hobby in the past decade has been playing the trumpet---I perform with several bands including two Rice jazz bands. I am amazed and proud of the achievements of the UCSC EPS department and of my fellow alumni and have been delighted to serve on the Advisory Council.

### **James R. Hein, Ph.D. 1973**

I received a Ph.D. in Earth Sciences at UCSC in 1973, as part of the first Ph.D. graduating class (three of us). I was Gary Griggs' first Ph.D. graduate and also worked with Bob Garrison. I sort of changed venues with Eli Silver as he was with the USGS before becoming a professor at UCSC. This was at the same time that I left UCSC for a position at the USGS after teaching the summer and winter quarters at UCSC post-Ph.D. Eli arranged meetings with David Scholl at USGS that resulted in my being hired. I have worked at the USGS for 45 years before retiring in December 2018, but then I was rehired the following day on a half-time appointment to mentor my replacements, write a few more papers, and see my last two Ph.D. students through completion of their work. During much of my career I studied deep-ocean mineral deposits, geochemistry, and paleoceanography, but also worked extensively on land-based deposits that were possible analogs to the marine deposits. I was scientific advisor to the DOS on issues related to deep-ocean mineral deposits and I

### **James R. Hein - continued**

was part of their delegation to the International Seabed Authority, who I also worked with for 18 years teaching workshops and seminars. I am past president of the International Marine Minerals Society (twice), and a Fellow of GSA and the Society of Economic Geologists. I also enjoyed teaching Bob Garrison's Advanced Sedimentary Petrology class twice at UCSC through the years, when he was on sabbatical.

### **Shengwen Jin, Postdoc 2000**

After obtaining a Ph.D in marine geology with concentration in reflection seismology from Tongji University, Shanghai, China in 1996, I came to UCSC as a postdoc and then was appointed as an assistant researcher in 1999. I moved down to Houston in 2000 and have worked in the oil and gas industry since then. I joined Halliburton Energy Services in 2008 through the acquisition of Screen Imaging Technology, Inc. which I co-founded. Throughout my career in the industry, I have been actively involved in the development of innovative seismic data processing and imaging technologies. Currently I am a Principle Advisor at Halliburton and am responsible for R&D in seismic imaging, modeling and inversion as well as applications of High Performance Computing. I hold several patents and author/co-author many technical publications.

### **Christy Kennedy, B.S. 2000 and M.S. 2002**

Christy completed a B.S. in Earth Sciences at UCSC in 2000, is a Senior Water Resources Engineer & Hydrogeologist with Woodard & Curran, and serves as a Board Member of the Groundwater Resources Association of California.



## Advisory Council Members - continued

### **Charles E. Lawson, B.S. 1973**

I graduated with a B.S. from the department in 1973. After a year working for Bechtel, I headed to Princeton for graduate school (recommendations from Casey and Aaron helped), where I received my Ph.D. in 1982. For a couple of decades, I was not very good about keeping connections with the department, but the department (and the campus generally) still held a special place in my heart. Finally, in 1995, I got my act together and began to give back to the department, and in the years since, I have tried to increase my connections and my support for the department. My professional interests lie in water resources management. Before retiring from the federal government at the end of 2020, I served as Secretary of the U.S. Section of the International Joint Commission (IJC) for twelve and a half years. The IJC assists the United States and Canada in preventing and resolving disputes involving water bodies along the U.S.-Canada border. The two countries established the IJC under their 1909 Boundary Waters Treaty. Before serving with the IJC, I worked on Water and Environmental topics throughout the Middle East during my 21 years as science and technology advisor in the Department of State. Before my stint at State, I conducted research at the USGS and NASA. My personal interests are all over the map (so to speak).

### **Stefano Mazzoni, B.S. 2000 and M.S. 2002**

After receiving my B.S. (2000) and M.S. (2002) working with Casey Moore on San Gregorio Fault Zone clay mineralogy, I moved to Houston and worked for four years at ExxonMobil on structural geology research, offshore West Africa, Gulf of Mexico, and offshore California. I joined Oxy in 2006 and worked Middle East projects for a year and half before moving back to California (Bakersfield) where I worked on a variety of projects in the San Joaquin and Ventura Basins. I left Oxy early 2015 when my wife (Chevron geologist) was relocated to the Bay Area. I worked for a

### **Stefano Mazzoni - continued**

small service company called NEOS GeoSolutions on global exploration consulting projects. In the summer of 2017 my wife was relocated to Houston so we came back for our second “tour.” I have been working as a consulting geologist on a variety of projects with Sanchez Oil & Gas (Gulf Coast New Ventures), BHP (offshore Mexico), and some smaller short-term projects. My interests lie in structural geology, deepwater turbidites, California geology, coordinating field trips, and most important of all, being a father to our eight-year-old daughter.

### **Laura K. Stupi, B.S. 1997 and M.S. 2000**

B.S. finished in 1997, MS finished 2000 with Elise Knittle. Professionally, I am interested in materials characterization and the application of scientific instruments to the Earth sciences. I have worked in electron microscopy, engineering geology, and scientific instrumentation. Within instrumentation, I have worked with the environmental, oil and gas, mining, and climate research sectors.

### **Kathryn Sullivan, B.S. 1973**

I graduated with a B.S. from the department in 1973 and moved to Nova Scotia to pursue a PhD at Dalhousie University. My work involved bathymetric and geophysical mapping of the Newfoundland Basin (the area bounded by the Grand Banks and Flemish Cap shelf breaks, the Mid-Ocean Canyon and the Southeast Newfoundland Ridge). I also mapped, named and recovered the first rock samples from the Newfoundland Seamounts. After receiving my PhD in 1978, I joined NASA as a Mission Specialist Astronaut. I flew on three space shuttle missions over the course of my fifteen years with the agency. Two of these were multi-disciplinary Earth science missions (STS-41G in 1984 and STS-45 in 1992), and the third was the mission that deployed the Hubble Space Telescope (STS-31 in 1990). On my 1984 mission, I earned the distinction of being the first American woman to walk in space. Following STS-45, I moved to Washington DC to serve as

## Advisory Council Members - continued

### **Kathryn Sullivan - continued**

the Chief Scientist of the National Oceanic and Atmospheric Administration (NOAA). In 1996, I moved to Columbus, Ohio, to run COSI, one of the nation's premier science museums and direct the construction of its new, state-of-the-art facility. From 2006-2011, I served as the inaugural director of the Battelle Center for Science & Technology Policy at The Ohio State University. In 2010, I was asked to return to NOAA as Assistant Secretary for Environmental Observation and Prediction/Deputy Administrator, a position I assumed following Senate confirmation in 2011. I served as Acting NOAA Administrator from 2013-14 and Under Secretary for Oceans and Atmosphere/Administrator from 2014-2017. I was a Navy Reserve oceanographer from 1988 to 2006, retiring with the rank of Captain, and served on the National Science Board from 2006-2010. I'm currently on several corporate and non-profit boards, including Terra Alpha Investments, Accenture Federal Services, International Paper and the National Audubon Society.

### **Lisa White, Ph.D. 1990**

Lisa joined the UC Museum of Paleontology (UC Berkeley) in July 2012 as Director of Education and Outreach. She came to the UCMP after 22 years at San Francisco State University, where she held positions of Professor of Geosciences and Associate Dean of the College of Science and Engineering. She taught undergraduate classes in paleontology, historical geology, and oceanography, and guided research projects with graduate students in Miocene diatoms of the Monterey Formation of CA, and fossil cold seep assemblages in the Franciscan Complex. Lisa completed her BS in Geology at SF State and PhD in Earth Sciences at UCSC, and worked with the USGS in Menlo Park during 1988-1995.

### **Michael Underwood, B.S. 1976**

I received a B.S. degree in Earth Sciences in 1976, after having completed a senior thesis on Franciscan rocks near Big Sur under the direction of Bob Garrison and Casey Moore. I worked for a couple of years at the USGS in Menlo Park (Branch of Pacific Marine Geology) before attending graduate school at Cornell University, where Ph.D. research brought me back to the Franciscan in Humboldt County. Beginning in 1982, I toiled as a professor at the University of Missouri-Columbia, and I've been happily retired since 2015. Research over the course of my career has focused on the sedimentology and tectonics of subduction zones, both onshore and offshore, and that work has yielded many opportunities to collaborate with a long list of UCSC graduate students, alumni, and professors. I currently enjoy Professor Adjunct status at New Mexico Tech, with a second home in Angel Fire, NM. I remain engaged in scientific ocean drilling, and I've been an active member of the EPS-AC since its inception.



## EPS Alumni Hall of Fame

The Advisory Committee is very pleased to announce the 2024 inductees to the UC Santa Cruz EPS Hall of Fame: Demian Saffer (PhD '99), Laura Wallace (PhD '02) and Rick Stanley (BS '73; PhD '84). All have had stellar careers in the geosciences. We've asked each to share with us some thoughts about how their UCSC experiences helped shape their careers.



*Rick Stanley (right)*

### **Rick Stanley B.S '73; PhD '84**

My career path was a meandering one and included exploring for petroleum on the Gulf Coast for Pennzoil, teaching sedimentary geology and geological field mapping at Fresno State, and conducting field-based research on sedimentation, tectonics, and energy resources in Alaska and California for the U.S. Geological Survey. I was well prepared for these efforts by my training at UCSC, where I received bachelor's degrees in Biology and Earth Sciences (1973) and a Ph.D. in Earth Sciences (1984) and where I gained much practical experience through research and teaching assistantships and as a Lecturer teaching the field methods course. I was fortunate to have wonderful mentors like UCSC professors Bob Garrison, Leo Laporte, and Casey Moore, whose encouragement and support guided me to a career that has been rewarding and fun. I'm now retired and still doing geology as a USGS Emeritus Geologist, working with colleagues young and old on research projects in the California Coast Ranges.

### **Laura Wallace PhD '02**

For me, I can't think of anyplace better than UCSC to embark on a career in Earth Sciences. The intellectually stimulating and incredibly diverse and supportive environment that I experienced during my PhD at UCSC was fantastic. Connections that I made while there have had an immense impact on my career path, and I continue to have productive collaborations with fellow graduate students and other colleagues from my UCSC days. I definitely have UCSC to thank for laying the groundwork of what has been a fun and rewarding career in science.



*Laura Wallace*

## EPS Alumni Hall of Fame Cont.



*Demian Saffer (left) and Laura Wallace (center)*

**Demian Saffer PhD '99**

My experience as a PhD student was foundational in setting me on my journey as a scientist, faculty member, and mentor. Above all, the faculty and department at UCSC fostered exchange of ideas and an environment where students were treated as collaborators, and where our intellectual contributions were both valued and encouraged. The department also cultivated a deep appreciation for the breadth of research across Earth and Planetary Sciences, from climate, to earthquakes, to coastal processes. This breadth and “multilingual” training have shaped my career as a scientist, in recognizing exciting linkages between my work and that of others, and in leadership roles where such breadth is essential toward positioning others to succeed. To this day, I view these as characteristics of a model program, and work to emulate them with my students, postdocs, and peers. Of course, I also had the privilege of being a PhD student alongside an exceptional cohort (I am sure everyone says this, but it’s true!) who remain some of my closest collaborators 25 years later.



*Demian Saffer*



*Casey Moore (left) and Demian Saffer (right)*



## Update on EPS Development by Emily Brodsky

In early October, we finally were able to hold the long-postponed alum reunion. It was great to see about 40 alums from across the decades return to campus to reminisce, talk to the current students about their careers, and learn about what the department is doing today. To me, one of the most fascinating parts of the reunion was seeing alums from across the years connect with each other. You could watch the connections deepen before your eyes. Alums who didn't know each other at all at the icebreaker on Friday were chatting like old friends on the West Cliff walk on Sunday morning.

At the close of the reunion, I took over from Andy Fisher as Chair of the EPS Development Committee and faculty liaison to the Advisory Council, which is the alum organization with the dual charge of supporting the alum network and supporting the department's development work. Seeing the palpable growth of the alum network at the reunion motivated all of us to renew our efforts to engage with the alums and help alums engage with each other. If you would like to learn more about the Advisory Council's work, please email the current chair, [Stefano Mazzoni](#) with a cc to me ([brodsky@ucsc.edu](mailto:brodsky@ucsc.edu)). We are particularly interested in engaging alums from post-2000, as those generations are currently underrepresented on the Advisory Council.

We also announced the first-ever EPS capital campaign at the reunion and are aiming to double the department's endowment by raising \$2.5M during the campaign. During the initial (silent) phase of the campaign starting in November 2022, we reached nearly \$1.5M, so we have advanced about 60% of the way towards our campaign goal. Thank you everyone! The funding is making a tremendous difference in our ability to support our students, both undergraduate and graduate. For instance, the flexible funding of the [Achievement Fund](#) is helping us weather a challenging budget climate on campus and minimize the impact to the department and our students. In recognition of the Achievement Fund's importance, the Advisory Council offered a dollar-for-dollar match up to \$16K for Giving Day (Nov. 20). Thank you (again) Advisory Council!

Alum Charles Crocker and long-time field instructor Hilde Schwartz are keeping the momentum going by jointly offering a match up to \$20K for any donations to the [Gerald Weber and Suzanne Holt Fund](#) during the month of December 2024. Hilde is donating in honor of Casey Moore, who, she writes, was a great field geologist and advocate for field experiences. Her comments resonate and I remember being awed by Casey's field insights and enthusiasm for sharing them. Many of you know first-hand the value of this financial assistance to attend field camp. This is your chance to make it possible for another generation.

I would like to close by thanking Peter Vrolijk for his heroic efforts in getting the Advisory Council off the ground and providing critical leadership. He has decided to step away from the Department's Development work this year as a new team takes over and we all owe him a huge thank you. And, of course, thank you Andy Fisher, who got the EPS Development Committee started and is enjoying a well-earned sabbatical.

Thank you everyone for your continued support and please stay in touch,

Emily Brodsky, [brodsky@ucsc.edu](mailto:brodsky@ucsc.edu)



# Field teaching remains a cornerstone of the EPS education

By Professor Jeremy Hourigan

Field teaching remains a cornerstone of the EPS education. My Structural Geology class has just returned from Death Valley, a place we have not visited since Fall of '19 thanks to the pandemic and flash flood-damaged roads. As we stood watching the sunset over the Panamint Range from the top of a two-kilometer-tall normal fault surface (the Badwater “Turtleback”), I marveled at the amount of geology that can be taught in a natural laboratory setting like Death Valley. The concepts range from how 10s of kilometers of translation occurs on low-angle normal faults, to sense of shear at the outcrop scale, to friction at the grain scale, to creep at the crystal lattice level. Nothing puts geologic concepts worked in the classroom into sharper focus than seeing the record of these processes in living color in the field; three days in Death Valley is like a quarter in the classroom.

Many of our students continue to achieve their capstone experience with Summer Field in the White-Inyo Range and Owens and Long Valleys of Eastern California with Noah Finnegan and me. In 2009, Noah inherited EART188A from Casey Moore who designed this new course to provide the students with more technology-enhanced mapping experiences. Noah has continually refined the class to include richer GIS training, new LiDAR data sets, and neotectonic field exercises that



*Photo from the Death Valley field trip*

dovetail with the bedrock mapping curriculum. In 2019, I picked up the mantle of teaching the bedrock mapping portion of Summer Field in the Poleta Fold Belt. When I visited the camp to learn the ropes in 2018, I was awe-struck by what Hilde Schwartz, and Gerry Weber before her, had brought to fruition on Westgard Pass. Noah and I stand on the shoulders of giants and feel immense pride in our careful stewardship of a field program that has such a rich legacy.

Each summer with the help of our amazing support staff in Santa Cruz and in the field (huge shout out to Brandon Cheney!), we transform Westgard Pass into an idyllic university campus. We have a full kitchen with a professional cook, a covered, powered classroom tent, a solar grid that provides power for late-night work sessions and illuminates high-stakes cornhole tournaments, screened study tents to keep flying bugs from becoming unwelcome splat marks on carefully crafted maps, and on-demand hot water showers! What we don't have is any connectivity to the internet. And that, my friends, is an immense blessing. Freed from the bonds voluminous “urgent” emails and the 24-hour news cycle, we are all able focus on the task at hand: becoming better observers of the rock record, better analysts of complex structural data, better mappers, and better writers. More than that, students strengthen their



*Structural Geology field trip at Death Valley*



## Field teaching remains a cornerstone of the EPS education - Cont.

By Professor Jeremy Hourigan

community, lending a hand to someone struggling with stereonets, and cheering each other on when they finish their Little Poleta cross-section. Summer field is and will continue to be a degree-defining experience.

For a large number of students in our program, the Summer Field capstone is central to their career objectives. But summer field schools are expensive; the cost of many similar 5-week programs exceeds \$6000. Yet, access for all is a core value of the Earth and Planetary Sciences Department. To that end, we have endeavored to ensure that no financial barrier restricts access to those seeking to achieve their academic dreams. We have negotiated a new funding model with the central administration that keeps the costs of running field camp as low as possible. And, most significantly, the [Weber-Holt Fund](#) is helping us realize the goal of need-blind Summer Field participation. For decades now, the endowment has offset student fees and tuition; however, in the past three years, all students with any financial needs have been able to participate free of cost!

To tackle global challenges, the next generation of Earth scientists will need an increasingly sophisticated toolkit with analytical and modeling skills that are best served by grounding in the bedrock of careful field observations. Helping our students become these scientists is the highlight of my career. I am immensely grateful for the enduring generosity of all donors to the Weber-Holt Endowment who help make this highlight possible but more importantly help our students realize their academic dreams.



*Students completing their Little Poleta cross-section*

### Stay Tuned for an Announcement about the December Matching Campaign!

Charles Crocker and Hilde Schwartz are offering a \$20K match this December for donations to the Gerald Weber and Suzanne Holt Fund. Double your impact and help future students access transformative field experiences! [Read more about the fund here.](#)

# EPS Campaign



We are excited to announce the public phase of the first UCSC Earth and Planetary Sciences Fundraising Campaign! Our goal for this campaign is to raise \$2.5M in gifts and pledges in support of students and research, effectively doubling endowed EPS funds compared to the start of the campaign. That sounds like an ambitious goal, and it is, but we are half-way there already thanks to the generosity of many former students, affiliates, families, and faculty, and we are confident that, with your help, we can reach this goal.

This year, EPS presented 20 undergraduate and graduate students honors, with individual awards of \$500 - \$3,000, using returns from investment of our endowments (please see the full list of current funds here: <https://eps.ucsc.edu/support-us/index.html>). These awards are truly impactful, supporting student research (supplies, fieldwork, instrument time, computers, and other essential research needs), participation at summer field camp, attendance at professional/technical meetings, and other valuable opportunities. Our students thrive as a result, and we are grateful for all the support they have received.

That said, we are underfunded compared to other top-tier Earth & Planetary Sciences programs, and we are working strenuously to increase funding and opportunities, enhance experiences, and stimulate collaboration. This is the basis for the EPS Campaign. We are approaching a point where endowed EPS funds can pay for some full student-quarters of fellowship, provide summer research funding, and otherwise make a

bigger difference in the lives of more students. We are asking for your help. Our students, researchers, faculty, and programs are exceptional, despite having fewer resources than students and colleagues at our peer institutions. We run the largest EPS/ESCI undergraduate program west of the 100th meridian, secure graduate fellowships and place outstanding students in competitive professional positions, and attract world class postdocs and junior faculty colleagues. How is this possible?

It's the people – our alumni, faculty, students, and affiliates, the way we run the department, and the individuals who "get us," who can see that EPS at UCSC is different: thoughtful and cooperative, creative, smart and kind, just better. Competitive? Sure, we want to stand out, secure research funding and awards, give invited talks, and publish in top journals. But we take a long view, think holistically, consider equity, and maintain a learning mindset. This is where we want to spend our time: here, now, in EPS, making discoveries and breakthroughs, sharing ideas, and creating opportunities. Making a difference.

Thank you for being part of our community. We hope you will consider supporting EPS at UCSC.

*Please reach out if you have questions about the campaign:*

[epsgiving@ucsc.edu](mailto:epsgiving@ucsc.edu)

[mclapham@ucsc.edu](mailto:mclapham@ucsc.edu)

[afisher@ucsc.edu](mailto:afisher@ucsc.edu)





**Earth and Planetary Sciences Department  
University of California, Santa Cruz**

1156 High Street  
E&MS Building, Room A232  
Santa Cruz, CA 95064

<http://eps.ucsc.edu>

**Ways to Give to the Earth and Planetary Sciences Department at UCSC**

As the Earth and Planetary Sciences Department has grown in stature and numbers, we have benefitted from contributions made by our network of alumni, families, and friends. These contributions support a wide variety of teaching, research, and service activities, and are particularly important in providing academic and professional development opportunities for EPS students. Please contribute to any of the funds/endowments listed on the following page, or make a donation to the "Earth Sciences Achievement Fund" so that your gift can be put to use where it is needed most.

**(1) Please Give Online**

Please visit the EPS web site for information on current funds/endowments and EPS Department priorities: <http://eps.ucsc.edu/support-us/>

We recently updated this part of the EPS website. You can read about current development priorities, and after choosing the fund/endowment of your interest, you will be transferred directly to a page where you can enter the amount of your gift and credit card information.

**(2) Please Give by Check or Credit Card**

Please use the form on the next page to prepare your donation. We list a variety of EPS development options; more information for each of these can be found at our website

**(3) Please Call or Email for Information**

We are glad to discuss your interest in supporting EPS at UCSC, and to provide information that may be helpful in directing your contribution to be consistent with your goals.

*Please contact:*

- Matthew Clapham (Department Chair): (831) 459-1276, [mclapham@ucsc.edu](mailto:mclapham@ucsc.edu)
- Lisa Stipanovich (Department Manager): 831-459-4478, [lms@ucsc.edu](mailto:lms@ucsc.edu)
- Andy Fisher (EPS Development Coordinator): 831-459-5598, [afisher@ucsc.edu](mailto:afisher@ucsc.edu)

**(4) Please check with your employer to see if they will match your donation!**

**Please mail to:** UC Santa Cruz Foundation

Attn: Gift Administration

1156 High Street

Santa Cruz, CA 95064

## ----- Form for Giving to Earth and Planetary Sciences at UCSC -----

Donor Name(s): \_\_\_\_\_

Address: \_\_\_\_\_

Email: \_\_\_\_\_ Telephone: \_\_\_\_\_

Gift amount: \$ \_\_\_\_\_ Gift designation: \_\_\_\_\_

Please attach a check payable to the UC Santa Cruz Foundation (with fund/endowment designation written under "Memo"), or enter credit card information:

Credit Card Type: Visa ☐ MC ☐ Discover ☐ AmEx ☐

Credit Card #: \_\_\_\_\_ Expiration Date (Mo/Yr): \_\_\_\_\_

Name on Card: \_\_\_\_\_ Signature: \_\_\_\_\_

My company will match my gift (company name): \_\_\_\_\_

**EPS Development Options :**☐ **EPS Achievement Fund**

This unrestricted endowment generates interest that supports immediate EPS research, education, and development needs, directed flexibly as needed on short notice.

☐ **Aaron and Elizabeth Waters Fund**

The Waters Fund honors the department's founding chair and his wife, supporting excellence in graduate research with awards for thesis proposals and fellowship support.

☐ **Earth's Environment Fund**

The Earth's Environment Fund supports EPS graduate and undergraduate students conducting research involving water resources, climate change, and Earth's landscapes and aquatic systems.

☐ **Eli Silver Earth and Planetary Science Opportunities Fund**

The Eli Silver Fund supports EPS undergraduate majors and graduate students, contributing to costs for professional development, education, and living expenses.

☐ **Gary Griggs Fund**

The Gary Griggs Fund supports research and professional development for students completing degrees in Earth and Planetary Sciences and Environmental Sciences, at both the graduate and undergraduate levels.

☐ **Gerald Weber and Suzanne Holt Fund**

The Weber-Holt Fund supports EPS majors while they participate in summer field camp, an iconic experience that satisfies the "capstone course" requirement applied to all undergraduates at the University of California.

☐ **Holly Day Barnett Fund**

The Holly Day Barnett Fund supports an annual award to an outstanding EPS major with interests in Environmental Earth Sciences.

☐ **J. Casey Moore Fund**

The Casey Moore Fund supports current EPS graduate students as they conduct thesis-related research.

☐ **James R. Hein Blue Water Fund**

The James R. Hein Blue Water Fund supports Earth and Planetary Sciences students who are focused on blue water research.

☐ **Seismology Visitors Fund**

The Seismology Visitors Fund supports expenses associated with bringing scientific visitors to UC Santa Cruz to discuss or collaborate on geophysics, with a preference for visitors related to seismology or earthquake physics

☐ **Support for Undergraduate Research in Geological and Environmental Sciences Fund**

The SURGES Fund supports undergraduate students as they complete research projects, giving students a chance to consider career and graduate school options.

☐ **Tim and Diana Lawton Endowed Fund**

These unrestricted funds shall be used to support initiatives, special projects, or areas that require urgent support. This may include a variety of research, educational, or alumni development needs.

☐ **The Marc and Rita Bond Scholarship Fund**

The Marc and Rita Bond Scholarship Fund provides need-based support to undergraduate students in the department of Earth and Planetary Sciences to assist with the cost of attendance at UC Santa Cruz.

☐ **Zhen and Ren Wu Memorial Award Fund**

The Wu Fund supports EPS graduate students in geophysics as they conduct thesis-related research, with an emphasis on students seeking careers in exploration industries.

**Please mail to:** UC Santa Cruz Foundation, Attn: Gift Administration, 1156 High Street, Santa Cruz, CA 95064

## Alumni Highlight

# A Conversation with EPS Alumni & Filmmaker Doug Prose

*Doug Prose graduated from UCSC in 1982 with a dual undergraduate degree in Earth Science and Environmental Studies. He now is the creator of and Director of Photography for Earth Images Foundation, which is “a film production company based in Oakland, California. [They] create television documentaries about the Earth, its beauty and its processes, and how [humans] relate to it. [Their] work can be found on PBS and streaming on Amazon Prime, PBS Passport, and other platforms.” Please read below for more insight about Doug’s career and pathway. Questions facilitated by Gary Griggs.*

**Gary: I remember you as an undergraduate and believe that your first experience with filming was after the Loma Prieta Earthquake working with the USGS. How did you make the decision to become a full-time film maker from following your undergraduate experience in Earth Sciences at UCSC?**

Doug: UCSC was a big part of it all. To me, it was paradise. The redwoods, the seaside, the meadows. The energy was so high and the students were very into learning. The professors were casual and open and into their research. I thought "OMG I found my people finally! " Where I grew up I didn't know anyone who had a science career or an inquiring love for nature. I decided that I wanted to be involved with geology and environmental issues and work out in the field as much as possible. And communicate, kind of give back, what I experienced with others. You know, I wanted to grow up and be like you, Gary! Seriously! Someone who was outdoor oriented, loved their work, loved teaching people, and someone who had a life in addition to that! I was into hiking and playing music besides doing geology. I tried surfing but didn't like the cold Pacific, sorry...

After I graduated, I was offered a job at the USGS by an old-school field geologist who became a dear friend. His name was Howard Wilshire. The position was field oriented, and we made many field trips to the Mojave Desert. I did different types of field geology, and we camped under the stars when we went out there. I also played in rock bands in the Bay Area by night, and felt like I could do either one for a living forever and be perfectly happy. Howard encouraged me to write and publish journal articles, including my senior thesis that I did as a student at UCSC. It was published to my amazement! But my position was temporary, it was designed to give students experience before they went off to graduate school, so I got accepted into several graduate programs, and was all set to go that route when someone at the USGS asked me to make a video about USGS programs in the western US. I had made a few videos with my music, two of them were even broadcasted on MTV, so folks assumed that I knew how to make videos. But I wasn't that interested in the process until I produced a real documentary. I thought I can research and write a story about geology, shoot video and create music— all things I love to do, and put it together in one project. OK! Then the Loma Prieta earthquake hit, and I immediately rented the best video equipment, and went out with geologists for two months straight, every day, documenting the research around the earthquake, and the impacts. While filming I met and helped several BBC and NOVA producers and film crews, and TV news people and



*Doug Prose in the Erg Chebbi dune field, Morocco.*



## Alumni Highlight

# A Conversation with EPS Alumni & Filmmaker Doug Prose Cont.

learned so much from them.

I quickly threw together a long documentary, very raw, and, shockingly, the BBC aired it in England. It was like a big high, and I quickly became addicted, ha! So, I told the professors who were expecting me as a graduate student that I was not going to show up for a while to start my studies. I remember feeling sad about that, and I knew that the filmmaking path would be risky, but I pretty much knew that I was going to be making documentaries for a long time to come, one way or another. So, I really did become like you, Gary, in my own way. A heartfelt “thank you”!



*A town in the Anti-Atlas Mountains, Morocco*

**Gary: I imagine that many feel that you have an ideal life - traveling to exciting places and making movies about geology in action. Have there been some adventures that turned out to be dangerous and a little frightening?**

Doug: Oh, my goodness, yes, there have been many dangerous moments. Some of these had to do with filming geologists in the field, especially in remote places, where geologists seem to have no fear of heights, falling rocks, earthquakes, volcanoes, calving glaciers, you name it. Just getting to remote places can be dangerous. Once we were doing a shoot in the Arctic National Wildlife Refuge, and to get there we had to take a bush plane through the Brooks Range and out into the tundra to the coast. When we took off the sky was

clear, but when we got into the mountains, clouds appeared out of nowhere and we suddenly found ourselves having to dip below them to keep flying. I swear we were within a few hundred feet of the caribou walking around on the ground below us. The pilot said if it gets any worse, we're gonna have to ditch on a dirt road if we can. But we made it, barely. And then out filming we were slogging through the tundra one day, very difficult to walk, soaking wet, raining, with all our film equipment, and suddenly a giant grizzly bear stood up in front of us, about 100 feet away. We looked to our guide, who was supposed to have a rifle, but he said “I'm sorry I forgot my gun today. Just get behind me and stay calm.” Well, that was going to do a lot of good! The bear let out a big roar, and then, it actually took off running in the opposite direction. I'm sure the bear had no idea that we were 10 billion times more scared of it than it was of us!

Another time in Greece we were filming some beautiful monasteries perched on top of sheer sandstone cliffs about 1000 feet high or so. It's a place called Meteora. I was on one of the cliffs and started to creep out to the edge to get a clear shot across to a monastery and didn't notice that there was a very slick lichen layer growing on the flat sandstone slab I was walking on. I had the tripod and camera and a big backpack, so I was heavy. I suddenly started sliding out toward the cliff, what a terrifying, absolutely helpless feeling. Luckily Diane, my wife and production partner, grabbed me from



*Limestone formations in the Pyrenees Mountains of Spain.*

## *Alumni Highlight*

# A Conversation with EPS Alumni & Filmmaker Doug Prose Cont.

behind - she was standing on a stable part of the rock, so she stopped me from flying off the edge. She saved my life.

There have been many other close calls. It's funny because I don't feel like I'm inclined to take big risks, but if I look at what I've been doing over the past thirty-plus years, I guess, yeah, some risks were taken. But can you have a rich and meaningful life without taking chances? My favorite saying is: "You only live once (I think)." If you believe things will turn out ok, they usually always do, even better than expected, in my experience.



*Diane LaMacchia at work in Spain.*

**Gary: You have now done filming and made movies all over the world with geologic themes in each of them. Describe some of your favorite places to travel to and tell stories.**

Doug: I also have a deep interest in preserving wilderness, and I've made many documentaries about wilderness as well as geology. Every film trip is very intense and extremely exhilarating, and each one feels like it's changed my life in some way forever. Traveling and filming and camping in California, Nevada, and Utah is always magical, and I will never get tired of it. I love the Himalayas. There are great trails for walking on the flanks of the tall peaks. The high mountain areas

have no roads, everybody walks, the local people are very friendly, and the food is produced in the fields you trek through. I don't know how I did it, but I carried heavy film equipment for days on end, from dawn to dusk, up and down big mountains and across fast, freezing streams, and never got tired.

Another time, we filmed a geologic research expedition in Mongolia, and traveling there was, shall I say, unique. Once outside Ulaanbaatar, the capital, the roads disappear, and you're left driving on grass. Smooth, green, short grass because it's grazed by horses and other animals. There are many wide rivers too, with strong currents, but no bridges! So, what happens? The driver gets out and walks into the middle of the river to make sure it's shallow enough to support a vehicle, walks back and proceeds to drive across the river! The water would come up to the windowsill sometimes, but somehow the vehicles would keep grinding along to the other side. We camped every night, and with no cities or industry anywhere, the air was the cleanest ever, and the stars were unbelievable. I actually got the deep sense that our planet was a tiny disc in this huge but physically tangible 3-D universe, a feeling that made me feel very tiny, tiny, but also directly connected to it all, a vital part of it. I try to recall this feeling when I feel down, it gives me perspective, really helps.



*Morella, Spain, with its medieval castle perched on top of a resistant sandstone pedestal.*



## *Alumni Highlight*

# A Conversation with EPS Alumni & Filmmaker Doug Prose Cont.



*Doug at Nazare Beach, Portugal, where the planet's tallest surfing waves exist due to a geologic feature on the ocean floor just offshore.*

**Gary: You just returned from Morocco, Spain and Portugal. Tell us a little about what you were filming in those locations....**

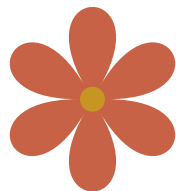
Doug: What a trip! We chased the weather constantly, as it was changing from fall to winter, even in the Sahara Desert in Morocco, where we experienced a massive storm that caused flooding in the cities and villages and a sandstorm as we drove out into the Sahara. We managed to work around the weather most of the time and got enough footage in the three countries to produce two new episodes of Doug's Geology Journal, our new PBS series. These will be shows for Season Two. The Pyrenees mountains in Spain are gorgeous and they have a great geologic story. Morocco is stunningly beautiful, the people are wonderful, and since I have a tender feeling for deserts, it was the fulfillment of a lifetime dream to go to the Sahara. We rented a couple of camels and set off across a gorgeous sand dune field to film shots and a riding interview of me talking about the formation of the Sahara, and the surprising evolutionary history of camels. They didn't originate in Africa; it took tectonics and the Ice Age to get them there. Overall, the geologic histories of Morocco and the Iberian Peninsula

are remarkable, and involve quite a few ironic twists, so we can't wait to get these films produced and released. And not only did I get to spend some time in the Sahara Desert, I fell in love with camels. They are very sweet, sensitive creatures, even though our 2-hour ride over steep-sided sand dunes, up, down, was pretty rough going. I had sore legs for a week. Worth every second!



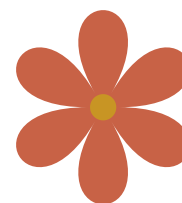
*Filming the Sahara Desert, Morocco.*





# ALUMNI UPDATES

## 1970S



### Vince Matthews, Ph.D. 1973

At age 80, I re-entered the classroom for the first time in the 21st century to teach GEOL 301-- Earth Resources and Sustainability. I still serve on the Advisory Boards of the University of Georgia and the University of Wisconsin-Eau Claire.



### Frank Perry, B.A. 1977

Since retiring after 40 years of building natural sciences and historical exhibits for museums and park visitor centers, I have been returning to geology/paleontology. I am collaborating with several paleontologists on some papers about Santa Cruz area fossils and in early 2024 published a book titled "Geology of the Northern Monterey Bay Region." It was fun to revisit many of the topics I first learned about in college and to share them in a way that is accessible to general audiences. The book is available online at the Santa Cruz Museum of Natural History website. I serve on the boards and committees of several Santa Cruz area museums and societies. Since 2008 I have served as president of the Friends of the Cowell Lime Works Historic District at UCSC and help publish the group's newsletter (online at [limeworks.ucsc.edu](http://limeworks.ucsc.edu)). I love Santa Cruz history and the studying historic lime industry is a great way to combine geology and regional history.

### Charles E. Lawson, B.S. 1973

After almost 37 years with the federal government, I retired at the end of 2020. From 1984 to 1987, I worked for the USGS in its Reston Virginia headquarters. From 1987 to 2008, I worked in the State Department managing Middle East water and environment issues. From 2008 to 2020, I was the Secretary of the U.S. Section of the International Joint Commission, managing water issues along the U.S.-Canada boundary. Since retiring, I have been living the good life. In 2022, my wife and I moved from the DC area to Wilton, Connecticut, when she took the position of President and CEO of Keep America Beautiful. In April 2024, I was honored to receive a Distinguished Undergraduate Alumnus award from the Division of Physical and Biological Science's Dean Bryan Gaensler. A big shout out to Gary Griggs, who was kind enough to nominate me for the award.



# ALUMNI UPDATES

## \* 1970S \*

### Larry Smith, B.S. 1977

I feel so lucky to have gotten my B.S. in Earth Science - Geology at UCSC as it prepared me for a full career in the field, which I'm thankful for. After my MS and PhD from UNM, and 5 years at Shell in Houston, I landed in Butte MT at Montana Technological University (3 different names since I got here in 1993). Teaching (for the last 12 years) was the best experience I had in the 3 jobs I had in my time, but way too much work to continue beyond age 65. My major research project on the stratigraphy and chronology of Glacial Lake Missoula fillings and drainings has tapered off in the last year. I retired in 2021 and have stayed in the same house here, enjoying outdoor recreation and working on historic buildings, mostly my own home.

Skiing in the winter has been only partially replaced by fat biking on snow and morning pickleball inside. My passion has returned to lots of mountain biking and bikepacking, and has replaced ice hockey and hurling as I've gotten older. I did a long trip this summer (6 weeks AZ-MT) and a shorter loop from home. Santa Cruz was a great place to do road riding and commuting back in the '70s. I saw from a recent visit (with my foldable Bike Friday) that getting around SC on the roads and up to campus is still a great way to get around town and campus. I figured that I better get out and do some traveling while I still can, especially by bicycle.



### Judy Parrish, Ph.D. 1979

I'm still actively doing geology even though I "retired" in 2011. My colleagues and I are just finishing up what we hope will be a significant contribution to understanding ancient deserts, and I'm finally finishing a paper on Petrified Forest that I started 30 years ago! On the personal front, recognizing that my aging body may not allow me many more years of field work (especially in the high desert of southern Utah), I've taken up guitar with the idea of learning not just to strum but to actually learn something about music, a part of my education that the piano teacher of my youth failed to impart. I'm having a ton of fun with that! My husband and I have also been doing some fishing in Alaska, and I'm still flying.





# ALUMNI UPDATES

## 1980'S

### Deborah Bliefnick Ph.D. 1980

After graduating from UCSC, I worked for 3 oil companies in the US (Gulf, Chevron, ARCO) before moving to Norway in 1992 to work for a contract research company. After 5 years in Norway, I moved to England and worked for BG followed by a consultancy. During the course of working for the consultancy, I lived/worked in Oman for 7 years (great place). After that, I lived/worked in Qatar for 3 years (not such a great place) followed by retirement. Yay! I now live in Redmond, OR with two dogs (Cricket and Remy) and two cats (Gypsy and Masa). I spend time going to the dog park, volunteering at animal shelters, meeting friends at coffee shops and engaging in never-ending tasks around the house. I thoroughly enjoy living here and have recently caught up with some friends from UCSC days. All the better!



### Jane Reid B.S. 1984

This last June (2024), I retired after 34 years with the USGS (Thanks Laura Benninger, UCSC BS 1984, for getting me the job!). For those of you who knew me when, I was never going to be a strong researcher, although I did get an MS in Geology (paleomagnetism) from Syracuse University in 1992 (Thanks Peter Plumley, UCSC PhD 1986!). After a dozen years supporting such researchers as the late Bill Normark (submarine fans) and Randy Koski (marine minerals) among other support-science work, I drifted into management and leadership, becoming the Associate Chief Scientist (Thanks Sam Johnson, UCSC BS 197?!), then Deputy Center Director of the Pacific Coastal and Marine Science Center. Part of my portfolio was to implement the move of PCMSC from Menlo Park to Santa Cruz, where we landed in the old Wrigley plant at the base of Western Drive, allowing us to work closely with nearby UCSC faculty, grad students and undergrad interns. In 2016, I became the Deputy Regional Director for the USGS Pacific Region (CA, NV, HI; later the Southwest Region, losing HI and gaining AZ). There, I thoroughly enjoyed being able to promote and support the work of geologists and other scientists – a wonderful way to learn about a ton of great research throughout the west. I was also part of the leadership group who worked to close the USGS Menlo Park campus (very bittersweet, indeed), moving people and labs to be co-located with NASA Ames at Moffett Field, finishing up just this year. In 2021-22, I acted as Regional Director for several months; in 2023-24, I came full circle and acted as PCMSC Center Director for more than a year — both great ways to close down my time with the USGS. I feel absolutely fortunate and lucky to have had a great career helping others do wide-ranging, critical research for the public.

Alan Allwardt (UCSC BS 1974, MS 1979, PhD 1992) and I will continue to live on the westside of Santa Cruz and by time this is published, we will have our first grandchild (a girl) through our only child, Parker, and his partner Sydney. If you know us and visit Santa Cruz, let's meet up!



## ALUMNI UPDATES

### 1980'S

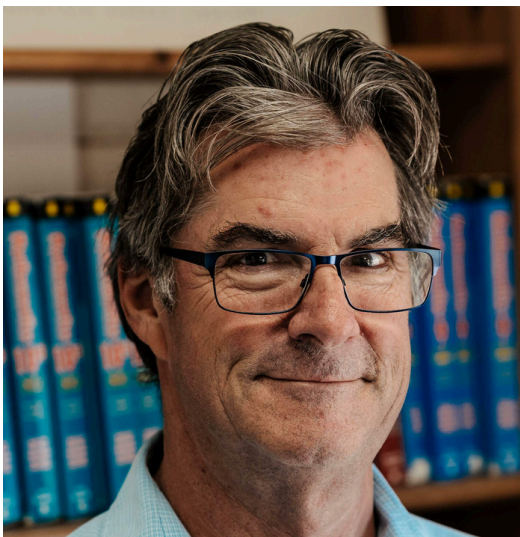
#### John Childs, Ph.D. 1982

John is still heading up Childs Geoscience Inc., a metals and industrial minerals exploration firm. Current projects include graphite, sand and gravel, REEs, PGEs, copper, and silver.



#### David Smeeth, B.S. 1987

David is currently teaching mathematics to 11th and 12th graders at the Verde Valley School in Sedona Arizona. He is passionate about gravel cycling and is training for a 250 mile ride.



#### Darlene Batatian, B.S. 1983

Darlene Batatian is now Deputy Director, Utah Geological Survey (UGS). UGS has over 90 professionals engaged in research and investigations across the state, including Geologic Mapping, Energy & Minerals, Groundwater & Wetlands, Geologic Hazards, Outreach & Information and Digital Mapping. After careers in consulting and local government, Darlene is delighted to be working with geologists and scientists who are truly passionate about the work they do. Utah is a fascinating place with diverse geologic regimes. Like many Western states, Utah faces water resources, seismic hazards, and energy development concerns, as well as retirements of senior staff as they onboard and mentor younger, highly talented team members. Darlene's leadership will provide vision and perspective to help the UGS transition into a modern leader in scientific research and public outreach. Check us out at [geology.utah.gov](http://geology.utah.gov)!



# ALUMNI UPDATES

## 1980's

### Van Schoales, B.S. 1985

It's been a long crazy wonderful journey since having had that first introductory big lecture geology course back in the fall of 1981 at the start of freshman year at Uncle Charlies.

I often think about geology whether trail running at Red Rocks near my house in Denver or connecting geo with some education policy project even though I have not practiced any geology since the early 90's. A bit of a long story here but I thought I'd share since not reporting back to UCSC for nearly forty years.

After graduating from UCSC with BS in Earth Sciences, I went on straight to Brown University for a PhD with a focus on geochemistry and experimental petrology. My thesis was built around trying to understand more of the details about the how's and why's of the eruption of Vesuvius in AD 79.

While at Brown, I realized I was not cut out for the life of an academic researcher (others more committed and smarter so I dropped out with a MSci) but discovered a new passion for public education. I took a part-time job teaching geology to a small group of students at neighboring prep school (loved it) and had the remarkable fortune to learn about Theodore (Ted) Sizer, a remarkable educator at Brown who later became a mentor when I moved into education after coming back to the Bay Area to attend Stanford. I enjoyed teaching and became fascinated by how our public schools are designed, work (and don't work for so many students) and are managed.

Over the next twenty years, I taught high school science (Redwood City/Palo Alto), became a school administrator, got married, had a remarkable daughter (Rowan), moved to Colorado and eventually started the first charter school affiliated with Outward Bound Expeditionary Learning. For this part of my career, I was focused on classroom and school practice, sometimes running schools or consulting for Brown University or the Geological Society of America.

The last twenty plus years I have been focused more on the policy or politics of the public education sector having worked or helped to build several advocacy and policy organizations at the state and national levels which include the Colorado Children's Campaign, A+ Colorado, Democrats for Education Reform, Education Civil Rights Now. I've been focused on how our public schools can provide a quality education for all and particularly on students coming from less privileged backgrounds in urban settings.

I'm now working at a think tank, the Keystone Policy Center, doing think tanky things like writing, researching, talking and overseeing projects including what's a quality school (and how you grow them), how we can build educator housing and anything else where I think there may be a lever to improve public education quality for those that most would benefit from having a great education.

I am working less now and traveling more for fun these days, going to lots of live music (New Orleans JazzFest every year) and art happenings while I do lots of Colorado outdoor things from trail running, hiking when nice and trying to be a better snow boarder in the winter.

It would be great to hear from any UCSC folks I have lost touch with or should be in touch over the years. I'm often in LA and the Bay Area for the arts, ocean, friends and family.





# ALUMNI UPDATES

## 1990'S

### Richard (Rick) Behl, Ph.D. 1992

Rick Behl has partly retired after 27 years of being a Professor at California State University Long Beach. It must have been a good time to become Emeritus, because Rick was honored with 3 awards this year - Distinguished Educator by the American Association of Petroleum Geologists, Lifetime Achievement Award by the Pacific Section, Society for Sedimentary Geology (SEPM) and Honorary Lifetime Membership by the Pacific Section AAPG.



### Bruce Jaffe, Ph.D. 1993

I retired after 41 years with the US Geological Survey, where I studied tsunamis, sea level rise, decadal-scale geomorphic change in estuaries, and sediment transport. I still live in Aptos.



### Fred Chandler, B.A. 1994

Senior Geologist, PG / National Construction Services Manager for Geosyntec Consultants in Boca Raton, Florida.

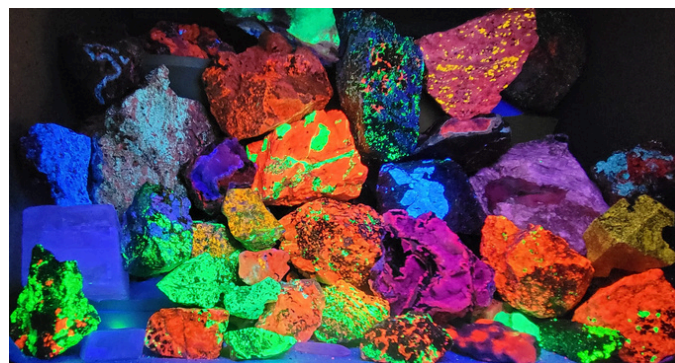


### Guy Cochrane, Ph.D. 1994

Will retire at the end of 2024 and become an emeritus marine geophysicist at the USGS Pacific Coastal and Marine Science Center.

### Phil Stauffer, Ph.D. 1999

Still living high in the Jemez Mountains of New Mexico. Three boys growing up fast, one is now a Marine. Lots of fun science going on at Los Alamos on my teams, including gas transport from underground explosions, CO2 inject well reviews for EPA, and high level nuclear waste in Israel. Photo is from my growing fluorescent mineral collection.





# ALUMNI UPDATES

## 1990'S

### Kirsten Menking, Ph.D. 1995

I continue to teach and do research at Vassar College, now in my 28th year. Being at a liberal arts college with a small faculty, I am called on to teach a wide range of courses, from geomorphology to structural geology, hydrogeology, paleoclimatology, numerical modeling, introductory environmental science, and others. I also get to teach topical field trip courses and took 16 students to Iceland back in May of this year, a wonderful trip that was capped off by the Svartsengi fissure system starting to erupt again as we were on our way to the airport to go back home! It was great fun to watch my students jump up and down and run around in circles in excitement at getting to see their first volcanic eruption from a safe distance.

In other news, I've enjoyed getting to teach with fellow slug John Zayac (BS, 2001) the last few years. John has been serving as an adjunct and visiting lecturer while wrapping up his PhD at CUNY. I was also honored this year to be named a GSA fellow along with another member of my graduate school cohort, Craig Lundstrom. It was nice to catch up with him and to reminisce about our grad school days. I hope all of you are doing well!



### Josh Caulkins, B.S. 1998

I am still living and working in rural northern Arizona, on an acre of land with my family and two mini-donkeys (Kiko and Dusty). I have been working for the past four years at Embry-Riddle Aeronautical University in Prescott, Arizona, serving as the Director of the Center for Teaching and Learning Excellence. I work closely with faculty and students, running various programs and seeking to enhance the teaching practices at ERAU. Over the past 15 years I have worked at the Univ. of British Columbia-Vancouver, the Univ. of Rhode Island, Arizona State University, and now ERAU. I also get to hike and run in some stunning landscapes; come for a visit to give the donkeys a carrot and we can go look at some amazing geology and ruins!



## ALUMNI UPDATES

# 2000's

### Curt D. Storlazzi, Ph.D. 2000

US Department of the Interior's Distinguished Service Award I received this past summer, being awarded by Department of the Interior Secretary Deb Haaland. "In recognition of outstanding contributions in the development and delivery of cutting-edge applied science to assess the role of the Nation's coral reefs in coastal hazard risk reduction."



### Robert Kurkjian, Ph.D. 2002

Robert Kurkjian (PhD Earth Sciences Board, 2002) was awarded the New Jersey Institute of Technology (NJIT) Distinguished Alumni Achievement Award for exceptional accomplishment. Robert received his MS in Environmental Science from NJIT with honors and earned his PhD from the University of California, Santa Cruz. He is a Program Manager and Principal Scientist for Tetra Tech, Inc. based in Pasadena, CA. He frequently lectures on water and environmental issues in the U.S. and internationally.



### Brooke Crowley, M.S. 2005

I think it has been awhile since I provided any updates. The past few years have been a blur. I am now a full professor in the departments of Geosciences and Anthropology at the University of Cincinnati. In addition to my own research, I have been enjoying working with both undergraduate and graduate students on a variety of projects. Life is never dull.

2024 has been a great year. I was very happy to get to see several fellow slugs, including Hilde Schwartz, Paul Koch, Dee Rossiter, Rachel Reid, Pete Lippert, and Katie Snell. In March, my husband and I visited California, and we got to spend a few days in Santa Cruz. It was wonderful to be back near the ocean and the redwoods and we had unbelievably beautiful weather. We got to witness a total solar eclipse in April (my second one ever, and it was just as mind blowing as the first time). I also participated in the quadrennial North American Paleontological Congress (NAPC), which was held in Ann Arbor in June.

Fall has been beautiful in Cincinnati. I think it is probably the nicest one I can remember experiencing. I am excited to get to take a sabbatical in the Spring. I will be spending most of my time at the University of Bordeaux in France as a visiting scholar and am looking forward to exploring the region, developing new collaborations and research directions.





## ALUMNI UPDATES

### 2000'S

#### Yingcai Zheng, Ph.D. 2007

Now I live in Houston Texas. Work at the University of Houston as professor in seismology/geophysics/rock physics in the Department of Earth and Atmospheric Sciences. I started studying at UCSC in June 2002 with Thorne and Ru-shan, twenty-two years ago but it's as vivid as yesterday. It was a foggy morning in my first day there. SC years are very memorable to me. I am happy to see the department is doing great.

#### Christie Rowe, Ph.D. 2007

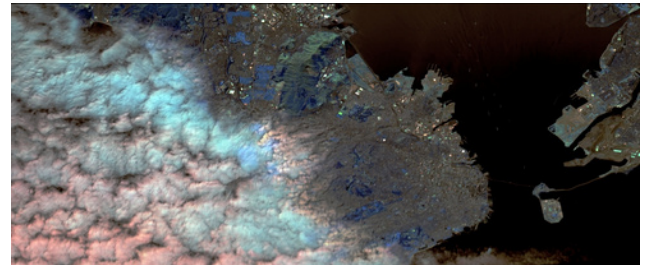
I've taken over as Director of the Nevada Seismological Laboratory at University of Nevada Reno. Having fun checking out faults with fellow slug Rich Koehler (class of 92). I'm attaching a photo of Rich on the Genoa Fault exposure south of Reno, NV



### 2010'S

#### Gary Hoffmann, Ph.D. 2010

Gary has been with the NASA Airborne Sensor Facility (ASF) for 9 years, and is excited to share that this year ASF flew a new hyperspectral imager during the PACE-PAX airborne science campaign in September. Since 2021, Gary has served as the lead analyst for the Pushbroom Imager for Cloud and Aerosol Research and Development (PICARD) during its final engineering and calibration phases. The included false-color shortwave infrared composite image shows a 16 km wide swath over San Francisco. The clouds are colorful due to changes in cloud droplet properties. Check out [https://asapdata.arc.nasa.gov/picard/data/deploy\\_html/pace-pax.html](https://asapdata.arc.nasa.gov/picard/data/deploy_html/pace-pax.html) for flight summaries and more sample imagery! Calibrated data are expected to be released to the scientific community in 2025.



#### Tyler Paladino, B.S. 2017

I'm in the second year of my Mendenhall post doc at the Cascades Volcano Observatory in Vancouver, WA. Been enjoying the PNW, research, and getting occasional helicopter flights around St Helens to work on monitoring equipment! I've also just started teaching volcanology part-time at a local community college which has been a ton of work, but quite fun. Hope my fellow EPS alums are doing well <3.





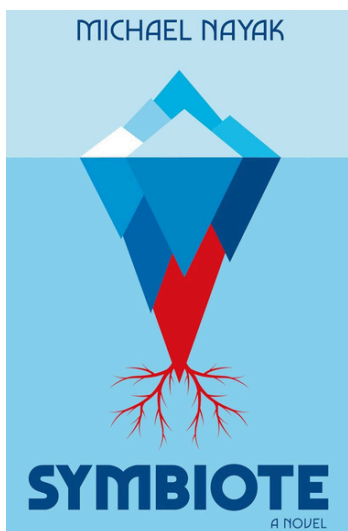
# ALUMNI UPDATES

## 2010'S

### Michael Nayak, Ph.D. 2016

I'm in Washington DC, in my third year as a DARPA program manager. I just launched a research program to create next-generation X-ray technology (<https://www.darpa.mil/program/x-ray-extreme-range-non-imaging-analysis>).

This year, however, my big update is the upcoming publication of my debut fiction novel! Titled "Symbiote", it is the first in a trilogy about the release of a biopathogen in Antarctica, and is based on my real-life experiences while part of the crew at South Pole Station. "Symbiote" is published by Angry Robot Books (UK) and Penguin-Random House (USA and international), is available for pre-order now, and releases to bookstores everywhere February 11, 2025! <https://www.penguinrandomhouse.com/books/773357/symbiote-by-michael-nayak/>



### Sarah Reuter, B.S. 2016

After my time at UCSC I attended New Mexico Tech. I graduated from NMT with a masters degree in Hydrology and started working as a consultant in 2020. At the start of 2024 I left consulting to begin work as a hydrologist at Sustainable Conservation, a non profit organization focused on land stewardship in California.

## 2020's

### Benjamin Cohen, B.S. 2020

I moved back to Los Angeles after graduation amidst the Covid-19 pandemic. After a couple months of seeing family and taking some time to myself, I began sending out my CV. In March, 2021, I was contacted by SubSurface Designs, Inc. and have been employed by them since as a Staff Geologist.

SubSurface Designs is a small private geologic and Geotechnical engineering firm. We investigate and write reports for people's construction projects ranging from retaining walls and swimming pools to new residential developments and tract grading. I have produced the geologic portion of our reports and drafting for over two hundred unique locations throughout the City of Los Angeles, Malibu, Santa Monica, Santa Clarita, Pasadena, and more.

This coming March of 2025, I will qualify and intend to take my Fundamentals of Geology and Practice of Geology exams. Another two years of experience after that I will take my Certified Engineering Geologist exam.

My favorite memories from the UCSC Earth Science department is definitely the field trips associated with the Field Geology and Structural Geology classes. Hilde and Jeremy were not only excellent teachers but wonderful people and I will be back to visit at some point to say hello and give thanks for putting me on a path I truly love.



# ALUMNI UPDATES

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## 2020's

### Ashley Wegner (Parrilla), B.S. 2020

Greetings! My name is Ashley Wegner (formerly Ashley Parrilla) and I graduated in the spring of 2020. Since fourth grade, I've included "save the planet" on my Christmas wishlist, recognizing early on the threats facing our Earth. Santa Claus continued to skip this item year after year and over time, I felt disheartened, believing my efforts as an individual wouldn't make a difference against our environmental destruction. However, attending UCSC reignited my passion for sustainability. Surrounded by a community with shared values, I learned how I can use my education to carve a career in sustainability.

This journey ultimately began when I retired my Christmas list and started my current role as a Coordinator II for green hydrogen projects in the City of Lancaster, the first city in the U.S. to embrace renewable hydrogen power. Together with my colleagues, we are partnering with renowned renewable hydrogen developers to foster a clean energy future for the Antelope Valley and across Southern California. I am proud to be a part of a forward-thinking community that recognizes the climate crisis and actively works toward cleaner air for its residents. I've realized that saving the planet doesn't require miracles- it begins with individual action, and any action, big or small, makes all the difference.

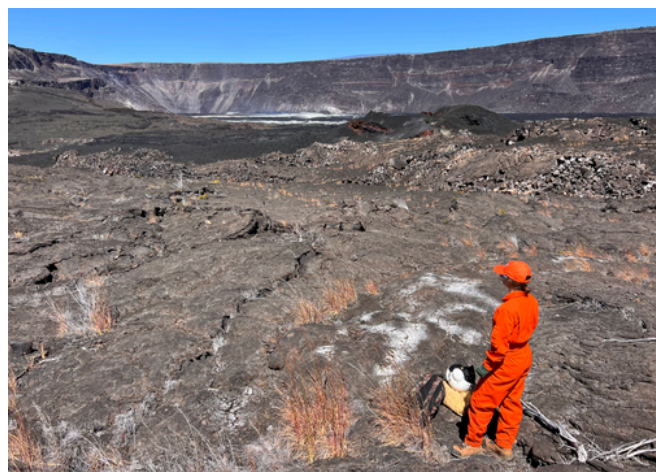


### Madeline Hawk, B.S. 2022

I moved back home to the Big Island of Hawaii after graduating, where I got a job as a seismic analyst for the Hawaiian Volcanoes Observatory (HVO), a branch of the Volcano Science Center at USGS. I have been refining the location and magnitude of Hawaii Island's many volcano-tectonic earthquakes. In the past two years, I have seen five eruptions, flown in a helicopter to view lava twice, and responded to countless high-magnitude and swarm alarms in the middle of the night (all while getting paid!)

Most of my job is reviewing automated location and magnitude solutions by adjusting the P and S wave arrivals to varying stations across the island. Another part of my job is distinguishing anthropogenic (man made) signals from earth and/or magma induced seismic signals. We see all kinds of disturbances on data streams. For example, helicopters, cars, lightning, wind, and military artillery training to name a few. Other signals, however, are harder to identify.

During my time at UCSC, I used USGS resources and information almost daily. It is an honor to now be working along the scientists who sparked my interest for earth sciences in the first place. After two years at HVO, I still can't believe this is my first job after undergrad! Science is real! Go banana slugs!





# ALUMNI UPDATES

## 2020's

### Elyse Abramson, B.S. 2022

Since graduating, I started working at Elevate Environmental Consultants where I am a scientist. As a scientist, I perform soil, groundwater, and indoor air sampling at large Bay Area redevelopment and tenant improvement projects. Additionally, I write sampling and analysis reports and conduct Phase I and Phase II Environmental Site Assessments. My coursework with Andy Fisher confirmed my love for environmental science and my interest in environmental consulting. Although I wished that the courses were not remote, I learned a lot of valuable lessons and skills I still apply in my work today.



### Mia Else Trodden, B.S. 2023

After graduating from UCSC with a bachelor's in Earth Science and concentration in planetary sciences, I have started my first year as a PhD student at Purdue University. I will be spending my PhD investigating the origins of life on Earth. Specifically, I will be exploring how prebiotic plausible minerals, salinity, and impact events, facilitated phosphate availability, nucleoside phosphorylation, and RNA polymerization under early Earth conditions. Thank you to Dr. Brodsky and Dr. Telus at UCSC who provided me with my first research experiences, and ultimately helped guide me to the place I am today!



***Thank you for submitting your updates, EPS alumni!***



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