Greetings from the Chair – Dr. Mark Hemphill-Haley

It seems like yesterday that I was writing this letter to update you all about the geology department. As of this year I have been associated with the department for more than 40 years. I came to HSU as a transfer student in 1979 and the program was only a decade old. Now, I am about to enter my last year as a professor at HSU and it gives me pause for reflection. I remember then, realizing there was something exceptional about HSU geology. I got an education that, to this day, I believe was unique. Our teaching laboratory, within an active subduction zone margin, adjacent to an active transform margin and just outboard of an active volcanic arc does not exist anywhere else in North America.

The geology created by these processes are documented by others elsewhere and can be found in textbooks and journal articles but we have them right at our fingertips and beneath our feet. When I came to HSU, plate tectonics was still in that early stage of discovery; most accepted the theory but there were still major topics of debate. In fact, it was not clear then whether the Cascadia subduction zone was actually active and capable of producing earthquakes. The on-land fold and thrust belt (Little Salmon and Mad River fault zones) was just being documented. In my first year Mt. St. Helens erupted! I was so glad to have transferred from school back east. It was an amazing time to be a geology student and a fabulous place to study geology.

I am happy to report to you that the program is still one of the best there is. We have faculty and staff that are as passionate about geoscience education and research as they were in
the “old days.” Almost all classes have multiple field trips to examine the natural laboratory. Yes, our students still get to experience that ride on the gray buses, although, we are still the only department on campus that also has our own small fleet of vehicles (Alice, Dolly, Vanna and Scout). The students we graduate are still engaged, enthusiastic and well-prepared to go out into geoscience and related fields. Our faculty are developing new approaches to understanding the geology of our area, and other areas as well. They have built new research labs and are providing research opportunities for undergraduate and graduate students. It is amazing to see the number of students presenting at national and regional meetings such as Geological Society of America and American Geophysical Union and the caliber of their research!

The students are still amazing and inspirational. This year’s geology club has been as strong as ever. They put on a wonderful Rock Auction (see below) that was hosted by Dr. Bud Burke once again and, for the first time, co-hosted by undergraduate Nolan Marshall. They were an impressive team. We thank all of you who came to the auction in support of the students, and, are so grateful to those of you who donated minerals, fossils, gems, jewelry, art and pottery to the students. As always, all proceeds go to the students.

On behalf of the students and members of the department we are also so grateful to those of you who donate to the department. We really couldn't operate without your generous contributions. This year, Randy Moory (BS ’72), the originator of the Geology Opportunities Fund has made it possible for us to create a new teaching lab in Founders Hall. We are looking forward to its completion in the spring. A newly-created trust in the honor of Dr. Ken Aalto is now available to help students who are conducting research in northern California and southern Oregon was well as providing help for field camp. As you can see at the top of this page, we have now named the study tent “Aalto Hall.” It was christened at last year’s camp at McGee Creek. It is adorned by a beautiful hand-made plaque that will always hang above its door!

As for my research, I was contacted by members of the Idaho National Laboratory Senior Seismic Hazard Advisory Committee in winter of 2019 to present results of a paleoseismic investigation Tom Sawyer BS ’84 and I conducted in the early 90’s on the Lemhi fault in southeastern Idaho. In the fall I was able to return to those trenches with two long-term colleagues from the Seismic Source Characterization Team, Susan Olig (BA ’85) and Kathryn Hanson along with new-colleagues, Dr. Tammy Rittenour and Gary O'Brien, both at Utah State University. We resampled fault-derived colluvium and associated deposits for Optically-Stimulated Luminescence (OSL) dates to refine the earthquake history of the southern Lemhi and Lost Rivers faults. It was great to get back to that area!
It was a pleasure to attend this year's Friends of the Pleistocene (FOP) Pacific Cell meeting in western Nevada. It was led by Dr. Ian Pierce (BS ’14) on his doctoral research on the Walker Lane. As usual, the largest component of attendees was comprised of HSU alumni, faculty and staff. It always makes me proud to be a part of the alumni photo.

Finally, it has been a great honor to be a part of this wonderful geoscience program. The students, alumni, past and present faculty and staff will always hold a dear place in my heart.

Please visit our new website https://geology.humboldt.edu
**Faculty updates**

*Amanda Admire (Lecturer)*

Hello! This year I had the opportunity to teach our Water Planet (GEOL 103) course, which was very exciting and rewarding. This course is designed to provide students an opportunity to explore the processes that control water supply to ecosystems and human civilizations. To accomplish this, students need to view Earth's water from multiple levels. This gave me an opportunity to also integrate my oceanography and meteorology background along with our geologic perspective to take students on a journey from the upper atmosphere down through the geosphere and the many water pathways we see on Earth. In addition to this course, I continue to teach our Earthquake Country courses (GEOL 106), Natural Disasters (GEOL 308), and the Geosciences Senior Project course (GEOL 465).

This fall in GEOL 465 Geosciences Senior Project, we had twelve geoscience majors ready to set out on their task of applying their knowledge toward a learning service experience directed at a geoscience topic or problem. To accomplish their goals, our students worked together to organize several outreach events and develop resources for local schools that introduced students to geologic concepts and hazards found in Humboldt County.

Each fall, our students participate in Arcata’s Pastels on the Plaza event, where they develop a message to be shared with the community via a chalk drawing. The sponsors this year (Redwood Coast Tsunami Work Group & Humboldt Earthquake Education Center) asked that the message increase awareness and participation in The Great ShakeOut as well as tsunami safety. The Great ShakeOut was also the topic of their outreach efforts on campus. This included tabling on the UC Quad, speaking with departments and classes, and posting messages...
around campus on bulletin boards and sidewalks.

Our students also worked to develop resources for our local elementary and high schools that highlight our geologic setting and the hazards that accompany this region. Several students had the opportunity to visit the classroom at McKinleyville High School and Big Lagoon School to deliver their resources through activities and demonstrations. These resources will be available to local teachers and include interactive exercises and games like Geohazard Jeopardy, Survivor – Earthquake & Tsunami Safety Edition, and The Tsunami Surges Game as well as activities that demonstrate landslide hazards, life along an active fault margin, volcanic hazards, and investigations into the material present on our local beaches and the processes that deliver them.

I continue to collaborate with the Humboldt Bay Harbor Recreation & Conservation District, Chevron Corporation, and NOAA National Observing System on the Physical Oceanographic Real-Time System (PORTS®) in Humboldt Bay. This system has been installed in Humboldt Bay since 2012, and we recently received an extension to this grant for an additional five years. PORTS® is designed to collect oceanographic and meteorological data within harbors and ports that can be used to aid navigation and maritime traffic. This year Dr. Tamara Barriquand (Oceanography & Physics Departments)
joined our team, and is working with us to continue the maintenance of the instruments used to measure the currents at several locations throughout the bay. The instruments (Acoustic Doppler Current Profilers) collect data that provide resources to maritime traffic as well as the opportunity to understand the circulation and current dynamics in the bay. This data is posted online in real-time, and can be accessed at www.weather.gov/eka/ports If you are interested in ocean currents or the hazards from strong currents, be sure to check it out!

**Dr. Brandon Browne (Professor)**

Hi HSU Geology! Some of my highlights from 2018-2019 include two posters presented at the Geological Society of America Cordilleran meeting in Portland in May. One poster described pre-eruptive storage conditions of rhyolite magmas erupted ~180 ka from Long Canyon Dome in the southern Sierra Nevada. I co-authored this poster with Regina Khoury (BS, ’18) who is now working in Denver with the USGS. The other poster was based on the results of Mark Szymansky’s MS thesis (MS, ‘18), which focused on radiogenic isotope analyses of Quaternary basalts erupted form the Golden Trout Volcanic Field. Mark is working in Walnut Creek for Lettis Consultants International Inc. Congrats Regina and Mark!

I then taught the first half of field camp in the Inyo and White mountains in June. In addition to some familiar projects, we tackled a few new ones too, which were both challenging and memorable with their high relief, complex lithologies, and obscured contacts. The 2019 field campers were true trail blazers for future camps. Schemagh Peak in the Piper Mountains wilderness will certainly see more HSU camps in the future.
I received an email from the HSU administration that I had been promoted from associate professor to full professor on my last day at field camp. I’m sincerely grateful for all my colleagues and students who wrote letters on my behalf – thank you for your support.

I celebrated this big news with two adventures. The first was a week-long backpacking trip with a friend from my graduate school days in Alaska. We hiked from Scott Mountain to Seiad Valley along the Pacific Crest Trail and oh my goodness – the Trinity Alps, Russian, and Marble Mountain Wilderness areas blew my mind. So much beauty and amazing geology! My next adventure was a family camping trip to Yellowstone National Park, with stops along the way at Crater Lake National Park, the Strawberry Mountains, and John Day Fossils Beds National Monument in Oregon.

I started several new BS thesis projects this year with students Isabelle Cristescu, Samantha Dunn, Mariah Graham, and Nate Ross. Isabelle is constraining the rate of magma ascent during Pleistocene eruptions of Mount Shasta. Samantha is working on the petrology and petrography of one of Mount Shasta’s youngest (<6 ka) and largest lava flows erupted on its NE flank. Mariah is working on the petrology of the ~180 ka caldera-forming tuff erupted from Medicine Lake Volcano. Nate is working on the petrology of the enigmatic Fickle Hill intrusion, a small Cenozoic trachyte.

Finally, Dr. Mark Hemphill-Haley will pass the Department Chair torch to me in Spring 2020 – thank you Mark for your 6 years of service as Chair!

**Dr. Raymond “Bud” Burke (Professor Emeritus)**

Greetings Friends of HSU Geology...retirement has finally started to soak in and my interactions with our department have greatly diminished. I did greatly enjoy this year’s FOP, where I saw great geology, and many old (literally!) friends, and was able to interact with many upcoming leaders in that field of geology. I’ve included a couple of photos of that excursion. In addition I greatly appreciated the Geology Club requesting that I co-auctioneer at the recent event... I had a great time and feel the students continue to be the best there are, their professionalism again came through! I did not get in the amount of geology I want, but greatly enjoy watching what others are doing. As always, please stay in touch, we should all have a clear vision of our endeavors in 2020. Cheers, Bud
Left: Bud with first time auctioneer, senior geology major Nolan Marshall, photo by this year’s Geology club treasurer Dylan Kinser. Upper right: Bud along with other FOPers listening to Ken Adams (HSU alumni folk). Lower right: The team of FOP Bud Friends who helped to pack him up to leave on FOP Sunday.

**Dr. Sue Cashman (Professor emerita)**

A raft trip through the Grand Canyon in May was the geologic highlight of 2019 for me. Spending two full weeks in that spectacular landscape was truly wonderful, and the geology of the Colorado Plateau is pretty spectacular too!

This picture shows Harvey and me admiring the Great Unconformity in Blacktail Canyon. What do you think about the layers full of big, angular clasts of feldspar? I have a hard time envisioning how those layers formed.

Another highlight of 2019 for me was being honored as a Fellow of the Geological Society of America at the GSA annual meeting in Phoenix, Arizona. As always, it was great to catch
up with the activities of many HSU geology alumni at the GSA meeting. You have such interesting and varied careers!

I’m continuing my research with colleagues from HSU, Oregon State, and Penn State on Neogene deformation in southern Cascadia has been my third geologic highlight of the year. We’re finding that a combination of newer analytical tools, like thermochronometry, and older data, like geologic maps and well logs, show lots of evidence for mid-Tertiary deformation in the southern Cascadia forearc. HSU Grad students Dana Christensen and Taylor Team, along with Melanie Michalak and I, will be presenting research results at the American Geophysical Union meeting in San Francisco later this year.

**Dr. Lori Dengler (Professor emerita)**

I’m still more or less on my feet and try spend a bit of time in my office each week. I continue to write a near-weekly Not My Fault column in the Times-Standard – you can peruse all columns at: [https://www2.humboldt.edu/kamome/resources](https://www2.humboldt.edu/kamome/resources). I finished the online earthquake/tsunami K-2 curriculum based on our children’s book “The Extraordinary Voyage of Kamome.” It’s now posted at [http://www2.humboldt.edu/kamome/activities](http://www2.humboldt.edu/kamome/activities). I continue to work on materials for the other grade levels. We now have Russian, French, Swedish and Tolowa versions of the Kamome children’s book – all downloadable for free at [https://digitalcommons.humboldt.edu/monographs/1/](https://digitalcommons.humboldt.edu/monographs/1/). The Kamome story continues to find new forms and venues. A complete animation of the book is at [https://drive.google.com/file/d/18dy6GQndkT7vX8eoFFLfO2cohzLoRovX/view?usp=drivesdk](https://drive.google.com/file/d/18dy6GQndkT7vX8eoFFLfO2cohzLoRovX/view?usp=drivesdk)

If you watch the Tokyo Olympic Games this summer, you may see Kamome in their featured human interest story about connections between the people of Japan and the US. I am still
involved with the Redwood Coast Tsunami Work Group. We recently completed a set of six PSAs with KEET, North Coast Public radio. They are all posted on the Kamome Resource page as well, just go to the video link – they should make you laugh. Best thing about retirement has been the opportunity for more travel. This summer Tom and I visited Namibia and Zambia and got to see terrific Precambrian stromatolites and get a glimpse of one of the better Snowball Earth exposures. In August, we completed the Bowron Lakes canoe loop in British Columbia (photo below). It was one of Ken Aalto’s favorite places and I thought often about Ken and how much he meant to me and the Department as we paddled the 8-day loop.

**Geoff Hales (Lecturer)**

Greetings friends and colleagues. My involvement and participation with HSU geology over the years has traditionally been intermittent, ranging from occasional guest lecturer to informal student advisor. This has evolved steadily over the past 5 years, first with an opportunity to oversee and advise graduate student research for a sediment transport project in the Mt. Hood National Forest (Mindi Curran, M.S. 2017), followed by the opportunity to teach Field Methods (GEOL 335 and 435) starting in 2017.

2019 marked my third year teaching Fields and it was a busy one. Field projects placed a heavy emphasis on mapping and collecting structural data in challenging settings, with the primary goal of having students primed and ready for field camp by the end of the semester. Field areas and trip objectives included mapping the upper Wildcat group and Russ Fault

on Bunker Hill (between Ferndale and Capetown), mapping ultramafic rocks and assessing geohazards on Horse Mountain, and mapping fluvial terraces along the Trinity River.

I would be remiss if I didn’t extend a very special thanks to the Westfall family for their permission to map on their ranch at Bunker Hill. Andy Westfall was an amazing host who took time to meet with our group and explain how the ranch is operated, and opened his barn (with hot coffee!) to provide shelter on a windy and snowy day.

For my regular day job, I am the senior geologist at McBain Associates and have been with the firm for over 20 years. My work and research focus on sediment supply and transport, primarily on regulated rivers, to develop sediment augmentation programs that can help restore natural geomorphic processes. In July 2019, I was able to bring my professional and HSU worlds together at the SEDHYD conference in Reno NV, by presenting results from two large-scale sediment augmentation projects that have been guided in part by HSU research (Hales and Curran 2019). I am always looking for ways to help bridge the student and professional geoscience communities and look forward to new opportunities where I can help provide students with a better insight and understanding of being a geologist the working world. Feel free to reach out to me if you’d like to collaborate.

Cheers to 2020!

Top: GEOL 435 students Amber Schone (HSU ’19) and Kirsten Kennedy (HSU ’19); middle: GEOL 435 students in the field; bottom: GEOL 435 TA Taylor Team (‘HSU ’18, current MS student) Photos by Trevor McBroom.
Harvey Kelsey (Research Associate)
Humboldt State Geology again plays a pivotal role in a new investigation of faulting hazard associated with the Little Salmon Fault Zone. The National Earthquake Hazard Reduction Program (NEHRP) awarded a one-year grant to Tyler Ladinsky (HSU MS alumni now with the California Geological Survey), Harvey Kelsey and Melanie Michalak (both HSU faculty) to excavate trenches across fault scarps in the central segment of the Little Salmon fault in the vicinity of Hydesville, CA. Another team member, who has done previous work on the Little Salmon Fault, was Rob Witter from the USGS in Anchorage. Current HSU geology graduate student Sam Bold was an integral team member as well, participating in all aspects of the field work. Sue Cashman (HSU faculty) also contributed to the field work, and Jason Buck (HSU geology alumni) contributed substantially by helping to create photomosaics of the trench walls that were used as a basis for logging the geology units. Mark Hemphill-Haley (HSU faculty) also visited the trench and provided helpful input. In brief, what the team did was investigate trenches open along two strands of the Little Salmon fault zone in the central segment of the fault. Preliminarily, what the team found out was that one trench, along the range front fault, exposed shallowly dipping thrust faults, and a second trench, in the valley lowlands south of the range front, exposed a steeply dipping strike-slip fault. The team will present preliminary results at the fall 2019 AGU meeting. Most of the post-field-investigation work remains to be accomplished, including age determinations of the units either affected by or produced by faulting.

Photo of Harvey Kelsey and Rob Witter working on one of the trenches, this one excavated across the fault (Goose Lake fault) in the valley lowlands south of the range front thrust fault.
Hello HSU alumni, students and friends! This past year I've been able to incorporate glacial geology into my teaching and have started working on local research projects. In spring 2019, I taught Special Topics in Geology: Glacial Geology (GEOL 380) for the first time. It was fun to teach a class in my expertise and I will be teaching it again in 2020—this time in the fall semester so that I can take students on a weekend fieldtrip to the Trinity Alps to see erosional and depositional glacial features. I also had the pleasure of teaching the second half of this year’s field camp which was held in the eastern Sierras. We mapped and pondered some amazing geology this year! From mapping faulted Tahoe and Tioga moraines at McGee Creek to the culminating project of mapping moraines, Quaternary volcanic rocks, Mesozoic intrusions and faults at June Lake Junction. This upcoming spring I’m looking forward to reviving Quaternary Stratigraphy (GEOL 553), which hasn’t been taught at HSU since 2015. In addition to teaching, I’ve been applying for research grants, planning for summer 2020 fieldwork and prepping the new Lake Sediment Lab here in Founders Hall. Next summer I plan to start coring lakes in the local mountains to determine the climate and glacial history since the last glacial maximum. In preparation for fieldwork, two juniors, Morgan Murphy ('21) and Alex Anderson ('21) have been using their GIS skills to remotely map glacial deposits in the northern Coastal range and in the Marble Mountain Wilderness. They've mapped a lot of moraines thus far, so I’m excited to collect lake sediments to start piecing together the glacial and paleoclimate history of the local region!
Hello everyone! I am happy to report I have spent the last year teaching field-based geology classes and working with students and colleagues on multiple research projects in the Cascadia forearc. In September 2019, Tyler Ladinsky (HSU alum; CGS), Sam Bold (new MS student), Harvey Kelsey, Rob Witter, Sue Cashman and I worked on a paleoseismic trench on the central segment of the Little Salmon Fault near Hydesville. MS student Dana Christensen is working on her provenance study of the Weaverville Fm., and MS student Taylor Team is working on quantifying fault-driven exhumation of extensional faults in the Klamath Mountain Province. They recently presented their work at the AGU Fall 2019 meeting, where many HSU alumni came by; it was great to see you!

In January 2019, the Structural Geology class took a trip to the La Grange Fault. It’s exactly how you remember it, slickenlines, cataclasite and all. We had one of those bright and sunny January days. As you might remember, January in northern California is either sunny and warm, or brutally rainy. We lucked out this day. Photo Credit: Trevor McBroom.
Dr. Jasper Oshun (Assistant Professor)
Our project in the agrarian community of Zurite, Perú, funded by Geoscientists Without Borders, is completing its second, and final year. This past summer, two undergraduate geology students, and one M.S. student assisted in field work, and community outreach for a month in June, 2019. Margaret Lang and I led the group, which also included Dr. Kristina Keating (Rutgers), three undergraduate and graduate Environmental Resources Engineering students, an undergraduate from Temple University, a PhD student from UT Austin, two HSU film students, a graduate of HSU’s Environment and Community master’s program, 5 undergraduate geology students from Cusco, Perú, a local hydrogeologist, and a half dozen community volunteers.
We added to our geologic map, completed a month of intensive geophysical surveys, used a UAV to construct a digital elevation model, began monthly discharge measurements in two stream networks, and aided in the construction of 1.5 km or irrigation canals. Results are pointing towards the importance of high elevation peatlands, known locally as *bofedales*, in storing large amount of water that is released slowly the dry season, thus sustaining baseflow.

Over two years, 28 undergraduate and graduate students from 5 U.S. and two Peruvian universities have participated in our program. Students cite the impact of the research, cultural, and educational benefits of the program. A recent student responded, “This trip broadened my horizons immensely. It made me realize that I can do meaningful work in almost any part of the world while still doing something I enjoy.”

This fall, Edward Davis (HSU-Geology B.S., 2019), and Wyeth Wunderlich (M.S. Env. Sys. Geology) presented posters at the American Geophysical Union 2019 Fall Conference in San Francisco. I will lead a group of students for two weeks of wet season field work and report to the community of Zurite in January 2020. If interested in learning more about this work, e-mail me at oshun@humboldt.edu. The Society of Exploration Geophysicists featured our project in their Seismic Soundoff podcast: https://seg.org/podcast/Post/7222/Episode-57-Building-canals-how-science-and-friendship-changed-a-town.

**HSU Geology Club!**
The Humboldt State Geology Club is here to welcome all aspiring geologists, whether they are an incoming freshman or transfer. We try and bring our club members together by hosting fun events like Geology Trivia nights, hikes around cool local geology, and free dinners once a month. We also want to support their professional goals as well, we try and host workshops put on by our professors here on resume building, how to write a cover letter, etc. Even though we are the Geology Club we encourage all current HSU students to join us for these events, info on our events can be found out via email or by our social media. We also ask our students to express their creative sides by submitting their own artwork for the club! This artwork gets printed on stickers, shirts, and sweatshirts. If interested in supporting our club, or are curious about what there is, email the club at Geolclub@humboldt.edu. Our Instagram is hsu_geology_club and facebook is HSU Geology Club. Check us out! -Isabelle, Geology Club President 2019-2020
Left: 45th Annual Rock Auction, the Geology Club’s biggest fundraiser. Photo by Trevor McBroom. Right: Sticker design by Savanah Andrews.

HSU Geology students in Death Valley during the Spring 2019 trip to Death Valley National Park.
2019 HSU Field Camp!
The 2019 HSU Geology Field Camp mapped rock units and structures ranging from pre-Cambrian to Quaternary. We started in the Inyo and White Mountains and ended in the Sierra Nevada.

Students getting their bearings and locating themselves on the first day in Deep Springs Valley (Photo: Trevor McBroom).

Students Rob Raibley and Tyler Green describe the Cambrian stratigraphy in Deep Springs Valley (Photo: Trevor McBroom).

Student Sam Allen acquires bedding attitudes of folded strata in the Piper Mountains Wilderness (Photo: Trevor McBroom).

Students learning to identify and map glacial deposits in the Sierra Nevada with Dr. Levy (Photo: Trevor McBroom).

Student (and fabulous photographer) Trevor McBroom in the Piper Mountain wilderness (Photo: Rob Raibley and Trevor McBroom).

Geology never takes a day off, especially at field camp. Students explore the mysterious Bishop Tuff columns at Lake Crowley on an "off day" (Photo: Trevor McBroom).
**Giving to HSU Geology**

We are so grateful for your generous donations to our program and to our students. They have made such incredible impacts to student success. If you would like to support HSU Geology student success, there are now several ways to direct your gift to the department:

Aalto Field Geology Endowment
[https://alumni.humboldt.edu/giving/aalto-field-geology](https://alumni.humboldt.edu/giving/aalto-field-geology)
*This is a fund we use to support HSU Geology students engage in research in NW California.*

Longshore Field Geology Endowment
[https://alumni.humboldt.edu/giving/longshore-field-geology-endowment](https://alumni.humboldt.edu/giving/longshore-field-geology-endowment)
*This is a fund we use to make our field camp one of the most challenging and affordable in the region. While field camp costs continue to rise (yes, we still map complex geology while camping on the ground, have a cook trailer and study tent, and configure a solar shower), your generous donations are used to provide field camp scholarships to students to help defray some of those costs.*

Bud Burke Geology Scholarship
[https://alumni.humboldt.edu/giving/bud-burke-geology-scholarship](https://alumni.humboldt.edu/giving/bud-burke-geology-scholarship)
*This is a fund we use to support HSU Geology students engage in Quaternary-based research.*

Geology Opportunities Fund
[https://alumni.humboldt.edu/giving/geology-opportunities-fund](https://alumni.humboldt.edu/giving/geology-opportunities-fund)
*This is the fund that Randy Moory (HSU ’72) initiated to generously support HSU Geology students, whether its attending field camp, or attending scientific conferences, or using instrumentation at a neighboring university for analyses, or modernizing our geology computer lab! “When I was there, HSU was delivering some of the best educated geologists at the undergraduate level. It’s important to foster and keep that kind of education alive,” Randy said. “Some students don’t have the resources or support systems to help them through college and they are carrying that burden on their own. That’s why it’s important for past alumni to give them what they need.” Randy encourages other donors and alums to contribute to the Geology Opportunities Fund to support field camp and other immersive learning opportunities available to students. Thank you so much Randy!*

Geology Trust
[https://alumni.humboldt.edu/giving/geology](https://alumni.humboldt.edu/giving/geology)
*This is the fund that we use to maintain and replace our field vehicles for teaching and research. If you remember trips in the buses, those long, long trips to field sites, well, not only did they make the trips longer and areas less accessible but now they are simply too expensive. Instead, we are able to use our own four-wheel drive vehicles to go to places inaccessible by bus or rental vans thanks to your support.*