PLU Department of Geosciences!

2017 Newsletter

CONGRATULATIONS TO THE CLASS OF 2017!

IN THIS ISSUE

Our fourth newsletter!

After a brief hiatus, our newsletter is back! We're hoping to achieve annual publication for the next several years. Something you'd like to see covered in our newsletter? Let us know! We also hope you'll consider submitting an alumni update next spring!

This year, our request for alumni updates brought news from former students who are engaged in impressive endeavors here in the Puget Sound and across the country! Check out pages 7-8 for the latest from your peers.

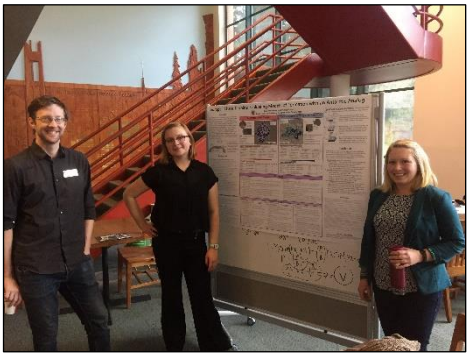
2016-17 brought a change of leadership in the Department of Geosciences. You can read a note from our new Chair, Dr. Peter Davis on page 7.

We're also excited to share all of the hard work and accomplishments of our students. In this issue, we feature two students' experiences at a geology field camp experience in New Zealand (page 3), and we asked Teaching Assistant Victoria Benson to share with us a day in the life of Dr. Whitman's Geophysics class (page 9). We've also tucked away on page 9 an exciting recognition that Dr. Whitman received in December! Shhh… we're hoping she doesn't notice before publication! ! On page 8 you can check out Dr. Tarka Wilcox's beautiful photos of this year's spring break field trip to Utah!

Spring has been especially busy in the Department. How many of you remember your Geosciences capstone? If you graduated 1998 or later, you were required to complete one! We can only assume your capstone memories are fond ones! All Geosciences majors have to complete a senior capstone project before graduating (see page 5 for a list of 2014 topics). This year's projects covered a wide range of topics – ranging from volcanology to hydrology - and a wide range of field areas ranging from Jupiter's moon Europa to Pierce County, WA!

Finally, we'd like to draw your attention to the last page of our newsletter where we offer an opportunity to support continued of student-faculty research in the Geosciences. If you're in a position to make a donation to the Brian Lowes Endowed Field Geology Fund, please see the contact information on page 10.

We appreciate your continued interest in PLU Geosciences. Please stay in touch!



Senior Capstone Projects!

Our seniors have been busy this year!

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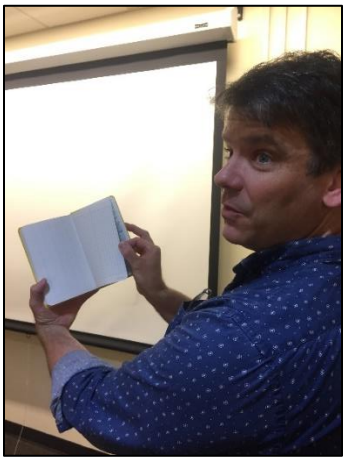
Field Camp in New Zealand!

Two students' far-flung field camp experience!

Page 3

FACULTY PROFILES

Dr. Peter Davis



Peter is department chair and the proud father of 4 year old Oliver, who now towers at 3.5 feet tall. He is a curious little monkey geologist who has his own "collection" going on his bookshelves at home.

In fall, Peter taught the department's gateway to a great major GEOS 201. Peter taught Geos 190 Geology of Energy in J-term and is teaching Structural and Capstone this spring! His current crop of students are just as lively and interested as all of you have been. He still enjoys watching the faces of advanced students from other majors light up when they realize that they not only really understand something fundamental about how our planet works, but that they like it!

His on-going research into subduction processes falls into two projects. One project was a component of PLU student Maricel Fee's 2016 Capstone in which she showed that flow of carbonate fluid through blueschist may create the eclogite layers we observe in rocks that occur in subduction zones (remember these words from long ago?!). Secondly, Peter continues to investigate subduction processes preserved in rocks exposed in the hills south of Cle Elum WA; senior Savannah Luna explored a similar topic for her capstone this spring!

Dr. Alex Lechler

Alex is in his third year at PLU. Last spring, he had the pleasure of teaching a group of 34(!) students in Sed/Strat along with a FYEP 190 course on the Geology of National Parks, which was a lot of fun and may have netted a few, new GEOS majors! He enjoys teaching GEOS 103 - Natural Hazards in the fall. He taught Geochemistry for the second time during J-Term 2017, and is now motivating new majors in GEOS 201!

For the past two summers, Alex has worked with PLU students on a research project investigating the paleoclimate history of the Pacific Northwest during the last glacial period using a fun, yet sometimes frustrating, analytical technique known as carbonate clumped isotope thermometry. The research involves getting sweaty and dirty digging into roadcuts and outcrops, and then getting cleaned up to analyze the samples in the UW IsoLab. He is excited to work with more students in the coming years on this and related projects!

Dr. Claire Todd

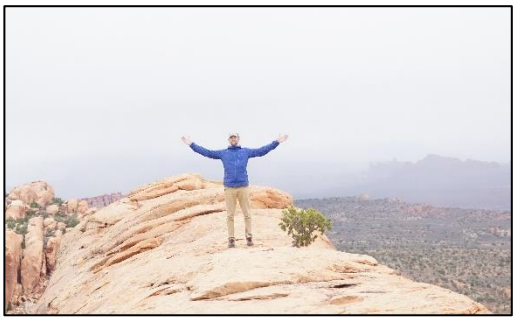
Claire taught Glacial Geology in fall, Global Climate Change in J-term, and is teaching Meteorology this spring! Her biggest accomplishment in the last year is installing a time-lapse camera to monitor South Tahoma Glacier on Mount Rainier!

Dr. Jill Whitman

This year Jill taught Geophysics in the fall, and Oceanography in J-term and spring. She is also excited to chair the Environmental Studies program once again, after a very long hiatus.

Jill's first grandchild arrived in December, and she enjoys visiting her whenever she gets a chance! Jill also received a prestigious University award in December – turn to page 9 for more details!

Dr. Tarka Wilcox



Tarka teaches introductory classes on Geological Hazards and Environmental Conservation, and covers upper division topics like Hydrogeology, GIS and Field Mapping.

A summer Undergraduate Research Program focusing on the use of UAS's ("drones") to map landslides and other potential hazards is currently under development, and Tarka is seeking out opportunities to work cooperatively with Documentary and Media Studies faculty and students to highlight the importance of improving science communication. In his free time, Tarka enjoys building and riding trails for mountain bikes.

Dr. Rose McKenney

Rose is on sabbatical this year, but we eagerly await her return in the 2017-2018 academic year!

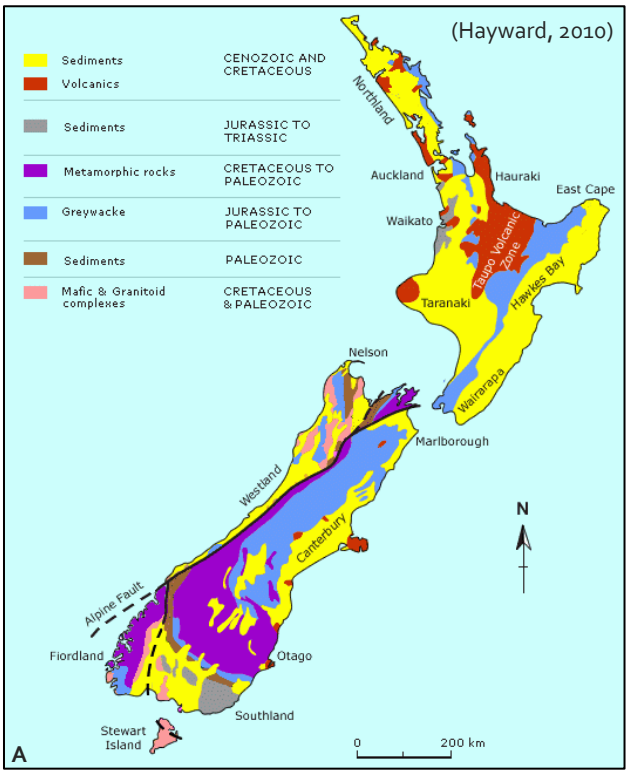
Field Camp in New Zealand!

This past January, we attended Massey University's geology field camp in New Zealand. With 11 other students from the U.S., we spent four and a half weeks visiting unique geological sites and conducting field work with Dr. Karoly Nemeth, a volcanologist at the university. We spent over three weeks in the South Island, where we first visited the oldest remaining rocks in New Zealand (505 million-year-old fossil-bearing limestone!). Then, we continued exploring the geologic history of New Zealand, from its separation from the supercontinent Gondwana to its active Alpine Fault and modern-day subduction zone (A).

We also conducted independent field mapping in the Southern Alps for four days- lots of thorns and streams, but no dangerous insects or animals! After mapping, we braved a few tropical storms as we visited the Franz Josef and Fox glaciers and made our way to the Kaikoura region, which recently experienced an earthquake that uplifted the coastal seabed by two meters! Seeing severe offset in the roads and railroad tracks was absolutely incredible (B), *not to mention walking on a brand new bleached-white coastline!*

We returned to the North Island for the last week of the trip. After spending time at Massey University, we travelled to White Island, an active volcano. With our helmets and gas masks on, our tour guides took us right to the edge of the crater and explained the volcano's recent history (C). *Several of us hiked the 19.4-km Tongariro Alpine Crossing, a famous through-hike among the Mt. Ngauruhoe and Mt. Tongariro volcanoes. Victoria even summited Mt. Ngauruhoe!*

It was an incredible month to say the least! The 7000+ kilometers we put on our vans was definitely worthwhile, for the geology as much as for the pot pies and fish and chips. We highly recommend this field camp (and New Zealand in general) for students wanting to see and practice geology in field sites like none other!



All photographs courtesy of Katie and Victoria!

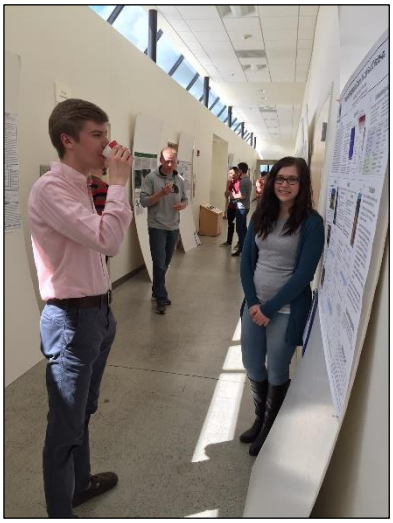
Katie Anderson and Victoria Benson, Class of 2017

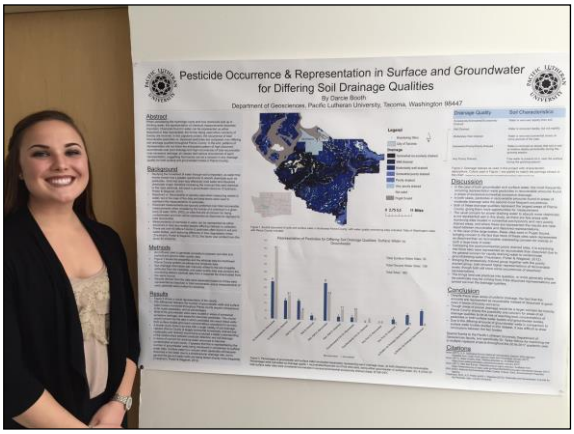
Congratulations to Our Seniors!

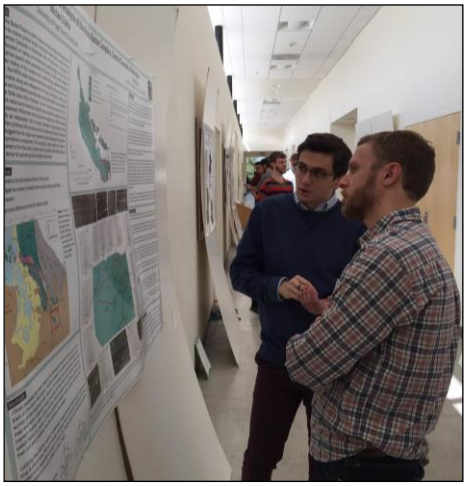
Seniors in Geosciences have had a busy spring! In April, Geosciences alums visited with the capstone class to share their post-PLU experiences. Special thanks to Taylor Christensen, Adriana Cranston, Samantha Harrison, Kristiana Lapo, Ryan Ransavage, and Cameron Reister. After an informative alumni panel, we gathered at Farrelli's to celebrate! Are you interested in presenting at a future alumni panel? Let us know!

Alums, seniors and faculty at Farrelli's after a fabulous alumni panel! Thanks, alums!

This year, capstone students presented their final projects in a poster presentation. They had many opportunities to showcase their research! On May 6th, PLU and University of Puget Sound students joined the South Sound Undergraduate Geosciences Conference.

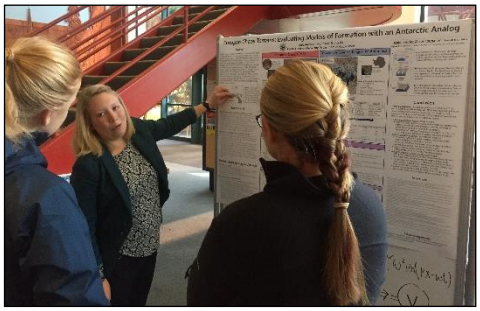


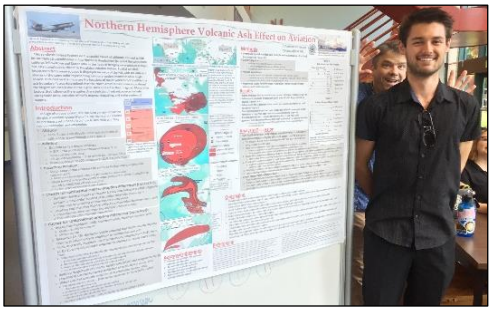


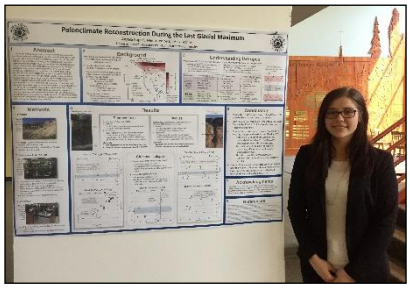


UPS and PLU students and faculty discussing research at the South Sound Undergraduate Geosciences Conference!

On May 13th, students gave their final poster presentations to faculty, friends, and family in Rieke Science Center. Afterwards, we all gathered in the University Center for a celebratory lunch and awards ceremony!





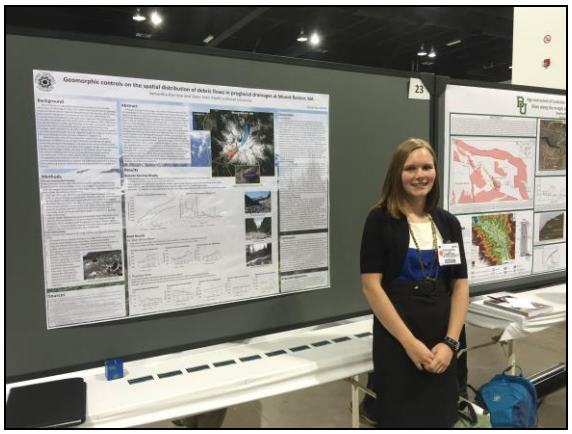


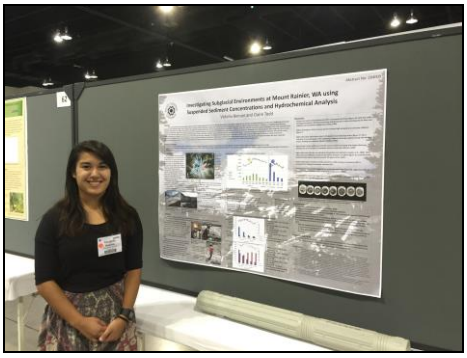
Congratulations to all of our seniors for a completing a challenging year of capstone research!

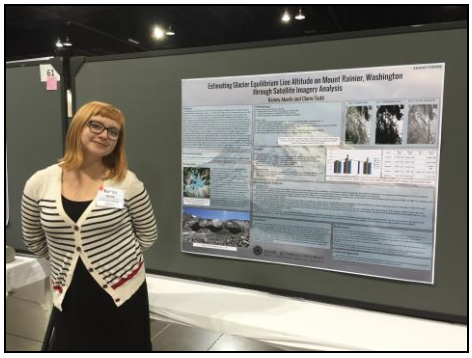
Congratulations also to Victoria Benson (near left) for receiving the national Council on Undergraduate Research Geoscience Division's award for Excellence in Student Research! Victoria dedicated two years to exploring the hydrochemistry and sediment transport in Mount Rainier's glacial meltwater streams!

PLU Geosciences at GSA 2016 (See you in Seattle in 2017?)

PLU Geosciences Students Rainey Aberle, Victoria Benson, and Samantha Harrison ('16) traveled to the annual Geological Society of America meeting in Denver, CO last fall to share results from their summer research projects, and to participate in some extraordinary professional development activities!







We're looking forward to seeing a large PLU contingent at GSA 2017 in Seattle! Let us know if you plan on attending!

PACIFIC LUTHERAN UNIVERSITY @ GSA 2017 22-25 October Seattle, Washington, USA

SENIOR CAPSTONE PROJECTS!

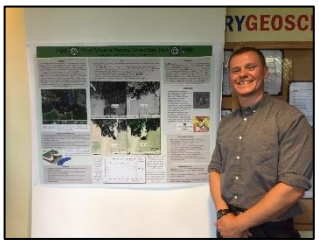
Rainey Aberle
Modeling Glacier Responses to Climate Scenarios on Mt. Rainier and Mt. Baker

Katie Anderson
Europan Chaos Terrains: Evaluating Models of Formation with an Antarctic Analog

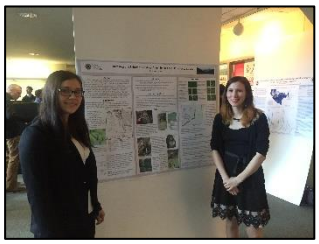
Victoria Benson
Influence on Glacial Meltwater, Mount Rainier, WA

Angela Boguk
Paleoclimate Reconstruction During the Last Glacial Maximum

Darcie Booth
Pesticide Occurrence and Representation in Surface and Groundwater for Differing Soil Drainage Qualities

Braden Decker


Slope failure at Flaming Geyser State Park

Savannah Luna


Investigating Exhumed Epidote-Amphibolites near Rimrock Lake, WA

James Owens
Investigating Bedrock and Soil Type Controls on Terroir in the Pacific Northwest

Aleksander Srebro
Northern Hemisphere Volcanic Ash Effect on Aviation

Letter from our new Department Chair, Peter Davis!

I am honored to be writing to you as the new Chair of the Geosciences Department. While I jokingly tell my friends that I have finally ascended to the level of furniture, I am excited to take on the next level of responsibility and to dabble my toes into an administrative role.

I believe the best role for all of us, students, teachers, chairs, and most of all administrators, is to listen. Listen to what is said, listen to what is not said, and most of all ask the questions that best help the other say what it seems like they want to say. As a teacher, I listen to my students even when I am facing the board drawing out the topic of the moment such that when I hear the beginning of a question I can make space for that person to bring their voice into the discussion. I hope that in my new role I can continue to listen and be of service.

One way that I have started to provide this service is by, in cahoots with my fellow faculty, making a change to the sequence of Mineralogy and petrology courses. We have realized for a while that GEOS students need to have microscope and more exposure to mineral properties before going to the suite of upper-division courses. So we have decided to propose putting some of the optical techniques and mineral property ideas into Geos 201. With possibly some additional digital mapping skills, we believe Goes 201 will be a more robust stepping stone for our students. I am also proposing to collect the two petrology courses into a single course with a unifying theme of tracking a rock composition or two from generation as igneous rocks through a stage or two of metamorphism. I believe showing a unified story will be an easier narrative for students to follow when navigating the material.

In closing, I would like to highlight my excitement to work with our new faculty hires of Dr. Alex Lechler and Dr. Tarka Wilcox. Listening to our new colleagues will provide me with ample ideas of new directions in which to lead the department!

Alumni Updates!

Thanks to all alumni who responded to our request for updates ! If you would like to be included in our next issue, let us know ! We are always so happy to hear from our alums !!

Bryan Donahue ('09)

"I am currently a resident on Salmon Beach, Tacoma and am working for several agencies. I do a range of work from Coastal and Civil Engineering to leading field teams in remote areas of Alaska conducting fisheries and environmental research. I currently obtained my EIT with plans for a PE in fisheries/coastal engineering. My degree and knowledge in the geosciences from PLU has always been at the core of the work I do. In the picture above, I am the one to the right in the snorkel suit. We were doing a fish count though a deep whitewater canyon in WA."

Cameron Reister ('13)

"I'm currently living in Tacoma with my partner Claire (a fellow Lute) and working on my Masters in Applied Geoscience at the University of Washington in Seattle. My main focus is in Fluvial Geomorphology and I'm interested in restoration work at the stream, river, and watershed level. I plan on doing the fast-track and finishing my degree this December!
I'm also currently interning with TetraTech in Seattle in their Rivers and Coastal Engineering office. My main duties for now are working with GIS to create maps and figures for reports while also teaching myself to use programs such as HEC-GeoRAS and AutoCAD. This summer I'll be hoping to get out in the field to spend some time in rivers and streams like a true Fluvial Geomorphologist! Go Lutes!"

Alumni updates continued!

Andrew Peterson ('14)

"Following graduation and the completion of the Geology Field Camp through Eastern Washington University, I went back to the family farm in Kansas and helped with fall harvest. In the Summer of 2015, I completed an internship in which I collected groundwater samples for the North Dakota Dept. of Health, Division of Water Quality. In September of 2015, I was hired as an Environmental Scientist for the North Dakota Dept. of Health in Bismarck. Currently, I am the manager of the Agricultural Ambient Groundwater Monitoring Program. I am in charge of collecting and evaluating groundwater samples throughout North Dakota to provide an assessment of groundwater quality, primarily focusing on agricultural contaminants. I am also involved in completing irrigation permit reviews, contaminant source inventories, UIC inspections, and various other projects related to groundwater in North Dakota. It is occasionally a little cold up here, but I love my job!"

Maxwell Silver ('15) "I'm currently at the University of Arkansas Center for Space and Planetary Sciences obtaining my PhD in Space and Planetary Sciences. I study astrobiology and its applications to the Martian subsurface."

Taylor Christensen ('13)
"In 2015-2016, I worked as an Assistant Supervisor for AmeriCorps' Washington Conservation Corps (WCC), Wenatchee Spike Crew. My crew of six primarily traveled around Washington State doing conservation work, including riparian/habitat restoration, cattle fencing, park maintenance, tree thinning, and Firewise projects. We also were deployed on disaster relief when needed.

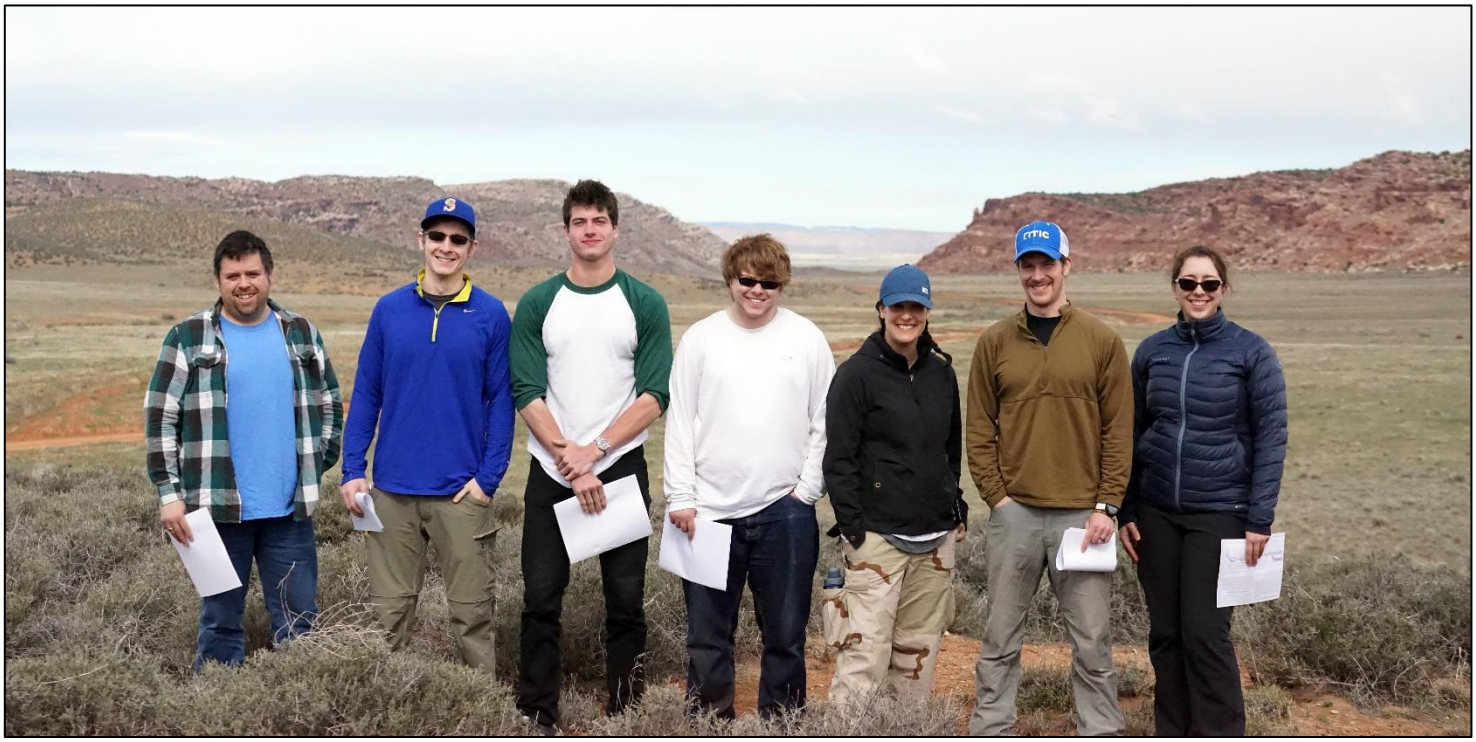
From January – March, 2016, my crew was deployed to Missouri to assist community members in the greater St. Louis area affected by winter flooding events. WCC worked with other AmeriCorps members to muck and gut over 200 homes touched by the floodwater. I worked as the Field Branch Director of Operations. My primary duties included contacting homeowners who needed help, scheduling work for our Strike Teams (clean-up crews), coordinating debris pickup with the EPA and Army Corps of Engineers, managing Strike Teams throughout the work day, and making field site visits when needed.

From August – September 2016, my crew was again deployed on disaster response for flooding, this time to Louisiana. I served in the Command Staff as Planning Chief, where I led morning briefings, created daily Incident Action Plans, generated Strike Teams for over 300 volunteers, integrated incoming crews, and worked with CNCS cadres from AmeriCorps' headquarters in Washington DC. I even worked on the Command Staff along with fellow PLU Alum, Alex Mesick (2011 grad)! Through employment with WCC, I was able to receive my Hazwoper Certification (Hazardous Waste Operations and Emergency Response), and my Swift Water Rescue Certification. The picture below is of me with the Louisiana Command Staff, along with Bill Basl (AmeriCorps CNCS Director), and FEMA's Chief of Staff, standing in front of my Planning Board.

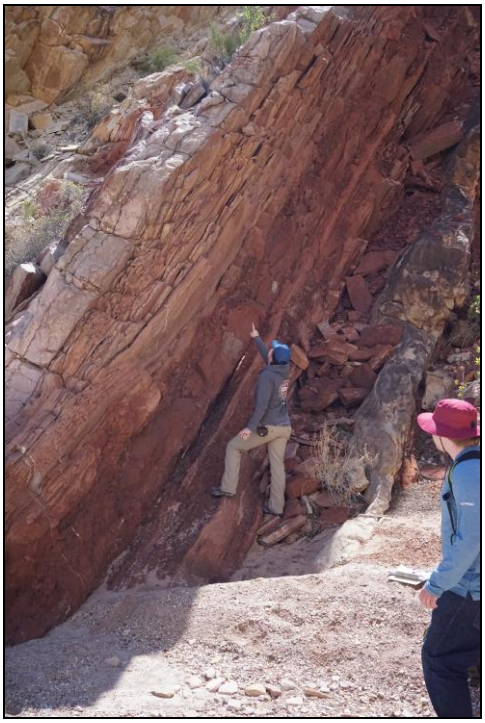
After finishing my one year term with AmeriCorps, I substitute taught in the Wenatchee School District to gain some teaching experience before leaving for the Peace Corps in April 2017. I will be living and working in the South Pacific Island nation of Vanuatu for 27 months as a Health Education and Water Sanitation Volunteer."

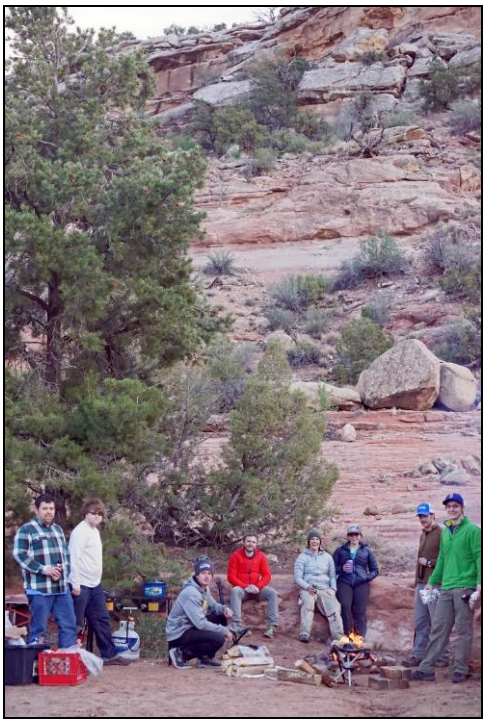
Field Trip to Utah, 2017!

Over spring break, seven students explored the incredible geology of Utah, guided by Dr. Alex Lechler and Dr. Tarka Wilcox! The group focused on stratigraphic and structural descriptions and mapping of the eastern boundary of the San Rafael Swell. Students spent two days practicing field mapping techniques, constructing detailed maps of the area, and describing geologic units. We hiked through several interesting sites in both Arches and Canyonlands national parks, learning about the structural evolution of the region related to salt tectonics, diapirism, dissolution and subsidence.



Above: Salt Valley Anticline, Arches NP; Below (l to r): Upheaval Dome, Canyonlands NP; San Rafael Swell, Green River; Moab

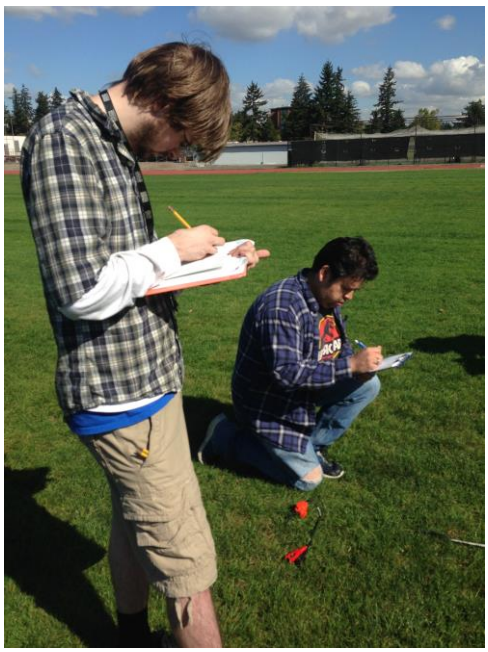




Our next field trip will be in spring 2019! Location to be determined!

Geosciences is a Field Science!

In each issue, we feature field work that occurs each semester in our classes! In this issue, we bring you the ever challenging and exciting class of Geophysics with Dr. Jill Whitman! Many thanks to TA Victoria Benson for sharing these pictures!

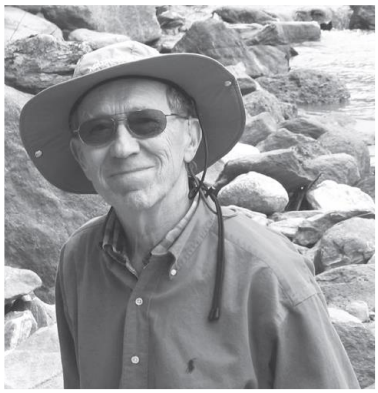


And while we're talking about Jill, can we take a moment to congratulate her? Jill received the prestigious Faculty Excellence in Service Award in December in

honor of her decades of selfless service not only to our department, but to the entire PLU community. We are so proud to claim Jill as one of our own!! The University and PLU Geosciences are better because of Jill's dedication to us! Many thanks to the alums who wrote in support of Jill's nomination for the award, and of course…THANK YOU, JILL!!

Give to the Brian Lowes Endowed Field Geology Fund!

Geosciences Department founder Dr. Brian Lowes retired in May 2009 after 41 years on the faculty. The Brian Lowes Endowed Field Geology Fund has been established to recognize his long career and countless contributions to our program. Brian was devoted to getting his students out into the field to experience geology first hand. We continue to honor Dr. Lowes and retired Geosciences faculty Dr. Steve Benham and Dr. Duncan Foley with a fund that supports student-faculty research in field-related projects. We hope you will support Geosciences students by making a donation to this fund.



PLEASE CONSIDER A GIFT

We welcome your gift to the Brian Lowes Fund

FOR MORE INFORMATION:
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2017 Newsletter

Geosciences Department!

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