



GEOLOGY DEPARTMENT

## 2018 NEWSLETTER

Issue #40

 **Geology**

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## Message from the Chair



**Dr. Bernard (Bernie) Housen**  
Professor and Chair, Geology



**Snow at Mount Baker,**  
September 2017



**Morning at Dillon KOA,**  
starting the last two  
weeks of the 2017 WWU  
Geology Field Camp!

Hello Geology Department Alums and Friends,

The past year was a nice and eventful one for the department. The year started off with the usual full slate of courses. We also had a very active presence of faculty, students, and alumni, at the 2017 Geological Society of America annual meeting in Seattle. It was a pleasure to host a large and vibrant alumni reception there- about 100 of you dropped by to enjoy this event, which thanks to the College of Science and Engineering office and our Western Foundation staff included some welcome refreshments. So, thanks to Dean Brad Johnson and our Foundation staff, Amber Asbjornsen, for their helpful support. Your very active and enthusiastic showing made a great impression on us, and on our College's leadership! The Geology Department was also fortunate to be able to honor one of our "Paleozoic generation" Alumni- Bud Burke- who was recognized as the 2018 Distinguished Alumni for the College of Science and Engineering. As part of the Alumni weekend that featured Bud's being honored, the department also hosted an alumni gathering in the ES building. That too was a fun

and successful event- the college and university staff were impressed with both the overall turnout (again, over 100 of you dropped by at some point), but also by the clear enthusiasm and the alacrity at which the various beverages were consumed.

On the faculty and staff front, we can congratulate Jackie Caplan-Auerbach on her successful promotion to Professor, and her surviving (and, via the dean's office, thriving) a year as Associate Dean of CSE. Jackie, Sue DeBari, and Colin Amos were all successfully awarded a year of sabbatical leave, so while they can all go forth and lead productive faculty lives, the rest of the faculty here get to enjoy more committee work! We also successfully hired a new Assistant Professor of Surficial Processes, Allison Pfeiffer, who will join the department in Jan. 2019 after completing a post-doc at UW, and Research Scientist/Lab Manager Cristina García-Lasanta, who joined us in June 2018 and takes over management of the paleomagnetism lab following Russ Burmester's retirement. Speaking of which, the department collectively lost over a half-century of experience as both Russ, and Thor Hansen have re-

tired. Both will be sorely missed, but fortunately, both will be around the department in some capacity. Looking ahead, we hope to be able to search for faculty in Planetary Science (shared with Physics) and as part of the new Marine and Coastal Science program, that WWU received funding for.

Finally- we had some interesting experiences with our department vans. During spring break, one of them went missing! After a bit of checking, we quickly determined that the van was stolen. After a month or so- and following many odd rumors- definite word came from local law enforcement that the stolen van was found- converted into a meth-den and abandoned in the woods in Snohomish County (after being driven to Vancouver, WA, at some point). The van was a total loss, and we await administrative approval for a new one...this loss and replacement make for an interesting start of my third term as chair.

### **Magnetic Fabrics Class** Winter 2018



**Geology Events**



**Geology Alumni  
Reception at the  
GSA Meeting  
in Seattle  
October 2017**

**Holiday Party At Scott Linneman's  
December 2017**

*Thank you to the Linnemans!*



**Geology Events**



Holiday Party At  
Scott Linneman's  
December  
2017



Geology Events



Holiday Party At Scott Linneman's  
December 2017



# Western Washington University— Geology Department

## Geology Events



Holiday Party At Scott Linneman's  
December 2017



**Geology Events**



Holiday Party  
At  
Scott Linnman's  
December  
2017





Fun In The Snow!

Submitted by Thor Hansen

Winter 2019



## Western Washington University— Geology Department

### 2018 Distinguished Alumni Award from the College of Science and Technology Dr. Raymond “Bud” Burke, Professor Emeritus of Geology at Humboldt State University



Dr Raymond “Bud” Burke, Professor (Emeritus) of Geology at Humboldt State University, was recognized as the 2018 Distinguished Alumni Award from the College of Science and Technology. Bud Burke earned two degrees from WWU- a BA in Geology in 1968, and an MS in Geology in 1972. Following his education at WWU, Bud went on to earn a PhD in Geology from the University of Colorado (Boulder) in 1979, and was hired onto the faculty in the Geology Department of Humboldt State University, where he taught (and was eventually promoted to Professor) until his retirement in 2012. Bud has made significant contributions to the study of soil chronosequences and glacial stratigraphy in areas around the world, including the Sierra Nevada, New Zealand, western China and Mongolia. His methods of studying Quaternary stratigraphy, geomorphology, and the paleoclimate signal revealed in soils have been applied to active faulting, uplift of marine terraces, and evolution of glacial and desert landscapes. Bud supervised numerous Master’s and undergraduate students and is a popular and much - loved teacher. Stories abound of his enthusiasm and generosity when working with students, leading field trips, and supervising research. Bud is a fixture at GSA conferences and particularly at Pacific Cell of the Friends of the Pleistocene field trips, where he is renowned for his rousing song renditions of Swing Low Sweet Chariot. His long-term accomplishments in the field of Quaternary Geology and Geomorphology were recognized by the Geological Society of

America, where he was recognized as a Fellow in 2011, and his research, teaching, and student mentorship was recognized by Humboldt State University, who honored him as their Outstanding Professor in 2008.

Bud has been active and involved as a supporter of the WWU Geology Department during the past two decades - most notably he was one of the key supporters and donors of the Ross Ellis Field Geology fund- an endowment established to honor Dr. Ross Ellis (a long-time member of the WWU Geology Faculty), which is dedicated to support the field mapping courses in the Geology program here at WWU. This endowment to support and maintain a field mapping course has played an important role in improving the quality and scope of the WWU Geology program, and has served as an aspirational model for other geology programs (who envy the active support of WWU alumni such as Bud). As one of the first generation of WWU MS students, Bud has played a valuable role in alumni support and relations with fellow members of his cohort- many/most of which have been very generous and active supporters of our department. When I recently spoke with Bud, he made a point to mention the critical role that the education and faculty mentorship he received at WWU has played throughout his career, and indicated that he really owed his success to the quality education he experienced. As one of his letters of support mentions, in 2005 Bud was partially paralyzed as a result of an infection- and since that time he has remained active in his research and mentoring, and has also been a role model, and champion for students and scientists with disabilities in the geosciences.

### **Alumni Weekend 2018**

**(Formerly:  
Back to Bellingham)**

**Dr. Raymond “Bud”  
Burke,**

*pictured far right at the*

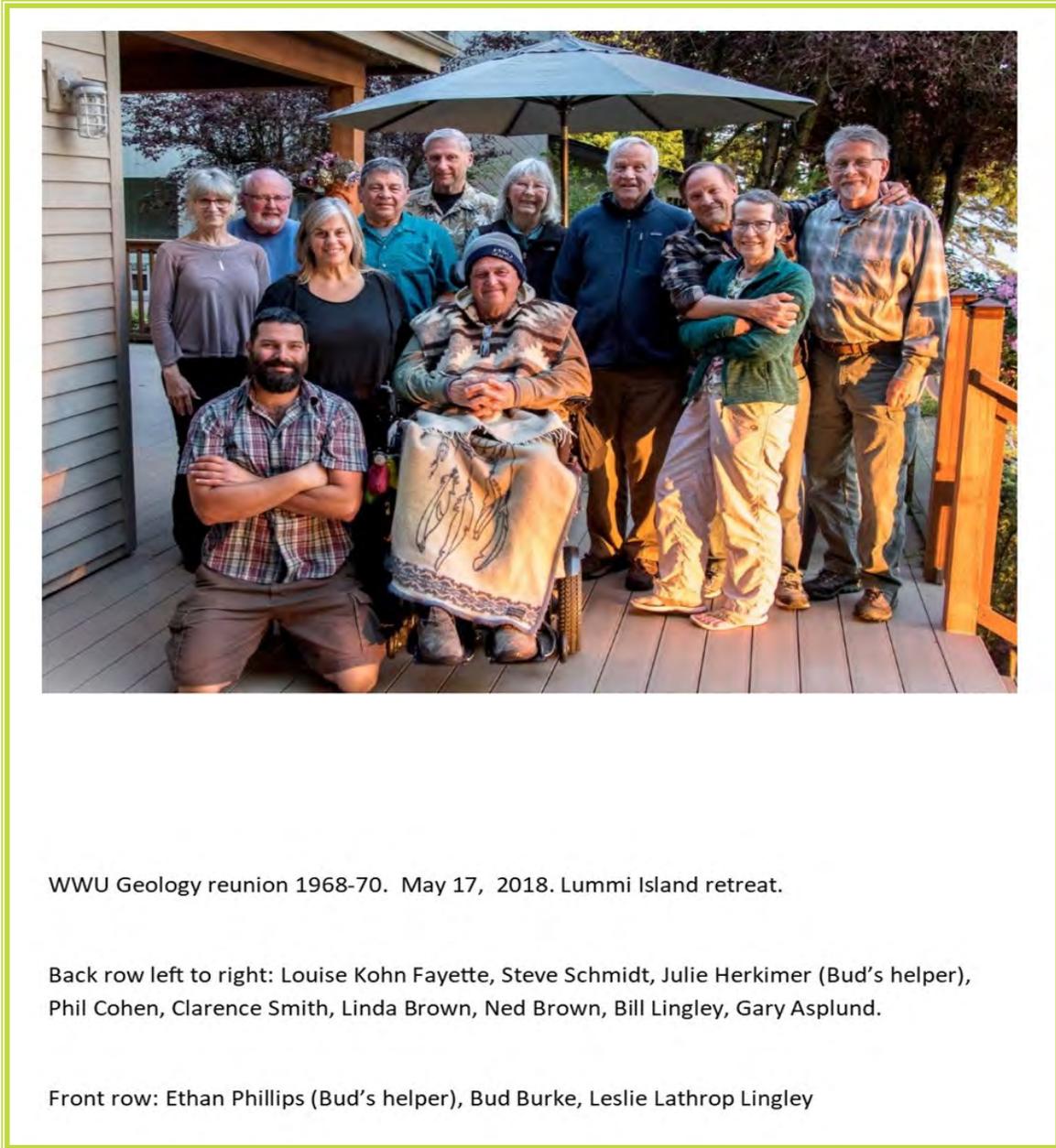
**Alumni Weekend 2018**

**Geology event**



# Western Washington University— Geology Department

## WWU Geology Reunion on May 17, 2018, Class of: 1968-1970



# Western Washington University— Geology Department

## Children of the Paleozoic: WWSC/WWU Geology Department Alumni

### “WE’RE NOT FOSSILS YET!”

Fifty years ago last April, Dr. Ross Ellis took fifteen? intrepid students on the first WWSC Geology Dept Spring field course. A field course has happened every Spring since. The field

skills learned were invaluable and created memories and friendships that would last a lifetime.

In 1989, some alumni of the 1969 field course decided a 20th reunion might be fun...if anyone showed up. There proved to be lots of interest, but due to busy work/family/etc schedules, only eighteen (including Dr. Ellis) could make the trek to Louise Kohn Fayette’s farm in Zillah, WA.

The memories and friendships were still abundant and we couldn’t believe how young and beautiful we all still were. However, time passed, fossiliza-

tion threatened, so in 2009, it was decided a 40th reunion needed to happen. Many were retired by then, and the growing list of contacts for field trippers between the years 1968 and 1972 was growing. This time, 26 of the self-proclaimed “Children of the Paleozoic” made the trek to Louise’s farm (including Dr. Ned Brown).

Since that time, there have been reunions in 2010 (on Lopez Island) and the most recent (albeit unofficial) on Lummi Island in May of this year (see photo previous page).

The Lummi Island “reunion” was more of a celebration to honor our good friend Bud Burke upon receiving the 2018 WWU Geology Dept Distinguished Alumni award. The setting was beautiful, the food and drink plentiful, and the company exceptional.

In addition to the island gathering, many were able to attend the dinner and awards ceremony held in the Wilson Library, plus attend a tour of the Geology Dept (and beach party) the next day. It was a special treat to have Ned and Linda Brown and Don and Ellen Easterbrook attend one or more of the events.

As stated, these alumni are not fossils yet, so future reunions will be planned. In fact, there are some rumblings about a gathering next February in Tucson, AZ - to coincide with the annual Mineral and Gem Show held there.

A comprehensive email list has been diligently put together over the years, but if you’re not getting notices of upcoming reunions and would like to be put on the mailing list, please send your email address to Louise (Kohn) Fayette; [louiseannek@gmail.com](mailto:louiseannek@gmail.com).

### Reunion on Lummi Island 2018

Phil Cohen,  
Clarence Smith,  
John Morganti,  
Louise Kohn Fayette,  
Ned and Linda Brown,  
Bud Burke,  
Gary Asplund.  
*(Pictured Left to Right)*



## Western Washington University— Geology Department

Group photo of field campers and teaching assistants at Painted Hills in Oregon



Undergraduate student researchers participating in the Keck Geology Consortium project on ancient global warming events and vegetation changes in Wyoming.



## Faculty & Staff News

### Colin Amos

This newsletter finds me well, enjoying a cold oat soda aboard the WA ferry Salish, returning from a simultaneously hot, dry, boggy, and muddy fault trench on the northern Olympic Peninsula. Liz and I, along with MS student Cody Duckworth and a WWU undergraduate posse are working with the USGS to characterize the slip rate and earthquake record of the Sadie Creek fault just north of Lake Crescent. As usual, fault trenches are puzzling, interesting, and (hopefully) eventually rewarding, and it's fun to work collaboratively with such a great team. Shoveling dirt has never been so academic.

Fieldwork this summer also includes time in the central Oregon Cascades, where MS student Katie Alexander and I continue work with folks at Middlebury College and Berkeley Ge-

ochronology to date faulted glacial moraines and outwash surfaces with cosmogenic  $^3\text{He}$ . A forthcoming GSA Bulletin paper by recent MS student Gunnar Speth makes a first stab at this record in the Klamath Basin south of Crater Lake.

Juniper (2) and Calder (4) continue to grow like weeds, collect abundant dirt and rock samples, and even manage to make it out in the field with me now and again. Both are on campus daily at the Child Development Center at Western, for which Christine and I are eternally grateful. An upcoming sabbatical will see us all heading to Christchurch, NZ during winter quarter, where I have been awarded an Erskine Fellowship at Canterbury to help teach some field classes in active tectonics and work on the Kaikoura earthquake rupture. Need-

less to say we are all excited to experience the southern Kiwi lifestyle this coming January.



**Colin Amos**  
Associate Professor  
Geology

I still consider myself a lottery winner to be a part of the department at Western, as well as our group of friends and family in Bellingham. Excellent new hires, great students, and strong community, departmental and otherwise, keep us feeling grateful and excited for another academic year (especially one where I am on sabbatical). Cheers all!



**Sadie Creek Fault**  
Fall 2017

**Colin Amos,**  
**Cody Duckworth,**  
**and**  
**Liz Schermer**

# Western Washington University— Geology Department

## Scott Babcock

I have been enjoying my retirement time and have officially moved out of my office at WWU. Marca is teaching third grade for the Bellingham School District, so we still need to schedule our trips based on the school calendar. Our first trip this year was to Georgetown, Texas to visit our daughter Eirian and her husband for Thanksgiving. This summer we rented a R-Pod 18' trailer for a road trip through Montana, South Dakota, Col-

orado, Utah, Idaho and Oregon. Our daughter Karen announced her engagement to Thomas Hendricks, they haven't set a wedding date yet. Karen is a pediatric audiologist at Denver's Children's Hospital. Susan graduated from the University of Washington in Fisheries and has been traveling the world ever since! She is currently heading back to New Zealand after working this summer in Alaska. Alexis is working for the Department of Jus-

tice in Washington D.C. and Brian is working in Olympia for the Department of Transportation. Our biggest change this year is that we are moving! We found a condo near Fairhaven overlooking Bellingham Bay. Marca and I are ending 2018 with a trip of a lifetime to Antarctica with Lindblad National Geographic. We will stop by New Zealand on our way home to visit Susan.



Above: Scott and Marca Babcock

### **Scott Babcock Professor Emeritus Geology**

*Pictured below at:*

**An Oregon Fossil Rush, historical marker near Dayville, Oregon off the John Day Highway**



# Western Washington University— Geology Department

## Cristina Garcia-Lansanta

I am a new research associate in the Geology Department who landed at Western on mid-June from Spain, so I think I can say I'm the newest here! My background as a geologist is full of magnetic fabrics and paleomagnetism. I graduated in Geology and obtained my PhD Degree in Geology at the University of Zaragoza (NE Spain), and my main research projects were focused on trying to clarify some tricky Mesozoic and Cenozoic stages in the tectonic evolution of the Iberian Peninsula by applying AMS and paleomagnetism to sedimentary rocks.

At Western I have started working at the Paleomagnetism Laboratory (ES429), which is equipped with all the necessary tools to perform rock magnetism, paleomagnetism and magnetic fabrics studies, as well as full of very nice and helpful people (thanks all!). Getting used to the lab with Russ Burmester's help is a great advantage for me; currently, we are installing a cryostat in the Vibrating Sample Magnetometer (VSM) availa-

ble in the ES429A in order to perform magnetic measurements at low temperature (up to 4.2K, using liquid helium). I'm also collaborating with Bernie Housen to develop some paleointensity measurements in archaeological remains, so I'm learning more about this branch of paleomagnetism which was not my main topic in the past. And I will be very interested in see the progress of Amanda Ketting-Olivier's project focused on paleointensity data from lava flows around Mt. Baker. It even looks that the cryogenic magnetometer and I are starting to get used to each other (after it gave us some problems when I had just arrived here). Other plans for the next months include replacing some of the computers that run lab instruments, renovating the lab website and inventorying samples from previous works so they can be easily located and used in future researches.

I'm very happy to be Nicole McGowan's officemate and I'm really grateful for all the advices she is

giving me from her recent experience settling in Bellingham. People have told me many times that I arrived in the perfect moment of the year to enjoy the city and its natural surroundings. I agree, you don't need to go far to enjoy very beautiful landscapes and locations! And although I imagine fall and winter will be pretty rainy ("winter is coming" I guess), I feel they will be great anyway. Landscape and nature photography is one of my hobbies and I'm wanting to see how all these places around change under different lights. I also want to experience life at Western when the fall quarter starts, campus gets crowded and all food and coffee places around it are finally open! So I think I can summarize my last weeks in one sentence: I'm learning a lot! Living new experiences, meeting a lot of new people (friendly, helpful and really patient with all my doubts, thank you all!) and doing many new things. I'm very happy to be here, and it looks like the best is yet to come!



**Cristina Garcia Lasanta**  
**Paleomagnetism Lab Manager**  
**and Research Scientist, Geology**

# Western Washington University— Geology Department

## Jackie Caplan-Auerbach

This has been a very different and very interesting year for me. Last summer, Brad Johnson, dean of the College of Science and Engineering, asked me to serve as associate dean on a half-time basis (I would remain in my faculty position for the other half). I'll fully confess that I was torn by the request—the idea intrigued me, as I've always enjoyed learning more about how other departments and programs operate within the university. But this meant that I would only teach on a half-time basis, and I was reluctant to step away from the classroom. In the end, with the understanding that I would serve for a year, I accepted.

And thus began a whirlwind. As associate dean I learned, in fire-hose fashion, all about curriculum, scholarships, assessments, grievances, and not to forget a change of clothes when I bike to work. I had the opportunity to learn more about the other departments in the college—their challenges, their successes, the different ways that they operate, and the amazing work that they do. Throughout it all, however, it helped me realize how incredibly lucky I am to be a part of the Geology Department. We have a lot of amazing faculty in this

college, but I know of no group that is more cohesive, more capable, and more committed to their students than the faculty and staff in this department.

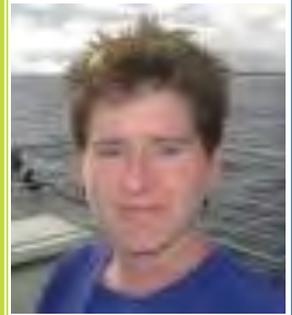
Although my teaching load was reduced this year, I did get to teach some of my favorite classes. I taught my bread-and-butter class, Introduction to Geophysics, two more times, and I took over the teaching of Engineering Geology when Bob Mitchell went on sabbatical. This meant that I had a full year of physics, physics, and more physics, which is my greatest delight.

Juggling the dean and faculty positions made it challenging to do as much research as I hoped, but I still managed to tackle some great projects. Most of this was done by my students: graduate student Kevin Lally is looking at some fascinating earthquake swarm activity that took place beneath Tanaga and Takawangha volcanoes in Alaska, and Adriana Cranston is putting together a compelling story about long-term eruptive processes at West Mata and NW Rota-1 submarine volcanoes. Undergrad Anna Foster has been looking at the seismicity

that precedes some landslides, and her work was a critical part of posters that I presented at two scientific conferences this year.

The year finished in spectacular style, as a recent shift in the 35-year eruption of Kilauea caused unusual seismicity and a dramatic change in volcano's behavior. With the support of funding from NSF, I had the opportunity to bring students to sea with me to deploy a network of ocean-bottom seismometers off of the Kilauea coast. Grad student Kevin Lally, undergrad Lena Gibbs, and I joined a group of scientists from Rice University, the University of Rhode Island, and the University of Hawai'i on an amazing week-long cruise with amazing science and devastating views of the lava flows. Working up those data will be a major focus of my sabbatical, which begins this September.

And did I mention that somewhere along the line I agreed to serve as associate dean for a couple more years? I'll be on professional leave next year, but will jump back into that seat the following summer. Go ahead and say it: sucker



**Jackie Caplan-Auerbach**  
Professor  
Geology



Below: Jackie Caplan-Auerbach taking photos of the Kilauea Volcano, July 2018.



A seismometer is dropped overboard.

# Western Washington University— Geology Department

## Myrl Beck

The Newsletter lives once more, hurray!

Unfortunately, I have little to contribute. I continue to age in place, and thoughts of geology rarely cross my mind. I revel in family and travel (see photos), and I continue to write my blogs; for cancer-related stuff:

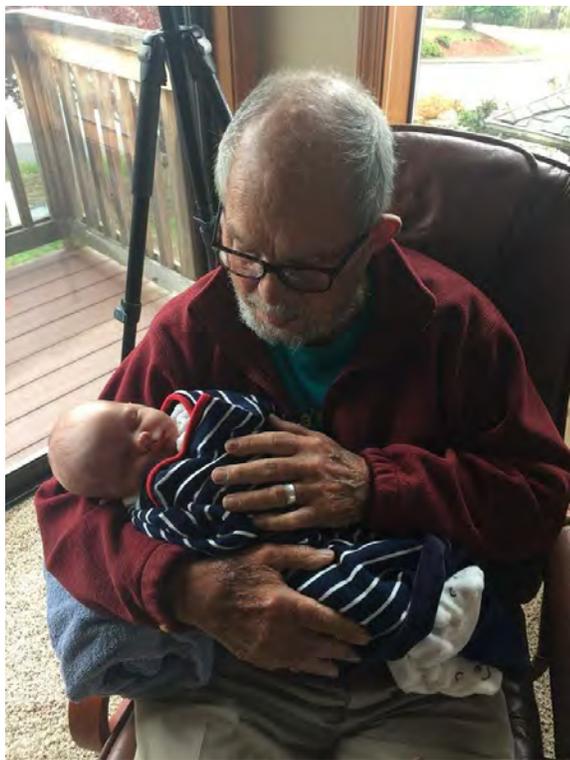
[www.ljb-quiltcutie.blogspot.com](http://www.ljb-quiltcutie.blogspot.com)

And for non-cancerous writings:

[www.frivolousessays.blogspot.com](http://www.frivolousessays.blogspot.com);

### **Myrl Beck**

*Pictured below with  
grandson Finn*



*Pictured Right:*  
**Family photos**



### **Myrl Beck Professor Emeritus Geology**

*Pictured above in a Canal Boat*





## Robyn Dahl

Now that I have almost two years under my belt as a member of the Western Geology Department, I'm finally starting to feel settled into the program!

Thor Hansen left some big shoes to fill when it comes to paleontology at Western. I've taken the reigns on paleontology courses in the department, and will be teaching a 300-level Paleontology course and a 400/500-level Advanced Paleobiology course this year. My first graduate student, Alex Hernandez, joined the paleo research group this fall. He will be working on Pleistocene mollusk assemblages preserved in and around Whatcom County. Alex will be assisted by undergraduate Brandon McClain, who is doing his own senior thesis project on microfossils preserved in the

same deposits.

I have also had several other undergrads working with me on a long-term collections digitization project. We are slowly working our way through the department fossil collections, creating an online, searchable database with photos and 3D scans of each specimen. This project will be online soon. My work on digitization has also led to a collaboration with the curators of the WWU Sculpture Collection, and I will be working with students from the Art Department to digitize fragments of *Stone Enclosure: Rock Rings*, the Nancy Holt sculpture built from local schist. We might even digitize the whole sculpture!

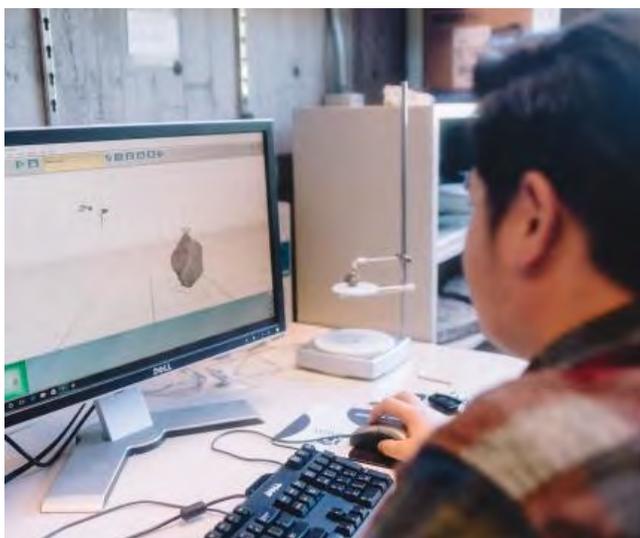
On the geoscience education front, I have been a member of the management board of

Geoscience Education Division of the Geological Society of America for the past two years and will take over as chair this fall. I have been invited to participate in the Paleontological Society's annual short course *Pedagogy and Technology in the Modern Paleontology Classroom*, at which I will present a paper on active learning in geoscience classes. I am also part of the K12 Teacher Education Working Group of the National Association of Geoscience Teachers, which will be publishing a white paper on "grand challenges" in geoscience education this fall. And finally, I am continuing to collaborate with UC Riverside on a long-term program to recruit geology majors from local underrepresented background.



**Robyn Dahl**  
Assistant Professor  
Geology

Below: This stegoceras skull was reproduced on Dahl's 3-D printer from a digital model compiled and shared from another institution.



Left: The scan of the shell fossil is now complete. It can be used to build a replica in a 3-d printer or shared with colleagues and collections around the world.



# Western Washington University— Geology Department

## Don Easterbrook

This year has been a tough one for me physically. Last fall I took a hard fall and smashed my head on a concrete floor, broke several ribs, smashed my knees, and destroyed my balance. Then in late May I was stricken with severe bilateral embolism (acute respiratory failure) caused by blood clots in my lungs. I couldn't breathe on my own for a month and half and had to be on oxygen 24 hrs a day, 7 days a week. I've now mostly recovered and can breathe on my own again. The medical prognosis is for a full recovery.

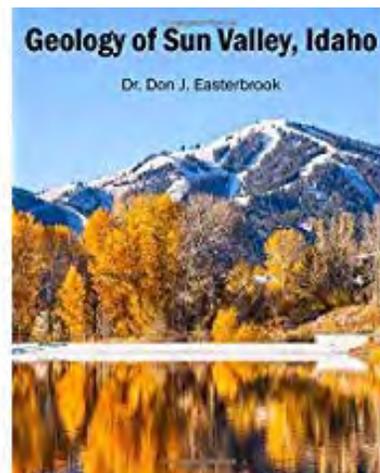
I wrote two more books, which are being published this summer—*"Geology of Sun Valley, Idaho"* and *"Early history of Sumas, Wash."* History? Yes, human history, not geologic history. My family played a role in the early settlement of Sumas. My great uncle filed the legal papers making Sumas a town, and my parents had many photographs dating back to 1875, so I put them together into a book. Other books on local geology written in the past two years include *"A walk through geologic time from Mt. Baker to Bellingham Bay,"* *"Mt. Baker eruptions and glaciations,"* *"Cruising through geologic time in the San Juan Islands—Geology of the San Juan Islands,"* and *"The May 1983 explosion of Mt. St. Helens."*

All are available from Amazon or local book stores. Next year, I will probably focus my attention on a book dealing with evidence for the origin of the Ice Ages.

Probably the most significant thing I did this year was to pull together data on solar magnetism, sunspots, solar irradiance,  $\delta^{18}\text{O}$ ,  $^{10}\text{Be}$ , and  $^{14}\text{C}$  in ice cores, cloud generation by condensation around ions in the atmosphere, and global cooling from increased albedo. These data fit together so remarkably that they provide a convincing basis for the cause of changes in climate from modern times to the Ice Ages. The bottom line here is that variation in the strength of the Sun's magnetic field can cause cooling and warming of the Earth's atmosphere. If you're interested in such things, you can find a paper explaining these relationships on my website (just go to <http://myweb.wvu.edu/dbunny/> and click on Cause of Ice Ages under Publications).



**Don Easterbrook**  
**Professor Emeritus**  
**Geology**



# Western Washington University— Geology Department

## Brady Foreman

This past year has been a whirlwind of geologic activities! My lab group has grown to four M.S. students, Anna Lesko, Kris Phillips, Jess Welch, and Lexie Stodden. They are pursuing a range of experimental and field-based stratigraphy projects that focus on recovering information on past hydrologic conditions, and they have recently received student grants from the Geological Society of America to perform fieldwork on early Paleogene strata of the Bighorn Basin in Wyoming. Moreover, I received funding through the Keck Geology Consortium, in collaboration with Dr. Ellen Currano at the University of Wyoming, to bring six undergraduate researchers to the Hanna Basin of central Wyoming to evaluate the interactions of ancient river systems and vegetation regimes spanning the Paleocene-Eocene boundary. Anthony Semeraro and Jake Polsak from WWU along with four other undergraduates from around the country participated in this intensive summer project. They braved sudden thunderstorms, sweltering temperatures, and a quite a few rattlesnakes to collect some fantastic data! Research-wise my former M.S. student, Dirk Rasmussen, has put the

finishing touches on a manuscript examining the depositional environments and tectonic history a Laramide basin in south-central Colorado. This is co-authored with Dr. Bernie Housen, who served on his committee, and former undergraduate Lindsey Gipson, who is now pursuing an M.S. at Northern Arizona University. Last fall former undergraduate student (and future WWU M.S. student) Grace Sutherland presented her senior thesis research on experimental braided rivers at the annual meeting of the Geological Society of America in Seattle. She did an amazing job and fielded some tough questions!

Research-wise I personally have become quite enamored with solving (or at least addressing) the long-standing problem of stratigraphic completeness. Specifically, how geologists can exploit the structured, self-organized behaviors of geomorphic transport systems to estimate how much time is represented in a given stratigraphic section. This has implications for the resolution of paleoclimatic and paleobiologic records geologists derive from strata. I developed the theoretical framework with Dr. Kyle Straub at

Tulane University, and an initial publication can be found in the journal *Science Advances*. I look forward to involving M.S. and undergraduate students in this research project next summer as we test our hypotheses with field datasets. On the teaching front I offered a new "Marine Depositional Environments" course this past fall. The course focuses on a comprehensive analysis of deep ocean sediment transport systems, trace fossil analyses, and the statistical characterization of stratigraphy. The course includes a multi-day trip and project to the Olympic Peninsula to study turbidite sequences. Beautiful turbidites and coastal sunsets: what could be better? Finally, I taught field camp for the first time here at Western. I was truly amazed with the students. It was a privilege to see them tackle real-world geologic problems and apply the skills they have learned over the past four years of study at Western. I look forward to teaching this important and formative capstone course well into the future. The support of alumni and donors benefit these types of courses immensely so on behalf of the students THANK YOU!!



**Brady Foreman**  
Assistant Professor  
Geology

Photo, Right: Undergraduate students during field camp exploring exhibits at the John Day Fossil Beds Museum in Oregon, trying to link the paleontologic discoveries with their geologic mapping and interpretations of the area.





Assistant professor Brady Foreman at Thingvellir National Park in Iceland on margin of rift valley separating North American and Eurasian tectonic plates during a trip.



Undergraduate, Anthony Semeraro, taking photographs for outcrop mapping in the Hanna Basin of Wyoming.

# Western Washington University— Geology Department

## Bernie Housen

I have been keeping busy with an array of things. With my Dept Chair hat on, I continued work with the group (led by Joann Otto) that was awarded the Howard Hughes Medical Institute grant to build a new system to recruit, retain, and mentor diverse students in the natural sciences- for this we have put together a recruiting plan and process, and have worked with a large set of faculty to design the seminars and mentoring program associated with this project. I have



also been working with the group of faculty from Shannon Point Marine Center, Environmental Sciences, and Biology to implement the new program WWU received funding for to set up a degree program in Marine and Coastal Sciences. In addition, I have been working on moving forward building projects that should be beneficial to the department in

the future. I have been working a project to better understand the tectonics of the Blue Mountains, - Will Callebert is hopefully finishing writing his MS thesis as you read this, and should be done this year. One paper, summarizing the paleomagnetism and tectonics of the Cretaceous plutonic rocks of the Blue Mountains was published in a GSA Special Paper dedicated to the career of Bill Dickinson (which Myrl and some of his former students may find to be a bit ironic), and this was also highlighted at an invited GSA lecture in October (2017). Masoud Mirzaei has been working very hard to complete his work aiming to help resolve a difficult issue with the Jurassic polar wander path of North America. Saba Asefa finished her MS thesis on a project to evaluate community-level variations in particulate matter pollution exposure, and the sources of this pollution, in Seattle, and following graduation has found an excellent job in water resource evaluation in Arizona. My two current second-year MS students are making great progress on their projects- Amanda Ketting-Olivier has collected a good set of samples from Mt Baker to examine paleointensity variations recorded by some of the well-dated and esites, and Paige Morkner has collected a very nice set of sediment cores from coastal areas near Bellingham Bay to test models for



**Bernie Housen  
Professor &**

proposed tsunami inundation. Both are on track to be done in 2019. Finally, new students Tess Fillman (who will be working on deformation and rotation of the southern portion of the Helena Salient in Montana), Kass Ulmer (who will be working on a forensic comparison of concrete blocks) are doing very well working up the initial stages of their thesis projects. At home front- the kids are growing up- we are down to two kids in college- Rachel finished BTC and is working for a medical billing office, Wilson is a senior and will graduate from Vassar College this spring, and Olivia is a junior, majoring in Geology here at Western. Having worked on too many car repairs in a gravel driveway, Beth and I commissioned the building of our Garage Mahal- this was completed in this past spring, and we're working on finishing that up. Overall, Beth and I have been enjoying life here, and we're both somewhat amazed that this is our 21<sup>st</sup> year here in Bellingham.



Scott Linneman in his one-of-a-kind  
WWU Geo hat at 16,000' on Cotopaxi  
volcano in Ecuador



## Western Washington University— Geology Department



**Nicole McGowan**  
Geochemistry  
Research Associate  
Geology



### Nicole McGowan

The last year went by quickly! Usage of the laser ablation-inductively coupled plasma-mass spectrometer (LA-ICP-MS) has been a bit on the quieter side, with most geochemistry MS students having finalized their analysis and focusing on writing and defending their theses. I've been working on a couple of collaborative projects, looking at the trace elemental composition of stalagmites from Puerto Rico as proxies for climate change, and quantifying doped elements and impurities in CdTe and CdSe semiconductor crystals. DeBari, Mulcahy, Stelling, Rusk, and myself submitted a proposal to the NSF Earth Sciences Instrumentation and Facilities (EAR/IF) program for the acquisition of a new ICP-MS. Hopefully we get some good news come Christ-

mas! And now onto the upgrade of our laser ablation unit!

I've been kept busy with teaching this year. I taught the first iteration of GEOL497N/597N Theory and Applications of ICP-MS in the Earth Sciences in Fall. My students did really well being guinea pigs for this new course and undertook some really interesting research projects on garnet, zircon, and clinopyroxene samples. I also taught GEOL211 and GEOL311 for the first time, which were both a lot of fun! I have been fortunate enough to be part of the first cohort of the Howard Hughes Medical Institute Inclusive Excellence (HHMI-IE) program. The workshops have been very insightful and I've implemented several approaches into my teaching. I also served

on the Scientific Technical Services (STS) Advisory Council and the Inclusion, Equity and Diversity (IED) committee this year.

I'm spending the summer finalizing research projects, training MS students on the LA-ICP-MS and improving course content for next year. I'm headed to the Earth Educators' Rendezvous in Lawrence, KS, in July, which I'm really looking forward to. On a personal note, I got married in Melbourne, Australia, in June, and I'm looking forward to our post-conference honeymoon - wreck diving in the Florida Keys!

# Western Washington University— Geology Department

## Bob Mitchell

I had a light teaching load this year because I was on sabbatical winter and spring, so there is not much to report on that front. During my sabbatical, I did manage to start working toward transforming my MathCad problems sets into an iPython/ Jupyter environment. I am working with a team of computer science majors that will help me through next winter. My goal is to help students learn an open-source scripting tool (i.e., Python) while achieving my course learning outcomes in GEOL 473 and 474. I also continue to advocate for growth in engineering geology and am excited about the future contributions to engineering geology by our new faculty member Allison Pfeiffer, who will be starting in 2019.

My research continues to focus on modeling the effects of climate change on mountain hydrology and hillslope processes. I have been collaborating with researchers at the Universi-

ty of Washington and have received multiple grants from regional Indian Tribes, indirectly through Federal grants from the Bureau of Indian Affairs. These efforts have focused modeling hydrology and stream temperatures in Nooksack River basin and the North and South Forks of the Stillaguamish River basin. I hope to graduate my 20<sup>th</sup> graduate student this fall. Please visit my web site to get more details of my research activities and graduate-student projects.

Other than university committees, my service activities have focused on engineering geology. In June I stepped down after serving eight years on the Washington State Geologist Licensing Board. I enjoyed my experience on the board and working with all the various board and staff members. I still participate on the planning board of the Washington Hydrogeology Symposium and we are currently planning our 12<sup>th</sup> symposium to be held

April 9-11, 2019. In 2017 I started on the board of the Environmental and Engineering Geology Division of the GSA; the current vice chair is WWU alum, Stephen Slaughter.

My family is doing well. It is hard to believe, that Frances will be starting college this fall and will be attending Northern Arizona University in Flagstaff, AZ. Liam will be a sophomore at Sehome High. He plays violin in the orchestra and is on the Sehome tennis team. Kathryn continues to work as the environmental manager at the Alcoa aluminum smelter in Ferndale and stays active with her book club, running, and walking our dog Philip. Outside of work, I remain active cycling, hiking, and serving as a board member of a local non-profit youth organization called Wild Whatcom.



**Bob Mitchell**  
Professor  
Geology

Mount Baker  
from the  
High Pass



Western  
Experimental Earth  
Surfaces Lab— Grace  
Sutherland Braided  
River Experiment



Left: Lake  
Whatcom  
Watershed



# Western Washington University— Geology Department

## Sean Mulcahy

I just finished my third year here at Western and the last few years have been so wonderful. My wife Rebecca, son Ryan (age 4), and daughter Lu (age 2) feel incredibly luckily to call Bellingham our home and to be part of such a wonderful community. We look forward to the years to come!

Since arriving at Western, I have benefitted greatly from the work and generosity of Ned Brown and the efforts of his many graduate students over the years. I am also deeply grateful to Liz Schermer for her mentorship and guidance through the amazing tectonic history of the Pacific Northwest.

Liz and I graduated Master's student, Jeremy Cordova, who built upon

Ned's early work to constrain the timing of subduction initiation in the Easton Metamorphic Suite. His submitted paper to the GSA journal Lithosphere just received very positive reviews and we hope to have the work published before the years' end. Master's student Peter Baker is spending this summer in and around the Mt. Stuart batholith to apply new dating techniques in the Chiwaukum schist to test models for the burial of rocks within the Cascades Crystalline Core.

In addition to new work in the Pacific Northwest, I've continued my work in South America. Last summer I conducted four weeks of field work in the Argentine desert with Western graduate student

Andy Tholt and undergraduate student Wes Johns. We worked with colleagues from UC Davis, University of Iowa, UC Berkeley, Harvard, and University of Campinas - Brazil. The project funding ends this year and we've successfully graduated three Master's students from the various universities. Andy Tholt completed the Master's program at Western and is headed to UC Berkeley for his PhD. He plans to test models for the timing of the KT impact and the eruption of the Deccan Traps flood basalts.

We have a really exciting group of students joining the department this fall and I'm eager to get them out in the field and expand my own knowledge of Pacific Northwest geology.



**Sean Mulcahy**  
Assistant Professor  
Geology

Western Washington University Geology MS student Andrew Tholt doing fieldwork in northwest Argentina, August 2016. The rocks in the background are an intrusion of mixed felsic and mafic magmas that are cut by the Valle Fertil fault.



# Western Washington University— Geology Department

## George Mustoe

Four years after my retirement, my work-free life continues to delight me. I don't spend much time at WWU, but I'm more active than ever as a researcher. I've just published my 57th journal article, a description of Jurassic arthropod tracks from northern Iran, coauthored with an Iranian professor. We established a new genus name derived from Persian instead of Latin. Closer to home, I've been hiking a lot during this summer of fine weather,

and continuing my efforts to reinvent myself as a musician. This past year I have been volunteering with a local non-denominational group that serves soup, sandwiches, and coffee to homeless people. My conversations with people we serve has been illuminating, dissolving many of my preconceived notions. With very few exceptions, people living unsheltered lives are polite and kind, quick to say thanks, friendly and

interesting to talk to. Some are mentally ill or in the grips of substance abuse. Others are fleeing abusive living situations, or unable to work because of age or illness; some are employed, but unable can't afford housing at today's inflated prices. Parents and children living in cars. Rainy nights spent under a plastic tarp in the woods. It makes my own life seem so easy.



**George Mustoe**  
Research Associate  
Geology



To the Left: First floor Dino Feet



To the Right: First Floor Displays

# Western Washington University— Geology Department

## Allison Pfeiffer

I am thrilled to be joining the Geology department as an Assistant Professor, starting in January 2019. I'll be teaching Geomorphology, resurrecting a dormant Fluvial Geomorphology course, and building a new course focused on Modeling the Earth's Surface.

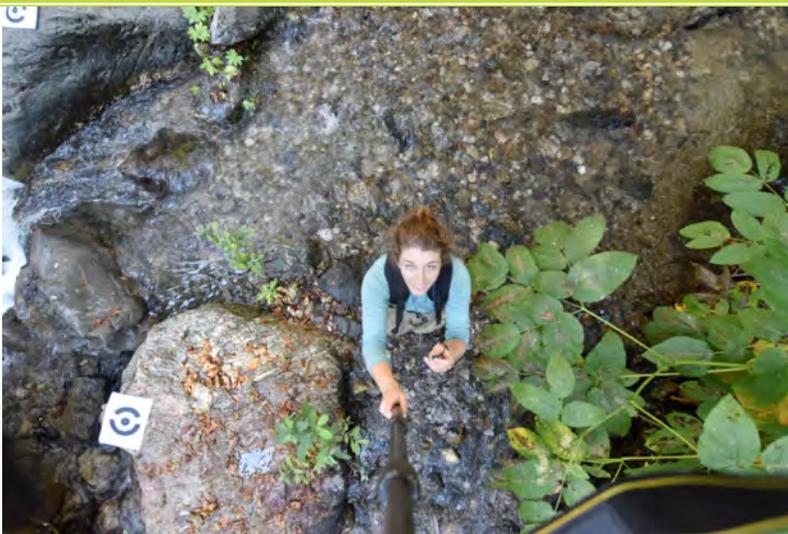
My research focuses on the geomorphology of gravel-bedded rivers, and especially how river channel geometry changes through the process of bed material sediment transport. One can't study rivers, though, without dabbling elsewhere on the earth's surface. Rivers nibble at the hillslopes, wash sediment down to the ocean, respond to the largest floods (and maybe to the lowest flows, too), and are colonized by an impressive array of

ecosystem engineers. At Western, I'm excited to work on both local field-based projects and complementary modeling efforts that help further our understanding of gravel-bedded river sensitivity to perturbations. I have tons of project ideas, and am excited to explore the geology of the region with help and inspiration from students in the department! As a first local adventure, I'm headed up to the headwaters of the Suiattle River in a few weeks with Geology Department undergraduate student Vivien McNett. We'll be looking at the importance of sediment lithology (via both abrasion rate and density) on the fate of bed material sediment pulse transport and downstream attenuation.

While Bellingham will be a new home for me, I have deep roots in this beautiful region. I grew up in Seattle and have many childhood memories of trips to the San Juan's and visits with my grandparents in Fairhaven. I left the Pacific Northwest for a while to attend Carleton College in Minnesota, wandered the country a bit, and then settled in Santa Cruz, California for graduate school. Now I'm a Postdoctoral Researcher at the University of Washington, where I split my time between the Civil Engineering and Earth & Space Science Departments. The city is great, but I'm excited to get back to a life closer to running trails and with less traffic. My ocean-loving husband, Dan, and I are so excited to move up to Bellingham to join this wonderful community!



**Allison Pfeiffer**  
Assistant Professor,  
Geology



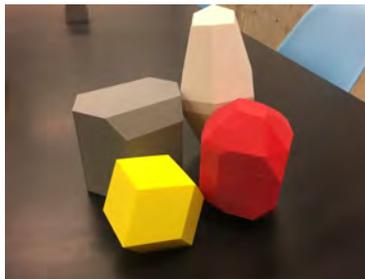
A usual selfie taken with an unusual (3m long) 'selfie stick', which I use to make Structure-From-Motion models of the river bed surface.

# Western Washington University— Geology Department

## Ben Paulson

Greetings friends and alumni! It's hard to believe another year has passed! The 2017-18 academic year was a busy one that saw the completion of the Augmented Reality Sandbox and brought some equipment upgrades throughout the department. The Augmented Reality Sandbox is up and running in the Atrium area on the first floor of the Environmental Studies building. It's accessible and available to all visitors during building hours and has been a huge hit. There is seldom a time when people aren't playing in the sand and exploring topographic and hydrologic concepts. Working with the 2018-19 Grad TA Coordinator, Paige Morkner, we will design some activities to incorporate the AR Sandbox into our Geology 101 labs. If you visit the department, please have a look! Thanks again to all of the alumni that donated to last year's Viking Funder campaign for new Petrographic Microscopes for Mineralogy. With a bigger field of view, better lighting and being binocular instead of monocular, the new microscopes are a huge upgrade. The Microscopes were ready to go this past fall and all of the mineralogy students this past academic year got to benefit from your generosity. Thank you.

Speaking of mineralogy, we are saying goodbye to the (in)famous cardboard mineral models and replacing them with 3-D printed versions! Nice.



3Dprinted Mineral Models

There seem to be more and more applications for 3-D printing with every passing year and is a very cool technology.

We've upgraded some of the research instrumentation available to Geology. SciTech purchased 2 new Scanning Electron Microscopes over the past two years. Geology now has access to a JEOL JSM-7200F field emission scanning electron microscope equipped with a 150 mm<sup>2</sup> Oxford X-MaxN energy dispersive X-ray spectroscopy (EDS), retractable backscatter detector, and Deben HAADF Annular SEM STEM detector. In addition to the JEOL SEM, SciTech replaced the ageing Tescan Vega 1 with the Tescan Vega 3 Thermionic SEM equipped with an Everhart-Thronley secondary electron detector, YAG backscatter detector, Oxford 80 mm<sup>2</sup> EDS detector, and panchromatic cathodoluminescence detector. Finally I want to thank some unsung heroes of the Geology Department – my work study students. I said goodbye to Amada Rudolph after 2 years of working with her. She is off to pursue a PhD working on Mars Planetary Science – Congrats Amanda! Xander Reitz will continue with me for an-

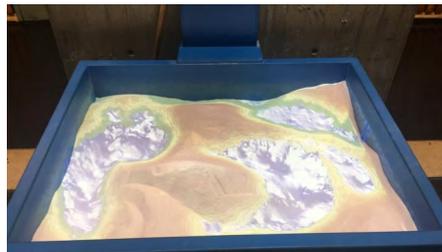
other year. Last year, Xander helped catalogue samples that spent a couple of years offsite while the Carver



**Ben Paulson**  
Instruct/Clasm  
Support Tech 3  
Geology

Gymnasium was under remodel – a huge undertaking! Work Study students help keep the Geology Department running smooth and I want to make sure their efforts are recognized. Please stop in and say hello next time you are in the department. If you are a familiar face, it will be great to see you again, and if you are a new face I look forward to meeting you!

AR Sandbox



Pterodactyl invasion of the ES Building!



# Western Washington University— Geology Department

## Melissa Rice

This year I have continued to explore the geology of the Red Planet as part of NASA's Curiosity Mars Rover Mission. On August 5, we celebrated the 6th anniversary of Curiosity's landing on Mars! Geology MS students Darian Dixon and Kathleen Hoza have been contributing to the operations of the spacecraft, calling in remotely to the planning meetings at the NASA Jet Propulsion Laboratory. Student Amanda Rudolph (BS 2018) completed a Senior Thesis project on the mineralogy of Curiosity's landing site using orbital remote sensing data, and she is heading to Purdue University this fall to pursue a Ph.D. in Planetary Science. Recent graduates Darian Dixon (MS 2018) and Katherine Winchell (BS 2017) have both landed jobs at Malin Space Science Systems, where they

are working on mission operations for Curiosity's Mastcam cameras.

We're also exploring some areas closer to home: this spring, I brought a group of research students to the Channeled Scablands, our nearby Mars analog. We've been sampling the Columbia River Basalts to understand in detail how their surfaces have weathered in a semi-arid environment and how weathering rinds and coatings will influence remote sensing observations (a big question for Mars). Undergraduate student Lena Gibbs is starting a large project to characterize these surfaces with SEM and reflectance spectroscopy. This project is supported by funding from WWU's Advanced Materials Science and Engineering Center (AMSEC).

Looking ahead, the coming year will focus on preparing for the next big mission – the Mars2020 Rover – as I am part of the team designing its zoom-enabled color cameras. In October, I will be bringing a group of students to Pasadena, CA for a NASA workshop to participate in the final debates about where this new rover will land. Shortly after that, some students and I will be traveling to Arizona State University to help test and calibrate the cameras that will be flying to Mars. Launch is planned for the summer of 2020 – we'll be there and will report back, stay tuned! In the meantime, you can follow what the Western Mars Lab is up to on our new webpage (<https://wp.wvu.edu/mars/>) and on Instagram (@westernmartians).



Spring 2018 Channeled Scablands trip with the Western Mars Lab.

Below: Melissa Rice - Assistant Professor, Geology and MS student Darian Dixon with a model of the Curiosity rover at the NASA Jet Propulsion Laboratory



# Western Washington University— Geology Department

## Liz Schermer

This has been a busy year filled with the usual mix of teaching, research, and committee work. I taught the field version of structural geology in mostly great weather in beautiful spots throughout central and western Washington. We had a great stay at the beautiful ranch of Sarah Kaiser and Walter Henze, the parents of **Talia Henze** (BS 2001), while we were studying the Okanogan metamorphic core complex. They have been wonderful hosts over the years of our field course. The Ian Mynatt memorial fund supported three students on the field course this year (**Elizabeth Yarborough, Anthony Semamaro, and Ben Peterson**), a greatly appreciated support. **Jeremy Cordova** defended his MS thesis on the early tectonic evolution of the Easton (Shuksan) metamorphic suite and already has



a manuscript nearly in press. **Ben Carlson** (MS 2017) has his MS thesis in press in the Bulletin of the Seismological Society of America, the result of many months of hard work and writing. New students **Nyle Weldon** and **Cody Duckworth** were successful in research grant applications and are busy in the field this summer. Nyle is working on Cretaceous structure in the North Cascades, and Cody is working on the slip rate of the Sadie Creek fault on the Olympic Peninsula. The USGS Edmap program is funding both of their projects, so this summer I'm busy with both students in the field. The USGS is also funding a study of the earthquake history of the upper plate of the Cascadia subduction zone, through paleoseismologic trenching of the Sadie Creek fault (together with Colin Amos). As I write this, the trenching study is in full swing and we are wallowing in mud in the wetlands created by several earthquakes as the uplifted scarp dammed small streams. Stay tuned for a more complete story next year! This spring we had a great Alumni weekend event at which we honored Bud Burke as

our outstanding alumni. It was great to see old faces and meet new ones, and reaffirm the value of a WWU geology education. In particular it seems that most alumni have very fond memories of field camp and appreciate all they learned during that experience. I'm honored to be continuing that tradition of one of the strongest parts of our curriculum.



**Liz Schermer**  
Professor  
Geology



Spring 2018





### Melissa Rice Spends a Week Teaching Space Science to Kids from Rio's 'City of God' Favela

On the edge of Cidade de Deus, or City of God, one of Rio de Janeiro's most infamous neighborhoods, Western assistant professor of Geology and Physics/Astronomy Melissa Rice spent a week this summer teaching young students about space exploration and the importance of science and education.

During the middle of one teaching session, automatic gunfire crackled through City of God, just a few blocks away. This isn't like any classroom at Western.

Story by Alex Van Valkenburgh, WWU Office of Communications and Marketing Intern

**Liz Schemer's Pre-fall 2017 Geology 318 Geology Field Camp**





**Pre-fall 2017 Geology 318 Geology Field Camp cont.**





**Pre-fall 2017  
Geology 318  
Geology Field Camp  
cont.**





**Pre-fall 2017  
Geology 318 Geology  
Field Camp cont.**



# Western Washington University— Geology Department

## Donations to the Geology Department

July 1, 2017 –June 30, 2018

### **Antoni "Jontek" Wodzicki Geology Endowment**

Urszula Kubik  
Kim and Susan Marcus  
Duane Olson  
Steve Schindler  
Lee Nugent Whitford

### **Christopher Anne Suczek Memorial Scholarship**

Jonathon Laurence Cooper  
Artur Olegovich Gamirov  
Thor Hansen  
Heather Kortuem  
Kim and Susan Marcus  
Pete Stelling & Jackie Caplan-Auerbach  
Lee Nugent Whitford

### **David C. Engebretson Scholarly Activity Award**

David Bazard and Mary Mallahan  
David and Sara Blackwell  
Andrew Buddington  
Stan and Gretchen Carrick  
Jeff Cary  
Michael Chrzastowski  
Jonathon Laurence Cooper  
Michelle Davis  
Jennie De Chant  
Eric Shane Gottlieb  
Kirk Heim & Katherine Kelleher  
David Hrutfiord  
Chelsea Leia Jefferson  
Kevin Kelley and Ruth Schmidt  
Jeffrey Laub and Sharon Gelinias  
Shadrach and Michelle Malone  
Gregory Reller  
Lori Kelly Roberts  
Ronald T. Jepson & Associates  
Bryan David Schmidt  
Guy Thomas Sicilia  
Scott Wallace  
Andrew Clyde Warnock

### **Geology Annual Scholarship**

Martin R. Cross  
Michael J. Reynolds, Jr.

### **Geology Department**

The American Endowment Foundation  
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Thomas Badger

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Ralph Keuler  
Geoffrey and Katherine Klise  
Michael and Kay Klungland  
Grant and Gwendolyn Knechtel  
Heather Kortuem  
John LaManna  
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Alan and Jeannine Lish  
Gregory Lish and Kimberly DeYoung  
William and Linda Lum  
Cody R. Maltz  
Michael S. McCulla  
A. McKenzie-Johnson & A. Michaleh  
Frank Miyazaki and Anna Carey

# Western Washington University— Geology Department

## Donations to the Geology Department Cont.

July 1, 2017–June 30, 2018

### **Geology Department cont.**

Donald Moak  
Mount Baker Volcano Research Center  
Jake G. Munsey  
Clynton and Jan Nauman  
Johann Neem and Kate Destler  
Abigail Neumiller & Casey Hanell  
Peter and Leanne Ojala  
Judson Polikoff  
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Randy Steeves  
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Sustainable Solutions  
James Swortz  
Karel G. Tracy  
Kimberly N. Urdahl  
Stephen Veitch  
Nathan & Christina Villeneuve  
Marvin Vliet

### **Geology Department**

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William and Sarah Watts  
Wells Fargo  
Lee Nugent Whitford  
Thomas Whitmarsh  
Brian Williams and Mary Ann Raines  
Patrice and Jake Wilson  
Dave and Patricia Young  
Michaela Young-Mitchell

### **Anonymous Donars**

### **Geology Department Endowment**

Raymond Burke  
Gregory Lish and Kimberly DeYoung  
Michael J. Reynolds, Jr.

### **Geology Graduate Program**

Michael J. Reynolds, Jr.  
Renee Reynolds and Brady Foreman

### **Geophysics Program**

Luke Decker & Elvira Aguilera Alonso  
Michael J. Reynolds, Jr.  
Rodney and Dinah Schlecht  
Pete Stelling & Jackie Caplan-Auerbach  
Stephen Veitch

### **Ian Mynatt Memorial Endowment**

Drs. Juliet Crider & Eric Steig  
James Ellis  
Kirk Smith

### **Kurt Schmierer Memorial Endowment**

Kim and Susan Marcus  
James Rudorfer  
Ann Schmierer  
Mike and Barbara Schmierer  
Teresa Schmierer

### **Rahm Memorial Endowment**

Steven and Lynne Bjornstad  
Lonnie and Lee Keown

### **Ross Ellis Geology Field Trip Endowment**

Doug Bakke  
Peter E. Barkmann  
Brian and Kathy Christie  
Thomas and Lynn Cole  
Randal Hansen  
Mike Jacobi  
Geoffrey and Katherine Klise  
Jane Lindquist  
Judith Ann Manderville  
Shell Oil Company  
Ann Testerman  
John Woodman

# Western Washington University— Geology Department

## Geology Department Scholarship Recipients

July 1, 2018 –June 30, 2019

### Scholarship Recipients

#### **GEOLOGY DEPARTMENT-WAIVER**

Alexandra Nordin

Keeley Chaisson

Katelyn Frizzell

Anna Schluneger

#### **James L. Talbot Geology Scholarship**

Larissa Sleeper

#### **Kurt Schmierer Memorial Endowment**

Emily Bryant

Stephen Novak

#### **Rahm Memorial Endowment**

Keeley Chiasson

Megan Johnson

#### **Antoni "Jontek" Wodzicki Geology Endowment**

Adam Hudak

Alexandra Nordin

#### **David C. Engebretson Scholarly Activity Award**

Katelyn Frizzell

#### **Undergrad Tuition Waiver**

Keeley Chiasson

Katelyn Frizzell

Anna Schluneger

#### **Elias Austin Bond Graduate Fellowship in Geology**

Eve Lalor

Katherine Lang

David Ryan

Christina Seeger

#### **Peter Misch Metamorphic Memorial Fellowship**

Katherine Lang

#### **Christopher Suczek Memorial Scholarship**

Christina Seeger

#### **Geology Annual Scholarship**

Masoud Mirzaei Souzani

Christopher Toomey

# Western Washington University— Geology Department

## Geology Degrees granted Summer 2017

### Masters of Science Geology

Gunnar Speth

Jonathan Drobiarz

Joshua Williams

Kristina Gustovich

Rebecca Morris

### Bachelor of Science Geology Environmental & Engineering Concentration

Grace Sutherland Edward Tabor

Jacob Quinlan James Holcomb

Amanda Hultz Katherine Winchell

Brandi Petryk Kyle Bige

Cody Doyle Megan Yakavonis

Curtis Smerdon Ryan Minkel

### Bachelor of Arts Geology

Kelsey Otten

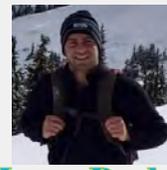
Ryan O'Connor

**CONGRATULATIONS!**

**Class  
of 2017  
Summer**



**Rebecca Morris**



**Jonny Drobiarz**



**Edward Tabor**



**Cody Doyle**



**James Holcomb**



**Amanda Hultz**



**Curtis Smerdon**



**Megan Yakavonis**



**Kyle Bige**



**Brandi Petryk**



**Katherine Winchell**



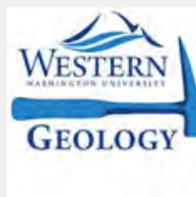
**Ryan Minkel**



**Ryan O'Connor**



**Kelsey Otten**



**Jacob Quinlan**



**Grace Sutherland**

# Western Washington University— Geology Department

## Geology Degrees granted Fall 2017

### Bachelor of Arts

Alicia Fisher  
 Alyssa Garcia  
 Gaeble King  
 Henry Haro  
 John Slater  
 Ryan O'Connor  
 Stavroula Tsitsiragos

### Masters of Science

Amelia Rothleutner  
 Jeremy Cordova  
 Olivia Anderson

### Bachelor of Science Geophysics

Erik Fulmer  
 Haley Riker  
 John Boyd

### Bachelor of Science

Anna Finigan  
 Bryce Hamilton  
 Kenny Rukavina  
 Shaina Myers  
 Trevor Healy  
 Vincent Dreyer  
 Woodrow Stokstad

### Bachelor of Arts

#### Education

Emily Fries  
 Haley Anderson

CONGRATULATIONS!

## Class of 2017

**Bachelor of Science Geophysics**

Haley Riker
Erik Fulmer
John Boyd

**Masters Degree in Geology:**

Amelia Rothleutner
Jeremy Cordova
Olivia Anderson

**Bachelor of Science Geology:**

Vince Dreyer
Anna Finigan
Bryce Hamilton
Trevor Healy
Kenny Rukavina
Woodrow Stokstad

**Bachelor of Arts Geology:**

John Slater
Gaeble King
Ryan O'Connor

Today is Your Day! Your Mountain is Waiting So...Get on Your Way - Dr. Gruss

# Western Washington University— Geology Department

## Geology Degrees granted Winter 2018

### Masters of Science Degree

Darian Dixon  
Geoffrey Malick  
Stephanie Truitt

### Bachelor of Arts Education

Jacob Silva  
Jessie Ghosn  
Kelci Light  
Myranda Stray

### Bachelor of Science

Aasim Khan  
Christine Weer  
Jason Descombaz  
Jonathan Morris  
Tristan Coragiulo

### Bachelor of Art Degree

Eurydice Pentz  
Jasmyne Bell  
Lindsey Holdener

### Bachelor of Science Geophysics

Stuart Sullivan

**CONGRATULATIONS!**

**Class of 2018 Winter**

**Bachelor of Science Geology:**  
Tristan Coragiulo, Aasim Khan, Jonathan Morris

**Bachelor of Art Geology:**  
Christine Hang-bok Weer, Jasmyn Bell

**Masters Degree in Geology:**  
Darian Dixon, Stephanie Truitt, Geoffrey Malick

**Bachelor of Science Geophysics:**  
Stuart Sullivan

**WESTERN WASHINGTON UNIVERSITY GEOLOGY**

Today is Your Day! Your Mountain is Waiting for You...Get on Your Way! ~ Dr. Pease

# Western Washington University— Geology Department

## Geology Degrees granted Spring 2018

### Masters of Science Degree in Geology

Andrew Tholt  
Saba Asefa  
William Cary  
Henry Talley

### Bachelor of Arts

Aaron Arroyo  
Alethea Westlund  
Ben Perry  
Cierra Jack  
Ellen Hallingstad  
Logan Taylor  
Michael Boyd  
Samantha Jarol  
Sheila Alene  
Thomas Franks  
Heidi Antrim

### Bachelor of Science

Annalise Rubida  
Charlie Parks  
Collin Manglass  
Garet Huddleston  
James Polwarth  
Jeffrey Wegener  
Jillian Windsor  
Katelyn Brower  
Kylie Firmin  
Madison MacKenzie  
Maria Vasin  
Meryl Evans  
Nicholas Roe  
Nicole Tjoa  
Tansy Schroeder  
Wes Johns

### Bachelor of Arts Education

Shea Cromwell  
Alexis Jones  
Riley Miller  
Tori Brown

### Bachelor of Science Geology Geophysics

Natalie Moore

**CONGRATULATIONS!**

**Class of 2018**

**Bachelor of Science Geology:**

Jimmy Polworth Meryl Evans Wes Johns Charlie Parks Kylie Firmin

**Bachelor of Arts Geology:**

Sheila Alene Aaron Arroyo Nicolas Roe Garet Huddleston Annalise Rubida Nicole Tjoa Jeffrey Wegener

Thomas Franks Ben Perry Jillian Windsor Maria Vasin Katelyn Brower Collin Manglass Madison MacKenzie

**Masters Degree in Geology:**

Alethea Westlund Logan Taylor Saba Asefa Will Cary Andrew Tholt

**Bachelor of Science Geology Geophysics:**

Natalie Moore

Today is Your Day Your Mountain is Wrong So...Get on Your Way ~ Dr. Seuss

## 2018 Outstanding Graduate Student— Geology Department

### Rebecca Morris Geology

Rebecca Morris of **Calgary, Alberta**, graduated in August 2017 with a Master of Science degree and as the Outstanding Graduate Student in Geology. Morris worked with Geology Professor Susan DeBari to investigate the generation of new continental crust at volcanic arcs. She looked at the physical and chemical relationships between erupted and non-erupted rock units within an extinct, accreted, and well-exposed volcanic arc in Baja California. Her work helps the broader science community address questions on how continental crust grows and evolves. Her manuscript is under review by the Journal of Petrology. Her thesis work was part of a larger project funded by the National Science Foundation, and she collaborated with geologists at University of California, Davis. While at Western, Morris also worked as a teaching assistant for a variety of geology courses. She continues to work through Western on the NSF project as a research analyst, collaborating with U.C. Davis on building a 3-D arc crustal model. In September, she will start a Ph.D. program at the University of Victoria, where she will study an extinct and accreted volcanic arc on Vancouver Island. Morris did her undergraduate work in geology at the University of Calgary.



## 2018 – Geology Department

### **Alumni and Friends: We'd love to restart the Alumni News Corner in the Newsletter next year!**

Let us know how you are doing.

**Email your updates and photos to [Geology@wwu.edu](mailto:Geology@wwu.edu)**

You can copy and paste the following format into an email.

Name:

Current Address:

Email Address:

Degree & Date Received:

Present Position and Company/Institution:

Any recent promotions/transfers/publications/awards/degrees:

General Information/family news/new of other alumni/etc:

Can we put any of the above information into the next newsletter?:

Which items?:

Do you want your mailing and email addresses to remain confidential?:

### **GEOLOGY THESIS PROJECT UPDATE:**

Last year the Geology Department launched a project with help from the Western Libraries to add all of the Geology Theses to the online publisher called CEDAR.

Emails and letters were sent seeking permission to add Theses for those not yet added to CEDAR. The Western Libraries then digitally scanned each thesis and loaded it to the new Geology page in CEDAR online.

***THANK YOU to everyone who replied and gave us permission to add your thesis to CEDAR!***

To date 162 theses have been added to the Geology page in CEDAR.

You can see them here: [https://cedar.wwu.edu/geology\\_studentpubs/](https://cedar.wwu.edu/geology_studentpubs/)

Many thanks to Kim Marsicek in the Western Libraries for managing this project!

We will continue to add pre-2008 theses as permission is provided.

Please email [Geology@wwu.edu](mailto:Geology@wwu.edu) if you would like to have your pre-2008 thesis added to our online collection. We will email you the permission page.

## EQUAL OPPORTUNITY STATEMENT

Western Washington University does not discriminate on the basis of race, color, creed, religion, national origin, sex (including pregnancy and parenting status), disability, age, veteran status, sexual orientation, gender identity or expression, marital status or genetic information in its programs or activities. Inquiries may be directed to the Vice Provost for Equal Opportunity & Employment Diversity, Title IX and ADA Coordinator, Equal Opportunity Office, WWU, Old Main 345, MS 9021, 516 High Street, Bellingham, WA 98225; 360.650.3307 (voice) or 711 (Washington Relay); [ooo@wwu.edu](mailto:ooo@wwu.edu).

To request this document in an alternate format, please contact Kate Blizzard, Geology Department Manager, phone: 360-650-3581, email: [Geology@wwu.edu](mailto:Geology@wwu.edu). For disability accommodation, please contact the Geology Department Office. One week advance notice appreciated. *(7/2013 version)*

WESTERN WASHINGTON UNIVERSITY  
Department of Geology  
516 High Street  
Bellingham WA 98225-9080  
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