

Down to Earth



**Newsletter of the Geology and Geophysics Department
University of Utah, Salt Lake City, Utah**

Fall 2018



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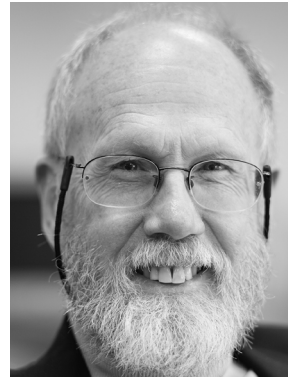
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Message from the Chair



2017-2018 saw major change in the Department. Frank Brown passed away suddenly on 30 September, 2017. Frank had been a fixture in the department since coming to the University of Utah in 1972, teaching at all levels and especially the individual level. His field work was principally in East Africa where he set the framework for interpretation of hominin fossils in the Omo-Turkana Basin. Frank loved to learn, and anyone in the classroom, the lab, or the field could not help but

be carried along by his enthusiasm for knowledge. Frank’s long-term legacy to the department will be carried on through the FH Brown-Rosenblatt Fund, which he set up to advance the academic mission of the Department of Geology and Geophysics. Donate [HERE](#); please specify that the gift is to the FH Brown-Rosenblatt Fund. We also welcome gifts to the Department endowment or to the undergraduate scholarship fund; see departmental web page for gifts to these funds.

We had two Open House Nights in the 2017-2018 Academic Year, following our single event of the 2016-2017 academic year. Jeff Moore spoke on the “Singing Arches” in Fall and Brenda Bowen spoke on her work in the Bonneville Salt Flats in Spring. We had some 450 or so attending in April and we hope that this event will continue to be a big draw for UU students and the greater Salt Lake Community. Our rock and mineral “give aways” were, as always, a big hit; students, faculty, and staff were also on hand to welcome our many visitors. Our next Open House will be 28 September with Randy Irmis discussing his recent work on dinosaurs in Utah; and we will be having the Spring Open House in early April in conjunction with the 10th anniversary celebration of the Sutton Building. If you are in Salt Lake City for either of these times – please come!

We had a great alumni gathering at the Geological Society of America meeting in Seattle and we will also be hosting a gathering in Indianapolis in early November. I hope to see you there.

Our enrollments in our Fall undergraduate courses are bursting at the seams: our courses in the Geology of the National Parks, Oceans, Evolving Earth, World of Dinosaurs, Geology of Utah, Science in the Cinema, and Earthquakes and Volcanos are all at, or near, capacity. Fifteen new graduate students have moved into their offices in the Sutton Building – after being treated to an introductory camping trip to the Uintas by GeoClub. We look forward to working with these new students as they pursue their intellectual passions.

We are off to a good start for 2018-2019 and I hope to hear from you. And better yet, I hope to see you at GSA or one of our Open House events. And don’t forget to come to our 10th anniversary of the Sutton Building celebration on 5-6 April 2019.

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Front Cover: Frederick Albert Sutton Building, award winning facility, will turn ten years old on April 17, 2019.

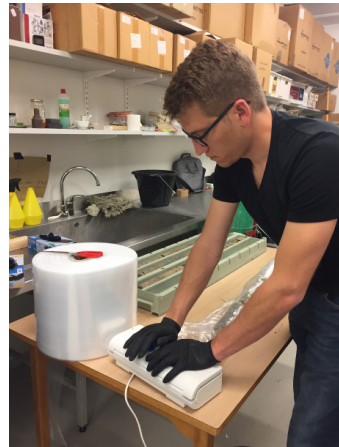
Down to Earth contributors: Margie Chan, Thure Cerling, Travis McMullin, Michelle Tuitupou, Marie Jackson, Fan-Chi Lin, Kip Solomon, Jeff Moore, Shanna Futral, and Bill Johnson.
 Layout: Michelle Tuitupou

Departmental Activities

Drill Core Processing in Iceland

In July-September 2017, the Surtsey Underwater volcanic System for Thermophiles Alteration processes and INnovative Concretes (SUSTAIN), drilled three cored boreholes through Surtsey Volcano. Surtsey is an isolated oceanic island and UNESCO World Heritage Site created in 1963-1967 by explosive basaltic magma-seawater interactions in the offshore extension of Iceland's East Rift Zone. A July 21, 2017 *Nature* news article describes the SUSTAIN project, "Iceland drilling project aims to unearth how islands form: Scientists will look into the heart of Surtsey, and island created 50 years ago by a volcanic eruption." DOSECC Exploration Services of Salt Lake City, Utah, led by drilling supervisor Beau Marshall, accomplished the zero-impact drilling operation in Surtsey's remote and challenging environment.

Two 2017 SUSTAIN drill cores record evolving hydrothermal and microbial alteration of basaltic tuff since drilling in 1979; one holds the Surtsey Subsurface Observatory, a vertical anodized aluminum chamber to 180m depth that contains *in situ* basaltic glass and crystal incubation experiments. A third 2017 SUSTAIN core borehole traverses the still hot volcano to 354m inclined depth - but it never encountered the pre-eruption seafloor! This confirms a broad diatreme beneath the Surtur I crater, produced by violent magma-seawater interactions that excavated a considerable volume of seafloor sediments and explosively mixed these xenoliths with fresh volcanic material.



Marie Jackson, Research Associate Professor in Geology and Geophysics, is the Lead Principal Investigator of the SUSTAIN project, which is sponsored by the International Continental Drilling Program (<http://surtsey.icdp-online.org>). Samantha Couper, a GG Ph.D. graduate student, spent five weeks in Iceland, at the drill site on Surtsey and in the core processing laboratory on nearby Heimaey Island thanks, in part, to CMES funding. Samantha has been instrumental in organizing the digital data system for the 2017 cores. In May 2018, Samantha and GG Ph.D. graduate student, Evan Kipnis, returned to Iceland with Marie to continue with the drill core processing at the Iceland institute for Natural History. An overview article in *Scientific Drilling* will appear in Fall 2018.

More information can be found [HERE](#)

The Kilauea Experience

Beginning in early May 2018, the big island of Hawai'i experienced dozens of fissure openings in Kilauea Volcano's East rift zone, spewing lava and hot toxic gases. With funding from NSF's RAPID program and support from the U.S. Geological Survey, seismologists Fan-Chi Lin and Jamie Farrell along with undergraduate student, Matthew Miller, were able to set up 82 seismometers around the area in early June.

"The scientific target is trying to see whether we can detect how the magma moves from the summit all the way to the lower rift zone," Lin stated. "There's a big uncertainty there. One component of our study is whether we can finally reveal what the subsurface magma channel looks like."

New technological developments have produced portable seismometers, smaller than a football. The smaller sizes allow the scientists to rapidly deploy the instruments. Depending on the desired readings, the mini-seismometers can be placed farther apart for an overview or packed in closer for more focused readings. Scientists can also move the seismometers using a grid system to cover a large area within a short span of time.

"You need high resolution, very dense station coverage to be able to see tiny, small seismic signals that relate to magma propagation," Lin said, referring to Kilauea's activity. "Right now we know for sure there's magma flow down there."

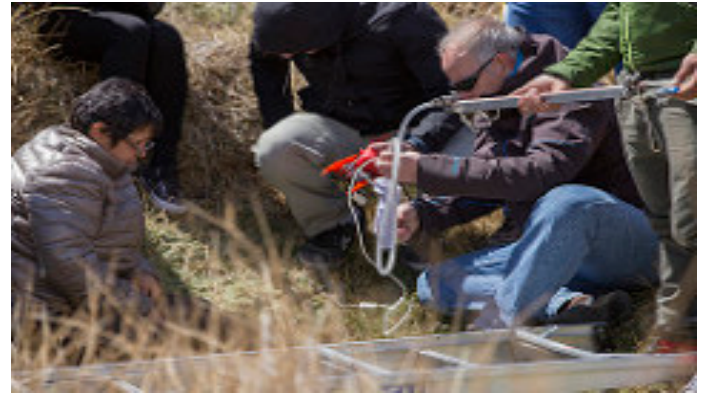


During the height of the volcanic activity, Farrell and Miller were placing sensors at the summit when a magnitude 5.3 earthquake shook the ground from practically directly beneath them. The sensors that would eventually ring the summit allowed scientists to locate where the earthquakes originated and help volcanologists understand what happens to a volcanic crater as the magma chamber empties.



"We got our sensors up pretty darn close," Farrell said. "They're in danger of being covered by lava if it breaks out or changes paths or if a new fissure opens up. But you get really good data if you can get that close. That's a risk we were willing to take."

In mid-August 2018, Farrell returned to Hawai'i to collect the sensors. One was lost in the jungle and one was burned, presumably by nearby fresh lava. There are possible plans to place the sensors around the volcano in the near future but no official dates have been announced. Data is being processed by seismologists within the Department of Geology and Geophysics.



Isotope Hydrology in Argentina

In many places around the world, access to water for daily living from protected sources is a concern. In parts of sub-Saharan Africa and Mongolia, water collection can take from 30 minutes to over an hour with women being the primary collectors for their families. In Argentina, like in many parts of the world, water is at risk of over-exploitation and contamination. Scientists are studying the most invisible details with the help of nuclear technology and the support of the IAEA to protect the country's water resources.

“Most of the fresh, usable water in the world is in the ground, but most of the water that's available to us is surface water,” said Douglas Kip Solomon, professor of Geology and Geophysics at the University of Utah. Solomon is assisting Argentinian experts map their water. “It is extremely important that we understand the interactions between surface water and groundwater so we know how to properly manage these resources and protect them.”

Isotope hydrology is the science behind using nuclear techniques to determine the quantity and quality of water supplies. Isotopes as tracers occurring naturally assist with finding out where groundwater comes from, the age of the water, if it is being recharged or polluted, and how it travels. According to Solomon, isotope hydrology “is one of the most powerful, trustworthy tools available to assess groundwater thoroughly.”

Argentinian isotope hydrologists have been gathering and interpreting data since early 2016 using two strategic regions. “Argentina is lucky to have a very good amount of water per inhabitant, but this water is distributed very unevenly across the country,” said Daniel Cicerone, environmental manager at Argentina's National Atomic Energy Commission (CNEA). “In some regions, finding out if the water we are using on a daily basis is regularly recharged, running out, or at risk of contamination can make the difference between poverty and prosperity.”

Data will be used by policymakers in the country to establish rules regarding the use of water for drinking, agriculture, and industry. Knowing that surface water is infiltrating groundwater, for example, can lead to stricter regulations on acceptable pollution levels.



Musical Arches

If you press your ear against any of the red rock arches in Southern Utah, you probably won't hear anything, yet the massive structures are in constant motion, creating seismic vibrations. These almost imperceptible movements were sped up to an audible frequency. Geologist Jeff Moore of the University of Utah uses the recordings to study the structural stability of arches. Sound artist Jacob Kirkegaard uses them, layered with the sounds of the surrounding environment, to show that the arches are a vibrant, living part of their environment.

"These movements are happening every second of every day, but are too small to see or feel," says Moore. "Hearing the natural hum of these arches I feel gives them a voice, a real voice where they call out things like their state of health and response to all manner of forces."

In their research, Moore and his colleagues learn where these seismic vibrations come from and how they affect arches. Sources also found that seismic sources both near and far (as far as earthquakes in Oklahoma) caused vibration in the arches.



"These gorgeous rock arches appear to be stationary, but they're actually in constant motion in response to wind and other environmental forces," says Justin Lawrence, a program director in the National Science Foundation (NSF)'s Division of Earth Sciences, which funded the research. "The arches' vibrations can also be affected by the people who visit them. Moore's team observed that a helicopter flying close to an arch in Bryce Canyon caused it to vibrate with an amplitude one hundred times greater than normal. The research has important implications for the conservation and management of our nation's natural resources, especially related to natural hazards and the impacts of human visitation."

Moore's research continues to measure and monitor the resonance properties of arches over time and search for signals indicating permanent damage. "Rock arches are transient landforms sculpted by erosion and inching nearer to collapse every day," he says. "We as humans aren't equipped with the senses to experience these subtle movements, so I love that we can measure them and also share them to help people experience the dynamics of geology."

Click [HERE](#) to listen to the music of the arches.

Spring 2018 GEO Open House

On April 6, 2018, the Department of Geology and Geophysics hosted its biannual Open House. Over 400 community guests, including Boy Scout troupes, prospective students from Salt Lake Community College, and department alumni, roamed the halls of the Frederick Albert Sutton Building discovering geology-in-action around every corner. Many participated in a building-wide scavenger hunt that ended at a prize station where guests could pick out rocks and geology books.

Over four dozen faculty, staff, and students were on hand running activity tables and giving tours that showcased the department and the exciting research in which its engaged. These included Research Associate Professor Jim Karner, who shared information about meteorites he and his team collected from the Antarctic. Graduate students Jeremiah Bernau and Casey Duncan showed off how they are using drones to aid in their work in mines and on the Bonneville Salt Flats. Other hands-on activities were led by student groups AAPG and Inclusive Earth as well as partner organizations - the Natural History Museum of Utah and the Utah Geological Survey. Guests were also able to explore the University of Utah Seismograph Station (which features real-time data feeds from seismic monitors stationed around the region), the Student Epicenter (CMES's new student advising center), and the Utah Room (showcasing rocks, gems, and minerals from across the state).



The featured presenter was Associate Professor Brenda Bowen, Director of the Global Change and Sustainability Center, which is housed within the Department of Geology and Geophysics. Her lecture, “Changing Dynamics of the Bonneville Salt Flats,” was rich with photos, maps, and charts about her research team’s ongoing efforts to understand the natural and human systems that impact the salt flats in order to determine how and why that environment is changing.

A big hit of the night was the new batch of department T-shirts featuring Stomp, a dinosaur designed by friend-of-the-department and Salt Lake Tribune political cartoonist, Pat Bagley. Over 100 T-shirts were sold with proceeds going to support student activities.



Elementary student, Spring Open House attendee, and future geologist, Kalei, showing off her Stomp T-shirt while visiting the Cleveland-Lloyd Dinosaur Quarry in Price.

Fall 2018 GEO Open House
Friday, September 28, 2018
6-9pm
Sutton Building
Featuring: Randall Irmis
Associate Professor and Curator of
Paleontology at the Natural History Museum of Utah
“Unearthing Utah’s Lost Worlds: New Discoveries from the Age of Dinosaurs”



SAVE THE DATE!
Spring 2019 GEO Open House
Friday, April 5, 2019
6-9pm
Sutton Building
Celebrating award-winning Frederick Albert Sutton Building’s 10 Year Anniversary

Faculty Focus

Faculty Awards

Francis Brown Presidential Chair of Geology and Geophysics



Thure Cerling was named the Francis Brown Presidential Chair of Geology and Geophysics beginning July 1, 2018 for a three-year term. This is arguably one of the most prestigious endowed chair positions at the University of Utah.

Inspirational Geoscience Educator Award



Lauren Birgenheier was named Inspirational Geoscience Educator Award by AAPG. She was also appointed AAPG ACE 2018 Technical Program Chair.

Beacons of Excellence Award



Diego Fernandez received the Beacons of Excellence Award from the University of Utah for 2018. He was also selected by President Ruth Watkins to serve on the University Research Committee for a three-year term ending July 31, 2021.

2017-2018 GG Outstanding Faculty Teaching Award

Amir Allam



2017-2018 GG Outstanding Faculty Research Award

Diego Fernandez



NSF CAREER Award



Fan-Chi Lin is the recipient of a 5-year NSF CAREER award for "Advanced Subsurface Imaging Across USArray and Intermountain Seismic Belt Using Dense Seismic Arrays"

DLS Series 2017-2018

Dr. Jorg Pross
University of Heidelberg
The Role of Late Quaternary Climate Change in the Spread of Modern Humans into Europe: A perspective from the Eastern Mediterranean

Dr. Summer Rupper
University of Utah
Accelerating glacier change in the water towers of Asia

Dr. Bayani Cardenas
University of Texas, Austin
A global perspective on groundwater resources: availability, renewability, vulnerability and elasticity

Dr. Gerard Schuster
KAUST
Getting Something from Almost Nothing by Supervirtual Interferometry

Dr. Jessica Creveling
Oregon State University
Spatial Variation in Late Ordovician Glacioeustatic Sea-Level Change

Dr. Leif Tapanila
Idaho State University
Buzzsaw! Catching the biggest fish in the Permian Sea

Dr. Yadira Ibarra
San Francisco State University
Geomicrobiology and paleoenvironmental significance of fluvial spring-fed carbonates

Dr. Susan Schwartz
University of California, Santa Cruz
Anatomy of a Megathrust Plate Boundary Through the Earthquake Cycle

Dr. Scott Hynke
United States Geological Survey
The high lithium brine at Salar de Atacama, northern Chile: 10 million years in the making

Dr. Elizabeth Balgord
Weber State University
The stories detrital zircons tell: From arc tempo to exhumation of the Sevier fold-thrust belt, western U.S. Cordillera

Dr. Jessica Tierney
University of Arizona
Humans and climate change: Insights from the African paleoclimate record

Click [HERE](#) for the 2018-2019 DLS Schedule

Faculty Focus

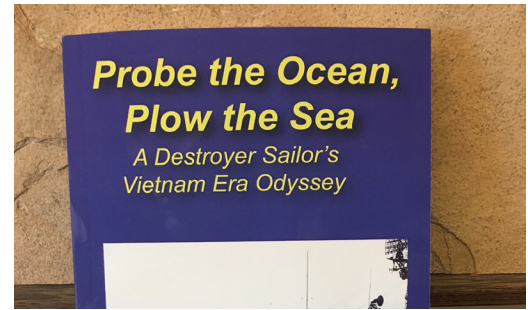
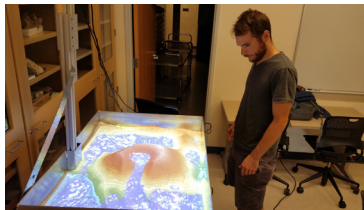
Updates

FIELD Project

Assistant Professors Kathleen Ritterbush and Peter Lippert have been selected to attend the FIELD (Fieldwork Inspiring Expanded Leadership for Diversity) Project from October 3-10, 2018 at the Colorado State University Field Station. The NSF-sponsored FIELD Project aims to make field activity in the geosciences more accessible and inclusive by equipping field leaders with perspectives and skills to recognize and reduce common barriers in field settings. The institute is an immersive practical skills training (e.g., bystander intervention, managing cross-cultural relationships) and collaboratively develop new approaches that can be implemented in their own field experiences. We hope in the long term to reduce the exclusionary nature of field culture. For more information, visit CPAESS.

Augmented Reality Sandbox

New augmented reality sandbox created by graduate student Grant Rea-Downing and Assistant Professor Pete Lippert along with others in the department. The system teaches geographic, geologic, and hydrologic concepts such as how to read a topography map, the meaning of contour lines, watersheds, catchment areas, levees, etc.



Probe the Ocean, Plow the Sea

Professor Paul Jewell recently published a book following his experiences in the U.S. Navy. The memoir chronicles the history of the USS Richard B. Anderson during the early years of DESRON FIFTEEN's forward deployment as seen through the eyes of an enlisted sonar technician. *Probe the Ocean, Plow the Sea* can be purchased through Amazon.

2018 Workshop for Early Career Geoscience Faculty

Assistant Professor Sarah Lambart was selected to attend the July 22-27, 2018 Workshop for Early Career Geoscience Faculty at the University of Maryland. This workshop is a collaboration between the National Association of Geoscience Teachers, the National Science Foundation, and the Science Education Resource Center. From the workshop website: "new faculty participate in sessions on topics including effective teaching strategies, course design, establishing a research program in a new setting, working with research students, balancing professional and personal responsibilities, time management," cohort building, and meeting NSF program officers. For more information, visit SERC.

Special Courses

New Curriculum Introduced for Fall 2018

After working on the curriculum process for the past few years, faculty have introduced new curriculum beginning Fall 2018 for new students in the Department of Geology and Geophysics. The recent changes include four new courses; Evolving Earth, Reactive Earth, Wasatch in the Field, and Dynamic Earth. The first three courses started this fall semester with Dynamic Earth being introduced Spring 2019. Evolving Earth is at full capacity with 42 students registered! With the new curriculum, all Bachelor degree students complete the same five core classes which allow for a smooth transition when changing major emphasis areas. Course content includes the planet's formation and composition; tectonics, water, carbon, life, climate; thermodynamic and geochemical concepts and their application to describe geologic processes and phenomena on and beneath the Earth's surface; the application of continuum mechanics to describe geologic processes and phenomena; and explore the Wasatch fault system and related phenomena such as landslides and groundwater hydrology using techniques from a broad array of geoscience disciplines.

GG Happenings



New Advisory Board Member

Research Associate Professor James Karner was accepted to serve on the Clark Planetarium Advisory Board made up of an exceptional group of leaders that help shape the organization's vision and direction. Dr. Karner spends his winters trekking across Antarctica collecting meteorites for NASA.

Glacial Ghosts

Utahns are very familiar with snow and ice in Big Cottonwood Canyon - particularly at the Brighton and Solitude ski resorts, at the top of the canyon. But when PhD student Brendon Quirk goes up there, he's imagining something different. "It's a pretty interesting feeling to stand on a surface where you know there was a glacier 132,000 years ago," he says. "You're imagining the glacier enveloping you and filling the canyon."

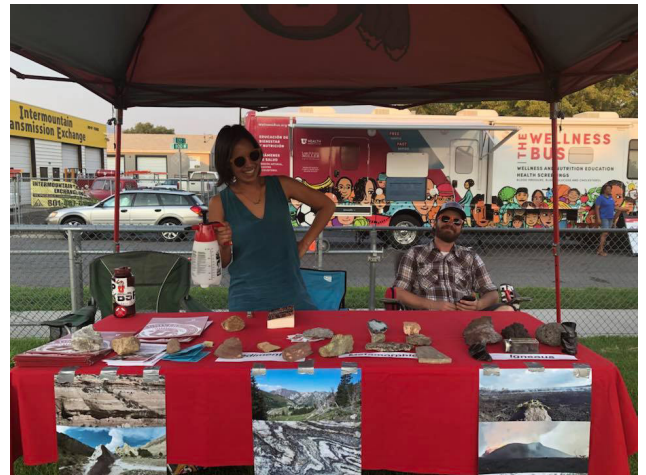
Extensive glaciers once covered the Wasatch Mountains, but the timing of their existence compared to that of Lake Bonneville has been uncertain. New research published in the Geological Society of America Bulletin by Brendon, Associate Professor Jeff Moore, and others provides a compelling analysis.

Safe Water and Climate Stresses

The lakes and streams within the peaks above Salt Lake City provide nearly 60 percent of drinking water to approximately 350,000 of the valley's residents. An interdisciplinary research partnership, which began in January, is investigating how climate stresses will impact the 190 square miles of Wasatch canyons watershed and its ability to provide safe water to the city in its shadow. Professor Paul Brooks is one of several University of Utah Water Center researchers engaged in a recently signed five-year study contract with Salt Lake City Department of Public Utilities. Specifically, he is working to gather and process historical and newly collected hydrologic data.

Where does water go?

University of Utah professors Gabriel Bowen and Bill Anderegg have secured a new National Science Foundation (NSF) grant to focus on improving our understanding of biosphere processes and their complex interactions with climate, land use, and invasive species at regional to continental scales. With collaborators from Oregon State University, Bowen and Anderegg will tap into a network of 81 ecological sensors nationwide, using the data in stable (non-radioactive) isotopes of oxygen, carbon and water to figure out how much transpiration is occurring at any one site. They'll then look at the traits of the plants surrounding the sensors to learn more about how they use water under different conditions.



Department Outreach

GG students Jory Lerback, Emily Kam, and Matt Miller having a great time running the outreach table at the Utah Pacific Islander Month Kickoff Event at the Sorenson Unity Center on July 28, 2018.



Faculty in the News



Seismic Signals
 In the spring, Assistant Professor Fan-Chi Lin took his class to Sugarhouse to do a preliminary valley structure study. The study is also tied to a new NSF CAREER grant. The basic idea is to knock on doors and place seismometers in the community, record

passive seismic signals across the valley, and apply seismic array analysis to resolve the 3D basin structure. With the CAREER grant, they will also get help from the U's Genetic Science Learning Center to develop interactive educational and outreach materials.

A Big Congratulations!

Congratulations to UofU's EGI (Energy & Geoscience Institute), UofU Seismograph Stations, and professors John Bartley and Fan-Chi Lin on receiving a \$140 million Geothermal Research and Development grant from the Department of Energy. The grant will be distributed over the next five years for cutting-edge geothermal research and development. The proposed site is outside of Milford, Utah and will be the selected location of the Frontier Observatory for Research in Geothermal Energy (FORGE) field laboratory. The new FORGE site is dedicated to research on enhanced geothermal systems (EGS), or manmade geothermal reservoirs.

Virtual Reality
 Master of Science for Secondary School Teacher (MSSST) student Ammon Hatch, whose day job is a science teacher in Canyons School District, has been spending his summer working with



Associate Professor Jeff Moore and his research team to turn their digital data on several of Utah's red rock arches into very detailed virtual reality experiences that allow the viewer to walk through, climb up, and balance-beam across the majestic arches from the safety of the classroom.



Wasatch in the Field

As part of the department's new curriculum, Wasatch in the Field provides students with a guided field experience a few years before their capstone Field Geology course.



Undergraduate Field Trip

Structural Geology field trip to study folds at the Antelope Island State Park.

Field Trips

GEO 5920 Environmental Conflict: Water Quality & Mining in Ecuador

Seven UU students from Geology & Geophysics, Metallurgical Engineering, Economics, Geography and Civil Engineering, Prof. Bill Johnson and two graduate students, undertook the 5th Learning Abroad hands-on research boot camp in August 2018. In collaboration with three professors from the Escuela Politécnica Nacional, Ecuador, they investigated win-win solutions to mining impacts on rivers in several contexts including constructing in the upper Amazon Rio Nambija what Dr. Johnson calls a lateral channel biofiltration system to force seepage through alluvium and filtration of particulate contaminants like mercury and lead. Students also sampled groundwater in the Pacific Playa for manganese concentrations that they will compare to hair samples in order to understand uptake. They sampled a transect of sites in the central highland plateau in El Cajas national park to assist with water resource management, protection and treatment in the Spanish colonial city of Cuenca, and they performed a Pacific ocean estuary trawl sampling for plastic micromaterials. They hauled gear, fought bugs, tolerated chickens, worked and had fun. This Fall, they'll focus on laboratory analyses and interpretations of the results, culminating in a presentation. Support for the experience comes from Learning Abroad (the students) and the Center for Latin American Studies, as well as the National Science Foundation.



Our crossing of the Rio Nangaritza in the upper Amazon



Conducting a tracer test on the Rio Nambija (Photo credit Sam Lopez)

GEO 5920 Environmental Conflict: Water Quality & Mining in Ecuador (cont'd)

Proud of our lateral channel (Marina McNeill, Cesar Ron, Sam Lopez and Mikayla Howitz)



Sampling the high plateau above the colonial city of Cuenca, heartland of the Incan and Canari empires. Left to right, Andrea Chica, Ria Kaddu, Evelyn Lauren, Kate Nicponksi, Zach Herbert, Marina McNeill, Mikayla Howitz, Pablo Mosquera (Cuenca Water Institute), Cesar Ron.



Thank you to all our contributors to the Geology and Geophysics Unrestricted Fund, which helps make many of these trips possible!

[Click here to support field trips](#)

Student Achievements

Aini Mohd-Mokhdhari (BS Geology) was selected as the College of Mines and Earth Sciences valedictorian for the graduating class of 2018. Her speech showcased her rich cultural background and the incredible learning experiences at the University of Utah.

Undergraduate Research Opportunities Program recipients

FALL 2017

Jackson Bodtker (Jeff Moore)

Amy Record (Kris Pankow)

Jens Ammon (Lauren Birgenheier)

SPRING 2018

Kailee Pinney (Gabe Bowen)

Kiana Christensen (Randy Irmis)

Hansheng Jin (Thure Cerling)

SUMMER 2018

Alysha Armstrong (Amir Allam)

Emily Kam (Brenda Bowen)

Rachel Jorgensen (Kathleen Ritterbush)

James Kowalski (Pete Lippert)



Outstanding Undergraduate Student Awards

Geology

Jackson Bodtker

Geophysics

Clay Woods

Environmental Geoscience

Katherine Worms

Geological Engineering

Lily Bosworth

Outstanding Graduate Student Awards

PhD

Logan Frederick

PhD

Tyler Huth

PhD

Yusuf Jameel

MS

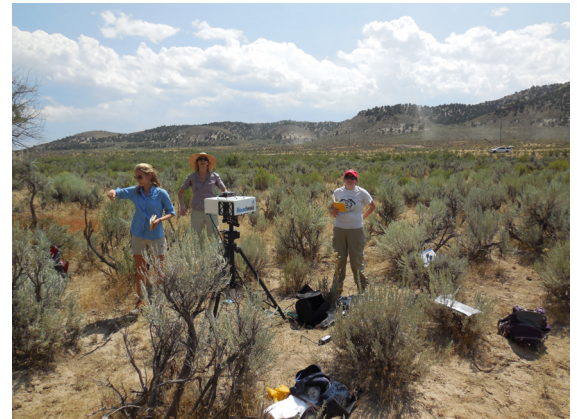
Andy Trow

MS

Shawn Moore

TA

Jeffrey Gay



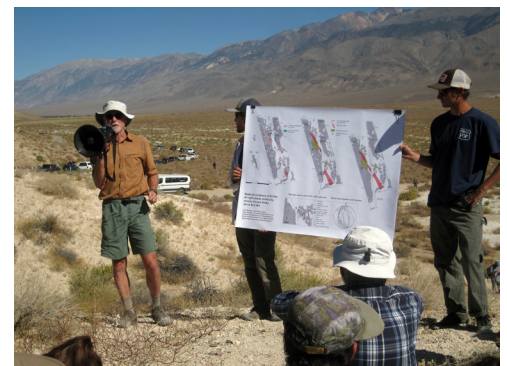
Highlights

Courtney Wagner (PhD student) is a 2018 Science Communication Fellow with the Natural History Museum of Utah. This program provides training to scientists and researchers to improve their science communication, especially in an informal science and education setting.

Grant Rea-Downing and Brendon Quirk (PhD students) participated in the Catalyzing Advocacy in Science and Engineering workshop organized by the American Association for the Advancement of Science in Washington, D.C. during March 18-21, 2018. This national workshop for upper-level undergraduate and graduate students focused on the federal budget process and effective science communication, and provided opportunities to meet members of Congress and their congressional staff.

Keegan Melstrom (PhD student) was awarded a scholarship through the American Federation of Mineralogical Societies Scholarship Foundation (AFMS) for the 2018-2019 academic year.

James Kowalski is one of 10 undergraduate students selected nationally to sail on the October 3-8, 2018 STEMSEAS expedition from Nome to Seward, Alaska aboard the R/V Sikuliaq.



Scholarships

We thank the College, the Department, and our many Friends who made substantial and important support possible for the following students:

Kenneth & Nedra Bullock Keller Scholarship:

Sean Hutchings, Hannah Finlay, William Haddick, Emily Kam, Richie Torney

Hellmut H. & Gerda A. Doelling Scholarship:

Jens Ammon, Michael Paletta, Muhammad Shaharudin

Dorothy Goode Scholarship:

Amanda Jayo, Baylee Olds, Colleen Proctor, Mack Tawa, Preston Tubach

Frischknecht Scholarship:

Lyrice Anderson, Alysha Armstrong, Rasmien Rahim

Hiromi Honda Endowed Scholarship:

Katherine Worms

Kenneth W. Larsen Scholarship:

Alan Manzo, Mitchell Poen

Mineralogical Society of Utah Memorial Scholarship:

Jan Mees, Mark Radwin, Jonathan Voyles

Newmont Scholarship:

Jenna Chamberlain

William T. & Gayle W. Parry Endowed Scholarship:

Lily Bosworth

Presnell Scholarship:

Sam Carter, Cole Ramos, Kyle Christenson, Courtney Pratt

Marta S. Weeks Legacy Scholarship:

Roselyn Hurlow, Michaela Lemen, Paola Alcala Villalobos

University of Utah T53 Scholarship:

Cash Stallings, Jacob Peterson, Andreas Cordova

UGA Field Camp Scholarship:

Jens Ammon, Katherine Worms, Colleen Proctor

Ekdale Field Scholarship:

Emily Kam

Orlo Childs Field Camp Scholarship:

Clay Woods, Courtney Pratt, Patrick Cunningham,

Earls Family Endowment for Field Studies:

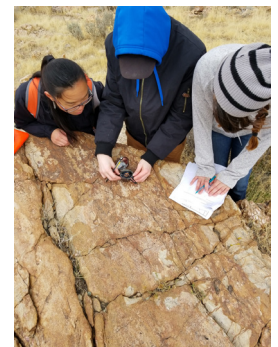
Amanda Jayo, Nathan Ong, Luis Vidal, Mathew McNeil

Field Camp Scholarship:

Jane Baer, Jonathan Weimer, Shelby Harp

The Department of Geology & Geophysics was able to award transfer scholarships to Salt Lake Community College Geology students thanks to grant funding and the collaborative efforts from our very own Professor John Bartley and Salt Lake Community College's Christopher Johnson.

Awardees: Miles Haynes, Jasmine Garcia, Giavanna Lonardo, Ashton Shepherd



Alumni & Friends



About 35 Geo-Utes joined Assistant Professor Lauren Birgenheier at Platypus Brewing Company in Houston for an evening of refreshments and conversation in July.

Jason Brink (MS 1999) and his family visited campus while on a break from Guatemala where he helps developing countries with various water related issues. The family stopped by the Frederick Albert Sutton Building enroute from their vacation travels in SW Utah. Jason fondly remembers Utah connections and the legacy of Calvin College grads here.



Perry Eaton (MS 1984, PhD 1987) recently retired from a successful career at Newmont Gold Corporation. He is trying to adjust to retirement and keeps himself busy with yard work, caring for horses, and spending time with his family.

Cassie Fenton stopped by the FASB for a building tour with Barb Nash and Thure Cerling. Standing in front of the panel of columnar basalt was a fitting choice for a photo op as Fenton did research on basalt when she was a student in the department.



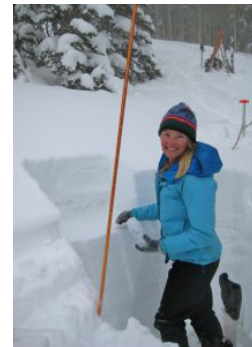
Will Gallin (MS 2010) is now working for the Washington Geological Survey, where he studies landslides. He and his family are enjoying their new life in the Pacific Northwest.

Jared Gooley (MS) is finishing his PhD at Stanford University.

David Hammond (MS 1971) recently concluded 5 years on the Engineering Accreditation Commission and agreed to join the Natural Sciences Accreditation Commission to represent geology on behalf of the SME.

Matt Heuman (PhD) is on a new adventure in Cairo, Egypt for his new assignment with Anadarko.

Olivia Miller (PhD 2017) practiced communicating her research in a unique way. She wrote a children's book based on her studies of the Greenland ice sheet. Her book ensures her research reaches beyond her scientific peers to the people most directly affected by the changes that are happening within the ice sheet. Olivia's book was translated into Danish and Greenlandic.



Roice Nelson recently moved to Cedar City and enjoys his research on how lightning strikes are related to geology.

Nora Nieminski (BS 2011) is finishing up a postdoc at Stanford University. She has been recognized for her many achievements including those of mentoring, and being a "Graduate Vice and Influence Program Fellow" at Stanford.

Lynn Peyton (MS) and her husband enjoyed returning to Salt Lake City for the AAPG meeting.

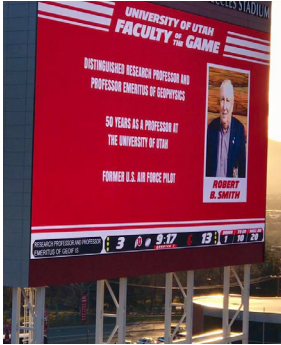
Jay Quade (PhD 1990) will receive the 2018 Day Medal from the Geological Society of America.

Winston Seiler (MS 2008) is now Director of Business Development for KCSI Aerial Patrol which provides oil field and pipeline surveillance.

Peter Shabestari (BS 1996) is a regional geologist and project manager at Liberty Gold. He considers himself fortunate to have had the opportunity to work on some great projects and with some great teams all over the world. His work is currently focused on exploring and advancing the Goldstrike property.

Heyden Smith (BS 2017) is currently exploration geologist for National Gold Corp in McDermitt, NV. The exploration project hopes to develop a resource for Ag and Au in the northern Nevada rift complex. He enjoys the challenges of logging core, field mapping, and assays, and learning 3D modeling.

Robert B. Smith (PhD 1967) was recognized for his military service at the football game last fall as part of a Veteran's Day tribute to faculty veterans here at the University of Utah. Dr. Smith served as an Air Force officer and pilot as a 2nd lieutenant from 1960-63. He was selected for a special assignment with the U.S. Antarctic Projects Office in Washington, D.C. as a geodetic-geophysics officer because of his research background and he traveled the globe installing special high-resolution sites for monitoring, including serving as an officer in the 1381st Geodetic Survey Squadron and leading various classified missions.



Bert Stolp (BS 1983, MS 1990, PhD 2014) at USGS has been working with Washington County Water Conservancy District to drill and core a hole at the mouth of Timpoweap Canyon. The hole starts in the Moenkopi and they hope to drill through the Hurricane Fault and into the Kaibab Limestone. The purpose of the drilling is to better understand the hydrology associated with Pah Tempe Hot Springs. They have discovered some very nice Moenkopi core (siltstone, mudstone, bedding plains, gypsum, etc).

David Wheatley (PhD 2018) is glad to have finished his PhD followed by a move to Houston and getting married (Val is a teacher). He enjoys working with Chevron.

Mark Williams "retired" after nearly 35 years working at Whiting, followed by a month that he and his wife spent in the Alps!

Taylor Witcher finished her MS at Ludwig-Maximilians University of Munich and hopes to pursue a PhD in Strasbourg, France. She won a student travel grant to AGU 2017 where she presented a poster on her thesis work in the Volcanology session. The grant included a \$1,000 award.

Adolf Yonkee (PhD 1990) a professor at Weber State, received the Outstanding Publication Award from the GSA Structural Geology and Tectonics Division.

Do you have a new job, title, recent retirement, award, etc.? We'd love to include you in our next issue! Please send your updates to travis.mcmullin@utah.edu.

Alumni Spotlight - In Memorium

Francis Harold Brown 10/24/1943-9/30/2017



Frank Brown passed away unexpectedly and suddenly on September 30, 2017. He had been actively working on the geology of the Turkana Basin in East Africa, his life-long interest, the morning of his death. Frank was a teacher, mentor, and friend to all at the University of Utah. You could not know Frank without being influenced by him. In his 46 years at the University, he served in the roles of Professor, Chair of the Department of Geology and Geophysics, and Dean of the College of Mines and Earth Sciences. He stepped down from the deanship in 2016 after a tenure that lasted 25 years. In recognition of his accomplishments in research, teaching, and administration, he was awarded the University of Utah's highest honor, the Rosenblatt Prize in 2001. We have lost a true friend.



David Liska Drobeck 1960-2018

After falling deeply in love with Yellowstone National Park in the early 90's, Dave became a seismograph technician for the University of Utah, which allowed him to both be in the outdoors he treasured, and to work for several weeks a year in "Jelly." His friend and boss Robert Smith said that Dave probably knew Yellowstone better than many of the rangers there.

Richard D. Jarrard 11/6/1947-1/10/2018

Richard is known for his discovery, with Susan Halgedahl, of the world's most ancient fossils that can be definitively shown to be of jellyfish. The find extended the jellyfish line by 200 million years, back to 505 million years ago, during the middle Cambrian era.



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Geology and Geophysics Fall 2018 New Graduate students, along with a few seasoned grads, enjoying a weekend of hiking, camping, and bonding before the beginning of the semester.



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