

EARTHSCIENCES

May 2017 News Notes

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Alumni Change Lives

Alan Mason is an undergraduate student working with Prof Derek Sawyer. Here he describes how Friends of Orton Hall helped further his studies. If you are interested in giving to support the Friends of Orton Hall or other funds, please visit our giving page (link).

I presented a poster at the Geological Society of America (GSA) conference in Denver last year, entitled "Seafloor Brine Lake Impacted by Submarine Landsliding: An Example from the Orca Basin, Walker Ridge, Gulf of Mexico Continental Slope." This project is in two parts. The first part characterizes the landslide. This was done by studying 3D seismic data of the region to find the volume of the material released, the run out length of the deposit, the thickness of the deposit, mechanisms for failure, as well as several other components. The second part studies the impact this landslide could have had on the large anoxic hypersaline brine pool located in the bottom of the basin. Upon impact, it is possible that a tsunami was created in this brine pool. There is still work to be done on modeling the size of this tsunami. If the tsunami was large enough, it could have washed brine out of the basin, which could suggest that several published studies of the brine chemistry would need to

be adjusted to account for this lost of brine. This tsunami could also have bathed the local chemosynthetic communities in the hypersaline brine, which has a salinity about 8 times greater than the surrounding seawater, near Dead Sea level salinity. Prolonged submersion in this brine could have had disastrous effects on these communities. Attending this conference was a great experience. I saw interesting talks and posters. It was valuable experience to present my research to professional scientists and hear their feedback. The FOH funds helped me afford to travel to the conference as well as covering hotel costs. I cannot express enough gratitude to this fund for their help in funding my travel.



Baccalaureate degrees awarded in Spring and Summer

On May 7, 18 students received their B.S. degrees in Earth Sciences at Ohio State's Spring 2017 commencement ceremony and four will receive their degrees at Summer 2017 commencement. Two of these Earth Sciences majors are receiving their baccalaureate degrees with Honors Research Distinction and 14 with Research Distinction. As of this date, six of the graduates will be going to graduate school in the Fall (Florida State, Michigan State, Minnesota, Ohio State (2), West Virginia), 4 are seeking graduate school, 2 have private sector employment (remote sensing company; Battelle), 3 have jobs at government agencies (National Park Service (2) and Peace Corps), 4 are seeking employment, 1 has plans unstated, and 1 is deceased.

Since the switch to the semester calendar in 2012, 43% of our undergraduates have defended the thesis and graduated with Research Distinction or Honors Research Distinction. Congratulations to all the Spring and Summer 2017 graduates in Earth Sciences! Note: † indicates summer graduate in the table below.

Spring 2017 thesis students						
Student	Subspecialty	Advisor	Thesis title	Distinction		
Brian Ares	PGG	Panero	Determining the Most Likely Structure of Calcium Aluminosilicate CAS Phase Using Ab Initio Calculations			
Shelby Brewster	GSC	Lyons	Comparing the Weathering Environment of Permian and modern Antarctic Proglacial Lake Sediments: Mineralogical and Geo- chemical Study	Distinction		
Zach Franczek†	GSC	von Frese	Seismicity of Ohio	Distinction		
Devon Goeller	PGG	A Sawyer	Investigation of Water Quality and Availabil- ity in Rural Tanzanian Villages	Distinction		
Dan He	PGG	Darrah	Using Noble Gas Geochemistry and Stable Isotopes to Source the Origin of Fluids in the Eagle Ford Shale			
Taylor Hollis	GSC	Barton	Literature Review of Oceanic Transforms			
Scott Hull†	GPH	Panero	The Prevalence of Exoplanetary Plate Tecton- ics	Distinction		
Christina Jauregui	PGG	Cole	Method development for dissolved inorganic and organic carbon analysisof flowback fluids from the Utica-Point Pleasant	Distinction		
Brandi Lenz	GSC	D Sawyer	Shear Strength of Sediment Offshore South- ern Alaska	Distinction		
Elizabeth Lester†	GSC	Babcock	Origin of Pyrite Concretions from the Huron Member of the Ohio Shale (Devonian), Cen- tral Ohio, USA	Distinction		
Yuyu Li	GPH	Barton	Pressures of Partial Crystallization and Magma Plumbing Systems beneath Hawaiian Volcanoes	Distinction		
Harry Love†	GSC	Barton	Modeling Fractional Crystallization of Basalts Along the Northern East Pacific Rise	Distinction		

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Alec Moore (minor)	Evolution and Ecology	Grottoli	Variability in Hawaiian Coral across Naturally Occurring Temperature, p CO2, and Flow Gradients	Distinction in Earth Sci- ences
Sean Newby	GSC	Saltzman	Seawater 87Sr/86Sr Stratigraphy of the Mid- dle Ordovician in Central Virginia	Honors Research Distinction
Bryan O'Reilly	GPH	von Frese	Lunar Exploration for He-3	Distinction
Nick Rodgers	GSC	D Sawyer	A Numerical Simulation of a Tsunami Gen- erated by a Submarine Landslide, offshore Puerto Rico	Distinction
Elsa Saelens	ESY	Lyons	The Geochemistry of Minor Cations within Antarctica Stream Water: Determining the Role of the Hyporheic Zone	Distinction
Rachel Schultz	PGG	Barton	Modeling Crystallization of Basalt Magmas along the Reykjanes Ridge	
Henry Stahl	ESY	Thomp- son	Carbon-14 Plant Evidence of mid-Holocene Quelccaya Ice Cap Margin Fluctuations	Distinction
Judith Straathof	GPH	Cook	Modeling of resistivity well log separation due to presence of methane hydrates in near- vertical fractures	Honors Research Distinction
Alex von Clausberg	GSC	Durand	Measuring the Volumetric Storage Changes in the Mississippi River	
Lindsey White	ESY	Chin	Determination of Photochemical Production of Hydroxyl Radical in Whole (Bulk) Effluent Using Caffeine as a Photochemical Probe	Distinction

Pictured below are several of the SES graduates for Spring 2017. From left to right are Nick Rodgers, Shelby Brewster, Judith Straathof, Brandi Lenz, Elsa Saelens, Taylor Hollis, Bryan O'Reilly



Dr. Sue Welch Receives Award

On Tuesday, May 9, Dr. Susan Welch received the University Laboratory Safety Committee's individual award for Excellence in Safety. Sue was honored for her outstanding commitment to laboratory safety and for her contributions to student education and training in safe laboratory practices. The award recognizes a university faculty or staff member who has made a considerable contribution to improving laboratory safety on the Ohio State campus. The award is the first ever given at Ohio State. The University Laboratory Safety Committee plans to make both individual and group awards annually from now on. The award was given to Sue at a recognition luncheon on Tuesday May 9. The photo at right shows Dr Welch with Directory Lyons. Congratulations, Sue!



Two SES Alumni Receive Tenure

Congratulations to Earth Sciences alums Steve Goldsmith and Sarah Fortner. Both received the good news this month of promotion to Associate Professor with Tenure. Sarah is now an associate professor in the Department of Geology at Wittenberg University in Springfield, Ohio. She is also a faculty member in the Environmental Sciences Program there. Sarah, an environmental geochemist who received her Ph.D. in 2008 under the direction of Berry Lyons, is active in the Council on Undergraduate Research, the McMurdo Dry Valleys Antarctica Long Term Ecological Research Program, in the Juneau Icefield Research Program and in many programs on her own campus.

Steve Goldsmith is now an Associate Professor in the Department of Geography and the Environment at Villanova University in Villanova, Pennsylvania. Steve is a geochemist and hydrologist who received his Ph.D. in 2009 under the direction of Anne Carey in Earth Sciences. Steve's current research focuses on environmental changes in river systems where he studies both urban and rural watersheds in work that spans current and historical landuses in those watersheds. Steve also studies the source and fate of solutes, sediments and organic carbon in tropical watersheds.





Brevia

PhD candidate Apoorva Shastry received a NASA Earth & Space Science Fellowship for her proposal "Utilizing Flood Inundation Observations to Obtain Floodplain Topography in Data- Scarce Regions for Use in a Hydrodynamic Model". Congratulations Apoorva!

Lena Cole (advisor: Prof Emeritus Ausich) successfully defended her dissertation. She is headed to Washington DC for a postdoc at the Smithsonian. Congratulations Dr. Cole!

Jinmei Pan successfully defender her dissertation. She is headed to NASA's Jet Propulsion Laboratory for a postdoc. Congratulations Dr. Pan!