

October 2017 News Notes

- Alumni Change Lives
- Research/Training Expedition Kick Starts New PhD Student's Research
- Professor Larry Krissek Retires (Well, Almost!)
- Professor Ralph Von Frese Retires

Alumni Change Lives

Ben Grover is a graduate student working with Dr. Tom Darrah. Here he describes how the Friends of Orton Hall fund helped further his graduate studies. If you are interested in giving to support the Friends of Orton Hall or other funds, please visit our giving page ([link](#)).

The funding I received from Friends of Orton Hall enabled me to attend the Geological Society of America meeting in Denver, Colorado in September of 2016 and the 15th Water-Rock Interaction International Symposium in Evora, Portugal, in October of 2016. The grant that I received paid for my travel to both Denver and Portugal as well as my registration fee for the latter. In Denver and Evora, I gave oral presentations of my work titled “Radiogenic noble gases track natural gas migration along faults and fractures in black shales” and “Using radiogenic noble gases to trace the conditions of crustal fluid migration,” respectively, which illustrated my preliminary work in the Appalachian Basin. This case study uses radiogenic noble gas isotopes formed in the Marcellus Shale to examine the history and conditions of crustal fluid flow. My research evaluates the (U-Th)/He/Ne* system in quartz grains as a low-temperature thermochronometer capable of determining the thermal history and extent and volume of fluid migration, specifically within black shales. We hypothesize that 4He and 21Ne^* in crustal minerals will fractionate systematically as a function of varying temperature, burial history, and deformational regime. In this case study, we analyzed the $4\text{He}/21\text{Ne}^*$ ratio of samples of the Marcellus collected from distinctly different burial settings (outcrop, subcrop, and cuttings with $\sim 1.2\text{km}$ overburden) and in proximity to discrete deformational features. Our results represent the first step toward validating the (U-Th)/He/Ne* system in quartz and highlight the significance of tectonic activity and its effect on subsurface fluid migration. With the help of FOH, I was able to present my research to an international crowd of experts in my field which facilitated a great deal of discussion and led to various potential collaborations with researchers from around the world. Friends of Orton Hall helped me “get my foot in the door” by allowing me to share my work which in turn has not only improved my presentation skills but has also facilitated professional networking with researchers in my field.



Research/Training Expedition Kick-Starts New PhD Student's Research

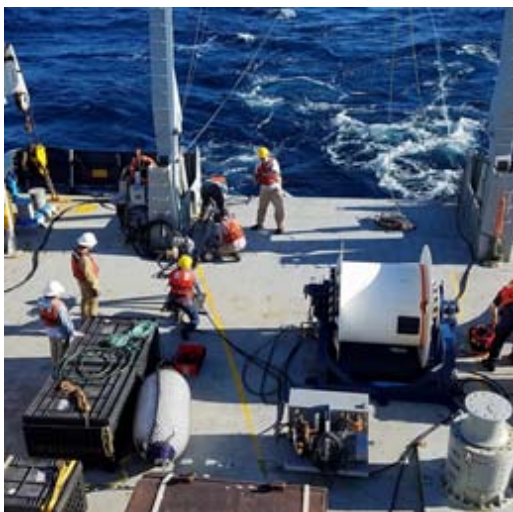
Brandi Lenz is a graduate student who recently returned from a research cruise.

I am a first year Ph.D. student in the School of Earth Sciences working with Dr. Derek Sawyer on marine geohazards. I am from Pittsburgh, Pennsylvania and an Ohio State alumna receiving my B.S. in Earth Sciences this May. I recently participated in the National Science Foundation-funded Early Career Seismic Chief Scientist Training cruise that took place from September 24 - October 4 off the coast of Oregon.

I could not have asked for a better way to start my graduate school career. This cruise was for early career scientists to learn how to acquire and process marine seismic data as well as how to lead and organize a scientific expedition. I plan on using the data acquired to study submarine landslides for my dissertation and the training gives me important insights into proposal writing and preparing for conducting my own scientific expedition in the future.

The first two days consisted of a pre-cruise workshop in Newport, Oregon where I got to meet my fellow participants and discuss science. There were 18 other early career scientists, 2 post-doc mentors, 4 principal investigators, and 1 science writer. As you can imagine, with such a large diverse group, we had a wide range of objectives for this cruise and a limited amount of time. Together, we came up with a navigation plan for the seven days that we would be out at sea. We also discussed scientific outreach and learned how to better communicate our research to a broader audience.

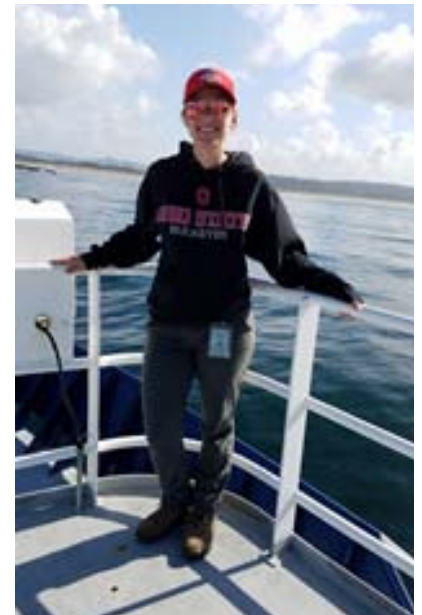
On September 26, after our ship orientation and safety briefing, we finally set sail onboard the R/V Roger Revelle! During our shifts on the cruise we all would have experience as chief scientist, co-chief scientist, seismic monitor, seismic processor, event logger, multibeam processor, and map maker. I was assigned to the



Shipboard Technical Support Group assisting the early career scientists on deploying the seismic acquisition gear on the deck of the R/V Roger Revelle.

early morning shift and was the first chief scientist of the cruise responsible for preparing the deployment of the seismic gear, communicating with the ship's captain on navigation, standardizing reports for the rest of the cruise, and trying not to throw up because of the sea sickness. My first day out at sea was certainly an eventful and one that I will never forget. During the next several days, I became more and more comfortable with life at sea. The sea sickness slowly faded and my brain was absorbing a tremendous amount of new information. I was able to process seismic data first hand and now have a better appreciation for the data that I will be working with. Overall the cruise was a success and we collected about 770 km of seismic data. Once back on land we spent two days to discuss interpretations of our seismic profiles and future science plans. We even had a lecture from our experienced scientists on how to write a proposal, which will be extremely useful in the years to come.

This cruise was an amazing experience. I already cannot wait to start working with the data we acquired! I now have hands-on experience with marine seismic reflection data and look forward to teaching others how it is acquired, processed, and used in the future. I hope to one day be able to lead my own expedition out at sea in hopes of solving more unanswered questions in the world of marine science. Here is a [link](#) of my blog post about my research and why I wanted to participate in this cruise.



PhD student Brandi Lenz onboard the R/V Roger Revelle offshore Oregon.

Professor Larry Krissek Retires (Well, Almost!)

On 31 July Larry Krissek retired after 35 amazingly productive years associated with the School of Earth Sciences. During this time Larry distinguished himself in all aspects of academic life: research, teaching and service.

In his time at OSU, he co-authored over 60 scholarly papers and edited a book. His work was published in such prestigious journals as *Science*, *Proceedings of the National Academy of Sciences*, *GSA Bulletin*, and *Nature*. Besides his on-going research interests in sedimentology, ocean history, and paleo-climate change, he became interested and co-authored a series of papers related to earth science education, and taught training courses for secondary teachers. As an OSU faculty member he directed 17 MS theses, 6 PhD dissertations and numerous BS theses. He was recognized for his scholarly acumen by being elected a GSA Fellow in 1998, and selected as a JOI-USSP Distinguished Lecturer in 2006-07. He served on 8 different Integrated Ocean Drilling Program cruises as shipboard sedimentologist, and participated in numerous NSF supported drilling projects and expeditions including both the international Cape Roberts and ANDRILL projects. These latter two projects discovered important new information on the dynamics and response of the Antarctic Ice Sheets to climate forcing during the Tertiary.

Larry was regarded by all as one of the best teachers in the School. He taught 21 different classes at all levels while a faculty member. These include both Physical and Historical Geology, various level Oceanography courses and, of course, Stratigraphy and Sedimentation. During this time Larry won 4 SES Teaching Awards (selected by the students themselves), was named The Stone Lab Summer Program's Outstanding Teacher 3 times, and was selected for the most significant teaching award given by OSU – The Alumni Award for Distinguished Teaching in 1998. He also became a member of The OSU Academy of Teaching at this time.

His dedication to his students and to his teaching was only surpassed by sense of duty, as evidenced by his truly extraordinary service record. He served as either Vice-Chair or Associate Director of the School from 1995-1999, and again from 2001-2017. During these times, he oversaw the academic program of the school, being the primary manager of class offerings, class scheduling, curricula development, and teaching assignments. During the University's conversion from Quarters to Semesters, Larry single-handedly dealt with all the nuances of this change within SES. It went smoothly and seamlessly because of Larry's dedication and organizational skills.

His College service over the years included membership on the Faculty Senate, the College Graduate Studies, Curriculum, and Curriculum and Instruction Committees. At the University level he served on such entities as the Undergrad Program in International Studies Advisory Bd., the Stone Lab Advisory Bd., and the University Committee on General Education. He currently is the co-chair of OAA's General Education Review Coordinating Committee. In this latter role, he will return to campus in October, not only as an SES Emeritus Professor, but also as the Associate Vice Provost for Academic Programs. There is little wonder that he was awarded the prestigious President's and Provost's Award for Distinguished Faculty Service in 2015.

As a faculty leader within the University community in general, and SES, in particular, Larry always led by example; never asking anyone to do what he would not do himself. He was a wonderful role model for young faculty. He was valued for his wise counsel, his level headedness, his wonderful sense of humor, his ability to listen, his fairness, his unusual sense of community, and his steadfastness in getting a job done. Simply said, he was a great researcher, and excellent teacher, selfless leader, and extraordinary colleague.

This story was contributed by Prof Berry Lyons

Professor Ralph Von Frese Retires

Professor Ralph von Frese, a member of the faculty in the School of Earth Sciences since 1982, retired from OSU in July, 2017. Ralph served in the US Army before entering Park College (MO) where he obtained a B.A. degree in physics, mathematics and German. He spent time at the University of Bonn and as an Applied Physicist with Bayer Farbenfabriken in Cologne/Leverkusen, Germany, before returning to the US to obtain two MS degrees, in Physics and in Geophysics, from Purdue University. He continued at Purdue to complete the Ph.D. degree in geophysics, and spent two years at that institution as a Visiting Assistant Professor before joining the faculty at Ohio State. From the time of his arrival, Ralph worked to establish our Geophysics program. He taught courses in exploration geophysics, engineering geophysics, Earth and planetary physics, and geomathematics. His research, focused on interpretation of satellite-based gravity and magnetic measurements of the Earth, Moon, and other planets, received widespread recognition from national and international scientists. Notable projects include identification of ancient impact structures, correlation of long-lived magnetic anomalies on different continents, models for crustal thickness in the North Atlantic and Mars, and the tectonics of Iran. He helped identify the “Man in the Moon” as giant impact craters from satellite gravity and laser altimetry observations, and explored the effects on the lunar core, mantle and crust on the opposite side of the body. He also identified a possible giant impact crater beneath the ice sheet in Wilkes Land, Antarctica, and proposed that this may have contributed to the near total extinction of life about 250 million years ago. Ralph also worked on applied geophysical techniques to studies of archaeological sites in Greece and elsewhere. Much of his research involved collaboration with scientists at NASA and colleagues in the Departments of Geodetic Sciences and Anthropology. A steady stream of graduate and undergraduate students worked with Ralph on various projects, and have gone on to find employment in academia, industry, or with government agencies.

Given his research career in geophysics, it may come as a surprise to some that Ralph’s first interest was biology – but he chose physics and geophysics because of its dependence on theory, logic and quantitative methodology! Ralph strongly supported formation of the School of Earth Sciences, and played an important role in organizing the division of Solid Earth Dynamics. However, he has many interests beyond earth sciences, and is knowledgeable about many topics. He was also an accomplished tennis player until he suffered a severe injury while playing. He recovered relatively rapidly and resumed his duties in SES. He has always enjoyed time with his family, and together they have traveled to various exotic locations on vacation. I have no doubt that he will enjoy time with them in his retirement, and we wish him many enjoyable and fulfilling years.

This story was contributed by Prof Mike Barton