

April 2013 News Notes

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Prof Ann Cook featured on NPR's Morning Edition

Prof Ann Cook was featured on NPR's Morning Edition, on March 15 for her work on methane hydrates. Congratulations, Ann!

For the full article and additional details, please visit the following link:

Link: <http://go.osu.edu/methane-hydrates>



Prof Larry Krissek co-instructs School of Rock

Nineteen science educators from across North America lived on board the scientific ocean drilling vessel JOIDES Resolution for nine days in April, as participants in the latest "School of Rock Expedition for Educators" professional development workshop. Since 2005, the School of Rock program has provided hundreds of educators with hands-on training in scientific techniques using the same laboratories, samples, and data available to working scientists aboard the ship. Prof. Krissek co-instructed the workshop.



Prof Lonnie Thompson publishes climate record

OSU School of Earth Sciences professor Lonnie Thompson and Geography professor Ellen Mosley-Thompson announce research on an 1,800 year-old tropical / sub-tropical climate “Rosetta Stone”.

Ice cores taken from Peru’s Quelccaya Ice Cap yielded the first annually resolved “Rosetta Stone” with which to compare other climate histories from Earth’s tropical and subtropical regions over the last two millennia.

For additional information: <http://researchnews.osu.edu/archive/icerosetta.htm>



SES students win prizes at research forums

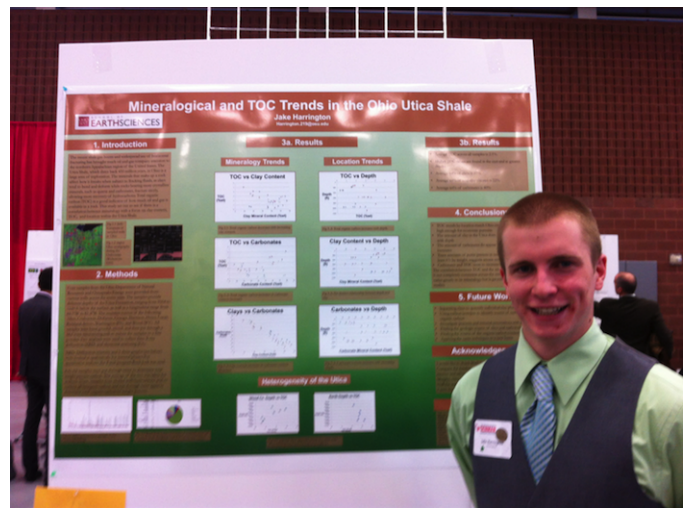
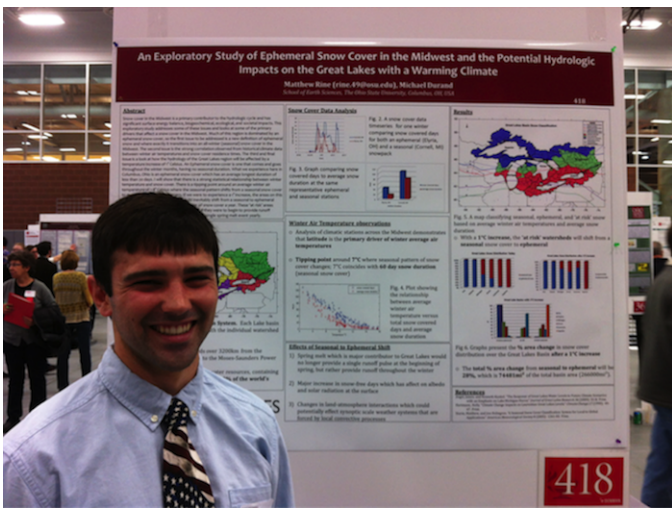
Natural and Mathematical Sciences Undergraduate Research Forum. On March 20, Earth Sciences students, Shannon Hibbard, B.S. 2014, and Jeff Thompson, B.S. 2013, won prizes for best posters at the Natural and Mathematical Sciences Undergraduate Research Forum. Shannon presented “A Petrological Study of Lavas Erupted Along the South East Indian Ridge,” a study she has been conducting under the supervision of Professor Michael Barton. Jeff presented “Microevolutionary Response in Lower Mississippian Camerate Crinoids to Predatory Pressures,” his Honors thesis research conducted under the direction of Professor Bill Ausich. Pictured are all seven SES majors who presented at the NMS forum. From left to right, are Jeff Thompson, 2013, Victor Perez, 2013, Cody Trigg, 2013, Natasha Lewis, 2014, Edwin Buchwalter, 2013, Shannon Hibbard, 2014, and Christina Zerda, 2014.



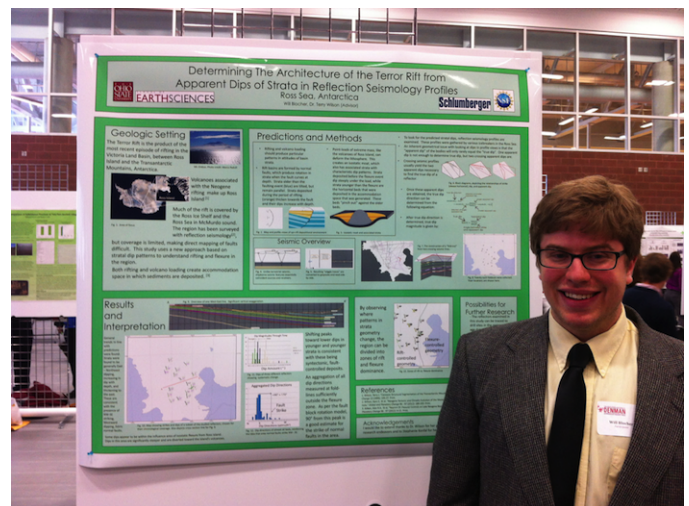
Denman Undergraduate Research Forum

Earth Sciences was well represented at the March 28, 2013 university-wide Denman Undergraduate Research Forum. Eighteen undergraduate Earth Sciences majors presented research posters at the Denman forum. Presenting were Victor Perez, 2013, Kathryn Bullinger, 2014, Loren Rosenbeck, 2013, Kelsey Dailey, 2013, Zach Cotter, 2014, Jake Harrington, 2015, Shannon Hibbard, 2014, Will Blocher, 2013, Cody Trigg, 2013, Jeff Thompson, 2013, Christina Zerda, 2013, Andrew Thompson, 2013, Matthew Rine, 2013, Jeremy Myers, 2013, Cara Nadler, 2013, Natasha Lewis, 2014, Charlie Diamond, 2013, Edwin Buchwalter, 2013. Among the 64 posters presented in the Mathematical and Physical Sciences division, 16 prizes were awarded and 6 of those went to Earth Sciences majors. Matthew Rine won first place for “An Exploratory Study of Ephemeral Snow Cover in the Midwest and the Potential Hydrological Impacts on the Great Lakes with a Warming Climate,” conducted under the direction of Assistant Professor Michael Durand. Jacob Harrington won second place for “Mineralogical and TOC Trends in the Ohio Utica Shale,” conducted under the direction of Professor David Cole and research scientists Dr. Julie Sheets and Dr. Sue Welch. Will Blocher won third place for “Determining the Architecture of the Terror Rift from Apparent Drips of Strata in Reflection Seismology Profiles, Ross Sea, Antarctica,” conducted under the direction of Professor Terry Wilson.

Winning Honorable mention were Shannon Hibbard for “A Petrologic Study of Lavas Erupted Along the South East Indian Ridge,” directed by Professor Mike Barton, Edwin Buchwalter for “Geochemical and Physical Evidence of Methane Hydrate in Marine Sediments,” directed by Assistant Professor Ann Cook, and Christina Zerda for “Pressure of Partial Crystallization of Basalt Beneath the East Pacific Rise: A Study of Magma Chamber Depth from 6 °N to 14 °N,” directed by Professor Mike Barton. Winning Honorable Mention in the Environmental Science category was Kelsey Dailey for “Evaluating Anthropogenic Impact on Water Quality of Ohio Rivers over Time,” directed by Professor W. Berry Lyons. Congratulations to all Earth Sciences students who presented!



Clockwise from top left: Matt Rine (2013), Jake Harrington (2015), and Will Blocher (2013) won 1st, 2nd, and 3rd place, respectively, for their undergraduate research at the Denman Undergraduate Research Forum.



SES graduating senior awarded fellowship

Kelsey M. Bisson, B.S. with Honors Research Distinction, 2013, has been awarded an NSF Graduate Research Fellowship (GRF). Kelsey will use her NSF Graduate Research Fellowship for three years of support for graduate study leading to a Ph.D. degree in oceanography. Only five Ohio State undergraduates were awarded NSF GRFs this year, among the approximately 2,000 Fellowships awarded nationally. The fellowships are awarded annually to ensure the vitality of science, technology, engineering, and mathematics in the U.S. Congratulations to Kelsey!



SURE 2013 interns announced

Congratulations to the ten Earth Sciences undergraduates who will be the 2013 Shell Undergraduate Research Experience interns. Students, their projects, and their faculty mentors are:

- Daniel Ardrey, “Soil development under pre- and post-SMCRA mining reclamation at The Wilds” working with Dr. Carey
- Christian Gomes, “Compaction of sediments in response to burial in tectonic sedimentary basins” working with Dr. Bevis
- Mario Gutierrez, “Physical and chemical properties of shales and fracking fluids” working with Dr. Daniels
- Shannon Hibbard, “Fine-fraction mineralogy of terrigenous sediments from the Gulf of Cadiz” working with Dr. Krissek
- Michael Kellum, “IDDP site 1308 iceberg-rafted debris record reveals glacial fluctuations and iceberg sources” working with Dr. Krissek
- Natasha Lewis, “Petrological constraints on the magmatic plumbing systems of active Hawaiian volcanoes” working with Dr. Barton
- Joe Lonsert, “Distribution of pyrite and organic matter in the Utica/Pt. Pleasant Shale” working with Dr. Cook
- Mackenzie Scharenberg, “Exploration of mantle materials” working with Dr. Panero
- Amy Wiley, “Spectral decomposition of surface height to characterize topographic fabric” working with Dr. Bevis
- Chrissy Zerda, “Pressure of crystallization of liquid beneath the East Pacific Rise: A study of magma chamber depth from 6°N to 14°N” working with Dr. Barton

Brevia

William Eymold was awarded a \$2000 Arts and Sciences Honors Program Undergraduate Research Scholarship. William won this competitive scholarship by writing a proposal about his research. He will conduct his research under the direction of Prof Wendy Panero.

Cayman Unterborn (adviser: Prof Wendy Panero) gave an invited presentation, “The Distribution of Radiogenic Elements in Stars with and without Planets: Implications for Dynamics and Habitability,” at the Neutrino Geoscience 2013 conference in Takayama, Japan, March 21-23, 2013.

Prof Dave Cole co-organized a Deep Carbon Observatory Deep Energy Directorate workshop held at Manchester University in early February, 2013. Participants came from the US, Canada, Norway, Russia, South Africa, Germany, United Kingdom, Brazil, France, and Italy to discuss the origin and distribution of abiotic versus biotic hydrocarbons.

Prof Dave Cole was invited to the International Deep Carbon Observatory meeting held at the National Academy of Sciences to present a science overview and future plans of the Deep Energy Directorate. Prof Dave Cole authored a chapter in the Mineralogical Society of America, *Reviews in Mineralogy and Geochemistry* Volume 75 - *Carbon in Earth*. The public release of this open-source book was a major agenda item at the International Deep Carbon Observatory meeting. The book is open-source and available at this link: <https://dco.gl.ciw.edu/carbon-earth>

Prof. Ralph von Frese participated in a U.S. Senate briefing on “Advances in Nuclear-Test Monitoring and Verification” organized by the American Association for the Advancement of Science (AAAS) in Room SH-902, Hart Senate Office Bldg., Washington, D.C. on 24 Sep. 2012. Prof. von Frese co-authored a paper that was presented at the briefing on the underground nuclear explosion monitoring capabilities of GPS entitled, “Advances in Nuclear-Test Monitoring and Verification.”

In Feb. 2013, the journal *Tectonophysics* published a special issue (v. 585C) entitled “Recent Advances in Antarctic Geomagnetism and Lithospheric Studies” edited by F. Ferraccioli (British Antarctic Survey), Prof. von Frese, and M. Ghidella (Antarctic Institute of Argentina). The special issue includes 22 papers that highlight the scientific accomplishments of the Antarctic Digital Magnetic Anomaly Project (ADMMap).

In Mar. 2013, the Cambridge University Press published the advanced undergraduate, beginning graduate geophysical textbook entitled *Gravity and Magnetic Exploration – Principles, Practices, and Applications* by W.J. Hinze (Purdue University), Prof. von Frese, and A.H. Saad (Saad GeoConsulting). This combined study and reference text provides a comprehensive account on using surface, subsurface, marine, airborne, and satellite gravity and magnetic measurements for exploring the subsurface.