

March 2015 News Notes

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Alumni Change Lives

Deon Knights works with Dr. Audrey Sawyer. Here Deon describes how the Friends of Orton Hall fund helped to further his graduate studies.

I am a 2nd year master's student working with Dr. Audrey Sawyer. I use a numerical modelling approach to investigate how tides influence denitrification in upwelling groundwater of a tidal fresh-water zone. The productivity of aquatic ecosystems depends in part on the presence of biologically available forms of nitrogen such as nitrate. Nitrate has historically been a limiting nutrient in marine ecosystems, but anthropogenic loading has led to increases in the amount of reactive nitrogen supplied to ecosystems. This increase negatively impacts water quality of aquatic ecosystems by decreasing biodiversity, and increasing dead zone prevalence in the ecosystem. Tidal ecosystems are especially sensitive to nitrate loading. Denitrification through subsurface flow paths can, however, reduce the amount of nitrate discharging in aquatic environments.



I was fortunate to have been granted a Friends of Orton Hall grant which allowed me to finance my travel to the 2014 American Geophysical Union (AGU) conference in San Francisco. Without the travel support I may not have been able to attend, and I am privileged to have had that opportunity because the conference greatly benefited my academic and professional career. At the AGU conference, I was able to develop my skills by presenting my research in a poster to scientist in my field. Not only did I gain a lot of experience communicating my work, I was also able to network. I interacted with potential colleagues and future employers, and most importantly, I received important feedback and came up with methods to improve my models. One colleague in particular demonstrated several techniques to decrease the study time of reactive transport models which I use in my research. Originally each reactive transport model took about 18 hours to run. Now, after feedback from AGU and couple months of tweaking they take two hours to run. I attended several of the talks, exhibitions and workshops at the conference including an Interviewing Workshop and a Science and Policy Seminar. I am now continuing my research with feedback from the scientific community and a newly developed skill set and am on course to finish my master's degree Fall 2015.

SES graduate student awarded NSF EAPSI Fellowship

Kevin J. Meyers, first year M.S. student and University Fellowship holder who is working with Professor Anne Carey, has been awarded a National Science Foundation East Asia and Pacific Study Institute (EAPSI) fellowship for study in Taiwan in summer 2015. In the words of the NSF program description, “An EAPSI award provides U.S. graduate students in science, engineering, and education: 1) first-hand research experiences in Australia, China, Japan, Korea, New Zealand, Singapore, or Taiwan; 2) an introduction to the science, science policy, and scientific infrastructure of the respective location; and 3) an orientation to the society, culture, and language. It is expected that EAPSI awards will help students initiate professional relationships to enable future collaboration with foreign counterparts.” Kevin joins past EAPSI fellows from SES, including Steve Goldsmith, Ph.D. 2009, Stephen Levas, Ph.D. 2012, and Jeff Pigott and Ben Vander Jagt, Ph.D. expected summer 2015.



In Taiwan, Kevin will be studying chemical weathering in the Beinan River. He will also utilize archived riverine suspended matter samples collected during Typhoon Mindulle in 2004 and Typhoon Morakot in 2009 to determine changes in rates and amount of chemical weathering products transported during typhoons, a topic of interest in Carey's lab. Kevin's research will be conducted in the laboratory of Distinguished Professor and Director of the Isotope Geochemistry Laboratory, Dr. C.-F. You, Department of Earth Sciences at National Cheng Kung University in Tainan City, Taiwan. Congratulations to Kevin!

Graduate Student Awarded the Ellen Gontter Award

Maya Wei-Haas (Adviser: Yo Chin) won the Ellen Gontter Award given by the American Chemical Society. It is a publication competition and is the highest honor bestowed upon a graduate student by the ACS Environmental Chemistry Division. It comes with a \$1000 prize. Congratulations, Maya! Prof Chin's students Marcy Card and Ale Hakala have won these awards in the past.



AAPG Chapter Update

The AAPG Chapter at OSU is proud to introduce this coming year's chairs, who will be involved with the E-Board to work on improving the chapter and providing the activities this year.

Program/Publicity Chair: *Andrew Collins*

Field Trip Chair: *Sean O'Brien*

Fundraising/Grant Chair: *Laura Miller*

Community Chair: *Lienne Sethna*

Monthly Chapter Meeting

January

On January 23rd, our Student Chapter was represented at the Ohio Geological Society Winter Gala, where students had the opportunity to meet and converse with different local geoscientist in the area.



February

- On February 17th, Battelle Petrophysicist Erica Howat presented "EOR, Carbon Sequestration, and Current Research at Battelle" to attending chapter members.
- On Friday 20th, SES Alumnus and Shell Geologist Robert Swift presented on Exploration Geology & Shell to several students from SES and the Petroleum Geology class. Students were exposed to a 3D seismic demonstration, the guidelines of exploration, and various opportunities for undergraduate and graduate students at Shell (Photo Above). On February 21th, 15 SES students attended the 6th Shell Leadership Conference, interacting in teamwork activities and engaging with Shell representatives and recruiters.
- Many thanks to Rob Swift for his presentation and time. It is interactions like these that allow our members to develop and grow in preparation for future opportunities in industry.



March

On March 3rd, Dr. Joachim Moortgat presented "Numerical Explorations of Subsurface Reservoirs" to attending members, who discussed the several applications of reservoir modeling. The meeting consisted of updates on our upcoming Drake Well Museum trip, our professional development workshops, and our preparation for the AAPG ACE 2015 in Denver. (Photo Left)

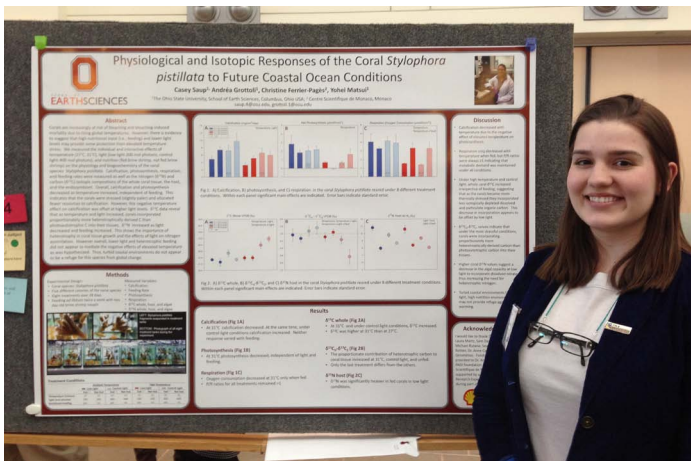
If any alumni are interested in visiting or interacting with the AAPG Student Chapter at OSU, please feel free to contact us at aapg@osu.edu. Let us know if you are attending the AAPG ACE 2015 in June or if you have any questions about our preparation for the conference. Keep up to date on all things OSU AAPG here at <http://aapg.org.ohio-state.edu>.

Stayed Tuned & Go Bucks!!!

NMS Undergraduate Research Forum: SES has a strong showing including best student poster

On Friday, March 6, 2015, seven undergraduate students majoring in or doing research in Earth Sciences were among the 97 students who presented research posters at the Natural and Mathematical Sciences Undergraduate Research Forum.

Casey Saup won for best undergraduate research poster presentation at this year's Natural and Mathematical Sciences Undergraduate Research Forum, held 6 March 2015. In the lower photo, Casey is pictured with her poster. Ms. Saup's research, entitled "Physiological and isotopic responses of the coral *Stylophora pistillata* to future coastal ocean conditions" showed that increased nutrition and reduced light did not provide protection to corals from the stress of elevated seawater temperatures. Her research was supervised and supported by her senior thesis advisor, Professor Andrea Grottoli. Ms. Saup was honored with the recognition and a \$100 cash prize. To help support undergraduate research like this, please donate to the Coral Research Fund 313775 at <http://www.giveto.osu.edu>. In the upper photo, from left to right are Ken Peterman, Sean Newby, Casey Saup, Sean O'Brien, Erica Maletic and Erin Lathrop. Congratulations to all! A list of each student's topic follows here:



Erin Lathrop, 2015, advisor, Larry Krissek, presented "Sediment composition in the Gulf of Cádiz contourites during the Pleistocene."

Erica Maletic, 2015, advisor Tom Darrah, presented "Large scale natural gas emplacement traced by noble gases: the Virunga Volcanic Province."

Sean Newby, 2017, advisor Matt Saltzman, presented "Determining the difference of strontium 86/87 isotope rates of cones and blades using Oklahoma Ordovician conodonts."

Sean O'Brien, 2015, advisor Larry Krissek, presented "Sediment variability in the Gulf of Cádiz contourites over the past 300 km."

Ken Peterman, 2015, advised by Mike Barton, presented "The olivine-melt equilibrium method for determining oxygen fugacity."

Elsa Saelens, Environmental Science 2017, advised by Berry Lyons, presented "Local meteoric water line for precipitation, Central Ohio."

Casey Saup, 2015, advised by Andréa Grottoli, presented "Physiologic and isotopic responses of the coral *Stylophora pistillata* to future coastal ocean conditions."

Brevia

Audrey Sawyer's research group receives funding from NSF to study surface water-groundwater interactions and nitrogen export from coastal rivers.

Prof Lonnie Thompson was interviewed in the January issue of Earth Magazine ([link](#)). Congratulations, Lonnie!