

## November 2016 News Notes

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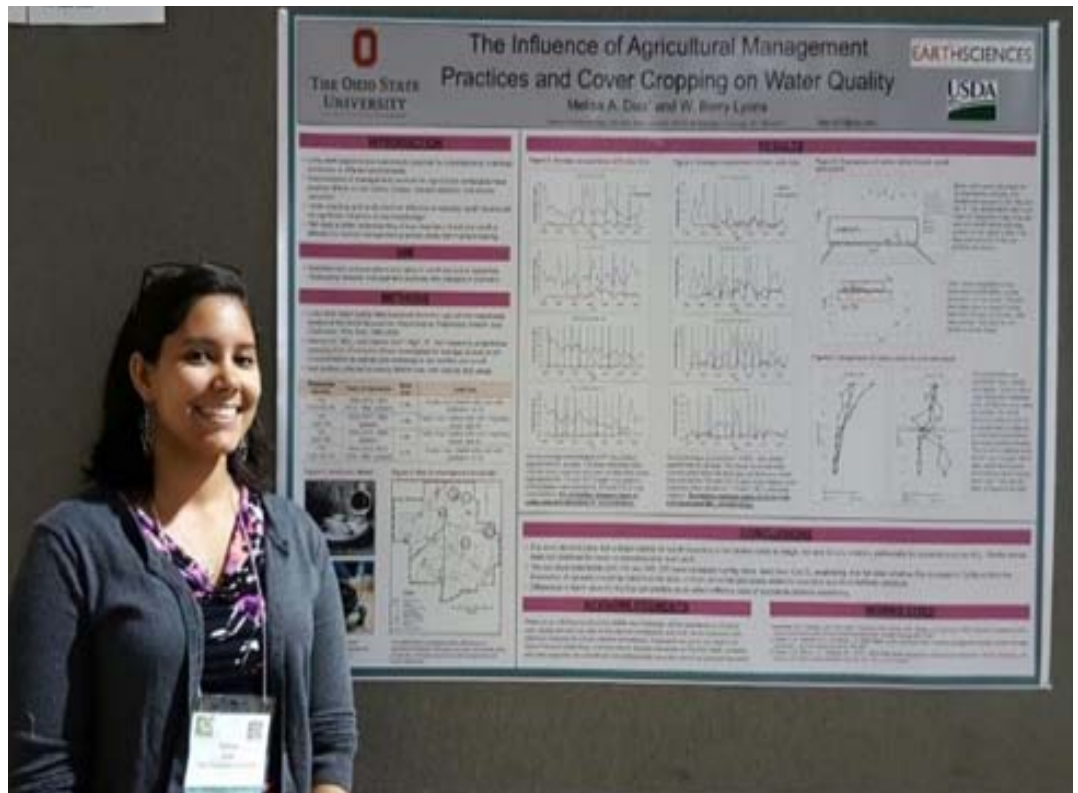
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### Alumni Change Lives

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*Melisa Diaz is a graduate student working with Dr. Berry Lyons. Here she describes how Friends of Orton Hall helped further her studies. If you are interested in giving to support the Friends of Orton Hall or other funds, please visit our giving page ([link](#)).*

On October 13th, I had the pleasure of presenting research at the Society for Advancing Chicanos/Hispanics and Native Americans in Science (SACNAS) Annual Conference. I presented a poster on the effects of runoff chemistry and cation exchange in central Ohio agricultural watersheds. The graduate poster session was judged and it was a great coincidence that while I presented work on Ohio watersheds, my master's thesis will focus on Antarctic aeolian transport, and my judges were both Antarctic scientists! We hope to reconnect in Antarctica in coming field seasons. During the lunch plenary sessions, we heard many speakers discuss the importance of diversity and how choosing a team of people with various backgrounds has benefited their work. We also participated in Native American blessings and watched cultural performances. As a female minority in STEM, it was great to attend a conference where I could not only share and learn about research in many disciplines, but also reconnect with my cultural heritage. I am very grateful to Friends of Orton Hall for providing me with the opportunity to attend the SACNAS conference this year and look forward to applying the outreach tools I learned in their professional development sessions.



# Friends of Orton Hall Annual Report

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Students that have received support from SES development accounts including the Friends of Orton Hall (FOH) fund provide a brief description of their research projects and how these funds were utilized in the section titled "Alumni Change Lives" included each month in the SES newsletter. The major goal of this section is to inform donors of how their contributions to the FOH fund are impacting the lives of SES students. Indeed, one of the conditions for receiving an award from FOH is that students agree to submit a short description of their research along with a photograph that can be included in the monthly newsletter. It is clear from reading the monthly issues of the newsletter that alumni donations to FOH have a major impact on the lives of SES students just as awards from FOH probably helped change the lives of alumni in years past. The FOH fund provides small grants to undergraduate majors and graduate students pursuing studies in the School of Earth Sciences. These grants are typically used to support fieldwork, analytical work, or the presentation of research results at professional meetings. The fund is exclusively for use by students.

Applications are considered by a faculty committee consisting of a Chairperson and three faculty members. Students are expected to submit materials prior to one of three annual deadlines (on or around Sept. 15, Jan.15, May 15) in order to expedite the timely review and processing of applications. During the past fiscal year (July 2015-July 2016), we received a total of 37 applications from graduate (25) and undergraduate (12) students. All of these applications were funded, with 21 awards for students to travel to professional meetings to make presentations. The committee also approved 4 awards for support of research activities (for example to help with the costs of performing geochemical analyses and to utilize specialized imaging equipment), and 5 awards to support fieldwork in Kentucky, Hawaii, and Iceland.

The total amount of monies distributed in the past fiscal year was \$28,131, and was close to the amount requested by the applicants (\$33,300). This is because the steady increase in the amount available in the FOH fund (thanks to the generosity of our alumni donors) has allowed us to increase the size of individual awards to more realistically cover the costs involved in travel and research. In the present fiscal year we have already received 22 requests from 16 graduate and 6 undergraduate students for support for travel to conferences. The committee approved these requests for a total amount of \$15,520, and it appears that we are on track to support about the same number of students and projects as last year. Support from FOH is instrumental in supporting the research activities of students in the School of Earth Sciences. This support is greatly appreciated by both students and their advisors. On behalf of the FOH committee, the faculty, and the students in SES, I want to sincerely thank all alumni that donate to the FOH fund. *Dr. M. Barton, Chair, FOH Committee*

## SES Event at GSA

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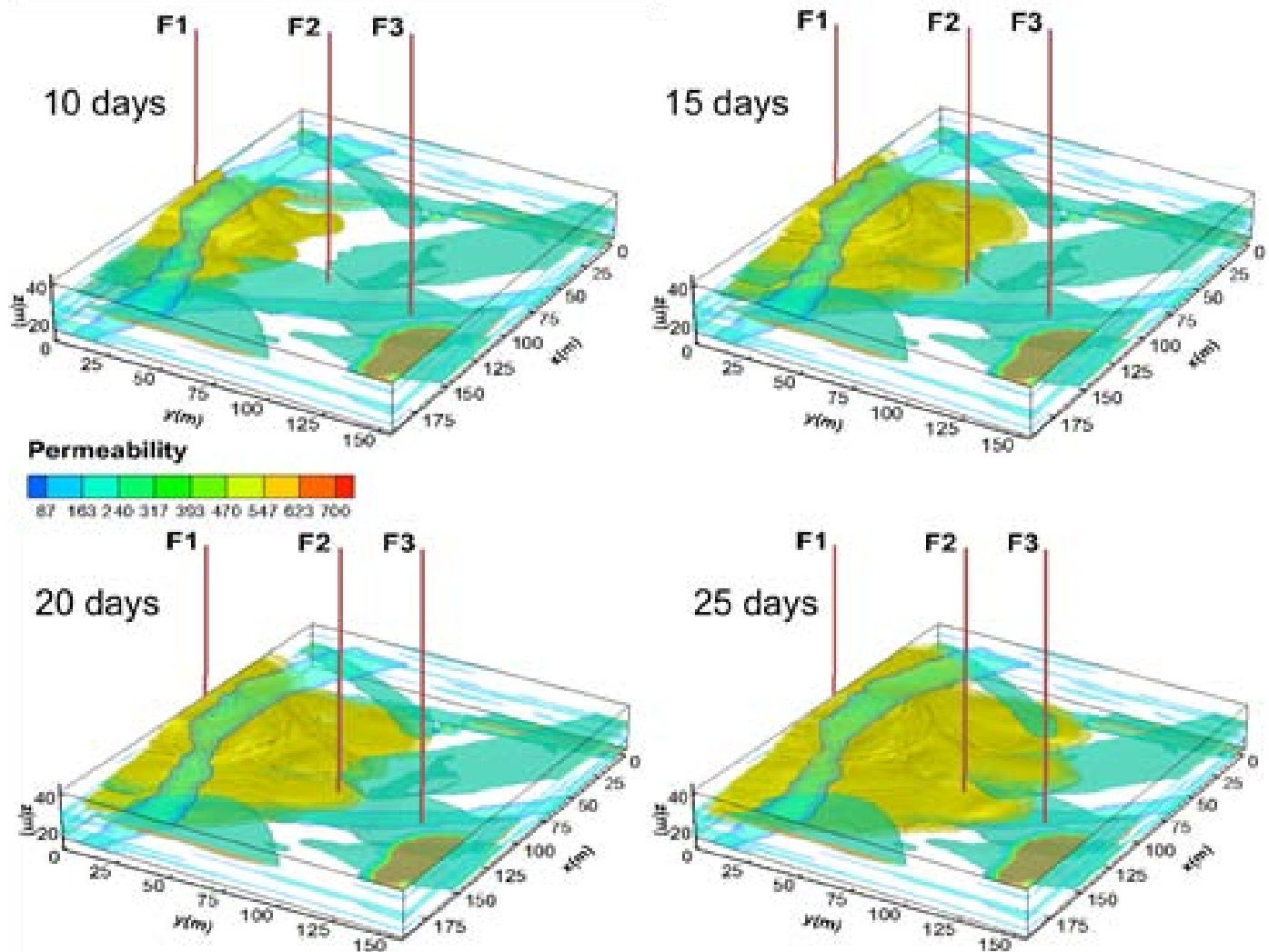
The School of Earth Sciences held a reception for Alumni at the Annual Meeting of the Geological Society of America (GSA) in Denver on September 26. More than 50 alumni, emeritus faculty, current faculty and students, and friends of the School turned out. In addition to catching up with friends and meeting current SES students, many of whom gave excellent talks or posters, alumni learned about the new and exciting directions that the faculty are taking the School. And all were treated to the cobbler station for dessert, which was a big hit!



# SES Researchers Model CO<sub>2</sub> Injection

A field-scale carbon dioxide (CO<sub>2</sub>) injection pilot project was conducted as part of the Southeast Regional Sequestration Partnership at Cranfield, Mississippi. SES has been involved in detailed geochemical field measurements at this site since 2009. In this recent work, SES investigators harness the rich data-set that has been accumulated for this project to construct a high-resolution numerical model for the 'Detailed Area of Study' of the field experiment. The target formation has a complex depositional architecture with many high permeability fluvial channels. CO<sub>2</sub> injection through the static reservoir model was simulated using the real field injection schedule provided by UTBEG. Simulations results show excellent agreement with the field data, such as well pressures and CO<sub>2</sub> arrival times in two observation wells. In ongoing work, Reza Soltanian is also modeling the injection of a range of conservative tracers that were co-injected with the CO<sub>2</sub> at different times. These simulations allow constraint of flow processes and connected pathways within the aquifer that are not accessible to direct observations.

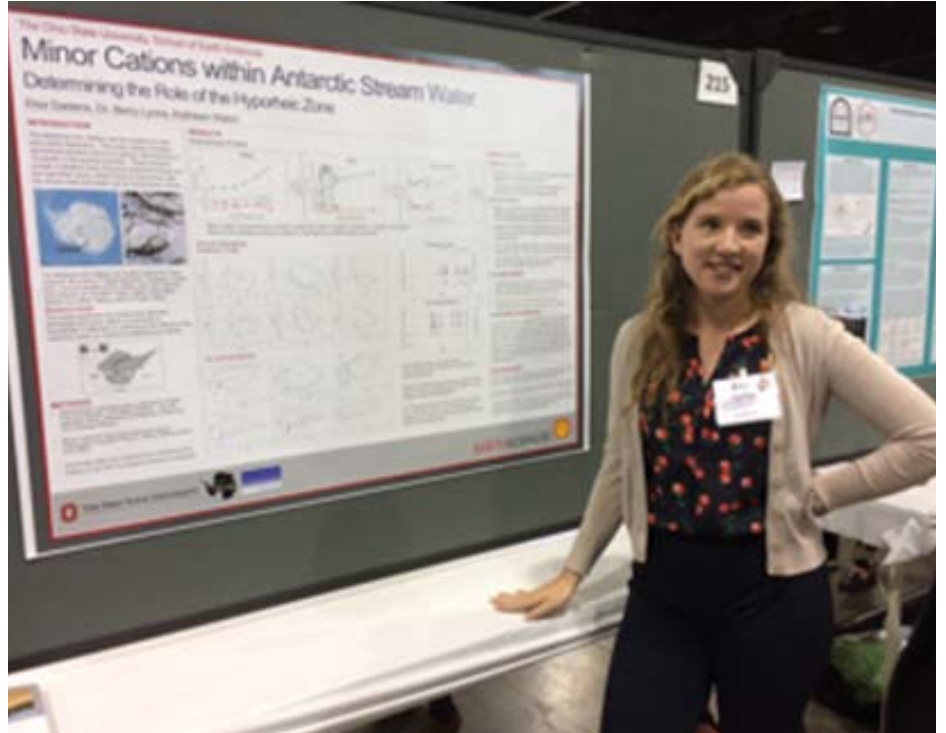
Mohamad Reza Soltanian, Mohammad Amin Amooie, David R. Cole, David E. Graham, Seyyed Abolfazl Hosseini, Susan Hovorka, Susan M. Pfiffner, Tommy J. Phelps, Joachim Moortgat (2016), Simulating the Cranfield geological carbon sequestration project with high-resolution static models and an accurate equation of state, *International Journal of Greenhouse Gas Control*, 54, 282-296, doi: 10.1016/j.ijggc.2016.10.002.



# Earth Sciences Undergrads Present at GSA in Denver

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At the annual meeting of the Geological Society of America held in Denver in September 2016, several current undergraduate and graduate students and many recent graduates presented their research, many in poster sessions. Among those presenting, Elsa Saelens, BS 2017 (expected), received honorable mention in the Showcase of Undergraduate Research in Hydrogeology for her research poster entitled “Minor cations within Antarctic stream water: Determining the role of the hyporheic zone.” Elsa is conducting her thesis research under the direction of SES Director, Berry Lyons, and was part of his group’s field party in the McMurdo Dry Valleys during the 2015–2016 field season.



## Prof Grottoli Radio Interview

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Outside Magazine recently proclaimed the Great Barrier Reef in Australia to be dead. But is it really? Prof. Grottoli interviewed with Madeleine Brand on “Press Play” at KCRW in Los Angeles, CA on 10-14-16 about the demise of the Great Barrier Reef. According to her, the Great Barrier Reef is suffering, but not dead. Hear the full interview [here](#).