

# Inland Geological Society

June 2015

Newsletter of the Inland Geological Society

Volume 31 No. 6

Wednesday,  
June 3<sup>rd</sup>

Time:  
Social: 6:00pm  
Dinner: 7:00pm  
Lecture: 7:30pm

Location:  
LSA Associates  
1500 Iowa Ave  
Suite 200  
Riverside, CA  
92507  
(Map on Pg. 4)

Coming to  
Dinner?  
Please RSVP:  
By Monday 6/1  
(951) 784-2168  
dixie.lass@att.net

## **In this Issue:**

- Speaker – Dr. Stephen Osborn..... 1-2
- RIMS Science and Engineering Fair Presentation—Lily Oglesby ..... 2
- CSUSB Part-time Faculty Position..... 2
- Upcoming Events/IGS Meeting Schedule..... 3
- Current IGS Officers ..... 4
- **LSA MEETING LOCATION MAP** ..... 4

## **June Speaker:**

### **Dr. Stephen Osborn**

Associate Professor, Geological Sciences Department, Cal Poly Pomona and  
Research Faculty, California State University Water Resources and Policy Initiative

## **Water Quality and Natural Gas Production: A Tale of Two Shales**

### *Abstract*

Hydraulic fracturing and directional drilling technologies have significantly expanded natural gas production from organic-rich shale formations in the US and worldwide. In fact, the United States Energy Information Administration predicts that the US will become a net natural gas exporter by 2020 and that the growth of energy production will surpass the growth of energy demands through 2040. Environmental concerns have grown in parallel, not only where there has been historic production (i.e., Pennsylvania and Colorado), but also in new areas that are targeted for exploration (i.e., North Carolina). While there is a lack of published scientific data that thoroughly address potential environmental risks, some important comparisons can be made for understanding fluid flow in different geologic systems. This talk will discuss potential environmental impacts to shallow groundwater, associated with intensive natural gas extraction from the Marcellus organic-rich shale in northeast Pennsylvania (Marcellus Shale) and recent results in Colorado (Niobrara Shale).

*(Continued on page 2)*

*(Continued from page 1)*

**Biography:**

**Dr. Stephen Osborn** is a hydrogeologist whose research focuses on the elemental and isotope geochemistry of surface water and groundwater to understand the source of fluids, flow pathways, and biogeochemical processes. He also has expertise in natural gas geochemistry and water quality issues related to subsurface hydrocarbon migration and extraction. Stephen has conducted field research in Canada, New York, Pennsylvania and Colorado, investigating potential impacts from intensive oil and gas production that has included extensive groundwater sampling leading to several highly cited peer reviewed papers. Osborn holds degrees in Environmental Science (BS) and Soil Science (MS) from the University of California at Riverside, Geology (MS) from Georgia State University, and a Ph.D. from the University of Arizona. He is currently an Associate Professor at Cal Poly Pomona and research faculty with the California State University Water Resources and Policy Initiative.

## **RIMS Science and Engineering Fair** **Featured Presentation: Lily Oglesby**

**ABSTRACT**

This experiment was designed to determine which ground material (loose sand, packed sand, gravel, asphalt, or concrete) would make a seismic wave decrease most rapidly as it travels from a seismic source to a detector. The hypothesis was that the strength of a wave should decrease faster in soft broken up materials than through hard, solid materials. A shot put ball was dropped from a fixed height onto a steel plate. The seismic wave that was created was recorded by a seismograph that was placed a certain number of centimeters away from the source. When traveling through loose sand, packed sand, or gravel, the strength of the wave decreased by a factor of 2 when it traveled from 40 cm to 80 cm away from the source. However, the wave strength did not decrease by a factor of 2 until 360 cm for a wave in concrete--a significant difference. Traveling through asphalt, the wave strength decreased by a factor of 2 when it traveled 160 cm away from the source. Thus, the hypothesis was supported by the data. This experiment simulates observations of differences in seismic ground motion on the East Coast (hard, solid rock) and the West Coast (soft, broken up rock). There were several ways to improve the project. The seismic source could be rolled of the platform with the same speed each time. The platform should move less during the experiment, and the seismic source could hit the plate in the same spot every time.

**Biography:**

**Lily Oglesby** is in the 6th grade. She attends the Riverside STEM Academy, where her favorite subject is science. She also likes to play soccer and read. In the future, she hope to be either a cosmologist or a marine biologist.

### **Part-time faculty position available: CSU San Bernardino, Department of Geological Sciences**

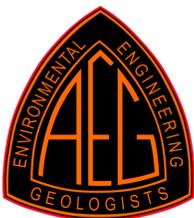
We seek an instructor to teach a large-enrollment (280 students) general education course on Energy during Spring quarter 2016 (April 4 - June 17). It is currently scheduled to be offered on TTh 10 am to noon, but it might be possible to offer it as an evening class. Because of the large enrollment, it carries a work-load credit of 6 weighted teaching units (instead of the normal 4 units), to allow for time spent helping students outside of class. The course description is: Present and future energy sources, including fossil fuels, hydroelectric power, nuclear energy and solar energy. Scientific principles and technological requirements for developing energy sources, economic factors and environmental problems associated with energy production and consumption. Prior instructor may be willing to share his lecture notes. If interested, please contact Sally McGill at 909-537-5347 or [smcgill@csusb.edu](mailto:smcgill@csusb.edu).

## Upcoming Meetings/Events

### Rock & Gem Shows—Various locations

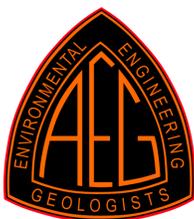
Various rock and mineral shows will be throughout So. California. To find one near you, visit [www.rockngem.com/showdates.asp](http://www.rockngem.com/showdates.asp)

### AEG—So. California Chapter Meeting



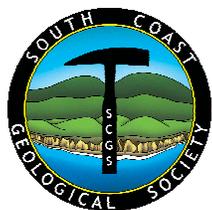
The meeting details for the next meeting for the AEG-Southern California Chapter is to be announced. For more info., visit the So. California Chapter at [www.aegsc.org/calendar/](http://www.aegsc.org/calendar/).

### AEG—Inland Empire Section Meeting



Dr. John Izbicki, USGS, will be presenting a talk on "Using Disparate, Process-Oriented Data to Solve Hydrologic Problems" on **Wednesday, June 17, 2015**. For more info., visit [www.aegsc.org/chapters/inlandempire/index.php](http://www.aegsc.org/chapters/inlandempire/index.php).

### Sand Diego Assoc. of Geologist and South Coast Geological Society Meeting



SDAG and SCGC will be holding a joint meeting. Eric Drummond, Chief Geologist for Sixty Degree Resources, will be giving a talk on "Ice Cold Gold", a reality show on which he costars, on **Monday, June 1, 2015** at the El Adobe de Capistrano in San Juan Capistrano, CA. For more info., visit SCGS on Facebook and/or [www.southcoastgeo.org](http://www.southcoastgeo.org).

### Los Angeles Basin Geological Society



LABGS will break for the summer and return September 2015. Visit their website for more info. ([www.labgs.org](http://www.labgs.org)).

## Student Presentations: Format and Deadlines

Students who wish to give a poster and/or oral presentation of their projects must submit a biography and abstract by the 10th of the month prior to the month of presentation.

Abstracts and biographies must be in the following format:

- Limit biography and abstract to 500 words or less each.
- Formats must be in arial font, 11 point and submitted as a word (.doc), text (.txt) or PDF (.pdf) document only.

All presentations should be limited to 7 to 10 minutes in length followed by 5 minutes for questions and answers.

## IGS Meeting Schedule

### **July 2, 2015 (Thursday)**

Debbie Kunath, Graduate Student, California State Polytechnic University, Pomona  
*Source's of salinity and water in a spring and natural oil seep system in the Santa Susana Mountains, Newhall, California*

### **August 5, 2015 (Wednesday)**

Steve Mains, Watermaster Support Services  
*A Little Sanity in Talking About Water*

### **September 3, 2015 (Thursday)**

Dr. W. Richard Laton, PG, Chg, CPG, EG, Associate Professor, CSU Fullerton  
*Utility of Using Drones for Geological Mapping*

**IGS MEETING LOCATION:**

**LSA Associates, Inc.**  
**1500 Iowa Ave, Suite 200**  
**Riverside, CA 92507**

**2015 IGS OFFICERS****Co-President**

Greg Johnson, LADPW  
 gjohnson@dpw.lacounty.gov  
 626.458.1741

**Co-President**

Rob Johnson, AMEC  
 rob.b.johnson@amec.com  
 951.369.8060

**Co-Vice President**

Jeff Fitzsimmons, John R. Byerly, Inc.  
 geojeff08@att.net  
 909.877.1324

**Co-Vice President**

Debbie Kunath, Consulting Geologist  
 Debbie\_Kunath@ymail.com  
 760.885.0232

**Treasurer**

Margaret Gooding, LSA Associates  
 Margaret.gooding@lsa-assoc.com  
 951.781.9310 x279

**Secretary**

Dixie Lass, Retired  
 Dixie.lass@att.net  
 951.784.2168

**Membership**

Steven E. Mains, Watermaster  
 Support Services  
 watermains@aol.com  
 951.780.5636

**Newsletter Editor**

Shelby Barker, AECOM  
 shelby.barker@aecom.com  
 760.680.0389

**Web Mistress**

Marina West, Bighorn Desert View  
 Water Agency  
 wells.out.west@gmail.com  
 760.910.3264

**Web Master**

Ernie Roumelis, AKW Geotechnical  
 eroumelis@verizon.net  
 951.265.9849