

**ACADEMIC YEAR ACCOMPLISHMENTS (Summer 2013 through Spring 2014 Quarter)**

**I. Instructional Innovation**

**Marshall - Natural Disasters (GSC 350, Fall 2013):** Developed and taught my first Hybrid-Online Learning Course. Revamped my standard Natural Disasters lecture materials to include a series of related online activities linking students to real-time Internet natural disasters data, imagery, games, and video from a wide range of web sites (government agencies, geoscience professional societies, news outlets, educational & academic research groups, etc.). **Watershed Restoration (RS 414, Spring 2014):** Continued to develop this popular interdisciplinary field seminar course for undergraduate and graduate students across multiple colleges. Further refined the “Stream Team Field Project”, expanding on field study sites, introducing new field equipment (water chemistry kits, surveying gear), and improving field trips, class reading and discussion list, online case study videos, lecture material, and class discussion format.

**Nourse** - Used hand-held video camera to film various geological field mapping excursions to Glendora Ridge (GSC 333L), Anza-Borrego State Park (GSC 333L), Rand Mountains (GSC 491L), Blue Ridge (GSC 503L), and Blue Ridge (GSC 491L). These movies are being compiled as foundation for developing an online geological mapping course. Used laser rangefinder technology to map inaccessible canyon exposures in various MS Thesis Research projects (GSC 694). Utilized online movie animations created by Tanya Atwater to illuminate tectonic reconstructions of southwestern North America in GSC 501 Seminar course Advanced Topics in Geosciences.

**Osborn** - I've continued to hold virtual office hours through Facebook. This has been utilized by several of my students, though I expect that it is more useful for non-majors that take geology survey classes like GSC 111 (physical Geology) and GSC 350 (Natural Disasters). The students in the majors usually feel comfortable to come to my office at any time. I've started to incorporate more technology in my classes. For example, I have incorporated computer models that estimate fluid flow in aquifers (Modflow) and flow to groundwater wells (Aqtesolv). Next year, I will incorporate a program called Surfer (5), which draws the groundwater table in a 2-D space. These are all programs that are in common use by industry and academics. I have also incorporated engineering schematics and field identification of underground utilities. Being able to identify underground utilities is a very important (and safety minded) skill to have for any field geologist whenever they break the ground surface with drilling or other geotechnical digging. I've also incorporated the use of pressure transducers, water sounding devices, and an Ion Chromatograph into my class/laboratory discussions.

**Polet** - Created new field-based learning modules using newly acquired geophysical resistivity equipment and seismometer array for GSC434 (W13) and GSC564 (Sp13) classes, as well as senior and MSc thesis projects.

## II. Service

### a. Service to the Department – during Summer 2013 through Spring 2014

#### **Berry, David:**

Department RTP Committee (member)

#### **Klasik, John:**

Department RTP Committee (member)

Scholarship Committee (member)

#### **Marshall, Jeffrey:**

Department Curriculum Committee (member)

Department RTP Committee (Chair)

Graduate Committee (member)

Lecturer Evaluation Committee (member)

Scholarship Committee (member)

#### **Nourse, Jonathan:**

Alumni Reunion Committee (member)

Department Assessment Committee (Chair)

Department Curriculum Committee (Chair)

Department Recruiting Committee (Chair)

Department RTP Committee (member)

Department Semester Conversion Committee (Chair)

Department Strategic Planning Committee (Chair)

Geological Sciences Department (Chair)

Geology BS and Geology MS programs (revision of catalog copy)

Graduate Committee (Chair)

Lecturer Evaluation Committee (member)

Petrology/Mineral Resources Faculty Search Committee (Chair)

Scholarship Committee (Chair)

Summer Orientation activities for new Geology majors (lead)

#### **Osborn, Stephen:**

Alumni Reunion Committee (Chair)

Department Assessment Committee (member)

Department Curriculum Committee (member)

Department Seminar Committee (member)

Geology Club (advisor)

Graduate Committee (member)

Petrology/Mineral Resources Faculty Search Committee (member)

Scholarship Committee (member)

**Polet, Jascha:**

Alumni Reunion Committee (member)  
Department Assessment Committee (member)  
Department Curriculum Committee (member)  
Department Recruiting Committee (member)  
Department RTP Committee (member)  
Department Seminar Committee (Coordinator)  
Geological Sciences Department Facebook page (administrator)  
Graduate Committee (member, Coordinator)  
Lecturer Evaluation Committee (Chair)  
Petrology/Mineral Resources Faculty Search Committee (member)  
Scholarship Committee (member)  
Seminar on Graduate School, Internship and Scholarship Opportunities (co-presenter)  
Seminar on Senior Project Research Opportunities (co-presenter)

**b. Service to the College** – during Summer 2013 through Spring 2014

**Marshall, Jeffrey:**

Center for Excellence in Math & Science Teaching (CEMaST) (faculty fellow)

**Nourse, Jonathan:**

College Assessment Committee (member)  
College Budget Advisory Committee (member)  
College Department Chairs' Council (member)  
College Curriculum Committee (member)  
College of Science Ames Award Selection Committee (member)  
College of Science Distinguished Teaching Award Committee (member)

**Osborn, Stephen:**

75<sup>th</sup> Anniversary Project Blue Competition (judge)  
Showcase of Excellence (Geological Sciences representative)

**Polet, Jascha:**

NSF S-STEM and SEES Scholarships Program (student advisor)

**c. Service to the University (CPP & CSU)** – during Summer 2013 through Spring 2014

**Marshall, Jeffrey:**

Campus Water Initiative Committee (member)  
Council on Undergraduate Research (CUR) (campus liaison)  
CSU Council on Ocean Affairs, Science, and Technology (COAST) (faculty representative)

Kellogg FuTURE Undergraduate Research Program: KUSP Scholarships & FuTURE Mini-Grants (Director)  
Lyle Center for Regenerative Studies (adjunct faculty)  
Teacher Scholar Task Force (member)  
Undergraduate Research Faculty Advisory Council (URFAC) (ex-officio member)

**Nourse, Jonathan:**

GIS Certificate Design Committee (SCI representative)  
GIS Minor Committee (SCI representative)  
University GE Assessment Committee (SCI representative)

**Osborn, Stephen:**

Cal Poly Water Initiatives Committee (member)  
Emergency Preparedness Committee (member) and building 4, floor A (EOC Marshal)  
Kellogg FuTURE/KUSP (proposal reviewer)  
Science, Technology and Society (STS) Advisory Board member  
Sustainability Task Force (member)

**Polet, Jascha:**

Academic Affairs Committee (member)  
Academic Senate (senator)  
Incorporated Research Institutions for Seismology Consortium (institutional representative and voting member)  
Southern California Earthquake Center (institutional representative)  
Undergraduate Research Faculty Advisory Council (URFAC) (non-voting member)  
Western North America InSAR (WInSAR) Consortium (institutional representative)

**d. Service to the Profession** – during Summer 2013 through Spring 2014

**Marshall, Jeffrey:**

Council on Undergraduate Research (CUR), Geosciences Division (elected Councilor)  
Keck Geology Consortium, Costa Rica Earthquake Geomorphology Research Project (project Director)  
New Zealand Geological Survey (GNS Science), Earthquake Commission Field Research Project: Gisborne City seismic and tsunami hazard: constraints from marine terraces along the Raukumara Peninsula, North Island, New Zealand, March 5-26, 2014 (invited field consultant)  
NSF GeoPRISMS Program Education Advisory Committee (GEAC) (member)  
NSF MARGINS Mini-Lesson Development Workshop, Carleton College, Northfield, MN, 18-20 September 2013 (co-convener and workshop facilitator)

**Nourse, Jonathan:**

National Science Foundation (research grant proposal reviewer)

**Osborn, Stephen:**

Association of California Water Agencies (invited speaker)

Earth, Planetary, and Space Sciences Department, UCLA (invited speaker)

Hydrologic Sciences Research Symposium, University of Colorado (invited keynote speaker)

National Academy of Science, Distinctive Voices Lecture Series, Beckman Center, Irvine, California (invited speaker)

On behalf of the journals, Chemical Geology, Environmental Science and Technology Journal, Environmental Science: Processes and Impacts Journal, Hydrogeology Journal (manuscript reviewer)

On behalf of the funding agencies, American Chemical Society-Petroleum Research Fund, NSF-EAR Instrumentation and Facilities, U.S. Environmental Protection Agency (research grant proposal reviewer)

Science, Democracy, and Community Decisions on Fracking, Union of Concerned Scientists and UCLA Law (invited panelist).

**Polet, Jascha:**

On behalf of the journal, Bulletin of Seismological Society of America (invited manuscript reviewer)

NSF Geophysics and Tectonophysics (invited proposal reviewer)

Seismological Society of America Communications Committee (member)

State Mitigation Assessment Response Team (member)

**e. Service to the Greater Community – during Summer 2013 through Spring 2014**

**Marshall, Jeffrey:**

Forearc morphotectonics and the megathrust earthquake cycle, Nicoya Peninsula, Costa Rica (2014, March). New Zealand Geological Survey (GNS Science), Public Lecture Series, Lower Hutt, New Zealand (invited lecturer)

NSF RESPeCT Teacher Professional Development Program in partnership with CEMaST, BSCS Inc. and 12 K-8 teachers from Pomona Unified School District (workshop leader and earth science content expert)

Sycamore Elementary School, Claremont, CA slide show and hands-on demonstrations related to the Costa Rica Earthquake provided to 35 - 4<sup>th</sup> through 6<sup>th</sup> grade students (presenter)

The 2012 Mw7.6 Nicoya Earthquake: Coastal uplift and tectonic geomorphology (lecture 1), Carbonate beachrock deposits of the Nicoya Peninsula (lecture 2), and Beaches, tides, and sea level (lecture 3) (2013, June). Nosara Community Public Lecture Series, Nosara, Costa Rica (guest lecturer)

Watersheds and rivers (2013, November). Cal Poly Pomona Landscape Architecture Department Graduate Student Seminar (guest lecturer)

**Osborn, Stephen:**

Culver City fracking, KOCE-TV, with David Nazar (aired September 27, 2013) (interviewee)

Did floods cause fracking disaster in Colorado? Newsweek, the Daily Beast article (September 2013) (interviewee)

Huerfano County to be part of \$12M National Science Foundation water quality study free well water testing for residents, Huerfano World Journal article (September 2013) (interviewee)  
Hydraulic fracturing and water in California, KCET Blogger (July 2013) with Rachel Samuels (interviewee)  
The status of hydraulic fracturing in California, a Community Briefing sponsored by California Assemblyman Chris Holden (invited speaker and panelist)  
Water quality near oil and gas operations in Colorado, Colorado Public Radio, with Lesley McClerg (aired April 30, 2014) (interviewee)  
Water researchers converging on weld to test effects of oil, gas drilling, Greeley Tribune article (July 2013). (interviewee)

**Polet, Jascha:**

Collaboration with Pasadena City College to create STEM Pathways in Environmental Science (PI and project lead)  
Twitter account (CPP Geophysics) with ~2000 followers that discusses news items related to Geophysics on global, regional, and local (campus) scales (creator/participant)

<b>CALENDAR YEAR ACCOMPLISHMENTS (January 1, 2013 through December 31, 2013)</b>
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**III. Research, Scholarship and Creative Activity of Faculty Members Performed Individually or in Collaboration with Others Including Students.**

**a. Publications (Externally Peer Reviewed)**

Dixon, T. H., Schwartz, S., Protti, M., González, V., Newman, A., **Marshall, J.** & Spotila, J. (2013, January). Detailed data available for recent Costa Rica earthquake. *Eos Transactions American Geophysical Union*, 94(2), 17-18; doi:10.1002/2013EO020001.  
Jackson, R.B., Vengosh, A., Darrah, T.H., Warner, N.R., Down, A., Poreda, R.J., **Osborn, S.G.**, Zhao, K. & Karr, J. D. (2013). Increased stray gas abundance in a subset of drinking water wells near Marcellus shale gas extraction. In: *Proceedings of the National Academy of Sciences of the United States (PNAS)*, 110(28), 11250-11255; doi:10.1073/pnas.1221635110.  
Montero, W., Lewis, J.C., **Marshall, J.S.**, Kruse, S. & Wetmore, P. (2013). Neotectonic faulting and forearc sliver motion along the Atirro-Río Sucio fault system, Costa Rica, Central America. *Geological Society of America Bulletin*, 125(5-6), 857-876; doi:10.1130/B30471.1.

**b. Publications (NOT Externally Peer Reviewed)**

Gonzalez<sup>#</sup>, J. & **Osborn, S.G.** (2013). Water quality of the Thompson's Creek Watershed, Claremont, CA. Abstract 247-10 presented at the 2013 GSA Annual Meeting. *Geological Society of America Abstracts with Programs*, 45(7), 582.  
McLarty<sup>##</sup>, A. H., **Nourse, J. A.**, Wicks<sup>##</sup>, L. E. & McLarty, M. (2013). Geologic map of the eastern rand thrust complex in the Mojave Desert presenting detailed fault reactivation and brittle fault

overprinting. Abstract 146-8 presented at the 2013 GSA Annual Meeting. *Geological Society of America Abstracts with Programs*, 45(7), 375.

- Nourse, J. A.**, Silver, L. T. & McLarty<sup>##</sup>, A. H. (2013). Late Cretaceous through Cenozoic contractional imbrication, extensional detachment and strike slip dismemberment/rotation of the rand thrust complex, northwestern Mojave Desert, California. Abstract 56-16 presented at the 2013 GSA Annual Meeting. *Geological Society of America Abstracts with Programs*, 45(7), 167.
- Park<sup>##</sup>, J., Sargent<sup>##</sup>, J. & **Osborn, S. G.** (2013). Dissolved gas geochemistry of shallow groundwater in areas of oil and gas extraction, Denver-Julesburg Basin, Colorado. Abstract 278-10 presented at the 2013 GSA Annual Meeting. *Geological Society of America Abstracts with Programs*, 45(7), 645.
- Sargent<sup>##</sup>, J., Park<sup>##</sup>, J. & **Osborn, S.G.** (2013). Sources of fluids in shallow groundwater near natural gas extraction; Weld, Adams, and Boulder Counties, Colorado. Abstract 344-6 presented at the 2013 GSA Annual Meeting. *Geological Society of America Abstracts with Programs*, 45(7), 784.
- Soto<sup>#</sup>, P. M., Lenhart<sup>#</sup>, L., Smith<sup>#</sup>, D. W., **Nourse, J. A.** & **Osborn, S. G.** (2013). Hydrogeology and geochemistry of bedrock vs. landslide-sourced springs in the eastern San Gabriel Mountains, California. Abstract 247-9 presented at the 2013 GSA Annual Meeting. *Annual Meeting Geological Society of America Abstracts with Programs*, 45(7), 582.
- Wallace, L., Ellis, S., Kent, A., Litchfield, N., Marsaglia, K., **Marshall, J.**, Saffer, D., Schwartz, S. & Wyszczanski, R. (2013, April). The New Zealand primary site implementation planning workshop, Wellington, New Zealand. *GeoPRISMS Newsletter*, 31, 5-9.
- Wicks<sup>##</sup>, L. E., **Nourse, J.** & **Osborn, S. G.** (2013). Geological, structural, and geochemical investigation of robust spring discharge from a major landslide in the eastern San Gabriel Mountains, California. Abstract 134-14 presented at the 2013 GSA Annual Meeting. *Geological Society of America Abstracts with Programs*, 45(7), 351.

c. **Published Books/Chapter(s) in Books (as Author or Editor)** – none reported

d. **Presentations at Professional Conferences**

- Baltzer<sup>##</sup>, S. M., **Jessey, D. R.** & Housely, R. (2013, April). Petrochemistry of a rare earth occurrence within the northern New York Mountains of southern Nevada, California. *Desert Studies Symposium*, Baker, CA. (L/R)
- Baltzer<sup>##</sup>, S. M., **Jessey, D. R.** & Housely, R. (2013, May). Petrochemistry of a rare earth occurrence within the northern New York Mountains of southern Nevada. *Geological Society of America Cordilleran Meeting*, Fresno, CA. (N)
- Barba<sup>##</sup>, M., Rains, C., von Dassow, W., Parker, J. W. & Glasscoe, M. T. (mentor: **Polet, J.**) (2013, September). Detecting faults in southern California using computer-vision techniques and Uninhabited Aerial Vehicle Synthetic Aperture Radar (UAVSAR) interferometry. *SCEC Annual Meeting*, Palm Springs, CA. (L/R)
- Barba<sup>##</sup>, M., Rains, C., von Dassow, W., Parker, J. W. & Glasscoe, M. T. (mentor: **Polet, J.**) (2013, December). Detecting faults in southern California using computer-vision techniques and Uninhabited Aerial Vehicle Synthetic Aperture Radar (UAVSAR) interferometry. *Abstract G34B-05* presented at *2013 Fall Meeting, American Geophysical Union*, San Francisco, CA. (I\*)

- Barnhart<sup>#</sup>, A. (mentors: **Marshall, J. & Osborn, S.**) (2013, March). Formation of beachfork horizons of the Nicoya Peninsula, Costa Rica. *Cal Poly Pomona Student Research Symposium*, California State Polytechnic University, Pomona, CA. (L/R)
- Braile, L. W., Coldren, B., Baca<sup>#</sup>, A. J., Fontana, J., Olheiser, M., Ziff, M., Keske, A., Rhode, A., Martin-Short, R., Wei, A., Denton, K., Harper, C., Baldridge, W. S., Biehler, S., Ferguson, J. F., McPhee, D. K. & Snelson, C. (2013, December). Seismic and gravity investigations of the western Española Basin, Rio Grande rift, New Mexico. Abstract S23A-2484 presented at *2013 Fall Meeting, American Geophysical Union*, San Francisco, CA. (I\*)
- Dehart<sup>##</sup>, J. N., **Osborn, S.G.** & Ryan, J.N. (2013, September). Transport of selected hydraulic fracturing fluid organic compounds through aquifer sediments in laboratory columns. 246<sup>th</sup> *American Chemical Society National Meeting*, Indianapolis, IN. (N)
- Gonzalez<sup>#</sup>, J. & **Osborn, S. G.** (2013, May). Water quality of the Thompson's Creek Watershed, Claremont. *8<sup>th</sup> Annual College of Science Research Symposium*, California State Polytechnic University, Pomona, CA. (L/R)
- Gonzalez<sup>#</sup>, J. & **Osborn, S. G.** (2013, October). Water quality of the Thompson's Creek Watershed, Claremont, CA. *Geological Society of America 125<sup>th</sup> Anniversary Annual Meeting*, Denver, CO. (N\*)
- Hatch<sup>#</sup>, R. (mentor: Ore, C.) (2013, August). Using Cassini data to analyze surface conditions on Enceladus via infrared spectroscopy: the process of creating mosaics and more. *2013 REU Student Research Symposium*, SETI Institute, Mountain View, CA. (L/R)
- Hatch<sup>#</sup>, R. (2013, September). Analyzing surface conditions on Enceladus via infrared spectroscopy: The process of creating mosaics and more. *2013 REU Student Research Symposium*, California State Polytechnic University, Pomona, CA. (L/R)
- Hatch<sup>#</sup>, R., Arce, A. & Gutierrez, E. (mentor: **Polet, J.**) (2013, September). Analysis of dynamic earthquake triggering on the west coast of the United States for the El Major-Cucapah and Haida Gwaii Earthquakes. *SCEC Annual Meeting*, Palm Springs, CA. (L/R)
- Hatch<sup>#</sup>, R., Arce, A. Gutierrez, E. & **Polet, J.** (2013, May). Analysis of dynamic triggering of small local earthquakes on the west coast of the United States due to large regional earthquakes: Two test cases. *8<sup>th</sup> Annual College of Science Research Symposium*, California State Polytechnic University, Pomona, CA. (L/R)
- Kaiser<sup>#</sup>, K. & Loukeh<sup>#</sup>, J. (Mentor: **Osborn, S.**) (2013, November). Fluid sources and salinity of Dos Palmas Springs and natural preserve, Coachella Valley. *Southern California Conference for Undergraduate Research (SCCUR)*, Whittier College, Whittier, CA. (L/R\*)
- Marshall, J.** (2013, July). La deformación tectónica y su relación al ciclo sísmico de la Península de Nicoya, Costa Rica: Escuela Centroamericana de Geología, Universidad de Costa Rica. *Gabriel Dengo Symposium*, San José, Costa Rica. (I)
- Marshall, J.** (2013, September). The Kellogg FuTURE Undergraduate Research Program: Enhancing student learning through mentored research, scholarship, and creativity. *Cal Poly Pomona Fall Conference, Provost's Session on Kellogg Legacy Endowment*. (L/R)
- Marshall, J.**, Morrish<sup>##</sup>, S., Newman, A. & Protti, M. (2013, May). Coseismic coastal uplift from the 2012 Mw7.6 Nicoya earthquake, Costa Rica: Implications of megathrust rupture for fore arc morphotectonics. Abstract S44A-01 presented at *2013 Meeting of the Americas, American Geophysical Union*, Cancún, México. (I)
- Marshall, J.S.**, Litchfield, N.J., Berryman, K.R., Clark, K. & Cochran, U.A. (2013, December). Segmented coastal uplift along an erosional subduction margin, Northern Hikurangi fore arc, North Island,

- New Zealand. Abstract T43E-2710 presented at *2013 Fall Meeting, American Geophysical Union*, San Francisco, CA. (I\*)
- Marshall, J.**, Morrish<sup>###</sup>, S., LaFromboise, E., Utick<sup>#</sup>, J., Barnhart<sup>#</sup>, A., Butcher<sup>#</sup>, A., Ritzinger<sup>#</sup>, B., Wellington<sup>#</sup>, K., Khaw<sup>#</sup>, F., Kinder<sup>#</sup>, K., Wenceslao<sup>#</sup>, L., Protti, M., Gardner, T., Fisher, D., Simila, G., Spotila, J., Owen, L., Murari, M. & Cupper, M. (2013, April). Forearc morphotectonics and the megathrust earthquake cycle, Nicoya Peninsula, Costa Rica, Central America. *NSF GeoPRISMS Program, New Zealand Primary Site Planning Workshop, Program with Abstracts*, Wellington, New Zealand. (I)
- McLarty<sup>###</sup>, A. H. & **Nourse, J.** (2013, May). Reactivation and brittle fault overprinting of the eastern rand thrust complex in the Mojave Desert. *8<sup>th</sup> Annual College of Science Research Symposium*, California State Polytechnic University, Pomona, CA. (L/R)
- McLarty<sup>###</sup>, A. H., **Nourse, J. A.**, Wicks<sup>###</sup>, L. E. & McLarty, M. (2013, October). Geologic map of the eastern rand thrust complex in the Mojave Desert presenting detailed fault reactivation and brittle fault overprinting. *Geological Society of America 125<sup>th</sup> Anniversary Annual Meeting*, Denver, CO. (N\*)
- Morrish<sup>###</sup>, S. (mentor: **Marshall, J.**) (2013, March). Coseismic uplift and coastal geomorphic response to the 2012 September 5<sup>th</sup> M<sub>w</sub> 7.6 Nicoya earthquake, Costa Rica. *Cal Poly Pomona Student Research Symposium*, California State Polytechnic University, Pomona, CA. (L/R)
- Morrish<sup>###</sup>, S. & **Marshall, J.** (2013, May). Coseismic uplift and coastal geomorphic response to the 2012 September 5<sup>th</sup> M<sub>w</sub> 7.6 Nicoya earthquake, Costa Rica. *27<sup>th</sup> Annual California State University Research Competition*, Cal Poly University, Pomona, CA. (S)
- Morrish<sup>###</sup>, S. & **Marshall, J.** (2013, December). Morphotectonic index analysis as an indicator of neotectonic segmentation of the Nicoya Peninsula, Costa Rica. Abstract EP33B-0901 presented at *2013 Fall Meeting, American Geophysical Union*, San Francisco, CA. (I\*)
- Newman, A., Protti, M., Dixon, T., Schwartz, S., Feng, L., Peng, Z., **Marshall, J.**, Malservisi, R. & Owen, S. (2013, May). Success! Detailed pre-event analysis identified the slip area and magnitude of the September 2012 M<sub>w</sub> 7.6 Nicoya earthquake. Abstract S43D-02 presented at *2013 Meeting of the Americas, American Geophysical Union*, Cancún, México. (I)
- Nget<sup>#</sup>, D., Levario<sup>#</sup>, J. & Pazos<sup>###</sup>, C. (mentor: **Polet, J.**) (2013, November). A seismic deployment to explore the Sierra Madre-Cucamonga fault zone transition. *Southern California Conference for Undergraduate Research (SCCUR)*, Whittier College, Whittier, CA. (L/R\*)
- Nourse, J. A.**, Silver, L. T. & McLarty<sup>###</sup>, A. H. (2013, November). Late Cretaceous through Cenozoic contractional imbrication, extensional detachment and strike slip dismemberment/rotation of the rand thrust complex, northwestern Mojave Desert, California. *Geological Society of America 125<sup>th</sup> Anniversary Annual Meeting*, Denver, CO. (N\*)
- Owen, S. E., Simons, M., Hua, H., Yun, S., Cruz, J., Webb, F., Rosen, P. A., Fielding, E. J., Moore, A. W., **Polet, J.**, Jolivet, R., Liu, Z., Agram, P. S. & Lundgren, P. (2013, September). The Advanced Rapid Imaging and Analysis (ARIA) project for natural disaster science, monitoring, and response. *ESA Living Planet Symposium 2013*, Edinburgh, Scotland. (I\*)
- Owen, S. E., Simons, M., Hua, H., Yun, S., Cruz, J., Webb, F., Rosen, P. A., Fielding, E. J., Moore, A. W., **Polet, J.**, Jolivet, R., Liu, Z., Agram, P. S. & Lundgren, P. (2013, September). Combined InSAR, pixel tracking, GPS, and seismic analysis for slip evolution models of 2011 M7.1 van, Turkey Earthquake. *ESA Living Planet Symposium 2013*, Edinburgh, Scotland. (I\*)
- Owen, S. E., Simons, M., Hua, H., Yun, S., Cruz, J., Webb, F., Rosen, P. A., Fielding, E. J., Moore, A. W., **Polet, J.**, Liu, Z., Agram, P. S. & Lundgren, P. (2013, December). Rapid, reliable geodetic data analysis for hazard response: Results from the Advanced Rapid Imaging and Analysis (ARIA)

- project. Abstract G34B-04 presented at *2013 Fall Meeting, American Geophysical Union, San Francisco, CA.* (I\*)
- Park<sup>###</sup>, J., Sargent<sup>###</sup>, J. & **Osborn, S. G.** (2013, October). Dissolved gas geochemistry of shallow groundwater in areas of oil and gas extraction, Denver-Julesburg Basin, Colorado. *Geological Society of America 125<sup>th</sup> Anniversary Annual Meeting, Denver, CO.* (N\*)
- Pazos<sup>###</sup>, C., Nget<sup>#</sup>, D., Levario<sup>#</sup>, J. & **Polet, J.** (2013, May). A micro-seismic study of the Sierra Madre-Cucamonga fault zone transition. *8<sup>th</sup> Annual College of Science Research Symposium, California State Polytechnic University, Pomona, CA.* (L/R)
- Pitarka, A., Mejia<sup>###</sup>, H., Thio, H.K., **Polet, J.** & Hayakawa, T. (2013, April). Simulation of ocean-bottom topography and water layer effects on waveforms recorded on the ocean floor and at teleseismic distances. *Seismological Society of America Annual Meeting (poster presentation), Salt Lake City, Utah.* (N\*)
- Polet, J.**, Simons, M., Fielding, E. J. & Samsonov, S. V. (2013, December). A joint seismic and geodetic rupture model for the 2013 Khash intraplate earthquake. Abstract S11B-2318 presented at *2013 Fall Meeting, American Geophysical Union, San Francisco, CA.* (I\*)
- Protti, M., Alfaro-Diaz, R., Brenn<sup>#</sup>, G.R., Fasola<sup>#</sup>, S., Murillo<sup>#</sup>, A., **Marshall, J.S.** & Gardner, T.W. (2013, December). Identical aftershocks from the main rupture zone 10 months after the Mw=7.6 September 5, 2012, Nicoya, Costa Rica, earthquake. Abstract G23B-0787 presented at *2013 Fall Meeting, American Geophysical Union, San Francisco, CA.* (I\*)
- Questad, E., Polet, J.**, Hanks<sup>#</sup>, A., Hernandez<sup>#</sup>, D., Marks<sup>#</sup>, R., Nget<sup>#</sup>, D. & Paolini<sup>#</sup>, J. (2013, April). Cross-disciplinary field experience in Hawaii for geology and environmental biology students. *Stories of Successful Learning, California State Polytechnic University, Pomona, CA.* (L/R)
- Quimpo<sup>#</sup>, S. & **Polet, J.** (2013, May). Meteor entry analysis using seismic data—A case study of the sutter's mill meteorite. *8<sup>th</sup> Annual College of Science Research Symposium, California State Polytechnic University, Pomona, CA.* (L/R)
- Sargent<sup>###</sup>, J., Park<sup>###</sup>, J. & **Osborn, S.G.** (2013, October). Sources of fluids in shallow groundwater near natural gas extraction; Weld, Adams, and Boulder Counties, Colorado. *Geological Society of America 125<sup>th</sup> Anniversary Annual Meeting, Denver, CO.* (N\*)
- Soto<sup>#</sup>, P. M., Lenhart<sup>#</sup>, L., Smith<sup>#</sup>, D. W., **Nourse, J. A. & Osborn, S. G.** (2013, October). Hydrogeology and geochemistry of bedrock vs. landslide-sourced springs in the eastern San Gabriel Mountains, California. *Geological Society of America 125<sup>th</sup> Anniversary Annual Meeting, Denver, CO.* (N\*)
- Van Oosbree<sup>#</sup>, G. & **Osborn, S.** (2013, May). Water quality of the Santa Anita watershed. *8<sup>th</sup> Annual College of Science Research Symposium, California State Polytechnic University, Pomona, CA.* (L/R)
- Wicks<sup>###</sup>, L. E. & **Nourse, J.** (2013, May). The geohydrology and the analysis of baseflow recession of the Wingate spring system in San Antonio Canyon, San Gabriel Mountains, California. *8<sup>th</sup> Annual College of Science Research Symposium, California State Polytechnic University, Pomona, CA.* (L/R)
- Wicks<sup>###</sup>, L. E, **Nourse, J. A. & Osborn, S. G.** (2013, November). Geologic, structural and geochemical investigation of robust spring discharge from a major landslide in the eastern San Gabriel Mountains, California. *Geological Society of America 125<sup>th</sup> Anniversary Annual Meeting, Denver, CO.* (N\*)

#### IV. Grant Activities

**a. Extramural Grants (New) - Submitted in 2013.**

- Marshall, J.** The geomorphic footprint of mega thrust earthquakes: a field investigation of convergent margin morph tectonics, Nicoya Peninsula, Costa Rica, National Science Foundation (NSF), Earth Sciences (EAR) – Research Experiences for Undergraduates (REU) program, sub award through Keck Geology Consortium, \$61,000. Jan. 2013-June 2014. (F)
- Marshall, J. & Morrish<sup>##</sup>, S.** American Geophysical Union (AGU) Meeting of the Americas travel grant, Cancún, México: UNAVCO External Affairs Travel grant program, \$1500. May 2013. (F)
- Osborn, S. G. (PI),** with Co-PI, **Bobich, E.** Acquisition of a Picarro L2130-I isotope (oxygen and hydrogen) analyzer for hydrogeological and biological research, National Science Foundation (NSF), Major Research Instrumentation (MRI) program, \$150,369. (NF)
- Polet, J.** Pasadena City College-Cal Poly Pomona STEM Pathways in Environmental Sciences, Department of Education, sub award from Pasadena City College (Year 3), \$363,161. Sept. 2013-Aug. 2014. (F)
- Polet, J.** Verification of tsunami inundation for California coastal communities, National Oceanic and Atmospheric Administration (NOAA), USC Sea Grant, \$106,487. Feb. 2014-Jan. 2016. (P)

**b. Extramural Grants (Ongoing) - Received prior to 2013 and continuing into or beyond 2013.**

- Marshall, J.** Collaborative Research: Bringing National Science Foundation (NSF) Geodynamic Processes at Rifting and Subducting Margins (MARGINS/GeoPRISMS) Continental Margins Research into the undergraduate curriculum, NSF Transforming Undergraduate Education in STEM (TUES) Program, \$19,367. Sept. 2012-Aug. 2014.
- Marshall, J.** National Science Foundation (NSF) RAPID: Nicoya Earthquake After-event Response (NEAR) 2012, NSF Earth Sciences (EAR), Geodynamic Processes at Rifting and Subducting Margins (GeoPRISMS) & Geophysics Programs (RAPID Supplement), \$5,000. Oct. 2012-Sept. 2013.
- Osborn, S. G. (PI).** Routes to sustainability for natural gas development and water and air resources in the Rocky Mountain Region, National Science Foundation (NSF), Sustainability Research Networks, sub award from University of Colorado Regents, \$750,000. Oct. 2012-Sept. 2017.
- Polet, J.** Improving the use of depth phases in routine estimates of depth and location of earthquakes: collaborative research with California State Polytechnic University in Pomona and URS Corporation, United States Geological Survey (USGS), \$39,623. Sept. 2011-Aug. 2013.
- Polet, J.** Contributions to the ARIA-EQ system development, National Aeronautics and Space Administration (NASA), subcontract through Caltech/JPL, \$137,904 (\$29,824 supplement received). Sept. 2011-Sept. 2015.
- Polet, J.** Pasadena City College-Cal Poly Pomona STEM pathways in environmental sciences, Department of Education, sub award from Pasadena City College (Year 2), \$282,923. Sept. 2012-Aug. 2013.
- Wickler, N. I. Z. (PI),** with contributions from **Beardsley, P. M., Kobayashi, M., Marshall, J., Mogul, R., Riggs, L., Rosin, A. L., Sadaghiani, H. & Selco, J.** Mathematics and Science Teachers Initiative (MSTI), CSU Chancellor's Office, \$90,000. Nov. 2012-Sept. 2013.
- Wickler, N. I. Z. (PI),** with Co-PIs, **Beardsley, P. M., Caine, A.,** Roth, K (BSCS), and contributions from **Marshall, J., Page, M., Riggs, L., Sadaghiani, H., Volsey, J., Winicki-Landsman, G. & Baker, S.** (PUSD). Reinvigorating Elementary Science through a Partnership with California Teachers (RESPECT): Sustainable, research-based professional development with teacher leaders in a high-

needs district, National Science Foundation (NSF) Math Science Partnership (MSP) program, \$7.7 million. Sept. 2013-Aug. 2018.

**c. Intramural Grants (New) - Submitted in 2013.**

**Marshall, J.** Earthquake and tsunami hazards of the northern Hikurangi subduction margin, North Island, New Zealand, 2013/2014 President's Research, Scholarship, and Creative Activities (RSCA) Program, \$5,000 Mini-Grant and \$5,000 Student Supplement. Jan. 2014-Oct. 2014. (NF)

**Nourse, J.** (PI), with Co-PI, **Osborn, S. G.** Groundwater flow models for 40-person geology laboratory room 4-A-634, 2013/2014 Improving the Classroom Experience (ICE) Program Awards, \$8,000. Jan. 2014-May 2014. (F)

**Osborn, S. G.** Source of waters and salinity at the Dos Palmas Springs and natural preserve, 2013/2014 President's Research, Scholarship, and Creative Activities (RSCA) Program, \$4,980 Mini-Grant and \$4,900 Student Supplement. Jan. 2014-Oct. 2014. (F)

**d. Intramural Grants (Ongoing) - Received prior to 2013 and continuing into or beyond 2013.**

**Marshall, J.** Transformative undergraduate research engagement (Kellogg FuTURE Program), W.K. Kellogg Foundation: Kellogg Legacy Project Endowment, \$130,000. July 2011-June 2014.

**Osborn, S.** 2012/2013 Provost's Teacher Scholar Program, Summer 2013 and 2014 stipends.

**Osborn, S.** Source of waters at the Dos Palmas Springs and Wildlife Preserve, Coachella Valley, California, 2013 Kellogg FuTURE Mini Grant Program Awards, \$1,000. Jan. 2013-May 2013.

**Polet, J. A.** Microseismicity study of the Sierra Madre-Cucamonga fault transition, 2012/2013 President's Research, Scholarship, and Creative Activities (RSCA) Program, \$10,000.

**V. Professional Awards and Honors to Faculty Members**

**Marshall, J.** (February 2013). National re-election to 4<sup>th</sup> three-year term as Geosciences Councilor, Council on Undergraduate Research (CUR), Washington, D.C.

**VI. Scholarship with Students**

**a. Research Involving Students as Researchers**

**Jessey, David:**

Bruns, Jessica (UG). Evaluation of the Radovic Barite-Silver Prospect, Lead Mountain, CA.

Jorgensen, Jason (UG). Evaluation of the Radovic Barite-Silver Prospect, Lead Mountain, CA.

**Marshall, Jeffrey:**

Alfaro-Díaz, Richard (UG, Univ. of Texas, El Paso). Activation of a secondary oblique slip fault following the September 5, 2012  $M_w$ 7.6 Nicoya Earthquake, Costa Rica.

Barnhart, Andrew (UG). The formation of Holocene carbonate beachrock horizons, Nicoya Peninsula, Costa Rica.

Brenn, Greg (UG, Union College). Earthquake relocation and focal mechanism analysis in the area of rupture following the  $M_w$ 7.6 Nicoya Earthquake, Costa Rica.

Burgi, Paula (UG, Smith College). Modeling coseismic slip of the 2012 Nicoya Peninsula Earthquake, Costa Rica: Roles of megathrust geometry and surface displacement, Nicoya Peninsula, Costa Rica.

Ellis, Rob (G). Tectonic geomorphology of quaternary fluvial gravel terraces, North Fork, San Gabriel Canyon, Southern California.

Fasola, Shannon (UG, St. Norbert College). Analysis of aftershocks following the September 5, 2012  $M_w$ 7.6 Nicoya Earthquake, Costa Rica.

Freimuth, Clayton (UG, Trinity University). Holocene beachrock formations of the Nicoya Peninsula, Pacific coast, Costa Rica.

Martini, Claire (UG, Whitman College). Coastal uplift and mortality of intertidal organisms from an  $M_w$ 7.6 earthquake, Nicoya Peninsula, Costa Rica.

Morrish, Shawn (G). Digital topographic analysis of active tectonics and forearc uplift, Nicoya Peninsula, Costa Rica.

Murillo, Anthony (UG, Universidad Nacional de Costa Rica). Premonitory seismicity before the September 5, 2012  $M_w$ 7.6 Nicoya Earthquake, Costa Rica: Relationship with mainshock rupture and aftershock zone, Nicoya Peninsula, Costa Rica.

Olson, Elizabeth (UG, Washington & Lee University). Assessment of current radiometric dating techniques for beachrock on the Nicoya Peninsula, Costa Rica.

Prescott, Carolyn (UG Macalester College). Relationship between beach morphology and coseismic coastal uplift, Nicoya Peninsula, Costa Rica.

Robinson, Melissa (G). Digital topographic analysis of uplifted late Quaternary marine terraces, Nicoya Peninsula, Costa Rica.

Stewart, Dustin (UG). Stratigraphic architecture of an anomalous Holocene beachrock outcrop, Playa Garza, Nicoya Peninsula, Costa Rica.

**Nourse, Jonathan:**

Agunwah, Reggie (G). Analysis of Hogback landslide, San Gabriel Mountains, CA.

Heinlein, Christina (UG). Analysis of historical flood runoff in San Antonio Canyon.

Lenhert, Lucas (UG). Hydrogeology of Evey Canyon, San Gabriel Mountains, CA.

McLarty, Andrew H. (G). Reactivation and brittle fault overprinting of the eastern Rand Thrust System, Northwest Mojave Desert, CA.

Perez, Susan (G). GIS Investigation of Upper San Antonio and Icehouse Canyons, San Gabriel Mountains.

Riegel, Cody (UG). Hydrology of North Fork San Gabriel River, San Gabriel Mountains, CA.

Soto, Paula (UG). Hydrologic and geochemical comparison of Evey Canyon and Icehouse Canyon watersheds, San Gabriel Mountains, CA.

Wicks, Logan E. (G). Investigation of Wingate Springs and Kerkhoff Canyon, San Gabriel Mountains.

Wolfe, Oliver (UG). Field and petrographic study of Pelona Schist on Blue Ridge, San Gabriel Mountains, CA.

**Osborn, Stephen:**

Burton-Clark, Wendy (UG). Correlation of blocking fronts and El Nino.

Edgley, Ryan (UG). GIS approach to lake-level change: effects of lower water levels on biogeomorphology.

Garcia, Kevin (G). Source of fluids and salinity ad Dos Palmas Springs and Natural Preserve.

Gonzalez, Jazmin (UG). Water quality of Thompson’s Creek Watershed, Claremont, CA.

Heyer, Gabriel (UG). Source of high nitrate in foothills of San Gabriel Mountains.

Kaiser, Katrina (UG). Water quality at Dos Palmas Springs, California.

Kunath, Debbie (G). Source of fluids in springs and oil seeps Santa Susanna, California.

Loukeh, Jake (UG). Source of fluids at Dos Palmas Springs, California.

Park, Joshua (G). Dissolved gases in shallow groundwater near oil/gas production in Weld County, Colorado.

Sargent, Joshua (G). Salinity of shallow groundwater in the Denver-Julesburg basin.

Smith, Danielle W. (UG). Water quality records in Pience Basin, Colorado.

Tafoya, Chris (UG). Source of high nitrate in foothills of San Gabriel Mountains.

Thomas, Patrick (UG). Water quality of the South Platte River, Colorado from 500-year flooding.

Wright, Kyle (G). Evaluation of high nitrate in springs discharging at the base of the San Gabriel Mountains.

Yerkes, Tamara (G). Pience Basin groundwater quality.

**Polet, Jascha:**

Baca, Austin (UG). Depths of interplate earthquakes in the Indian Ocean from waveform modeling.

Barba, Magali (G). Postseismic deformation after Mojave earthquakes.

Chantrapornlert, Kevin (G). Resistivity profiles across the San Jose fault.

Greenwood, Rachel (UG). Kilauea Lava Lake height variability.

Hatch, Rachel (UG). Dynamic triggering in Southern California from the El Major-Cucapah earthquake.

Ho, Kennis (G). Amplification and resonance frequency of CPP campus.

Levario, Jonathan (UG). Relocated earthquakes from a seismic deployment in the San Gabriel Mountains.

Mejia, Hannah (G). Improved depths for Kuril outer rise earthquakes.

Nget, David (UG). Earthquakes detected by a seismic deployment in the San Gabriel Mountains.

Pazos, Celia (G). Results from a seismic deployment in the San Gabriel Mountains.

Quimpo, Stephen (UG). Meteor entry analysis using seismic data - a case study of the Sutter’s Mill meteorite.

Thomas, Malcolm (G). CSUSB, site response mapping of CSUSB Campus.

**b. Awards and Honors Earned by Students**

**Marshall, Jeffrey:**

Morrish, Shawn (G). March 2013. Cal Poly Pomona Student Research Symposium best paper award.

**Nourse, Jonathan:**

Baca, Austin (UG). April 2013. Henderson-Valles Scholarship Award recipient.  
Kang, Jamie (UG). April 2013. Randal Burns Brunton Compass Award recipient.  
Kupferschmidt, Larissa (UG). April 2013. Grayce M. Teale Scholarship Award recipient.  
Soto, Paula (UG). December 2013. Water Resources and Policy Initiatives (WRPI) internship with Watershed Management Experiential Learning for USDA Careers Program.  
Van Hoorbeke, Taylor (UG). April 2013. Margaret Van Buskirk Scholarship Award recipient.  
Von Oosbree, Greg (UG). April 2013. Peter Valles AGI Glossary Award recipient.  
Wolfe, Oliver (UG). April 2013. Ernest Prete Junior Scholarship Award recipient.

**Polet, Jascha:**

Baca, Austin (UG). AY 2013/2014. SEES RaMP fellow.  
Baca, Austin (UG). Kellogg Undergraduate Scholarship recipient.  
Baca, Austin (UG). Henderson-Valles Scholarship recipient.  
Baca, Austin (UG). Selected to participate in 2013 Summer of Applied Geophysical Experience.  
Baca, Austin (UG). AY 2013/2014. NSF S-STEM Scholarship.  
Barba, Magali (G). Accepted to attend workshop on InSAR: An Introduction to Processing and Applications using ROI\_Pac and GIAN Short Course in Boulder, Colorado with financial support.  
Barba, Magali (G). Selected to participate in the 2013 DEVELOP National Program at NASA Jet Propulsion Laboratory.  
Greenwood, Rebecca (UG). AY 2013/2014. NSF S-STEM Scholarship.  
Hatch, Rachel (UG). Selected to participate in 2013 CAMPARE summer research program.  
Hernandez, Debbie (UG). Selected to participate in 2013 CAMPARE summer research program.  
Mejia, Hannah (G). Invited to participate in 2013 "Bringing New Tools and Techniques to Bear on Earthquake Hazard Analysis and Mitigation" Pan-American Advanced Studies Institute.  
Mejia, Hannah (G). Selected to sail on 2013 Cascadia Initiative (CI) Expedition.

**Others:**

Barnhart, Andrew (UG). June 2013. Geological Sciences Banner Carrier, 2013 College of Science Commencement ceremony