Geological Sciences Department

Annual Report 2010-2011

I. College-Specific Priorities

N/A

II. Common Numeric Performance Measures

III. Research, Scholarship, and Creative Activity

a. Externally peer reviewed, critiqued, juried, and/or judged

David Jessey:

Jessey, D.R., 2010, Geology and Ore Genesis of the Calico Mining District, in Reynolds, R.E., ed., Overboard in the Mojave: 20 million years of lakes and wetlands, California Desert Studies Symposium-2010, Zzyzx, CA. p. 213-223.

Jeffrey Marshall:

Montero, W., **Marshall, J.,** Kruse, S., and Lewis, J., 2010 (submitted December 2010), Neotectonic faulting and fore arc sliver motion along the Atirro-Río Sucio fault system, Costa Rica, Central America: Geological Society of America Bulletin.

Marshall, J., Morrish, S., Butcher, A., Ritzinger, B., Wellington, K., LaFromboise, E., Protti, M., Gardner, T., and Spotila, J., 2010, Morphotectonic segmentation along the Nicoya Peninsula seismic gap, Costa Rica: Eos, Transactions, American Geophysical Union, v. 91, Fall Meeting Supplement, Abs. T11D-2138.

Spotila, J.A., Kennedy, L.M., Durden, A., Depew, K., Smithka, I., Cunningham, C., **Marshall, J.S.**, Prince, P.S., and Tranel, L.M., 2010, Paleoseismic investigations of the Middle America Trench on the Nicoya Peninsula, Costa Rica: A feasibility study of the Tamarindo estuary: Geological Society of America, Abstracts with Programs, v. 42, no. 5, Abstract 250-3, p. 594.

LaFromboise, E., **Marshall, J.**, Simila, G., Protti, M., and Quintero, R., 2010, Neotectonics of the Nicoya Peninsula, Costa Rica: Geological Society of America, Abstracts with Programs, v. 42, no. 4, p. 100, Abstract 48-12.

Morrish, S.C., Butcher, A.J., Ritzinger, B.T., Wellington, K.L., and **Marshall, J.S.**, 2010, Tectonic geomorphology and earthquake hazards of the Nicoya Peninsula seismic gap, Costa Rica, Central America: Geological Society of America, Abstracts with Programs, v. 42, no. 4, p. 64, Abstract 18-25.

Jonathan Nourse:

Nourse, J.A., Carey, L., Bautz, M.L., and Reilly, J.P., 2010, *Hydrogeology of Icehouse Canyon Contrasted withUppper san Antonio Watershed, san Gabriel Mountains, California*, in Clifton H. E. and Ingersoll, R.V. (eds.) , Geological Excursions in California and Nevada: Tectonics, Stratigraphy and Hydrogeology, Field Trip Guidebook for Geological Society of America Cordilleran Section Meeting, Anaheim, California., May 27-29, pp. 323-348.

Anderson, T.H., and **Nourse, J.A.**, 2010, *Contrasting Proterozoic Basement Complexes Near The Truncated Margin Of Laurentia, Northwestern Sonora-Arizona Border Region: Implications For Rodinia Reconstruction*, Geological Society of America Abstracts with Programs Vol. 42, No. 5.

Nourse, J.A., 2010, *Investigation of the February 18, 2010 Landslide Along the Interstate 10- 57 Freeway Connector*: Abstract in Stories of Teaching Success, California State Polytechnic University, April 28.

Nourse, J.A., and Irwin, J.J., 2010, *Tectonic and structural setting of gold mineralization in the Sonora-Mojave belt: example from the Juarez-Tajitos area*, Geological Society of America *Abstracts with Programs*, Vol. 42, No. 4, p. 108.

Bautz, M. and **Nourse, J.**, 2010, Synopsis of Icehouse Canyon Hydrogeology from Observations of the Mid 1990's, in Saint, P., Herzberg, M. and Zaprianoff, B., (eds.), Geology and Hydrology in the Eastern San Gabriel Mountains Through the River of Time, Field Trip Guidebook for South Coast Geological Society, June 18-19, pp. 281-288.

Heaton, D., and **Nourse, J.**, 2010, Comparison of Late Cretaceous Plutonic Rocks across the left-Lateralsan Antonio Canyon fault, San Gabriel Mountains, California, in Saint, P., Herzberg, M. and Zaprianoff, B., (eds.), Geology and Hydrology in the Eastern San Gabriel Mountains Through the River of Time, Field Trip Guidebook for South Coast Geological Society, June 18-19, pp. 117-124.

Jascha Polet:

Thio, H.K., Somerville, P.G. and **Polet, J.**, 2010. Probabilistic Tsunami Hazard in California, Pacific Earthquake Engineering Research Center Report 2010/108, 331pp.

b. NOT externally per reviewed, critiqued, juried, or judged

David Berry:

Conference on mechanics of evolution ("Evo-Devo – How evolution works"), Department of Integrative Biology, University of California, Museum of Paleontology, Berkeley, CA, August 2010 (Participant)

Cal Paleo Conference, California State University, Stanislaus, Turlock, CA, January 2011 (Participant)

Continued work with the Friends of the Natural History Museum, San Diego in fossil salvage and preservation.

Jeffrey Marshall:

Marshall, J.S., 2010, NSF MARGINS Field Expedition Data: Nicoya Peninsula, Costa Rica, Central America: Marine Geoscience Data System, Expedition Meta Data Portal, Lamont Doherty Earth Observatory, Columbia University [Web Site]: http://www.marine-geo.org/tools/search/entry.php?id=CentralAmerica:Marshall

Jascha Polet:

The Math You Need, When You Need It 2010: A workshop for faculty teaching introductory geoscience, implementation plan:
http://serc.carleton.edu/mathyouneed/implementations/47516.html

Using on-line volcano monitoring data in college and university courses: The Volcano Exploration Project: Pu`u `O`o (VEPP), 2010, lesson plan:
http://nagt.org/nagt/vepp/examples/47268.html

IV. Presentations at Professional Conferences

a. Local/Regional

Jeffrey Marshall:

Marshall, J.S., 2010, The trembling serpent of Nicoya: Megathrust earthquakes & the rise and fall of coastal topography in Costa Rica: Cal Poly Pomona University, Provost's Teacher-Scholar Brown Bag Seminar Series, February 18, 2010.

Marshall, J.S., 2010, International geosciences field research with undergraduate students: Three models for experiential learning projects investigating active tectonics and earthquake hazards of Costa Rica's Nicoya Peninsula: Cal Poly Pomona University, Conversations about Teaching and Learning – 2nd Annual Provost's Symposium on Faculty Teaching, April 16, 2010.

Marshall, J.S., 2010, Glancing in the rear view mirror: Space exploration and Earth system science: NASA LiftOff Science Education Program for High School Teachers, Los Angeles County Department of Education & Cal Poly Pomona College of Science, June 28, 2010.

Jonathan Nourse:

Nourse, J.A., 2010, The February 18, 2010 Landslide in Cal Poly Pomona's Back Yard, Abstract in Provost Symposium on Teaching, California State Polytechnic University, April 16, 2010.

b. State

Jeffrey Marshall:

Marshall, J.S., 2010, International Field Teaching and Research with Undergraduate Students: On the Cutting Edge Geosciences Professional Development Workshop - Preparing for an Academic Career in the Geosciences, Stanford University, Palo Alto, CA, August 1, 2010.

Marshall, J.S., 2010, Science Education - Working with K-12 Teachers: On the Cutting Edge Geosciences Professional Development Workshop - Preparing for an Academic Career in the Geosciences, Stanford University, Palo Alto, CA, August 1, 2010.

Marshall, J.S. and O'Brien, R., 2010, Incorporating Data Analysis into Undergraduate Courses: On the Cutting Edge Geosciences Professional Development Workshop - Preparing for an Academic Career in the Geosciences, Stanford University, Palo Alto, CA, July 30, 2010.

c. National

Jeffrey Marshall:

Marshall, J., Morrish, S., Butcher, A., Ritzinger, B., Wellington, K., LaFromboise, E., Protti, M., Gardner, T., and Spotila, J., 2010, Morphotectonic segmentation along the Nicoya Peninsula seismic gap, Costa Rica: Eos, Transactions, American Geophysical Union, v. 91, Fall Meeting Supplement, Abs. T11D-2138.

Spotila, J.A., Kennedy, L.M., Durden, A., Depew, K., Smithka, I., Cunningham, C., **Marshall, J.S.**, Prince, P.S., and Tranel, L.M., 2010, Paleoseismic investigations of the Middle America Trench on the Nicoya Peninsula, Costa Rica: A feasibility study of the Tamarindo estuary: Geological Society of America, Abstracts with Programs, v. 42, no. 5, Abstract 250-3, p. 594.

LaFromboise, E., **Marshall, J.**, Simila, G., Protti, M., and Quintero, R., 2010, Neotectonics of the Nicoya Peninsula, Costa Rica: Geological Society of America, Abstracts with Programs, v. 42, no. 4, p. 100, Abstract 48-12.

Morrish, S.C., Butcher, A.J., Ritzinger, B.T., Wellington, K.L., and **Marshall, J.S.**, 2010, Tectonic geomorphology and earthquake hazards of the Nicoya Peninsula seismic gap, Costa Rica, Central America: Geological Society of America, Abstracts with Programs, v. 42, no. 4, p. 64, Abstract 18-25.

Jonathan Nourse:

Anderson, T. H., and **Nourse, J.A.**, 2010, Contrasting Proterozoic Basement Complexes Near The Truncated Margin Of Laurentia, Northwestern Sonora-Arizona Border Region: Implications For Rodinia Reconstruction, Geological Society of America Abstracts with Programs Vol. 42, No. 5.

Nourse, J.A., and Irwin, J.J., 2010, Tectonic and structural setting of gold mineralization in the Sonora-Mojave belt: example from the Juarez-Tajitos area, Geological Society of America Abstracts with Programs, Vol. 42, No. 4, p. 108.

Jascha Polet:

Polet, J., 2010, A Few Examples of Using Online and Near Real-time Data in Homework and Lab Assignments, Workshop on "Using on-line volcano monitoring data in college and university courses: The Volcano Exploration Project: Pu`u `O`o (VEPP)", Hawaii Volcanoes National Park

Polet, J., Thio, H.K and P. Earle, 2010, Using Back-Projection of Surface Waves for Near Real-Time Determination of Global Earthquake Locations, Magnitudes and Mechanisms, Eos Trans. AGU, Fall Meet. Suppl., Abstract S53A-1963

d. International

Jeffrey Marshall:

Marshall, J.S., 2010, The trembling serpent of Nicoya: Megathrust earthquakes & the rise and fall of coastal topography in Costa Rica: Leatherback Sea Turtle Trust Research Symposium, Goldring Marine Biology Field Station, Playa Grande, Guanacaste, Costa Rica: Invited Speaker, March 11, 2010.

Jascha Polet:

Polet, J., Thio, H.K., and Earle, P., 2010, Near Real-Time Analysis of Source Parameters and Tsunamigenic Potential of Large Global Earthquakes, Chapman Conference on Giant Earthquakes and Their Tsunamis, Valparaíso, Viña del Mar and Valdivia, Chile

Thio, H.K. and **Polet**, **J.**, 2010, The effect of source uncertainty in probabilistic tsunami hazard analysis, Chapman Conference on Giant Earthquakes and Their Tsunamis, Valparaíso, Viña del Mar and Valdivia, Chile

Polet, J. and Thio, H.K., 2010, Near Real-Time Determination of Source Characteristics of Global Earthquakes and Tsunami Wave Height and Inundation Forecasting, AGU Meeting of the Americas, Foz do Iguaçu, Brazil

Polet, J., Thio, H.K. and Earle, P., 2010, Near Real Time Analysis of Source Parameters and Tsunamigenic Potential of Large Global Earthquakes, Geophysical Hazards and Plate Boundary Processes in Central America, Mexico, and the Caribbean: A Workshop to Build Seismological Collaboration and Capacity, Heredia, Costa Rica

V. Scholarship with Students

a. Research involving students as researchers

David Berry:

Lilibeth Wenceslao* is continuing her research on coral reefs and acidification on material available at San Diego Museum of Natural History.

John Klasik:

Technical guidance and supervision, X-ray Diffraction: Dr. Ravi and **five students from Materials Engineering*** (Composites Team, Corrosion Team)

Member, Master's Thesis Committee, **Mathew Willis***, Center for Regenerative Studies: Commenced June 2010

Assisted **several Geological Sciences students*** in their research/class-related X-ray Fluorescence studies.

Jeffrey Marshall:

Research Experience for Undergraduates (REU) & Senior Thesis Research: "Seismogenesis of the Middle America Trench at the Nicoya Peninsula over multiple seismic cycles" funded by the National Science Foundation MARGINS Program - Undergraduate Researchers: **Amber Butcher*, Sarah Denise*, Jazmín González*, Susana Lino*, Shawn Morrish*, Brent Ritzinger*, and Kacie Wellington*** (Geological Sciences Department)

Team research activities in 2010 related to this project included the following:

Península de Nicoya, Costa Rica, Central America: Field mapping, surveying, and sampling of uplifted marine and alluvial terraces & surveying of pre-earthquake tidal levels, Playa Carbón, Playa Grande, San Juanillo, Playa Garza, and Playa Coyote, with A. Butcher, S. Morrish, B. Ritzinger, and K. Wellington (Cal Poly Pomona undergraduate students) (March 7-25, 2010)

Summer and Fall 2010 laboratory and computer work at Cal Poly Pomona: Preparation and shipping of field samples for radiocarbon dating at Beta Analytic Labs and optically stimulated luminescence dating at University of Cincinnati; cutting thin section blanks; drafting geologic maps and generating digital elevation models of

field sites; processing topographic survey data and generating elevation profiles of paleo-shorelines; interpreting field results; creating posters for presentation at professional meetings.

Team presentation of research results in posters at two professional conferences: 1) Joint Meeting of the Geological Society of America (GSA) Cordilleran Section and American Association of Petroleum Geologists (AAPG) Pacific Section, Anaheim, CA (May 27-29, 2010), and 2) American Geophysical Union (AGU) Fall Conference, San Francisco, CA (December 12-18, 2010)

Jonathan Nourse:

Investigation of the February 18, 2010 Landslide Along the Interstate 10- 57 Freeway Connector: Field work with Caltrans geologist Gustavo Ortega and student assistants **Kelly Kinder*** and **Brent Ritzinger***.

Gravity measurements and Total Station surveying in the Poverty Hills, Owens Valley, California, assisted by **Kelly Kinder***, **Josh Sargent***, **Kyle Wright*** and **Celia Pazos***, April 16-18

Late Quaternary evolution of the Sierra Madre frontal Fault system, south-central San Gabriel Mountains, Field work related to USGS National Earthquake Hazards Reduction Program grant, assisted by **Jeff Pepin*** and **Audra Hanks***, January-December.

Senior Thesis students supervised during 2010: **Logan Wicks*, Melissa Bonner*, Andrew Kieta*, Audra Hanks*, Jeff Pepin*, Kelly Kinder*, Leonard Amurao*, Christina Bloom***

Jascha Polet:

Senior Thesis students supervised during 2010:

Brian Oliver*, A Pilot Study to Determine Shear-Wave Velocities for Earthquake Site Response at Cal Poly Pomona Campus using Refraction Micro-Tremor, senior thesis defended June 2010.

Kevin Kwong*, Testing an Algorithm to Rapidly Determine Earthquake Source Parameters From Aftershocks, senior thesis research started Fall 2010.

Celia Pazos*, Gravity Profiles Across the San Jose Fault on Cal Poly Pomona Campus, senior thesis research started Fall 2010.

Hannah Potter*, Gravity Profiles Across the San Jose Fault on Cal Poly Pomona Campus, senior thesis research started Fall 2010.

b. Presentations involving students as co-presenters

David Jessey:

Bruns*, J., and Jessey, D.R., 2010, Tectonic implications of basaltic volcanism in the Owens Valley, CA: Bulletin - Southern California Academy of Sciences, August 2010, Vol. 109, Issue 2

Bruns*, J., and Jessey, D.R., 2010, Neogene Basaltic Volcanism in the Southern Owens Valley, CA: Implications to Tectonics of the ECSZ: Abstracts with Programs - Geological Society of America, May 2010, Vol. 42, Issue 4.

John Klasik:

Klasik was not co-author of any student presentation. However several Materials Science students under his direction did give presentations using data collected in the Geological Sciences X-ray Diffraction Laboratory.

Jeffrey Marshall:

Marshall, J., **Morrish*, S., Butcher*, A., Ritzinger*, B., Wellington*, K., LaFromboise*, E.**, Protti, M., Gardner, T., and Spotila, J., 2010, Morphotectonic segmentation along the Nicoya Peninsula seismic gap, Costa Rica: Eos, Transactions, American Geophysical Union, v. 91, Fall Meeting Supplement, Abs. T11D-2138.

Spotila, J.A., Kennedy, L.M., **Durden*, A., Depew*, K., Smithka*, I., Cunningham*, C.**, Marshall, J.S., **Prince*, P.S., and Tranel*, L.M.**, 2010, Paleoseismic investigations of the Middle America Trench on the Nicoya Peninsula, Costa Rica: A feasibility study of the Tamarindo estuary: Geological Society of America, Abstracts with Programs, v. 42, no. 5, Abstract 250-3, p. 594. **[Note: These students from Virginia Tech]**

LaFromboise*, E., Marshall, J., Simila, G., Protti, M., and Quintero, R., 2010, Neotectonics of the Nicoya Peninsula, Costa Rica: Geological Society of America, Abstracts with Programs, v. 42, no. 4, p. 100, Abstract 48-12.

Morrish*, S.C., Butcher*, A.J., Ritzinger*, B.T., Wellington*, K.L., and Marshall, J.S., 2010, Tectonic geomorphology and earthquake hazards of the Nicoya Peninsula seismic gap, Costa Rica, Central America: Geological Society of America, Abstracts with Programs, v. 42, no. 4, p. 64, Abstract 18-25.

Jonathan Nourse:

Wicks*, L.E. and Nourse, J.A., 2010, Failure analysis of a rockslide on Sunset Ridge fire access road, San Gabriel Mountains, California, Senior Thesis, Cal Poly Pomona, 23 p, defended May 18

Bonnar*, M., and Nourse, J.A., 2010, Structural analysis of folded Paleoproterozoic gneiss near West Fork-North Fork San Gabriel River confluence, California, Geological Society of America Abstracts with Programs, Vol. 42, No. 4, p. 61.

Kieta*, A., and Nourse, J.A., 2010, Impacts of the floods of 1938, 1969 and 2005 on the Old Mt. Baldy Road, San Gabriel Mountains, California, Geological Society of America Abstracts with Programs, Vol. 42, No. 4, p. 60.

Jascha Polet:

Kwong*, K., and Polet, J., 2010, The Use of Aftershocks to Rapidly Estimate Rupture Extent for Large Earthquakes, 18th annual meeting of the Southern California Conference for Undergraduate Research (SCCUR), Pepperdine University, Malibu, 2010.

VI. Professional Awards and Honors

Jeffrey Marshall:

Elected by national membership of Council on Undergraduate Research (CUR) to third three-year term as CUR Councilor (Geosciences Division)

National Science Foundation (NSF) GeoPRISMS Program – Invited to serve as member of GeoPRISMS Education Advisory Committee (GEAC)

Invited Workshop Leader – On the Cutting Edge Geosciences Professional Development Program, Workshop for Graduate Students/Post-Docs: "Preparing for an Academic Career in the Geosciences", Stanford University, Palo Alto, CA (July 29 - Aug 1, 2010)

Invited Proposal Review Panelist – National Science Foundation (NSF) Tectonics Program (October 2010 - declined due to schedule conflict)

Jascha Polet:

Invited participant for the following workshops – "The Math You Need, When You Need It 2010: A workshop for faculty teaching introductory geoscience", "Using on-line volcano monitoring data in college and university courses: The Volcano Exploration Project: Pu`u `O`o (VEPP)" and "Geophysical Hazards and Plate Boundary Processes in Central America, Mexico and the Caribbean".

The Geological Sciences Department at Cal Poly Pomona is an official voting member of IRIS (Incorporate Research Institutions for Seismology). Membership benefits include: opportunities to participate in research grants and seismic experiments, access to seismic

data sets, eligibility for student scholarships and internships, and access to employment networks for faculty and student job searches.

VII. Awards and Honors Earned by Students (as result of faculty involvement)

David Jessey:

Jessica Bruns – 2010 recipient of Henderson-Valles Scholarship Award--$500

John Klasik:

Jason Jorgenson – 2010 recipient of Margaret Van Buskirk Memorial Scholarship Award--$750

Jeffrey Marshall:

Amber Butcher – 2010 McNair Scholar, Cal Poly Pomona McNair Scholars Program
Shawn Morrish – 2010 recipient of Henderson-Valles Scholarship Award--$500

Jonathan Nourse:

Kelly Kinder – 2010 recipient of Brunton Compass Award--$450
Jeff Pepin – 2010 recipient of Ernest Prete Junior Scholarship Award--$1000

Jascha Polet:

Amber Butcher – 2010 recipient of Grayce Teal Memorial Scholarship Award--$2000

VIII. Service

a. Service to the Department

David Berry:

Geological Sciences Department RTP Committee – Chair
Geological Sciences Department Hydrogeology Faculty Search Committee – Member
Collected teaching specimens for GSC 331, San Diego County (ongoing)

David Jessey:

Geology Club Advisor
Geology Club Field Trip: Mineral Collecting in the Mojave, Nov. 2010 – Trip Leader

John Klasik:

Geological Sciences Department RTP Committee – Member
Geological Sciences Department Curriculum Committee – Member

Jeffrey Marshall:

New Faculty Search Committee (Hydrogeology) – Member
Department RTP Committee – Member
Geological Sciences Department Visiting Speaker Series – Co-Coordinator
Geological Sciences Dept. & Lyle Center for Regenerative Studies: Interdisciplinary Watershed Restoration Course – Course Development, Logistics, & Teaching

Jonathan Nourse:

Chair, Geological Sciences Department
Geological Sciences Department Hydrogeology Faculty Search Committee – Chair
Geological Sciences Department Program Review Committee – Chair
Geological Sciences Department Curriculum Committee – Chair
Geological Sciences Department Assessment Committee – Chair
Geological Sciences Department RTP Committee--member

Jascha Polet:

Geological Sciences Department Curriculum Committee – Member
Geological Sciences Department Program Review Committee – Member
Geological Sciences Department Hydrogeology Faculty Search Committee – Member
Geological Sciences Department Visiting Speaker Series – Co-Coordinator

b. Service to the College

David Berry:

College of Science RTP Committee – Member
Southern California Academy of Sciences, student poster session (May 13, 2011) – Poster Judge

Jeffrey Marshall:

CEEMaST Faculty Fellow: Center for Educ. Excellence in Math, Science, & Technology
CEEMaST New Faculty Search Committee (Biology Science Educator) – Member
NASA LiftOff Science Education Program – Faculty Content Specialist
NSF STEP Program – Apprenticeship Team: Undergraduate Research Coordinator
NSF S-STEM Scholarship Program – Management Team Member & Student Advisor

College of Science Emergency Operations Committee Mini EOC #3 – Member

Jonathan Nourse:

College of Science Strategic Planning Committee – Chair
College of Science Budget Advisory committee – Member
College of Science Selection Committee for Distinguished Teaching Award – Member

c. Service to the University

David Berry:

Transfer Day – Geology Department Representative
Committee on GE Rubrics – Member
STEMS Conference, Cal Poly Pomona (May 2011) – Geology Dept Representative
University Grievance Committee (Action May 3-7, 2011) – Chair
Showcase of Excellence – Geology Dept Representative (presented slide show "Why Cal Poly Geology?", January 29, 2011)

John Klasik:

Masters Thesis Committee Member for Regenerative Studies Student Matt Willis

Jeffrey Marshall:

University Coordinator for Undergraduate Research – Faculty Associate, Office of Research)
UR-BRONCO Undergraduate Research Working Group – Chair
CSU Undergraduate Research Consortium – Campus Team Leader, Chancellor's Office
Teacher-Scholar Task Force – Member
McNair Scholars Program – Advisor
AVP for Research Search Committee Group Interviews – Invited Participant
WASC Accreditation Visit, Teacher-Scholar Group Meeting – Invited Participant
WASC Accreditation Visit, Undergraduate Reseach Group Meeting – Invited Participant
Science, Technology, and Society (STS) Program Faculty Advisory Board – Member
International Studies Minor Program Faculty Advisory Board – Member
Center for Geographical Info. Sci. Research (CGISR) Faculty Advisory Board – Member

Jonathan Nourse:

Science Dean Search Committee – Member
University GE Assessment Committee – Member
Countdown to Success – Geology Department Representative
Bronco Fusion – Geology Department Representative

Jascha Polet:

ADVANCE Program – Associate
Academic Senate – Senator for College of Science
Academic Affairs Committee – Member
Cal Poly Pomona Preview Day – Geology Department Representative

Nourse, Marshall, & Polet:

Cal Poly Pomona Public Lecture by Geology Faculty: "L.A. Area Earthquake Hazards" – Great California Shake Out Earthquake Drill, Bronco Student Center (October 21, 2010)

d. Service to the Profession

Jeffrey Marshall:

Council on Undergraduate Research (CUR) Geosciences Division – Elected Councilor

NSF GeoPRISMS Program Education Advisory Committee (GEAC) – Member

Director of Grad Student/Post-Doc Program - NSF GeoPRISMS Program Subduction Cycles and Deformation (SCD) Implementation Workshop, Bastrop, TX (Jan 5-7, 2011)

Workshop Leader – On the Cutting Edge Geosciences Professional Development Program, Workshop for Graduate Students/Post-Docs: "Preparing for an Academic Career in the Geosciences", Stanford University, Palo Alto, CA (July 29 - Aug 1, 2010)

CSU SMART Team: State Disaster Mitigation Assessment Review Team – Member

National Science Foundation (NSF) Tectonics Program – Proposal Reviewer

National Science Foundation (NSF) Tectonics Program – Invited Proposal Review Panelist (Oct 2010, declined due to schedule conflict)

Student Abstract Reviewer – Society for Advancement of Chicanos and Native Americans in Science (SACNAS) National Conference, Anaheim, CA (October 2010)

Jonathan Nourse:

Session Chair – Geological Sciences of America Coredilleran Section Meeting, Logan, Utah (May 2011)

Reviewer – Geopsphere manuscript submission by Gonzalez Leon et al., April, 2011

Reviewer – Mexican journal Revista manuscript submission by Rascon-Heimpel et al., May, 2011

Jascha Polet:

Invited member – Four-person review panel of the USGS National Earthquake Hazard Program, 2010

Reviewer – For the following journals: Seismological Research Letters and Geophysical Research Letters.

Reviewer – National Science Foundation, Geophysics Program

Session Chair – "The Earthquake Source: Observations and Modeling", AGU Meeting of the Americas, Foz do Iguaçu, Brazil, 2010.

e. Service to the Greater Community

Jeffrey Marshall:

California State University San Marcos, Office of Research & Committee on Undergraduate Research – Program Reviewer

Earth Science Content Specialist – San Gabriel Valley Science Project Workshop for Elementary School Teachers, CEEMaST, Cal Poly Pomona (June 22-24, 2011)

Earth Science Content Specialist – NASA LiftOff Science Education Program for High School Teachers, Los Angeles County Department of Education & Cal Poly Pomona College of Science (June 28-July 2, 2010 and August 2-6, 2010, plus follow-up activities throughout 2010-11)

Visiting Scientist – Sycamore Elementary School, Claremont, California, Room 12, Grades 2-3 (December 10, 2010)

Participant – Thompson Creek Restoration Plan Community Meeting, Claremont League of Women Voters, Hughes Community Center, Claremont, CA (September 25, 2010)

Whittier College Environmental Sciences Department-salvage and retrieval of valuable Geology laboratory equipment, teaching collections and library archives, June 2011

IX. Grant Applications and External Funding

Geology Department Grant Activity 2010 calendar year:

Number of Active Awards: 12	
2010 Expenditures: $116,315	
$ value of ICR generated during 2010:	$24,535
Number of 2010 submissions: 7	
Total $ value of 2010 submissions:	$620,706

Some details provided by Dr. Jeff Marshall:

Collaborative Research: Seismogenesis of the Middle America Trench at the Nicoya Peninsula over multiple seismic cycles (OCE-0948312; MARGINS/REU; $90,156; 01/01/10-12/31/11): This collaborative MARGINS project (with co-PI J. Spotila, Virginia Tech) examines the neotectonics and paleoseismology of the Nicoya Peninsula in the northern Costa Rica fore arc, a focus site of the SEIZE initiative. Marshall and students are mapping, surveying, and dating marine and fluvial terraces to constrain rates and patterns of long-term net deformation related to the Nicoya seismogenic zone. Spotila and students are coring coastal estuaries for stratigraphic evidence of short-term

seismic cycle displacements. To date, Marshall's work has documented abrupt spatial variations in net uplift along the Nicoya margin that reflect observed differences in subducting-plate roughness, thermal structure, fluid flow, and seismogenic-zone locking (up-dip/down-dip limits) across three distinct domains of incoming seafloor offshore (EPR, CNS-1, CNS-2). Spotila's studies have shown a lack of adequate paleoseismic records in areas of low net uplift (northern Nicoya), while results from areas of higher uplift are pending (central and southern Nicoya). Preliminary results have been presented at AGU (Marshall et al., 2010) and GSA (Spotila et al., 2010).

Three Strategies to Improve STEM Graduation Rates (DUE-0969520; STEP; $671,628; 06/01/10-05/30/13): This grant awarded to PIs from the Cal Poly Pomona College of Science and College of Engineering is designed to increase academic success and persistence to degree among students in STEM disciplines. The project employs three proven strategies to better engage students: 1) course redevelopment, 2) first-year experiences, and 3) professional apprenticeships. Marshall's role as "senior personnel" on the Apprenticeship Team is to facilitate student involvement in faculty-mentored research and scholarly activities. Marshall serves as University Coordinator for Undergraduate Research and leads the efforts of a faculty working group to develop campus undergraduate research programs, funding opportunities, and faculty professional development.

Comprehensive Scholarship Program for Mathematics, Physical, Biological, and Computer Science Majors, Cal Poly Pomona University (DUE; S-STEM; $584,000; 01/01/07-12/31/10): This grant awarded to Cal Poly Pomona Science Education Enhancement Services (SEES) was designed to support students from underrepresented groups in pursuing science degrees. The grant provided scholarships, mentoring, and support services to over 60 students through the SEES center. Marshall' role as "senior personnel" on the project management team was to recruit, review applications, and serve as a mentor for geosciences students participating in the program.

Some details provided by Dr. Jascha Polet:

Grant awarded: Collaborative Research with California State Polytechnic University in Pomona and URS Corporation: Rapid Estimates of Rupture Extent for Large Earthquakes Using Aftershocks; National Earthquake Hazard Reduction Program, 2010; Amount: $29,185

Contract awarded: Intergovernmental Personnel Agreement: Continued Development of a System to Determine Fully Automatic Centroid Moment Tensors at the National Earthquake Information Center, 2010; Amount: $25,433

Grant awarded: ADVANCE Travel Award 2010; Amount: $1500

Grant awarded: ADVANCE Career Development Award 2010; Amount: $9107

X. External Fundraising

XI. Assessment of Advising

Departmental Advisement Program

For the past 15 years the Geology Department has required its majors to meet quarterly with a faculty advisor to discuss academic progress and determine which courses to enroll in during the next quarter. This advisement system has proved effective in keeping Geology majors on track for graduation, identifying "at risk" students. One recent addition to the advisement system is a spreadsheet (updated quarterly) that contains easily accessible grades for each Geology major. The spreadsheet is organized sequentially by course number such faculty advisors may pull up the list and get an immediate snapshot of how the student is progressing through the curriculum. This system is much more efficient than using BroncoDirect.

All freshman or transfer students who declare the Geology major meet with the Department Chair for New Student Orientation. In addition to designing a curriculum plan and registering for courses, the students are given a tour of Department facilities. In the case of existing Cal Poly Pomona students who change major to Geology, the Department Chair and available faculty provide a tour and formal advice.

Assessment of Learning Environment

The student learning environment is assessed regularly by individual faculty members as part of their Learning Outcomes assessment. Another important aspect of the learning environment is informal faculty-student interaction. This can happen one-on-one during faculty office visits or collectively during group events such as Geology Club meetings. The Department also holds regular gatherings to keep Geology majors informed and motivated. For example, an annual meeting for students during the second week of fall quarter to provide curriculum updates and encouragement. Also during fall quarter we hold an information seminar for students interested in applying for graduate school. Each Spring quarter we host our annual Alumni Reunion and invite senior-level Geology majors. At this event we award five major scholarships and various other minor prizes to deserving students.

XII. First Year Experience

The Geological Sciences Department does not offer a discipline-specific First-Year Experience class

XIII. Program Review, Accreditation, and Assessment

The Geological Sciences Department revised its Strategic plan during fall quarter 2010. The plan is posted at http://geology.csupomona.edu/GeologyStrategicPlanJan2011.pdf

The Geology Department underwent its 5-year Academic Program Review during 2010-11 academic year. A detailed self-study report was written during winter and early spring of 2011. External evaluators Vicki Pedone (CSU Northridge) and Matt Shumaker (Bureau of Land Management) visited campus on May 13, 2011 to conduct their program evaluation. Their report is due summer 2011

XIV. Notable Achievements

Through the efforts of the Geology Department, Cal Poly Pomona is now an official voting member of IRIS (International Research Institutes for Seismology):

http://www.iris.edu/hq/

IRIS is a consortium of over 100 US universities dedicated to the operation of science facilities for the acquisition, management, and distribution of seismological data. IRIS programs contribute to scholarly research, education, earthquake hazard mitigation, and verification of the Comprehensive Nuclear-Test-Ban Treaty. Membership benefits include access to seismological science facilities, invitations to special workshops, travel support and student eligibility for summer internship programs.