

HARMONY V. COLELLA

9538 Dominion Wood Lane, Elk Grove, CA 95758

Phone: (714) 595-9074 Email: hcolella@gmail.com

Website: <http://www.harmonycolella.com>

EDUCATION

Ph.D. Earth Sciences	University of California, Riverside	2011
Dissertation: Complex Characteristics of Slow Slip Events and Their Influence on Subduction Zone Dynamics Based on Multi-Cycle Simulations		
Advisor: James H. Dieterich		
B.S. Geological Sciences	California State University, Fullerton	2006
Thesis: Accelerating Moment Release as a Tool of Investigating the Seismic Cycle in the San Francisco Bay Region		
Advisor: David D. Bowman		

EXPERIENCE

Earthquake Hazard Mitigation Analyst	Berkeley Seismological Laboratory	2016-present
Moore Fellow	California Offices of Emergency Services	
<i>Implementation Planning</i>		
<ul style="list-style-type: none">Assist with efforts currently underway to plan and implement a statewide earthquake early warning system including in-depth analysis of how early warning can be applied in key sectors to ensure maximum statewide benefitScout new EEW sites to determine viability, meet with private landowners, determine ideal instrumentation for each location		
<i>Meeting facilitation/stakeholder engagement</i>		
<ul style="list-style-type: none">Hold workshops and meetings to move process from planning to implementationCommunicate with stakeholders to ensure that the system is implemented with engagement from all relevant sectors (government, university research, private sector including utilities, transportation, and telecommunication)		
<i>Public Policy development</i>		
<ul style="list-style-type: none">Guide development of policies for the governance, implementation, and operations of the statewide system in collaboration with stakeholders		
Podcaster	ECIs Uncensored	2016-present
<i>Early Career Investigators</i> (www.earlycareerinvestigators.com)		
Freelance Scientific Editor		2015-present
MogoEdit Editing		
<ul style="list-style-type: none">Basic and heavy editing for scientific papers written by non-native English speakers prior to publication		
SESE Postdoctoral Research Fellow	Arizona State University	2014-2016
<i>Fault mechanics and interactions</i>		
<ul style="list-style-type: none">Investigate and classify slip behaviors (e.g., earthquake, slow slip, continuous creep) with modeling and seismic (ocean- and land-based) analysesEmploy earthquake simulations to investigate how earthquake probabilities vary with slip rates along crustal faultExercise problem solving skillsAbility to present and organize large amounts of information in a clear mannerAbility to interact with colleagues from diverse professional backgrounds (e.g., federal and state government, international colleagues)		
<i>Educational Initiatives</i>		
<ul style="list-style-type: none">Conduct and analyze qualitative interviews on Research Experiences for Undergraduates (REUs) to assess if desired outcomes are reached and ways to improve the experienceDesign questionnaire design, diplomacy, and confidentialityExperience in qualitative and quantitative analysis		

NSF Postdoctoral Fellow **Miami University of Ohio** **2012-2014**

Tremor and microseismicity detection in subduction zones

- Investigate spatio-temporal relationship of low frequency earthquakes in Oaxaca, Mexico and south-central Alaska
- Identify and locate earthquakes related to the 2012 Ometepec earthquake and during slow slip events near Oaxaca, Mexico

Subduction zone dynamics

- Explore causes for segmentation of the transition and seismogenic zone
- Investigate effects of segmentation on the seismic cycle using numerical modeling
- Understand the relationship between slow slip events, microseismicity observed prior to large-great earthquakes, and the large-great earthquakes themselves

Educational Initiatives

- Conduct qualitative interviews on Research Experiences for Undergraduates (REUs) to assess if desired outcomes are reached and ways to improve the experience.
- Hold seminars that mentor graduate students on planning for the future

Visiting Lecturer **California State University, Fullerton** **Spring 2014**

Teaching GEO 456 – Introduction to Applied Geophysics (21 Students) and GEO 310T – Earthquakes (100 students)

Research Assistant **University of California, Riverside** **2006 - 2011**

- Developed negotiation skills, ability to communicate effectively to a range of audiences and formats, exercised intellectual freedom, initiative, and self-reliance, and ability to plan a project and deliver it to agreed timelines.

Fault interactions and probabilities

- Investigate the interactions between unstable, transient, and stable slip
- Develop probabilistic characterizations of the relationship between transient slip and great earthquakes
- Examine diverse rupture propagation speeds of slow slip events
- Analysis of complex data and presentation of emerging conclusions and concepts

Stress changes in volcanic environments

- Determine stress changes during inflation and deflation events based on changes in earthquake rates at Kilauea volcano
- Used tilt data, seismicity rate changes, and stress changes to understand magma storage and supply to Pu'u O'o

SCEC Summer Intern **University of California, Riverside** **2005**

- Investigate dynamic rupture propagation in branched fault systems
- Explore the effects of a damaged zone at the junction of a branched fault system

TEACHING EXPERIENCES

"Introduction to Applied Geophysics" Lecturer **CSU Fullerton** **Spring 2014**

- Organized and taught all lectures
- Led field trips

"Earthquakes" Lecturer **CSU Fullerton** **Spring 2014**

- Organized and taught all lectures
- Created exams
- Wrote homework sets

"Earthquake Country" Lecturer (2 summers) **UC Riverside** **2010, 2011**

- Organized and taught all lectures
- Created exams
- Wrote homework sets

“Structural Geology” Teaching Assistant (5 quarters)	UC Riverside	2007-2011
<ul style="list-style-type: none"> • Developed lab course including writing all lab assignments • Assisted students in office hours 		
“Earth’s Crust and Interior” Lecturer (summer)	UC Riverside	2009
<ul style="list-style-type: none"> • Organized and taught all lectures • Created exams 		
“Earth’s Crust & Interior” Teaching Assistant (2 quarters)	UC Riverside	2007, 2008
<ul style="list-style-type: none"> • Organized and taught laboratory lectures on rock and mineral identification • Led review sessions prior to exams • Assisted students in office hours 		
“Earthquake and Volcanoes” Teaching Assistant	CSU Fullerton	2005
<ul style="list-style-type: none"> • Assisted with all labs • Ran an Volcanic Eruption Simulation 		

GRANTS

GeoPRISMS AGU Mini-Workshop Grant (co-sponsored by EarthScope): Early Career Investigators Networking Function, December 2012, \$2,500

Geological Sciences Travel Grant: The Geological Society of America and the U. S. National Committee for the International Union of Geological Sciences Travel Grant for the 34th International Geological Congress, August 2012, \$2,500.

NSF EAR-Postdoctoral Fellowship (PF) #114478: Integrating Observations and Modeling of Tremor and Slip in Subduction Zones to Discern Controls on Fault Slip Behavior, PI, 5/1/2012-4/30/2014, \$170,000

AWARDS

Moore Foundation Fellowship	2016
School of Earth and Space Exploration Fellowship	2014
<i>1 of 3 awarded each year (<10% funding rate)</i>	
Invitation to Speak at SSA as a representative for Early Career Scientists	2014
National Science Foundation Postdoctoral Fellow	2012
<i>10% EAR-PF funding rate each year</i>	
Shawn Biehler Scholarship (University of California, Riverside)	2010
<i>Award based on drive, enthusiasm, and scholastic achievement in the field of geophysics, selected by faculty</i>	
Chancellor’s Distinguished Fellowship (University of California, Riverside)	2006
<i>Awarded to the top incoming graduate students</i>	
Margaret Skillman Woyski Scholarship (California State University, Fullerton)	2006
<i>Awarded based on academic achievement and recommendation by the entire faculty</i>	

PUBLICATIONS

Christophersen, A., D. A. Rhoades, and **H. V. Colella**, Precursory seismicity in low-strain regions: Insights from a physics-based earthquake simulator, *Geophys. J. International*, GJI-16-0343, *in press*.

Colella, H. V., S. M. Sit, M. R. Brudzinski, S. Graham, C. DeMets, S. Holtkamp, R. J. Skoumal, N. Ghouse, E. Cabral-Cano, V. Kostoglodov, A. Arciniega-Ceballos, Seismicity Rate Increases Associated with Slow Slip Episodes Prior to the 2012 Mw 7.4 Ometepec Earthquake, *464*, 35.45, doi:10.1016/j.epsl.2016.12.032.

- Colella, H. V.**, D. L. Schutt, D. F. Sumy, A. M. Frassetto (2015), Helping Early Career Researchers Succeed, *Eos*, 96, doi:10.1029/2015E0034965.
- Colella, H. V.** and J. H. Dieterich (2015), Seismicity rate changes during episodic fountaining in the early stages of Pu'u O'o eruption at Kilauea volcano, Hawaii and possible implications for magma storage and supply to Pu'u O'o, In R. Carey, V. Cayol, M. Poland, and D. Weis (Eds.), *AGU Chapman Monograph: Hawaiian Volcanism: From Source to Surface*, Vol. 208, ISBN: 978-1-118-87204-8.
- *Watkins, W. D., **H. V. Colella**, M. R. Brudzinski, K. B. Richards-Dinger, and J. H. Dieterich (2015), The role of effective normal stress, frictional properties, and convergence rates in characteristics of simulated slow slip events, *Geophys. Res. Lett.*, 42, doi:10.1002/2014GL062794.
- Colella, H. V.**, J. H. Dieterich, K. B. Richards-Dinger (2013), Spatial and temporal patterns of simulated slow slip events on the Cascadia megathrust, *Geophys. Res. Letts.*, 40, doi:10.1002/grl.50984.
- Colella, H. V.**, J. H. Dieterich, K. B. Richard-Dinger (2012), and A. Rubin, Complex characteristics of slow slip events in subduction zones reproduced in multi-cycle simulations, *Geophys. Res. Letts.*, 39, L20312, doi:/10.1029.2012GL053276.
- Colella, H. V.**, J. H. Dieterich, and K. B. Richards-Dinger (2011), Multi-event simulation of slow slip events for a Cascadia-type subduction zone, *Geophys. Res. Letts*, 38, L16312, doi: 10.1029/2011GL048817.
- Tiampo, K. F., D. D. Bowman, **H. Colella**, and J. B. Rundle (2008). The stress accumulation method and the pattern informatics index: Complementary approaches to earthquake forecasting, *Pure and Applied Geophysics*, v. 165, p. 693-709, doi:10.1007/s00024-008-0329-5.
- *Student authors

INVITED PRESENTATIONS

- Colella, H. V.**, Sucked In: Unlocking the Hidden Secrets of Subduction Zones, California State University-Fresno, March 2014.
- Colella, H. V.**, Sucked In: Unlocking the Hidden Secrets of Subduction Zones, University of Missouri-Columbia, February 2014.
- Colella, H. V.**, Sucked In: Unlocking the Hidden Secrets of Subduction Zones, Pennsylvania State University, November 2013.
- Colella, H. V.**, Sucked In: Unlocking the Hidden Secrets of Subduction Zones, University of Wisconsin-Madison, October 2013.
- Colella, H. V.**, Sucked In: Unlocking the Hidden Secrets of Subduction Zones, University of Alaska, Fairbanks, Geophysical Institute, September 2013.
- Colella, H. V.**, Complex Characteristics of Slow Slip Events and Their Influence on Subduction Zone Dynamics Based on Multi-Cycle Simulations, GNS Science, New Zealand, April 2013.
- Colella, H. V.**, From MCC to my Dream Job: A Non-Traditional Path, Mesa Community College (Red Mountain Campus) – open to the public, October 2012
- Colella, H. V.**, Complex Characteristics of Slow Slip Events and Their Influence on Subduction Zone Dynamics Based on Multi-Cycle Simulations, University of Arizona Colloquium, October 2012.
- Colella, H. V.**, Sucked In: The Hidden Secrets of Subduction Zones, Mesa Community College (Red Mountain Campus), October 2012.
- Colella, H. V.**, Complex Characteristics of Slow Slip Events and Their Influence on Subduction Zone Dynamics Based on Multi-Cycle Simulations, Arizona State University Colloquium (Technical Talk), September 2012.
- Colella, H. V.**, Sucked In: The Hidden Secrets of Subduction Zones, Arizona State University Colloquium (General Talk), September 2012.
- Colella, H. V.**, Complex Characteristics of Slow Slip Events and Their Influence on Subduction Zone Dynamics Based on Multi-Cycle Simulations, Miami University of Ohio Seminar Series, September 2012.
- Colella, H. V.**, Complex Characteristics of Slow Slip Events and Their Influence on Subduction Zone Dynamics Based on Multi-Cycle Simulations, Rice University Seminar Series, January 2012
- Colella, H. V.**, Multi-event simulations of slow slip events along a subduction zone interface, California State University, Fullerton Seminar Series, September 2011.

Colella, H. V., Multi-event simulations of slow slip events for a Cascadia-like subduction zone, University of Washington Seminar Series, June 2011.

SELECTED CONFERENCE PRESENTATIONS

- Colella, H. V.**, D. F. Sumy, and D. L. Schutt (2016), Early Career Investigator Opportunities in Geophysics with IRIS, *American Geophysical Union Annual Meeting*, San Francisco, CA.
- Colella, H. V.**, D. L. Schutt, D. F. Sumy, A. M. Frassetto, C. Poppeliers, M. Reusch, E. Day, H. A. Knox, K. Luttrell, and A. T. Ringler (2015), Minimizing the “Sigh” in Science: New Resources and Programs to Help Early Career Investigators, *American Geophysical Union Annual Meeting*, San Francisco, CA.
- Colella, H. V.**, C. Williams, and S. Ellis (2015), Investigation of complex slow slip behaviors along the Hikurangi subduction zone with earthquake simulator RSQSim, *American Geophysical Union Annual Meeting*, San Francisco, CA.
- Christophersen, A., D. A. Rhoades, and **H. V. Colella** (2015), Insights from applying a statistical medium-term forecast model to physics-based synthetic catalogues, *StatSei9*, Postdam, Germany.
- Colella, H. V.**, and M. R. Brudzinski (2014), Investigation of small earthquakes and microseismicity at the down-dip end of the seismogenic zone associated with slow slip events and large subduction earthquakes, *American Geophysical Union Annual Meeting*, San Francisco, CA.
- *Watkins, W. D., **H. V. Colella**, M. R. Brudzinski, J. H. Dieterich, K. B. Richards-Dinger (2014), Potential causes for along-stroke variability of slow slip events in south-central Alaska, *Seismological Society of America Annual Meeting*, Anchorage, AK.
- Colella, H. V.**, M. R. Brudzinski, K. B. Richards-Dinger (2013), Investigation of the ability for slow slip events to trigger earthquakes through a comparison of seismic and geodetic observations with fault slip simulations, *American Geophysical Union Annual Meeting*, San Francisco, CA.
- Colella, H. V.**, Michael Hubenthal, M. R. Brudzinski (2013), Exploration of the impacts of distributed-site Research Experiences for Undergraduates using pre-post- student interviews, *American Geophysical Union Annual Meeting*, San Francisco, CA.
- *Watkins, W. D., **H. V. Colella**, M. R. Brudzinski, J. H. Dieterich, K. B. Richards-Dinger (2013), Investigation of the origins of the variability of slow slip events with fault slip simulations, *AGU Annual Meeting*, San Francisco, CA.
- *Sit. M. Stefany, M. R. Brudzinski, *S. E. Graham, **H. V. Colella**, *S. G. Holtkamp, *N. Ghouse, E. Cabral-Cano, A. Arciniega-Ceballos, and C. DeMets, Slow slip, tremor, and local earthquakes prior to the M_w 7.4 megathrust event in Oaxaca, AGU Meeting of Americas 2013, Cancun, Mexico (INVITED)
- Colella, H. V.**, J. H. Dieterich, and K. B. Richards-Dinger, Interactions between the seismogenic zone and slow slip section in earthquake simulations, SSA Annual Meeting 2013.
- Colella, H. V.**, J. H. Dieterich, and K. B. Richards-Dinger, Depth-dependent characteristics of simulated slow slip events, AGU Annual Meeting 2012 (INVITED).
- Colella, H. V.**, *R. Skoumal, *S. G. Holtkamp, M. R. Brudzinski, C. Cabral-Cano, and A. Arciniega-Ceballos, Analysis of the Mw 7.4 March, 20, 2012 Ometepec aftershock sequence and pre-mainshock background seismicity, AGU Annual Meeting 2012.
- *Sit. S. M., M. R. Brudzinski, **H. V. Colella**, Data mining student answers with Moodle to investigate learning pathways in an Introductory Geohazards Course, AGU Annual Meeting 2012.
- Colella, H. V.**, J. H. Dieterich, Seismicity rates changes during episodic fountaining in the early stages of Pu‘u ‘O‘o at Kilauea Volcano, Hawai‘i and possible implications for magma storage and supply to Pu‘u ‘O‘o, AGU Chapman Conference of Hawaiian Volcanoes: From Source to Surface, August 2012.
- Colella, H. V.**, J. H. Dieterich, and K. B. Richards-Dinger, Simulations of interactions between slow slip events and great mega-thrust earthquakes, AGU Annual Meeting, 2011.
- Colella, H. V.**, J. H. Dieterich, and K. B. Richards-Dinger, Diverse slip propagation directions in simulated slow slip events, SSA Annual Meeting, 2011.
- Colella, H. V.**, J. H. Dieterich, and K. B. Richard-Dinger, Simulations of slow slip events: Interactions with a zone of continuous creep, AGU Annual Meeting, 2010.

- Colella, H. V.**, J. H. Dieterich, and K. Richards-Dinger, Simulations of slow slip event histories along a subduction interface, EarthScope Institute on The Spectrum of Fault Slip Behaviors 2010.
- Colella, H. V.** and J. H. Dieterich, Evolution of the lateral conduit at Kilauea volcano during the early stages of the Pu'u O'o eruption, SSA Annual Meeting 2010.
- Colella, H. V.** and E. S. Cochran, Crustal anisotropy measured near the Calico Fault, AGU Fall Meeting, 2008.
- Colella, H.**, J. H. Dieterich, P. Okubo, J. S. Nakata, Stress changes during inflation/deflation events at Kilauea volcano, Hawaii, Abstract, SSA 2007.
- Colella, H.** and D. D. Bowman, Ongoing accelerating seismicity in California, SSA 2006.

**Student authors*

PROFESSIONAL SERVICE

- United States Geological Survey (USGS) Panel Reviewer - present*
- NSF Proposal Reviewer (EarthScope, Geophysics, MG&G) 2012-present*
- Manuscript Reviewer, GRL, JGR, BSSA, PAAG, 2011-present*
- Working Group-Chairperson, IRIS Early Career Scientists, 2011 - 2014*
- Guest Speaker, Daisy Mountain Geology Club, Sucked In: Unlocking the Hidden Secrets of Subduction Zones, December 2014.*
- Special Session Co-convener, Seismological Society of America, "Diverse mechanisms of subduction zone fault slip: Exploring the relationships between seismic rupture, transient slip, and steady creep", April-May 2014*
- Program Committee Member, EarthScope National Meeting, May 2013, Charlotte, North Carolina*
- Special Session Co-convener, American Geophysical Union Annual Meeting, "Integrated Studies of Slow of Slow Earthquakes", December 2013*
- Special Session Co-convener, Seismological Society of America Annual Meeting, "Towards an Integrated Understanding of Slow Earthquakes: What We Know, What We Don't Know, and How to Move Forward", April 2013*
- Convener, Observations and Modeling of Tremor and Slow Slip and Implications for Plate Boundaries Session, American Geophysical Union Fall Meeting 2011.*

Cruises

- Research Scientist - R/V Roger Revelle (RR1508), seismic and heat flow acquisition, May-June 2015*
- Research Scientist - Oceanus OC1308B - Leg 6 of Cascadia Initiative Expedition Teams - OBS deployment, August-September 2013*

Workshops Attended

- AGU Chapman Conference on Slow Slip Phenomena, Ixtapa, Guerrero, Mexico, February 2016*
- GeoPRISMS: Subduction Cycles and Deformation Theoretical and Experimental Institute, Redondo Beach, CA, October 2015*
- IRIS OBS Instrument Pool Meeting, Vancouver, WA, October 2015*
- Earthquake School - Earthquakes: Nucleation, triggering, and relationship with aseismic processes, Corsica, France, November 2014.*
- Amphibious Array Facility Workshop, Snowbird, Utah, October 2014.*
- GeoPRISMS - Planning Workshop for the New Zealand Primary Site, Wellington, New Zealand April 2013.*
- EarthCube Early Career Strategic Visioning Workshop, Washington, D.C., October 2012.*
- Future Faculty Workshop, Houston, Texas, September 2012.*
- Workshop on Advancing Experimental Rock Deformation Research: Scientific and Technical Needs, Boston, Massachusetts, August 2012.*
- Cascadia Science Workshop, Portland, Oregon, April 2012.*
- Alaska Primary Site Planning Workshop, Portland, Oregon, September 2011.*
- GeoPRISMS - Earthquake Planning Workshop for the Alaska Primary Site, Portland, OR, September 2011. Served as scribe.*
- Using Ocean Drilling to Unlock the Secrets of Slow Slip Events, Gisborne, New Zealand, August 2011.*
- Preparing for a Career in the Geosciences, Workshop, Lincoln, NE, June 2011.*

GeoPRISMS Implementation Workshop: Subduction Cycles and Deformation, Austin, TX, January 2011.
Geophysical Hazards and Plate Boundary Processes in Central America, Mexico, and the Caribbean,, Heredia, Costa Rica, October 2010.
Earthscope Institute of the Fault Slip, Portland, OR, USA, October 2010.

STUDENTS MENTORED

Trey Gossard - completed an undergraduate honors thesis in Barrett Honors College at Arizona State University

Amanda Meyer – currently an undergraduate student at Arizona State University

W. David Watkins – B.S. Indiana University of Pennsylvania through the IRIS Intern program (I also served as his senior thesis advisor), M.S. from University of Madison, currently with the USGS Madison

Calvin Johnson – B.S. in Pennsylvania State University with Dr. Andrew Nyblade, now at University of Arkansas

Earl O'Bannon – now a Ph.D. graduate student at University of California, Santa Cruz

Robert Valdez – now a Ph.D. candidate at Pennsylvania State University with Dr. Marone and Dr. Saffer

Angela Gerhardt – B.S from University of California, Riverside, M.S. from Virginia Tech, now a geologist at EnerVest, Ltd.

PROFESSIONAL AFFILIATIONS

American Geophysical Union

EarthScope

Earth Science Women's Network

Geological Society of America

GeoPRISMS

Incorporated Research Institutions for Seismology

National Association of Geosciences Teachers

Seismological Society of America

Southern California Earthquake Center

Computer Experience and Skills

Languages: C, C++, R, Matlab

Operating Systems: Macintosh, Linux

Other programs: Adobe Illustrator, Word, Powerpoint, Keynote

Hobbies

SCUBA diving, hiking, camping, backpacking, new languages, volunteer for animal rescue organizations and hospice
