

**Amanda M. Thomas**

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**Education**

Ph.D., University of California, Berkeley, December 2012  
B.S., Civil Engineering with highest honors, Georgia Institute of Technology, May 2007

**Research Appointments**

Assistant Professor, University of Oregon, August 2015-present  
National Science Foundation Postdoctoral Fellow, Stanford University, June 2013-June 2015  
National Science Foundation Graduate Research Fellow, Berkeley Seismological Laboratory, University of California-Berkeley, 2007-2012  
Graduate Student Researcher, Tohoku University, Sendai, Japan, Summer 2009  
Undergraduate Research Assistant, Department of Earth and Atmospheric Sciences, Georgia Institute of Technology, 2006-2007  
Undergraduate Research Assistant, Department of Geological Sciences, University of Colorado-Boulder, Summer 2005

**Teaching Appointments**

University of Oregon, GEOL 467: *Fault Mechanics*, 2016  
University of Oregon, GEOL 201: *Earth's Interior Heat and Dynamics*, 2015, 2016  
University of Oregon, GEOL 199: *Volcanoes in Your Backyard*, 2014  
University of California, Berkeley, EPS 12: *The Planets*, 2012  
University of California, Berkeley, EPS 116: *Structural Geology*, 2011  
University of California, Berkeley, EPS 39: *Geological Influences in California*, 2010, 2012  
University of California, Berkeley, EPS 122: *Physics of the Earth*, 2008  
Georgia Institute of Technology, Math 1711: *Finite Mathematics*, 2006  
Georgia Institute of Technology, Math 2401: *Multivariable Calculus*, 2006  
Georgia Institute of Technology, Math 1501: *Single Variable Calculus*, 2005

**Honors and Awards**

Earthscope Speaker, 2016-2017  
National Science Foundation Postdoctoral Fellowship, 2013-2015  
G. D. Louderback Award for outstanding scholarship, 2012  
AGU Seismology Section Outstanding Student Presentation Honorable Mention, 2011

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Seismological Society of America Best Student Presentation Award, 2010  
National Science Foundation Graduate Research Fellowship, 2008-2011  
Geological Society of America Graduate Research Grant, 2008

### **Submitted Manuscripts**

1. **Thomas, A. M.**, N. M. Beeler, Q. Bletery, R. Burgmann, and D. R. Shelly (201?) Using low frequency earthquake families on the San Andreas fault as deep creepmeters. Submitted to *JGR-Solid Earth*.
2. Beeler, N. M., **A. M. Thomas**, R. Burgmann, and D. R. Shelly (201?) Constraints on friction, dilatancy, diffusivity, and effective stress from low-frequency earthquake rates on the deep San Andreas Fault. In revision in *JGR*.
3. Bletery, Q., **A. M. Thomas**, J. C. Hawthorne, R. M. Skarbek, A. W. Rempel, & R. D. Krogstad (2017) Characteristics of secondary slip fronts associated with slow earthquakes in Cascadia. *Earth and Planetary Science Letters*, 463, 212-220.
4. Bostock, M. G., A. M. Thomas, A. M. Rubin, and N. I. Christensen (2017) On corner frequencies, attenuation, and low-frequency earthquakes. *JGR-Solid Earth*. doi: 10.1002/2016JB013405.
5. Hawthorne, J. C., M. G. Bostock, A. Royer, and **A. M. Thomas** (2016) Variations in slow slip moment rate associated with rapid tremor reversals in Cascadia. *G-Cubed*. doi: 10.1002/2016GC006489.
6. Bletery, Q., Thomas, A. M., L. Karlstrom, A. W. Rempel, A. Sladen and L. De Barros (2016) Mega-earthquakes rupture flat megathrusts. *Science*. doi:10.1126/science.aag0482. .
7. **Thomas, A. M.**, G. C. Beroza and D. R. Shelly (2016) Constraints on the Source Parameters of Low-Frequency Earthquakes on the San Andreas Fault. *Geophys. Res. Lett.* doi:10.1002/2015GL067173.
8. Beeler, N. M., G. H. Hirth, **A. M. Thomas**, and R. Burgmann (2015) Effective pressure, friction and deep crustal faulting. Accepted in *JGR-Solid Earth*.
9. Bostock, M. G., **A. M. Thomas**, G. Savard, L. Chuang, and A. Rubin (2015) “Magnitudes and moment-duration scaling of low-frequency earthquakes beneath southern Vancouver Island. *JGR-Solid Earth*, 120.9, 6329-6350, doi: 10.1002/2015JB012195.
10. **Thomas, A. M.** and M. G. Bostock (2015) Low-frequency earthquakes in central Cascadia. Accepted in *Tectonophysics*.
11. Kyriakopoulos, C., A. V. Newman, **A. M. Thomas**, M. Moore-Driskell, and G. T. Farmer (2015) A new seismically constrained subduction interface model for Central America. *JGR-Solid Earth*, 120, doi:10.1002/2014JB011859.

12. Plourde, A., M. G. Bostock, P. Audet, and **A. M. Thomas** (2015) Low-frequency earthquakes at the southern Cascadia margin. *Geophys. Res. Lett.*, 42, doi:10.1002/2015GL064363.
13. Royer, A., **A. M. Thomas**, and M. G. Bostock (2014) Tidal Modulation of Low Frequency Earthquakes and triggering of secondary events in Northern Cascadia. *JGR-SE* doi:10.1002/2014JB011430.
14. Thurber, C. H., X. Zeng, **A. M. Thomas**, and P. Audet (2014) Phase-Weighted Stacking Applied to Low-Frequency Earthquakes. *BSSA*. doi: 10.1785/0120140077.
15. Culha, C., A. Hayes, M. Manga, and **A. M. Thomas** (2014) Double ridges on Europa accommodate some of the missing surface contraction. *JGR-Planets*. doi:10.1002/2013JE004526.
16. Beeler, N. M., **A. M. Thomas**, R. Burgmann, and D. R. Shelly (2013) Inferring fault rheology from low frequency earthquakes on the San Andreas fault. *JGR-SE*. 118, doi:10.1002/2013JB010118.
17. **Thomas, A. M.**, R. Burgmann, and D. S. Dreger (2013) Incipient faulting near Lake Pillsbury, CA and the role of accessory faults in plate boundary evolution. *Geology*. v. 41, p. 1119-1122, doi:10.1130/G34588.1
18. **Thomas, A. M.**, (2013) Fact or friction: Inferring rheology from low-frequency earthquakes on the San Andreas fault. UC-Berkeley PhD Dissertation.
19. McLaskey, G. C., **A. M. Thomas**, S. D. Glaser, R. M. Nadeau (2012) Fault healing promotes high frequency earthquakes in the laboratory and on natural faults. *Nature*. 491, doi:10.1038/nature11512.
20. **Thomas, A. M.**, R. Burgmann, D. R. Shelly, N. M. Beeler, and M. L. Rudolph (2012) Tidal sensitivity of low frequency earthquakes near Parkfield, CA: implications for fault mechanics within the brittle-ductile transition. *JGR-SE*. 117, B05301, doi:10.1029/2011JB009036.
21. **Thomas, A.M.**, R. M. Nadeau, and R. Burgmann (2009) Tremor-tide correlations and near-lithostatic pore pressure on the deep San Andreas fault. *Nature*. 462, 1048-1051, doi:10.1038/nature08654.
22. Ghosh, A., A. V. Newman, **A. M. Thomas**, and G. T. Farmer (2008) Interface locking along the subduction megathrust from b-value mapping near Nicoya Peninsula, Costa Rica, *Geophys. Res. Lett.*, 35, L01301, doi:10.1029/2007GL031617.

### Presentations

- **Constraints on friction, dilatancy, hydraulic diffusivity, and effective stress from low-frequency earthquake rates on the deep San Andreas Fault** (with N. Beeler<sup>1</sup>, R. Burgmann<sup>3</sup>, D. Shelly<sup>4</sup>)  
2016 talk at the Japanese Geophysical Union meeting, Chiba, Japan
- **Past and future great earthquakes in Cascadia** (with R. Weldon<sup>2</sup> and D. Toomey<sup>3</sup>)  
2016 seminar for the Lane League of Women Voters, Eugene, OR

- **Constraints on source properties of LFEs in Parkfield, CA**  
2016 talk at the AGU Chapman conference on slow slip, Ixtapa, Mexico  
2016 talk at the Japanese Geophysical Union meeting, Chiba, Japan (INVITED)
- **Source properties of LFEs in Parkfield and Cascadia** (with M. Bostock<sup>2</sup>, G. Beroza<sup>3</sup>, A. Rubin<sup>4</sup>, D. Shelly<sup>5</sup>, G. Savard<sup>6</sup>, L. Chuang<sup>7</sup>)  
2016 talk at the University of California, Davis, Davis, CA  
2016 talk at the SCEC Annual Meeting, Palm Springs, CA (INVITED)  
2016 talk at the University of New Mexico, Albuquerque, NM  
2016 talk at Harvard University, Boston, MA  
2016 talk at Oregon State University, Corvallis, OR  
2016 seminar at University of Washington, Seattle, WA  
2016 seminar at Scripps Institution of Oceanography, San Diego, CA  
2015 Earthscope National Meeting, Stowe, VT (INVITED)
- **Aseismic moment release associated with rapid tremor reversals in Cascadia** (with J. Hawthorne<sup>1</sup>, M. G. Bostock<sup>2</sup>, A. A. Royer<sup>3</sup>)  
2015 AGU meeting, San Francisco, CA
- **Source-time functions of LFEs on the San Andreas fault** (with G. Beroza<sup>2</sup>, and D. Shelly<sup>3</sup>)  
2014 AGU meeting, San Francisco, CA
- **Effects of tidal modulation in heterogeneous models of slow slip** (with R. Skarbek<sup>1</sup>, and A. Rempel<sup>2</sup>)  
2014 AGU meeting, San Francisco, CA
- **A study of low-frequency earthquake magnitudes in Northern Cascadia** (with M. Bostock<sup>1</sup>)  
2014 AGU meeting, San Francisco, CA
- **Tidal Triggering of earthquakes at injection and geothermal sites** (with S. Cooper<sup>1</sup>)  
2014 AGU meeting, San Francisco, CA
- **LFEs in Central and Southern Cascadia** (with A. Plourde<sup>2</sup>, P. Audet<sup>3</sup>, and M. Bostock<sup>4</sup>)  
2013 AGU meeting, San Francisco, CA
- **Tides and LFEs in Cascadia** (with A. Royer<sup>1</sup>, and M. Bostock<sup>3</sup>)  
2013 AGU meeting, San Francisco, CA  
2013 Summer school on earthquake science, Tokyo, Japan
- **Tides and LFEs on the San Andreas and in Cascadia** (with N. Beeler<sup>2</sup>, D. Shelly<sup>3</sup>, A. Royer<sup>4</sup>, and M. Bostock<sup>5</sup>)  
2013 seminar at the University of California, Santa Cruz, CA
- **Tides and LFEs on the San Andreas fault** (with R. Bürgmann<sup>2</sup>, N. Beeler<sup>3</sup>, D. Shelly<sup>4</sup>, and M. Rudolph<sup>5</sup>)  
2013 seminar at Brown University, Providence, RI  
2013 seminar at the University of Oregon, Eugene, OR  
2012 seminar at the University of California, Berkeley, CA  
2012 SSA meeting, San Diego, CA  
2011 AGU meeting, San Francisco, CA (INVITED)  
2010 Earthscope Transient Fault Slip workshop, Portland, OR

- 2010 UJNR Meeting, Nagaoka, Japan (INVITED)  
 2010 SSA meeting, Portland, OR  
 2010 seminar at USGS, Menlo Park, CA
- **Swarms and incipient faulting** (with R. Bürgmann<sup>2</sup> and D. Dreger<sup>3</sup>)  
 2013 seminar at Brown University, Providence, RI  
 2009 AGU meeting, San Francisco, CA
  - **Repeating earthquakes and fault healing** (with G. McLaskey<sup>1</sup>, S. Glaser<sup>3</sup>, and R. Nadeau<sup>4</sup>)  
 2011 AGU meeting, San Francisco, CA
  - **Tides and tremor on the San Andreas fault** (with R. Nadeau<sup>2</sup> and R. Bürgmann<sup>3</sup>)  
 2008 AGU meeting, San Francisco, CA  
 2009 seminar at Tohoku University, Sendai, Japan
  - **Stress Proxies on the Hayward fault** (with R. Bürgmann<sup>2</sup>)  
 2008 AGU meeting San Francisco, CA

### **External funding**

\*\$X00,000- (coPI) National Science Foundation: Cascadia scenario earthquakes: source, path, and earthquake early warning (with PI Yihe Huang and coPI Marine Denolle)

\*\$X0,000- (coPI) National Aeronautics and Space Administration: Testing hypotheses for formation for Europa's ridges (with PI Max Rudolph and coPI Michael Manga)

\$22,000- (PI) Southern California Earthquake Center-16053: Using low frequency earthquakes families on the San Andreas as deep creepmeters (with coPI Nicholas Beeler, Roland Burgmann, David Shelly)

\$361,416 - (coPI) United States Geological Survey-283270: Implementation and Development of US West Coast ShakeAlert: Collaborative Research with University of California at Berkeley, California Institute of Technology, University of Washington, and University of Oregon (with PI Douglas Toomey)

\$240,000 - (PI) National Science Foundation EAR-1520238: Exploring the influence of Tidal Stress Changes on the Generation of Secondary Slip Fronts during Slow Slip Events in Cascadia (with coPI Alan Rempel)

\$170,000 - (PI) National Science Foundation EAR-1249775: Spectral morphology and source characteristics of low-frequency earthquakes near Parkfield, CA

\*=pending

### **Professional Service**

- Referee for manuscripts submitted to *Geophysical Research Letters*, *Earth and Planetary Science Letters*, *G-Cubed*, *Geosphere*, *Science*, *Journal of Geophysical Research - Solid Earth*, *Nature Geoscience*, *National Science Foundation*
- Session chair at AGU (2012) and JpGU (2016)
- Member, IRIS Data Services Committee

**University Service**

- 2015-University of Oregon state and federal relations delegate tasked with testifying and promoting Earthquake Early Warning to Congressman Peter DaFazio, Senator Jeff Merkeley, and other Oregon legislators (the overarching goal of this effort is to promote EEW on the west coast and to secure recurring investment by the State of Oregon in seismic monitoring)
- 2014-Aided in lobbying the State of Oregon to purchase 15 Transportable Array stations that were due to be decommissioned in summer of 2015. This, to my knowledge, is the first investment in seismic monitoring by the State of Oregon.

**Department Service**

- 2014-Developed a new Freshman Interest Group (FIG) course called Volcanoes in Your Backyard designed to recruit undergraduates into geology
- 2015 and 2016-Gave seminar for graduate students on applying to national fellowship programs and provided feedback on several research and personal statements of graduate students in the Geological Sciences Department
- Fall 2016 Department colloquium organizer
- Rewrote UO geophysics group webpage: <http://geophysics.uoregon.edu/>
- 2017 Geodesy Position Search Committee member

**Advising**

- Undergraduate students: Geena Littell, Shane Cooper (UNR, UO IRIS Intern Summer 2014), Cansu Culha (UC-Berkeley)
- Graduate Students: Alex Babb, Ben Heath, Randy Krogstad, Tyler Newton, Emily Sexton and Karen Pearson (UMaryland)
- Postdoctoral scholars: Quentin Bletery, Rob Skarbek

**Collaborators**

Rob Skarbek (LDEO), Alan Rempel (University of Oregon), Quentin Bletery (University of Oregon), Gregory C. Beroza (Stanford University), Michael G. Bostock (University of British Columbia), Alexandra Royer (University of British Columbia), Pascal Audet (University of Ottawa), Clifford H. Thurber (University of Wisconsin, Madison), Xiaofang Zeng (University of Wisconsin, Madison), Nicholas M. Beeler (USGS-Vancouver), Roland Bürgmann (University of California, Berkeley), Douglas S. Dreger (University of California, Berkeley), Steven D. Glaser (University of California, Berkeley), Gregory C. McLaskey (Cornell University), Robert M. Nadeau (University of California, Berkeley), Maxwell L. Rudolph (Portland State University), David R. Shelly (USGS-Menlo Park), Gregory H. Hirth (Brown University), Vedran Lekic (University of Maryland), Karen M. Pearson (University of Maryland), William Frank

(Massachusetts Institute of Technology), Jessica C. Hawthorne (Leeds University), Yihe Huang (University of Michigan), Brendan Crowell (University of Washington), Marine Denolle (Harvard University), Allan Rubin (Princeton University), Alexandre Plourde (University of British Columbia), Genevieve Savard (University of British Columbia), Lindsay Chang (University of British Columbia), Leif Karlstrom (University of Oregon), Louie DeBarros (Nice), Anthony Sladen (Nice)