

Sarah Minson

U.S. Geological Survey
sminson@usgs.gov

CURRICULUM VITAE

EMPLOYMENT

<i>U.S. Geological Survey</i> Research Geophysicist	2014 – Present
<i>California Institute of Technology</i> Postdoctoral Fellow	2014
<i>U.S. Geological Survey</i> Mendenhall Postdoctoral Fellow	2011 – 2013

EDUCATION

<i>California Institute of Technology</i> Ph.D. in Geophysics Thesis: "A Bayesian Approach to Earthquake Source Studies" Committee: James Beck, Thomas Heaton (chair), Donald Helmberger, Hiroo Kanamori, Nadia Lapusta, Mark Simons (advisor)	2010
<i>California Institute of Technology</i> M.S. in Geophysics	2005
<i>University of California, Berkeley</i> B.A. in Geophysics with Highest Distinction in General Scholarship* Honors Thesis: "Source Mechanisms of Volcanic Induced Seismicity – Miyakejima, Japan, 2000" Advisor: Douglas Dreger	2003

HONORS AND AWARDS

• Kavli Fellow (National Academy of Sciences and The Kavli Foundation)	2018, 2019
• U.S. Geological Survey STAR Award	2019
• U.S. Geological Survey STAR Award	2016
• Presidential Early Career Award for Scientists and Engineers	2014
• U.S. Geological Survey Mendenhall Fellowship	2011 – 2013
• Outstanding Student Paper Award – AGU Fall Meeting	2009
• NASA Earth System Science Fellowship	2006 – 2009
• Gutenberg Fellowship, California Institute of Technology	2003 – 2004
• Ramsden Fellowship, University of California, Berkeley	2002 – 2003
• Departmental Citation in Recognition of Distinguished Undergraduate Accomplishment, University of California, Berkeley	2003
• Outstanding Student Award, Association of Women Geoscientists	2003
• Summer Undergraduate Research Fellowship, University of California, Berkeley	2002

* The University of California, Berkeley College of Letters and Science states, "UC Berkeley does not use the Latin terminology for honors. It may be understood that highest distinction is equivalent to *summa cum laude*; high distinction to *magna cum laude*; and distinction is equivalent to *cum laude*."

SELECTED PUBLICATIONS

- **Minson, S. E.**, A. S. Baltay, E. S. Cochran, T. C. Hanks, M. T. Page, S. K. McBride, K. R. Milner, and M.-A. Meier (2019), The limits of earthquake early warning accuracy and best alerting strategy, *Sci. Rep.*, *9*(2478).
- **Minson, S. E.**, M.-A. Meier, A. S. Baltay, T. C. Hanks, and E. S. Cochran (2018), The limits of earthquake early warning: Timeliness of ground motion estimates. *Sci. Adv.*, *4*(3), eaaq0504, doi:10.1126/sciadv.aaq0504.
- Lapotre, M. G. A., B. L. Ehlmann, **S. E. Minson**, R. E. Arvidson, F. Ayoub, A. A. Fraeman, R. C. Ewing, and N. T. Bridges (2017), Compositional Variations in Sands of the Bagnold Dunes, Gale Crater, Mars, from Visible-Shortwave Infrared Spectroscopy and Comparison with Ground Truth from the Curiosity Rover, *J. Geophys. Res. Planets*, *122*(12), 2489-2509, doi:10.1002/2016JE005133.
- Brooks, B. A., **S. E. Minson**, C. L. Glennie, J. M. Nevitt, T. Dawson, R. Rubin, T. L. Ericksen, D. Lockner, K. Hudnut, V. Langenheim, A. Lutz, M. Mareschal, J. Murray, D. Schwartz and D. Zaccone (2017), Buried shallow fault slip from the South Napa earthquake revealed by near-field geodesy, *Sci. Adv.*, *3*(7), e1700525, doi:10.1126/sciadv.1700525.
- **Minson, S. E.**, S. Wu, J. L. Beck, T. H. Heaton (2017), Combining multiple earthquake models in real time for earthquake early warning, *Bull. Seismol. Soc. Amer.*, *107*(4), 1868-1882, doi:10.1785/0120160331.
- Lapotre, M. G. A., B. L. Ehlmann, and **S. E. Minson** (2017), A probabilistic approach to remote compositional analysis of planetary surfaces, *J. Geophys. Res. Planets*, *122*(5), 983-1009, doi:10.1002/2016JE005248.
- Miller, M. D., M. Simons, J. F. Adkins, and **S. E. Minson** (2015), The information content of pore fluid $\delta^{18}\text{O}$ and $[\text{Cl}^-]$, *J. Phys. Oceanogr.*, *45*(8), 2070-2094, doi:10.1175/JPO-D-14-0203.1.
- **Minson, S. E.**, B. A. Brooks, C. L. Glennie, J. R. Murray, J. O. Langbein, S. E. Owen, T. H. Heaton, R. A. Iannucci, and D. L. Hauser (2015), Crowdsourced earthquake early warning, *Sci. Adv.*, *1*(3), e1500036, doi:10.1126/sciadv.1500036.
- **Minson, S. E.**, and W. H. K. Lee (2014), Bayesian historical earthquake relocation: an example from the 1909 Taipei earthquake, *Geophys. J. Int.*, *198*(3), 1419-1430, doi:10.1093/gji/ggu201.
- **Minson, S. E.**, M. Simons, J. L. Beck, F. Ortega, J. Jiang, S. E. Owen, A. W. Moore, A. Inbal, and A. Sladen (2014), Bayesian inversion for finite fault earthquake source models II - the 2011 great Tohoku-oki, Japan earthquake, *Geophys. J. Int.*, *198*(2), 922-940, doi:10.1093/gji/ggu170.
- **Minson, S. E.**, J. R. Murray, J. O. Langbein, and J. S. Gombert (2014), Real-time inversions for finite fault slip models and rupture geometry based on high-rate GPS data, *J. Geophys. Res.*, *119*(4), 3201-3231, doi:10.1002/2013JB010622.
- Duputel, Z., P. S. Agram, M. Simons, **S. E. Minson**, and J. L. Beck (2014), Accounting for prediction uncertainty when inferring subsurface fault slip, *Geophys. J. Int.*, *197*(1), 464-482, doi:10.1093/gji/ggt517.
- **Minson, S. E.**, M. Simons, and J. L. Beck (2013), A Bayesian approach to finite fault earthquake modeling I: Theory and synthetics, *Geophys. J. Int.*, *194*(3), 1701-1726, doi:10.1093/gji/ggt180.
- Simons, M., **S. E. Minson**, A. Sladen, F. Ortega, J. Jiang, S. E. Owen, L. Meng, J.-P. Ampuero, S. Wei, R. Chu, D. V. Helmberger, H. Kanamori, E. Hetland, A. W. Moore, and F. H. Webb (2011), The 2011 Magnitude 9.0 Tohoku-Oki Earthquake: Mosaicking the Megathrust from Seconds to Centuries, *Science*, *332*, 6036, 1421-1425, doi:10.1126/science.1206731.
- Walter, F., J. F. Clinton, N. Deichmann, D. S. Dreger, **S. E. Minson**, and M. Funk (2009), Moment tensor inversions of icequakes on Gornergletscher, Switzerland, *Bull. Seismol. Soc. Amer.*, *99*(2A), 852-870, doi:10.1785/0120080110.
- **Minson, S. E.**, and D. S. Dreger (2008), Stable inversions for complete moment tensors, *Geophys. J. Int.*, *174*, 2, 585-592, doi:10.1111/j.1365-246X.2008.03797.x.
- **Minson, S. E.**, D. S. Dreger, R. Bürgmann, H. Kanamori, and K. M. Larson (2007), Seismically and geodetically determined nondouble-couple source mechanisms from the 2000 Miyakejima volcanic earthquake swarm, *J. Geophys. Res.*, *112*, B10308, doi:10.1029/2006JB004847.

RECENT INVITED PRESENTATIONS (2015-PRESENT)

- **Minson, S. E.** (2019), Optimizing Subduction Zone Monitoring, presented at the National Academies' Committee on Seismology and Geodynamics (COSG) meeting on "New Opportunities to Study Tectonic Precursors", Berkeley, CA, May 9, 2019.
- **Minson, S. E.** (2019), How does ShakeAlert work?, Japan Meteorological Agency Headquarters, Tokyo, Japan, March 26, 2019.
- **Minson, S. E.** (2019), How does ShakeAlert work?, Japan Meteorological Agency – Meteorological Research Institute, Tsukuba, Japan, March 22, 2019.
- **Minson, S. E.** (2019), Shaking is Almost Always a Surprise, 30th Annual Kavli Frontiers of Science Symposium, National Academy of Sciences, Irvine, California, February 28 – March 2, 2019.
- **Minson, S. E.** (2018), The Limits of Earthquake Early Warning, presented at the Geology Club Seminar, San Jose State University, San Jose, California, September 24, 2018.
- **Minson, S. E.** (2018), The Limits of Earthquake Early Warning, presented at the Association for Women Geoscientists and Peninsula Geological Society joint meeting, Stanford, California, September 18, 2018.
- **Minson, S. E.** (2018), The Limits of Earthquake Early Warning, presented at the Cascadia Subduction Zone Earthquake Lecture Series, Environmental Science Department's Senior Capstone Course on Cascadia Subduction Zone, Willamette University, Salem, Oregon, September 14, 2018.
- **Minson, S. E.** (2018), The Theoretical and Observational Limits of Earthquake Early Warning, presented at the 29th Annual Kavli Frontiers of Science Symposium, National Academy of Sciences, Irvine, California, February 15-17, 2018.
- **Minson, S. E.** (2017), The Limits of Earthquake Early Warning, presented at the Stanford Geophysics Department seminar, Stanford, California, November 30, 2017.
- **Minson, S. E.** (2017), The Limits of Earthquake Early Warning, presented at the 2017 SCEC annual meeting, Palm Springs, California, September 13, 2017.
- **Minson, S. E.** (2017), The Limits of Earthquake Early Warning, presented at the National Earthquake Information Center GHSC seminar, Golden, Colorado, August 8, 2017.
- **Minson, S. E.** (2017), The Limits of Earthquake Early Warning, presented at the U.S. Geological Survey Earthquake Science Center seminar series, Menlo Park, California, May 17, 2017.
- **Minson, S. E.** (2017), Embracing Uncertainty in Earthquake Modeling, presented at the Making Rational Decisions under Uncertainty and Model Complexity Symposium in honor of Professor James Beck, Pasadena, California, February 3, 2017.
- **Minson, S. E.** (2016), The Theoretical and Observational Limits of Earthquake Early Warning, presented at the 11th United States-Japan Natural Resources Panel for Earthquake Research, Napa, California, November 17, 2016.
- **Minson, S. E.** (2016), Smartphone-Based Earthquake Early Warning in Chile, presented at the IRIS Workshop 2016: Emerging Fields and Technologies in Seismology, Vancouver, Washington, June 10, 2016.
- **Minson, S. E.** (2016), Smartphone-Based Earthquake Early Warning in Chile, presented at the Peninsula Geological Society, May 10, 2016.
- **Minson, S. E.** (2016), Smartphone-based Earthquake Early Warning: Crowd-sourcing and low-cost networks, presented at the UC Santa Cruz Institute of Geophysics and Planetary Physics seminar, Santa Cruz, California, January 15, 2016.
- **Minson, S. E.** (2015), Smartphone-Based Earthquake Early Warning in Chile, presented at the Early Warning in Subduction Zones Workshop, Berkeley, California, November 20, 2015.