Trever T. Hines

Contact Information

Earth and Environmental Sciences
University of Michigan
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Education

PhD candidate, *University of Michigan, Ann Arbor* 2012-present
Geophysics (certificate in Computational Discovery and Engineering)
GPA: 3.92 / 4.00
Advisor: Eric A. Hetland
Thesis: postseismic and interseismic signature of viscoelasticity in the lower crust and upper mantle

BS, *University of Illinois, Urbana-Champaign* 2008 - 2012
Geology (minor in Natural Resource Conservation)
GPA: 3.67 / 4.00

Publications

Hines, T. T., and E. A. Hetland (in preparation), Detecting spatially and temporally correlated signals in geodetic data with the radial basis function finite-difference method

Hines, T. T., and E. A. Hetland (2016), Rheologic constraints on the upper mantle from five years of postseismic deformation following the El Mayor-Cucapah earthquake. J. Geophys. Res., submitted April 22, 2016; revised July 8, 2016.

Hines, T. T., and E. A. Hetland (2016), Rapid and simultaneous estimation of fault slip and heterogeneous lithospheric viscosity from post-seismic deformation. Geophys. J. Int., 204, doi: 10.1093/gji/ggv477.

Hines, T. T., and E. A. Hetland (2013), Bias in estimates of lithosphere viscosity from interseismic deformation. Geophys. Res. Lett., 40, doi:10.1002/grl.50839.

Research Positions

Graduate student research assistant, *University of Michigan* 2012 – present
Ecological modeling intern, *Smithsonian Environmental Research Center* Summer 2012
Crop science research assistant, *University of Illinois* 2010 - 2011

Teaching Experience

Michigan Math and Science Scholars instructor, *University of Michigan* Summer 2015
- Co-taught a summer course for High School students on the mathematics of natural hazard

Graduate student instructor, *University of Michigan* Fall 2014 and 2015
- EARTH 468, Data Analysis and Model Estimation

Honors

Best Graduate Student Instructor Award, *University of Michigan* 2015
Outstanding Senior Award, *University of Illinois* 2012

Workshops and field courses

CIG Crustal Deformation Modeling Workshop, *Stanford University* Summer 2014
- One week course on using Pylith, a finite element program for modeling lithosphere dynamics

InSAR: An introduction to ISCE and GIAnT, *UNAVCO* Summer 2014
- Three day course on processing Interferometric Synthetic Aperture Radar (InSAR) data

Wasatch-Uinta Summer Field Camp, *University of Illinois* Summer 2012

The Geology of County Clare, Western Eire, *University of Illinois* Spring 2012

Abstracts

E. A. Hetland, L. M. Luna, R. H. Styron, and T. T. Hines (2016), Inference of stress from faulting and topographic loading on faults. Seismological Society of America 2016 Annual Meeting, Reno, NV.

Hines, T. T. and E. A. Hetland (2015 invited speaker), Kalman filter based estimation of lithospheric viscosity and fault slip from postseismic deformation: application to the 2010 El Mayor-Cucapah earthquake. American Geophysical Union 2015 Fall Meeting, San Francisco, CA.

Hines, T. T. and E. A. Hetland (2015), Inversion of postseismic deformation for lithospheric viscosity and fault slip. Society for Industrial and Applied Mathematics: Geosciences 2015 meeting, Stanford CA.

Hines, T. T. and E. A. Hetland (2014), Direct inversion of postseismic deformation for lithospheric viscosity structure and fault slip. American Geophysical Union 2014 Fall Meeting, San Francisco, CA.

Hines, T. T. and E. A. Hetland (2014), Determination of lithosphere rheology from interseismic deformation and implications for fault stress accumulation. Seismological Society of America 2014 Annual Meeting, Anchorage, AK.

Hines, T. T. and E. A. Hetland (2013), Bias in estimates of lithosphere viscosity from interseismic deformation. American Geophysical Union 2013 Fall Meeting, San Francisco, CA.

Hetland, E. A., G. Zhang, T. T. Hines (2013), Post- and interseismic deformation due to both localized and distributed creep at depth. American Geophysical Union 2013 Fall Meeting, San Fancisco, CA.

Hines, T. T. and E. A. Hetland (2013), Evaluating geodetic constraints on the strength of the lithosphere. Michigan Geophysical Union, Ann Arbor, MI.

Membership

Seismological Society of America, member since 2013
American Geophysical Union, member since 2013
Society for Industrial and Applied Mathematics, since 2012