Kate Allstadt

National Science Foundation Postdoctoral Fellow
US Geological Survey, Cascades Volcano Observatory
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Curriculum Vitae

Research Interests

Multidisciplinary Applications of Seismology, Hazard and Disaster mitigation, Active Tectonics, Seismically Induced Landslides, Landslide Seismology, Earthquake and Volcano monitoring, Glacier seismicity, Engineering seismology, Site Effects

Education

2009 – 2013	University of Washington, PhD, Seismology/Geophysics committee: John Vidale, Steve Malone, Ken Creager, Steve Kramer, Juliet Crider, Heidi Houston
2008 – 2009	Université Joseph Fourier, Grenoble, France and ROSE School, Pavia, Italy, M.S., Engineering Seismology Advisors: Stéphane Garambois and Denis Jongmans
2003-2008	Northeastern University, B.S., Environmental Geology
2006	University of Canterbury, New Zealand, Geology (exchange)

Research and Professional Experience

2014 – present	National Science Foundation Postdoctoral Fellow at USGS Cascades Volcano Observatory: Toward early detection and tracking of mass movements at volcanoes using seismic methods
2013 – 2014	Postdoctoral Researcher, University of Washington, project: M9 Cascadia megaquakes: reducing risk through science, engineering, and planning
2009 – 2013	Duty Seismologist for Pacific Northwest Seismic Network Research Assistant & Teaching Assistant, UW
2008	Field Camp Manager – Iceland geology study abroad trip, Northeastern University
2007	Camp Dresser and McKee Environmental Consulting and Engineering – Environmental Management and Planning, Geologic and Hydrogeologic investigation and field sampling
2006	National Park Service – Inventory and Monitoring, Sonoran Desert Network, Tucson, AZ, Soil erosion hazard mapping and field sampling

2006	Outdoor Educator – YMCA Camp Chingachgook
2005	Camp Dresser and McKee Environmental Consulting and Engineering – Geotechnical Services Division and Soils Lab

Research

Publications:

Allstadt, K., and Malone, S.M., 2014, Swarms of repeating stick-slip icequakes triggered by snow loading at Mount Rainier volcano, J. Geophys. Res. Earth Surf. 119, doi: 10.1002/2014JF003086

Allstadt, K.E., 2013, Surficial Seismology: Landslides, Glaciers and Volcanoes in the Pacific Northwest through a Seismic Lens, Ph.D. Thesis, University of Washington.

Allstadt, K., Vidale, J.E., and Frankel, A., 2013, A scenario study of seismically induced landsliding in Seattle using broadband synthetic seismograms, Bull. Seism. Soc. Am., 103(6), 2971-2992.

Allstadt, K., 2013, Extracting Source Characteristics and Dynamics of the August 2010 Mount Meager Landslide from Broadband Seismograms, J. Geophys. Res. Earth Surface, 118(3), 1472-1490.

Thelen, W., **Allstadt, K.E.,** Malone, S.D., Moran, S., Vidale, J.E., De Angelis, S, 2013, Shallow repeating seismic events under an alpine glacier at Mount Rainier, Washington. J. Glaciol., 59(214), 345-356.

Guthrie, R.H., Friele, P., **Allstadt, K.,** Roberts, N., Evans, S.G., Delaney, K.B., Roche, D., Clague, J.J., and Jakob, M., 2012, The 6 August 2010 Mount Meager rock slide-debris flow, Coast Mountains, British Columbia: characteristics, dynamics, and implications for hazard and risk assessment: Nat.Haz. Earth. Syst. Sci., 12, 1277-1294.

Non-peer reviewed:

Allstadt, K., 2009, Study of Site Effects in Landslides using Weak Ground Motion, Avignonet and Séchilienne Landslides, French Alps, M.S. Thesis, Université Joseph Fourier and ROSE School. 87p.

Allstadt, K., and Vidale, J.E., 2012, Seismically Induced Landsliding in Seattle: A Magnitude 7 Seattle Fault Earthquake Scenario, Final Technical Report submitted to USGS National Earthquake Hazards Reduction Program, 40p. Award G11AP20012

Allstadt, K., 2012, The danger beneath Seattle, echoes of Japan, article published in Crosscut, available online at: http://crosscut.com/2012/03/09/environment/22038/The-danger-beneath-Seattle-echoes-Japan/

In submission/in prep:

Iverson, R.M., George, D.L., **Allstadt, K.,** Godt, J.W., Reid, M.E., Vallance, J.W., Schilling, S.P., Cannon, C.M., Magirl, C.S., Collins, B.D., Coe, J.A., Schulz, W.H., and Bower, J.B. (submitted to Earth and Planetary Science Letters) Landslide Mobility and hazards: broad implications of the Oso disaster

Moretti, L, **Allstadt, K.,** Mangeney, A., Capdeville, Y., Stutzmann, E. and Bouchut, F. (in submission to JGR) Numerical modeling of the Mount Meager landslide constrained by its force history derived from seismic data

Allstadt, K., Shean, D., Campbell, A., Fahnestock, M., Malone, S.M., in prep., Observations of diurnal and seasonal glacier velocity variations at Mount Rainier using ground based radar interferometry

*Talks (*invited):*

Allstadt, K., Malone, S.D., Shean, D.E., Fahnestock, M.A. and Vidale, J.E., 2013, Swarms of repeating stick-slip glacierquakes triggered by snow loading at Mount Rainier volcano, AGU Fall Meeting 2013 abstract C54B-06.

***Allstadt, K,** May 2013, Repeating earthquakes at Mount Rainier: glacial or volcanic? Western Washington University Weekly Seminar

***Allstadt, K.,** Vidale, J.E., and Frankel, A., Feb 2013, A scenario study of seismically induced landsliding in Seattle using broadband synthetic seismograms and accounting for site effects: Earthquake Engineering Research Institute Annual Meeting, Seattle

***Allstadt, K.,** Feb 2013, An investigation of repeating earthquakes generated by glaciers at Mount Rainier using seismology and radar interferometry: Nisqually Glacier Research and Geohazards at Mount Rainier seminar, National Park Service, Mount Rainier, WA

***Allstadt, K.,** May 2012, Recent Seismogenic Landslides in the Northwest: Mount Meager and the Nile Valley Landslides: Cascades Volcano Observatory Seminar

Allstadt, K., Creager, K.C., and J.E. Vidale, 2012, Extracting Source Characteristics and Dynamics of the August 2010 Mount Meager Landslide using Broadband Seismograms: SSA Annual Meeting, San Diego, April 2012.

Allstadt, K., Malone, S.D., and Vidale, J.E., June 2012, Repeating earthquakes near the Summit of Mount Rainier: IAVCEI Volcano-Ice Interactions Conference - Anchorage, Alaska

Posters:

Allstadt, K., Vidale, J., Thelen, W. and Bodin, P., 2010, The Seismic Story of the Nile Valley Landslide, Poster Session presented at: Seismological Society of America Annual meeting 2010, 2010 Apr 21-23; Portland, OR.

Allstadt, K. E., Thelen, W. A., Malone, S. D., Vidale, J. E., De Angelis, S. A., and Moran, S. C., 2010. Shallow repeating seismic events under an alpine glacier at Mount Rainier, Washington. AGU Fall 2010 Meeting, Poster session, San Francisco, CA.

Allstadt, K.E. and Vidale, J., 2011, Assessing the Hazard of Earthquake-Induced Landslides in Seattle, WA, using the Newmark method with synthetic seismograms and site amplification. AGU Fall 2011 Meeting, Poster session, San Francisco, CA.

Allstadt, K.E., Carmichael, J. D., Malone, S.D., Bodin, P., Vidale, J.E., and Moran, S.C., 2012, Glacier Quakes Mimicking Volcanic Earthquakes: The Challenge of Monitoring Ice-clad volcanoes (and some solutions), AGU Fall 2012 Meeting, Poster session, San Francisco, CA.

Allstadt, K., and Vidale, J.E., 2011, A study of seismically induced landsliding in Seattle, USA, due to a future shallow crustal earthquake using the Newmark method with synthetic seismograms and site effects: poster presented at the Great Earthquakes in the 21st Century and Geodynamics, The 2011 Bi-Lateral Workshop under the Sino-US Earthquake Studies Protocol, Chengdu, China, April 2011.

Awards

UW College of the Environment 2013 Graduate Dean's Medalist; Outstanding Student Presentation Award 2012 SSA Annual Meeting; 2011 Geophysics Student Support Fellowship (UW ESS); Best Poster Northwest Geological Society 2010; Valedictorian Northeastern U College of Arts and Sciences 2008; Northeastern Presidential Scholar (2005-2008); Sears B. Conduit Award; Excellence in Writing Award; Honor Society of Phi Kappa Phi; National Cooperative Education Scholarship (2003); Joseph Arthur Coolidge Achievement Award (2005, 2007); Amelia Peabody Honors

Service and Outreach

Service: ESS Graduate student to faculty representative (2012-2013); UW Emergency Management Planning Committee graduate student representative (2012-2013); Reviewer for JGR, GRL, Natural Hazards, G-cubed; Faculty search committee graduate student representative (2013); Advised undergraduate research for Jason Kuc (2011).
Outreach: contributor to Pacific Northwest Seismic Network Blog; Paws-on-Science – Pacific Science Center (2012, 2013); Bainbridge Island Woodward Middle School earthquake day (2012, 2013); UW Earth and Space Sciences Family Day (2012)

Affiliations

American Geophysical Union, Seismological Society of America, Association of Engineering Geologists, Northwest Geological Society

Certifications and Experience

Wilderness First Aid certified (January 2011), backcountry experience, deployment of temporary seismic arrays, ground based radar interferometry, Marine reflection seismology (R.V. Langseth COAST cruise July 2012), IRIS Pan-American Advanced Studies Institute – New Frontiers in Seismological Research (Quito, July 2011), Lab course instructor (Earthquakes), outdoor education instructor, field camp manager (in Iceland – for Northeastern University, 2008), proficient in French language

Software and coding: MATLAB, Jiggle (earthquake monitoring software), Python, SQLite3, Fortran, Adobe Illustrator, ArcGIS, GRASS GIS, Unix, ProShake