Dr. Amy Williamson, Ph.D.

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Positions Held

University of California, Berkeley — *Berkeley, CA*

Postdoctoral Scholar, Berkeley Seismological Laboratory — *November 2021 – Present*

- Offshore earthquake detection for use in earthquake early warning algorithms.

National Tsunami Warning Center — *Palmer, AK*

Duty Scientist — *August 2020 – October 2021*

- Solve and assess tsunami hazard for earthquakes globally under a life and property mission
- Conduct geophysical analysis of potential tsunami hazards using geodetic, seismic, and ocean data sets

University of Oregon — *Eugene, OR*

Postdoctoral Scholar, Department of Earth Sciences — *June 2018 – July 2020*

- Tested rapid GNSS earthquake source modules for viability as a near-field tsunami forecasting tool
- Investigated the impact of earthquake rupture processes and slip characterization on tsunami propagation models at near and far-field distances
- Surface deformation modeling using GNSS, InSAR, and satellite imagery

Georgia Institute of Technology — *Atlanta, GA*

Graduate Research Assistant, School of Earth and Atmospheric Sciences — *August 2013 – May 2018*

- Characterized slip patterns of submarine earthquakes using offshore tsunami pressure data coupled with coastal geodetic observations
- Investigated capability of near-field tsunami forecasting capabilities using offshore data sets

Education

Georgia Institute of Technology — *Atlanta, GA*

Doctor of Philosophy (Ph.D.), Geophysics — *May 2018*

School of Earth and Atmospheric Sciences

Dissertation: *Improved understanding of extent of tsunamigenic earthquakes through geodetic and tsunami datasets*

Denison University — *Granville, OH*

Bachelor of Science (B.S.), Geoscience — *May 2013*

Department of Geoscience

Area of Concentration: Geology & Petrology

Peer-reviewed Publications

7 first-authored, peer-reviewed publications (10 in total) | 153 citations | h-index 7

Improving out of network earthquake locations using prior seismicity for use in earthquake early warning

Williamson, A.L., Lux A., Allen, R. (under review), *Bulletin of the Seismological Society of America*.

A Source Clustering Approach for Efficient Inundation Modeling and Regional Scale Probabilistic Tsunami Hazard Assessment

Williamson, A.L., Rim R., Adams, L., Melgar, D., Gonzalez, F.I. (2020), *Frontiers in Earth Science*.

Toward Near-Field Tsunami Forecasting Along the Cascadia Subduction Zone Using Rapid GNSS Source Models

Williamson, A.L., D. Melgar, B. Crowell, D. Arcas, T. Melbourne, Y. Wei, K. Kwong (2020), *Journal of Geophysical Research (Solid Earth)*.

The 2018 Palu Tsunami: Coeval Landslide and Coseismic Sources

Williamson, A.L., D. Melgar, X. Xu, C. Milliner (2020), *Seismological Research Letters*.

Mesosphere airglow disturbances driven by nonlinear infrasonic waves after large earthquakes

Inchin, P.A., J.B. Snively, **A.L. Williamson**, D. Melgar, J. Aguilar Guerrero, M.D. Zettergren (2020), *Journal of Geophysical Research (Space Physics)*.

The effect of earthquake kinematics on tsunami propagation

Williamson, A.L., D. Melgar, D. Rim (2019), *Journal of Geophysical research (Solid Earth)*

An optimized array configuration of tsunami observation network off Southern Java, Indonesia

Mulia, I. E., A.R. Gusman, **A.L. Williamson**, K. Satake (2019), *Journal of Geophysical Research (Solid Earth)*.

Differences between heterogenous and homogenous slip in regional tsunami hazards modelling

Melgar, D., **A.L. Williamson**, E.F. Salazar-Monroy, (2019), *Geophysical Journal International, 219(1)*, 553-562.

Tsunami Early Warning Along Active Subduction Zones

Williamson, A.L., A.V. Newman (2019), *Pure and Applied Geophysics, 176(7)*, 3247-3262.

Resolution testing and limitations of geodetic and tsunami datasets for finite fault inversions along subduction zones

Williamson, A.L., A.V. Newman (2018), *Journal of Geophysical Research (Solid Earth), 123(10)*, 9033-9048, doi:/10.1029/2018JB016091.

Reconstruction of coseismic slip from the 2015 Illapel earthquake using combined geodetic and tsunami waveform data

Williamson, A.L., A.V. Newman, and P. Cummins (2017), *Journal of Geophysical Research (Solid Earth), 122(3)*, 2119-2130, doi:10.1002/2016JB013883.

External Funding

Better Understanding of Shallow Subduction Zone Earthquakes Through Bayesian Analysis: A Case Study of the 2015 Illapel, Chile Earthquake

PI: Amy Williamson

Principal Investigator

National Science Foundation

2016 East Asia and Pacific Summer Institute grant recipient. Award number 161414.

First-Authored Presentations

Invited Talks

Impact of Megathrust Earthquake Rupture Characteristics on Near-Field and Regional Tsunami Hazards.SEG-AGU Geophysics of Convergent Margins, Seattle, Washington, 07/2022.

Coseismic or Landslide? The Source of the 2018 Mw 7.5 Palu Tsunami. Berkeley Seismological Laboratory, University of California, Berkeley, California, 10/2019.

Near-Field Tsunami Forecasting with GNSS Earthquake Source Products. International Union of Geodosy and Geophysics Meeting, Montreal, Quebec, Canada, 07/2019.

The Effect of Kinematic Earthquake Rupture on Tsunami Hazards Along Subduction Zones. Seismological Society of America Meeting, Seattle, Washington, 04/2019.

The Effect of Kinematic Earthquake Rupture on Near-Field Hazards Along the Cascadia Subduction Zone. American Geophysical Union Fall Meeting, San Francisco, California, 12/2018.

Contributed Presentations

$^{\mathrm{T}}$ indicates a contributed talk | $^{\mathrm{P}}$ indicates a contributed poster

Earthquake Location Performance of ShakeAlert's EPIC Algorithm For Recent Offshore Events Near Cape Mendocino, California.$^{\mathrm{P}}$ Seismological Society of America Annual Meeting, Belleview, Washington, 04/2022.

Assessment of rapid earthquake source characterizations for local tsunami forecasting along the Cascadia subduction zone.$^{\mathrm{T}}$ American Geophysical Fall Meeting, San Francisco, California, 12/2019.

Tsunami generation from coseismic deformation during the 2018 M_w 7.5 Palu Earthquake.$^{\mathrm{P}}$ Seismological Society of America Meeting, Seattle, Washington, 04/2019.

Identifying Trends in Tsunami Coastal Hazards Along the Cascadia Subduction Zone Through Synthetic Testing.[T] American Geophysical Union Fall Meeting, Washington, District of Columbia, 12/2018.

Tsunami Generation From Coseismic Deformation During the 2018 M_w 7.5 Palu Earthquake.[P] American Geophysical Union Fall Meeting, Washington, District of Columbia, 12/2018.

Resolution testing and limitations of geodetic and tsunami datasets for finite fault inversions along subduction zones.[T] American Geophysical Union Fall Meeting, New Orleans, Louisiana, 12/2017.

From Trench to coast: estimates of coseismic slip through sub-aerial geodetic-tsunami joint inversions.[P] International Tsunami Symposium, Bali, Indonesia, 08/2017.

Efficiency of DART gauge locations for tsunami early warning along seismically active subduction zones.[T] International Tsunami Symposium, Bali, Indonesia, 08/2017.

Spatial GNSS/DART Requirements for Real-Time Local Tsunami Warning using Joint Source Inversions.[T] GNSS Tsunami Early Warning Systems Workshop, Sendai, Japan, 07/2017.

Incorporation of Multiple Datasets in Earthquake Source Inversions: Case Study for the 2015 Illapel Earthquake.[P] American Geophysical Union Fall Meeting, San Francisco, California, 12/2016.

Detection and Modeling of the Tsunami Generated by 2013 Okhotsk Deep Focus Earthquake.[P] American Geophysical Union Fall Meeting, San Francisco, California, 12/2015.

Temporal Feasibility of Rapid Joint Inversions in Response to Tsunamis Triggered by Megathrust Earthquakes.[P] American Geophysical Union Fall Meeting, San Francisco, California, 12/2014.

Awards, Honors, and Recognition

Apr. 2017 **Georgia Tech,** EAS Graduate Student Symposium Best Oral Presentation — *Atlanta, GA*

Dec. 2014 **American Geophysical Union,** Outstanding Student Presentation Award — *San Francisco, CA*

Teaching Experience

Earth Processes (Co-Instructor) — *Georgia Institute of Technology*

Designed, implemented, and taught laboratory experiments for honors students in the School of Earth and Atmospheric Sciences. — *Spring 2018*

Earth Processes (Teaching Assistant) — *Georgia Institute of Technology*

Survey course on physical geology. — *Spring 2014 – Summer 2017*

Structural Geology (Teaching Assistant) — *Georgia Institute of Technology*

Course on structural geology. — *Spring 2017*

Introductory Geology (Teaching Assistant) — *Denison University*

Survey course on physical geology. — *2012 – 2013*

Short Courses and Workshops

Northern California Earthquake Hazards Workshop — *Virtual*

USGS-led workshop on hazards in Northern California. — *January, 2022*

Megathrust Modeling Workshop — *Eugene, Oregon*

Facilitated by the Subduction Zone in 4-D (SC4D) committee. — *October, 2019*

Re-examining our Grand Challenges in Geodesy — *East Lansing, Michigan*

Earthscope-led workshop to identify research priorities in geodesy. — *November 2018*

Advanced InSAR Processing — *Boulder, Colorado*

UNAVCO-led short-course focusing on InSAR processing using GIAnT. — *June 2015*

Cascadia Initiative Expedition Team: RV Oceanus — *Off Oregon and Washington Coasts*

Science team member onboard RV Oceanus retrieving ocean-bottom sensors. — *June 2014*

Black Hills Geology Field Camp: Kent State University — *Black Hills, South Dakota*

Field training course focused on geologic mapping. — *Summer 2013*

Professional and Community Involvement

Member: American Geophysical Union — *2013 – Present*

Seismological Society of America — *2015 – Present*

Reviewer: NOAA Hollings Scholarship program — *2020*

Science content editor for the novel *The Disaster Days* by Rebecca Behrens — *2019*

Georgia Tech Undergraduate Research Symposium Judge — *Spring 2017*

Georgia Tech President's Undergrad Research Award proposal reviewer — *2013 –2018*

Science Olympiad Event Supervisor, Center for Education Integrating Science, Mathematics, and Computing (CEISMIC) — *2015 –2017*