

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) | 144 citations | h-index 7

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.

Submitted and Planned Publications

Improved Rapid Earthquake Source Solutions Along Northern California Using Pattern Seismicity

WILLIAMSON, A.L., LUX, A., ALLEN, R (IN PREP).

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

FROM SHAKING TO ACTION: EARTHQUAKE AND TSUNAMI EARLY WARNING ACROSS THE WESTERN UNITED STATES. GRADUATE STUDENT SYMPOSIUM, GEORGIA INSTITUTE OF TECHNOLOGY, ATLANTA, GEORGIA, 04/2022.

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

^T INDICATES A CONTRIBUTED TALK | ^P INDICATES A CONTRIBUTED POSTER

EARTHQUAKE LOCATION PERFORMANCE OF SHAKEALERT'S EPIC ALGORITHM FOR RECENT OFFSHORE EVENTS NEAR CAPE MENDOCINO, CALIFORNIA.^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.^T AMERICAN GEOPHYSICAL FALL MEETING, SAN FRANCISCO, CALIFORNIA, 12/2019.

TSUNAMI GENERATION FROM COSEISMIC DEFORMATION DURING THE 2018 M_w 7.5 PALU EARTHQUAKE.^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
 Dec. 2014 **American Geophysical Union**, Outstanding Student Presentation Award

Atlanta, GA
San Francisco, CA

Teaching Experience

Earth Processes (Co-Instructor)

DESIGNED, IMPLEMENTED, AND TAUGHT LABORATORY EXPERIMENTS FOR HONORS STUDENTS IN THE SCHOOL OF EARTH AND ATMOSPHERIC SCIENCES.

Georgia Institute of Technology
Spring 2018

Earth Processes (Teaching Assistant)

SURVEY COURSE ON PHYSICAL GEOLOGY.

Georgia Institute of Technology
Spring 2014 – Summer 2017

Structural Geology (Teaching Assistant)

COURSE ON STRUCTURAL GEOLOGY.

Georgia Institute of Technology
Spring 2017

Introductory Geology (Teaching Assistant)

SURVEY COURSE ON PHYSICAL GEOLOGY.

Denison University
2012 – 2013

Short Courses and Workshops

Northern California Earthquake Hazards Workshop

USGS-LED WORKSHOP ON HAZARDS IN NORTHERN CALIFORNIA.

Virtual
January, 2022

Megathrust Modeling Workshop

FACILITATED BY THE SUBDUCTION ZONE IN 4-D (SC4D) COMMITTEE.

Eugene, Oregon
October, 2019

Re-examining our Grand Challenges in Geodesy

EARTHSOPE-LED WORKSHOP TO IDENTIFY RESEARCH PRIORITIES IN GEODESY.

East Lansing, Michigan
November 2018

Advanced InSAR Processing

UNAVCO-LED SHORT-COURSE FOCUSING ON INSAR PROCESSING USING GIANT.

Boulder, Colorado

June 2015

Cascadia Initiative Expedition Team: RV Oceanus

SCIENCE TEAM MEMBER ONBOARD RV OCEANUS RETRIEVING OCEAN-BOTTOM SENSORS.

Off Oregon and Washington Coasts

June 2014

Black Hills Geology Field Camp: Kent State University

FIELD TRAINING COURSE FOCUSED ON GEOLOGIC MAPPING.

Black Hills, South Dakota

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