AUDREY DUNHAM

POSTDOCTORAL RESEARCHER

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EDUCATION

2017 – 2022 **PhD Geosciences |** University of Arizona
Advisor: Eric Kiser
Dissertation: *"Modeling shallow earth structure and ground motions to investigate primary and secondary seismic hazards"*

2013 – 2017 **BS Geosciences |** Pennsylvania State University, Schreyer Honors College
Minor in Geophysics
Advisor: Charles Ammon
Honors Thesis: *"Earthquake processes in the Lesser Antilles subduction zone"*

PROFESSIONAL EXPERIENCE

2022 – Present **Postdoctoral Scholar** | University of Washington, Seattle, WA
Summer 2022 **Postdoctoral Scholar** | University of Arizona, Tucson, AZ
2017 – 2022 **Graduate Research Assistant |** University of Arizona**,** Tucson, AZ
Summer 2020 **Graduate Intern |** Chevron Oil and Gas, Covington LA *(Virtual)*
Summer 2019 **Graduate Researcher |** Los Alamos National Lab**,** Los Alamos, NM
2015 – 2017 **Undergraduate Research Assistant |** Penn State**,** University Park, PA
Summer 2016 **Undergraduate Intern** Lamont Doherty Earth Observatory, Palisades, NY

PUBLICATIONS

[5] **Dunham**, **A**., Kiser, E., Kargel, J., Haritashya, U., Watson, S., Shugar, D., *(in review)* The influence of ground shaking on the distribution and size of coseismic landslides from the Mw 7.6 2005 Kashmir earthquake.

[4] **Dunham**, **A**., Kiser, E., Kargel, J., Haritashya, U., Watson, S., Shugar, D., Hughes, A., DeCelles, P., 2021. Topographic control of ground motions and landslides from the 2015 Gorkha earthquake. *Geophys. Res. Lett.* https://doi.org/10.1029/2022GL098582

[3] Kintner, J., Cleveland, M., Modrak, R., **Dunham, A.,** 2021. Rayleigh Wave Propagation in the Bighorn Mountains Region, Wyoming. *BSSA*. https://doi.org/10.1785/0120210116.

[2] **Dunham, A**., Kiser, E., 2020. Local earthquake tomography of the Central Oregon forearc using a large-N, short duration, nodal array. *Earth Planet. Sci. Lett.* 551. https://doi.org/10.1016/j.epsl.2020.116559.

[1] Lay T, Ye L, Ammon CJ, **Dunham A**, Koper KD. 2016. The 2 March 2016 Wharton Basin Mw 7.8 earthquake: High stress drop north-south strike-slip rupture in the diffuse oceanic deformation zone between the Indian and Australian Plates, *Geophys. Res. Lett.* 43(15):2016GL069931.

INVITED SEMINARS

2022 **University of Washington** | Seattle, WA
2022 **University of Utah Seismograph Stations** | Virtual
2021 **Lawrence Livermore National Lab** | Virtual
2019 **Los Alamos National Lab** | Los Alamos, NM

SCHOLARSHIPS AND GRANTS

2021 **UA Graduate Professional Student Council Travel Grant** | $1500
2021 **Society of Exploration Geophysics Scholarship |** $1,000
2021 **Seismological Society of America Student Travel Grant** | $500
2020 **Arizona Geological Society M. Lee Allison Scholarship |** $3,000
2019 **UA College of Science Galileo Circle Award** | $2,000
2019 **SAGE/GAGE Workshop Student Travel Grant** | $500
2018 **UA Graduate Professional Student Council Travel Grant** | $750
2018 **Chernoff Family Field Experience Scholarship |** $2,000
2018 **GSA Graduate Student Research Grant |** $1,900
2018 **GSA Geophysics and Geodynamics Student Research Grant Award |** $750
2017 **AWG PSU Student Chapter Field Camp Scholarship** | $500

HONORS AND AWARDS

2021 **Best Overall Talk |** UA Geoscience Symposium
2020 **Outstanding Service Award |** UA College of Science
2020 **Best Geophysics Talk |** UA Geoscience Symposium
2017 **Schoonen Senior Thesis Award** | PSU College of Earth and Mineral Sciences

INSTITUTIONAL SERVICE

2018 – 2022 **Project Coordinator, President, Founder |** Assoc. for Women Geoscientists, Southern Arizona Chapter
2021-2022 **Lead coordinator/Reviewer** | AWG Undergraduate Field Camp Scholarship
2021 – Present **Co-Coordinator** | Geophysics Journal Club
2019 – 2021 **Geoscience Representative** | Earthweek planning committee
2020 – 2021 **Assistant Program Coordinator** | Women in Science and Engineering (WISE)
2020 **Reviewer** | UA Women in STEM Student Council Scholarship
2019 – 2020 **Graduate Student Representative |** Gemology faculty search committee
2017 – 2019 **Graduate Representative** | University of Arizona Geoscience Department
2013 – 2017 **President, VP, Secretary** | Penn State Geoscience Club

Journal Reviewer *Tectonophysics, Scientific Reports*

TEACHING/MENTORING EXPERIENCE

2019 – Present **Undergraduate Mentor** | AWG Southern Arizona Chapter (*3 Mentees*)
2020 **Teaching Assistant** | GEOS322: Introduction to Geophysics, University of Arizona
2018 – 2020 **Undergraduate Mentor** | Global Seismology and Tectonics Lab (*3 Mentees*)
2017 **Teaching Assistant** | GEOS212: Introduction to Oceanography, University of Arizona
2016 **Teaching Assistant** | 109H: Earthquakes and Society, Penn State

WORKSHOP AND FIELD COURSES

2023 **USGS Subduction Zone Science Workshop** | Seattle WA
2023 **Turbidite Workshop** | Seattle WA
2022 **Subduction Zones in 4D (SZ4D) Workshop** | Houston TX
2019 **Communicating Geohazards |** Portland OR
2019 **SAGE/GAGE Workshop** | Portland OR
2017 **Penn State Field Course |** Western US

FIELD EXPERIENCE

2022 **Nodal Seismometer Deployment** | Salta, Argentina
2019 **Active Source Nodal Seismometer Deployment** | Bakersfield, CA
2018 **Nodal Seismometer Deployment** | Teton National Park, WY
2018 **Nodal Seismometer Deployment** | Raton, NM
2017 **Nodal Seismometer Deployment** | Joshua Tree National Park, CA

COMPUTATIONAL SKILLS

Python, Obspy, SAC, UNIX/Linux/bash, git/GitHub, Generic Mapping Tool (GMT), SPECFEM2D/3D, QGIS, MATLAB, High Performance Computing (HPC)

CONFERENCE PRESENTATIONS

[11] **Dunham**, **A**.,Wirth, E., Grant, A., Frankel, A., Stone, I. (2023) Developing the next generation of 3D ground motion simulations of full and partial margin ruptures along the Cascadia Subduction Zone. *USGS Subduction Zone Science Workshop* – Poster Presentation.

[10] **Dunham**, **A**., Kiser, E., Kargel, J., Haritashya, U., Watson, S., Shugar, D. (2022) Ground motion simulations relating topographic amplification and landslide initiation during the Mw7.6 2005 Kashmir Earthquake. *European Geophysical Union General Assembly* – Virtual, Oral Presentation.

[9] **Dunham**, **A**., Kiser, E., Kargel, J., Haritashya, U., Watson, S., Shugar, D. (2021) The role of topographic amplification in triggering landslides from the 2005 M7.6 Kashmir earthquake. *American Geophysical Union Fall Meeting* – Virtual, Oral Presentation.

[8] **Dunham, A.,** Kiser, E., Kargel, J., Haritashya, U., Watson, S., Shugar, D., Hughes, A., DeCelles, P. (2021) Topographic control of ground motions and landslides from the 2015 Gorkha earthquake. *Southern California Earthquake Center Annual Meeting* – Virtual, Poster Presentation.

[7] **Dunham**, **A**., Kiser, E., Kargel, J., Haritashya, U., Watson, S., Shugar, D., Hughes, A. (2021) Linking strong ground motions and coseismic landsliding associated with the April 25, 2015 Mw 7.8 Gorkha Earthquake. *Seismological Society of America Annual Meeting* – Virtual, Oral Presentation.

[6] Kintner, J., Cleveland, M., Modrak, R**.**, **Dunham, A.** (2021) Short-Period Surface Wave Propagation in the Bighorn Mountains Region, Wyoming. *Seismological Society of America Annual Meeting* – Virtual, Poster Presentation.

[5] **Dunham**, **A**., Kiser, E., Kargel, J., Haritashya, U., Watson, S., Shugar, D. (2019) Uncovering relationships between ground shaking and coseismic landsliding during the April 25, 2015 Gorkha Earthquake through full wavefield simulations using SPECFEM3D. *AGU Fall Meeting* – San Francisco, CA, Poster Presentation, S13D-0472.

[4] **Dunham, A.,** Kiser, E. (2019) Seismic investigation of the Cascadia forearc in Central Oregon through the deployment of nodal seismometers. *SAGE/GAGE Workshop* – Portlabd OR, Poster Presentation, T13H-0325.

[3] Ward, K.M., Wang, Y., **Dunham, A**., Lin, F-C., Kiser, E., Schmandt, B. (2019) Synthesis of results from a dense nodal geophone array deployed along the Cascadia Subduction Zone. *Seismological Society of America Annual Meeting* – Seattle WA, Oral Presentation.

[2] **Dunham, A.,** Kiser, E. (2019) Seismic investigation of the Cascadia forearc in Central Oregon through the deployment of nodal seismometers. *AGU Fall Meeting* – Washington DC, Poster Presentation.

[1] **Dunham, A**., Grall, C., Mondal, D., Steckler, M., Rajapara, H., Kumar, B., Philibosian, B., Akhter, S., Singhvi, A. (2016) Complex Channel Avulsion in the Meghna River Floodplain During the Mid to Late Holocene: The Potential Effect of Tectonic and Co-Seismic Uplift. *AGU Fall Meeting* – Washington DC, Poster Presentation, GC23D-1260.