

AUDREY DUNHAM

POSTDOCTORAL RESEARCHER

University of Arizona
Geoscience Department
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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

- Summer 2022 **Postdoctoral Researcher** | 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 prep*) 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 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 *Tectonophysics*
Reviewer

TEACHING/MENTORING EXPERIENCE

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

WORKSHOP AND FIELD COURSES

2019	Communicating Geohazards Portland OR
2019	SAGE/GAGE Workshop Portland OR
2017	Penn State Field Course Western US

FIELD EXPERIENCE

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

- [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* – Portland 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.