STEPHANIE OLINGER

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EDUCATION AND POSITIONS

Ph.D Candidate in Geophysics **2018 - Present**
Harvard University
Department of Earth and Planetary Sciences

Affiliate **2021 - Present**
University of Washington
Department of Earth and Space Sciences

B.A. in Geophysics **2014 - 2018**
Washington University in St. Louis
Department of Earth and Planetary Sciences

RESEARCH INTERESTS

Seismology	Seismicity generated by ice fracture and iceberg calving, flexural gravity wave propagation and resonance on ice shelves, ambient noise methods for interrogating near-surface structure, seismic detection and location methods
Ice Mechanics	Fracture and rifting dynamics, ice shelf flexure generated by fracture and ocean waves, ocean-ice interaction at marine terminating glaciers and ice shelves, altimetry and glacier surface morphology
Planetary Science	Fracture and deformation in shells of icy moons, influence of ice-ocean coupling on ice fracture and ocean mixing moons, cryogeysering, ice shell formation and evolution
Machine Learning & Data Science	Clustering, signal detection, automated feature detection in images, optimizing physical models using machine learning

SKILLS

Mathematics	Dynamical systems analysis, linear systems, asymptotic methods, Fourier transform methods for PDEs
Data	Distributed acoustic sensing (DAS), active & passive seismic, synthetic aperture radar, laser altimetry
Software & Tools	ObsPy, TensorFlow, SpecFEM2D, Ice Sheet System Model (ISSM), ArcGIS
Languages	Python, Julia, MATLAB

PUBLICATIONS

[1] S. D. Olinger et al. "Tracking the Cracking: A Holistic Analysis of Rapid Ice Shelf Fracture Using Seismology, Geodesy, and Satellite Imagery on the Pine Island Glacier Ice Shelf, West Antarctica". In: *Geophysical Research Letters* 49.10 (May 2022), pp. 6644–6652. DOI: 10.1029/2021GL097604.

[2] Z. Chen et al. "Ross Ice Shelf Icequakes Associated With Ocean Gravity Wave Activity". In: *Geophysical Research Letters* 46.15 (Aug. 2019), pp. 8893–8902. DOI: 10.1029/2019gl084123.

[3] S. D. Olinger et al. "Tidal and Thermal Stresses Drive Seismicity Along a Major Ross Ice Shelf Rift". In: *Geophysical Research Letters* 46.12 (June 2019), pp. 6644–6652. DOI: 10.1029/2019gl082842.

TEACHING

Harvard Gen Ed 1098	Natural Disasters	Fall 2020
Harvard Gen Ed 1158	Water and the Environment	Spring 2021

ADVISING

Aidan Dealy	Undergraduate researcher at UW studying ice shelf roughness using ICESat-2 altimetry data	Spring 2022 onward

AWARDS

AGU Outstanding Student Presentation Award	2018

INVITED TALKS AND PRESENTATIONS

Ice+Climate Seminar	Dartmouth College	2022
SeismoTea Seminar	University of Utah	2022
Computational Physics and Mechanics Group Meeting	Vanderbilt University	2020
West Antarctic Ice Sheet Conference		2021
European Geophysical Union General Assembly		2021
American Geophysical Union Fall Meeting		2017-2022