STEPHANIE OLINGER

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EDUCATION AND POSITIONS

Thompson Postdoctoral Fellow December 2023 - Present
Stanford University
Department of Geophysics

Postdoc in Distributed Acoustic Sensing July 2023 - November 2023
University of Washington
Department of Earth and Space Sciences

Ph.D in Earth and Planetary Science 2018 - 2023
Harvard University
Department of Earth and Planetary Sciences

Affiliate 2021 - 2023
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, ice shelf flexural gravity wave propagation and resonance, ambient noise methods for interrogating near-surface structure, detection and location methods, distributed acoustic sensing in cryospheric settings
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, inverse theory
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, B. P. Lipovsky, and M. A. Denolle. "Ocean coupling controls rupture velocity of fastest observed ice shelf rifting event". Accepted at *AGU Advances* (Dec. 2023).

[2] 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.

[3] 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.

[4] 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	2022 onward

AWARDS AND FELLOWSHIPS

Thompson Fellowship (Stanford)	Accepted	2023
SeismoLab Director's Fellowship (Caltech)	Declined	2023
AGU Outstanding Student Presentation Award		2018

INVITED TALKS AND PRESENTATIONS

Geology & Geophysics Seminar	Oregon State University	2023
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	2017-2023