

Eliza J. Dawson

ejdawson@ucar.edu
elizadawson.github.io

EDUCATION **Stanford University, Stanford CA** 2018 - 2024
Ph.D. in Geophysics
Advised by Dr. Dustin Schroeder
Thesis title: *Models and Observations of the Antarctic Ice Sheet Thermal State and Implications for Ice Sheet Dynamics*

University of Washington, Seattle WA 2014 - 2018
Bachelor of Science in Atmospheric Science: Climate, with honors
Honors thesis advisors: Dr. David Battisti and Dr. Abigail Swan
Minor: Applied Mathematics

APPOINTMENTS **NOAA Climate and Global Change Postdoctoral Fellow** 2024 - present
Principle investigator on NOAA funded research focused on integrating radar observations into numerical ice flow models to improve future ice sheet and sea level rise projections.
Hosted by Dr. Winnie Chu, Polar Geophysical Simulation Lab
Georgia Institute of Technology, Atlanta GA

PUBLICATIONS **Journal Articles in Review**

- [1] Mackie, E., S. Jamieson, A. R. A. Aitken, L. Li, **E. J. Dawson**, S. Nowicki, E. Schwans, G. Paxman, A. Halberstadt, J. Halpin, K. Tinto, J. Ely, X. Huang. (2024) Towards bridging the gap between Antarctic subglacial boundary conditions and ice-sheet model parameterization. *The Cryosphere*. In Prep
- [2] **Dawson, E. J.**, E. Wilson. (2024) Canyon geometry influences onshore volume transport along the George V Land continental shelf, East Antarctica. *Geophysical Research Letters*. In Prep
- [3] Yang, D., W. Chu, **Dawson, E. J.**, (2024) Generative AI for Ice Sheet Basal Temperature Inference by Bridging Airborne Radar and Thermal Modeling. *JGR: Machine Learning and Computation*. In Prep
- [4] Clavette, R., W. Chu, T. J. Young, P. Christoffersen, B. Hubbard, S. H. Doyle, N. L. Bienert, **E. J. Dawson**, S. T. Peters, L. Hornsey. (2024) Observations of englacial and subglacial hydrology at Sermeq Kujalleq (Store Glacier) from autonomous phase-sensitive radio-echo sounding. *PNAS*. In Review
- [5] Nicola, L., et al. (2024) Where do we want the glaciology community to be in 2073? EDI challenges and visions from the 2023 Karthaus Summer School. *J. Glac.* In Review

Published Journal Articles

- [6] **Dawson, E. J.**, D. M. Schroeder, W. Chu, E. Mantelli, and H Seroussi. (2024) Heterogeneous basal thermal conditions underpinning the Adélie-George V Coast, East Antarctica. *Geophysical Research Letters*. 51, e2023GL105450, doi: 10.1029/2023GL105450
- [7] Aitken, A. R. A., L. Li, B. Kulesa, D. M. Schroeder, T. A. Jordan, J. M. Whittaker, S. Anandkrishnan, **E. J. Dawson**, D. A. Wiens, O. Eisen, M. J. Siegert. (2023) Antarctic Sedimentary Basins and Their Influence on Ice-Sheet Dynamics. *Reviews of Geophysics*, 61(3). doi: 10.1029/2021RG000767
- [8] **Dawson, E. J.**, D. M. Schroeder, W. Chu, E. Mantelli, and H Seroussi. (2022) Ice mass loss sensitivity to the Antarctic ice sheet basal thermal state. *Nature Communications*, 13 (4957).

doi: 10.1038/s41467-022-32632-2

- [9] Bienert, N. L., D. M. Schroeder, S. T. Peters, E. J. MacKie, **E. J. Dawson**, M. R. Siegfried, R. Sanda, and P. Christoffersen. (2022) Post-Processing Synchronized Bistatic Radar for Long Offset Glacier Sounding. *IEEE Trans. Geosci. Remote Sens.* 60, 1-17. doi: 10.1109/TGRS.2022.3147172
- [10] Young, T. J., C Martín, P Christoffersen, DM Schroeder, SM Tulaczyk, and **E. J. Dawson**. (2021) Rapid and accurate polarimetric radar measurements of ice crystal fabric orientation at the Western Antarctic Ice Sheet (WAIS) Divide ice core site. *The Cryosphere*, 15 (8), 4117-4133. doi: 10.5194/tc-15-4117-2021
- [11] Evans, S., **E. J. Dawson**, and P. Ginoux. (2020) Linear relation between shifting ITCZ and dust hemispheric asymmetry. *Geophysical Research Letters*, 47 (22). doi: 10.1029/2020GL090499
- [12] Kim, J. E., M. Lague, S. Pennypacker, **E. J. Dawson**, and A. L. S. Swann. (2020) Evaporative Resistance is of Equal Importance as Surface Albedo in High Latitude Surface Temperatures Dues to Cloud Feedbacks. *Geophysical Research Letters*, 47(4). doi: 10.1029/2019GL085663
- [13] Donohue, A., **E. J. Dawson**, L. McMurdie, D. S. Battisti, and A. Rhines. (2019) Seasonal asymmetries in the lag between insolation and surface temperature. *Journal of Climate*. 30, 10 117–10 137. doi: 10.1175/JCLI-D-19-0329.1
- [14] Potter, S. F., **E. J. Dawson**, and D. M. W. Frierson. (2017) Southern African orography impacts on low clouds and the Atlantic ITCZ in a coupled model, *Geophysical Research Letters*. 44, doi: 10.1002/2017GL073098

FELLOWSHIPS, HONORS, AND AWARDS	NOAA Climate and Global Change Postdoctoral Fellowship Total value of award: \$172,000	2024-2026
	NSF Office of Polar Programs Postdoctoral Fellowship Total value of award: \$167,800	Award declined
	Outstanding Student Presentation Award, American Geophysical Union Cryosphere Section	2023
	NSF GRFP Recipient, National Science Foundation	2019 - 2022
	Antarctic Service Medal, National Science Foundation	2019 - 2020
	Joshua L. Soske Fellowship, Stanford University	2018 - 2019
	Atmospheric Sciences Reed Caldwell Scholarship, University of Washington	2017 - 2018
	Ernest F. Hollings Undergraduate Scholarship, NOAA	2015 - 2017
	Outstanding Student Presentation Award, American Geophysical Union Atmospheric Science Section	2016

INVITED TALKS Dawson, E. J., From radar sounding data to the ice sheet basal thermal state. *INSTANT Geothermal Heat Flow Seminar, Virtual*, May, 2024.

Dawson, E. J., Closing Gaps in Polar Geophysics: How Combining Models and Observations Rewrites the Story of Mass Loss from Antarctica. *University of California Los Angeles, Los Angeles, CA*. April,

2024.

Dawson, E. J., Icy insights by bridging models and observations: Antarctic mass loss sensitivity to the thermal state. *University of California Santa Cruz, Santa Cruz, CA*. Dec, 2023.

Dawson, E. J., Icy insights by bridging models and observations: Antarctic mass loss sensitivity to the thermal state. *California Institute of Technology, Pasadena, CA*. Nov, 2023.

Dawson, E. J., Is Antarctica vulnerable to basal thawing? Evidence from modeling and observations. *Ludwig Maximilian University, Munich, Germany*. June, 2023.

Dawson, E. J., Investigating the role of basal thawing in Antarctica. *Georgia Institute of Technology, Atlanta, GA*. March, 2023.

Dawson, E. J., Investigating basal thawing in Antarctica with ice sheet modeling and ice-penetrating radar. *International Glaciological Society Global Seminar, online*. December 2022.

Dawson, E. J., Investigating the Antarctic Ice Sheet's response to basal thaw. *University of Colorado, Boulder, virtual*. June, 2020

Dawson, E. J., The next instability? Modeling basal thermal transitions of ice sheets. *NASA Jet Propulsion Laboratory, CA*. September, 2019

SELECTED
CONFERENCE
ABSTRACTS

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Evidence for heterogeneous basal thermal conditions along the Adelie-George V Coast, East Antarctica. American Geophysical Union Fall Meeting, San Francisco, CA, December, 2023

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Evidence for heterogeneous basal thermal conditions underpinning the Adelie-George V Coast, East Antarctica. SCAR INSTANT Conference. Trieste, Italy, September, 2023

Dawson, E. J., E. Wilson. Exploring oceanic heat pathways along the George V Land continental shelf. European Geophysical Union General Assembly. Vienna, Austria, April, 2023

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Towards the integration of radar subglacial constraints into ice sheet models. FOGGS Conference. Atlanta, GA. March 2023

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Deciphering the Basal Conditions of Wilkes Basin, East Antarctica, with Ice-Penetrating Radar and Ice Sheet Modeling. American Geophysical Union Fall Meeting. Chicago, IL. December, 2022

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Deciphering basal thermal conditions with ice-penetrating radar and ice sheet modeling. West Antarctic Ice Sheet Workshop, Estes Park, CO. September, 2022

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Utilizing radar sounding to constrain the basal thermal state in parts of East Antarctica. IGS Conference, Reykjavik, Iceland. August, 2022

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Investigating basal thaw as a driver of mass loss from the Antarctic ice sheet. European Geophysical Union General Assembly, Vienna, Austria, May, 2022

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Investigating basal thaw as a driver of mass loss across Antarctica. American Geophysical Union Fall Meeting, New Orleans, LA, December, 2021

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Investigating basal thaw as a driver of mass loss across Antarctica. West Antarctic Ice Sheet Workshop, Sterling, VA, October, 2021

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Investigating Basal Thaw as a Mechanism of Ice Mass Loss in Antarctica. American Geophysical Union Fall Meeting, Virtual, December, 2020

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Assessing the potential for basal thermal regime change to accelerate mass loss from the Antarctic Ice Sheet. West Antarctic Ice Sheet Workshop, Virtual, September, 2020

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Investigating basal thaw as a potential driver of ice flow acceleration in Antarctica. European Geophysical Union General Assembly, Virtual, May, 2020

Dawson, E. J., D. M. Schroeder, W. Chu, E. Mantelli, H. L. Seroussi. Vulnerability of the Antarctic Ice Sheet to basal thermal regime change. West Antarctic Ice Sheet Workshop, Julian, CA, October, 2019

Dawson, E. J., D. M. Schroeder, A. Miltenberger, W. Chu, H. Seroussi. A Comparison of Radar-inferred Temperature Characterization Techniques to Investigate Thermal Regime Changes in Antarctica. International Glaciological Society Symposium, Stanford, CA, July 2019

TEACHING
EXPERIENCE

Teaching Assistant

- Arctic Geophysics, University Center in Svalbard, Norway 2023
- Introduction to the Foundations of Contemporary Geophysics, Stanford University 2020
- Introduction to the Foundations of Contemporary Geophysics, Stanford University 2019

STUDENT
MENTORING

Donglai Yang, PhD Student, Ice sheet modeling and radar data analysis, Georgia Tech 2024 - present
Kiera Tran, PhD Student, Ice sheet modeling and radar data analysis, Georgia Tech 2022 - present
Chloe Cheng, Undergraduate Student, Ice-ocean interactions, Stanford University 2023
Lena Schwebs, Undergraduate Student, Radar sounding data analysis, Summer intern 2021

FIELD
EXPERIENCE

Svalbard Mar. 2023

- Led ground-based and UAV-borne radar surveying.
- Assisted with active seismic surveying.
- Coordinator for fieldwork operations

Iceland Aug.-Sept. 2022

- Assisted with ground-based and UAV-borne radar surveying.
- Coordinator for fieldwork operations

Antarctica Dec. 2019 - Feb. 2020

- Lead ground-based radar surveys across Thwaites Eastern Shear Margin, West Antarctica, as part of the NSF ITGC TIME project.
- Assisted with ice polarimetry radar surveys at WAIS Divide, West Antarctica.

Greenland

July-Aug. 2019

- Conducted ground-based radar surveys on Store Glacier, Greenland, in collaboration with Cambridge University RESPONDER project.
- Assisted with borehole drilling.

SUMMER
SCHOOLS

Summer school on ice sheets and glaciers in the climate system, Karthaus, Italy
International Summer School in Glaciology, McCarthy, Alaska.

May 2023
Cancelled b/c COVID-19

SERVICE

Professional Service

- AGU Cryosphere Section OSPA Coordinator
- Member of SCAR Antarctic Geological Boundary Conditions Steering Committee
- Reviewer: The Cryosphere, GRL, IEEE TGRS, Nature Communications Earth and Environment
- Session Chair: Improving Predictability, West Antarctic Ice Sheet Workshop, 2022

University Service

- Student committee to Hire Tenure-Track Geophysics Faculty, Stanford University 2023-present
- Co-Creator, Stanford Ice Seminar: School-wide seminar series for polar researchers 2023-present
- Graduate Advisor to the Department of Geophysics Chair, Stanford University 2023-present
- Graduate Teaching Liaison, Stanford University 2020-2022
- Organizer of Mentors in Teaching Workshops, Stanford University 2020-2022
- Member of Graduate Student Advisory Committee, Stanford University 2019-2020

Community Outreach

- Invited speaker for Peninsula Community College public seminar
- Stanford Ask a Scientist
- Exhibit organizer for Port Townsend Natural History Museum
- Invited Speaker, Northwest Maritime Center

PROFESSIONAL
AFFILIATIONS

International Association of Cryospheric Scientists, Member
Early-career Glaciologists Group, Member
European Geosciences Union, Member
International Glaciological Society, Member
American Geophysical Union, Member

2022 - Present
2022 - Present
2020 - Present
2020 - Present
2015 - Present