Eliza J. Dawson

edawson31@gatech.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] **Dawson, E. J.,** W. Chu, M. Christoffersen, D. Yang, S. Farris, J. MacGregor. (2025) Ice sheet attenuation from radar sounding in the frequency domain. *J. Glaciol.* In Review

[2] Schroeder, D. M., E. Abrahams, A. L. Broome, W. Chu, R. Culberg, **E. J. Dawson**, E. J. Mackie, D. F. May, M. R. Siegfried, T. O. Teisberg, S. Zhao. (2025) Time-series radar sounding as the next key ice-sheet observable. *Proceedings of the Royal Society A*. In Reivew

[3] 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. (2025) Towards bridging the gap between Antarctic subglacial boundary conditions and ice-sheet model parameterization. *The Cryosphere*. In Prep

[4] Yang, D.*, W. Chu, L. Liu, **E. J. Dawson** (2025) Inferring Ice Sheet Basal Temperature with Radar Echo-Sounding and Ice Sheet Modeling. *JGR: Machine Learning and Computation*. In Prep.

[5] Tran, K.*, W. Chu, D. Yang, **E. J. Dawson**, L. Padman, I. Cordero, R. Bell. (2025) Radar-derived Basal Melt Rates of Ross Ice Shelf, Antarctica. *Geophys. Res. Lett.* In Prep.

* indicates student advisee

Published Journal Articles

[6] Nicola, L., *et al.* (including **E. J. Dawson**) (2025). Where do we want the glaciology community to be in 2073? Equality, diversity, and inclusion challenges and visions from the 2023 Karthaus Summer School. *J. Glaciol.*, 71, e68. doi.org/10.1017/jog.2025.18.

[7] **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. *Geophys. Res. Lett.*, 51, e2023GL105450. doi: 10.1029/2023GL105450

[8] Aitken, A. R. A., L. Li, B. Kulessa, D. M. Schroeder, T. A. Jordan, J. M. Whittaker, S. Anandakrishnan, **E. J. Dawson**, D. A. Wiens, O. Eisen, and M. J. Siegert. (2023). Antarctic sedimentary basins and their influence on ice-sheet dynamics. *Rev. Geophys.*, 61(3). doi: 10.1029/2021RG000767

[9] **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

[10] 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

[11] Young, T. J., C. Martín, P. Christoffersen, D. M. Schroeder, S. M. Tulaczyk, and **E. J. Dawson**. (2021). Rapid and accurate polarimetric radar measurements of ice crystal fabric orientation at the WAIS Divide ice core site. *The Cryosphere*, 15(8), 4117–4133. doi: 10.5194/tc-15-4117-2021

[12] Evans, S., **E. J. Dawson**, and P. Ginoux. (2020). Linear relation between shifting ITCZ and dust hemispheric asymmetry. *Geophys. Res. Lett.*, 47(22). doi: 10.1029/2020GL090499

[13] 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 due to cloud feedbacks. *Geophys. Res. Lett.*, 47(4). doi: 10.1029/2019GL085663

[14] Donohue, A., **E. J. Dawson**, L. McMurdie, D. S. Battisti, and A. Rhines. (2019). Seasonal asymmetries in the lag between insolation and surface temperature. *J. Climate*, 30, 10117–10137. doi: 10.1175/JCLI-D-19-0329.1

[15] 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. *Geophys. Res. Lett.*, 44. doi: 10.1002/2017GL073098

Fellowships, Honors, and Awards

NOAA Climate and Global Change Postdoctoral Fellowship 2024-2026
Total value of award: $172,000

NSF Office of Polar Programs Postdoctoral Fellowship Award declined
Total value of award: $167,800

Outstanding Student Presentation Award, *American Geophysical Union* 2023
Cryosphere Section

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* 2016
Atmospheric Science Section

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., W. Chu, D. Yang, M. Christoffersen. Subsurface insights from new radar sounding attenuation estimates across Antarctica. American Geophysical Union Fall Meeting, Washington DC, December, 2024

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 AI methods, Georgia Tech	2024 - present
Rowan Ray, Undergraduate Student, Ice core and borehole data analysis, Georgia Tech	2024-present
Kiera Tran, PhD Student, Ice sheet modeling and radar geophysics, 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

Helheim Glacier, Greenland June-July 2025

- Coordinating fieldwork operations for the radar survey team
- Maintaining and reinstalling GPS stations.
- Supporting other geophysical surveying, including water sampling and supraglacial lake monitoring.

Longyearbyen, Svalbard March 2023

- Coordinated geophysical fieldwork operations
- Guided students on ground-based and UAV-borne radar surveying techniques.
- Supported active seismic surveying.

Vatnajokull Ice Cap, Iceland Aug.-Sept. 2022

- Tested new ground-based and UAV-borne radar surveying systems.
- Coordinated fieldwork operations

Thwaites Glacier, Antarctica Dec. 2019 - Feb. 2020

- Lead ground-based multi-offset radar surveys across Thwaites Eastern Shear Margin as part of the NSF ITGC TIME project.
- Collected ice polarimetry radar surveys.

Store Glacier, Greenland July-Aug. 2019

- Conducted ground-based radar surveys in collaboration with Cambridge University RESPONDER project.
- Assisted with borehole drilling operations.

Summer Schools

Summer school on ice sheets and glaciers in the climate system, Karthaus, Italy May 2023

International Summer School in Glaciology, McCarthy, Alaska. Cancelled b/c COVID-19

Service

Professional Service

- AGU Section Leadership
- AGU Cryosphere OSPA Coordinator
- Member of SCAR Antarctic Geological Boundary Conditions Steering Committee
- Reviewer: The Cryosphere, Geophysical Research Letters, Journal of Glaciology, IEEE, 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	2022 - Present
Early-career Glaciologists Group, Member	2022 - Present
European Geosciences Union, Member	2020 - Present
International Glaciological Society, Member	2020 - Present
American Geophysical Union, Member	2015 - Present