

Lily C. Hahn

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EDUCATION

University of Washington, Seattle, WA 2018-present
Ph.D. student, Atmospheric Sciences

Yale University, New Haven, CT 2013-2017
B.S. Geology & Geophysics: Atmosphere, Ocean and Climate with Distinction in the
Major, *summa cum laude*, Phi Beta Kappa

AWARDS AND HONORS

NOAA Climate & Global Change Postdoctoral Fellowship	2023-2025
Wagner Memorial Award for Women in Atmospheric Sciences	2022
Advanced Climate Dynamics Course Participant in Rondane, Norway	2022
Graduate Student Distinguished Service Certificate, UW Atmospheric Sciences	2022
National Science Foundation (NSF) Graduate Research Fellowship	2018-2021
Achievement Rewards for College Scientists (ARCS) Fellowship	2018-2021
Belknap Prize in Geology & Geophysics, Yale	2017
Summer Student Fellowship, Woods Hole Oceanographic Institution	2016
Von Damm Research Fellowship in Geology & Geophysics, Yale	2016
J. Edward Meeker Freshman English Prize, Yale	2014

RESEARCH EXPERIENCE

University of Washington, Atmospheric Sciences Department 2018-present
Mechanisms of polar-amplified warming
Advised by David Battisti and Kyle Armour

University of Oslo, Department of Geosciences Spring 2018
Role of topography for Greenland cloud response to high-pressure conditions
Advised by Trude Storelvmo

Woods Hole Oceanographic Institute Summer 2016, Summer-Fall 2017
Linking extreme Greenland Ice Sheet melt and atmospheric circulation variability
Advised by Caroline Ummenhofer

Yale Atmosphere, Oceans, and Climate Dynamics Group 2015-2017
Orbital forcing with observationally-constrained clouds; Climate geoengineering effects
Advised by Trude Storelvmo

PEER-REVIEWED PUBLICATIONS

Hahn, L. C., Armour, K. C., Battisti, D. S., Eisenman, I., and Bitz, C. M. (2022). Seasonality in Arctic Warming Driven By Sea Ice Effective Heat Capacity. *Journal of Climate*, 35, 1629-1642. <https://doi.org/10.1175/JCLI-D-21-0626.1>

Hahn, L. C., Armour, K. C., Zelinka, M. D., Bitz, C. M., and Donohoe, A. (2021). Contributions to Polar Amplification in CMIP5 and CMIP6 Models. *Frontiers in Earth Science*, 9, 710036. <https://doi.org/10.3389/feart.2021.710036>

Sagoo, N., Storelvmo, T., **Hahn, L. C.**, Tan, I., Danco, J., Raney, B., and Broccoli, A. J. (2021), Observationally Constrained Cloud Phase Unmasks Orbitally Driven Climate Feedbacks. *Geophysical Research Letters*, 48, e2020GL091873. <https://doi.org/10.1029/2020GL091873>

Hahn, L. C., Armour, K. C., Battisti, D. S., Donohoe, A., Pauling, A. G., and Bitz, C. M. (2020), Antarctic elevation drives hemispheric asymmetry in polar lapse-rate climatology and feedback. *Geophysical Research Letters*, 47, e2020GL088965. <https://doi.org/10.1029/2020GL088965>

Hahn, L. C., Storelvmo, T., Hofer, S., Parfitt, R., and Ummenhofer, C. C. (2020), Importance of orography for Greenland cloud and melt response to atmospheric blocking. *Journal of Climate*, 33, 4187–4206. <https://doi.org/10.1175/JCLI-D-19-0527.1>

Donohoe, A., Armour, K. C., Roe, G. H., Battisti, D. S., and **Hahn, L. C.** (2020), The partitioning of meridional heat transport from the Last Glacial Maximum to CO₂ quadrupling in coupled climate models. *Journal of Climate*, 33, 4141-4165. <https://doi.org/10.1175/JCLI-D-19-0797.1>

Hahn, L. C., Ummenhofer, C. C., and Kwon, Y.-O. (2018), North Atlantic natural variability modulates emergence of widespread Greenland melt in a warming climate. *Geophysical Research Letters*, 45, 9171-9178. <https://doi.org/10.1029/2018GL079682>

PUBLICATIONS IN PREPARATION

Hahn, L. C., Armour, K. C., and Battisti, D. S., Seasonality in poleward atmospheric heat transport under increased CO₂. Anticipated submission to *Journal of Climate*, 2023.

Armour, K. C., Proistosescu, C., Dong, Y., **Hahn, L. C.**, Blanchard-Wrigglesworth, E., Pauling, A. G., et al. Emergent constraints on climate sensitivity based on recent warming are biased low by sea-surface temperature pattern effects. Anticipated submission to *Proceedings of the National Academy of Sciences*, 2023.

Bonan, D. B., Feldl, N., Zelinka, M.D., and **Hahn, L. C.**, Contributions to regional precipitation change and its polar-amplified pattern under warming. Anticipated submission to *Environmental Research: Climate*, 2023.

Hofer, S., Hellmuth, F., Pietschnig, M., **Hahn, L. C.**, Mostue, I. A., Shaw, J. K., et al. Evidence of widespread liquid-top mixed-phase clouds and their effect on climate sensitivity. Anticipated submission to *Geophysical Research Letters*, 2023.

Pietschnig, M., Hofer, S., **Hahn, L. C.**, Oliv  , D. J. L., Moseid, K. O., Madan, G., et al. Northern Hemisphere cooling leads to Southern Hemisphere warming in response to SO₂ doubling over Asia. Anticipated submission to *Geophysical Research Letters*, 2023.

OTHER WORKS

Forster, P., Storelvmo, T., Armour, K., Collins, W., Dufresne, J.-L., Frame, D., ... , **Hahn, L. C.**, et al., 2021: The Earth's Energy Budget, Climate Feedbacks, and Climate Sensitivity. In *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 923–1054.

https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter07.pdf

Zinetti, S., Meyer, M., **Hahn, L.**, Kulik, K. M., Matossian, M., and Scherer, N. (2020). Feasibility Study for a Potential Community Choice Aggregation in Arlington County. Prepared as a volunteer scientist with the American Geophysical Union's Thriving Earth Exchange. <https://www.virginiacleanenergy.org/cca-feasibility-study.html>

TEACHING AND MENTORSHIP

Guest Lecturer, Exploring the Atmospheric Sciences

University of Washington, Atmospheric Sciences

Ice and Climate

Climate feedbacks and polar warming

Spring 2023

Fall 2022

Instructor, Exploring the Atmospheric Sciences

University of Washington, Atmospheric Sciences

Summer 2021

Teaching Assistant, Climate and Climate Change

University of Washington, Atmospheric Sciences (Professor: Kat Huybers)

Fall 2019

Research Advising

Benjamin Buchovecky, Princeton University, HMEI Intern

Madeleine Burns, Princeton University, HMEI Intern

Summer 2022

Summer 2022

UW Graduate Student Peer Mentoring Program <i>Mentor</i>	Fall 2022-present
UW Graduate-Undergraduate Mentor Program <i>Program Co-Lead</i> <i>Mentor (5 undergraduate students)</i>	Fall 2019-present Fall 2018-present
UW Odegaard Writing and Research Center <i>Writing Tutor</i>	Fall 2019-Spring 2020
Yale Science and Quantitative Reasoning Tutoring Program <i>Chemistry and Calculus Tutor</i>	2014-2016

COMMUNITY ENGAGEMENT

UW Program on Climate Change (PCC) ACORN Program <i>Co-Founder and Co-Lead</i> Actionable Community-Oriented Research eNgage ment connects graduate students with community leaders to address community climate and energy priorities	Spring 2020-present
<i>Volunteer Scientist</i> Emissions Impacts of Demand Response Implementation in Washington State	Fall 2020-present
AGU Thriving Earth Exchange <i>Volunteer Scientist, Environmental Benefits Chapter</i> Feasibility Study for Community Choice Aggregation of Renewable Energy Options	Spring 2019-Spring 2020
Project Bright <i>West Campus Installation and Outreach Co-Lead, Treasurer</i> Received New England Grassroots Environmental Fund Grow Grant and Yale Landscape Lab Seedling Award for solar installation design and environmental outreach programs at Yale's West Campus Farm	2013-2017

UNIVERSITY AND PROFESSIONAL SERVICE

UW PCC Graduate Steering Committee Launched the Program on Climate Change (PCC) Undergraduate Research Cohort Facilitated the Spring Symposium and Climate Science on Tap: The Schooner Series	Fall 2019-Summer 2021
Department Committees UW Atmospheric Sciences Part-Time Lecturer Search Committee	2021

Conference Activities

Co-Convenor, Innovative Initiatives in Conducting Community-Based Science and Training the Next Generation of Practitioners, AGU Fall Meeting 2021
Executive Committee Co-Chair, Graduate Climate Conference 2021
Executive Committee Member, Graduate Climate Conference 2020, 2022

Journal Reviewer

Communications Earth & Environment (1), Environmental Research: Climate (1), Geophysical Research Letters (6), Journal of Climate (3), Journal of Geophysical Research – Atmospheres (1), Nature Communications (1), npj Climate and Atmospheric Science (1)

PRESENTATIONS

Invited Talks

Desert Research Institute, Wagner Award Seminar November 2022
Seasonality in Arctic warming driven by sea ice effective heat capacity

Paleoclimate Advances Webinar Series July 2022
Contributions to polar-amplified warming and its seasonality

Polar Amplification Model Intercomparison Project Webinar Series June 2022
Contributions to polar-amplified warming and its seasonality

Columbia University, Department of Earth and Environmental Sciences, Seminar in Race, Climate Change, and Environmental Justice February 2021
ACORN: Actionable Community-Oriented Research eNgagement

European Polar Science Week October 2020
What Drives Hemispheric Asymmetry in Polar Warming?

Contributed Talks

Hahn, L. C., K. C. Armour, D. S. Battisti, I. Eisenman, and C. M. Bitz (2021). Seasonality in Arctic Warming Driven By Sea Ice Effective Heat Capacity, AGU Fall Meeting.

Hahn, L. C., T. Storelvmo, S. Hofer, R. Parfitt, and C. C. Ummenhofer (2020), Importance of Orography for Greenland Cloud and Melt Response to Atmospheric Blocking, AGU Fall Meeting.

Hahn, L. C., K. C. Armour, D. S. Battisti, A. Donohoe, A. G. Pauling, C. M. Bitz, I. Eisenman (2020), What Drives Hemispheric and Seasonal Asymmetry in Polar Warming?, Polar Friday, Applied Physics Laboratory, University of Washington.

Hahn, L. C., K. C. Armour, D. S. Battisti, A. G. Pauling, A. Donohoe, C. M. Bitz (2020), Antarctic Elevation Drives Hemispheric Asymmetry in Polar Lapse Rate Climatology and Feedback, Master's Defense, Department of Atmospheric Sciences, University of Washington.

Hahn, L. C., K. C. Armour, D. S. Battisti, A. G. Pauling, A. Donohoe, C. M. Bitz (2019), Understanding Asymmetries in Arctic and Antarctic Lapse Rate Feedbacks and Polar Amplification, AGU Fall Meeting.

Hahn, L. C., T. Storelvmo, S. Hofer, R. Parfitt, C. C. Ummenhofer (2019), Importance of Orography for Greenland Cloud and Melt Response to Atmospheric Blocking, Graduate Climate Conference.

Hahn, L. C., C. C. Ummenhofer, and Y.-O. Kwon (2018), North Atlantic Natural Variability Modulates Emergence of Widespread Greenland Melt in a Warming Climate, AGU Fall Meeting.

Hahn, L. C., C. C. Ummenhofer, and Y.-O. Kwon (2018), Impact of Natural Variability in the North Atlantic Ocean-Atmosphere System on the Emergence of Widespread Greenland Melt in the 21st Century, EGU General Assembly.

Contributed Posters

Hahn, L. C., K.C. Armour, D.S. Battisti (2022). Seasonality in poleward atmospheric heat transport under increased CO₂, AGU Fall Meeting.

Hahn, L. C., K.C. Armour, D.S. Battisti (2022). Seasonality in poleward atmospheric heat transport under increased CO₂, Graduate Climate Conference.

Hahn, L. C., K. C. Armour, D. S. Battisti (2022). The relative roles of feedbacks, forcing, and effective heat capacity for higher transient warming in CMIP6 compared to CMIP5, US Climate Variability and Predictability Program: Pattern Effect Workshop.

Hahn, L. C., K. C. Armour, M. D. Zelinka, C. M. Bitz, and A. Donohoe (2021). Contributions to Polar Amplification in CMIP5 and CMIP6 Models, Graduate Climate Conference.

Hahn, L. C., K. C. Armour, D. S. Battisti, C. M. Bitz, I. Eisenman (2020), What Drives Seasonal Asymmetry in Arctic Warming?, Graduate Climate Conference.

Hahn, L. C., C. C. Ummenhofer, R. Parfitt, and T. Storelvmo (2018), Evaluating Cloud Cover as a Link Between High Pressure Systems and Greenland Melt, EGU.

Hahn, L. C., C. C. Ummenhofer, and F. Straneo (2017), Increasing Greenland Melt and Blocking in Recent Decades Modulated by Large-Scale and Regional Circulation Changes, AMS Annual Meeting.

Hahn, L. C. and T. Storelvmo (2016), Climate Engineering Review: Modelled Impacts of Stratospheric Sulfate, Marine Cloud Brightening, and Cirrus Cloud Seeding, Geoengineering Model Intercomparison Project (GeoMIP) Meeting.