

VINCENT T. COOPER

Green Building, 21 Ames Street, Cambridge, MA 02139
vcooper@mit.edu • 740.364.8069 • vtcooper.github.io

RESEARCH INTERESTS

Climate dynamics • Paleoclimate • Radiative feedbacks and climate sensitivity • Natural and forced variability • Hydrological cycle • Data assimilation and climate reconstruction • Coupled interactions between the atmosphere, land, ocean, and ice

EDUCATION

UNIVERSITY OF WASHINGTON

Ph.D., Atmospheric and Climate Science
M.S., Atmospheric Sciences

Seattle, WA

2025

2022

HARVARD UNIVERSITY

A.B., Statistics, *Cum laude* (College Honors)

Cambridge, MA

2015

PROFESSIONAL EXPERIENCE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Houghton Postdoctoral Fellow, Department of Earth, Atmospheric, and Planetary Sciences

Cambridge, MA

2025–

- Hosted by P. O’Gorman & D. McGee

UNIVERSITY OF WASHINGTON

Graduate Research Assistant & NDSEG Fellow, Department of Atmospheric and Climate Science

Seattle, WA

2020–2025

- Advised by K. C. Armour, G. J. Hakim, and C. M. Bitz
- Ph.D. Thesis: Paleoclimate and Historical Perspectives on Modern Climate Sensitivity
- M.S. Thesis: Wind Waves in Sea Ice of the Western Arctic and a Global Coupled Wave-Ice Model

AMERICAN SECURITIES

Associate, Private Equity Investment Team

New York, NY

2017–2019

- Investment highlight: lead associate on ~\$1.5B acquisition of BELFOR, the firm’s largest investment to date; BELFOR is the world’s largest damage reconstruction provider, rebuilding homes and businesses after extreme weather and hurricanes

EVERCORE

Investment Banking Analyst, Mergers & Acquisitions Advisory

New York, NY

2015–2017

- Transaction highlight: advised Equinix, a data center company, on the \$3.6B acquisition of 29 high-performance data centers

AWARDS & HONORS

- Houghton Postdoctoral Fellowship, MIT EAPS Department 2025
- Outstanding Student Presentation Award, AGU Fall Meeting 2024
- Early Career Scientist Award, CFMIP/CLIVAR Conference on Clouds, Precipitation, Circulation, and Climate 2024
- Schmidt Science Fellows Nominee for University of Washington 2024
- National Defense Science & Engineering Graduate (NDSEG) Fellowship, US Department of Defense 2020–2023
- Outstanding Student Presentation Award, AGU Fall Meeting 2023
- Outstanding Student Presentation Award (3rd place poster), Polar AMS Meeting 2021
- Outstanding Student Presentation Award, AGU Fall Meeting 2020
- Graduate Provost Fellowship, University of Washington (declined for NDSEG Fellowship) 2020
- Top Scholar Award, Department of Atmospheric Sciences, University of Washington 2020
- Harvard College Scholar Award (top 10% of class) 2015

PUBLICATIONS

* Indicates publication in preparation.

- [7] ***Cooper, V.**, K. Armour, and G. Hakim (*Manuscript in preparation*).
Historical pattern effects and climate sensitivity revisited with novel constraints on past warming patterns.
- [6] **Cooper, V.**, K. Armour, G. Hakim, J. Tierney, N. Burls, C. Proistosescu, T. Andrews, W. Dong, M. Dvorak, R. Feng, M. Osman, Y. Dong (2026).
Paleoclimate pattern effects help constrain climate sensitivity and 21st-century warming. *Proceedings of the National Academy of Sciences*. doi.org/10.1073/pnas.2511370123.
- [5] **Cooper, V.**, G. Hakim, and K. Armour (2025).
Monthly Sea-Surface Temperature, Sea Ice, and Sea-Level Pressure over 1850–2023 from Coupled Data Assimilation. *Journal of Climate*. doi.org/10.1175/JCLI-D-25-0021.1.
- [4] Dvorak, M., K. Armour, R. Feng, **V. Cooper**, J. Zhu, N. Burls, and C. Proistosescu (2025).
Mid-Pliocene climate forcing, sea-surface temperature patterns, and implications for modern-day climate sensitivity. *Journal of Climate*. doi.org/10.1175/JCLI-D-24-0410.1.
- [3] Tierney, J., J. King, M. Osman, J. Abell, N. Burls, E. Erfani, **V. Cooper**, and R. Feng (2025).
Pliocene warmth and patterns of climate change inferred from paleoclimate data assimilation. *AGU Advances*. doi.org/10.1029/2024AV001356.
- [2] **Cooper, V.**, K. Armour, G. Hakim, J. Tierney, M. Osman, C. Proistosescu, Y. Dong, N. Burls, T. Andrews, D. Amrhein, J. Zhu, W. Dong, Y. Ming, and P. Chmielowiec (2024).
Last Glacial Maximum pattern effects reduce climate sensitivity estimates. *Science Advances*. 10, eadk9461. doi.org/10.1126/sciadv.adk9461. Accompanying article: [[Carbon Brief](#)].
- [1] **Cooper, V.**, L. Roach, J. Thomson, S. Brenner, M. Smith, M. Meylan, and C. Bitz (2022).
Wind waves in sea ice of the western Arctic and a global coupled wave-ice model. *Phil. Trans. of the Royal Society A: Mathematical, Physical and Engineering Sciences*. 380:20210258. doi.org/10.1098/rsta.2021.0258.

PRESENTATIONS

Invited Talks

- “Climate sensitivity, radiative feedbacks, and the pattern effect” session, *EGU General Assembly* (May 2026).
- COLDEX Seminar Series, *NSF Center for Oldest Ice Exploration* (February 2026).
- Climate and Paleo Seminar, *Woods Hole Oceanographic Institute* (October 2025).
- Program on Climate Change Summer Institute: Paleoclimate Constraints on Future Climate, *Friday Harbor Laboratories* (September 2025).
- Department of Atmospheric & Oceanic Sciences Seminar, *University of Wisconsin–Madison* (May 2025).
- Environmental Science & Engineering Seminar, *Caltech* (April 2025).
- The Last Glacial Maximum Pattern Effect. *NOAA GFDL* (January 2025).
- Paleoclimate Pattern Effects Lead to Stronger Constraints on Modern-day Climate Sensitivity. *AGU Fall Meeting, Session on Advancing Paleoclimatology* (December 2024).
- Climate Forcings and Feedbacks from Paleo to Pinatubo. *Harvard EPS Seminar* (December 2024).
- Paleoclimate Pattern Effects for PMIP/CMIP7: Last Glacial Maximum and Pliocene. *PMIP WINGS Seminar* (November 2024). [Recording available](#).
- Overview of Paleoclimate Pattern Effects and Constraints on Modern-day Climate Sensitivity. *NSF workshop on climate evolution from early Eocene to mid-Pliocene, hosted by the University of Connecticut* (August 2024).
- Last Glacial Maximum pattern effects reduce climate sensitivity estimates. *ECS & Cloud Feedback Symposium* (October 2023). [Recording available](#).
- Wind Waves in Sea Ice and a Global Coupled Wave-Ice Model. *Antarctic Sea Ice and Southern Ocean Seminars, hosted by University of Texas* (April 2022).

Contributed

- Cooper, V.**, K. Armour, and G. Hakim. Radiative Feedbacks over the Historical Record: Insights from a New Reconstruction of Sea-Surface Temperature and Sea Ice. *AGU Fall Meeting (December 2025)*.
- Cooper, V.**, Paleoclimate pattern effects help constrain modern climate sensitivity and 21st-century warming. *Comer Climate Conference (October 2025)*.
- Cooper, V.**, G. Hakim, and K. Armour. Historical Pattern Effects and Climate Sensitivity Revisited with Novel Constraints on Past Warming Patterns. *AGU Fall Meeting (December 2024)*. **Received OSPA (Outstanding Student Presentation Award)**.
- Cooper, V.**, K. Armour, G. Hakim, J. Tierney, N. Burls, C. Proistosescu, M. Dvorak, Y. Dong, T. Andrews, J. Zhu, D. Amrhein, J. King, M. Osman, W. Dong, and Y. Ming. Paleoclimate Pattern Effects and Revised Estimates of Modern-day Climate Sensitivity. *CFMIP/CLIVAR Conference on Clouds, Precipitation, Circulation, and Climate (June 2024)*. Talk. **Received CFMIP Early Career Scientist Award**.
- Dvorak, M., K. Armour, R. Feng, J. Zhu, N. Burls, **V. Cooper**, C. Proistosescu. Mid-Pliocene climate forcing and sea-surface temperature pattern effects in CESM. *CESM Paleoclimate Working Group Meeting (February 2024)*. Talk.
- Cooper, V.** Paleoclimate Pattern Effects and Climate Sensitivity. *CESM Paleo Working Group Meeting (February 2024)*. Talk.
- Cooper, V.**, K. Armour, G. Hakim, J. Tierney, N. Burls, C. Proistosescu, M. Dvorak, Y. Dong, T. Andrews, J. Zhu, J. King, M. Osman, W. Dong, and Y. Ming. Pliocene Pattern Effects and Constraints on Climate Sensitivity. *AGU Fall Meeting (December 2023)*. Talk.
- Cooper, V.**, G. Hakim, and K. Armour. Variability in Sea-Surface Temperature and Sea Ice Patterns from Coupled Data Assimilation, 1850–present. *AGU Fall Meeting (December 2023)*. Poster. **Received OSPA (Outstanding Student Presentation Award)**.
- Dvorak, M., K. Armour, R. Feng, J. Zhu, N. Burls, **V. Cooper**, C. Proistosescu. Mid-Pliocene climate forcing, sea-surface temperature pattern effects, and implications for modern-day climate sensitivity. *AGU Fall Meeting (December 2023)*. Talk.
- Cooper, V.**, K. Armour, C. Proistosescu, Y. Dong, G. Hakim, J. Tierney, M. Osman, N. Burls, D. Amrhein, T. Andrews, Y. Ming, W. Dong, and P. Chmielowiec. SST pattern effect in the Last Glacial Maximum reduces climate sensitivity estimates. *AGU Fall Meeting (December 2022)*. Talk.
- Cooper, V.**, K. Armour, C. Proistosescu, P. Chmielowiec, J. Tierney, M. Osman, Y. Dong, G. Hakim, D. Amrhein, N. Burls, and S. Knapp. The Last Glacial Maximum Pattern Effect. *CFMIP (June 2022)*. Poster.
- Cooper, V.**, L. Roach, J. Thomson, S. Brenner, M. Smith, M. Meylan, and C. Bitz. Wind waves in sea ice of the western Arctic and a global coupled wave-ice model. *National Defense Science & Engineering Graduate Fellowship Conference (July 2022)*. Poster.
- Cooper, V.**, K. Armour, C. Proistosescu, P. Chmielowiec, J. Tierney, M. Osman, Y. Dong, G. Hakim, D. Amrhein, N. Burls, and S. Knapp. The Last Glacial Maximum Pattern Effect. *Pattern Effect Workshop (Boulder, CO, May 2022)*. Poster.
- Thomson, J., S. Wahlgren, **V. Cooper**, S. Brenner, M. Smith, S. Swart, L. Biddle, and C. Bitz. Waves observed far (>100 km) within sea ice. *Waves in Shallow Water Environment (WISE) Meeting (May 2022)*. Poster.
- Cooper, V.**, L. Roach, J. Thomson, S. Brenner, M. Smith, and C. Bitz. Waves in the Marginal Ice Zone: Insights from Observations and Modeling. *Polar Meteorology and Oceanography Conference, American Meteorological Society (Polar AMS, June 2021)*. Poster. **Received Third Place OSPA (Outstanding Student Presentation Award)**.
- Cooper, V.**, L. Roach, J. Thomson, S. Brenner, M. Smith, and C. Bitz. Waves in the Marginal Ice Zone: Insights from Observations and Modeling. *Sea State Meeting, hosted by Plymouth Marine Laboratory (March 2021)*. Poster.
- L. Roach, C. Bitz, E. Blanchard-Wrigglesworth, **V. Cooper**, C. Horvat. Sea ice at the edge: Seasonal Arctic sea ice in coupled climate models and satellite observations. *AGU Fall Meeting (December 2020)*. Talk.
- Cooper, V.**, L. Roach, J. Thomson, S. Brenner, M. Smith, and C. Bitz. Towards Validating Wave-Ice Interactions in Climate Models Using In Situ Observations. *AGU Fall Meeting (December 2020)*. Poster. **Received OSPA (Outstanding Student Presentation Award)**.

FUNDING & GRANTS

- National Science Foundation Submitted Feb. 2025
“Oxygen triple isotopes as a proxy for atmospheric CO₂ in Pliocene ice samples.”
Role: Collaborator (Letter of Support) for Dr. Asmita Banerjee and Prof. Christo Buizert.
- National Science Foundation 2023–2025
“Quantifying the sea-surface temperature pattern effect for paleoclimate constraints on climate sensitivity.”
Role: Led computing request, managed allocation with NSF NCAR for P2C2 collaborative grant.
- Department of Defense 2020–2023
National Defense Science & Engineering Graduate (NDSEG) Fellowship.

TEACHING & SERVICE

Teaching Experience

MASSACHUSETTS INSTITUTE OF TECHNOLOGY **Cambridge, MA**

- Made and taught a new short course for January-term: *A Brief Introduction to Inverse Modeling & Climate Dynamics* 2026

UNIVERSITY OF WASHINGTON **Seattle, WA**

- Lead Teaching Assistant, Department of Atmospheric and Climate Science: 2022–2023
Selected based on teaching performance to serve as the central resource for all graduate teaching assistants;
Trained graduate TAs, evaluated performance, and provided constructive feedback for each TA.
- Teaching Assistant, ATM S 100 *Climate, Justice, and Energy Solutions* (Prof. Dargan Frierson): 2022
Taught four weekly sections of 20–30 students each, held weekly office hours, developed new course materials;
4.85/5.00 “Teaching Effectiveness” rating with reviews highlighting enthusiasm, classroom environment, and explanations.
- Guest Lecturer: ATM S 101 *The Atmospheric General Circulation Parts I & II*, ATM S 220 *Ice & Climate* 2022–2023

Service Experience

- Undergraduate Mentor, Graduate-Undergraduate Mentor Program for Atmospheric and Climate Science 2021–Present
- Graduate Peer Mentor, Atmospheric and Climate Science Peer Mentoring Program 2021–Present
- Student Representative on Faculty Search Committee for Department of Atmospheric and Climate Science 2024–2025
- Guest Author (invited), *Carbon Brief* ([link to article](#)) 2024
- EDI Committee, Student representative (2 students selected) 2023–2024
- Discussion on Climate with Governor Jay Inslee (3 students selected from department) 2023
- Reading group leader, Oceans & Climate (Focus: Southern Ocean variability) 2023
- Convener, Session on Climate Dynamics at UW Program on Climate Change Summer Institute 2023
- Student representative for Fleagle Endowed Lecture Committee with Invited Lecturer Myles Allen 2023
- Guest Author (invited), *The Drift* ([link to article](#)) 2022
- Student member of Welcome Committee for New Students 2021–2022
- Interviewed for Undergraduate Job Fair 2022
- Reading group leader, Climate Economics 2021
- UW Outreach Program: Lecturer on Climate Change and Impacts on the Pacific Northwest 2020–2021
- Peer reviewer for *PNAS*, *Journal of Climate*, *Science Advances*, and *Geophysical Research Letters*
- Member of American Geophysical Union (AGU) and American Meteorological Society (AMS)

FAIR OPPORTUNITY PROJECT **Seattle, WA**

Mentor

2019–2021

- One-on-one mentorship for high-school students during college application and decision process

BUCKINGHAM BROWNE & NICHOLS SCHOOL **Cambridge, MA**

Math Team Head Coach

2013–2015

- Led competitive math program: weekly lessons, mock tests, and travel to regional competitions

- Present and discuss college options and career paths with students from low-income neighborhoods

WORKSHOPS, COURSES, AND FIELD EXPERIENCE

- “Climate evolution from early Eocene to mid-Pliocene.” NSF Workshop. University of Connecticut, Storrs, CT, 2024. Invited speaker.
- “CFMIP Meeting on Clouds, Circulation, Precipitation, and Climate Sensitivity.” CFMIP/CLIVAR, Boston, MA. 2024.
- “CESM Paleoclimate Working Group Meeting.” NCAR, Boulder, CO. 2024.
- Convener for session on Climate Dynamics, “Climate Change at the Poles.” UW Program on Climate Change. Friday Harbor, WA, 2023.
- *Summer School*: “Dynamics of the Global Water Cycle.” Advanced Climate Dynamics Course (ACDC), Norway. 2022.
- “CFMIP Meeting on Clouds, Precipitation, Circulation and Climate Sensitivity.” CFMIP, Seattle, WA. 2022.
- “The Pattern Effect: Coupling of SST Patterns, Radiative Feedbacks, and Climate Sensitivity.” US CLIVAR Workshop. Boulder, CO, May 2022.
- 30-day research cruise in the ice-covered Beaufort Sea. *Arctic Mobile Observing System (AMOS)*, funded by the Office of Naval Research (ONR). Departed from Nome, AK. October–November 2021.
- “Climate Extremes and Environmental Equity.” UW Program on Climate Change Summer Institute. 2020.
- “Climate Change Impacts on Food and Water Security” UW Program on Climate Change. Friday Harbor, WA, 2019.

ACADEMIC REFERENCES

- Prof. Kyle Armour**
Ph.D. Advisor
Department of Atmospheric and Climate Science and School of Oceanography
University of Washington
ATG Building Box 351640
Seattle, WA 98195-1640, USA
Phone: +1 (858) 610-3812
Email: karmour@uw.edu
- Prof. Greg Hakim**
Ph.D. Advisor
Department of Atmospheric and Climate Science
University of Washington
ATG Building Box 351640
Seattle, WA 98195-1640, USA
Phone: +1 (206) 330-8781
Email: ghakim@uw.edu
- Prof. Cecilia Bitz**
M.S. Advisor
Department of Atmospheric and Climate Science
University of Washington
ATG Building Box 351640
Seattle, WA 98195-1640, USA
Phone: +1 (206) 543-1339
Email: bitz@uw.edu
- Prof. Jessica Tierney**
Department of Geosciences
University of Arizona
1040 E 4th St
Tucson, AZ 85721, USA
Phone: +1 (520) 621-5377
Email: jesst@arizona.edu
- Prof. Dennis Hartmann**
Department of Atmospheric and Climate Science
University of Washington
ATG Building Box 351640
Seattle, WA 98195-1640, USA
Phone: +1 (206) 543-7460
Email: dhartm@uw.edu