VINCENT T. COOPER

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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 — **Seattle, WA**
Ph.D., Atmospheric and Climate Science — 2025
M.S., Atmospheric Sciences — 2022

HARVARD UNIVERSITY — **Cambridge, MA**
A.B., Statistics, *Cum laude* (College Honors) — 2015

ACADEMIC & PROFESSIONAL EXPERIENCE

UNIVERSITY OF WASHINGTON — **Seattle, WA**
Graduate Research Assistant & NDSEG Fellow, Department of Atmospheric and Climate Science — 2020–2025

- Advised by Professors 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 — **New York, NY**
Associate, Private Equity Investment Team — 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 — **New York, NY**
Investment Banking Analyst, Mergers & Acquisitions Advisory — 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 (Hosts: P. O'Gorman, D. McGee) — *September 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. Historical pattern effects and climate sensitivity revisited with novel constraints on past warming patterns. *Manuscript in preparation.* Related poster: [Poster PDF].

[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. Paleoclimate pattern effects help constrain climate sensitivity and 21st-century warming. *In revision, Proceedings of the National Academy of Sciences.* [Preprint PDF].

[5] **Cooper, V.**, G. Hakim, and K. Armour. Monthly Sea-Surface Temperature, Sea Ice, and Sea-Level Pressure over 1850–2023 from Coupled Data Assimilation (2025). *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. Mid-Pliocene climate forcing, sea-surface temperature patterns, and implications for modern-day climate sensitivity (2025). *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. Pliocene warmth and patterns of climate change inferred from paleoclimate data assimilation (2025). *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

Invited speaker for *WHOI Climate and Paleo Seminar (Spring 2025).* Postponed to Autumn 2025 due to conflict.

Invited speaker on Climate Sensitivity and Global Climate Change. *Program on Climate Change Summer Institute: Paleoclimate Constraints on Future Climate (September 2025, Friday Harbor Laboratories).*

Invited speaker on Paleoclimate for "Climate sensitivity, radiative feedbacks, and the pattern effect" session. *EGU General Assembly (April 2025).* Declined due to scheduling conflict.

Paleoclimate and Historical Perspectives on Modern Climate Sensitivity. *Caltech ESE Seminar (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, 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 CO_2 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

UNIVERSITY OF WASHINGTON **Seattle, WA**

Teaching Experience

- 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

- 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 Journal of Climate (x6), Geophysical Research Letters (x4), and Science Advances (x1)
- 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

BOSTON PROJECT TEACH **Cambridge, MA**

Mentor, College & Career Awareness Program 2012–2015

- 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.