

# VINCENT T. COOPER

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## EDUCATION

### UNIVERSITY OF WASHINGTON

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

Seattle, WA

2020–May 2025 (expected)  
2020–2022

### HARVARD UNIVERSITY

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

Cambridge, MA

2011–2015

## ACADEMIC & PROFESSIONAL EXPERIENCE

### UNIVERSITY OF WASHINGTON

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

Seattle, WA

2020–Present

- Advised by Professors K. C. Armour, G. J. Hakim, and C. M. Bitz
- Ph.D. Thesis: Radiative Feedbacks, Climate Sensitivity, and Paleoclimate Pattern Effects Constrained by Data Assimilation
- 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, Technology & Communications Industry*

New York, NY

2015–2017

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

## AWARDS & HONORS

- Houghton Postdoctoral Fellowship, MIT EAPS (Hosts: P. O'Gorman, D. McGee) 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 (3<sup>rd</sup> 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) 2011–2015

## 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. *In preparation*.
- [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 strongly constrain modern climate sensitivity and 21<sup>st</sup>-century warming. *Submitted*.

- [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. *In re-review, Journal of Climate*. Preprint: [doi.org/10.31223/X5JH8K](https://doi.org/10.31223/X5JH8K).
- [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). *In press, Journal of Climate*.
- [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](https://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](https://doi.org/10.1126/sciadv.adk9461). [[Carbon Brief Article](#)]
- [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](https://doi.org/10.1098/rsta.2021.0258).

## PRESENTATIONS

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### Invited Talks

- The Last Glacial Maximum Pattern Effect. *NOAA GFDL Journal Club (January 2025)*.
- Paleoclimate Pattern Effects Lead to Stronger Constraints on Modern-day Climate Sensitivity. *AGU Fall Meeting (December 2024)*.
- Paleoclimate Pattern Effects for PMIP/CMIP7: Last Glacial Maximum and Pliocene. *PMIP WINGS Seminar (November 2024)*.
- Overview of Paleoclimate Pattern Effects and Constraints on Modern-day Climate Sensitivity. *NSF workshop on climate evolution from early Eocene to mid-Pliocene (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

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|---|---------------------|
| • National Science Foundation   | Submitted Feb. 2025 |
| “Oxygen triple isotopes as a proxy for atmospheric CO <sub>2</sub> 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

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| <b>UNIVERSITY OF WASHINGTON</b>  | <b>Seattle, WA</b> |
| <i>Teaching Experience</i>   |                    |
| • 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, evaluated, and provided teaching feedback; added new training on equity and inclusion to TA orientation.        |                    |
| • Teaching Assistant, ATM S 100 <i>Climate, Justice, and Energy Solutions</i> (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 <i>The Atmospheric General Circulation Parts I &amp; II</i> , ATM S 220 <i>Ice &amp; Climate</i>   | 2022–2023          |
| <i>Service and Outreach</i>  |                    |
| • Guest Author (invited), <i>Carbon Brief</i> ( <a href="#">link to article</a> )  | 2024               |
| • Student Representative on Faculty Search Committee for Department of Atmospheric and Climate Science   | 2024               |
| • Equity, Diversity, and Inclusion (EDI) Committee, Student Representative (2 students selected)   | 2023–2025          |
| • Diversity and Inclusion Group (DIG): Member of student-led group   | 2021–2025          |

- 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
- 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**

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- “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

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- Prof. Kyle Armour**  
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University of Washington  
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Seattle, WA 98195-1640, USA  
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Email: [ghakim@uw.edu](mailto:ghakim@uw.edu)
- Prof. Cecilia Bitz**  
M.S. Advisor  
Department of Atmospheric and Climate Science  
University of Washington  
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Seattle, WA 98195-1640, USA  
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- Prof. Jessica Tierney**  
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