Paul Edwin Curtis

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Education

Yale University 2021 - present
Doctor of Philosophy (Ph.D., MPhil.), Atmosphere, Ocean, Climate Dynamics.
(*Advanced to candidacy in May 2023; Ph.D. expected in August 2026*)
Principal Academic Advisor: Professor Alexey V. Fedorov.
Thesis: Interactions between the Atlantic Meridional Overturning Circulation (AMOC) and the Arctic in a Warming Climate: from Satellite-Based Observations to Model Experiments. (provisional title).

Imperial College London 2017 - 2021
Master of Science (MSci.), Physics.

Experience

Research & Teaching Assistant 2021 - present
Department of Earth and Planetary Sciences, Yale University.

Program in Geophysical Fluid Dynamics (GFD) 2024
Woods Hole Oceanographic Institution (WHOI).

Undergraduate Researcher (UROP) 2019
Department of Physics & The Grantham Institute, Imperial College London.

Fellowships

WHOI Geophysical Fluid Dynamics Graduate Fellowship. 2024
NASA Future Investigators (FINESST) Graduate Fellowship. 2023 - 2026
Yale University Graduate Research Fellowship. 2021 - 2023
Undergraduate Summer Research Fellowship (Imperial/U.K. EPSRC). 2019
Low Income Undergraduate Bursary (Imperial). 2017 - 2021

Awards

Elias Loomis Prize "*For Excellence in Studies of Physics of the Earth*" (Yale). 2024
Ludlam Prize "*For Excellence in Studies of Atmospheric Physics*" (Imperial). 2021

Journal Publications

5. **P. E. Curtis**, A. V. Fedorov, and N. Feldl (2025), Constant Equilibrium Climate Sensitivity (ECS) in Ultralong Simulations of a Wide Range of Climates. Manuscript under review

4. **P. E. Curtis**, & A. V. Fedorov (2025), Dansgaard-Oeschger Events under Global Cooling Without Continental Ice Sheets. Revised manuscript submitted to *Journal of Climate*.

3. **P. E. Curtis**, & A. V. Fedorov (2024), Collapse and Slow Recovery of the Atlantic Meridional Overturning Circulation (AMOC) Under Abrupt Greenhouse Gas Forcing. *Climate Dynamics*, **62**(7), 5949–5970.

2. **P. E. Curtis**, & A. V. Fedorov (2024), Spontaneous Activation of the Pacific Meridional Overturning Circulation (PMOC) in Long-Term Ocean Response to Greenhouse Forcing. *Journal of Climate*, **37**(5), 1551-1565.

1. **P. E. Curtis**, P. Ceppi, & G. Zappa (2020), Role of the Mean State for the Southern Hemispheric Jet Stream Response to CO_2 Forcing in CMIP6 Models. *Environmental Research Letters*, **15**(6), 064011. (*cited in UN IPCC AR6*).

To Be Submitted

T. Schiminovich, **P. E. Curtis**, & A. V. Fedorov, Abrupt climate changes driven from the Southern ocean.

P. E. Curtis, M.-L. Timmermans, A. J. K. Yang, Partitioning the Influences of Surface-layer and Intrahalocline Processes on Episodic Mechanically-driven Mixing at the Base of the Arctic Ocean's Surface Mixed Layer.

Non-Refereed Publications

Paul Edwin Curtis, "Idealised Models of Moist Convection" WHOI GFD Summer Program Annual Proceedings Volume 2024 (*in preparation*).

Paul Curtis, Where Next for Wind? (2018) *Energy Journal - LSE, Imperial, UCL & ESCP Energy Societies*, Issue 4, p.10-11 (`http://energyjournal.co.uk/4th_edition`).

Additional Training & Workshops

4^{th} Summer School on "*Theory, Mechanisms and Hierarchical Modeling of Climate Dynamics: Atlantic Variability and Tropical Basin Interactions at Interannual to Multi-Decadal Time Scales*". International Centre for Theoretical Physics (ICTP), Trieste, Italy. 2023

Royal Society Scientific Meeting: "*Atlantic Overturning: New Observations and Challenges*". The Royal Society, London, UK. 2022

UNIQ+ Graduate Access Programme (*virtual*), University of Oxford, UK. 2020

Corpus Christi College physics masterclass, University of Cambridge, UK. 2016

Teaching & Mentorship

Academic Supervision (with Prof. Alexey V. Fedorov)
Theo Schiminovich, senior thesis. 2024 - present

Teaching Fellowships
Physical Oceanography, Yale College EPS335. Fall 2023
Physical Oceanography, Yale College EPS335. Fall 2022
Dynamic Earth, Yale College EPS110. Fall 2021

Conference Talks

AGU Fall Meeting, Washington, D.C. Dec 2024
AGU Ocean Sciences Meeting, New Orleans, LA. Feb 2024
Nansen Legacy Symposium, Tromsø, Norway. Nov 2023
EGU General Assembly, Vienna, Austria. (*online*) Apr 2023
AGU Fall Meeting, Chicago, IL. Dec 2022

Conference Posters

AGU Fall Meeting, San Francisco, CA. Dec 2023
ICTP Summer School, Trieste, Italy. Aug 2023
WHOI Workshop on the Changing Beaufort Gyre, Woods Hole, MA. Mar 2023
AMS 23^{rd} Conference on AOFD, Breckenridge, CO. Jun 2022
US CLIVAR AMOC Scientific Meeting, Woods Hole, MA. (*online*) Apr 2022

Other Talks

Summer Program in GFD Final Presentation, Woods Hole, MA. Aug 2024
Fedorov/Jin joint group meeting, Yale University, CT. Apr 2023

Service

Yale EPS IDEA (Inclusivity, Diversity, Equity, and Anti-racism and anti-discrimination) committee leader. 2024 - present
Yale EPS graduate mentoring scheme. 2023 - present
Yale EPS faculty search student volunteer. 2023 - present
Yale EPS colloquium graduate student representative (AOCD division). 2024
Yale EPS Disability, Mental Health, and Chronic Illness committee member. 2022
Yale EPS 1^{st} generation & international student committee member. 2022
Imperial College London Physics undergraduate mentoring scheme. 2018, 2019

Skills

Utilities:
Matlab; python; R; command line (Linux); Dedalus; LaTeX; Adobe Suite; Microsoft Suite.

Climate Model and Reanalysis Data:
Community Earth System Model (CESM).
Coupled Model Intercomparison Project (CMIP5&6).
ECMWF reanalysis (ERA5).
Estimating the Circulation and Climate of the Ocean (ECCOv4).

In-situ and Satellite Data Sets:
Ice Tethered Profilers (WHOI).
Beaufort Gyre Moorings (BGOS/WHOI).
Magnetospheric Multiscale Mission (NASA).

Relevant Coursework

Yale University:
Geophysical Fluid Dynamics; Physical Oceanography; Climate Dynamics; Polar Processes; Energy, Mass, and Momentum Processes; Classical Statistical Thermodynamics; The Science of Complex Systems; Applied Numerical Methods for Differential Equations; Time Series Analysis for Geophysics.

As guest student: Co-existing with Complexity: Emerging Environmental Governance (Yale Jackson School of Global Affairs).

Imperial College London:
Atmospheric Physics; Environmental Physics; Advanced Hydrodynamics; Space Physics; Fluid Mechanics; Advanced Classical Physics; Thermodynamics and Statistical Physics; Mechanics; Quantum Field Theory; General Relativity.