

ANTHONY MEZA

PH.D. CANDIDATE

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Education

Massachusetts Institute of Technology & Woods Hole Oceanographic Institution <i>Ph.D. in Physical Oceanography</i>	Cambridge, MA 2021–Present
• Advisor: Geoffrey Gebbie x • Thesis Committee: Henri Drake, Christopher Piecuch, Viviane de Menezes, Raffaele Ferrari	

University of California, Irvine <i>B.S. in Mathematics, Concentration in Data Science</i>	Irvine, CA 2018–2021
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Publications

- Meza, A., & Gebbie, G. (2025). Wind-driven mid-depth Pacific cooling in a dynamically consistent ocean state estimate. *Journal of Geophysical Research: Oceans*. doi.org/10.1029/2025JC022462

Research Experience

Woods Hole Oceanographic Institution <i>Graduate Research Assistant</i>	Sep 2021–Present Woods Hole, MA
• Tested causes of deep ocean cooling using global MITgcm simulations, supporting NASA efforts of global ocean modeling and data assimilation. • Analyzed 40TB+ of high-resolution coupled climate model output to understand the connections between ocean circulation and dissolved chemicals in the ocean. • Produced written reports, posters, and presentations to communicate findings to broader communities. • Processed and analyzed 5TB+ of high-resolution ocean reanalysis data and found significant connections between near-shore sea surface temperature and extreme California precipitation events. • Developed tools to analyze big climate data using Python and Julia.	

Los Alamos National Laboratory <i>Summer Intern</i>	Jun 2021–Aug 2021 Los Alamos, NM
• Implemented reduced-precision capabilities within the ocean component of the Energy Exascale Earth System Model. • Found that reduced precision significantly reduced compute time but at cost of model skill.	

Institute for Pure and Applied Mathematics <i>Summer Intern</i>	Jun 2020–Sep 2020 Los Angeles, CA
• Designed and implemented reinforcement learning algorithms for adaptive packet routing in satellite network simulations. • Empirical models were built in Python primarily using PyTorch and NetworkX.	

Presentations

- A. Meza, G. Gebbie. “Wind-driven mid-depth Pacific cooling in a dynamically consistent ocean state estimate” ECCO Summer School, 19–30 May 2025, Asilomar Conference Center, Monterey, CA. *Poster*.
- A. Meza, P. Bhuyan, Z. Zheng, G. Gebbie., M. Linz, J. Wenegrat. “Surface to Bottom Connections in Earth’s Ocean” Tracer Mixing in Fluids Across Planetary Scales Summer School, 8–19 Jul 2024, Brin Mathematics Research Center, College Park, MD. *Talk*.
- A. Meza, H. Seo. “Associations Between Coastally Trapped Waves and Wintertime Precipitation in California” Ocean Sciences Meeting, 18–23 Feb 2024, New Orleans, LA. *Poster*.
- A. Meza, H. Seo. “Associations Between Coastally Trapped Waves and Wintertime Precipitation in California” Graduate Climate Conference, 1–3 Nov 2023, Marine Biological Laboratory, Woods Hole, MA. *Poster*.

- A. Meza, G. Gebbie. “Drivers of subsurface Pacific cooling in ECCOv4r4” ECCO Annual Meeting 2023, 25 Jan 2023, University of Washington, Seattle, WA. *Virtual Talk*.
- A. Meza, G. Gebbie. “Drivers of mid-depth Pacific cooling trends in an ocean reanalysis” AGU Fall Meeting 2022, 2–4 Nov 2023, Chicago, IL. *Poster*.
- A. Meza, G. Gebbie. “Drivers of mid-depth Pacific cooling trends in an ocean reanalysis” Graduate Climate Conference, 31 Oct 2022, University of Washington, Seattle, WA. *Poster*.
- C. Tran, A. Meza, H.L. Tung, H. Liu. “A Reinforcement Learning Approach to Packet Routing on a Dynamic Network” Joint Mathematics Meeting, 6–9 Jan 2021, Virtual. *Virtual Talk*.

Teaching Experience

- Co-organizer and Instructor 2024
High Performance Computing and Data Analysis Workshop
- Calculus Instructor 2024
MIT-WHOI Joint Program Summer Math Refresher
- Partial Differential Equations Instructor 2023
MIT-WHOI Joint Program Summer Math Refresher

Service and Leadership

- Committee Member 2024–Present
AMS Committee on Climate Variability and Change
- Graduate Application Mentor 2023–Present
Joint Program Applicant Support & Knowledgebase
- Physical Oceanography Representative 2023–2024
WHOI Joint Program Student Representative
- Conference Co-Organizer 2023
2023 Graduate Climate Conference
- At-Large Representative 2022–2023
WHOI Joint Program Student Representative
- Conference Co-Organizer 2022
2022 First Generation Summit
- Committee Member 2020–2021
UC Irvine Mathematics Inclusive Excellence Committee

Workshops and Summer Schools Attended

- CESM/MOM6 Regional Modeling Workshop May 2025
NCAR Mesa Laboratory, Boulder, CO
- ECCO Summer School May 2025
Asilomar Conference Center, Monterey, CA
- Tracer Mixing in Fluids Across Planetary Scales Summer School Jul 2024
Brin Mathematics Research Center, College Park, MD

Awards and Honors Received

- GEM Fellowship 2021
National Consortium of Graduate Degrees for Minorities in Engineers, MIT
- Rose Hills Scholarship 2020
Rose Hills Foundation, UC Irvine
- Rose Hills Scholarship 2019
Rose Hills Foundation, UC Irvine
- Bellettini Scholarship 2019
Maria Rebecca and Maureen Bellettini Fund, UC Irvine

- SCE STEM Scholarship
Southern California Edison, UC Irvine

2019

Professional References

Geoffrey Gebbie (ggebbie@whoi.edu)

Henri Drake (hdrake@uci.edu)

Christopher Piecuch (cpiecuch@whoi.edu)