Anthony Meza

Ph.D. Candidate

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Education

Massachusetts Institute of Technology &
Woods Hole Oceanographic Institution — Cambridge, MA — *2021–Present*

Ph.D. in Physical Oceanography

- Advisor: Geoffrey Gebbie
- Thesis Committee: Henri Drake, Christopher Piecuch, Viviane de Menezes, Raffaele Ferrari

University of California, Irvine — Irvine, CA

B.S. in Mathematics, Concentration in Data Science — *2018–2021*

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 — Sep 2021–Present

Graduate Research Assistant — *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 — Jun 2021–Aug 2021

Summer Intern — *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 — Jun 2020–Sep 2020

Summer Intern — *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.

Personal Projects

xbuoy

- Developed a Python workflow to query the National Data Buoy Center and aggregate data into daily, monthly and yearly NetCDFs.