

ANTHONY MEZA

PH.D. CANDIDATE

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Education

Massachusetts Institute of Technology & Woods Hole Oceanographic Institution

Ph.D. in Physical Oceanography

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

Cambridge, MA

2021–Present

University of California, Irvine

B.S. in Mathematics, Concentration in Data Science

Irvine, CA

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

Graduate Research Assistant

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

Summer Intern

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

Summer Intern

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.

Personal Projects

xbuoy

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

Technical Skills

Languages: Python, Julia, MATLAB.

Developer Tools: Unix, Git, Github, VS Code.

Libraries: Xarray, Pandas, PyTorch, SciPy, NumPy, Matplotlib, Scikit-learn, JAX, Keras, Tensorflow.