Anthony Meza

Ph.D. Candidate

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Education

Massachusetts Institute of Technology   Cambridge, MA
Ph.D. in Physical Oceanography   *Expected 2026*

University of California, Irvine   Irvine, CA
B.S. in Mathematics, Concentration in Data Science   *2018–2021*

Fullerton College   Fullerton, CA
A.S. in Mathematics   *2016–2018*

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

Experience

Woods Hole Oceanographic Institution   Sep 2021–Present
Graduate Research Assistant   *Woods Hole, MA*

- Designed and ran global ocean simulations using the MIT General Circulation Model (MITgcm) to test mechanisms controlling deep-ocean heat content and circulation
- Evaluated high-resolution coupled climate models to quantify the impacts of Antarctic sea ice melt on global ocean circulation and tracer distributions
- Analyzed ocean reanalysis data and found a statistical relationship between near-shore sea surface temperature variability and extreme California precipitation events
- Developed Python and Julia tools for processing and analysis of ocean model and observational data in high-performance computing (HPC) environments

Foundation for Resilient Societies   Jan 2025
Technical Consultant Intern   *Cambridge, MA*

- Ran and debugged Strategic Energy & Risk Valuation Model (SERVM) simulations to assess U.S. electrical grid capacity adequacy under varying generation scenarios (e.g., solar adoption).
- Led a team of 12 undergraduate electric grid modeling interns to develop an internal user guide for running SERVM experiments and interpreting model output.

Los Alamos National Laboratory   Jun 2021–Aug 2021
Research Intern   *Los Alamos, NM*

- Implemented and evaluated reduced-precision in the Energy Exascale Earth System Model (E3SM) to reduce computational cost and energy consumption in exascale simulations

Institute for Pure and Applied Mathematics &   Jun 2020–Sep 2020
The Aerospace Corporation
Research Intern   *Los Angeles, CA*

- Designed and implemented reinforcement learning–based methods for adaptive packet routing in satellite network simulations, implemented in Python using PyTorch

Personal Projects

xbuoy

- Developed a Python workflow to query National Data Buoy Center (NDBC) and aggregate irregularly sampled data into commonly used Earth science data formats (e.g., NetCDF).

Skills

Languages: *Programming*: Python, Julia, MATLAB; *Human*: English, Spanish
Scientific Computing: NumPy, SciPy, xarray, Pandas, Optimization.jl, JuMP.jl, scikit-learn, PyTorch
HPC & Dev Tools: Unix/Linux, OpenMPI, HPC job schedulers (e.g., Slurm), Dask, Git, GitHub