Anthony Meza
Ph.D. Candidate

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https://anthony-meza.github.io

Education

Massachusetts Institute of Technology & Woods Hole Oceanographic Institution
Cambridge & Woods Hole, MA
Ph.D. in Physical Oceanography and Climate Science 2021 - Present

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

Experience

Research Assistant, Woods Hole Oceanographic Institution 2021.09 - Present
Woods Hole, MA

- Ran several global ocean simulations using the MITgcm to diagnose the causes of deep ocean cooling in a global data assimilation effort by NASA.
- Analyzed 15TB+ of next-generation high-resolution coupled climate model output to understand the connections between ocean circulation and dissolved compounds in the ocean.
- Produced written reports, posters and presentations to communicate findings to broader communities.

Technical Consultant Intern, Foundation for Resilient Societies 2025.01
Cambridge, MA

- Received in-person training by Astrapé Consulting in Strategic Energy & Risk Valuation Mode (SERVM) software package.
- Ran and debugged simulation cases for generating capacity adequacy on the US electrical grid using SERVM.
- Co-led a team of 12 Electric Grid Modeling Interns to create a comprehensive internal user guide for running SERVM experiments and analyzing their output.

Research Assistant, Woods Hole Oceanographic Institution 2021.09 - 2023.09
Woods Hole, MA

- Processed and analyzed 3TB+ of climate 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.

Parallel Computing Summer Fellow, Los Alamos National Laboratory 2021.06 - 2021.08
Los Alamos, NM

- Implemented parallel reduced-precision capabilities within the ocean component of the Energy Exascale Earth System Model.
- Found that reduced precision marginally reduced compute time (i.e. energy consumption), but at the cost of model skill.

Research Assistant, Institute for Pure and Applied Mathematics 2020.06 - 2020.09
Los Angeles, CA

- Co-developed Q-learning and Deep Q-learning algorithms to improve satellite network communication efficiency.
- Created Monte Carlo simulations to measure efficacy of algorithms using the PyTorch and NetworkX Python packages.

PROJECTS

xbuoy | **Python, Xarray, multiprocessing, HTML, Pandas**
Personal Project 2024.09 - Present

- Developed a system to query the National Data Buoy Center and aggregate data into daily, monthly and yearly NetCDFs.
- Python package can be downloaded from *https://github.com/anthony-meza/xbuoy*.
- Future goals include using buoy, satellite and model data to improve coverage and projections of coastal regions.

TECHNICAL SKILLS

Languages: `Python`, `Julia`, `MATLAB`.
Developer Tools: Linux/Unix, Git, Github, VS Code, Google Colab.