

# 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 <i>Ph.D. in Physical Oceanography and Climate Science</i> University of California, Irvine <i>B.S. in Mathematics, Concentration in Data Science</i>	2021 - Present Irvine, CA 2018 - 2021
EXPERIENCE	<b>Research Assistant, Woods Hole Oceanographic Institution</b> 2021.09 - Present Woods Hole, MA <ul style="list-style-type: none"><li>Ran several global ocean simulations using the MITgcm to diagnose the causes of deep ocean cooling in a global data assimilation effort by NASA.</li><li>Analyzed 15TB+ of next-generation high-resolution coupled climate model output to understand the connections between ocean circulation and dissolved compounds in the ocean.</li><li>Produced written reports, posters and presentations to communicate findings to broader communities.</li></ul>	
	<b>Technical Consultant Intern, Foundation for Resilient Societies</b> 2025.01 Cambridge, MA <ul style="list-style-type: none"><li>Received in-person training by Astrapé Consulting in Strategic Energy &amp; Risk Valuation Mode (SERVM) software package.</li><li>Ran and debugged simulation cases for generating capacity adequacy on the US electrical grid using SERVM.</li><li>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.</li></ul>	
	<b>Research Assistant, Woods Hole Oceanographic Institution</b> 2021.09 - 2023.09 Woods Hole, MA <ul style="list-style-type: none"><li>Processed and analyzed 3TB+ of climate data and found significant connections between near-shore sea surface temperature and extreme California precipitation events.</li><li>Developed tools to analyze big climate data using Python and Julia.</li></ul>	
	<b>Parallel Computing Summer Fellow, Los Alamos National Laboratory</b> 2021.06 - 2021.08 Los Alamos, NM <ul style="list-style-type: none"><li>Implemented parallel reduced-precision capabilities within the ocean component of the Energy Exascale Earth System Model.</li><li>Found that reduced precision marginally reduced compute time (i.e. energy consumption), but at the cost of model skill.</li></ul>	
	<b>Research Assistant, Institute for Pure and Applied Mathematics</b> 2020.06 - 2020.09 Los Angeles, CA <ul style="list-style-type: none"><li>Co-developed Q-learning and Deep Q-learning algorithms to improve satellite network communication efficiency.</li><li>Created Monte Carlo simulations to measure efficacy of algorithms using the PyTorch and NetworkX Python packages.</li></ul>	

## 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.