

# Annabel Wade

Boston, MA | **Email:** wade@bu.edu | **GitHub:** annabelwade

- Diligent PhD Student at Boston University's Faculty of Computing & Data Sciences studying the training dynamics of AI weather models.
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## Education

**PhD in Environmental Data Science** | *Boston University, Boston, MA* | Sept 2025 – May 2030  
(Expected)

**B.S. in Applied Mathematics: Data Science** | *University of Washington, Seattle, WA* | Sept 2021 – March 2025

- **GPA:** 3.82/4.0 | **Minor:** Oceanography
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## Research Experience

**Research Assistant** | *University of Washington School of Oceanography, Seattle, WA* | March 2025 – Aug 2025

- Developed and analyzed global ocean velocity product, comparing to other datasets and creating meaningful visualizations.
- Co-authored a publication currently being submitted to the AMS Artificial Intelligence for the Earth Systems journal.

**Hollings Intern** | *NOAA Global Systems Laboratory, Boulder, CO* | June 2024 – March 2025

- Implementing machine learning techniques for detection of wildfire smoke from satellite imagery with Python-based high performance computing.
- Performing cost-benefit analysis of computer vision models for application to satellite imagery; produced an ensemble of models that improved boundaries of detected smoke plumes.
- Documenting and communicating research results, with a first-author publication in preparation.

**Research Assistant** | *University of Washington School of Oceanography, Seattle, WA* | June 2022 – June 2024

- Developed an interactive data visualization tool in Python that accelerated team progress and improved communication of results to the scientific community.
  - Performed quality control of autonomous float data and multiscale spatial-temporal mapping of numerous data products.
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## Teaching Experience

**Research Mentor** | *Boston University* | March 2026 – May 2026

- Mentored 3 data science undergraduate students on a project perturbing initial conditions to reveal when an AI weather model learns physical relationships.
- Taught students how to run parallel model inference using earth2studio and PyTorch on a high-performance computing cluster, perform rigorous scientific analysis, and communicate results in a presentation.

**Instructional Assistant** | *University of Washington Youth and Teens Programs* | Aug 2024 – Sept 2024

- Supported two classes of 20-30 high school students each through data-driven modeling projects.
- Taught six lectures on high-school level mathematics required for regression modeling.

**Lab Teaching Assistant** | *University of Washington School of Oceanography* | Sept 2022 – March 2023

- Set up and explained weekly labs for undergraduate Fluid Mechanics and graduate Geophysical Fluid Dynamics.
  - Guided a class of 30 students through the application of physics concepts via experiential learning.
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## Publications

### Accepted Papers

- **A. Wade, R. Koki, C. Kumler-Bonfanti, D. Durran. "Improving Satellite-based Wildfire Smoke Plume Detection with Deep Ensembles."** *International Conference on Learning Representations (ICLR) 2026 Machine Learning for Remote Sensing workshop.*
- **R. Koki, M. McCabe, D. Kedar, J. Myers-Dean, A. Wade, et al. "SmokeViz: A large-scale satellite dataset for wildfire smoke detection and segmentation."** *Conference on Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track 2025.*

### In-Preparation

- A. Gray, C. Wortham, O. Kihle, K. Christensen, **A. Wade**. "A framework for multiscale interpolation and data fusion: an application to global observation-based ocean velocities."
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## Selected Presentations

- **Training dynamics of a weather emulator: an introductory atmospheric river case study.** Lighting talk presented at the BU Computing & Data Sciences PhD Student Lighting talks (April 2026).
  - **Exploring Multi-Model Ensembling Methods to Improve on Deep Learning Based Smoke Detection.** Talk presented at the 105th AMS Annual Meeting, New Orleans, LA (Jan 2025). *Awarded 3rd place for Best Student Oral Presentation.*
  - **Estimating Global Ocean Absolute Geostrophic Velocities with Satellite and Autonomous Float Observations.** Poster presented at Ocean Sciences Meeting 24, New Orleans, LA (Feb 2024).
  - **Estimating Global Ocean Eddy Kinetic Energy with Autonomous Floats and Satellites.** Talk presented at Washington NASA Space Grant Undergraduate Research Symposium (Aug 2023).
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## Awards

- **NASA Space Grant Scholarship** | 2024 – 2025
  - **NOAA Ernest F. Hollings Scholarship** | 2023 – 2025
  - **Academic Excellence Award**, UW Applied Mathematics | 2024
  - **Undergraduate Research Funding**, Washington NASA Space Grant | 2023
  - **Rita A. Colwell Scholarship for Women in Oceanography** | 2022 – 2023
  - **Lowell K. and Alice M. Barger Scholarship** | 2021 – 2023
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## Outreach

**Graduate Climate Conference** | Organizer | 2026 - present

- Supported advertising and abstract evaluation during conference preparation. Co-chaired the Audio/Visual committee, which manages the presentation tech during the conference.

**UW Program on Climate Change** | Co-Leader | 2021 – 2023

- Led seminars and panels to involve undergraduates with climate-related research.

**Bryant Elementary School** | Science Fair Mentor | 2023

- Guided 5th-grade students through the scientific method and environmental data analysis