

ANDREW E. BRETTIN

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EDUCATION

PhD, Atmosphere-Ocean Science and Mathematics

Courant Institute of Mathematical Sciences, New York University

Candidacy acquired April 2021

Advisor: Dr. Laure Zanna

Expected Summer 2024

New York, NY

Bachelor of Science, Mathematics

University of Minnesota, College of Science & Engineering

Summa cum laude with High Distinction

GPA: 3.92

May 2019

Minneapolis, MN

PUBLICATIONS

1. Andrew Brettin, Laure Zanna, and Elizabeth Barnes. "Understanding Drivers of Extreme Sea Level on Subseasonal-to-Seasonal Timescales Using Uncertainty-Permitting Machine Learning." In preparation.
2. Fabrizio Falasca, Andrew Brettin, Laure Zanna, Stephen M. Griffies, Jianjun Yin, and Ming Zhao (2023). "Exploring the Non-Stationarity of Coastal Sea Level Probability Distributions." *Environmental Data Science* 2(16). <https://doi.org/10.1017/eds.2023.10>.
3. Katherine Meyer, James Broda, Andrew Brettin, María Sánchez Muñiz, Sarah Gorman, Forest Isbell, Sarah E. Hobbie, Mary Lou Zeeman, and Richard McGehee (2023). "Nitrogen-Induced Hysteresis in Grassland Biodiversity: A Theoretical Test of Litter-Mediated Mechanisms." *American Naturalist* 201(6). <https://doi.org/10.1086/724383>.
4. Andrew Brettin, Rosa Rossi-Goldthorpe, Kyle Weishaar, and Igor Erovenko. (2018). "Ebola could be eradicated through voluntary vaccination." *Royal Society Open Science* 5: 171591. <https://doi.org/10.1098/rsos.171591>

CONFERENCE PRESENTATIONS

Andrew Brettin, Laure Zanna, and Elizabeth Barnes (2023). *Identifying Drivers of Subseasonal-to-Seasonal Sea Level Predictability Using Uncertainty-Permitting Machine Learning*. Oral session presented at AGU Fall Meeting.

Andrew Brettin and Laure Zanna (2022). *Constraining Estimates for South American Sea Level Extremes Using Uncertainty-Permitting Machine Learning*. Poster session presented at AGU Fall Meeting.

Andrew Brettin and Laure Zanna (2022). *Characterizing the Impacts of Continental Shelf Depth on Sea Level Variability Using Clustering*. Poster session presented at AGU Ocean Sciences Meeting.

María Sanchez-Muñiz, Kate Meyer, and Andrew Brettin (May 2019). *Ecological Management Strategies Informed by Flow-Kick Dynamics*. Poster session presented at SIAM Conference on the Applications of Dynamical Systems, Snowbird, UT.

Andrew Brettin and Kyle Weishaar (November 2017). *Ebola Could Be Eradicated Through Voluntary Vaccination*. Undergraduate Research Conference at the Interface of Biology and Mathematics, Knoxville, TN.

Andrew Brettin (October 2017). *Ebola Could Be Eradicated Through Voluntary Vaccination*. Poster session presented at Council on Undergraduate Research REU Symposium, Alexandria, VA.

TEACHING EXPERIENCE

- **Teaching Assistant, Numerical Analysis** Fall 2022
New York University
- **Tutor, Honors Calculus I–IV** Fall 2016–Spring 2019
University Honors Program, University of Minnesota
- **Grader, Honors Physics II** Spring 2017
Department of Physics, University of Minnesota

SERVICE

- **Volunteer tutor, math grades 5-8** Fall 2021–Spring 2022
Common Denominator, New York, NY
- **Project mentor—Undergraduate Research Program in Data Science** Spring 2021
NYU Center for Data Science, collaboration with the National Society for Black Physicists

DEPARTMENTAL

- **Vice President, Courant Student Organization** Fall 2021–Summer 2022
- **PhD Student mentor, Courant** Fall 2020–present
- **Master’s student mentor, Courant** Spring 2020
- **Social coordinator, Courant Student Organization** Fall 2019–Spring 2020

OTHER EXPERIENCE

- **NASA/JPL Summer School on Satellite Observations and Climate Models** Summer 2023
Keck Institute for Space Studies, Caltech, Pasadena, CA
- **LEAP Momentum Bootcamp on Climate Data Science** Summer 2022
Columbia University, New York, NY
- **OceanHackWeek Data Science and Oceanography Interactive Workshop** Summer 2021
University of Washington eScience Institute, Virtual workshop
- **Workshop on Climate Change and Resilience: Methods of Dynamical Systems and Data Assimilation** Summer 2018
American Institute of Mathematics, San Jose, CA
- **Undergraduate Research Intern** Summer 2018
REU in Computing Theory and Applications, DIMACS, Rutgers University
- **Undergraduate Research Intern** Summer 2017
REU in Mathematical Biology, University of North Carolina at Greensboro

TECHNICAL SKILLS

Programming languages and software:

- Languages: Python (packages: numpy, scipy, matplotlib, xarray, dask, pandas, scikit-learn), Julia, MATLAB, C++ (OpenMP, CUDA)
- Software: bash, git/GitHub, vim, SLURM, Jupyter, LaTeX, Mathematica

AWARDS & DISTINCTIONS

- **VoLo Fellow**, VoLo Foundation 2020–present
- **Hans H. Dalaker Scholarship**, University of Minnesota 2018
- **Gold Scholar Award**, University of Minnesota 2015–2019

PROFESSIONAL MEMBERSHIPS

- Student Member, American Geophysical Union 2021–present
- Student Member, American Meteorological Society 2018–present
- Member, Society for Industrial and Applied Mathematics 2017–present
- Member, Mathematics and Climate Research Network 2017–2019