ANDREW E. BRETTIN

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EDUCATION

PhD Candidate, Atmosphere-Ocean Science and Mathematics — **2019–present**
Courant Institute of Mathematical Sciences, New York University — *New York, NY*
Candidacy acquired April 2021
Advisor: Dr. Laure Zanna

Bachelor of Science, Mathematics — **May 2019**
University of Minnesota, College of Science & Engineering — *Minneapolis, MN*
Summa cum laude with High Distinction
GPA: 3.924

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." Accepted to *Environmental Data Science* 8 May 2023. https://doi.org/10.48550/arXiv.2211.04608.
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(1): 171591. https://doi.org/10.1098/rsos.171591.

CONFERENCE PRESENTATIONS

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 2022, Chicago, IL.

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

Andrew Brettin (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

- **Vice President, Courant Student Organization** — Fall 2021–Spring 2022
  New York University, New York, NY
- **Volunteer mathematics 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

OTHER EXPERIENCE

- **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
- **Mathematical Contest in Modeling** — Spring 2018
  Consortium of Mathematics and its Applications

TECHNICAL SKILLS

Programming languages and software:

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

AWARDS & DISTINCTIONS

- **VoLo Fellow,** VoLo Foundation — 2020–present
- **Henry M. MacCracken Fellowship,** New York University — 2019–2020
- **Hans H. Dalaker Scholarship,** University of Minnesota — 2018
- **Gold Scholar Award,** University of Minnesota — 2015–2019
- **National Merit Scholar,** National Merit Scholarship Corporation — 2015