Alyssa M. Stansfield

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Education

2022	Ph.D. in Marine and Atmospheric Science Stony Brook University
2021	Science Training & Research to Inform Decisions Graduate Certificate Stony Brook University
2017	B.S. in Meteorology and Marine Science (*Summa Cum Laude)* Rutgers University

Professional Appointments

2024-Present	Tenure-track Assistant Professor Department of Atmospheric Sciences, University of Utah
2024-Present	Wilkes Climate Science and Policy Center Fellow University of Utah
2022-2024	NSF Atmospheric and Geospace Sciences Postdoctoral Research Fellow Department of Atmospheric Science, Colorado State University *Mentor: Dr. Kristen L. Rasmussen*
2017-2022	Graduate Research Assistant School of Marine and Atmospheric Sciences, Stony Brook University *Advisor: Dr. Kevin Reed*
2016	Research Intern, NOAA Geophysical Fluid Dynamics Laboratory *Mentor: Dr. Xiaosong Yang*
2014-2017	Undergraduate Research Assistant School of Environmental and Biological Sciences, Rutgers University *Advisor: Dr. Benjamin Lintner*

Research Interests

Climate modeling, extreme weather, climate change and variability, machine learning, compound extremes, tropical meteorology, climate change impacts and adaptation, model assessment, climate science communication

Peer-Reviewed Publications

*Underlined names denote undergraduate students that I have mentored.

16.   Wang, Z., R. Rios-Berrios, D. P. Stern, … **A. M. Stansfield**, P. V. Ayar, and E. Wisinski. On the Definition of Tropical Cyclone Seeds from a Climate Perspective. Submitted to *Bulletin of the American Meteorological Society.*

15.   Stansfield, A. M. and K. L. Rasmussen (2025). The Response of Tropical Cyclone Inner Core and Outer Rainband Precipitation to Warming in Idealized Convection-Permitting WRF. *JGR: Atmospheres,* 130, e2024JD042217. doi:10.1029/2024JD042217

14.   Thonis, A., **A. M. Stansfield**, and H. Akcakaya (2024). Unraveling the role of tropical cyclones in shaping present species distributions. *Global Change Biology*, 30, e17232. doi: 10.1111/gcb.17232

13. Silvers, L. G., **A. M. Stansfield**, and K. A. Reed (2024): The impact of rotation on tropical climate, the hydrologic cycle, and climate sensitivity. *Geophysical Research Letters*, 51, e2023GL105850. doi: 10.1029/2023GL105850

12. Huprikar, A., **A. M. Stansfield**, and K. A. Reed (2023): A Storyline Analysis of Hurricane Irma's Precipitation Under Various Levels of Climate Warming. *Environmental Research Letters*, 19, 014004, doi:10.1088/1748-9326/ad0c89

11. Jones, A. D., D. Rastogi, P. Vahmani, **A. M. Stansfield**, K. A. Reed, T. Thurber, P. A. Ullrich, & J. Rice (2023): Continental United States Climate Projections based on Thermodynamic Modification of Historical Weather. *Sci Data,* 10, 664, doi:10.1038/s41597-023-02485-5

10. Reed, K. A., **A. M. Stansfield**, W.-C. Hsu, G. J. Kooperman, A. A. Akinsanola, W. M. Hannah, A. G. Pendergrass, and B. Medeiros (2023): Evaluating the simulation of CONUS precipitation by storm type in next-generation configurations of E3SM. *Geophysical Research Letters*, 50, e2022GL102409, doi:10.1029/2022GL102409

9. Stansfield, A. M. and K. A. Reed (2023): Global Tropical Cyclone Precipitation Scaling with Sea Surface Temperature. *npj Climate and Atmospheric Science*, 6(60), doi:10.1038/s41612-023-00391-6

8. Reed, A. T., **A. M. Stansfield,** and K. A. Reed (2022): Characterizing Long Island's Extreme Precipitation and its Relationship to Tropical Cyclones. *Atmosphere*, 13(7), doi:10.3390/atmos13071070

7. Stansfield, A. M. and K. A. Reed (2021): Tropical Cyclone Precipitation Response to Surface Warming in Aquaplanet Simulations with Uniform Thermal Forcing. *JGR: Atmospheres,* 126, e2021JD035197, doi:10.1029/2021JD035197

6. Reed, K.A., M. F. Wehner, **A. M. Stansfield** and C. M. Zarzycki (2021): Anthropogenic Influence on Hurricane Dorian's Extreme Rainfall. [in "Explaining Extreme Events of 2019 from a Climate Perspective"]. *Bull. Amer. Meteor. Soc.*, 102(1), S9-S16, doi:10.1175/BAMS-D-20-0160.1

5. Ullrich, P.A., C.M. Zarzycki, E.E. McClenny, M.C. Pinheiro, **A.M. Stansfield** and K.A. Reed (2021): TempestExtremes v2.0: A Community Framework for Feature Detection, Tracking and Analysis in Large Datasets. *Geophys. Model Dev.*, **14**(8), 5023-5048. doi:10.5194/gmd-14-5023-2021

4. Stansfield, A. M., K. A. Reed, and C. M. Zarzycki (2020): Changes in Precipitation from North Atlantic Tropical Cyclones under RCP Scenarios in the Variable-Resolution Community Atmosphere Model. *Geophysical Research Letters*, 47. doi: 10.1029/2019GL086930

3. Stansfield, A. M., K. A. Reed, C. M. Zarzycki, P. A. Ullrich, and D. R. Chavas (2020): Assessing Tropical Cyclones' Contribution to Precipitation over the Eastern United States and Sensitivity to the Variable-Resolution Domain Extent. *Journal of Hydrometeorology*, 21, 1425-1445. doi: 10.1175/JHM-D-19-0240.1

2. Reed, K. A., **A. M. Stansfield**, M. F. Wehner, and C. M. Zarzycki (2020): Forecasted attribution of the human influence on Hurricane Florence. *Science Advances*, 6 (1). doi:10.1126/sciadv.aaw9253

1. Lintner, B. R., D. K. Adams, K. A. Schiro, **A. M. Stansfield**, A. A. Amorim Rocha, and J. D. Neelin (2017): Relationships among climatological vertical moisture structure,

column water vapor, and precipitation over the central Amazon in observations and CMIP5 models. *Geophys. Res. Lett.*, 44, 1981–1989. doi:10.1002/2016GL071923

Published Datasets

1. Stansfield, A. M., & K. A. Reed (2021). CAM Global RCE simulations TC track, radial profiles, and filtered precipitation files [Data set]. Zenodo. https://doi.org/10.5061/dryad.x3ffbg7jv

Book Chapters

1. Bacmeister, J., K. Balaguru, S. Bates, P. Chang, D. Fu, M. Morrison, K. A. Reed, M. Roberts, N. Rosenbloom, **A. M. Stansfield**, M. Wehner, & C. Zarzycki. (2025). Projecting local and regional changes in tropical cyclones and their potential impacts. In G. Villarini, G. A. Vecchi, & E. Scoccimarro (Eds.), *Tropical Cyclones and Associated Impacts* (pp. 223-253). Elsevier. https://doi.org/10.1016/B978-0-323-95390-0.00011-X.

Other Publications and Reports

2. U.S. Department of the Interior Bureau of Ocean Energy Management (2023). Effects of Greenhouse Gas Emissions and Climate Change on U.S. Coastal and Marine Environments: A High-level Harm Summary (Report No.: OCS Study BOEM 2023-009 and ANL-22/87.) https://espis.boem.gov/final%20reports/BOEM_2023-009.pdf

1. U.S. Department of Energy Office of Science. (2021). FY 2021 Second Quarter Performance Metric: Improve and Validate Earth System Model Simulations of Precipitation Related to Landfalling Hurricanes in the CONUS (Report No. DOE/SC-CM-21-002). https://climatemodeling.science.energy.gov/system/files/attachments/FY2021_2nd_Quarter_Metrics.pdf

Awarded Grants and Fellowships

4. NOAA Climate Program Office Modeling, Analysis, Predictions, and Projections Program
   *Stansfield was a major contributor to the conception, design, and writing of the proposal but was unable to be a co-PI due to university restrictions on postdoc participation.
   Title: *Storm Mode Classification as a Process-Oriented Tool to Diagnose Precipitation Biases in Climate Models*
   Role: Project Participant, PI: Dr. Kristen Rasmussen (CSU)
   Period: Sept. 2024-Aug. 2027

3. NSF Atmospheric and Geospace Sciences Postdoctoral Research Fellowship (Award #2204138)
   Title: *Examining the Response of Tropical Cyclone Precipitation Structure to Climate Change Using Idealized and Realistic Models*
   Role: PI, Mentor: Dr. Kristen Rasmussen (CSU)
   Obligated amount: $190,000
   Period: Sept. 2022 - Aug. 2024

2. Stony Brook University Science Training & Research to Inform Decisions (STRIDE) Fellowship
   Obligated amount: $68,000
   Period: Aug. 2019 - Aug. 2021

1. Stony Brook University Graduate Council Fellowship
        Obligated amount: $50,000
        Period: Aug. 2017 - May 2022

Pending Grants

1. Department of Energy Earth and Environmental Systems Sciences Division
   Title: *Multiscale Drivers of Tropical Cyclone-Extreme Heat Compound Events in the Southeast U.S.*
   Role: PI
   Total Budget: $783,494
   Planned Period: June 2025-June 2028

2. NASA Earth Science Research Program
   Title: *Exploring the Relationship between Precipitation Efficiency and Convection in Warm Conveyor Belts*
   Role: PI
   Total Budget: $471,839
   Planned Period: June 2025-June 2028

3. NASA Earth Science Research Program
   Title: *Observational Studies of Shallow Marine Clouds over the Midlatitude Oceans Using A-Train and GPM with a View toward AOS*
   Role: co-I
   Total Budget: $654,213
   Planned Period: June 2025-June 2028

4. NOAA Weather Program Office Hydrometeorological Testbed
   Title: *Advancing Probabilistic Flash Flood Forecasts over the Southwestern United States*
   Role: co-PI
   Total Budget: $655,816
   Planned Period: Sept. 2025-Sept. 2028

Teaching

University of Utah, Department of Atmospheric Sciences
        Fall 2025: Introduction to Atmospheric Science (ATMOS 5000)
        Fall 2025: Introduction to Earth System Science (ATMOS 1120) (co-teaching)
        Spring 2025: Climate Dynamics (ATMOS 6030)

Colorado State University, Department of Atmospheric Science
        Guest Lecturer in Synoptic Meteorology (ATS 640) and Tropical Meteorology (ATS 742)

Stony Brook University, School of Marine and Atmospheric Sciences
        Spring 2022: Prospects for Planet Earth (ENS 101) (Head Instructor)
        Fall 2017: Extreme Weather (ATM 103) (Teaching Assistant)
        Spring 2018: Weather and Climate (ATM 102) (Teaching Assistant)
        Guest Lecturer in Extreme Weather (ATM 103) and Global Atmospheric Change (ATM 305)
        Course Developer and Head Instructor for "How to Apply to Grad School" Unofficial Course

Student Advising

Main Advisor

Christopher Johanson, University of Utah, Undergraduate Wilkes Scholar (Spring 2025)

Kyle Ebner, University of Utah, Undergraduate (Spring 2025)

Rahul Mandava, University of Utah, Computer Science MS Student (Spring 2025)

MS and PhD Committee Service

Ella Hunter, University of Utah, MS, 2024-Present

Haotong Jing, University of Utah, PhD, 2024-Present

Mentoring Programs

2023-2024	Mentor, PROmoting Geoscience, Research, Education, and SuccesS
2023-2024	Mentor, CIRA-ATS Mentoring Program (CAMP), Colorado State University
2022-2024	Mentor, Geosciences Education & Mentorship Support
2019-2024	Research Mentor, Stony Brook University
	Students: Annika Huprikar, Justin Willson, Austin Reed, Justin Bettenhauser
2017-2021	Women in Science and Engineering Program Mentor, Stony Brook University

Honors and Awards

2023-2024	Colorado State University SoGES Sustainability Leadership Fellow
2022	American Meteorological Society Hurricanes & Tropical Meteorology Conference Outstanding Oral Presentation Award
2022	Stony Brook University Nuria Protopopescu Memorial Teaching Award
2022	Stony Brook University Alumni Association's Dean's Choice Award for Leadership
2022	Finalist in the Stony Brook University Three-Minute Thesis Competition
2021	American Geophysical Union Precipitation Technical Committee Student Presentation Award
2020	Stony Brook University Maze-Landeau Graduate Student Fund for Excellence Travel Award
2019	Stony Brook University Jerry R. Schubel Graduate Fellowship Award
2019	Workshop on Risk Analysis for Extremes in the Earth System Travel Grant
2019	Columbia University Correlated Extremes Workshop Travel Grant
2018	Stony Brook University Wu Xiangding Memorial Award for Academic Achievement
2017	Rutgers University Matthew Leydt Society
2017	Rutgers University Meteorology Student of the Year
2014	Rutgers University Academic Achievement Award
2013-2017	Rutgers University Presidential Scholarship
2013-2017	Rutgers University School of Environmental and Biological Sciences Honors Program

Invited Presentations

2024	Departmental Seminar, Department of Atmospheric Sciences, University of North Dakota
2023	Departmental Seminar, Department of Earth, Geographic, and Climate Sciences, University of Massachusetts Amherst
2023	Departmental Seminar, Department of Atmospheric and Oceanic Science, University of Maryland (virtual)
2023	Meteorology Seminar Series, Department of Earth, Ocean, & Atmospheric Science, Florida State University (virtual)
2023	Climate & Global Dynamics (CGD) Lab Weekly Seminar Series, NCAR

2022 Special Seminar Series, Cooperative Institute for Research in the Atmosphere (CIRA)

2022 AGU ECSPrecip Seminar Series (virtual)

2021 Ocean & Climate Physics Seminar Series, Lamont-Doherty Earth Observatory

2019 GRADTALKS Physics Grad Student Association Seminar Series, Stony Brook University

Conference Presentations

Talks

2024 VIII Convection-Permitting Climate Modeling Workshop, "Exploring the Relationship between Vertical Mass Flux and Tropical Cyclone Characteristics in Idealized Convection-Permitting Simulations", Fort Collins, CO (virtual)

2024 TROPICANA Workshop, "Temporal Trends in Tropical Cyclone Inner Core and Outer Rainband Precipitation with Climate Change", Paris, France

2024 36th Conference on Hurricanes and Tropical Meteorology, "High-Resolution Simulations of the Changes in Tropical Cyclone Inner Core and Outer Rainband Precipitation with Idealized Warming", Long Beach, California

2024 EGU General Assembly, "Investigating Changes in Tropical Cyclone Inner Core and Outer Rainband Precipitation in Models under Warming Scenarios", Vienna, Austria

2022 AGU Fall Meeting, "Exploring the Relationship between Tropical Cyclone Precipitation and Sea Surface Temperature on Different Time Scales", Chicago, Illinois

2022 27th Annual CESM Workshop, "Understanding the Relationship between Tropical Cyclone Precipitation and SST Utilizing a CAM Hierarchical Framework" (virtual)

2022 EGU General Assembly, "Projecting Future Tropical Cyclone Precipitation Increases using a Hierarchical Modeling Framework", Vienna, Austria

2022 35th Conference on Hurricanes and Tropical Meteorology, "Projecting the Response of Tropical Cyclone Precipitation to Climate Change using a Hierarchical Modeling Framework", New Orleans, Louisiana

2021 AGU Fall Meeting, "Thermodynamic and Dynamic Contributions to Tropical Cyclone Precipitation Increases in Observations and Models", New Orleans, Louisiana

2021 26th Annual CESM Workshop, "What can simplified CAM simulations reveal about the response of tropical cyclone rainfall to climate change?" (virtual)

2021 34th Conference on Hurricanes and Tropical Meteorology, "Projected Changes in North Atlantic Tropical Cyclone Characteristics under Future RCP Scenarios using Climate Model Ensembles" (virtual)

2020 AGU Fall Meeting, "Investigating Changes in Tropical Cyclone Rainfall in Aquaplanet Simulations Under Idealized Warming" (virtual)

2020 25th Annual CESM Workshop, "Tropical Cyclones in Variable-Resolution CAM: Impacts of High-Resolution Grid Extent and Climate Change Forcing" (virtual)

2019 AMS Annual Meeting, "Diagnosing Potential Climate Change Impacts on Recent Major Hurricanes in Variable-Resolution CAM", Phoenix, Arizona

Posters

2024 AGU Annual Meeting, "Investigating the Response of Tropical Cyclone Inner Core and Outer Rainband Precipitation to Climate Change in Observations and Convection-Permitting Models", Washington, D.C. (eLightning poster)

2024 36th Conference on Hurricanes and Tropical Meteorology, "Using a Convolutional Neural Network to Disentangle Environmental Differences between Developing and Non-Developing African Easterly Waves", Long Beach, California

2023   AGU Annual Meeting, "Tropical Cyclone Precipitation Structure Response to Warming in High-Resolution Idealized WRF", San Francisco, California

2023   ICMCS-XV, "Tropical Cyclone Precipitation Structure Response to Sea Surface Temperature Warming in Idealized WRF", Fort Collins, Colorado

2019   AGU Fall Meeting, "An Exploration of Extreme Precipitation from Tropical Cyclones over the Eastern United States in Variable-Resolution CAM", San Francisco, California

2019   9th Northeast Tropical Workshop, "Tropical Cyclone Contribution to Extreme Precipitation over the Eastern United States", Dedham, Massachusetts

2018   33rd Conference on Hurricanes and Tropical Meteorology, "Verifying hindcast simulations of recent major hurricanes in variable-resolution CAM", Ponte Vedra, Florida

2017   16th Annual AMS Student Conference, "Comparison of Observed and Model-simulated Atmospheric Moisture Vertical Profiles in the Amazon Rainforest", Seattle, Washington

Service

2024-Present UCAR Member Representative
                        Department of Atmospheric Sciences, University of Utah

2024-Present Grad Student Affairs Committee
                        Department of Atmospheric Sciences, University of Utah

2024   AGU Atmospheric Science Section Executive Board Early Career Representative

2023-2024   AMS 36th Conference on Hurricanes and Tropical Meteorology Student Awards Committee Co-Chair

Conference session co-convening and chairing:

2024   AGU Annual Meeting (*Bridging the Gap Between Climate and Extreme Events, A Discussion with Program Managers for Early-Career Scientists Town Hall, AS Holten and Ascent Award Winners Session*)

2024   AMS 36th Conference on Hurricanes and Tropical Meteorology (*Climate Variability and Change in the Tropics*)

2024   EGU General Assembly (*Tropical Meteorology and Tropical Cyclones*)

2023   AGU Fall Meeting (*Bridging the Gap Between Climate and Extreme Events, A Discussion with Program Managers for Early-Career Scientists Town Hall*)

2023   Natural Hazards Researchers Meeting

2023   EGU General Assembly (*Tropical Meteorology and Tropical Cyclones*)

2022   AGU Fall Meeting (*Advancing Understanding of the Hydrological Cycle and its Extremes Through Objective Tracking of Weather Phenomena, Successful Proposal Writing for Early-Career Scientists in Atmospheric Sciences Town Hall*)

2021   AGU Fall Meeting (*Atmospheric Sciences OSPA Highlights I eLightning*)

Journal Reviewer: *Geophysical Research Letters, Nature Communications, Journal of Geophysical Research: Atmospheres, Quarterly Journal of the Royal Meteorological Society, Journal of Hydrometeorology, Journal of Applied Meteorology and Climatology, Journal of Advances in Modeling Earth Systems, Journal of Climate, Science Advances, Bulletin of the American Meteorological Society, npj Climate and Atmospheric Science, Climate Services, Earth's Future, Scientific Reports*

2021-2024   AGU Atmospheric Science Section Early Career Committee
                        2021-2023: Chair of Professional Development Subcommittee
                        2024: Full Committee Chair

| 2023 | Presenter and Panelist, Professional Development Events for Grad Students on Networking and Postdoc Positions |
| | Department of Atmospheric Science, Colorado State University |

| 2021-2022 | Graduate Student Representative, Strategic Planning Committee |
| | School of Marine and Atmospheric Sciences, Stony Brook University |

| 2018-2022 | Board Member, Graduate Student Club |
| | School of Marine and Atmospheric Sciences, Stony Brook University |

Science Communication Outreach

2023	Guest Writer, CSU School of Global Environmental Sustainability Human Nature Blog
2023-2024	Writer and Mentor, Letters to a Pre-Scientist Program
2020-2021	Contributing Writer, American Geophysical Union GeoBites
2020	Guest Scientist, BioBus Live Student Town Hall on Climate Science *(virtual)*
2020	Meet with an Oceanographer Program, Long Island Aquarium, Riverhead, NY

Media Coverage

Koren, M. (2024, Oct. 12). The Truth About Hurricane Geoengineering. *The Atlantic.*

Pulver, D. V. (2022, Oct. 13). Is climate change fueling massive hurricanes in the Atlantic? Here's what science says. *USA TODAY.*

Dunaief, D. (2020, June 28). Stony Brook University storm model predicts wetter, less frequent hurricanes. *TBR News Media.*

Snider, L. (2018, Sept. 18). Attributing the Impact of Climate Change on Florence in Near Real Time. *NCAR & UCAR News.*

Ludescher, S. (2016, Dec. 8). Alyssa Stansfield (SEBS '17): Exemplifying Leadership In Meteorology. *Rutgers Newsroom.*

Workshops and Training

2025	University of Utah Essential Faculty Resource Spotlight: Best Practices for Working with Graduate Students and Postdocs
2024	University of Utah Snowbird Faculty Retreat
2024-2025	University of Utah S.T.A.R. Program Participant
2024-2025	University of Utah NSF Cohort Program Participant
2024	University of Utah's Center for Teaching Excellence Annual Teaching Symposium
2024	Tropical Cyclones in Anthropocene: Physics, Simulations, & Attribution (TROPICANA) Workshop, Paris, France
2023	Alan Alda Center 2-day Science Communication Workshop, Colorado State University
2023	Best Practices in Teaching at Colorado State University: Critical Thinking
2023	Best Practices in Teaching at Colorado State University: First Four Weeks
2021	ADVANCEGeo Implicit Bias and Active Bystander Training Workshop
2021	Women in Science and Engineering Leadership Workshop Series, SBU
2020	GRD 510 - Career Planning for Graduate Students, SBU
2019	JRN 501 - Communicating Science: Distilling Your Message, SBU
2019	JRN 503 - Communicating Science: Improvisation for Scientists, SBU
2019	Workshop on Risk Analysis for Extremes in the Earth System, LBNL
2016	Undergraduate Leadership Workshop, National Center for Atmospheric Research

Field Campaign Experience

2024   Testing INCUS Methods Experiment — Suborbital preLaunch Investigations of Convective Evolution (TIME-SLICE), Northeast Colorado
Roles: Forecaster and Radiosonde Team

Professional Affiliations

2022-Present   European Geophysical Union
2018-Present   American Geophysical Union
2015-Present   American Meteorological Society