

CV:

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Professional Experience

2020-Pres Postdoctoral Associate, NOAA/Atlantic Oceanographic and Meteorological Laboratory/Hurricane Research Division and University of Miami/Cooperative Institute for Marine and Atmospheric Studies

Advisor: Dr. Joseph Cione

Education

2016-2020 PhD in Meteorology and Physical Oceanography, Rosenstiel School of Marine and Atmospheric Science, University of Miami

NSF Graduate Research Fellow

Advisor: Prof. Lynn K. "Nick" Shay

Dissertation title: Downdrafts and the Evolution of Tropical Cyclone Boundary Layer Thermodynamics

2012-2016 B.S. in Meteorology summa cum laude, University of Oklahoma

Minors: Mathematics, Physics, Computer Science

Referred Publications

9. Dobosy, R., J. Zhang, J. Wadler, X. Chen, G. de Boer, G. Bryan, A. Farber, and J. Cione, 2021: New Perspectives on Tropical Cyclone Momentum Fluxes from Remotely Piloted Aircraft Systems, *Mon. Wea. Rev.*, in review

8. Wadler, J.B., J.J. Cione, J.A. Zhang, E.A. Kalina, and J. Kaplan, 2021: The Effects of Environmental Wind Shear Direction on Tropical Cyclone Boundary Layer Thermodynamics and Intensity Change from Multiple Observational Datasets. *Mon. Wea. Rev.*, In review

7. Wadler, J.B., D.S. Nolan, J.A. Zhang, and L.K. Shay, 2021: The Thermodynamic Characteristics of Downdrafts in Tropical Cyclones Using Idealized Simulations of Different Intensities. *J. Atmos. Sci.*, in review
6. Jaimes B., L. K. Shay, J. B. Wadler, and J. E. Rudzin, 2021: On the hyperbolicity of the bulk air-sea heat flux formulae: A new perspective on the role of moisture disequilibrium in tropical cyclone intensification. *Mon. Wea. Rev.*, 149, 1517-1534, <https://doi.org/10.1175/MWR-D-20-0324.1>
5. Wadler, J.B., J.A. Zhang, R.F. Rogers, B. Jaimes, and L.K. Shay, 2021: The Rapid Intensification of Hurricane Michael (2018): Storm Structure and the Relationship to Environmental and Air-Sea Interactions; *Mon. Wea. Rev.*, 149, 245-267, <https://doi.org/10.1175/MWR-D-20-0145.1>
4. Yifang, R., J.A. Zhang, J. L. Vigh, P. Zhu, H. Liu, and X. Wang, and J. B. Wadler, 2020: An Observational Study of the Symmetric Boundary Layer Structure and Tropical Cyclone Intensity; *Atmosphere* 11, no. 2: 158. <https://doi.org/10.3390/atmos11020158>
3. Cione J.J., G.H. Bryan, R. Dobosy, J.A. Zhang, G. de Boer, A. Aksoy, J.B. Wadler, E.A. Kalina, B.A. Dahl, K. Ryan, J. Neuhaus, E. Dumas, F.D. Marks, A.M. Farber, T. Hock, and X. Chen, 2020: Eye of the Storm: Observing Hurricanes with a small Unmanned Aircraft System. *Bull. Amer. Meteor. Soc.*, 101, E186–E205, <https://doi.org/10.1175/BAMS-D-19-0169.1>
2. Wadler, J.B., J.A. Zhang, B. Jaimes, and L.K. Shay, 2018: Downdrafts and the Evolution of Boundary Layer Thermodynamics in Hurricane Earl (2010) before and during Rapid Intensification. *Mon. Wea. Rev.*, 146, 3545–3565, <https://doi.org/10.1175/MWR-D-18-0090.1>
1. Wadler, J. B., R.F. Rogers, and P.D. Reasor, 2018: The Relationship between Spatial Variations in the Structure of Convective Bursts and Tropical Cyclone Intensification as Determined by Airborne Doppler Radar. *Mon. Wea. Rev.*, 146, 761–780, <https://doi.org/10.1175/MWR-D-17-0213.1>

Research Experience

2020-pres Postdoctoral Associate at NOAA/HRD and University of Miami/CIMAS
 -Working with Dr. Joseph Cione to study factors controlling the distribution of tropical cyclone boundary layer thermodynamics, and on the use emerging technology, such as uncrewed aircraft, to better sample tropical cyclone structure.

2016-2020 NSF Graduate Research Fellow at the University of Miami Rosenstiel School of Marine and Atmospheric Science
 -Worked with Dr. Nick Shay and the Upper Ocean Dynamics Laboratory to study the relationship between tropical cyclone kinematics, thermodynamics, and air-sea interactions, with a focus on their relation to rapid intensity changes.

2013-2016 Student Researcher, Cooperative Institute for Mesoscale Convective Systems, Norman, OK

-Worked with Dr. David Jorgensen to research the evolution of vorticity generation during bow echoes from the BAMEX (2003) research campaign.

Summer 2015 Summer Intern, NOAA Hurricane Research Division, Miami, FL

-Worked with Dr. Robert Rogers to develop a convective burst identification algorithm in tropical cyclones using airborne Doppler observations. I also analyzed the differences in convective burst structure by shear-relative quadrant in both rapidly intensifying and steady state storms.

Conference Presentations

January 2020 Wadler, J.B., J.A. Zhang, R.F. Rogers, L. K. Shay, B. Jaimes, and J. Zawislak, 2020: The Unique Observations of Hurricane Michael (2018), Theory for Rapid Intensification, and Implications for Future Research, AMS 100th Annual Meeting

April 2018 Wadler, J. B., J. A. Zhang, B. Jaimes, and L. K. Shay, 2018: Downdrafts and the Evolution of Boundary Layer Thermodynamics in Hurricane Earl (2010) Before and During Rapid Intensification, AMS 33rd Conference on Hurricanes and Tropical Meteorology

April 2016 Wadler, J.B., Rogers, R.F., Radial and Azimuthal Variations in Convective Burst Structure in Tropical Cyclones from Airborne Doppler Observations, AMS 32nd Conference on Hurricanes and Tropical Meteorology

January 2016 Wadler, J.B., Rogers, R.F., Radial and Azimuthal Variations in Convective Burst Structure in Tropical Cyclones from Airborne Doppler Observations (poster), 15th AMS Student Conference

Field Experience

Summer 2019 NOAA Hurricane Field Program: Based on PhD research results, planned a high density dropsonde experiment prior to the hurricane season in order to understand radial variations in tropical cyclone boundary layer thermodynamics. I coordinated with aircraft crew to execute the experiment during a mission into Hurricane Dorian.

October 2018 NOAA Hurricane Field Program: Participated in four flights into Hurricane Michael (2018). On the first flight, I helped to develop the ocean sampling strategy and was the dropsonde scientist (processed them in real time and sent the data to NHC). Participated as ocean scientist on second in-storm flight and two follow post-storm ocean surveys.

Summer 2018 NOAA Hurricane Field Program: Co-Investigator in the Early Stage and Air-Sea - present Interaction Experiments. I helped plan and draft the field program scientific missions for the Analysis of Intensification Processes Experiment (AIPEX), Convective Burst, and Air-Sea Interaction modules.

Sept. 2017 NOAA Hurricane Field Program: Participated in two in-storm flights on the NOAA P-3 into Hurricane Nate and helped prepare/coordinate in-flight AXBT launches. Additionally, participated in Hurricane Nate pre-storm ocean survey in the Gulf of Mexico by launching approximately fifty ocean profilers.

May 2016 Oceanic Research Cruise on R.V. Walton Smith: Two-week ship deployment in the Gulf of Mexico with Dr. Nick Shay's Upper Ocean Dynamics Lab. The purpose of the trip was to release ten EM-APEX floats to study upper ocean dynamics near the Gulf of Mexico Deepwater Horizon oil spill.

Students Supervised

Summer 2020 Samantha Michlowitz: NOAA Hollings Scholar
Co-advised Samantha with Dr. Joseph Cione during her summer internship to study the amount of oceanic cooling underneath hurricanes

Teaching Experience

Spring 2019 Teaching Assistant, ATM 405: Atmospheric Dynamics I, University of Miami:
Graded homework and held office hours to help students develop an understanding of fundamental dynamic meteorology. Gave two lectures throughout the course.

Fall 2018 Teaching Assistant, ATM 102: Introduction to Weather & Climate, University of Miami:
Graded homework and held office hours to help students grasp the concepts of introductory meteorology

Spring 2016 Teaching Assistant, METR: 2021: Introduction to Meteorology Laboratory II, University of Oklahoma:
Developed the course material that build programming experience and reinforce concurrent lecture materials. Will give approximately a ten-minute weekly lecture on fundamental concepts and grade weekly labs and quizzes.

Spring 2016 Teaching Assistant, CS 5753: Scientific Computing II (Time Series Analysis):
Graded homework and held office hours to help students understand the theoretical derivations and practical computer programs (in MATLAB).

Fall 2015 Teaching Assistant, METR: 2011: Introduction to Meteorology Laboratory I, University of Oklahoma:
Gave approximately a ten-minute weekly lecture on fundamental concepts and graded weekly labs and quizzes.

Honors and Awards

May 2016 Letzeiser Honor List (Outstanding overall academics, campus and community involvement, University of Oklahoma's highest senior honor list)

August 2015 Outstanding Oral Presentation in Weather Ready Nation Category at NOAA Science Education Symposium

2014-2016 NOAA Ernest F. Hollings Undergraduate Scholarship

2015-2016 American Meteorological Society (AMS) Named Scholarship

2014, 2015 Barry Goldwater Scholarship Honorable Mention

2012-2016 University of Oklahoma Award of Excellence

2012-2016 OU School of Meteorology Scholarship

2012-2014 AMS Freshman Scholarship

Professional Society Memberships

2013-Present American Meteorological Society

Professional Service

2018-present Completed peer reviews for: Monthly Weather Review, Journal of Atmospheric Sciences, Weather and Forecasting, Quarterly Journal of the Royal Meteorological Society, Journal of Geophysical Research: Atmospheres, Atmosphere

2020-present Students for Students: Official outreach group of graduate students at the University of Miami that presents a broad range of scientific topics to younger generations of students.

Summer 2018 Frost Science Museum- Upper Bound Math and Science IMPACT (Integrated Marine Program and College Training) Program

Mentored an underprivileged rising high school senior throughout the summer by presenting on various aspects of atmospheric and oceanic sciences and showing him the fundamental aspects of a career in science.

2017-present Canes on Canes: Official outreach organization for hurricane specialists at the University of Miami. Give talks to local schools and other south Florida community organizations about hurricane preparedness.