

**Curriculum Vitae**  
**Johna Rudzin, Ph.D.**

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**EDUCATION**

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*University of Miami, Miami, FL*

*Rosenstiel School for Marine and Atmospheric Science*

**Ph.D. Meteorology and Physical Oceanography**

**Dissertation:** “An assessment of the Caribbean Sea’s upper ocean influence on air-sea interaction during tropical cyclone passage”

**2012 to 2018**

*Florida State University, Tallahassee, FL*

**B.S. Honors Meteorology**

**Minor: Mathematics**

**Honors Thesis:** “The influence of cold-air outbreaks on the upper ocean thermal variability of the Florida Straits”

**2008 to 2012**

**PROFESSIONAL APPOINTMENTS**

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*Mississippi State University, Mississippi State, MS*

*Department of Geosciences & Northern Gulf Institute*

**Assistant Professor, Meteorology** – joint affiliation with the Northern Gulf Institute.

Research interests include tropical cyclone-ocean interaction, atmospheric boundary layer thermodynamics in tropical cyclones, upper ocean dynamics and air-sea interaction in tropical cyclones.

**Aug 2021 to Present**

*U.S. Naval Research Lab, Monterey, CA*

*Marine Meteorology Division, Code 7533*

**National Research Council Postdoctoral Fellow** – Process and quality control atmospheric and oceanographic data from dropwindsondes, aircraft expandable bathythermographs (AXBTs), and ALAMO floats. Create algorithms to analyze in situ, satellite, and model data. Compile, configure, run, and analyze the Navy’s Coupled Ocean-Atmospheric Mesoscale Prediction Scheme for Tropical Cyclones (COAMPS-TC) system for cases with and without ocean data assimilation

**Sep 2018 to July 2021**

*University of Miami, Miami, FL*

*Rosenstiel School for Marine and Atmospheric Science*

**Postdoctoral Associate** – Process and quality control oceanographic data from EM-APEX profiling floats from GoMRI-funded experiment. Analyze data with respect to cold frontal passage to understand air-sea interaction and upper ocean dynamics

**Jun to Aug 2018**

University of Miami, Miami, FL

Rosenstiel School for Marine and Atmospheric Science

2012 to 2018

**Graduate Research Assistant** – Extensive in situ and satellite ocean and atmospheric data collection, manipulation, and analysis. 1-D ocean mixed layer modeling and tropical cyclone modeling using the Weather Research and Forecasting model.

Center for Ocean-Atmospheric Prediction Studies, Tallahassee, FL

**Data Analyst/Research Assistant** – Check for error in the FSU Fluxes files. Perform data requests for state climatologist.

2010 to 2012

## PUBLICATIONS, PEER-REVIEWED PAPERS, AND DATASETS

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1. Coakley, S.J., T. Miles, J. E. Rudzin, N.L. Beaird, H.S. Lim, and S. M. Glenn. Investigation of Ahead-of-Eye Cooling Under Typhoon Soulik (2018) Using Collocated Ocean and Atmosphere Observations, *J. Geophys. Res. Oceans*, in Revision.
2. Qingqing L., J.B. Wadler, J.E. Rudzin, B. Jaimes de la Cruz, J. Chen, M. Fischer, G. Chen, N. Qin, B. Tang (2023), A review of Recent Research Progress on the Effect of External Influences on Tropical Cyclone Intensity Change, *Tropical Cyclone Research and Review*, Accepted.
3. Miles, T. N., S. J. Coakley, J.M Engdahl, J.E. Rudzin, S. Tsei, S. Glenn , Ocean mixing during Hurricane Ida (2021): The impact of a freshwater barrier layer (2023), *Front. Mar. Sci. Ocean Observation*, 10, <https://doi.org/10.3389/fmars.2023.1224609>
4. Oguejiofor, C. C. Wainwright, J. E. Rudzin, D. Richter (2023), Onset of Tropical Cyclone Rapid Intensification: Evaluating the response to Length Scales of Sea Surface Temperature Anomalies, *J. Atmos. Sci.*, 80, 1971–1994, <https://doi.org/10.1175/JAS-D-22-0158.1>.
5. Rudzin, J.E. and S. Chen (2023), Examining the sensitivity of ocean response to oceanic grid resolution in COAMPS-TC during Hurricane Irma (2017)", *J. Mar. Systems*, 237, <https://doi.org/10.1016/j.jmarsys.2022.103825>
6. Rudzin, J.E. and S. Chen (2022), Dynamics and energetics of a wake-modulated warm core eddy after the passage of Hurricane Irma (2017), *Dyn. Atm. Ocn.*, 100, <https://doi.org/10.1016/j.dynatmoce.2022.101334>.
7. Rudzin, J.E. (2022), A review of tropical air-sea interactions, *Pathways to Research in Sustainability*, SUS092, 1–30.
8. Rudzin, J.E., D. Soule, J.M. Whitaker, H. Berger, S. Clayton, K.E. Fogaren (2022), Catalyzing remote collaboration during the COVID-19 pandemic: early career oceanographers adopt hybrid open science framework, *Front. Mar. Sci*, 9:855192. <https://doi.org/10.3389/fmars.2022.855192>
9. Potter, H. and J.E. Rudzin, (2021), Upper-Ocean Temperature Variability in the Gulf of Mexico with Implications for Hurricane Intensity. *J. of Phys. Oceanography* 51, 10, 3149-3162, <https://doi.org/10.1175/JPO-D-21-0057.1>
10. Jaimes de la Cruz, B., L.K. Shay, J.B. Wadler, and J.E. Rudzin (2021) On the hyperbolicity of the bulk air-sea heat flux formulae: insights into the efficiency of moisture disequilibrium in tropical

cyclone intensification. *Mon. Wea. Rev.* 149, 5, 1517-1534, <https://doi.org/10.1175/MWR-D-20-0324.1>

11. Levine R. M., Fogaren K.E., Rudzin J.E., Russoniello C.J., Soule D.C. and Whitaker J.M. (2020) Open Data, Collaborative Working Platforms, and Interdisciplinary Collaboration: Building an Early Career Scientist Community of Practice to Leverage Ocean Observatories Initiative Data to Address Critical Questions in Marine Science. *Front. Mar. Sci.* 7:593512., doi: 10.3389/fmars.2020.593512
12. Rudzin, J.E., S. Chen, E R. Sanabia, and S.R. Jayne (2020), The air-sea response during Hurricane Irma's (2017) rapid intensification over the Amazon-Orinoco River plume as measured by atmospheric and oceanic observations. *J. Geophys. Res. Atmos.* in press. doi: 10.1029/2019JD032368
13. Shay, L. Brewster, J., Jaimes, B., Rudzin, J., Fennel, K., Gordon, C. (2020), Velocity and density data in the Gulf of Mexico and North Atlantic from 2017-05-02 to 2019-04-05 measured by Electro-Magnetic Autonomous Profiling Explorer (EM-APEX) floats deployed during R/V Walton Smith cruise WS17121. Distributed by: Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC), Harte Research Institute, Texas A&M University-Corpus Christi. doi:10.7266/n7-tad8-j468
14. Shay, L. Brewster, J., Jaimes, B., Rudzin, J., Fennel, K., Gordon, C. (2020), Raw temperature, salinity and biogeochemical profile data from Electro-Magnetic Autonomous Profiling Explorer (EM-APEX) floats collected aboard R/V Walton Smith cruise WS17121 in the northern Gulf of Mexico from 2017-05-02 to 2017-05-17. Distributed by: Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC), Harte Research Institute, Texas A&M University-Corpus Christi. doi:10.7266/7QQF9969
15. Shay, L. Brewster, J., Jaimes, B., Rudzin, J., Fennel, K., Gordon, C. (2020), Raw current velocity profile data from Electro-Magnetic Autonomous Profiling Explorer (EM-APEX) floats collected aboard R/V Walton Smith cruise WS17121 in the northern Gulf of Mexico from 2017-05-02 to 2017-05-17. Distributed by: Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC), Harte Research Institute, Texas A&M University-Corpus Christi. doi:10.7266/59DNJ7BW
16. Rudzin J.E., L.K. Shay, and B. Jaimes de la Cruz (2019), The impact of the Amazon-Orinoco River plume on enthalpy flux and air-sea interaction within Caribbean Sea tropical cyclones. *Mon. Wea. Rev.*, **147**, 931–950, <https://doi.org/10.1175/MWR-D-18-0295.1>
17. Shay, L., Fennel, K., Jaimes, B.,; Brewster, J., Gordon, C., Rastin, S., Rudzin, J., Hiron, L., Wadler, J., Ring, C., Kiser, Br., (2018) Conductivity, temperature, and depth (CTD) data collected from R/V F.G. Walton Smith cruise WS17121 in the northeastern Gulf of Mexico from 2017-05-02 to 2017-05-07. Distributed by: Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC), Harte Research Institute, Texas A&M University-Corpus Christi. doi:10.7266/N7NZ8682
18. Rudzin, J.E., (2018), An Assessment of the Caribbean Sea's Upper Ocean Influence on Air-Sea Interaction during Tropical Cyclones. Open Access Dissertations. 2082. [https://scholarlyrepository.miami.edu/oa\\_dissertations/2082](https://scholarlyrepository.miami.edu/oa_dissertations/2082)
19. Rudzin J.E., L.K. Shay, and W.E. Johns, (2018), The influence of upper ocean salinity stratification on SST response during tropical cyclone wind forcing using idealized experiments. *J. Phys. Ocean.*, **48**(7), 1471–1478. doi:10.1175/JPO-D-17-0279.1.

20. Rudzin, J.E., L.K. Shay, B. Jaimes and J.K. Brewster, (2017), Upper Ocean Observations in Eastern Caribbean Sea Reveal Barrier Layer within a Warm Core Eddy. *J. Geophys. Res. Oceans.* **122**, 1057–1071. doi: 10.1002/2016JC012339
21. Rudzin, J.E., Morey, S.L., Bourassa, M.A., Smith, S.R., (2013), The influence of Loop Current Position on Winter Sea Surface Temperatures in the Florida Straits. *Earth Interact.*, **17**, 1-9. doi: <http://dx.doi.org/10.1175/2013EI000521.1>
22. Rudzin, J.E., (2012), The Influence Of Atmospheric Cold Air Outbreaks On The Upper Ocean Thermal Variability Of The Florida Straits. Honors Theses, Dept. Of Earth, Ocean & Atmos Sci. Florida State Univ., 56 Pages

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## **RELEVANT EXPERIENCE: RESEARCH SKILLS AND FIELD WORK**

Extensive experience in collecting in situ atmospheric and ocean data in the field

Extensive experience in atmospheric and ocean data analysis from several in situ and satellite data source

Experience in compiling, configuring, manipulating, and running the Weather and Research Forecasting (WRF) model with and without ocean coupling

Experience in compiling, configuring, and running the Navy's Coupled Ocean-Atmospheric Mesoscale Prediction System for Tropical Cyclones

**CapeEx2019** – NRL, Naval Surface Warfare Center, U. North Dakota **Jul 18-29 2019**

- Experience assembling and operating various atmospheric in situ and remote sensing instruments such as KA-band radar, ceilometer, doppler-wind LIDAR, and disdrometer.
- Responsible for operating instrument software.

**NOAA Research Flight** - 20171010H1 **Oct 10 2017**

- Post-hurricane flight aboard NOAA P-3 aircraft conducting an ocean survey using AXBTs, AXCTDs, and AXCPs.
- Experience staging AXBTs, AXCTDs, and AXCPs for ocean survey missions

**Oceanographic Research Cruise** – R/V Walton Smith (U. Miami) **May 1 to 10 2017**

- Prepping APEX-EM floats for deployment
- CTD console before/after APEX-EM float deployment
- CTD water sample collection for salinity, oxygen, chlorophyll

**High-Frequency Radar Installation** – U. Miami/RSMAS

- Assisting in building and installing HF Radar arrays at Crandon and Delray Beaches, FL
- 2013-2015**

**Oceanographic Research Cruise** - R/V Endeavor (U. Rhode Island) **Oct 3 to 17 2015**

- CTD console – instruct wench operator when to stop/start CTD raising and lowering; use Seasave software to operate CTD water sampling; organize reports from CTD profiling
- Salinity water sample collection from CTD after recovery
- Disassembling of mooring instruments and cleaning of mooring instruments after

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mooring recovery

**NOAA Research Flights** - 20140916I1, 20140917I1, 20140919I1

**Sep 16,17,19 2014**

- Three flights aboard NOAA P-3 aircrafts conducting surveys using dropwindsondes, AXBTs, AXCTDs, & AXCPs.
- Experience developing and conducting atmospheric/oceanographic experiment (NOAA P-3 flight plan sampling methods), staging AXBTs, AXCTDs, and AXCPs for ocean surveys, working with and processing large data sets
- Eight major hurricane eye wall penetrations: Hurricane Edouard

**Oceanographic Research Cruise** – R/V Walton Smith (U.Miami)

**Apr 2014**

- Experience staging and performing CTD casts from research vessel

### **GRANTS RECIEVED**

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Office of Naval Research 2022 Young Investigators Program– “Identifying Air-Sea-Wave Processes that Relate to Momentum Flux and Surface Drag Variability in Tropical Cyclones” – Role: PI, Total Award Amount: \$429,425 (2023-2026)

2022 NOAA Office of Atmospheric Research Disaster Relief Supplemental Act – “Targeted Aircraft-Based Measurements of the Air-Sea Transition Zone for Understanding Tropical Cyclone Intensity” – Role: Co-PI, Total Award Amount: \$490,000, Co-PI Rudzin Amount: \$64,800 (2022-2023)

### **ACCOLADES**

Mississippi State University College of Arts and Sciences 2023 Research Award for the Physical and Natural Sciences

**Mar 2023**

National Research Council Postdoctoral Research Publication Award

**Nov 2021**

2018 Barrett Prize for Best Dissertation on Latin American and Caribbean Topics from the University of Miami Institute for Advanced Study of the Americas

**Jun 2018**

National Research Council Postdoctoral Research Associate Program Fellowship

**Apr 2018**

RSMAS Career Development Award Recipient

**Mar 2016**