

Curriculum Vitae

Johna Rudzin, Ph.D.

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EDUCATION

University of Miami, Miami, FL

Rosenstiel School for Marine and Atmospheric Science

Ph.D. Meteorology and Physical Oceanography

2012-2018

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

Florida State University, Tallahassee, FL

2008-2012

B.S. Honors Meteorology

Minor: Mathematics

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

PROFESSIONAL APPOINTMENTS

Mississippi State University, Mississippi State, MS

Department of Geosciences & Northern Gulf Institute

Aug 2021 – Present

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.

U.S. Naval Research Lab, Monterey, CA

Marine Meteorology Division, Code 7533

Sep 2018 – July 2021

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

University of Miami, Miami, FL

Rosenstiel School for Marine and Atmospheric Science

Jun-Aug 2018

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

University of Miami, Miami, FL

2012-2018

Rosenstiel School for Marine and Atmospheric Science

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

2010-2012

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

RELATED SKILLS AND FIELD EXPERIENCE

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 sources

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 1-10 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 3-17 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 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

PUBLICATIONS, PEER-REVIEWED PAPERS, AND DATASETS

1. Oguejiofor, C. C. Wainwright, J. E. Rudzin, D. Richter, Predictability of Hurricane Rapid Intensification: Sensitivity of Storm Size and Translation Speed to Length Scales of Sea Surface Temperature Anomalies, *Mon. Wea. Rev.*, in preparation.
2. Rudzin, J.E. and S. Chen. Examining the sensitivity of ocean response to oceanic grid resolution in COAMPS-TC during Hurricane Irma (2017)”, *J. Mar. Systems*, in Revision.
3. Coakley, S.J., T. Miles, J. E. Rudzin, N.L. Beard, 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.
4. Rudzin, J.E. and S. Chen, Dynamics and energetics of a wake-modulated warm core eddy after the passage of Hurricane Irma (2017), *Dyn. Atm. Ocn.*, in Revision.
5. 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>
6. 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>
7. 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>
8. 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

9. 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
10. 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
11. 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
12. 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
13. 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>
14. 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
15. 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
16. 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.
17. 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
18. 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>

19. 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

AWARDS

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

INVITED PRESENTATIONS

1. AGU Fall Meeting, Session: Ocean Observations for Improving Tropical Cyclone Intensity Forecasts , New Orleans, LA	Dec 2021
2. Old Dominion University, Center for Coastal Physical Oceanography Seminar Series	Oct 2021
3. Mississippi State University, Department of Geosciences Seminar , Virtual	Mar 2021
4. Florida Institute of Technology, OEMS Department Seminar , Melbourne, FL	Feb 2020
5. Barrett Prize Seminar , University of Miami, Miami, FL	Nov 2018
6. Florida State University, EOAS Department Seminar , Tallahassee, FL	Apr 2018
7. U.S. Naval Research Lab Division Seminar , Monterey, CA	Sep 2017

CONFERENCES & WORKSHOPS

- 2022 35th **Conference on Hurricanes and Tropical Meteorology**, New Orleans, LA
Oral: Rudzin, J.E. and S. Chen: “The sensitivity of lower-level moisture in the rapid intensification of Hurricane Dorian (2019) using COAMPS-TC”
Poster: Henkel, B. J. E. Rudzin, E. R. Sanabia, S.R. Jayne, C. R. Densmore, J. Zawislak, J. Wadler, J. Zhang, and J. Cione: “A collocated atmospheric-oceanic dataset to improve understanding, sampling, and forecasting of tropical cyclone air-sea interaction”
- 2022 **Ocean Sciences Meeting**, Virtual
Oral: Rudzin, J.E., D. Soule, J.M. Whitaker, H. Berger, S. Clayton, K.E. Fogaren: Catalyzing remote collaboration during the COVID-19 pandemic: early career oceanographers adopt hybrid open science framework
- 2021 **American Geophysical Union Fall Meeting**, New Orleans, LA
Invited Oral: Rudzin, J. E.: “Linking the disconnect between the oceanic and atmospheric communities for improving coupled tropical cyclone research and intensity forecasting”
- 2021 34th **Conference on Hurricanes and Tropical Meteorology**, Virtual
Oral: Rudzin, J.E. and S. Chen: “Dynamics and energetics of a wake-modulated warm core mesoscale eddy during the passage of Hurricane Irma (2017)”
- 2020 **Ocean Sciences Meeting**, San Diego, CA
Poster: Rudzin, J.E. and S. Chen: “Examining the sensitivity of ocean response to oceanic grid resolution in COAMPS-TC during Hurricane Irma (2017)”

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6. **2020 American Meteorological Society Annual Meeting**, Boston, MA
Poster: Rudzin, J.E., S. Chen, E R. Sanabia, and S.R. Jayne: “The air-sea response during Hurricane Irma’s (2017) rapid intensification over the Amazon-Orinoco River plume as measured by atmospheric and oceanic observations”
 7. **2019 Patullo Conference for Mentoring Physical Oceanography Women to Increase Retention**, Warrenton, VA
 8. **2019 OceanObs Conference**, Honolulu, HI
Poster: Stopa, J., Fogaren, K., Kupchik, M. J., Levine, R., Philip, B. T., Rudzin, J. E., Russoniello, C. J., Whitaker, J.: “The Ocean Observatories Initiative: a catalyst for early-career, interdisciplinary research”
 9. **2019 Ocean Observations Initiative Early Career Scientist Workshop**, Washington, DC
 10. **2019 CLIVAR Atmospheric Convection & Air-Sea Interactions over the Tropical Oceans**, Boulder, CO
Poster: Rudzin, J.E., S. Chen, E R. Sanabia, and S.R. Jayne: “The air-sea response during Hurricane Irma’s (2017) rapid intensification over the Amazon-Orinoco River plume as measured by atmospheric and oceanic observations”
 11. **2019 Ocean Predict**, Halifax, Canada
Poster: Gordon, C., K. Fennel, L.K. Shay, J. Brewster, J.E. Rudzin: “Elucidating drivers of surface variations of dissolved oxygen observed by profiling floats in the Gulf of Mexico”
 12. **2018 Weather Research and Forecasting (WRF)-Hydro Workshop**, Boulder, CA
 13. **2018 Ocean Observation Initiative Data Workshop**, New Brunswick, NJ
 14. **2018 33rd Conference on Hurricanes and Tropical Meteorology**, Ponte Vedra, FL
Oral: Rudzin, J.E., L.K. Shay, B. Jaimes, J.B. Zambon, and R. He: “Examining the Influence of Caribbean Sea Upper Ocean Variability on Hurricane Ivan (2004) using Uncoupled and Coupled Simulations”
Oral: Jaimes, B., J.E. Rudzin, and L.K. Shay: “Hyperbolicity of bulk air-sea enthalpy fluxes in major hurricanes”
Oral: Shay, L.K., J.K. Brewster, E. Maturi, E. Leuliette, B. Jaimes, J. Zhang, D. Donahue, J.E. Rudzin, and L. Hiron: “Observed Ocean Heat Content Variations from In-Situ and Satellite Measurements during the 2017 Hurricane Season”
 15. **2018 Ocean Science Meeting**, Portland, OR
Oral: Rudzin, J.E., L.K. Shay, and W.E. Johns: “Investigating the influence of upper ocean salinity stratification on SST response during tropical cyclone wind forcing”
 16. **2016 Summer Weather Research and Forecasting (WRF) Tutorial**, Boulder, CO
 17. **2016 32nd Conference on Hurricanes and Tropical Meteorology**, San Juan, PR
Oral: Rudzin, J.E., L.K. Shay, B. Jaimes: “Enthalpy fluxes during tropical cyclones in the Caribbean Sea in relation to ocean variability”
 18. **2016 Ocean Science Meeting**, New Orleans, LA

Poster: Rudzin, J.E., L.K. Shay, B. Jaimes, and J.K. Brewster: “Three-dimensional in situ measurements of a large anticyclonic eddy and surrounding waters in the Eastern Caribbean Sea”

19. **2016 RSMAS Writing Workshop with Dallas Murphy**, Miami, FL

20. **2012 92nd Annual American Meteorological Society Meeting**, New Orleans, LA

Poster: Rudzin, J.E., S.L. Morey, M.A. Bourassa, S.R. Smith: “Influence of Atmospheric Cold Air Outbreaks on Upper Ocean Thermal Variability of the Florida Straits”

21. **2012 Ocean Sciences Meeting**, Salt Lake City, UT

22. **Poster:** Rudzin, J.E., S.L. Morey, M.A. Bourassa, S.R. Smith: “Influence Of Atmospheric Cold Air Outbreaks on Upper Ocean Thermal Variability of The Florida Straits”

TEACHING EXPERIENCE AND OUTREACH

Mississippi State University, Mississippi State University, MS

Lecture & Lab (Undergraduate): Weather and Climate (4 Credits)

Spring 2022
Fall 2021

Lecture & Lab (Undergraduate): Weather and Climate (4 Credits)

University of Miami, Miami, FL

Guest Lecture & Lab (Graduate): Air-Sea Interaction (3 Credits)

Fall 2017

Teaching Assistant (Undergraduate): Survey of Modern Meteorology (3 Credits)

Fall 2014

Teaching Assistant (Undergraduate): Weather Analysis (4 Credits)

Fall 2013

Mississippi State University Science and Education at Sea Program, Gulfport, MS

Mar 2022

Expanding Your Horizons Career Fair for Young Women, Hartnell College, Salinas, CA

Nov 2019

Naval Postgraduate School Day, U.S. Naval Postgraduate School, Monterey, CA

Oct 2019

Delicate Balance of Nature Seminar Series, John Pennekamp State Park, Key Largo, FL

Jan 2018

Summer Science Night Seminar Series, Florida Keys Marine Laboratory, Long Key, FL

Jul 2017

Rock the Oceans Tortuga Music Festival – Conservation Village, Ft. Lauderdale, FL

Apr 2017

Rock the Oceans Tortuga Music Festival – Conservation Village, Ft. Lauderdale, FL

Apr 2015

SERVICE TO PROFESSION

1. Member of the American Meteorological Society and American Geophysical Union
2. Member of the American Meteorological Society’s Air-Sea Interaction Committee
3. Member of NOAA GOMO Extreme Event Ocean Observing Task Team
4. Member of Ocean Observations Initiative Early Career Scientist Working Group
5. Previous co-chair to U.S. Naval Research Laboratory, Monterey Women’s Group

COMPUTER FLUENCY

Platforms: Windows, Mac, Linux, Unix

Languages: Matlab, FORTRAN, Ferret, Python, Perl, Bash Shell, Korn Shell

Other: Microsoft Office, NCAR ASPEN software

