# FALKO JUDT

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NSF National Center for Atmospheric Research

## RESEARCH INTERESTS

- Tropical meteorology and the science of weather prediction
- Predictability and dynamics of high-impact weather
- Tropical cyclones and atmosphere–ocean interaction
- Numerical weather prediction and global km-scale modeling

## PROFESSIONAL EXPERIENCE

**Scientist II,** Mesoscale and Microscale Meteorology Laboratory *2022–present*
NSF National Center for Atmospheric Research

**Scientist I,** Mesoscale and Microscale Meteorology Laboratory *2018–2022*
NSF National Center for Atmospheric Research

**Postdoctoral Fellow,** Advanced Study Program *2016–2017*
NSF National Center for Atmospheric Research

**Postdoctoral Fellow** *2015*
Department of Ocean Sciences, University of Miami

**Research Assistant** *2007–2014*
Division of Meteorology and Physical Oceanography, University of Miami

## EDUCATION

**Ph.D. in Meteorology & Physical Oceanography** *2014*
Rosenstiel School of Marine and Atmospheric Science
University of Miami, Miami, Florida
Advisor: Shuyi S. Chen, Ph.D.

**M.S. in Meteorology & Physical Oceanography** *2009*
Rosenstiel School of Marine and Atmospheric Science
University of Miami, Miami, Florida
Advisor: Shuyi S. Chen, Ph.D.

Exchange Student at the University of Miami *2006–2007*

**Vordiplom** (intermediate exam) in Physics & Meteorology *2005*
University of Leipzig, Leipzig, Germany

## AWARDS AND HONORS

**UCAR Leadership Academy Graduate** *2025*

**NSF NCAR Accelerated Scientific Discovery Compute Allocation** *2022*
Project Title: Global Convection-Permitting Simulations with GPU-MPAS

**Outstanding Publication Award** *2020*
NSF National Center for Atmospheric Research

**Paper of the Year Award** *2020*
Mesoscale and Microscale Meteorology Laboratory

**Early Career Scientist Best Poster Award** *2017*
5th WGNE Workshop on Systematic Errors in Weather and Climate Models

**NSF NCAR Strategic Capability Computing Support** *2016*
Project Title: A Global High-Resolution Predictability Experiment with MPAS

**NSF NCAR Advanced Study Program Postdoctoral Fellowship** *2015*

**NOAA Climate and Global Change Postdoctoral Fellowship** *2015 (declined)*

**Best Student Seminar in Meteorology and Physical Oceanography** *2014*
Rosenstiel School of Marine and Atmospheric Science

**Outstanding Poster Presentation** *2014*
94th American Meteorological Society Annual Meeting

**Koczy Fellowship** (Support for an outstanding graduate student in his/her final year) *2013*
Rosenstiel School of Marine and Atmospheric Science

**Best Student Paper in Meteorology and Physical Oceanography** *2011*
Rosenstiel School of Marine and Atmospheric Science

## LEADERSHIP ACTIVITIES & COMMUNITY SERVICE

**Editor,** Quarterly Journal of the Royal Meteorological Society *2025–*

**Co-Organizer,** Japanese-American-German Frontiers of Science (JAGFoS) Meetings *2024, 2025*

**Co-Convener,** AOGS 2023 Meeting, Singapore *2023*

**Co-Organizer and Session Chair,** 35th Conference on Hurricanes and Tropical Meteorology, New Orleans, LA *2022*

**Co-Organizer and Session Chair,** NSF NCAR Water System Retreat *2022*

**Editor,** Journal of the Meteorological Society of Japan *2019–2020, 2022–2024*

**Organizer,** Thompson Lecture Series, Advanced Study Program, NSF NCAR *2017*

**Convener and Session Chair,** 2016 AGU Fall Meeting, San Francisco, CA *2016*

**Organizer,** Research Review Seminars Series, Advanced Study Program, NSF NCAR *2016*

**President,** Greater Miami Chapter of the AMS *2009–2015*

**Member,** Student Seminar Committee (Rosenstiel School of Marine and Atmospheric Science) *2012–2014*

## REFEREED PUBLICATIONS

**Judt, F.,** and R. Rios-Berrios, 2025: Sensitivity of Tropical Wave Structure to Resolution and Convection Treatment in a Global Non-Hydrostatic Model. *J. Meteor. Soc. Japan,* in press, https://doi.org/10.2151/jmsj.2025-036.

**Judt, F.,** R. Rios-Berrios, and G. H. Bryan, 2025: Reply to "Comment on 'Marathon vs. Sprint: Two Modes of Tropical Cyclone Rapid Intensification in a Global Convection-Permitting Simulation.'" *Mon. Wea. Rev.,* **153,** 369–370, https://doi.org/10.1175/MWR-D-24-0107.1.

Feng, J., **F. Judt**, J. Zhang, and X. Wang, 2024: Influence of region-dependent error growth on the predictability of track and intensity of Typhoon Chan-hom (2020) in high-resolution HWRF ensembles. *Atmos. Res.,* **308,** 107536, https://doi.org/10.1016/j.atmosres.2024.107536.

Hartman, C., **F. Judt**, and X. Chen, 2024: Influence of Local Water Vapor Analysis Uncertainty on Ensemble Forecasts of Tropical Cyclogenesis Using Hurricane Irma (2017) as a Testbed. *Mon. Wea. Rev.,* **152,** 1321–1338, https://doi.org/10.1175/MWR-D-23-0195.1.

**Judt, F.,** R. Rios-Berrios, and G. H. Bryan, 2023: Marathon vs. Sprint: Two Modes of Tropical Cyclone Rapid Intensification in a Global Convection-Permitting Simulation. *Mon. Wea. Rev.,* **151,** 2683–2699, https://doi.org/10.1175/MWR-D-23-0038.1.

Chen, X., C. M. Rozoff, R. F. Rogers, C. L. Corbosiero, and 10 co-authors (incl. **F. Judt**), 2023: Research Advances on Internal Processes Affecting Tropical Cyclone Intensity Change from 2018–2022. *Trop. Cyclone Res. Rev.,* **12,** 10–29, https://doi.org/10.1016/j.tcrr.2023.05.001.

Rios-Berrios, R., **F. Judt**, G. H. Bryan, B. Medeiros, and W. Wang, 2023: Three-Dimensional Structure of Convectively Coupled Equatorial Waves in Aquaplanet Experiments with Resolved or Parameterized Convection. *J. Climate,* **36,** 2895–2915, https://doi.org/10.1175/JCLI-D-22-0422.1.

Rotunno, R., C. Snyder, and **F. Judt**, 2023: Upscale versus up-amplitude growth of forecast-error spectra. *J. Atmos. Sci.*, **80,** 63–72, https://doi.org/10.1175/JAS-D-22-0070.1.

Stuart, N., G. Hartfield, D. M. Schulz, Katie Wilson, G. West, R. Hoffman, G. Lackmann, H. Brooks, P. Roebber, T. Bals-Elholtz, H. Obermeier, **F. Judt,** P. Market, D. Nietfeld, B. Telfeyan, D. DePodwin, J. Fries, E. Abrams, J. Shields, 2022: The Evolving Role of Humans in Weather Prediction and Communication. *Bull. Amer. Meteor. Soc.,* **103,** E1720–E1746, https://doi.org/10.1175/BAMS-D-20-0326.1.

Nystrom, R., and **F. Judt**, 2022: The consequences of surface-exchange coefficient uncertainty on an otherwise highly predictable major hurricane. *Mon. Wea. Rev.,* **150,** 2073–2089, https://doi.org/10.1175/MWR-D-21-0320.1.

Rios-Berrios, R., G. Bryan, B. Medeiros, and **F. Judt**, 2022: Differences in Tropical Rainfall in Aquaplanet Simulations with Resolved or Parameterized Deep Convection. *J. Adv. Model. Earth Syst.,* **14,** e2021MS002902, https://doi.org/10.1029/2021MS002902.

**Judt, F.,** and R. Rios-Berrios, 2021: Resolved Convection Improves the Representation of Equatorial Waves and Tropical Rainfall Variability in a Global Nonhydrostatic Model. *Geophys. Res. Let.,* **48,** e2021GL093265, https://doi.org/10.1029/2021GL093265.

**Judt, F.,** D. Klocke, R. Rios-Berrios, B. Vanniere, F. Ziemen, L. Auger, J. Biercamp, C. Bretherton, X. Chen, P. Düben, C. Hohenegger, M. Khairoutdinov, C. Kodama, L. Kornblueh, S.-J. Lin, M. Nakano, P. Neumann, W. Putman, N. Röber, M. Roberts, M. Satoh, R. Shibuya, B. Stevens, P. L. Vidale, N. Wedi, and L. Zhou, 2021: Tropical Cyclones in Global Storm-Resolving Simulations. *J. Meteor. Soc. Japan,* **99,** 579–602, https://doi.org/10.2151/jmsj.2021-029.

Wu, C.-C., L.-Z. Shen, and **F. Judt,** 2021: The Role of Surface Heat Fluxes on the Size of Typhoon Megi (2016). *J. Atmos. Sci.*, **78,** 1075–1093, https://doi.org/10.1175/JAS-D-20-0141.1.

**Judt, F.,** 2020: Atmospheric Predictability of the Tropics, Middle Latitudes, and Polar Regions Explored through Global Storm-Resolving Simulations. *J. Atmos. Sci.,* **77,** 257–276, https://doi.org/10.1175/JAS-D-19-0116.1.

Stevens, B., M. Satoh, L. Auger, J. Biercamp, C. Bretherton, X. Chen, P. Düben, **F. Judt**, M. Khairoutdinov, D. Klocke, C. Kodama, L. Kornblueh, S.-J. Lin, P. Neumann, W. Putman, N. Röber, R. Shibuya, B. Vanniere, P.-L. Vidale, N. Wedi, and L. Zhou, 2019: DYAMOND: The DYnamics of

the Atmospheric general circulation Modeled On Non-hydrostatic Domains. *Progress in Earth and Planetary Science,* **6,** 61, https://doi.org/10.1186/s40645-019-0304-z.

Satoh, M., B. Stevens, **F. Judt**, M. Khairoutdinov, S.-J. Lin, W. Putman, and P. Düben, 2019: Global Cloud-Resolving Models. *Curr. Clim. Change Rep.,* **5,** 172–84, https://doi.org/10.1007/s40641-019-00131-0.

Fox, K. R., and **Judt, F.,** 2018: A Numerical Study on the Extreme Intensification of Hurricane Patricia (2015). *Wea. Forecasting,* **33,** 989–999, https://doi.org/10.1175/WAF-D-17-0101.1.

**Judt, F.,** 2018: Insights into Atmospheric Predictability through Global Convection-Permitting Model Simulations. *J. Atmos. Sci.,* **75,** 1477–1497, https://doi.org/10.1175/JAS-D-17-0343.1.

Zadra, A., K. Williams, A. Frassoni, M. Rixen, A. Adames, J. Berner, F. Bouyssel, B. Casati, H. Christensen, M. Ek, G. Flato, Y. Huang, **F. Judt**, H. Lin, E. Maloney, W. Merryfield, A. van Niekerk, T. Rackow, K. Saito, N. Wedi, and P. Yadav, 2018: Systematic Errors in Weather and Climate Models: Nature, Origins, and Way Forward. *Bull. Amer. Meteor. Soc.,* **99(4),** ES67-ES70, https://doi.org/10.1175/BAMS-D-17-0287.1.

E. A. D'Asaro, A. Y. Shcherbina, J. M. Klymak, J. Molemaker, G. Novelli, C. M. Guigand, A. C. Haza, B. K. Haus, E. H. Ryan, G. A. Jacobs, H. S. Huntley, N. J. M. Laxague, S. S. Chen, **F. Judt**, J. C. McWilliams, R. Barkan, A. D. Kirwan, Jr., A. C. Poje, and T. M. Ozgokmen, 2018: Ocean Convergence and the Dispersion of Flotsam. *Proc. Natl. Acad. Sci. U. S. A.,* **115(6),** 1162–1167, https://doi.org/10.1073/pnas.171845311.

**Judt, F.,** and S. S. Chen, 2016: Predictability and Dynamics of Tropical Cyclones Rapid Intensification Deduced from High-Resolution Stochastic Ensembles. *Mon. Wea. Rev.,* **144,** 4395–4420, https://doi.org/10.1175/MWR-D-15-0413.1.

**Judt, F.,** S. S. Chen, and M. Curcic, 2016: Atmospheric Forcing of the Upper Ocean Transport in the Gulf of Mexico: From Seasonal to Diurnal Scales. *J. Geophys. Res. Oceans,* **121,** 4416–4433, https://doi.org/10.1002/2015JC011555.

**Judt, F.,** S. S. Chen, and J. Berner, 2016: Predictability of Tropical Cyclone Intensity: Scale-Dependent Forecast Error Growth in High-Resolution Stochastic Kinetic-Energy Backscatter Ensembles. *Quart. J. Roy. Meteor. Soc.,* **142,** 43–57, https://doi.org/10.1002/qj.2626.

Chen, S. S., B. W. Kerns, N. Guy, D. P. Jorgensen, J. Delano, N. Viltard, C. Zappa, **F. Judt**, C.-Y. Lee, and A. Savarin, 2016: Aircraft Observations of Dry Air, ITCZ, Convective Cloud Systems and Cold Pools in MJO During DYNAMO. *Bull. Amer. Meteor. Soc.,* **97,** 405–423, https://doi.org/10.1175/BAMS-D-13-00196.1.

**Judt, F.,** and S. S. Chen, 2015: A New Aircraft Hurricane Wind Climatology and Applications in Assessing the Predictive Skill of Tropical Cyclone Intensity using High-Resolution Ensemble Forecasts. *Geophys. Res. Let.,* **42,** 6043–6050, https://doi.org/10.1002/2015GL064609.

Coelho E., P. Hogan, G. Jacobs, P. Thoppil, H. Huntley, B. Haus, B. Lipphardt, Jr., A. D. Kirwan, Jr., E. H. Ryan, J. Olascoaga, G. Novelli, F. Beron-Vera, A. C. Haza, A. C. Poje, A. Griffa, T.M. Ozgokmen, D. Bogucki, S. Chen, M. Curcic, M. Iskandarani, **F. Judt**, N. Laxague, A. J. Mariano, A. J. H. M. Reniers, C. Smith, A. Valle-Levinson, and M. Wei, 2015: Ocean Current Estimation Using a Multi-Model Ensemble Kalman Filter During the Grand Lagrangian Deployment Experiment (GLAD). *Ocean Model.,* **87,** 86–106, https://doi.org/10.1016/j.ocemod.2014.11.001.

**Judt, F.** and S. S. Chen, 2014: An Explosive Convective Cloud System and its Environmental Conditions in MJO Initiation Observed during DYNAMO. *J. Geophys. Res. Atmos.,* **119,** 2781–2795, https://doi.org/10.1002/2013JD021048.

Jacobs, G. A., B. Bartels, D. Bogucki, F. J. Beron-Vera, S. S. Chen, E. F. Coelho, M. Curcic, A. Griffa, M. Gough, B. K. Haus, A.C. Haza, R. W. Helber, P. J. Hogan, H. Huntley, M. Iskandarani, **F. Judt**, A. D. Kirwan Jr., N. Laxague, A. Valle-Levinson, B. Lipphardt, A. Mariano, H. E. Ngodock, G. Novelli, M. J. Olascoaga, T. M. Ozgokmen, P. G. Thoppil, A. C. Poje, A. J. H. M . Reniers, C. D. Rowley, E. H. Ryan, S. R. Smith, P. L. Spence, and M. Wei, 2014: Data Assimilation Considerations for Improved Ocean Predictability during the Gulf of Mexico Grand Lagrangian Deployment (GLAD), *Ocean Model.,* **83,** 98–117, https://doi.org/10.1016/j.ocemod.2014.09.003.

**Judt, F.,** and S. S. Chen, 2013: Reply to "Comments on 'Convectively Generated Potential Vorticity in Rainbands and Formation of the Secondary Eyewall in Hurricane Rita of 2005'". *J. Atmos. Sci.,* **70,** 989–992, https://doi.org/10.1175/JAS-D-12-0151.1.

**Judt, F.,** and S. S. Chen, 2010: Convectively Generated Potential Vorticity in Rainbands and Formation of the Secondary Eyewall in Hurricane Rita of 2005. *J. Atmos. Sci.,* **67,** 3581–3599, https://doi.org/10.1175/2010JAS3471.1.

## MANUSCRIPTS IN PREPARATION

**Judt, F.**, and J. Duda: An Object-based Approach to Atmospheric Predictability. To be submitted to *J. Atmos. Sci.*

## NON-REFEREED PUBLICATIONS

**Judt, F.,** 2017: How strong can a hurricane get? *Physics Today,* doi:10.1063/PT.6.1.20170908a. http://physicstoday.scitation.org/do/10.1063/PT.6.1.20170908a/full/

**Judt, F.,** 2014: Predictability of Tropical Cyclone Intensity. *Open Access Dissertations.* Paper 1350. http://scholarlyrepository.miami.edu/oa_dissertations/1350

**Judt, F.,** and S. S. Chen, 2014: Rapid Intensification in Tropical Cyclones: Understanding Physical Processes and Forecast Uncertainly Using High-resolution Stochastic Ensembles. *31st Conference on Hurricanes and Tropical Meteorology,* San Diego, CA, Amer. Meteor. Soc., 14D.9

**Judt, F.,** 2009: Convectively Generated Potential Vorticity in Rainbands and Secondary Eyewall Formation in Hurricanes (2009). *Open Access Theses.* Paper 214. http://scholarlyrepository.miami.edu/oa_theses/214

## TECHNICAL PRESENTATIONS

### Invited Talks

**2024**

- Improving Tropical Weather and Climate Prediction with Global Cloud-Resolving Models
  *TROPICANA,* 18 Jun, Orsay, France
- Improving Tropical Weather and Climate Prediction with Global Cloud-Resolving Models
  *Seminar at University of Houston,* 19 Apr, Houston, TX

**2023**

- Improving Tropical Weather and Climate Prediction with Global Cloud-Resolving Models
  *4th Japanese-American-German Frontiers of Science Symposium* 7 Oct, Dresden, Germany
- Progress in Tropical Weather Prediction with Global Convection-Permitting Models
  *Highres Modeling Workshop* 17 May, Ft. Collins, CO

- Tropical Weather Systems in MPAS With and Without Resolved Convection
  *Joint Workshop of Global-Storm Resolving Analysis and the 2nd EarthCARE Satellite Modeling Workshop* 28 Mar, Shuzenji, Japan
- Keynote: The Global Hydroclimate
  *NCAR Water Systems Retreat* 28 Apr, Boulder, CO
- Tropical Weather Systems in MPAS With and Without Resolved Convection
  *Joint Workshop of Global-Storm Resolving Analysis and the 2nd EarthCARE Satellite Modeling Workshop* 28 Mar, Shuzenji, Japan

**2022**

- Progress in Tropical Weather Prediction with Global km-scale Models
  *ECMWF Annual Seminar* 15 Sep, Reading, UK
- How far out can we predict the weather?
  *2022 ASP Colloquium–Workshop* 14 Jul, Boulder, CO
- The EarthCARE Satellite—The first Doppler Radar in Space
  *NEOTAC Seminar* 5 May, remote
- The Global Hydroclimate—Reasons why global models are ideal tools to simulate the water cycle
  *NCAR Water Systems Retreat* 3 Mar, remote
- Tropical Cyclone Prediction with Global Storm-Resolving ($\Delta x \leq 5$ km) Models, *STEP Annual Workshop* 3 Feb, remote

**2021**

- How far into the future can we predict the weather? Insights into Atmospheric Predictability With Global Storm-Resolving Simulations
  *Atmospheric Science Seminar Series–University of Wyoming* 26 Oct, Laramie, WY
- Middle-Latitudes vs. Tropics: Who Wins the Predictability Competition?
  *ASP Virtual Colloquium–Workshop* 5 Aug, remote
- Insights into Atmospheric Predictability With Global Convection-Permitting Simulations
  *Meteorologisches Kolloquium Ludwig-Maximilians-Universität, München* 29 Jun, remote
- Progress in Tropical Weather and Climate Prediction with Global Storm-Resolving Models
  *Annual Meeting of the Japanese Geophysical Society* 4 Jun, remote
- Progress in Tropical Weather and Climate Prediction with Global Storm-Resolving Models
  *Seminar at University of Hohenheim* 18 May, remote
- Atmospheric Predictability Investigated With a Global Storm-Resolving Model
  *OCP Seminar at Lamont-Doherty Earth Observatory* 12 Mar, remote

**2020**

- Atmospheric Predictability of the Tropics, Middle Latitudes, and Polar Regions Explored Through Global Storm-Resolving Simulations
  *AMS Annual Meeting* 4 Jan, Boston, MA

**Conference Presentations (within the last three years, not including invited talks)**

**2025**

- Sensitivity of Tropical Wave Structure to Resolution and Convection Treatment [talk]
  *EGU General Assembly* 30 Apr, Vienna, Austria

**2024**

- Marathon Versus Sprint: Two Modes of Tropical Cyclone Rapid Intensification [talk]
  *36th Conference on Hurricanes and Tropical Meteorology* 9 May, Long Beach, CA

**2023**

- An Object-Based Approach to Atmospheric Predictability [talk]
  *20th Conference on Mesoscale Processes* 17 Jul, Madison, WI
- Equatorial Waves and Tropical Rainfall Variability in MPAS Simulations with Resolutions of 3.75 km, 15 km, and 120 km [talk]
  *WRF/MPAS Workshop* 21 Jun, Boulder, CO
- Improving Tropical Weather Prediction and Understanding Tropical Cyclone Intensification with Global Convection-Permitting Simulations [talk]
  *MMM Seminar* 1 Jun, Boulder, CO
- "Marathon" vs. "Sprint": Two Modes of Tropical Cyclone Rapid Intensification in a Global Cloud-Resolving Simulation [talk]
  *103rd AMS Annual Meeting* 11 Jan, Denver, CO

## RESEARCH EXPERIENCE

**NSF National Center for Atmospheric Research**
*Scientist I/II* *2018–present*

· Conducting basic research to improve the prediction of high-impact weather.
· Investigating the predictability of hurricanes and other severe weather phenomena with a global kilometer-scale version of the Model for Prediction Across Scales (MPAS).
· Research on the processes governing hurricane rapid intensification and equatorial wave dynamics, investigated with next-generation global kilometer-scale models such as MPAS.
· Developing new techniques to analyze data from high-resolution model simulations. Collaborating within NCAR and the scientific community to further understanding of atmospheric predictability, dynamics of extreme weather phenomena, numerical weather prediction and tropical meteorology research.

**NSF National Center for Atmospheric Research**
*ASP Postdoctoral Fellow* *2016–2017*

· Analyzed error growth in convection-allowing global model simulations to investigate atmospheric predictability from convective to planetary scales.

**University of Miami**
*Postdoctoral Associate* *2015–2015*

· Examined the predictability and dynamics of tropical cyclone rapid intensification with stochastic numerical model ensembles.
· Evaluated output from a coupled ocean-wave-atmosphere model with buoy observations to better understand atmosphere-ocean interactions in the Gulf of Mexico.

**University of Miami**
*Research Assistant* *2008–2014*

· Ph.D.-Thesis research: Quantified the predictability of tropical cyclone intensity with high-resolution numerical model ensembles.

- Investigated interactions between deep convection and the environment during initiation of the Madden-Julian Oscillation (MJO) using field experiment observations.
- M.S.-Thesis research: Examined numerical model output and aircraft observations to highlight the role of convectively generated potential vorticity in the secondary eyewall formation in Hurricane Rita of 2005.

**University of Miami**
*International Research Scholar* *2007*

- Analyzed numerical model output and aircraft observations to study vortex Rossby waves and their impact on the intensity changes of Hurricanes Rita and Katrina of 2005.

## TEACHING & MENTORING EXPERIENCE

**NSF National Center for Atmospheric Research**
*Research Mentor* *2021–current*

- Mentoring of *Advanced Study Program* postdocs and *Advanced Study Program Graduate Visitor Program* graduate students

**NSF National Center for Atmospheric Research**
*Mentor* *2016–2019, 2022–2025*

- Designed research projects for and mentored an undergraduate student through the *Significant Opportunities in Atmospheric Research and Science (SOARS)* program.

**National Center for Atmospheric Research**
*Research Mentor* *2020*

- Co-mentored an undergraduate student through the *NCAR Earth System Science Internship (NESSI)* program.

**University of Miami**
*Teaching Assistant* *2009*

- Prepared lectures and graded homework/exams for MSC 243 *Introduction to Weather Forecasting* (undergraduate level).
  Instructor: Sharanya Majumdar, Ph.D.

## FIELD WORK EXPERIENCE

**Grand Lagrangian Deployment (GLAD), Surfzone Coastal Oil Pathways Experiment (SCOPE), Lagrangian Submesoscale Experiment (LASER)**
*Miami, FL* *2012, 2013, 2016*

- Provided daily weather/ocean current/wave forecasts to assist with ship/aircraft operations and drifter deployments in the Gulf of Mexico.

**Dynamics of the Madden-Julian Oscillation (DYNAMO)**
*Diego Garcia, British Indian Ocean Territory* *2011*

- Processed dropsondes in realtime onboard NOAA's WP-3D research aircraft (6 flights, 200 dropsondes, 52:30 h total flight hours).
- Briefed PI team/aircraft crew with daily weather reports to optimize flight plans.

**Weather In-Situ Deployment Optimization Method (WISDOM)**
*Florida Keys* *2008-2010*

· Prepared and launched super-pressure balloons that observe data-sparse regions to improve hurricane track forecasts.

## EDUCATION & OUTREACH

Participated in the 1st Colorado Science Day at the State Capitol in Denver, CO *2018*

Participated in the *Canes on Canes* outreach program, a lecture series that presents hurricane information and preparedness techniques in an approachable way *2012–2015*

Provided weather forecasts for the University of Miami's Special Project and Events Office *2012–2015*

Led map discussions at NOAA's Hurricane Research Division in support of various field programs *2009–2015*

Reviewed American Meteorological Society/Industry Minority Scholarship applications *2009–2015*

Guided campus tours for prospective students on behalf of the Rosenstiel School of Marine and Atmospheric Science Advancement Office *2010–2011*

Judged high school students' research projects at the 2010 Miami-Dade County Science Fair *2010*

Participated in an Outreach Video Campaign for the University of Miami [available online at http://www.youtube.com/watch?v=ygWJCK2Ww4A] *2009*

Speaker at the Rosenstiel School of Marine and Atmospheric Science Hurricane Preparedness Colloquium in Anticipation of Hurricane Ike *2008*

## PROFESSIONAL ASSOCIATIONS & ACTIVITIES

American Meteorological Society (AMS), Member *2007–present*
Greater Miami Chapter of the AMS, Member *2007–2015*
American Geophysical Union (AGU), Member *2007–present*
Deutsche Meteorologische Gesellschaft (DMG), Member *2005–present*

Reviewer for: *Journal of the Atmospheric Sciences, Monthly Weather Review, Journal of Geophysical Research, Geophysical Research Letters, Journal of Climate, Journal of Ocean Engineering and Science*

## TECHNICAL STRENGTHS

**Languages:** English (bilingual), German (native), French (basic), Spanish (basic)
**Computer Languages:** MATLAB, NCL, Python, Fortran, shell scripting
**Operating Systems:** Macintosh, Windows, Linux and UNIX