

FALKO JUDT

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NSF National Center for Atmospheric Research

RESEARCH INTERESTS

- Next-generation numerical weather prediction and global km-scale modeling
- Intrinsic predictability and the dynamics of extreme, high-impact weather
- Tropical cyclone evolution, rapid intensification, and atmosphere–ocean interactions
- Fundamental tropical meteorology and forecast science

PROFESSIONAL EXPERIENCE

Scientist V, Mesoscale and Microscale Meteorology Laboratory *2025–present*
NSF National Center for Atmospheric Research
(Title reclassified from *Scientist II* due to institutional reorganization)

Scientist II, Mesoscale and Microscale Meteorology Laboratory *2022–2025*
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	<i>2025</i>
NSF NCAR Accelerated Scientific Discovery Compute Allocation Project Title: Global Convection-Permitting Simulations with GPU-MPAS	<i>2022</i>
Outstanding Publication Award NSF National Center for Atmospheric Research	<i>2020</i>
Paper of the Year Award Mesoscale and Microscale Meteorology Laboratory	<i>2020</i>
Early Career Scientist Best Poster Award 5th WGNE Workshop on Systematic Errors in Weather and Climate Models	<i>2017</i>
NSF NCAR Strategic Capability Computing Support Project Title: A Global High-Resolution Predictability Experiment with MPAS	<i>2016</i>
NSF NCAR Advanced Study Program Postdoctoral Fellowship	<i>2015</i>
NOAA Climate and Global Change Postdoctoral Fellowship	<i>2015 (declined)</i>
Best Student Seminar in Meteorology and Physical Oceanography Rosenstiel School of Marine and Atmospheric Science	<i>2014</i>
Outstanding Poster Presentation 94th American Meteorological Society Annual Meeting	<i>2014</i>
Koczy Fellowship (Support for an outstanding graduate student in his/her final year) Rosenstiel School of Marine and Atmospheric Science	<i>2013</i>
Best Student Paper in Meteorology and Physical Oceanography Rosenstiel School of Marine and Atmospheric Science	<i>2011</i>

LEADERSHIP ACTIVITIES & COMMUNITY SERVICE

Editor , Quarterly Journal of the Royal Meteorological Society	<i>2025–</i>
Co-Organizer , Japanese-American-German Frontiers of Science (JAGFoS) Meetings	<i>2024, 2025</i>
Co-Convener , AOGS 2023 Meeting, Singapore	<i>2023</i>
Co-Organizer and Session Chair , 35th Conference on Hurricanes and Tropical Meteorology, New Orleans, LA	<i>2022</i>
Co-Organizer and Session Chair , NSF NCAR Water System Retreat	<i>2022</i>
Editor , Journal of the Meteorological Society of Japan	<i>2019–2020, 2022–2024</i>
Organizer , Thompson Lecture Series, Advanced Study Program, NSF NCAR	<i>2017</i>
Convener and Session Chair , 2016 AGU Fall Meeting, San Francisco, CA	<i>2016</i>
Organizer , Research Review Seminars Series, Advanced Study Program, NSF NCAR	<i>2016</i>
President , Greater Miami Chapter of the AMS	<i>2009–2015</i>
Member , Student Seminar Committee (Rosenstiel School of Marine and Atmospheric Science)	<i>2012–2014</i>

REFEREED PUBLICATIONS

- Schwartz, C. S., **F. Judt**, W. C. Skamarock, M. G. Duda, R. Johnson, and R. A. Sobash, 2026: Novel real-time global kilometer-scale weather model forecasts. *Bull. Amer. Meteor. Soc.*, in press, <https://doi.org/10.1175/BAMS-D-25-0332.1>.
- Lawton, Q. A., R. Rios-Berrios, **F. Judt**, L. Magnusson, and M. Köhler, 2026: On the Representation of Convectively Coupled Kelvin Waves in Operational Forecast Models: An Object-Tracking Perspective. *Wea. Forecasting*, **41**, 1073–1090, <https://doi.org/10.1175/WAF-D-25-0182.1>.
- Ying, T., D. M. Leung, **F. Judt**, J. F. Kok, L. Fairbanks, and A. Evan, 2026: Resolving Convection Doubles Sahel’s Contribution to Global Dust Emission During the Monsoon Season. *Geophys. Res. Lett.*, **53**, e2025GL119842, <https://doi.org/10.1029/2025GL119842>.
- Judt, F.**, 2025: Die intrinsische Vorhersagbarkeit der Atmosphäre. *Promet*, **108**, 14–22, https://doi.org/10.5676/DWD_pub/promet_108.
- 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*, **103**, 707–726, <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.tcr.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. Lett.*, **48**, e2021GL093265, <https://doi.org/10.1029/2021GL093265>.

Judt, F., D. Klocke, R. Rios-Berrios, B. Vanniere, F. Ziemer, 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. Frasson, 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.1718453111>.

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. Lett.*, **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>.

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/doi/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 Uncertainty 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

2026

- Novel Global km-scale MPAS Forecasts
NOAA/NWS/OMD 11 Aug, College Park, MD
- A New Frontier in Tropical Weather Prediction: Real-Time Global 3.75-km Forecasts using the Model for Prediction Across Scales (MPAS)
IGARSS 2026 13 Aug, Washington, D.C.

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)**2026**

- Putting Global km-Scale Models to the Test: Real-Time 3-km and 3.75-km MPAS Forecasts [talk]
Global km-scale Modeling Summit 22 Jul, Hamburg, Germany
- Real-Time Global 3.75-km Forecasts: A New Frontier in Tropical Weather Prediction [talk]
Joint MPAS/WRF Users Workshop 2026 25 Jun, Boulder, CO
- A High-Resolution Regional Coupled MPAS-A–MOM6 Prototype for Air-Sea Interaction Research and Prediction [poster]
Joint MPAS/WRF Users Workshop 2026 24 Jun, Boulder, CO
- Beyond Traditional Measures: Object-Based Insights into Atmospheric Predictability [talk]
MMM Seminar 4 Jun, Boulder, CO
- A New Frontier in Weather Prediction: Real-Time Global Kilometer-Scale Forecasts with MPAS [talk]
High and Ultra-high Resolution Modeling of the Earth System 13 Apr, College Station, TX
- Real-Time Global 3.75-km Forecasts: A New Frontier in Tropical Cyclone Prediction [talk]
37th Conference on Hurricanes and Tropical Meteorology 3 Apr, San Diego, CA

2025

- A Global 3.75-km MPAS Real-Time Forecast Demo [talk]
DYAMOND Meeting 20 Nov, Morioka, Japan
- Getting tropical waves right: Is high resolution the answer? [talk]
Non-Hydrostatic Modeling Workshop 18 Nov, Morioka, Japan
- 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

RESEARCH EXPERIENCE

NSF National Center for Atmospheric Research

Scientist I/II/V

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 2009
[available online at <http://www.youtube.com/watch?v=ygWJCK2Ww4A>]
Speaker at the Rosenstiel School of Marine and Atmospheric Science 2008
Hurricane Preparedness Colloquium in Anticipation of Hurricane Ike

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