

# FALKO JUDT

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Rosenstiel School of Marine and Atmospheric Science - University of Miami

4600 Rickenbacker Causeway | Miami, Florida 33149

## RESEARCH INTERESTS

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predictability of the tropical atmosphere; dynamics of tropical cyclones and other multiscale phenomena in the tropics; observations and modeling of the tropical atmosphere

## EDUCATION

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### Rosenstiel School of Marine and Atmospheric Science

#### University of Miami, Miami, Florida

Ph.D. in Meteorology & Physical Oceanography

*December 2014*

Advisor: Shuyi S. Chen, Ph.D.

M.S. in Meteorology & Physical Oceanography

*August 2009*

Advisor: Shuyi S. Chen, Ph.D.

Exchange Student at the University of Miami

*August 2006-May 2007*

#### University of Leipzig, Leipzig, Germany

*Vordiplom* (intermediate exam) in Physics & Meteorology

*June 2005*

## AWARDS AND HONORS

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Best Student Seminar in Meteorology and Physical Oceanography at the Rosenstiel School of Marine and Atmospheric Science

*2014*

Outstanding Poster Presentation, 94th American Meteorological Society Annual Meeting, 26th Conference on Weather Analysis / 22nd Conference on Numerical Weather Prediction

*2014*

Koczy Prize, Rosenstiel School of Marine and Atmospheric Science

*2013*

Best Student Paper in Meteorology and Physical Oceanography at the Rosenstiel School of Marine and Atmospheric Science

*2011*

## REFEREED PUBLICATIONS

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**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. doi: 10.1002/2013JD021048

**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. doi: <http://dx.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. doi: <http://dx.doi.org/10.1175/2010JAS3471>.

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, 2014: Ocean Current Estimation Using a Multi-Model Ensemble Kalman Filter During the Grand Lagrangian Deployment Experiment (GLAD). *Ocean Model.*, in press.

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. doi:10.1016/j.ocemod.2014.09.003

## SUBMITTED MANUSCRIPTS

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**Judt, F.**, S. S. Chen, and J. Berner, 2015: Predictability of Tropical Cyclone Intensity: Scale-Dependent Forecast Error Growth in High-Resolution Stochastic Kinetic-Energy Backscatter Ensembles. *Quart. J. Roy. Meteor. Soc.*, in revision. (download: <http://orca.rsmas.miami.edu/publications.php>)

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, 2015: Emerging Science of the MJO: Aircraft Observations of Dry Air, ITCZ, Convective Cloud Systems and Cold Pools During DYNAMO. *B. Am. Meteorol. Soc.*, in revision. (download: <http://orca.rsmas.miami.edu/publications.php>)

**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.*, in revision. (download: <http://orca.rsmas.miami.edu/publications.php>)

## MANUSCRIPTS IN PREPARATION

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**Judt, F.**, and S. S. Chen, 2015: Predictability of Tropical Cyclone Intensity: Rapid Intensification Uncertainty and Related Physical Processes in High-Resolution Stochastic Kinetic Energy Backscatter Ensembles. *Mon. Wea. Rev.*, in preparation.

**Judt, F.**, and S. S. Chen, 2015: Predictability of Tropical Cyclone Intensity: Quantification of Forecast Uncertainty in Tropical Cyclones and Their Environment. *J. Atmos. Sci.*, in preparation.

## EXTENDED ABSTRACTS & NON-REFEREED PUBLICATIONS

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**Judt, F.**, 2014: Predictability of Tropical Cyclone Intensity. *Open Access Dissertations*. Paper 1350. [http://scholarlyrepository.miami.edu/oa\\_dissertations/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](http://scholarlyrepository.miami.edu/oa_theses/214)

**Judt, F.**, 2008: Convectively-induced PV and Vortex Rossby Waves in Hurricanes Katrina and Rita (2005). Preprints, *28th Conference on Hurricanes and Tropical Meteorology*, Orlando, FL, Amer. Meteor. Soc., 5C.6

**Judt, F.**, and S. S. Chen, 2007: Vortex Rossby Waves in Hurricanes Katrina and Rita (2005). *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract A21C-0646.

## TECHNICAL PRESENTATIONS

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### Invited Talks:

**Judt, F.**, 2015: Predictability of Tropical Cyclone Intensity. *Seminar at the National Hurricane Center*, 19 February 2015, Miami, FL.

**Judt, F.**, 2014: Rapid Intensification in Tropical Cyclones - Physical Mechanisms from High-resolution Models and Ensembles. *Prediction of Tropical Cyclone Rapid Intensity Change (RIC) Workshop*, 18 - 20 November 2014, Miami, FL.

### Conference Presentations:

**Judt, F.**, and S. S. Chen, 2014: Overview of Meteorological Measurements and Coupled Modeling during SCOPE. *CARTHE All Hands Meeting*, Hollywood, FL. [talk]

**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. [talk]

**Judt, F.**, and S. S. Chen, 2013: A Mysterious Convective Explosion and an Equatorial Low Pressure System During MJO Initiation in DYNAMO. *MJO Field Data and Science Workshop*, Kohala Coast, HI. [talk and poster]

**Judt, F.**, 2012: Weather Conditions and Forecasts during GLAD. *CARTHE All Hands Meeting*, Miami, FL. [talk]

**Judt, F.**, and S. S. Chen, 2012: Understanding Hurricane Intensity Predictability Limits and Model Error Using two Different Ensemble Techniques. *30th Conference on Hurricanes and Tropical Meteorology*, Ponte Vedra, FL, Amer. Meteor. Soc., 3D.8. [talk]

**Judt, F.**, 2010: Secondary Eyewall Formation and Convectively-Generated Potential Vorticity in Rainbands in Hurricane Rita. *29th Conference on Hurricanes and Tropical Meteorology*, Tucson, AZ, Amer. Meteor. Soc., 8C.2B. [talk]

**Judt, F.**, 2008: Convectively-induced PV and Vortex Rossby Waves in Hurricanes Katrina and Rita (2005). *28th Conference on Hurricanes and Tropical Meteorology*, Orlando, FL, Amer. Meteor. Soc., 5C.6. [talk]

**Judt, F.**, and S. S. Chen, 2007: Vortex Rossby Waves in Hurricanes Katrina and Rita. *2007 AGU Fall Meeting*, San Francisco, CA, Amer. Geophys. Un., A21C-0646. [poster]

## RESEARCH & TEACHING EXPERIENCE

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### University of Miami

*Postdoctoral Associate*

*January 2015-Present*

- Predictability and uncertainty of multiscale phenomena in the tropical atmosphere.

### University of Miami

*Research Assistant*

*January 2008-December 2014*

- Ph.D.-Thesis research: Predictability of hurricane intensity using high-resolution ensemble forecasts and aircraft observations.

- Secondary Research Project: Investigation of interactions between organized convection and environmental conditions during initiation of the Madden-Julian Oscillation (MJO).
- M.S.-Thesis research: The role of convectively-generated potential vorticity in secondary eyewall formation in Hurricane Rita of 2005 (model and airborne Doppler-radar data).

**University of Miami**

*International Research Scholar*

*August-December 2007*

- Vortex Rossby waves and their impact on secondary eyewall formation in Hurricanes Rita and Katrina of 2005 (analysis of numerical model output).

**University of Miami**

*Teaching Assistant*

*August-December 2009*

- Teaching Assistant for MSC 243 Introduction to Weather Forecasting (undergraduate level)  
Instructor: Sharan Majumdar, Ph.D.

**FIELD WORK EXPERIENCE**

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**Consortium for Advanced Research on Transport of Hydrocarbon in the Environment (CARTHE) - Surfzone Coastal Oil Pathways Experiment (SCOPE)**

*Miami, FL*

*29 November-16 December 2013*

- Provided daily weather reports and forecasts to assist with surfzone drifter deployment in the Gulf of Mexico.

**Consortium for Advanced Research on Transport of Hydrocarbon in the Environment (CARTHE) - Grand Lagrangian Deployment (GLAD)**

*Miami, FL*

*17 July-3 August 2012*

- Provided daily weather reports and forecasts to assist with ocean drifter deployment in the Gulf of Mexico.

**Dynamics of the Madden-Julian Oscillation (DYNAMO)**

*Diego Garcia, British Indian Ocean Territory*

*1 November-8 December 2011*

- Processed dropsondes in realtime onboard NOAA's WP-3D research aircraft (6 flights, 200 dropsondes, 52:30 h total flight hours).
- Assisted PI team with daily weather briefings aimed at optimizing flight plans to meet research goals.

**Weather In-Situ Deployment Optimization Method (WISDOM)**

*Florida Keys*

*June-November 2008-2010*

- Prepared and launched super-pressure balloons aimed at providing atmospheric measurements from data-sparse regions to improve hurricane track forecasts.

**WORKSHOPS & TRAININGS**

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Software Carpentry Bootcamp - Python Tutorial	<i>2014</i>
Centers for Ocean Sciences Education Excellence (COSEE) Florida Presentation Bootcamp	<i>2013</i>
National Oceanic and Atmospheric Administration (NOAA) - Water Ditching and Survival Training (certificate valid until 2016)	<i>2011</i>
Department of Defense - Antiterrorism Level 1 Awareness Training	<i>2011</i>
Department of Defense - Survival, Evasion, Resistance and Escape (SERE) Level B Training	<i>2011</i>

The EMC/MMM/DTC Joint Hurricane Science Workshop and WRF Tutorial for Hurricanes 2010  
The First Annual Rosenstiel School of Marine and Atmospheric Science (RSMAS) 2010  
Writing Workshop for Graduate Students

## LEADERSHIP ACTIVITIES

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Greater Miami Chapter of the AMS, President 2009-present  
- Organized meetings, science talks, panel discussions and outreach activities.  
Student Seminar Committee (Division of Meteorology and Physical Oceanography) 2012-2014  
- Organized and facilitate voting by faculty and students to determine the best annual student seminar and distribute prizes for exceptional presentations.

## EDUCATION & COMMUNITY OUTREACH

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Volunteer Forecaster for University of Miami's Special Project and Events Office 2012-present  
Map Discussion Leader at NOAA's Hurricane Research Division July-October 2009-2013  
in Support of Various Field Programs  
Reviewer of American Meteorological Society/Industry Minority Scholarship Applications 2009-present  
Co-Mentor of Interns from the University of Puerto Rico at Mayaguez June-July 2009-2012  
Tour Guide for Prospective Students on Behalf of the Rosenstiel School of Marine and Atmospheric Science (RSMAS) Advancement Office 2010-2011  
Judge at the 2010 Miami-Dade County Science Fair 2010  
Participant in Outreach Video Campaign for the Graduate School of 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 (RSMAS) - Hurricane Preparedness Colloquium in Anticipation of Hurricane Ike 2008

## PROFESSIONAL ASSOCIATIONS & ACTIVITIES

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American Meteorological Society (AMS), Member 2007-present  
Greater Miami Chapter of the AMS, Member 2007-present  
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*

## TECHNICAL STRENGTHS

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**Languages:** English, French and German (native)  
**Computer Languages:** MATLAB, NCAR Command Language, Python, shell scripting  
**Operating Systems:** Macintosh, Windows, Linux and UNIX