Diamilet Perez-Betancourt

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Postdoctoral Associate
International Hurricane Research Center, Extreme Events Institute
Florida International University, Miami, FL

EDUCATION

Ph.D., Atmospheric Science 2019
Massachusetts Institute of Technology (MIT), Cambridge, MA
Dissertation: *Formation and maintenance of tropical cyclone spiral bands in idealized numerical simulations*

B.S., Theoretical Physics, *Summa Cum Laude* 2012
University of Puerto Rico at Mayagüez (UPRM), Mayagüez, PR
Minor: Atmospheric Science and Meteorology

RESEARCH EXPERIENCE

Graduate Fellow/Research Assistant 2012-2018
MIT, Cambridge, MA
Formation and maintenance of tropical cyclone spiral bands in idealized numerical simulations
Advisor: Kerry A. Emanuel

Summer Intern 2013
Significant Opportunities in Atmospheric Research and Science (SOARS) Program,
National Center for Atmospheric Research (NCAR), Boulder, CO
Stability of a balanced shallow-water vortex: A first step towards better understanding the formation of tropical cyclone spiral rainbands
Supervisor: Rich Rotunno

Summer Intern 2011
SOARS Program, NCAR, Boulder, CO
Rapid intensification of Hurricane Earl in Advanced Hurricane WRF model simulations
Supervisor: Christopher A. Davis

Undergraduate Research Assistant 2010
UPRM Atmospheric Science and Meteorology Program, Mayagüez, PR
Validation of the 10-meter winds from WRF mesoscale forecast over Puerto Rico
Supervisor: Luis F. Bejarano

Summer Intern 2010
SOARS Program, NCAR, Boulder, CO
The influence of environmental vertical wind shear on hurricane eye formation
Supervisors: Jonathan Vigh and Shuyi S. Chen (University of Miami)

Summer Intern 2009
Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL
(sponsored by the UPRM Atmospheric Science and Meteorology program)
Comparison of GPS dropsondes between developing and non-developing disturbances in the Atlantic
Supervisor: Shuyi S. Chen

HONORS AND AWARDS

First Place Graduate Student Forecaster in Fort Wayne, IN 2016
WxChallenge - University of Oklahoma, Norman, OK

MIT Warren G. Klein Fellowship 2014

National Science Foundation (NSF) Graduate Research Fellowship 2013

Enrico Fermi Award to the best student 2012
UPRM Physics Department

First Place Undergraduate Presentation 2012
Weather Ready Nation Technical Session; National Oceanic and Atmospheric Administration (NOAA) Educational Partnership Program (EPP)
6th Education and Science Forum

UPRM College of Arts and Sciences Honor Roll 2008-2012

David Sankey Scholarship in Meteorology 2011
National Weather Association

Howard T. Orville Endowed Scholarship in Meteorology 2011
American Meteorological Society (AMS)

National Science and Mathematics Access to Retain Talent Grant 2009-2011

Robert C. Byrd Honors Scholarship 2008-2011

First Place Poster Presentation 2009
Weather, Hydrology and Watersheds; NOAA EPP 5th Education and Science Forum

PROFESSIONAL SERVICE AND LEADERSHIP

Graduate Climate Conference (GCC) Executive Committee member
Steering Committee member (2014-2016)
Fundraiser (2016-2017):
- Co-authored a $\$20,000$ grant proposal, awarded by the NSF (AGS-1727575).
- Successfully raised and managed a budget of $\$41,000$ to support the 2017 GCC.

Co-chair (2014-2015): Led the 2015 GCC planning.
Program Designer (2012-2013)

AMS Student Conference Planning Committee member and session chair (2012-2014)

Member of the UPRM Student Chapter of the AMS (2007-2012)
Officer - Historian (2010-2012)
Helped achieve:
- Chapter Honor Roll 2011-2012
- Outstanding Student Chapter of the Year 2010-2011
- First Place Student Chapter Poster, 92nd AMS Annual Meeting, 2012
- First Place Student Chapter Poster, 91st AMS Annual Meeting, 2011

President of the Social and Cultural Activities Committee (2009-2010)
Science Demonstrations Committee member (2007-2008)

Summer internship peer mentor
Hsiao-Chun Lin, SOARS, 2013
Jonathan Quinn, High School Internship and Research Opportunities, 2011
Cristina Lugo-Centeno, Research Experiences in Solid Earth Sciences for Students, 2011

Session chair
5th FORMOSAT-3/COSMIC Student Conference, Taipei, Taiwan, 2011

PUBLICATIONS

In preparation:

Perez-Betancourt, D. and K. A. Emanuel, 2021. Spiral bands in dry tropical cyclones. *J. Atmos. Sci.*

Refereed:

O'Neill, M. E, **D. Perez-Betancourt**, and A. A. Wing, 2017: Accessible environments for diurnal-period waves in simulated tropical cyclones. *J. Atmos. Sci.*, **74**, 2489-2502, doi:10.1175/JAS-D-16-0294.1.

Non-refereed:

Perez-Betancourt, D., and C. A. Davis, 2012. Rapid intensification of Hurricane Earl in Advanced Hurricane WRF model simulations, *Extended Abstract, 30th Conf. Hurr. Trop. Meteor.*, Ponte Vedra Beach, FL, Amer. Meteor. Soc., 7B.4.

FIRST-AUTHORED PRESENTATIONS

Perez-Betancourt, D. and K. A. Emanuel, 2018. Formation and maintenance of tropical cyclone spiral bands in idealized numerical simulations. *MIT Program in Atmospheres, Oceans, and Climate - Special Seminar*, Cambridge, MA.

Perez-Betancourt, D. and K. A. Emanuel, 2017. Formation of tropical cyclone spiral rainbands in idealized numerical simulations. *97th AMS Annual Meeting: Robert A. Houze, Jr. Symposium*, Seattle, WA.

Perez-Betancourt, D. and K. A. Emanuel, 2017. Formation of tropical cyclone spiral rainbands in idealized numerical simulations. *MIT Pauline M. Austin Centenary Celebration*, Cambridge, MA.

Perez-Betancourt, D. and K. A. Emanuel, 2014. Formation of tropical cyclone spiral rainbands in a 3-D cloud-resolving model. *31st AMS Conference on Hurricanes and Tropical Meteorology*, San Diego, CA.

Perez-Betancourt, D. and K. A. Emanuel, 2014. Formation of tropical cyclone spiral rainbands in a 3-D cloud-resolving model. *94th AMS Annual Meeting: 26th Conference on Weather Analysis and Forecasting/22nd Conference on Numerical Weather Prediction*, Atlanta, GA.

Perez-Betancourt, D. and C. A. Davis, 2012. Rapid intensification of Hurricane Earl in Advanced Hurricane WRF model simulations. *30th AMS Conference on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, FL.

Perez-Betancourt, D. and C. A. Davis, 2012. Rapid intensification of Hurricane Earl in Advanced Hurricane WRF model simulations. *NOAA EPP 6th Education and Science Forum*, Tallahassee, FL.

Perez-Betancourt, D. and C. A. Davis, 2012. Rapid intensification of Hurricane Earl in Advanced Hurricane WRF model simulations. *American Association for the Advancement of Science Annual Meeting*, Vancouver, Canada.

Perez-Betancourt, D. and C. A. Davis, 2012. Rapid intensification of Hurricane Earl in Advanced Hurricane WRF model simulations. *92nd AMS Annual Meeting: T.N. Krishnamurti Symposium*, New Orleans, LA.

Perez-Betancourt, D. and C. A. Davis, 2011. Rapid intensification of Hurricane Earl in Advanced Hurricane WRF model simulations. *11th Annual AMS Student Conference*, New Orleans, LA.

Perez-Betancourt, D., J. L. Vigh and S.S. Chen, 2011. The influence of environmental vertical wind shear on hurricane eye formation. *5th FORMOSAT-3/COSMIC Workshop and Student Conference*, Taipei, Taiwan.

Perez-Betancourt, D., J. L. Vigh and S.S. Chen, 2011. The influence of environmental vertical wind shear on hurricane eye formation. *31st Puerto Rico Interdisciplinary Meeting*, Bayamón, PR.

Perez-Betancourt, D., J. L. Vigh and S.S. Chen, 2011. The influence of environmental vertical wind shear on hurricane eye formation. *10th Annual AMS Student Conference*, Seattle, WA.

Perez-Betancourt, D., J. L. Vigh and S.S. Chen, 2010. The influence of environmental vertical wind shear on hurricane eye formation. *Society for the Advancement of Chicanos and Native Americans in Science National Conference*, Anaheim, CA.
Perez-Betancourt, D., and S.S. Chen, 2010. Comparison of GPS dropsondes between developing and non-developing disturbances in the Atlantic. *Society of Physics Students - Zone 6 Meeting*, Miami, FL.
Perez-Betancourt, D., and S.S. Chen, 2010. Comparison of GPS dropsondes between developing and non-developing disturbances in the Atlantic. *9th Annual AMS Student Conference*, Atlanta, GA.
Perez-Betancourt, D., and S.S. Chen, 2009. Comparison of GPS dropsondes between developing and non-developing disturbances in the Atlantic. *NOAA EPP 5th Education and Science Forum*, Washington, DC.

CO-AUTHORED PRESENTATIONS

O'Neill, M. E, **D. Perez-Betancourt**, and A. A. Wing, 2016: The impact of the diurnal insolation cycle on the tropical cyclone heat engine. *32nd AMS Conference on Hurricanes and Tropical Meteorology*, San Juan, PR.
O'Neill, M. E, **D. Perez-Betancourt**, and A. A. Wing, 2016: The impact of the diurnal insolation cycle on the tropical cyclone heat engine. *American Physical Society March Meeting*, Baltimore, MD.
Rothenberg D. A., S. Rosengard, K. E. Lapo, L. Johnson, T. Rohr and, **D. Perez-Betancourt**, 2015. A decade of Graduate Climate Conferences for training the next generation of Earth scientists. *American Geophysical Union Fall Meeting*, San Francisco, CA.
Villamil, G. A., A. F. Adames, I. Del Valle, A. Marrero, **D. Perez-Betancourt**, R. Rios, P. Sanchez, and L. F. Bejarano, 2011. Validation of the 10-meter winds from WRF mesoscale forecast over Puerto Rico. *91st AMS Annual Meeting: 24th Conference on Weather and Forecasting/20th Conference on Numerical Weather Prediction*, Seattle, WA.

PROFESSIONAL DEVELOPMENT

Federal Emergency Management Agency's Professional Development Series	2019
WxChallenge, MIT forecasting group	2012-2018
MIT Conference on the Resilient Reconstruction of the Caribbean	2017
MIT Path of Professorship program	2017
Minorities Striving and Pursuing Higher Degrees of Success in Earth System Science program	2012-2014
National Weather Service SKYWARN Spotter training	2012
Puerto Rico Community Emergency Response Team training	2009
Global Warming and Extreme Climatic Phenomena summer course	2009

TEACHING EXPERIENCE

MIT 12.811: Tropical Meteorology (Spring 2015; Spring 2017)
Teaching Assistant to Prof. Kerry A. Emanuel

MIT 12.310: Introduction to Weather Forecasting (January 2016; January 2017)
Teaching Assistant to Dr. Lodovica Illari

MIT Discover EAPS: Extreme Weather and Climate (August 2017)
Teaching Assistant for my department's freshman pre-orientation program

OUTREACH

Invited speaker 2018
MIT Better World Campaign, Miami, FL

Co-organizer 2013
SOARS Book Drive for *Moore Books for Moore Kids*, Boulder, CO

Volunteer 2013
MIT City Days at Cradles to Crayons, Brighton, MA

Volunteer 2012
MIT City Days Serve-Off at YouthBuild Just-A-Start Program, Cambridge, MA

Volunteer artist 2012
The Memory Project - a Portrait of Kindness, Cambridge, MA

Volunteer 2012
MIT Graduate Student Volunteer Day - Charles River's surrounding parklands clean-up, Cambridge, MA

Science demonstrator 2012
NCAR and Doppler On Wheels booths, USA Science and Engineering Festival, Washington, DC

Volunteer weekly weather forecaster 2010-2012
- UPRM Physics Department (August 2011-May 2012)
- Local radio station Radio Casa Pueblo (August 2010-May 2011)
- UPRM radio station Radio Colegial (January-May 2010)

Spanish audio narrator 2011
Tsunami Strike! Caribbean Edition module, Cooperative program for Operational Meteorology, Education, and Training, Boulder, CO

Science demonstrator/translator 2011
SOARS Summer Outreach Activity, Casa de la Esperanza, Longmont, CO

Science demonstrator 2010
NCAR and UCAR 50th Anniversary Open House, Boulder, CO

TECHNICAL AND COMMUNICATION SKILLS

Computer Programming: MATLAB, NCAR Command Language, Fortran, UNIX shell scripting, and HTML5.
Computer Tools: Linux, Environment for Visualizing Images, Atmospheric Sounding Processing Environment, LaTeX, and MS Office.
Data Storage: netCDF, .txt, and .csv.
Languages: Spanish (native) and English (fluent).