

**DAVID S. NOLAN**  
**Professor and Chair**  
**Department of Atmospheric Sciences**  
**Rosenstiel School of Marine and Atmospheric Science**  
**University of Miami**

**Contact:**

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**Education:**

*Harvard University, Graduate School of Arts and Sciences, Cambridge, Massachusetts.*

Ph.D. in Earth and Planetary Sciences, completed October, 1996.

Advisor: Brian Farrell.

Thesis: *Axisymmetric and Asymmetric Vortex Dynamics in Convergent Flows.*

*Harvard College, Cambridge, Massachusetts.*

B.A., Physics, *cum laude* 1990.

**Research and Teaching Experience:**

- 06/14 - Present:     *Professor and Chair, Department of Atmospheric Sciences, Rosenstiel School of Marine and Atmospheric Science.* Ongoing research on the inner-core dynamics of hurricanes and tornadoes; the effects of climate change on hurricane frequency and intensity; development of the Weather Research and Forecast (WRF) model for tropical cyclone research and forecasting; dynamics of convection in the equatorial regions; undergraduate and graduate instruction in meteorology. Supervision and planning for a new university department of 11 faculty and over 35 students.
- 06/13 - 05/14:     *Professor, Division of Meteorology and Physical Oceanography, Rosenstiel School of Marine and Atmospheric Science.*
- 06/08 - 05/13:     *Associate Professor, Division of Meteorology and Physical Oceanography, Rosenstiel School of Marine and Atmospheric Science.*
- 06/05 - 05/08:     *Assistant Professor, Division of Meteorology and Physical Oceanography, Rosenstiel School of Marine and Atmospheric Science.*
- 7/02 - 5/05:        *Research Assistant Professor, Division of Meteorology and Physical Oceanography, Rosenstiel School of Marine and Atmospheric Science.*
- 7/01 - 6/02:        *Visiting Research Scientist, Princeton University Program in Atmospheric and Oceanic Sciences and Geophysical Fluid Dynamics Laboratory.*

- 11/98 - 6/01: *Postdoctoral Associate, Department of Atmospheric Science, Colorado State University.*
- 11/96 - 11/98: *Postdoctoral Fellow, Mathematics Department, Computing Sciences Directorate, Lawrence Berkeley National Laboratory.*
- 1990-1996: *Research Assistant, Department of Earth and Planetary Sciences, Harvard University.*
- 1992, Summer: *Research Assistant, Department of Mathematics, Lawrence Berkeley National Laboratory.*
- 1989, Summer: *Research Assistant, Department of Physics, Smith College, Northampton, MA.*

**Service:**

- 2012-Present: *Scientific Review Committee for the Hurricane Forecasting Improvement Program.* External committee to advise NOAA on the progress and future directions for HFIP.
- 2009-Present: *International Committee for Dynamic Meteorology.* A commission of the International Association of Meteorology and Atmospheric Sciences (IAMAS), with the goal of furthering the pursuit of and international cooperation in the science of dynamic meteorology, and the task of organizing biennial meetings at the IUGG and IAMAS conferences.
- 2008-2013: *UCAR President's Advisory Committee on University Relations.* University of Miami representative to the committee that advises the president of the University Corporation for Atmospheric Research.
- 2007-2009: *Postdoctoral Programs Steering Committee.* Rosenstiel School representative to University-wide committee overseeing post-doctoral programs and regulations.
- 2004-2006: *Academic Chair, Division of Meteorology and Physical Oceanography, Rosenstiel School.* Oversight and administration of the graduate admissions process for the Division, comprehensive exams, and academic requirements for graduate students; also served on the School-wide Academic Committee.
- Article reviews for: *Atmospheric Science Letters.*  
*Atmospheric Chemistry and Physics.*  
*Australian Meteorological and Oceanographic Journal.*  
*Boundary Layer Meteorology.*

*Climate Dynamics.*  
*Dynamics of Atmospheres and Oceans.*  
*E-Journal of Severe Storms Meteorology.*  
*Geophysical Research Letters.*  
*Journal of Advances in Modeling Earth Systems.*  
*Journal of Climate.*  
*Journal of the Atmospheric Sciences.*  
*Meteorology and Atmospheric Physics.*  
*Monthly Weather Review.*  
*Physics of Fluids.*  
*Quarterly Journal of the Royal Meteorological Society.*  
*Tellus.*  
*Terrestrial, Atmospheric, and Oceanic Sciences.*  
*Weather and Forecasting.*

Panels: *Proposal review panel for NASA Hurricane Science Research Program,*  
August, 2008, Washington DC.

*Proposal review panel for University of Miami Provost Awards for Natural*  
*Sciences and Engineering.*  
March, 2010, Miami, FL.

### **Thesis and Dissertation Advising:**

Jeremy Pennington, M.S. 2003, *committee member,*

“Environmental Moisture Effects on Atlantic Tropical Cyclogenesis.”

Peter Kozich, M.S. 2005, *committee member,*

“Inner Core Structure and Intensity Change in Hurricane Isabel (2003).”

Melicie DesFlots, Ph.D. 2008, *committee member,*

“Environmental and Internal Controls of Tropical Cyclone Intensity Change.”

Pallav Ray, Ph.D. 2008, *committee member,*

“The Initiation of the Madden-Julian Oscillation.”

Yumin Moon, M.S. 2008, *advisor and committee chair,*

“Dynamical Impacts of Rotating Convective Asymmetries on Tropical Cyclones.”

Munehiko Yamaguchi, M.S., 2010, *committee member,*

“Initial Condition Sensitivity and Dynamical Mechanisms of Perturbation Growth in Tropical Cyclones.”

Daniel Stern, Ph.D. 2010, *advisor and committee chair,*

“The Vertical Structure of Tangential Winds in Tropical Cyclones: Observations, Theory, and Numerical Simulations.”

Angela Colbert, M.S. 2010, *committee member,*

“Sensitivity of North Atlantic Tropical Cyclone Tracks to Climate Variability and Climate Change.”

Will Komaromi, M.S. 2010, *committee member*,  
“Synoptic Sensitivity Analysis of Typhoon Sinlaku (2008) and Hurricane Ike (2008).”

Damianos Mantsis, Ph.D. 2011, *committee member*,  
“Atmospheric Response to Orbital Forcing and 20th Century Sea Surface Temperatures.”

Christine Standohar, M.S. 2012, *committee member*,  
“Impact of Upper Ocean Warming on Hurricane Intensity.”

Yumin Moon, Ph.D. 2012, *advisor and committee chair*,  
“Dynamics and Evolution of Spiral Rainbands as Seen in Numerical Simulations of Tropical Cyclones.”

Michael McGauley, Ph.D. 2012, *advisor and committee chair*,  
“Understanding Environmental Favorability for Tropical Cyclogenesis from Analysis of Threshold Parameters.”

Will Komaromi, Ph.D. 2014, *committee member*,  
“Tropical Cyclogenesis: Observations and Predictability.”

Ting-Chi Wu, Ph.D. 2014, *committee member*,  
“Understanding the Influence of Assimilating Satellite-Derived Observations on Mesoscale Analyses and Forecasts of Tropical Cyclone Track and Structure.”

David Yeomans, M.S. 2014, *committee member*,  
“Using Dropsonde and Satellite Measurements to Evaluate Mid-Tropospheric Humidity and its Importance in Tropical Cyclogenesis.”

Kieran Bhatia, Ph.D. candidate, *advisor and committee chair*.

Matthew Onderlinde, Ph.D. candidate, *advisor and committee chair*.

Michael Rudko, Ph.D. candidate, *committee member*.

Joaquin Blanco, M.S. candidate, *advisor and committee chair*.

### **Memberships:**

1997-Present: *American Meteorological Society*.

2000-Present: *American Geophysical Union*.

### **Refereed Publications:**

Moon, Yumin, and David S. Nolan, 2015: Spiral rainbands in a numerical simulation of Hurricane Bill (2009). Part II: Propagation of inner rainbands. *J. Atmos. Sci.*, **72**, 191-215.

Moon, Yumin, and David S. Nolan, 2015: Spiral rainbands in a numerical simulation of Hurricane Bill (2009). Part I: Structures and comparisons to observations. *J. Atmos. Sci.*, **72**, 164-190.

Kepert, Jeffrey D., and David S. Nolan, 2014: Reply. *J. Atmos. Sci.*, **71**, 4692-4704.

- Onderlinde, Matthew J., and David S. Nolan, 2014: Environmental helicity and its effects on development and intensification of tropical cyclones. *J. Atmos. Sci.*, **71**, 4308-4320.
- Nolan, David S., Jun A. Zhang, and Eric W. Uhlhorn, 2014: On the limits of estimating the maximum wind speeds in hurricanes. *Mon. Wea. Rev.*, **142**, 2814-2837.
- Stern, Daniel P., James R. Brisbois, and David S. Nolan, 2014: An expanded data set of hurricane eyewall sizes and slopes. *J. Atmos. Sci.*, **71**, 2747-2762.
- Nolan, David S., Robert Atlas, Kieran T. Bhatia, and Lisa R. Bucci, 2013: Development and validation of a hurricane nature run using the Joint OSSE Nature Run and the WRF model. *J. Adv. Model. Earth Syst.*, **5**, 1-24.
- Bhatia, Kieran T., David S. Nolan, 2013: Relating the skill of tropical cyclone intensity forecasts to the synoptic environment. *Wea. Forecasting*, **28**, 961-980.
- Rappin, Eric D., David S. Nolan, Sharanya J. Majumdar, 2013: A highly configurable vortex initialization method for tropical cyclones. *Mon. Wea. Rev.*, **141**, 3556-3575.
- Nolan, David S., 2013: On the use of Doppler-radar derived winds to estimate the secondary circulations of tornados. *J. Atmos. Sci.*, **70**, 1160-1171.
- Nolan, David S., 2012: Three-dimensional instabilities in tornado-like vortices with secondary circulations. *J. Fluid Mech.*, **711**, 61-100.
- Nolan, David S., and Michael G. McGauley, 2012: Tropical cyclogenesis in wind shear: Climatological relationships and physical processes. *Cyclones: Formation, Triggers, and Control*. Kazuyoshi Oouchi and Hironori Fudeyasu, eds., Nova Science Publishers, Hauppauge, New York, pp. 1-36.
- Rozoff, Christopher M., David S. Nolan, James P. Kossin, Fuqing Zhang, and Juan Fang, 2012: The roles of an expanding wind field and inertial stability in tropical cyclone secondary eyewall formation. *J. Atmos. Sci.*, **69**, 2621-2643.
- Rappin, Eric D., and David S. Nolan, 2012: The effect of vertical shear orientation on tropical cyclogenesis. *Q. J. R. Meteorol. Soc.*, **138**, 1035-1054.
- Uhlhorn, Eric W., and David S. Nolan, 2012: Observational undersampling in tropical cyclones and its impact on estimated intensity. *Mon. Wea. Rev.*, **140**, 825-840.

- Stern, Daniel P., and David S. Nolan, 2012: On the height of the warm core in tropical cyclones. *J. Atmos. Sci.*, **69**, 1657-1680.
- Kelly, David L., David Letson, Forrest Nelson, David S. Nolan, and Daniel Solis, 2012: Evolution of subjective hurricane risk perceptions: A Bayesian approach. *Journal of Economic Behavior and Organization*, **81**, 644-663.
- Braun, Scott A., Jason A. Sippel, and David S. Nolan, 2012: The impact of dry mid-level air on hurricane intensity in idealized simulations with no mean flow. *J. Atmos. Sci.*, **69**, 236-257.
- McGauley, Michael G., and David S. Nolan, 2011: Measuring environmental favorableness for tropical cyclogenesis by statistical analysis of threshold parameters. *J. Climate.*, **24**, 5968-5997.
- Zhang, Jun, Robert F. Rogers, David S. Nolan, and Frank D. Marks, Jr., 2011: On the characteristic height scales of the hurricane boundary layer. *Mon. Wea. Rev.*, **139**, 2523-2535.
- Stern, Daniel P., and David S. Nolan, 2011: On the vertical decay rate of the maximum tangential winds in tropical cyclones. *J. Atmos. Sci.*, **68**, 2073-2094.
- Yamaguchi, M., D. S. Nolan, M. Iskandarani, S. J. Majumdar, M. S. Peng, and C. A. Reynolds, 2010: Singular vectors for tropical cyclone-like vortices in a nondivergent barotropic framework. *J. Atmos. Sci.*, **68**, 2273-2291.
- Nolan, David S., 2011: Evaluating environmental favorableness for tropical cyclone development with the method of point downscaling. *J. Adv. Model. Earth Syst.*, 3, Art. M08001, 28 pp.
- Nolan, David S., Scott W. Powell, Chidong Zhang, and Brian E. Mapes, 2010: Idealized simulations of the ITCZ and its multi-level flows. *J. Atmos. Sci.*, **67**, 4028-4053.
- Rappin, Eric D., David S. Nolan, and Kerry A. Emanuel, 2010: Thermodynamic control of tropical cyclogenesis in environments of radiative-convective equilibrium with shear. *Quart. J. Roy. Meteorol. Soc.*, **136**, 1954-1971.
- Moon, Yumin, David S. Nolan, and Mohamed Iskandarani, 2010: On the use of two-dimensional flow to study secondary eyewall formation in tropical cyclones. *J. Atmos. Sci.*, **67**, 3765-3773.

- Moon, Yumin, and David S. Nolan, 2010: The dynamic response of the hurricane wind field to spiral rainband heating. *J. Atmos. Sci.*, **67**, 1779-1805.
- Colette, Augustin, Nadja Leith, Vincent Daniel, Enrica Bellone, and David S. Nolan, 2010: Using mesoscale simulations to train statistical models of tropical cyclone intensity over land. *Mon. Wea. Rev.*, **138**, 2058-2073.
- Moon, Yumin, and David S. Nolan, 2010: Do gravity waves transport angular momentum away from hurricanes? *J. Atmos. Sci.*, **67**, 117-135.
- Nolan, David S., Jun A. Zhang, and Daniel P. Stern, 2009: Evaluation of planetary boundary layer parameterizations in tropical cyclones by comparison of in-situ data and high-resolution simulations of Hurricane Isabel (2003). Part I: Initialization, maximum winds, and the outer core boundary layer. *Mon. Wea. Rev.*, **137**, 3651-3674.
- Nolan, David S., Daniel P. Stern, and Jun A. Zhang, 2009: Evaluation of planetary boundary layer parameterizations in tropical cyclones by comparison of in-situ data and high-resolution simulations of Hurricane Isabel (2003). Part II: Inner-core boundary layer and eye-wall structure. *Mon. Wea. Rev.*, **137**, 3675-3698.
- Stern, Daniel P., and David S. Nolan, 2009: Reexamining the vertical structure of tangential winds in tropical cyclones: Observations vs. theory. *J. Atmos. Sci.*, **66**, 3579-3600.
- Fierro, Alexandre O., Robert F. Rogers, Frank D. Marks, and David S. Nolan, 2009: The impact of horizontal grid spacing on the microphysical and kinematic structures of strong tropical cyclones simulated with the WRF-ARW model. *Mon. Wea. Rev.*, **137**, 3717-3743.
- Hodyss, Daniel, and David S. Nolan, 2008: The Rossby-inertia-buoyancy instability in baroclinic vortices. *Phys. Fluids.*, **20**, 096602.
- Nolan, David S., and Eric D. Rappin, 2008: Increased sensitivity of tropical cyclogenesis to wind shear in higher SST environments. *Geophys. Res. Lett.*, **35**, L14805, doi:10.1029/2008GL034147.
- Zhang, Chidong, David S. Nolan, Christopher D. Thorncroft, and Nguyen, Hanh, 2008: Shallow meridional circulations in the tropical atmosphere. *J. Climate*, **21**, 3453-3470.
- Nolan, David S., 2007: What is the trigger for tropical cyclogenesis? *Aust. Meteorol. Mag.*, **56**, 241-266.

- Nolan, David S., Eric D. Rappin, and Kerry A. Emanuel, 2007: Tropical cyclogenesis sensitivity to environmental parameters in radiative-convective equilibrium. *Q. J. Roy. Meteorol. Soc.*, **133**, 2085-2107.
- Nolan, David S., Yumin Moon, and Daniel P. Stern, 2007: Tropical cyclone intensification from asymmetric convection: Energetics and efficiency. *J. Atmos. Sci.*, **64**, 3377-3405.
- Hodyss, Daniel, and David S. Nolan, 2007: Linear anelastic equations for atmospheric vortices. *J. Atmos. Sci.*, **64**, 2947-2959.
- Nolan, David S., Chidong Zhang, and Shu-Hua Chen, 2007: Dynamics of the shallow circulation around ITCZ regions. *J. Atmos. Sci.*, **64**, 2262-2285.
- Nolan, David S., 2005: A new scaling for tornado-like vortices. *J. Atmos. Sci.*, **62**, 2639-2645.
- Nolan, David S., 2005: Instabilities in hurricane-like boundary layers. *Dyn. Atmos. Oceans*, **40**, 209-236.
- Knievel, Jason C., David S. Nolan, and James P. Kossin, 2004: An assessment of the balance in a mesoscale vortex within a midlatitude, continental mesoscale convective system. *J. Atmos. Sci.*, **61**, 1827-1832.
- Baidya Roy, Somnath, Christopher P. Weaver, David S. Nolan, and Roni Avissar, 2003: A preferred scale for landscape forced mesoscale circulations? *J. Geophys. Res.*, **108**(D22), 8854, doi:10.1029/2002JD003097.
- Nolan, David S., and Lewis D. Grasso, 2003: Nonhydrostatic, three-dimensional perturbations to balanced, hurricane-like vortices. Part II: Symmetric response and nonlinear simulations. *J. Atmos. Sci.*, **60**, 2717-2745.
- Nolan, David S., and Michael T. Montgomery, 2002: Nonhydrostatic, three-dimensional perturbations to balanced, hurricane-like vortices. Part I: Formulation, linearized evolution, and stability. *J. Atmos. Sci.*, **59**, 2989-3020.
- Nolan, David S., Michael T. Montgomery, and Lewis D. Grasso, 2001: The wavenumber one instability and trochoidal motion of hurricane-like vortices. *J. Atmos. Sci.*, **58**, 3243-3270.
- Nolan, David S., 2001: The stabilizing effects of axial stretching on turbulent vortex dynamics. *Phys. Fluids.*, **13**, 1724-1738.



Nolan, David S., and Michael T. Montgomery, 2000: The algebraic growth of wavenumber one disturbances in hurricane-like vortices. *J. Atmos. Sci.*, **57**, 3514-3538.

Nolan, David S., and Brian F. Farrell, 1999: The intensification of two-dimensional swirling flows by stochastic asymmetric forcing. *J. Atmos. Sci.*, **56**, 3937-3962.

Nolan, David S., and Brian F. Farrell, 1999: The structure and dynamics of tornado-like vortices. *J. Atmos. Sci.*, **56**, 2908-2936.

Nolan, David S., and Brian F. Farrell, 1999: Generalized stability analyses of asymmetric disturbances in one- and two-celled vortices maintained by radial inflow. *J. Atmos. Sci.*, **56**, 1282-1307.

### **Non-refereed publications:**

Keper, J. D., M. Foley, J. Hawkins, D. S. Nolan, M. Peng, R. Smith, Y. Wang, and S. Westrelin, 2006: Tropical cyclone inner core dynamics. Topic reports, *Sixth International Workshop on Tropical Cyclones*, World Meteorological Organization, pp. 79-119.

Knutson, T. R., K. Emanuel, S. Emori, J. Evans, G. Holland, C. Landsea, K.-B. Liu, R. E. MacDonald, D. S. Nolan, M. Sugi, and Y. Wang, 2006: Possible relationships between climate change and tropical cyclone activity. Topic reports, *Sixth International Workshop on Tropical Cyclones*, World Meteorological Organization, pp. 464-492.

Nolan, David S., Ann S. Almgren, John B. Bell, 2000: Studies of the relationship between environmental forcing and the structure and dynamics of tornado-like vortices. *Lawrence Berkeley National Laboratory Report no. LBNL-47554*.

Nolan, David S., 1996: *Axisymmetric and Asymmetric Vortex Dynamics in Convergent Flows*. Ph.D. Thesis, Department of Earth and Planetary Sciences, Harvard University.

### **Selected Invited Talks:**

October, 2014: "Development, Validation, and Applications of the JOHN/WRF Hurricane Nature Runs," weekly seminar at the Department of Atmospheric Sciences, National Taiwan University.

November, 2013: "Dynamics of the Tornado Vortex," monthly seminar at the Department of Earth, Atmospheric, and Planetary Sciences, MIT.

October, 2013: “Dynamics of the Tornado Vortex,” Applied Mathematics Seminar, Department of Mathematics, UC Berkeley.

November 2012: “Development and Validation of a High Resolution Hurricane Nature run with the ECMWF and WRF Models,” seminar at the Meteorological Research Institute in Tsukuba, Japan.

August 2012: “Comparing Hurricane Structure in Research Quality and Forecast Quality Simulations,” presented at the HFIP Model Physics Workshop at the National Centers for Environmental Prediction, College Park, Maryland.

August 2012: “Development and Validation of a High Resolution Hurricane Nature run with the ECMWF and WRF Models,” seminar at the National Hurricane Center, Miami, Florida.

March 2012: “Genesis Parameters, Genesis Thresholds, and Mid-level Humidity,” presented at the Workshop on Convection, Water Vapor, and Climate, Harvard University.

November, 2011: “Tropical Cyclogenesis in Wind Shear: Climatological Relationships and Physical Processes,” seminar at the Department of Atmospheric Sciences at the University of Albany, New York.

August 2011: “Tropical Cyclogenesis in Wind Shear: Open Questions and Recent Results,” seminar at the National Hurricane Center, Miami, Florida.

August 2011: “Modeling the Hurricane Boundary Layer: Recent Results and Open Questions,” invited talk at the Hurricane Forecast Improvement Project (HFIP) Physics Workshop, Camp Springs, Maryland.

July 2011: “Evaluating Environmental Favorableness for Tropical Cyclone Formation with the Method of Point-Downscaling,” invited talk at the International Union of Geodesy and Geophysics, Melbourne, Australia.

February 2011: “The Angular Momentum Cycle in Hurricanes: Transport, Dissipation, and Redistribution by Waves,” seminar at the Mathematics Department, Lawrence Berkeley National Laboratory, Berkeley, California.

November, 2010: “Fun with Point-Downscaling,” seminar at the Department of Atmospheric Sciences, University of Illinois Urbana-Champaign.

- September 2010: “A New Method for Evaluating the Favorability of Observed and Idealized Environments for Tropical Cyclogenesis: Point-Downscaling,” invited talk at the First International Workshop on Nonhydrostatic Modeling, Kyoto, Japan.
- September 2010: “The Angular Momentum Cycle in Hurricanes: Transport, Dissipation, and Redistribution by Waves,” seminar at the Department of Geophysics, Tohoku University, Sendai, Japan.
- August 2009: “Exploring Theories of Tropical Cyclogenesis with High-Resolution, Idealized Simulations,” seminar at the National Hurricane Center, Miami, Florida.
- March 2009: “Global Climate Hurricane Activity and Climate Change: Current Trends and Future Predictions,” invited talk for the conference “Sustainability: The Next Horizon,” at Florida Institute of Technology.
- September 2008: “The Roles of Geophysical Turbulence in Tropical Cyclones, How We Model Them, and How Well We Do So,” invited talk for the conference “Mesoprocesses in Meteorology and Air Pollution,” for conference at Odessa State Environmental University, Odessa, Ukraine.
- March 2008: “Environmental Controls of Tropical Cyclone Formation as Seen in High Resolution Simulations,” invited seminar at the Department of Earth and Planetary Sciences, Harvard University.
- February 2008: “Modeling Geophysical Turbulence in Tropical Cyclones,” invited talk for the Institute for Mathematics Applied to Geosciences “Theme-of-the-Year” workshop, National Center for Atmospheric Research, Boulder, Colorado.
- November 2007: “The Angular Momentum Cycle in Hurricanes: Transport, Dissipation, and Redistribution by Waves,” invited talk for the “Angular Momentum Transport in Laboratory and Nature” mini-conference at the Division of Plasma Physics meeting of the American Physical Society, Orlando, Florida.
- September 2007: “Environmental Controls of Tropical Cyclone Formation as Seen in High Resolution Simulations,” invited seminar at the Department of Atmospheric Sciences, University of Washington.
- April 2007: “Environmental Controls of Tropical Cyclone Formation as Seen in High Resolution Simulations,” invited seminar for the IGERT program, Columbia University.

## Extended Abstracts and Preprints:

- Nolan, D. S., and C. A. Mattocks, 2014: Development and evaluation of the second hurricane nature run using the Joint OSSE nature run and the WRF model. *Preprints, 31st AMS Conference on Hurricanes and Tropical Meteorology*, San Diego, California.
- Keperter, J. D., and D. S. Nolan, 2014: Analysis of a simulated tropical cyclone eyewall replacement cycle. *Preprints, 31st AMS Conference on Hurricanes and Tropical Meteorology*, San Diego, California.
- Bhatia, K., and D. S. Nolan, 2014: Predicting tropical cyclone intensity error. *Preprints, 31st AMS Conference on Hurricanes and Tropical Meteorology*, San Diego, California.
- Blanco, J. E., D. S. Nolan, and S. N. Tulich, 2014: Sensitivity of a simulated convectively coupled Kelvin wave to physics schemes and resolution with an idealized tropical channel. *Preprints, 31st AMS Conference on Hurricanes and Tropical Meteorology*, San Diego, California.
- Finocchio, P. M., S. J. Majumdar, and D. S. Nolan, 2014: Sensitivity of developing tropical cyclones to initial vortex depth and the height of environmental dry air. *Preprints, 31st AMS Conference on Hurricanes and Tropical Meteorology*, San Diego, California.
- Onderlinde, M. J., and D. S. Nolan, 2014: Environmental helicity and its effect on development and intensification of tropical cyclones. *Preprints, 31st AMS Conference on Hurricanes and Tropical Meteorology*, San Diego, California.
- Moon, Y., and D. S. Nolan, 2012: Spiral rainband propagation: Vortex-Rossby waves vs. tropical squall lines. *Preprints, 30th AMS Conference on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, Florida.
- Bhatia, K., and D. S. Nolan, 2012: Predicting the performance of tropical cyclone intensity forecasts using environmental parameters. *Preprints, 30th AMS Conference on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, Florida.
- Onderlinde, M., and D. S. Nolan, 2012: Comparison of the intensity evolution during Tropical Storms Gabrielle (2001) and Edouard (2002) using the method of point downscaling in a high resolution model. *Preprints, 30th AMS Conference on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, Florida.

- Stern, Daniel P., David S. Nolan, and Sim D. Aberson, 2008: Simulations and observations of extreme low-level updrafts in Hurricane Isabel (2003). *Preprints, 28th AMS Conference on Hurricanes and Tropical Meteorology*, Orlando, Florida.
- Moon, Yumin, and David S. Nolan, 2008: The dynamic response of the hurricane wind field to rainband heating. Part II: Comparison to RAINEX observations and high-resolution simulations. *Preprints, 28th AMS Conference on Hurricanes and Tropical Meteorology*, Orlando, Florida.
- Moon, Yumin, and David S. Nolan, 2007: Do gravity waves transport angular momentum away from hurricanes? *Preprints, 16th Conference on Atmospheric and Oceanic Fluid Dynamics*, American Meteorological Society, Santa Fe, NM.
- Stern, Daniel P., and David S. Nolan, 2007: The vertical structure of tangential winds in tropical cyclones: Theory vs. observations. *Preprints, 12th AMS Conference on Mesoscale Processes*, Waterville Valley, NH.
- Moon, Yumin, and David S. Nolan, 2006: The intensification of cyclones from asymmetric heating revisited: Energetics and weakly nonlinear effects. *Preprints, 27th AMS Conference on Hurricanes and Tropical Meteorology*, Monterey, CA, April, 2006.
- Stern, Daniel P., and David S. Nolan, 2006: Kinetic energy efficiencies of idealized developing tropical cyclones. *Preprints, 27th AMS Conference on Hurricanes and Tropical Meteorology*, Monterey, CA, April, 2006.
- Nolan, David S., Eric D. Rappin, and Kerry A. Emanuel, 2006: Could hurricanes form from random convection in a warmer world? *Preprints, 27th AMS Conference on Hurricanes and Tropical Meteorology*, Monterey, CA, April, 2006.
- Nolan, David S., 2004: Vortex sheets, vortex rings, and a mesocyclone. *Preprints, 22nd AMS Conference on Severe Local Storms*, Hyannis, MA, October 2004.
- Nolan, David S., Morris A. Bender, Timothy P. Marchok, Steven T. Garner, and Chris L. Kerr, 2004: Simulations of Hurricane Isabel (2003) in the WRF, GFDL, and ZETAC models. *Preprints, 5th Annual WRF User's Workshop*, Boulder, June, 2004.
- Emanuel, Kerry A., and David S. Nolan, 2004: Tropical cyclone activity and the global climate system. *Preprints, 26th AMS Conference on Hurricanes and Tropical Meteorology*, Miami Beach, May, 2004.

- Nolan, David S., 2004: Mechanics and efficiency of symmetric and asymmetric intensification processes. *Preprints, 26th AMS Conference on Hurricanes and Tropical Meteorology*, Miami Beach, May, 2004.
- Moore, Christopher W., David S. Nolan, and Daniel S. Schaffer, 2004: Coupling atmosphere and ocean models for the study of hurricane-like vortex generation. *Eos Trans. AGU*, **84(52)**, Ocean Sci. Meet. Suppl., Abstract OS41D-09.
- Nolan, David S., 2003: Instabilities in swirling boundary layers. *Preprints, 14th AMS Conference on Atmospheric and Oceanic Fluid Dynamics*, San Antonio, TX, June, 2003.
- Nolan, David S., and Michael T. Montgomery, 2002: Three-dimensional stability analyses of tornado-like vortices with secondary circulations. *Preprints, 21st AMS Conference on Severe Local Storms*, San Antonio, TX, August, 2002.
- Baidya Roy, Somnath, Chris P. Weaver, David S. Nolan, and Roni Avissar, 2002: A preferred dynamical scale for landscape-forced mesoscale circulations? *Preprints, AMS/GAPP Mississippi River Climate and Hydrology Conference*, New Orleans, LA, May 2002.
- Nolan, David S., and Robert E. Tuleya, 2002: Preliminary comparisons of tropical cyclone simulations in the GFDL and WRF Models. *Preprints, 25th Conference on Hurricanes and Tropical Meteorology*, San Diego, CA, May, 2002.
- Nolan, David S., and Michael T. Montgomery, 2002: From asymmetric heating to axisymmetric intensification. *Preprints, 25th Conference on Hurricanes and Tropical Meteorology*, San Diego, CA, May, 2002.
- Nolan, David S., and Michael T. Montgomery, 2000: Three-dimensional asymmetric eigenmodes of balanced, hurricane-like vortices. *Preprints, 24th AMS Conference on Hurricanes and Tropical Meteorology*, Fort Lauderdale, FL, May, 2000.
- Nolan, David S., Michael T. Montgomery, and Paul D. Reasor, 2000: Studies of the wavenumber one instability in hurricane-like vortices. *Preprints, 24th AMS Conference on Hurricanes and Tropical Meteorology*, Fort Lauderdale, FL, May, 2000.
- Nolan, David S., and Michael T. Montgomery, 1999: The role of vortex-Rossby waves in the algebraic growth of wavenumber one disturbances in hurricane-like vortices. *Preprints, 12th AMS Conference on Atmospheric and Oceanic Fluid Dynamics*, June, 1999, New York City, NY.

Nolan, David S., 1999: Vortex stabilization in deformation fields. *Preprints, 12th AMS Conference on Atmospheric and Oceanic Fluid Dynamics*, June, 1999, New York City, NY.

Nolan, David S., and Brian F. Farrell, 1998: The Reynolds number dependence of the flow structure and maximum windspeeds in tornado-like vortices. *Preprints, 19th AMS Conference on Severe Local Storms, September, 1998*, Minneapolis, MN.

Nolan, David S., and Brian F. Farrell, 1998: The intensification of two-dimensional swirling flows by stochastic asymmetric forcing. *Preprints of the Rossby-100 Symposium*, June 1998, Stockholm, Sweden.