William J. S. Miller

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PERSONAL

Birth Date	March 24, 1982
Birthplace	Turnersville, New Jersey, USA

EDUCATION

September 2019	Ph.D., Atmospheric and Oceanic Science, University of Maryland at College Park, MD
May 2015	M.S., Atmospheric and Oceanic Science, University of Maryland at College Park, MD
May 2004	B.S., Chemistry, with Distinction, University of Virginia, Charlottesville, VA

PROFESSIONAL EXPERIENCE

Aug 2022 – Present	Assistant Research Scientist, University of Maryland College Park/Earth System Science Interdisciplinary Center
2021-2022	Visiting Assistant Research Scientist, University of Maryland College Park/Earth System Science Interdisciplinary Center
2019-2021	Postdoctoral Researcher, University of Oklahoma/Cooperative Institute for Mesoscale Meteorological Studies/National Severe Storms Lab
2012-2019	Ph.D. student, University of Maryland College Park (UMCP) Atmospheric and Oceanic Science (AOSC) department
2005-2012	Nuclear Engineer, U.S. Navy Nuclear Propulsion Program
2004-2005	Laboratory Research Assistant, Biophysics Department, University of Virginia, Charlottesville, VA

TEACHING EXPERIENCE

2012-2013	Teaching Assistant for AOSC200/200L Weather and Climate/Weather and Climate Lab
Spring 2018	Co-instructor for AOSC 432 Dynamics of the Atmosphere and Ocean

RESEARCH INTERESTS

Structure, dynamics, and predictability of tropical cyclones; thermodynamics and microphysics of maritime and continental deep convective updrafts; radio occultation observation data assimilation; improving numerical weather prediction model data assimilation algorithms

AWARDS

2019 Best AOSC Dissertation Award (given annually), UMCP
2019 Eugene Rasmusson Fellowship Award, UMCP
2017 Best Student Poster Award, 14th Annual Symposium of the Burgers Program for Fluid Dynamics, UMCP
2016 Outstanding Graduate Assistant Award (top 2% of graduate assistants), UMCP
2015 Ann Wylie Green Fund Scholarship Award, UMCP

TRAVEL GRANTS

2019 University of Maryland Burgers Program for Fluid Dynamics travel grant for attending the American Meteorological Society (AMS) 99th Annual Meeting, Phoenix AZ

PEER-REVIEWED PAPERS

Miller, W., Y. Chen, S.-P. Ho, and X. Shao, 2022: Evaluating the impacts of COSMIC-2 GNSS RO bending angle assimilation on Atlantic hurricane forecasts using the HWRF model. *Mon. Wea. Rev.,* under review.

Miller, W., C. K. Potvin, M. Flora, B. T. Gallo, L. J. Wicker, T. Jones, P. S. Skinner, B. Matilla, and K. H. Knopfmeier, 2022: Exploring the usefulness of downscaling free forecasts from the Warn-on-Forecast System. *Weather and Forecasting*, **37,** 181-203.

Galarneau, T. J., Jr., L. J. Wicker, K. H. Knopfmeier, **W. Miller,** P. S. Skinner, and K. A. Wilson, 2022: Short-term prediction of a nocturnal significant tornado outbreak using a convection-allowing ensemble. *Weather and Forecasting,* **37,** 1027-1047.

Potvin, C. K., B. T. Gallo, A. E. Reinhart, B. Roberts, P. S. Skinner, R. A. Sobash, K. A. Wilson, K. C. Britt, C. Broyles, M. L. Flora, **W. Miller,** C. N. Satrio, 2022: An iterative storm segmentation and classification algorithm for convection-allowing models and gridded radar analyses. *J. Atmos. Ocean. Tech.,* **39,** 999-1013.

Miller, W., and D.-L. Zhang, 2020: Tracing extreme updrafts in Hurricane Wilma (2005) to their boundary layer roots using trajectories: A thermodynamic and structural analysis. *Monthly Weather Review*, **148,** 3605-3630.

Miller, W., and D.-L. Zhang, 2019: A three-dimensional trajectory model with advection correction for tropical cyclones: Algorithm description and tests for accuracy. *Monthly Weather Review*, **147,** 3145-3167.

Miller, W., and D.-L. Zhang, 2019: Understanding the unusual looping track of Hurricane Joaquin (2015) and its forecast errors. *Monthly Weather Review*, **147,** 2231-2259.

Liu, X., J. Wei, D.-L. Zhang, and **W. Miller,** 2019: Parameterizing sea surface temperature cooling induced by tropical cyclones. 1: Theory and application to Typhoon Matsa (2005). *Journal of Geophysical Research: Oceans*, **124,** https://doi.org/10.1029/2018JC014117.

Qin, N., D.-L. Zhang, **W. Miller,** and C. Q. Kieu, 2018: On the rapid intensification of Hurricane Wilma (2005). Part IV: Inner-core dynamics during the steady RMW stage. *Quarterly Journal of the Royal Meteorological Society*, **144,** 2508-2523.

Miller, W., H. Chen, and D.-L. Zhang, 2015: On the rapid intensification of Hurricane Wilma (2005). Part III: Effects of latent heat of fusion. *Journal of Atmospheric Sciences*, **72,** 3829-3849.

PRESENTATIONS

Miller, W., 2022: "Can COSMIC-2 bending angle data assimilation improve HWRF tropical cyclone forecasts? An initial evaluation using six cases from the 2020 Atlantic hurricane season." **(oral),** International Radio Occultation Working Group 9th Workshop (IROWG-9), Seggau Castle, Austria, September 2022.

Miller, W., 2022: "Evaluating the Impacts of COSMIC-2 Radio Occultation Bending Angle Assimilation on HWRF Tropical Cyclone Forecasts" **(oral),** American Meteorological Society (AMS) 102nd Annual Meeting, held virtually, January 2022.

Miller, W., 2021: "Tracing extreme updrafts in Hurricane Wilma (2005) to their boundary layer roots using trajectories: A thermodynamic and structural analysis" **(oral),** AMS 34th Conference on Hurricanes and Tropical Meteorology, held virtually, May 2021.

Miller W., 2019: "Using trajectories to study the thermodynamic characteristics of extreme updrafts simulated in Hurricane Wilma (2005)" **(poster),** 18th Annual AMS Student Conference, Phoenix, AZ, January 2019.

Miller W., and Da-Lin Zhang, 2018: "Towards a better understanding of the steering flows responsible for the unusual looping track of Hurricane Joaquin (2015)" **(poster),** American Geophysical Union (AGU) Fall Meeting, Washington, DC, December 2018.

Miller W., and Da-Lin Zhang, 2018: "On the unusual southwestward motion of Hurricane Joaquin (2015)" **(oral),** AMS 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL, April 2018.

Miller W., 2018: "Using advection correction to reduce time interpolation errors in trajectory calculations from atmospheric model output" **(poster)**, 15th Annual Symposium of the Burgers Program for Fluid Dynamics, UMCP, November 2018.

Miller W., 2017: "Simulating the unusual looping track and rapid intensification of Hurricane Joaquin (2015)" **(poster),** 14th Annual Symposium of the Burgers Program for Fluid Dynamics, UMCP, November 2017.

Miller W., and Da-Lin Zhang, 2016: "Simulating Hurricane Joaquin (2015) with WRF-ARW: Challenges and current progress" (**oral)**, Office of Naval Research (ONR) Tropical Cyclone Intensity (TCI) experiment workshop, Boulder, CO, October 2016.