

Paul W. Miller

Department of Oceanography and Coastal Sciences
Louisiana State University
2231 Energy, Coast, and Environment Building
Baton Rouge, LA 70803

office: 225-578-2734
lab: 225-578-6362
email: pmiller1@lsu.edu

EDUCATION

- 2017 **Ph.D.**, Geography, University of Georgia
Dissertation: *Anticipating thunderstorm intensity in low signal-to-noise ratio environments: Weakly forced thunderstorms in the Southeast United States*
- 2014 **M.S.**, Geography, Virginia Tech
- 2012 **B.S.**, Meteorology, Virginia Tech
- 2012 **B.A.**, Geography, Virginia Tech

ACADEMIC APPOINTMENTS

- 2019–present Assistant Professor, Department of Oceanography and Coastal Science, Louisiana State University
- 2018 Postdoctoral Research Associate, Department of Geography, University of Georgia
- 2014–2017 Presidential Fellow, Graduate School, University of Georgia
- 2016–2017 Graduate Research Assistant, Department of Geography, University of Georgia
- 2012–2014 Graduate Teaching Assistant, Department of Geography, Virginia Tech

RESEARCH AND TEACHING INTERESTS

Coastal meteorology; Applied meteorology and climatology; Mesoscale climate science; Disorganized convection; Land-atmosphere interactions; Severe weather impacts

JOURNAL PUBLICATIONS

Published or forthcoming

- In press **Miller, P. W.**, and C. A. Ramseyer: Did the Climate Forecast System anticipate the 2015 Caribbean drought? *Journal of Hydrometeorology*.
- 2019 **Miller, P. W.**, T. L. Mote, A. Kumar, and D. R. Mishra: Systematic precipitation redistribution following a strong hurricane landfall. *Theoretical and Applied Climatology*, **139**, 861–872.
- 2019 **Miller, P. W.**, A. Kumar, F. D. S. Moraes, T. L. Mote, and D. R. Mishra: Persistent hydrological consequences of Hurricane Maria in Puerto Rico. *Geophysical Research Letters*, **46**, 1413–1422.
- 2019 **Miller, P. W.**, T. L. Mote, and C. A. Ramseyer: An empirical study of the relationship between seasonal precipitation and thermodynamic environment in Puerto Rico. *Weather and Forecasting*, **34**, 277–288.

- 2019 Ramseyer, C. A., **P. W. Miller**, and T. L. Mote: Future precipitation variability during the early rainfall season in El Yunque National Forest. *Science of the Total Environment*, **661**, 326–336.
- 2018 **Miller, P. W.**, T. L. Mote, C. A. Ramseyer, A. E. Van Buesekom, M. Scholl, and G. Gonzalez: A 42-yr Assessment of Cloud Base Height in the Luquillo Mountains of Eastern Puerto Rico. *Climate Research*, **76**, 87–94.
- 2018 **Miller, P. W.**, and T. L. Mote: The algorithmic detection of pulse thunderstorms within a large, mostly nonsevere sample. *Meteorological Applications*, **24**, 629–641.
- 2018 **Miller, P. W.**, and T. L. Mote: Characterizing severe weather potential in synoptically weakly forced thunderstorm environments. *Natural Hazards and Earth System Sciences*, **18**, 1261–1277.
- 2017 Mote, T. L., C. A. Ramseyer, and **P. W. Miller**: The Saharan Air Layer as an early rainfall season suppressant in the eastern Caribbean: The 2015 Puerto Rico drought event. *Journal of Geophysical Research*, **122**, 10966–10982.
- 2017 **Miller, P. W.**, and T. L. Mote: A climatology of weakly forced and pulse thunderstorms in the Southeast United States. *Journal of Applied Meteorology and Climatology*, **56**, 3017–3033.
- 2017 **Miller, P. W.**, and T. L. Mote: Standardizing the definition of a “pulse” thunderstorm. *Bulletin of the American Meteorological Society*, **98**, 905–913.
- 2017 Mattingly, K. S., P. L. Seymour, and **P. W. Miller**: Estimates of extreme rainfall frequency in urban areas derived from spatially dense rain gauge observations. *Annals of the American Association of Geographers*, **107**, 1499–1518.
- 2017 Debbage, N., **P. W. Miller**, S. E. Poore, K. Morano, T. L. Mote, and J. M. Shepherd: A climatology of atmospheric river interactions with the Southeastern United States coastline. *International Journal of Climatology*, **37**, 4077–4091.
- 2017 Williams, C. A., **P. W. Miller**, A. W. Black, and J. A. Knox: Throwing caution to the wind: National Weather Service wind products as perceived by a weather-salient sample. *Journal of Operational Meteorology*, **5**, 103–120.
- 2017 Grundstein, A. J., J. M. Shepherd, **P. W. Miller**, and S. E. Sarnat: The role of mesoscale-convective processes in explaining the 21 November 2016 epidemic thunderstorm asthma in Melbourne, Australia. *Journal of Applied Meteorology and Climatology*, **56**, 1337–1343.
- 2016 **Miller, P. W.**, A. W. Black, C. A. Williams, and J. A. Knox: Quantitative assessment of human wind speed overestimation. *Journal of Applied Meteorology and Climatology*, **55**, 1009–1020.
- 2016 Ellis, A. W., and **P. W. Miller**: The emergence of lightning in severe thunderstorm prediction and the possible contributions from spatial science. *Geography Compass*, **10**, 192–206.

- 2016 **Miller, P. W.**, A. W. Black, C. A. Williams, and J. A. Knox: Maximum wind gusts associated with human-reported nonconvective wind events and a comparison to current warning issuance criteria. *Weather and Forecasting*, **31**, 451–465.
- 2015 **Miller, P. W.**, A. W. Ellis, and S. Keighton: Spatial distribution of lightning associated with low-shear thunderstorm environments in the central Appalachians region. *Physical Geography*, **36**, 127–141.
- 2015 **Miller, P. W.**, A. W. Ellis, and S. Keighton: The utility of total lightning trends in diagnosing single-cell thunderstorm severity: Examples from the central Appalachians region. *Journal of Operational Meteorology*, **3**, 82–98.
- 2015 **Miller, P. W.**, A. W. Ellis, and S. Keighton: A preliminary assessment of using spatiotemporal lightning patterns for a binary classification of thunderstorm mode. *Weather and Forecasting*, **30**, 38–56.

Under review or in preparation

- In review **Miller, P. W.**, M. Williams, and T. L. Mote: Modeled Atmospheric Optical and Thermodynamic Responses to an Exceptional Trans-Atlantic Dust Outbreak. *Journal of Geophysical Research: Atmospheres*.
- In review Vega, T., **P. W. Miller**, R. Rohli, J. Heavilin: Synoptic Climatology of Nuisance Flooding along the Atlantic and Gulf of Mexico Coasts, USA. *Natural Hazards*.

GRANT SUPPORT

- Under review DiMarco, S. (Lead PI), P. Miller (PI), S. Graves, S. Howden. *Cooperative Institute for Integrated Data Science and Environmental Prediction*. National Oceanic and Atmospheric Administration (Total: \$70,854,577; LSU: \$10,006,777).
- Under review Shepherd, M., D. Niyogi, M. Jin, L. Ott, Z. Tao, T. Mote, C. Mitra, J. Santanello, P. Miller (Co-I), N. Debbage, and B. Johnson. *Towards Conceptualization and Predictability: A Multi-scalar Analysis of Urban-Influenced Hydrometeorological Processes*. National Aeronautics & Space Administration (Total: \$2,169,469; LSU: \$199,539).
- Under review Mote, T., P. Miller (Co-PI), C. Ramseyer, and G. Gonzalez. *Understanding the Mechanisms Leading to Early Warning of Meteorological and Hydrological Drought in the U.S. Caribbean*. National Oceanic and Atmospheric Administration (Total: \$507,198; LSU: \$151,539).
- Under review Miller, P. (PI), J. White, S. Midway, and M. Dance. *Freshwater discharge variability in productive northern Gulf of Mexico estuaries*. National Oceanic and Atmospheric Administration (\$433,097).
- 2020–2021 P. Miller (PI). *RAPID: Coronavirus-driven aerosol reductions in East Asia and the effect on atmospheric dynamics*. National Science Foundation (\$128,339).

- 2020–2021 Miller, P. (PI). *Empirical Probability of Precipitation in Weakly Forced Environments*. University Corporation for Atmospheric Research (\$14,987).
- 2018 Miller, P. (PI), T. Mote, and D. Mishra. *Persistent hydrological consequences of hurricane interactions with the Georgia coastline*. Georgia Sea Grant (\$10,000).
- 2018 Mote, T., and P. Miller (science adviser). *Assessing changes in cloud dynamics in a tropical montane cloud forest using remotely sensed and in-situ observations following catastrophic defoliation from Hurricane Maria*. NASA DEVELOP.
- 2013 Ellis, A., S. Keighton, and P. Miller. *The Utility of Total Lightning for Warning of Pulse-Type Thunderstorms within the Central Appalachian Mountains Region*. University Corporation for Atmospheric Research (\$15,000).

CONFERENCE ACTIVITIES

- 2019 **Miller, P.W.**, A. Kumar, T. Mote, F. D. S. Moraes, and D. Mishra: Systematic precipitation redistribution following a strong hurricane landfall. *115th Annual Meeting of the American Association of Geographers*. April 3–7, 2019, Washington, D.C.
- 2019 Garmong, R., **P. W. Miller**, J. Knox: A WRF sensitivity study on optimizing precipitation forecasting in an operational context. *99th Annual Meeting of the American Meteorological Society*. January 6–10, 2019, Phoenix, AZ.
- 2019 Van Buesekom, A., G. Gonzalez, F. D. S. Moraes, J. Bucher, A. Walz, **P. W. Miller**, T. Mote, M. Scholl: Changes seen in land-atmosphere interaction after a large hurricane. *99th Annual Meeting of the American Meteorological Society*. January 6–10, 2019, Phoenix, AZ.
- 2018 **Miller, P. W.** and T. L. Mote: Characterizing severe weather potential in synoptically weakly forced thunderstorm environments. *114th Annual Meeting of the American Association of Geographers*. April 5–9, 2018, New Orleans, LA.
- 2018 **Miller, P. W.**, T. L. Mote, C. A. Ramseyer, A. E. Van Buesekom, and G. Gonzalez: A 42-yr Assessment of Cloud Base Height Trends in the Luquillo Mountains of Eastern Puerto Using Radiosonde Observations from San Juan. *98th Annual Meeting of the American Meteorological Society*. January 7–11, 2018, Austin, TX.
- 2017 **Miller, P. W.** and T. L. Mote: A climatology of weakly forced and pulse thunderstorms in the Southeast United States. *113th Annual Meeting of the American Association of Geographers*. April 5–9, 2017, Boston, MA.
- 2017 **Miller, P. W.** and T. L. Mote: A climatology of weakly forced and pulse thunderstorms in the Southeast United States. *97th Annual Meeting of the American Meteorological Society*. January 22–26, 2017, Seattle, WA.
- 2016 **Miller, P. W.** and T. L. Mote: A climatology of weakly forced thunderstorms in the Southeastern U.S. *71st Annual Meeting of the Southeastern Division of the Association of American Geographers*. November 20–22, 2016, Columbia, SC.

- 2016 **Miller, P. W.** and T. L. Mote: The utility of the term “pulse” within the thunderstorm mode nomenclature. *112th Annual Meeting of the American Association of Geographers*. March 28–April 2, 2016, San Francisco, CA.
- 2016 **Miller, P. W.** and T. L. Mote: Applications of the term "pulse" as a thunderstorm mode descriptor. *96th Annual Meeting of the American Meteorological Society*. January 10–14, 2016, New Orleans, LA.
- 2016 **Miller, P. W.**, A. W. Black, C. A. Williams, and J. A., Knox: Estimating in "vane": A quantitative description of wind speed overestimation by human observers versus instrument measurements. *96th Annual Meeting of the American Meteorological Society*. January 10–14, 2016, New Orleans, LA.
- 2014 **Miller, P. W.**, and T. L. Mote: Usage of the term “pulse” as a thunderstorm mode descriptor in Storm Prediction Center convective outlooks. *69th Annual Meeting of the Southeastern Division of the Association of American Geographers*. November 23–25, 2014, Athens, GA.
- 2013 **Miller, P. W.**, and A. W. Ellis: A meteorological application of cluster analysis: The identification of low-shear, high-instability environments using total lightning data. *68th Annual Meeting of the Southeastern Division of the Association of American Geographers*. November 24–26, 2013, Roanoke, VA.

INVITED PRESENTATIONS

- 2014 *The utility of total lightning in diagnosing pulse-type thunderstorm severity in the Central Appalachian Mountains region*, National Weather Service (NWS) Eastern Region Scientific Services Division nation-wide webinar, 7 May 2014.

HONORS AND AWARDS

- 2018 Third place paper, Climate Specialty Group, 114th Meeting of the American Association of Geographers
- 2018 John Russell Mather Paper of the Year Award, Climate Specialty Group, 114th Meeting of the American Association of Geographers
- 2014–2017 Presidential Fellow, Graduate School, University of Georgia
- 2017 Third place paper, Climate Specialty Group, 113th Meeting of the American Association of Geographers
- 2017 First place poster, Special Symposium on Severe Local Storms, 97th Meeting of the American Meteorological Society
- 2016 First place paper, 71st Meeting of the Southeastern Division of Association of American Geographers
- 2016 First place paper, 11th Symposium on Societal Applications: Policy, Research, and Practice, 96th Meeting of the American Meteorological Society

TEACHING EXPERIENCE

Louisiana State University

Modeling the Marine Atmosphere (Fall 2019)

Honors: Introduction to Oceanography (Spring 2020)

University of Georgia

Weather Analysis and Forecasting (Fall 2016, 2018)

Virginia Tech

Dynamic Meteorology II (Spring 2014)

Dynamic Meteorology I (Fall 2013)

STUDENT MENTORSHIP

Students advised

Lexi Nelson, MS (expected 2021)

Ph.D. committee member

Nazla Bushra (expected 2020)

Wenjia Cao (expected 2021)

Nick Culligan (expected 2023)

M.S. committee member

Alexandria Leake (expected 2020)

RESEARCH EXPERIENCE

- 2018 Post-doctoral research associate, University of Georgia, NSF Luquillo Long-Term Ecological Research (LTER) project
- 2016–2017 Graduate Research Assistant, University of Georgia, NSF Luquillo Long-Term Ecological Research (LTER) project
- 2014 GIS Technician, Virginia Tech, USDA East Coast Vineyards Project
- 2013 Graduate Research Assistant, Virginia Tech, University Corporation for Atmospheric Research (UCAR) GOES-R Partners Project

SERVICE TO PROFESSION AND COMMUNITY

- 2019-present Editorial Board member, *Atmosphere*
- 2019-present Honors Director, Climate Specialty Group, American Association of Geographers
- 2018 Guest scientist lecturer for UGA Marine Extension youth summer camps
- 2017–2018 Lab mentor for student volunteer from local high school
- 2016–present Reviewer, *Journal of Climate*, *International Journal of Climatology*, *Journal of Hydrometeorology*, *Journal of Applied Meteorology and Climatology*, *Physical Geography*, *Natural Hazards*, *Atmosphere*, *Water*, *Frontiers of Earth Science*
- 2015–2018 Student group facilitator, Georgia Junior Science & Humanities Symposium

PROFESSIONAL AFFILIATIONS

- 2015–present American Association of Geographers (AAG)
- 2015–present Climate Specialty Group of the AAG
- 2013–present Southeastern Division of the Association of American Geographers (SEDAAG)
- 2013–present American Meteorological Society (AMS)
- 2012–present Phi Beta Kappa