

Paul W. Miller

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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 (23 Total)

Published or forthcoming

- 2020 **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 press.
- 2020 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*. In press.
- 2020 **Miller, P. W.**, and C. A. Ramseyer: Did the Climate Forecast System anticipate the 2015 Caribbean drought? *Journal of Hydrometeorology*, **21**, 1245–1258.
- 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 Villarini, G., W. Zhang, **P. Miller**, L. Grimley, and H. Roberts: Development of an ensemble generator of rainfall associated with tropical cyclones affecting Louisiana. *Journal of Applied Meteorology and Climatology*.
- In review Reesman, C., **P. W. Miller**, R. D’Antonio, K. Gilmore, B. Schott, and C. Bannan: Areal Probability of Precipitation in Moist Tropical Air Masses for the United States. *International Journal of Climatology*.
- In review Ramseyer, C.A., and P. W. **Miller**: Historical Variability in the Trade Wind Inversion in the tropical North Atlantic Ocean and Caribbean. *International Journal of Climatology*.
- In Preparation **Miller, P. W.**, C. Reesman, M. Grossman, S. Nelson, and V. Liu: Did China’s COVID-19 Quarantine Contribute to its Warm February 2020? *PLOS One*.

GRANT SUPPORT

- Under review Kargarian, A., E. Ozdemir, S. Hagen, and P. Miller. *Towards Resilient Power Distribution: Nonparametric Learning-optimization for Wind and Flood Hazard Estimation and Protection*. National Science Foundation (\$399,942).
- Under review Miller, P (PI). *Dynamical mechanisms influencing weakly forced thunderstorm morphology*. National Aeronautics & Space Administration (\$374,790).

- Under review Miller, P (PI), T. Mote, M. Williams. *The representation of emergent terrestrial-atmospheric drought mechanisms in earth system models*. National Aeronautics & Space Administration (\$653,868).
- 2020–2023 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).
- 2020–2023 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: \$1,753,632; LSU: \$199,539).
- 2020–2021 Miller, P (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 (Advisees underlined)

- 2021 **Miller, P.W.**, M. Grossman, S. A. Nelson, C. Reesman, and V. Liu: China's COVID-19 Quarantine Marginally Exacerbated a Warm February 2020. *101st Annual Meeting of the American Meteorological Society*. January 9–15, 2021. Virtual meeting.
- 2021 Forney, R., **P. W. Miller**, and N. Debbage: Ranking the Urban Rainfall Effects of Southeastern US Cities. *101st Annual Meeting of the American Meteorological Society*. January 9–15, 2021. Virtual meeting.
- 2021 Reesman, C., **P. W. Miller**, R. D'Antonio, K. Gilmore, B. Schott, and C. Bannan: Empirical Probability of Precipitation (PoP) in Weakly Forced Environments. *101st Annual Meeting of the American Meteorological Society*. January 9–15, 2021. Virtual meeting.
- 2021 Nelson, S. A., and **P. W. Miller**: Responses to Changed Land Surface Conditions following Hurricane Landfall. *101st Annual Meeting of the American Meteorological Society*. January 9–15, 2021. Virtual meeting.

- 2021 **Miller, P.W.**, and C. Ramseyer: Anticipating the 2015 Caribbean drought using the Climate Forecast System. *101st Annual Meeting of the American Meteorological Society*. January 9–15, 2021. Virtual meeting.
- 2021 Bushra, N., R. Rohli, C. Li, and **P. W. Miller**: A Pilot Study of Contrasting Areal Changes of the Northern and Southern Hemisphere Circumpolar Vortices. *101st Annual Meeting of the American Meteorological Society*. January 9–15, 2021. Virtual meeting.
- 2020 **Miller, P.W.**, C. Reesman, M. Grossman, S. Nelson, and V. Liu: China’s COVID-19 Quarantine Marginally Exacerbated a Warm February 2020. *Annual Meeting of the American Geophysical Union*. December 1–17, 2020. Virtual meeting.
- 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.

MEDIA ENGAGEMENTS

Research or Instructional Spotlights

- 2020 *Did clean air during COVID-19 lockdowns impact the weather?* AccuWeather, 20 May 2020. <https://www.accuweather.com/en/videos/did-clean-air-during-covid-19-lockdowns-impact-the-weather/OtDlaXbi>.
- 2019 *Movie ‘Frozen’ inspires atmospheric modeling classwork*. Associated Press, 23 November 2019. <https://apnews.com/7225221683ee4f43b01e44a03839dafc>.
*This AP story was featured in at least 35 news outlets nationwide, including U.S. News and World Report, The San Francisco Chronicle, Washington Times, Houston Chronicle, Miami Herald, Charlotte Observer, and Kansas City Star.
- 2019 *A professor used the movie “Frozen” as a climate lesson - It worked*. Forbes, 21 November 2019. <https://www.forbes.com/sites/marshallshepherd/2019/11/21/a-professor-used-the-movie-frozen-as-a-climate-lessonit-worked/#794bac037429>.
- 2016 *Humans Misread Wind Speeds, Skewing a Major Hazards Database*. Eos, 6 June 2016. <https://eos.org/articles/humans-misread-wind-speeds-skewing-a-major-hazards-database>.

Comments, Quotes, or References

- 2020 *Storms complicate fight against coronavirus pandemic*. The Washington Times, 2 August 2020. <https://www.washingtontimes.com/news/2020/aug/2/storms-complicate-fight-against-coronavirus-pandem/>.

- 2020 *New Orleans air pollution plummeted during coronavirus shutdown, but how long will it last?* The New Orleans Times-Picayune, 21 May 2020.
https://www.nola.com/news/coronavirus/article_a07399fa-9ad5-11ea-b6ec-27c951b355e5.html.
- 2019 *Using facial recognition technology for... hailstorms?* The Washington Post, 22 August 2019. <https://www.washingtonpost.com/weather/2019/08/22/using-facial-recognition-technology-hailstorms/>.

INVITED PRESENTATIONS

- 2021 *Geoscience MBA: Managing your weaknesses in graduate school.* 20th Annual Student Conference at the 101st Annual Meeting of the American Meteorological Society. Virtual Meeting. 9 January 2021.
- 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, Fall 2020)
- Honors: Introduction to Oceanography (Spring 2020)
- Honors: Louisiana, Paradise Lost? (Fall 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)
Cade Reesman, MS (expected 2022)
Robert Forney, PhD (expected 2025)

Ph.D. committee member

Nazla Bushra (expected 2021)
Wenjia Cao (expected 2021)
Nick Culligan (expected 2023)
Dongxiao Yin (expected 2022)
Luke Sawyer (expected 2024)

M.S. committee member

Alexandria Leake (2020)

SERVICE TO PROFESSION AND COMMUNITY

2020-present NOAA Drought Task Force IV member
2020-present Ogden Honors College Faculty Fellow
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, *Scientific Reports*, *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