Paul W. Miller

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EDUCATION

2017	Ph.D., Geography, University of Georgia
2014	M.S., Geography, Virginia Tech
2012	B.S., Meteorology, Virginia Tech
2012	B.A., Geography, Virginia Tech

ACADEMIC APPOINTMENTS

2025–present	Associate Professor, Department of Oceanography and Coastal Science, LSU
2021–present	Associate Director, Louisiana State University (LSU) Earth Scan Lab
2019–2025	Assistant Professor, Department of Oceanography and Coastal Science, LSU
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; Tropical hydroclimate; Land-atmosphere interactions; Dynamical downscaling; Disorganized convection

JOURNAL PUBLICATIONS

Total peer-reviewed publications	45
First-author journal publications	22
Journal publications since 2021	23
Journal publications since 2016	41
Google Scholar h-index	14
Google Scholar i10-index	22

Published or forthcoming (advisees; [+]undergraduate)

In press	Dolce, C. H., and **P.W. Miller**: Systematic identification of Saharan Air Layer events over the tropical North Atlantic Ocean. *Journal of Applied Meteorology and Climatology*.
2025	Cao, W., R. Rohli, and **P.W. Miller**: Sensitivity of spatial and temporal precipitation patterns to aerosol loadings during an extreme precipitation event. *Environmental Research Communications*, **7,** 031006.
2024	**Miller, P. W.**, C. Li, K. Xu, S. Caparotta, and R. Rohli: The evolution of the 2021 *Seacor Power* tragedy in coastal Louisiana. *Weather and Forecasting*, **39**, 1503–1512.

2024 Ma, T., C. Sun, and **P. W. Miller**: Large eddy simulation of non-stationary highly turbulent hurricane boundary layer winds. *Physics of Fluids*, **36**, https://doi.org/10.1063/5.0214627.

2024 **Miller, P. W.**, and M. Hiatt: Hydrometeorological drivers of the 2023 Louisiana water crisis. *Geophysical Research Letters*, **51**, e2024GL108545.

2024 Moraes, F.D.S., C. Ramseyer, **P. W. Miller**, and J. Trepanier: Recent advances in tropical climate - A review. *Physical Geography*. 10.1080/02723646.2024.2313778

2024 **Miller, P. W.,** and C. Ramseyer: The relationship between the Saharan Air Layer, convective environmental conditions, and precipitation in Puerto Rico. *Journal of Geophysical Research: Atmospheres*, **129**, e2023JD039681.

2023 Ramseyer, C., and **P. W. Miller**: Atmospheric flash drought in the Caribbean. *Journal of Hydrometeorology*, **24**, 2177–2189.

2023 **Miller, P. W.,** and N. Debbage: Weakly forced thunderstorms in the Southeast U.S. are stronger near urban areas. *Geophysical Research Letters*, **50**, e2023GL105081.

2023 Bargu, S., M. Hiatt, K. Maiti, **P. W. Miller**, and J. White: The future of cyanobacteria toxicity in estuaries undergoing pulsed nutrient inputs: A case study from coastal Louisiana. *Water*, **15**, 3816.

2023 Midway, S., and **P. W. Miller**: Too hot to fish? Effects of weather, hurricanes, and COVID-19 on angling effort. *PLOS One,* **18**, e0291126.

2023 Reesman, C. and **P. W. Miller**: Elevated heat indices resulting from hurricane-related defoliation: A case study. *International Journal of Biometeorology*, **67**, 1323–1333.

2023 Mercado-Díaz, J., E. Holupchinski, N. Álvarez-Berríos, W. Gould, **P. W. Miller**, T. Mote, C. Ramseyer, and G. González: Fostering knowledge-exchange and collaboration among drought-related initiatives in the Caribbean. *Bulletin of the American Meteorological Society*, **104**, E1146-E1153.

2023 Nelson, S. A., and **P. W. Miller**: Understanding Meteorological Changes Following Severe Defoliation During a Strong Hurricane Landfall: Insights from Hurricane Michael (2018). *Earth Interactions*, **27**, e220012.

2023 Bushra, N., R. V. Rohli, C. Li, and **P. W. Miller**: Changing features of the Northern Hemisphere 500-hPa circumpolar vortex. *Frontiers in Big Data*, **5**, 127.

2022 Bilskie, M. V., T. G. Asher, **P. W. Miller**, J. G. Fleming, S. C. Hagen, and R. A. Luettich: Real-time simulated storm surge predictions during Hurricane Michael (2018). *Weather and Forecasting*, **37**, 1085–1102.

2022 Forney, R., N. Debbage, **P. W. Miller**, and J. Uzquiano: Urban effects on weakly forced thunderstorms observed in the Southeast United States. *Urban Climate*, **43**, 101161.

2022 Villarini, G., W. Zhang, **P. W. Miller,** L. Grimley, and H. Roberts: Development of an ensemble generator of rainfall associated with tropical cyclones affecting Louisiana. *International Journal of Climatology*, **42**, 1789–1802.

2021 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,* **41**, 5752–5765.

2021 **Miller, P. W.**, and J. Trepanier: Predicting the Gulf of Mexico hurricane season with 500-hPa temperature. *Geophysical Research Letters*, **48**, e2021GL094741.

2021 **Miller, P. W.**, C. Reesman, M. Grossman, S. Nelson, V. Liu[+], and P. Wang: Marginal warming associated with a COVID-19 quarantine and its implications for disease transmission. *Science of the Total Environment*, **780**, 146579.

2021 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. *Atmosphere*, **12**, 255.

2021 **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*, **126**, e2020JD032909.

2021 Vega, A. J., **P. W. Miller**, R. V. Rohli, and J. Heavilin: Synoptic climatology of nuisance flooding along the Atlantic and Gulf of Mexico Coasts, USA. *Natural Hazards*, **105**, 1281–1297.

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 Preece, J., C. Johnson, T. Mote, **P.W. Miller**, and M. Williams: The sensitivity of future hydroclimate projections to topography and dust in the insular Caribbean. *Journal of Geophysical Research: Atmospheres*.

In review Sawyer, L., N. Rabalais, **P. W. Miller**, and D. Justić. The effects of atmospheric teleconnections on the dynamics of hypoxia in the northern Gulf of Mexico for 1985–2022. *Environmental Research Communications*.

In review **Miller, P. W.**, K. Hamilton-Wims, K. Holmes, D. Melancon, J. Meyers, and T. Treadaway. The Expanded Regulatory Significance of Saharan Dust Plumes in the United States. *Environmental Science and Technology*.

In review Ishmam, Z., R. Rohli, and **P. W. Miller**. Dynamical Downscaling of Temperature and Precipitation over Louisiana and Mississippi, U.S.A. using the WRF Regional Climate Model. *Earth Systems and Environment*.

In review Forney, R., **P. W. Miller**, and T. Smith. Global patterns in OHC, their relationship to ENSO, and the implications for tropical cyclones. *Journal of Geophysical Research: Oceans*.

FUNDED GRANTS, CONTRACTS, AND GIFTS

Funds to institution as PI or Co-PI	$32.82 million
Funds to institution as PI	$1.71 million
Funds from NSF as sole PI	$624,583
Funds from private industry	$149,857
Gifts coordinated to university foundation	$20,000
Funds received through internal institutional competition	$648,188

Externally funded grants and contracts

2025–2030 McPeak, K., **P. W. Miller (Co-PI)**, and M. Hiatt. *WIdening the Nation's STEM Workforce INside Louisiana: WIN-WIN.* National Science Foundation ($1,590,000).

2025–2027 **Miller, P. W. (PI)**. *Saharan dust effects on Atlantic SSTs.* Office of Naval Research ($199,912).

2025–2026 Twilley, R., B. Mitchell, C. Kaiser, and **P. W. Miller (Co-PI)**. *Annual Implementation and Maintenance of ASGS/CERA/HSP - 2025/2026.* Louisiana Coastal Protection and Restoration Authority ($236,838).

2025–2027 Sun, C., and **P. W. Miller (Co-PI)**. *Integrated Models for Predictive Dynamic Wind and Wave Loads on Offshore Wind Turbines.* Ocean Energy Safety Institute ($376,870).

2025 **Miller, P. W. (PI),** and G. Upton. *Identifying Exceptional Events Affecting Ozone in Carville, LA.* Louisiana Chemical Association & Louisiana Mid-Continent Oil and Gas Association ($16,342).

2025–2031 Zimmerman, J., C. Nytch, G. Gonzalez, M. Uriarte, T. Wood, and 12 senior personnel (including **P. W. Miller**). *LTER: Luquillo LTER VII: Understanding Ecosystem Change in Northeastern Puerto Rico.* National Science Foundation (Total: $6,375,000; LSU: $100,000).

2024–2027 Sun, C., **P. W. Miller (Co-PI)**, J. Liang, and C. Ozdemir. *RAISE: CET: Understanding the complex multilevel performance and environmental impacts of floating offshore wind: supercomputing empowered multiscale multidisciplinary modeling.* National Science Foundation ($999,857).

2024–2025 Twilley, R., B. Mitchell, C. Kaiser, and **P. W. Miller (Co-PI)**. *Annual Implementation and Maintenance of ASGS/CERA/HSP - 2024/2025.* Louisiana Coastal Protection and Restoration Authority ($199,389).

2024 **Miller, P. W. (PI),** and G. Upton. *Identifying Exception Events Affecting PM Concentrations in the Baton Rouge Area.* ExxonMobil ($15,386).

2024 **Miller, P. W. (PI).** *2024 Gulf of Mexico Hurricane Outlook.* Velocity Risk Underwriters ($10,000).

2023–2028 **Miller, P. W. (PI)**. *CAREER: From Dust to Drought: Understanding the Multi-Scale Relationship between the Saharan Air Layer and Caribbean Water Stress.* National Science Foundation ($496,244).

2023–2028 Bentley, S, T. Birch, N. Jafari, Z. Xue, T. Williams, G. Mariotti, **P. W. Miller**

(Co-PI), T. Quirk, C. Wilson, K. Xu, D. Garello, M. Hiatt. *Mississippi River Delta Transition Initiative (MissDelta).* National Academy of Sciences ($21,998,890).

2023–2028 Xu, K., C. Li, S. Bentley, **P. W. Miller (Co-PI)**, and Xue, Z. *A Real-time System to Track Louisiana Coastal Hazards: High Frequency Radar Ocean Observing Network.* National Oceanic and Atmospheric Administration ($5,000,276).

2023–2025 **Miller, P. W. (PI)**, S. Midway, J. R. White, M. Dance, and M. Baustian. *A Fresh Set of Tools: New Information for Managing Fisheries during Changes in River Discharge.* United States Geological Survey ($298,781).

2023–2025 Midway, S., and **P. W. Miller (Co-PI)**. *Fish Production in Louisiana Waters: What Drives Long-Term Species Declines and Community Changes?* Louisiana Sea Grant ($164,853).

2023–2024 Sun, C., and **P. W. Miller (Co-PI)**. *Development of Wind and Sea State Models for Hurricane Conditions.* Gulf Wind Technology, LLC ($108,129).

2023–2024 Twilley, R., C. Kaiser, and **P. W. Miller (Co-PI)**. *Annual Implementation and Maintenance of ASGS/CERA/HSP - 2023/2024.* Louisiana Coastal Protection and Restoration Authority ($166,621).

2022–2023 Twilley, R., C. Kaiser, and **P. W. Miller (Co-PI)**. *Annual Implementation and Maintenance of ASGS/CERA/HSP - 2022/2023.* Louisiana Coastal Protection and Restoration Authority ($79,899).

2021–2023 Willson, C., B. Mitchell, and **P. W. Miller (Co-PI)**. *State of Louisiana Emergency Operations Center Realtime Flood Forecasting.* The Water Institute of the Gulf ($124,409).

2021–2022 **Miller, P. W.** (subcontract on large multi-institution, multi-investigator project). *Delta-X*. National Aeronautics & Space Administration ($9,420).

2020–2023 Mote, T., **P. W. Miller (LSU 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. W. Miller (LSU PI)**, 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. W. (PI)**. *RAPID: Coronavirus-driven Aerosol Reductions in East Asia and the Effect on Atmospheric Dynamics*. National Science Foundation ($128,339).

2020–2021 **Miller, P. W. (PI)**. *Empirical Probability of Precipitation in Weakly Forced Environments.* University Corporation for Atmospheric Research ($14,987).

2019–2020 Hagen, S. and **P. W. Miller (Co-PI)**. *Coastal Flood Transition Zone Advisement.* The Water Institute of the Gulf ($36,222).

2017–2018 **Miller, P. W. (PI)**, T. Mote, and D. Mishra. *Persistent Hydrological Consequences of Hurricane Interactions with the Georgia Coastline*. Georgia Sea Grant ($10,000).

External Honorific Fellowships

2021–2023 **Miller, P. W**. *Gulf Research Program Early-Career Research Fellowship.*

National Academies of Science, Engineering, and Mathematics ($76,000).

Gifts Coordinated to University Foundation

2023 **Miller, P. W.** *Velocity Risk Underwriters Climate Research Fund.* Velocity Risk Underwriters, LLC ($20,000).

Internally funded grants and contracts

2024–2026 Sun, C., **P. W. Miller (Co-PI)**, and C. Ozdemir. *Developing hurricane resilient offshore wind technology for the Gulf of Mexico considering climate change.* LSU Institute for Energy Innovation ($498,198).

2024–2025 Sun, C., **P. W. Miller (Co-PI)**, J. Liang, and C. Ozdemir. *Understanding the complex multilevel performance and environmental impacts of floating offshore wind: supercomputing empowered multiscale multidisciplinary modeling.* LSU Provost Fund ($75,000).

2024–2025 Kargarian, A., C. Ozdemir, S. Kameshwar, **P. W. Miller (Co-PI)**, F. Weil, and T. Slack. *Equitable resilience assessment in a changing climate: A system-of-systems approach.* LSU Provost Fund ($75,000).

Proposals currently under review

Under review Lee, Y., and **P. W. Miller (Co-PI)**. *Modernizing Disaster Resilience and Mitigation Strategies of Coastal Communities with Urban Digital Twin Frameworks.* Louisiana Sea Grant ($200,00).

Under review **Miller, P. W. (PI)**, S. Midway, M. Hiatt, R. Rohli, C. Willson, and S. Bentley. *From Crisis to Resilience: A Century of Science, Management, and Discovery in the Wake of the Flood.* Louisiana Sea Grant ($99,908).

CONFERENCE ACTIVITIES (advisees; [+]undergraduate)

2025 **Miller, P. W.,** and M. Hiatt: Hydrometeorological Drivers of the 2023 Louisiana Water Crisis. *Annual Meeting of the American Meteorological Society*. January 19–23, 2025, New Orleans, LA.

2024 Forney, R., **P. W. Miller,** and A. Rydbeck: Self-organizing maps reveal features of tropical cyclone-eddy-Loop Current interactions. *Annual Meeting of the American Geophysical Union*. December 9–13, 2024, Washington, DC.

2024 Johnson, P., and **P. W. Miller**: A Case-Study Modeling Urban Aerosol-Precipitation Interactions in Southeastern Louisiana. *Annual Meeting of the American Geophysical Union*. December 9–13, 2024, Washington, DC.

2024 Thomas, K., and **P. W. Miller**: Estimating the Future Frequency of Bonnet Carré Spillway Openings. *Annual Meeting of the American Geophysical Union*. December 9–13, 2024, Washington, DC.

2024 Dolce, H., and **P. W. Miller**: Assessing the Influences of the Saharan Air Layer on Atmospheric Instability and Rainfall Patterns in the Tropical North Atlantic Ocean during the Puerto Rican Early Rainfall Season. *Annual Meeting of the American Geophysical Union*. December 9–13, 2024, Washington, DC.

2024 **Miller, P. W.,** and M. Hiatt: Hydrometeorological Drivers of the 2023 Louisiana Water Crisis. *Annual Meeting of the American Geophysical Union*. December 9–13, 2024, Washington, DC.

2024 Moraes, F.D.S., Fragomeni, M., **P. W. Miller** and N. Debbage: Interdisciplinary work, teaching, and research in climatology. *Annual meeting of the American Association of Geographers*. April 16-20, 2024, Honolulu, HI.

2024 Preece, J., P. Johnson, T. Mote, and **P. W. Miller**: Dynamically downscaled projections of future precipitation and drought over Puerto Rico. *Annual meeting of the American Association of Geographers*. April 16-20, 2024, Honolulu, HI.

2024 **Miller, P. W.,** and C. Ramseyer: Trans-Atlantic Saharan Dust Pathways and their Correspondence with Precipitation in Puerto Rico. *Annual meeting of the American Association of Geographers*. April 16-20, 2024, Honolulu, HI.

2024 Russell, J.$^{+}$, **P. W. Miller,** H. Lipscomb, and S. Ye: Machine-learning approach to forecasting Gulf of Mexico tropical cyclone activity. *AGU Ocean Sciences Meeting*. February 19-22, 2024, New Orleans, LA.

2024 Preece, J., P. Johnson, T. Mote, and **P. W. Miller**: Persistent reduction in precipitation over the Sierra de Luquillo following severe defoliation from Hurricane Maria. *Annual Meeting of the American Meteorological Society*. January 28 - February 1, 2024, Baltimore, MD.

2024 Ramseyer, C., and **P. W. Miller**: Atmospheric flash drought in the Caribbean. *Annual Meeting of the American Meteorological Society*. January 28 - February 1, 2024, Baltimore, MD.

2024 Watkins, M, **P. W. Miller,** and C. Ramseyer: Anticipating the Impact of the Saharan Air Layer on the Puerto Rican Early Rainfall Season. *Annual Meeting of the American Meteorological Society*. January 28 - February 1, 2024, Baltimore, MD.

2023 Forney, R., A. Rydbeck, **P. W. Miller,** and T. Smith: Maximum potential intensity revisited: An ocean perspective. *Annual Meeting of the American Geophysical Union*. December 11–15, 2023, San Francisco, CA.

2023 White, J., J. Day, A. Spera, R. Corstanje, and **P. W. Miller**. Tracking coastal wetland area change integrating remote sensing with field-based measurements. *WetPol (Wetland for Pollution Control)*. September 12, 2023, Bruges, Belgium.

2023 White, J., J. Day, A. Spera, R. Corstanje, and **P. W. Miller**. Wetland area change linked to river reconnection for coastal restoration. *Society of Wetland Scientists Annual Meeting*. June 27-30, 2023, Spokane, WA.

2023 White, J., J.W. Day, A. Spera, R. Corstanje, B. Couvillion, and **P. W. Miller**. Components of land change at the Davis Pond Diversion. *State of the Coast*. May 31 – June 2, 2023, New Orleans, LA.

2023 Watkins, M., and **P. W. Miller**: Anticipating the impact of the Saharan Air Layer on the Puerto Rican early rainfall season. *Luquillo LTER Annual Research Symposium*. June 5–6, 2023, El Portal, PR.

2023 Johnson, C., and **P. W. Miller**: Atmospheric impacts from the 2010 Deepwater Horizon Oil Spill. *Annual Meeting of the American Meteorological Society.* January 8–12, 2023, Denver, CO.

2022 Ramseyer, C., **P. W. Miller**, C. Johnson, T. Mote, F. D. S. Moraes, and T. Gingrich: Preferred pathways of the Saharan Air Layer and impacts on Caribbean precipitation and drought. *AGU Frontiers in Hydrology.* June 19–24, 2022, San Juan, PR.

2022 Villarini, G., W. Zhang, **P. W. Miller**, D. Johnson, L. Grimley, and H. Roberts: Probabilistic rainfall generator for tropical cyclones affecting Louisiana. *AGU Frontiers in Hydrology.* June 19–24, 2022, San Juan, PR.

2022 **Miller, P. W.**, C. Ramseyer, and C. Johnson: Preferred Saharan air layer pathways across the tropical North Atlantic. *Annual Meeting of the American Meteorological Society.* January 23–28, 2022, Houston, TX.

2022 **Miller, P. W.**, C. Li, K. Xu, S. P. Caparotta, and R. V. Rohli: The evolution of the 2021 *SEACOR Power* tragedy. *Annual Meeting of the American Meteorological Society*. January 23–28, 2022, Houston, TX.

2022 Forney, R., **P. W. Miller**, N. Debbage, and J. Uzquiano: Urban effects on weakly forced thunderstorms observed among Southeast United States cities. *Annual Meeting of the American Meteorological Society.* January 23–28, 2022, Houston, TX.

2022 Reesman, C., and **P. W. Miller**: Changes in heat metrics following major hurricanes and implications on heat stress. *Annual Meeting of the American Meteorological Society*. January 23–28, 2022, Houston, TX.

2021 **Miller, P. W.**, C. Ramseyer, and C. Johnson: Preferred Saharan air layer pathways across the tropical North Atlantic. *Annual Meeting of the American Geophysical Union*. December 13–17, 2021, New Orleans, LA.

2021 Reesman, C., and **P. W. Miller**: Hydrometeorological changes associated with a COVID-19 quarantine in China. *Annual Meeting of the American Geophysical Union*. December 13–17, 2021, New Orleans, LA.

2021 Forney, R., **P. W. Miller**, N. Debbage, and J. Uzquiano[+]: Urban effects on weakly forced thunderstorms observed among Southeast United States cities. *Annual Meeting of the American Geophysical Union*. December 13–17, 2021, New Orleans, LA.

2021 Reesman, C., and **P. W. Miller**: Changes in heat metrics following major hurricanes and implications on heat stress. *76th Annual Meeting of the Southeastern Division of the American Association of Geographers*. November 22–23, 2021, Florence, AL.

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. V. 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**, and 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, and 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

2022 *Not your average thunderstorms*. Louisiana: The State We're In. Louisiana Public Broadcasting, 24 June 2022. https://www.youtube.com/watch?v=0pnrFaxr-0k

2022 *New Orleans leads South in producing extra thunderstorms from urban heat, smog*. The New Orleans Times-Picayune, 17 June 2022. https://www.nola.com/news/environment/article_74c65502-ee59-11ec-9d1a-5795d5c6df23.html

2021 *New model could help predict Gulf of Mexico hurricanes*. AGU Press Release, 16 September 2021. https://news.agu.org/press-release/new-model-could-help-predict-gulf-of-mexico-hurricanes/.
*Versions of this press release were featured in newspapers nationwide, including, the Houston Chronicle, Miami Herald, Charlotte Observer, and Fort Worth Star-Telegram.

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

2025 *How dust from the Sahara Desert can impact hurricane season*. Fox Weather, 5 June 2025. https://www.foxweather.com/watch/fmc-pfksb3mbrzbwvsr7

2025 *Saharan Dust Gives Skies Over Florida a 'Hazy Milk' Appearance*. New York Times, 4 June 2025. https://www.nytimes.com/2025/06/04/weather/saharan-dust-florida-texas.html

2024 *As saltwater flows up the Mississippi River for a third year, the region looks for permanent solutions*. Sierra Magazine, 19 November 2024. https://www.sierraclub.org/sierra/salt-water-flows-mississippi-river-third-year-region-looks-permanent-solutions

2024 *How accurate is hurricane forecasting? Meteorologists explain*. ABC News, 24 October 2024. https://abcnews.go.com/US/accurate-hurricane-forecasting-meteorologists-explain/story?id=114989006

2024 *Wind shear changed size, structure of Hurricane Milton. Then came the FL tornadoes*. New Orleans Times-Picayune, 9 October 2024. https://www.nola.com/news/hurricane/hurricane-milton-wind-shear-florida-landfall-tornadoes/article_bcaf0174-8647-11ef-a310-6fffb4e7e62a.html

2024 *Hurricane Milton cuts path of destruction; at least 12 dead, millions without power*. Los Angeles Times, 10 October 2024. https://www.latimes.com/world-nation/story/2024-10-10/florida-braces-for-death-devastation-hurricane-milton

2023 *Why Hurricane Hilary is so strange — and how it could impact California.* Vox, 19 August 2023. https://www.vox.com/2023/8/19/23838275/hurricane-hilary-california-mexico.

2022 *Hurricane Ian*. Louisiana: The State We're In. Louisiana Public Broadcasting, 7 October 2022. https://www.youtube.com/watch?v=OJWaKNkICsU

2022 *Why are Tampa's Hurricane Ian flood risks similar to New Orleans' own hurricane woes? Geography.* New Orleans Times-Picayune, 28 September 2022. https://www.nola.com/news/hurricane/article_d803c066-3eac-11ed-8539-2705f1d3d714.html

2022 *Hurricane Ian's rapid intensification is a sign of the world to come.* Vox, 28 September 2022. https://www.vox.com/science-and-health/2022/9/28/23376761/hurricane-ian-rapid-intensification-climate-change.

2022 *How a Category 1 hurricane did so much damage in Puerto Rico.* Vox, 19 September 2022. https://www.vox.com/energy-and-environment/2022/9/19/23360769/puerto-rico-hurricane-fiona-flooding

2022 *Heat Wave Fuels Hurricane Concerns*. Louisiana: The State We're In. Louisiana Public Broadcasting, 22 July 2022. https://www.youtube.com/watch?v=66XjU7DdUAQ

2022 *Prep for another above-average hurricane season with tips from Baton Rouge experts*. 225 Magazine, 3 June 2022. https://www.225batonrouge.com/our-city/prep-another-average-hurricane-season-tips-baton-rouge-experts

2022 *Hurricane season 2022*. Louisiana: The State We're In. Louisiana Public Broadcasting, 3 June 2022. https://www.youtube.com/watch?v=d5YPo36pOBo

2022 *Gulf of Mexico 2022 Hurricane Season Outlook.* Fox Weather, 2 June 2022.

2022 *LSU model predicts above-average storm count for 2022 hurricane season.* Louisiana Radio Network, 31 May 2022. https://louisianaradionetwork.com/2022/05/31/lsu-model-predicts-above-average-storm-count-for-2022-hurricane-season/

2021 *Eye of the storm*. BBC Science Focus magazine. October 2021. https://issuu.com/trifenmirino/docs/bbc_science_focus_no._369_october_2021_

2021 *With a Month Left, the Pacific Hurricane Season Reaches 16 Storms.* New York Times, 13 October 2021. https://www.nytimes.com/2021/10/13/climate/pacific-storms-risk.html

2021 *Hurricane predictions*. Louisiana: The State We're In. Louisiana Public Broadcasting, 24 September 2021. https://www.youtube.com/watch?v=Ec2MkywtC6g&t=1035s

2021 *Gulf of Mexico Hurricane Forecasts.* Fox Weather, 21 September 2021.

2021 *LSU researchers find way to better predict hurricane activity in the Gulf*. BR Proud/Fox 44/NBC 33. 17 September 2021. https://www.brproud.com/news/local-news/lsu-researchers-find-way-to-better-predict-hurricane-activity-in-the-gulf/

2021 *Climate change is making hurricanes stronger, slower and wetter. Ida checked all the boxes.* CNN, 30 August 2021. https://www.cnn.com/2021/08/30/weather/hurricane-ida-climate-change-factors/index.html.

2021 *BBC World News Nightly Broadcast.* BBC World News, 28 August 2021. Live Zoom interview about imminent landfall of Hurricane Ida for UK audience.

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

2025 *Dust to Drought: The Saharan air layer and its relationship to water stress.* Tulane University Department of River-Coastal Engineering. New Orleans, LA. 3 April 2025.

2024 *$PM_{2.5}$ Exceptional Event Demonstrations for Port Allen, Louisiana.* Annual Meeting of the Louisiana section of the Air and Waste Management Association. Baton Rouge, LA. 30 October 2024.

2024 *Recap of the 2023 Louisiana drought.* Louisiana Irrigation Association Recertification Workshop. Baton Rouge, LA. 17 October 2024.

2024 *Hydrometeorological drivers of the 2023 Louisiana water crisis.* Louisiana chapter of the Coasts, Oceans, Ports & Rivers Institute (COPRI) monthly webinar. Virtual. 21 July 2024.

2024 *Recap of the 2023 Louisiana drought.* Annual LSU Agricultural Water Management Workshop. Shreveport, LA. 21 June 2024.

2024 *Forecasting the future: Meteorology advances in Louisiana.* Annual LSU "Scholars Weekend" keynote address to top undergraduate scholarship finalists. Baton Rouge, LA. 8 March 2024.

2024 *The climatology drought in Louisiana: A 2023 case study.* Annual Meeting of the Louisiana Division of the American Society of Sugar Cane Technologists. Baton Rouge, LA. 6 February 2024.

2023 *Preferred pathways of trans-Atlantic Saharan dust advection and their relationship to Caribbean hydroclimate.* University of Southern Mississippi Department of Marine Science. Stennis Space Center, MS. 29 September 2023.

2023 *Dust to Drought: The Saharan air layer and its relationship to eastern Caribbean hydroclimate.* Centro euro-Mediterraneo sui Cambiamenti Climatici. Bologna, Italy. 14 March 2023.

2023 *Living in the Future: The evolving environmental risks of coastal Louisiana.* Spring 2023 all-hands employee meeting of Velocity Risk Underwriters. Nashville, TN. 9 February 2023.

2022 *Ocean Sciences seminar series presentation.* U.S. Naval Research Laboratory. Stennis Space Center, MS. 7 December 2022.

2022 *Keynote presentation.* Annual meeting of the South-Central Climate Adaptation Science Center. Baton Rouge, LA. 8 November 2022.

2022 *Flash drought dynamics and early warning systems in the Caribbean.* Annual meeting of the Caribbean Drought Learning Network. San Juan, PR. 9 September 2022.

2022 *Living with floods and hurricanes.* LSU Science Café. Baton Rouge, LA. 30 August 2022.

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

2024 LSU chapter of Phi Kappa Phi Honor Society Non-Tenured Faculty Award

2024 LSU Alumni Association Rising Faculty Research Award

2023–present Shell Ogden Honors College Professor

2021–present Fellow, Coastal Studies Institute, Louisiana State University

2021 National Academy of Sciences Gulf Research Program Early-Career Fellow

2019–2021 Fellow, Louisiana Sea Grant LaDIA program

2019 Top Downloaded Paper in *Geophysical Research Letters* ("Persistent hydrological consequences of Hurricane Maria in Puerto Rico" resided in the 90th percentile of total reads during the 12 months following publication.)

2014–2017 Presidential Fellow, Graduate School, University of Georgia

TEACHING EXPERIENCE

Instructor of Record

Louisiana State University

OCS/ENVS 4999 || Capstone (Fall 2024)

OCS 1005 || Introduction to Oceanography (Spring 2025)

OCS 1006 || Honors: Introduction to Oceanography (Springs 2020–2025)
OCS 2013 || Extreme Coastal Weather (Fall 2021)
OCS 3999 || Undergraduate Research (Springs 2021–2022)
OCS 7016 || Modeling the Marine Atmosphere (Falls 2019–2021, 2023)
HNRS 2000 || Honors: Louisiana, Paradise Lost? (Fall 2020)
HNRS 1036 || Extreme Coastal Weather (Falls 2022–2023)

University of Georgia

ATSC 3120 || Weather Analysis and Forecasting (Fall 2016, 2018)

Virginia Tech

GEOG 3516 || Dynamic Meteorology II (Spring 2014)
GEOG 3515 || Dynamic Meteorology I (Fall 2013)

Guest Lecturer

Georgia State University

GEOG 4642 || Advanced Weather and Climate (Spring 2023)

University of Puerto Rico – Rio Piedras

CINA 4996 || Atmospheric Science & Aerosols Research (Spring 2024)

STUDENT MENTORSHIP

Graduate students advised

Philip Johnson, M.S. (2023), Ph.D. (expected 2026)
Edwin Torres, Ph.D. (expected 2028)
Kayla Thomas, M.S. (expected 2025)
Hank Dolce, M.S. (2025)
Robert Forney, Ph.D. (2024), Research Scientist, U.S. Naval Research Laboratory
Marcus Watkins, M.S. (2024), Hail Technician, Institute for Business and Home Safety
Cade Reesman, M.S. (2022), Post-masters Researcher, Pacific Northwest National Lab
Lexi Nelson, M.S. (2021), Biologist, Environmental Protection Agency

Undergraduate Honors theses advised

Ryleigh Choplin (2025)
Vivian Liu (2024)

Ph.D. committee member

Hossein Babaei (expected 2027)
Uppu Harish (expected 2027)
Luke Sawyer (expected 2026)
Mustuque Munim (expected 2026)
Wenjia Cao (expected 2025)
Nick Culligan (2024)
Madhusudan Kamat (2022)
Dongxiao Yin (2022)
Nazla Bushra (2021)
Daniel Willis (2021)

M.S. committee member

Howard Dunleavy (expected 2025)
Suzanne Rice (2023)
Pengfei Wang (2022)

Tyler Gingrich (Virginia Tech; 2022)
Alexandra Leake (2020)

SERVICE TO PROFESSION AND COMMUNITY

Professional

2024–2025	AMS Local Organizing Committee for 2025 annual meeting in New Orleans
2023	NSF ad-hoc proposal reviewer
2022	USGS Climate Adaptation Scientists of Tomorrow career panel organizer
2021	NASA Precipitation Measurement Mission Science Team panel reviewer
2020–2023	NOAA Drought Task Force IV member
2019–2022	Editorial Board member, *Atmosphere*
2019–2021	Honors Director, Climate Specialty Group, American Association of Geographers
2016–present	Reviewer, *Proceedings of the National Academy of the Sciences, Environmental Pollution, Scientific Reports, Journal of Climate, Atmospheric Chemistry and Physics, Weather and Forecasting, Journal of Hydrometeorology*, *Journal of Applied Meteorology and Climatology, Journal of Geophysical Research: Atmospheres; Estuarine, Coastal, and Shelf Science; Earth and Space Science, International Journal of Climatology, Physical Geography, Natural Hazards, Atmosphere, Water, Frontiers of Earth Science, Professional Geographer, Southeastern Geographer*

University

2020–present	Ogden Honors College Faculty Advisory Board member
2022	LSU Flagship Strategic Plan Working Group #6: Business and Operations, member

Departmental

2022–present	Chair, DOCS Webpage committee
2020–2022	DOCS Webpage committee
2019–present	DOCS Academic Affairs committee

Community

2022-present	Atmospheric science curriculum support for Mayfair Lab School in Baton Rouge

PROFESSIONAL AFFILIATIONS

2024–present	Honor Society of Phi Kappa Phi
2020–present	American Geophysical Union (AGU)
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