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EDUCATION

- Ph.D. University of North Carolina at Chapel Hill, December 2011
Geography (concentration: applied and synoptic climatology)
Advisor: Dr. Charles Konrad II
Dissertation title: *A trajectory approach to analyzing the ingredients associated with heavy winter storms in central North Carolina.*
- M.S. University of Georgia, May 2006
Geography (concentration: atmospheric science)
Advisor: Dr. Thomas Mote
Thesis title: *Severe convective wind environments in Georgia*
- B.A. University of North Carolina at Chapel Hill *with highest honors*, May 2004
Geography (concentration: earth and environmental science)
Advisor: Dr. Charles Konrad II
Thesis title: *A climatology of cloud-to-ground lightning in the interior southeastern U.S.*

PROFESSIONAL EXPERIENCE

- Research Associate Professor**, Department of Geography and Environment, University of North Carolina at Chapel Hill, 2023-present
- Deputy Director and Regional Climatologist**, Southeast Regional Climate Center, Department of Geography and Environment, University of North Carolina at Chapel Hill, 2010-2014, 2022-present
- Lecturer**, Department of Geosciences, Mississippi State University, 2022-present
- Associate Professor**, Department of Geosciences, Mississippi State University, 2020-2022
- Assistant State Climatologist**, Department of Geosciences, Mississippi State University, 2014-2022
- Assistant Professor**, Department of Geosciences, Mississippi State University, 2014-2020
- Research Associate**, Carolinas Integrated Sciences and Assessments Program, Department of Geography, University of South Carolina, 2013-2014
- Instructor**, Department of Geography, University of North Carolina at Chapel Hill, 2008-2009

Research Assistant, Southeast Regional Climate Center, Department of Geography, University of North Carolina at Chapel Hill, 2007-2010

Teaching Assistant, Department of Geography, University of North Carolina at Chapel Hill, 2006-2009

Laboratory Instructor, Department of Geography, University of Georgia, 2005-2006

Research Assistant, Department of Geography, University of Georgia, 2004-2005

Research Assistant, State Climate Office of North Carolina, North Carolina State University, 2003

PUBLICATIONS

REFEREED ARTICLES AND REPORTS

Finley, J., B. Fosu, **C.M. Fuhrmann**, A.E. Mercer, and J. Rudzin, 2024: Quantifying downstream climate impacts of sea surface temperature patterns in the eastern tropical Pacific using clustering. *Climate*, **12** (71) <https://www.mdpi.com/2225-1154/12/5/71>

Elcik, C., **C.M. Fuhrmann**, A.E. Mercer, S. Sheridan, and K. Sherman-Morris, 2024: Perceptions of weather-based pain forecasts and their effect on daily activities. *International Journal of Biometeorology*, **68**, 109-123 <https://doi.org/10.1007/s00484-023-02575-4>

McCormick, A., A.E. Mercer, M.E. Brown, and **C.M. Fuhrmann**, 2023: Diagnosing the relationship between the Madden-Julian Oscillation and United States severe convective weather outbreaks. *International Journal of Climatology*, **43**, 6963-6978 <http://doi.org/10.1002/joc.8245>

Bollinger, R.A., V.M. Brown, **C.M. Fuhrmann**, K.L. Gleason, T.A. Joyner, B.D. Keim, A. Lewis, J.W. Nielsen-Gammon, C.J. Stiles, W. Tollefson, H.E. Attard, and A.M. Bentley, 2022: An assessment of the extremes and impacts of the February 2021 South-Central U.S. Arctic outbreak, and how climate services can help. *Weather and Climate Extremes*, **36**, 100461 <https://doi.org/10.1016/j.wace.2022.100461>

Hass, A.L., K. McCanless, W. Cooper, K. Ellis, **C.M. Fuhrmann**, K.W. Kintziger, M.M. Sugg, and J. Runkle, 2022: Heat Exposure Misclassification: Do current methods of classifying diurnal range in individually experienced temperatures and heat indices accurately reflect personal exposure? *International Journal of Biometeorology*, **66**, 1339-1348. <https://doi.org/10.1007/s00484-022-02280-8>

Elcik, C., **C.M. Fuhrmann**, S. Sheridan, A.E. Mercer, and K. Sherman-Morris, 2022. Geographical variability in the relationship between synoptic weather type and emergency department visits for different types of pain across North Carolina. *International Journal of Biometeorology*, **66**, 559-572. <https://doi.org/10.1007/s00484-021-02217-7>

Elcik, C., **C.M. Fuhrmann**, S. Sheridan, A.E. Mercer, and K. Sherman-Morris, 2020. Relationship between synoptic weather type and emergency department visits for different types of pain across the triangle region of North Carolina. *International Journal of Biometeorology*, **64**, 1815-1823. <https://doi.org/10.1007/s00484-020-01966-1>

Sugg, M.M., **C.M. Fuhrmann**, and J. Runkle, 2020. Perceptions and experiences of outdoor occupational workers using digital devices for geospatial environmental monitoring. *International Journal of Biometeorology*, **64**, 471-483. <https://doi.org/10.1007/s00484-019-01833-8>

Bailey, E., **C.M. Fuhrmann**, J. Runkle, S. Stevens, M.E. Brown, and M.M. Sugg, 2020. Wearable sensors for personal temperature exposure assessments: A comparative study. *Environmental Research*, **180**, 108858. <https://doi.org/10.1016/j.envres.2019.108858>

- Fuhrmann, C.M.**, K.M. Wood, and J.C. Rodgers, 2019. Assessment of storm surge and structural damage on San Salvador Island, Bahamas, following Hurricane Joaquin (2015). *Natural Hazards*, **99**, 913-930. <https://doi.org/10.1007/s11069-019-03782-2>
- Runkle, J., C. Cui, **C.M. Fuhrmann**, S. Stevens, and M.M. Sugg, 2019. Evaluation of wearable sensors for physiologic monitoring of individually experienced temperatures in outdoor workers in southeastern U.S. *Environment International*, **129**, 229-238. <https://doi.org/10.1016/j.envint.2019.05.026>
- Sugg, M.M., **C.M. Fuhrmann**, and J. Runkle, 2018. Temporal and spatial variation in personal ambient temperatures for outdoor working populations in the southeastern USA. *International Journal of Biometeorology*, **62**, 1521-1534. <https://doi.org/10.1007/s00484-018-1553-z>
- Elcik, C., **C.M. Fuhrmann**, A.E. Mercer, and R.E. Davis, 2017. Relationship between air mass type and emergency department visits for migraine headache across the Triangle region of North Carolina. *International Journal of Biometeorology*, **61**, 2245-2254. <https://doi.org/10.1007/s00484-017-1432-z>
- Perkins, D.R., J. Vanos, **C.M. Fuhrmann**, M. Allen, D. Knight, C. Lee, A. Lees, A. Leung, R. Lucas, H. Mehdipoor, S. Nascimento, S. Sheridan, and J. Spencer, 2017. Enhancing the teaching and learning of Biometeorology in higher education. *Bulletin of the American Meteorological Society*, **98**, ES239-ES242. <https://doi.org/10.1175/BAMS-D-16-0343.1>
- Allen, M.J., J. Vanos, D.M. Hondula, D.J. Vecellio, D. Knight, H. Mehdipoor, R. Lucas, **C.M. Fuhrmann**, H. Lokys, A. Lees, S.T. Nascimento, A.C.W. Leung, and D.R. Perkins, 2017. Supporting sustainability initiatives through biometeorology education and training. *International Journal of Biometeorology*, **61**, S93-S106. <https://doi.org/10.1007/s00484-017-1408-z>
- Sugg, J.W., **C.M. Fuhrmann**, L.B. Perry, D.K. Hall, and C.E. Konrad II, 2017: Sub-regional snow cover distribution across the Southern Appalachian Mountains. *Physical Geography*, **38**, 105-123. <https://doi.org/10.1080/02723646.2016.1162020>
- Fuhrmann, C.M.**, M.M. Sugg, and C.E. Konrad II, 2016: Airborne pollen characteristics and the influence of temperature and precipitation in Raleigh, North Carolina, USA (1999 to 2012). *Aerobiologia*, **32**, 683-696. <https://doi.org/10.1007/s10453-016-9442-6>
- Sugg, M.M., C.E. Konrad II, and **C.M. Fuhrmann**, 2016: Relationships between maximum temperature and heat-related illness across North Carolina, USA. *International Journal of Biometeorology*, **60**, 663-675. <https://doi.org/10.1007/s00484-015-1060-4>
- Fuhrmann, C.M.**, M.M. Sugg, C.E. Konrad II, and A. Waller, 2016: Impact of extreme heat events on emergency department visits in North Carolina (2007-2011). *Journal of Community Health*, **41**, 146-156. <https://doi.org/10.1007/s10900-015-0080-7>
- Kovach, M.M., C.E. Konrad II, and **C.M. Fuhrmann**, 2015: Area-level risk factors for heat-related illness in rural and urban locations across North Carolina, USA. *Applied Geography*, **60**, 175-183. <https://doi.org/10.1016/j.apgeog.2015.03.012>
- Knox, P.N., **C.M. Fuhrmann**, and C.E. Konrad, 2014: Challenges and opportunities for Southeast agriculture in a changing climate: Perspectives from State Climatologists. *Southeastern Geographer*, **54**, 118-136. <https://doi.org/10.1353/sgo.2014.0017>
- Fuhrmann, C.M.**, C.E. Konrad, M.M. Kovach, J.T. McLeod, W.G. Schmitz, and P.G. Dixon, 2014: Ranking of tornado outbreaks in the United States and their climatological characteristics. *Weather and Forecasting*, **29**, 684-701. <https://doi.org/10.1175/WAF-D-13-00128.1>
- Lippmann, S.J., **C.M. Fuhrmann**, A. Waller, and D.B. Richardson, 2013: Ambient temperature and emergency department visits for heat-related illness in North Carolina, 2007-2008. *Environmental Research*, **124**, 35-42. <https://doi.org/10.1016/j.envres.2013.03.009>

Fuhrmann, C.M. and C.E. Konrad, 2013: A trajectory approach to analyzing the ingredients associated with heavy winter storms in central North Carolina. *Weather and Forecasting*, **28**, 647-667.
<https://doi.org/10.1175/WAF-D-12-00079.1>

Kunkel, K.E., L.E. Stevens, S.E. Stevens, L. Sun, E. Janssen, D. Weubbles, C.E. Konrad, **C.M. Fuhrmann**, B.D. Keim, M.C. Kruk, A. Billot, H. Needham, M. Shafer, and J.G. Dobson, 2013: *Regional Climate Trends and Scenarios for the U.S. National Climate Assessment. Part 2: Climate of the Southeast United States*. NOAA Technical Report NESDIS 142-2.

Durkee, J.D., **C.M. Fuhrmann**, J.A. Knox, and J.D. Frye, 2012: Ageostrophic contributions to a non-convective high wind event in the Great Lakes region. *National Weather Digest*, **36**, 27-41.

Fuhrmann, C.M., C.E. Konrad II, M.M. Kovach, and D.R. Perkins, 2011: The August 2007 heat wave in North Carolina: Meteorological factors and local variability. *Physical Geography*, **32**, 217-240.
<https://doi.org/10.2747/0272-3646.32.3.217>

Knox, J.A., J.D. Frye, J.D. Durkee, and **C.M. Fuhrmann**, 2011: Nonconvective high winds associated with extratropical cyclones. *Geography Compass*, **5**, 63-89. <https://doi.org/10.1111/j.1749-8198.2010.00395.x>

Fuhrmann, C.M., 2010: The effects of weather and climate on the seasonality of influenza: What we know and what we need to know. *Geography Compass*, **4**, 718-730. <https://doi.org/10.1111/j.1749-8198.2010.00343.x>

Fuhrmann, C.M., C.E. Konrad II, and L.E. Band, 2008: Climatological perspectives on the rainfall characteristics associated with landslides in western North Carolina. *Physical Geography*, **29**, 289-305.
<https://doi.org/10.2747/0272-3646.29.4.289>

Durkee, J.D., J.D. Frye, **C.M. Fuhrmann**, M.C. Lacke, H.G. Jeong, and T.L. Mote, 2008: Effects of the North Atlantic Oscillation on precipitation type frequency and distribution in the Eastern United States. *Theoretical and Applied Climatology*, **94**, 51-65. <https://doi.org/10.1007/s00704-007-0345-x>

Lacke, M.C., J.A. Knox, J.D. Frye, A.E. Stewart, J.D. Durkee, **C.M. Fuhrmann**, and S.A. Dillingham, 2007. A climatology of cold-season non-convective wind events in the Great Lakes region. *Journal of Climate*, **20**, 6012-6022.
<https://doi.org/10.1175/2007JCLI1750.1>

BOOK CHAPTERS AND ENTRIES

Sugg, M.M., **C.M. Fuhrmann**, and J. Runkle, 2020: "Geospatial approaches to measuring personal heat exposure and related health effects in urban settings". In Y. Lu and E. Delmelle (Eds.) *Geospatial Technologies for Urban Health*, Springer Nature: Switzerland (p. 13-30). https://doi.org/10.1007/978-3-030-19573-1_2

Konrad, C.E. and **C.M. Fuhrmann**, 2014: "Climate of the Southeast United States: Past, present and future". In Ingram, K.T., K. Dow, and L. Carter (Eds.) *Climate of the Southeast United States: Variability, Change, Impacts, and Vulnerability*, Island Press: Washington D.C. https://doi.org/10.5822/978-1-61091-509-0_2

Fuhrmann, C.M., and W.S. Ashley, 2010: "Lightning". In Warf, B. (Ed.) *Encyclopedia of Geography*, SAGE Publications: Thousand Oaks, CA. <https://dx.doi.org/10.4135/9781412939591>

CONFERENCE PROCEEDINGS

Radford, J., **C.M. Fuhrmann**, and C.E. Konrad II, 2014: Relationships between meteorological factors and societal impacts associated with winter storms in the Southeast United States: Preliminary results from Atlanta, GA. *Proceedings of the Eastern Snow Conference*, **71**, 62-68.

Sugg, J.W., **C.M. Fuhrmann**, L.B. Perry, D.K. Hall, and C.E. Konrad II, 2014: Sub-regional snow cover distribution across the Southern Appalachian Mountains. *Proceedings of the Eastern Snow Conference*, **71**, 130-143.

- Hall, D.K., **C.M. Fuhrmann**, L.B. Perry, G.A. Riggs, D.A. Robinson, and J.L. Foster, 2010: A comparison of satellite-derived snow maps with a focus on ephemeral snow in North Carolina. *Proceedings of the Eastern Snow Conference*, **67**, 171-182.
- Fuhrmann, C.M.**, D.K. Hall, L.B. Perry, and G.A. Riggs, 2010: Spatial patterns of snowfall in North Carolina: Surface and satellite perspectives. *Proceedings of the Eastern Snow Conference*, **67**, 183-195.
- Fuhrmann, C.M.**, R.P. Connolly, and C.E. Konrad II, 2009: Winter storms: An overlooked source of death, destruction, and inconvenience in the Carolina Piedmont region. *Proceedings of the Eastern Snow Conference*, **66**, 45-58.
- Fuhrmann, C.M.**, and C.E. Konrad II, 2008: Synoptic-scale airflow and moisture transport associated with freezing rain events in central North Carolina. *Proceedings of the Eastern Snow Conference*, **65**, 3-16.
- Knox, J.A., M.C. Lacke, J.D. Frye, A.E. Stewart, J.D. Durkee, **C.M. Fuhrmann**, and S.A. Dillingham, 2008: A climatology of cold-season non-convective wind events in the Great Lakes region. CD-ROM Preprints, *24th Conference on Severe Local Storms*, Savannah, GA, American Meteorological Society.
- Fuhrmann, C.M.**, and W.S. Ashley, 2006: Cloud-to-ground lightning characteristics of derecho-producing convective systems in the central and southern Great Plains. CD-ROM Preprints, *23rd Conference on Severe Local Storms*, St. Louis, MO, American Meteorological Society.
- Fuhrmann, C.M.**, and T.L. Mote, 2006: On the convective organization of warm season severe thunderstorms in Georgia. CD-ROM Preprints, *5th Southeast Severe Storms Symposium*, East Mississippi Chapter of the National Weather Association/American Meteorological Society.

MANUSCRIPTS IN REVIEW/REVISION

GRANTS AND CONTRACTS

FUNDED

- Rodgers, J.C., and **C.M. Fuhrmann**, 2020-2023: Climate change and water resources in the Caribbean: A collaborative study between Mississippi State University and Clarence Fitzroy Bryant College (St. Kitts), Global Development Seed Grant Program, International Institute, Mississippi State University, \$5,460
- Rodgers, J.C., and **C.M. Fuhrmann**, 2017-2019: Study Abroad for Coastal Science and Climate Science. 100K Strong in the Americas, Association of International Educators, \$24,970.
- Czarnecki, J., W.B. Henry, L. Wasson, and **C.M. Fuhrmann**, 2017: Facilitating irrigation scheduling with unmanned aerial vehicles. Mississippi Corn Promotion Board, \$6,951.
- Vanos, J., C. Lee, J. Spencer, R. Lucas, D. Hondula, M. Allen, and **C.M. Fuhrmann**, 2016: Enhancing the teaching and learning of biometeorology in higher education. International Society of Biometeorology, \$15,000.
- Henry, W.B., and **C.M. Fuhrmann**, 2014-2015: Assessing the sensitivity of corn planting dates to climate variability in the Southeast. Cross-college Research Grant Program, Office of Research and Economic Development, Mississippi State University, \$2,000.

NOT FUNDED

- Fuhrmann, C.M.**, and J.C. Rodgers, 2022-2023: Climate change and water resources in the Caribbean: A collaborative study between Mississippi State University and Clarence Fitzroy Bryant College (St. Kitts), Natural Infrastructure for Caribbean Resilience (NICaR) Program, U.S Department of State and U.S. Forest Service, \$64,218

Fuhrmann, C.M., D. Belk, D. Thompson, and J. Keith, 2017-2018: Formation of a Cross-College Working Group on Climate Change. Cross-college Research Grant Program, Office of Research and Economic Development, Mississippi State University, \$2,000.

Henry, W.B., **C.M. Fuhrmann**, J. Krutz, and X. Li, 2017-2019: Modifying Mid-South Corn Production in Response to Local Climate Conditions. Southeast Regional Climate Hub, United States Department of Agriculture, \$75,000.

Fuhrmann, C.M., and M.E. Brown, 2016: Examining individual-level heat exposure using personal temperature and humidity sensors. Undergraduate Research Program, Office of Research and Economic Development, Mississippi State University, \$1,910.

Sugg, M.M., J. Runkle, **C.M. Fuhrmann**, and J. Bell, 2016-2018: Personal Monitoring of Occupational Heat Exposure: An Environmental Participatory Sensing Study. National Institutes of Health Exploratory and Developmental Research Grant Award (R21), \$277,410.

Sherman-Morris, K., S. Ambinakudige, P. Dash, **C.M. Fuhrmann**, D. Cochran, B. Kar, C. Ochs, D. Rutherford, and H.S. Das, 2016: Disaster Risk Reduction, Response, and Resilience Working Group. Mississippi Research Consortium, \$8,000.

Fuhrmann, C.M., R. Clary, K. Sherman-Morris, and P. Dash, 2015-2018: C4: Connected Communities for Citizen Climate. National Oceanic and Atmospheric Administration, \$499,814. *Resubmitted, 2017-2020.*

Christy, J.R., R.T. McNider, J. Cruise, G. Graves, P. Srivastava, G. Tootle, **C.M. Fuhrmann**, W.B. Henry, L.J. Kurtz, and B. Williams, 2015-2019: Investigating Pathways for Geographically Sustainable Food, Energy, and Water Systems. National Science Foundation's Experimental Program to Stimulate Competitive Research (EPSCoR), \$3,860,000 (\$960,000 for Mississippi State University, \$298,933 for Geosciences). *Resubmitted, 2016-2020.*

OTHER (FUNDED)

Events Sponsorship Program Grant, Oak Ridge Associated Universities (ORAU), \$4,000 (Awarded October 2019) with M. Sugg (Appalachian State University), J. Runkle (North Carolina State University), K. Ellis (University of Tennessee), A. Haas (Middle Tennessee State University)

Faculty Travel Grant, Southeastern Conference (SEC), \$1,000 (Awarded July 2019)

College of Arts & Sciences Academic Excellence (Acadex) Fund and Office of Research and Economic Development Faculty Research Support Program, Mississippi State University, \$6,000 (Awarded December 2016, June 2017, December 2018, December 2019).

PRESENTATIONS (*Lead authored only*)

INVITED PRESENTATIONS

Using a web-based tool to forecast local variations in wet bulb globe temperature. Presented to the Atmospheric Sciences Program, Department of Environmental Sciences, University of Virginia, October 2023

Weather and Climate of the Caribbean. Presented to GR 4553: Bahamas Field Course, Mississippi State University, June 2018, June 2019, June 2022, June 2023

Climate Variability, Climate Change, and their Implications for Agriculture in the Southeast U.S. Presented to AELC 4803: Contemporary Issues in Agriculture, Mississippi State University, February 2022.

CoCoRaHS in the Bahamas: An Update from San Salvador Island. Presented at the Virtual Meeting on Managing and Utilizing Precipitation Observations from Volunteer Networks, May 2020

Climate Change and Agriculture in the Southeast U.S. Presented to AELC 4803: Contemporary Issues in Agriculture, Mississippi State University, January 2020.

Climate Change and Agriculture in the Southeast U.S. Presented to AELC 4803: Contemporary Issues in Agriculture, Mississippi State University, February 2019

Climate Change in the Southeast United States: What Do We Know and What Do We Need to Know? Presented at the 29th Annual BMP/OMP Workshop, Department of Geosciences, Mississippi State University, August 2018, Mississippi State, MS

Climate Change and Agriculture in the Southeast U.S. Presented to AELC 4803: Contemporary Issues in Agriculture, Mississippi State University, March 2018

Making Sense of Climate Models. Presented to HON 3183: History and Policy of Climate Change, Mississippi State University, February 2018

Weather and Climate of the Caribbean. Presented to GR 4990: Caribbean Geography, Mississippi State University, February 2018

Climate change in the Southeast U.S. What we know and what do we need to know? Presented as part of Green Week, Office of Sustainability, Mississippi State University, October 2017, Mississippi State, MS (with Andrew Mercer)

Climate change from a research perspective: an overview and discussion from MSU climate scientists. Presented as part of Earth Week, Office of Sustainability, Mississippi State University, April 2017, Mississippi State, MS (with Jamie Dyer and Andrew Mercer)

The heat hazard: Who's at risk? Presented as part of Maroon Edition, Mississippi State University, October 2016, Mississippi State, MS

Climate trends and future scenarios for the Southeast United States: Results from the 2014 National Climate Assessment. Presented at the 27th Annual BMP/OMP Workshop, Department of Geosciences, Mississippi State University, August 2016, Mississippi State, MS

Collaboration in Paradise: Assessing Hurricane Impacts on San Salvador Island in the Bahamas. Presented at the Brown Bag Seminar Series, Department of Geosciences, Mississippi State University, April 2016, Mississippi State, MS (with John Rodgers and Kim Wood)

Climate trends and future scenarios for the Southeast United States: Results from the 2014 National Climate Assessment. Presented at the 26th Annual BMP/OMP Workshop, Department of Geosciences, Mississippi State University, August 2015, Mississippi State, MS

Results from the 2014 National Climate Assessment and Implications for Agriculture in the Southeast U.S. Presented at the Southern Grain and Feed Convention, July 2015, Destin, FL

Climate Service and Agriculture in Mississippi. Presented at the Annual Convention of the Mississippi Seedsmen's Association, February 2015, Tunica, MS

Climate trends and future scenarios for the Southeast United States: Results from the 2014 National Climate Assessment. Presented at the Spring 2015 Graduate Student Seminar Series, College of Veterinary Medicine, Mississippi State University, January 2015, Mississippi State, MS

Climate trends and future scenarios for the Southeast United States: Results from the 2014 National Climate Assessment. Presented at the Fall 2014 Brown Bag Seminar Series, Department of Geosciences, Mississippi State University, October 2014, Mississippi State, MS

Heat-related morbidity in North Carolina: Who's at risk? Presented at the Annual Science Symposium on Climate and Health, Centers for Disease Control and Prevention, September 2012, Atlanta, GA

The Southeast Regional Climate Center: Providing climate services for the Southeast United States. Hollings Marine Laboratory, July 2011, Charleston, SC (with Chip Konrad)

Heat-related morbidity in North Carolina: Who's at risk? Center for Health Informatics, University of North Carolina at Chapel Hill, February 2011, Chapel Hill, NC

CONFERENCE PRESENTATIONS

Exploring heat-related vulnerability using NOAA's Urban Heat Watch mapping campaigns. Presented at the Annual Climate Prediction Applications Science Workshop, March 2024, Tallahassee, FL

Examination of rainfall variability on San Salvador Island using data from a volunteer rain gauge network. Presented at the 4th Joint Symposium on the Natural History and Geology of the Bahamas, June 2023, San Salvador Island, Bahamas (virtual presentation)

Using a web-based tool to forecast local variations in wet bulb globe temperature. Presented at the 23rd International Congress of Biometeorology, May 2023, Tempe, AZ

Examination of rainfall variability in the Bahamas using data from a volunteer rain gauge network. Presented at the Mississippi Water Resources Conference, April 2022, Mississippi State, MS

CoCoRaHS in the Bahamas: What we learned from a years' worth of rain on San Salvador Island. Presented at the Annual Meeting of the Southeastern Division of the Association of American Geographers, November 2019, Wilmington, NC

CoCoRaHS in the Bahamas: What we learned from a years' worth of rain on San Salvador Island. Presented at the Annual Meeting of the American Association of State Climatologists, June 2019, Santa Rosa, CA

Are we in a state of climate confusion? Moving beyond uncertainties in climate science to ensure accessible and sustainable sources of energy. Presented as part of the 1st Interdisciplinary Workshop Series, Institute for the Humanities, Mississippi State University, March 2018, Mississippi State, MS (with Vasileios Sassanis)

Heat Exposure and Associated Health Effects in an Outdoor Stadium Venue. Presented at the 98th Annual Meeting of the American Meteorological Society, January 2018, Austin, TX

Assessment of Personal Heat Exposure among Grounds Management Workers in the Southeast USA. Presented at the Annual Meeting of the Southeastern Division of the Association of American Geographers, November 2017, Starkville, MS

Personal Monitoring of Occupational Heat Exposure among Grounds Management Workers: Preliminary Results from Three University Campuses. Presented at the 21st International Congress of Biometeorology, September 2017, Durham, England, UK

Personal Monitoring of Occupational Heat Exposure among Grounds Management Workers: Preliminary Results from Three University Campuses. Presented at the 97th Annual Meeting of the American Meteorological Society, January 2017, Seattle, WA

Assessing hurricane impacts on San Salvador Island in the Bahamas. Presented at the Annual Meeting of the Southeastern Division of the Association of American Geographers, November 2016, Columbia, SC

Evaluation of the effectiveness of National Weather Service heat forecasts in North Carolina. Presented at the Southeast Severe Local Storms Symposium, March 2015, Starkville, MS.

Climate trends and future scenarios for the Southeast United States: Results from the 2014 National Climate Assessment. Presented at the Annual Meeting of the Southeastern Division of the Association of American Geographers, November 2014, Athens, GA

Evaluation of the effectiveness of National Weather Service heat forecasts in North Carolina. Presented at the 20th International Congress of Biometeorology, September 2014, Cleveland, OH

The effect of extreme heat on human health in North Carolina. Presented at the 21st AMS Conference on Applied Climatology, June 2014, Westminster, CO

Evaluation of National Weather Service Heat Advisory, Watch, and Warning Criteria for Triggering a Heat Emergency Response Plan in North Carolina. Presented at the 12th Annual Climate Prediction and Applications Science Workshop, May 2014, Fairfax, VA

The effect of extreme heat on human health in North Carolina. Presented at the CISA Climate Resilience Conference, April 2014, Charlotte, NC

The effect of extreme heat on human health in North Carolina. Presented at the 110th Annual Meeting of the Association of American Geographers, April 2014, Tampa, FL

The impact of weather and climate on airborne pollen concentrations and allergic disease in Wake County, North Carolina. Presented at the Annual Meeting of the Southeastern Division of the Association of American Geographers, November 2013, Roanoke, VA

Evaluation of National Weather Service Heat Advisory, Watch, and Warning Criteria for Triggering a Heat Emergency Response Plan in North Carolina. Presented at the Annual Meeting of the National Weather Association, October 2013, Charleston, SC

Development of a web-based toolbox for exploring, visualizing, and predicting the health impacts of weather and climate events. Presented at the 109th Annual Meeting of the Association of American Geographers, April 2013, Los Angeles, CA

Relationships between excessive heat warnings, advisories, and emergency department visits in central North Carolina. Presented at the 93rd Annual Meeting of the American Meteorological Society, January 2013, Austin, TX

Heat-related morbidity in North Carolina: Who's at risk? Presented at the Annual Education Conference of the North Carolina Public Health Association, September 2012, New Bern, NC

A trajectory approach to analyzing the ingredients associated with heavy winter storms in central North Carolina. Presented at the 108th Annual Meeting of the Association of American Geographers, February 2012, New York, NY

A trajectory approach to analyzing the ingredients associated with heavy winter storms in central North Carolina. Presented at the 92nd Annual Meeting of the American Meteorological Society, January 2012, New Orleans, LA

Climate and health: A regional perspective on vulnerabilities and information needs. Presented at the 19th Conference on Applied Climatology, July 2011, Asheville, NC

Using back-trajectories to analyze the ingredients associated with heavy winter precipitation in central North Carolina. Presented at the 68th Eastern Snow Conference, June 2011, Montreal, QC, Canada

An overview of climate assessment activities in the Southeast region. Presented at the 9th Climate Prediction and Applications Science Workshop, March 2011, Des Moines, IA

Heat-related morbidity in North Carolina: Who's at risk? Presented at the 91st Annual Meeting of the American Meteorological Society, Symposium on Environment and Health, January 2011, Seattle, WA

User engagement and applied research activities at the Southeast Regional Climate Center. Presented at the 35th Climate Diagnostics and Prediction Workshop, October 2010, Raleigh, NC

Using atmospheric trajectories to study the patterns and processes associated with winter precipitation in the Southeast United States. Presented at the 106th Annual Meeting of the Association of American Geographers, April 2010, Washington, D.C.

Current and future applications of climate data and services for the health sector. Presented at the 90th Annual Meeting of the American Meteorological Society, Symposium on Environment and Health, January 2010, Atlanta, GA

Winter storms: An overlooked source of death, destruction, and inconvenience in the Carolina Piedmont region. Presented at the Carolinas-Virginia Climate Conference, October 2009, Wilmington, NC

A dicey situation: Are freezing rain patterns changing in the Southeast United States? Presented at the Carolinas-Virginia Climate Conference, October 2009, Wilmington, NC

Sub-synoptic climatology of winter precipitation in central North Carolina on the basis of atmospheric back trajectories. Presented at the 66th Eastern Snow Conference, June 2009, Niagara on the Lake, ON, Canada

Pattern matters: How can synoptic climatology be explicitly incorporated into winter precipitation forecasts? Presented at the 105th Annual Meeting of the Association of American Geographers, April 2009, Las Vegas, NV

Climatological perspectives on the rainfall characteristics associated with landslides in western North Carolina. Presented at the 62nd Annual Meeting of the Southeastern Division of the Association of American Geographers, Student Honors Competition, November 2007, Charleston, SC

Climatological perspectives on the rainfall characteristics associated with landslides in western North Carolina. Presented at the 10th Conference on Water Sustainability, International Geographical Union, August 2007, Asheville, NC

A closer look at ice storm severity in the Southeast United States using an ingredients-based methodology. Presented at the 64th Eastern Snow Conference-Joint Meeting with the Canadian Meteorological and Oceanographic Society, May 2007, St. John's, NL, Canada

From the stratosphere to the surface: Insights into the relationship between high winds and mid-latitude cyclones. Presented at the 103rd Annual Meeting of the Association of American Geographers, April 2007, San Francisco, CA

The patterns of freezing rain intensity in the Southeast winter storms: Surface observations and synoptic features. Presented at the 101st Annual Meeting of the Association of American Geographers, April 2005, Denver, CO

Summer season associations between cloud-to-ground lightning and severe weather in the Southeast United States. Presented at the 59th Annual Meeting of the Southeastern Division of the Association of American Geographers, November 2004, Biloxi, MS

A climatology of frozen precipitation types and their transitions across the Southeast United States. Presented at the 58th Annual Meeting of the Southeastern Division of the Association of American Geographers, November 2003, Charlotte, NC

CONFERENCE POSTERS

Establishing a statewide maximum annual precipitation record for Mississippi. Presented at the Annual Meeting of the American Association of State Climatologists, June 2022, Durham, NH

A climatological analysis of the daily range in warm-season temperature and heat index in the Southeast United States. Presented at the virtual meeting of the 22nd International Congress of Biometeorology, September 2021

Relationships between synoptic-scale circulation features and antecedent upstream air trajectories associated with winter storms in central North Carolina. Presented at the 94th Annual Meeting of the American Meteorological Society, February 2014, Atlanta, GA

Ranking of tornado outbreaks in the eastern United States and their climatological characteristics. Presented at the 26th Conference on Severe Local Storms, November 2012, Nashville, TN

Ranking of tornado outbreaks in the eastern United States and their climatological characteristics. Presented at the Annual Meeting of the National Weather Association, October 2012, Madison, WI

A review of the 2009-2010 winter season in the Southeast United States. Presented at the 67th Eastern Snow Conference, June 2010, Hancock, MA

Using atmospheric trajectories to study complex winter storms: Two case studies from central North Carolina. Presented at the 90th Annual Meeting of the American Meteorological Society, Student Conference, January 2010, Atlanta, GA

Using atmospheric trajectories to study complex winter storms: Two case studies from central North Carolina. Presented at the 64th Annual Meeting of the Southeastern Division of the Association of American Geographers, November 2009, Knoxville, TN

The clustering of extreme weather events in the Southeast United States with respect to time and their relationship with the planetary scale circulation. Presented at the 5th Annual University Research Symposium, University of North Carolina at Chapel Hill, March 2009, Chapel Hill, NC

Jet stream or jet plane? The effects of climate on influenza. Presented at the 6th Annual One Medicine Symposium, November 2008, Durham, NC

Jet stream or jet plane? The effects of climate on influenza. Presented at the 63rd Annual Meeting of the Southeastern Division of the Association of American Geographers, November 2008, Greensboro, NC

A diagnostic study of non-convective high winds in the 12-13 November 2003 Great Lakes cyclone. Presented at the 24th Conference on Severe Local Storms, October 2008, Savannah, GA

Does Charlotte, North Carolina create its own weather? An examination of urban thunderstorm enhancement using cloud-to-ground lightning data. Presented at the 60th Annual Meeting of the Southeastern Division of the Association of American Geographers, November 2005, West Palm Beach, FL

A case study of the 4-5 December 2002 Southeast winter storm. Presented at the Annual Triangle Undergraduate Research Symposium, Duke University, November 2003, Durham, NC

STUDENT ADVISING (Mississippi State University)

ADVISOR, Ph.D.

Christopher Elcik, 2019. *Relationship between air mass type and emergency department visits for different forms of pain across North Carolina and assessing the potential for weather-based pain forecasts.*

ADVISOR, M.S.

Peter Crank, 2016. *Thermal variation and the built environment of Jackson, Mississippi.*

Christopher Elcik, 2016. *Relationship between air mass type and emergency department visits for migraine headache across the Triangle region of North Carolina.*
Andrew Collins, 2018. *Ambient micro-climate and thermal comfort assessment of Davis Wade Stadium during the 2016 football season.*
Christana Landress, 2020. *Surface and satellite perspectives on precipitation variability across San Salvador Island, Bahamas.*
Alexis Carden, 2020 (Environmental Geoscience non-thesis)
Sean Douglas, 2021. *Relationships between daily teleconnection indices and Oklahoma tornado activity.*

COMMITTEE MEMBER, Ph.D.

Christa Haney, 2017. *Winter weather hazards: Risks and vulnerability associated with snow removal.*
Barrett Gutter, 2017. *Assessing tornado watches for accuracy, impacts on daily activities, and potential economic impacts.*
Jake Wiley, 2022. *Synoptic-scale identification and classification of lake-effect snowstorms off the North American Great Lakes.*

COMMITTEE MEMBER, M.S.

Michelle Elmore, 2016. *Sensitivity of physical parameterization schemes to stochastic initial conditions of WRF tornado outbreak simulations.*
Alex Elmore, 2016. *Nocturnal tornado outbreak climatology.*
Megan Spade Williams, 2018. *Utilizing artificial intelligence to predict severe weather outbreak severity in the contiguous United States.*
Jake Wiley, 2018. *Sensitivity analysis of Lake Erie and Lake Ontario lake-effect snow events using the Weather Research and Forecast model.*
Elizabeth Bailey (Department of Geography and Planning, Appalachian State University), 2019. *Wearable sensors for personal temperature exposure assessments: A comparative study.*
Derek Rosseau, 2019. *Estimating near-surface vertical heat fluxes over agricultural areas using a small unmanned aerial vehicle (sUAV).*
Michelle Lewis, 2019. *An analysis of the effects of climatic oscillations and hurricane intensification on the destructiveness of Gulf Coast hurricane landfalls.*
Mary-Stewart Wachter, 2019. *Effect of frontal passages on 24-hour thermal variability of urban heat islands.*
Andrew McCormick, 2020. *The Madden-Julian Oscillation and its relation to tornado outbreaks in the central and eastern United States.*
Justin Bowles, 2021. *A climatology of tornado outbreak environments derived from unsupervised learning methods.*
Paul Craven, 2021 (Environmental Geoscience, non-thesis)
Stephen Wooten, 2022. *Against the clock: uncovering diurnal time interval decision differences during tornado warnings among Lower Mississippi Valley residents.*
Jolie Kavanagh, 2022. *Defining viable solar resource locations in the Southeast United States using the satellite-based GLASS product.*
Jenna Bartlett, 2022. *An investigation of geostationary satellite imagery to compare developing and non-developing African easterly waves.*

STUDENT ADVISING (University of North Carolina at Chapel Hill)

COMMITTEE MEMBER, Ph.D.

Bryttani Wooten, expected 2026.
Julia Cardwell, expected 2025.
Jason Finley (Department of Geosciences, Mississippi State University), expected 2024.
Kendra Wagner (Department of Entomology, Mississippi State University), expected 2024.

COMMITTEE MEMBER, M.S.

Jonathan Marcus, 2024. *Characterizing Changes in Tornadoic Disaster Potential in 21st Century North Carolina Through Climatological, Populational, and Developmental Data.*

Maggye McCallie (Department of Geosciences, Mississippi State University), 2023. *Relationships between heat alerts, extreme heat days, and heat-related mortality within the Contiguous United States over the last decade.*

TEACHING

Research Associate Professor, University of North Carolina at Chapel Hill, 2024-present
GEOG 111: *Introduction to Weather and Climate*

Assistant Professor, Associate Professor, and Lecturer, Mississippi State University, 2014-present

GR 1604: *Weather and Climate*

GR 4412/6412: *Weather Analysis II*

GR 4613/6613: *Applied Climatology*

GR 4623/6623: *Physical Meteorology*

GR 4643/6643: *Physical Meteorology & Climatology I* (on campus and distance)

GR 4990/6990: *Human Biometeorology*

GR 6603: *Climatology* (distance)

GR 8633: *Climate Change* (on campus and distance)

GR 8833: *Weather and Society*

GR 8913: *Philosophy and Ethics in the Geosciences*

Instructor, University of North Carolina at Chapel Hill, 2008-2009
GEOG 111: *Introduction to Weather and Climate*

Teaching Assistant, University of North Carolina at Chapel Hill, 2006-2009
GEOG 110: *Environmental Systems*
GEOG 111: *Introduction to Weather and Climate*
GEOG 370: *Introduction to Geographic Information*

Laboratory Instructor, University of Georgia, 2005-2006
GEOG 1112L: *Introduction to Weather and Climate*

PROFESSIONAL DEVELOPMENT

Writing Winning Grant Proposals, Grant Writers' Seminars and Workshops, April 2022, Mississippi State University, Mississippi State, MS

Traveling Workshop Program, National Association of Geoscience Teachers, September 2021 and 2014, Mississippi State University, Mississippi State, MS

Grants Resource Center Services Workshop, November 2016, Mississippi State University, Mississippi State, MS

Climate Services Workshop, National Weather Service, September 2016, Memphis, TN

Students and New Professionals Workshop, International Society of Biometeorology, July 2016, Old Dominion University, Norfolk, VA

CTL 101: Best Practices in Online Instruction, Certification Completed May 2016, Mississippi State University, Mississippi State, MS

Students and New Professionals Workshop, International Society of Biometeorology, September 2014, Kent State University, Kent, OH

Symposium on Extreme Weather, Climate, and Health: *Putting Science into Practice*, January 2013, U.S. Department of Health and Human Services, Washington, D.C.

Annual Meeting, Regional Integrated Sciences & Assessment Program, January 2013, La Jolla, CA

Summer Community Meeting of the American Meteorological Society, August 2012, National Weather Center, Norman, OK

Biannual Colloquium on Climate and Health, July 2011, National Center for Atmospheric Research, Boulder, CO

Workshop on Climate Change Adaptation in North Carolina: *Ask the Climate Question*, March 2010, Raleigh, NC

EPA Southeast Climate Change Adaptation Planning Workshop, February 2010, Atlanta, GA

One Medicine Symposia on infectious and vector-borne diseases, December 2009 & 2010, Durham, NC

International Conference on Geomedical Systems, November 2009, Medical University of South Carolina, Charleston, SC

Undergraduate Leadership in Research Workshop, June 2003, National Center for Atmospheric Research, Boulder, CO

PROFESSIONAL SERVICE

MISSISSIPPI STATE UNIVERSITY

Promotion and Tenure Committee, Department of Geosciences, 2020-2022 (Chair, 2021-2022)

Distance Learning Oversight Committee, Department of Geosciences, 2015-2017, 2020-2022

Curriculum Committee, Department of Geosciences, 2020-2022

Awards Committee, Department of Geosciences, 2020-2022

Evaluator, Graduate Teaching Assistant Workshop, 2021

Instructor Search Committee (Geography and Geology), Department of Geosciences, 2020

Team Leader, Meteorology Program, 2019-2022

Dean's Appointed Member, Scholarship Committee, College of Arts & Sciences, 2018-2021

Faculty Advisor, East Mississippi Chapter of the AMS/NWA, 2016-2018

Planning Committee Member, The Maroon Edition First-Year Reading Experience, 2017-2018

Panelist, *Housing, Health, and Hazards*, Maroon Edition, 2016

Faculty Search Committees (Meteorology Tenure-Track, Geography Tenure-Track, Meteorology Clinical Faculty, Meteorology-NGI Tenure-Track, Geography/GIS Tenure-Track), Department of Geosciences, 2015-2022

Committee on Building and Infrastructure, Department of Geosciences, 2016-2019 (Co-Chair 2017-2019)

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Panelist, Graduate Student Recruitment Weekend and Research Fair, Department of Geography, 2010

Faculty Search Committee (Graduate Student Representative), Department of Geography, 2009

Colloquium Committee (Graduate Student Representative), Department of Geography, 2007-2008

Curriculum Committee (Graduate Student Representative), Department of Geography, 2006-2007

EXTRAMURAL SERVICE

Manuscript Reviewer, *International Journal of Biometeorology*, *Science of the Total Environment*, *Environmental Health Perspectives*, *Geography Compass*, *International Journal of Environmental Research and Public Health*, *Journal of Applied Meteorology and Climatology*, *Progress in Physical Geography*, *Climate Research*, *Natural Hazards*, *Weather and Forecasting*, *Southeastern Geographer*, *International Journal of Climatology*, *Medicina*, *International Journal of Environmental Health Research*, *Environment International*

Proposal Reviewer, *National Science Foundation*, *Louisiana Sea Grant*

Member, Editorial Advisory Board, *International Journal of Biometeorology*, 2021-present

Guest Editor, Special Issue on the Universal Thermal Climate Index, *Atmosphere*, 2022

Interviewed and quoted in featured news story, *Climate and change: As temperatures rise, expect public health problems to soar*, *The Montgomery Advertiser*, September 20, 2019

Interviewed and quoted in featured news story, *More Mosquitoes, Health Woes Likely*, *The Greenwood (MS) Commonwealth*, December 8, 2018

Moderator, SEC Academic Conference on The Future of Water, March 2017, Starkville, MS

Interviewed in featured news story, *Opportunities and Challenges for Personal Heat Exposure Research*, *Environmental Health Perspectives*, February 22, 2017.

State Representative (Mississippi), Southeastern Division of the Association of American Geographers, 2016-2018

Planning and Local Arrangements Committee, Annual Meeting of the Southeastern Division of the Association of American Geographers, 2016-2017

Interviewed in featured news story, *New Temperature Sensors in Davis Wade Stadium*, *WCBI-TV Columbus, MS*, September 2, 2016

Interviewed in featured news story, *White House releases national climate report: What it means for North Carolina*, *WCCB-TV Charlotte, NC*, May 14, 2014

Planning Committee, Public Health and Climate Change Summit, Research Triangle Environmental Health Collaborative, October 2013, Raleigh, NC

Interviewed and quoted in featured news story, *As Temperatures Climb, So Do the Health Consequences*, *North Carolina Health News*, August 19, 2013

Invited presenter, NOAA Monthly Climate Teleconference: State of the Climate, July 2013, Asheville, NC (quoted in several local and national media outlets)

Facilitator, Strategic Planning Workshop, North Carolina Division of Public Health and Centers for Disease Control and Prevention, April 2012, Raleigh, NC

Organizer and Panelist, Symposium on Climate and Public Health in North Carolina, August 2011, Chapel Hill, NC

Advisory Committee, Building Resilience in North Carolina, CDC-BRACE Program, North Carolina Division of Public Health, 2014-2016

Advisory Committee, North Carolina Climate-Ready Program, North Carolina Division of Public Health, 2011-2016

Research Committee, Eastern Snow Conference, 2011-2016 (Chair, 2013-2016)

Planning and Local Arrangements Committee, Eastern Snow Conference, 2014

Steering Committee, Eastern Snow Conference, 2016-2017

Workshop Assistant, Climate Change and Human Health: Assessing the Climate Information Gap, September 2009, Asheville, NC

Workshop Assistant, Southeast Drought Early Warning System Planning Meeting, National Integrated Drought Information System, July 2009, Chapel Hill, NC

Workshop Assistant, Climate Prediction & Application Science Workshop, March 2008, Chapel Hill, NC

Discussant, Paper Session on Hurricane Analysis, Annual Meeting of the Southeastern Division of the Association of American Geographers, November 2007, Charleston, SC

PROFESSIONAL MEMBERSHIPS

American Meteorological Society (since 2010)

American Association of Geographers (Southeast Division, since 2003)

American Association of State Climatologists (since 2011)

International Society of Biometeorology (since 2014)

AWARDS AND HONORS

Wiesnet Medal for Most Outstanding Student Research Paper, Eastern Snow Conference, 2008

Best Student Poster, 23rd Conference on Severe Local Storms, American Meteorological Society, 2006

Academic Achievement Award, Central North Carolina Chapter, American Meteorological Society, 2004

Phi Eta Sigma National Honor Society, University of North Carolina at Wilmington, 2001