



Margaret Mae Sugg (Kovach)
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PROFESSIONAL PREPARATION

Ph.D., 2015 Geography, University of North Carolina at Chapel Hill
M.A., 2011 Geography, University of North Carolina at Chapel Hill
B.S., 2008 Biology, Minors: Chemistry, Geography, University of North Carolina at Chapel Hill

RESEARCH EXPERTISE

Climate and Human Health; Human Vulnerability to Environmental Hazards; Public Health; Geographic Information Systems (GIS); Spatial Statistics

APPOINTMENTS

2015-present **Assistant Professor**, Department of Geography and Planning, Appalachian State University
2014–2015 **Science to Achieve Results Fellow (STAR) for Graduate Environmental Study** in Public Health, Environmental Protection Agency
2009–2014 **Graduate Research Associate**, Southeast Regional Climate Center, University of North Carolina at Chapel Hill
2013–2014 **Graduate Research Assistant**, Carolinas Integrated Sciences and Assessments (CISA), University of South Carolina
2013–2014 **Teaching Fellow**, Department of Geography, University of North Carolina at Chapel Hill
2012 **Graduate Research Consultant**, University of North Carolina at Chapel Hill
2012 **Geographic Information System Assistant**, University of North Carolina at Chapel Hill
2010–2011 **Teaching Assistant**, Department of Geography, University of North Carolina at Chapel Hill
2009 **Climate-Human Health Internship**, National Oceanic and Atmospheric Administration's National Climatic Data Center
2007–2008 **Laboratory Technician**, Department of Psychology, University of North Carolina at Chapel Hill

PEER-REVIEWED PUBLICATIONS (*indicates student publication)

20. Thompson, K., **Sugg, M.M.**, & Barth, M.M. Food Pantry Capability and Mapping Study. *Journal of Agriculture, Food Systems, and Community Development*. (IN PRESS)
19. **Sugg, M. M.**, Stevens, S. S., & Runkle, J. D. (2019). Estimating Personal Ambient Temperature in Moderately Cold Environments for Occupationally Exposed Populations. *Environmental Research*. (IN PRESS)
18. Andersen, L.M.*, and **M.M. Sugg** (2019). Geographic Multi-Criteria Evaluation and Validation: A Case Study of Wildfire Vulnerability in Western North Carolina, USA Following the 2016 Wildfires. *International Journal of Disaster Risk Reduction*. <https://doi.org/10.1016/j.ijdr.2019.101123>
17. **Sugg, M.M.**, P. Grady Dixon, and J. Runkle (2019). Crisis Support-Seeking Behavior and Temperature in the United States: Is there an Association in Young Adults and Adolescents? *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2019.02.434>

16. Wilson, M.*, **M.M. Sugg** and S. Lane (2019). Identifying Multivariate Vulnerability of Nursing Home Facilities throughout the Southeastern United States. *International Journal of Disaster Risk Reduction*. <https://doi.org/10.1016/j.ijdrr.2019.101106>
15. Thompson, L.C.*, Michael, K., Runkle, J.R., and **M.M. Sugg**. (2019). Crisis Text Line Use Following the Release of Netflix Series 13 Reasons Why Season 1: Time Series Analysis of Help-Seeking Behavior in Youth. *Preventative Medicine Reports*, 100825.
14. **Sugg, M.M.**, Fuhrmann, C.M, and Runkle, J.R. (2019) Geospatial Approaches to Measuring Personal Heat Exposure and Related Health Effects in Urban Settings (book chapter) in *Geospatial Technologies for Urban Health*, Eds. Delmelle, E. & Yongmei, L. (Accepted)
13. Runkle, J.R., **Sugg, M.M.**, Boase, D.*, Galvin, and S., Coulson, C. (2019) Use of Wearable Sensors for Pregnancy Health and Environmental Monitoring: Descriptive Findings From the Perspective of Patients and Providers. *Digital Health*. <https://doi.org/10.1177/2055207619828220>
12. Andersen, L. M.*, Bonevac, A. N.*, Thompson, L. K.*, Dempsey, K. E., Shay, E. D., & **Sugg, M. M.** (2019). Understanding Key Informant Experiences and Perceptions of the 2016 Drought and Wildfires in Western North Carolina, USA. *Weather, Climate, and Society* <https://doi.org/10.1175/WCAS-D-18-0061.1>
11. Thompson, L.C.*, **Sugg, M.M.**, Runkle, J.R. (2018) Adolescents in Crisis: A Geographic Exploration of Help-Seeking Behavior Using Data from Crisis Text Line, *Social & Scientific Medicine*, 215, 69-79.
10. **Sugg, M. M.**, (2018). Heat-Health Vulnerability in North Carolina. *North Carolina Medical Journal*, 79:320-321; doi:10.18043/ncm.79.5.320
9. **Sugg, M. M.**, Fuhrmann, C. M., & Runkle, J. D. (2018). Temporal and spatial variation in personal ambient temperatures for outdoor working populations in the southeastern USA. *International Journal of Biometeorology*, 1-14.
8. Thompson, L.C.*, **Sugg, M.M.**, and Runkle, J. D. (2018). Report-Back for Geo-referenced Environmental Data: A Case Study on Personal Monitoring of Temperature in Outdoor Workers. *Geospatial Health*, 13(1).
7. Fuhrmann, C. M., **Sugg, M. M.**, and Konrad, C. E. (2016). Airborne Pollen Characteristics and the Influence of Temperature and Precipitation in Raleigh, North Carolina, USA(1999-2012). *Aerobiologia*. 32(4), 683-696.
6. **Sugg, M.M.**, Konrad C.E., and Fuhrmann, C.M. (2016). Relationships between Maximum Temperature and Heat-Related Illness across North Carolina, USA. *International Journal of Biometeorology*, 1-13. DOI 10.1007/s00484-015-1060-4
5. Fuhrmann, C. M., **Sugg, M. M.**, Konrad, C. E., and Waller, A. (2016). Impact of Extreme Heat Events on Emergency Department Visits in North Carolina (2007 to 2011). *Journal of Community Health*, 1-11. DOI: 10.1007/s10900-015-0080-7
4. **Kovach, M.M.**, Konrad C.E., and Fuhrmann, C.M. (2015). Area-level Risk Factors for Heat-Related Illness in Rural and Urban Locations across North Carolina, USA. *Applied Geography*, 60, 175-183. DOI: 10.1016/j.apgeog.2015.03.012
3. **Kovach, M. M.**, and C. E. Konrad (2014). The Spatial Distribution of Tornadoes and High Wind Impacts Associated with Inland-Moving Tropical Cyclones in the Southeastern United States. *Physical Geography*, 35, 245-271. DOI:10.1080/02723646.2014.909231
2. Fuhrmann, C. M., Konrad, C. E., **Kovach, M. M.**, McLeod, J.T., Schmitz, W. G., and Dixon, P. G. (2014). Ranking of Tornado Outbreaks across the United States and their Climatological Characteristics. *Weather and Forecasting*, 29, 684-701. DOI: <http://dx.doi.org/10.1175/WAF-D-13-00128.1>
1. Fuhrmann, C.M., Konrad C.E., **Kovach, M.M.**, Perkins, D.J. (2011). The August 2007 Heat Wave in North Carolina: Meteorological Factors and Local Variability. *Physical Geography*, 32, 217-240. DOI:10.2747/0272-3646.32.3.217

GRANTS and FELLOWSHIPS (External)

North Carolina Occupational Safety and Health Pilot Project, University of North Carolina Gillings School

of Public Health, *Continuous Monitoring of Individual Exposure to Cold Work Environments*, Co-PI: Dr. Jennifer Runkle, Laura Thompson, **\$10,000** (2018).

National Institute of Occupational Safety and Health Pilot Project, Sunshine Education and Research Center, *Continuous Monitoring of Individual Exposure to Cold Work Environments*, Co-PI: Dr. Jennifer Runkle, **\$13,497** (2016 –2018).

Oak Ridge Associated Universities, Travel Grant, *Pilot Funds for Collaboration at North Carolina State University*, **\$800** (2016).

AAG Research Grant, Association of American Geographers, *A Multiscale Approach to Assessing Heat-Health Vulnerability*. **\$500** (2016).

Grant, Southeast Regional Climate Center (SERCC) and Carolina Integrated Science Assessment (CISA), *Development of Heat-Health Vulnerability Tool*. **\$10,355** (2016).

Science to Achieve Results Fellowships (STAR) for Graduate Environmental Study, Environmental Protection Agency, and Category: Human Health Risk Assessment: Public Health (No. F13D10708), *Identifying Climate Thresholds for Heat-related Illness in North Carolina*. **\$84,000** (2014-2016).

Doctoral Dissertation Research Improvement Grant (DDR), National Science Foundation, and Category: Geography and Spatial Science (No. 1434202), *Identifying Climate Thresholds for Heat-related Illness in North Carolina*, **\$10,603** Co-PI: Dr. Charles E. Konrad (2014 –2015).

North Carolina ArcGIS User Group, Student Scholarship, *Using GIS to Evaluate Tornado Vulnerability*, **\$500** (2012).

GRANTS and FELLOWSHIPS (Internal)

Conducting Complex Research Together (CONCERT) Grants,” Climate Change and Mental Health,” Appalachian State University’s Research Institute for Environment, Energy, and Economics (RIEEE), **\$5,000** (2019).

SWAG Competition, “A Place-Based Approach to Temperature and Mental Health: Decoupling Social and Environmental Exposures of Mental Health and Well-Being,” Office of Research, Appalachian State University, **\$3500**. (2019)

University Research Council Grant, “Exposure to Thermal Extremes and Seasonal Trends in Hypertensive Complications During Pregnancy: A Retrospective Study of Women in North Carolina,” Office of Research, Appalachian State University, **\$4997.85** (2017 –2018).[Co PI: Dr. Jennifer Runkle]

Undergraduate Research Assistantship Awards, Using wearable sensor technology to quantify the health effects of cold work environments: A Participatory Sensing Study“, Office of Student Research, Appalachian State University, **\$1,000** (Summer 2018).

Communication Grants,” Vulnerability and Resilience in the Southern Appalachian Mountains,” Appalachian State University’s Research Institute for Environment, Energy, and Economics (RIEEE), **\$3,000** (Summer 2018).

Faculty Reassigned Time Pilot Program, Office of Research, Appalachian State University, **\$3,000** (2018).

Undergraduate Research Assistantship Awards, Using wearable sensor technology to quantify the health effects of cold work environments: A Participatory Sensing Study“, Office of Student Research, Appalachian State University, **\$1,000** (Spring 2018).

Conducting Complex Research Together (CONCERT) Grants, "Vulnerability and Resilience in the Southern Appalachian Mountains," Appalachian State University's Research Institute for Environment, Energy, and Economics (RIEEE), **\$5,000** (2018).

Sustaining Collaborative Opportunities for Research & Education (SCORE) Community of Practice Planning Awards, "Hazard Vulnerability Assessment for Nursing Home and Long Term Care Facilities in the Southeastern US," Appalachian State University's College of Arts and Sciences, **\$999.00** (2017).

Graduate Research Associate Mentor (GRAM) Program Award, "Hazard Vulnerability Assessment for Nursing Home and Long Term Care Facilities in the Southeastern US," Cratis D. Williams School of Graduate Students, Appalachian State University, **\$24,000** (2018 –2020). [Lead PI: Dr. Sandi Lane]

Summer Support, "Hazard Vulnerability Assessment for Nursing Home and Long Term Care Facilities in the Southeastern US," Beaver College of Health Sciences, Appalachian State University, **\$5,000** (2017-2018). [Lead PI: Dr. Sandi Lane]

University Research Council Grant, "Hazard Vulnerability Assessment for Nursing Homes in the Southeastern US," Office of Research, Appalachian State University, **\$3686.04** (2017 –2018).[Lead PI: Dr. Sandi Lane]

Summer Grant, "Continuous Monitoring of Individual Exposure in Thermal Extreme Environments," Appalachian State University's College of Arts and Sciences, **\$2500** (2017).

Undergraduate Research Assistantship Awards, "Pregnancy Health and Environmental Monitoring in a Rural Mountain Environment," Office of Student Research, Appalachian State University, **\$1,000** (2017).

Student and Faculty Excellence Fund (SAFE), "Examining Relationships between Mental Stress and Climatic Extremes," Appalachian State University's College of Arts and Sciences, **\$2550** (2017).

Student and Faculty Excellence Fund (SAFE), "Pregnancy Health and Environmental Monitoring in a Rural Mountain Environment," Appalachian State University's College of Arts and Sciences, **\$650** (2017).

Conducting Complex Research Together (CONCERT) Grants, "Vulnerability and Resilience in the Southern Appalachian Mountains," Appalachian State University's Research Institute for Environment, Energy, and Economics (RIEEE), **\$4,916** (2017).

Undergraduate Research Assistantship Awards, "Individual Experienced Temperature among Ground Workers at Three Geographic Locations," Office of Student Research, Appalachian State University, **\$1,000** (2016).

University Research Council Grant, "Personal Monitoring of Occupational Heat Exposure: An Environmental Participatory Sensing Study," Office of Research, Appalachian State University, **\$3,394** (2016 –2017).

Graduate Research Associate Mentor (GRAM) Program Award, "Identifying Climate Vulnerability and Community Resilience in the Southern Appalachian Mountains," Cratis D. Williams School of Graduate Students, Appalachian State University, **\$24,000** (2016 –2018).

Conducting Complex Research Together (CONCERT) Grants, "Vulnerability and Resilience in the Southern Appalachian Mountains," Appalachian State University's Research Institute for Environment, Energy, and Economics (RIEEE), **\$5,000** (2016).

Faculty Reassigned Time Pilot Program, Office of Research, Appalachian State University, **\$3,400** (2016).

Dissertation Completion Fellowship, “Climate Thresholds for Heat-Related Illness in North Carolina,” University of North Carolina at Chapel Hill Graduate School, **\$16,000** (2015). [Declined for EPA STAR fellowship]

Douglas Eyre Travel Grant, Department of Geography, University of North Carolina at Chapel Hill, **\$1,000** (2010-2011).

Burgess McSwain Travel Award, University of North Carolina at Chapel Hill, **\$1,000** (2008).

GRANTS and FELLOWSHIPS (Not Funded)

National Science Foundation, Geography and Spatial Sciences, *RUI: Continuous Monitoring of Individual Exposure to Work in Thermal Extreme Environments: A Participatory Geo-Sensing*, Co-PI: Dr. Jennifer Runkle, **\$228,808** (2018 – 2020).

National Science Foundation, Geography and Spatial Sciences, *RUI: Continuous Monitoring of Individual Exposure to Work in Thermal Extreme Environments: A Participatory Geo-Sensing*, Co-PI: Dr. Jennifer Runkle, **\$260,152** (2017 – 2019).

National Science Foundation, Join NSF/NIH Initiative on Quantitative Approaches to Biomedical Big Data. *QuBBD: Collaborative Research: An Approach for Integrating Wearable-Sensor Based Data in Mathematical Models for Pregnancy Health and Environmental Monitoring* Co-PIs: Dr. Jennifer Runkle, Dr. Jessica Matthews, **\$298,895** (2017 – 2019).

Environmental Protection Agency, Integrating Human Health and Well-Being with Ecosystem Services, *From Collective Knowledge to Action: Water resources, Public Health, and Adaptive Planning in a Rural Mountain Environment*, Co-PIs: Dr. Jennifer Runkle, Dr. Elizabeth Shay, Dr. Kara Dempsey **\$399,787** (2017 –2020).

National Institute of Occupational Health Exploratory and Developmental Grant Program (R21), National Institute of Health, *Personal Monitoring of Occupational Heat Exposure: An Environmental Participatory Sensing Study*, **\$277,410** (2016 –2018). Co-PIs: Dr. Jennifer Runkle, Dr. Christopher Fuhrmann

INVITED TALKS

2018 “Continuous Monitoring of Individual Exposure in Thermal Extreme Environments: A Participatory Geo-Sensing Study,” *MPE 2013+ Workshop on Urban Environmental Sustainability in a Smart and Connected World*, University of Georgia.

2017 “Continuous Monitoring of Individual Exposure in Thermal Extreme Environments: A Participatory Geo-Sensing Study,” *Department of Geography and Earth Sciences Seminar Series*, University of North Carolina at Charlotte.

2017 “A Multi-Scale Investigation of Heat-Health Vulnerability” *Department of Geography Colloquium*, University of North Carolina at Greensboro.

2015 “Heat-Health Impacts in North Carolina across the Rural and Urban Continuum,” *Institute for the Environment’s Brown Bag Lunch Seminar*, University of North Carolina at Chapel Hill.

2014 “Heat-Health Vulnerability: Identifying Climate Thresholds for Heat-Related Illness in North Carolina” *Colloquium: Graduate Research Celebration*, University of North Carolina at Chapel Hill.

AWARDS

Undergraduate Research Mentorship Excellence Award, Office of Student Research, Appalachian State University (2019)

Climate Specialty Group Student Paper Competition, 1st place, Association of American Geographers, Chicago, IL, (2015)

Graduate Education Advancement Board Impact Award, University of North Carolina at Chapel Hill Graduate School, (2015)

Innovative Use of Geographic Information Systems, 2nd place, University of North Carolina at Chapel Hill, (2014)

Graduate Student Mentoring Award, University of North Carolina at Chapel Hill, Office of Undergraduate Research (2014)

Best Student Poster Presentation, 65th Annual Meeting of the Southeastern Division of the AAG. Birmingham, AL., (2010)

PAPER PRESENTATIONS

Wilson, M., **Sugg, M.M.**, Lane, S. "Internal and External Validation of the Multivariate Nursing Home Vulnerability Index," *Annual Meeting of the Association of American Geographers*, Washington, D.C. April 2019.

Sugg, M.M., Dixon, G.P, Thompson, LC and Runkle, J.R., Fuhrmann, C.M., and Stevens, S., "Crisis Support Seeking Behaviors: Is there an Association in Young Adults and Adolescents," *Southeastern Division of the Association of American Geographers*, Johnson City, TN, November 2018.

Sugg, M.M., Runkle, J.R., Fuhrmann, C.M., and Stevens, S., "Continuous Monitoring of Individual Exposure in Extreme Thermal Environments: A Participatory Geo-Sensing Study," *Carolina Climate Resilience Conference*, Columbia, SC, November 2018.

Wilson, M., **Sugg, M.M.**, Lane, S. "A Spatial Evaluation of Nursing Home Vulnerability in the Southeastern United States," *Carolina Climate Resilience Conference*, Columbia, SC, November 2018.

Costa, M., Porter, J., Harden, S., Schroeder, J., Sugg, M, M., Shay, E., Bouldin, E., and Hege, A., "Water Crisis and Wildfire Communication in Appalachia: A local health department/university collaborative between AppHealthCare and Appalachian State University" *North Carolina Public Health Association Conference*, Charlotte, NC. September 2018.

Thompson, L.C., **Sugg, M.M.**, Runkle, J.R., "Adolescents in Crisis: A Spatial Exploration of Mental Distress Using Data from Crisis Text Line," *ASU's Celebration of Student Research and Creative Endeavors*, Boone, NC, April 2018.

Sugg, M.M., Runkle, J.R., Fuhrmann, C.M., and Stevens, S., "Continuous Monitoring of Individual Exposure in Extreme Thermal Environments: A Participatory Geo-Sensing Study," *Annual Meeting of the Association of American Geographers*, New Orleans, LA, April 2018.

Thompson, L.C., **Sugg, M.M.**, Runkle, J.R., "Adolescents in Crisis: A Spatial Exploration of Mental Distress Using Data from Crisis Text Line," *Annual Meeting of the Association of American Geographers*, New Orleans, LA, April 2018.

Andersen, L., and **Sugg, M.M.**, "An Assessment of Wildfire Vulnerability in Western North Carolina, USA Following the 2016 Wildfires," *Annual Meeting of the Association of American Geographers*, New Orleans, LA, April 2018.

Fuhrmann, C.M., **Sugg, M.M.**, and J.R. Runkle, Assessment Of Personal Heat Exposure Among Grounds Management Workers In The Southeast USA. *Southeastern Division of the Association of American Geographers*, Starkville, MS, November 2017

Runkle, J.R., **Sugg, M.M.**, and Boase D. Galvin, S, and Coulson, C, "Wearable sensors for continuous pregnancy health and environmental monitoring: From a patient and provider perspectives.," *American Public Health Association*, Atlanta, GA, November 2017

Runkle, J.R., **Sugg, M.M.**, Fuhrmann C.M., and Stevens, S, " Use of Wearable Sensor Technology as a Surveillance Tool to Measure Climate-related Changes in Heat Exposure among Outdoor Workers.," *American Public Health Association*, Atlanta, GA, November 2017

Runkle, J.R., **Sugg, M.M.**, and Fuhrmann C.M, " Personal Monitoring of Individual Temperature Experience in Outdoor Workers using Wearable Sensors" *Integrating Exposure Science Across Diverse Communities*, Raleigh, NC, October 2017

- Fuhrmann, C.M., **Sugg, M.M.**, Runkle, J.R., "Temporal and Spatial Variations in Personal Ambient Temperatures (PATs) for Outdoor Working Populations in the Southeast U.S.," *International Congress of Biometeorology*, Durham, England, UK, September 2017
- Fuhrmann, C.M., **Sugg, M.M.**, Runkle, J.R., and Stevens, S., "Personal Monitoring of Occupational Heat Exposure among Grounds Management Workers: Preliminary Results from Three University Campuses," *American Meteorological Society*, Seattle, WA, January 2017
- Sugg, M.M.**, Runkle, J.R., Fuhrmann, C.M., and Stevens, S., "Individual Experienced Heat Exposure among Grounds Management Workers across Three Geographic Regions," *Southeastern Division of the Association of American Geographers*, Columbia, SC, November 2016.
- Sugg, M.M.**, Fuhrmann, C.M., and Konrad, C.E., "Spatiotemporal Patterns of Hypothermia," *Southeastern Division of the Association of American Geographers*, Pensacola, FL, November 2015.
- Kovach, M.M.**, Konrad, C.E., and Fuhrmann, C.M., "Heat-Related Illness in Rural and Urban Setting across North Carolina." *111th Annual Meeting of the Association of American Geographers*, Chicago, IL. April 2014.
- Konrad, C.E., **Kovach, M.M.**, and Fuhrmann, C.M., "Relationships between Maximum Temperature and Heat-Related Illness," *Sixth Conference on Environment and Health*, American Meteorological Society, Phoenix, AZ January 2015.
- Kovach, M.M.**, "Relationships between Maximum Temperature and Heat-Related Illness," *Southeastern Division of the Association of American Geographers*, Athens, GA, November 2014.
- Kovach, M.M.**, and Konrad, C.E., "Using Geographic Information Systems to Construct an Inland Track Following Coordinate System," *Innovative Use of Geographic Information Systems Graduate Student Competition*, Chapel Hill, NC, November 2014.
- Konrad, C.E., **Kovach, M.M.**, and Fuhrmann, C.M., "Relationships between Temperature and Heat-Related Illness across North Carolina," *20th International Congress of Biometeorology*, Cleveland, OH, September 2014.
- Fuhrmann, C.M., Konrad, C.E., and **Kovach, M.M.**, "Evaluation of Effectiveness of National Weather Service Heat Forecasts in North Carolina," *20th International Congress of Biometeorology*, Cleveland, OH, September 2014.
- Kovach, M.M.**, Konrad, C.E., and Fuhrmann, C.M., "Identifying Heat Vulnerability through Temperature Thresholds in North Carolina," *21st Conference on Applied Climatology*, Denver, CO. June 2014.
- Fuhrmann, C.M., **Kovach, M.M.**, and Konrad, C.E., "The Effect of Extreme Heat on Human Health in North Carolina," *21st Conference on Applied Climatology*, Denver, CO. June 2014.
- Kovach, M.M.**, Konrad, C.E., and Fuhrmann, C.M., "Connecting the Dots: Identifying Heat Vulnerability in North Carolina," *Carolina's Climate Resilience Conference*, Charlotte, NC. April 2014.
- Kovach, M.M.**, and Konrad C.E., "Temperature Thresholds for Heat Related Illness in North Carolina," *110th Annual Meeting of the Association of American Geographers*, Tampa, FL. April 2014.
- Konrad, C.E., **Kovach M.M.**, and Fuhrmann, C.M., "Trends in Tornado Vulnerability across the United States," *110th Annual Meeting of the Association of American Geographers*, Tampa, FL. April 2014.
- Fuhrmann, C.M., **Kovach, M.M.**, and Konrad, C.E., "The Effect of Extreme Heat on Human Health in North Carolina," *110th Annual Meeting of the Association of American Geographers*, Tampa, FL. April 2014.
- Kovach, M.M.**, Suggs, J., and Konrad, C.E., "Fatalities Directly and Indirectly Related to Tropical Cyclones in the United States, 1970-2010," *Southeastern Division of the Association of American Geographers*, Roanoke, VA. November 2013.
- Fuhrmann, C.M., Their, L., **Kovach, M.M.**, and Konrad, C.E., "The Impact of Weather and Climate on Airborne Pollen Concentrations and Allergic Disease in Wake County, North Carolina," *Southeastern Division of the Association of American Geographers*, Roanoke, VA. November 2013.
- Konrad, C.E., **Kovach, M.M.**, and Fuhrmann, C.M., "Trends in Tornado Vulnerability across the United States," *Southeastern Division of the Association of American Geographers*, Roanoke, VA. November 2013.

- Fuhrmann, C.M., **Kovach, M.M.**, and Konrad, C.E., "Heat-Related illness in North Carolina: Who's at Risk?" *Annual Education Conference of the North Carolina Public Health Association*, New Bern, NC. September 2013.
- Kovach, M.M.**, and Konrad, C.E., "Climate-Health Vulnerability: Identifying Climate Thresholds for Heat-Related Illness in North Carolina," *109th Annual Meeting of the Association of American Geographers*, Los Angeles, CA. April 2013.
- Fuhrmann, C.M., Konrad, C.E., **Kovach, M.M.**, Boyles, R. and A. Hiatt., "Development of Web-Based Tool for Studying, Visualizing and Tracking the Public Health Impacts of Weather and Climate Events," *109th Annual Meeting of the Association of American Geographers*, Los Angeles, CA. April 2013.
- Konrad, C.E., **Kovach, MM**, Fuhrmann C.M., and J.T. McLeod., "Regional Variations in Tornado Vulnerability across the Eastern U.S.," *109th Annual Meeting of the Association of American Geographers*, Los Angeles, CA. April 2013.
- Kovach, M.M.** and Harrison, C., "Heat – Related Illness and North Carolina: Linking Spatial Variations in Heat-Related Illness to Land Cover and Socioeconomic Patterns," *67th Annual Meeting of the Southeastern Division of the AAG*, Asheville, NC. November 2012. (Selected for PhD Honor's Competition)
- Kovach, M. M.** and Konrad, C.E. "Regional Variations in Tornado Vulnerability in the Eastern United States," *AMS 26th Conference on Severe Local Storms*, Nashville, TN, November 2012.
- Kovach, M.M.** and Konrad, C.E., "Using Geographic Information Systems to Evaluate Tornado Vulnerability," *North Carolina ArcGIS Users Group Conference*, Carolina Beach, NC. October 2012.
- Fuhrmann, C.M., **Kovach, M.M.**, and Konrad. C.E., "Heat-Related Illness in North Carolina: Who's at Risk?" *Joint NOAA-CDC Symposium on Climate and Health*, Atlanta, GA, September 2013.
- Kovach, M.M** and Konrad, C.E., "The Spatial Distribution of Meteorological Impacts from Inland Moving Tropical Cyclones," *108th Annual Meeting of the Association of American Geographers*, New York, NY. February 2012 .
- Kovach, M.M.**, Fuhrmann, C.M., Konrad, C.E., and. Harrison, C., "Community Level Indicators of Heat Related Morbidity in North Carolina," *American Meteorological Society 3rd Symposium on Environment and Health*, New Orleans, LA. January 2012 .
- Kovach, M.M.**, Konrad, C.E., and Carlson, G., "The Societal and Meteorological Impacts of Inland-Moving Tropical Cyclones across the Southeastern U.S.," *107th Annual Meeting of the Association of American Geographers* Seattle, WA. April 2011.
- Kovach, M.M.**, Carlson, G., and. Konrad, C.E., "The Societal Impacts of High Winds that Accompany Inland-Moving Tropical Cyclones across the Southeastern U.S.," *106th Annual Meeting of the Association of American Geographers*, Washington, D.C. April 2010
- Fuhrmann, C.M., Konrad, C.E., **Kovach, M.M.**, and Perkins, D.J., "Meteorological and Climatologically Perspectives on the August 2007 Heat Wave in North Carolina," *65th Annual Meeting of the Southeastern Division of the AAG*, Birmingham, AL. November 2010.
- Fuhrmann, C.M., Easterling, D.R., Houston, T.G., **Kovach, M.M.**, Lutz, J.T., and Robinson, P.J., "Current and Future Applications of Climate Data and Services for the Health Sector," *American Meteorological Society 1st Symposium on Environment and Health*, Atlanta, GA. January 2010.

POSTER PRESENTATIONS

- Bailey, E., **Sugg, M.M.**, Fuhrmann, C.M., and Runkle J.R., "Personal Sensors for Temperature Exposure Assessments: A Validation Study," *ASU's Celebration of Student Research and Creative Endeavors*, Boone, NC. April 2019.
- Wilson, M., **Sugg, M.M.**, Lane, S., "Identifying Statistical Precision and Accuracy of Vulnerability Indices for the Southeastern United States," *ASU's Celebration of Student Research and Creative Endeavors*, Boone, NC, April 2019.

- Bailey, E., **Sugg, M.M.**, Fuhrmann, C.M., and Runkle J.R., "Personal Sensors for Temperature Exposure Assessments: A Validation Study," *Annual Meeting of the Association of American Geographers*, Washington, D.C. April 2019.
- Andersen, L. M., Bonevac, A. N., Thompson, L. K., Dempsey, K. E., Shay, E. D., and **Sugg, M.M.**, "An Assessment of Wildfire Vulnerability in Western North Carolina, USA Following the 2016 Wildfires," *Annual Meeting of the Association of American Geographers*, Washington, D.C. April 2019.
- Andersen, L. M., Bonevac, A. N., Thompson, L. K., Dempsey, K. E., Shay, E. D., and **Sugg, M.M.**, "An Assessment of Wildfire Vulnerability in Western North Carolina, USA Following the 2016 Wildfires," *International Mountain Studies Symposium*, Boone, NC, March 2019.
- Nelson, K., **Sugg, M.M.**, and Runkle J.R., "A Comparison Between Temperature Exposure and Physiological Risk Factors in an Occupational Setting," *ASU's Celebration of Student Research and Creative Endeavors*, Boone, NC, April 2018.
- Boase, D., **Sugg, M.M.**, and Runkle J.R., "Wearable Sensors for Continuous Pregnancy Health and Environmental Monitoring: From a Patient and Provider Perspective," *ASU's Celebration of Student Research and Creative Endeavors*, Boone, NC, April 2018.
- Bailey, E., and **Sugg, M.M.**, "Climate and Conflict Interactions: The Relationship Between Conflict Spikes and Climate Deviations in Northern Latin America," *ASU's Celebration of Student Research and Creative Endeavors*, Boone, NC, April 2018.
- Andersen, L., and **Sugg, M.M.**, "An Assessment of Wildfire Vulnerability in Western North Carolina, USA Following the 2016 Wildfires," *ASU's Celebration of Student Research and Creative Endeavors*, Boone, NC, April 2018.
- Wilson, M., Andersen, L., **Sugg, M.M.**, Lane, S., "A Socio-Ecological and Spatial Analysis of Nursing Home Vulnerability in the Southeastern United States," *ASU's Celebration of Student Research and Creative Endeavors*, Boone, NC, April 2018.
- Nelson, E., Wilson, M., **Sugg, M.M.**, Lane, S., "Hazard Vulnerability Assessment for Nursing Home Facilities in North Carolina," *Southern Gerontological Society*, Buford, GA, April 2018
- Wilson, M., Andersen, L., **Sugg, M.M.**, Lane, S., "A Socio-Ecological and Spatial Analysis of Nursing Home Vulnerability in the Southeastern United States," *Annual Meeting of the Association of American Geographers*, New Orleans, LA, April 2018
- Runkle, J.R., Thompson, L.C., and **Sugg, M.M.**, "Report-Back for Location-based Personal Monitoring Data on Individual Experienced Temperature in Outdoor Workers" *Integrating Exposure Science Across Diverse Communities*, Raleigh, NC, October 2017
- Thompson, L.C., **Sugg, M.M.**, Runkle, J.R., and Fuhrmann, C.M., "Reporting Back Environmental Exposures: A Case Study of Environmental Health Literacy and Individual Experienced Temperature among Ground Maintenance Workers," *Celebration of Student Endeavors*, Boone, NC, April 2017
- Stine, W., **Sugg, M.M.**, and Runkle, J.R., "Spatiotemporal Patterns of Mental Stress across the United States," *Celebration of Student Endeavors*, Boone, NC, April 2017
- Thompson, L.C., **Sugg, M.M.**, Runkle, J.R., and Fuhrmann, C.M., "Reporting Back Environmental Exposures: A Case Study of Environmental Health Literacy and Individual Experienced Temperature among Ground Maintenance Workers," *Southeastern Division of the Association of American Geographers*, Columbia, SC, November 2016.
- Sugg, M.M.**, Fuhrmann, C.M., and Konrad, C.E., "Relationships between Patterns of Hypothermia and Minimum Temperature," *Association of American Geographers*, San Francisco, CA, April 2016.
- Silva, R.A., Thie, L.M., Rappold, A.G., **Sugg, M.M.**, and Smith J.S., "Mapping heat-related vulnerability to climate change in North Carolina," *North Carolina Breathe Conference*, Charlotte, NC, April 2016.
- Ross, A., and **Sugg, M.M.**, "Recreational Heat-Related Illness across North Carolina, 2007-2012," *Southeastern Division of the Association of American Geographers*, Pensacola, FL, November 2015.

- Hunter, J.M., Konrad, C.E., West J.J., and **Sugg, M.M.**, "Associations between precipitation and gastrointestinal illness: A spatial and temporal study in North Carolina State," *Water and Health Conference 2015 Where Science Meets Policy*, Chapel Hill, N.C. November 2015
- Kovach, M.M.**, and Konrad, C.E., "Climate-Health Vulnerability: Identifying Relationships between Temperature and Heat-Related Illness," *17th Annual Graduate Student Recognition Celebration*, Chapel Hill, N.C. April 2015
- Hunter, J.M., West J.J., Konrad, C.E., and **Kovach, M.M.**, "Spatial and Temporal Relationships between Precipitation Patterns and Waterborne Disease," *2nd Annual UNC Climate Change Symposium*, Chapel Hill, N.C. April 2015
- Kovach, M.M.**, and Konrad, C.E., "Climate-Health Vulnerability: Identifying Relationships between Temperature and Heat-Related Illness," *2nd Annual UNC Climate Change Symposium*, Chapel Hill, N.C. April 2015
- Konrad, C.E., **Kovach, M.M.**, McLeod, J.T., Fox, H., Fuhrmann, C.M., Schmitz, W.G., and Perkins, D.J., "Assessing the Magnitude and Societal Impacts of the April 25-28, 2011 Tornado Outbreak in the Southeastern U.S.," *92nd Annual Meeting of the American Meteorological Society*, New Orleans, LA. January 2012
- Fuhrmann, C.M., Schmitz, W.G., Konrad, C.E., and **Kovach, M.M.**, "A Review of the 2009-2010 Winter Season across the Southeast United States," *Annual Meeting of the Eastern Snow Conference*, Hancock, MA. June 2010
- Kovach, M.M.**, "Societal and Meteorological Impacts of Inland Moving Tropical Cyclones," *65th Annual Meeting of the Southeastern Division of the AAG*, Birmingham, AL. November 2010
- Kovach, M.M.**, Fuhrmann, C.M., Lutz, J.T., Easterling, D.R., and Robinson, P.J., "Assessing the Climate Information Gap for the Health Sector," *64th Annual Meeting of the Southeastern Division of the AAG*, Knoxville, TN. November 2009

INVITED CAMPUS TALKS

- Sugg, M.M.** and Lane, S., "Measures of Emergency Preparedness Contributing to Nursing Home Resilience," *Appalachian State University's SCORE Research Presentations*. September 2018
- Sugg, M.M.** and Lane, S., "Measures of Emergency Preparedness Contributing to Nursing Home Resilience," *Appalachian State University's SCORE Research Presentations*. March 2018
- Sugg, M.M.**, "Climate Change and Public Health," *Appalachian State University's Pre-Health Conference*, Appalachian State University. November 2017.
- Sugg, M.M.**, Sustainability Film Series Panelist, *Appalachian State University*. March 2017
- Sugg, M.M.**, Guest Lecturer for Medical Anthropology, *Appalachian State University* October 2016.
- Sugg, M.M.**, Guest Lecturer for Natural Hazards Seminar, *Appalachian State University* September 2016.
- Sugg, M.M.** and Konrad, C.E., "Predicting Heat-Health Vulnerability Across North Carolina using Heat-Health Vulnerability Tool," *Health-Health Vulnerability Tool Engagement Webinar*, University of North Carolina, Chapel Hill. July 2015
- Kovach, M.M.** and Konrad, C.E., "Relationships between Temperature and Heat-Related Illness across North Carolina," *North Carolina Climate Change-Public Health Workgroup*, Department of Emergency Medicine, University of North Carolina, Chapel Hill. July 2014
- Kovach, M.M.** and Konrad, C.E., "Relationships between Temperature and Heat-Related Illness across North Carolina," *Carolina Integrated Sciences and Assessments (CISA) Webinar*, University of South Carolina, Columbia. June 2014

TEACHING and MENTORING

Teaching Experience

Assistant Professor, Medical Geography, Geography of Health and Disease, Introduction to Geographic Information Systems, GIScience Seminar, Advanced Quantitative Methods, Advanced Quantitative and Qualitative Methods for Graduate Students, Climate and Society, Appalachian State University (2015 - 2019)

Teaching Fellow, Introduction to Weather and Climate, Department of Geography, University of North Carolina at Chapel Hill (2013 - 2014)

Graduate Research Consultant and Course Design Assistant, Applied Climatology, University of North Carolina at Chapel Hill (2012)

Geographic Information System Assistant, University of North Carolina at Chapel Hill (2012)

Teaching Assistant, Introduction into Weather and Climate, Department of Geography, University of North Carolina at Chapel Hill (2010 and 2011)

Graduate Mentoring Experience (Appalachian State University) - Main Advisor

2018-2019, Matthew Wilson, *Master's Thesis*, Department of Geography and Planning, Internal and External Validation of Vulnerability Indices: A Case Study of the Multivariate Nursing Home Vulnerability Index

2017-2019, Elizabeth Bailey, *Master's Thesis*, Department of Geography and Planning, Wearable Sensors for Personal Temperature Exposure Assessments: A Comparative Study

2017-2018, Lauren Andersen, *Master's Thesis*, Department of Geography and Planning, Appalachian State University. Title: An Assessment of Wildfire Vulnerability in Western North Carolina

2016-2018, Laura Thompson, *Master's Thesis*, Department of Geography and Planning, Appalachian State University. Title: Adolescents in Crisis: A Spatial Exploration of Mental Distress Using Data from Crisis Text Line

2015-2017, Will Stine, *Master's Internship*, Providing Geographic Support for the Population Division, United States Census Bureau

2015-2017, Garry Raynor, *Master's Thesis*, Department of Geography and Planning, Appalachian State University. Title: Visualizations of Methademyeine across North Carolina

2015-2016, Hayley Thompson, *Master's Internship*, Department of Geography and Planning, Appalachian State University. Title: Utilizing Geographic Information Systems to Digitize and Preserve the Legacy Maps of Dr. Douglas W. Rankin

2015-2016, Anna Ross, *Master's Thesis*, Department of Geography and Planning, Appalachian State University. Title: Recreational Heat-Related Illness: Heat Exposure Outside the Work Week (Main Advisor)

Master Student Committee Member (ASU)

2018-2019, Tania Ita Vagas (Thesis)

2017-2018, Joshua Piercy (Thesis)

2017-2018, Frances Tucker

2016-2018, Zach Osborne

2016-2018, David Vines (Thesis)

2015-2016, Brielle Davidson

2015-2016, James Honeycutt

COMPS Committees Member

1 (2015), 4(2016), 4(2017), 8(2018), 1(2019)

Undergraduate Mentoring Experience (ASU) - Main Advisor

2017, Danielle Boase, *Undergraduate Thesis*, Honors College, Appalachian State University. Title: Wearable sensors for continuous pregnancy health and environmental monitoring: From a patient and provider perspective.

Student Awards

Matthew Wilson (2019) - Zigli Research Award (\$500)

Elizabeth Bailey (2019) - Graduate Student Government Association Travel Award (\$500)

Matthew Wilson (2019) - G. Herbert Stout Student Award in GIS

Lauren Andersen (2018) - Cratis Williams Society of Graduate Students

Lauren Andersen (2018) - "An Assessment of Wildfire Vulnerability in Western North Carolina, USA following the 2016 Wildfires," *Graduate Student Poster Award at Appalachian State University's Celebration of Student Research and Creative Endeavors*

Laura Thompson (2018) - "Adolescents in Crisis: A Spatial Exploration of Mental Distress Using Data from Crisis Text Line," *Zigli Research Award*, \$300.

Lauren Andersen (2018) - "An Assessment of Wildfire Vulnerability in Western North Carolina, USA following the 2016 Wildfires," *AAG-GTU Travel Award*, \$200.

Lauren Andersen (2017) - "An Assessment of Wildfire Vulnerability in Western North Carolina, USA following the 2016 Wildfires," *Student and Faculty Excellence Fund*, \$500.

Laura Thompson (2017) - "Adolescents in Crisis: A Spatial Exploration of Mental Distress Using Data from Crisis Text Line," *Student and Faculty Excellence Fund*, \$300.

Lauren Andersen (2017) - G. Herbert Stout Student Award in GIS

Garry Raynor (2017) - G. Herbert Stout Student Award in GIS

Laura Thompson (2016) - SEDAAG Honors Competition Finalist

Letters of Recommendation (38) - 1;2019

Judge for Climate Specialty Group Student Paper Competition, Association of American Geographers

TECHNICAL and SOFTWARE PROFICIENCIES

GeoDa; Python Programming; ESRI's ArcGIS 10.3 including Spatial Analyst, 3d Analyst, Model Builder; ENVI; SaTScan; R language and environment for statistical computing; IBM Statistical Package for the Social Science (SPSS); Microsoft Office Suite

PRODUCT DEVELOPMENT and APPLIED RESEARCH TOOLS

Southeast Regional Climate Center's North Carolina Heat-Health Vulnerability Web Prediction Tool. Available at: <https://www.sercc.com/hhvt/>

Southeast Regional Climate Center's North Carolina-Disease Event Tracking and Epidemiological Collection Tool. Available at: https://www.sercc.com/nc_detect/ (restricted access to public health researchers due to limitations of NC-DETECT's data use agreement)

DEPARTMENTAL and UNIVERSITY SERVICE

2017 - Present, Committee Member - Masters Comprehensive Exam Committee, ASU

2017 - Present, Reviewer - Peer Assisted Review Enterprise, ASU

2017 - Present, Committee Member - Departmental Personnel Committee, ASU

2016 - Present, Committee Member - Graduate Student Committee, ASU

2015 - Present, Committee Member - GIS Curriculum Committee, ASU

2018-2019, Chair, Masters Comprehensive Exam Committee, ASU

2016-2017, Committee Member - Department Chair Search Committee, ASU

2015-2016, Alternative Committee Member - Departmental Personnel Committee, ASU

MANUSCRIPT REVIEWS

International Journal of Environmental Research and Public Health (1)

Environmental Pollution (1)

International Journal of Biometeorology (4)

BMJopen (1)

Health and Place (3)

Physical Geographer (1)

Southeastern Geographer (1)

PROFESSIONAL DEVELOPMENT

Panel Member, Women in STEM: A Panel Discussion, Women in Educational Leadership Symposium, October 2018, Boone, NC

Participant, Climate and Respiratory Health -Focus Asthma, The Collider, November 2017, Asheville, NC

Participant, Path to Promotion and Tenure, Center for Academic Excellence, Appalachian State University, March 2017, Boone, NC.

Participant, Geography Faculty Development Alliance, Association of American Geographers, University of Connecticut, June 2015, Sors, CT

Participant, Introduction to QGIS and Grass, University of North Carolina at Chapel Hill, Odom Institute, March- April 2015, Chapel Hill, NC

Participant, Mapping with Open Data in R, University of North Carolina at Chapel Hill, Institute for the Environment, February 2014, Chapel Hill, NC

Participant, A Beginner's Look at Multilevel Analysis Short Course, University of North Carolina at Chapel Hill, Odom Institute, October – December 2013, Chapel Hill, NC

Participant, Applied Spatial Regression Analysis Short Course, University of North Carolina at Chapel Hill, Odom Institute, September – October 2013, Chapel Hill, NC

Workshop Assistant, Public Health and Climate Change Summit: Focusing North Carolina Forward, Research Triangle Environmental Health Collaborative, October, 2013, Raleigh, NC

Participant, Interactive Lecturing, University of North Carolina at Chapel Hill, Center for Faculty Excellence, August, 2013, Chapel Hill, NC

Participant, Teaching Your First Large Class, University of North Carolina at Chapel Hill, Center for Faculty Excellence, July, 2013, Chapel Hill, NC

Participant, NCAR/CDC Colloquium on Climate and Health, National Center for Atmospheric Research, July, 2013, Boulder, CO

Participant, Joint NOAA-CDC Symposium on Climate and Health, Center for Disease Control, September, 2013, Atlanta, GA

Workshop Assistant, NIDIS Carolinas Drought Early Warning System: Supporting Coastal Ecosystem Management, Carolinas Integrated Sciences & Assessments, July – August 2012, Wilmington, NC

Workshop Assistant, Climate and Public Health: Emerging Risk and Opportunities, Southeast Regional Climate Center, August, 2011, Chapel Hill, NC

Participant, Climate Change Adaptation Workshop, North Carolina Interagency Leadership Team, March, 2010, Raleigh, NC

Participant, 7th Annual One Medicine Symposium, December, 2009, Durham, NC

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

AFFILIATIONS

Association of American Geographers (AAG) (Climate Specialty Group & Health and Medical Geography Specialty Group)

American Meteorological Society (AMS)

Southeastern Division of the Association of American Geographers (SEDAAG)

North Carolina Climate-Change Public Health Workgroup

PUBLIC MEDIA

Podcast Interview, Rock Your Research. (July 1, 2015). Available at:

<http://www.rockyourresearch.com/podcasts/dr-maggie-sugg-appalachian-state/>

Feature Article, Endeavors Magazine. (April 24, 2015). "Beat the Heat." Available at:

<http://college.unc.edu/2015/05/04/beattheheat/>

Feature Article, Appalachian State University. (August 26, 2016). "Geography Professor Sugg received award for continued research on her North Carolina heat-health vulnerability tool." Available at:

<http://www.news.appstate.edu/2016/08/26/margaret-sugg/>

Feature Article, The Appalachian. (September 22, 2016). "Beat the Heat." Available at:

<http://theappalachianonline.com/2016/09/22/beat-the-heat/>

OTHER EXPERIENCE AND AWARDS

2002 NCHSAA North Carolina Cross Country 3A State Champion

2002 Times-News Runner of the Year Award

2003 NCHSAA North Carolina Track and Field 3A 3200-meter State Champion

2003 NCHSAA North Carolina Track and Field 3A 1600-meter State Champion Runner-up

2003 Western North Carolina Coca-Cola Olympic Athlete of the Year

International travel experience in Africa, South America, Europe, Asia, and Australia