

Michelle E. Saunders

Curriculum Vitae

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EDUCATION

- 2020 **Ph.D., Geography and Environmental Science and Policy**
University of South Florida, School of Geosciences
Dissertation: The Perceived Usefulness of a Weather Radar Display by Tampa Bay Residents
Advisor: Dr. Jennifer M. Collins
- 2015 **M.S., Geography**
University of Alabama, Department of Geography
Thesis: Perceptions of Hurricane Hazards in the Mid-Atlantic
Concentration: Earth System Science
Advisor: Dr. Jason C. Senkbeil
- 2013 **B.S., Geography, Cum Laude**
Salisbury University, Department of Geography and Geosciences
Concentration: Atmospheric Science and Earth Science
Minor: Communication Arts

PROFESSIONAL EXPERIENCE

University of Oklahoma

- 2023-present **Research Scientist**, Center for Applied Social Research, University of Oklahoma
- Continuing research evaluating and establishing methods for the integration of the Brief Vulnerability Overview Tool into NWS operations
- 2022-2023 **Lead Mentor**, National Weather Center - Research Experience for Undergraduates Program
- Mentored an undergraduate student through the research process by guiding them through proper procedures for data collection and analyses, and teaching them how to communicate their findings through scientific writing and the creation of a research talk
- 2020-2022 **Postdoctoral Research Fellow**, Center for Applied Social Research
Advisors: Jack R. Friedman and Daphne S. LaDue
- Tested and evaluated the Brief Vulnerability Overview Tool and Storm Prediction Center (SPC) experimental severe weather timing graphics as part of the National Oceanic and Atmospheric Administration's Hazardous Weather Testbed, National Weather Center, Norman, OK

University of South Florida

- 2018-2020 **Graduate Teaching Associate**, School of Geosciences
- 2018-2019 **Graduate Mentor**, Weather, Climate, and Society - Research Experience for Undergraduates Program, School of Geosciences
- 2018-2019 **Graduate Mentor**, HHMI STEM Academy
- 2015-2018 **Graduate Teaching Assistant**, School of Geosciences

University of Alabama

2013-2015 **Graduate Teaching Assistant**, Department of Geography

Salisbury University

2012-2013 **Broadcast Meteorology Intern**, WBOC Salisbury, MD

2010-2013 **Geography Tutor**, Department of Geography and Geosciences

2010-2013 **Orientation Leader**, Salisbury University

PUBLICATIONS

Manuscripts currently in Peer-Review:

9. **Saunders, M.E.**, Friedman, J., LaDue, D.S., and Berry, K. (2022). Social Science Inclusion in the Hazardous Weather Testbed. (*Manuscript in review - Bulletin of the American Meteorological Society*)

Peer-Reviewed Articles:

8. **Saunders, M.E.**, Ash, K.E., Collins, J.M., and Morss, R. (2022). Construal of Situational Risk and Outcomes – Exploring the Use of Radar Displays. *Weather, Climate, and Society*, DOI: <https://doi.org/10.1175/WCAS-D-22-0069.1>
7. **Saunders, M.E.**, and Collins, J.M. (2021). Factors Influencing the Motivations & Perceived Usefulness of a Weather Radar Display in Tampa Bay. *Bulletin of the American Meteorological Society*, 102:1-37. DOI: 10.1175/BAMS-D-20-0052.1
6. Ersing, R.L., Pearce, C., Collins, J., **Saunders, M.E.**, and Polen, A. (2020). Geophysical and Social Influences on Evacuation Decision-Making: The Case of Hurricane Irma. *Atmosphere*, 11(851): 1-19. DOI:10.3390/atmos11080851
5. Senkbeil, J.C., Reed, J., Collins, J.M., Brothers, K., **Saunders, M.E.**, Skeeter, W., Cerrito, E., Chakroborty, S. and Polen, A. (2020). Perceptions of Hurricane Track Forecasts in the U.S.A. *Weather, Climate, and Society*, 12: 15-29. DOI:10.1175/WCAS-D-19-0031.1
4. **Saunders, M.E.**, Ash, K.E., and Collins J.M. (2018). Usefulness of the United States National Weather Service Radar Display as Rated by Website Users. *Weather, Climate, and Society*, 10: 673-691. DOI: 10.1175/WCAS-D-17-0108.1
3. Collins, J.M., R. Ersing, A. Polen, **Saunders, M.E.**, and Senkbeil, J.C. (2018). The Effects of Social Connections on Evacuation Decision Making during Hurricane Irma. *Weather, Climate, and Society*, 10(3): 459-469. DOI: 10.1175/WCAS-D-17-0119.
2. Senkbeil, J.C., **Saunders, M.E.**, and Taylor B. (2017). Changes in Summer Weather Type Frequency in Eastern North America. *Annals of the American Association of Geographers*, 107(5): 1229-1245. DOI: 10.1080/24694452.2017.1295839
1. **Saunders, M.E.** and Senkbeil, J.C. (2017). Perceptions of Hurricane Hazards in the Mid-Atlantic region. *Meteorological Applications*, 24: 120–134. DOI: 10.1002/met.1611

Editorially Reviewed Publications:

1. Collins, J.M., Ersing, R., Polen, A., and **Saunders, M.E.**, Do We Stay or Do We Go? How Social Networks Contribute to Evacuation Decision-Making. *Disaster Research* 679, Feb 2018.

TEACHING EXPERIENCE

- 2018-2020 **Instructor of Record**, University of South Florida
Course: *Introduction to Physical Geography*
- 2017-2018 **Teaching Assistant**, University of South Florida
Course: *Climate Studies*
- 2016-2020 **Teaching Assistant**, University of South Florida
Summer Course: *Introduction to Environmental Science*
- 2016-2017 **Instructor of Record**, University of South Florida
Course: *Introduction to Environmental Science Lab*
- 2015-2016 **Teaching Assistant**, University of South Florida
Course: *Introduction to Environmental Science*
- 2013-2015 **Instructor of Record**, University of Alabama
Course: *Geography 101 Lab - Atmospheric Processes and Patterns*

PRESENTATIONS

Invited Presentations:

- Saunders, M.E.**, 2022: My Academic Roadmap: Research, Stories, and Advice from a Geographer. Colloquium speaker. Invited by: *Fort Hays State University, Fort Hays, KS*. November 17, 2022.
- Saunders, M.E.**, 2022: The Importance of Risk Perception and Vulnerability Knowledge in a Changing Climate. Guest lecture for Climate Change course. Invited by: *Fort Hays State University, Fort Hays, KS*. November 17, 2022.
- Saunders, M.E.**, 2021: The Perceived Usefulness of a Weather Radar Display by Tampa Bay Residents. Invited by: *National Weather Service, Ruskin, FL*. October 22, 2021.

Professional Meeting Presentations:

* Denotes presenter

- Saunders, M.E.***, Friedman, J.R., LaDue, D.S., and Madden, J.G. 2023. Influence of Vulnerability Awareness on Warning Issuance: A Spatial Analysis of an HWT Experiment. The Annual Meeting of the American Meteorological Society, January 8-12, 2023, Denver, Colorado. Oral presentation.
- Othling, K. M.*, **Saunders, M.E.**, and Friedman, J.R. 2023. Assessing the Impact of Vulnerability Knowledge on NWS Forecasters and Tornado Emergency Issuance. The Annual Meeting of the American Meteorological Society, January 8-12, 2023, Denver, Colorado. Oral presentation.
- Marmo, A.N.*, **Saunders, M.E.**, Doyle, C.M., Olson, J., LaDue, D.S., and Friedman, J.R. 2023. How Slack Can Be Used as a Tool for Impact-Based Decision Support Services (IDSS). The Annual Meeting of the American Meteorological Society, January 8-12, 2023, Denver, Colorado. Oral presentation.
- Friedman, J.R., LaDue, D.S.*, Hurst, E.H.*, **Saunders, M.E.***, and Marmo, A.N. 2023. Multidimensional R2O Co-producing and Co-designing Research that is Informed by Operational End-Users. The Annual Meeting of the American Meteorological Society, January 8-12, 2023, Denver, Colorado. Oral presentation.
- Saunders, M.E.***, Friedman, J.R., and LaDue, D.S. 2022. Advancing through the R2O Process: The Success of the Brief Vulnerability Overview Tool. Vortex – SE/USA Workshop. October 22-23, 2022. Santa Fe, NM. Poster presentation.

- Othling, K. M.*, **Saunders, M.E.**, and Friedman, J.R. 2022. Assessing the Impact of Vulnerability Knowledge on NWS Forecasters and Tornado Emergency Issuance. REU Research Symposium. National Weather Center, Norman, OK. Oral presentation.
- Friedman, J.R.*, **Saunders, M.E.**, LaDue, D.S., and Marmo, A.N. 2022. Assessing the Secondary Traumatic Stress Scale Pre-/Post- Measurement of NWS Meteorologists & EMs. National Weather Association 47th Annual Meeting. August 20-24, 2022. Virtual. StoryMap presentation.
<https://storymaps.arcgis.com/stories/7e29f36187f54654b31ccd7e9bbf8881>
- Saunders, M.E.***, Friedman, J.R., LaDue, D.S., Marmo, A.N., Jirak, I.L., Marsh, P.T., and Elliott, M.S. 2022. Feedback and Findings on SPC Severe Timing Guidance Products from Hazardous Weather Testbed End Users. The Annual Meeting of the American Meteorological Society, January 23-27, 2022, Virtual. Oral presentation.
- Saunders, M.E.*** 2022. Mobile Weather Applications – Uses, Features, & Preferences for Radar Displays. The Annual Meeting of the American Meteorological Society, January 23-27, 2022, Virtual. Poster presentation.
- Friedman, J.R.*, LaDue, D.S., **Saunders, M.E.**, and Marmo, A.N. 2022. Does Awareness of Vulnerabilities Impact the Product Issuance or Messaging of WFOs?: Testing the Operational Use of the Brief Vulnerability Overview Tool (BVOT). The Annual Meeting of the American Meteorological Society, January 23-27, 2022, Virtual. Oral presentation.
- Saunders, M.E.*** 2021. Construal of Situational Risks and Outcomes – Exploring the Use of Radar Displays. The Annual Meeting of the American Meteorological Society, January 10-14, 2021, Virtual. Oral presentation.
- Saunders, M.E.***, Friedman, J.R., and LaDue, D.S. 2021. Vulnerability, Emotions, and Fidelity in Weather Experiments: How to Capture the Human Elements in Testbed Experiments. The Annual Meeting of the American Meteorological Society, January 10-14, 2021, Virtual. Oral presentation.
- Friedman, J.R.*, LaDue, D.S., **Saunders, M.E.**, Streeter, K., and Farrell, M. 2021. Vulnerability Knowledge among NWS Meteorologists and Core Partners in the Southeast: Implications for Improving Next-Generation Severe Weather Operations through the Brief Vulnerability Overview Tool (BVOT). The Annual Meeting of the American Meteorological Society, January 10-14, 2021, Virtual. Oral presentation.
- Saunders, M.E.*** 2019. Factors Influencing Tampa Bay Area Resident's Motivations & Perceived Usefulness of a Weather Radar Display. The Annual Meeting of the American Meteorological Society, January 12-16, 2019, Boston, MA. Poster presentation.
- Saunders, M.E.*** and Senkbeil, J.C. 2019. Perceptions of Hurricane Hazards in the Mid-Atlantic Region. The National Center for Atmospheric Research BRIGHT Workshop – Storm Surge and Sea-level Rise Workshop, July 16-18, 2019, National Center for Atmospheric Research, Boulder, CO. Poster presentation.
- Ash, K.D.*, **Saunders, M.E.**, Collins, J.M., and Paxton C.H. 2018. Factors Influencing the Usefulness of the NWS Website Radar Display. The Annual Meeting of the

American Meteorological Society, January 8-11, 2018, Austin, TX. Oral presentation.

- Saunders, M.E.***, Ash, K.D., and Collins, J.M. 2017. Factors Influencing the Usefulness of the NWS Website Radar Display. The Annual Meeting of the South Eastern Division of The Association of American Geographers, November 19-20, 2017, Starkville, MS. Poster presentation.
- Saunders, M.E.***, Collins, J.M., Ersing, R., Amy, P., and Rehm, N. 2017. Evacuation Behavior During Hurricane Matthew: A Spatial Analysis of Social Connections. The 6th International Summit on Hurricanes and Climate Change: From Hazard to Impact, June 4-9, 2017, Heraklion, Crete, Greece. Poster presentation.
- Polen, A.*, Collins, J.M., Ersing, R., **Saunders, M.E.**, and Rehm, N. 2017. Evacuation Behavior During Hurricane Matthew: An Assessment of the Effects of Social Connections. The 6th International Summit on Hurricanes and Climate Change: From Hazard to Impact, June 4-9, 2017, Heraklion, Crete, Greece. Poster presentation.
- Saunders, M.E.***, Ash, K.D., and Collins, J.M. 2016. Public Understanding and Use of Weather Radar. The Annual Meeting of The American Association of Geographers, March 29 – April 2, 2016, San Francisco, CA. Oral presentation.
- Saunders, M.E.*** and Senkbeil, J.C. 2015. Perceptions of Hurricane Hazards in the Mid-Atlantic Region. The American Meteorological Society's 3rd Conference on Weather Warnings and Communication, June 12, 2015, Raleigh, NC. Oral presentation.
- Saunders, M.E.*** and Senkbeil, J.C. 2015. Perceptions of Hurricane Hazards in the Mid-Atlantic. The Annual Meeting of the Association of American Geographers, April 21-25, 2015, Chicago, IL. Oral presentation.
- Saunders, M.E.*** and Senkbeil, J.C. 2014. Perceptions of Hurricane Hazards in the Mid-Atlantic. The Annual Meeting of The South Eastern Division of The Association of American Geographers, November 24, 2014, Athens, GA. Poster presentation.
- Saunders, M.E.*** and Senkbeil, J.C. 2014. Tornado Vulnerability Analysis of Schools in Alabama. The Annual Meeting of The Association of American Geographers, April 10, 2014, Tampa, FL. Poster presentation.
- Saunders, M.E.***, Skeeter B., and Parnell D. 2013. The Differing Monthly Migration of United States Tornadoes: 1950-2011. The Salisbury University Student Research Conference, April 26, 2013, Salisbury, MD. Oral Presentation.
- Saunders, M.E.***, Skeeter B., and Parnell D. 2013. The Differing Monthly Migration of United States Tornadoes: 1950-2011. The Annual Meeting of The Association of American Geographers, April 10, 2013, Los Angeles, CA. Oral presentation.
- Saunders, M.E.***, Skeeter B., and Parnell D. 2012. Potential Explanations for the Differing Monthly Migration of United States Tornadoes: 1950-2011. The Annual Meeting of The South Eastern Division of The Association of American Geographers, November 18 - 20, 2012, Asheville, NC. Poster presentation.
- Saunders, M.E.***, Skeeter B., and Parnell D. 2012. Potential Explanations for the Differing Monthly Migration of United States Tornadoes: 1950-2011. The Joint Annual Meeting of The Pennsylvania Geographical Society and The Middle Atlantic Division of The Association of American Geographers, November 2-3, 2012, Salisbury, MD. Oral presentation.

Saunders, M.E.*, Skeeter B., and Parnell D. 2012. Migration of Tornado Activity for the United States, 1950-2011. The Guerrieri Summer Research Program, August 8, 2012, Salisbury, MD. Poster presentation.

Media Appearances/Interviews:

- 2021 Salisbury University Re:Search Magazine 2021 Edition - Mentorships. Retrieved from: https://www.salisbury.edu/administration/academic-affairs/graduate-studies-and-research/_files/research-magazine/research-magazine-s21.pdf
- 2020 Calling Earth Podcast Episode 27: USF School of Geosciences Interview <http://callingearth.lib.usf.edu/calling-earth-027-michelle-saunders-human-geographer>
- 2018 Phan, M. and Williams, C. Episode 49: Do People Think Radar is Useful? (w/ **Michelle Saunders**) *WeatherHype*, Podcast. <http://www.weatherhypepodcast.com/episode-49.html>
- 2017 Christiansen, Jen. Visualizing Uncertain Weather, *Scientific American*. <https://blogs.scientificamerican.com/sa-visual/visualizing-uncertain-weather/>

FUNDING AWARDS

Future Proposals (submitted):

- 2022 Methods for Collecting Vulnerability Data: Improving Operations and Building Trust Between NWS WFOs and Core Partners. DOC – NOAA Social, Behavioral, and Economic Sciences. Daphne LaDue (OU), Elizabeth Hurst (OU), **Michelle Saunders** (OU), and Alex Marmo (OU). \$485,068. If awarded, funding dates: 8/1/2023 – 7/30/2025.
- 2022 The Role of Radar in Protective Decision Making by Core Partners and Publics. DOC – NOAA Vortex- USA. PIs: **Michelle Saunders** (OU), Jack Friedman (OU), Daphne LaDue (OU). \$622,675. If awarded, funding dates: 8/1/2023 – 7/30/2026.
- 2022 Rural Region Readiness: Collaborative Learning through Integrated Warning Team Workshop Sessions on Tornado Safety. DOC – NOAA Vortex- USA. PIs: Elizabeth Hurst (OU), Alex Marmo (OU), **Michelle Saunders** (OU), Daphne LaDue (OU). \$ 539,196. If awarded, funding dates: 8/1/2023 – 7/30/2026.

Current Awards:

- 2023 Assessing Increased Vulnerability Knowledge and High Temporal Resolution Guidance on Forecaster and Emergency Manager Decision Making. DOC-NOAA. PIs: Daphne LaDue and **Michelle Saunders** (OU). \$693,972. Funded 7/1/2019–6/30/2023 (NCE). Sponsor ID: NA19OAR4590139. Modified: December 2022.

Past Awarded:

- 2020 Fred and Helen Tharp Research Scholarship, University of South Florida, \$648
- 2018 Fred and Helen Tharp Research Scholarship, University of South Florida, \$1,000
- 2017 Fred and Helen Tharp Research Scholarship, University of South Florida, \$650
- 2016 Fred and Helen Tharp Research Scholarship, University of South Florida, \$600
- 2012 Guerrieri Summer Research Grant, Salisbury University

SERVICE & LEADERSHIP

- 2018-2019 **President**, Gamma Theta Upsilon – Kappa Kappa Chapter, University of South Florida
- 2018-2020 **Event Coordinator** – Scientific Outreach, Taste of Science, Scientists Inc., Tampa, FL
- 2017-2018 **Vice President**, Gamma Theta Upsilon – Kappa Kappa Chapter, University of South Florida
- 2016-2017 **Historian and Social Chair**, Gamma Theta Upsilon – Kappa Kappa Chapter, University of South Florida
- 2016-2020 **Vice President**, West Central Florida Chapter of the American Meteorological Society, Tampa, FL
- 2015-2016 **Corresponding Secretary**, West Central Florida Chapter of the American Meteorological Society, Tampa, FL
- 2014-2015 **Vice President**, Club Geography, Department of Geography, University of Alabama
- 2010-2013 **President**, Geographic Society, Department of Geography and Geosciences, Salisbury University

HONORS AND AWARDS

- 2019 Second Place Student Poster Award AMS Societal Applications Symposium
- 2019 AMS Societal Applications Symposium Student Award
- 2017 Certificate of Excellence in Geography, Gamma Theta Upsilon – Kappa Kappa Chapter, University of South Florida
- 2017 Second Place, Student Poster Competition, 6th International Summit on Hurricanes and Climate Change: From Hazard to Impact, Heraklion, Crete, Greece, June 4-9, 2017
- 2016 Third Place Local Chapter Poster Competition, American Meteorological Society, West Central Florida Chapter of the American Meteorological Society (WCFLAMS)
- 2016 American Meteorological Society, Chapter of the Year Award, WCFLAMS, 2015-2016. (My role – Corresponding Secretary of WCFLAMS and co-writer of application)
- 2015 First Place Local Chapter Poster Competition, American Meteorological Society, WCFLAMS
- 2015 Dr. Dewey M. Stowers Merit Award, WCFLAMS
- 2015 Outstanding Graduate Teaching Assistant Award, Department of Geography, The University of Alabama
- 2013 Geographic Society Award, Department of Geography and Geosciences, Salisbury University
- 2013 Outstanding Service Award, Department of Geography and Geosciences, Salisbury University
- 2013 Presidential Citizen Scholar, Salisbury University
- 2012 Middle Atlantic Division of The Association of American Geographers Geography Bowl All Star
- 2012 Cultural Laureate, Salisbury University 2012

PROFESSIONAL SERVICE TO THE DISCIPLINE

2022 Reviewer for *Weather, Climate, and Society*
2022 Reviewer for *Natural Hazards*
2021 Reviewer for *Weather, Climate, and Society*

PROFESSIONAL DEVELOPMENT

2019 National Center for Atmospheric Research BRIGHTTE Workshop Attendee & Presenter– Storm Surge and Sea-level Rise Workshop, Boulder, CO
2017 Preparing for College Teaching, Academy for Teaching and Learning Excellence (ATLE), University of South Florida
2015 AWIPS II Unidata Workshop Attendee, University of South Florida

PROFESSIONAL MEMBERSHIPS

2019-present Sigma Xi, University of South Florida Chapter
2015-2020 West Central Florida Chapter of the American Meteorological Society
2013-present Gamma Theta Upsilon
2012-2013 American Meteorological Society – Salisbury University Chapter
2012-present American Meteorological Society
2011-2015 Southeastern Division of the American Association of Geographers
2011-present American Association of Geographers
2010-2013 Mid Atlantic Division of the American Association of Geographers