

## Kimberly M. Wood

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### EDUCATION

- Ph.D.**, 2012, The University of Arizona (Atmospheric Sciences, Remote Sensing)  
“Evaluating the impacts of eastern North Pacific tropical cyclones on North America utilizing remotely sensed and reanalysis data” *Advisor: Elizabeth A. Ritchie*
- M.S.**, 2009, The University of Arizona (Atmospheric Sciences) *Advisor: Elizabeth A. Ritchie*
- H.B.S.**, 2007, Oregon State University (Physics major with thesis, Writing minor, magna cum laude)

### EMPLOYMENT & POSITIONS HELD

- 2015 – present     **Assistant Professor, Mississippi State University**
- 2016 – 2019       **Visiting Fellow, University of New South Wales—Canberra**
- 2012 – 2015       **Postdoctoral research associate, the University of Arizona**
- 2009 – 2012       **Graduate research associate, the University of Arizona**
- 2011               **Graduate teaching associate, the University of Arizona**
- 2008 – 2009       **Graduate research assistant, the University of Arizona**
- 2007 – 2008       **Graduate teaching assistant, the University of Arizona**
- 2007               **Undergraduate teaching assistant, Oregon State University**
- 2005 – 2007       **Undergraduate research assistant, Oregon State University**

### PEER-REVIEWED PUBLICATIONS [\* equal-author contributions; student/former student authors]

#### Under review

- McNeely, T., G. Vincent, A. B. Lee, R. Izbicki, and **K. M. Wood**: Detecting Distributional Differences in Labeled Sequence Data with Application to Tropical Cyclone Satellite Imagery. *Submitted to Journal of the American Statistical Association.*
- Truchelut, R. E., P. J. Klotzbach, E. M. Staehling, **K. M. Wood**, D. J. Halperin, C. J. Schreck, and E. S. Blake: Earlier onset of North Atlantic hurricane season with warming oceans. *Being revised for Nature Communications.*
- Klotzbach, P. J.\*, **K. M. Wood\***, C. J. Schreck, S. G. Bowen, C. M. Patricola, and M. M. Bell: Trends in Global Tropical Cyclone Activity: 1990–2020. *Revised for Geophysical Research Letters.*

#### Published

- Klotzbach, P. J.\*, **K. M. Wood\***, M. M. Bell, E. S. Blake, S. G. Bowen, L.-P. Caron, J. M. Collins, E. J. Gibney, C. J. Schreck, and R. E. Truchelut, 2022: A Hyperactive End to the Atlantic Hurricane Season: October–November 2020. *Bull. Amer. Meteor. Soc.*, doi:10.1175/BAMS-D-20-0312.1.
- McNeely, T., G. Vincent, R. Izbicki, **K. M. Wood**, and A. B. Lee, 2021: Identifying Distributional Differences in Convective Evolution Prior to Rapid Intensification in Tropical Cyclones. NeurIPS 2021 Tackling Climate Change with Machine Learning, <https://arxiv.org/abs/2109.12029>. [Peer-reviewed conference paper.]
- Wood, K. M.**, and C. J. Schreck: Eastern North Pacific and Central North Pacific basins [in “State of the Climate in 2020”]. *Bull. Amer. Meteor. Soc.*, **102**, S233–S235, doi:10.1175/BAMS-D-21-0080.1.

- Mercer, A. E., A. D. Grimes, and **K. M. Wood**, 2021: Application of Unsupervised Learning Techniques to Identify Atlantic Tropical Cyclone Rapid Intensification Environments. *J. Appl. Meteorol. Climatol.*, **60**, 119-138, doi:10.1175/JAMC-D-20-0105.1.
- McNeely, T., N. Dalmaso, **K. M. Wood**, and A. B. Lee, 2020: Structural Forecasting for Tropical Cyclone Intensity Prediction: Providing Insight with Deep Learning. *NeurIPS 2020 Climate Change*, <https://www.climatechange.ai/papers/neurips2020/80.html>. [Peer-reviewed conference paper.]
- McNeely, T., A. B. Lee, **K. M. Wood**, and D. Hammerling, 2020: Unlocking GOES: A Statistical Framework for Quantifying the Evolution of Convective Structure in Tropical Cyclones. *J. Appl. Meteorol. Climatol.*, **59**, 1671–1689, <https://doi.org/10.1175/JAMC-D-19-0286.1>.
- Wood, K. M.**, and C. J. Schreck, 2020: Eastern North Pacific and Central North Pacific basins [in “State of the Climate in 2019”]. *Bull. Amer. Meteor. Soc.*, **101**, S212–S214, doi:10.1175/BAMS-D-20-0077.1.
- Wood, K. M.**, P. J. Klotzbach, J. M. Collins, L.-P. Caron, R. E. Truchelut, and C. J. Schreck, 2020: Factors affecting the 2019 Atlantic hurricane season and the role of the Indian Ocean Dipole. *Geophys. Res. Lett.*, doi:10.1029/2020GL087781.
- Fuhrmann, C. M., **K. M. Wood**, and J. C. Rodgers, 2019: Assessment of storm surge and structural damage on San Salvador Island, Bahamas, associated with Hurricane Joaquin (2015). *Nat. Hazards*, doi:10.1007/s11069-019-03782-2.
- Wood, K. M.**, P. J. Klotzbach, J. M. Collins, and C. J. Schreck, 2019: The Record-Setting 2018 Eastern North Pacific Hurricane Season. *Geophys. Res. Lett.*, **46**, doi:10.1029/2019GL083657.
- McNeely, T., A. B. Lee, D. Hammerling, and **K. Wood**, 2019: Quantifying the Spatial Structure of Tropical Cyclone Imagery (No. NCAR/TN-557+STR), doi:10.5065/5frb-ws04. [NCAR internal review only.]
- Mercer, A., A. Grimes, and **K. Wood**, 2018: Multidimensional Kernel Principal Component Analysis of False Alarms of Rapidly Intensifying Atlantic Tropical Cyclones. *Procedia Computer Science*, **61**, 422-427. [Peer-reviewed conference paper.]
- Leroux, M.-D., **K. Wood**, R. L. Elsberry, E. O. Cayan, E. Hendricks, M. Kucas, P. Otto, R. Rogers, B. Sampson, and Z. Yu, 2018: Recent Advances in Research and Forecasting of Tropical Cyclone Track, Intensity, and Structure at Landfall. *Tropical Cyclone Research and Review*, **7(2)**, 85-105.
- Evans, C., **K.M. Wood**, S.D. Aberson, H.M. Archambault, S.M. Milrad, L.F. Bosart, K.L. Corbosiero, C.A. Davis, J.R. Dias Pinto, J. Doyle, C. Fogarty, T.J. Galarneau, C.M. Grams, K.S. Griffin, J. Gyakum, R.E. Hart, N. Kitabatake, H.S. Lentink, R. McTaggart-Cowan, W. Perrie, J.F. Quinting, C.A. Reynolds, M. Riemer, E.A. Ritchie, Y. Sun, and F. Zhang, 2017: The Extratropical Transition of Tropical Cyclones. Part I: Cyclone Evolution and Direct Impacts. *Mon. Wea. Rev.*, **145**, 4317–4344.
- Wood, K.M.**, and E.A. Ritchie, 2015: A definition for rapid weakening of North Atlantic and eastern North Pacific tropical cyclones. *Geophys. Res. Lett.*, **42**, 10091-10097.
- Wood, K.M.**, Rodríguez-Herrera, O.G., E.A. Ritchie, M.F. Piñeros, I.A. Hernández, and J.S. Tyo, 2015: Tropical cyclogenesis detection in the North Pacific using the deviation angle variance technique. *Wea. Forecasting*, **30**, 1663-1672.
- Rodríguez-Herrera, O.G., **K.M. Wood**, K.P. Dolling, W.T. Black, E.A. Ritchie, and J.S. Tyo, 2015: Objective automatic storm tracking based on the deviation-angle variance method. *IEEE Geoscience and Remote Sensing Letters*, **12**, 254-258.
- Wood, K.M.**, and E.A. Ritchie, 2014: A 40-year climatology of extratropical transition in the eastern North Pacific. *J. Climate*, **27**, 5999-6015.
- Ritchie, E.A., **K.M. Wood**, O.G. Rodríguez-Herrera, M.F. Piñeros, and J.S. Tyo, 2014: Satellite-derived tropical cyclone intensity in the North Pacific Ocean using the deviation-angle variance technique. *Wea. Forecasting*, **29**, 505-516.
- Wood, K.M.**, and E.A. Ritchie, 2013: An updated climatology of tropical cyclone impacts on the southwestern United States. *Mon. Wea. Rev.*, **141**, 4322–4336.
- Gutzler, D.S., **K.M. Wood**, E.A. Ritchie, A.V. Douglas, and M.D. Lewis, 2013: Interannual variability of tropical cyclone activity along the Pacific coast of North America. *Atmosfera*, **26**, 149-162.
- Wood, K.M.**, and E.A. Ritchie, 2012: The unique behavior and precipitation pattern associated with Tropical Storm Ignacio (1997). *Mon. Wea. Rev.*, **140**, 3347-3360.

Ritchie, E.A., **K.M. Wood**, D.S. Gutzler, and S. White, 2011: The influence of eastern Pacific tropical cyclone remnants on the southwestern United States. *Mon. Wea. Rev.*, **139**, 192–210.

## AWARDED GRANTS

- PI, “Advancing Weather Visualization at Mississippi State University through a Dedicated AWIPS Server.” 29 July 2020 – 30 April 2021. Funded by Unidata Equipment Award Program. *Total: \$5k*.
- MSU PI, “Collaborative Research: An Object-Oriented Approach to Assess the Rainfall Evolution of Tropical Cyclones in Varying Moisture Environments.” 1 July 2020 – 30 June 2023. Funded by NSF AGS. With Corene Matyas (UF) and Stephanie Zick (Virginia Tech). *Grant total: \$622k; MSU total: \$204k*.
- Co-PI, “Transition of Machine-Learning Based Rapid Intensification Forecasts to Operations.” 1 July 2017 – 30 June 2020 (PI: Andrew Mercer, MSU). Funded by NOAA’s Joint Hurricane Testbed. *Total: \$203k*.

## ACADEMIC & PROFESSIONAL AWARDS

- 2021 - 2020 Editors’ Citation for Excellence in Refereeing - Geophysical Research Letters
- 2021 Arts and Sciences Research Award in Natural and Physical Sciences and Mathematics and Statistics, College of Arts & Sciences, Mississippi State University
- 2019 - 2019 Visiting Editor Research Fellowship recipient, *Tropical Cyclone Research and Review*, ESCAP/WMO Typhoon Committee, Shanghai Typhoon Institute
- 2011, 2012 - Graduate College Fellowship recipient for service as Atmospheric Sciences department graduate representative, The University of Arizona
- 2011 - NASA Group Achievement Award for the Genesis and Rapid Intensification Processes (GRIP) airborne earth science mission
- College of Science Galileo Circle Scholarship recipient, the University of Arizona
- Graduate College Fellowship recipient for academic achievements, the University of Arizona
- 2010 - Atmospheric Sciences Exceptional Scholarship recipient, the University of Arizona
- 2003 – 2007 - Presidential Scholarship recipient, Oregon State University
- University Honors College student, Oregon State University

## SEMINARS & CONFERENCE PRESENTATIONS (2015-present; **presenter**; student)

- Wood, K. M.**, 2022: Advances in Interrogating and Visualizing Data for Tropical Cyclones via Python. 102<sup>nd</sup> American Meteorological Society Annual Meeting, January 2022, *virtual*.
- Wood, K. M.**, 2021: The 2021 North Atlantic Hurricane Season. Delaware County Institute of Science lecture series, Dec 2021. *Invited, virtual*.
- Wood, K. M.**, 2021: An investigation of 2020 and 2021 hurricane activity in the Gulf of Mexico. Colloquium presented to the Department of Earth Sciences, U. of South Alabama, Oct 2021. *Invited*.
- Schultze, S., and K. Wood, 2021: Creation of the South ALAbama MIcronet (SALAMI) – A Crowdsourced Microclimates Study in Mobile, Alabama. 2021 AASC Annual Meeting; June 2021; *virtual*.
- Wood, K.M.**, 2021: Analyzing Satellite Observations of Tropical Cyclones Via Open-Source Tools: A Storm-Centric Perspective. 34<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; May 2021; *virtual*.
- Holliday, B.M., and K.M. Wood, 2021: A New Method for Quantifying Pre-Storm Sea Surface Temperature Gradients to Assess Their Influence on Tropical Cyclone Intensity Change. 34<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; May 2021; *virtual*.
- de Solo, S., and K.M. Wood, 2021: Watching Hurricanes Fall Apart: Aircraft Observations of Weakening Tropical Cyclones. 34<sup>th</sup> Conference on Hurricanes and Tropical Meteorology; May 2021; *virtual*.
- Wood, K.M.**, 2021: From the basin scale to inside the storm: Quantifying hurricane behavior with Python. Colloquium presented to the Department of Atmospheric Sciences, U. Washington, Feb 2021. *Invited, virtual*.

- Wells, J., P. Duran, C. Schultz, and K. Wood, 2021: Using Geostationary Lightning Mapper Data to Understand the Relationship between Rapid Intensification and Lightning in Hurricane Michael. 101<sup>st</sup> American Meteorological Society Annual Meeting, January 2021, *virtual*.
- McNeely, T., K.M. Wood, D. Hammerling, and A.B. Lee, 2020: Unlocking GOES: A Statistical Framework for Quantifying the Evolution of Convective Structure in Tropical Cyclones. 2<sup>nd</sup> NOAA Workshop on Leveraging AI in Environmental Science, December 2020, *virtual*.
- Wood, K.M.**, 2020: Quantifying vertical wind shear patterns to better understand how shear impacts hurricanes. Seminar presented to the Statistical Methods for the Physical Sciences group, Carnegie Mellon University, October 2020. *Invited, virtual*.
- Wood, K.M.**, 2020: 2019 Hurricane Activity: Above Average in the North Atlantic, Below Average in the eastern North Pacific. Seminar presented to REU students at U. South Florida, June 2020. *Invited, virtual*.
- Mercer, A., A. Grimes, and **K. Wood**, 2020: Transition of Machine-Learning Based Rapid Intensification Forecasts to Operations. 2020 Tropical Cyclone Operations Research Forum; Feb 2020; Lakeland, FL.
- Wood, K. M.**, 2020: Storm-centric Analysis of Tropical Cyclones in Python. 10<sup>th</sup> Symposium on Advances in Modeling and Analysis Using Python, 100<sup>th</sup> American Meteorological Society Annual Meeting, January 2020, Boston, MA.
- Wood, K. M.**, 2020: The 22000 Mile View Every 60 Seconds: Advances in Geostationary Observations of Extreme Weather. 19<sup>th</sup> Annual Student Conference, 100<sup>th</sup> American Meteorological Society Annual Meeting, January 2020, Boston, MA. *Invited*.
- Mercer, A., A. Grimes, and K. Wood, 2020: An Updated Atlantic Basin Tropical Cyclone Rapid Intensification Scheme Using Machine Learning and Operational Forecast Data. 19<sup>th</sup> Conference on Artificial Intelligence for Environmental Science, 100<sup>th</sup> American Meteorological Society Annual Meeting, January 2020, Boston, MA.
- Wood, K. M.**, 2019: Mesmerized by fluid dynamics: How next-generation observations and Python tools reveal hurricane behavior. 2019 AGU Fall Meeting, San Francisco, CA, December 2019 (poster).
- Wood, K. M.**, 2019: An examination of tropical cyclone spatial characteristics during intensity change as derived from infrared imagery. 2019 AGU Fall Meeting, San Francisco, CA, December 2019.
- Fuhrmann, C., C. Landress, K. Wood, and J. Rodgers, 2019: CoCoRaHS in the Bahamas: What we learned from a year's worth of rain on San Salvador Island. Annual Meeting of the Southeastern Division of the AAG, November 2019, Wilmington, NC.
- Wood, K. M.**, 2019: Recent Developments Regarding Tropical Cyclones. Seminar presented to the Statistical Methods for the Physical Sciences group, Carnegie Mellon University, September 2019. *Invited, virtual*.
- Stark, C. S., E. A. Ritchie, and K. M. Wood, 2019: Enhanced surface fluxes on the intensification of TC Kelvin (2018) after landfall. AMOS-ICTMO 2019, June 2019, Darwin, Australia.
- Fuhrmann, C., J. Rodgers, C. Landress, and K. Wood, 2019: CoCoRaHS in the Bahamas: What we learned from a year's worth of rain on San Salvador Island. Annual Meeting of the American Association of State Climatologists, June 2019, Santa Rosa, CA.
- Mercer, A., A. Grimes, and K. Wood, 2019: Transition of Machine-Learning Based Rapid Intensification Forecasts to Operations. 2019 Tropical Cyclone Operations and Research Forum; Mar 2019; Miami, FL.
- Wood, K. M.**, 2019: Putting the Fun in Function: How Python Makes Me a Better Scientist and Teacher. *Keynote Presentation*. 9<sup>th</sup> Symposium on Advances in Modeling and Analysis Using Python, 99<sup>th</sup> American Meteorological Society Annual Meeting, Jan 2019, Phoenix, AZ. *Invited*.
- Holliday, B. M., and K. M. Wood, 2019: Impacts of Sea Surface Temperature Gradients on Tropical Cyclone Weakening in the Eastern North Pacific. 18<sup>th</sup> Student Conference, 99<sup>th</sup> American Meteorological Society Annual Meeting, Jan 2019, Phoenix, AZ (poster).
- Wood, K. M.**, and B. M. Holliday, 2018: When Hurricanes Fall Apart: The Role of Sea Surface Temperature Gradients in Rapid Weakening. American Geophysical Union Fall Meeting; Dec 2018; Washington, D.C. (poster).
- Grimes, A. D., A. E. Mercer, and K. M. Wood, 2018: Evaluation of Machine-Learning Based Rapid Intensification Forecast Performance During the 2017 Atlantic Hurricane Season. 33<sup>rd</sup> Conference on Hurricanes and Tropical Meteorology; Apr 2018; Ponte Vedra, FL.

- Holliday, B. M., and K. M. Wood, 2018: The Influence of Sea Surface Temperature Gradients on the Rapid Weakening of Tropical Cyclones. 33<sup>rd</sup> Conference on Hurricanes and Tropical Meteorology; Apr 2018; Ponte Vedra, FL (poster).
- Bray, M. A. C., and K. M. Wood, 2018: Energy Exchange: The Relationship between Sea Surface Salinity, Enthalpy, and North Atlantic Tropical Cyclone Intensity. 33<sup>rd</sup> Conference on Hurricanes and Tropical Meteorology; Apr 2018; Ponte Vedra, FL.
- Wood, K. M.**, 2018: Variability of Tropical Cyclone Rapid Weakening on a Global Scale. 33<sup>rd</sup> Conference on Hurricanes and Tropical Meteorology; Apr 2018; Ponte Vedra, FL.
- Wood, K. M.**, 2018: When Hurricanes Fall Apart: Diagnosing the Rapid Weakening of Tropical Cyclones. Seminar delivered to the Department of Hydrology and Atmospheric Sciences, the University of Arizona, Mar 2018. *Invited.*
- Mercer, A., A. Grimes, and K. Wood, 2018: Transition of Machine-Learning Based Rapid Intensification Forecasts to Operations. 2018 Tropical Cyclone Operations and Research Forum; Mar 2018; Miami, FL.
- Wood, K. M.**, 2017: How changes in top water bother big turning packs of up-going wet air. American Geophysical Union Fall Meeting; Dec 2017; New Orleans, LA. *Invited.*
- Wood, K. M.**, and C. M. Fuhrmann, 2017: The influence of off-equatorial Pacific sea surface temperature variability on downstream U.S. climate. 72<sup>nd</sup> Annual SEDAAG Meeting; Nov 2017; Starkville, M.S.
- Holliday, B. M., and K. M. Wood, 2017: Benefits of GOES-16 ABI observations for hurricanes impacting the Southeast U.S. 72<sup>nd</sup> Annual SEDAAG Meeting; Nov 2017; Starkville, MS (poster).
- Wood, K. M.**, 2017: Rapid weakening of tropical cyclones: a global perspective. 6<sup>th</sup> International Summit on Hurricanes and Climate Change; Jun 2017, Heraklion, Crete, Greece (poster).
- Schneiderman, A., K. M. Wood, and C. M. Fuhrmann, 2017: Influence of off-equatorial SST anomalies during ENSO events. 15<sup>th</sup> Annual Southeast Severe Storms Symposium; Apr 2017; Starkville, MS.
- Ritchie, E. A, J. S. Tyo, K. M. Wood., K. P. Dolling, and O. G. Rodríguez-Herrera, 2017: An update on techniques using the deviation angle variance (DAV) for tropical cyclone intensity, genesis, and surface wind field estimation. The 71<sup>st</sup> Interdepartmental Hurricane Conference, Mar 2017, Miami, FL.
- Wood, K. M.**, 2016: Assessing the characteristics of rapidly weakening tropical cyclones. Seminar presented at 1) the University of New South Wales—Canberra, Canberra, Australia, 12 May 2016; 2) the Bureau of Meteorology, Melbourne, Victoria, Australia, 30 May 2016; 3) the University of Melbourne, Melbourne, Victoria, Australia, 31 May 2016.
- Wood, K. M.**, 2016: Assessing the Rapid Weakening of Tropical Cyclones with Infrared and Microwave Satellite Imagery. 32<sup>nd</sup> Conference on Hurricanes and Tropical Meteorology; Apr 2016; San Juan, Puerto Rico.
- Ritchie, E. A., and K. M. Wood, 2016: Investigation of the structure and intensity of tropical cyclones using infrared and microwave imagery. 32<sup>nd</sup> Conference on Hurricanes and Tropical Meteorology; Apr 2016; San Juan, Puerto Rico.
- Balukas, D. L., E. A. Ritchie, and K. M. Wood, 2016: A global investigation of the impacts of landfalling tropical cyclones on societies. 32<sup>nd</sup> Conference on Hurricanes and Tropical Meteorology; Apr 2016; San Juan, Puerto Rico.
- Strickler, W. M., E. A. Ritchie, and K. M. Wood, 2016: Investigating High Impact Weather Events over the Western United States Downstream of Extratropically Transitioning Tropical Cyclones using the GEFS/R. 32<sup>nd</sup> Conference on Hurricanes and Tropical Meteorology; Apr 2016; San Juan, Puerto Rico (poster).
- Smith, E. K., E. A. Ritchie, and K. M. Wood, 2016: Investigating Size Changes of Tropical Cyclones in the North Atlantic using the GEFS/R. 32<sup>nd</sup> Conference on Hurricanes and Tropical Meteorology; Apr 2016; San Juan, Puerto Rico (poster).

#### ***Talks delivered at Mississippi State University***

- Wood, K. M.**, 2021: An overview of hurricane research powered by Python. Presentation delivered to the East Mississippi Chapter of the NWA and AMS, Oct 2021. *Invited.*
- Wood, K. M.**, 2021: Hurricane Ida (2021): Assessing the storm's evolution and impacts. Seminar delivered to the Department of Geosciences, Mississippi State University, Sep 2021.

- Wood, K. M.**, 2019: Storm-Centric Thinking: How to Reveal the Nuances of Hurricane Behavior with Open-Source Software. Seminar delivered to the Department of Geosciences, Mississippi State University, Aug 2019.
- Wood, K. M.**, 2017: Impacts of Hurricane Harvey. Seminar delivered to the Department of Geosciences, Mississippi State University, Sep 2017.
- Wood, K. M.**, 2017: Characteristics of category 5 hurricanes. Seminar delivered to the Department of Geosciences, Mississippi State University, Feb 2017.
- Fuhrmann, C., **K. Wood**, and J. Rodgers, 2016: Effects of Hurricane Joaquin (2015) on San Salvador Island. *Joint seminar* delivered to the Department of Geosciences, Mississippi State University, Apr 2016.
- Wood, K. M.**, 2015: Remotely-sensed observations of hurricanes. Seminar delivered to the Mississippi State University chapter of the American Society of Photogrammetry and Remote Sensing, Sep 2015.
- Wood, K. M.**, 2015: Flying through Hurricanes. Seminar delivered to the Department of Geosciences, Mississippi State University, Sep 2015.

## OUTREACH

- The Conversation, 18 September 2020: “[The 2020 Atlantic hurricane season is so intense, it just ran out of storm names – and then two more storms formed](#)”
- The Conversation, 24 September 2020: “[What makes hurricanes stall, and why is that so hard to forecast?](#)”
- Bulldog Bites, 5 May 2021: “The Atlantic hurricane season: Looking back on 2020 and looking ahead to 2021”

## PROFESSIONAL DEVELOPMENT AND FIELD EXPERIENCE

- 2021- **Fifth National Climate Assessment**, Southeast chapter author  
Invited to serve on the Southeast chapter in August 2021; multi-day all-authors workshop held virtually September 2021; zero-order draft submitted October 2021; virtual public engagement workshops held January-February 2022; weekly meetings and webinars are ongoing.
- 2021- **10<sup>th</sup> WMO International Workshop on Tropical Cyclones, late 2022, Shanghai, China**  
May 2021-present: Chair of the recommendation committee, the body responsible for synthesizing and publishing guidance on future research and operational development.
- 2019- **American Geophysical Union Voices for Science**  
2020 Competed to join this AGU-sponsored effort to support improved science communication and outreach. Attended in-person workshop in April 2019 and participated in monthly calls with regional members. Developed products and material to share with local audiences. Funded to attend the AGU 2019 Fall Meeting.
- 2018 **9<sup>th</sup> WMO International Workshop on Tropical Cyclones, Honolulu, HI**  
Invitation-only workshop. Contributed to working group reports prior to the workshop, led in-person discussion groups on site, and helped finalize overall workshop recommendations.
- 2018 **Tropical Cyclone Workshop, the University of Wisconsin-Madison**  
Attended invitation-only workshop hosted by the Cooperative Institute for Meteorological Satellite Studies. Presented ongoing research projects and discussed future collaborations.
- 2018 **American Meteorological Society Early Career Leadership Academy, Washington, D.C.**  
Competed to join this AMS-sponsored program. Participated in webinars and small-group teleconferences in preparation for the in-person workshop. Awarded stipend to attend in-person workshop. Debated leadership strategies, discussed leadership dilemmas, and engaged in peer mentoring. Small-group calls continued once per month after the workshop.
- 2018 **Climate Science Day, Washington, D.C.**  
Attended an invitation-only multi-society workshop with plenary speakers from policy groups and news outlets to maximize messaging about the importance of climate science when speaking to House and Senate member staff. Met with staff for Congressional representatives from Iowa, Mississippi, and House/Senate committees.
- 2017 **4<sup>th</sup> WMO International Workshop on Tropical Cyclone Landfall Processes, Macau, China**

- Invitation-only workshop. Rapporteur (lead author) for the working group on intensity, track, and structure and thus compiled group member contributions into a single report prior to the workshop; led in-person discussion groups on site.
- 2017 **AGU Congressional Visits Day, Washington, D.C.**  
 Attended a workshop at AGU headquarters to learn about the legislative process and form strategies to speak with congressional representatives and their staff. Met with staff of senators and representatives of Mississippi and Louisiana to discuss science funding and the value of federally-sponsored research in these states.
- 2015 **NAGT Workshop for Early Career Geoscience Faculty**  
 Attended discussion sessions on effective teaching strategies, course design, establishing a research program in a new setting, working with research students, balancing professional and personal responsibilities, time management, and other challenges faced by early career faculty.
- 2015 **Guest lecturer, the University of Arizona**  
 Atmospheric Sciences 441b/541b: Dynamic Meteorology. Covered textbook chapter on mesoscale circulations. Proctored midterm exam. Developed and graded homework assignments and exam problems.
- 2014 **8<sup>th</sup> WMO International Workshop on Tropical Cyclones, Jeju, Korea**  
 Invitation-only workshop. Contributed to four working group reports prior to the workshop, led in-person discussion groups on site, supported topic chairs, and served on the recommendations committee.
- 2014 **Coding workshop leader, The University of Arizona**  
 Developed the first departmental coding workshop for graduate students. Created the website, described good coding practices, explained the use of Linux, developed coding examples in the bash shell, Fortran, Python, and GrADS, and worked with graduate students experienced in MATLAB and NCL who contributed their expertise to the workshop.
- 2013 **Instructor, Graduate teaching assistant workshop, The University of Arizona**  
 Observed and offered feedback on practice lectures given by graduate teaching assistants. Presided over and participated in training exercises regarding common TA challenges.
- 2012 **NAGT Preparing for an Academic Career in the Geosciences Workshop**  
 Attended sessions on lecture preparation, interactive learning, time management, research group management, and other topics related to managing faculty workloads and duties.
- 2010 **NASA Genesis and Rapid Intensification Processes (GRIP) experiment**  
 Served as a forecaster for a 2-week period during GRIP. Created forecasts for and wrote discussions on current TCs and disturbances based on satellite and model forecast data, monitored weather conditions for flight missions and communicated with scientists on board, assisted in dropsonde launches on flight missions, processed dropsonde data, and participated in conference call forecast discussions from the Ft. Lauderdale operations center.
- 2010, 2012 **Guest lecturer, the University of Arizona**  
 - Atmospheric Sciences 170A (Introduction to Weather and Climate) Presented a lecture on thermally driven circulations in the atmosphere from the global to the local scale.  
 - Natural Sciences 101 (Weather and Climate) Presented four lectures on topics including heat transport in the atmosphere, pressure and wind, thunderstorms, and tornadoes.  
 - Presented a lecture on hurricanes during a workshop for K-12 science teachers.
- 2008 **Tropical Cyclone Structure (TCS) 08 field campaign**  
 Served as a forecaster for a 1-week period during TCS-08. Created current and forecast graphics, explored and analyzed relevant data, and participated in conference call forecast discussions from the Monterey operations center.

### **Computing skill sets & experience**

- *Programming:* Python, MATLAB, Fortran, shell scripting, Linux utilities
- *Data visualization:* Python, GrADS, Inkscape (vector graphics), NCL, MATLAB, AWIPS
- *Web design:* HTML, CSS, PHP, MySQL

## TEACHING EXPERIENCE

Mississippi State University:

- GR 4553/6553 – Computer Methods in Meteorology: taught Spring 2019
- GR 4693/6693 – Physical Meteorology and Climatology II: teaching in Spring 2022
- GR 4753/6753 – Satellite and Radar Meteorology: taught Fall 2015
- GR 4783/6783 – Satellite Meteorology: *created* course and taught Spring 2017-2021, teaching in Spring 2022
- GR 4943/6943 – Tropical Meteorology: *revised* course and taught Spring 2016 and Fall 2016-2021
- GR 8553 – Research Methods in Geoscience: *revised* course and taught Fall 2016-2021
- GR 8990 – Tropical Environments: *created* course and taught Spring 2017-2018
- GR 8990 – Interpreting Numerical Weather Prediction: *created* course and taught Spring 2020-2021
- Supervised directed individual study courses for undergraduate and graduate students
- Advised nearly 40 undergraduate students since 2016

## UNDERGRADUATE & GRADUATE RESEARCH SUPERVISION

- Mason Bray, graduated with M.S. in 2017
- Austin Schneiderman, graduated with B.S. in 2017
- Matthew Holliday, graduated with M.S. in 2019; *anticipated* graduation with Ph.D. in 2023
- Christana Landress, graduated with M.S. in 2020 (co-advisor: Dr. Christopher Fuhrmann)
- Sofia de Solo, graduated with M.S. in 2021
- John Wells, graduated with B.S. in 2021; *anticipated* graduation with M.S. in 2023
- Jenna Bartlett, *anticipated* graduation with M.S. in 2022
- Katherine Berislavich, *anticipated* graduation with M.S. in 2023
- Austin Funkhouser, co-advisor, *anticipated* graduation with M.S. in 2023
- Jason Finley, co-advisor, *anticipated* graduation with Ph.D. in 2023 (advisor: Dr. Christopher Fuhrmann)
- Trey McNeely (Carnegie Mellon University), co-chair, *anticipated* graduation with Ph.D. in 2022
- Galen Vincent (Carnegie Mellon University), domain scientist, *anticipated* graduation with Ph.D. in 2024
- Multiple M.S. and Ph.D. committees

## SERVICE AND AFFILIATIONS

### Active roles & affiliations

**Member**, Robert Holland Faculty Senate, Mississippi State University. *April 2021 – present.*  
Academic Affairs committee member, *April 2021 – present.*

**Member**, Department of Geosciences Publicity Committee. *May 2020 – present.*

**Member**, Department of Geosciences Strategic Planning Committee. *May 2020 – present.*

**Member**, Department of Geosciences Graduate Curriculum Task Force. *September 2018 – present.*

**Member**, Department of Geosciences Seminar Committee. *April 2018 – present.*

**Member**, Program Committee for the 35<sup>th</sup> Conference on Hurricanes and Tropical Meteorology. *February 2022 – present.*

**Member**, AMS Committee on Weather Analysis and Forecasting. *January 2021 – present.*  
AMS WAF Statement Oversight Committee member, *May 2021 – present.*

**Member**, UCAR Membership Committee. *October 2019 – present.*

**Member**, UCAR Unidata Users Committee. *July 2019 – present.*

**Associate Editor**, Weather and Forecasting, *2018 – present.*

**Participant**, Skype A Scientist, *2018 – present.*

**Member Representative**, University Corporation for Atmospheric Research (UCAR), *2017 – present.*

**Member**, American Geophysical Union. *2009 –2012; 2016 – present.*

**Member**, American Meteorological Society. *2008 – present.*

#### Completed roles & affiliations

**Member**, College of Arts & Sciences Faculty Senate, Mississippi State University. *January 2018 – December 2020. (Vice President, January-December 2019. President, January-December 2020.)*

**Member**, Department of Geosciences Infrastructure Committee. *March 2016 – April 2020.*

**Member**, Mississippi State University Library Committee. *August 2016 – May 2019.*

**Reviewer**, NSF proposal review panel. *2019.*

**Panelist**, The Early Career Leadership Academy: Beyond Leadership into Mentorship. 7<sup>th</sup> AMS Conference for Early Career Professionals, *7 January 2019.*

How to Build a Vibrant Community in the Age of Social Media: Should We Evangelize Open-Source Languages at the Risk of Alienating Potential Community Members? 9<sup>th</sup> AMS Symposium on Advances in Modeling and Analysis Using Python, *9 January 2019.*

**Member**, Program Committee for 30<sup>th</sup> & 32<sup>nd</sup> Conference on Hurricanes and Tropical Meteorology. *January – April 2012, January – April 2016* (2016: also served on Max Eaton award committee).

**Activity co-leader**, Dept. of Geosciences Teacher Symposium, The University of Arizona. *November 2014.*

**Judge**, EarthWeek 2013 and 2014 Plenary Sessions. *April 2013, 2014.*

**Student member**, AMS STAC for Tropical Meteorology and Tropical Cyclones. *February 2011 – August 2012.*

**Graduate student representative**, Department of Atmospheric Sciences, The University of Arizona. *August 2009 – July 2012.*

**Vice president**, Associate Graduate Council for the College of Science. *September 2011 – May 2012.*

**Committee chair**, College of Science Graduate Student Awards Ceremony. *January – April 2012.*

**EarthWeek**, annual student-run research conference, the University of Arizona. *Webmaster and Interim Committee Chair* (EarthWeek 2012), *Committee Chair* (EarthWeek 2011), *Member* (EarthWeek 2010).

**AIR** (Atmospheric and Interdisciplinary Research, formerly GRATIS, affiliated with EarthWeek starting in 2010), annual student-run research conference, the Department of Atmospheric Sciences, the University of Arizona. *Co-Chair* (2010-2012), *Writing Committee Chair* (2009), *Food Committee member* (2008).

**Volunteer**, Hollinger Elementary School. Assisted elementary students with science experiments and discussed the scientific method. *February 2011.*

**Member**, Society of Physics Students, Oregon State University. *September 2005 – June 2007. (SPS treasurer, September 2006 – June 2007.)*

**Volunteer**, Discovery Days, Oregon State University. Operated physics demonstrations for elementary and middle school students. *May 2006 and May 2007.*

**Volunteer**, Oregon Snow Survey, USDA Natural Resources Conservation Service. Assisted data collection, routine maintenance, and equipment installation for snow survey sites in and near the Wallowa Mountains of Oregon. *September 2004.*