Jamie L. Dyer

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EDUCATION

Ph.D. Geography, University of Georgia, Athens, GA, 2005
- Graduate certificate in Atmospheric Science.
- Dissertation: *Spatial and temporal trends in snow cover in North America and the relationships with streamflow and rapid ablation* (Dr. Thomas Mote, major professor).

M.S. Geography, University of Georgia, Athens, GA, 2001
- Thesis: *Simulating the 1997 Red River floods utilizing a coupled snowpack and hydrologic model* (Dr. Thomas Mote, major professor).

B.S. Physics, University of Georgia, Athens, GA, 1999

A.S. Young Harris Junior College, Young Harris, GA, 1997

RESEARCH INTERESTS

Precipitation generation processes and patterns
Surface-atmosphere interactions
Surface hydrologic processes
Applications of uncrewed aerial system imagery
Climatological extremes and environmental impacts

PROFESSIONAL EXPERIENCE

Mississippi State University, Mississippi State, MS, Department of Geosciences
Professor 2017 - present
Associate Professor 2011 - 2017
Assistant Professor 2005- 2011

Northern Gulf Institute (NGI), Mississippi State, MS
Associate Director 2021 – present

Mississippi State University, Mississippi State, MS, Office of the Provost and Executive Vice President
Assistant VP Intern 2020 - present

Maria-Curie Skłodowska University, Lublin, Poland, Faculty of Earth Science
Fulbright Scholar 2018
Visiting Professor 2015

National Weather Service, Southeast River Forecast Center, Peachtree City, GA
Hydrometeorologist 2001-2003

EarthCast Technologies, LP
Chief Science Officer 2020 – present

University of Georgia, Athens, GA, Department of Geography
Lecturer 2005
Teaching Assistant 2000-2001
Research Assistant 1999-2005

PROFESSIONAL SERVICE

University (Mississippi State University):

- Office of the Provost and Executive Vice President administrative intern (2020-present)
  - Health Science/Disparity Task Force (co-chair and liaison to Office of the Provost)
    - Member of Health Science Working Group (chaired by Dan Gadke).
  - Data Science Task Force (co-chair and liaison to Office of the Provost)
    - Member of Data Science Working Group (chaired by Mimmo Parisi) and several sub-groups associated with web site generation, GPU cluster utilization, curriculum development, and Geoinformatics concentration.
  - Unmanned Vehicular Systems Task Force (chair and liaison to Office of the Provost)
    - Led successful application effort for inclusion of MSU in the FAA Unmanned Aircraft Systems – Collegiate Training Initiative (UAS-CTI).
  - Quantum Information Science / Quantum Computing (QuTF) Task Force (chair and liaison to Office of the Provost)
- University promotion and tenure committee (2011 – present)
  - Committee chair, 2018 – 2020
- College of Arts & Sciences promotion and tenure committee (2012 – 2015)
- College of Arts & Sciences faculty senate (2008 – 2009)

Departmental (Dept. of Geosciences, MSU):

- Meteorology team leader (2013 – 2019)
- Departmental promotion and tenure committee
  - Committee chair, 2017 – 2020
- Job search committees:
  - Search head for one tenure-track position
  - Committee member on five tenure-track positions
  - Committee member on two clinical faculty (non tenure-track) positions
- Administrative committees:
  - Distance learning oversight committee (2013 – 2017)
  - Budget committee (2015 – 2019)
  - Strategic Planning Committee (2018 – present)
- Administrative representative for UCAR membership (2016 – 2021)
  - Led effort for new membership application (2016)

External:

- Reviewer for Fulbright Core program: "Environmental Science: Satellite imagery analysis and atmospheric science" committee
- Member of faculty advisory panel for dynamic meteorology COMET initiative
- Session chair, 100th Annual Meeting, Association of American Geographers, Philadelphia, Pennsylvania (2004)

- Adjunct Faculty of Natural Sciences at North-West University, Potchefstroom Campus, South Africa
  - Served as external reviewer on two doctoral committees
- Book reviews:
  - Introductory-level meteorology laboratory text, "Exercises for Weather and Climate", 6th Ed., by Greg Carbone, Prentice Hall publisher (2007)
  - "Hydroclimatology – Perspectives and Applications" by Marlyn L. Shelton, for Bulletin of the American Meteorological Society (2010)
- Manuscript reviews:
  - Advances in Geosciences
  - Climate Research
  - Climatic Change
  - Frontiers of Earth Science
  - Geografiska Annaler
  - Hydrological Processes
  - International Journal of Climatology
  - Journal of Applied Meteorology and Climatology
  - Journal of Atmospheric and Oceanic Technology
  - Journal of Biometeorology
  - Journal of Climate
  - Journal of Geophysical Research – Atmospheres
  - Journal of Hydrometeorology
  - Journal of Operational Meteorology
  - Natural Hazards
  - Physical Geography
  - Polish Journal of Soil Science
  - Quaestiones Geographicae
  - Remote Sensing
  - Remote Sensing of Environment
  - Water
  - Water Resources Management
  - Water Resources Research
  - Weather and Forecasting
  - Zeitschrift fur Geomorphologie
- Proposal reviews:
  - US Civilian Research and Development Foundation (CRDF) Cooperative Grants Program (CGP)
  - National Institutes for Water Resources (NIWR)
  - National Science Foundation (NSF)
- Associate editor (physics), Polish Journal of Soil Sciences (2014 – 2020)
- Interviews for public media:
  - Starkville Daily News, "We dodged a bullet" (2008)
  - The Commercial Dispatch, "Global Warming Talks" (2007)
  - The Reflector, "Scientists Split on Global Climate" (2006)

COURSES AND TEACHING

Courses taught at Mississippi State University

On-campus (course number/name):

- GR 4623/6623 (Physical Meteorology)
- GR 4633/6633 (Statistical Climatology)
- GR 4733/6733 (Synoptic Meteorology)
- GR 4753/6753 (Satellite and Radar Meteorology)
- GR 4823/6823 (Dynamic Meteorology I)*
- GR 4933/6933 (Dynamic Meteorology II)*
- GR 4943/6943 (Tropical Meteorology)*
- GR 4553/6553 (Computer Methods in Meteorology)*
- GR 4990/6990 (Hurricane Dynamics)*
- GR 4563/6563 (Aviation Meteorology)*
- GR 8613 (Hydrometeorology)*
- GR 8990 (Visualization and Geoscience Data)*
- GR 8990 (Computer Applications in Atm. Science)*

Distance learning (course number/name):

- GR 4473/6473 (Numerical Weather Prediction)*
- GR 4823/6823 (Dynamic Meteorology I)*
- GR 4933/6933 (Dynamic Meteorology II)*
- GR 4943/6943 (Tropical Meteorology)*
- GR 8143 (Advanced Forecasting Techniques)*
- GR 8400 (Field Methods in Geoscience)
- GR 8573 (Research in Applied Meteorology)
- GR 8613 (Hydrometeorology)*

Directed Individual Study (DIS) and guest lectures

- GR 4000 (undergraduate DIS) – four sections
- GR 7000 (graduate DIS) – five sections
- GR 8990 (Research Readings) – guest lectures for five sections

Field Methods in Geoscience (GR 8400) field courses

- Yellowstone / Grand Tetons
- Upstate New York
- Southern California / Sierra Nevada
- Bahamas (San Salvador)

Instructional presentations at distance learning capstone conferences:
(Includes Broadcast Meteorology Program (BMP) and Applied Meteorology Program (AMP))

- Quantitative precipitation forecasting
- Numerical weather prediction

Courses taught at University of Maria-Curie Skłodowska

- Numerical Weather Prediction*
- Surface-Atmosphere Interactions*
- Tourism of the United States*

* Course developed as new offering.

ADVISING

Current students:

Undergrad: advisor [22]
Masters*: major professor [3] ; committee [3]
Doctoral: major professor [1] ; committee [2]

Completed graduate students (as major advisor):

Masters*:

	Year	*Student*	*Thesis title*
[12]	2022	Kavanagh, Jolie	Defining Viable Solar Resource Locations in the Southeast United States Using the Satellite-Based GLASS Product
[11]	2019	Rosseau, Derek	Estimating Near-Surface Vertical Heat Fluxes Over Agricultural Areas Using a Small Unmanned Aerial Vehicle (sUAV)
[10]	2018	Raborn, Amanda	Identifying Patterns of Warm-Season Convective Initiation over Northwest Mississippi
[9]	2016	Churchill, William	Discrimination of the Formation and Intensity of Progressive Derechos Based on the Environmental Conditions of Simulated Events
[8]	2016	Van Horn, John	Potential of Unmanned Aerial Systems imagery relative to Landsat 8 imagery in the Lower Pearl River Basin
[7]	2014	Maldonado, Janice	Sea Breeze Frequency and Patterns along the US Gulf Coast
[6]	2013	Roop, Charles	Geographic Analysis of Tornadogenesis from Landfalling Tropical Cyclones in the State of Florida
[5]	2012	Battalio, Michael	Quantitative Analysis and 3D Visualization of NWP Data Using Quasi-Geostrophic Equations
[4]	2012	Schlotzhauer, David	Quantification of Storm Surge Probability Using Ensemble Slosh Model Data
[3]	2010	Hyre, Heather	An Investigation of Warm-Season Cloud Patterns and Related Precipitation across Maryland and the Delmarva Peninsula
[2]	2009	Wood, Amy	Analysis of Extratropical Transition of Cyclones in the North Atlantic Ocean Using Geostationary Satellite Imagery
[1]	2008	Aylward, Ryan	Synoptic Conditions Necessary for Convective Extreme Precipitation Training Events

* Does not include graduate students in non-thesis track MS programs (either on-campus or distance learning), which number 60+

Doctoral:

	Year	*Student*	*Thesis title*
[2]	2022	Lotfi, Hossein	Quantifying Numerical Weather and Surface Model Sensitivity to Land Use and Land Cover Changes
[1]	2017	Zarzar, Christopher	Assessment of remotely sensed image processing techniques for small unmanned aerial system (sUAS) applications

PUBLICATIONS (PEER-REVIEWED)

[45] Grote, T. and J. Dyer, 2021: Seasonality, generating processes and hydroclimatology of catastrophic floods along Greenbrier River, southeastern West Virginia. In preparation for submission.

[44] Russell, B. T., Y. Ding, W. K. Huang, and J. L. Dyer, 2021: Characterizing tail dependence between a satellite precipitation product and station data in the Northern US Rocky Mountains. *Stochastic Environmental Research and Risk Assessment*. Submitted.

[43] Dash, P., M. S. Sankar, Y. Lu, X. Hu, A. Mercer, S. Wickramarathna, W. Beshah, L. Sanders, Z. Arslan, J. Dyer, and R. Moorhead, 2022: Seasonal changes of trace metal-nutrient-dissolved organic matter conveyance along with coastal acidification over the largest oyster reef in Western Mississippi Sound, USA. *Environmental Monitoring and Assessment*, submitted 5/10/2022. Currently available at: *SSRN Electronic Journal*. http://dx.doi.org/10.2139/ssrn.3967979

[42] Dyer, J., A. Mercer, and K. Raczynski, 2022: Identifying spatial patterns of hydrologic drought over the southeast US using retrospective National Water Model simulations. *Water*, **14**(10), 1525. https://doi.org/10.3390/w14101525

[41] Gabitov, R., A. Sadekov, J. Dyer, A. Perez-Huerta, H. Xu, and A. Migdisov, 2021: Sectoral and growth rate control on elemental uptake by individual calcite crystals. *Chemical Geology*, **505**, 120589. https://doi.org/10.1016/j.chemgeo.2021.120589

[40] Raczynski, K. and J. Dyer, 2021: Simulating low flows over a heterogeneous landscape in southeastern Poland. *Hydrologic Processes*, **35**(8), e14322. https://doi.org/10.1002/hyp.14322

[39] Delia, K, C. Haney, J. Dyer, and V. Paul, 2021: Spatial analysis of a Chesapeake Bay sub-watershed: How land use and precipitation patterns impact water quality in the James River. *Water*, **13** (11), 1592. https://doi.org/10.3390/w13111592

[38] Woody, J., Y. Xu, J. Dyer, R. Lund, and H. A. Priyadarshani, 2021: A statistical analysis of daily snow depth trends in North America. *Atmosphere*, **12**, 820. https://doi.org/10.3390/atmos12070820

[37] Mercer, A. and J. Dyer, 2021: Identification of dominant warm-season latent heat flux patterns in the lower Mississippi River alluvial valley. *Procedia Comp. Sci*., **185,** 1-8. https://doi.org/10.1016/j.procs.2021.05.001

[36] Raczynski, K. and J. Dyer, 2020: Multi-annual and seasonal variability of low flow river conditions in southeastern Poland. *Hydrological Sciences Journal*, https://doi.org/10.1080/02626667.2020.1826491

[35] Dyer, J. L. and J. R. Rigby, 2020: Assessing the sensitivity of lower-atmospheric characteristics to agricultural land use classification over the lower Mississippi River alluvial valley. *Theoretical and Applied Climatology*, https://doi.org/10.1007/s00704-020-03318-w

[34] Dyer, J. L. R. Moorhead, and L. Hathcock, 2020: Identification and analysis of microscale hydrologic flood impacts using unmanned aerial systems. *Remote Sensing*, **12**(10), 1549. https://doi.org/10.3390/rs12101549

[33] Zarzar, C., P. Dash, J. Dyer, L. Hathcock, and R. Moorhead, 2020: Development of a simplified radiometric calibration framework for water-based and rapid deployment unmanned aerial system (UAS) operations. *Drones*, **4**(17), https://doi.org/10.3390/drones4020017

[32] Zarzar, C., J. Dyer, 2019: Influence of synoptic scale airmass conditions on seasonal precipitation patterns over North Carolina. *Atmosphere*, **10** (10), 624. https://doi.org/10.3390/atmos10100624

[31] Kociuba, W., G. Janicki, and J. L. Dyer, 2019: Contemporary transformation of a gravel-bed proglacial river under rapid small valley glacier recession. *Geomorphology*, **328**, 79-92. https://doi.org/10.1016/j.geomorph.2018.12.008

[30] Zarzar, C., H. Hosseiny, R. Siddique, M. Gomez, V. Smith, A. Mejia, and J. Dyer, 2018: A hydraulic multi-model ensemble framework for visualizing flood inundation uncertainty. *Journal of the American Water Resources Association*, https://doi.org/10.1111/1752-1688.12656

[29] Krzyżewska, A. and J. Dyer, 2018: The August 2015 mega-heatwave in Poland in the context of past events. *Weather*, https://doi.org/10.1002/wea.3244

[28] Krzyżewska, A. and J. Dyer, 2018: Local-scale analysis of temperature patterns over Poland during heatwave events. *Theoretical and Applied Climatology*. Published online: 20 January 2018. https://doi.org/10.1007/s00704-017-2364-6

[27] Omer, A., J. Dyer, J. Czarnecki, R. Kroger, and P. Allen, 2018: Development of a water budget for tailwater recovery systems. *J. Irrig. Drain Eng.*, **144** (6): 05018001. https://doi.org/10.1061/(ASCE)IR.1943-4774.0001302

[26] Russell, B. T. and J. Dyer, 2017: Investigating the link between $PM_{2.5}$ and atmospheric profile variables via penalized functional quantile regression. *Environmental and Ecological Statistics*, **24**, 363-384. https://doi.org/10.1007/s10651-017-0374-2

[25] Battalio, M. and J. Dyer, 2017: The minimum length scale for evaluating QG-omega using high resolution numerical model data. *Monthly Weather Review*, https://doi.org/10.1175/MWR-D-16-0241.1

[24] Czarnecki, J. P., A. R. Omer, and J. L. Dyer, 2017: Quantifying capture and use of tailwater recovery systems. *J. Irrig. Drain Eng.*, **143** (1), 05016010. https://doi.org/10.1061/(ASCE)IR.1943-4774.0001124

[23] Dyer, J., P. Amburn, R. Dumais, J. Raby, J. Smith, and C. Zarzar, 2016: Defining the influence of horizontal grid spacing on ensemble uncertainty within a regional modeling framework. *Weather and Forecasting*, **31** (6), 1997-2017. https://doi.org/10.1175/WAF-D-16-0030.1

[22] Woody, J., Y. Wang, and J. L. Dyer, 2016: Application of a multivariate storage model to quantify trends in seasonally frozen soil. *Open Geosci.*, **8**(1), 310-322. https://doi.org/10.1515/geo-2016-0036

[21] Dyer, J. L., A. Mercer, J. R. Rigby, and A. Grimes, 2015: Identification of surface recharge zones in the lower Mississippi River alluvial aquifer utilizing high-resolution precipitation estimates. *J. Hydrology*, **531** (2), 360-369. https://doi.org/10.1016/j.jhydrol.2015.07.016

[20] Mercer, A. and J. Dyer, 2014: A new scheme for daily peak wind gust prediction using machine learning. *Procedia Comp Sci*, **36**, 593-598. https://doi.org/10.1016/j.procs.2014.09.059

[19] Janicki, G., J. Rodzik, L. Chabudziński, L. Franczak, M. Siłuch, K. Stępniewski, J. Dyer, G. Kołodziej, and E. Maciejewska, 2013: Monitoring of fluvial transport in small upland catchments – methods and preliminary results. *Annales UMCS*, **69** (B). https://doi.org/10.2478/v10066-012-0037-0

[18] Mercer, A., J. Dyer, and S. Zhang, 2013: Warm-season thermodynamically-driven rainfall prediction with support vector machines. *Procedia Comp. Sci.*, **20**, 128-133. https://doi.org/10.1016/j.procs.2013.09.250

[17] Dyer, J. L. and A. Mercer, 2013: Assessment of rainfall variability and trends over the lower Mississippi River alluvial valley using NEXRAD precipitation estimates. *Journal of Hydrometeorology*, **14** (6), 1826-1843. https://doi.org/10.1175/JHM-D-12-0163.1

[16] Sherman-Morris, K., Brown, M.E., Dyer, J.L., McNeal, K.S., Rodgers, J.C., 2013: Teachers' Geoscience Career Knowledge and Implications for Enhancing Diversity in the Geosciences. *Journal of Geoscience Education*, **61**, 326-333. https://doi.org/10.5408/11-282.1

[15] Mercer, A.E. and J.L. Dyer, 2012: Physical assessment of hurricane rapid intensification using kernel principal component analysis. *NWA Newsletter*, **12-2**, 2.

[14] Sherman-Morris, K., Rodgers, J.C., McNeal, K.S., Brown, M.E., Dyer, J.L., 2012: Professional Development Strategies to Enhance Diversity in the Geosciences, *The Science Educator*, **21**(2), 31-38.

[13] Dyer, J. L., 2011: Analysis of a warm-season convective rainfall event along an abrupt land use / land cover boundary in northwest Mississippi. *Journal of Hydrometeorology*, **12** (5), 1007-1023. https://doi.org/10.1175/2011JHM1326.1

[12] Sanyal, J., S. Zhang, J. Dyer, A. Mercer, P. Amburn, and R. J. Moorhead, 2010: Noodles: A tool for visualization of numerical weather model ensemble uncertainty. *IEEE Transactions on Visualization and Computer Graphics*, November 2010, 1421-1430. https://doi.org/10.1109/TVCG.2010.181

[11] Dyer, J. L. and E. P. Amburn, 2010: Desktop visualization of meteorological data using ParaView. *Kitware Source*, **14**, 7-10.

[10] Aylward, R.P. and J.L. Dyer, 2010: Synoptic environments associated with the training of convective cells. *Weather and Forecasting*, **25**, 466-484. https://doi.org/10.1175/2009WAF2222275.1

[9] Dyer, J. L., 2009: Evaluation of Surface and Radar Estimated Precipitation Data Sources over the Lower Mississippi River Alluvial Plain. *Physical Geography*, **30**, 430-452.

[8] Dyer, J. L., 2008: Basin-scale precipitation analysis for southeast US watersheds using high-resolution radar precipitation estimates. *Physical Geography*, **29**, 320-340. https://doi.org/10.2747/0272-3646.29.4.320

[7] Dyer, J., 2008: Snow depth and streamflow relationships in large North American watersheds. *J. Geophys. Res.*, **113**, D18113, https://doi.org/10.1029/2008JD010031

[6] Sanyal, J., P. Amburn, S. Zhang, J. Dyer, P. J. Fitzpatrick, and R. J. Moorhead II, 2008: User Experience of Hurricane Visualization in an Immersive 3D Environment. *Lecture Notes in Computer Science*, Springer-Verlag, ISVC (**1**) 2008: 867-878. https://doi.org/10.1007/978-3-540-89639-5_83

[5] Dyer, J. L. and T. L. Mote, 2007: Trends in snow ablation over North America. *International Journal of Climatology*, **27** (6), 739-748. https://doi.org/10.1002/joc.1426

[4] Dyer, J. L., and T. L. Mote, 2006: Spatial variability and trends in observed snow depth over North America. *Geophysical Research Letters*, **33**, L16503, https://doi.org/10.1029/2006GL027258

[3] Scott, H. M., D. J. Stewart, and J. L. Dyer, 2006: TETRASAT: A program for the population analysis of allotetraploid microsatellite data. *Molecular Ecology Notes*. https://doi.org/10.1111/j.1471-8286.2006.01345.x

[2] Dyer, J.L. and R. Garza, 2004: A Comparison of Precipitation Estimation Techniques over Lake Okeechobee, Florida. *Weather and Forecasting*, **19**, 1029-1043. https://doi.org/10.1175/824.1

[1] Dyer, J.L. and T.L. Mote, 2002: Role of Energy Budget Components on Snow Ablation from a Mid-Latitude Prairie Snowpack. *Polar Geography*, **26**, 4, 87-115. http://dx.doi.org/10.1080/789610133

CONFERENCE PROCEEDINGS (PEER-REVIEWED)

[16] Sun, Y, J. Dyer, J. Harris, and J. Mohammadi-Aragh, 2022: Preparing teachers to teach spatial computational thinking with IDV visualization of weather data. *2022 Hawaii University International Conferences STEM/STEAM and Education Conference*. June 8-10, 2022, Honolulu, Hawaii.

[15] Harris, J. G., J. Dyer, G. Turnage, and A. Skarke, 2022: Initial benefits and outcomes of experiential learning program in complex field sciences. *2022 Hawaii University International Conferences STEM/STEAM and Education Conference*. June 8-10, 2022, Honolulu, Hawaii.

[14] Sun, Y., P. Ko, J. Dyer, J. Harris, and J. Mohammadi-Aragh, 2021: Preparing teachers to teach computational thinking with 3D weather data visualization. *2021 Hawaii University International Conferences. Arts. Humanities, Social Sciences, STEM/STEAM and Education.* June 9-11, 2021, Honolulu, Hawaii.

[13] Ko, P, J. Mohammadi-Aragh, Y. Sun, J. Dyer, 2021: Work-in-Progress: Incorporating Computational Thinking Instruction into K-12 using 3D Weather. *American Society for Engineering Education (ASEE) Annual Conference & Exposition*, Long Beach, California, July 26-29, 2021. Paper ID #33308.

[12] Dyer, J. L., L. Wasson, and R. Moorhead II, 2016: Invited Presentation: Boundary layer measurements over land use/cover discontinuities using a small UAS. ASE-07ATIO.ATM-09. Characterization of the Atmospheric Environment using UAS, *American Institute of Aeronautics and Astronautics (AIAA) Aviation and Aeronautics Forum and Exposition*, 13-17 June 2016, Washington, D.C. (invited, paper and presentation)

[11] Anreddy, S., S. Zhang, A. Mercer, J. Dyer, and J. E. Swan, 2015: Visual scalability of spatial ensemble uncertainty. *IEEE Symposium on Visual Analytics Science and Technology*, 25-30 October, Chicago, IL.

[10] van der Zwaag, John, S. Zhang, R. Moorhead, D. Welch, and J. Dyer, 2015: Visualizing Uncertainty of River Model Ensembles. *Conference on Visualization and Data Analysis*, February 2015, San Francisco.

[9] Rodzik, J., G. Janicki, Ł. Chabudziński, Ł. Frznczak, M. Siłuch, K. Stepniewski, J. Dyer, G. Kołodziej, and E. Maciejewska, 2013: Monitoring program of sediment flux in small upland catchments, SE Poland. *8th International Conference on Geomorphology (AIG)*, August 27-31, 2013, Paris, France, p. 717.

[8] Janicki, G., J. Rodzik, Ł. Chabudziński, Ł. Frznczak, M. Siłuch, K. Stepniewski, J. Dyer, and G. Kołodziej, 2012: Research program on the rainfall-runoff relationship in small upland catchments (SE Poland). *Studies of Hydrological Processes in Research Basins: Current Challenges and Prospects*, 14th Biennial Conference ERB, September 17-20, 2012, St. Petersburg, Russia, pp. 218-221.

[7] Dyer, J.L., 2010: Influences of land surface characteristics on precipitation over the lower Mississippi River alluvial plain. *Proceedings: 2009 Mississippi Water Resources Conference*, Tunica, MS.

[6] Amburn, P., M. Berberich, R. J. Moorhead II, J. Dyer, and M. Brill, 2009: Geospatial visualization using hardware accelerated real-time volume rendering. *Proceedings: IEEE Oceans*, Biloxi, MS.

[5] Sanyal, J., P. Amburn, S. Zhang, J. Dyer, P.J. Fitzpatrick, and R.J. Moorhead, 2008: User experience of hurricane visualization in an immersive 3D environment. *Proceedings: 4th International Symposium on Visual Computing*, Las Vegas, Nevada, USA.

[4] Lim, E., Q. Xiao, J. Sun, P.J. Fitzpatrick, Y. Li, and J.L. Dyer, 2008: The impact of Doppler radar data on rainfall forecast: a case study of a convective rainband event in Mississippi Delta using WRF 3D-Var. *88th Annual Meeting of the American Meteorological Society*, New Orleans, LA.

[3] Cooke, W.; Anantharaj, V.; Wax, C.; Choi, J.; Grala, K.; Jolly, M.; Dixon, G.P.; Dyer, J.; Evans, D.L.; Goodrich, G.B. 2007. Integrating climatic and fuels information into National Fire Risk Decision Support Tools. *The fire environment--innovations, management, and policy; conference proceedings*. U.S. Department of Agriculture, Destin, FL.

[2] Dyer, J.L. and R. Garza, 2003: A Comparison of Precipitation Estimation Techniques over Lake Okeechobee, Florida. *Proceedings of the 2003 Georgia Water Resources Conference*, University of Georgia, Athens, Georgia.

[1] Mote, T.L., A.J. Grundstein, and J.L. Dyer, 2000: A comparison of modeled, remotely sensed, and measured snow water equivalent in the northern Great Plains. Preprints, *12th Conference on Applied Climatology*. Amer. Meteor. Soc., paper 1A.2.

CONFERENCE PRESENTATIONS

[87] Raczyński, R. and J. L. Dyer, 2022: Multiannual variability of low flow events over the Southeastern United States. *2022 Mississippi Water Resources Conference*, April 12-14, 2022, Starkville, MS.

[86] Dyer, J. L., A. Mercer, and K. Raczyński, 2022: Analysis of local-scale hydrologic drought over the southeast United States using retrospective National Water Model data. *102nd Annual Meeting, American Meteorological Society, 36th Conference on Hydrology*, Houston, TX.

[85] Mercer, A. E. and J. Dyer, 2022: Sensitivity of warm-season precipitation forecasts to variations in land use/land cover characterization. *102nd Annual Meeting, American Meteorological Society, 36th Conference on Hydrology*, Houston, TX.

[84] Sun, Y., J. Dyer, J. Mohammadi-Aragh, J. Harris, M. Bai, and P. Ko, 2021: Preparing teachers to teach Computational Thinking with 3D weather data visualization. *Hawaii University International Conferences (HUIC), 2021 STEM/STEAM & Education Conference*, June 9-11, 2021, Honolulu, Hawaii.

[83] Ko, P., Mohammadi-Aragh, M. J., Harris, J. G., Dyer, J. L., and Sun, Y., 2021, July. Work-in-Progress: Incorporating Computational Thinking Instruction into K-12 Using 3D Weather. Paper presented at

2021 ASEE Virtual Annual Conference Content Access, Virtual Conference. July, 2021 https://peer.asee.org/38216,

[82] Sun, Y., J. Dyer, J. Mohammadi-Aragh, J. Harris, M. Bai, and P. Ko, 2021: Using IDV to Promote Computational Thinking in Atmospheric Science Learning. *Association for Educational Communications & Technology (AECT), Chicago, IL,* November 2021.

[81] Sun, Y., J. Dyer, J. Mohammadi-Aragh, J. Harris, M. Bai, and P. Ko, 2021: 3D Weather Data Visualization with IDV: Computational Thinking Contextualized in Atmospheric Science. *Association for Educational Communications & Technology (AECT), Chicago, IL,* November 2021.

[80] Mercer, A. and J. Dyer, 2021: Identification of dominant warm-season latent heat flux patterns in the lower Mississippi River alluvial valley. *Complex Adaptive Systems*.

[79] Wiley, J., J. Dyer, and A. Mercer, 2021: Evaluating the sensitivity of simulated river discharge to lake configuration and parameterization over the Chattahoochee River watershed. *101st Annual Meeting, American Meteorological Society, 35th Conference on Hydrology*, New Orleans, LA.

[78] Lotfi, H. and J. Dyer, 2021: Machine learning applications to improve Noah-MP land surface model output. *101st Annual Meeting, American Meteorological Society, 35th Conference on Hydrology*, New Orleans, LA.

[77] Dyer, J. and R. Moorhead, 2020: Identification and analysis of microscale hydrologic impacts and hazards using Unmanned Aerial Systems. *100th Annual Meeting, American Meteorological Society, 36th Conference on Environmental Information Processing Technologies*, Boston, MA.

[76] Lotfi, H. and J. Dyer, 2020: Improving mesoscale weather simulations through updated land use and vegetation information. *100th Annual Meeting, American Meteorological Society, Robert Dickinson Symposium*, Boston, MA.

[75] B. Baker, C.A. Aldridge, A. Lucore, J. Dyer, R. Kroger, 2019: Effects of cover crops on edge-of-field runoff in row-crop production systems. Southern Region Water Conference, July 23-25, 2019, College Station, TX.

[74] Moorhead, R. S. van Cooten, L. Hathcock, J. Dyer, D. Rosseau, A. Wingo, K. Cantrell, B. Alexander, J. Walker, and P. Hall, 2019: Using a group 3 UAS for flood forecasting and model verification. Federal Users UAS Workshop, NASA Ames Research Center, Moffett Field, Mountain View, CA, May 14-16, 2019.

[73] Grote, T., G. S. Springer, S. A. Thurkettle, and J. Dyer, 2019: Floods and paleofloods in the Greenbrier River basin, West Virginia. *Geological Society of America, Northeastern Section 54th Annual Meeting*, Portland by the Bay, NH, March 19, 2019.

[72] Rosseau, D. J. Dyer, and L. Wasson, 2019: Estimating near-surface vertical heat fluxes over agricultural areas using weather sensors on unmanned aerial vehicles. *99th Annual Meeting, American Meteorological Society*, Phoenix, AZ.

[71] Dyer, J. L., L. Wasson, and R. J. Moorhead, 2018: Observations of the diurnal evolution of the lower boundary layer in a subtropical environment using a small unmanned aerial system (sUAS). *98th Annual Meeting, American Meteorological Society*, Austin, TX.

[70] Gabitov, R. I., A. Sadekov, J. Dyer, and H. Xu, 2018: Visualization of elemental uptake by individual calcite crystals. *Goldschmidt2018 abstract*.

[69] Dyer, J. L., 2017: Small UAS with meteorological sensors (SUMS). *2nd Annual NOAA Emerging Technologies Workshop,* College Park, MD, August 22-23, 2017.

[68] Dyer, J. L. and L. Wasson, 2017: Assessment of lower boundary layer characteristics during pre- and post-harvest conditions using unmanned aerial systems. *97th Annual Meeting, American Meteorological Society*, Seattle, WA.

[67] Grote, T. and J. L. Dyer, 2017: Preliminary assessment of the hydrometeorology and hydrology of the June 2016 Greenbrier River flooding, West Virginia. *97th Annual Meeting, American Meteorological Society*, Seattle, WA.

[66] Zarzar, C. M. and J. L. Dyer, 2017: Quantifying and visualizing uncertainty in flood inundation forecasts. *97th Annual Meeting, American Meteorological Society*, Seattle, WA.

[65] Battalio, J. M. and J. L. Dyer, 2017: The minimum horizontal length scale when evaluating quasi-geostrophic omega. *97th Annual Meeting, American Meteorological Society*, Seattle, WA.

[64] Zarzar, C. M., P. Dash, J. L. Dyer, and R. J. Moorhead, 2017: Quantifying atmospheric effects on unmanned aerial system imagery. *97th Annual Meeting, American Meteorological Society*, Seattle, WA.

[63] Elmore, M. A., A. E. Mercer, J. L. Dyer, C. Fuhrmann, and M. E. Brown, 2017: Sensitivity of physical parameterization schemes to stochastic initial conditions in WRF tornado outbreak simulations. *97th Annual Meeting, American Meteorological Society*, Seattle, WA.

[62] Zarzar, C.M., J. Dyer, P. Dash, R. Moorhead, and G. Turnage, 2016: Understanding coastal changes using high resolution imagery from unmanned aerial systems. *2016 State of the Coast Conference*, New Orleans, LA, June 1-3, 2016.

[61] Zarzar, C.M., P. Dash, R. Moorhead, J. Dyer, and, G. Turnage, 2016: Defining surface land cover features using high resolution imagery from unmanned aerial systems. *2016 Gulf of Mexico Oil Spill and Ecosystem Science Conference*, Tampa, FL.

[60] Zarzar, C.M., J. Dyer, P. Dash, R. Moorhead, and G. Turnage, 2016: Defining surface land cover features using high resolution unmanned aerial system imagery. *14th Annual Southeast Severe Storms Symposium*, Starkville, MS.

[59] Zarzar, C. M., P. Dash, J. Dyer, G. Turnage, and R. J. Moorhead II, 2016: Defining surface land cover features using high resolution imagery from unmanned aerial systems. 30th *Conference on Hydrology, 96th Annual Meeting, American Meteorological Society*, New Orleans, LA.

[58] Dyer, J. L., L. Wasson, and R. J. Moorhead II, 2016: Exploring the use of unmanned aerial systems for local-scale boundary layer observations in a coastal environment. 18th *Symposium on Meteorological Observation and Instrumentation, 96th Annual Meeting, American Meteorological Society*, New Orleans, LA.

[57] Thead, E. A., A. E. Mercer, and J. L. Dyer, 2016: Impacts of microphysics and PBL physics schemes on tornado outbreak prediction. 23rd *Conference on Probability and Statistics in the Atmospheric Sciences, 96th Annual Meeting, American Meteorological Society*, New Orleans, LA.

[56] Thead, E. A., A. E. Mercer, and J. L. Dyer, 2016: Impacts of physics parameterization and data assimilation on synoptic feature modeling in severe weather outbreaks. 23rd *Conference on Probability and Statistics in the Atmospheric Sciences, 96th Annual Meeting, American Meteorological Society*, New Orleans, LA.

[55] Mercer, A. E., J. Dyer, and S. Zhang, 2016: Compositing parameterization ensemble simulations of static stability in east coast winter storms using kernel principal component analysis. 14th *Conference on Artificial and Computational Intelligence and its Applications to Environmental Sciences, 96th Annual Meeting, American Meteorological Society*, New Orleans, LA.

[54] Dyer, J. L., 2016: Experiences and opportunities in atmospheric observation using unmanned aerial systems. *15th Annual Student Conference, 96th Annual Meeting, American Meteorological Society*, New Orleans, LA.

[53] Byrd, J.D., M. Brown, J. Dyer, and D.G. Thompson, 2016: Watchdog sprayer doesn't reliably measure wind parameters. *2016 Annual Meeting, Weed Science Society of America*, San Juan, Puerto Rico.

[52] Zarzar, C.M., P. Dash, J. Dyer, G. Turnage, and R. Moorhead, 2015: Application of Unmanned Aerial Systems (UAS) in Aquatic Plant Identification. *MidSouth Aquatic Plant Management Society 34th Annual Meeting*, Mobile, AL, September 2015.

[51] Zarzar, C., P. Dash, J. Dyer, and L. Hathcock, 2015: Development of spectral-based classification schemes using unmanned aerial system imagery. *2015 Annual Meeting, Association of American Geographers*, Chicago, IL.

[50] Van Horn, J.., P. Dash, J. Dyer, and L. Hathcock, 2015: Potential of unmanned aerial systems imagery relative to Landsat imagery. *2015 Annual Meeting, Association of American Geographers*, Chicago, IL.

[49] Byrd, J.D., M. Brown, J. Dyer, and D.G. Thompson, 2015: Watchdog sprayer doesn't reliably measure wind parameters. *National Roadside Vegetation Management Association*, Roanoke, VA.

[48] Maguigan, M. A., J. C. Rodgers III and J. L. Dyer, 2014: Controls on primary productivity in southern Appalachian wetlands. *First Annual Joint Aquatic Sciences Meeting*, May 2014, Portland, OR.

[47] Dyer, J., 2014: An assessment of grid resolution on numerical simulations of precipitation. *28th Conference on Hydrology, 95th Annual Meeting, American Meteorological Society*, Atlanta, GA.

[46] Mercer, A. and J. Dyer, 2014: Formulating model output statistics using support vector regression. *12th Conference on Artificial and Computational Intelligence and its Applications to the Environmental Sciences, 95th Annual Meeting, American Meteorological Society*, Atlanta, GA.

[45] Thead, E., A. Mercer, and J. Dyer, 2014: Assimilation of POES radiance observations and NCEP conventional observations in GSI for tornado outbreak prediction. *22th Conference on Numerical Weather Prediction, 95th Annual Meeting, American Meteorological Society*, Atlanta, GA.

[44] Dyer, J. and A. Mercer, 2013: Influence of spatial precipitation patterns on seasonal recharge in the lower Mississippi River alluvial aquifer. *Mississippi Water Resources Conference*, Jackson, MS.

[43] Dyer, J.L. and A. E. Mercer, 2013: Assessment of warm-season rainfall variability and trends over the lower Mississippi River alluvial valley. *27th Conference on Hydrology, 94th Annual Meeting, American Meteorological Society*, Austin, TX.

[42] Baldwin, W. and J.L. Dyer, 2013: Quantifying precipitation depth using cloud-to-ground lightning strikes in the southeast US. *6th Conference on the Meteorological Application of Lightning Data, 94th Annual Meeting, American Meteorological Society*, Austin, TX.

[41] Mercer, A.E. and J.L. Dyer, 2013: Assessing numerical weather prediction uncertainty in warm-season rainfall ensemble simulations. *Symposium on the Role of Statistical Methods in Weather and Climate Prediction, 94th Annual Meeting, American Meteorological Society*, Austin, TX.

[40] Dyer, J.L., 2012: Visual analytics for assessment and interpretation of simulated river flooding. *Northern Gulf Institute Annual Conference*, Stennis Space Center, MS..

[39] Dyer, J.L., 2012: Precipitation patterns over the lower Mississippi River alluvial plain. *Professional Soil Classifiers Association of Mississippi (PSCAM) Annual Meeting*, Indianola, MS.

[38] Dyer, J.L., 2012: Determining the optimal parameter scheme for numerical prediction of warm-season rainfall in the southeast US. *26th Conference on Hydrology, 93rd Annual Meeting, American Meteorological Society*, New Orleans, LA.

[37] Baldwin, W. and J.L. Dyer, 2012: An analysis of the seasonal, spatiotemporal cloud-to-ground lightning-precipitation relationship in the southeast US. *26th Conference on Hydrology, 93rd Annual Meeting, American Meteorological Society*, New Orleans, LA.

[36] Battalio, J.M. and J.L. Dyer, 2012: Quantitative analysis and 3D visualization of NWP data using quasi-geostrophic equations. *28th Conference on Interactive Information Processing Systems, 93rd Annual Meeting, American Meteorological Society*, New Orleans, LA.

[35] Schlotzhauer, D.S. and J.L. Dyer, 2012: Calculation of hurricane storm surge probability using SLOSH data. *26th Conference on Hydrology, 93rd Annual Meeting, American Meteorological Society*, New Orleans, LA.

[34] Sherman-Morris, K., B. Bell, M. Brown, J. Dyer, K. McNeal, and J. Rodgers, 2012. Minority student knowledge of and interest in geoscience careers. *21st Symposium on Education, 93rd Annual Meeting, American Meteorological Society*, New Orleans, LA.

[33] Battalio, M. and J. Dyer, 2011: Three-dimensional visualization of divergence and vorticity. *36th Annual Meeting, National Weather Association*, Birmingham, AL.

[32] Mercer, A. and J. Dyer, 2011: Physical assessment of hurricane rapid intensification using kernel principal component analysis. *36th Annual Meeting, National Weather Association*, Birmingham, AL.

[31] Baldwin, W. M. and J. Dyer, 2011: An analysis of cloud-to-ground lightning and precipitation in convective events in the lower Mississippi River Valley. *2011 Annual Meeting, Association of American Geographers*, Seattle, WA.

[30] Sherman-Morris, K., K. McNeal, M. Brown, J. Rodgers, J. Dyer, 2011: Teaching and learning about geoscience: A survey of Mississippi science teachers. *2011 Annual Meeting, Association of American Geographers*, Seattle, WA.

[29] Mercer, A., and J. Dyer, 2011: Identification of Synoptic-Scale Hurricane Intensification Factors Using Advanced Statistics. *Northern Gulf Institute Annual Conference*, Mobile, AL.

[28] Sanyal, J., S. Zhang, P. Amburn, J. Dyer, A. Mercer, and R. Moorhead, 2011: Uncertainty visualization of weather ensembles. *Northern Gulf Institute Annual Conference,* Mobile, AL.

[27] Mercer, A. E., and J. Dyer, 2011: Physical Assessment of Hurricane Rapid Intensification using Kernel Principal Component Analysis, *36th Annual Meeting, National Weather Association*, Birmingham, AL.

[26] Dyer, J.L., P. Amburn, D. Reed, and D. Welch, 2011: Utility of 2D/3D visualization methods in analyzing and disseminating flood information. *92nd Annual Meeting, American Meteorological Society*, Seattle, WA.

[25] Sanyal, J., S. Zhang, P. Amburn, J. Dyer, J. van der Zwaag, D. Irby, and R. J. Moorhead,, 2011: FloodViz – An Ensemble Enabled Tool for River Flood and Inundation Mapping, *IEEE Visweek 2011*. Providence, RI.

[24] Sanyal, J., S. Zhang, J. Dyer, A. Mercer, P. Amburn, and R. J. Moorhead, 2010: Noodles: A tool for visualization of numerical weather model ensemble uncertainty. *IEEE Visweek 2010*. Salt Lake City, UT.

[23] Sanyal, J., P. Amburn, J. Dyer, A. Mercer, R. Moorhead, and S. Zhang, 2010: Uncertainty visualization of ensemble weather forecasts. *Bays and Bayous Symposium*, Mobile, AL.

[22] Dyer, J.L., 2010: Effect of land cover boundaries on warm-season precipitation generation in northwest Mississippi. *2010 Annual Conference, Mississippi Water Resources Association*, Bay St. Louis, MS.

[21] Sanyal, J., S. Zhang, J. Dyer, A. Mercer, P. Amburn, and R.J. Moorhead, 2010: Visualizing uncertainty of WRF parameter ensembles. *Northern Gulf Institute Annual Meeting*, Mobile, AL.

[20] Amburn, P., J. Dyer, R. Moorhead, S. Zhang, D. Irby, J, van der Zwaag, J. Sanyal, D. Reed, J. Graschel, D. Welch, and D. Ramirez, 2010: FloodViz: Visual analytics for assessment and interpretation of simulated river flooding. *Northern Gulf Institute Annual Meeting*, Mobile, AL.

[19] Dyer, J.L., 2010: Four-dimensional visualization and analysis of convective rainfall generation along an abrupt land use / land cover boundary in northwest Mississippi. *91st Annual Meeting / 24th Conference on Hydrology, American Meteorological Society*, Atlanta, GA.

[18] Dyer, J.L., 2009: Influences of land surface characteristics on precipitation over the lower Mississippi River alluvial plain. *2009 Annual Conference, Mississippi Water Resources Association*, Tunica, MS.

[17] Berberich, M., P. Amburn, R. Moorhead, J. Dyer, and M. Brill, 2009: HurricaneVis – Geospatial visualization using hardware accelerated real-time volume rendering. *Eurographics / IEEE-VGTC Symposium on Visualization*.

[16] Dyer, J.L., 2009: Comparison of multi-sensor precipitation estimates over the lower Mississippi River alluvial plain. *90th Annual Meeting / 23rd Conference on Hydrology, American Meteorological Society*, Phoenix, AZ.

[15] Carlson, G. S., C. E. Konrad II, and J. Dyer, 2009: Spatial and temporal patterns of summer season precipitation across the Carolina coastal region. *105th Annual Meeting, Association of American Geographers*, Las Vegas, Nevada.

[14] Johnston, J. G., B. L. Kirkland, and J. Dyer, 2008: A quantitative analysis of the effectiveness of directed discovery teaching methods and weekly quizzes in a standardized introductory earth science laboratory course. *2008 Meeting of the Geological Society of America (GSA)*, Houston, Texas.

[13] Dyer, J. L., 2007: Rainfall analysis over southeast US watersheds using high resolution radar precipitation estimates. *10th Annual Meeting, The Commission for Water Sustainability, International Geographical Union (IGU)*, Asheville, North Carolina.

[12] Dyer, J. L., 2007: Evaluation and comparison of current precipitation data sources over northwest Mississippi. *103rd Annual Meeting, Association of American Geographers*, San Francisco, California.

[11] Lim, E., Q. Xiao, J. Sun, P.J. Fitzpatrick, Y. Li, J.L. Dyer, and D.M. Barker, 2007: The impact of Doppler radar data on rainfall forecast: a case study of a convective rainband event in Mississippi Delta using WRF 3D-Var. *22nd Conference on Weather Analysis and Forecasting/18th Conference on Numerical Weather Prediction*, Park City, Utah.

[10] Fitzpatrick, P. J., Q. Xiao, J. Sun, E. Lim, C. M. Hill, Y. Li, and J. L. Dyer, 2006: The impact of assimilating radar and SCAN data on a WRF simulation of a Mississippi Delta squall line. *87th Annual Meeting, American Meteorological Society*, San Antonio, Texas.

[9] Mote, T.L., J.L. Dyer, A.J. Grundstein, D.A. Robinson, and D.J. Leathers, 2005: Evaluation of new snow depth and mass data sets for North America. *15th Conference on Applied Climatology, 86th Annual Meeting, American Meteorological Society*.

[8] Garza and J.L. Dyer, 2004: Water Level Data in the St. Johns River Due to Hurricane Charley. Hydrologic Program Managers Conference, New Orleans, Louisiana.

[7] Dyer, J.L. and T.L. Mote, 2004: Spatial variability and patterns of snow cover over North America. *100th Annual Meeting, Association of American Geographers*, Philadelphia, Pennsylvania.

[6] Sylvestre, J., A. Momo, J. Dyer, and R. C. Garza, 2004: National Weather Service tools for dam break analysis and presentation of results: A case study for the Manatee Dam in Florida. ASDSO Southeast Regional Conference, Norfolk, Virginia.

[5] Durkee, J.D., T.L. Mote, W.S. Ashley, and J.L. Dyer, 2003: The precipitation efficiency of warm-season mesoscale convective complexes in the United States. *28th Annual Meeting of the National Weather Association*, Jacksonville, FL.

[4] Ashley, W. S., M. L. Bentley, T. L. Mote, and J. L. Dyer, 2003: A preliminary investigation into derecho families. *28th Annual Meeting of the National Weather Association*, Jacksonville, FL.

[3] Dyer, J.L., 2003: The Distribution of Tropical Storm and Hurricane Precipitation in the Southeast U.S. *2nd Annual Meeting, Southeast Severe Storms Symposium*, Starkville, Mississippi.

[2] Dyer, J.L. and T.L. Mote, 2002: Using SNTHERM to Simulate the Extreme Snow Melt Event that led to the 1997 Red River Floods. *59th Annual Meeting, Eastern Snow Conference*, Stowe, Vermont.

[1] Dyer, J.L. and T.L. Mote, 2002: Using a Complex Snowpack Energy and Mass Balance Model to Simulate the Extreme Snow Melt Event that Led to the 1997 Red River Floods. *98th Annual Meeting, Association of American Geographers*, Los Angeles, California.

INVITED PRESENTATIONS

[16] Dyer, J.L. and A. Mercer, 2021: HPC Applications in Tropical Cyclone Forecasting. *Dell Technologies HPC Community Event*, Nov. 10, 2021. Virtual presentation.

[15] Dyer, J.L., 2021: Climate at the Local Scale: Connections between the surface and the atmosphere. Research Seminar Series, Department of Wildlife, Fisheries, and Aquaculture, MSU. March 23, 2021, Mississippi State, MS.

[14] Dyer, J. L., 2019: Exploring career options in the field of meteorology. Invited panelist, Southeast Severe Storms Symposium, March 24, 2019, Mississippi State, MS.

[13] Dyer, J. L., 2018: Let's do It Together: Climate Talk. Invited panelist, MSU Office of Sustainability, October 16, 2018, Mississippi State, MS.

[12] Dyer, J. L., 2017: The local climate: A quick overview and what to look forward to. Noxubee County Cattleman's Association, August 8, 2017, Macon, MS.

[11] Dyer, J. L., 2017: Drought… It happened last summer. Is it happening now? Oktibbeha County Cattleman's Association, April 18, 2017, Mississippi State, MS.

[10] Dyer, J. L., 2017: Panel speaker on Climate Change. The Future of Water: Regional Collaboration on Shared Climate, Coastlines, and Watersheds, SEC Academic Conference, March 27-28, 2017, Starkville, MS.

[9] Dyer, J. L., 2016: Precipitation? Just a Theory… Oktibbeha County Agriculture Club, MSU Extension Office, Starkville, MS, November 3, 2016.

[8] Dyer, J. L., 2013: Global Warming – Is it Real? What Causes It? What If Anything Can We Do About It?, Panel discussion member, MSU Maroon Edition Global Warming event, Mississippi State, MS, November 14, 2013

[7] Dyer, J. L., 2013: An Overview of Precipitation Over the Lower Mississippi River Alluvial Valley: Sources, patterns, and Surface Interactions. USDA National Sedimentation Laboratory, November 15, 2013

[6] Dyer, J.L., 2011: Precipitation over the lower Mississippi River alluvial valley: measurement, analysis, and applications. Invited speaker, *Water for Fish and Farmers*, *YMD Joint Water Management District*, Stoneville, MS.

[5] Dyer, J.L., 2011: Warm season rainfall in northwest Mississippi. Invited speaker, *Water and Watersheds Working Group*, Mississippi State University, Starkville, MS.

[4] Dyer, J. L. and P. Amburn, 2010: 4D visualization techniques for efficient analysis and examination of NWP model output. Army Research Laboratory (ARL), White Sands Missile Range (WSMR), White Sands, NM, May 24, 2010

[3] Dyer, J. L., 2010: Climate change to visualization: Now you see it, now you don't. GRI Monthly Seminar Series, Mississippi State, MS, March, 2010

[2] Dyer, J. L., 2010: Analysis of Surface Influences on Localized Convection and Precipitation. University of Marie Curie Sklodowska, Lublin, Poland, May 11, 2010

[1] Dyer, J. L., 2010: 3D Visualization and Analysis of Tropical and Extratropical Cyclones. University of Marie Curie Sklodowska, Lublin, Poland, May 13, 2010

FUNDED PROJECTS

National Science Foundation (NSF) SUBMITTED / UNDER REVIEW
Mississippi State University [co-PI]

- Title: "RII Track-2 FEC: building the Future of Safer, Economical, and Smarter Aerial Operations via an Advanced All-Weather Testing Framework"
- Amount requested: $5,854,572
- Project length: 8/1/2022 – 7/31/2026 (48 months)
- Collaborators: Shreyas Narsipur (PI), David J. Delene (co-PI; UND), Adrian Sescu (co-PI; MSU), Jerry H. Hendrix (co-PI; UAH)
- Credit: 15%

National Oceanic and Atmospheric Administration (NOAA)
Mississippi State University [PI]

- Title: "Improving Flood Inundation Mapping Using UAS-Based Optical Imagery"
- Amount awarded: $591,582
- Project length: 8/1/2021 – 7/31/2023
- Collaborators: Robert Moorhead (co-PI)
- Credit: 70%

National Science Foundation (NSF)
Mississippi State University [co-PI]

- Title: "Integrating Computational Science Practice, Weather Data Analysis, and 3D Visualization in the Secondary Earth and Environmental Science Curriculum"
- Amount awarded: $1,632,209
- Project length: 1/1/2020 – 12/31/2022
- Collaborators: Yan Sun (PI), Jean Mohammadi-Aragh (co-PI), Jonathan Harris (co-PI)
- Credit: 25%

National Oceanic and Atmospheric Administration (NOAA)
Mississippi State University [PI]

- Title: "Developing New Capabilities and Research Applications for the National Water Model Over the Southeastern US"
- Amount awarded: $1,477,676
- Project length: 9/1/2019 – 8/31/2021 (extended through 8/31/2023)
- Collaborators: Andrew Mercer (co-PI)
- Credit: 70%

Schillig Special Teaching Projects Program
Mississippi State University [PI].

- Title: "Applications of Small Unmanned Aerial Vehicles (sUAV) in the Geosciences"
- Amount awarded: $2,900
- Project length: 05/01/2018 – 04/30/2019

National Oceanic and Atmospheric Administration (NOAA) / Northern Gulf Institute (NGI)
Mississippi State University [co-PI]

- Title: "Sensing hazards with operational unmanned technology for the river forecasting centers (SHOUT4Rivers), phase 2"
- Amount awarded: $1,600,000
- Project length: 10/1/2017 – 6/30/2020
- Collaborators: Robert Moorhead (PI)

- Credit: 30%

National Oceanic and Atmospheric Administration (NOAA) / Northern Gulf Institute (NGI)
Mississippi State University [co-PI]
- Title: "Sensing hazards with operational unmanned technology for the river forecasting centers (SHOUT4Rivers), phase 1"
- Amount awarded: $1,191,101
- Project length: 5/1/2014 – 6/30/2017
- Collaborators: Robert Moorhead (PI)
- Credit: 30%

US Department of Agriculture (USDA) Agricultural Research Service (ARS)
Mississippi State University [PI]
- Title: "Assessment and development of hydro-meteorological technologies for long-term monitoring in Goodwin Creek experimental watershed"
- Amount awarded: $127,075.33 (through eight individual awards)
- Project length: 8/1/2014 – 6/30/2018
- Credit: 100%

Department of Defense (DoD) Army Research Laboratory (ARL), BAA Section 3.5.2
Mississippi State University [PI]
- Title: "Atmospheric modeling and decision aids: Field-based numerical weather simulations and analysis support tools"
- Amount awarded: $146,000
- Project length: 6/30/2014 – 12/31/2015
- Collaborators: Philip Amburn (contractor/project scientist)
- Credit: 100%

Mississippi Department of Transportation
Mississippi State University [co-PI]
- Title: "Evaluation of the watchdog weather station to reduce drift from MDOT spray trucks"
- Amount awarded: $49,696.00
- Project length: 10/1/2013 – 9/30/2014
- Collaborators: John Byrd (PI)

Mississippi Water Resources Research Institute (MWRRI)
Mississippi State University [PI]
- Title: "Identification of recharge zones in the lower Mississippi River alluvial aquifer using isotopic characterization of precipitation and groundwater"
- Amount awarded: $61,815.00
- Project length: 1 year (3/1/2013 – 2/28/2014)
- Collaborators: J.R. Rigby (co-PI)

Mississippi Water Resources Research Institute (MWRRI)
Mississippi State University [PI]
- Title: "Analysis of Precipitation Variability and Related Groundwater Patterns over the Lower Mississippi River Alluvial Valley"
- Amount awarded: $62,422.00
- Project length: 1 year (3/1/2012 – 2/28/2013)
- Collaborators: Andrew Mercer (co-PI)

National Science Foundation (NSF)

Mississippi State University [co-PI]

- Title: “Quantification and visualization of ensemble uncertainty”
- Amount awarded: $475,174.00
- Project length: 3 years (Aug. 2011 – July 2014)
- Collaborators: Song Zhang (PI), J. Edward Swan II (co-PI), Andrew Mercer (co-PI), Justin Shows (co-PI)

Polish National Science Center
University of Marie Curie-Skłodowska / Mississippi State University [co-PI]

- Title: "Rainstorm prediction and mathematical modeling of their environmental and social-economical effects"
- Amount awarded: $196,600 PLN (złoty) [~$49,150 US]
- Project length: 30 months (3/2011 – 9/2013)
- Collaborators: Grzegorz Janicki (PI), Jan Rodzik (co-PI), Marcin Siłuch (co-PI), Łukasz Chabudziński (co-PI), Łukasz Frznczak (co-PI), Justyna Pastwa (co-PI)

National Oceanic and Atmospheric Administration (NOAA) / Northern Gulf Institute (NGI)
Mississippi State University [co-PI]

- Title: "Visual analytics for assessment and interpretation of simulated river flooding"
- Amount awarded: $500,000.00
- Project length: 2 years (1/1/2010 – 12/31/2012)
- Collaborators: Phil Amburn (PI), Robert Moorhead (co-PI)

National Science Foundation (NSF), Opportunities for Enhancing Diversity in the Geosciences (OEDG)
Mississippi State University [co-PI]

- Title: "Fueling the geosciences educational pipeline: The development of a K-12 network to support minority participation"
- Amount awarded: $39,828.00
- Project length: 1 year (10/1/2009 – 9/31/2010)
- Collaborators: Kathy Sherman-Morris (PI), Karen McNeal (co-PI), Mike Brown (co-PI), John Rodgers (co-PI)

Mississippi Water Resources Research Institute (MWRRI)
Mississippi State University [PI]

- Title: "Influences of Land surface / Land Use Characteristics on Precipitation Patterns over the Lower Mississippi Alluvial Plain"
- Amount awarded: $34,138.00
- Project length: 1 year (3/1/2009 – 2/28/2010)

Mississippi Water Resources Research Institute (MWRRI)
Mississippi State University [PI]

- Title: "Multi-scale Evaluation and Analysis of Precipitation Patterns over the Mississippi Delta"
- Amount awarded: $54,884.00
- Project length: 1 year (3/1/2008 – 2/28/2009)

Schillig Special Teaching Projects Program
Mississippi State University [PI].

- Title: "Surface Energy Budget Calculations Using Micrometeorological Instrumentation"
- Amount awarded: $2,982.00
    - Funds used for purchase of meteorological equipment for use in classroom demonstrations and exercises

National Oceanic and Atmospheric Administration (NOAA)
Engineering Resource Center, Mississippi State University, 2006 [Research associate]

- Title: "Simulation of a squall line through the Mississippi Delta by assimilating radar data and SCAN mesonet data into the WRF model"
- Amount paid: $10,825.99
- Principal investigator: Pat Fitzpatrick

National Aeronautics and Space Administration (NASA)
Mississippi State University [Research associate]

- Title: “Integrating climatic and fuels data into national fire risk decision-support tools”
- Amount paid: $16,000
- Principal investigator: Bill Cooke

PROFESSIONAL MEMBERSHIPS

- Member, American Meteorological Society	1999
- Member, American Geophysical Union	2004
- Member, International Geographical Union	2007
- Member, Association of American Geographers	2001
- Associate member, Sigma Xi Scientific Research Society	2002
- Phi Kappa Phi Honor Society	2001

PROFESSIONAL DEVELOPMENT

- FAA Unmanned Aerial General (Part 107) certification (May 31, 2018 – present)
- MM5 (Mesoscale Model v.5) Workshop, Boulder, Colorado (June, 2000)
- Operational use and development of the National Weather Service River Forecast System (NWSRFS) (2001)
- Operational use of the AWIPS computer system (2001)
- Teaching workshop, "Effective Teaching for Graduate Students and Early Career Faculty", University of Georgia (2004)

HONORS, AWARDS AND CERTIFICATIONS

- Member, Fulbright Specialists Program, 2015-present
- Geosystems Research Institute (GRI) research fellow
- Northern Gulf Institute (NGI) research fellow
- MSU State Pride Award (2010)
- Certified Sedimentation and Erosion Control Specialist, Clarke County, GA