

Dorian J. Burnette

Curriculum Vitae

March 2025

Associate Professor
Department of Earth Sciences
109 Johnson Hall
University of Memphis
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EDUCATION

Ph.D., Environmental Dynamics, University of Arkansas, 2009

- Dissertation: *Reconstruction of the Eastern Kansas Temperature and Precipitation Records into the Mid-19th Century using Historical Sources*
- Committee: Dr. David W. Stahle (Chair), Dr. Cary J. Mock, Dr. Malcolm K. Cleaveland, Dr. Elliott West

M.S., Physical Science (Earth Science emphasis), Emporia State University, 2002

- Thesis: *Meteorological Reconstruction of the Lewis and Clark Expedition*
- Committee: Dr. James S. Aber (Chair), Dr. Richard Sleezer, Dr. Ron McCoy

B.S., Geoscience (Meteorology emphasis), Mississippi State University, 1999

RESEARCH INTERESTS

Historical Meteorology and Climatology
Extreme Events
Paleoclimate Reconstruction from Tree-Rings
Societal Impacts of Weather and Climate Extremes
Computer Programming Applications

TEACHING INTERESTS

Meteorology
Climate Change
Climatology
Natural Hazards
Physical Geography
Quantitative Methods
Severe Weather
Synoptic Meteorology
Weather Forecasting

ACADEMIC EXPERIENCE

Associate Professor, Department of Earth Sciences, University of Memphis, Memphis, TN, September 2018-Present.

Assistant Professor, Department of Earth Sciences, University of Memphis, Memphis, TN, August 2012-August 2018.

Instructor, Department of Earth Sciences, University of Memphis, Memphis, TN, July 2012-August 2012.

Instructor, Department of Geosciences, University of Arkansas, Fayetteville, AR, August 2011-May 2012.

Postdoctoral Research Associate, Department of Geosciences, University of Arkansas, Fayetteville, AR, January 2010-July 2011.

Research Assistant, Department of Geosciences, University of Arkansas, Fayetteville, AR, May 2009-December 2009.

Graduate Assistant, Department of Geosciences, University of Arkansas, Fayetteville, AR, August 2003-May 2009.

Instructor, Upward Bound Math-Science Program, Wichita State University, Wichita, KS, Summer 1999-Summer 2007.

Lecturer, Department of Physical Science, Emporia State University, Emporia, KS, January 2003-May 2003.

Lecturer, Department of Geology, Wichita State University, Wichita, KS, January 1999-May 2002.

Graduate Teaching Assistant, Department of Physical Science, Emporia State University, Emporia, KS, August 2000-December 2001.

Presenter, K-12 Teacher's Earth Science Conference Update, Emporia State University, Emporia, KS, July 2001.

Graduate Research Assistant, Department of Physical Science, Emporia State University, Emporia, KS, August 1999-May 2000.

Paper Grader, Department of Physics, Wichita State University, Wichita, KS, August 1997-August 1998.

PROFESSIONAL EXPERIENCE

Storm Warning Meteorologist and Shift Leader, WeatherData Services, Inc., Wichita, KS, Summer 2006, 2007.

Storm Warning Meteorologist and Shift Leader, WeatherData, Inc., Wichita, KS, July 2002-July 2003.

Back Up and Severe Weather Meteorologist, KSNW-TV, Wichita, KS, September 1998-July 2003.

Storm Warning Meteorologist, WeatherData, Inc., Wichita, KS, March 1999-July 2002.

FOX Weekend Meteorologist, KSNW-TV/KSAS-TV, Wichita, KS, May 1998-September 1998.

Meteorological Internship, KSNW-TV, Wichita, KS, January 1994-May 1998.

PUBLICATIONS

DePriest, T.A., Jr., D.J. Burnette, R. Parish, and H. Kung, 2024: Impact of urbanization on estimated surface runoff and resulting issuance of flash flood warnings in Jackson, Tennessee. *The Compass: Earth Science Journal of Sigma Gamma Epsilon*, **93**, 151-162.

Burnette, D.J., D.H. Dye, and A.A. Hill, 2022: Climate change, population migration, and ritual practice in the Lower Mississippi Valley. *Following the Mississippian Spread: Climate Change and Migration in the Eastern U.S. (ca. AD 1000-1600)*, R.A. Cook and A.R. Comstock, Eds., Springer, 323-356.

- Burnette, D.J., 2021: The Tree-Ring Drought Atlas Portal: gridded drought reconstructions for the past 500-2000 years. *Bulletin of the American Meteorological Society*, **102**, 953-956, <https://doi.org/10.1175/BAMS-D-20-0142.1>.
- Torbenson, M.C.A., D.W. Stahle, I.M. Howard, D.J. Burnette, D. Griffin, J. Villanueva-Diaz, and B.I. Cook, 2021: Drought relief and reversal over North America from 1500 to 2016. *Earth Interactions*, **25**, 94-107.
- Burnette, D.J., D.H. Dye, and A.A. Hill, 2020: Climate change, ritual practice, and weather deities at Spiro. *Recovering Ancient Spiro: Native American Art, Ritual, and Cosmic Renewal*, E.D. Singleton and F.K. Reilly III, Eds., National Cowboy and Western Heritage Museum, 76-89.
- Stahle, D.W., E.R. Cook, D.J. Burnette, M.C.A. Torbenson, I.M. Howard, D. Griffin, J. Villanueva-Diaz, B.I. Cook, A.P. Williams, E. Watson, D.J. Sauchyn, N. Pederson, C.A. Woodhouse, G.T. Pederson, D. Meko, B. Coulthard, and C.J. Crawford, 2020: Dynamics, variability, and change in seasonal precipitation reconstructions for North America. *Journal of Climate*, **33**, 3173-3195.
- Barbosa, A.C.M.C., D.W. Stahle, D.J. Burnette, M.C.A. Torbenson, E.R. Cook, M.J. Bunkers, G. Garfin, and R. Villalba, 2019: Meteorological factors associated with frost rings in Rocky Mountain Bristlecone Pine at Mt. Goliath, Colorado. *Tree-Ring Research*, **75**, 101-115.
- Kwon, Y., T. Lee, A. Lang, and D. Burnette, 2019: Assessment on latitudinal tree species richness using environmental factors in the southeastern U.S. *PeerJ*, doi 10.7717/peerj.6781.
- Torbenson, M.C.A., D.W. Stahle, I.M. Howard, D.J. Burnette, J. Villanueva-Diaz, E.R. Cook, and D. Griffin, 2019: Multidecadal modulation of the ENSO teleconnection to precipitation and tree growth over subtropical North America. *Paleoceanography and Paleoclimatology*, **34**, 886-900.
- Stahle, D.W., D.J. Burnette, R.D. Griffin, and E.R. Cook, 2017: Implications of seasonal and annual moisture reconstructions for Mesa Verde, Colorado. *Megadrought and Collapse: From Early Agriculture to Angkor*, H. Weiss, Ed., Oxford University Press, 247-274.
- Foard, M., D.J. Burnette, D.R.L. Burge, and T.D. Marsico, 2016: Influence of river channelization and the invasive shrub, *Ligustrum sinense*, on oak (*Quercus* spp.), growth rates in bottomland hardwood forests. *Applied Vegetation Science*, **19**, 401-412.
- Stahle, D.W., E.R. Cook, D.J. Burnette, J. Villanueva, J. Cerano, J.N. Burns, D. Griffin, B.I. Cook, R. Acuña, M.C.A. Torbenson, P. Szejner, and I.M. Howard, 2016: The Mexican Drought Atlas: Tree-ring reconstructions of the soil moisture balance during the late pre-Hispanic, colonial, and modern eras. *Quaternary Science Reviews*, **149**, 34-60 (invited).
- Stahle, D.W., J.R. Edmondson, J.N. Burns, D.K. Stahle, D.J. Burnette, E. Kvamme, C. Lequesne, and M.D. Therrell, 2015: Bridging the gap with subfossil Douglas-fir at Mesa Verde, Colorado. *Tree-Ring Research*, **71**, 53-66.
- Burnette, D.J., and D.W. Stahle, 2013: Computer assisted screening, correction, and analysis of historical weather measurements. *Computers and Geosciences*, **54**, 309-317.
- Burnette, D.J., and D.W. Stahle, 2013: Historical perspective on the Dust Bowl drought in the central United States. *Climatic Change*, **116**, 479-494.
- Stahle, D.W., R.D. Griffin, D.M. Meko, M.D. Therrell, J.R. Edmondson, M.K. Cleaveland, L.N. Stahle, D.J. Burnette, J.T. Abatzoglou, K.T. Redmond, M.D. Dettinger, and D.R. Cayan, 2013: The ancient Blue Oak woodlands of California: longevity and hydroclimatic history. *Earth Interactions*, **17**, 1-23, doi: <http://dx.doi.org/10.1175/2013EI000518.1>.
- Stahle, D.K., D.J. Burnette, and D.W. Stahle, 2013: A moisture balance reconstruction for the drainage basin of Albemarle Sound, North Carolina. *Estuaries and Coasts*, **36**, 1340-1353.
- Stahle, D.W., D.J. Burnette, J. Villanueva-Diaz, J. Cerano-Paredes, F.K. Fye, R.D. Griffin, M.K. Cleaveland, D.K. Stahle, J.R. Edmondson, and K.P. Wolff, 2012: Tree-ring analysis of ancient baldcypress trees and subfossil wood. *Quaternary Science Reviews*, **34**, 1-15.

- Stahle, D.W., D.J. Burnette, J. Villanueva-Diaz, R.R. Heim, Jr., F.K. Fye, J. Cerano-Paredes, R. Acuña-Soto, and M.K. Cleaveland, 2012: Pacific and Atlantic influences on Mesoamerican climate over the past millennium. *Climate Dynamics*, **39**, 1431-1446.
- Stahle, D.W., J. Villanueva-Diaz, D.J. Burnette, J. Cerano-Paredes, R.R. Heim, Jr., F.K. Fye, R. Acuña-Soto, M.D. Therrell, M.K. Cleaveland, and D.K. Stahle, 2011: Major Mesoamerican droughts of the past millennium. *Geophysical Research Letters*, **38**, L05703, doi:10.1029/2010GL046472.
- Stahle, D.W., R.D. Griffin, M.K. Cleaveland, J.R. Edmondson, F.K. Fye, D.J. Burnette, J.T. Abatzoglou, K.T. Redmond, D.M. Meko, M.D. Dettinger, D.R. Cayan, and M.D. Therrell, 2011: A tree-ring reconstruction of the salinity gradient in the northern estuary of San Francisco Bay. *San Francisco Estuary and Watershed Science*, **9** [Available online at <http://www.escholarship.org/uc/item/5cz3q8v4>].
- Burnette, D.J., D.W. Stahle, and C.J. Mock, 2010: Daily mean temperature reconstructed for Kansas from early instrumental and modern observations. *Journal of Climate*, **23**, 1308-1333.
- Dodds, S.F., D.J. Burnette, and C.J. Mock, 2009: Historical accounts of the drought and hurricane season of 1860. *Historical Climate Variability and Impacts in the United States*, L.-A. Dupigny-Giroux and C.J. Mock, Eds., Springer, 61-77.
- Stahle, D.W., E.R. Cook, J. Villanueva-Diaz, F.K. Fye, D.J. Burnette, R.D. Griffin, R. Acuña-Soto, R. Seager, and R.R. Heim Jr., 2009: Early 21st century drought in Mexico. *EOS*, **90**, 89-90.
- Stahle, D.W., M.K. Cleaveland, H. Grissino-Mayer, R.D. Griffin, F.K. Fye, M.D. Therrell, D.J. Burnette, D.M. Meko, and J. Villanueva-Diaz, 2009: Cool- and warm-season precipitation reconstructions over western New Mexico. *Journal of Climate*, **22**, 3739-3750.

INVITED PRESENTATIONS

- Burnette, D.J., D.H. Dye, and A.A. Hill, 2019: Social responses to climate change in the Lower Mississippi Valley. 3rd Biennial Warfare, Environment, Social Inequality, and Pro-Sociability (WESIPS) Conference, Center for Cross-Cultural Study, Seville, Spain.
- Cook, B.I., P. Williams, D.W. Stahle, E.R. Cook, and D.J. Burnette, 2019: Cold and warm season contributions to major drought events in the North American Seasonal Precipitation Atlas. American Geophysical Union Annual Meeting, "Extreme Events Recorded by High-Resolution Climate Archives", San Francisco, CA.
- Burnette, D.J., D.H. Dye, and A.A. Hill, 2018: Stephen Williams and the vacant quarter phenomenon. Society for American Archaeology Annual Meeting, "Extending the Legacy of the late Stephen Williams", Washington, D.C.
- Burnette, D.J., 2017: Reconstructing extreme weather and climate events. Tennessee Department of Environment and Conservation, Nashville, TN.
- Burnette, D.J., D.W. Stahle, E.R. Cook, J. Villanueva-Diaz, R.D. Griffin, and B.I. Cook, 2016: Decadal drought and wetness reconstructed for subtropical North America in the Mexican Drought Atlas. Society for Historical Archaeology Conference, "Environmental Archaeology and Historical Ecology: Present and Future Directions," Washington, D.C.
- Stahle, D.W., E.R. Cook, D.J. Burnette, J. Villanueva, and M.C.A. Torbenson, 2016: The Mexican Drought Atlas: Development and climate dynamics. Third AmeriDendro Conference, Mendoza, Argentina.
- Burnette, D.J., 2014: Reconstructing extreme weather and climate events. Universidad Nacional de Loja, Loja, Ecuador.
- Burnette, D.J., 2014: Chasing and reconstructing severe storm environments. Colloquium, Department of Geography, University of South Carolina, Columbia, SC.

- Burnette, D.J., 2013: Dendro Tools, the user friendly tool for dendrochronologists. Short Course, International Workshop of Tropical Dendrochronology, Universidade Federal de Lavras, Lavras, MG, Brazil.
- Burnette, D.J., 2013: Reconstructing extreme weather and climate events. Seminar, Department of Physics, University of Memphis, Memphis, TN.
- Mock, C.J., and D.J. Burnette, 2011: Meteorological conditions during the CSS Hunley event of February 1864, a Civil War example of climate reconstruction. UnCivil Wars Conference, Athens, GA.
- Mock, C.J., V.C. Slonosky, D.J. Burnette, and L.-A. Dupigny-Giroux, 2011: North American historical climate, current status and comments. International Union for Quaternary Research (INQUA) Congress, Bern, Switzerland.
- Burnette, D.J., 2010: Recovery of 19th century weather observations in the central United States. Illinois State Water Survey, Champaign, IL.
- Burnette, D.J., 2010: The value of dendrochronology and historical weather observations. Archaeology Field School, Thomas Jefferson's Poplar Forest, Forest, VA.
- Burnette, D.J., 2010: The value of historical climate records. Ecomunch, Department of Biological Sciences, University of Arkansas, Fayetteville, AR.
- Burnette, D.J., 2009: A new 180-year daily temperature record for Kansas. Annual Meeting of the Southwestern and Rocky Mountain Division of the American Association for the Advancement of Science, "Climatology and Ecology of the Cross Timbers and Southern Great Plains," Tulsa, OK.
- Burnette, D.J., 2008: Screening, correction, and analysis of a new 180-year daily temperature record for Kansas. Annual Meeting of the Association of American Geographers, "Climate History II: Thermal Climate History," Boston, MA.
- Burnette, D.J., 2008: Recovery, screening, and correction of instrumental climate records in the Great Plains. "Historical Climate Change Reconstruction in the Great Plains" workshop, University of Saskatchewan, Saskatoon, SK, Canada.
- Burnette, D.J., 2008: A new daily temperature record for Kansas, 1 July 1828-31 August 2007. Department of Geology, Wichita State University, Wichita, KS.
- Burnette, D.J., 2008: A new daily temperature record for Kansas, 1 July 1828-31 August 2007. University of Arkansas Sigma Xi Chapter, Fayetteville, AR.
- Burnette, D.J., 2008: The value of historical climate data to archaeology and ecology. Society for Historical Archaeology Conference, "Recent Research in Archaeobiology and Historical Ecology," Albuquerque, NM.
- Stahle, D., E. Cook, J. Villanueva-Diaz, F. Fye, D. Burnette, and R. Seager, 2008: Drought in Mexico: 1944-2008. Annual Meeting of the Association of American Geographers, "Climate History V: Drought Histories," Boston, MA.
- Stahle, D., E. Cook, J. Villanueva-Diaz, F. Fye, D. Burnette, and R. Seager, 2008: Drought in Mexico: 1994-2008. Mexican climate meeting, Ensenada, Mexico.
- Burnette, D.J., 2007: Screening, correction, and analysis of a new 180-year daily temperature record for Kansas. Departments of Physical Sciences, Emporia State University, Emporia, KS.
- Burnette, D.J., 2007: Historical Meteorology/Climatology. Departments of Physical Sciences, Emporia State University, Emporia, KS.

CONTRIBUTED PRESENTATIONS

- Purvis, M., D.J. Burnette, R. Lombardi, and D. Larsen, 2025: A reconstruction of Late Pleistocene and Holocene paleoclimate record using radiocarbon dating and noble gas thermometry of groundwater in Shelby County, Tennessee. South-Central Section of the Geological Society of America Meeting, Conway, AR.
- Kafle, N., F. Dell'Aira, D.J. Burnette, and C.I. Meier, 2024: How does the low-resolution of the US rain-gauge network affect the uncertainty of regionally derived depth-duration-frequency estimates? American Geophysical Union Annual Meeting, Washington, D.C.
- Lombardi, R., Y. Kwon, and D.J. Burnette, 2024: A millennial record of precipitation volatility in the Missouri River Basin, USA. American Geophysical Union Annual Meeting, Washington, D.C.
- Kafle, N., C.I. Meier, D.J. Burnette, and F. Dell'Aira, 2024: How does rain-gauge network density and resolution affect hourly and sub-hourly rainfall frequency estimates? An analysis using high spatio-temporal resolution rainfall data. World Environmental and Water Resources Congress, Milwaukee, WI.
- Kafle, N., F. Dell'Aira, D.J. Burnette, and C.I. Meier, 2023: Hershfield factors for extreme precipitation: variability and a proposal for a unified definition. Sedimentation and Hydrologic Modeling Conference (SEDHYD), St. Louis, MO.
- Marasini, A., C.I. Meier, and D.J. Burnette, 2022: Underestimating design rainfall over short durations: variability, spatial structure, and proposal for a unified definition of sampling adjustment factors. World Environmental and Water Resources Congress, Atlanta, GA.
- Baker, B.W., and D.J. Burnette, 2021: The Deep South tornado outbreak 21-22 March 1932. Southeastern Division of the American Association of Geographers, Florence, AL.
- Baker, B.W., and D.J. Burnette, 2019: A climatology of severe thunderstorm days over the Southeastern U.S., 1925-2014. American Association of Geographers Annual Meeting, Washington, D.C.
- Burnette, D.J., D.H. Dye, and A.A. Hill, 2019: Drought, disruption, and deities: a multi-disciplinary investigation of environmental change over the northern Lower Mississippi Valley. American Association of Geographers Annual Meeting, Washington, D.C.
- Burnette, D.J., D.H. Dye, and A.A. Hill, 2019: Migration, climate change, and ritual in the Lower Mississippi Valley. Society for American Archaeology Annual Meeting, Albuquerque, NM.
- Stahle, D.W., E.R. Cook, D.J. Burnette, M.C.A. Torbenson, I.M. Howard, and D. Griffin, 2019: The North American Seasonal Precipitation Atlas (NASPA): dynamics, variability, and change. Pacific Climate Workshop (PACLIM), Pacific Grove, CA.
- Burnette, D.J., 2018: The Tree-Ring Drought Atlas Portal: A suite of research and education webtools for gridded drought reconstructions over the past 500-2000 years. American Meteorological Society Annual Meeting, Austin, TX.
- Burnette, D.J., D.H. Dye, and A.A. Hill, 2018: Drought, disruption, and deities: late prehistoric environmental change in Tennessee. Current Research in Tennessee Archaeology, Montgomery Bell State Park, TN.
- Stahle, D.W., E.R. Cook, D.J. Burnette, M.C.A. Torbenson, R.D. Griffin, I. Howard, A.P. Williams, and B.I. Cook, 2018: The United States Seasonal Drought Atlas: gridded cool and warm season moisture balance reconstructions from 1400 to 2016. American Meteorological Society Annual Meeting, Austin, TX.
- Burnette, D.J., D.H. Dye, and A.A. Hill, 2017: Climate change, ritual, and environmental impacts at Spiro. Southeastern Archaeology Conference, Tulsa, OK.

- Burnette, D.J., and B.W. Baker, 2016: Influence of the teleconnections on significant severe thunderstorm days over the Mid-South. American Meteorological Society/National Weather Association Memphis Chapter, Memphis, TN.
- Burnette, D.J., D.W. Stahle, E.R. Cook, J. Villanueva-Diaz, R.D. Griffin, and B.I. Cook, 2014: Decadal drought and wetness reconstructed for subtropical North America in the Mexican Drought Atlas. American Geophysical Union Fall Meeting, "Climate of the Common Era," San Francisco, CA.
- Stahle, D.W., D.J. Burnette, and E.R. Cook, 2014: Ancient analogs of ENSO-like moisture anomaly patterns across North America. American Geophysical Union Fall Meeting, "Climate of the Common Era," San Francisco, CA.
- Johnson, B.D., D.J. Burnette, and R. Sleezer, 2013: Identifying oscillations and teleconnections forcing snowfall in northeast and east central Kansas 1951-2011: a regional climate analysis and study on prediction. Kansas Academy of Science Annual Meeting, Overland Park, KS.
- Burnette, D.J., 2010: Historical perspective on the Dust Bowl drought in the central United States. High Plains American Meteorological Society/National Weather Association Chapter Conference, Dodge City, KS.
- Burnette, D.J., 2007: A new daily temperature record for Kansas, 1 July 1828-28 February 2007. High Plains American Meteorological Society/National Weather Association Chapter Conference, Hastings, NE.
- Burnette, D.J., 2007: A new daily temperature record for Kansas. Annual Meeting of the Association of American Geographers, "Climate Reconstructions from Land to Sea," San Francisco, CA.
- Mock, C.J., D.O. Mayes, D.J. Burnette, and M. Chenoweth, 2004: Meteorological aspects of the Lewis and Clark journals in the Northern Plains as compared to other historical extremes in the last 200 years. Center for Great Plains Studies Symposium, "The Nature of Lewis and Clark on the Great Plains," Lied Conference Center, Nebraska City, NE.
- Burnette, D.J., 2002: Meteorological reconstruction of the Lewis and Clark expedition. American Meteorological Society/National Weather Association Wichita Chapter, Wichita, KS.
- Burnette, D.J., 1997: Case study: upslope flow yielding severe thunderstorm event (25 June 1997). Mississippi State University Summer Workshop, Starkville, MS.

GRANTS

- 2024, Co-Principal Investigator [with Ray Lombardi (Lead PI), Amanda Gaggioli, Anthony Lauricella, Davia Downey, and Randy Cox], University of Memphis, Communities of Research Scholars: "Mid-South Ancient Geo-Hazards and Environments (MAGE)", 1 December 2024-31 August 2025, \$2,500.
- 2022, Principal Investigator, National Science Foundation, Paleoclimate Program, Paleo Perspectives on Climate Change (P2C2): "Collaborative Research: P2C2--Medieval to Modern Climate Variability and Climate Change in the Great Plains", 1 July 2022-30 June 2025, \$39,786. Collaborative project with Dave Stahle (University of Arkansas), Edward Cook (Lamont-Doherty Earth Observatory of Columbia University), Michael Stambaugh (University of Missouri), and Evan Larson (University of Wisconsin-Platteville).
- 2020, Principal Investigator [with Claudio Meier (Lead PI) and David Ladd], Tennessee Department of Transportation: "Updating Equations for Peak Flow Estimation in Urban Creeks and Streams of Tennessee", 1 July 2020-30 June 2023, \$253,517.
- 2017, Co-Principal Investigator (with Claudio Meier and Laura Saija), University of Memphis, Research Investment Fund, Team Initiation Grant: "Community-Based Strategies for Urban Resilience to Extreme Rainfall Events", 1 June 2017-30 November 2018, \$30,000.

2013, Principal Investigator, National Science Foundation, Paleoclimate Program, Paleo Perspectives on Climate Change (P2C2): “Collaborative Research: P2C2--Cool and Warm Season Moisture Reconstruction and Modeling over North America”, 1 September 2013-31 August 2018, \$83,289. Collaborative project with David Stahle (University of Arkansas), Edward Cook (Lamont-Doherty Earth Observatory of Columbia University), and Benjamin Cook (NASA Goddard Institute for Space Studies).

2006, Co-Principal Investigator (with David Stahle), National Science Foundation, Geography and Regional Science Program, Doctoral Dissertation Research Improvement Grant: “Doctoral Dissertation Research: 19th Century Meteorology and Climatology in Kansas”, August 2006-January 2009, \$7,032.

AWARDS

Course Redesign Fellowship (with Arleen Hill), Redesign of ESCI 1010 (Weather and Climate), Advanced Learning Center, University of Memphis, 2013.

Certificate of Achievement for Outstanding Presentation, Graduate Student Paper Competition, High Plains AMS/NWA Chapter, 2007.

Earth Science Club (Lanier) Award of Excellence, Emporia State University, 2002.

Lightning Award for redesign of company intranet, WeatherData, Inc., November 2002.

Nominated for Board of Trustees Excellence in Teaching Award, Wichita State University, 2002.

Nominated for Academy for Effective Teaching Award, Wichita State University, 2002.

UNIVERSITY COURSES TAUGHT

*Denotes upper-division undergraduate and/or graduate-level course

University of Memphis (2012-Present)

- Climatology*
- Earth Sciences Field Excursions*
- Freshman Seminar (Fresh Connections Learning Community)
- Global Environmental Change*
- Seminar in Extreme Weather*
- Seminar in Geography (topics included paleoclimatology and climate change)*
- Severe Weather*
- Synoptic Meteorology*
- Urban Resilience to Flooding I and II*
- Weather and Climate

University of Arkansas (2003-2009, 2011-2012)

- Environmental Geology Lab
- General Geology
- General Geology Lab
- Global Change*
- Honors General Geology Lab
- Visual Basic.NET Programming*

Emporia State University (2000-2001, Spring 2003)

- Introduction to Earth Science
- Introduction to Earth Science Lab
- Severe Weather*

Wichita State University (1999-2002)

- Climatology
- Earth Science and the Environment
- Meteorology

GRADUATE STUDENT ADVISING AND MENTORING

*Denotes major advisor

All Department of Earth Sciences, University of Memphis unless otherwise noted

In Progress

- *Macy Baer (M.S.)
- Jayanta Biswas (M.S.)
- Nischal Kafle (Ph.D., Department of Civil Engineering)
- *Megan Purvis, "A reconstruction of the Late Pleistocene and Holocene paleoclimate record using radiocarbon dating and noble gas thermometry of groundwater in Shelby County, Tennessee" (M.S.)
- *Delmer Rodriguez (Ph.D.)
- Sanghamitra Sengupta (Ph.D.)
- Jingchao Shi (Ph.D.)

Graduated

- Samiksha Banjara, "Assessing spatial patterns and drivers of tree species richness and functional group diversity in the eastern United States forest" (M.S., 2024)
- *Alyssa Huffman, "Impacts of glycol runoff on water quality: a case study of Memphis International Airport" (M.S., 2024)
- Melinda Martin, "Command of the winds: an examination of Earth Mother and Great Serpent iconography" (Ph.D., 2024)
- Nicholas Grondin "Climatological analysis of tropical cyclone occurrence dates and landfall characteristics in the North Atlantic and Eastern North Pacific" (Ph.D., 2023, Department of Geography, University of Tennessee)
- Md Shah Naim Hredoy, "Data-driven approach to detect tree species migration potential in eastern US forest: extending the temporal range of forest inventory and analysis" (M.S., 2023)
- *Delmer Rodriguez, "Winter-spring tornadoes and drought over the southern Mississippi River Valley" (M.S., 2023)
- Lian Brugere, "Predicting tree species richness in continental United States: highlights from machine learning and open data" (Ph.D., 2022)
- Megan Farrell, "Examining air pollution and forest health: an application of lichens as bioindicators and Sentinel-5P TROPOMI in urban state parks in Shelby County, TN" (M.S., 2022)
- Ehsan Momeni, "Optimizing pattern-based calibration of cellular automata by imperialistic competitive algorithm" (Ph.D., 2022)
- Jarod Przybylski "Recharge assessment of the Memphis aquifer beneath an urban watershed following stream restoration" (M.S., 2022)

- Marie White “Stratigraphic and paleoenvironmental analysis of the early Pleistocene Lake Tecopa beds, southeastern California” (M.S., 2022)
- John Drury Wilhite, “Negative painted effigy bottles: investigating a possible workshop at the Tyler Mound site (15FU3), Fulton County, Kentucky” (M.S., 2022)
- Lilien Ploderer, Non-thesis track (M.A., 2021)
- Aashis Sapkota, “A variable unit hydrograph incorporating nonlinearity in the watershed rainfall-runoff response due to antecedent watershed conditions: application to a parsimonious flood forecasting model” (Ph.D., 2021, Civil Engineering)
- *Preston Bradley, “Reducing tornado warning false alarm rates across the National Weather Service Memphis county warning area” (M.S., 2020)
- Apeksha Marasini, “Rainfall sampling adjustment factors: spatial variability and effects of temporal resolution of precipitation” (M.S., 2020, Civil Engineering)
- Nathan Ron-Ferguson, “Reprojecting the city: assessing urban change through construction, demolition, and renovation” (Ph.D., 2020)
- *Bradley Baker, “Southeast U.S. severe thunderstorm climatology and 1932 tornado outbreak” (Ph.D., 2019)
- Michelle Field, “Evaluating tree species migration potential using latitudinal tree growth rate across the eastern United States” (M.S., 2019)
- Alex Johnson, “Seduction is in the eye of the beholder: the influences of learner characteristics on learning from multiple texts with seductive details.” (M.S., 2019, Psychology)
- Melinda Martin, “Pots and purification: an iconographic analysis of Mississippian beakers” (M.S., 2019)
- Spencer Smith, “Recharge of the Memphis aquifer in an incised urban watershed: implications of impervious surfaces and stream incision” (M.S., 2019)
- Thomas Arlanda DePriest, Jr., “Urbanization in Jackson, Madison County, Tennessee and the environmental impact of urbanization on the region” (Ph.D., 2018)
- Patricio Muñoz Proboste, “Effects of storm type on the variability of rainfall sampling adjustment factors” (M.S., 2018, Civil Engineering)
- William Simco, “Recharge of the Memphis aquifer in an incised urban watershed” (M.S., 2018)
- Nicolle Bernard, “Relationship between sea surface temperature in the Gulf Stream and severe weather in the United Kingdom and Ireland”, Non-thesis, research project option (M.S., 2017, Physical Science, Emporia State University)
- Shelby Hobbs, “A diachronic analysis of settlement patterns and drought in the central Mississippi River Valley” (M.S., 2017)
- Amanda Pesce, “An iconographic analysis of Mississippian kneeling female effigy figures from the central Mississippi Valley” (M.S., 2017)
- Zebulon Wallace, “Disseminating tornado warnings to rural populations” (Ph.D., 2017)
- Alison Lang, “The influence of area, groundwater, climate, and soil properties on tree species richness in the southeastern United States” (M.S., 2016)
- Catherine Soplata, “Factors influencing historically destructive landslides in Hickory Nut Gorge near Chimney Rock, North Carolina” (M.S., 2016)
- Megan Warren, Non-thesis track (M.A., 2016)
- John Bursi, “Determining recharge pathways and mechanisms to the Memphis aquifer” (M.S., 2015)
- Haley Gallo, “Hydrologic and geochemical investigation of modern leakage near the McCord well field, Memphis, TN” (M.S., 2015)
- Daniel Guerra-Monje, Non-thesis track (M.A., 2015)

- William DeVore, “Late archaic inter-personal violence in the Middle Tennessee Valley” (Ph.D., 2013)
- Farid Javadnejad, “Flood inundation mapping using HEC-RAS and GIS for Shelby County, Tennessee” (M.S., 2013, Civil Engineering)
- Brad Johnson, “Identifying oscillations and teleconnections that may impact snowfall in northeast and east central Kansas 1951-2011: a regional climate analysis and study on prediction potential” (M.S., 2013, Physical Science, Emporia State University)

UNIVERSITY SERVICE

College of Arts and Sciences, University of Memphis

- Generate and Steward Financial Resources Strategic Planning Committee, Fall 2023.
- Graduate Council, Fall 2019-Summer 2020.
- Tenure and Promotion Committee, Fall 2023.
- Undergraduate Curriculum Council, Fall 2015-Fall 2018.

Department of Earth Sciences, University of Memphis

- Co-Webmaster for Department of Earth Sciences website, Summer 2013-Present.
- Geography Representative, Graduate Program Committee, Fall 2013-Summer 2015, Fall 2018-Present.
- Fluvial Geomorphology Search Committee Co-Chair, Spring 2022.
- Instructor Search Committee Chair, Summer 2021.
- Sedimentary Geology/Fluvial Geomorphology Search Committee Chair, Spring 2020.
- Graduate Program Coordinator, Fall 2019-Summer 2020.
- Geography Advisor, Undergraduate Program Committee, Fall 2015-Fall 2018.
- Weather and Climate Lab Coordinator, Fall 2013-Spring 2018.
- Internal Department Chair Search Committee, Spring 2014.
- Remote Sensing/Spatial Statistics Search Committee, Fall 2012.

Department of Geosciences, University of Arkansas

- Environmental Dynamics Ph.D. Program Steering Committee (Student Representative), December 2005-October 2007.

PROFESSIONAL AFFILIATIONS

American Geophysical Union (AGU)

American Meteorological Society (AMS, Full Member)

AMS/NWA Memphis Chapter

American Association of Geographers (AAG)

International Commission on the History of Meteorology (ICHM)

National Weather Association (NWA)

Society for American Archaeology (SAA)

The Planetary Society

SKILLS

Custom Assembly of Personal Computers

Geographic Information Systems Software: ArcGIS (ESRI Certificate in ArcGIS I) and Idrisi

Programming Languages: ASP.NET, Basic, C, C++, GrADS, HTML, JavaScript, Python, R, SAS, Visual Basic.NET, and Visual C++.NET

Tree-Ring Lab Software: ARSTAN and COFECHA

Other Software: Illustrator, Microsoft Office, Photoshop, Visual Studio, and Visual Studio Code