

Dorian J. Burnette

Curriculum Vitae

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Assistant Professor
Department of Earth Sciences
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University of Memphis
Memphis, TN 38152
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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

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

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

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., 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

- 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

- 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 2017, \$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

- *Tim Alexander, Icing climatology and sub-surface flow constructed wetlands (Ph.D.)
- *Bradley Baker, Significant severe thunderstorm climatology for sub-regions of the central and southern United States (Ph.D.)
- Lan DePriest, "Jackson, Tennessee urban development and flooding" (Ph.D.)
- James Eason (M.S.)
- Lian Feng (Ph.D.)
- Lauren Goddard (Ph.D.)
- Daniel Guerra-Monje (Ph.D.)
- Alberto Jimenez (Ph.D.)
- Melinda Martin (M.S.)
- Paul Martin (Ph.D.)
- Ehsan Momeni (Ph.D.)
- Nathan Ron-Ferguson (Ph.D.)
- Alex Sill (M.S., Earth Science Department, Emporia State University)
- William Simco (M.S.)
- Spencer Smith (M.S.)
- John Dru Wilhite (M.S.)
- *Sarah Wilson (M.A.)

Graduated

- 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, University of Memphis)
- 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

- Undergraduate Curriculum Council, Fall 2015-Present.

Department of Earth Sciences, University of Memphis

- Geography Advisor, Undergraduate Program Committee, Fall 2015-Present.
- Weather and Climate Lab Coordinator, Fall 2013-Present.
- Co-Webmaster for Department of Earth Sciences website, Summer 2013-Present.
- Geography Representative, Graduate Program Committee, Fall 2013-Summer 2015.
- 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

Association of American Geographers (AAG)

International Commission on the History of Meteorology (ICHM)

National Weather Association (NWA)

Sigma Xi

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++, HTML, Javascript, Python, R, SAS, Visual Basic.NET, and Visual C++.NET

Tree-Ring Lab Software: ARSTAN and COFECHA

Other Software: Dreamweaver, Fireworks, Flash, Illustrator, Microsoft Office, and Photoshop