

## Kelly Helm Smith

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### EDUCATION

Ph.D. in Natural Resource Sciences, University of Nebraska-Lincoln, December 2019  
Master's in Community & Regional Planning, University of Nebraska-Lincoln, December 2005  
M.S.J., Medill School of Journalism, Northwestern University, December 1985, print concentration  
B.A., Bryn Mawr College, Bryn Mawr, Pennsylvania, 1984, History major, French minor

### PROFESSIONAL EXPERIENCE

2021-present Research Assistant Professor, National Drought Mitigation Center, School of Natural Resources, University of Nebraska-Lincoln  
2016-present Assistant Director & Communications Coordinator, NDMC, UNL  
2007-2012 School of Natural Resources, UNL, Communication Specialist and PR Manager  
2006-2021 Communications Specialist, NDMC, UNL  
2006 Lincoln Literacy Council, Consultant & Interim Program Coordinator  
2004-2005 African Community Center, Program Facilitator  
2002-2004 First Presbyterian Church, Director of Community Outreach  
1995-2000 NDMC, UNL, Communications Specialist  
1994-1995 Department of Agricultural Meteorology, Conference Organizer, November 1994-May 1995  
1989-1994 Quad/Graphics, Inc., Corporate Communications Writer/Editor  
1987-1989 Reporter, Waukesha County Freeman  
1985-1987 Reporter, Belleville News-Democrat

Kelly's research centers on drought impacts and the diverse ways in which people in different sectors experience, describe and quantify the effects of drought. She is responsible for the [Drought Impacts Toolkit](#), including developing new, continuously updated datasets from news stories, Twitter, and crowdsourcing, and providing them as maps. These contribute to interpretation of climate data for the U.S. Drought Monitor. She leads a nation-wide effort to crowdsource photos and observations related to drought, working with state and regional partners to balance the need for central coordination with individual states' different needs and resources ([go.unl.edu/CMOR\\_drought](http://go.unl.edu/CMOR_drought)). As communications coordinator for the National Drought Mitigation Center, Kelly supervises a staff of three working with others throughout the center to convey information on drought monitoring, impacts and solutions. NDMC communications contributes significantly to the national discourse around drought, providing a consistent weekly interpretation of the U.S. Drought Monitor, with Twitter followers now over 9,000. As assistant director, Kelly works closely with the director to implement communication initiatives and special projects, to represent the center in an official capacity when the director needs backup, and to handle an array of miscellaneous duties.

## AREAS OF RESEARCH INTEREST

Drought impacts; what we can learn from big data and machine learning about detecting the effects of drought and water shortage on people; place-based framing of experience; the intersection of digital humanities, geography and AI

## MEMBERSHIPS

Current: American Meteorological Society; Recent: American Geophysical Union, American Public Health Association, American Planning Association

## PEER REVIEW

For *Weather, Climate and Society*; *Natural Hazards and Earth System Sciences*; *WIREs Water*, *Natural Hazards*

## PUBLICATIONS

Zhang, B., Schilder, F., **Smith, K.**, Hayes, M., Harms, S., & Tadesse, T. TweetDrought: A Deep-Learning Drought Impacts Recognizer based on Twitter Data. 2021. ICML 2021 Workshop: Tackling Climate Change with Machine Learning. Conference paper.  
<https://www.climatechange.ai/papers/icml2021/32/paper.pdf>

Keyel A.C., Gorris M.E., Rochlin I., Uelmen J.A., Chaves L.F., Hamer G.L., et al. (2021) A proposed framework for the development and qualitative evaluation of West Nile virus models and their application to local public health decision-making. *PLoS Neglected Tropical Diseases* 15(9): e0009653. <https://doi.org/10.1371/journal.pntd.0009653>

**Smith, K.H.**, M.E. Burbach; M.J. Hayes; P.E. Guinan; A.J. Tyre; B. Fuchs; T. Haigh; M.D. Svoboda, 2021. Whose ground truth is it? Harvesting lessons from Missouri's 2018 bumper crop of drought observations. *Weather, Climate and Society*. doi: 10.1175/WCAS-D-19-0140.1

Johnson, L. E., Geli, H. M., Hayes, M. J., & **Smith, K.H.**, 2020. Building an improved drought climatology using updated drought tools: A New Mexico Food-Energy-Water (FEW) systems focus. *Frontiers in Climate*, 2, 15.

**Smith, K.H.**, A.J. Tyre, J. Hamik, M.J. Hayes, Y. Zhou, L. Dai, 2020. Using climate to explain and predict West Nile Virus risk in Nebraska. *GeoHealth* 9(4). doi: 10.1029/2020GH000244

**Smith, K.H.**, A.J. Tyre, Z. Tang, M.J. Hayes, F.A. Akyuz, 2020. Calibrating human attention as indicator: Monitoring #drought in the Twittersphere. *Bulletin of the American Meteorological Society*. doi: 10.1175/BAMS-D-19-0342.1

Noel, M., D. Bathke, B. Fuchs, D. Gutzmer, T. Haigh, M. Hayes, M. Podebradska, C. Shield, **K.H. Smith**, M. Svoboda, 2020: Linking Drought Impacts to Drought Severity at the State Level. *Bull. Amer. Meteor. Soc.*, 101, E1312–E1321. doi:10.1175/BAMS-D-19-0067.1.

Liu, T., **K.H. Smith**, R. Krop, R., T. Haigh, M. Svoboda, 2020. Critical Analysis of the Value of Drought Information and Impacts on Land Management and Public Health. *Water* 2020, 12, 1064. doi: 10.3390/w12041064

Lackstrom, K., A. Farris, D. Eckhardt, N. Doesken, H. Reges, J. Turner, **K. Smith**, and R. Ward, 2017. CoCoRaHS Observers Contribute to "Condition Monitoring" in the Carolinas: A New Initiative Addresses Needs for Drought Impacts Information. *Bulletin of the American Meteorological Society*. doi:10.1175/BAMS-D-16-0306.1, January 2018

Zipper, S. C., **K. Helm Smith**, B. Breyer, J. Qiu, A. Kung, and D. Herrmann. 2017. Socio-environmental drought response in a mixed urban-agricultural setting: synthesizing biophysical and governance responses in the Platte River Watershed, Nebraska, USA. *Ecology and Society* 22(4):39. <https://doi.org/10.5751/ES-09549-220439>

Bachmair, S., Stahl, K., Collins, K., Hannaford, J., Acreman, M., Svoboda, M., Knutson, C., **Smith, K. H.**, Wall, N., Fuchs, B., Crossman, N. D. and Overton, I. C. (2016), Drought indicators revisited: the need for a wider consideration of environment and society. *WIREs Water*. doi:10.1002/wat2.1154

**Smith, K.H.**, C.J. Stiles, M.J. Hayes, and C.J. Carparelli, 2015: Support for Drought Response and Community Preparedness: Filling the Gaps between Plans and Action. In *Western Water Policy and Planning in a Variable and Changing Climate*, K. Miller, A. Hamlet, D. Kenney, and K. Redmond, eds., CRC Press – Taylor and Francis.

**Smith, K.H.** April 2015. Review of Water Diplomacy: A Negotiated Approach to Managing Complex Water Networks, by Shafiqul Islam and Lawrence E. Susskind (2012). *Journal of the American Planning Association*, Winter 2015, Vol 81, No. 1, 81-82. doi:10.1080/01944363.2015.1030941

**Smith, K.H.**, M. Svoboda, M. Hayes, H. Reges, N. Doesken, K. Lackstrom, K. Dow and A. Brennan, 2014. "Local observers fill in the details on drought impact reporter maps." *Bulletin of the American Meteorological Society*, Vol. 95, 11, 1659-1662.

Lackstrom, K., A. Brennan, D. Ferguson, M. Crimmins, L. Darby, K. Dow, K. Ingram, A. Meadow, H. Reges, M. Shafer, and **K. Smith**. 2013. The Missing Piece: Drought Impacts Monitoring. Workshop report produced by the Carolinas Integrated Sciences & Assessments program and the Climate Assessment for the Southwest.

**Smith, K.H.** "New Guide Makes Community Drought Planning Easier." *Bulletin of the American Meteorological Society*, February 2011, pp. 120-121.

Svoboda, M., **K.H. Smith**, M. Widhalm, D. Woudenberg, C. Knutson, M. Sittler, J. Angel, M. Spinar, M. Shafer, R. McPherson, H. Lazrus (2011) *Drought-Ready Communities: A Guide to Community Drought Preparedness*, National Drought Mitigation Center.

Bathke, D.J, J. Nothwehr, **K. Smith**, M. Widhalm, E. Hunt, and M.J. Hayes. 2009. Status of Drought Early Warning in the United States: National Integrated Drought Information System Workshop Summary. Submitted to the National Integrated Drought Information System program office.

Wardlow, B.D., M.J. Hayes, M.D. Svoboda, T. Tadesse, and **K.H. Smith**. “Sharpening the Focus on Drought – New Monitoring and Assessment Tools at the National Drought Mitigation Center,” *Earthzine*, March 30, 2009.

Ding, Y., and **K.H. Smith**. “2007 drought economic impacts,” *Crop Insurance Today*, Vol. 41, No. 1, February 2008, pp. 7-9, National Crop Insurance Services, Overland Park, KS.

## **GRANTS AND CONTRACTS AWARDED**

“Drought Triggers in the Caribbean,” C. Knutson, D. Bathke, B. Fuchs, M. Hayes, **K. Smith**, M. Svoboda. \$64,999. 5/3/2021-2/28/2022. Sub-project lead.

“USDA Support for Enhancements to the U.S. Drought Monitor 2021-2022,” B. Fuchs, D. Bathke, T. Haigh, C. Knutson, T. Mieno, R. Rimsaite, **K. Smith**, M. Svoboda, T. Tadesse, B. Wardlow. \$1,275,000. 10/01/2021-9/30/2022. Sub-projects lead.

“Drought Planning for the Republican River Basin”, **K. Smith**, D. Bathke. Nebraska Department of Natural Resources. \$89,810. 8/17/2020-5/6/2022. Project lead.

“USDA Support for the U.S. Drought Monitor and Climate Hub Activities for 2020-2023”, M. Svoboda, B. Fuchs, D. Bathke. T. Tadesse, C. Knutson, **K. Smith** and T. Haigh. USDA-OCE. \$2,374,999. 9/30/2020-9/30/2023. Sub-project co-lead.

“Providing Drought Information Services for the Nation: The National Drought Mitigation Center.” M. Svoboda, **K. Smith**, C. Knutson, T. Tadesse, D. Bathke, and B. Fuchs. NOAA-CPO-SARP. \$1,600,000. 9/1/2019-8/31/2021. Co-investigator.

“Drought Information Services and Research for Agriculture across the United States, 2020-21”, B. Fuchs, M. Svoboda, C. Knutson, **K. Smith**, T. Haigh and B. Wardlow. USDA-OCE. \$800,000. 10/1/2020-9/30/2021. Sub-project lead.

"Drought Summit and Outreach", Knutson, C., Svoboda, M., **Smith, K.**, and Haigh, T. American Planning Association, FEMA, \$85,000.00. 10/1/2017- 9/30/2019. Co-Investigator.

“Development of the Middle East and North Africa Network of Water Centers.” M. Hayes, M. Svoboda, B. Fuchs, T. Tadesse and **K. Smith**. Development Alternatives, Inc. \$40,052. 2/1/2015-12/31/2015.

“Development of a "Drought Ready Communities Program.” M.D. Svoboda, M. Sittler, **K. H. Smith**, M. Shafer, M. Palecki, C. L. Knutson, D. Arndt, D. Woudenberg and J. Angel. NOAA. \$288,670. Grant No. NA08OAR4310696. 7/1/2008 - 6/30/2010. Co-Investigator.

“Building a Drought Impact Reporting System for Hawaii.” M.D. Svoboda, M. J. Hayes, **K. Smith**, and Y. Ding. Commission on Water Resource Management, State of Hawaii. \$100,000. 6/23/2008 - 6/30/2011. Implementation lead.