

## Brian K. Hornbuckle

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### Professional Preparation

- Sc.B. Brown University, Electrical Engineering (Systems), Magna Cum Laude with Honors in Engineering, 1994.
- M.A. The University of Mississippi, Secondary Education (Science), 1996.
- M.S.E. The University of Michigan, Electrical Engineering (Electromagnetics), 1997.
- Ph.D. The University of Michigan, Electrical Engineering and Atmospheric Science (Geoscience and Remote Sensing), 2003.

### Appointments

- 2018 – Professor, Department of Agronomy, Department of Electrical and Computer Engineering (courtesy), Department of Geological and Atmospheric Sciences (courtesy), Iowa State University of Science and Technology.
- 2009 – 2018 Associate Professor, Iowa State University of Science and Technology.
- 2003 – 2009 Assistant Professor, Iowa State University of Science and Technology.
- 1996 – 2002 NSF and EPA STAR Graduate Research Fellow, The University of Michigan.
- 1994 – 1996 Chemistry and physics teacher, Clarksdale (Mississippi) High School.

### Significant Publications

Walker, V. A., B. K. Hornbuckle, and M. H. Cosh, A Five-year Evaluation of SMOS Level 2 Soil Moisture in the Corn Belt of the United States, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 10.1109/JSTARS.2018.2864897, 2018.

Hornbuckle, B. K., J. C. Patton, A. VanLoocke, A. E. Suyker, M. C. Roby, V. A. Walker, E. R. Iyer, D. E. Herzmann, and E. A. Endacott, SMOS Optical Thickness Changes in Response to the Growth and Development of Crops, Crop Management, and Weather, *Remote Sensing of Environment*, 10.1016/j.rse.2016.02.043, 2016.

Rondinelli, W. J., B. K. Hornbuckle, J. C. Patton, M. H. Cosh, V. A. Walker, B. D. Carr, and S. D. Logsdon, Different Rates of Soil Drying After Rainfall are Observed by the SMOS Satellite and the South Fork In Situ Soil Moisture Network, *Journal of Hydrometeorology*, doi:10.1175/JHM-D-14-0137.1, 2015.

Patton, J. and B. Hornbuckle, Initial Validation of SMOS Vegetation Optical Thickness in Iowa, *IEEE Geoscience and Remote Sensing Letters*, 10.1109/LGRS.2012.2216498, 2013.

Rowlandson, T. L., B. K. Hornbuckle, L. M. Bramer, J. C. Patton, and S. D. Logsdon, Comparisons of Evening and Morning SMOS Passes over the Midwest United States, *IEEE Transactions on Geoscience and Remote Sensing*, doi:10.1109/TGRS.2011.2178158, 2012.

## Other Publications

Franz, T. E., M. Zreda, R. Rosolem, B. K. Hornbuckle, S. L. Irvin, H. Adams, T. E. Kolb, C. Zweck, and W. J. Shuttleworth, Ecosystem Scale Measurements of Biomass Water Using Cosmic-ray Neutrons, *Geophysical Research Letters*, doi:10.1002/grl.50791, 2013.

Cosh, M. H., E. D. Kabela, B. Hornbuckle, M. L. Gleason, T. J. Jackson, and J. H. Prueger, Observations of Dew Amount Using In Situ and Satellite Measurements in an Agricultural Landscape, *Agricultural and Forest Meteorology*, doi:10.1016/j.agrformet.2009.01.004, 2009.

Robinson, D. A., C. S. Campbell, J. W. Hopmans, B. K. Hornbuckle, S. B. Jones, R. Knight, F. Ogden, J. Selker, and O. Wendroth, Soil Moisture Measurement for Ecological and Hydrological Watershed-scale Observatories: A Review, *Vadose Zone Journal*, doi:10.2136/vzj2007.0143, 2008.

Wigneron, J.-P., Y. Kerr, P. Waldteufel, K. Saleh, M.-J. Escorihuela, P. Richaume, P. Ferrazoli, P. de Rosnay, R. Gurney, J.-C. Calvet, J. P. Grant, M. Guglielmetti, B. Hornbuckle, C. Mätzler, T. Pellarin, and M. Schwank, L-band Microwave Emission of the Biosphere (L-MEB) model: Description and Calibration Against Experimental Data Sets Over Crop Fields, *Remote Sensing of Environment*, doi:10.1016/j.rse.2006.10.014, 2007.

Hornbuckle, B. K., and A. W. England, Radiometric sensitivity to soil moisture at 1.4 GHz through a corn crop at maximum biomass, *Water Resources Research*, 40, W10204, 12 pages, doi:10.1029/2003WR002931, 2004.

## Synergistic Activities

- 2016 Local organizer, NASA SMAPVEX16-IA field experiment.
- 2009 – Member, NASA SMAP Cal/Val and Algorithm working groups.
- 2009 – Editorial Board Member, *Advances in Water Resources*.
- 2005 – Member, Validation and Retrieval Team, European Space Agency Soil Moisture and Ocean Salinity (SMOS) mission.
- 2003 – Iowa State University co-representative, Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI).

## Affiliations

- Graduate Adviser A. W. (Tony) England, University of Michigan.
- Past Students Erik D. Kabela (Savannah River National Laboratory), Cihan Erbas (Yeni Yüzyil University, Istanbul, Turkey), Tracy L. Rowlandson (ZedX-BASF), Eric S. Russell (Washington State University), Samantha L. Irvin (Iowa State), Jason C. Patton (University of Wisconsin, Madison), Ben D. Carr (State of Washington Department of Ecology).
- Current Students Victoria A. Walker (M.S. 2016, Ph.D. 2019), Kati E. Togliatti (Ph.D. 2020), Richard Cirone (M.S. 2019)