

Brian K. Hornbuckle

Education

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

Appointments

- 2009 – Associate Professor, Department of Agronomy, Department of Electrical and Computer Engineering (courtesy), Department of Geological and Atmospheric Sciences (courtesy), The Iowa State University of Science and Technology.
- 2003 – 2009 Assistant Professor, The Iowa State University of Science and Technology.

Significant Publications

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*, doi: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*, doi: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.

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*, doi:10.1029/2003WR002931, 2004.

Hornbuckle, B. K., A. W. England, R. D. De Roo, M. A. Fischman, and D. L. Boprie, Vegetation canopy anisotropy at 1.4 GHz, *IEEE Transactions on Geoscience and Remote Sensing*, doi:10.1109/TGRS.2003.817192, 2003.

Other Publications

Bramer, L. M., B. K. Hornbuckle, and P. C. Caragea, How many measurements of soil moisture within the footprint of a ground-based microwave radiometer are required to account for meter-scale spatial variability? *Vadose Zone Journal*, doi:10.2136/vzj2012.0100, 2013.

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.

Kabela, E. D., B. K. Hornbuckle, M. H. Cosh, M. C. Anderson, and M. L. Gleason, Dew frequency, duration, amount, and distribution in corn and soybean during SMEX05, *Agricultural and Forest Meteorology*, doi:10.1016/j.agrformet.2008.07.002, 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.

Scientific, Technical, and Management Performance

- 2009 – Member, NASA SMAP Cal/Val and Algorithm working groups.
- 2009 – Associate Editor, *Advances in Water Resources*.
- 2005 – Member, Validation and Retrieval Team, European Space Agency Soil Moisture and Ocean Salinity (SMOS) mission.
- 2007 – 2012 PI, NASA Grant NNX08AE48G from the Terrestrial Hydrology Program, Quantifying the effect of intercepted precipitation and dew on terrestrial microwave emission at L-band. Ph.D. student graduated, three publications.
- 2006 – 2012 PI, NASA Grant NNG06GC63G from the Terrestrial Hydrology Program, A prototype remote sensing validation site: Towards a multi-variable approach to validating and scaling remotely-sensed observations of the water cycle. Managed a team of four Co-I's from Iowa State and the University of Iowa to establish the Iowa Validation Site and work towards NASA SMAP validation.

Contact Information

3007 Agronomy Hall, Ames, IA 50011-1010, bkh@iastate.edu