

**William H. Cooke III**

Assistant Professor-Mississippi State University, Research Scientist-GeoResources Institute  
Box 9652, Mississippi State, MS 39762

**Office:** 601-325-9479; **Fax:** 601-325-9423; **Mobile:** 601-312-2795; **Email:** [whc5@geosci.msstate.edu](mailto:whc5@geosci.msstate.edu)

**Short Biography**

Dr. Cooke is an Assistant Professor in the Geosciences Department at Mississippi State University and holds a joint appointment as a research scientist at the GeoResources Institute (GRI). He has over 18 years of experience in Remote Sensing and GIS research at MSU and with the USDA Forest Service. Cooke has published and presented on various Remote Sensing and GIS modeling efforts including landscape risk assessment for fire and vector-borne diseases, GIS-based site suitability modeling for biofuel production, and sub-pixel analysis techniques for forest inventory. Cooke has developed and implemented an operational fire potential model for Mississippi that is featured as an enhancement to the US Forest Service Wildland Fire Assessment System; a Decision Support System for fire managers. Cooke is currently developing a community self-assessment tool that depicts geospatial vulnerability for the Gulf Coast region. He chairs the committee tasked with developing the GIS disaster plan for the Mississippi Emergency Management Agency.

**Education**

Mississippi State University Department of Forestry B.S. 1978  
Mississippi State University Department of Forestry M.S. 1991  
Mississippi State University Department of Forestry Ph.D. 1997

**Professional Experience**

2003 – Present Assistant Professor, Geosciences, Mississippi State University  
1998 – 2003 Adjunct Professor, Department of Forestry, Mississippi State University  
1994 – 2003 Research Forester – Remote Sensing, USDA Forest Service  
1989 – 1994 Research Assistant, Department of Forestry, Mississippi State University

**Awards and Recognitions**

GeoResources Institute Outstanding Research Award, Academic Faculty of the Year, 2008  
Leader, US Forest Service National Remote Sensing Band, 2000-2002

**Affiliations**

American Society for Photogrammetric Engineering and Remote Sensing  
Association of American Geographers

**Publications in peer-reviewed journals**

**Cooke, W.H.**, Grala, K. and Wax L.C., 2008. A Method for Estimating Pan Evaporation for Inland and Coastal Regions of Southeastern U.S. *Southeastern Geographer*, 48(2): 149-171.

Dixon, P.G., Goodrich, G.B. and **Cooke, W.H.**, 2008. Using teleconnections to predict wildfires in Mississippi. *Monthly Weather Review*, 136(7): 2804-2811.

**Cooke, W.H.**, Grala, K., Evans, D.L. and Collins, C., 2007. Assessment of pre- and post-Katrina fuel conditions as a component of fire potential modeling for southern Mississippi. *Journal of*

Forestry, 105(8): 389-397.

**Cooke, W.H.**, Grala, K. and Wallis, R.C., 2006. Avian GIS models signal human risk for West Nile virus in Mississippi. *International Journal of Health Geographics*, 5(36).

Lannom, K.B., Evans, D.L. and **Cooke, W.H.**, 2001. Forest mapping of Central America and Mexico with AVHRR data *Geocarto International*, 16(1): 45-53.

### **Publications in peer-reviewed conference proceedings**

**Cooke, W.H.**, Anantharaj, V., Wax L.C., Choi, J., Grala, K., Jolly, M., Dixon, P.G., Dyer, J., Evans, D.L. and Goodrich, G.B., 2007. Integrating climatic and fuels information into National Fire Risk Decision Support Tools. In *Proceedings of the Fire environment--innovations, management, and policy*. Fort Collins, CO: USDA Forest Service, Rocky Mountain Research Station., Destin, FL, pp. 555-569.

**Cooke, W.H.** and Jacobs, D.M., 2005. Rapid Classification of Landsat TM Imagery for Phase 1 Stratification using the automated NDVI threshold supervised classification (ANTSC) methodology. In *Proceedings of the Fourth annual forest inventory and analysis symposium*. USDA Forest Service, North Central Research Station, St. Paul, MN, pp. 81-86.

**Cooke, W.H.**, Prabhu, C., Wallis, R., Morris, J., Smith, B. and Gilreath, J., 2005. Assessment of current field plots and lidar 'virtual' plots as guides to classification procedures for multitemporal analysis of historic and current landsat data for determining forest age classes. In *Proceedings of the 2005 International Workshop on the Analysis of Multi-Temporal Remote Sensing Images*. IEEE, pp. 67-70.

Evans, D.L. and **Cooke, W.H.**, 2004. LiDAR - the future of remote forest assessments? . In *Proceedings of the Tenth Biennial Forest Service Remote Sensing Applications Conference*. USDA Forest Service, Salt Lake City, UT.

**Cooke, W.H.**, 2002. Overview of Remote Sensing in Support of Forest Inventory and Analysis Annual Inventories In *Proceedings of the Ninth Forest Service Remote Sensing Applications Conference*. USDA Forest Service, Salt Lake City, UT.

Huang, C., Yang, L., Homer, C., Coan, M., Rykhus, R., Zhang, Z., Wylie, B., Hegge, K., Zhu, Z., Lister, A., Hoppus, M., Tymcio, R., DeBlander, L., **Cooke, W.H.**, McRoberts, R.E., Wendt, D. and Weyermann, D., 2002. Synergistic use of FIA plot data and Landsat 7 ETM+ images for large area forest mapping. In *Proceedings of the Thrid Annual Forest Inventory and Analysis Symposium*. USDA Forest Service, St. Paul, MN, pp. 50-55.

**Cooke, W.H.** and Hartsell, A.J., 2001. Landsat TM classifications for SAFIS using FIA field plots. In *Proceedings of the Second annual Forest Inventory and Analysis symposium*. USDA Forest Service, Salt Lake City, UT, pp. 15-18.

**Cooke, W.H.**, 2000. Forest/non-forest stratification in Georgia with Landsat Thematic Mapper data. In *Proceedings of the First Annual Forest Inventory and Analysis Symposium*. USDA Forest Service, St. Paul, MN, pp. 28-30.

**Cooke, W.H.** and Hartsell, A.J., 2000. Wall-to-wall Landsat TM classifications for Georgia in support of SAFIS using FIA plots for training and verification In Proceedings of the Eighth Forest Service Remote Sensing Applications Conference USDA Forest Service, Albuquerque, New Mexico.

**Cooke, W.H.**, 1996. Evaluating the utility of partitioning remotely sensed data. In: J.D. Greer (Editor), Remote Sensing: People in Partnership with Technology: Proceedings of the Sixth Forest Service Remote Sensing Applications Conference. CRC Press, pp. 191-195.

#### **Publications accepted by peer-reviewed journals**

Rodgers, J.C., Murrah, A.W. and **Cooke, W.H.**, Accepted pending revisions. The Impact of Hurricane Katrina on the coastal vegetation of the Weeks Bay Reserve, Alabama from NDVI data. Estuaries and Coasts. In review.

#### **Publications in review by peer-reviewed journals**

Ashworth, A., Evans, D.L., **Cooke, W.H.**, Londo, A.J., Collins, C. and Neuenschwander, A., 2009. Predicting Southeastern Forest Canopy Heights and Fire Fuel Models Using GLAS Data. Photogrammetric Engineering & Remote Sensing. In review.

Choi, J., **Cooke, W.H.**, Stevens, M.D., 2009. Development of a Water Budget Management System for Fire Potential Mapping. GIScience & Remote Sensing. In review.

Grala, K. and **Cooke, W.H.**, Accepted pending revisions. Spatial and temporal characteristics of wildfires in Mississippi, USA. International Journal of Wildland Fire. In review.

#### **Internally peer-reviewed publications**

**Cooke, W.H.**, 2001. Development of a methodology for predicting forest area for large-area resource monitoring. USDA, Forest Service, Asheville, NC Southern Research Station, Res. Pap. SRS-024, pp. 16.

Jacobs, D.M. and **Cooke, W.H.**, 2000. Generating continuous surface probability maps from airborne video using two sampling intensities along the video transect. USDA, Forest Service, Asheville, NC, Southern Research Station, Res. Pap. SRS-022, pp. 7.

**Cooke, W.H.** and Saucier, A., 1995. Correction of line interleaving displacement in frame captured aerial video imagery. USDA, Forest Service, Southern Forest Experiment Station, Res. Pap. RN-SO-380, pp. 5.

#### **Invited presentations**

*Capturing Hurricane Katrina Data for Analysis and Lessons-Learned Research*, Department of Homeland Security Semi-Annual Project Review Meeting, Southeast Region Research Initiative, Marriott Crystal City, Arlington, VA, August 22-23, 2007.

Session: All Hazards Emergency Response: *Capturing Hurricane Katrina Data for Analysis and Lessons-Learned Research* Department of Homeland Security: Annual University Network Summit on Research and Education , L'Enfant Plaza, S.W., Wasington D.C., March 15-16, 2007.

*Quantifying fuels by Modeling Stand Structure in QuickBird and Landsat TM Data for Development of a Dynamic Fire Risk Prediction System*, Enterprise for Innovative Geospatial Solutions Research Symposium, Stennis Space Center, MS, August 10, 2006.

*A Dynamic System for Monitoring and Predicting Occurrence and Spread of West Nile Virus in Mississippi*, Agromedicine Research Forum, NC Cooperative Extension Pitt County Center, Greenville, NC, June 13-14, 2006.

*GIS and Economic Development*, MSU Economic Outreach Forum, Bost Extension Center, MSU; Sponsored by The Tennessee Valley Authority, Coca Cola Bottling Company, and the North Mississippi Industrial Development Association, April 27-28, 2005.

*A Dynamic System for Monitoring and Predicting Occurrence and Spread of West Nile Virus in Mississippi*, Mississippi Department of Health, Mills McNiell, State Epidemiologist and Epidemiological staff, UMCC, August 11, 2004,

*A Dynamic System for Monitoring and Predicting Occurrence and Spread of West Nile Virus in Mississippi*, 2004 National Symposium on Agricultural Health and Safety, Keystone Resort, Colorado, June 20-24, 2004.

*Geospatial Technologies in Applied Forest Inventory Procedures*, Creating Futures Through Technology Conference, Mississippi Institutions of Higher Learning, Biloxi, MS, February 26-28, 2003.

*Mapping: A tiered Approach*, The Fourth Annual FIA Symposium and the 2002 Southern Mensurationists' Conference, New Orleans, LA, November 19-21, 2002.

### **Other Activities**

2003 – present

- Committee chair, GIS disaster plan, Mississippi Emergency Management Agency (MEMA)
- National Aeronautics and Space Administration (NASA), USDA Forest Service – Wildland Fire Assessment System (WFAS); Mississippi Fire Potential Project  
<http://www.wfas.net/content/view/50/73/>
- *Capturing hurricane Katrina data for analysis and lessons-learned research*, Department of Homeland Security (DHS); website and lessons-learned activities  
<http://www.gri.msstate.edu/research/katrinalessons/>
- *Integrating Climatic and Fuels into National Fire Risk Decision-Support Tools*, (NASA/USDA Forest Service)
- *Environmental Sustainability in Bioenergy; Site Suitability*, Department of Energy (DOE)
- *West Nile Virus risk estimation from landscape variables*, (North Carolina Agromedicine Institute and East Carolina University, National Institutes of Health NIH)  
[http://www.ncagromedicine.org/west\\_nile.htm](http://www.ncagromedicine.org/west_nile.htm)
- *Biomass estimation from Landsat Thematic Mapper satellite imagery*, NASA

1997 – 2003

- *Forest Mapping of Central America and Mexico with AVHRR Data*, USDA Forest Service, Forest Inventory and Analysis (FIA)
- *Development of a Methodology for Predicting Forest Area for Large-Area Resource Monitoring*, USDA Forest Service, FIA
- *Generating Continuous Surface Probability Maps from Airborne Video Using Two Sampling Intensities Along the Video Transect*
- Visiting Scientist Wageningen Agricultural University, The Netherlands, Analyses of Synthetic Aperture Radar (SAR) data for monitoring logging concessions in Sumatra, Indonesia

## Relevant Current and Pending Support

### **Current**

- I. Waggoner, C. A., **W.H. Cooke**, P. Steele, M. J. Plodinec, C.B. Winstead, and A. Johnson, 2007-2009: Tools for Enhanced Mapping and Managing Post-Disaster Debris, UT-Battelle ORNL DOE, \$1,955,738.00 University Account No: 363011-061800-021000, 0.26 FTE/2Yr
- II. **Cooke, W.H.** 2007-2008: Rapid Prototyping Capability for Earth-Sun System Sciences, MRS NASA Stennis, \$97,379.00, University Account No: 361642-191000-021000 (Child of 361604), 0.10 FTE/1Yr

### **Pending**

- I. **Cooke, W. H.**, V. G. Anantharaj, J. Choi, G. Mostovoy, Q. Lu, P. G. Dixon, and W.M. Jolly, 2009-2012: Enhancing the USFS Wildland Fire Assessment System using NASA assets, models and resources. NASA ROSES 2008, NNH08ZDA001N-DECISIONS, \$929,758, 0.20/0.10/0.25 FTE respectively.
- II. Shaw, D.R., G. Smith, J.V. Aanstoos, **W.H. Cooke**, C.G. O'hara, 2009-2011: Integrating Open Source and Open Standards Solutions to Deliver Geographic Information Services for Coastal and Inland Flood and Levee Infrastructure Protection. SERRI 2008 RA 12: GI Services, \$997,363, 0.10 FTE/2Yr.
- III. Stich, B.M., C.G. O'hara, C.R. Miller, D.A. Marchman, G. Smith, H. Hwang, J. Dumas, S. Chin, **W.H. Cooke**, W. Martin, and S.L. McNair, 2009-2011: Disruptions to Rail – Impacts Analysis and Decision Support (DRIADS), SERRI 2008 RA 13: Analyzing Congestion and Capacity Impacts from Disruptions to Critical Infrastructures in the Rail Network, \$999,600, 0.10 FTE/2Yr.
- IV. Shaw, D.R., **W.H. Cooke**, and B. Stich, 2008-2014: DHS NCSU and Disaster Response and Social Resilience, LSU – Project 1: Evaluation Models and Dynamics, \$415,201  
**0.04/0.01/0.02/0.06/0.06/0.06 FTE respectively.**

### Funded Grants and Contracts

Economic Development Activities: Geospatial Extension Specialist Program (CSREES), NASA/UM 01/01/03 - 12/31/04, Cooke Geosci/GRI, PI

Dynamic System for Monitoring and Predicting Occurrence and Spread of West Nile Virus in MS, NIH/East Carolina State University, 07/01/03 -09/29/03, Cooke Geosci/GRI, PI

Earth Observing Systems for Biomass Estimation for Carbon Management, NASA/Stennis, 06/01/04 -09/30/05, Cooke Geosci/GRI, PI

Forest Stand Structure in Quickbird and Landsat TM Data for Development of a Dynamic Fire Risk Prediction Model, NASA/Stennis, 06/01/04 - 08/31/05, Cooke Geosci/GRI, PI

Aid in the Development of Effective and Practical Biosecurity Measures for Livestock Operations, USDA/CSREES, 11/14/05 - 08/31/06, Ballweber CVM, PI, Cooke Geosci/GRI, Co-PI

Integrating Climatic and Fuels into National Fire Risk Decision Support Tools, NASA, 01/01/06 - 07/01/08, Cooke Geosci/GRI, PI

Sustainable Energy Center-Environmental Sustainability for Bioenergy, DOE, 06/06/06 - 11/30/07, Pote Ag & Bio, PI, Cooke Geosci/GRI, Co-PI

Capturing Hurricane Katrina Data for Analysis and Lessons-Learned Research, UT-Battelle ORNL/DOE, 04/04/07 - 07/31/08, Shaw GRI, PI, Cooke Geosci/GRI Co-PI

Fire Risk and Fire Detection – Rapid Prototyping for Earth-Sun System Sciences, MRC/NASA/Stennis 07/01/07 - 09/30/08, Moorhead GRI, PI, Cooke Geosci/GRI, Co-PI

Geographic Information Systems Capability of Demonstrating the Current and Alternative Supply Chains for Furniture Manufacturing, The Furniture Foundation, 07/01/07 - 03/15/08, Mingzhou IE, PI, Cooke Geosci/GRI, Co-PI

Tools for Enhanced Mapping and Managing Post-Disaster Debris, UT-Battelle ORNL/DOE, 12/10/07 - 12/31/09, Waggoner ICET, PI, Cooke Geosci/GRI Co-PI

Natural History of *Rickettsia parkeri*, MSU, 01/01/08 - 12/31/08, Varela-Stokes CVM, PI, Cooke Geosci/GRI, Co-PI