

Curriculum Vita

William H. Cooke III

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Professor: Department of Geosciences
Mississippi State, MS 39762

a. Professional Preparation

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

b. Appointments

2018 – present	Professor, Geosciences, Mississippi State University
2017 – 2018	Interim Head, Department of Anthropology and Middle Eastern Cultures
2014 – 2017	Head, Department of Geosciences
2012 – 2014	Interim Department Head, Department of Geosciences
2014 – present	Professor, Geosciences, Mississippi State University
2011 – 2012	Associate Director, Geosystems Research Institute
2009 – 2014	Associate Professor, Geosciences, Mississippi State University
2003 – 2009	Assistant Professor, Geosciences, Mississippi State University
1998 – 2003	Adjunct Professor, Department of Forestry, Mississippi State University
1989 – 1992	Research Assistant, Department of Forestry, Mississippi State University

c. Publications

- Grala, K., Grala, R.K., Hussain, A., Cooke, W.H.III. Varner, J.M.III. 2017. Impact of human factors on wildfire occurrence in Mississippi, United States. *Forest Policy and Economics* 81: 38-47.
- Frew, M. S., D.L. Evans, H.A. Londo, W.H. Cooke, and D. Irby. 2016. Measuring tree growth by modeling multi-temporal LiDAR. *Forest Science* 62(2):200-212.
- Yang, Y., Meng, Q., McCarn, C., Cooke, W.H., Rodgers, J., and Shi, K., 2016. "Effects of path dependencies and lock-ins on urban spatial restructuring in China: A historical perspective on government's role in Lanzhou since 1978". *Cities* 56:24-34.
- Sadasivuni, R., Bhushan, S., and Cooke, W.H., 2014, "Convection-Diffusion Model for the Prediction of Anthropogenically-Initiated Wildfire Ignition". *International Journal of Disaster Risk Science*, Vol 5, No. 4, Page 274-295. ISSN 2095-0055
- Cooke, W.H., Grala, K., Brooks, C.P., and Linda M.W. Pote. 2013. Development of a Sampling Scheme for West Nile Virus Testing in Urban and Rural Environments. *Journal of Air & Water Borne Diseases* 2:1 <http://dx.doi.org/10.4172/2167-7719.1000111>.
- Dixon, P.G., Mercer, A.E., Grala, G., and Cooke, W.H., 2014, "Objective Identification of Tornado Seasons and Ideal Spatial Smoothing Radii". *Earth Interactions*, Vol 18, No.2, Pages 1-15.
- Meng, Q., Cooke, W.H., and Rodgers, J. 2013. "Derivation of 16-day time-series NDVI data for environmental studies using a data assimilation approach". *GIScience & Remote Sensing*, DOI:10.1080/15481603.2013.823733
- R. Sadasivuni, W.H. Cooke, S. Bhushan, Wildfire risk prediction in Southeastern Mississippi using population interaction, *Ecological Modelling*, Volume 251, 24 February 2013, Pages 297-306, ISSN 0304-3800, 10.1016/j.ecolmodel.2012.12.024.
- Cooke, W.H., G.V. Mostovoy, V.G. Anantharaj, and W.M. Jolly. 2012. "Wildfire Potential Mapping over the State of Mississippi: Land Surface Modeling Approach" *GIScience & Remote Sensing*, 49, No. 4, p. 492–509.

- Garrigues, M.W., Z. Fan, D.L. Evans, S.D. Roberts, and W.H. Cooke III. 2012. Geospatial relationships of tree species damage caused by hurricane Katrina in south Mississippi. Pp. 125-130. in J.R. Butnor (ed.). Proceedings of the 16th Biennial Southern Silvicultural Research Conference. Feb. 15-17, 2011. Charleston, SC. USDA Forest Service, Southern Experiment Station. Gen.Tech.Rep. SRS-156. 391 p.
- Schauwecker, T., R. Brzuszek, W. Cooke, and K. Grala. 2011. Historical forest patterns and the analysis of site-scale forest gradients for natural area management. *Natural Areas Journal* 31:43-50.
- Cooke III, W.H., Rodgers, J.C., Grala, K., 2011. Geospatial Technique for Rapid Delineation of Potential Hurricane Damage, *Recent Hurricane Research - Climate, Dynamics, and Societal Impacts*, Anthony Lupo (Ed.), ISBN: 978-953-307-238-8, InTech, Available from: <http://www.intechopen.com/articles/show/title/geospatial-technique-for-rapid-delineation-of-potential-hurricane-damage>
- Ashworth, A., D. Evans, W. Cooke, A. Londo, C. Collins, and A. Neuenschwander, 2010. Predicting southeastern forest canopy heights and fire fuel models using GLAS data, *Photogrammetric Engineering & Remote Sensing*, Vol. 76, No. 8, August 2010, pp. 915-922.
- Grala, K., and W. H. Cooke, 2010, Spatial and temporal characteristics of wildfires in Mississippi, USA, *International Journal of Wildland Fire*, Vol. 19, No. 1, pp. 14–28.
- Arias, E.F., Cooke III, W.H., Fan, Z., and Kingery, W., 2009, Classification of Soil Aptness to Establish *Panicum virgatum* in Mississippi using Sensitivity Analysis and GIS, *Proceedings: World Academy of Science, Engineering and Technology*, Vol. 54, No. 177, June 2009, ISSN: 2070-3724, pp. 777-783.
- Choi, J., Cooke, W.H., and Stevens, M.D., 2009, Development of a Water Budget Management System for Fire Potential Mapping, *GIScience & Remote Sensing*, Vol. 46, No. 1, p. 39-53.
- Rodgers, J.C., III, Murrah, A.W. and Cooke, W.H., 2009. The Impact of Hurricane Katrina on the Coastal Vegetation of the Weeks Bay Reserve, Alabama from NDVI Data. *Estuaries and Coasts*, 32(3): 496-507.
- 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., 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., 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).
- 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, San Diego, CA.
- 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.
- 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.
- 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.

d. Final Reports to Sponsors since 2008.

- Cooke W.H. III, Anantharaj, V.G., Choi, J., Mostovoy, G., and W.M. Jolly. 2013. Coastal Fire Assessment in the Northern Gulf of Mexico. NASA Final Report NNH08ZDA001N-GULF. 57p.
- Cooke, W.H., Waggoner C., Fan, J., Grala, K., Hathcock, L., Lipscomb, B., Medina, V., Brandon, D., and Morrow A., 2012. A Tool for Rapid Prediction of Hurricane Damage and Debris Generation. SERRI Final Project Report 70020-02. 100 p.
- Wasson, L., Cooke, W.H. III, 2012. WISDOM Launch and Coordination Activities for Hurricane Season on the Gulf Coast. Final Project Report: NOAA-NGI #10-Mod-37.
- Stich, B., O'Hara., C, Cooke., W., Emerson., M., Eskridge, R., Holland, J., Martin, W., Miao, D., Nobrega, R., and R. Sadasivuni. 2011. Disruptions to Rail – Impacts, Analysis, and Decision Support. SERRI Final Project Report 80014-01. 116p.
- Waggoner C., Johnson A., Cooke W.H., Steele P., Plodinec J., Winstead C. 2010. Tools for Enhanced Mapping and Managing Post-Disaster Debris. Hurricane Debris Research. SERRI Final Project Report 70020-01. 139 p.
- Cooke W.H., Breen J. D., Parrish D. R. 2010. The Geospatial Readiness Self-Assessment Tool (GRSAT) and Emergency Response and Recovery Cultures: Capturing Hurricane Katrina Lessons Learned Data. SERRI Final Project Report 63884-02. 81p.

e. Selected (Invited) Presentations

- Hurricane Modeling of Marine Debris, Seminar at USACE ERDC.* Vicksburg, MS. April 16, 2012. Invited.
- Tools for Rapid Prediction of Hurricane Damage Probability and Debris Generation.* 2012 National Hurricane Conference, Hilton Orland, Orlando FL, March 26-29, 2012.

A Tool for Rapid Prediction of Hurricane Damage and Debris Generation, DHS/SERRI Program Review Meeting, Crystal City Marriott at Reagan National Airport, Washington, D.C., October 4-5, 2011.

Mapping/Managing Post-Disaster Debris, FEMA Region IV Capability Gaps Review Meeting, FEMA Region IV Headquarters, Atlanta, GA, November 16-18, 2010; Also presented as seminar to ERDC, Vicksburg, MS, December 7, 2010.

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.

Capturing Hurricane Katrina Data for Analysis and Lessons-Learned Research, Session: All Hazards Emergency Response, Department of Homeland Security: Annual University Network Summit on Research and Education, L'Enfant Plaza, S.W., Washington 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, Presentation and Poster, 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

f. Activities

2009 – 2012	Director, MSU Geospatial and Remote Sensing Certificate Program
2011 – 2012	Associate Director, Geosystems Research Institute
2005 – 2006	Chair, MSU Geospatial and Remote Sensing Certificate Revisions Committee
2003 – 2004	Geosciences, Geographic Information System (GIS) curriculum development
2001 – 2003	Leader of the USDA Forest Service, FIA National Remote Sensing Band

g. Service Activities/Synergistic Activities

Hurricane Debris Model

Developed and implemented the Hurricane Debris Model Website on the GRI server; presentation of results and training of MEMA personnel at MEMA HQ (Sept. 16, 2011).

<http://www.gri.msstate.edu/research/debris/>

Geospatial Readiness Self-Assessment Tool (GRSAT)

Geospatial Readiness Self Assessment Tool (GRSAT) developed by WH. Cooke and Bailey Lipscomb for the SERRI 'Katrina Lessons Learned Research Project': Capturing Hurricane Katrina Lessons Learned Data. Available at: http://www.geospatialdiscussion.com/grsat_home.php. Enables agencies and

businesses to compare their 'Geospatial Readiness' against standards for data, software, and analytical expertise developed through workshops and survey results developed as part of this funded project. Results and procedures are documented in the SERRI Report No.70020-01. Copyright protection and Intellectual Property application completed.

Katrina Lessons Learned Website

Project results from continuing analysis of 'Lessons-Learned' in the effective application of geospatial technologies for disaster management during Katrina response and recovery are highlighted on a publicly available project website at <http://www.gri.msstate.edu/research/katrinalessons/>. This website provides researchers across the nation and the world a glimpse into the data, analysis, and applications of geospatial technologies for disaster management. An enterprise database was developed to serve data and analysis products developed during the Katrina response to the research and disaster management communities.

USFS –WFAS Wildland Fire Assessment System (Mississippi Experimental Project)

USDA Forest Service collaborative effort to determine better methods of characterizing wildfire potential in Mississippi and the southeast U.S. Information available at <http://www.wfas.net/index.php/mississippi-fire-potential-ongoing-research-73>

Geospatial Success Stories (20 minute video)
GeoSpatial Video ~164Megs (Large) MP4 File

GIS Day

An annual participant and original organizer of this annual event that shares GIS and Remote Sensing technologies with approximately 100 high school students each year. Each year I kick off the event with a summary presentation of geospatial technology applications in diverse fields including medical research, economics, natural resource management, and criminology.

MSU representative:

IHL Geospatial Council, 2009 – present

MSU representative:

Mississippi Coordinating Council for RS and GIS, 2009 – present

GIS Emergency Preparedness Plan

Co-Author: Mississippi Emergency Management Agency – GIS Emergency Preparedness Plan

GIS Sales Territory Analysis

Office of Business Outreach: GIS model for Diabetic Shoppe sales efficiency analysis

Departmental Committees

Department of Geosciences – P&T Committee

Department of Geosciences – Geospatial committee

h. Advisors/Advisees

Advisors: *Frank Miller* (MSU, Department of Forestry, deceased); Co-Major Professor: Dr. John Hodges (MSU, Forestry retired; currently Anderson Tully), Co-Major Professor: Dr. David Evans (MSU, Forestry) (Mississippi State University)

Advisees (current): **PhD Major Professor:** Jamie McFadden, **PhD Comm. Member;** Katie Hall (UMMC), Mark Powers **MS major professor; MS Comm. Member;** Mark Stevens, Tara Dickson,

Advisees (former): **PhD Major Professor;** Michael Tobitt Gray, Ravi Raj Sadasuvuni, **MS major professor;** John Gilreath, Ravi Raj Sadasavuni, Chitra Prabhu, Robert Wallis, Heather Eschete, Jared Allen, Michelle Maxson, Fredy Bernales, Eduardo Arias, Mohan Tiruveedhula, John Morris, Luke Pounders, Ryan Russell, Ryan Vaughan, Richard Carley, Saranee Dutta, Bailey Lipscomb, Cheryl McLaurin, **PhD. Comm. Member;** Alexis Londo, Tianyu Lee, Rida Sherif, Barrett Gutter, Shatrughan Singh, Chris Zarzar, **MS comm. Member;** Ryan Theel, Adam Murrah, Kevin Toepke, Brian Berryman, Montgomery Keel, Christopher Bell, John Storelli, Adam Walker, Drew Ashworth, Gary Goggins, Mark Garrigues, Tory Farney, Charles Roop, David Scholotzhauer, Bruce Smilie, Caitlin Ruby, Charles Roop, Corrin McCarn, Sara Dillon

i. Awards and Honors

Faculty Research Award, 2010, MSU Centers and Institutes
Researcher of the Month, September, 2010, College of Arts & Sciences
Faculty Research Award, 2009, Geosystems Research Institute

j. Support since 2008 (date of last promotion)

Total Submitted - \$20,36,541
Total Funded - \$3,387,910

k. Prior Support

Title: *Benefits and costs of implementing fuel treatments on nonindustrial private forest (NIPF) lands in Mississippi*

Participation: Co-Investigator
Sponsor: Joint Fire Science Program
Amount: \$209,507
Duration: 01/01/2014 – 12/31/2016

Title: *Modifications of KBDI for Wildfire Potential*

Participation: PI
Funding Organization: USDA Forest Service
Amount: \$20,000
Duration: 08/18/2010 – 09/30/2013

Title: *Coastal Fire Assessment in the Northern Gulf of Mexico*

Participation: PI
Sponsor: NASA
Amount: \$397,047
Budget Period: 12/31/2009 – 11/30/2012

Title: *A Tool for Rapid Prediction of Hurricane Damage and Debris Generation*

Participation: Co-Investigator
Sponsor: DHS
Amount: \$610,750

Budget Period: 01/01/2010 – 06/30/2012

Title: *WISDOM*

Participation: Co-Investigator

Sponsor: NOAA

Amount:\$20,000

Budget Period: 07/01/2010 – 09/30/2012

Title: *DHS NCSU and Disaster Response and Social Resilience, LSU – Project 1: Evaluation Models and Dynamics,*

Participation: Co-Investigator

Co-PI: Cooke

Sponsor: DHS NCSU

Amount:\$415,201

Budget Period: 2008 - 2011

Title: *Tools for Enhanced Mapping and Managing Post-disaster Debris*

Participation: Co-Investigator

Funding Organization: DHS

Amount: \$ 1,955,738

Duration: 01/01/08 – 12/31/10

Title: *Capturing Hurricane Katrina Data for Analysis and Lessons-Learned Research*

Participation: Co-Investigator

Funding Organization:DHS

Amount: \$854,300

Duration: 04/10/07 – 12/31/2009

Title: *Integrating Climatic and Fuels into National Fire Risk Decision Support Tools*

Participation: PI

Sponsor: NASA

Budget Period: 01/01/06 – 07/01/08

Amount: \$422,258

Title: *Geographic Information Systems Capability of Demonstrating the Current and Alternative Supply Chains for Furniture Manufacturing*

Participation: Co-PI

Sponsor: The Furniture Foundation

Budget Period: 07/01/07 – 03/15/08

Amount: \$50,000

Title: *Fire Risk and Fire Detection – Rapid Prototyping for Earth-Sun System Sciences*

Participation: Co-PI

Sponsor: MRC/NASA/Stennis

Budget Period: 07/01/07 – 09/30/08

Amount: \$97,379

Title: *Natural History of Rickettsia parkeri*

Participation: Co-PI

Sponsor: MSU

Budget Period: 01/01/08 – 12/31/08
Amount: \$9,967

Title: *Sustainable Energy Center-Environmental Sustainability for Bioenergy*
Participation: Co-PI
Sponsor: DOE
Budget Period: 06/06/06 – 11/30/07
Amount: \$422,258

Title: *Aid in the Development of Effective and Practical Biosecurity Measures for Livestock Operations*
Participation: Co-PI
Sponsor: USDA/CSREES
Budget Period: 11/14/05 – 08/31/06
Amount: \$15,000

Title: *Earth Observing Systems for Biomass Estimation for Carbon Management*
Participation: PI
Sponsor: NASA/Stennis
Budget Period: 06/01/04 – 09/30/05
Amount: \$106,421

Title: *Forest Stand Structure in Quickbird and Landsat TM Data for Development of a Dynamic Fire Risk Prediction Model*
Participation: PI
Sponsor: NASA/Stennis
Budget Period: 06/01/04 – 08/31/05
Amount: \$97,819

Title: *Dynamic System for Monitoring and Predicting Occurrence and Spread of West Nile Virus in MS*
Participation: PI
Sponsor: NIH/East Carolina State University
Budget Period: 07/01/03 – 09/29/04
Amount: \$14,995

Title: *Economic Development Activities: Geospatial Extension Specialist Program (CSREES)*
Participation: PI
Sponsor: NASA/UM
Amount: \$66,976
Budget Period: 01/01/03 – 12/31/04