

## **Land surface influence on summer climate predictability in the United States Midwest**

Jimmy Adegoke and Sajith Vezhapparambu  
Laboratory for Climate Analysis and Modeling  
Department of Geosciences  
University of Missouri-Kansas City  
Kansas City, Missouri

Christopher L. Castro  
Department of Atmospheric Sciences  
University of Arizona  
Tucson, Arizona

Roger A. Pielke Sr.  
Cooperative Institute for Research in Environmental Sciences  
University of Colorado  
Boulder, Colorado

Kevin Gallo  
Center for Satellite Applications and Research  
NOAA/NESDIS  
Camp Springs, Maryland

Atmospheric prediction models include a surface module through which land surface boundary conditions (e.g., land cover, soil moisture and LAI) are introduced into the model simulations. Variables that depict these land surface conditions are increasingly being obtained from satellite sources and by integrating them into atmospheric modeling systems, significant advances are being made in delineating the role of land surface structure and heterogeneity on global and regional climate. This presentation will explore local and regional scale impacts of changes in land surface conditions on climate processes and the associated feedbacks with particular emphasis on the central United States. Specifically, regional climate model simulations that highlight the roles of contrasting land covers and soil moisture variability in the initiation and subsequent organization of summertime convection in the U.S. Midwest; and the impact of agricultural practices, including irrigation, on the surface climate of the U.S. High Plains will be presented.