

## **Title: The Third ARM Mobile Facility: Coupled Observational-Modeling Studies of Land-Aerosol-Cloud Interactions in the Southeastern United States**

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### **Project Abstract:**

The U.S. Department of Energy's Atmospheric Radiation Measurement (ARM) user facility will be relocating the third ARM Mobility Facility (AMF3) to the Southeastern United States (SEUS) for a five-year deployment starting in the fall of 2022. The AMF3 SEUS site science team is working with ARM and the larger scientific community to guide the siting of the new deployment in order to address critical science focal areas spanning five cross-cutting topics: convective cloud initiation, deep convective cloud processes, aerosol controls on cloud condensation nuclei, aerosol direct impacts on radiation, and land-atmosphere two-way interactions (LAI). Of particular interest to the ESS community, the LAI focus will target key cross-cutting topics including the strong local coupling of the land-surface with atmospheric processes, surface-atmosphere feedbacks, influence of regional heterogeneity on land-surface modeling, and the influence of surface dynamics on regional aerosol formation. This deployment will enable a wide range of observational, analysis, and modeling studies to characterize the relationships between local and regional weather patterns and surface processes across a patchwork of natural, managed, and anthropogenic landscapes in the SEUS region.