

## **A long-term near real time database of meteorological/soil profile data: The Alabama Mesonet (ALMNet)**

Teferi Tsegaye, Karnita Golson, Marius Schamschula, Robert Metzl, Tommy Coleman, Wubishet Tadesse

HSCaRS

ttsegaye@aamu.edu

The Alabama Mesonet (ALMNet) a comprehensive outdoor research and teaching laboratory was established in 2002. ALMNet was equipped with state-of-the-art in situ soil, meteorological, atmospheric, and environmental sensors that continuously records fluxes in soil temperature, soil moisture, relative humidity, radiation, rainfall, etc. These field sites are maintained and monitored constantly and collect field data to build a long-term climatic data for Alabama and southern Tennessee. The data is being used to develop better prediction and modeling equations for accurate weather forecasting, improved severe weather and flood warnings, more effective emergency management and disaster mitigation planning, more efficient use of water resources, and accurate records to quantify drought severity. Farmers and landowners are getting more access to reliable, comprehensive, and timely weather data as they conduct agriculture activities. Tabular data and graphic displays of the instrumented sites can be viewed at the HSCaRS web site: <http://wx.aamu/ALMNet.html>. The ALMNet served as a validation site for AMSER and AQUA during SMEX 2003 field experiment and will continue to serve for other future satellite missions and provide an integrated database for temporal analyses, inter-comparisons between sites, and spatial comparisons across environmental gradients. Land use and land cover conditions, profile soil moisture distribution and precipitation highly varied spatially and temporally within the study area. Seasonal changes created variability in soil moisture and precipitation. Our long-term vision is to complete detailed hydrological and meteorological process analyses for northern Alabama and southern Tennessee.