

## NEAR REAL TIME VARIABILITY OF SOIL MOISTURE AND TEMPERATURE UNDER DIFFERENT LAND USE AND COVER: THE ALABAMA MESONET

**T. D. Tsegaye<sup>1</sup>**

**R. Metzl<sup>1</sup>**

**X. Wang<sup>2</sup>**

**M. Schamschula<sup>1</sup>**

**W. Tadesse<sup>1</sup>**

**D. Clendenon<sup>3</sup>**

**K. Golson<sup>1</sup>**

**T. L. Coleman<sup>1</sup>**

**F. Archer<sup>1</sup>**

**G. Schaefer<sup>4</sup>**

<sup>1</sup>Alabama A&M University, Normal, Alabama, USA

<sup>2</sup>Clemson University, Clemson, South Carolina, USA

<sup>3</sup>USDA-NRCS, Normal, Alabama, USA

<sup>4</sup>USDA-NRCS-SCAN, Portland, Oregon, USA

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### ABSTRACT

*The Alabama Mesonet (ALMNet) has been established to provide near-real-time data to conduct research that aims to ensure the security, quality, and quantity of the Nation's natural resources. The ALMNet is made up of eleven combination meteorological/soil profile stations and twelve soil profile stations positioned at 23 locations in eight counties. The stations are included in the USDA NRCS SCAN network.*

*Meteorological and soil profile data collected by ALMNet include temperature (air and soil), humidity, solar radiation, wind (speed and direction), soil heat flux, soil moisture and precipitation. The objectives of the ALMNet are to: (i) serve as a validation site for current and future satellite missions of monitoring soil moisture (e.g. the Aqua satellite) and archive both atmospheric and hydrologic related data: (ii) study soil moisture and temperature variability at different time scales and under different land use and land cover: (iii) model soil water content and temperature from observable climate data and compare model estimates in terms of energy partitioning: (iv) strengthen outdoor research and training facilities for both undergraduate and graduate students: and (v) establish an Online Internet Service for extension agents, farmers and interested individuals to visualize climate related data. Our long-term vision is to complete detailed hydrological and meteorological process analyses for northern Alabama and southern Tennessee in collaboration with scientists from NASA, USDA and other Universities. We also hope to expand the recording sites throughout Alabama as our resources permit.*

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**Reference:** Tsegaye, T.D., R. Metzl, X. Wang, M. Schamschula, W. Tadesse, D. Clendenon, K. Golson, T.L. Coleman, F. Archer, and G. Schaefer. 2005. Near real time variability of soil moisture and temperature under different land use and cover: The Alabama Mesonet, *Journal of Environmental Hydrology*, Vol. 13, Paper 13.

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**CONTACT:**

T. D. Tsegaye  
Alabama A&M University  
Normal, AI 35762  
USA

**E-mail:** *teferi.tsegaye@email.aamu.edu*

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