Jordan Beehler
Undergraduate, Environmental Science
Oklahoma State University
jordan.beehler@okstate.edu

Uncovering Climate and Soil Carbon Feedbacks Using the Oklahoma Mesonet

Jordan Beehler and Tyson E. Ochsner

Carbon stored in the soil is a larger reservoir than the carbon dioxide in the Earth’s atmosphere, so understanding feedbacks between climate and soil carbon is an important focus in carbon cycle modeling. The objective of this project is to document the relationships between soil carbon, soil physical properties, and climate, in order to better understand the carbon storage capacity of Oklahoma soils under grassland vegetation. In 2009-2011, approximately 1700 soil samples were taken at depths of 3-10 cm, 20-30 cm, 40-50 cm, 55-65 cm, and 70-80 cm at the 120 Mesonet weather-monitoring sites across Oklahoma. The physical properties of these samples were previously analyzed and climate data is easily available from Mesonet. Thus far, approximately 300 samples from 29 sites have been tested for total soil carbon using the LECO TruSpec Carbon and Nitrogen Analyzer in the Soil, Water and Forage Laboratory at Oklahoma State University. The results of this project will provide new insights into possible climate and soil carbon feedbacks in Oklahoma grasslands.