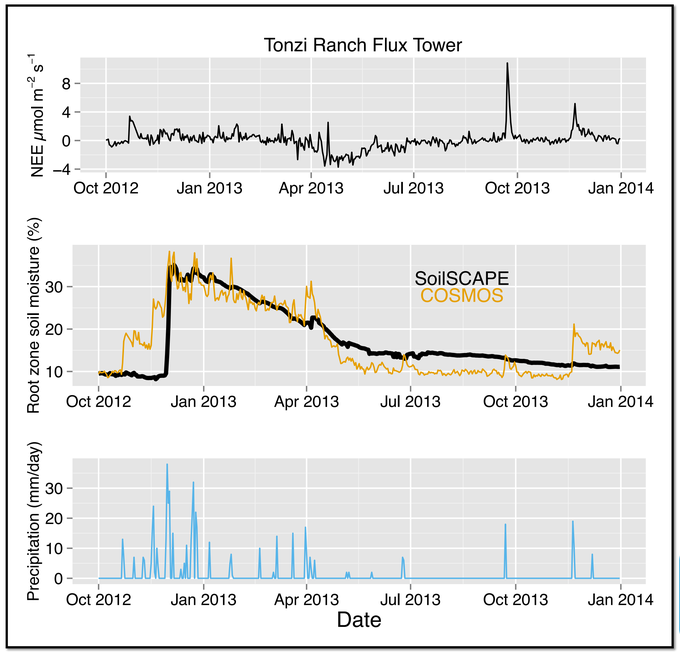
SoilSCAPE: A unified web portal for soil moisture

Alison G. Boyer, Bob Cook, Ranjeet Devarakonda, Kefa Lu, Giri Palanisamy and Suresh SanthanaVannan
Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee

What is SoilSCAPE?

Soil moisture imposes a strong constraint on the transpiration and carbon fixation of vegetation and the loss of terrestrial carbon through soil respiration. However, despite its importance in regulating ecosystem fluxes, sources of high-quality and high spatial and temporal resolution soil moisture estimates are rare. The SoilSCAPE unified soil moisture portal brings together data from a wireless sensor network of over 150 sensor nodes and harmonizes this **high-resolution soil moisture data** with a variety of related data to address key science questions of NASA's Soil Moisture Active Passive (SMAP) Tier 1 and Airborne Microwave Observatory of Subcanopy and Subsurface (AirMOSS) Earth Venture-1 missions.

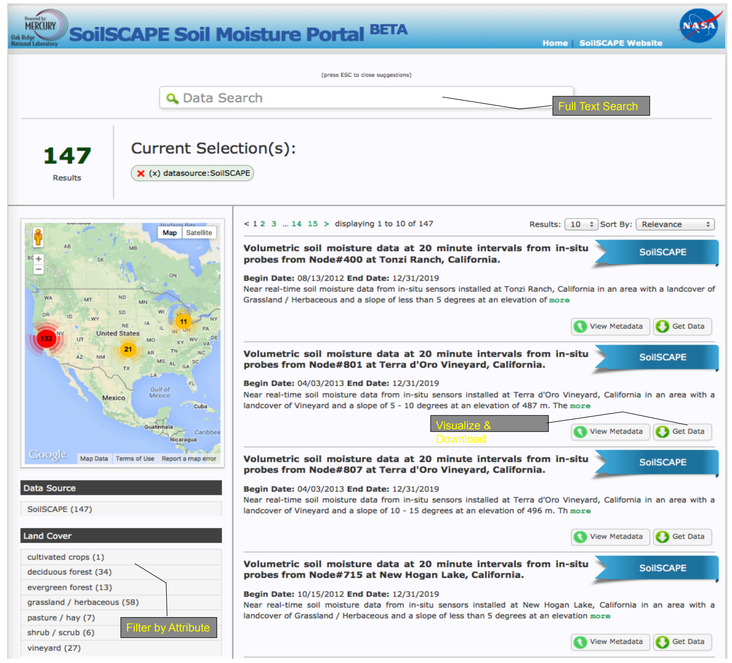
The SoilSCAPE unified soil moisture portal aims to solve a significant information system challenge by seamlessly integrating and visualizing heterogeneous data (i.e. size of data granules, sensing volumes, spatial resolution, temporal refresh rate, etc.) and metadata and making them accessible to the user community through a single interface. For more project information see: http://soilscape.usc.edu/drupal/



One primary goal of the AirMOSS mission is to use soil moisture data to reduce the uncertainty in the estimates of net ecosystem exchange (NEE) for North America. To understand the controls on NEE and their dependence on vegetation phenology and other landscape factors, the localized SoilSCAPE sensor data will be linked to remotely-sensed data from AirMOSS and tower-based AmeriFlux observations.

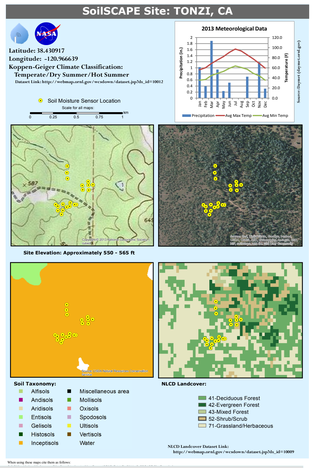
Soil moisture may help to explain variation in NEE at Tonzi Ranch.

Data sources: NEE: fluxnet.ornl.gov, COSMOS: cosmos.hwr.arizona.edu/, Precip: daymet.ornl.gov

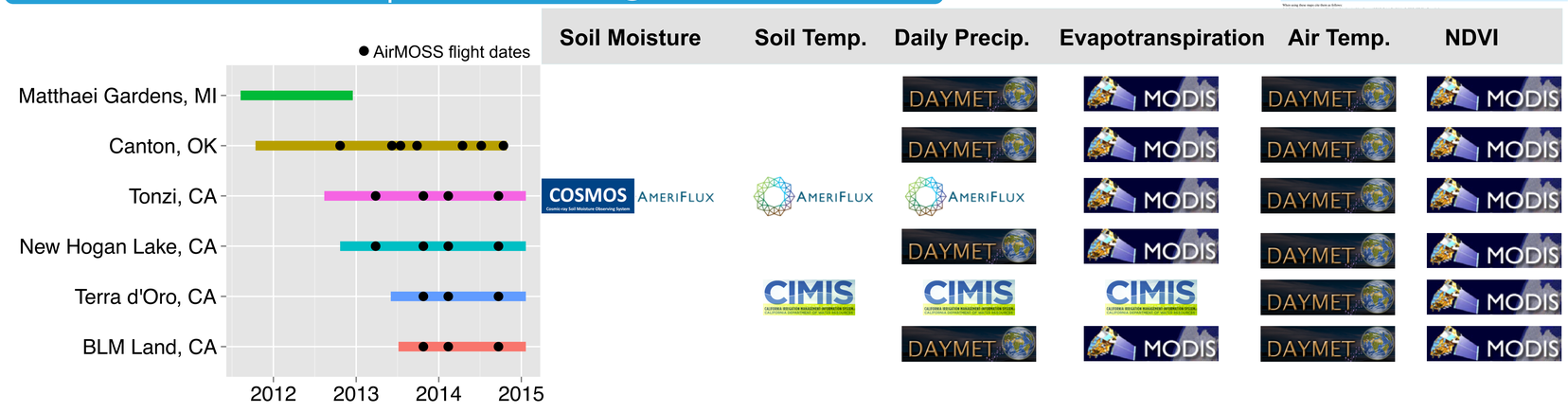


http://mercury-ops2.ornl.gov/soilscape

A site overview, including climatology, topography, landcover, and soils is available for each site.



SoilSCAPE temporal coverage and data



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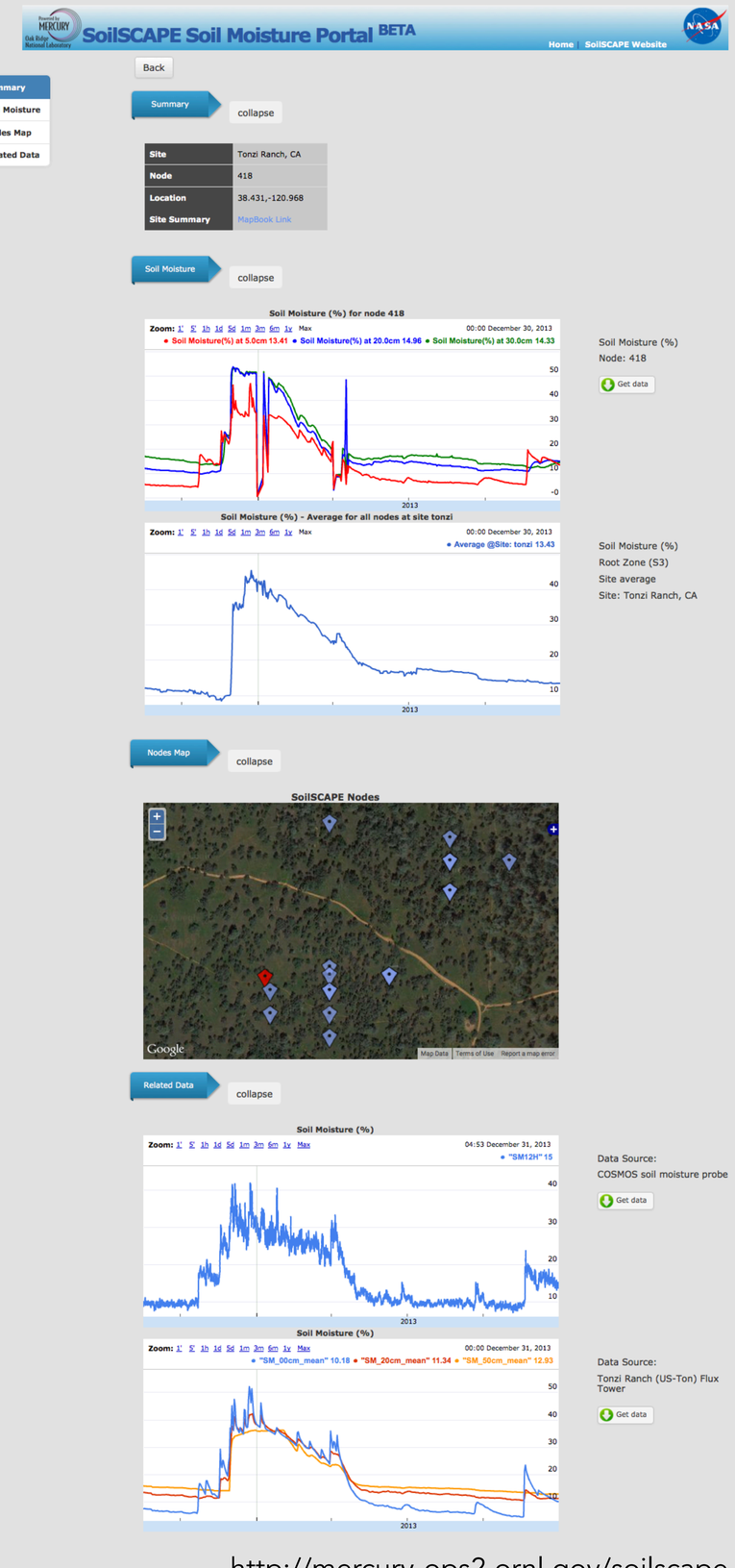

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