ASSESSING SATELLITE-BASED SOIL MOISTURE PRODUCTS FOR AGRICULTURAL AREAS IN NORTH CENTRAL FLORIDA

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Agriculture covers about 7 million acres in Florida, with growers producing a large variety of crops resulting in highly heterogeneous land covers. Much of the agriculture in Florida is irrigated, with agricultural water use at $61M / year. Accurate knowledge of soil moisture in irrigated regions will help growers make better irrigation decisions leading to more efficient water use. With the recent launch of satellite missions such as NASA's Soil Moisture Active/Passive (SMAP) in 2015 and the ESA's Soil Moisture Ocean Salinity (SMOS) in 2009, access to remotely sensed soil moisture products at high temporal resolutions of every 2-3 days is now better than ever. However, their coarse spatial resolutions of 10s of km have limited the validation studies of these soil moisture data products to rain-fed regions of relative homogeneity, such as the US Midwest. More challenging is assessment over heterogeneous and heavily irrigated areas, such as those in Florida's agricultural regions. With advances in machine-learning algorithms for spatial downscaling, we are now able to obtain higher spatial resolution soil moisture. In this study, we conduct an assessment of currently available remotely sensed soil moisture products using *in-situ* ground data to understand their suitability for use in North Central Florida.

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