



Operational Surface Soil Moisture Products in support to water resources management in agriculture in the face of climate change

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An important aspect of regional climate change is alteration in soil moisture availability. There are already signs that soil moisture content is being affected by rising temperatures and changes in precipitation patterns. Advances in Earth Observation (EO) technology over the last two decades have allowed us to reach the level where a number of operationally distributed Soil Moisture Content (SMC) products are available by different Space Agencies. Validation of such operational products at a range of climatic and environmental conditions (across different continents) is widely regarded as a fundamental step related to their practical use.

This study provides an assessment of the Soil Moisture and Ocean Salinity Mission (SMOS) and Advanced Scatterometer (ASCAT) operational products performed at selected sites globally representative of a variety of climatic, environmental, biome and topographical conditions. For these sites corresponding in-situ measurements were acquired from a validated observational global network, FLUXNET. The findings of our study provide an important contribution towards addressing the knowledge gaps related to the operational estimation of SMC. The results obtained support ongoing efforts conducted at present by different Space Agencies targeted towards the improvement of SMC operational products. Major advances in this regard are anticipated in the coming years, fostered by the launch of more sophisticated EO platforms and dedicated soil moisture missions.

Keywords: Earth Observation, Operational Products, Soil Moisture, ASCAT, SMOS