



The Evaluation of Remotely-Sensed and Model-Based Soil Moisture Products According to Different Soil Type, Vegetation Cover and Climate Regime Using Station-Based Observations over Turkey

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The soil moisture variable has critical importance in many areas such as climate, drought, water and energy cycle, weather forecasts and flood studies. Soil moisture data can be obtained using different methods such as remote sensing-, model- and station-based. Since station-based observations have representativeness errors in large scale, they have a great potential to provide the most accurate soil moisture information among all methods. In this study, different soil moisture products including AMSR-E, ASCAT, API, NOAH, and ESA-CCI are evaluated using observations between 2007 and 2011 collected over 76 stations maintained by General Directorate of Meteorology of Turkey.

The accuracy of each product is analyzed over different soil type, vegetation cover and climate regime of stations. Also seasonality and anomaly components of the soil moisture products are analyzed separately. The overall correlation of soil moisture products over investigated stations show satisfactory performance of them in measuring surface soil moisture. The correlation statistics show average values of 0.63 for AMSR-E, 0.60 for ASCAT, 0.71 for ESA-CCI (v04.4), 0.61 for API, and 0.82 for NOAH products.