



The WACMOS multi-mission soil moisture product: 30 years of soil moisture in support of climate change studies

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Satellite-based soil moisture products dating back to the late 1970s have now become available for several past and present operational scatterometers and radiometers and will soon be complemented with observations from the recently launched Soil Moisture and Ocean Salinity (SMOS) mission. Combining these measurements into a single data set would significantly increase the temporal coverage and resolution, thus providing a unique opportunity to study climate related trends in soil moisture. This potential has been recognised by ESA who, in collaboration with the Global Energy and Water Cycle Experiment (GEWEX) of the World Climate Research Program, in 2008 launched the Water Cycle Multi-Mission Observation Strategy (WACMOS) project.

The scope of the soil moisture theme within WACMOS was to generate a 30-years consistent soil moisture dataset by merging various soil moisture products based on active (ERS SCAT, MetOp ASCAT) and passive (SMMR, SSM/I, TRMM, AMSR-E) satellite microwave observations. This presentation will give an overview of the product specifications, the merging framework implemented, and some first validation results. Even though based only on a selection of sensors suitable for the detection of soil moisture, the merging framework can be easily extended to integrate new missions such as SMOS, GCOM, and SMAP. We expect that the merged product will enhance our understanding of the water cycle in relation to climate change.

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