Geophysical Research Abstracts
Vol. 12, EGU2010-2636, 2010
EGU General Assembly 2010

Operational Readiness of Microwave Remote Sensing of Soil Moisture: An Update

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Microwave remote sensing of soil moisture has been an active area of research since the 1970s but despite recent progresses in the space- and ground segments, satellite soil moisture data are still not being used in a truly operational fashion. This presentation reviews how well current spaceborne microwave systems are able to meet the stringent requirements of meteorology, hydrology and related applications with respect to data availability, timeliness, accuracy and reliability. All three types of microwave sensors – radiometers, Synthetic Aperture Radars (SARs), and scatterometers – are considered and the most recent developments for three European sensors are presented: the Advanced Scatterometer (ASCAT) on board of METOP, the Advanced Synthetic Aperture (ASAR) on board of ENVISAT and the recently launched Soil Moisture and Ocean Salinity (SMOS) satellite. The presentation concludes with a review of recent research breakthroughs on the use of these soil moisture products in meteorology and hydrology.