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The Soil Moisture and Ocean Salinity (SMOS) Mission – An overview

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The Soil Moisture and Ocean Salinity (SMOS) mission, scheduled for launch in October 2008, is the European Space Agency's (ESA) second Earth Explorer Opportunity mission. The scientific objectives of the SMOS mission directly respond to the current lack of global observations of soil moisture and ocean salinity which are needed for in-depth investigations into the water cycle, and will contribute to better weather and extreme-event forecasting and seasonal-climate forecasting. The SMOS mission will globally monitor surface soil moisture over land surfaces (with an accuracy of 4% volumetric soil moisture, a spatial resolution of 35-50 km and a revisit time of 1-3 days) and surface salinity over the oceans (with an accuracy of 0.1 psu, averaged over 10-30 days and an area of 200 km x 200 km). Additionally, SMOS will improve the characterisation of ice and snow covered surfaces. This knowledge will advance climatological, oceanographic, meteorological, hydrological, agronomical, and glaciological science, and assess the potential of such measurements to contribute to improving the management of water resources.

The MIRAS instrument has been especially developed to make these observations and the objective is also therefore to demonstrate the use of a new radiometer that is capable of observing both soil moisture and ocean salinity by capturing images of emitted microwave radiation around the frequency of 1.4 GHz (L-band).

The presentation intends to provide an overview on the mission, its present status and planning for the operations phase, the scientific studies related to it and the data products that will become available.