



Soil Moisture and Ocean Salinity Mission (SMOS): Achievements and Expectations

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Message from the Guest Editors

The Soil Moisture and Ocean Salinity (SMOS) mission, an ESA Earth Explorer opportunity mission with contributions from French and Spanish authorities, was launched in November 2009. Twelve years later, the mission is alive and well. As the first spaceborne passive interferometer and L-band operational radiometer, SMOS fills a significant gap by delivering global frequent measurements of soil moisture and ocean salinity. As the time spent in orbit becomes longer, processing algorithms become more refined, and the quality of calibration and retrievals improves, SMOS is supplying unique time series for soil moisture and surface salinity (the longest obtained from space to date); at the same time, the mission continues to offer a continuous flow of new unforeseen results, with unexpected incursions in the domains of cryosphere, sea ice and climate change, particularly when used in combination with data from Aquarius and SMAP. SMOS data are now frequently assimilated in operational numerical weather prediction systems, where they are shown to make a meaningful contribution to improving the forecasting of the global hydrological cycle.

