



SMOS Contribution to a Global In-Situ Soil Moisture Network

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With the upcoming launch of ESA's Soil Moisture and Ocean Salinity (SMOS) mission the availability of in-situ soil moisture data globally will be of crucial importance. Soil moisture information is critical for understanding the global water and energy cycles, for predicting precipitation, and for advising local water resource managers. Based on theory and experiments to date there is a general agreement that both short and long term improvements in our understanding of the water cycle and our ability to model it should be possible with an integrated global soil moisture observing system. Improving these global observations is needed on a priority basis. The synergy between SMOS and a global in-situ soil moisture network would be a positive and necessary step. The research and application community perspective is that in-situ measurements, satellite observations, and modeling that must all be developed and integrated, primarily through a data assimilation framework. Modeling and data assimilation are already integral components of national and international weather and climate forecast programs. Satellite soil moisture mapping is now being evaluated with exploratory missions. In-situ soil moisture observations are perhaps the least advanced and organized. There are some ongoing efforts but these are few and there is no standardization. This paper will show the initiatives supported by the European Space Agency, the Portuguese Meteorological Institute and the International Soil Moisture Working Group to develop a global in-situ soil moisture network.