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The International Soil Moisture Network – A data hosting facility for in situ soil moisture measurements in support of SMOS cal/val

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In situ soil moisture observations are crucial for validating SMOS and other satellite based soil moisture products. In order to support valid conclusions about the accuracy of such products the in situ soil moisture observations used need to be available for many locations worldwide and have to be intercomparable. So far, the latter requirement is usually not met as the different locally and regionally operating networks apply neither a standard measurement technique nor a standard protocol.

The need for international cooperation in constructing centralized and homogenized global soil moisture data sets has been recognized by the international community. To support the validation of satellite soil moisture products the International Soil Moisture Working Group (ISMWG) has suggested constructing a standardized global data base of in-situ soil moisture measurements. Further, the creation of multi-source soil moisture datasets, including in situ observations, was included in the GEO 2009-2011 Work Plan under sub-task WA-08-01a led by GEWEX (Global Energy and Water Cycle Experiment) and ESA (European Space Agency). As fruit of this initiative and in support of SMOS calibration and validation activities, ESA decided to support the development of the International Soil Moisture Network.

The International Soil Moisture Network is a web based data hosting facility for collecting and redistributing in situ soil moisture measurements from existing soil moisture networks. Incoming data are carefully checked for their quality and homogenized before being stored in the database. A web interface allows the user to easily query and download the data. Special care has been taken to make downloads compliant with international data and metadata standards such as GEWEX CEOP, ISO 19115, and INPIRE of the European Commission. This presentation provides insight in the design considerations, implementation, functionalities and outputs of the data hosting facility. The International Soil Moisture Network can be accessed at: http://www.ipf.tuwien.ac.at/insitu