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The International Soil Moisture Network - a global interoperable data center for in situ soil moisture observations

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Soil moisture is recognized as an Essential Climate Variable (ECV), because it is crucial to assess water availability for plants and hence food production. Having long time series of freely available and interoperable soil moisture data with global coverage enables scientists, farmers and decision makers to detect trends, assess the impacts of climate change and develop adaptation strategies.

The collection, harmonization and archiving of in situ soil moisture data was the motivation to establish the International Soil Moisture Network (ISMN) at the Vienna University of Technology in 2009 as a community effort. Based on several project funding periods by the European Space Agency (ESA), the ISMN became an essential means for validating and improving global land surface satellite products, climate and hydrological models.

Permanent funding for the ISMN operations was secured through the German Government (Ministry of Digital and Transport) and therefore the ISMN has successfully migrated at the end of 2022 to its new host the International Centre for Water Resources and Global Change (ICWRGC) and the German Federal Institute of Hydrology (BfG). Furthermore, the ISMN was recognized by WMO in their latest State of Global Water Resources report.

To improve the data service delivery, ISMN users can now benefit from a newly developed dataviewer which features functionalities such as data archives and advanced filter options (e.g. for climate and landcover types, for data quality) developed in synergies with the ESA project Fiducial Reference Measurements for Soil Moisture (FRM4SM). This presentation aims at showcasing these latest upgrades as well as new network contributions to the ISMN.