

GC8-Hydro-57, updated on 03 May 2024

<https://doi.org/10.5194/egusphere-gc8-hydro-57>

A European vision for hydrological observations and experimentation

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Ensuring ISMN's permanent service for delivering long-term, in situ soil moisture data

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Soil moisture is recognized as an Essential Climate Variable (ECV) because it is crucial for assessing water availability for plants and hence food production. Having long time series of freely available 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 TU Wien, with the financial support of the European Space Agency (ESA), in 2009 as a community effort. The ISMN became an essential source for validating and improving global satellite products, and climate, land surface, and hydrological models. In 2021 permanent funding for the ISMN operations was secured through the German Government (Ministry of Digital and Transport).

The transfer of the ISMN to its new host, i.e., the International Centre for Water Resources and Global Change (ICWRGC)/German Federal Institute of Hydrology (BfG), took place during 2021/2022. The takeover posed the challenge to migrate an operational service between two different teams, locations/hardware and organisations. Finally, the ISMN started serving data from its new host in December 2022 while keeping the service continuously running throughout the migration. In parallel the team in Vienna developed and launched a new dataviewer. This presentation aims at showcasing new ISMN features as well as recent data contributions as well as next evolution of the ISMN based on synergies and science outcome of the Research and Development activities performed by ESA in the context of the Fiducial Reference Measurements

for Soil Moisture (FRM4SM) project.