

SMOS Europe and Mediterranean Surface Soil Moisture

L4 Surface Soil Moisture

The cloud-free Level 4 (L4) soil moisture products v5 at 1 km resolution are generated from applying a data fusion downscaling algorithm, which combines:

- the SMOS Level 1C (L1C) brightness temperature, provided by ESA and processed by BEC,
- the land surface temperature (LST) or skin temperature provided by the operational European Center for Medium Weather Forecast (ECMWF) model (<https://www.ecmwf.int/>), and
- the Normalized Difference Vegetation Index (NDVI) from Terra Moderate Resolution Imaging Spectroradiometer (MODIS), distributed by the National Aeronautics and Space Administration (NASA, <https://earthdata.nasa.gov>).

The data fusion technique uses the BEC L3 soil moisture v3 as benchmark. An updated version of the downscaling algorithm employs a shape adaptive moving window to obtain daily high resolution soil moisture maps over any non-frozen region of the world, even if the region integrates different climates (Portal et al, 2018, JSTARS). Additionally, the integration of the modeled ECMWF LST in the algorithm allows estimating soil moisture, regardless of cloud cover. Ascending and descending orbits are processed separately.

Products

1-day map (daily) over Europe

Surface soil moisture at EASE-2 (1km)

Related documents

- Products description: [BEC_SMOS-PD_SM_L3v4_L4v6.pdf](#)