

## The SMOS Near-Real-Time Soil Moisture dataset

Nemesio Rodriguez-Fernandez, Patricia de Rosnay, Philippe Richaume, Joaquin Munoz-Sabater, Yann Kerr, Matthias Drusch, Susanne Mecklenburg

The European Space Agency (ESA) and the EUMETCast service by EUMETSAT distribute Soil Moisture and Ocean Salinity (SMOS) satellite Near-Real Time (NRT) soil moisture data in less than three hours after sensing. This product is addressed to numerical weather prediction and hydrology operational centers and it is available since 2016. It has been obtained by training a neural network using as input SMOS NRT brightness temperatures for incidence angles in the 30°-45° range and soil temperature from the European Centre for Medium Range Weather Forecast (ECMWF). The SM dataset used as reference to train the neural network was version 620 of the L2 SM product for the NRT SM version 100 dataset. Since August 2018, the new version 200 of the NRT SM dataset is distributed. This new version has been obtained re-training the Neural Network with version 650 of the L2 SM dataset. A preliminary evaluation of the NRT SM v100 dataset was presented in Rodriguez-Fernandez et al. (2017, HESS). This contribution will discuss a more extensive evaluation using more than two years of SMOS NRT SM data. It will also present the first evaluation of the NRT SM version 200 dataset with respect to in situ measurements in a large number of sites from the SMOSMANIA, SCAN, HOBE, USCRN, TERENO, REMEDHUS, PB-H2O and SNOTEL networks. The NRT SM performance will be compared to that of the L2 SM dataset, showing that it is similar but slightly better than that of the L2 SM dataset. Finally, it will be shown that the NRT SM dataset has been able to capture extreme events such as the Harvey floods in Texas in 2017.