SMOS CATDS level 3 Soil Moisture products

L. Berthon, A. Mialon, A. Al Bitar, F. Cabot, and Y.H. Kerr

CESBIO, 18 Av. Edouard Belin, 31401 Toulouse, France (lucie.berthon@cesbio.cnes.fr)

The ESA's (European Space Agency) SMOS (Soil Moisture and Ocean Salinity) mission, operating since november 2009, is the first satellite dedicated to measuring surface soil moisture and ocean salinity. The CNES (Centre National d'Etudes Spatiales) has developed a ground segment for the SMOS data, known as the CATDS (Centre Aval de Traitement des Données SMOS). Operational since June 2011, it provides data referred to as level 3 products at different time resolutions: daily products, 3 days global products insuring a complete coverage of the Earth surface, 10-days composite products, and monthly averages products. These products are presented in the NetCDF format on the EASE grid (Equal Area Scalable Earth grid) with a spatial resolution of $\sim 25*25$ km^2. Having global maps at different time resolutions is of interest for different applications such as agriculture, water management, climatic events (especially droughts and floods) or climatology.

The soil moisture level 3 algorithm is based on ESA's (European Space Agency) level 2 retrieval scheme with the improvement of using several overpasses (3 at most) over a 7-days window. The benefit of using many revisits is expected to improve the retrieved soil moisture. Along with the surface soil moisture, other geophysical parameters are retrieved such as the vegetation optical depth or the dielectric constant of the surface.

The aim of this communication is to present the first results from the CATDS dataset and all the different data available. Comparisons with in situ data at different sites will be presented to assess the quality of these data. A comparison with the ESA level 2 SMOS products will also be shown to better understand the difference between these dataset, in terms of quality, coverage, applications and use. We will also present how the CATDS data can capture some special events. For instance, the dataset will be compared with meteorological events (rain events), or extreme events such as droughts or floods.