



SMOS CATDS Level 3 products, Soil Moisture and Brightness Temperature: Presentation and results

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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 the CATDS (Centre Aval de Traitement des Données SMOS) ground segment.

It provides spatial and temporal synthesis products (referred to as Level 3) of soil moisture, which are now covering the whole SMOS operation period since January 2010. These products have different time resolutions: daily products, 3-day global products (insuring a complete coverage of the Earth's surface), 10-day composite products, and monthly averaged products. Moreover, a new product provides brightness temperatures at H and V polarizations which are computed at fixed incidence angles every 5 degrees.

All the CATDS products are presented in the NetCDF format on the EASE grid (Equal Area Scalable Earth grid) with a spatial resolution of $\sim 25 \times 25$ km².

The soil moisture Level 3 algorithm is based on ESA's Level 2 retrieval scheme with the improvement of using several overpasses (3 at most) over a 7-day window. Using many revisits is expected to improve the quality of the retrieved soil moisture.

This communication aims at presenting the CATDS soil moisture and brightness temperature products as well as other geophysical parameters retrieved on the side, such as the vegetation optical depth or the dielectric constant of the surface. Furthermore, we illustrate the validation of this database, including the comparison of the Level 3 soil moisture to in-situ measurements available from various sites (Australia, US, southwest of France, Spain, Denmark, West Africa, French Alps), spanning different surface conditions.