



## **Evaluation of soil moisture products from several sensors over a semi-arid region based on ground soil moisture measurements.**

**C. Gruhier** (1), P. de Rosnay (2), L. Kergoat (1) and E. Mougin (1)

(1) Centre d'Etude Spatiale de la BIOSphère (CESBIO), Toulouse, France  
([claire.gruhier@cesbio.cnes.fr](mailto:claire.gruhier@cesbio.cnes.fr)) (2) European Centre for Medium Range weather Forecast  
(ECMWF), Reading, UK

Remote sensing is the more appropriate approach for accessing soil moisture, which is a key variable in soil-plant-atmosphere interactions. Soil moisture products from several sensors are currently available, but validation is a necessary step before integrating these data in land surface modelling. This study presents an evaluation of soil moisture products from passive and active microwave sensors, based on the comparison with ground soil moisture measurements over a semi-arid region. The selected validation site is representative of climatic, hydrological and environmental conditions of semi-arid areas. It is located in the Gourma region of Mali, and instrumented in the framework of the AMMA project (African Monsoon Multidisciplinary Analysis). The set-up of the soil moisture stations was specifically designed to address the validation of remotely sensed soil moisture in the context of the preparation of the SMOS project (Soil Moisture and Ocean Salinity). A comparison between each soil moisture product and in-situ soil moisture measurements is conducted. The aim is to measure the ability to capture absolute values, amplitude values and temporal variability of surface soil moisture. The study is therefore conducted at multiple temporal scales: annual, seasonal and rainy event. We will discuss the advantages and drawbacks of the different products with regard to their time and space scale, since temporal and spatial resolutions are perhaps as important as the accuracy "per se" for soil moisture data.