



A multisensor approach to Remote sensing and related intercalibration techniques

Yann Kerr, Claire Gruhier, Delphine Leroux, Silvia Juglea, and Arnaud Mialon
CESBIO, TOULOUSE CEDEX 4, France (Yann.Kerr@cesbio.cnrs.fr)

Since SMMR launched in 1978) to SMOS (launched in 2009) several missions have attempted describing the soil moisture, an important component of the water cycle. This could be a unique data set to see climatic trends, if coupled with other means as all the sensors (namely SMMR, SSM/I, ERS SCAT, Envisat ASCAT, AMSR, and now SMOS while soon SMAP or Aquarius) have different times of over pass, different frequencies and possibly even different measurement approaches. The rationale here a) is to inter-calibrate all the sensors available and try to operate a seamless transition correcting all the artifacts, b) to intercompare the sensors over well monitored sites, and c) study how complementarities can be derived from different sources to either improve retrieval quality or retrieval range. The paper presents our two prong approach. On one hand we intercalibrate using reference targets the SMMR - SSM/I - AMSR series, deriving an empirical adjustment law for time of over pass and slight frequency differences, while, on the other hand we inter-compare over well monitored sites the behaviour of all available sensors and possibly algorithms. Finally, in the framework of the exploitation of the SMOS mission we analyse over reference sites different ways to spatialise point information of a smos like pixel. During the oral presentation we will give the results gained through this approach and the problems encountered as well as potential ways to solve them. The results are intercompared with other similar approaches and long term soil moisture evolution shown on different areas.