



Comparing radiometric data from SMOS and ELBARA-II over VAS (Valencia Anchor Station) in 2010 and 2011

M. Miernecki (1), J-P. Wigneron (2), M. Schwank (3), I. Volksch (4), H. Lawrence (1), A. Coll (1), Y. Kerr (5), T. Casal (6), and E. Lopez-Baeza (1)

(1) Departamento de Fisica de la Tierra y Termodinamica Facultad de Fisica Universidad de Valencia, Spain, (2) INRA - Institut National de la Recherche Agronomique, France, (3) German Research Centre for Geosciences (GFZ), Germany, (4) Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), Switzerland, (5) CESBIO - Centre d'Etudes Spatiales de la Biosphère , France, (6) Mission Science Division, ESA / ESTEC, The Netherlands

(1) Departamento de Física de la Tierra y Termodinámica
Facultad de Física Universidad de Valencia, Spain
(2) INRA - Institut National de la Recherche Agronomique, France
(3) German Research Centre for Geosciences (GFZ), Germany
(4) Swiss Federal Institute for Forest,
Snow and Landscape Research (WSL), Switzerland
(5) CESBIO - Centre d'Etudes Spatiales de la Biosphère , France
(6) Mission Science Division, ESA / ESTEC, The Netherlands

Comparing radiometric data from SMOS and ELBARA-II over VAS (Valencia Anchor Station) in 2010 and 2011

January 17, 2012

The European Space Agency's (ESA's) Water Mission, the SMOS (Soil Moisture and Ocean Salinity) mission, was launched in November 2009. The payload for the mission was the 2D L-band radiometer [1]. Since then global maps of brightness temperatures (T_B) at L-band have been available. Angular characteristics of T_B for horizontal and vertical polarization are used for the simultaneous retrieval of surface soil moisture (SM) and vegetation optical depth (TAU). Ground based radiometers such as the ELBARA-II radiometer [2] at the Valencia Anchor Station (VAS) are playing a key role in Calibration/Validation activities for this mission [3].

The Valencia Anchor Station is situated in the Utiel-Requena area 80km west of Valencia, Spain. Over 60% of land use is dedicated to vine cultivation and the rest is mainly natural Mediterranean vegetation (30% pine trees and shrubs) and orchards [4]. The radiometer itself is placed on a 16 m tower overlooking the "tempranillo" vines. On top of the antenna, an infrared camera is mounted and directly in the antenna footprint there are 7 ThetaProbe soil moisture sensors. In the vicinity of the tower there is a DAVIS meteorological station. The first part of this study was to compare radiometric data provided by ELBARA-II with brightness temperatures seen by SMOS. In the second part a simplified approach to SM retrieval was tested against algorithm used in SMOS data processing.