



SMOSREX: A Long Term Field Campaign Experiment for Soil Moisture and Land Surface Processes Remote Sensing

P. de Rosnay (1), Y. Kerr (1), J.P. Wigneron (2), J.C. Calvet (3), F. Lemaître (4), M.J. Escorihuela (1), K. Saleh (2), J. Muñoz Sabater (3) and the SMOSREX Team
(1) CESBIO - Centre d'Etudes Spatiales de la Biosphère, (2) INRA - Institut National de la recherche Agronomique, (3) Météo France/CNRM - Centre National de Recherche Météorologique, (4) ONERA - Office National d'Etudes et de Recherches Aéropatiales

The SMOS mission aims at delivering global fields of sea surface salinity and surface soil moisture using L band radiometry. In the context of the preparation of SMOS over land, a field campaign, SMOSREX: Surface Monitoring Of the Soil Reservoir EXperiment, is running since January 2003 in Mauzac, near Toulouse, France. The field campaign is a long term one and should last at least two years. In a view to improve our understanding of the soil-plant-atmosphere interactions, it is based upon: (1) multi-frequency remote sensing from visible to thermal and L-band infrared, (2) a whole suite of ground measurements: vegetation and soil, meteorology, land surface fluxes. (3) radiative transfer models and land surface models. The aims of this campaign are to (i) contribute to a better understanding of the different processes affecting microwave signal including very specific events such as interception, dew, freezing, (ii) test and improve the soil moisture retrieval algorithms from dual polarized and multi-angular measurements (iii) develop the multi-frequency assimilation of remote sensed surface variables in land surface models. The experiment design is presented with a full description of the site and related measurements. The characteristics of both bare soil and vegetation effects on the L-band emission are presented from diurnal to seasonal and annual temporal scales. The paper presents the experiment design and introduces the large field of scientific investigations opened by this novative long term field experiment for multi-frequency remote sensing of the land surfaces.