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L-Band brighness temperature simulated from coupled SVAT model and radiative transfer model over the Valencia Anchor Station

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Soil moisture is a key parameter controlling the exchanges at the surface/atmosphere interface. However, this parameter, very important for the weather and climate modelling, is not well observed at a global scale. Consequently, the SMOS (Soil Moisture and Ocean Salinity) mission was designed to measure soil moisture over continental surfaces as well as ocean salinity. It will provide measurements at least every 3 days at the equator.

The VAS (Valencia Anchor Station) experimental site, in Spain, is a cornerstone of the SMOS Cal/Val plan. It is a semiarid environment and is characterized by an extensive average of measurements at different levels both in the atmosphere and in the soil in order to derive surface energy fluxes.

The research presented here deals with use of ground surface variables to simulate passive microwave brightness temperature so as to have Satellite “match ups” for CalVal and to test retrieval algorithms. For this long term records of satellite data are analyzed. In these framework ground and meteorological measurements from the VAS site are spatialized to a SMOS pixel using a Soil-Vegetation-Atmosphere-Transfer(SVAT) model (SURFEX) from Météo France. Output data, particularly soil moisture, are then used to simulate the L-band surface emission through the use of the L-Meb (L-band Microwave Emission of the Biosphere) model. We will present the first simulation results which will help better understanding the exact signification of

the SMOS signal and thus give a first insight of the SMOS data.