



L-band radiometer experiment in the SMOS test site Upper Danube

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In the frame of calibration and validation activities for ESA's soil moisture and ocean salinity mission, SMOS, the University of Munich operated a ground based L-band radiometer (ELBARA II) on an experimental farm in Southern Germany in 2009 and 2010. The radiometer data is being used to validate the radiative transfer model, L-MEB, used in the SMOS Level 2 processor. The radiometer measures the natural emission of two agricultural fields in the microwave domain with a wavelength of 1.4 GHz. To support the validation, extensive environmental measurements have been made at the test site and at a meteorological station nearby.

The radiometer was situated on an experimental farm near Puch, about 30 km west of Munich in the Upper Danube watershed in southern Germany in a temperate agricultural area. It was mounted on a 4 m high scaffolding that allowed to turn the radiometer to look at 2 different fields with grass and winter rape as land use respectively.

The data set that was acquired over the rape field has been analyzed and compared to modelled brightness temperatures that were produced using L-MEB and measurements that have been carried out during the field campaign. A new parameter set for L-MEB has been tested to model L-band brightness temperatures over a rape field in a temperate environment.