



SMOS rehearsal campaign 2008: Data analysis and soil moisture retrieval using the L-MEB model at the Upper Danube anchor site

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In spring 2008 the SMOS rehearsal campaign took place over parts of Europe. Within the Upper Danube anchor test site, situated mainly in southern Germany, extensive ground based measurements of soil moisture and other parameters were taken in addition to the airborne L-band radiometer data collected.

Within the framework of SMOS cal/val activities at the Upper Danube anchor site a coupled SVAT-radiative transfer model was developed for modelling soil moisture and the resulting microwave emissions. In the present study it is used to retrieve soil moisture from the radiometer data. The hydrological processes are simulated with the SVAT model PROMET, whilst the microwave emission of the land areas are simulated using the L-MEB model which is also part of ESA's SMOS Level 2 processor.

To study the sensitivity of the radiometer data to the measured soil moisture and to test the L-MEB retrieval performance a soil moisture retrieval of the radiometer data is performed using an iterative inversion approach. First results of the soil moisture retrieval are discussed and presented. Comparisons of the retrieved soil moisture against ground measurements are given and the uncertainty assessed.