



Analysis of L-band radiometric data over the Mediterranean Sea from the SMOS Validation Rehearsal campaign

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L-band radiometric data obtained with a real aperture airborne radiometer during SMOS validation Rehearsal campaign (April-May 2008) over the NW Mediterranean Sea have been analysed. EMIRAD, a fully polarimetric radiometer developed by the Technical University of Denmark operating in the 1400 - 1427 MHz band, was mounted on board a Skyvan aircraft from the Helsinki University of Technology. Two antennas were used: one facing nadir with 37.6° full aperture at half-power; and one placed towards the rear of the aircraft at 40° zenith angle with 30.6° full aperture at half-power. Two transit flights over the sea from Marseille to Valencia (19 April 2008) and from Valencia to Marseille (3 May 2008) have been studied. Two meteorological and oceanographic buoys were moored 40 Km offshore in front of Tarragona and were overflowed during these transits. Additionally, information on sea surface temperature (SST) and sea surface salinity (SSS) was obtained from operational model outputs (Mediterranean Forecasting System – Mediterranean Operational Oceanography Network) and wind speed from QuikSCAT. Measured brightness temperatures (Tb) have been compared with modelled Tb, using a semi-empirical emissivity model: Klein and Swift model is used to define the dielectric constant and Hollinger model for the rough sea emissivity contribution. Comparisons show that in general measured Tb variability fits with modelled variability, although a bias is observed in the aft V channel.