Hydrol. Earth Syst. Sci. Discuss., 8, C5163–C5165, 2011
www.hydrol-earth-syst-sci-discuss.net/8/C5163/2011/

Hydrology and Earth System Sciences Discussions

Interactive comment on "Accounting for seasonality in a soil moisture change detection algorithm for ASAR Wide Swath time series" *by* J. Van doninck et al.

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Received and published: 6 December 2011

Short Comments

The paper addresses a very interesting topic as the improvement of high resolution soil moisture estimates from remote sensing is highly welcome for hydrological applications.

I have only three very short comments.

Firstly, at page 10346, lines 10-12 it is written that no validation studies were carried out in Calabria region and an in situ soil moisture network does not exist. However, five soil moisture stations have been operating since 2001 in the Calabria region and the data are freely available on the International Soil Moisture Network website (http://www.ipf.tuwien.ac.at/insitu/, *Dorigo et al., 2011*). Additionally, *Brocca et al. (2011)* carried out a validation study of different soil moisture products derived by ASCAT and AMSR-E sensors also using the soil moisture data from the soil moisture network in Calabria. I suggest considering this data set for the validation of the BEACH model.

Secondly, the BEACH model was calibrated considering data at 10 cm depth and, hence, the simulated soil moisture data are representative of this layer depth. I believe that this layer is too deep to be contrasted with ASAR soil moisture estimates representative of a layer of 2-5 cm. I suggest discussing this aspect and, if possible, decreasing the layer simulated by the model to have a more coherent comparison.

Finally, the reference to *Vahedberdi et al. (2009)* for the BEACH model is wrong. Vahedberdi is the name, the surname is Sheikh (*Sheikh et al., 2009*).

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 10333, 2011.