

Interactive comment on “An evaluation of ASCAT surface soil moisture products with in-situ observations in southwestern France” by C. Albergel et al.

Anonymous Referee #1

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Review on the manuscript MS-NR: hessd-2008-0090 (version: 1), entitled "An evaluation of ASCAT surface soil moisture products with in-situ observations in southwestern France", by C. Albergel, C. Rüdiger, D. Carrer, J.-C. Calvet, N. Fritz, V. Naeimi, Z. Bartalis, and S. Hasenauer, submitted for the Special Issue: Remote sensing in hydrological sciences.

1) General comments

This paper presents an evaluation of the first METOP/ASCAT soil moisture measurements against the soil moisture data obtained from the SMOSMANIA network in south-west of France. It is highly complementary of the paper entitled "From near-surface

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to root-zone soil moisture using an exponential filter: an assessment of the method based on in-situ observations and model simulations" (Albergel et al., Hydrol. Earth Syst. Sci. Discuss., 5, 1603-1640, 2008).

The paper is well written, well structured and clear. The abstract provides a concise and complete summary and the reference list is appropriate. The approach proposed for the validation is notative since in addition to provide usual statistics of surface soil moisture comparison, it also investigates the crucial problem of the relation between the sensing depth and the temporal filtering of the data. The provided results concerning the time period of filtering to be used for the ASCAT data in this region is of high interest for future application of ASCAT soil moisture data as well as for future use of SMOSMANIA data for satellite based soil moisture products. I recommend this paper for publication after a few modifications indicated below.

2) Specific comments

- Structure of section2: Section 2.1: It would be useful for the reader to have more information on what ASCAT product will be used in the following of the paper. The SWI products are very well known, but not mentioned at this stage. And until the end of section 2.5 the reader have no idea of what product will be used in the paper. The section 2.4, which introduce the SWI, would be better right after 2.1, followed by a few line to explain that both ms and SWI will be used in this paper.

Section 2.5, it is not clear from line 1 to 25 which product will be used. This must be clarified earlier. (see above)

Section 2.4: the explanation is copied word to word from the paper Albergel et al., Hydrol. Earth Syst. Sci. Discuss., 5, 1603-1640, 2008. It would be interesting to provide an other point of view, or at least to modify the text. There is an error in equation 4: the sum must be done until 'n-1' (not 'n') on the denominator.

Section 3.1, page 2231: Changing the location of the ASCAT grid with respect to station

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allows to identify the location that the station is able to be representative for. This is interesting for future use of SMOSMANIA data for satellite validation.

Section 3.4 and Figure 7: As expected higher T values are obtained with ASCAT 0-2cm data than with in situ 0-5cm data . When reading the paper the reader wonders what value of T would have been obtained with 0-2cm in situ data instead of 0-2cm satellite data. It will be interesting to investigate this with the future SMOS where in situ and SMOS products will have the same sampling depth.

3) Technical comments

- Page 2223, line 24: do you refer to Wagner et al., 2007 a or b ? or both ?
- Page 2227, lines 7 and line 21: take care of the time consistency ('are used' line 7 and 'were used' line 21)
- do not repeat 'Most often than not' page 2231 (already used page 2230).
- Page 2233: line 1-2: move to previous page line 21 (after the sentence which refers to Table 5).
- The tables captions are all very similar and it requires a lot of attention to identify the differences in the caption between the tables. The clarity would be improved by indicating in bold the key words that are modified from Table 1 to 6: normalized in situ soil moisture, descending, ascending, anomaly, SWI.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 2221, 2008.

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