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Hydrology and Earth System Sciences Discussions

Interactive comment on "Analysis of surface and root-zone soil moisture dynamics with ERS scatterometer and the hydrometeorological model SAFRAN-ISBA-MODCOU at Grand Morin watershed (France)" *by* T. Paris Anguela et al.

Anonymous Referee #1

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GENERAL COMMENTS

In recent years several soil moisture datasets derived from microwave remote sensing instruments have become available. However, as there does not seem to be a consensus on the quality of the different soil moisture datasets, validation studies such as presented in the paper by Paris et al. are of high importance. Their study is set in agricultural area near Paris characterized by an Oceanic climate. According to the authors, 30 % is covered by wheat. The study reveals a very good agreement between TDR, model- and ERS soil moisture data despite the difference in spatial scale. The

results give strong evidence that satellite remote sensing can contribute to monitoring both the surface and the root-zone soil moisture in agricultural areas.

The study also addresses spurious effects of vegetation on the satellite retrievals. However, the presented evidence is weak. Only three SIM and ERS soil moisture images corresponding to one winter, one summer and one autumn scene (which dates?) are presented. Because the summer ERS values are lower than the SIM values the authors suggest that the full-grown vegetation is not properly taken into account. Admittedly, this is a credible interpretation considering that 30 % of the area is covered by wheat which is known to cause distinct temporal signatures in C-band radar time series. However, the authors should either present additional evidence (e.g. by comparing the data with MODIS time series or by showing a seasonal bias between ERS and SIM/TDR data) or draw more moderate conclusions. If the argument is presented also the correction of vegetation effects in the ERS retrievals should be discussed in more detail.

Overall, this is a very interesting and concise paper and I recommend publishing it after some additional editing of the language (it would do the paper good if a native speaker could check it).

SPECIFIC COMMENTS

Page 1907 line 28: Does 'corresponds' mean in this context the common temporal overlap of the three data sets? Page 1914 line 11: Recently there have been several studies which showed the high temporal stability across different spatial scales. Please add some references and discussion on this issue (it seems that this problem has been overestimated in the past)

TECHNICAL CORRECTIONS

Fig. 1: Please use different colours for the elevation zones. The brown-white colours suggest at first sight an alpine environment. Figs 2-4: Increase the font size Fig. 5:

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The images are blurred.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 1903, 2008.

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Interactive Comment