

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 #2

Received and published: 5 August 2008

This paper addresses an important issue within the soil moisture remote sensing community as it compares soil moisture products from scatterometers and a hydrologic model with in situ data. As was demonstrated by the authors a good correlation between these different sources of soil moisture is obtained. I would recommend the paper to be published with minor comments.

Some minor comments:

The paper could benefit from a more extensive literature referencing (and if necessary additional text that go with these references). Some suggestions:

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



In the introduction and maybe also to compare with in the discussions, you could include the work of e.g., Goa et al., *Journal of Hydrometeorology*, 8(3), 413-429, 2007 (comparison between satellite derived and modelled soil moisture), Entekhabi et al., *IEEE Trans. Geosc. and Remote Sens.*, 32(2), 438-448, 1994, Hoeben and Troch, *Water Resources Research*, 36(10), 2805-2819, 2000, and the set of papers of De Lannoy et al. (*Water Resources Research*, 43(6), W06401, 2007; *Journal of Hydrology*, 343(1-2), 1-11, 2007; *Water Resources Research*, 43(9), W09410, 2007) (soil moisture assimilation and effect on soil moisture estimates in deeper layers).

page 1904 lines 25 to p. 1905 line 2: e.g. Teuling and Troch, *Geophysical Research Letters*, 32, L05404, doi:10.1029/2004GL021935, 2005 (and references therein) and Western et al., *Journal of Hydrology*, 286(1-4), 113-134, 2004 (amongst others!) could extend the text as the scaling of soil moisture is quite important!

page 1905, line 4: also add the Catchment Average Soil Moisture Monitoring Sites (CASMM) as other possibility (introduced by Grayson and Western, *Journal of Hydrology*, 207(1-2), 68-82, 1998).

page 1905, line 21: change “have been done” by “have been performed”

page 1905, line 25: remove the word “technique” and add reference to this statement (e.g. Walker and Houser, *Advances in Water Resources*, 87(8), 785-801, 2004).

page 1906, line 8-9: The sentence “In essence, the data assimilation system uses the land model to interpolate the satellite retrievals in space and time” would be better formulated as “In essence, the data assimilation system attempts in improving the land

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

model performance using satellite retrievals in space and in time''. This better reflects the use of data assimilation in the hydrologic community.

page 1908, section 2.2: comment on the results of other SIM modelling studies: how well does the model work? (this can be based on the works of Rousset et al. 2004 and Habets et al. 2008 already referenced in your paper). I believe such discussion on the model performance is quite important to better understand further validations: does the SIM model sometimes wrongly predict soil moisture? If so, under which circumstances, and does this reflect in the comparisons made with the scatterometer data?

page 1910, line 23: discuss why you chose T to be equal to 10 days: is this arbitrarily or was it calibrated for? This is important as you refer to this constant as being a possible cause for error made by the model (page 1911 lines 22-23).

page 1911 and further: or, always use RMS error or consequently use RMSE (as used in the tables), also use the full terminology first before you abbreviate.

page 1911, line 20 to page 1912, line 3: further elaborate on this: now it feels like some guessing while it can be validated through changing the parameters mentioned and rerunning the model.

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

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper