

Interactive comment on “Assimilation of ASCAT near-surface soil moisture into the French SIM hydrological model” by C. Draper et al.

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Overall well designed experiment. My comments are about the use of a citation and use of a statistics.

1) It seems the citation “Koster et al. 2009” may not be appropriate, as authors used: In this current study, the soil moisture mentioned right before the Koster et al., 2009 reference (p5437) refers to the climatologically corrected soil moisture, whereas the soil moisture differences between models presented in Koster et al., 2009 refers to the unchanged (not corrected) soil moisture values.

In this current study, authors intended to say (I think) that differences between different

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soil moisture products exist even after performing a climatology correction based on the max/min values. However, in Koster et al. (2009) make a contrary statement: “once the climatological differences are accounted for, then the models tend to produce similar results”. In this study, authors have already performed a correction for the soil moisture climatology with max/min matching algorithm. Therefore, the study by Koster et al., 2009 in fact gives a contrary example to what authors had in mind. I believe the argument, that there are significant climatological differences may exist, only holds before making any climatology correction; once it is done, if there is still a significant climatology difference, then it would only tell the poor performance of the climatology correction methodology chosen (which is not the case in this study; 1% climatology difference is not high when compared to 5% random error, so climatology correction with max/min method indeed works just fine without the CDF match).

2) The bias difference that the authors found disappointing is less than 1% where the random errors of the system are around 5%. I believe this soil moisture difference (before the CDF match, after max/min match) is not disappointing; it is small when compared to the random errors, and it exists just because of the chosen climatology match algorithm (matching the max/min values).

If instead an alternative method was chosen initially (like the CDF match authors performed later), then there wouldn't have been such bias difference at the very first step. Given both max/min and the CDF match methodologies are linear climatology matching methods, the final product authors used in the models (after CDF match) can be equivalently obtained without performing the max/min climatology correction initially. Accordingly, the max/min climatology match method is redundant.

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