Hydrology and Earth System Sciences Discussions

Interactive comment on "Mapping surface soil moisture over the Gourma mesoscale site (Mali) by using ENVISAT ASAR data" *by* F. Baup et al.

Anonymous Referee #1

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The paper analyzes the potentialities of ASAR in wide swath mode for mapping soil moisture in Sahelian area. Many points should be improved before an acceptation of paper:

1. Please provovides more information and details concerning the angular normalization of ASAR data. So, the correction of vegetation effects should be developped (page 7425)

2. The term "change detection method" in page 7425 is not exact. The difference between wet image and dry image reduces the roughnness effects ...

3. It is not clear in page 7426 if you use one image or the difference between two

images for mapping soil moisture. Please clarify.

4. Table 2: change "Month" and "Day" in "Date (dd/mm/yyyy)"

5. Table 4: please explain the differnce in coefficient a between the different study site. Please replace this table by figures between backscattering coefficient and in situ soil moisture. These relationships correspond to the use of only one image. Please provide figure for the difference between dry and wet images as a function of soil moisture. This point is not clear in this paper. Moreover, the case of Bamba site with only 4 sample is not statistically representative.

6. Figure 5 should be improved. what is "alpha", "initial", "norm". The equation in the bow "applying SSM local function" should be detailled.

7. The results of Figure 11 should be discussed. Why this bisas between ASAR and WSC. Why you separate driest and wettest dates. Il is necessary to compare these results to true values

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