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Hydrology and Earth System Sciences Discussions

Interactive comment on "Strategies for validating and directions for employing SMOS data, in the Cal-Val project SWEX (3275) for wetlands" *by* W. Marczewski et al.

Anonymous Referee #1

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This paper discusses the use and applicability of SMOS data in Poland and Belarus. It discusses at length the Polish project and also philosophical aspects of SMOS data and its validity.

In my opinion, the paper fails to deliver its promise from the abstract and I do not recommend it being published in this form, but rather as two independent papers and also heavily edited for its English, as outlined below.

Major issues:

1. The paper in itself does not really present any new information. It is more or less written like an internal report, grant application or a flyer promoting the use of SMOS data. A number of claims in this paper are not supported by data/figures or even statistical analyses, but simply stated. Where are the qualitative comparisons between L2 and in-situ data to support the claims on pages 7015 & 7023? Even if there are gaps in the retrieval of the data, why not compare the data that are available. Even some initial results for the brightness temperature forward modelling would be good. What are the results of the RFI mitigation on page 7014? I am certain that this is of interest to countries such as Spain and China, where RFI occurs in abundance. The only interesting parts presented here are the proposed set-up of the TBR sites and the model by Usowicz. The latter, because it seems to have only been published in Polish. But I believe that those merit their own papers. The first after it has been set up and the second showing some modelling and inversions with proper discussions and analyses.

2. The paper is far too long. I don't think that 2 A4 pages about the capabilities of the institute and its interests in SMOS is needed here. Two brief paragraphs would certainly suffice. There is quite a substantial amount of redundant information in here.

3. The introduction is poorly written, without giving a clear idea of where this paper is leading. Moreover, it does not contain a single reference! How can a reader form an informed opinion about the project, if he is not properly led to the background o this project.

4. I am not sure whether the authors have realised that LMEB is actually an integral part of the whole of CMEM. It appears that CMEM and LMEB are interchangeable acronyms in this paper. CMEM contains a wide variety of radiative transfer models, and LMEB is but one of them. If a paper discusses CMEM, then the combination used should be discussed. Also, the references of CMEM are not acceptable. There already are a number of peer-reviewed publications by de Rosnay and Drusch (et al.). Citing an internal report should be avoided in this case.

5. SMOS data related. Sometimes the area of a SMOS pixel is 32, then 35 km. It should be discussed at which incidence angle this is the case, as the size of SMOS pixels varies significantly.

6. Why are there 5 pages on the Fresnel equation and the optimisation approach? What is the relevance to this paper? Wouldn't it be sufficient to simply mention it with the proper references?

7. What is the relevance of suddenly introducing ASAR and Grace data? In particular, given that they are considerably different instruments

8. In the text, L2 data are available since July 2010, but in the conclusions this is not the case anymore.

Editorial comments:

1. I have to say that the English used in this paper is generally poor, making a good understanding of the aims and results difficult. It appears as though at least three people have written different sections. I strongly recommend the paper to be edited accordingly.

2. A total of 18 figures is excessive. If this paper were a scientific review of a vast research topic, I would accept this, but not here.

3. The general quality of the figures is poor. Simple Google Earth screen shots are not adequate for a journal publication.

Minor comments:

1. Do not use short forms such as "can't" in a publication.

2. replace "double" with "dual polarization"

3. "Brightness Temperature", not "Temperature brightness"

4. What is the use of talking about BEAM, SMOS Viewer etc?

5. Ecoclimap: correct reference is Masson et al. 2003

6. References: edit the references according to the requirements of this journal. Also add some more relevant up-to-date references.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 7007, 2010.