

## ***Interactive comment on “Hydrological real-time modeling using remote sensing data” by P. Meier et al.***

### **Anonymous Referee #2**

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#### General comments:

The use of soil moisture information derived from the C-band ERS scatterometer to drive a simple hydrological model is investigated in a number of river basins in Africa. This is an interesting approach, at least for climatologic applications, and rather convincing results are presented. Given that ASCAT C-band scatterometer soil moisture products are now disseminated in near real time by EUMETSAT, the methods proposed by the authors may have operational implications, especially in regions where rainfall is poorly measured. However, this paper cannot be published in HESS in the present form. A number of methods are used and it is very difficult to understand where and why they are used. The naming of the methods fluctuates and this is detrimental to

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the clarity of the paper. Significant editorial work is needed before this paper can be published.

Particular comments:

- Title: should be more specific.
- P. 8811, L. 25: The first \*satellite-derived\* global data set.
- P. 8812, L. 3: Please replace “radar” by “microwave frequencies”, as SMOS is a radiometer, not a radar.
- P. 8814, L. 27: This sentence is rather unclear. Is 10 days the value of the T parameter, or are the SWI values produced every 10 days, only ?
- P. 8815, L. 4: Taken place, during which period of time?
- P. 8815, L. 25-26: “The soil moisture product used is not very sensitive to the presence of wetlands”. Why?
- P. 8816-8817 Sect. 3.2: It is not clear whether the Eqs. (1)-(3) model is proposed by the authors, for the first time, or whether it is derived from previous studies.
- P. 8818, L. 1: The physical interpretation of the  $k_1$  parameter should be more detailed. Do the lowest  $k_1$  values correspond to higher vegetation densities, related to more rainfall interception and more transpiration? The discussion on P. 8820 seems to suggest that  $k_1$  reflects soil properties, instead.
- P. 8818, L. 14: It is mentioned that  $\Delta t$  is set to 10 days while in Table 2, various values of  $\Delta t$  are given,. This is confusing.
- P. 8820, L. 1, L. 6: What does “off-line” mean in the context of this study?
- P. 8821, L. 4: Does “reference method” refer to the “reference model Eq.(5)” defined in P. 8818? This term appears in this page for the first time. How are the 3 parameters of Eq. (5) determined ? Values ?

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- Table 1: What is the units of the ki parameters ? Delta\_t: do you mean delta\_tau ?
- Tables 2-3: Why are columns 3 and 4 incomplete? The caption of these tables should include a short definition of the used models.
- Caption of Fig. 3: Please define BWI.
- Fig. 5: Modeled and measured discharges cannot be distinguished. The authors may use different color lines.

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