

Interactive comment on “Physically-based modelling of hydrological processes in a tropical headwater catchment in Benin (West Africa) – process representation and multi-criteria validation” by S. Giertz et al.

S. Giertz et al.

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The authors would like to thank the reviewer for his comment on the paper. As the reviewer knows the region and the difficulties with the data availability in West Africa he appreciates the dataset used in this paper.

It is correct that the model calibration was done manually. Nevertheless, there was no “multi-criterion calibration” but “a multi-criteria validation” which does not imply that this has been done automatically. We are aware of the advantage of an automatic model calibration which is rather time consuming because one has to link the model to appropriate software.

Of course not all model parameters could be measured in the field. The statement given in the paper is related to soil hydrological parameters and parameters concerning the vegetation like height and LAI. Minimal stomata resistances were taken from literature.

It is clear that the Smith-Parlange infiltration model may be too complex for the situation. Because all data required for this infiltration model are available there is no need to use a simpler approach.

Concerning the surface runoff the reviewer misunderstood the model concept. The surface runoff is not averaged per hillslope, it is calculated for each hill slope unit separately. The simulated surface runoff of the upslope unit is considered as additional water input at the soil surface on the downslope subunit. Therefore the process of the re-infiltration of the surface runoff before it reaches the stream is taken into account (see section 4).

The language of the paper will be proofed by a native speaker.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 3, 595, 2006.

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Interactive Discussion

Discussion Paper