

***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.***

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I agree with the reviewers that this is a very interesting paper, based on a unique data set in this region. The reviewers raised a few issues that should be considered by the authors while revising the paper for publication in HESS. They promised this already in their replies.

In addition, I would like challenge the authors with the following two points:

1) It should be worked out more clearly what the authors learnt about the basin func-

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tioning through the process-based model application. The authors describe quite nicely the hydrological processes in section 3 based on observations, but it should become clearer what they additionally learnt through the modeling. I assume the authors agree that obtaining a good model fit (after calibrating a number of parameters) can not be the main reason of the model application.

2) Model calibration: It should be clearer which parameters were calibrated and which parameters were obtained from the literature and kept constant. In addition, to the discussion in chapter 9, it would be helpful if the authors consider also the uncertainty introduced through (incomplete) manual model calibration.

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