

***Interactive comment on “Hydrologic responses of the Zwalm catchment using the REW model: incorporating uncertainty of soil properties” by A. El Ouazzani Taibi et al.***

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It represents an application of the REW approach to distributed modeling that I have previously advocated myself and therefore I have a natural inclination to support publication of the paper. However, on reading and re-reading the paper I have serious concerns about the quality of the main contributions and also the quality of the presentation.

1) On reading the first few pages I am immediately concerned that the authors, for understandable reasons, are almost repeating sentences and phrases that appear in previous papers. I think they should endeavour at all times to state things in their own words. I would strongly urge you to encourage them to go through the paper carefully

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and eliminate such occurrences, especially in the introduction section or when they present the REW theory.

2) If I understand the paper correctly, the authors have applied the REW model to the Zwalm catchment, calibrated the model, and then carried out what they call "uncertainty analysis". I do not understand why they limit their uncertainty analysis to hydraulic conductivity: they simply say that it is the most influential parameter. What evidence do they have to say this? The total predictive uncertainty of the model comes about due to uncertainty in so many parameters of the model and also the uncertainty of climatic inputs. I therefore do not see the benefit of doing this kind of narrow sensitivity analysis.

3) Most importantly, it seems like a mostly trivial implementation of the REW approach. The implementation of uncertainty analysis is not to be taken as an end in itself. It must lead to improvement of the model, improvement in the estimation of parameters, or the understanding of a process. This paper merely presents uncertainty bounds due to assumed bounds of the saturated hydraulic conductivity values. To my mind this seems like a fairly trivial exercise - I have not learned anything new or insightful from this analysis. Yet another application of the REW model to yet another catchment is not sufficient for publication.

4) To be of real benefit the authors must do a more comprehensive uncertainty analysis, including all of the key parameters, and through this analysis if they come to some kind of hierarchy of the parameters in terms of importance of the overall model predictions, then that would be a more useful exercise. If I misunderstood the paper in any way, at least the authors can respond to these critical comments.

5) I therefore recommend rejection of the manuscript in the present form, and encourage the authors to expand the suite of uncertainty analyses, gain more insights into the nature of model parameter values. This is the only way that this paper can be published in HESS.

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