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Hydrology and Earth System Sciences Discussions

Interactive comment on "An educational model for ensemble streamflow simulation and uncertainty analysis" *by* A. AghaKouchak et al.

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General comments

The authors present a well written paper introducing the hydrological modelling software HBV-Ensembles and possible application for teaching hydrological modelling. The paper consists of a general introduction of the model, a description of exemplary model application and students feedback. The authors shortly explain the technical details of the model (referring to earlier papers), highlighting the possibilities of HBV-Ensembles compared to the classical HBV approach.

There are already two reviews available for this manuscript (HESS-D interactive dis-

cussion) commenting various aspects with respect to content and technical aspects. I agree with almost all of them and will not repeat them in this review. But there are a few further aspects which I rate to be important for such a manuscript. They will be explained in the following.

1. This manuscript is intended to be part of an educational special issue. Therefore I expect the authors not only to present a model which may be used for educational purposes, but also at least to shortly describe their teaching strategy (or the related curriculum) and to explain how the authors think such a model could contribute to the strategy / curriculum, and how to improve the expected learning outcome. This seems to be important to me since the authors argue in one the authors comments that this model could be even used for undergraduate courses. My experience is that even conceptual and deterministic models should be used carefully in that phase of the studies.

2. The authors explain in detail the possibilities and advantages of the presented model in terms of uncertainty and sensitivity analysis. Unfortunately they do not comment possible drawbacks, in particular related to the comment made before related to the teaching concept. Are undergraduate students already able to profit from such tools? If yes, up to which extent? Which additional features can additionally be used for graduate student courses or even for phd students? I would like the authors to comment on such limitations.

3. The authors present the feedback of students to a course in which the model has been applied without commenting the presented results. What can the reader learn from such feedback and its statistical presentation? Many teachers argue that such feedback rather describes a "feel good factor" than an objective representation of the teaching/learning successes. Thus, please comment how you rate the presented results in this context. In addition, I assume that the feedback will strongly depend on how the course (model application) is integrated in the teaching concept / curriculum which is not yet described in this manuscript (see above comment).

4. The authors conclude that the use of the presented model gains insight into the interconnection of hydrological processes. Please explain how this can be achieved.

Specific comments

- P7306, L10-12: The authors conclude that the use of the presented model gains insight into the interconnection of hydrological processes. Please explain how this can be achieved.

- P7315, Figure 5: Please explain the learning gains as part of the figure caption.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 7297, 2012.