**Hydrology and
Earth System
Sciences
Discussions**

Interactive
Comment

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

Anonymous Referee #1

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This article describes a new version of the HBV hydrological model, HBV-Ensemble, which has been designed to complement theoretical hydrology lectures. The primary modification to the model is the ability to run multiple simulations, each with different sets of parameter values. The resultant ensemble of hydrological model simulations can then be used to gauge the uncertainty resulting from model parameter values. The model can be operated from a relatively simple Matlab-based GUI. This new version of HBV appears to be a very useful addition to the toolbox of hydrology-educators. Parameter uncertainty and equifinality are important concepts, and easy-to-use tools for the demonstration of the impact of these concepts (such as HBV-Ensembles) are to be welcomed.

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Discussion Paper

Overall, this paper fits well into the scope of this special issue of Hydrology and Earth System Sciences. It is well written and would be of interest to those involved in teaching hydrology. I find the manuscript to be acceptable for publication in HESS, although I do have a small number of suggestions for minor improvements:

1. The abstract needs to provide some mention that the model has already been used to teach a hydrology class, and indicate that this has been largely successful.

2. Typographical error, p7300, line 6: remove "above"

3. Typographical error: p7301, line 18: change to "will then be partitioned"

4. It would be interesting to provide a little more information on the implementation of the model in the hydrology class (Section 4). How does student satisfaction compare with teaching conducted prior to the introduction of HBV-Ensembles? Has there been an improvement in satisfaction, or students going on to further study in hydrology? Similarly, have grades improved following implementation? It would also be interesting if the authors found any drawbacks to the introduction of this more complex model – particularly as Q.10 (confidence in performing hydrological modelling) has the lowest response of the learning gains questionnaire.

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

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