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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Uncertainty analysis of a spatially-explicit annual water-balance model: case study of the Cape Fear catchment, NC" *by* P. Hamel and A. J. Guswa

Anonymous Referee #1

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The starting paragraphs of the Introduction in the paper by Hamel and Guswa sound very promising outlining the relevance of evaluating annual water yield for ecosystem service in land use change scenarios. This is a current hot topic in the new interdisciplinary socio-hydrology that could be certainly of interest for the readers of HESSD and HESS. In the last paragraphs of the introduction, the focus "down-scales" to the sensitivity analysis of InVEST eco-hydrological and climate input parameters and the comparison between distributed model prediction and lumped water balance model prediction, with reference to 10 sub-catchments in the Cape Fear-North Carolina watershed. I found the sensitivity analysis accurate and valuable, but I was not satisfied

by the assessment of the ecosystem service that is not highlighted in the text. As the authors state in the introduction, the sensitivity may "help InVEST model user ". What could be learned other than the "replicable method" from the results presented in his paper? I would suggest to discuss the new insight in the sensitivity analysis approach, the eco-hydrological relevance of the Cape Fear region and the relevance of the results in the Budyko framework.

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