

## ***Interactive comment on “A generic system dynamics model for simulating and evaluating the hydrological performance of reconstructed watersheds” by N. Keshta et al.***

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The proposed model has certainly potentiality and the data available for the reconstructed watersheds may provide useful insights into the modelling of soil moisture, AET and canopy behaviour. Nonetheless, in addition to precious specific comments made by the Referees, I see three important points, highlighted also by the Referees and not satisfactorily solved in the first Author Comment (published on the 15th Sept), to be addressed before the paper may be considered for publication on HESS: 1) It is necessary a comparison with at least one other soil moisture model, more widely

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known and tested than the original SDW, in order to properly assess the improvement allowed by the proposed approach; accordingly, an extensive review of the evolution of the soil moisture models presented in hydrological literature (and especially of those including an explicit modelling of the role of vegetation) should be included in the Introduction. Referee #1, who explicitly asked for this kind of review, may perhaps help the Authors suggesting additional appropriate references to integrate the Authors' list. 2) It is necessary to test the model over a case study that include overland flow generation (either changing the case study or choosing a period in which there is runoff generation in the reconstructed watersheds), in order to analyse the performance of the model in the reproduction of water balance; 3) At the current stage of development of spatially-distributed models, the use of a lumped approach on a watershed of almost 1580 km<sup>2</sup> (the natural watershed case study) cannot be considered appropriate for reproducing phenomena so variable in space as soil moisture and vegetation storage.

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