

## ***Interactive comment on “Parameter sensitivity to climate and landscape variability of a simple, lumped salt and water balance model” by M. A. Bari and K. R. J. Smettem***

### **Anonymous Referee #4**

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With regards to the comments on significance, structure and presentation, I agree entirely with the other reviews previously posted. I would like to make a further comment about the significance of the paper:

I congratulate the authors on developing an apparently very successful model; however this paper is of limited scientific interest. The parameter identification strategy is not described in detail; the criteria for declaring the model successful are not given (reporting objective function values and visual inspections of fits is not enough); the structural / hydrological reasons for the success (and presumably limitations?) of the model are not analysed; the wider significance of this model and the case studies is not discussed; and the model itself is not an innovation within this paper. The paper is a straightforward report of a modelling case study, including a description (not critical

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analysis) of the source of parameter values and a rather simplistic sensitivity analysis. This is disappointing because there are various scientific questions associated with such modelling studies: representation of input uncertainty, multi-objective nature of the identification problem, inter-comparisons of parameter estimation methods, the adequacy of simple sensitivity analysis, and the practical relevance of the objective functions, etc, etc. I suggest that readers of HESS would like to have some insights into the “excellent fit” and a discussion of the wider significance of the work. Maybe the authors intend to publish such discussions in the 4th of this series of HESS papers? As implied by another reviewer, it may be more appropriate to condense the series.

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Interactive comment on Hydrology and Earth System Sciences Discussions, 2, 1405, 2005.

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