

Interactive comment on “The influence of conceptual model structure on model performance: a comparative study for 237 French catchments” by W. R. van Esse et al.

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The authors thank Dr Ralf Merz for his positive feedbacks on the article following reviewers' comments.

Two experts in the field of hydrological modeling reviewed the paper and came to the same conclusion that the paper should be published after some changes mainly related to clarify some unclear points and to extend discussion. I am sure that the authors are able to answer all the reviewer's comments. Particular, extending the discussion on the factors controlling the (in)consistent and poor model performance of different model

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structures and analyzing the relationship between catchment properties and selection of appropriate model structure would be very helpful for potential readers..

Reply: As suggested by the editor and reviewers, we will introduce two new sections in the article:

1. A section discussing the identification of “monster” catchments, with three main causes for model failure; and
2. A section discussing the possible relationship between catchment type and model structure, with a tentative selection of “a priori” model structures based on catchment characteristics.

We will also remove the permeability catchment descriptor, as Reviewer 1 is correct in pointing out it is redundant.

Our revisions will also address all the other detailed suggestions made by the reviewers, as explained in our detailed replies. A number of further additions and modifications (references, styles, sub-sections) were made to improve the overall content of the manuscript.

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