

Interactive comment on “A framework to assess the realism of model structures using hydrological signatures” by T. Euser et al.

T. Euser et al.

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Dear referee,

Thank you for your useful and constructive review.

We acknowledge your remark that we are presenting a qualitative and, therefore, a somewhat subjective framework. We are currently working on methods to assess the framework quantitatively. However, even in the present form our approach can help a modeller to obtain more insights into the performance and consistency of different

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model structures in different catchments. The new methods (work in progress) would completely overload this paper and will (hopefully) be the subject of a future publication.

Regarding a detailed explanation of the Principal Component Analysis, we agree that it may be difficult to follow the remainder of the paper if PCA is not explained upfront. We will add a section on the basic principles of a PCA in the revised manuscript.

Regarding the minor comments:

1. *Page 12996, line 15: the assumption of normality of the inputs for PCA is discussed, but this is meaningless if PCA is not explained before.*
The PCA will be explained in further details as mentioned above.
2. *Page 13006, line 18: if I remember well, Schaefli and Gupta (2007) suggest not to use Nash-Sutcliffe as is, when comparing different catchments.*
This reference was put in because the authors argue that Nash-Sutcliffe is often used, but that it is not very good to do so. To prevent confusion, we will leave this reference out.
3. *Page 13008, line 19: because the catchment is small, homogeneous and the climate is very humid/wet.*
This sentence will be changed, according to the suggestion.
4. *Page 13012, line 6: please define "validity".*
The validity of the framework is defined as a combination of the limitations of the framework and the applicability of the framework in different catchments. We shall make this clear in the revision of the paper.

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5. *Page 13035, fig. 11: Which catchment is it?*

These are results for the Maimai catchment, this will be added to the caption.

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