

Dear reviewer,

thank you very much for your helpful comments and corrections. We tried to edit the manuscript accordingly in the best possible way.

*Kind regards
Thomas Krauß*

Detailed answers:

- The authors substantially improved the manuscript. However, the manuscript can not be published in its current form. First, there are some technical issues. Still some typos are present and some symbols are not sufficiently explained (e.g. d_l and d_f).

We tried to fix all the typos also according to the hints of other reviewers. The symbols d_l and d_f are now explained in a more detailed way.

- Also work is required with respect to section 3.2: It does not become clear that section 3.2 really tests what should be the main benefit from robust parameters for hydrological applications: The authors state: "Robust parameter vectors should not just perform well on the calibration data but also provide a sufficient model performance in the validation. Hence these parameters can be transferred to other time periods."

An alternative way to establish that the method really produces robust parameters would be the following: - Use observation data and a model to calculate a synthetic discharge series. With multiple repetitions: - Add noise to observations and synthetic discharge and possibly use a different process description for some processes - Split calibration and validation period - Calibrate the model with classical MO-calibration and the proposed method - calculate objectives for validation period. Then use the validation period to demonstrate that the proposed method results in improved objectives for the validation period

Thank you very much for your hint. We carried out an experiment accordingly and edited this section with the results.

- In addition, the authors make a statement that robust parameters should be as little sensitive as possible, which probably is based on the demonstration from Bardossy and Singh 2007. However, the way the statement is made in the manuscript is not specific enough and thus wrong. I will make my point with an extreme example. Let's take the freezing temperature in a snow model. If we set it far below the lowest temperature ever measured in a catchment, we can make sure that the parameter is not sensitive at all and thus according to the definition it would be robust. But clearly, the authors would agree that this is not a useful solution for the parameter. Thus, the statement must be more precise.

We edited the comment and added an explanation considering your comment.

- The point that I have risen before about the necessity that more effort should go into finding a better description/model for the catchment should be included in the discussion, as the authors agree with the comment.