

## ***Interactive comment on “Understanding the water cycle over the upper Tarim basin: retrospect the estimated discharge bias to atmospheric variables and model structure” by Xudong Zhou et al.***

### **Anonymous Referee #1**

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Dear Editor,

Please, find here my comments for the paper ‘Understanding the water cycle over the upper Tarim basin: retrospect the estimated discharge bias to atmospheric variables and model structure’

First of all, in my opinion, this is a good paper that contributes substantially to the state of the art.

The authors show an in-depth and well-articulated understanding about the water cycle over the upper Tarim basin and provide a way to retrospect the bias from the discharge estimation. The authors found that the forcing variables contribute more to the bias

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in the discharge than the model structure. Therefore, the bias in the forcing variables should be first assessed in order to perform the analysis of water cycle. They provide guide then for futures studies.

In terms of the overall quality of the paper, I think it is good, and the novelty of the contribution is relevant. The results are very well discussed and articulated, and the references are up to date. The paper is also well structured, and the scientific results and conclusions are presented in a very clear, concise and sensitive way. This makes the paper an easy reading, and proves the researchers are expert in the field. The content and the quality of the paper fit into the HESS standards (novelty, substantial conclusions, validity of methods and assumptions). I also highlight the thorough interpretation of the results, which support the conclusions. Moreover, the detailed description of the experiments makes the traceability of the results very easy for future researchers. The contribution is relevant for our community, and the authors give proper credit to related work. The title directly reflects the contents of the paper and the abstract provides a concise and complete summary.

In terms of the form, the paper is well written (as i indicate above). And the paper is well balanced.

However, in terms of mathematical formulation, i would like to see more details about how the method was implemented.

To wrap up, although, if possible, I would like to see some additional mathematical details (e.g.. some technical specifications in the methodology), I think the paper is good to be published in its present form.

In case the Editor decides to ask for a reviewed manuscript, I am happy to review it again.

Best Regards,

Reviewer

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