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**Hydrology and Earth System Sciences Discussions**

# *Interactive comment on* "Coupled daily streamflow and water temperature modelling in large river basins" *by* M. T. H. van Vliet et al.

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van Vliet et al. presented a solid paper on their implementation of water temperature simulation capabilities incorporated into the VIC/RBM modeling platform. I tend not to praise too much good papers and provide more comments when the papers have flaws.

Perhaps the only concerns I have about the presented water temperature model is how much the reasonable performance is due to the strong seasonality of the temperature. While this question applies to river discharge as well, but discharge hydrographs still have higher frequency signals that could be in par with the seasonal variation. I wonder, if evaluating the model performance in some sort of deviation terms might be more



informative. For instance, one could compute a time series of the temperature difference between the air and the water and test the model performance in reproducing this difference.

A mapping of this difference, would be useful information on its own, since it would show, where are the regions where the proposed water temperature modeling is vital. In a summary, this paper is a solid and novel contribution that fits into the high quality scientific work that normally comes out from those group who build their research on VIC. I recommend its publication even in its present form.

Notes:

NBIAS was not defined in the text and it is not clear what is the difference between BIAS and NBIAS. Figure 8 show the impact bias of the uncertainties in headwater temperature. While the figure makes sense, but the impact bias as axis label is confusing, since the impact bias here is expressed as percentage, while the BIAS discussed elsewhere was discussed in absolute terms.

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