

**Dear Prof. Bronstert,**

We thank you for reconsidering the manuscript for publication in HESS. Below, we address the technical point risen by reviewer two and state how we addressed it. Our replies to the reviewers' comments are written in blue and italic to distinct them from the reviewers' comments.

On the behalf of all co-authors,

Yours sincerely,

Manuela Brunner

## **Reviewer 2**

Based on the revised Figures 7 – 10, it appears that the authors have addressed the major concern raised in my previous review, i.e. the need for a comparison of future simulations with simulations for the current period, both of which should be based on climate model data. In the previous version of this paper, the 'current' period was modelled using observed meteorological data and used for comparisons with the future period. As I understand it from the authors' reply to my review (and please correct me if I have misunderstood), this has now been replaced in the figures by the multi-model mean value from the 39 climate simulations for the reference period for comparison with the full distribution of results for the future period. In other words, a mean value estimated from the distribution of 'reference' simulations shown in Figure 6 has been used in Figures 7-10. The effects of this change is most noticeable in the significant reduction in the variability in the change in the mean discharge between catchments, shown in Figure 8 and 10. That you have chosen to use the multi-model mean for these comparisons rather than the full distribution for the reference period needs to be mentioned in the text; otherwise, it is unclear as to what 'Current' refers to in the legends for fig. 7 and 9, and what the baseline (i.e. 0 value) is for Figures 8 and 10. In addition, Fig. 10 needs be adjusted so that the full range of values is shown for the box plots in the first row. Other than these two very minor changes, I have no further comments.

*Reply: Thank you very much for reviewing the manuscript again. It is correct that 'current' now refers to the multi-model mean of the reference simulations. We specify on p.9 (I7-10) that the 39 GCM-RCM combinations were used to derive a multi-model mean, which served as a reference for determining changes between current and future conditions. We added this to the captions of Figures 7-10.*

*We tried to choose a common plotting axis for displaying the relative changes in low-flow regimes (Figure 8) and high-flow regimes (Figure 10). Adjusting the y-axis of the first row of Figure 10 would put the different subfigures on different scales, which we try to avoid here. Adjusting all the y-axes jointly would be an option but such an increase in scale has the disadvantage of reducing the size of the small boxplots even more, which would hide some details. We therefore prefer to keep the scales of Figures 8 and 10 as they are.*

**Modification: p.14, l:1 and captions of Figures 7-10.**