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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Multimodel assessment of climate change-induced hydrologic impacts for a Mediterranean catchment" *by* Enrica Perra et al.

Anonymous Referee #3

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The authors present a work that exploits the use of an ensemble of hydrological models with different level of complexity for assessing the relative role of epistemic uncertainty in the climate-hydrological modeling chain. I found that the research topic is interesting and in line with the journal aims. The evaluation of the differences in the representation of a key state variable like soil water content and evapotranspiration processes in addition to the typically adopted comparison in terms of streamflow is in my view particularly attractive. In light of these considerations, I believe that the paper could be accepted for publication in HESS after minor modifications are introduced.

SPECIFIC COMMENTS

Lines 187-190: Since the climate models ensemble adopted in the study is limited to four members, I believe that a deeper discussion of the criteria adopted in this selection

could be beneficial.

I think that the paper could benefit from the inclusion of a sub-section (or Supplementary Material) in which the calibration methods, metrics, and observations adopted are shortly described for each hydrological model setup.

Since a robust calibration and validation of each hydrological model is required for addressing the research questions here proposed, I feel that the manuscript could benefit of a more detailed discussion of the differences between simulated and observed streamflow time series.

Section 4.3. In line with the previous comment, I also think that the performances of the different models in reproducing soil water content and ET should be presented (even in a concise way or as Supplementary Material).

Finally, I feel that the discussion section could be improved trying to understand if the discrepancies between the models are epistemic in their nature (i.e., related to the different representation of the various hydrological processes) or may be related to other factors, like e.g. calibration methods and type of observational data used for evaluating model performances.

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