

Interactive comment on “Derivation of RCM-driven potential evapotranspiration for hydrological climate change impact analysis in Great Britain: a comparison of methods and associated uncertainty in future projections” by C. Prudhomme and J. Williamson

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We would like to thank the two reviewers for their positive comments about our paper and the suggestions for clarifications. We will modify the text as suggested. We have changed the emphasis of the conclusion: yes we agree that rainfall biases in GCM and RCM simulations remains the main challenge in climate change impact assessment on hydrology, but we wanted to highlight that PET uncertainty should not be neglected.

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We will edit the text accordingly.

We also want to thank C. Beales to have spotted some mistakes in the supplementary material that we will correct in the next version of the manuscript.

We realise that the description of the method to derive future PET was not clear enough and will add a short description at the end of section 2.2.2. For both baseline and future time slices PET was calculated from 30-year monthly average for all relevant climate variables from HadRM3-Q0 simulations, and future PET changes calculated as the percentage departure from the baseline PET. HadRM3-Q0 simulations were used to derive all climate averages but temperature. Temperature time series were first bias-corrected using a monthly linear correction (different for each grid cell) based on a 5-km observed mean air temperature time series, and hence contains a spatial downscaling element. Reference to the UKCP09 probabilistic sampling was misleading and will be reduced.

We have added a comment on the time inconsistency of MORECS-PET due to changes in the measuring network used to derive the climate variables time series used in MORECS-PET estimations.

In the introduction, we will add references to conceptual hydrological models used in water resource (CERF) and flood (PDM, CLASSIC) planning in the UK, all calibrated using MORECS-PET.

Finally, we realise that the size of the figures (reduced to half their original size) did not work and will submit full-size figures.

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