

## ***Interactive comment on “Adaptation of water resource systems to an uncertain future” by C. L. Walsh et al.***

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Thanks to the authors for sharing the research findings with the community.

I like the points made by presented on pg 8857 as to the differences between this manuscript and other studies utilising similar approaches. However, while I appreciate the new weather generator, the way of predicting future water demand as well as population growth which for sure are interesting to the other researchers in the community; I do think that the paper can be improved considerably by addressing the following questions:

1. The paper mentions that a new weather generator that can captures the spatial variability of rainfall; and later it also indicates a lumped hydrological model was used.

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What are the main benefits of such combination?

2. It seems that the paper focus mainly on the climate uncertainties. I am under the impression that the uncertainties due to the models (structures/parameterisations) can be ignored. However, this is yet to be justified. It would be interesting to see how decisions can be affected due to over/under-estimate of those models – in particular the catchment and the water resources models used by the study.

3. For catchment models, the paper does not give an account of how well the model has performed. It is very hard to tell this by looking only at Fig 3. As the catchment model is the first node of the model chain, it is very important to know: 3.1) how the model was calibrated, against which dataset; 3.2) whether the model has been tested using the baseline climate data+ weather generator. These questions need to be addressed to make the paper more convincing.

4. The limitation of the methodology needs to be presented clearly and properly. As an example, the catchment is calibrated using a fixed PET whereas projected PET's are fed to study the climate changing impact - would a large change in PET change the rainfall-runoff relation at all?

In addition, more details/references are needed about the LARaWaRM.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 8853, 2015.

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