

***Interactive comment on* “Evaluation of the ERA5 reanalysis as a potential reference dataset for hydrological modeling over North-America” by Mostafa Tarek et al.**

Anonymous Referee #2

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The manuscript evaluates the ERA5 reanalysis as a potential reference dataset for hydrological modelling using two lumped hydrological models in North American catchments. They show, ERA-5 based hydrological modelling performs better and it is equivalent to the observations. Overall, the manuscript is written well and it is well within the scope of HESS. Therefore, I recommend the manuscript for publication, however, with some minor modifications.

I notice some bias pattern between west (cold) and east (warm). Perhaps this may be due to inability of ERA-5 in capturing recent increase in the frequency with which high amplitude ridge trough wave patterns result in simultaneous severe temperature

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conditions in both the West and East (singh et al., 2016; Raymond et al., 2017), or with some other reason. It would be good, if the author provides some explanation to this pattern in their revised manuscript.

This study would form a good foundation for those regions where it lacks the observational gauge datasets (such in underdeveloped countries). The authors should add a discussion on this.

References

Raymond, C., Singh, D., & Horton, R. M. (2017). Spatiotemporal patterns and synoptics of extreme wet bulb temperature in the contiguous United States. *Journal of Geophysical Research: Atmospheres*, 122(24), 13-108.

Singh, D., Swain, D. L., Mankin, J. S., Horton, D. E., Thomas, L. N., Rajaratnam, B., & Diffenbaugh, N. S. (2016). Recent amplification of the North American winter temperature dipole. *Journal of Geophysical Research: Atmospheres*, 121(17), 9911-9928.

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