Hydrology and Earth System Sciences

Discussions

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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 #1

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The manuscript provides a relevant evaluation of the ERA5 precipitation and temperature data from a hydrological modelling perspective. The dataset is compared with a previous release of the ERA-type of reanalyses. The manuscript is well-written and uses clear language.

I only have some minor suggestions to improve the manuscript, which are included in a commented pdf, and a main suggestion which I will discuss here.

While the superiority of the ERA5 dataset over ERA-interim appears clear, the study lacks independent validation measures and opts to use all available hydrological data for calibration purposes. This choice to use more calibration data is justified versus the

traditional reservation of an independent period to validate the calibration. However, while the chance of accidental bias of the calibration method toward a particular dataset is likely slim, it is not guaranteed, or rather the method is not set up to minimize its likelihood.

My suggestion to circumvent this issue is to interchange model parameters between ERA5 and ERA-I scenarios. For example, if ERA5 inputs with ERA-I parameters still perform better than ERA-I inputs with ERA-I parameters, this would be a very convincing argument against the impact of the calibration method from being responsible for the perceived improvement of ERA5 over ERA-I.

Please also note the supplement to this comment:
https://www.hydrol-earth-syst-sci-discuss.net/hess-2019-316/hess-2019-316-RC1-supplement.pdf

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2019-316, 2019.