

Hydrol. Earth Syst. Sci. Discuss., community comment CC1
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Comment on hess-2022-199

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Community comment on "Regional significance of historical trends and step changes in Australian streamflow" by Gnanathikkam Emmanuel Amirthanathan et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2022-199-CC1>, 2022

As someone who has been using this world leading data set, I very much welcome this contribution. I enjoyed reading this manuscript and hope my suggestions are useful to the authors.

Line 82 & 697: "However, it was not clear how these changes relate to change in rainfall", and "Further research is required to reveal the association of historical rainfall changes with observed streamflow". I would argue there is literature that addresses potential drivers, that is rainfall and secondly soil moisture (Wasko et al., 2021; Wasko and Nathan, 2019).

Line 88: I agree but would note that another manuscript focussing on Australia found flood peak timing shifting alongside rainfall peak timing for frequent floods (Wasko et al., 2020).

Line 92: The following manuscript may be relevant (Gu et al., 2020)

Line 166: When I followed the link and clicked on "water year" I got the following definition: "1 July to 30 June." This is different from what was used in this manuscript.

Line 195: Why was only mean/total streamflow considered when previously a range of percentiles was examined (Zhang et al., 2016)?

Line 230: The Pettit test is biased towards finding step changes in the centre of a time series (Mallakpour and Villarini, 2016) – though clearly the results presented here correspond well to drought periods.

Line 434: You mention the MK3test was used for short term persistence, for consistency should you mention that the MK4test was used for long term persistence?

Line 468: Were the magnitude of the trends (on a site-by-site basis) presented or are they just discussed in text?

Line 645: Does this mean non-bolded values in the table are decreasing? This could be stated here.

Line 715: A recent paper (Peterson et al., 2021) and preprint

(<https://hess.copernicus.org/preprints/hess-2022-147/>) suggest increased evapotranspiration per unit of precipitation as a driver.

Editorial:

Line 102: The reference here is missing from the reference list and was published in 2019 (not 2020).

Line 13: Insert "The" -> "The main objectives..."

Line 215: There are some additional spaces in this sentence.

Line 395: Missing 'l' in global.

I am not sure Figure 8 adds much and it could possibly be omitted?

References

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