

Hydrol. Earth Syst. Sci. Discuss., referee comment RC2
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Comment on hess-2021-328

Anonymous Referee #2

Referee comment on "Attributing correlation skill of dynamical GCM precipitation forecasts to statistical ENSO teleconnection using a set-theory-based approach" by Tongtiegang Zhao et al., Hydrol. Earth Syst. Sci. Discuss.,
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This work develops a statistical approach to attributing correlation skill of dynamical forecast to ENSO teleconnection. It can present regions where the forecast skill is attributed to its teleconnections with ENSO, can serve as an effective tool to investigate the source of predictability. The method and results sound reasonable. It is potentially publication if the following concerns are included, regarding to the lead-lag teleconnections and forecast.

- This approach is just applied with concurrent correlation between Nino3.4 index and observations, to represent ENSO teleconnection. But ENSO also has some lead-lag impacts on the precipitation variations, which also involve in the forecast skill and sources of precipitation. How about of the attributions of these processes? More discussions on it are needed.
- Lines 20-24, and 346-350, for the novelty of this work in Abstract and Conclusion, there is a repetition in writing. Please rewrite them.
- Line 94, this work is just "paid to the latest forecasts". It is also quite interesting to figure out that, are there any differences on the ratio of significantly positive anomaly correlation attributable to different types of ENSO teleconnections, with the increase of lead time?
- For the extended analysis in Section 4.4, the percentage of significantly anomaly correlation in MAM, JJA and SON is largest in SON, but still lower than DJF. It suggests obvious seasonal differences. This may connect with the observed teleconnections with ENSO. It would be better giving more discussions on these differences and more comparisons with previous sections and studies.