

Hydrol. Earth Syst. Sci. Discuss., referee comment RC2
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Comment on hess-2022-264

Anonymous Referee #2

Referee comment on "Producing reliable hydrologic scenarios from raw climate model outputs without resorting to meteorological observations" by Simon Ricard et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2022-264-RC2>, 2022

Review for "Producing reliable hydrologic scenarios from raw climate model outputs without resorting to meteorological observations". This manuscript seeks to provide a new framework that can use regional climate model projections (CORDEX) to provide reliable hydrological projections. This framework aims to avoid using meteorological forcing data. Although it is an important topic, I feel most of the claimed goals are not well supported.

- Although the meteorological data is not used, it still requires streamflow observations. I agree that it still uses less data than "conventional" approaches. However, regions with poor meteorological data are less likely to have reliable streamflow observations as well. Therefore, the benefit of this approach is questionable.
- Following my comment above, I think the missing part is: under what meteorological forcing data uncertainty levels the proposed framework is more advantageous? For instance, if we have only one precipitation but good streamflow gauges (not sure if that is realistic), the proposed framework outperforms the conventional approaches.
- The description of the method requires more details. For instance, in line 170: which parameters are calibrated to minimize nCRPS?
- When we are using regional climate model projections/simulations, we tend to be more interested in the long-term statistics, e.g., trends, standard deviations etc. However, only long-term climatology is discussed.
- In the title, "scenarios" and "climate models" make me automatically think about climate change and long-term trends. However, these perspectives are not discussed and/or validated. I would suggest the authors to modify the title and the manuscript to avoid any confusions.
- Finally, I think it should present the optimized parameters to see if they are physically reasonable.