Comment on essd-2021-361
Anonymous Referee #4

Referee comment on "HCPD-CA: high-resolution climate projection dataset in central Asia" by Yuan Qiu et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2021-361-RC4, 2022

This manuscript describes a high-resolution climate projection dataset in central Asia, which could be potentially useful for hydrological or ecological applications. More proofs of its reliability and confidence levels are necessary to present before it could be used in the consequent applications.

The horizontal resolution of 9-km was used in this study. My question is why 9-km? 9-km is an awaked resolution not large as precedent quarter degree, not small as convection-permitting modeling. At this resolution, whether the cumulus parametrization is used or not is still an open question.

The bias-corrected GCMs were used as forcing in this study. What does the simulation performance look like if the bias correction was not used? The previous study also claimed that similar performances were obtained in the Tibetan Plateau using either reanalysis or GCMs as forcing in the historical period. Major differences only occur in the temporal changes or linear trends. Almost the same historical simulations were also presented in figures 3-6 using three different forcings GCMs in this study. Therefore, it would be good to present the differences between using bias-corrected GCM or not.

The future changes in 2031-2050 compared to 1986-2005 are studied. It is neither the end of this century 2100 nor the target year of zero carbon emission 2060. It would be better to describe the importance of this period in the future in central Asia. In addition, all the future changes are based on the model. Suggest adding historical changes or linear trends to solid the credibility or reliability of future changes.