Earth Syst. Sci. Data Discuss., referee comment RC1
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Comment on essd-2020-361

Anonymous Referee #1

Referee comment on "1 km Monthly Precipitation and Temperatures Dataset for China from 1952 to 2019 based on a Brand-New and High-Quality Baseline Climatology Surface" by Haibo Gong et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2020-361-RC1, 2021

As authors said high quality and resolution baseline climatology along with long time series climate data are very important for multiple fields in climatological, ecological, hydrological, and environmental sciences. This study has generated a high quality ChinaClim_baseline based on lots of weather stations and remote sensing data, and then 1km ChinaClim_timeseries based on ChinaClim_baseline and remote sensing data. Compared with the previous climate datasets, this study really improved the estimation accuracy, especially in the areas with low-density weather stations and during April to October, where and when are usually hard to improve the estimation. More interesting, this study found that high quality baseline climatology can greatly improve the estimation of temperature, but less improve that of precipitation. In contrast, remote sensing can greatly improve the estimation of precipitation, but less improve that of temperature. However, I think further improvements are needed on the section of discussion and English grammars. So, I suggest a further revision before acceptance for publication.

Specific comments:

- Lines 234-237, I think these sentences should be placed in the head of the section 3.1.
- Lines 241-247, why there is 1° overlap area?? Because China is out of the range of 50°S to 50°N?? If so, I think you should pointed out the ranges of China.
- Lines 256-257: Why you choose the model with the highest average R2 value instead of the other metrics such as AIC??
- Lines 356-357, I am confused with what you mean! I am not sure how you test the performance of ChinaClim_baseline.
- Line 379, In the first two paragraph of section discussion, you just emphasize that ChinaClim_baseline performs better than the others, but I think you should emphasize more on the implication, especially for the temperature of ChinaClim_baseline. For

example, what the effects for overestimation or underestimation the precipition or temperature in the areas with low-density weather stations during growing season??

- Line560ï¼□Do you mean ChinaClim_baseline??
- Lines 581-584, How your results proved Peng's climate surface and CHELSAcruts datasets, relying on coarse CRU anomaly and high-quality baseline climatology surfaces with CAI method, had relatively high accuracy (high R^2)
- Lines 579-587, It seems that authors want to prove CAI is very suitable for estimating precipitation and temperature, however, they have not estimate these data with the other methods and then compared them with the other method.
- Lines 592-596, what about the improvements in the performance of temperature related variables.
- In this paper, by using a brand new baseline climatology surfaces and remote sensing products, authors have generated 1 km Monthly Precipitation and Temperatures Dataset for China from 1952 to 2019. Thus, except one paragraph to discuss the impacts of ChinaClim_baseline, one more paragraph is suggested to emphasize the importance of remote sensing data.
- All the figures are not very clear, especially that the fonts are too small to recognize.
- Further improvement in English is needed. For example, temperate continental is not a noun, but an adjective, please correct it throughout the manuscript.