Earth Syst. Sci. Data Discuss., referee comment RC2
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Comment on essd-2022-284

Anonymous Referee #2

Referee comment on "Global hourly, 5□km, all-sky land surface temperature data from 2011 to 2021 based on integrating geostationary and polar-orbiting satellite data" by Aolin Jia et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2022-284-RC2, 2022

The authors refined the SEB-based cloudy-sky LST recovery method and produced a global 15 hourly, 5 km, all-sky land surface temperature (GHA-LST) dataset from 2011 to 2021.

Overall, the topic is interesting and relevant to ESSD. I have some major concerns as follows:

- In my opinion, data description paper not only provide data generation (methods, technological process and data availability) but also data usage (quality control, limitation, and so on). Although most similar studies didn't provide related explanation, it is very important for data description paper.
- The Swath MOD/MYD21 LSTs are used for recovery. As we know, LSTs can vary between the viewing zenith angle and acquisition time. The differences in LST measured at nadir and off-nadir can be up to 5–10 K. This effect must also be considered for the GHA-LST dataset.
- I had downloaded the dataset and found some outliers. Therefore, a comprehensive discussion is needed.