Comment on essd-2022-319
Anonymous Referee #3


This study presented a new DSR and PAR dataset derived from GOES-R and Himawari at high spatial (1 km) and temporal (hourly) resolutions. The dataset achieved <20% and <10% relative errors for hourly and daily DSR, respectively, which were claimed to be higher than existing datasets. The manuscripts demonstrated the benefits of high spatial and temporal resolutions, and therefore partly justified the importance of developing this new dataset. In particular, Figure 9 is interesting, revealing that high resolution is critical for hourly radiation. However, I'm not convinced by this study for the following reasons:

1. The innovation is questionable. There are already many radiation datasets derived from geostationary satellite data, either from GOES-R or Himawari. Some of them are also high resolution. The manuscript needs to clearly address the questions: why do we need a new one? What's the advantage of this study, e.g., distinct data sources or distinct algorithm?

2. As a data paper, the Method part is too short. A flow chart is needed, including graphical links between Eq. (1), Eq. (2), inputs and outputs.

3. Terrain effect was not considered. Considering many mountain areas are involved, this could be a big limitation.

4. As a data product, no detailed QC and quantitative uncertainty was provided. This is also a big limitation.

5. The sensitivity to inputs/parameters could provide deeper insights for potential users.
6. There was no map of the DSR and PAR products in the manuscript.

7. Temporal coverage of the dataset was not mentioned. Is it operational and real time?

8. Why does this dataset have higher accuracy than other geostationary-based dataset? If high resolution only matters for hourly data, why does this dataset have much lower errors than others at daily scale?