

Comment on **essd-2022-319**

Anonymous Referee #2

Referee comment on "A GeoNEX-based high-spatiotemporal-resolution product of land surface downward shortwave radiation and photosynthetically active radiation" by Ruohan Li et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2022-319-RC2>, 2022

New-generation geostationary satellites have provided us with more chances to investigate diurnal to seasonal vegetation dynamics. Recently, more and more studies have widely used high temporal resolution geostationary satellite datasets and solar radiation data is one of the most required products in many topics. Although this study has no strong novelty for generating DSR and PAR. Although this study has no strong novelty for generating DSR and PAR, providing a high temporal resolution product itself has a strong advantage.

- Major comments

The author highlight "GeoNEX ...". Considering the unique geostationary satellite network, the strong advantage should be the larger spatial scale integrating the full disk of each geostationary satellite. For example, even if there is no significant improvement in the performance, providing global hourly DSR/PAR itself would have great importance. In this context, this study needs to include Meteosat which covers Europe and Africa. As the authors know, several studies already reported continental-scale hourly solar radiation products using a single geostationary satellite, not GeoNEX data. If the focus of this study is limited to generating continent-scale geostationary satellite-based radiation products, further novelty of the study is required.

- Minor comments

Line 78-80: Too vague expression.

Line 82-83: To highlight this point, the author should consider global coverage.

Line 82-85: Just using one more geostationary satellite cannot be the novelty of this topic.

Line 85-86: Out of context.

Line 87-89: How LUT method address the research gap which the author mentioned in the above paragraph?

Table1: The author highlights the higher spatial resolution (1km) of this study, but input TPW from MERRA2 has over 50km spatial resolution. Is it acceptable?

Section 3.1.3 is well examined the uncertainty of large VZA, which is critical in geostationary satellites. Section 4.1 also well highlighted the advantage of the geostationary satellite-based product.