

Interactive comment on “A 16-year dataset (2000–2015) of high-resolution (3 hour, 10 km) global surface solar radiation” by Wenjun Tang et al.

Anonymous Referee #1

Received and published: 20 August 2019

In this paper, the authors generated 16-year dataset of surface solar radiation (SSR) with high resolution, according to the latest ISCCP and ERA5 data. The SSR is required for land surface process simulations and solar energy estimation. The proposed method for SSR estimation is the physical scheme that used in the previous studies of Qin and Tang et al. The paper is clear and well written. However, the following questions are not satisfactorily answered:

(1). In recent years, Zhang et al 2014 developed SSR high-resolution products based on multi-source satellite data e.g. MODIS. It is recommended that the author describe the characteristics of the study in Line 104, indicating the differences and individual

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characteristics of the products developed in this study.

Zhang, Xiaotong, et al. "Generating Global LAnd Surface Satellite incident shortwave radiation and photosynthetically active radiation products from multiple satellite data." *Remote Sensing of Environment* 152 (2014): 318-332.

(2). L157, cloud top temperature was used to discriminate the water and ice cloud, are there any more details about this? MODIS has a cloud top temperature product. Why not use this product?

(3). L166, MOD08 was used to provide aerosol data, what's the parameters used? AOD?

(4). MOD08 has three temporal resolutions: daily, 8-day and monthly. So which one was used in your SSR calculation, and how do you solve the course temporal resolution of MOD08 to match the high temporal of other input data? Please write the details information on this in your manuscript.

(5). Validated data, 42 stations from BSRN and 90 stations from CMA were used to evaluate the performance of the estimated SSR. For site data applications, have quality control of site data during the verification process of remote sensing products? What standard to control?

Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2019-116>, 2019.

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