

Interactive comment on “Surface global and diffuse solar radiation over China acquired from geostationary Multi-functional Transport Satellite data” by Hou Jiang et al.

Anonymous Referee #2

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Hou et al. present a study about “surface global and diffuse solar radiation over China acquired from geostationary Multi-functional Transport Satellite data”. The following questions should be satisfactorily answered before consideration for publication: 1. The topic is not innovative enough, which has been done by many researchers, for example Tang et al (2016) has published an article named “Retrieving high-resolution surface solar radiation with cloud parameters derived by combining MODIS and MTSAT data”. The input data in your model, the spatial and temporal resolution of your output GSR values are similar to that in Tang’ study. Only using a artificial intelligence model could not be an innovation idea. I would strongly advise the author(s) of this paper to rewrite their introduction section to give more explanation of the research background.

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A very general sentence is not enough to demonstrate the research significance. 2. In Tang’s study (Ditto), Tang et al., innovatively correlated the cloud optical properties to the satellite data that were used in your study. The main radiation dumping processes including Rayleigh scattering, aerosol extinction, ozone absorption, water vapor absorption, permanent gas absorption, and cloud extinction are considered in Tang’s study. What is the scientific correlation between satellite signals in five bands with GSR and DIF values in your study? Author should explain the mechanisms in your model. 3. Please check the unit of GSR, DIF in Figure 4. The unit are different throughout your article. 4. Check the label of the color-bar in Figure 6. 5. Many statistical indicators (RMSE, MAE, rRMSE, R2) are used to evaluate the model accuracy. How to evaluate the overall model performance of your model? 6. On the 14th page of your article, you noted “on the whole, estimates from our production correlate well with ground observations at sites with high probability of cloud-free skies”. As well known, the northern China and northwestern China are the area with the highest of dust aerosol particles in China, especially in summer. How do you detect clear-sky? Author should evaluate the model accuracy in clear-skies and cloudy skies, otherwise author could not get this conclusion above. As well known, the southern and southeastern China are the areas with abundant precipitable water vapor and dense cloud, which would strongly affect the accuracy of your model. How do explain the accuracy of the estimated DIF are higher in cloud weather conditions? Further sufficient explanation should be given for these questions. 7. Syntax check in the whole manuscript should be done. 8. The main contents of this article have been published previously in another journal. This is a serious academic moral issue. This article is highly repetitive with your previous articles on Renewable and sustainable Energy Reviews (<https://doi.org/10.1016/j.rser.2019.109327>). The Figure 1, Figure 2 have been used in your previously published article. Even the main method (CNN and MLP) and the main framework of this article are the same as that in previously published article.

In all, we think that this article is not prepared and should be rejected for publication on ESSD.

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