Earth Syst. Sci. Data Discuss.,
https://doi.org/10.5194/essd-2018-4-AC2, 2018

Open Access Earth System Science Data Discussions

Interactive comment on "Global radiation, photosynthetically active radiation, and the diffuse components dataset of China, 1981–2010" *by* Xiaoli Ren et al.

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Received and published: 22 May 2018

General Comments: Solar radiation is an important factor influencing plant growth. Thus, it is a crucial parameter in analyzing and modelling terrestrial ecosystem productivity, carbon sequestration and other ecophysiological functions. The data are interesting and can be of use for the scientific community.

Reply: Thank you very much for your valuable suggestions! We have carefully addressed all your comments throughout the revised manuscript.

However, the current data formats, ArcGIS GRID and ASCII, will limit many researchers

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who can't use the ArcGIS. If the monthly and yearly values before interpolating could be also given in a common format, e.g. Excel, the dataset is more favorable.

Reply: We really appreciate the suggestion! The site-scale observational data were obtained from China Meteorology Administration (CMA) and Chinese Ecosystem Research Network (CERN), and the site-scale expanded data still include some valid observational data, i.e. the observational data that passed the quality control. Due to the data-owner and copyright issue, we have provided the links (http://data.cma.cn/en and http://www.cern.ac.cn) to where the users can obtain the observational data if they need, instead of sharing the site-scale data directly. Sorry for the inconvenience and we hope this is acceptable.

In the following lines, authors will find minor comments: Page 3 Line 16: The detailed explanation "daily extra-terrestrial radiation", because many readers might don't understand the meaning.

Reply: Extra-terrestrial radiation is determined by solar constant and geographical latitude, and decreases with increasing latitude. We have added the explanation of extra-terrestrial radiation to the revised manuscript (P3, L20).

Page 4 Line 13: N is possible daily sunshine duration, whether it is same at eight regions, what is it?

Reply: Possible sunshine duration is calculated according to the geographical latitude and day of year, so it is not the same at eight regions. We have added the explanation of possible sunshine duration to the revised manuscript (P3, L18).

Page 18 Table 2: The sample numbers should be given in eight regions.

Reply: Thank you for the suggestion. We have added a figure (Fig. R1) to display the numbers of stations for each region in the revised manuscript (Fig. 6 in the revision).

Please also note the supplement to this comment:

https://www.earth-syst-sci-data-discuss.net/essd-2018-4/essd-2018-4-AC2-supplement.pdf

Interactive comment on Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2018-4, 2018.

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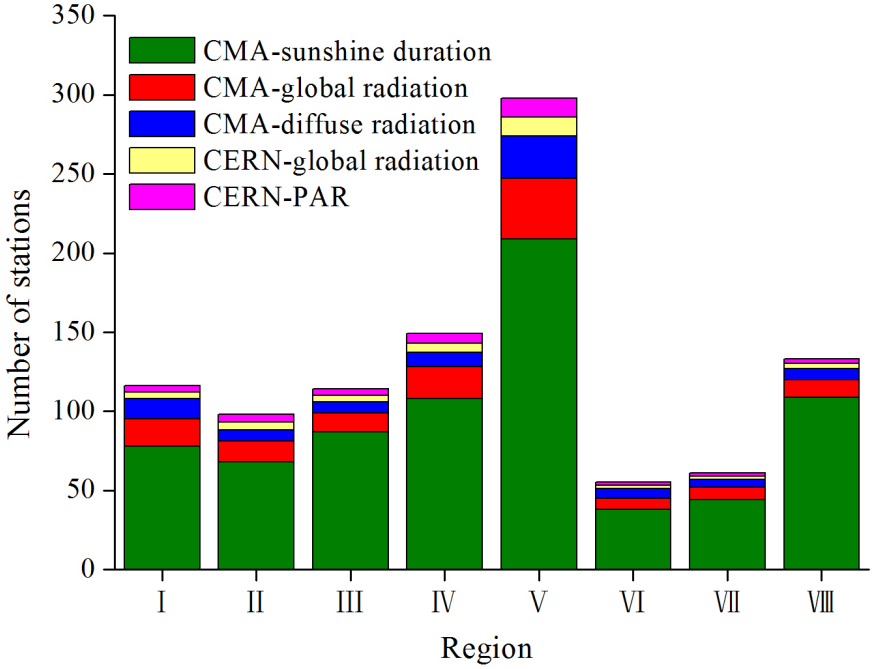

Fig. 1. Figure R1. The numbers of stations observing sunshine duration, global radiation, diffuse radiation, and photosynthetically active radiation (PAR) for each region

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