

What data did we collect from 98 solar radiation measurement stations in China?

We used data acquired between 2001 and 2016 from 98 solar radiation measurement stations in China to verify two satellite-derived products (SARAH-E and CERES-SYN1deg) and two reanalysis data sets (ERA5 and MERRA-2).

What is the most reliable method for obtaining solar radiation measurements?

The most reliable method for obtaining solar radiation measurements involves using pyranometers on the ground. However, stations with pyranometers are not universally available throughout the world and the number of stations is limited due to the high expense of these instruments and their maintenance.

Is high-resolution quantification important for assessing solar energy potential in China?

Our finding is also lower than that of Wang et al., who concluded an R_s trend of $-2.8 \text{ W m}^{-2} \text{ decade}^{-1}$ from 1960 to 1989, as derived from the sunshine duration in 76 stations of China, highlighting the importance of high-resolution quantification for accurate assessment of solar energy potential in China.

Can solar radiation be analyzed in China?

Previous studies usually used limited observation data for modeling and analyzing global solar radiation in China, that has a land area of ~ 9.6 million km^2 . These limited data potentially result in partial valid conclusions owing to their inadequate representativeness.

How do you measure global and direct solar radiation?

Global and direct solar radiation are referred to as the "Mean surface downward short-wave radiation flux" and "Mean surface direct short-wave radiation flux", respectively, and the two variables are measured in J m^{-2} . After dividing by 3600, the units can be transformed from J m^{-2} to W m^{-2} .

When did solar radiation measurements start in China?

In China, most solar radiation measurements started since 1957. In order to update the measurement devices, some stations were terminated and reconstructed during 1990-1993. There are 98 (17 stations with Hb) stations currently measure solar radiation after updating measurement devices.

A method for computing the energy not supplied (ENS) metric takes into account the harmonized operation of principal and secondary OC relays and PV system current-based protective actions at their connection points. The simulations have shown that the proposed method is better at lowering the ENS's yearly value than the standard ...

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distance weighting model to generate high-resolution Rs and PV ...

This study is the first to estimate, using FY-4A and a random forest model, the global horizontal irradiance (GHI) at a 4-km-15-min spatio-temporal resolution over China, as a ...

Based on grid-based method, we prepared a set of SSR and PV power maps with fine spatial resolutions (1.5°;1.5°) and temporal resolutions (annual, seasonal), and ...

Pada saat ini, energi telah menjadi kebutuhan vital untuk menopang kehidupannya dan mendukung kegiatannya masyarakat sehari-hari. Pemanfaatan energi itu sendiri menjadi semakin tak terbatas ...

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