A Big Earth Data Platform for Three Poles

**Data set of solar radiation at Dome C, Antarctic (2006-2016)**

1、Description

Global solar radiation and diffuse horizontal solar radiation at Dome C (Antarctica) are measured by radiation sensors (pyranometers CM22, Kipp & Zonen Inc., The Netherlands), and water vapor pressure (hPa) at the ground are obtained from the IPEV/PNRA Project “Routine Meteorological Observation at Station Concordia”, http://www.climantartide.it. This dataset includes hourly solar radiation and its absorbing and scattering losses caused by the absorbing and scattering atmospheric substances (MJ m-2, 200-3600 nm), and the albedos at the top of the atmosphere and the surface. The above solar radiations are calculated by using an empirical model of global solar radiation (Bai, J.; Zong, X.; Lanconelli, C.; Lupi, A.; Driemel, A.; Vitale, V.; Li, K.; Song, T. 2022. Long-Term Variations of Global Solar Radiation and Its Potential Effects at Dome C (Antarctica). Int. J. Environ. Res. Public Health, 19, 3084. https://doi.org/10.3390/ijerph19053084). The observed global solar radiation and meteorological parameters are available at https://doi.org/10.1594/PANGAEA.935421. The data set can be used to study solar radiation and its attenuation at Dome C, Antarctica.

2、Keywords

Theme：Solar radiation,albedos at the top of the atmosphere,Antarctic,Glacier remote sensing,Cryosphere remote sensing products,Surface Freeze-thaw Cycle/state Remote Sensing,Remote Sensing Technology,empirical model,Atmosphere Remote Sensing,radiation sensor,water vapor pressure,Glacier(Ice Sheet),meteorology
Discipline：Atmosphere,Remote Sensing Technology,Cryosphere
Places：Dome C, Antarctic
Time：2006 to 2016

3、Data details

1.Scale：None

2.Projection：

3.Filesize：12.1MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：15.0 | - |
| west：57.0 | - | east：123.0 |
| - | south：75.0 | - |

5、Time frame:2005-12-31 16:00:00+00:00--2016-12-30 16:00:00+00:00

6、Reference method

References to data:

BAI Jianhui. Data set of solar radiation at Dome C, Antarctic (2006-2016). A Big Earth Data Platform for Three Poles, doi:10.11888/Atmos.tpdc.2727502022

References to articles:

Bai, J., Zong, X., Ma, Y., Wang, B., Zhao, C., Yang, Y., Guang, J., Cong, Z., Li, K., & Song, T. (2022). Long-Term Variations in Global Solar Radiation and Its Interaction with Atmospheric Substances at Qomolangma. Int. J. Environ. Res. Public Health, 19, 8906. https://doi.org/10.3390/ijerph19158906

7、Supporting project information

Pan-Third Pole Environment Study for a Green Silk Road-A CAS Strategic Priority A Program

8、Data resource provider

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