A Big Earth Data Platform for Three Poles

**Historical simulation and future projection dataset of energy and water cycle in the Tibetan Plateau and its surrounding areas (1850-2100)**

1、Description

The Tibetan Plateau (TP) is the largest glacier enrichment area in the middle and low latitudes except the South Arctic and Greenland. The solid water body glaciers and liquid water bodies lakes and rivers together form the Asian Water Tower. The thermal and dynamic effects of the TP and their variability are one of the main driving forces for the TP to affect the Asian monsoon and global atmospheric circulation anomalies. To study the thermal properties of the TP itself and its feedback effect, it is necessary to use the results of climate model experiments to carry out the 100-year historical examination of the TP and its surrounding areas and the future 100-year prediction (temperature, precipitation, radiation, etc.).
This dataset consists of grid point temperature, precipitation, radiation and other data of the TP and its surrounding areas. Its horizontal range covers 40 ° E-180 °, 20 ° S-80 ° N, and the time resolution includes annual and seasonal average. The data are based on the results of the BCC-CSM2-MR model test conducted by the National Climate Center of China in the Coupled Model Intercomparison Project Phase 6 (CMIP6), including historical, SSP126, SSP245, SSP370, and SSP585 experiments. According to the bilinear interpolation method, the data are uniformly interpolated to the resolution level of 1 ° x1 °. The data can provide basic information on regional climate and water cycle changes for the second TP investigation period, provide reference for the field investigation results, and study the possible change mechanism.

2、Keywords

Theme：future projection,Other,energy and water cycle,historical simulation
Discipline：Atmosphere
Places：Tibetan Plateau
Time：1850-2014, 2015-2100

3、Data details

1.Scale：None

2.Projection：

3.Filesize：3696.6MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：80.0 | - |
| west：40.0 | - | east：180.0 |
| - | south：20.0 | - |

5、Time frame:None--None

6、Reference method

References to data:

LI Qingquan . Historical simulation and future projection dataset of energy and water cycle in the Tibetan Plateau and its surrounding areas (1850-2100). A Big Earth Data Platform for Three Poles, doi:10.11888/Atmos.tpdc.2728482022

References to articles:

Yu, J.W., Li, Q.Q., & Ding, Y.H., et al. (2022). Long-term trend of water vapor over the Tibetan Plateau in boreal summer under global warming. Science China Earth Sciences, 65(4), 662–674.

Wu, Q.Y., Li, Q.Q., & Ding, Y.H., et al. (2022). Asian summer monsoon responses to the change of land‒sea thermodynamic contrast in a warming climate: CMIP6 projections. Advances in Climate Change Research, 13, 205-207.

7、Supporting project information

Second Tibetan Plateau Scientific Expedition Program

8、Data resource provider

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