A Big Earth Data Platform for Three Poles

**The post-processing spatial and temporal distribution of water resources (runoff) in the Tibet Plateau from 2046 to 2065**

1、Description

The basic data of hydrometeorology, land use and DEM were collected through the National Meteorological Information Center, the Hydrological Yearbook, the China Statistical Yearbook and the Institute of Geographic Sciences and Resources of the Chinese Academy of Sciences. The distributed time-varying gain hydrological model with independent intellectual property rights is used for modeling, and the Qinghai Tibet Plateau is divided into 10937 sub basins with a threshold of 100 square kilometers. In Heihe River, Yarlung Zangbo River, the source of Yangtze River, the source of Yellow River, Yalong River, Minjiang River and Lancang River basins, 14 flow stations were selected to observe the daily flow data to develop and verify the model. The daily scale Naxi efficiency coefficient is above 0.7, and the correlation coefficient is above 0.8. The precipitation and temperature data output from 13 models and 4 scenarios provided by CMIP6 are used to post process the future precipitation and temperature data. The post processed precipitation and temperature driven hydrological model simulates the water cycle process from 2046 to 2065, and gives the possible future spatial and temporal distribution of 0.1 degree daily scale runoff across the Qinghai Tibet Plateau.

2、Keywords

Theme：runoff,Land Surface Parameter
Discipline：Terrestrial Surface
Places：Tibet
Time：day

3、Data details

1.Scale：None

2.Projection：WGS84

3.Filesize：90000.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：25.0 | - |
| west：70.0 | - | east：105.0 |
| - | south：40.0 | - |

5、Time frame:2045-12-31 16:00:00+00:00--2065-12-30 16:00:00+00:00

6、Reference method

References to data:

YE Aizhong. The post-processing spatial and temporal distribution of water resources (runoff) in the Tibet Plateau from 2046 to 2065. A Big Earth Data Platform for Three Poles, doi:10.11888/Terre.tpdc.2728952022

References to articles:

Xia, J., Wang, G.S., Tan, G., Ye, A.Z., & Huang, G.H. (2005). Development of distributed time-variant gain model for nonlinear hydrological systems. Science in china series d:earth sciences, 48(6), 713-723.

Wang, Y., Ye, A\*., Peng, D., Miao, C., Di, Z., & Gong, W. (2022). Spatiotemporal variations in water conservation function of the Tibetan Plateau under climate change based on InVEST model. Journal of Hydrology: Regional Studies, 41, 101064.

Ye, A., Duan, Q., Zeng, H., Li, L., & Wang, C. (2010). A Distributed Time—Variant Gain Hydrological Model Based on Remote Sensing. Journal of Resources and Ecology, 1, 222-30.

7、Supporting project information

CASEarth:Big Earth Data for Three Poles（grant No. XDA19070000）

8、Data resource provider

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