A Big Earth Data Platform for Three Poles

**China's high-quality natural streamflow gauge-based dataset (1961–2018)**

1、Description

China's high-quality natural gauge-based streamflow dataset (CNRD\_gauge) was developed from a well-trained and tested land surface model (VIC) that coupled to a routing model with flow direction correction. The dataset currently covers multiple hydrological stations for the period 1961–2018 , and will continue to update. The land surface model was trained by a comprehensive parameter uncertainty framework, including parameter sensitivity, optimization, and regionalization. The rooting model was corrected based on high-resolution river flowlines, as well the ascertained gauge locations and catchment areas. Supported by a well-trained model system, about 83% of the catchments across China exhibited NSE > 0.7, and about 56% of the catchments exhibited KGE > 0.7. The systematic bias of estimated natural streamflow from a calibrated land surface model was reduced by the statistical post-processing technique with the Pbias metric decreased from 17.13% to 2.27%. The reconstructed gauge-based streamflow dataset provides a reliable representation of natural hydrological processes in regions affected by intensive human activity.

2、Keywords

Theme：Runoff,Surface Water,Discharge/Flow,Hydrology,Hydrological models
Discipline：Terrestrial Surface
Places：China, Ten large river basin
Time：58 years, monthly

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.5MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：55.0 | - |
| west：70.0 | - | east：140.0 |
| - | south：17.0 | - |

5、Time frame:1960-12-31 16:00:00+00:00--2018-12-30 16:00:00+00:00

6、Reference method

References to data:

GOU Jiaojiao, MIAO Chiyuan. China's high-quality natural streamflow gauge-based dataset (1961–2018). A Big Earth Data Platform for Three Poles, doi:10.11888/Hydro.tpdc.2716442021

References to articles:

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Gou, J. J., Miao, C. Y., Samaniego, L., Xiao, M., Wu, J. W. & Guo, X. Y. (2021). CNRD v1.0: a high-quality natural runoff dataset for hydrological and climate studies in China. Bulletin of the American Meteorological Society, 102(5), E929-E947.

Gou, J. J., Miao, C. Y., Duan, Q. Y., Tang, Q. H., Di, Z. H., Liao, W. H., Wu, J. W. & Zhou, R. (2020). Sensitivity analysis-based automatic parameter calibration of the VIC model for streamflow simulations over China. Water Resources Research, 56:1-19.

7、Supporting project information

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8、Data resource provider

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