A Big Earth Data Platform for Three Poles

**Bankfull geometry dataset of major exorheic rivers on the Qinghai-Tibet Plateau (1984-2020)**

1、Description

Based on the Sentinel-2 and Landsat 5/7/8 multispectral instrument imageries combined with in-situ measured hydrological data, bankfull river geometry of six major exorheic river basins of the Qinghai-Tibet Plateau (the upper Yellow River, upper Jinsha River, Yalong River, Lantsang River, Nu River and Yalung Zangbo River) are presented. River surface of six mainstreams and major tributaries are included. For each river basin, two types of rivers are included: connected and disconnected rivers. Format of the dataset is .shp exported from the ArcGIS 10.5.
Three products are included in the dataset: one original product (bankfull river surface dataset) and two derived products (bankfull river width dataset and bankfull river surface area dataset with a 1 km river length interval). These three products are in three folders. The first folder, “1-Bankfull River Surface”, contains river surface vectors for six river basins in the .shp file. The second folder, “2-Bankfull River Width”, contains bankfull river widths and corresponding coordinates with a 1 km-step river length for six mainstreams and some connected tributaries in .xlsx format. The river width vectors in the .shp files are also provided in the second folder. The third folder, “3-Bankfull River Surface Area”, contains bankfull river surface areas and corresponding coordinates with a 1 km-step river length for six mainstreams and some connected tributaries in .xlsx format.
Three Supplementary Files are included: Supplementary File 1, tables and figures related to the dataset; Supplementary File 2, used for river surface extraction based on GEE platform; Supplementary File 3, used for river width extraction based on Matlab.
The provided planform river hydromorphology data can supplement global hydrography datasets and effectively represent the combined fluvial geomorphology and geological background in the study area.

2、Keywords

Theme：Others,moutain river,Remote Sensing Product,hydrology,Others,Streamflow,Hydrologic characteristic value,spatio-temporal variations,Drainage Basin and River System,Remote Sensing Technology,class III watershed,Hydrology,Optical remote sensing,Terrestrial Surface Remote Sensing,Hydrological remote sensing products
Discipline：Terrestrial Surface,Others,Remote Sensing Technology
Places：Nu River, Yellow River, Yalong River, Qinghai-Tibet Plateau, Jinsha River, Yarlung Zangbo River, Lantsang River
Time：1984-2020, annual maximum peak discharge

3、Data details

1.Scale：None

2.Projection：WGS84

3.Filesize：135.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.33 | - |
| west：82.0 | - | east：105.57 |
| - | south：22.98 | - |

5、Time frame:None--None

6、Reference method

References to data:

XUE Yuan , LI Dan , CHEN Bowei , QIN Chao , WANG Ge , WU Baosheng . Bankfull geometry dataset of major exorheic rivers on the Qinghai-Tibet Plateau (1984-2020). A Big Earth Data Platform for Three Poles, doi:10.1038/s41597-022-01614-w2022

References to articles:

Xue, Y., Qin, C., Wu, B., Li, D., & Fu, X. (2022). Automatic extraction of mountain river surface and width based on multisource high-resolution satellite images. Remote Sensing, 14, 2370.

Li, D., Wang, G., Qin, C., & Wu, B.S. (2021). River extraction under bankfull discharge conditions based on sentinel-2 imagery and DEM data. Remote Sensing, 13, 2650.

Li, D., Wu, B., Chen, B., Qin, C., Wang, Y., Zhang, Y., & Xue, Y. (2020). Open-Surface River Extraction Based on Sentinel-2 MSI Imagery and DEM Data: Case Study of the Upper Yellow River. Remote Sensing, 12, 2737.

7、Supporting project information

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8、Data resource provider

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