A Big Earth Data Platform for Three Poles

**High-temporal-resolution water level and storage change data sets for lakes on the Tibetan Plateau during 2000-2017**

1、Description

The Tibetan Plateau, featuring the most extensive lake distribution in China, has seen rapid expansion of most its lakes. These lakes are important nodes for regional water and energy cycles, and highly sensitive to climate change. It is therefore imperative to unravel lake water storage changes under climate variation and change to improve the understanding of mechanisms of the interactions between regional hydrology and climate and their changes. This developed data set provides water level, hypsometric curves, and lake storage changes for 52 large lakes across the TP from 2000 to 2017, comprising traditional altimetry water levels and a unique source of information termed as the optical water levels derived from tremendous amounts of Landsat archives using Google Earth Engine. Field experiments agree with the theoritical analysis that the uncertainty of optical water level is 0.1 - 0.2 m, comparable with that of altimetry water level. The uncertainty of altimetry water level is represented by the standard deviation of water levels obtained from effective footprints of the same cycle, which is included in the dataset. This dataset is applicable in water resource and security management, lake basin hydrological analysis, water balance analysis and the like. For instance, it has great potential in monitoring lake overflow flood.

2、Keywords

Theme：Stage height,Area,Total surface water,Surface Water,Lakes
Discipline：Terrestrial Surface
Places：Tibetan Plateau
Time：2000-2017

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.228MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：38.29 | - |
| west：79.18 | - | east：100.26 |
| - | south：28.57 | - |

5、Time frame:2000-02-18 16:00:00+00:00--2018-01-18 16:00:00+00:00

6、Reference method

References to data:

LI Xingdong, ZHAO Fanyu, HAN Pengfei, LONG Di, WADA Yoshihide, HUANG Qi. High-temporal-resolution water level and storage change data sets for lakes on the Tibetan Plateau during 2000-2017. A Big Earth Data Platform for Three Poles, doi:10.1594/PANGAEA.8984112019

References to articles:

Li, X., Long, D., Huang, Q., Han, P., Zhao, F., and Wada, Y. (2019). High-temporal-resolution water level and storage change data sets for lakes on the Tibetan Plateau during 2000–2017 using multiple altimetric missions and Landsat-derived lake shoreline positions. Earth Syst. Sci. Data, 11, 1603–1627, https://doi.org/10.5194/essd-11-1603-2019.

7、Supporting project information

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8、Data resource provider

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