A Big Earth Data Platform for Three Poles

**Lake ice thickness in the Northern Hemisphere (1992-2019, 2071-2099)**

1、Description

This dataset consists of four files including (1) Lake ice thickness of 16 large lakes measured by satellite altimeters for 1992-2019 (Altimetric LIT for 16 large lakes.xlsx); (2) Daily lake ice thickness and lake surface snow depth of 1,313 lakes with an area > 50 km2 in the Northern Hemisphere modeled by a one-dimensional remote sensing lake ice model for 2003-2018 (in NetCDF format); (3) Future lake ice thickness and surface snow depth for 2071-2099 modeled by the lake ice model with a modified ice growth module (table S1.xlsx); (4) A lookup table containing lake IDs, names, locations, and areas. This daily lake ice and snow thickness dataset could provide a benchmark for the estimation of global lake ice and snow mass, thereby improving our understanding of the ecological and economical significance of freshwater ice as well as its response to climate change.

2、Keywords

Theme：Others,Microwave remote sensing,Altimetry,Lake ice,Surface Freeze-thaw Cycle/state Remote Sensing,Ice thickness
Discipline：Remote Sensing Technology,Cryosphere
Places：Northern Hemisphere
Time：Daily

3、Data details

1.Scale：None

2.Projection：

3.Filesize：120.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：89.0 | - |
| west：-179.0 | - | east：180.0 |
| - | south：30.0 | - |

5、Time frame:1992-11-30 16:00:00+00:00--2019-12-30 16:00:00+00:00

6、Reference method

References to data:

LI Xingdong, ZHAO Fanyu, LONG Di, HUANG Qi. Lake ice thickness in the Northern Hemisphere (1992-2019, 2071-2099). A Big Earth Data Platform for Three Poles, doi:10.5281/zenodo.55285422022

References to articles:

Li, X., Long, D., Huang, Q., & Zhao, F. (2022). The state and fate of lake ice thickness in the Northern Hemisphere. Science Bulletin, 67(5), 537-546.

7、Supporting project information

the Second Tibetan Plateau Scientific Expedition and Research (STEP) program (2019QZKK0105)
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8、Data resource provider

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