A Big Earth Data Platform for Three Poles

**Qinghai Tibet Plateau Lake Ice Phenology Data Set Based on MODIS Daily Snow Products (2001-2020)**

1、Description

This data set provides the lake ice phenology of 71 lakes on the Qinghai Tibet Plateau from 2001 to 2020, including the freeze-up start, freeze-up end, break-up start, break-up end, complete freezing duration, and ice cover duration. The data set was extracted from the cloud-gap-filled MODIS daily snow product based on a dynamic changed threshold. Compared with the coarse resolution passive microwave AMSR-E/2 lake ice phenology data set, the average absolute error of the freeze-up start date was 2.33-7.25 days, and the average absolute error of the break-up end date was 1.75-4.67 days. The data can provide a data basis for the relevant research on the response of the Qinghai Tibet Plateau lake system to climate change.

2、Keywords

Theme：Lake ice phenology,Cryosphere remote sensing products,Lake ice,Surface Freeze-thaw Cycle/state Remote Sensing  
Discipline：Cryosphere  
Places：Tibetan Plateau  
Time：2001-2020

3、Data details

1.Scale：None

2.Projection：None

3.Filesize：0.04MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：40.0 | - |
| west：73.0 | - | east：105.0 |
| - | south：25.0 | - |

5、Time frame:2000-08-31 16:00:00+00:00--2020-08-30 16:00:00+00:00

6、Reference method

References to data:

KE Changqing, CAI Yu. Qinghai Tibet Plateau Lake Ice Phenology Data Set Based on MODIS Daily Snow Products (2001-2020). A Big Earth Data Platform for Three Poles, doi:10.11888/Cryos.tpdc.2729212022

References to articles:

Cai, Y., Ke, C.Q., Li, X., Zhang, G., Duan, Z., & Lee, H. (2019). Variations of Lake Ice Phenology on the Tibetan Plateau From 2001 to 2017 Based on MODIS Data. Journal of Geophysical Research: Atmospheres, 124(2), 825–843. https://doi.org/10.1029/2018JD028993  
  
Cai, Y., Ke, C.Q., Xiao, Y., & Wu, J. (2022). What caused the spatial heterogeneity of lake ice phenology changes on the Tibetan Plateau? Science of The Total Environment, 836, 155517. https://doi.org/10.1016/j.scitotenv.2022.155517  
  
Cai, Y., Ke, C.Q., Yao, G., & Shen, X. (2020). MODIS-observed variations of lake ice phenology in Xinjiang, China. Climatic Change, 158(3–4). https://doi.org/10.1007/s10584-019-02623-2

7、Supporting project information

Natural Science Foundation of China  
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8、Data resource provider

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