A Big Earth Data Platform for Three Poles

**Daily cloud-free MODIS NDSI and snow phenology dataset over High Mountain Asia （2000-2021）**

1、Description

Snow cover is an important component of the cryosphere and an indispensable variable in the scientific research of global change and Earth system. The distribution range and phenological information of snow cover are important indicators to measure the variation characteristics of snow cover, and also important parameters for snow melting runoff simulation in the hydrological model of cold regions. The High Mountain Asia is the source of many international rivers, and also the hot spot of global climate change research; The ecological and environmental problems caused by the change of ice and snow in the region, such as the reduction of water resources, the increase of extreme weather events, and the frequent occurrence of disasters, have attracted extensive attention from all countries. Therefore, it is very important for climate change research, water resources management, disaster early warning and prevention to accurately obtain long-term snow distribution and snow phenology data in High Mountain Asia .
The daily cloudless MODIS normalized snow cover index (NDSI) product (2000-2021500 m) in the High Mountain Asia is based on the MODIS daily snow cover product (including Terra Morning Star data product MOD10A1 and Aqua Afternoon Star data product MYD10A1, C6 versions), and is processed by the same day afternoon star data fusion and cubic spline interpolation cloud removal algorithm; Among them, when there was only Morningstar data product MOD10A1 from 2000 to 2002, the cubic spline interpolation algorithm was directly used for cloud removal. The snow cover phenological data set for hydrological years 2002-2020 is prepared based on cloudless MODIS NDSI products in hydrological years, including three parameters: snow onset date (SOD), snow end date (SED) and snow duration days (SDD). This data set has reliable accuracy.

2、Keywords

Theme：snow cover,remote sensing of snow cover,snow phenology,Surface Freeze-thaw Cycle/state Remote Sensing,Remote Sensing Technology
Discipline：Remote Sensing Technology,Cryosphere
Places：Tibetan plateau, High Mountain Asia, Tianshan mountains
Time：2000-2021

3、Data details

1.Scale：None

2.Projection：

3.Filesize：75468.8MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：57.0 | - |
| west：64.0 | - | east：107.0 |
| - | south：23.0 | - |

5、Time frame:2000-02-23 16:00:00+00:00--2021-12-30 16:00:00+00:00

6、Reference method

References to data:

TANG Zhiguang , DENG Gang . Daily cloud-free MODIS NDSI and snow phenology dataset over High Mountain Asia （2000-2021）. A Big Earth Data Platform for Three Poles, doi:10.11888/Cryos.tpdc.2728362022

References to articles:

Tang, Z., Deng, G., Hu, G., Zhang, H., Pan, H., & Sang, G. (2022). Satellite observed spatiotemporal variability of snow cover and snow phenology over High Mountain Asia from 2002 to 2021. Journal of Hydrology, 613, 128438.

7、Supporting project information

the State Key Laboratory of Cryospheric Science, Northwest Institute of Eco-Environment and Resources, Chinese Academy Sciences (No. SKLCS-OP-2020-08)
National Natural Science Foundation of China (No. 41871058),

8、Data resource provider

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