A Big Earth Data Platform for Three Poles

**High resolution soil freeze/thaw dataset of the Qinghai-Tibet Engineering Corridor (2015-2020)**

1、Description

This data is a high-resolution soil freeze/thaw (F/T) dataset in the Qinghai Tibet Engineering Corridor (QTEC) produced by fusing sentinel-1 SAR data, AMSR-2 microwave radiometer data, and MODIS LST products. Based on the newly proposed algorithm, this product provides the detection results of soil F/T state with a spatial resolution of 100 m on a monthly scale. Both meteorological stations and soil temperature stations were used for results evaluation. Based on the ground surface temperature data of four meteorological stations provided by the national meteorological network, the overall accuracy of soil F/T detection products achieved 84.63% and 77.09% for ascending and descending orbits, respectively. Based on the in-situ measured 5 cm soil temperature data near Naqu, the average overall accuracy of ascending and descending orbits are 78.58% and 76.66%. This high spatial resolution F/T product makes up traditional coarse resolution soil F/T products and provides the possibility of high-resolution soil F/T monitoring in the QTEC.

2、Keywords

Theme：Surface Freeze-thaw Cycle/State,Microwave Remote Sensing,Cryosphere remote sensing products,Surface Freeze-thaw Cycle/state Remote Sensing,Remote Sensing Technology,soil freeze/thaw
Discipline：Remote Sensing Technology,Cryosphere
Places：Tibetan Plateau, The Qinghai-Tibet Engineering Corridor
Time：2015-2020

3、Data details

1.Scale：None

2.Projection：WGS84

3.Filesize：67.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：36.63 | - |
| west：90.32 | - | east：95.16 |
| - | south：29.43 | - |

5、Time frame:2014-12-31 16:00:00+00:00--2020-12-30 16:00:00+00:00

6、Reference method

References to data:

ZHOU Junxiong , LIU Xiuguo , ZHOU Xin , CHEN Qihao , ZHANG Zhengjia , XIE Qinghua . High resolution soil freeze/thaw dataset of the Qinghai-Tibet Engineering Corridor (2015-2020). A Big Earth Data Platform for Three Poles, doi:10.11888/Cryos.tpdc.2721442022

References to articles:

Zhou, X., Zhou, J., Xie, Q., Zhang, Z., Chen, Q., & Liu, X. (2022). Detection of Soil Freeze/Thaw States at a High Spatial Resolution in Qinghai-Tibet Engineering Corridor. IEEE Geoscience and Remote Sensing Letters, 19, 1-5.

7、Supporting project information

National Natural Science Foundation of China
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