A Big Earth Data Platform for Three Poles

**Dataset of ground temperature in Jiagedaqi along the China-Russia Crude Oil Pipeline (Version 1.0) (2012-2018)**

1、Description

The borehole is about 7km away from Jiagedaqi City （50.47°N, 124.23°E), located in a wetland with about 80cm-thick peaty soil. There are three boreholes, and one is 2m away from the pipe center and 20m deep, the second is 16.6m away and 20m deep, and the third is 50m away from the second pipeline and 60 m deep. Based on the temperature borehole with a diameter of 40 mm and depths of 20 to 60 m, the ground temperature along the China-Russia Crude Oil Pipeline was measured using the thermistor sensor, which was assembled by State Key Laboratory of Frozen Soil Engineering, and calibrated with an accuracy of ±0.05℃. Therefore, the critical characteristic parameters such as ground stratigraphy, temperature of permafrost, surface temperature and active layer thickness were obtained. During the period from October 2014 to October 2017, ground temperatures in the T1 and T2 boreholes were collected manually. The ground temperatures in T3 was collected automatically and continuously since 12 June of 2018. Then the continuous and complete record of ground temperature data uploaded to the specified server (fixed IP address) by the wireless transmission module utilizing cellular networks. From these measured data along the China-Russia Crude Oil Pipeline route, the development characteristics and historical evolution of permafrost, and its response to the climate change can be analyzed.

2、Keywords

Theme：Ground temperature,Frozen Ground  
Discipline：Cryosphere  
Places：Jiagedaqi, along the China-Russia Crude Oil Pipeline  
Time：2012-2018

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.6MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：55.0 | - |
| west：126.0 | - | east：123.0 |
| - | south：46.0 | - |

5、Time frame:2012-03-17 16:00:00+00:00--2018-09-01 03:59:59+00:00

6、Reference method

References to data:

LI Guoyu. Dataset of ground temperature in Jiagedaqi along the China-Russia Crude Oil Pipeline (Version 1.0) (2012-2018). A Big Earth Data Platform for Three Poles, doi:10.11888/Geocry.tpdc.2705052018

References to articles:

Wang Fei, Li Guoyu, Ma Wei, et al. Pipeline–permafrost interaction monitoring system along the China–Russia crude oil pipeline. Engineering Geology, 2019, 254: 113-125.  
  
Li, G.Y., Wang, F., Ma, W., Fortier, R., Mu, Y.H., Zhou, Z.W., Mao, Y.C., & Cai, Y.J. (2018). Field observations of cooling performance of thermosyphons on permafrost under the China-Russia Crude Oil Pipeline. Applied Thermal Engineering, 41. 688–696.

7、Supporting project information

Pan-Third Pole Environment Study for a Green Silk Road-A CAS Strategic Priority A Program

8、Data resource provider

name: LI Guoyu  
unit: Northwest Institute of Eco-Environment and Resources, CAS  
email: guoyuli@lzb.ac.cn