A Big Earth Data Platform for Three Poles

**The active layer depth distribution map of the Qinghai-Tibet engineering corridor (1980-2015)**

1、Description

Based on the existing natural hole data of 15 active layer depth monitoring sites in the Qinghai-Tibet Engineering Corridor, the active layer depth distribution map of the Qinghai-Tibet Engineering Corridor was simulated using the GIPL2.0 frozen soil model. The model required synthesis of a temperature data set of time series. The temperature data were divided into two phases according to the time spans, which were 1980-2009 and 2010-2015. The data of the first phase were from the Chinese meteorological driving data set (http://dam. Itpcas.ac.cn/rs/?q=data#CMFD\_0.1), and the data of the second phase was the application of MODIS surface temperature products (MOD11A1/A2 and MYD11A1/A2) with a spatial resolution of 1 km. In addition, the soil type data required by the model came from the China Soil Database (V1.1) and have a resolution of 1 km. At the same time, the topography was also considered. The research area was classified into 88 types based on the measured soil thermophysical parameters and land cover types, and then the simulation was performed.  
The simulation results were compared with the field measured data. The results showed that they were highly consistent, and the correlation coefficient reached 0.75. In alpine areas, the average depth of the active layer is below 2.0 m. However, in the river valleys, the average depth of the active layer is above 4.0 m. In the high plain area, the depth of the active layer is usually between 3.0 m and 4.0 m.

2、Keywords

Theme：Ground temperature,Active layer,Frozen Ground  
Discipline：Cryosphere  
Places：the Qinghai-Tibet Engineering Corridor  
Time：

3、Data details

1.Scale：None

2.Projection：

3.Filesize：1.0MB

4.Data format：TIFF

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：35.43 | - |
| west：92.83 | - | east：93.5 |
| - | south：34.68 | - |

5、Time frame:1980-01-11 11:52:00+00:00--2016-01-10 11:52:00+00:00

6、Reference method

References to data:

NIU Fujun. The active layer depth distribution map of the Qinghai-Tibet engineering corridor (1980-2015). A Big Earth Data Platform for Three Poles, doi:10.11888/GlaciolGeocryol.tpe.0000079.file2018

References to articles:

吴青柏, & 牛富俊. (2013). 青藏高原多年冻土变化与工程稳定性. 科学通报, 58(2), 115-130.  
  
Niu, F., Zheng, H., & Li, A. (2018). The study of frost heave mechanism of high-speed railway foundation by field-monitored data and indoor verification experiment. Acta Geotechnica.

7、Supporting project information

CASEarth:Big Earth Data for Three Poles（grant No. XDA19070000）

8、Data resource provider

name: NIU Fujun  
unit: Northeast Institute of Ecology and Environmental Resources,Chinese Academy of Sciences  
email: niufujun@lzb.ac.cn