A Big Earth Data Platform for Three Poles

**Tibetan soil carbon pool to 3 m depth (2019)**

1、Description

This dataset is derived from the paper: Ding, J., Wang, T., Piao, S., Smith, P., Zhang, G., Yan, Z., Ren, S., Liu, D., Wang, S., Chen, S., Dai, F., He, J., Li, Y., Liu, Y., Mao, J., Arain, A., Tian, H., Shi, X., Yang, Y., Zeng, N., & Zhao, L. (2019). The paleoclimatic footprint in the soil carbon stock of the Tibetan permafrost region. Nature Communications, 10(1), 4195. doi:10.1038/s41467-019-12214-5.  
This data contains R code and a new estimate of Tibetan soil carbon pool to 3 m depth, at a 0.1° spatial resolution.  
Previous assessments of the Tibetan soil carbon pools have relied on a collection of predictors based only on modern climate and remote sensing-based vegetation features. Here, researchers have merged modern climate and remote sensing-based methods common in previous estimates, with paleoclimate, landform and soil geochemical properties in multiple machine learning algorithms, to make a new estimate of the permafrost soil carbon pool to 3 m depth over the Tibetan Plateau, and find that the stock (38.9-34.2 Pg C) is triple that predicted by ecosystem models (11.5 ± 4.2 Pg C), which use pre-industrial climate to initialize the soil carbon pool. This study provides evidence that illustrates, for the first time, the bias caused by the lack of paleoclimate information in ecosystem models.  
The data contains the following fields:  
Longitude (°E)  
Latitude (°N)  
SOCD (0-30cm) (kg C m-2)  
SOCD (0-300cm) (kg C m-2)  
GridArea (k㎡)  
3mCstcok (10^6 kg C)

2、Keywords

Theme：Carbon Pool,Frozen Ground  
Discipline：Atmosphere,Palaeoenvironment,Cryosphere  
Places：Qinghai-Tibet Plateau  
Time：2019

3、Data details

1.Scale：None

2.Projection：

3.Filesize：1.27MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：40.0 | - |
| west：73.5 | - | east：104.3 |
| - | south：26.0 | - |

5、Time frame:2019-01-28 00:00:00+00:00--2020-01-27 00:00:00+00:00

6、Reference method

References to data:

WANG Tao, DING Jinzhi. Tibetan soil carbon pool to 3 m depth (2019). A Big Earth Data Platform for Three Poles, doi:10.11888/Geocry.tpdc.2709122020

References to articles:

Ding, J., Wang, T., Piao, S., Smith, P., Zhang, G., Yan, Z., Ren, S., Liu, D., Wang, S., Chen, S., Dai, F., He, J., Li, Y., Liu, Y., Mao, J., Arain, A., Tian, H., Shi, X., Yang, Y., Zeng, N., & Zhao, L. (2019). The paleoclimatic footprint in the soil carbon stock of the Tibetan permafrost region. Nature Communications, 10(1), 4195. doi:10.1038/s41467-019-12214-5.

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: WANG Tao  
unit:   
email: twang@itpcas.ac.cn  
  
name: DING Jinzhi  
unit:   
email: jzding@itpcas.ac.cn