A Big Earth Data Platform for Three Poles

**The 1-km Permafrost Zonation Index Map over the Tibetan Plateau (2019)**

1、Description

Based on a recently developed inventory of permafrost presence or absence from 1475 in situ observations, we developed and trained a statistical model and used it to compile a high‐resolution (30 arc‐ seconds) permafrost zonation index (PZI) map. The PZI model captures the high spatial variability of permafrost distribution over the QTP because it considers multi- ple controlling variables, including near‐surface air temperature downscaled from re‐ analysis, snow cover days and vegetation cover derived from remote sensing. Our results showed the new PZI map achieved the best performance compared to avail- able existing PZI and traditional categorical maps. Based on more than 1000 in situ measurements, the Cohen's kappa coefficient and overall classification accuracy were 0.62 and 82.5%, respectively. Excluding glaciers and lakes, the area of permafrost regions over the QTP is approximately 1.54 (1.35–1.66) ×106 km2, or 60.7 (54.5– 65.2)% of the exposed land, while area underlain by permafrost is about 1.17 (0.95–1.35) ×106 km2, or 46 (37.3–53.0)%.

2、Keywords

Theme：Frozen ground distribution,Frozen Ground
Discipline：Cryosphere
Places：Tibet Plateau
Time：na

3、Data details

1.Scale：None

2.Projection：WGS84

3.Filesize：185.0MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：40.0 | - |
| west：73.5 | - | east：105.0 |
| - | south：26.0 | - |

5、Time frame:1979-01-13 16:00:00+00:00--2000-01-13 03:59:59+00:00

6、Reference method

References to data:

CAO Bin, CAO Bin. The 1-km Permafrost Zonation Index Map over the Tibetan Plateau (2019). A Big Earth Data Platform for Three Poles, doi:10.11888/Geocry.tpdc.2702152019

References to articles:

Cao, B., Zhang, T., Wu, Q., Sheng, Y., Zhao, L., & Zou, D. (2019). Permafrost zonation index map and statistics over the Qinghai‐Tibet Plateau based on field evidence. Permafrost and Periglac Process, 30, 178– 194. https://doi.org/10.1002/ppp.2006.

Cao, B., Zhang, T., Wu, Q., Sheng, Y., Zhao, L., & Zou, D. (2019). Brief communication: Evaluation and inter-comparisons of Qinghai–Tibet Plateau permafrost maps based on a new inventory of field evidence, The Cryosphere, 13, 511–519, https://doi.org/10.5194/tc-13-511-2019.

7、Supporting project information

8、Data resource provider

name: CAO Bin
unit: National Tibetan Plateau Data Center Institute, Institute of Tibetan Plateau, Chinese Academy of Sciences
email: bin.cao@itpcas.ac.cn

name: CAO Bin
unit:
email: bin.cao@itpcas.ac.cn