A Big Earth Data Platform for Three Poles

**Lake sediment-surface pollen dataset for alpine meadow in eastern Tibetan Plateau**

1、Description

Relationship between modern pollen and climate, and its representative to vegetation are the important references in explaining and reconstructing past climate and vegetation qualitatively or quantitatively. To extrct past climate and vegetation signals from fossil pollen spectrum of a lacustrine sediment, a corresponding modern pollen dataset collected from lake-sediment surface is necessary. At present, there are a few modern pollen datasets extracted from lake sediment-surface established on the Tibetan Plateau, however, the geographic gaps (e.g. the central and east Tibetan Plateau) of available sampled lakes influence the correct understanding.
To ensure the even distribution of the representative lakes, we collected lake sediment-surface samples (n=117) covering the alpine meadow evenly on the east and central Tibetan Plateau, in July and August 2018. For pollen extraction, approximately 10 g (wet original sediment) per sample were sub-sampled. Pollen sample was processed by the standard acid-alkali-acid procedures followed by 7-μm-mesh sieving. More than 500 terrestrial pollen grains were counted for each sample.
Pollen assemblages of the dataset from alpine meadow are dominated by Cyperaceae (mean is 68.4%, maximum is 95.9%), with other herbaceous pollen taxa as commen taxa including Poaceae (mean is 10.3%, maximum is 87.7%), Ranunculaceae (mean is 4.8%, maximum is 33.6%), Artemisia (mean is 3.7%, maximum is 24.5%), Asteraceae (mean is 2.1%, maximum is 33.6%), etc. Salix (mean is 0.4%, maximum is 5.3%) is the major shrub taxon in these pollen assemblages, while arboreal taxa occur with low percentages generally (mean of total arboreal percentages is 0.9% (maximum is 5.8%), including mainly Pinus (mean is 0.3%, maximum is 1.8%), Betula (mean is 0.1%, maximum is 0.9%) and Alnus (mean is 0.1%, maximum is 0.7%). These pollen assemblages represent the plant components well in the alpine meadow communities, although they are influenced slightly by long-distance pollen grain transported by wind or river (such as these arboreal pollen taxa).
Together with pollen counts and percentages, we also provided the modern climatic data for the sampled lakes. The China Meteorological Forcing Dataset (CMFD; gridded near-surface meteorological dataset) with a temporal resolution of three hours and a spatial resolution of 0.1° was employed, and the climatic data of the nearest pixel of one sampled lake was defined to represent climatic conditions of the lake. Finally, the mean annual precipitation (Pann), mean annual temperature (Tann) and mean temperature of the coldest month (Mtco) and warmest month (Mtwa) are calculated for each sampled lake.

2、Keywords

Theme：Pollen,Paleoclimate Reconstruction
Discipline：Palaeoenvironment
Places：Alpine meadow
Time：Modern pollen

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.086MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：35.5 | - |
| west：91.8 | - | east：99.8 |
| - | south：31.6 | - |

5、Time frame:None--None

6、Reference method

References to data:

LI Kai, TIAN Fang, NI Jian, CAO Xianyong. Lake sediment-surface pollen dataset for alpine meadow in eastern Tibetan Plateau. A Big Earth Data Platform for Three Poles, doi:10.11888/Paleoenv.tpdc.2711912021

References to articles:

Cao, X. , Tian, F. , Li, K. , Ni, J. , Wang, N. (2021). Lake surface-sediment pollen dataset for the alpine meadow vegetation type from the eastern Tibetan Plateau and its potential in past climate reconstructions. Earth Syst. Sci. Data, 13, 3525–3537, doi: 10.5194/essd-13-3525-2021.

7、Supporting project information

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8、Data resource provider

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