A Big Earth Data Platform for Three Poles

**Long-term glacier melt fluctuations of Qiangyong Glacier on the Tibetan Plateau over the past 2500 yr**

1、Description

The source of the data is paper: Zhang, J.F., Xu, B.Q., Turner, F., Zhou, L.P., Gao, P., Lü, X.M., & Nesje, A. (2017). Long-term glacier melt fluctuations over the past 2500 yr in monsoonal high asia revealed by radiocarbon-dated lacustrine pollen concentrates. Geology, 45(4), 359-362.  
In this paper, the researcher of Institute of Tibetan Plateau Research, Chinese Academy of Sciences and CAS Center for Excellence in Tibetan Plateau Earth Sciences, Baiqing Xu, with his postdoctoral fellow, Jifeng Zhang, and collaborators from Peking University and other institutions, propose that the OPE (“old pollen effect”, the offset between the calibrated 14C ages of pollen in lake sediments and the sediment depositional age) as a new indicator of glacier melt intensity and fluctuations by measuring the radiocarbon ages of the sediments of the proglacial lake of Qiangyong Glacier on the southern Tibetan Plateau with multi-methods (bulk organic matter, pollen concentrates and plant residues). This research suggests that hemispheric-scale temperature variations and mid-latitude Westerlies may be the main controllers of the late Holocene glacier variability in monsoonal High Asia. It also shows that the 20th-century glacier melt intensity exceeded that of two historical warm epochs (the Medieval Warm Period, and the Iron/Roman Age Optimum) and is unprecedented at least for the past 2.5 k.y.  
This data is provided by the author of the paper, it contains long-term glacier melt fluctuations of Qiangyong Glacier over the past 2500 yr reconstructed by the OPE.  
A 3.06-m-long core (QYL09-4) and a 1.06-m-long parallel gravity core (QY-3) were retrieved by the researchers from the depositional center of Qiangyong Co. Using a new composite extraction procedure, they obtained relatively pure pollen concentrates and plant residue concentrates (PRC; >125 μm) from the finely laminated sediments. Bulk organic matter and the PRC and pollen fractions were used for 14C dating independently. All 14C ages were calibrated with IntCal13 (Reimer et al., 2013). The age-depth model is based on 210Pb and 137Cs ages and five 14C ages of PRC. Only the youngest PRC ages were used for the age-depth model, whereas older ages that produce a stratigraphic reversal and are apparently influenced by redeposited or aquatic plant material were rejected. The deposition model was constructed using the P\_Sequence algorithm in Oxcal 4.2 (Bronk Ramsey, 2008). For the calculation of the offset between the calibrated pollen 14C ages and the sediment depositional age, 2σ intervals for interpolated ages according to the deposition model were subtracted from calibrated pollen ages (2σ span), resulting in the age offset between pollen and estimated sediment ages (ΔAgepollen).  
This data is radiocarbon ages and the calculated ΔAgepollen of core QYL09-4 from a proglacial lake of Qiangyong Glacier.  
The data contains fields as follows:   
Lab No.  
Dating Material  
Depth (cm)  
14C age (yr BP)  
∆Agepollen (≥95.4 % yrs)  
Sediment Age (CE)  
See attachments for data details: ZhangJF et al. 2017 GEOLOGY\_Long-term glacier melt fluctuations over the past 2500 yr on the Tibetan Plateau.pdf.

2、Keywords

Theme：Glacier change,Lacustrine Sediments,Pollen,Pollen,Sediments,Glacier(Ice Sheet)  
Discipline：Palaeoenvironment,Cryosphere  
Places：Tibetan Plateau, Qiangyong Glacier, Qiangyong Co  
Time：over the past 2500 yr, 440 B.C.E. - 1960 C.E.

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.01MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：28.88 | - |
| west：90.22 | - | east：90.22 |
| - | south：28.88 | - |

5、Time frame:None--None

6、Reference method

References to data:

ZHANG Jifeng. Long-term glacier melt fluctuations of Qiangyong Glacier on the Tibetan Plateau over the past 2500 yr. A Big Earth Data Platform for Three Poles, doi:10.6084/m9.figshare.124883482019

References to articles:

Zhang, J.F., Xu, B.Q., Turner, F., Zhou, L.P., Gao, P., Lü, X.M., & Nesje, A. (2017). Long-term glacier melt fluctuations over the past 2500 yr in monsoonal high asia revealed by radiocarbon-dated lacustrine pollen concentrates. Geology, 45(4), 359-362. doi:10.1130/G38690.1.

7、Supporting project information

8、Data resource provider

name: ZHANG Jifeng  
unit:   
email: zhangjifeng@itpcas.ac.cn