A Big Earth Data Platform for Three Poles

**The combined 1000 yr temperature reconstruction records derived from a stalagmite and tree rings (1000 A.D.-2000 A.D.)**

1、Description

The application of general circulation models (GCMs) can improve our understanding of climate forcing. In addition, longer climate records and a wider range of climate states can help assess the ability of the models to simulate climate differences from the present. First, we try to find a substitute index that combines the effects of temperature in different seasons and then combine it with the Beijing stalagmite layer sequence and the Qilian tree-ring sequence to carry out a large-scale temperature reconstruction of China over the past millennium. We then compare the results with the simulated temperature record based on a GCM and ECH-G for the past millennium. Based on the 31-year average, the correlation coefficient between the simulated and reconstructed temperature records was 0.61 (with P < 0.01). The asymmetric V-type low-frequency variation revealed by the combination of the substitute index and the simulation series is the main long-term model of China's millennium-scale temperature. Therefore, solar irradiance and greenhouse gases can account for most of the low-frequency variation. To preserve low-frequency information, conservative detrended methods were used to eliminate age-related growth trends in the experiment. Each tree-ring series has a negative exponential curve installed while retaining all changes.  
The four fields of the combined 1000-yr (1000 AD-2000 AD) reconstructed temperature records derived from stalagmite and tree-ring archives (excel table) are as follows:  
1) Year  
2) Annual average temperature reconstruction  
3) Reconstructed temperature deviation  
4) Simulated temperature deviation

2、Keywords

Theme：Temperature,Tree rings,Sediments,Tree-ring,Paleoclimate Reconstruction  
Discipline：Atmosphere,Palaeoenvironment  
Places：Western China  
Time：1000-2000 AD

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.16MB

4.Data format：EXCEL

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：49.36 | - |
| west：73.45 | - | east：111.2 |
| - | south：20.9 | - |

5、Time frame:1000-01-08 01:59:46+00:00--2001-01-07 00:00:00+00:00

6、Reference method

References to data:

TAN Ming. The combined 1000 yr temperature reconstruction records derived from a stalagmite and tree rings (1000 A.D.-2000 A.D.). A Big Earth Data Platform for Three Poles, doi:10.11888/Paleoenv.tpdc.2706252011

References to articles:

Tan, M., Shao, X.M., Liu, J., & Cai, B.G.(2009). Comparative analysis between a proxy-based climate reconstruction and GCM-based simulation of temperatures over the last millennium in China. Journal of Quaternary Science, 24(5), 547–551.

7、Supporting project information

8、Data resource provider

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