The Correlation of Inorganic C, O Isotopic composition of Chenghai Lake Sediments and Its Environmental Implications

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Lake carbonate deposition is a common feature of many modern and antique lacustrine sediments, and the analysis of C, O isotopes in carbonate sediments is an important approach to studying lake environment. Lake Chenghai, a typical close lake with the precipitation accounting for one-third more of the annual water input, has a high total salinity (almost like a saline lake). The inorganic C, O isotopic composition of lake sediments bears much sensitive information about environmental change in the catchment, while their correlation revealed the hydrological conditions. Their compositional variations are controlled by temperature, precipitation, photosynthesis, dissolving equilibrium of the carbonate system and hydrological condition. According to our research on inorganic C, O isotopic composition of lake Chenghai sediments, we investigated the environmental change of this catchment.

As a special lake on the Yunnan-Guizhou plateau, the mineralization degree of Lake Chenghai has approached to the lower limit of a saline lake. Lake Chenghai is a typical closed lake since its water level has a tendency of gradual declining annually, which may provide us a good opportunity to know more about environmental change of southwestern monsoon area and also to discuss the environmental effects recorded by lake sediments high in mineralization degree.

The results showed that lake Chenghai has kept good hydrological closing conditions in the past several decades, as indicated by the good correlation of inorganic C, O isotope composition of sediments; and that the environmental change in this catchment shows a tendency to periodical evolution for 10-11years determined by ^{137}Cs dating and the variation of inorganic C, O isotope composition.

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Palaeoclimatic records from blanket mire at the QingHai-Tibetan plateau, China

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Introduction

Peat-bog stratigraphy, from blanket mires and raised bogs, has been used since the last century to make inferences about past climate. Much of the research on proxy-climate data from mires has been reported. We study the blanket mire at the QingHai-Tibetan plateau, China.

Result and discussion

Analysis of blanket peat taken from the QingHai-Tibetan plateau has produced a proxy-climate record the last 12000 years. The data of peat humification imply particular dry shift in climate at or close to c.1400BP, c.2800BP, c.4300BP, c.5900BP, c.8100BP, c.9600BP, c.10200BP, and c.11500BP. These climate events are strikingly correlative to the ice-rafting episodes in the North Atlantic.

The result that the data of peat humification compare with $\_^{13}C$ of peat cellulose (the same sample) indicated both of the climate changes from a wet to arid phase correspond well. That is, around c.5500BP to present the climate seems to enter in a dry period, and from c.5500BP to c.12000BP is wet period.

The data also show more decomposition occurs when the climate is wet, thus resulting in more humified peat in the QinfHai-Tibetan plateau, and the shift of the East Asian summer monsoon from strong to weak.

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