

Chemical states and sedimentary records of Lake Baikal sediment.

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Lake Baikal occupies the largest water volume in the world's freshwater lakes, and is located in the eastern part of Eurasian continent. The Lake Baikal sediment contains a detailed record of paleo-environmental changes in the deep continental interior. In this study, we analyzed the abundance of chemical compositions in the sediment core from the Lake Baikal. In addition, to investigate redox conditions in core BSS06-G2, we determined the Mn oxidation state, Mn in the sediment. The sediment Mn oxidation state was determined based on the Mn K-edge x-ray absorption near-edge structure (XANES) spectra captured using a synchrotron radiation beam. From the geochemical evidences, it is suggested that the BSS06-G2 U have almost never mobilized with changes in the post-depositional redox condition. Therefore, distributions of the uranium concentration in sediment can be regarded as a primary sedimentary record of Lake Baikal region and their variations were revealed to synchronize with paleo-environment changes in the North Atlantic Ocean.

Keywords: Lake Baikal, Lacustrine sediment, Uranium, XANES analysis, Paleo-environmental change