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Paleoclimatic Change of the Late Quaternary Northern Mongolia from Trace Element and Stable Isotope of Ostracods in Lake Hovsgol Sediments

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Lake Hovsgol in high-altitudinal (1660m) northern Mongolia is a southern part of the Baikal Rift Zone formed about 2.5-4 Ma. We collected 20 gravity cores in 2004 to 2006, and among them, HS7(from the central part of lake) has been analyzed for trace element(Mg/Ca, Sr/Ca, and Fe/Ca) and stable isotope($\delta^{18}O$) from benthic ostracods(*Cytherissa lacustris* and *Limnocythere inopinata*). In general, ratios of Mg/Ca and Sr/Ca in ostracod indicate salinity and temperature, and ratios of Fe/Ca in ostracod denotes redox environment of the bottom water of the lake. Mg/Ca and Sr/Ca ratios show similar trend of variation, i.e., both of them are higher at the lower part than at the upper part. This suggests that the salinity of the lake decreased toward the present. Results of oxygen isotope analysis support interpretation of Mg/Ca and Sr/Ca. Data of oxygen isotope doesn't show significant change through the core, showing little fluctuation in the range of 1‰. Those results (Mg/Ca, Sr/Ca and $\delta^{18}O$) mean that water supply is more important factor than temperature change in Lake Hovsgol. Fe/Ca ratio shows a little different trend from those of Mg/Ca and Sr/Ca. It increases toward the upper part of the core. It means that the bottom environment was a more reducing condition at the upper part than that at lower part in this core because of increase of input of water. Due to no dating ages for HS 7 we infer the age for each depth of the core from data of other cores(Prokopenko *et al.,* 2005). As a result, the interval for this core is assumed to be the end of Pleistocene. So it means that to the end of Pleistocene, water supply increased around the drainage area of Lake Hovsgol. Following the increase of the water supply, the bottom environment of Lake Hovsgol changed to an anoxic condition. Rising water level cut off the oxygen supply to the bottom of Lake Hovsgol, and benthic ostracods couldn't survive there after the end of Pleistocene, evolving the bottom condition of the lake from an oxidizing environment to a severe reducing one.