

A history of regional change in hydrological changes in southeast Eurasia

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Central Asia is a key region for studies of the climate changes in mid-latitude continental interior of Eurasia. It is remote from the ocean and former considerably glaciated areas, ice sheets. Evidences from Lake Hovgol (Fedotov et al., 2004; Murakami et al., 2010), Lake Kotokel (Shichi et al., 2009); Shaarmar section (Feng et al., 2007); Uvs Nuur basin (Grunert et al., 2000) indicate that the climate has experienced severe aridization in the Last Glacial Maximum (LGM), shifted to progressive wetting during the late glacial, and became humid in the Holocene. These trends essentially follow long-term variations in the Greenland ice core $\delta^{18}\text{O}$ record (NGRIP members 2004) but their shorter-term oscillations match insufficiently. In the present oral presentation, we discuss the moisture evolution in northern Mongolia and causes of difference in moisture variation between this region and the surround area (Lake Baikal region) (Katsuta et al., 2017).

We investigated paleoclimatic/environmental changes of northern Mongolia based on chemical and mineralogical analyses of sediment cores from Lake Hovsgol and Lake Erhel back to 18.9 and 34.3 cal. ka BP, respectively (Katsuta et al., 2007). The climate of this region was dry in the glacial period, and wet in the Holocene. Desalination of Lake Hovsgol occurred at 13.2-11.6 cal. ka BP, i.e., during the transition from the late glacial to early Holocene. At the same time, ca. 12.82 cal. ka BP, deposition in the Lake Erhel area changed from fluvial to lacustrine. Climate of northern Mongolia was humid during the late glacial to the early Holocene period (ca. 10.57-7.24 cal. ka BP for the Hovsgol and from ca. 12.82 to 7-8 cal. ka BP for the Erhel). This reconstruction differs from that for the more northern Lake Baikal region, which humidification continued from the last glacial period until mid-Holocene. This difference could be attributed to longer period of glacier melting and permafrost thawing around the Baikal and on its watershed, associated with increased summer insolation. In this presentation, we are planning to discuss the long-term history of hydrological changes based on the Lake Hovsgol sediment records.

Keywords: Mongolian Plateau, Lake level, Lake sediment