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Lake level change and the environmental factors inferred mainly from diatom analysis in Balkhash Lake

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Balkhash Lake is huge shallow closed lake in Kazakhstan, Central Asia. The bottom sediment is composed of clay and abundant microfossils. The sediment core sample of Balkhash Lake must preserve records of paleoenvironmental changes not only in regional Ili river basin but also wide Central Asia.

In order to reconstruct lake level changes in Balkhash lake, a sediment core was gotten in the west part of the lake and such analyses were carried out, as fossil diatom, fossil ostracoda, geochemistry and grain size. In addition, age control of paleoenvironmental changes is based on radiocarbon and Cs-137 ages.

As a result, this core was characterized by a phase dominated by freshwater planktonic species and another phase dominated by saline planktonic and benthic species. First one suggests high lake level, and second one suggests low lake level. According to these phases, the core shows five high lake level phases being dominant in freshwater planktonic species (e. g. *Aulacoseira granulata*) and five low level phases dominant in saline planktonic (e. g. *Thalassiosira lacustris*) and benthic (e. g. *Rhopalodia gibba*) species in the last 2000 years. Moreover, high proportion of fossil ostracoda corresponds to each low level phases. Also, the correlation was recognized between fossil ostracoda number (n/g) and relative abundance of saline planktonic and benthic diatoms. Those low level phases are consistent with the lake level changes in Aral sea estimated from changes of fossil dinoflagellates assemblages (Sorrel et al., 2006)

In addition, particularly, diatom assemblages after 1970 are different from the assemblage before 1970. It suggests the influence of human activities including land use (Kubota, 2005) and effects of construction of the Kapchagai dam.

Keywords: Balkhash Lake, Lake level change, Diatom analysis, Geochemical analysis, Grain size analysis