

SEM032-P14

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Magnetic properties of the topmost sediments from the deepest part of the northern Lake Biwa

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A rock-magnetic study was performed on the topmost sediments at the deepest part of Lake Biwa, where the amount of dissolved oxygen (DO) in the bottom water shows a seasonal variation: relative high values of DO are observed at February to April, while low DO values below 1 mg/L at October and November. Sediment cores were collected every one or two month from Oct, 2008 to Aug, 2009. The cores were composed of homogeneous clayly silt of black to dark greenish gray color. Analyzed samples were taken from the cores continuously at 1 or 2 cm intervals and freeze-dried.

Based on results from high and low temperature analyses of magnetic properties, magnetic minerals in the sediments are dominantly maghematized magnetite. It is inferred that the degree for maghematization of magnetite decreases downcore.

Magnetic parameters of the concentration and granulometric proxies for magnetic minerals showed downcore decreases below 10cm in depth of all cores. It is suggested that the amount and grain size of maghematized magnetites decrease and increase, respectively. It is probably related to the dissolution of the magnetic minerals during early diagenesis, accompanying the precedence of the dissolution of finer grains.

At the upper part above 10cm in depth, downcore decrease of magnetic coercivity were observed, which may be associated with the dissolution of the surface of maghematized magnetite. A seasonal change of magnetic coercivity was also recognized: relative high values were observed at November and February, while low value at June. The coercivity variation was not corresponded directly to the seasonal variation of DO in the bottom water.