



Complex investigations of Lake Bolshoe Miassovo sediments (South Ural, Russia)

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The origin of the Lake Bolshoe Miassovo, Chelyabinsk region, Russia ($55^{\circ}09.3'N$, $060^{\circ}17.1'E$) is tectonic. Seismoacoustic investigations were carried out for choose the best places for coring with continuous sedimentation and avoid gas saturated sediments. 5 long cores of sediments (up to 5 meters) were collected with using special hydraulic corer. Sediments consist of small grained sands, silty sand and organic matter.

To study the sediments, a set of methods was used, including petromagnetic studies, the study of mineralogical and elemental composition. According radiocarbon dating the maximum age of samples 13.5 thousand year. The age of samples increases with depth naturally, which means we have continuous sedimentation without hiatus. The average accumulation rate is 0.35 m / thousand years/

Measurements of magnetic susceptibility (MS), hysteresis parameters and thermomagnetic analysis were carried out to determine changes in magnetic mineralogy and sedimentation conditions. Thermomagnetic curves measured on Curie express balance, coercitive parameters on J-coercivity spectrometer and magnetic susceptibility on multi-function kappabridge MFK1-FA (AGICO).

Changes in magnetic susceptibility in first 4.5 meters are very low, but never the less could be used for cores correlation. Coercivity spectra decomposition has been demonstrated existing several magnetic components in the sediment, one of the components could be biogenic, produced by activity of magnetotactic bacteria.

The elemental composition was studied on an S8 Tiger X-ray fluorescence wave dispersion spectrometer. X-ray diffraction was performed on a Bruker D2 Phaser for studying mineralogical composition. Elemental and mineralogical composition of sediments

Obtained data from all methods (magnetic properties, minerology, elemental composition) used for preliminary paleoclimatic and paleoenvironmental reconstructions of South Ural region for last 13.5 kyr. All the data show a dramatic change in the properties of the sediment, this occurs around 4.2-4.5 meters. At this time, there is a sharp change in the conditions of sedimentation. The contribution of coarse material decreases, the level of the lake rises. On the basis of geochemical data, the lower part of the core, to a depth of 4.2 meters was deposited under colder and drier conditions, while middle and upper part in warmer conditions.

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