A STUDY FOR VARVE-LIKE BANDING STRUCTURES IN THE BOTTOM SEDIMENTS OF LAKE ABASHIRI, NORTHEASTERN HOKKAIDO, JAPAN

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Lake Abashiri is one of the maritime coastal lagoonal lakes along the Okhotsk Sea of Holocene age. Some of the important features and findings on lake-sedimentation are as follows. Due to the structure of the lake walls, the deep-seated deoxidized seawater could not get discharged. Apart from that, two other layers consist of a fresh to brackish water in the upper part and middle transitional layer with bacterial mats and trapped sediments. Upper 25m of the bottom sediment is silt-silty sand of Holocene age with conspicuous varve-like bands with average rate of accumulation of 3mm/year during the last 2500years.The lower 33m includes pebble, coarse-grained sand, silt, peat of Pleistocene age. Varve-like structures with rhythmic banding(0.5-2mm bands) are made up of diatoms(cyclic seasonal change of species in bands according to SEM study), the dead colony of them, decomposed silica gels, decomposed fragments of plants, hydrous iron minerals and clay fractions. Carbon dating results indicate 4 to 6 pairs of the bands are formed in a year. Pollen data shows climatic change since later half of the Lastglacial. Hence, the lake-sedimentation is considered as initially scattered sediments, both clastic and biotic, precipitates from surface to the transitional layer. Settled sediments being resided for few days in this layer start to deposit at the bottom due to coarsening of grains. The transitional layer fluctuates vertically with floating sediment load. The continuous supply from surface to bottom and absence of any bioturbation at the bottom due to reducing condition enables varve-like banding, the rhythmicity responds to the vertical movement of the transitional layer.