



MIS 7 to MIS 1 lake level fluctuations of Lake El'gygytyn, Far-East Russian Arctic

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We present the reconstruction of the lake level fluctuation history from Lake El'gygytyn located in central Chukotka, Russian Arctic. Lake El'gygytyn was a subject of an international drilling project that resulted in recovering the longest paleoclimate and paleoenvironmental record of the terrestrial Arctic embracing the last 3.6 million years. Based on lithological and palynological studies and age determinations of shallow lake sediment cores and subaerial lake terraces, we have reconstructed lake level changes back to MIS 7. The reconstructed lake level history shows abrupt rising during glacial-interglacial transitions (MIS 6 to MIS 5 and MIS 2 to MIS 1) and smoother changes during the MIS 4 to MIS 3 stadial-interstadial transition. The most prominent low-level stands are reconstructed for glacial periods, which are associated with a permanent lake ice cover (i.e. MIS 6, 4 and 2). Late Glacial and Holocene lake level changes show a good correlation with changes in precipitation. Milankovic driven insolation changes likely control the permanent or seasonal character of the lake ice cover and is the main driving factor for the long-term level oscillations in the glacial-interglacial cycles. During periods of seasonal ice cover, the lake level fluctuations had the smaller amplitude depending mostly on changes in precipitation. Thus, Lake El'gygytyn level changes are climate driven and sensitive to both precipitation and temperature.