MIS028-P08   :   :5   25   14:00-16:30

Luminescence dating of fine grained sediments from Lake Hovsgol, Mongolia

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Sediment core samples are recovered from the lake bottom, and meaningful proxy records to represent surrounding environment are obtained along its depth. To convert the depth profiles to the age profiles, the age model determination plays an important role. This study aims to develop the new luminescence dating technique for small amount of samples of lake sediments and the technique must supply ages easily and quickly to provide many dated horizons in a core sample. For indirect annual dose calculation, new pellet making procedures is examined, and then laser ablation - inductively coupled plasma - mass spectrometry (LA-ICP-MS) is applied to measure the concentrations of radioactive isotopes (^{87}Rb, ^{232}Th, ^{234}U and ^{238}U). To investigate that the red thermoluminescence (RTL) from inorganic carbonate is capable of giving a reliable estimate of accumulated (or equivalent) dose since its deposition on the lake floor, the present work compare the result from RTL considering the residual dose of calcium carbonate from Lake Hovsgol to that estimated from conventional fine-grained quartz optical stimulated luminescence (OSL). Both equivalent doses are concordant considering the error range in most samples except for some samples which have particular reason, such as low equivalent doses and existence of authigenic carbonate. The depth profiles given based on luminescence ages are concordant with the age model of the other core sample from Lake Hovsgol and analyzed core has the environmental information from late MIS 5 or early MIS 4 to LGM.

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