Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

HQR23-P13 Room:Convention Hall Time:May 25 17:15-18:30

Luminescence chronology of marine and fluvial terraces of Middle Pleistcene using post-IR IRSL method: A case study in H

KONDO, Reisuke[1*], Sumiko Tsukamoto[2], ENDO, Kunihiko[3], SAKAMOTO, Tatsuhiko[4]

[1]Geological Survey of Japan, AIST, [2]Leibnitz Institute, [3]Nihon University, [4]JAMSTEC

In Hokkaido, it has been difficult to construct a detaled chronology of marine and fluvial terraces before MIS 5 using tephrochronology, due to the lack of the marker tephras and to the deformation of original landforms by strong past periglaciations. The lack of age constraint has prevented studies of precise geomorphic development and palaeoenvironmental reconstruction in this area.

This study applies an elevated temperature post-IR IRSL (pIRIR) SAR method of luminescence dating using polymineral fine grains to marine / fluvial terraces before MIS 5 in northern / southern Hokkaido pIRIR method is a new techniques in the luminescence dating. This method has advantages that there are no anomalous fading in feldspar luminescence signal and is applicable to older sediments beyond the age range of quartz OSL dating.

In this study, polymineral fine grain samples taken from marine terrace deposits and loess covering fluvial terraces were used to test the pIRIR datings.

In Hamatonbetsu area, northern Hokkaido, the pIRIR D_e values from the lower marine terraces are ca.250 Gy, and ca.750 - 850 Gy from the middle marine terraces.

In Yurappu river area, southern Hokkaido, the D_e values of ca.150 Gy, and ca.500 Gy were obtained from the middle fluvial terrace and from the higher fluvial terrace, respectively.

These De values of pIRIR for all samples (from marine and fluvial terraces) are generally in the stratigraphic order.

Our data will provide new age estimates for the loess and sediments from the marine and fluvial terraces. These new ages of the terraces will give excellent chronological information for geomorphrogical development and pareoenvironments in northern Japan.

Keywords: pIRIR, marine terrace, fluvial terrace, Hokkaido, chronology