Q042-017 Room: 201A Time: May 27 16:30-16:45

Correction of underestimation for quartz OSL ages in Japanese loess and its implications

Sumiko Tsukamoto[1], Takuya Watanuki[2]

[1] Dept. of Geogrphy, Tokyo Metropolitan Univ., [2] Geosciences, Taiwan Univ.

Parameters of OSL components of quartz in volcanic ashes and in tephric loess from Japan were determined, and their characteristics were investigated. As a result, the medium and slow1 components, which were the main components in the volcanic quartz, were also found in the quartz in tephric loess, while the OSL of quartz in tephric loess was dominated by fast component. This suggests the medium and slow1 components in tephric loess are probably coming from volcanic quartz. All the components in volcanic quartz appeared to give strong recuperation after preheating. In order to date tephric loess, the separation of fast component was essential, because only negligible recuperation was observed in the fast component.

The equivalent dose (De) of tephric loess decreased significantly with the illumination time, while recuperation increased with illumination time. A plot of De versus recuperation indicated that De decreased exponentially as recuperation increased. Since fast component is free from recuperation, the extrapolation of the exponential curve to the point that recuperation equals zero gives De, which is entirely from fast component. The corrected ages of the loess samples taken from just beneath of the five tephras from the Tsukidate Hill, Miyagi prefecture gave the maximum ages of the four tephras, Nakazato-3 Pumice (N3P), Onikobe-Ikezuki Tephra (O-Ik), Furuyashiki-5 Tephra (Fy-5), and Takamori-2 (Tm-2) and -1 (Tm-1) Tephras, and the obtained ages were 168+-22 ka, 186+-28 ka, 263+-46 ka, 419+-64 ka, and 476+-171ka respectively.