

Chronology and processes of fluvial terrace formation in the Ohmi Basin based on cryptotephra analysis

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In Japan, processes of terrace formation were generally explained by climate and sea-level changes (e.g. Kaizuka, 1969). In downstream areas, sea-level changes affected terrace formations such as marine terraces during interglacial periods and buried terraces during glacial periods (e.g. Kubo, 1997). In mid-upstream areas, changes of water discharge and sediment supply due to climate changes mainly affected terrace formations such as aggradational terraces during glacial periods (Hirakawa and Ono, 1974; Sugai, 1993). However, it is difficult to distinguish the affects of climate and sea-level changes to terrace formations because these study were conducted in the rivers, whose profiles show smooth concave shape from downstream to upstream. This study focused on the Ohmi Basin to understand the processes of terrace formation under the uniform altitude of base level of erosion (Lake Biwa). In this study, cryptotephra analysis of eolian deposits covering fluvial terrace deposits was carried out to identify tephra horizons. Based on tephra horizons (K-Ah, AT, K-Tz) and geomorphic features of fluvial terrace surfaces, processes of fluvial terrace formation in the Ohmi Basin were discussed.

Keywords: Tephrochronology, Ohmi Basin, Fluvial terrace