

Valley-filling processes since the last Interglacial around the junction of the Yokoze River, a tributary of the Ara River, central Japan

*Takayuki Takahashi¹, Toshihiko Sugai¹

1. Natural Environmental Studies, Graduate School of Frontier Sciences, The University of Tokyo

To understand the sediment discharge in long-term, it is necessary to evaluate the responsibility of tributaries in the mountain regions for the climate changes in the timescale of 10^3 to 10^4 years, and interaction between the tributaries and the trunk river. This study reconstructs the valley-filling processes since the last interglacial around the junction of Yokoze River, a tributary of the Ara River, central Japan, and discusses the interaction between the Ara and Yokoze rivers.

Ara River runs through the Chichibu basin with fluvial terraces since the Middle Pleistocene; Hitsujiyama Terrace (fill terrace formed in MIS 6), Kagemori Terrace (fill terrace in MIS 2), Onohara Terraces (strath terraces in late MIS 2). Yokoze River drains an area of 70 km^2 and joins to the Ara River at around the NE edge of the Chichibu basin. Kagemori and Onohara terraces are also distributed along the Yokoze River. Schist is distributed only in the Yokoze River drainage area.

The Kagemori Terrace deposits around the Yokoze River junction have about 20 m thick, and they are composed of (1) subrounded gravel beds with silt, (2) silt, and (3) rounded gravel from bottom to top. (1) is the basal deposits of the buried valley below Kagemori Terrace. The deposits with 1 to 5 m thick contain schist gravel and thus they were supplied by the Yokoze River. (2) has 0.4 to 5 m thick. A 12 cm-thick pumice bed (KRK-1) is intercalated into (2). (3) has about 13 m thick at most, and contacts (2) with an unconformity. (3) does not contain schist gravel. The KRK-1 tephra contains biotite and pumice-typed volcanic glass shards. The chemical composition of KRK-1 glass shards is close to that of On-Pm1 (95-100 ka), therefore we tentatively correlate the KRK-1 tephra with On-Pm1. These indicate that the valley-filling started before 100 ka, and that the dammed-up tributary lake had been formed around the Yokoze River junction at around 100 ka. This is probably because the Yokoze River with gentle slope could not carry sufficient amount of gravel to its junction responding to the aggradation of the Ara River.

Slit deposits intercalated with On-Pm1 have also been found from the fill terrace deposits in the Sagami and Aki rivers. This indicates that the river valleys in the Kanto Mountains were filled by finer deposits in MIS 5c, concurrently.

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