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The Alluvium and its basal topography between the Arakawa-Menuma Lowland and the Nakagawa-Watarase Lowland, Japan

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We first compare developments of the latest Pleistocene-Holocene incised valley fill (the Alluvium) and its basal topography in the Arakawa-Menuma Lowland and the Nakagawa-Watarase Lowland, the Central Kanto Plain. Then, we discuss how global sea-level change, local tectonics, and fluvial sediment supply influence developments of them and degree of Holocene transgression.

In the study area, the basal topography beneath the Alluvium is classified into three types; buried incised valleys, buried fluvial terrace surfaces, and buried abrasion platforms. The incised valleys and buried terrace surfaces were formed under the influence of sea-level drop in the Last Glacial. Their longitudinal profiles and slopes in the Arakawa-Menuma Lowland are roughly similar to those in the Nakagawa-Watarase Lowland. By contrast, deformation of incised valley near the concealed Fukaya fault is evident in the border region between the Arakawa Lowland and the Menuma Lowland (Ishihara *et al*, 2011a), while the longitudinal profile of the incised valley in the Nakagawa-Watarase Lowland continues smoothly. Buried terrace surfaces develop clearly in the Arakawa Lowland, hanging wall zone of the Fukaya fault, whereas they are not clear in the Menuma Lowland, footwall zone of the Fukaya fault. In the Nakagawa-Watarase Lowland, where broadly located footwall side of the Fukaya fault and the center of subsidence persisting throughout the Quaternary (Kaizuka, *et al*.,1977), buried terrace surfaces distributed fragmently. This is suggested that local tectonics, as well as sea-level change, have influenced the formation of basal topography.

The buried abrasion platforms were formed during the Holocene transgression (Kaizuka *et al*.,1977). Their distribution in the Nakagawa-Watarase Lowland is extensive (Matsuda, 1974) because inner bay environment continued longer than the Arakawa-Menuma Lowland and surrounding uplands consist of weakly consolidated Pleistocene sediments. The Musashino Upland, western side of the Arakawa-Menuma Lowland, composes gravels indicated that the upland was resistant to abrasive action. In addition, several tributaries of the Arakawa River which have flowed between the Musashino Upland may have prevented expansion of inner bay along the Musashino Upland.

Developments of the Alluviums in the Arakawa-Menuma Lowland are totally similar to those in the Nakagawa-Watarase Lowland. In both lowlands, it is indicated that Holocene transgression influence fluvial sedimentary succession in inland where no marine sediment is deposited. By contrast, totally grain size of the Alluvium tends to be larger in the Arakawa-Menuma Lowland than in the Nakagawa-Watarase Lowland. Additionally, onset of regression in the Arakawa-Menuma Lowland was in ca. 8 ka (Ishihara *et al*, 2011b), 1 ka earlier than in the Nakagawa-Watarase Lowland (6.5-7 ka). These differences in above lowlands are attributed to differences of fluvial sediment supply. Especially, it is indicated that large tributaries influence the sediment supply.

References

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