

Reconstruction of sedimentary environment of the latest Pleistocene-Holocene incised valley fill, Saitama City

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Transitions of sedimentary environments in the latest Pleistocene to Holocene deposits are revealed based on sedimentary facies, physical properties, chemical element contents and radiocarbon dating in the GS-SSS-1 core, Arakawa Lowland, Saitama City. And the process of incised valley filling related to the sea level change is reconstructed based on this and previous results on stratigraphic cores in the Arakawa Lowland.

A deep valley buried under from the Tokyo bay to eastern Saitama Prefecture had been incised during the last glacial period, which became filled with marine, brackish and nonmarine sediments during the latest Pleistocene to Holocene transgression and highstand, resulting in the Arakawa, Nakagawa and Tokyo Lowland. The Arakawa Lowland is 5 km wide, between Kumagaya City upstream and Kita-ku Ward downstream. It is characterized by sandy and gravelly valley fill compared with the Nakagawa Lowland, which is composed of muddy sediments, because two large rivers had occupied in the Arakawa Lowland throughout most of the time of valley fill.

GS-SSS-1 is located in a park, 4.63 m T.P. and 8 km upstream from GS-TKT-1 (Komatsubara et al, submitted). The uppermost 1 m in the core is artificial fill, from 1 m to 40 m deep is incised valley fills, and below 40 m deep is the Pleistocene Shimosa Group.

The incised valley fills are composed of gravelly fluvial deposits (40-31 m), sandy fluvial channel fill (31-28 m), floodplain deposits (28-20 m), inner bay deposits (20-16 m), delta front deposits (16-7 m) and floodplain deposits (7-1 m) in ascending order.

Stratigraphy and sedimentary environments of incised valley fills in the lower end of the Arakawa Lowland has been established by several researches based on boring (GS-TKT-1, Toda City, Komatsubara et al., submitted; GS-AMG-1, Adachi-ku Ward, Tanabe et al., 2006, Bull. GSJ; HA, Ishihara, et al., 2004, Bull. GSJ). Migration of depocenter both upstream and downstream during incised valley filling is suggested by those studies. GS-SSS-1, located between those of previous studies and the upper limit of marine incursion, is correlated with previous studies and sedimentary environments of lower reach of the Arakawa Lowland is discussed.