

Sedimentary facies distribution of incised-valley fill in the Arakawa Lowland.

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The transitions of sedimentary environments in the incised-valley fill after the last glacial stage were reconstructed in the Arakawa Lowland, based on the boring core GS-TKT-1 at Toda City, Saitama Prefecture. In addition, three-dimensional distributions of sedimentary facies in the valley fill were established from a number of existing boring data.

There are deep valleys incised during the last glacial stage, under eastern Saitama Prefecture to eastern Tokyo, which filled with marine to nonmarine deposits as a result of a post-glacial sea-level rise. One of the purpose of the urban geological research project of GSJ (Kimura, 2004) is to establish sedimentary models of those incised-valley fills based on analysis of sediment cores and a existing boring core database.

The Arakawa lowland is a narrow area along the Arakawa River, about 5 km wide and 30 km long. There is the Nakagawa lowland east of the Omiya plateau between them and both lowlands merge downstream into the Tokyo lowland. Several researches of incised-valley fills based on boring cores and database have been carried out and sedimentary models have been proposed in the Nakagawa and Tokyo lowlands (Tanabe et al., 2006ab; Kimura et al., 2006).

Compared with the muddy Nakagawa lowland, the Arakawa lowland is remarkably sandy (Matsuda, 1993). It might be due to large sediment supply during an early to middle stage of valley filling, when the Tonegawa River, which is the largest river of eastern Japan, had been a trunk stream in the lowland (Matsuda, 1974; Kikuchi, 1981; Endo et al., 1988).

A 51 m long boring core named GS-TKT-1, reaching the base of the incised valley fill was recovered at Toda City, Saitama Prefecture, to establish a standard stratigraphy in the Arakawa lowland. Depositional environments from the base to the top of the fill has been estimated based on lithofacies, grain size, grain composition, fossils, pH, EC, density, water content, susceptibility, and PS logging data.

The fill is about 50 m deep, subdivided into gravelly river deposits, sandy river deposits, inner-bay and prodelta to delta front deposits, sandy river deposits, and floodplain deposits and artificial fill in an ascending order. Inner-bay and delta deposits contain abundant brackish bivalve *Potamocorbula* sp.

Changes of depositional environments and sedimentary facies distribution in the incised-valley fill under the Arakawa lowland is discussed on the results of GS-TKT-1 and GS-AMG-1, which had been obtained in 2004 at Adachi-ku, Tokyo (Tanabe et al., 2006c).