

MIS002-P05

Room: Convention Hall

Time: May 25 17:15-18:45

Sedimentary process of the latest Pleistocene to Holocene incised valley fills in the Arakawa Lowland, Kanto Plain

Junko Komatsubara^{1*}, Katsumi Kimura¹, Masao Uchida²

¹Geological Survey of Japan, AIST, ²NIES

Sedimentary environments in three stratigraphic cores arranged along the axis of Arakawa Lowland are reconstructed, and correlated based on radiocarbon ages. A filling process of the lowland during Holocene highstand (Jomon transgression) is revealed. Especially following two points are discussed; (1) a ravinement surface around 9000 cal yBP is not isochronous but diagonal to the time line, and (2) a deltaplain submergence at the maximum of sea-level rise. The narrow valley topographies under the lowlands spreading from the coast of Tokyo Bay to the eastern part of Saitama Prefecture have been revealed in recent decades. These valleys were incised at the last glacial maximum, filled with marine and nonmarine sediments during the following sea-level rise from the latest Pleistocene to Holocene. The Arakawa Lowland to the west and the Nakagawa Lowland to the east in Saitama Prefecture with the Omiya Upland in between, and two lowlands join into the Tokyo Lowland in Tokyo City. The Arakawa Lowland ranges from Kumagaya City, Saitama to Kita-ku, Tokyo with 60 km reach along the Arakawa River and 5 km width. A large amount of clastic supply due to presence of large rivers, Arakawa, Nakagawa, and Tonegawa, during the most period of valley-fill processes resulted in sandy valley fills, which is well contrasted with the Nakagawa Lowland valley fills composed of muddy valley fills due to an absence of a large river input.

In the Arakawa Lowland three boring cores (GS-AMG-1, Adachi-ku : Tanabe et al., 2006 : Bull. GSJ), (GS-TKT-1, Toda City : Komatsubara et al., 2009 : J. Sed. Soc. Japan), and (GS-SSS-1, Saitama City : Komatsubara and Kimura, 2009 : Abst. JPGU) have been recovered for establishment of standard stratigraphy in the lowland. Sedimentary environments in these cores have been reconstructed on the basis of sedimentary facies, shell fossils, CNS chemical element contents. Generally their sedimentary environments are reconstructed as follows in ascending order : gravelly rivers, sandy rivers (channels and floodplains), an inner bay floor, deltas, sandy rivers (channels and floodplains). The environments in three cores are integrated and correlated by radiocarbon ages, resulting in reconstruction of paleogeographical changes in the course of the valley fill process, with a depocenter migrating upstream and downstream during a sea-level rise.

Keywords: Arakawa Lowland, latest Pleistocene to Holocene incised valley fill, boring core, sedimentary facies, radiocarbon age, Jomon transgression