

Atlas of the post-LGM incised-valley fills beneath the Tama River Lowland

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ABSTRACT

In this study, we clarified distribution, stratigraphy, physical property, and applied geology of the post-LGM incised-valley fills (pLGMIVF) in the Tama River Lowland on the west coast of Tokyo Bay on the basis of 8745 geotechnical borehole logs, nine stratotype cores, and 196 radiocarbon dates. The Tama River Valley runs beneath the Tama River Lowland to the depth of -70 m TP (Tokyo Peil). The Tsurumi River Valley distributes beneath the Tsurumi River Lowland as a branch of the Tama River Valley. These valleys are surrounded by the Marine Isotope Stage (MIS) 5a T1 (Musashino) terrace, the MIS 3 T2 (Tachikawa) terrace, and the early MIS 2 T3 terrace. 12 sedimentary facies conforming the Tama River Valley fill can be classified into braided river system, which consists of gravel beds, meandering river system, which consists of the alternation of channel sands and floodplain muds, estuary system, which consists of upward-deepening sand and mud beds, and delta system, which consists of upward-shallowing sand and mud beds. The estuary and delta system boundary can be regarded as maximum flooding surface dated 7.9–7.8 ka. Facies EF (estuary-front sediments) and facies PD (prodelta sediments), respectively, composing the estuary and delta systems, constitute soft marine mud with high water and mud contents. The N -value of this soft mud is less than 5. The subsidence due to ground water pumping in Yokohama City until the 1985 matches well with the isopach of this soft marine mud. On the other hand, damage ratio of wooden houses due to the 1923 Taisho Kanto Earthquake is highest in the area where the pLGMIVF thickens 40–50 m.