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Construction of 3D subsurface geological models of the Arakawa Lowland

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We constructed the 3D subsurface geological models of the Arakawa Lowland by using the borehole database for soil surveys. The Arakawa Lowland, distributed in the northern part of Tokyo Metropolis to the southern part of the Saitama Prefecture, is a narrow restricted lowland bounded by the northeastern Omiya Upland and the southwestern Musashino Upland. Because of few stratigraphical and sedimentological studies, thick bedded "chuseki-so" under the Arakawa Lowland, the latest-Pleistocene to Holocene incised valley fills, have not been clarified enough to be able to interpret them with the sea-level changes, whereas the fills of Tokyo and Nakagawa Lowlands have been studied strenuously by using sedimentary cores, borehole logs and 3D subsurface geological models. The sedimentary bodies in incised valley fills of Tokyo and Nakagawa Lowlands having different properties are well illustrated by the 3D models mainly constructed based on the horizontal interpolation of borehole logs, although the models was built without respect for the sedimentary facies and stratigraphical distributions of the logs. In this study, we constructed the 3D models of Arakawa Lowland for sedimentological and stratigraphical studies, considering sedimentary facies, stratigraphical distributions and continuities of them.

Keywords: 3D model, Chuseki-so, Arakawa Lowland, borehole log, Holocene