東京低地と隣接台地の三次元浅部地盤モデル構築とその可視化
3D geologic modelling of the shallow-level subsurface structure of the Tokyo Lowland and the adjacent upland, Kanto Plain

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3D modelling of more than 7000 thousands of borehole data allows us to reveal detailed geomorphology of the buried landform covered by the Chuseki-so, and structural features of the late Quaternary deposits beneath the Tokyo Lowland and the adjacent upland in the Kanto Plain. The used borehole data are from standard penetrating tests mainly carried out in public works. The Chuseki-so consists of the latest Pleistocene to Holocene incised-valley fills with the maximum thickness of 75m. The late Quaternary deposits include the Tachikawa terrace deposits (ca. 50 to 20 ka), the Musashino gravel member (ca.100 to 60ka) and the Tokyo Formation (ca. 250 to 120ka), based on previous studies (1). The last two deposits extend in the adjacent Musashino upland.

The surface models of the basal horizons of the Chuseki-so and the underlying deposits are constructed by interpolation calculation of point data. These data have been defined by analyzing borehole data based on geologic views, in addition to setting of topographic and geologic boundaries between the alluvial lowland and the upland.

The surface models demonstrate the buried landform characterized by the abrasion platform (ca. -10 to 5m high), the Mb terrace surface, the Tachikawa terrace surfaces (ca. -20 to -52m high) and main incised-valley floors (ca.-40 to -61m high). The buried Tachikawa surface is classified into five surfaces of T0 to T4, which are defined with reference to Matsuda (1974). The buried Mb surface is continuous to the Musashino gravel member in the upland. The top surfaces of the T1-T2 terrace gravels and the Chuseki basal gravel is characterized by a long traceable depression of 200 to 400m in width and of 10m in depth. The geomorphic feature is comparable to a meandering river floor with small terraces. Both the Musashino gravel member and the Tokyo Formation make a half-dome structure plunging to the northeast direction, followed by a series of right-stepping NNE-trending faults and a NW-trending fault. These faults possibly control the geomorphic development of the buried geomorphic surface covered by the Chuseki-so.

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