

Construction of 3D subsurface geological models of the Tokyo Bay area

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Three dimensional geological models constructed from many borehole logs are useful to study the depositional processes of incised valley fills and soil surveys for the shallow underground. For example, the 3D models of the incised valley fills under the Nakagawa and Tokyo Lowlands constructed by the Urban Geology Research Project of Geological Survey of Japan clearly show the spatial distribution of soft grounds and the sedimentary bodies of deltaic mud, meandering river sediments, and a sand spit, respectively (Eto et al., in press; Tanabe et al., 2006). They constructed the 3D model using spatial interpolations of scattered N-values and lithological indexes whereas the most of that kind of the model are constructed by stratigraphical correlations of the lithology.

In this study, we constructed 3D geological models from the borehole database of the Bureau of Port and Harbor, Tokyo Metropolitan Government, based on the modified method of Eto et al.(in press). We used N-values and grain-size distributions as the lithological index for constructing the models. The constructed 3D models of N-value and lithology are well correlated with each other, and with the stratigraphy of the incised valley fills of the area.