

3D-geological model of alluvial formation under Miyazaki Plain using borehole database

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Around 50 m thick "Chuseki-so," which is being deposited since the Last Glacial Maximum to the present, is distributed under the most downstream part of the Oyodo-gawa River in the southern part of the Miyazaki Plain. The deposits of Chuseki-so in this area, which fills the incised valley of the Oyodo-gawa River, are composed of fluvial, shallow marine and marsh deposits containing pyroclastics of the west Japan volcanic belt from the upstream part of the river. In the plain, Holocene terraces of four levels, which are accompanied by the paleo-river channels and natural levees on their surfaces, are well developed. The highest terrace, which was formed by an uplift during the Holocene, is composed of marine deposits of the shorelines of the Jomon transgression period at about 8 m from the present sea-level.

An explanation of the detailed distribution of Chuseki-so in such complicated settings is of considerable importance in applied geology, such as for determining the distribution of soft ground, as well as for understanding the depositional process of Chuseki-so. In general, because deposits of Chuseki-so have a good continuity in the horizontal direction, three-dimensional geological and geotechnical grid models of the Kanto Plain have been developed. We applied a modified method of horizontal gridding for the Chuseki-so of the Miyazaki Plain using digitized borehole logs, and developed a three-dimensional geological and geotechnical grid model.

Keywords: Miyazaki Plain, 3D model, Chuseki-so, beach ridge, soft ground, uplifted area