

Ground motion characteristics associated with the buried topography and facies alteration of the post-LGM deposits beneath the Tokyo Lowland, central Japan: Relation to the damage distribution of the 1923 Kanto Earthquake

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Ground motion characteristics in plain areas are strongly influenced by shallow subsurface geology. Recently, research on stratigraphy and sedimentary facies of the shallow subsurface in the Tokyo metropolitan area have progressed, and a three-dimensional geological map of central Tokyo (Urban Geological Map of Central Tokyo) published in 2021 by the author's group at GSJ clarifies the detailed facies distribution of the post-LGM deposits and buried valley morphology beneath the Tokyo Lowland using an enormous amount of borehole data. In this study, we categorized the ground types in the Tokyo Lowland based on the stratal composition shown in the 3D geological map, and conducted microtremor observations to understand the ground motion characteristics of each ground type. Then, these ground motion characteristics were compared with the damage distribution of the 1923 Kanto Earthquake. It will improve the efficiency and accuracy of the earthquake hazard assessment in urban plain areas.

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