

Quaternary Geology in the central to western parts of the Kanto Tectonic Basin

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Abstract

The Quaternary System of the Kanto Region is composed of marine and terrestrial deposits and the Kanto Volcanic Ash. The marine deposits have been mainly studied in Chiba Prefecture. The terrestrial deposits and airborne volcanic ash have been studied in the whole Kanto Region. Studies of marine Pleistocene Series in Chiba Prefecture, subdivision of the terraces based on tephrochronology in the southern part of the Kanto Region and sea level changes estimated from the configuration of the terraces have been recognized internationally.

The studied area (Figs. 1-1 and 1-2) is covered in the central to western parts of the Kanto Region, and contains many sections of Quaternary stratigraphy.

Stratigraphy of marine deposits in the western margin of the studied area was established by Fukuta and Takano (1951). Studies of terrace deposits which are the typical Japanese terrestrial deposits, have been done in the Tama and Yokohama areas. The terrace deposits in the hills and plateaus had been studied in tephrochronologically by Kanto Loam Research Group (1965). The stratigraphy and geologic history of these areas had been clarified. As a result of these studies, the Quaternary geology of these areas has been already studied exhaustively, but the north of the Musashino Plateau had not made much progressed. In the present study, the author clarified the geomorphic evolution by the following new data.

1. The Omiya Plateau is correlated with the Shimosueyoshi Terrace based on the tephrochronological study. Although the Tokyo Formation underlying the plateau is traced to the underlying Shimosueyoshi Terrace. Emergence affected by the sea level change and basining movement of the seafloor in Omiya Plateau

was later than that in the Shimosueyoshi Terrace.

2. The younger terrace was formed by partial erosion of the older terrace (for example Pl. 10, fig. 2). The younger fan is formed on the older fan. The younger fan gravel was deposited repeatedly on the older fan deposit by partial erosion along the Tama River. This was examined around the apex of the fan.

The Tama River transported the gravels to the area of Musashino fan from the Kanto Mountains in association with sea level changes and climatic deterioration after the Shimosueyoshi Transgression in the late Pleistocene. The extended territory of the Tama River was connected with the lowering of sea level after the Shimosueyoshi Transgression intensified down-cutting and increased a gradient of river. Many terraces were formed with the lowering of base level by erosion derived from the lowering of sea level and climatic deterioration. As a result, the gradient of the younger terrace is larger than that of the older fan.

3. The age of the lower limit of the "Tama Volcanic Ash" is nearly known. The oldest horizon of the volcanic ash layer in the Kanto Region corresponds to the absolute age of the lower limit of the airborne volcanic ash layer in the region. It is correlated with the upper part of the Kasamori Formation in the Kazusa Group in Chiba Prefecture and is effective for estimation of the paleogeography in those days.

4. The Yaoroshi, Hanno and Bushi Formations are correlated with the Kazusa Group of the Tama Hills distributed in the southern outside of the studied area.