

Reconstruction of paleogeography of Kanto district about 1.6 Ma based on tephrostratigraphy

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First Horinouchi Tuff (HU₁) in the Oyamada Formation of the Kazusa Group, erupted about 1.63 Ma, had been found in and around Kanto Plain by previous studies. We examined the correlation of HU₁ and tephtras stratigraphically near to HU₁ to reconstruct paleogeography of Kanto district in Early Pleistocene. The tephtras collected from the river bed of the Tama River (Tachikawa city), the Sayama Hills, the Yokohama area, the Choshi area, Enoki Trench Core, Tachikawa Core, and Higashiyamato Core were analyzed. The tephtras were correlated based on their mineral contents, refractive indices of volcanic glass shards and minerals, chemical compositions of volcanic glass shards and titanomagnetite. As a result, it was newly revealed that three tephtra layers (Sayama Gomashio Volcanic Ash in Sayama Formation, pumice fall deposit in the Tachikawa Core Fujimi of Tachikawa, HY-1.1-HY1-6 in the Higashiyamato Core Narabashi of Higashiyamato) are correlated with HU₁. Also, We analyzed Tobiratoge Pyroclastic Rocks and Sanjiro Pyroclastic Rocks occurred in the south part of the Utsukushigahara Plateau in order to detect the source volcano of HU₁. As a result, both Tobiratoge Pyroclastic Rocks and Sanjiro Pyroclastic Rocks are not correlated because of difference refractive indices and chemical compositions of volcanic glass shards and refractive indices of hornblende. Thus, it was revealed that HU₁ has not been erupted from the volcano vicinity of Utsukushigahara Plateau. We estimated the accumulation rates of sedimentation based on correlated tephtras. The accumulation rates of sediments are 46.3 cm/kyr in the Yokohama area, 59.0 cm/kyr at Tachikawa Core, 2.5-10.3 cm/kyr at Haginaka Core, 3.8-6.7 cm/kyr in the Choshi area. These differences of the accumulation rates of sediments reflect the difference of the sedimental environment. Moreover, in Tachikawa Core and Sayama Hills, HU₁ are accumulated thicker than other areas. It is expected that HU₁ had reworked again and again after its primal deposition by the effect of wave action in shallow sea.

Keywords: tephtra, Kazusa Group, First Horinouchi Tuff, paleogeography