

Origin of the Miocene mafic volcanic rocks distributed in Utsunomiya and Kanuma, central Japan

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Two types of volcanic rocks were reported from Miocene formation distributed in Utsunomiya area, central Japan. Andesite and rhyolite are intercalated with the Kazamiyamada Formation, in the lower, and the Oya Formation, in the upper, respectively. The Kazamiyamada formation derives subaerial volcanism, and in contrasts the Oya formation formed by submarine volcanic eruption. K-Ar whole rock ages of the Kazamiyamada andesite and the Oya rhyolite are reported as 14.8-16.6 Ma and 14.2 Ma, respectively (Yoshikawa, 1998; Yoshikawa et al., 2001). These ages of igneous activity correspond to the opening event of Japan Sea. The authors reported chemical characteristics of volcanic rocks occurred in the Utsunomiya area (Shimizu and Kawano, 2013).

On the other hand, Miocene Primitive Basalt, Andesite and Dasite distributed are Kanuma area from Hinata formation, to the west side of the Utsunomiya area.

This study compared the Kazamiyamada andesites with the Hinata mafic volcanic rocks.

Keywords: Miocene volcanism, Utsunomiya area, Kanuma area, Sr and Nd isotope ratios