

Paleomagnetic direction of the Tomikusa Group in southern Nagano Prefecture and its tectonic significance

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We report here a new paleomagnetic direction from Early Miocene (18-17 Ma) sediments of the Tomikusa Group in southern Nagano Prefecture, and discuss the formation of curvature of the Median Tectonic Line (MTL) in central Honshu. Sedimentary rock samples collected from 24 sites were demagnetized stepwise, and site-mean directions were determined for 23. Rock magnetic experiments suggest that the main magnetic minerals are magnetite and maghemite. The site-mean directions pass a reversal test, indicating primary remanent magnetization. The overall mean direction with a northerly declination is indistinguishable from the Early Miocene reference direction derived from the Asian continent. This comparison suggests no significant rotation in the study area with respect to the continent since 17 Ma. The mean declination is deflected about 15 deg counter-clockwise with respect to the strike of the nearby MTL. The same angular relationship is also found in other sedimentary basins in central Honshu (Ichishi in Mie Pref., Chita Peninsula in Aichi Pref., Shitara in Aichi Pref., and Chichibu in Saitama Pref.). Thus we conclude that the MTL was straight in the late Early Miocene (18-17 Ma).

Keywords: paleomagnetism, Tomikusa Group, Median Tectonic Line, Miocene, rock magnetism, tectonics