

Rare earth element composition of the Yakushima granitic body, Kagoshima Prefecture

KAWANO, Yoshinobu^{1*}

¹Faculty of Geo-environmental Science, Rissho University

The Miocene Yakushima pluton intruded into Shimanto Super Group in Yakushima Island, Kagoshima Prefecture. The pluton consists of four members with granitic dike: Yakushima main granite (YMG), core granodiorite (CGD), core cordierite granite (CCG), marginal facies granite (MFG) and late granite dike (LGD). Anma et al. (1998) revealed geotectonic and petrological features of the pluton, and suggested that the YMG has different origin from other members. Furthermore, Kawano et al. (2007) discussed relationships between Sr initial isotopic ratios and origin of YMG.

In this study, rare earth elements of the Yakushima pluton are measured and REE characteristics for each rock facies are revealed. The rocks of the CGD and CCG have higher ratios of La/Lu and LREE/HREE than those of other rock facies. Negative Eu anomaly in the CGD and CCG is not recognized, it is suggested that fractionation of plagioclase was not performed. The rocks of the YMG have lower ratios of La/Lu and LREE/HREE than those of the CGD and CCG. Some samples from the YMG indicating remarkable negative Eu anomaly have lower Sr initial ratios of 0.702 to 0.704. Whereas samples having higher Sr initial ratios of 0.705 to 0.707 show no Eu negative anomaly. The former is exposed to the central part of the YMG, it is shown that fractionation of plagioclase is progressing in the central part. The MFG has no Eu negative anomaly, however, LGD is characterized by Eu negative anomaly and lowest ratios of La/Lu and LREE/HREE among the pluton.

From these REE features, it can be considered that the YMG and MFG, the CGD and CCG, and the LGD were derived from the different origin, respectively. Moreover, REE pattern of the YMG is complicated and possibly was formed by mixture of the magma presumed from SrI.

Keywords: Yakushima, Granite, Rare earth element