

Temporal and spatial variation of petrochemistry of the Tertiary volcanic rocks in the Oga Peninsula, NE Honshu arc.

Chisato Nagai[1]; Takeyoshi Yoshida[2]; Ryoichi Yamada[3]

[1] none; [2] Inst.Min.Petr.Econ.Geol., Tohoku Univ.; [3] ganko.tohoku-u

Ninety major and trace elemental analyses were carried on for the Eocene to early Miocene volcanic rocks from the Oga peninsula. Excluding altered specimens by using $\text{Na}_2\text{O}+\text{K}_2\text{O}-\text{Na}_2\text{O}/\text{K}_2\text{O}$ diagram (Miyashiro, 1975) and $\text{Al}_2\text{O}_3-\text{K}_2\text{O}-\text{CaO}+\text{Na}_2\text{O}$ diagram (Nesbitt and Young, 1989), 69 specimens are classified by the activity age and the mode of occurrence. The K_2O contents of volcanic rocks from the same age group show a linear trend from basalt to rhyolite, and these trends gradually decreasing the inclination on the $\text{SiO}_2-\text{K}_2\text{O}$ diagram with time from Eocene to early Miocene. Some other incompatible elements also decrease with time from Eocene Monzen basalts to early Miocene Nomuragawa (Kobayashi et al., 2004) basalts.

Transition from the Eocene continental basalts with high Zr ratio in $\text{Zr}/4-2\text{Nb}-\text{Y}$ diagram (Meschede, 1986) to the early Miocene island arc basalts with higher Y ratio at about 21 Ma is coincident to the inception of the back-arc spreading in the Yamato Basin. It has been thought that the transition from the Eocene Monzen basalts to early Miocene island arc Nomuragawa basalts were resulted from the injection of asthenospheric mantle at about 21 Ma in Yamato Basin. Moreover, present results suggest that this chemical transition from the Monzen basalts to the Nomuragawa basalts may caused by interaction among the injected asthenosphere, the sub-continental lithosphere and one other source mantle which might be sub-arc lithosphere.