

SCG008-P03

Room:Convention Hall

Time:May 26 14:00-16:30

Rb-Sr ages of granitic rocks from the Hua Hin area, Thailand

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The granitic rocks are widely distributed in the Hua Hin area, Thailand. This area is located in the Main-Rang Province (Cobbing et al., 1986) consists mainly of S-type granitic rocks, whose ages range from early Late Triassic to late Early Jurassic (ca. 230-180 Ma) (Sone and Metcalfe, 2008). The petrogenesis of these granitic rocks is explained by partial melting of the Sibumasu crust subducted beneath the Palaeo-Tethys accretionary complex (Sone and Metcalfe, 2008). However, the timing of magma activity and characteristic of source material of granitic rocks in the Hua Hin area are poorly understood. In this paper, we address Rb-Sr isotopic study of granitic rocks from this area.

The granitic rocks in the Hua Hin area are composed of foliated granitic rocks and non-foliated granitic rocks. The formers are the Hub Kapong Gneissic Granite, Hua Hin Gneissic Granite and Pran Buri Gneissic Granite. The Hub Kapong and Hua Hin Gneissic Granites are partly weakly mylonitized K-feldspar porphyritic biotite granite. Some of the Hub Kapong Gneissic Granite includes tourmaline. Parts of Hua Hin Gneissic Granite include garnet and tourmaline. Sillimanite is also contained in some of them (Kawakami et al., 2010). The Pran Buri Gneissic Granite is mylonitic biotite granite. Non-foliated granitic rocks are stock bodies intruded into the Hub Kapong Gneissic Granite, and composed of biotite to two-mica granite. These granitic rocks have peraluminous chemical composition. The Hub Kapong and Hua Hin Gneissic Granites and non-foliated granitic rocks indicate low magnetic susceptibility ($SI=1.3-21.5 \times 10^{-5}$), but the Pran Buri Gneissic Granite indicates high value ($SI=185-455 \times 10^{-5}$) (Yoshimoto et al., 2010).

The Hub Kapong and Hua Hin Gneissic Granites give Rb-Sr whole-rock isochron ages of 202 ± 22 Ma ($SrI=0.7259 \pm 0.0024; N=13$) and 209 ± 14 Ma ($SrI=0.7258 \pm 0.0034; N=10$), respectively. Because of dispersion, errors of age and SrI are slightly big. The dispersion might be due to effects of deformation and metamorphism. The Pran Buri Gneissic Granite does not give significant isochron age. A body of non-foliated granitic rocks gives a Rb-Sr whole-rock isochron ages of 84 ± 13 Ma ($SrI=0.7356 \pm 0.0015; N=4$). These ages indicate timing of magmatic activity in the Hua Hin area, and accord with U-Th-Pb monazite ages (213 Ma(core), 83 Ma(rim)) of metamorphic rocks from this area (Nakano et al., 2010).

Keywords: Rb-Sr whole-rock isochron age, granitic rocks, Hua Hin, Thailand