Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

SCG62-03 会場:102B 時間:5 月 22 日 09:30-09:45

伊豆衝突帯に分布する新第三紀花崗岩質岩体の地球化学的多様性とその解釈
Interpretation for geochemical diversity of the Neogene granitoid plutons in the Izu Collision Zone

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Neogene granitoid plutons are widely exposed in the Izu Collision Zone in central Japan, where the northern tip of the Izu-Bonin arc (juvenile oceanic arc) has been colliding with the Honshu arc (mature island arc) since middle Miocene. Three main granitoid plutons are distributed in this area: Tanzawa Plutonic Complex (TPC), Kofu Granitic Complex (KGC), and Kaikomagatake pluton (KP). The TPC and southern part of the KGC were intruded in submarine volcanic piles of the Izu-Bonin arc, while the KP and the northern and central parts of the KGC were intruded in Shimanto metasedimentary rocks of the Honshu arc. In this study, I compile geochemical data of these three plutons (Kawate and Arima 1998; Saito et al. 2004; Saito et al. 2007a,b; Saito et al. in press), and propose a petrogenetic model explaining the geochemical diversity of granitoid plutons in the Izu Collision Zone.

The TPC consists of tonalite and trondhjemite and characterized by low K_2O contents (< 2.5 wt %), whereas the KP is characterized by relatively high K_2O contents (3-5 wt %) and composed of granodiorite and monzogranite. The rocks of KGC range from tonalite, trondhjemite, granodiorite to granite, and show wide variation of K_2O contents (0.5-7 wt %). Previous petrogenetic studies on the plutons have been suggested that (1) the TPC formed by lower crustal anatexis of juvenile basaltic rocks occurring in the Izu-Bonin arc (Kawate and Arima 1998), (2) the KGC formed by anatexis of hybrid lower crustal sources comprising of both basaltic rocks of the Izu-Bonin arc and metasedimentary rocks of the Honshu arc (Saito et al. 2007b), and (3) the KP formed by anatexis of hybrid lower crust consisting of K-rich rear-arc crust of the Izu-Bonin arc and metasedimentary rocks of the Honshu arc (Saito et al. in press). These studies collectively suggest that the chemical diversity within the Izu Collision Zone granitoid plutons reflects the chemical variation of basaltic sources (i.e., across-arc chemical variation in the Izu-Bonin arc) as well as variable contribution of the metasedimentary component in the source region.

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キーワード: 伊豆衝突帯, 花崗岩, 甲府岩体, 丹沢岩体, 甲斐駒ヶ岳岩体
Keywords: Izu Collision Zone, Granite, Kofu Granitic Complex, Tanzawa Plutonic Complex, Kaikomagatake pluton