

## Whole-rock chemical composition of the granitoids in Ryoke belt, Takanawa Peninsula, northwest Shikoku, southwest Japan

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Mesozoic to Early Cenozoic granitic rocks are widely distributed along the Circum-Pacific continental margins. The Cretaceous –Paleogene granitic rocks in southwest Japan are a part of huge igneous belts that developed along the continental margin of East Asia. The granitic rocks in southwest Japan have been divided into three arc-parallel provinces including the Ryoke, San-yo, and San-in Belts based on their lithologies and geochemical characteristics, associated ore deposits, and formation ages (Ishihara, 1971). The Ryoke Belt is the type locality for the low-P/high-T metamorphic facies series defined by Miyashiro (1961), and consists of metamorphic rocks and Cretaceous ‘I-type’ and ilmenite-series granitoids (Takahashi et al., 1980). It has been suggested that a transect from the San-yo to Ryoke Belt represents a crustal cross section of the Cretaceous Asian continental margin down to mid-crustal depths (12–14km), and the Ryoke Belt represents the deep crust (Nakajima, 1994, 1996). Therefore, understanding the petrological processes of granitoid formation in the Ryoke Belt would contribute to understanding deep crustal processes along the continental margin (e.g., Akasaki et al., 2015).

We carried out whole-rock and Sr-Nd isotope analysis of the Ryoke granitoids exposed in the Takanawa Peninsula to indicate their petrological characteristic. Takanawa Peninsula located in northwest Shikoku island, southwest Japan. Multiple granitoids are distributed on the Takanawa Peninsula. The granitoids are mainly comprised of tonalitic rocks, granodioritic rocks, and granitic rocks. These show different SiO<sub>2</sub> content : 61-68 wt% for tonalitic rocks, 67-76 wt% for granodioritic rocks, 70-80 wt% for granitic rocks. And these show multiple trends on Harker diagram. Sr-Nd isotope composition of granitoids shows equivalent contents between SrI: 0.70669-0.70793 and NdI: 0.51217-0.51234. The multiple trends on Harker diagram suggest this area’s granitoids were comprised multiple magma. Similar SrI and NdI contents in granitoids suggest the same source of granitoids. Kagami et al. (1985; 2000) and Kodama et al. (2019) showed mafic rocks around this area had similar SrI (0.70654-0.70657) and NdI (0.51173-0.51241) composition to granitoids. Our results suggest that mafic rocks are a source material of granitoids in Takanawa Peninsula.

Reference: Akasaki et al. (2015) *Lithos* 230, 82–91. Ishihara (1971) *Jour. Geo. Soc. Japan* 77, 441–452. Kagami et al. (1985) *Geochem. J.* 19, 237–243. Kagami et al. (2000) *Island Arc* 9, 3–20. Kodama et al. (2019) *Jour. Minral. Petrol. Sci.* 114, 99–104. Miyashiro (1961) *Jour. Petrol.* 2, 277–311. Nakajima (1994) *Lithos* 33, 51–66. Nakajima (1996) *Transactions of the Royal Soc. Edinburgh: Earth Sciences* 87, 183–91. Ochi (1982) *Geo. Soc. Japan* 88, 511–522. Shimooka et al. (2019) *Jour. Minral. Petrol. Sci.* 114, 284–289. Takahashi (1980) *Mining Geology, Special Issue* 88, 13–28.

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