

Behaviors of REE, Cu and W in the Miyako granitoids and W mineralization, Iwate: Coexistence of a fluid phase with granitic magma

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The scheelite-bearing aplitic veins of the Yamaguchi skarn deposit were associated with normally zoned Miyako plutonics from quartz diorite of marginal zone (zone A), through tonalite and granodiorite (zone B), to granite (zone C) of the central zone of granitic body. Concentrations of REE in granitic rocks of zone C and in barren aplitic veins are significantly lower than those in granitic rocks of zones A and B. Copper content of Miyako granitic rocks increases from zones A (10 ppm) to B (36 ppm), and then decrease to zone C (4 ppm). The decrease of REE and Cu contents of zone C is not a result of simple magmatic fractional differentiation. Tungsten content of Miyako granitic rocks increases from zones A (0.2-0.5 ppm) to B, and then decrease to zone C (0.2 ppm). However, tungsten contents of barren aplitic veins (0.9 ppm) and scheelite-bearing aplitic veins (0.8 wt.%) are higher than those in Miyako granitic body of zones A to C. Candela & Holland (1986) and Keppler & Wyllie (1991) suggest that Cu and W in granitic melt were transported by fluid coexisting with the granitic melt. The fluid liberated from the melt could play an important role in Cu and W transportation during the formation of mineralized vein and Cu and W mineralization at the Yamaguchi deposit.