

Chronology and isotope study for Cretaceous and Paleogene Granitic Rocks SW Japan

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We especially focus on (1)spatial-temporal variation of granitic rock, (2) temporal variation of isotopic signature and whole rock chemistry and (3) tectonic and dynamic setting that caused the observed spatial-temporal variation and provided heat for the melt generation, based on the U-Pb zircon age, whole rock chemistry and Sr isotope ratio.

U-Pb zircon age determinations using LA-ICPMS was performed on total 81 rock samples. The obtained age ranges from 95 Ma to 30 Ma, with a possible temporal gap between 60 Ma and 50 Ma. During 95-60 Ma, the systematic migration of granitoid magmatism from the south to the north occurred. We also compile temporal variation of petrological signatures from literature. As a result, we observed (1) initial ratio of Sr isotopes ($^{87}\text{Sr}/^{86}\text{Sr}$) decreased from enriched characters (0.7090-0.7065) to depleted ones (0.7065-0.7050), and (2) rock types of granitoid changed from ilmenite-series to magnetite-series.

In this study, we also conduct Sr and Pb isotope initial ratio and whole rock chemistry of dated granitic samples. Based on these results, we discuss the origin of these variations and origin of granitic rocks in the SW Japan.