# Hf isotopic characteristics of sources materials for the Phanerozoic granitoids in South Korea

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The Phanerozoic granitoids in South Korea are divided temporally into Permo-Triassic (ca. 265 – 220 Ma), Jurassic (ca. 200 – 160 Ma) and Cretaceous-Paleogene (ca. 110 – 55 Ma) [1]. They were produced in response to two competing tectonic environments of continental collision versus continental arc. Infuence of continental collision orogeny on the generation of granitoids prevailed during the Permo-Triassic but faded out subsequently. On the contrary, continental arc magmatim initiated in southeastern part of the Korean Peninsula during the Permian, and prevailed from Triassic to Paleogene. We conducted *in situ* zircon Hf isotopic analysis to investigate spatial-temporal influence of continental arc magmatism on the source characteristics of the Phanerozoic granitoids in South Korea.

The Hf isotopic data compiled from the literature together with this study revealed two principal types of source materials governing the generation of the Permo-Triassic granitoids [2, 3]. One type corresponds to long-lasting, ancient lithospheric materials having highly negative $\varepsilon_{Hf}(t)$ values of -23.9 to -18.2 and is temporally equivalent to the Paleoproterozoic to Neoarchean basement rocks prevalent in South Korea. Another type corresponds to juvenile materials accreted by Late Paleozoic continental arc magmatism. This relatively young crust occurs largely in southeastern part of the peninsula. Systematic southeastward increase in $\varepsilon_{Hf}(t)$ values of both Permo-Triassic and Jurassic granitoids indicates enhanced contributions of juvenile materials toward the paleo-trench. Such a trend is best explained by the chemical mixing of two principal types of source. Northern limit of chemical interactions between ancient and juvenile components has migrated southeastwardly from Triassic to Jurassic. The arc-related juvenile crust with limited contributions of ancient crustal materials was a principal source for the Cretaceous-Paleogene granitoids.

[1] Sagong *et al*. (2005) *Tectonics* 24, TC5002. [2] Cheong *et al*. (2013) *Terra Nova* 25, 28-235. [3] Cheong *et al*. (2015) *Terra Nova* 27, 97-105.