Spatio-temporal extent of Cretaceous fore-arc basin in Japan

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Recent analyses on detrital zircon ages in sandstones calrified various new aspects on characteristics and secular changes in provenance for the fore-arc domain of Cretaceous Japan. The shallow marine to fluvial Cretaceous strata are disrtibuted in multiple zones running almost parallel to the coeval arc-trench system in SW Japan, which is represented by the paired granitoid (Ryoke) and blueschist (Sanbagawa) belts. For example, the Upper Cretaceous Izumi Group in Shikoku and Kii peninsula has been regarded as a typical fore-arc sedimentary package deposited between the coeval grnaitoid and blueschist belts. Much emphasis was given to its origin in a pull-apart setting along an imaginary large strike-slip movement of the Median Textonic Line. Nonetheless, the lastest zircon analyses documented that its spatio-temporal dimentsion was much greater than previously believed, e.g., more than 1000 km along-arc, and nearly 100 km wide across-arc in sapce, and extended up into the Paleocene in age. The Izumi Group likely represnt a remnant of much large sedimentary basin, and its current restircted occurrence, ca. ca. 300 km along arc and ca. 20 km across-arc, was made by large-scale removal of fore-arc crust, probably relevant to the back-arc rifting to open the Japan Sea. The missing fore-arc crust can be properly reconstructed by checking ancient provenance through zircon dating in Kyushu and southern Tohoku district.

Keywords: fore-arc basin, detrital zircon, U-Pb dating

