



Late Cretaceous volcanic arc system in Southwest Korea: Occurrence, lithological characteristics, SHRIMP zircon U-Pb age, and tectonic implications

Hee Jae Koh and Chang Woo Kwon

Korea Institute of Geoscience and Mineral Resources, Geological Research Center, Daejeon, Korea, Republic Of
(hjkoh@kigam.re.kr)

In the southwest region of the Korean Peninsula, four large volcanoes, the Buan, Seonunsan, Wido, and Beopseongpo, with a maximum diameter of ca 20 km, form a distinct topographic undulation along the NE-SW-trending Hamyeol Fault. These volcanics comprise various types of pyroclastic, sedimentary, and lava/intrusive rocks, and are interpreted as remnants of calderas resulting from various volcanic eruptions, indicating that Hamyeol Fault, together with crustal extension, played an important role in volcano formation in this region. SHRIMP U-Pb ages of zircon isolated from each volcanics are as follows. For Buan Volcanics, Cheonmasan Tuff 87.23 ± 0.92 Ma, Udongje Tuff 86.79 ± 0.71 Ma, Seokpo Tuff 87.30 ± 0.99 Ma and Yujeongje Tuff 86.66 ± 0.93 Ma. For Seonunsan Volcanics, Gyeongsusan Tuff 84.9 ± 1.1 Ma and Yeongije Tuff 86.61 ± 0.67 Ma. These ages indicate that the four volcanics were formed in the Late Cretaceous. The ages are comparable to those of the volcanic rocks of the Aioi and Arima groups in Southwestern Japan, suggesting that the Late Cretaceous volcanic arc systems developed in a NE-SW direction from the Japanese Islands to the southwestern part of the Korean Peninsula caused by regional magmatism together with crustal deformation as reflected by occurrence of the volcanic rocks along the Hamyeol Fault.