

MANTLE-CRUST INTERACTION DURING POST-COLLISIONAL STAGE ALONG THE DABIE-SULU OROGENIC BELT: A CASE STUDY ON THE BIMODAL VOLCANISM IN EAST SHANDONG PROVINCE, EASTERN CHINA

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The post-collisional volcanism in east Shandong Province, eastern China shows a bimodal characteristic, comprising of basaltic and felsic trachyandesites with low MgO abundance along the Dabie-Sulu Orogenic Belt. The REE patterns are right-declined with LREE enrichment and weakly positive Eu anomalies. It is interesting that the basaltic trachyandesites have higher REE abundance than that of felsic volcanic rocks. In trace element spider diagrams, all samples show a similar model that are enriched in LREE, LILE such as Rb, Ba, Sr, K and depleted in HFSE especially for Nb and P. In the primitive mantle normalized $(\text{Hf/Sm})_N - (\text{Ta/La})_N$ diagram, the majority of volcanic rocks experienced metasomatism derived from subducted material. It is implied that there were mica and amphibole in the melting mantle source and continental crust involved in the mantle source from the REE and trace element geochemistry. The Sr and Nd isotopic compositions of the trachyandesites are similar to those of the post-collisional mafic-ultramafic intrusive complexes in the northern Dabieshan, being plotted between the variation range of I-type enriched mantle (aged SCLM in Sino-Korean Craton) and II-type enriched mantle. The Sr enrichment, high Sr/Nd ratios and positive Eu anomaly indicated that there probably occurred delamination of mafic-ultramafic lower crust or recycling of subducted continent relative to the Indo-Sinian collision between the Yangtze Block and Sino-Korean Craton. In summary, the post-collisional volcanism in eastern Shandong Province gives an example for monitoring the mantle-crust interaction relative to the lithospheric extension after collision.