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GEOCHEMISTRY AND GEOCHRONOLOGY OF THE MESOZOIC VOLCANIC ROCKS IN THE SOUTHERN GREAT XINGGAN RANGE, NE CHINA

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Mesozoic volcanic rocks are widespread throughout the Great Xing'an range, NE China. Their ages formed from about 180 Ma to 120 Ma, with a strong peak about 125 Ma, and several weak peaks at ~116 Ma, ~140 Ma and ~156 Ma respectively in age histogram. These complicated age spectrum points out that the volcanism may be related not only with the subduction of the Pacific plate, but also with closure of the Okhotsk ocean.

The volcanic rocks from the southern Great Xinggan range change from calc-alkaline to shoshonite in rock series, they are characterized by significant large ion

lithophile elements (LILE) and light rare earth elements (LREE) enrichment and high field strength elements (HFSE) depletion, with a slightly enriched to depleted Nd–Hf and weakly enriched Sr isotopic compositions. The Sr–Nd–Pb–Hf isotopic data of basalts indicate that the magmatic sources are heterogeneous, showing an enriched to depleted signature of continental lithospheric mantle. Whereas the Sr–Nd isotopic data of the intermediate and felsic volcanic rocks indicate that their magma sources were mixed with proportions of old crustal components, indicate plausibly derived from partial melting of the subduc-

tion-modified lithospheric mantle and thickened lower crust, respectively, induced by delamination and/or asthenosphere upwelling in extensional setting. Combined with the tectonic evolution of the Great Xing'an area, we propose that the large-scale Mesozoic volca-

nism in NE China was controlled by the transition of regional stress from southward to westward, which is induced by the changes of tectonic regimes from the previous Mongol–Okhotsk subduction to the succeeding paleo-Pacific subduction during Late Mesozoic.