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## Geochemical Characteristics of the Gabbros from the Xinlin Ophiolite in the Great Xing'an Range, NE China

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### Abstract

The Xinlin ophiolite in NE China is generally considered to mark the suture between the Erguna and Xing'an blocks. Compared with the Maihantewula ophiolite and Jifeng-Gaxian ophiolite in the southern and central parts of the Xinlin-Xiguitu suture zone, the Xinlin ophiolite in the northern part of the suture has not been as thoroughly investigated. Many studies acknowledge the indicators of the Xinlin ophiolite as a suture, but detailed studies of this unit are scarce. In the present work, we provide the geochemical data to constrain the origin of the gabbros in Xinlin ophiolites. The gabbros from the Xinlin ophiolites are texturally heterogeneous, ranging from fine-grained aplitic to coarse-grained pegmatitic. The fine-grained gabbros have flat to slightly enriched LREE patterns,

which are geochemically comparable to transitional (T-MORB) and enriched mid-ocean ridge basalt (E-MORB). The pegmatite gabbros exhibit slightly LREE-depleted patterns, similar to typical N-MORB that derived from a depleted mantle source. Generally, gabbros from the Xinlin ophiolites are MORB-like, but also have some arc characteristics such as high Th and low Ta concentrations. Such features is typical in Supra-subduction zone (SSZ) type ophiolites. Our data, combined with other regional results, suggest that the geochemical signatures of the Xinlin gabbros that vary between arc-like and MORB-like were possibly indicative of their derivation from a subduction-modified depleted mantle.

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