

Accepted Manuscript

Geochemistry of Early Paleozoic boninites from the Central Qilian block,
Northwest China: Constraints on petrogenesis and back-arc basin development

Zhong Gao, Hong-Fei Zhang, He Yang, Bi-Ji Luo, Liang Guo, Wang-Chun Xu,
Fa-Bin Pan

PII: S1367-9120(18)30074-9
DOI: <https://doi.org/10.1016/j.jseaes.2018.02.022>
Reference: JAES 3428

To appear in: *Journal of Asian Earth Sciences*

Received Date: 4 May 2017
Revised Date: 6 February 2018
Accepted Date: 27 February 2018

Please cite this article as: Gao, Z., Zhang, H-F., Yang, H., Luo, B-J., Guo, L., Xu, W-C., Pan, F-B., Geochemistry of Early Paleozoic boninites from the Central Qilian block, Northwest China: Constraints on petrogenesis and back-arc basin development, *Journal of Asian Earth Sciences* (2018), doi: <https://doi.org/10.1016/j.jseaes.2018.02.022>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Geochemistry of Early Paleozoic boninites from the Central Qilian block, Northwest China:
Constraints on petrogenesis and back-arc basin development

Zhong Gao^a, Hong-Fei Zhang^{a,*}, He Yang^b, Bi-Ji Luo^a, Liang Guo^a, Wang-Chun Xu^a, Fa-Bin Pan^a

^a *State Key Laboratory of Geological Processes and Mineral Resources and School of Earth Sciences, China University of Geosciences, Wuhan 430074, PR China*

^b *Xinjiang Research Center for Mineral Resources, Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, Urumqi 830011, China*

Abstract

Early Paleozoic boninites occur in the Central Qilian orogenic belt, Northwest China. Their petrogenesis provides insights into lithosphere process and tectonic evolution of the Qilian block. In this paper, we carry out a study of geochronological, geochemical and Sr-Nd isotopic compositions for the Early Paleozoic boninites in the Lajishan area of the Central Qilian block. The Lajishan boninites (~483 Ma) have high $\text{Al}_2\text{O}_3/\text{TiO}_2$ (36.7–64.7) and CaO/TiO_2 (31.1–49.6) ratios, and high MgO (7.86–10.47 wt.%), Cr (439–599 ppm) and Ni (104–130 ppm) contents, indicating that the boninites result from a refractory mantle source. They are depleted in high field-strength elements (HFSE) and enriched in large ion lithophile elements (LILE), coupled with slightly high initial $^{87}\text{Sr}/^{86}\text{Sr}$ values of 0.7059 to 0.7074 and low $\epsilon_{\text{Nd}}(t)$ values of –1.05 to +2.66, indicating that the mantle source was metasomatized by subducted slab-derived components. We found that an assemblage of low-Ca group and high-Ca group boninites occurred in the Lajishan belt. The high-Ca group boninites were derived from relatively fertile mantle with slightly higher melting degree, whereas the low-Ca group boninites were generated by partial melting of more refractory mantle wedge

* Corresponding author. Tel: +86 27 67885033; fax: +86 27 67885037
E-mail address: hfzhang@cug.edu.cn (Hong-Fei Zhang)

Download English Version:

<https://daneshyari.com/en/article/8913997>

Download Persian Version:

<https://daneshyari.com/article/8913997>

[Daneshyari.com](https://daneshyari.com)