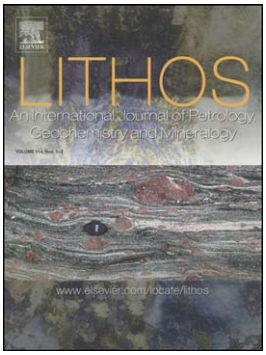

The provenance of late Permian karstic bauxite deposits in SW China, constrained by the geochemistry of interbedded clastic rocks, and U–Pb–Hf–O isotopes of detrital zircons

Ying-ling Hou, Yu-ting Zhong, Yi-gang Xu, Bin He

PII: S0024-4937(17)30028-2
DOI: doi:10.1016/j.lithos.2017.01.013
Reference: LITHOS 4211

To appear in: *LITHOS*

Received date: 6 August 2016
Accepted date: 24 January 2017

Please cite this article as: Hou, Ying-ling, Zhong, Yu-ting, Xu, Yi-gang, He, Bin, The provenance of late Permian karstic bauxite deposits in SW China, constrained by the geochemistry of interbedded clastic rocks, and U–Pb–Hf–O isotopes of detrital zircons, *LITHOS* (2017), doi:10.1016/j.lithos.2017.01.013

The provenance of late Permian karstic bauxite deposits in SW China, constrained by the geochemistry of interbedded clastic rocks, and U–Pb–Hf–O isotopes of detrital zircons

Ying-ling Hou [a, b], Yu-ting Zhong [a], Yi-gang Xu [a], Bin He [a*]

[a] *State Key Laboratory of Isotope Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, Guangdong, China*

[b] *University of Chinese Academy of Sciences, Beijing 100049, China*

ABSTRACT

The provenance of karstic bauxite deposits is difficult to constrain as such deposits are the products of intensively weathered rocks. We have studied the geochemistry of interbedded clastic rocks and isotopic characteristics of detrital zircons in late Permian karstic bauxite deposits in SW China to understand their provenance. The U–Pb ages of detrital zircons from both clastic rocks and bauxite ores show a peak at ~260 Ma. This peak age is within error of the sedimentary age (259.8 ± 0.4 Ma) of the bauxite ores and the age of emplacement of the Emeishan large igneous province in SW China. The peak age, together with abundant fragments of volcanic quartz crystals in the clastic rocks, suggests the bauxite deposit was derived from volcanic rocks. Further, the clastic rocks yield Al_2O_3/TiO_2 values of 25–132 and δEu = 0.23–0.58, showing arc-like REE trends and indicating the source rocks were felsic. The $\varepsilon_{Nd}(T)$ values of the bauxite ores and clastic rocks typically range from −7.6 to −3.5, with 130 out of 140 detrital zircons yielding $\varepsilon_{Hf}(T)$ values of

* Corresponding author: Tel: 86-20-85290133 Fax: 86-20-85290130
E-mail address: hebin@gig.ac.cn(hebin)