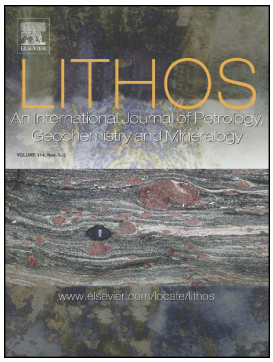
Accepted Manuscript



Using apatite to discriminate synchronous ore-associated and barren granitic rocks: A case study from the Edong metallogenic district, South China

Deng-Fei Duan, Shao-Yong Jiang

PII: S0024-4937(18)30149-X
DOI: doi:10.1016/j.lithos.2018.04.022
Reference: LITHOS 4638

To appear in:

Received date: 3 November 2017
Accepted date: 24 April 2018

Please cite this article as: Deng-Fei Duan, Shao-Yong Jiang , Using apatite to discriminate synchronous ore-associated and barren granitic rocks: A case study from the Edong metallogenic district, South China. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Lithos(2018), doi:10.1016/j.lithos.2018.04.022

Using apatite to discriminate synchronous ore-associated and barren granitic rocks: A case study from the Edong metallogenic district, South China

Deng-Fei Duan, Shao-Yong Jiang*

State Key Laboratory of Geological Processes and Mineral Resources, Collaborative Innovation Centre for Exploration of Strategic Mineral Resources, Faculty of Earth Resources, China University of Geosciences, Wuhan 430074, PR China

Abstract

In order to find criteria to discriminate the synchronous ore-associated and barren granitoid rocks, we have determined apatite chemistry associated with ore-associated (Cu-Au) and barren granitoid rocks in the Edong district of the Middle and Lower Yangtze River metallogenic belt, South China. Both rock types give zircon U-Pb ages between 135.0 and 138.7 Ma. Apatite has a higher volatile and Li content (Cl: 0.19-0.57 wt%, average 0.35 wt%, SO_3: 0.08-0.71 wt%, average 0.32 wt%, Li: 0.49-7.99 ppm, average 3.23 ppm) in ore-associated rocks than those in barren rocks (Cl: 0.09-0.31 wt%, average 0.16 wt%, SO_3: 0.06-0.28 wt%, average 0.16 wt%, Li: 0.15-0.89 ppm, average 0.36 ppm). Apatite $(La/Yb)_N$ ratios and Eu/Eu^* values are relatively high and show wider variation in ore-associated rocks than those in barren rocks. Apatite $(La/Sm)_N$ and $(Yb/Sm)_N$ show positive correlation in ore-associated rocks but negative in barren rocks. The higher volatile content occurs in

*Corresponding author at: State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences, Wuhan 430074, Hubei, China.
E-mail address: shyjiang@cug.edu.cn (S.Y. Jiang)