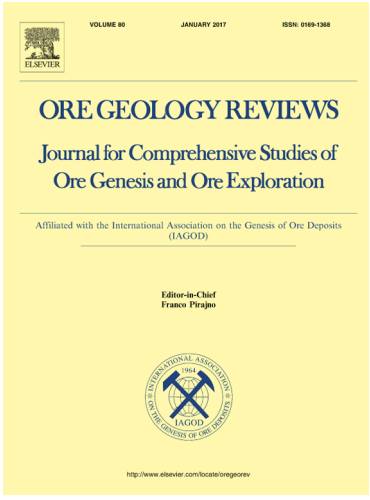

The role of hydrothermal alteration in Tungsten mineralization at the Dahutang tungsten deposit, South China

Yong Zhang, Jian-Feng Gao, Dongsheng Ma, Jiayong Pan

PII: S0169-1368(17)30947-2
DOI: https://doi.org/10.1016/j.oregeorev.2018.04.006
Reference: OREGEO 2550

To appear in: *Ore Geology Reviews*

Received Date: 6 December 2017
Revised Date: 2 April 2018
Accepted Date: 4 April 2018

Please cite this article as: Y. Zhang, J-F. Gao, D. Ma, J. Pan, The role of hydrothermal alteration in Tungsten mineralization at the Dahutang tungsten deposit, South China, *Ore Geology Reviews* (2018), doi: https://doi.org/10.1016/j.oregeorev.2018.04.006

The role of hydrothermal alteration in Tungsten mineralization at the Dahutang tungsten deposit, South China

Yong Zhang [a,b*], Jian-Feng Gao[c], Dongsheng Ma[a], Jiayong Pan[b]

a) School of Earth Sciences and Engineering, Nanjing University, Nanjing 210046, China

b) School of Earth Sciences, East China University of Technology, Nanchang 330013, China

c) State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China

Abstract:

The giant Dahutang tungsten deposit has total reserves of more than 1.31 Mt of WO_3 with a scheelite/wolframite ratio of ~1 and is mainly hosted by the Neoproterozoic Jiuling granodiorite batholith (~820 Ma). The deposit is characterized by four types of alteration, including biotite alteration, phyllic alteration, greisenization and silicification. Whole-rock geochemical analyses showed that the elements Ti, Ni, V, Sc, and Lu exhibited immobility during the four alteration processes. The mobile element geochemistry effectively differentiated among four distinct hydrothermal alteration styles. During the biotite mineralization, there were mass gains in Al_2O_3, Fe_2O_3, MnO, MgO, K_2O, P_2O_5, and W and depletions in SiO_2, CaO, and Na_2O. The phyllic alteration exhibited mass gains in SiO_2, Fe_2O_3, MgO, and W and depletions in CaO, Na_2O, and K_2O, but Al_2O_3, MnO, and P_2O_5 were immobile. The weak greisenization exhibited mass gains in SiO_2, Fe_2O_3, K_2O, P_2O_5 and W and depletions in Na_2O, MgO, and CaO, whereas Al_2O_3 and MnO remained immobile. The silicification exhibited mass gains in SiO_2 and W and depletions in Al_2O_3, Fe_2O_3, MgO, CaO, Na_2O, and K_2O, but MnO exhibited immobility. These alterations were

* Corresponding author: East China University of Technology, 330021, Nanchang, China.
E-mail address: zhycy2004@163.com(Yong Zhang).