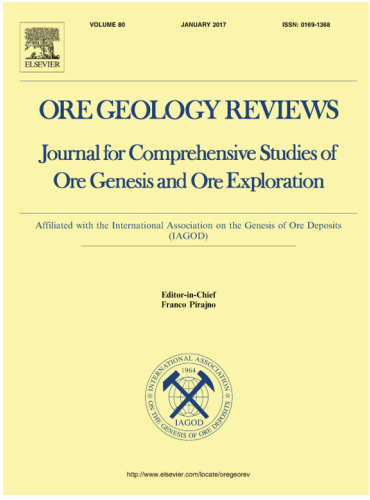

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Trace elements geochemistry of molybdenite from the Shapinggou super-giant porphyry Mo deposit, China

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Abstract

Shapinggou is one of the largest porphyry Mo deposits in the world, located in the Dabie Orogenic Belt, east China. Trace elements in molybdenite from Shapinggou have previously received little attention. Alteration types associated with Shapinggou include silicic, potassic-silicic, phyllic, propylitic and argillic alteration. The phyllic alteration can be divided into quartz and sericite (mainly muscovite) phases whereas argillic alteration is distinguished by poorly crystallized kaolinite (kaolinite PX), muscovite and phengite. The ore-forming event can be divided into quartz- K-feldspar, quartz-molybdenite, quartz-sericite and quartz-fluorite-gypsum stages; molybdenite was deposited in the first three stages but mainly in the second stage. The molybdenites in Shapinggou represent either the $2H_1$ and/or the $2H_1$+3R polytype and yielded a Re-Os isochron age of 110 to 113Ma, indicating that Shapinggou belongs to the third Mo mineralization event of the East Qinling-Dabie Mo belt. The molybdenite can be subdivided into two groups and LA-ICP-MS data show that there is an increase in the Re values from group one to group two with the Re contents

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