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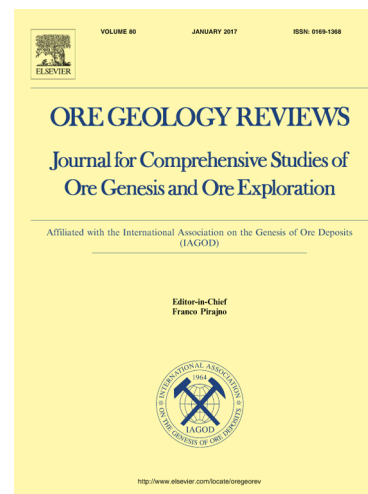
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Variation of copper isotopes in chalcopyrite from Dabu porphyry Cu-Mo deposit in Tibet and implications for mineral exploration

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Abstract

The study presents copper (Cu) isotope data of mineral separates of chalcopyrite from four drill core samples in the Miocene Dabu porphyry Cu-Mo deposit formed in a post-collisional setting in the Gangdese porphyry copper belt, southern Tibet. Copper isotope values in hypogene chalcopyrite range from $-1.48‰$ to $+1.12‰$, displaying a large variation of up to $2.60‰$, which demonstrates Cu isotope fractionation at high-temperature during hydrothermal evolution. The majority of measured chalcopyrite isotopic compositions show a gradual increasing trend from $-1.48‰$ to $+1.12‰$ with the increase of drilling depth from 130m to 483m, as the alteration assemblages change from potassic to phyllic. Similarly, the other $\delta^{65}\text{Cu}$ values ($\delta^{65}\text{Cu} = ((^{65}\text{Cu}/^{63}\text{Cu})_{\text{sample}} / (^{65}\text{Cu}/^{63}\text{Cu})_{\text{standard}} - 1) \times 1000$) of the chalcopyrite show a gradual increasing trend from $-1.48‰$ to $+0.59‰$ with the

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