

Fluid origin of Jilong vein type Cu deposit in Tibetan plateau

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The Jilong deposit, located in the central part of the ‘Sanjiang’ orogenic belt of the northeastern Tibetan plateau, is a delegate of those sediment-hosted vein type Cu deposits in this belt. The Cu mineralization in this deposit is produced as quartz-carbonate-sulfide (chalcopyrite or tennantite) veins and the ore bodies formed along a facies transition between clastic rocks and limestones in the Early Carboniferous.

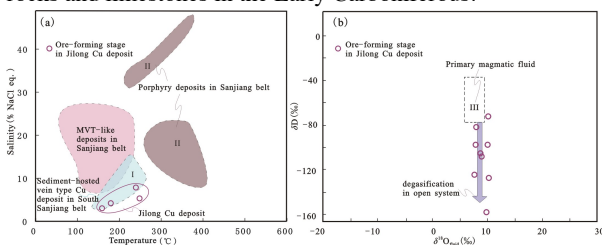


Fig. 1 Diagrams of Salinity vs. homogenization temperature (a) and δD vs. $\delta^{18}O$ of ore-forming fluid in Jilong deposit (I, II, and III from [1], [2] and [3], and [4], respectively.)

In Jilong Cu deposit, the ore-forming fluid presents middle temperature and low salinity, which are different from those of MVT-like Pb-Zn and porphyry Cu deposits also formed in this belt (Fig. 1a); The value of δD_{V-SMOW} is with big fractional distillation and the $\delta^{18}O_{V-SMOW}$ is with small fractional distillation, together of which indicate the ore-forming fluid is derived from some magmatic hydrothermal fluid which has undergone degasification in open system (Fig. 1b); The Sm-Nd isochrone age of calcite from ore-forming stage is about 34Ma, which is similar to potassic magmatic activities in this belt.

In conclusion, the ore-forming fluid of Jilong Cu deposit probably came from the potassic magmatic hydrothermal fluid undergone degasification in open system and this kind of fluid formed a new kind of deposits like Jilong in ‘Sanjiang’ orogenic belt in Tibet.

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[1] He *et al* (2009) *Ore Geology Reviews* **36**, 106-132. [2] Nan *et al* (2005) *Xinjiang Geology* **23**, 373-377. [3] Xie *et al* (2005) *Acta Petrologica Sinica* **21**, 1409-1415. [4] Taylor (1974) *Economic Geology* **69**, 843-883.