

HERCYNIAN METALLOGENESIS IN ALTAY OROGENIC BELT, NORTHWEST CHINA

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Altay mountain in Xinjiang, northwest China is an important base-, rare-metals and gold metallogenic belt, which formed in Hercynian orogeny. Two tectono-metallogenic systems, the metallogenic system of volcanic passive continental margin, and the collision-metallogenic system, are recognized.

Deposits at volcanic passive continental margin are volcanic-hosted massive sulfide type formed in $D_1 \sim D_2$ period. They are subdivided into three belts. The inner belt with broken continental basement is characterized by felsic volcanism and Pb-Zn mineralization represented by the Koktal large Pb-Zn deposit. In the central belt with extensional transitional crust, bimodal volcanic formation developed and volcanic-hosted Cu-Zn deposits formed (Ashele large Cu-Zn deposit). The ophiolite and Cyprus-type Fe-Cu-Au deposits (Qiaoxiahala style) are distributed in the outer belt. The volcanism and mineralization intend to be younger (from $D_1 \rightarrow D_{1-2} \rightarrow D_2$) and the ore-forming element associations to change from PbZn \rightarrow CuZn \rightarrow FeCuAu toward ocean.

The deposits of collisional system are Au and Li-Be-Nb-Ta ones which mainly formed in late period of collision, dating at 320~290 Ma. Toward inland from the Ertix suture, the major metallogenic belts include in sequence the gold belt controlled by shear zone and/or I-type granitoid, gold- and rare metal belt and rare metal belt related to S-type granite-pegmatite. Gold belt is believed to be caused by the delamination of ocean crust, but the rare metal belt by the induced continental partial melting-differentiation.