

The Types and Ore-Forming Characteristics of Early-Precambrian Gold Deposits in Wutai Mountain area, China

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There are different kinds of Early-Precambrian gold deposits within the Archean greenstong belt in Wutai Mountain area. The main gold deposits can be divided into three types : Xiaobanyu-type, Dongyaozhuang-type and Kangjiagou-type gold deposit.

Xiaobanyu-type gold deposits were hosted in the banded-iron formation (BIF). All of them were stratabound deposits. They contained very simple mineral composition, no arsenopyrite, galenite, sphalerite. All the orebodies of deposits were reworked by two stages of folding deformation. The mineralized era was ca.2.3Ga.

Dongyaozhuang-type gold deposit was strongly restricted within the ductile-brittle shear zone developed in spilite-keratophyre sequence with intruded diabase. This kind of gold deposit contained complex mineral composition such as pyrite, chalcopyrite, arsenopyrite, molybdenite, tourmaline and so on, similar to the typical greenstone-type gold deposit abroad. The correlation between gold and arsenic is much stronger than between gold and sulphur. Re-Os isotopic age of molybdenite of ore was 2422 Ma, representing the ore-forming era.

Kangjiagou-type gold deposit was characterized by the formation of quartz-vein with pyrite, chalcopyrite. The origin of this kind of gold deposit was closely related to the formation of carbonatite intruded in 2170 Ma (Sm-Nd isochron curve dating).

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