

CHARACTERISTICS AND ORIGIN OF MURUNTAR-TYPE GOLD DEPOSITS IN SOUTHWESTERN TIANSHAN OROGENIC BELT, CHINA

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Several gold deposits were recently discovered in the southwestern Tianshan orogenic belt. Hosted in the Paleozoic carboniferous turbidite and showing strata-bound characteristics, the deposits are controlled by regional ductile-brittle shear zones, and quite similar to Muruntar gold deposit in Uzbekistan in metallogenic setting and geological characteristics. However, they underwent lower degree of denudation than that of Muruntar area.

The ores consists of small amount (1~5%) of sulfide- mainly arsenopyrite, pyrite and antimonious minerals, and the gold grades are low-generally from 1~5 g/t to 10~6 g/t. The initial study indicates that Au in the ores originates from the carboniferous turbidite, which formed in the active continental margin during the early stage of southwestern Tianshan orogenic belt evolution. The gold was preliminarily enriched in the turbidite. The organic carbon is an important factor to promote activation and migration of gold during orogenic metamorphic process. The ductile shear zones developed mainly in the middle stage of orogenesis. The stress relaxation after the peak period of the orogenesis resulted in the property transformation of the regional shear zones from the ductile to brittle, along with the syntectonic medium-acid magmatic activities which brought gold-bearing thermal fluid (mixed with some meteorological water) and thermal driving power during the intracontinental stage. The main metallogenic ages are from the later Carboniferous to early Triassic (Rb-Sr isochron). These deposits are characterized with metallogenic hysteresis. Further study on them is of importance to reveal the gold and other metals (Sn, Mo, Cu, Ag etc.) metallogenesis in the middle-Asian orogenic belt.