Study on the Metallogenetic epoch and mechanism of the Jinwozi gold deposit, Xinjiang, Northwest China

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Xinjiang Jinwozi gold deposit located in the southern margin of Xingxingxia Paleozoic Island-arc, the south of the Hongliu River fault. Its formation era is very important for understanding of the formation mechanism. So, the precise ^{40}Ar-^{39}Ar dating of the sericites from the ore and the mylonite formed by shearing were performed, respectively. Their plateau ages are 243.2 ±1.8Ma and 243.8±1.8 Ma.

Shearing play an important role to control the forming of Jinwozi gold deposits, and proved by the facts that the shearing and mineralization coupled with good time relations, shearing controlled the migrating, concentrating and depositing of the mineralization matter by cutting badly the surrounding rock with higher gold concentration. The crannies and the deep faults formed by shearing offered migrating and releasing aisles for the fluids include that dynamic metamorphic fluid formed together with shearing process and came from the deep of the Earth.

Study on geochemistry and fluid inclusion indicated that the mineralization fluid were composed of two kinds of fluids. One from the deep of the Earth enriched silicon and potassium,alkaline, high temperture fluid; the other is acidic, low temperture fluid. Both met and mixed in the brittle-ductile transition zone, and formed the deposit.

Above-mentioned facts proved that Jinwozi gold deposit formed in early Indosinian and its formation process controlled by the activity of the shear zone, the mineralization fluid was a complex fluid composed by mantal fluid, dynamic metamorphic fluid and superficial fluid.

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Clinopyroxene xenocrysts in Fuhai Carboniferous magma, Xinjiang, China

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Clinopyroxene is one of the most abundant phenocryst phases in volcanic rocks. Clinopyroxene with normal and reversed major element zonation generally indicate relatively growth histories and various crystallization conditions of the host rock [1-4]. Western Junggar in Xinjiang plays an important role in central Asian metallogenic domain [5]. A number of large ore deposits were form in late Paleozoic, during the intensive magmatic activities. Recently, this area attracted geologists greatly [6-11]. Located in the north end of Western Junggar, Fuhai carboniferous basalt and basaltic-andesite contain clinopyroxene with prevalent zoning texture. Three kinds of clinopyroxene could be identified: xenocryst core, diopside-salite core, augite-salite core. The zoning in clinopyroxene with xenocryst core developed from inner to outer is xenocryst core, salite mantle, high-Mg band and Fe-rich rim. The xenocryst core (diopside), rich in Cr and low in Al, Ti, was resorbed by salite mantle. The salite mantle is surrounded by a high-Mg diopside band. The pressure and temperature of xenocrysts are 26.2~32.7kbar and 870~1050°C, 39.0~41.1kbar and 960~1057°C, respectively. The diopside-salite core changes gradually from diopside to salite. Two magma chambers could be established, the deeper one locates in upper mantle at depth of ~120km, the shallower one lies at depth of ~20km. Magma mixing occurred in the shallower chamber.

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