



## **The relationship between tectonic system and geochemical anomalies in Northwestern China and its implication for mineral exploration**

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The West Junggar tectonic system (WJTS) in northwestern China is an eastward extending of the Balkhash orocline in central Asia truncated by the right-lateral strike-slip Chingiz-Junggar fault during the Mesozoic. It is a domino-type tectonic system composed of the NE-extending left-lateral strike-slip Darabut, Mayile, and Baerleike faults and tectonic blocks among them, due to strike-slip fault-related folding of continental ribbons in the Late Paleozoic. The West Junggar metallogenic belt (WJMB), with the occurrence of some large and super-large deposits such as the Baogutu porphyry Cu, Hatu Au, Saertuohai Cr, and Yangzhuang Be deposits, is also an important metallogenic belt formed in the Late Paleozoic. In this paper, the characteristics of the WJTS and its relationship to the geochemical anomalies are analyzed. The results show that, the distribution of geochemical blocks, element anomalies, and the formation and distribution of the NE-extending WJMB and sub-belts, and Cu, Au, Mo, and Cr deposits, is controlled by the formation and evolution of the WJTS in the Late Paleozoic. Antisymmetric distribution of the Miaoergou – Hongshan plutons and the geochemical Au blocks, indicates the important modification and migration of the granitic plutons and element Au during the left-lateral strike-slip faulting along the Darabut fault. The circular rotational fault system surrounding the Miaoergou pluton, results in hotwheel-like distributions of the element anomalies of Cu, Pb, etc. Meanwhile, the distribution of Au deposits in the WJMB is controlled by the fracture zones in the fault system of the WJTS. The understanding of the relationship between tectonic system and geochemical anomalies will benefit the future exploration for mineral deposits in the WJMB.