

Deep positioning prognosis and geophysical verification of the Tuanjiegou gold deposit, Heilongjiang Province, China

¹ZHANG, B.L., ¹CAI, X.P. and ¹LIANG, G.H. ¹Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China

Situated in the northern part of Heilongjiang, China and occurring in the contact zone between early-Paleozoic tectonic schist and Cretaceous plagiogranite porphyry, the Tuanjiegou gold deposit has long been classified as the typical porphyry-hosted gold deposit in China. However, through the composite analysis of ore-control structural system, the time sequence between the porphyry and the volcanic rocks, the crypto-explosion process of gold-bearing fluids, we get the new idea on the genesis of the deposit, i.e. the deposit was formed after porphyries intruded into the schist at different elevation. The gold-bearing hydrothermal solutions emplaced along the subsequent rupture zone in the existing porphyries and schists and explodes in the contact zone between porphyries and schists. After that, the differential uprising movement resulted in the denudation of gold ore bodies and young volcanic rocks covered the weathering crust. The above conceptional model has been verified by three geophysical methods: seismic exploration, TEM, MT. The testing results coincide with geological conclusion and the most favorable metallogenic structural position are confirmed to located between 300-600 m in the depth.