Structural Controls on Carlin-Type Gold Deposits at the Huijiabao Trend, Southwestern Guizhou Province, China

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The Huijiabao Gold Mining District has a total of 370 tonnes of proven gold resources and is expected to exceed 400 tonnes in the future. It is the most important gold-forming area in the "Golden Triangle" region of Yunnan, Guizhou, and Guangxi provinces, China, and is mainly controlled by the Huijiabao anticline and its axial or flank thrust faults.

The representative deposit is the giant Shuiyindong gold deposit, which is located on the side of the shallow-water carbonate rock distribution area at the boundary of the platform basin, and the contractional structural strain is weaker than that in the basin. The ore-controlling structure of the Shuiyindong gold deposit is mainly composed of folds and axial faults. In the Lower Triassic Yelang Formation, the orebodies are mainly controlled by the axial thrust fault on the limbs of the Huijiabao anticline and are hosted in the joint drag kink bands of the thrust fault; in the Upper Permian Longtan Formation, the orebodies are mainly controlled by the anticline core and "X"-type shear faults (back thrust faults) on the two limbs of the anticline, and the faults often show the characteristics of high-angle compressional thrust faults. Structural stripping zones in the anticline core between the carbonate rock layers form saddle-shaped orebodies, and thick and large lenticular orebodies are mostly hosted at the intersections of the carbonate rock layers and faults, especially in the third member of the Upper Permian Longtan Formation. There is a regional detachment zone between the Middle Permian Longtan Formation and the Upper Permian Longtan Formation, which acts as a channel for hydrothermal fluid migration and hosts plate-shaped orebodies.