

# **Sericite $^{40}\text{Ar}/^{39}\text{Ar}$ dating of the Tianjingshan orogenic gold deposit, Central China: Implications for regional gold metallogeny of the Qinzhou Bay–Hangzhou Bay metallogenic belt**

JIAN WANG<sup>1,2</sup>, WEN-MING ZHONG<sup>1</sup> AND JI-SHAN WANG<sup>2</sup>

<sup>1</sup>HuBei Land Resources Vocational College

<sup>2</sup>School of Earth Resources, China University of Geosciences (Wuhan)

Presenting Author: [j\\_wang66@126.com](mailto:j_wang66@126.com)

The Tianjingshan gold deposit, located in the northern segment of the Qinzhou Bay-Hangzhou Bay Metallogenic Belt (QHMB), Central China, is one of the typical large-scale lode gold deposits. Auriferous quartz veins are hosted in Neoproterozoic greenschist-facies metamorphic rocks and the gneissic granite, and are structurally controlled by NE-striking brittle faults. Ore-related hydrothermal alteration, consisting of silicification, pyritization, sericitization, K-feldspathization, and chloritization, occurs surround Au-bearing quartz veins as halos or zones. Gold occurs as both native gold and invisible gold, as well as pyrite being the predominant gold-bearing mineral. Two gold-related sericite has well defined step heating plateau ages  $^{40}\text{Ar}/^{39}\text{Ar}$  ages of  $243.4 \pm 2.3$  Ma and  $239.5 \pm 2.3$  Ma, respectively [1], indicating that gold mineralization took place during the Middle Triassic. These mineralization ages are well agreement with a U-Pb age of  $\sim 240$  Ma from ore-related hydrothermal zircon grains from the large-scale Hetai orogenic gold deposit in the southern segment of the QHMB [2]. The major deformation event of the entire QHMB has been constrained to the Middle Triassic (247–237 Ma) on the basis of geochronology and other geological observations [3]. Therefore, the Tianjingshan deposit, and mostly possibly other orogenic gold deposits (Hetai, Wangu, Huangjindong, Tuanshanbei, and so on) in the QHMB, likely formed during the Triassic regional compressional event. The above evidence also implies that QHMB has great potential for exploring orogenic gold deposit.

## References

- [1] Wang, Wang, Zhang, Zhang, Liu, Jiang & Bai (2021), *Ore Geology Reviews* 131, 103952.
- [2] Jiao, Wang, Deng, Xu, Chen, Yu, Ye & Gao (2017), *Ore Geology Reviews* 88, 674–689.
- [3] Zhou, Zheng, Zeng, & Liang (2015), *Earth Science Frontiers* 22, 1–6 (In Chinese with English abstract).