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**Jurassic-Cretaceous magmatism and mineralization in the Middle-Lower  
Yangtze River Valley metallogenic belt**

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The Middle-Lower Yangtze River Valley metallogenic belt (MLYB) is one of the most important polymetallic Cu-Au (-Fe) provinces in eastern China and has attracted significant research interest. The MLYB extends from Wuhan (Hubei Province) in the west to Zhenjiang (Jiangsu Province) in the east and comprises several ore districts along the Yangtze River valley, such as Edong (southeastern Hubei province), Jiurui (Jiujiang-Ruichang), Anqing-Guichi, Tongling, Luzong, Ningwu and Ningzhen. The geological history consists of three stages (Chang et al., 1991): basement formation stage before Sinian, upper sedimentary cover formation stage between Sinian, and early Triassic and intraplate deformational stage after middle-late Triassic. The ore deposits in the MLYB are mainly porphyry-skarn Cu-Au deposits, magnetite-apatite deposits and Au-U deposits. The magmatism and mineralization in the MLYB are mostly between 147-123 Ma (Yanshanian in eastern China), and can further be divided into three stages, correspondingly associating with porphyry-skarn Cu-Au in fault uplifted area, magnetite-apatite in volcanic basins and Au-U mineralization between the two locations. These deposits are associated with intracontinental magmatism in Yenshanian, the geological settings were very different from those deposits that formed in magmatic arcs such as in Andes (e.g., Pirajno and Zhou, 2015; Zhou et al., 2015).

With the new discovery of many large porphyry Cu-Au and magnetite-apatite deposits such as Shaxi, Shujiadian, Baiyunshan and Luohe in recent years, the MLYB has become an important exploration target. Our work is to develop a new integrated model for the magmatic rocks and ore deposits the MLYB; we have compiled extensive geological characteristics and geochemical data for the porphyry and magnetite-apatite deposits and the coeval magmatic rocks in the MLYB, which indicates that: (i) Second-stage boiling is important for the metal precipitation in porphyry-skarn Cu-Au deposits; (ii) the Triassic gypsum-salt layers provided plenty of sulfur and mineralizing agent for the magnetite-apatite deposits, and also provided channels and space for the migration and deposition of the magmas and hydrothermal fluids; (iii) the injection of mafic magma, generated by partial melting of enriched lithospheric mantle which had been metasomatized by slab-derived fluids from Neoproterozoic-subducted oceanic lithosphere, was the key mechanism for the generation of fertile magma. The three stages of magmatism and mineralization in the MLYB in Yanshanian are part of a late Mesozoic event in eastern China.