

# **Genesis of Late Mesozoic granitic magmatism and metal mineralization in the northern Dabie orogenic belt, China**

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The northern Dabie orogenic belt is characterized by intensive magmatism and large-scale Mo mineralization related to the Late Mesozoic granites. The relationship between the magmatism-mineralization in this belt and subduction of the Pacific oceanic plate but remains unclear. We report data of zircon ages and geochemistry of the Daquandian granite, one of the large plutons exposed in northern Dabie, to better reveal its genesis. This large-volume granite pluton was emplaced within a short period of 130-128 Ma. Granites are enriched in LILEs and LREEs, but depleted in HFSEs and HREEs, with significantly negative Eu anomalies, belonging to the metaluminous high-K calc-alkaline series. Their geochemical characteristics likely point toward an origin from the lower crust and partial melting should take place at a depth less than 35 km. Initial Nd isotopic compositions (-18.2 to -16.4 of initial  $\epsilon_{Nd}$  value) are different from the Mo-bearing young granite porphyries (~115-110 Ma) in this belt, as reported in previous studies. Compared with the early-stage ore-barren granites (~140-130 Ma) with low initial  $\epsilon_{Nd}$  values (-20.8 to -17.7) and high Sr/Y ratios, the ore-barren Daquandian granites display relative depletion in Nd isotopes and low Sr/Y ratios (9.1-57.3). Geochemical features imply that materials and/or fluids from the juvenile crust or even from the mantle contributed to the ore-bearing granites during the late-stage magmatic activities. The ore-barren granites of early magmatic stages were derived subsequently from ancient crustal rocks characterized by diverse compositions during the tectonic transition from crustal thickening to extension, maybe related to rollback of the subducted Paleo-Pacific oceanic plate, the same tectonic scenery in the middle-lower Yangtze magmatism-mineralization zone.