



Zircon U-Pb Age of Gabbro in Fengshan Copper Deposit and its Geological Implications of Yimen Area, Central Yunnan Province

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Abstract: The Yimen Fengshan copper deposit is a typical Yimen-type copper deposit which is located in the Yimen rifting basin of Kunyang rift valley, the deposit is evidently controlled by diapir and structure, ore bodies are located in cataclastic dolomite of Lüzhijiang Formation Fengshan member. Previous studies have shown that the gabbro outcrops along the diapir intrusion, presumably providing a part of the heat source for the formation of the diapir. This paper makes a petrogeochemical analysis of the gabbro at the contact site between the diapir in the south of 59[#] ore body and the dolomite in fengshan section. The SiO₂ content in the gabbro is relatively low, and the TiO₂ content is relatively high; the total REE content is medium, LREE is enriched relatively and obviously differentiated with HREE, and the distribution pattern is of a right-steep tilting type. Slightly weak Eu positive anomaly and Ce negative anomaly, K, Rb, Th and other large ion lithophilic elements were enriched, and Sr, Ta, Nb, Yb, Zr, Y and other elements were deficient, showing the characteristics of intraplate basalt. Zircon LA-ICP-MS U-Pb dating of gabbro shows that the age values are very dispersed, The age of only one zircon shows 737 Ma, while the other zircons are all older than 1838.7 Ma, and the focus is on (2202.2±8.0)~ (2324.6±18.0) Ma, weighted average zircon

²⁰⁷Pb/²⁰⁶Pb age of 2264 ±81 Ma (MSWD = 0.31, n=5). The age of the intersection of the inconsistency curve and the consonance curve fitted by the five analysis points was 2317 ± 35 Ma (MSWD = 2.4), it may indicate the gabbro emplacement age. It is similar to Kenorland's age at the time of super-large land cracking and may be the product of Kenorland's super-large land cracking. The study indicates that the sedimentary age of the "Lvzhijiang Formation" in which the gabbro intruded and contacted should be greater than the emplacement age of the gabbro, indicating that an older basement may exist in the central yunnan region.

Key words: gabbro, zircon U-Pb dating, Fengshan copper deposit

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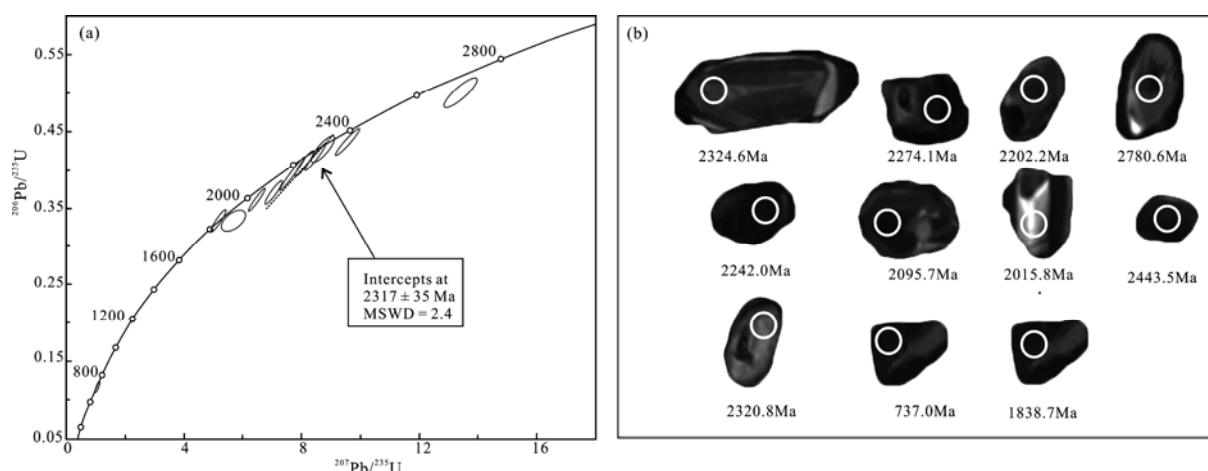


Fig.1. Concordia plots of the zircon U-Pb age (a) and zircon CL (b) images of the the Yimen Fengshan copper deposit.

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