When did amphibolite-facies overprinting occur in Dabieshan?

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Zhujiachong cold eclogite

The Zhujiachong cold eclogite [1,2] in the southern Dabieshan, characterised with a 2.5m long 0.5~20cm wide paragonite-amphibolite-quartz vein, contains athol garnet with phengite. Amphibole formed around garnet during post-eclogite amphibolite facies metamorphism. EPMA analysis shows that white micas in symplectites are paragonite. The eclogite and vein minerals both exhibit polystage retrograde recrystallization [2].

^{40}Ar/^{39}Ar dating results

Paragonites from the eclogite and vein analyzed by laser stepwise heating yielded flat age spectra with concordant plateau and isocrhon ages of ~200 Ma. Amphibole from the vein yielded a staircase pattern in the first twelve steps decreasing to a plateau segment from steps 13 to 25 with an age of 201 ± 3 Ma (^{39}Ar: 36.7 %) by stepwise crushing. Following completion of the crushing experiment, the powder of the amphibole was further analysed with a stepwise heating technique by placing the crusher tube in an external resistence furnace. Incremental heating yielded a seven step plateau from 650 to 950 °C with an age of 242.2 ± 2.3 Ma (MSWD = 6.2, Fig.1). These plateau data define an isochron line with isochron age of 243.5 ± 3.3 Ma, corresponding to an ^{40}Ar/^{36}Ar initial ratio of 291.9 ± 7.0 and MSWD = 6.1.

Based on our data, it seems that amphibolite-facies retrogression occurred at ~242 Ma ago, followed by wide spread fluid activity around 200 ~ 180 Ma in the Dabie-Sulu terranes during further retrogression.

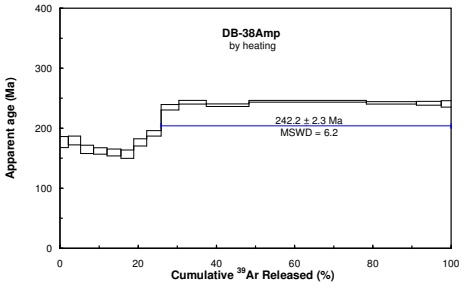

Fig.1 ^{40}Ar/^{39}Ar age spectrum of amphibole DB-38Amp

References

[1] Okay A.I. (1993) *Eur. J. Mineal.* **5,** 659-675.

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