

SHRIMP U-Pb zircon geochronology of the Tieshajie Group in the Cathaysia Block-China: Implications for Neoproterozoic tectonic significance

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The tectonic relationship between the Yangtze plate and Cathaysia during Neoproterozoic has been paid a lot of attention by many studies [1]. And thus, there are a few isotopic dating results about metamorphic rocks from the both plates. In order to interpret the tectonic setting clearly, it's necessary to get enough new isotopic ages from the metamorphic rocks in the studying area.

The Tieshajie Group is located on the northwestern Cathaysia and is close to the southeastern margin of the Yangtze Plate. This Group consists of two kinds of rocks which are meta-sedimentary and metavolcanic rocks. There were several dating results about the meta-sedimentary rocks such as 1159Ma (Rb-Sr isochrone dating) and 1201 Ma, 1162Ma and 1091Ma (single zircon U-Pb dating), from which the Tieshajie Group were considered as the mesoproterozoic. In this study, we selected two samples from meta-sedimentary and metavolcanic rocks respectively for zircon SHRIMP U-Pb dating. Zircons from metasedimentary rock appear round shape, while zircons from metavolcanic rock are euhedral or subhedral. New SHRIMP U-Pb zircon dating results for the Tieshajie Group are present, including 1153 ± 38.4 Ma for the metasedimentary rock, 902 ± 23 Ma for the metavolcanic rock.

From the above new dating results, it is concluded that the age of metavolcanic rock may represent the formation age of the Tieshajie Group, which was coincident with the Neoproterozoic collision between Cathaysia and Yangtze Blocks. (Grant Nos. 1212010813064 and 1212010533105).

[1] Chen, J. *et al.* (1991) *Geol.* 19:815-818.

The H, O isotopic characteristics and mineralization age of the Baishan molybdenum deposit in Eastern Tianshan

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Geochemistry of the Baishan deposit

The Baishan Mo deposit is located in the eastern section of Jueluotag tectonic belt, Eastern Tianshan, Xinjiang, China. The H, O compositions of hydrothermal fluids in the ore-bearing quartz veins are: $\delta^{18}\text{O}_{\text{H}_2\text{O}}$ 3.36‰ ~ 5.33‰; $\delta\text{D}_{\text{SMOW}}$ -105‰ ~ -56.30‰. The Re-Os isochronal age of seven samples of molybdenite is 227.7 ± 4.3 Ma (MSWD=0.32).

Discussion

The H, O compositions indicate that the ore-forming hydrothermal solution were mainly from magmatic water and some meteoric water which comply to the reference [1], the result shows that the ore-forming material of the Baishan deposit is mainly from the granite body.

There is a common agreement on the main post-collisional stage in northern Xinjiang in the late Palaeozoic [2][3][4], the age of mineralization of the Baishan deposit is in the middle Trias which may be the mineralization of the terminal post-collisional stage.

Conclusion

The ore-forming material of the Baishan Mo deposit is mainly from the granite body which formed in the tectonic setting of the late post-collisional stage in northern Xinjiang.

This research was sponsored by the National Key Basic Science Research project of China (2007CB411304 and 2001CB409806) and the National Natural Science Foundation of China (40772057).

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