

$^{40}\text{Ar}/^{39}\text{Ar}$ Dating on Mylonites in the Ductile Shear Zones from South Tan-Lu Fault Belt in Anhui Province, East China

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The area for this study is in the joint part of Tan-Lu fault belt with the East Qinling-Dabie orogenic belt in east part of China (Mattauer et al., 1985). Tan-Lu fault belt is an important deep fault belt in east China and Asian continent, and its southern part is the key part for geology, where the mylonites were developed in the ductile shear zones since its shifting movement, and the plastic deformation are commonly occurring in the mylonites. In this study the $^{40}\text{Ar}/^{39}\text{Ar}$ age of several kinds of deformed minerals have been obtained to illustrate the evolution of the ductile shear zones and formation of mylonites in this region.

Methods

The biotite and plagioclase samples separated from the mylonites were determined by $^{40}\text{Ar}/^{39}\text{Ar}$ fast neutron activation technique in the Institute of Geology and Geophysics, CAS. Some deformed minerals such as biotite and feldspar can record the chronological information since the period of ductile shearing event, these ages from the deformed minerals may represent the important period of the history of deformation caused by the shifting movement of Tan-Lu fault belt.

Results

Finally, five ages from single deformed minerals were obtained with the plateau ages of 98Ma, 109Ma, 104Ma, 106Ma and 113Ma, respectively. These ages represent the cooling time accompanying formation of mylonites, when the large scale of shifting movement of Tan-Lu fault belt occurred after the collision of Yangtze block and North China block since Triassic, which accords with the former studies in Dabie-Sulu region.

Acknowledgements: This study is supported by the National Science Foundation of China (40473021).

References

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