

## **$^{40}\text{Ar}$ - $^{39}\text{Ar}$ age of a fresh glassy pseudotachylite from the Fuyun fault zone, northwest China**

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The Fuyun region is located on the southwestern side of the Aertai mountains, northwest China. In the Fuyun fault zone, glassy and microlitic pseudotachylites occur in the granitic mylonites (Lin, 1994a, b).

Isotopic dating of fault-generated pseudotachylite provides geochronological information from brittle fault rocks. Thus,  $^{40}\text{Ar}$ - $^{39}\text{Ar}$  datings on pseudotachylite has been tried by several investigators (e.g. Kelley, et al., 1994; Karson, et al., 1998; Sherlock and Hetzel, 2001).

We carried out  $^{40}\text{Ar}$ - $^{39}\text{Ar}$  dating of the glassy and microlitic pseudotachylites and biotite separated from host granitic mylonite from the Fuyun fault zone in order to estimate the age of the fault activity.

$^{40}\text{Ar}$ - $^{39}\text{Ar}$  dating experiments were performed at the University of Tokyo by the stepwise heating method. Pseudotachylites were measured as whole-rock forms.

$^{40}\text{Ar}$ - $^{39}\text{Ar}$  age spectrum of the glassy pseudotachylite indicates a pattern consisting of decreasing apparent ages with increasing extraction temperature. The age spectrum does not indicate a plateau age, and yields a total age of ~500 Ma, whereas the host granitic mylonite provides a total age of ~150 Ma. Two analyses of microlitic pseudotachylites reveal relatively flat patterns in the age spectra, but do not yield plateau ages. They show total ages of ~180 Ma and ~210 Ma.

The monotonously decreasing pattern in the age spectrum for the glassy pseudotachylite resembles that of a recoiled sample.  $^{40}\text{Ar}/^{36}\text{Ar}$  ratios of ~20,000 are shown in the lower temperature steps (500, 600 degrees Celsius) of the glassy pseudotachylite analysis. These ratios imply the presence of extraneous argon in the glassy pseudotachylite.

We consider that the recoil effect and the extraneous argon that had been intruded during the glassy pseudotachylite formation caused the significantly older total age of the glassy pseudotachylite than that of the host mylonite.

### **References**

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