

$^{40}\text{Ar}/^{39}\text{Ar}$  dating of tremolite: spot dating and step heating analyses

# Hironobu Hyodo[1]; Nozomi Kimura[2]

[1] RINS, Okayama Univ. of Sci., Kobe Univ.; [2] AIST

Calc-pelitic schist from Main Donegal Granite (378 Ma, determined by K-Ar method), Ireland contains centimeter-scale tremolite. The core part of tremolite including graphite, calcite, muscovite and chlorite fine minerals usually exhibits the microboudinage structure, and tremolite pure overgrowth part surrounded the grain fragments that formed as microboudins. This microstructure is considered to be formed by the granite intrusion and subsequent cooling event.

The laserprobe  $^{40}\text{Ar}/^{39}\text{Ar}$  age results distribute between 100 and 500 Ma, and majority are 220 - 300 Ma. No difference in age results is observed between the majorities of cores and rims. Two muscovites on the same thin section yield 330 and 380 Ma, supporting the 378 Ma intrusive event. Step heating results of muscovite grains show plateau-like age spectra of 1300 Ma. One of the muscovite has 100 Ma in low temperature fractions, and plagioclase yielded 100-200 Ma.

The variation in tremolite spot age suggests that tremolite is not a stable carrier of argon. 100 Ma age fractions in muscovite step heating results also support some event 100 Ma. 1300Ma in muscovite age spectra cannot be simply interpreted as cooling age because of large age variations in the spectra. Excess argon due to the intrusion can be a possibility cause of the old age. Further geochronological study on the intrusion and country rock may be a key to answer the question.