40Ar-39Ar ages of metamorphic nappe, eastern Nepal, and their tectonic significances

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It is proved from the model and the study of deep sea core that the origination and translation of the monsoon in Asia was linked with the uplift of Himalaya and Tibet. But, there are few studies about it from the point of rock studies.

Then, we did thermo-geochronological studies (40Ar-39Ar and fission track methods) to metamorphic and granitic rocks which make main Himalaya and to metamorphic nappe which covers lesser Himalaya structurally about 120km length. As the results, the nappe appeared at 14-15Ma and stopped at 10-11Ma We want to know the geochrolonological difference between metamorphic rocks from nappe and root zone. Then, we did 40Ar- 39Ar experiments for these rocks and reports results of these experiments as follows;

1) East Everest region

a) Kala Patter (5450m, two-mica tourmaline granite)

Muscovite 16.46+-0.15 Ma (900-1200C:39K=72.54%)

Biotite 16.61+-0.16 Ma (800-1040C:39K=93.87%)

b) Machhermo (4300m, augen gneiss)

Bioteite 26.90+-93.87 Ma (800-1100C:39K=79.39%)

2) Front part of Nappe, eastern Nepal

a) Dhankuta (1200m, two-mica garnet gneiss)

Muscovite 19.71+-0.13 Ma (900-1300C:39K=93.29%)

b) Ilam (1200m, biotite sillimanite gneiss)

Biotite 20.36+-0.13 Ma (880-1500C:39K=99.38%)

We want to discuss tectonic significances for these and new data considering with the age data from Mt.Everest (Sakai et al., 2005).