

## Thermal and structural evolution of Kashio mylonites in the Hase-Ichinose region of the Ina city

# Akira Ono[1]

[1] none

Kashio mylonites are believed to be formed under very high geothermal gradient and strong shear stress during the cooling of late Cretaceous granitic rocks. Probably, they were formed by the contraction tectonics which took place in the late Cretaceous axial zone of Southwest Japan. Most of Kashio mylonites were recrystallized under temperatures and pressures where hornblende, biotite, epidote and calcic plagioclase were stable. This suggests that the shear deformation which induced recrystallization of minerals was intense only at amphibolite facies.

Hydration reactions of retrograde metamorphism (mylonitization) were mainly controlled by properties of fluid within rocks. Taking into consideration the importance of fluid dynamics, possible tectonics of Kashio mylonites are as follows. (1) Shear zone was formed in the upper crust mainly composed of late Cretaceous granitic rocks. Schistosity, shear plane and tension cracks formed by shear deformation accelerated the transportation and flows of water which was supplied from the deeper crust. The supply of water enhanced the recrystallization of minerals. (2) After the maximum development of shear zone, shear stress was gradually dropped, and temperature was lowered. Shear zone became narrow by the decreasing activity of shear deformation. (3) Further cooling of shear zone and weakening of shear deformation induced the end of mylonitization.

The above mentioned story suggests common occurrence of mylonites metamorphosed under low temperatures and weak shear stress. However, all the Kashio mylonites are believed to be formed under strong shear stress. Nevertheless, certain ultramylonites containing relatively small amounts of layered minerals such as chlorite and white mica often show very weak preferred orientations of minerals. The layered minerals appear to be recrystallized under weak shear stress in a final stage of mylonitization.

The SEM image of a sample exhibiting very weak preferred orientations of layered minerals is shown below. The rock was collected from an exposure about 10m northwest of the Magoi bus station of the Hase-Ichinose region. Porphyroclastic minerals are absent. Basal planes of chlorite and white mica show very weak preferred orientations, as shown in the histogram of Figure.

