

## Microstructures analysis of fault rocks of the Nobeoka Tectonic Line in the Shimanto Belt, Kyushu

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The Cretaceous-to-Early Miocene Shimanto accretionary complex is divided into Northern and Southern Shimanto Belt by the north-dipping Nobeoka Tectonic Line (NTL).

The hanging wall of the low-grade metamorphosed Eocene Urashiro Formation is characterized by phyllite. The footwall of Eocene Aradani Formation is characterized by a strongly sheared tectonic mélange associated in a argillaceous matrix. In this study area, the value of vitrinite reflectance shows the thermal difference between hanging wall and footwall. But the micro deformation mechanisms of the NTL were unknown. The purpose of this study was making clear the micro deformation mechanisms.

The detailed geologic structure in the field and the microstructure of the fault rock under the microscope has been analyzed.

The structural data indicates that the fabric of the Aradani Formation cuts with the shear surface of the NTL. The NTL may have been developed after the deformation of the Aradani Formation.

A sample of the NTL had fault rock, it's 17cm thick. The fault rock, 17cm, in thickness, consist with the black shale matrix and the rock fragments. The shapes of the rock fragments were both pebble and angular gravel. Some of the rock fragments make asymmetric fabrics and the foliated cataclasite. This may indicate the creep sliding with the pressure solution. Some angular gravel organized cataclasite. And the boundary of the fault rock had shape shear plane with brittle failure.

These indicate that the rupture mechanisms of the NTL were considered brittle failure, creep and pressure solution. Then it was consider that pressure solution was constant. The brittle failure and the creep sliding formed the most part of displacement of the NTL.