

Geometry of Kannawa, Koze-Matsuda Fault system, Central Japan and its seismotectonics

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This paper investigates the geometry of the Kannawa, Koze-Matsuda Fault system based on fault rock analysis.

The Kannawa, Koze-Matsuda Fault system stretches in the western part of Kanagawa Prefecture in Central Japan. The Kannawa, Koze-Matsuda Fault is known as an active fault, and constitutes a significant feature of the South Fossa Magna. It composes also the Izu collision zone. The Kannawa, Koze-Matsuda Fault has been well investigated from the viewpoint of disaster prevention in regard to its location in such a sensitive point as the Tokyo metropolitan area. However, its geometry and motion are different from those of the present study area. In addition, little was said about fault rocks in this area.

Results indicate the occurrence of three groups. The first group, the Kannawa Fault has an E-W strike, a vertical dip with a cataclasite zone. The Kannawa Fault constitutes the border between the Tanzawa group and Ashigara group. It has been classified as dextral fault by the observation of polished and thin sections on fault rocks. The second group, the NW fault system, has NW-SE strike and middle angle dip to the North. These faults have several meters wide of fault gouge zone. Fault gouges show the right lateral reverse fault by observation of thin section. The third group, the NE Faults system, has NE-SW strike and approximate vertical dip. The NE Fault system has also several meters of fault gouge. Their fault gouges show sinistral faults. Evidence for the above classification comes from the characteristic of clay mineral distribution. Indeed, the Kannawa Fault is composed of smectite, while the other faults are composed of chlorite.

The Kannawa Fault is the oldest group. It is faulted by the NW, NE Fault system groups, which are thought to be conjugate faults. These are on the same plane stereographic projection, and they exhibit similar characteristics with fault planes solutions of the 1923 great Kanto earthquake. This indicates N-S compression as a result of the subduction of Philippine sea plate. The Kannawa, Koze-Matsuda Fault system functions as inland active fault for dissolved strain of crust following the subduction.