

## Occurrence of the Komanakigawa Fault and hydrothermal alteration of rocks around the fault

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The Kokura-Higashi Fault constituting northern part of the Kokura-Tagawa Tectonic Line is considered as an active fault (The Research Group for Active Faults of Japan, 1980), and the timing of activity and its style in Quaternary were analyzed (Watanabe, 1989; Senda, 1990; Takatsu, 1996; Watanabe et al., 2002). However, presumption of timing of activity at the the Tagawa Fault constituting northern part of the Kokura-Tagawa Tectonic Line was performed only by the analysis of fracture system in the Neogene volcanic and sedimentary rocks (Hikosan Collaborative Research Group, 1992). Sako and Yuhara (2004) analyzed the fracture system, which develops in the Soeda Granodiorite around the Tagawa Fault in Hikosan River valley, southern area of Soeda Town, and clarified the formation history of fractures before the Neogene. However, the Tagawa fault could not be found. The fault continuous along the Komanaki River, which is regarded to branch from the Tagawa Fault, was found by subsequent geological survey. In this paper, we report the occurrence of fault rocks and the hydrothermal alteration of rocks around the fault.

This fault can be traced more than 3 km along the Komanaki River from Yakatabaru, Soeda Town. Yuhara and Miyazaki (2007) called it Komanakigawa Fault. The Komanakigawa Fault makes the boundary of the Soeda Granodiorite distributed in the east side and the Tagawa metamorphic rocks distributed in the west side. The pelitic schist of the Tagawa metamorphic rocks in maximum width of 11m and the Soeda Granodiorite in maximum width of 12.5m are whitened by hydrothermal alteration.

The Komanakigawa Fault strikes N14° to 42°E and dips 78°W to 88°E. This fault has fault gouge with maximum width of 90cm and cataclasite with maximum width of 200cm. The striations observed in cataclasite are almost horizontal. There are white and dark gray fault gouge and cataclasite. Andesitic dykes correlated to the Kitakamoto Formation intruded along the fault. Considering occurrence in field and under microscope, white fault gouge and cataclasite were formed by destruction of whitened rocks. This suggests that the hydrothermal alteration took place at least two times before and behind faulting.

In the whitened granodiorite, most of biotite and hornblende are altered, and plagioclase is replaced by small altered minerals. In the whitened pelitic schist, most of biotite and plagioclase are altered. Those altered minerals are illite, siderite, kaolinite, calcite and montmorillonite.

MgO, CaO and Sr contents of the Soeda Granodiorite decrease and As, Ni and S contents increase by hydrothermal alteration. In the whitened pelitic schist, there is decrease of MgO and CaO contents.

Keywords: Kokura-Tagawa Tectonic Line, Komanakigawa Fault, Soeda Granodiorite, Tagawa metamorphic rocks, Hydrothermal alteration