

Fracture system in the Sawara Granite at the area beside the Hinatatoge-Okasagitoge Fault, northern Kyushu

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The Hinatatoge-Okasagitoge Fault has been identified by recent research. This fault continues to the Maebaru and Itoshima-hanto-oki Faults Group, and forms a single fault zone (Shimoyama et al., 2013). Activity rank of this fault is estimated C class. We recorded fractures in the Sawara Granite at the area beside the Hinatatoge-Okasagitoge Fault, and examined formation history of fracture system.

The fractures in the surveyed area are classified by their orientations into three types: NNW-SSE to NW-SE-oriented high-angle fractures, ENE-WSW-oriented high-angle fractures, and low-angle fractures. The fractures are further divided into three groups: minor faults associated with cataclasite, minor faults associated with fault gouge, and joints.

Based on the crosscut relationships of these fractures and the mineralization along joints, the formation process of the fractures related to activity of the Hinatatoge-Okasagitoge Fault involves five stages.

The minor faults associated with cataclasite were formed at the first stage. The laumontite veins were precipitated in spaces formed by the opening of joints at next stage. At the third stage, the minor faults associated with fault gouge were formed. The stilbite veins were precipitated in spaces formed by the opening of joints at next stage. At the last stage, the minor faults associated with fault gouge were formed.

Keywords: Hinatatoge-Okasagitoge Fault, Sawara Granite, fracture system, hydrothermal activity