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静岡県佐久間町の中央構造線鹿塩マイロナイトの延性脆性組織
Brittle and ductile textures preserved in Kashio mylonite along the Median Tectonic Line, Sakuma-cho, Shizuoka

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Kashio mylonite exposed along the Median Tectonic Line in the central Japan is one of the most famous fault rocks in Japan. The purpose of this study is to reveal microstructural development of Kashio mylonites in the Urakawa area,Sakuma-cho, Shizuoka Prefecture. Kashio mylonite occur along the Ohchise-gawa River and Shippei-sawa. In this study, four Kashio mylonites were classified into three types: protomylonite, mylonite, and ultramylonite. The whole rock chemical compositions show that they were derived from the igneous rocks such as tonalites. Two protomylonites have larger (~4mm) plagioclase and amphibole porphyroclasts and show composite planar structures. The plagioclase porhyroclasts were fractured but partly dynamically recrystallized into fine-grains. All quartz grains were dynamically recrystallized into fine (about 40 micron) grains. One mylonite consists of very fine-grained quartz (about 20 micron) and plagioclase bands with small amount of plagioclase porphyroclasts. One ultramylonite consists of very fine-grained matrix of quartz, plagioclase and K-feldspar (about 10 micron). Ultramylonite were fractured such as cataclasitic rocks after the mylonitization. Crystal-preferred orientations (CPO) of quartz were measured in the four mylonitic samples. Quartz CPO patterns suggest that prism <a>slip system is dominant, whereas the ultramylonite have a weak cross girdle pattern of c-axis. It suggests that the ultramylonite was progressively developed during deformation under the retrogressive condition. As a result, these mylonitic rocks have undergone three stages of the deformation event. The first stage of deformation occurred in the ductile regime of plagioclase, resulting in the fine-grained plagioclase and Y-maxima CPO patterns of quarts c-axes. The second stage of deformation occurred in the brittle regime of plagioclases, resulting in fracturing within plagioclase porphyroclasts and the weak cross girdle CPO pattern of quartz c-axis in the ultramylonites. Finally, the third stage of deformation occurred in the brittle regime of both quartz and plagioclase, resulting in the development of cataclasite. The results support that the Kashio mylonites have been deformed during progressive retrogression associated with the development of Median Tectonic Line.
Keywords: Median Tectonic Line, Kashio mylonite, CPO, ductile regime, brittle regime