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SMP46-P01 Room:Convention Hall Time:May 25 15:30-17:00

Gneissose tonalites and meta-granitoids in the Hase-Ichinose district of the Ina city, central Japan

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[1]None

Hiji tonalite is exposed along the Median Tectonic Line in the Hase-Ichinose district (Figures A and B). The granitoids exhibit considerable variations in chemical composition and rock texture from place to place. Considering gneissose structures and recrystallizations of minerals, the granitoids can be classified into three types: (1) massive, banding and layered tonalites (2) gneissose tonalites (3) meta-granitoids. These are (1) ordinary granitoids, (2) granitoids deformed at a final stage of the solidification of granitic magma and (3) granitoids deformed and metamorphosed under high temperatures after the solidification of granitic magma. Parts of these granitoids were metamorphosed at about 673K and the Kashio mylonites were formed. The Kashio mylonites are mainly distributed in the yellow region of Figure B.

The Hiji tonalite in the Hase-Ichinose district is characterized by the common occurrence of layered and banded granitoids. Banding structures consist of the alternation of felsic and mafic layers which are poor in continuity. Felsic and mafic layers are often folded locally in a hand specimen scale. Folding layered granitoids is also found in several outcrops. Gneissose tonalites are also common. They are often rich in quartz-feldspar veins which are folded complexly. The quartz-feldspar veins may be deformed under the existence of a small amount of granitic magma. The deformation may be continued even after the solidification of the magma. The problem is whether igneous minerals were recrystallized or not. In this regard, strong schistose texture, plastic deformation of minerals and preferred mineral arrangements are uncommon. The recrystallization under the solid-state condition appears to be slight in most cases.

Meta-granitoids in the study area are called as the Gatsuzozan metamorphic rocks [1, 2]. They are characterized by conspicuous deformations and foliations [2]. However, typical meta-granitoids are rare. Moreover, it is not easy to confirm the recrystallization of minerals because of common occurrences of relic igneous minerals. For example, we examined chemical variations of plagioclase grains for a massive tonalite and a meta-tonalite. The results are shown in Figure C. The compositional variation is small for the meta-tonalite relative to that for the tonalite. The conclusion is however obtained by neglecting a calcium-rich large plagioclase grain for the meta-tonalite.

The original rocks of some meta-granitoids are vein-rich gneissose granitoids. The conclusion is based on the study of the chemical variation of plagioclase grains for a meta-granitoid that is rich in quartz-feldspar veins. The examined rock was exposed in an outcrop near Mt. Gatsuzozan. Plagioclase crystals in the veins exhibit conspicuous chemical zonings, and the chemical variations among plagioclase grains are large. On the other hand the recrystallizations of plagioclases are considerable in the matrix. The data suggest that the quartz-feldspar veins were formed before the metamorphism.

The tectonics of the formation of meta-granitoids took place in almost all the study area. Nevertheless, typical meta-granitoids are uncommon. Complexly zoned plagioclases are common for the granitoids in the study area. The poor recrystallization may be due to the following facts. Deformations took place in limited regions. Driving force to the recrystallization was small because the recrystallization occurred slightly below the solidus temperature of granitic magma.

[1] Ono, 2008, Abst. Ann. Meet. Geol. Soc. Japan, p.243.
[2] Ono, 2009, Abst. Ann. Meet. Geol. Soc. Japan, p.259.

Keywords: gneissose granitoid, meta-granitoid, Hiji tonalite, Gatsuzozan metamorphic rocks, recrystallization, Hase-Ichinose

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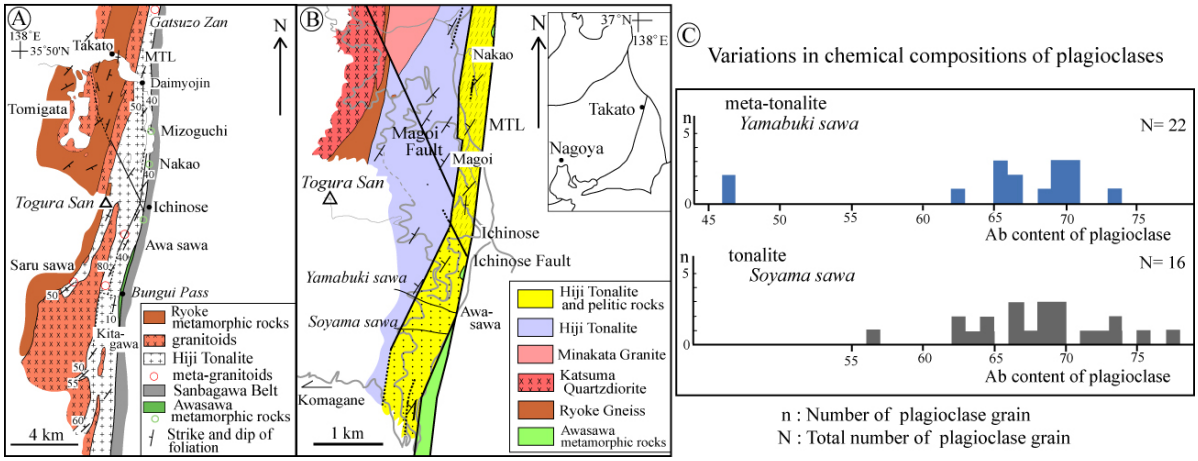

n : Number of plagioclase grain
N : Total number of plagioclase grain