

The source rock age of Renge metamorphic rock in the Omi-area, Itoigawa city.

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The Omi area located in the westernmost Niigata prefecture, is known for its LT/HP metamorphic rocks of Paleozoic age. Previous studies conducted in the Omi area reported that this area consist of serpentinite-melange, including LT/HP type metamorphic rocks and serpentinite. The highest metamorphic grade reported in this area is eclogite facies, which led to the demarcation of eclogite unit (EC-unit) and non-eclogite unit (N-EC unit) in the Omi area (Matsumoto et al., 2011). However, the tectonic evolution of metamorphic rocks in this area is not clear, especially, the relation between EC unit and N-EC unit is not clear. In this study, we present new result on the U-Pb zircon ages of high-pressure metamorphic rocks in EC unit and consider the tectonics of Paleozoic Japan.

The sample used for analysis is a Grt glaucophanite, occurring as a layer or lenticular form surrounded by polytic schists (Grt-Ms schist). It comprises of euhedral-subhedral garnet porphyroblast (1-4mm) and large amount of euhedral glaucophane. Chlorite occurs in the altered domain. This sample contains a lot of zircon, which has bright rim and dark core under the CL image. About 200 zircon grains were hand picked and U-Pb analysis was carried out using an Agilent 7500a LA-ICPMS at Niigata University.

Off the 115 zircons analyzed, 34 spot gave concordant ages. Zircon core age is about 420-690Ma and the most prominent peak is seen in the range of about 450-460Ma. In contrast, some of the zircon core show about 1200-1460Ma.

The U-Pb results in this study (450-460Ma) are older than 280-340Ma of K-Ar age (Kunugiza et al., 2004) and 380Ma of eclogite metamorphism (Tsuji-mori, 2010). However, the sample has basaltic chemical composition. But it is hard to conclude that the protolith of this sample is basalt, because it contain large amount of zircon and those zircon shows a large spread of ages. Therefore it is necessary to examine the sedimentation history and tetonic evolution of the Omi area in more detail, which is ongoing.

Keywords: Renge metamorphic rock, U-Pb age