

LA-ICP-MS U-Pb zircon geochronology of the 'older rocks' of the Kitakami Mountains, Northeast Japan

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The Japanese Islands have grown through the formation of igneous rocks and accretionary prism along a convergent plate margin. The timing of formation of the convergent margin, however, is not well restricted. The Kitakami Mountains in NE Japan is the best field to solve this problem. Here the Hayachine Complex and the Hikami Granitic Rocks, the basement rocks of the South Kitakami Belt, are covered by continual Paleozoic succession. The South Kitakami Belt is apparently underlain by the Nedamo Belt that includes Early Carboniferous (c.a. 350 Ma) accretionary prism, the oldest fossil-bearing accretionary prism in Japan. Age-unknown 'older rocks' are still left in the basement rocks of the South Kitakami Belt and their periphery, and they are expected to include igneous rocks and accretionary complex that mark the initiation of the subduction. This study thus aims to elucidate the birth time of the Japanese Islands. The main results of this study are summarized as follows.

(1) The age of Trondhjemite (462 \pm 14 Ma) of the Hayachine Complex, and overlying felsic tuff (457 \pm 10 Ma) of the Koguro Formation indicate that the igneous activity along the convergent margin had already been started at 462 Ma.

(2) The Hinata Metamorphic Complex, scattered along the boundary between the South Kitakami and Nedamo belts, comprises basalt (amphibolite), overlying Fe-Mn-quartz rock, and felsic gneiss. The age of zircon grains from a quartz-rich part of the Fe-Mn-quartz rock (486 \pm 14 Ma) suggests that the Fe-Mn-quartz rock is earliest Ordovician seafloor sedimentary rock contained in an accretionary prism.