[JJ] Evening Poster | S (Solid Earth Sciences) | S-GL Geology

[S-GL31]Regional geology and tectonics

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Sun. May 20, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

The main aim of this session is to discuss geologic structure and tectonic history of East Asia, especially of Japanese Islands, on the basis of the recent results of geology and other earth sciences.

[SGL31-P01]Stratigraphy and age of the Harachiyama Formation in Hachinohe - Tanesashi Coast area

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Introduction: In northeast Japan, there is a ~100 km gap consisting of the Sorachi - Yezo Belt between Jurassic and Cretaceous accretionary complexes. Subduction zone might have been rearranged (shifted) in the Early Cretaceous. To understand the mode and timing of relocation of this subduction zone, the timing and character of arc magmatism in the Harachiyama Formation are important. Previously reported K-Ar and Ar-Ar ages from the Harachiyama Formation are younger than the Kitakami granites intruding it, and the accurate age of the formation is left unknown. In this presentation, we report a revised stratigraphy of the Harachiyama Formation in the Hachinohe – Tanesashi Coast area, and its zircon U-Pb ages.

Stratigraphy: We newly divided middle to upper parts of the Harachiyama Formation in the study area into H1 to H6 lithological units in stratigraphically ascending order. H1 and H4 are composed mainly of tuff, H2 and H5 of andesite tuff breccia, H3 of rhyolite tuff breccia, and H6 of rhyolite lava. Andesite dikes, andesite and basaltic sheet, and granophyre intruded in H5to H6. Bedding planes strikes NW-SE and dip northeast.

Zircon U-Pb age: Zircon U-Pb ages of 124 - 126 Ma were obtained from the three samples collected from H 3, H 5, and H 6. Zircons from H6 rhyolite occasionally contain inherited cores of Proterozoic and Triassic - Jurassic ages. Age distribution of the inherited cores is similar to that of detrital zircons in sandstone of the northern Kitakami accretionary complex as the basement. It is thus considered that the inherited cores originated from detrital zircons in the basement sandstone partly melted or assimilated during evolution of the rhyolitic magma.

Conclusion: The obtained zircon U-Pb ages of the Harachiyama Formation are almost contemporaneous with the ages of the Kitakami granites in the vicinity. The granites seems to have intruded immediately after the Harachiyama volcanic activity. As suggested by the inherited cores, the rhyolitic magma developed in the basement accretionary complex, whose youngest ages is as short as 5 m.y before the magmatic activity. In addition, the harachiyama volcanic activity was contemporaneous with the transition from the oceanic Sorachi Group to terrigeneous Yezo Group in central Hokkaido, implying that the emplacement of the Sorachi oceanic basin triggered the Harachiyama volcanic activity as the trench was rearranged.