

## Distribution and zircon U-Pb dating of the Idiwhaa Tonalitic Gneiss in the Acasta Gneiss Complex

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It is assumed that the earth experienced many significant events, such as giant impact, magma ocean, core formation, large-scale mantle differentiation and early crustal formation in the Hadean. However, the investigation for the early earth evolution is basically based on geochemistry of meteorites and lunar rocks so that the quantitative analyses are still poorly understood and need the terrestrial rocks. So far, the oldest terrestrial rock was found in the Acasta Gneiss Complex (AGC) of the western part of the Slave Province, Canada (Bowring and Williams., 1999), and goes back to 4.03 Ga on the basis of U-Pb dating of zircons from the orthogneisses. The AGC comprises the 3.6-4.0 Ga felsic and layered gneiss suites with minor mafic rocks. In addition, a Hadean material of a 4.2 Ga zircon xenocryst was also found from *ca.* 3.94 Ga tonalitic gneiss. It is expected that the Hadean granitic crust occurred in the area.

Recently, Reimink et al. (2014) discovered the Idiwhaa Tonalitic Gneiss (ITG) with well-preserved 4.02 Ga igneous zircons in the northern part of the AGC. The ITG is garnet-biotite-hornblende tonalitic gneiss, and has high total iron contents, low Mg-numbers, and flat REE patterns with negative Eu anomalies, different typical Archean TTGs. They concluded that the tonalite magma was formed in a plume-related tectonic setting. Moreover, Reimink et al. (2016) reported the ITG unit near a central area of the AGC.

We carried out geological survey in this area in 2015 to obtain more detailed distribution of ITG unit over the AGC. The geology and geochemistry of the orthogneisses indicate that some orthogneisses in the southern part of the AGC are also related with the ITG, and suggests that the ITG unit is extensively distributed over the AGC. In addition, we will report the U-Pb ages of zircons from their rocks with LA-ICP-MS.

Keywords: Acasta Gneiss Complex, Zircon, U-Pb dating