

Estimation of Paleoenvironment by sedimentary rocks in Labrador, Canada

*katsutaka sudo¹, Yuji Sano¹, Tsuyoshi Komiya¹, Bakert David², Michael Broadley², Bernard Marty²

1. University of Tokyo, 2. CRPG-CNRS, Université de Lorraine

In the previous research, we reported isotopic compositions of graphite and carbonate in the 3.95Ga metasedimentary rocks from northern Labrador, Canada (Tashiro et al., 2017). Based on the isotopic shift of 20-30‰, we claimed a carbonate fixation by the Earth's earliest life. In this work, we picked up graphite from the very old rocks collected in Labrador and Nuvvuagittuq, and measured volatile isotope compositions by the step-wise heating method. We analyzed nitrogen isotopes to investigate whether the organic carbon was produced by cyanobacteria or methanobacteria, and noble gas (argon, krypton, xenon) isotopes to determine the age of rocks. We have used two types of gas mass spectrometer; VG3600 for nitrogen, Helix-MC for noble gases. The obtained data together with experimental method will be given in the presentation.