

Mineralogical and geochemical study of marine sedimentary rocks of Gunflint Formation(1.9 Ga), Ontario, Canada

NIKAIDO, Emi^{1*} ; NARA, Fumiko¹ ; TSUCHIYA, Noriyoshi² ; KAKEGAWA, Takeshi¹

¹Graduate School of Science, Tohoku University, ²Graduate School of Environmental studies, Tohoku University

Gunflint Formation is composed of marine sedimentary rocks, which deposited at ca.1.9 to 1.8 Ga. Disappearance of banded iron formation and Sudbury meteorite impact occurred during the sedimentation of Gunflint Formation. However, impacts of those geological events on ecology were not evaluated in past. Therefore, in the present study, geochemical studies are performed.

Concentration patterns of Fe are different from lowermost to upper sections. Such change is corresponded to disappearance of BIF, thus decrease of Fe flux in shallow sediments. Compositions of kerogen were similar through the entire sections. However, a section which recorded Sudbury impact shows variable N/C ratios of kerogen. This may suggest that nitrogen cycle through atmosphere, hydrosphere and biosphere changed temporarily right after meteorite impact.