

SVC062-P06

Room: Convention Hall

Time: May 23 17:15-18:45

Petrology of Oligocene volcanic rocks from southern part of Central Hokkaido, Japan.

Mayuko Yonejima^{1*}, Satoshi Okamura¹, Takuya Maeda²

¹Sapporo, Hokkaido Educ. Univ., ²JGI

Geochemical compositions of the Oligocene volcanic rocks in Central Hokkaido have been determined to clarify the tectono-magmatic evolution associated with the formation of the Japan Sea and the Okhotsk Sea back-arc basins. The Oligocene volcanic rocks in the Minami-naganuma Formation from the Nanporo well consist of Ol-normative basalt, basaltic trachyandesite, and andesite, and is distinguished into three stages of island arc volcanism: (1) early stage (3742.2-3743.15m depth), (2) middle stage (3488.0-3489.4m), and (3) late stage (3243.2-3245.1m). The Oligocene volcanic rocks are characterized by enriched isotopic ratios (higher $^{87}\text{Sr}/^{86}\text{Sr}$ and lower $^{143}\text{Nd}/^{144}\text{Nd}$), similar to the Early Miocene lavas in connection with the Japan Sea opening from the NE Honshu arc, consistent with melting of enriched mantle source. The middle stage andesites indicate adakite-like characteristics; high Sr/Y ratios, low Y contents, which can be produced by slab melting or lower crustal melting at garnet stability field. By reference to melting experiments at high pressure, the late stage primitive magmas were inferred to have segregated at 70km depth (-2 GPa), which is similar condition to the Quaternary NE Honshu back-arc basalts. In comparison with the NE Honshu arc magma, we discuss the characteristics of the initial stage volcanism of the back-arc basin opening at the Eurasian continental margin.

Keywords: Central Hokkaido, Oligocene, Opening of Japan Sea, Enrich mantle