

Tracking the paleo-depositional environment in the deep-sea sediments around Dokdo Island

Biogeochemistry Laboratory
Kee Hwan Lee

Abstract

There is little understanding of clay depositional environment for the deep-sea sediments around Dokdo Island, due to insufficient of clay minerals from the previous expedition (2016.09.07 ~ 2016.09.08). The recent site (132° 00.371', 37° 24.252') in the basin-like topography was explored to understand sedimentary facies, grain size distribution, mineralogical composition, clay mineralogy, and relative proportion of clay minerals. The change of depositional environment has influenced the deep-sea sediments around Dokdo Island during the interglacial, the late glacial period, and the glacial period.

During the interglacial period and the late glacial period bioturbated mud is dominant, while laminated mud is dominant during the glacial period. The grain size distribution showed a variation in the proportion of clay, silt, and sand size which consistent with the change of sedimentary facies. Occurrence of Mn-carbonates (CaM) indicated the change of depositional environment from the glacial period to the late glacial period. Variation in the relative proportion of clay minerals such as smectite, illite, chlorite and kaolinite also reflects the change of depositional environment during the glacial-interglacial period. In this study, the interpretation of paleo-depositional environment around Dokdo Island will be discussed.

Key words: sedimentary facies, Mn-carbonates, the relative proportion of clay minerals, paleo-depositional environment