

Sedimentary environment of a piston core from the ultra high salinity brine lake in the eastern Mediterranean Sea

Naoki Izumitani¹, Masafumi MURAYAMA^{1*}, Takuya Sagawa¹, Minoru Ikehara¹, Hirofumi Asahi², Yasuyuki Nakamura², Juichiro Ashi², Hidekazu Tokuyama², Hiroshi Kitazato³, KH06-4 Leg.6 Research Group²

¹CMCR, Kochi Univ., ²ORI, The Univ. of Tokyo, ³BioGeos, JAMSTEC

Investigation upon the marine sediments accumulate in the extreme environment brings great insights into understanding biota among them and process of diagenesis during their accumulations. In the eastern Mediterranean Sea, there is a unique feature called brine lakes. The characteristics of water in the subjective lake named Medee Lake are recognized as extremely high salinity (>300 PSU) and low oxygen compared to their surrounding waters. This extraordinary water with high salinity is considered to be squeezed by the regional tectonic motions from the evaporate layer deposited during the Messinian Salinity Crisis during 5.3 to 6 Ma. Despite their recognitions, only small knowledge upon these brine lakes has been investigated due to the instrumental difficulties. Especially, there is fairly no information about the marine sediments that have been accumulated at this extreme condition.

In order to grasp general information and preservation status in marine sediments of this brine lake, using by pinpoint sample collector called Navigable Sampling System (NSS), we have succeeded to obtain a piston core at the edge of the Medee Lake (water depth 2794 m) during the KH06-04 cruise. Recovered sediments (3 m length) consists of light to dark grey layers at very top of the cores with light brown calcareous ooze with alternation of light and shades at the rest of them. Judging from oxygen isotope records of the planktonic foraminifer (*G. ruber*), AMS14C dating and nanofossil biostratigraphy, this core sample covers from 50Ka to 220Ka. Drastic color changes in the marine sediments suggested the changes in the depth of surface of brine lake. We will discuss the relationship the timing of glacial to interglacial period and the changes in color of the sediments.

Keywords: brine lake, the eastern Mediterranean Sea, Sedimentary environment, piston core, oxidation-reduction