Japan Geoscience Union Meeting 2015
(May 24th - 28th at Makuhari, Chiba, Japan)

MIS28-08 Room:202 Time:May 27 14:30-14:45

High resolution inter-Site correlation of dark-light layers in the sediments drilled during Exp.346 and its application

KARASUDA, Akinori[1*] ; TADA, Ryuji[1] ; IRINO, Tomohisa[2] ; MURRAY, Richard[3] ; ZARKIAN, Carlos[4] ; EXP.346, Scientists[5]

[1]University of Tokyo, [2]Hokkaido University, [3]Boston University, [4]Texas A&M University, [5]IODP

The Quaternary hemipelagic sediments of the marginal sea surrounded by the Eurasian Continent, Japanese islands, and Korean Peninsula are characterized by centimeter- to decimeter-scale alternations of dark org-C-rich and light org-C-poor layers that are traceable throughout the marginal sea and known to be recording millennial-scale variability of East Asian summer monsoon [EASM] associated with so-called Dansgaard-Oeschger cycles. Based on previous data of ODP Legs 127 and 128, these alternations of dark and light layers started at ca. 2.5Ma and became more frequent after ca. 1.5Ma (Tada, 2005). However, it was impossible to make perfect inter-site correlation of dark and light layers because of frequent core gaps.

During IODP Exp.346 Asian Monsoon, we drilled 3 or 4 holes per site to retrieve completely continuous sedimentary records covering the last 2.6 Ma at 7 sites within the marginal sea. By constructing perfectly continuous splices, it becomes possible to make perfect inter-site correlation of dark and light layers covering at least the last 1.5 Ma.

We first revised spliced sections of U1424 by detailed inspection of core photographs. We started with U1424 because Quaternary sediments at this site seem most continuous without any interruption of sedimentation and magnetic reversals are best defined. Consequently, U1424 is the best site to establish high-resolution and high-precision age model. We found small-scale repetitions and/or lack of intervals by low angle faults most likely formed by drilling, which are easily overlooked if sediments are poorly stratified. For these disrupted intervals, we chose alternative intervals from other hole to revise the spliced sections and construct a perfectly continuous spliced core photograph for Site U1424 for the last 2.6 Ma. We also revised color and MST data according to the revised spliced sections.

We also revised spliced sections for other sites (U1425, U1426), which are at shallower water depths than Site U1424, and established high-resolution inter-site correlation of dark and light layers, with which we can project the high-resolution age model of U1424 to other sites. The high-resolution inter-site correlation also allowed us to examine the difference in color, physical, and chemical properties of each dark and light layers between the 3 sites.

Keywords: IODP, Sediment, Correlation, marginal sea