Japan Geoscience Union Meeting 2014
(28 April - 02 May 2014 at Pacifico YOKOHAMA, Kanagawa, Japan)

HCG37-05 会場:421 時間:4 月 30 日 15:15-15:30

Provenance changes of Yangtze Delta core sediments and their implications for precipitation changes during the Holocene

Provenance changes of Yangtze Delta core sediments and their implications for precipitation changes during the Holocene

王 可[1*] ; 多田 隆治[2] ; 入野 智久[1] ; ZHENG Hongbo[3] ; 杉崎 彩子[2] ; 斎藤 京太[2] ; 久保木 結[2]
WANG, Ke[1*] ; TADA, Ryuji[2] ; IRINO, Tomohisa[1] ; ZHENG, Hongbo[3] ; SUGISAKI, Saiko[2] ; SAITO, Keita[2] ; KUBOKI, Yui[2]

[1] 北海道大学, [2] 東京大学, [3]Nanjing Normal Univ.
[1]Hokkaido Univ., [2]Univ. of Tokyo, [3]Nanjing Normal Univ.

Understanding the complex evolution of the natural environment in response to changes in climatic boundary conditions is a major challenge. Changes in frequency and magnitude of flooding of the Yangtze in association with the variations in East Asian Summer Monsoon (EASM) precipitation during the Holocene is one of such examples. The Yangtze River catchment is particularly sensitive to periodic flooding and droughts caused by temporal and spatial variations in the seasonal precipitation regime.

As a joint research project with Nanjing Normal University, we conducted Yangtze Delta drilling to reconstruct temporal and spatial changes in precipitation within the Yangtze River drainage during the Holocene. Core YD13-1 (31’02’ 59.9250” N, 122’50’00.2538” E) was recovered from Yangtze subaqueous delta at a water depth of 37 m, its penetration depth is 39.5 m, and probably covering the entire Holocene. The project focus on decadal/centennial-scale variability of river discharge and its provenance in the lower Yangtze reaches, deltaic system and East China Sea (ECS). It includes the study of the reconstruction of the flood history, the variability of fresh-water input and redistribution of Yangtze-derived sediments and Holocene floodplain development in these areas.

A new tool that use of electron spin resonance (ESR) signal intensity of the E1’ center and the crystallinity index (CI) of quartz is introduced to characterize the provenance of the Yangtze River Delta sediments, which were derived from various parts of the Yangtze River drainage, and its temporal changes that should have reflected the spatio-temporal changes in precipitation and flooding. The result will contribute to a more accurate understanding of the changes in spatial precipitation pattern associated with rapid climatic changes, of evolution of the lower Yangtze river-delta-shelf system, and of the environmental and climatic conditions under which the process took place. Our previous research result from the mudbelt core in ECS suggests possible scenarios for the response of the Yangtze catchment to the changes in monsoon intensity and extreme events. New analytical result of the provenance proxy for core sediments from Yangtze River Delta will be presented and possible scenario will be discussed.