Mid-Holocene South China Sea Paleoceanographic reconstruction using d18O and Sr/Ca records of corals from the Philippines coast

Tatsuya Kobayashi[1]; Yusuke Yokoyama[2]; Atsushi Suzuki[3]; Fernando Siringan[4]; Yasuo Maeda[5]; Takashi Okai[6]; Mayuri Inoue[7]; Hiroyuki Matsuzaki[8]; hodaka kawahata[9]

[1] DEPS, Univ. Tokyo; [2] Dept. Earth & Planet. Sci., Univ. Tokyo; [3] GSJ/AIST; [4] MRI, Univ. Philippines; [5] Inst. Nat. Environ. Sci., Hyogo Univ.; [6] Institute of Geology and Geoinformation, GSJ/AIST; [7] ORI; [8] MALT, Univ.Tokyo; [9] GFS and ORI, U of Tokyo

South China Sea (SCS) is a pivotal area to understand the past variability of the East Asian Monsoon system, because it is a major moisture source for the Eastern Eurasian continent. We studied modern and fossil Porites corals using d18O and Sr/Ca ratio from Luzon and Palawan Islands, the Philippines, in order to reconstruct the paleoceanography in the region. Corals from the Luzon and Palawan Islands with mid-Holocene ages showed higher d18O values compared to the modern corals. The Luzon and Palawan Islands sea surface temperature in the mid-Holocene was approximately equal to the present as inferred from the comparison between Sr/Ca ratios of modern and fossil corals. Consequently, the corals of d18O has to be attributed as the changing seawater isotopes namely seawater off Luzon and Palawan Islands should had been higher than the present. Assuming that SCS has been a major moisture source during the Holocene, for the East Asian Summer Monsoon was presumably stronger in the mid-Holocene than the modern because it is thought that evaporation was active in the mid-Holocene.