Influence of the East Asian Monsoon on climate variability reconstructed from a 170-year subtropical Western Pacific coral record

Mari Mishima[1]; hodaka kawahata[2]; Atsushi Suzuki[3]; Masayuki Nagao[4]

[1] Frontier Sciences, Univ. Tokyo.; [2] GFS and ORI, U of Tokyo; [3] GSJ/AIST; [4] AIST

Coral skeletons have been providing powerful archives of surface oceanographic conditions in the tropics and temperate regions. A detailed analysis was conducted over a 272-cm-long core (98IY03) that contains about 170-year annual density bands, collected from Ishigaki Island, Ryukyu archipelago. Ishigaki Island is unique as a low-latitude site where sea surface temperature (SST) data were continuously collected from 1914. There have been only few studies done yet in the western subtropical Pacific with a long coral core record exceeds a century.

The oxygen isotope analyses revealed climate variability over the studied period as well as the recent gradual warming trend. One of the interesting climatic forces, which were related to winter climate of the area, is the East Asian Monsoon (EAM). The strength of the EAM is often represented by the Monsoon Index (MOI). Also, other indices were discussed in relation to the coral records. By comparison between the climatic phenomenon as typified by the EAM and the oxygen isotope ratio along with the observed SST record, it was suggested they are mutually interrelated with various scales of time.