

Reconstruction of paleoenvironment at 16 ka in the last glacial period by Faviidae coral collected from Ryukyus,

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Coral skeletons have been providing powerful archives of modern and ancient surface oceanographic conditions in the tropics and temperate regions. The geochemical compositions preserved in the coral skeleton are used to reconstruct the paleorecords, such as Sea Surface Temperature (SST), Sea Surface Salinity (SSS), winds and upwelling, ocean mixing, and river discharge histories. In this study, the fossil Faviidae coral sample (sample id: MYK90), collected near the western Miyako Islands located in the East China Sea (ECS), was analyzed in order to reconstruct the marine environment at 16 ka. As the sea level used to be significantly lower in this period, the fossil coral MYK90 is especially valuable because of much difficulty in sampling collection. The ECS is an important site for paleohydrological and paleoceanographic studies because it is under the influence of both coastal water and the Kuroshio Current. Coral skeletal oxygen isotope and Sr/Ca measurements were carried out and the application of Faviidae corals as a paleo-thermometer was explored. This is the first report that reconstructed the reliable SST and SSS in the glacial condition from a fossil Faviidae coral in the western Pacific. Also, the ocean environments in response to Asian Monsoon during the last glacial period are discussed.