

Paleoceanographic change off the east coast of the Japanese Islands during the last 20 ka

Tadamichi Oba[1]

[1] Environmental Earth Sci., Hokkaido Univ.

The northwest Pacific Ocean is a region where pronounced temperature changes occurred in the surface waters during glacial-interglacial cycles. Four piston cores were collected from the cold Oyashio Current and the warm Kuroshio Current regions off the east coast of the Japanese Islands. The oxygen isotopic differences between benthic and planktonic foraminifera increased from the northern-most core (0.9 per mill) to the southern-most core (3.7 per mill) during the Holocene, due to increasing sea surface temperature (SST) towards the south. In contrast, these differences are much smaller during the last glacial maximum (LGM), especially in the case of the southernmost core (2.0 per mill). This suggests that the water-mass, similar to the present surface water off the east coast of the Japanese Islands, shifted southward at the LGM.

The past SST off the east coast of the Japanese Islands can be calculated from the relationship between the present temperature difference between the surface (SST) and bottom temperature (BT) at the four cores sites and the oxygen isotopic difference of benthic-planktonic foraminiferal species (*Uvigerina akitaensis*-*Globigerina bulloides*). The results show that the SST at the northern-most core site remains almost the same as present SST, as the site has been occupied by the cold Oyashio Current since the LGM. On the other hand, the decreased SST of about 9 degree centigrade is found at the southern-most core site, where the Kuroshio Current was replaced by the mixed water mass of the Kuroshio and the Oyashio Currents at the LGM.