Late Pleistocene Paleoceanography of the Kuroshio Current in the Area Offshore Southeast Taiwan

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ABSTRACT

The Kuroshio current flows from the southeast toward the northeast off eastern Taiwan at a speed of 1.5 – 2 knots. Its surface water maintains a temperature of 28 – 29° *C* in summer and 25 – 26° *C* in winter. The salinity of the surface water is in the range of 34.2 – 34.7‰. The paleoceanography of the Kuroshio current off southeast Taiwan is based on recent hydrographic data and planktonic foraminiferal assemblages which have been identified and counted from the core tops of 19 box-cored and 7 piston-cored sediments.

The deposited foraminiferal assemblages are divided into two major groups: neritic and pelagic groups. Besides four dominant species, *Globigerinoides ruber, G. sacculifer, Pulleniatina obliquiloculata and Neogloboquadrina dutertrei*, the remarkable species in the neritic group are *Globigerinita glutinata* and *Globigerina bulloides*. In the pelagic group, *Globorotalia tumida* and *G. menardii* are two prominent species.

During the last glacial epoch, the calculated water temperatures from the transfer function of the planktonic foraminiferal assemblages in two piston-cored sediments show that the surface water temperature fluctuated in the range of 28 – 29° *C* in summer, but the calculated temperatures invariably exceeded 29° *C* during the last interglacial period. In winter, the calculated temperature varied in the range of 22 – 25° *C*; however, the average temperature in the last interglacial epoch was only about 1° *C* greater than that in the period of the last glaciation.

From the calculation of oxygen isotopic data, the lowest stand of sea level was probably 150 *m* below the present mean sea level for 18,500 – 17,500 years B.P.. The highest stand of sea level was still about 10 *m* below the present level about 98,000 years ago. The Kuroshio current would have had a great speed if the sea level had been raised abruptly in a short period. The main axis of the Kuroshio current might have shifted toward the east as the current decelerated and the sea level still rose.

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