Reconstruction of paleoclimate since the Last Glacial based on TOC contents in marine cores drilled off the Shimokita Peninsula

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It is very important to reveal environmental changes from the Last Glacial until now to predict future changes in climate systems. Based on high-resolution total organic carbon (TOC) analysis of 901-C9002A and C9002B cores collected from off the Shimokita Peninsula, northwest Pacific, paleoclimate which controlled oceanic primary production have been reconstructed for the last 50 kyr.

During the Last Glacial, TOC varies from 0.9 to 1.7% with several peaks: 1.2-1.7% at 48.4 ka, 43.4 ka, 35.8ka, 33.7 ka, 27.8 ka, 26.2 ka, 23.4 ka, 19.1 ka and 17.8 ka. After around 15 ka, TOC varies from 1.1 to 2.4% with peaks of 1.6-1.7% at 15.7 ka, 15.0 ka and 11.5ka, and with peaks of 2.2-2.4% at 8.1 ka, 5.7 ka and 1.4 ka. These TOC fluctuation patterns can be well correlated with the oxygen isotopic profile of ice-cores from Greenland in general, and moreover, its small peaks can be correlated with IS 1 to 13.

TOC pattern is also concordant with the oxygen isotope pattern of planktonic foraminifera: *Globorotalia inflata* from the MD01-2421 marine core collected from off central Japan (Oba *et al*., 2006). *G. inflata* dwells near the thermocline and their most abundant season is winter. Therefore, it is possible that TOC has responded to the oceanic production shallower than the thermocline.

Since the production shallower than the thermocline off the Shimokita Peninsula was presumably controlled by the latitudinal displacement of Oyashio-Kuroshio mixed water mass, TOC reflects the water mass shift through the past. Under modern oceanic conditions, the stronger winter Aleutian Low associated with the Siberian High strengthens the Kuroshio Current (Kawabe, 2001). Therefore, this 50 kyr TOC record can reflect the activity of the Aleutian Low.