Late Pleistocene climate deduced from total organic carbon contents of the cored sediment off Shimokita Peninsula

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One of the three cored sediments (901-C9002B) taken from the ocean bottom of 1179 m depth in northwest Pacific Ocean off the Shimokita Peninsula, Northwest Japan, was analyzed in two or four centimeters intervals by a CHNS analyzer. The sediments are mostly homogenous silty clay with thin layers of tephra and sand. Dense analysis clarified that total carbon content (TOC) fluctuates semiperiodically in several to tens thousands years. Many distinct peaks of several hundreds to a few thousands years can be also recognized in the curve. The curve corresponds well with SPECMAP isotope curve as a whole. This implies that TOC of sediment records paleotemperature of atmosphere or ocean surface via biological productivity in the water column. It is reasonable to estimate that surface water temperature which has strong relation to air temperature control annual biological productivity in the surface water in average. Some exceptions exist in the period of MIS 5, and they show high TOC in the cooler epochs such as MIS 5b. This cooler horizon is confirmed by Aso-4 marker tephra. These discordances might be related with the strong Kuroshio current in that time.