

Paleoclimate reconstruction for the past 120 kyrs based on pollen analyses using deep-sea sediments from the core C9001C

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We used pollen analysis for a marine core to obtain a paleoclimate record with the Milankovitch time scale. In this study, we obtained a continuous pollen record and reconstructed paleovegetation and paleoclimatic variations for the past 120,000 years from the core C9001C, drilled off Shimokita Peninsula.

We have done pollen analyses for 48 horizons from Holocene to MIS 5e, and defined four vegetation zones from the pollen assemblages as follows. Zone 1 (MIS5e) ; temperate deciduous forest zone dominated by *Quercus* *Lepidobalanus* and *Fagus*. Zone2 (-a, -b, -c, -d) ; (MIS5d~5b); transitional zone between Zone 1 and 3 characterized by increased conifer trees such as *Abies*, *Tsuga*. Zone3 (MIS4~MIS2) ; cool mixed forest zone dominated by *Picea* and *Betula*. Zone4 (MIS1 to the present) ; temperate deciduous forest zone. These temperate and cool mixed forest pollen assemblages are quite comparable with the present vegetation at northern Japan and lowland area of Hokkaido, respectively.

We have applied the Modern Analogue Method to the pollen assemblages to reconstruct quantitatively paleoclimatic variations. As the results, reconstructed paleotemperature obviously has a positive correlation with the glacial/interglacial cycles indicated by the oxygen isotopic record of the core. On the other hands, reconstructed summer precipitation, indicating a strong negative correlation with annual temperature differences, seems to be correlated with a summer insolation change. These results support a hypothesis to explain the East Asia monsoon fluctuation from the Lake Biwa pollen record.

Keywords: pollen analysis, glacial/interglacial, quantitative reconstruction, East Asia monsoon