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High-resolution climate variations during the last interglacial period from an Osaka Bay core

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The last interglacial period is characterized by an extremely high sea-level and warm climate. To reveal detailed features of climate for this period, pollen analyses were conducted on a sedimentary sequence in a 1700-m core from Osaka Bay. At least 400 tree pollen grains were counted for each sample. A marine sediment layer correlated with the last interglacial ranges in depth from 73.6 m to 61.4 m, with the highest sea-level at 69.5 m according to diatom assemblage data. An average sedimentation rate of 0.548 m/ka (R=0.999) is calculated with nine age control points above marine isotope stage (MIS) 17 in the core. A linear age model using the average sedimentation rate and calibrating the sea-level peak to the MIS 5e highstand (Rohling et al., 2008) suggests the marine layer spans in age from 130 ka to 108 ka. The time span almost agrees with that of MIS 5e. The climate change based the age model is as follows. Before 130 ka, *Picea* is dominant, indicating a cold climate during MIS 6. From 130 to 125 ka, the proportion of cool-temperate deciduous broadleaved taxon *Fagus* gradually increases, suggesting gradual warming, coinciding with the postglacial sea-level rise that is shown by the gradual increase of pelagic diatom *Thalassiosira* spp. After 125 ka, *Fagus* turns to decrease, while *Quercus* including warm-temperate evergreen broadleaved taxon *Quercus* (*Cyclobalanopsis*) gradually increases and reach a maximum. The thermal maximum occurs slightly after the highest sea-level. After 115 ka, temperate conifers *Cryptomeria*, *Sciadopitys* and *Taxaceae-Cephalotaxaceae-Cupressaceae* begin to increase, suggesting a gradual wetting. The wet climate continues even after MIS 5e. Subtropical taxon *Lagerstroemia* occurs throughout the last interglacial. These climate variation features seem to be consistent with those of the last interglacial climate from Lake Biwa.

Keywords: Last interglacial, Paleoclimate, Osaka Bay, Pollen analysis