

## Reconstruction of marine transgression and regression processes presumed by diatom analysis at the Paleo-Tokyo Bay

# Satoshi Ishikawa[1]; Takehiko Suzuki[2]; Toshio Nakayama[3]

[1] Dept. of Earth and Planetary Sciences, Kyushu Univ.; [2] Dept. of Geography, Tokyo Metropolitan Univ.; [3] Institute of Civil Engineering of T.M.G.

The transgression and regression processes at the Paleo-Tokyo Bay were presumed by diatom analysis of two boring cores (HK core and DK core) at southern margin of the Kanto Plain, Japan.

The following diatom units were divided based on the diatom assemblages and the litho-faces of the cores.

### **HK core (depth 17.5m):**

sand mud layer (HK-Unit1): 17.5~16.8 m: age unknown: Marine plankton diatoms such as *Thalassiosira* spp. and *Thalassionema nitzschioides* were dominated.

silt layer (HK-Unit2): 16.8~13.5 m: 7,900~6,800 yrBP: The dominant species were marine plankton diatoms which were similar to dominated HK-Unit1. However, some brackish plankton diatoms were found in this zone.

sand layer (HK-Unit3): 13.5~10.0 m: 6,800~4,000 yrBP: Marine plankton diatoms dominated. The ratio of *Paralia sulcata* that prefer slight low salinity environment has decreased.

silt layer (HK-Unit4): 10.0~4.2 m: 4,000~700 yrBP: Marine plankton diatoms some brackish diatoms were dominated. In contrast to the former zones, the ratio of brackish benthic diatoms became to increase.

sand mud layer (HK-Unit5): 4.2~2.8 m: 700~400 yrBP: The ratio of brackish and freshwater diatoms increased.

gravel mixture sand silt layer (HK-Unit6): 2.8~0.6 m: 400 yrBP: Brackish and freshwater diatoms dominated. However a few marine plankton diatoms were also found.

### **DK core (depth 63.0 m):**

sand layer (DK-Unit1): 63.0~50.8 m: 10,900~10,600 yrBP: Dominated species were marine plankton diatoms such as *Thalassiosira* spp. and *Thalassionema nitzschioides*. In addition to them, some brackish plankton diatoms were contained.

sand mud alternation layer (DK-Unit2): 50.8~49.0 m: 10,600~10,530 yrBP: Freshwater benthic diatoms dominated.

sand mud small alternation layer (DK-Unit3): 49.0~35.5 m: 10,530~9,150 yrBP: Freshwater benthic diatoms dominated lower part of this unit. At the upper part, the ratio of the brackish diatoms exceeded that of freshwater benthic diatoms.

silt layer (DK-Unit4): 35.5~10.5 m: 9,150~1,820 yrBP: Dominated species were marine plankton diatoms such as *Thalassiosira* spp. and *Thalassionema nitzschioides* like DK-Unit1.

sand mud alternation layer (DK-Unit5): 10.5~2.5 m: 1,820~400 yrBP: The ratio of the benthic diatoms exceeded that of marine plankton diatoms.

surface layer (DK-Unit6): 2.5~0 m: 400 yrBP: Marine, brackish and freshwater diatoms were mixed at the samples.

The diatom assemblages and dating of the cores presumed the marine transgression and regression processes during the Holocene as follows. There was estuary during 10,900~10,600 yrBP. After then the first transgression has started about 9,150 years BP. The maximum stage of the transgression was estimated about 7000 years BP at the both cores. According to the transgression, the environment at the cores shifted to the open-bay environment because the marine plankton diatoms were dominated.

The swallowing of the bay has started about 4,000 years BP and the ratio of the marine benthic diatoms exceed that of marine plankton diatoms. The coastal area changed to be fresh water ponds or marshes at about 700~400 yrBP.