

The use of diatom analysis in reconstructing Holocene relative sea-level change

Hiroshi SATO

Abstract

The establishment of sea-level index points is essential to reconstruct sea-level changes. Diatom analysis of sediments has been applied to Holocene sea-level studies. In Japan, changes in diatom assemblages during a transition in sedimentary facies from marine to freshwater have been recognized to be the upper limit of marine facies, which provides direct evidence for the marine limit. In this paper, indicative meaning of the marine limit was reassessed, and was interpreted as a sea-level index point formed at a tidal level of mean high water spring. The horizon, at which autochthonous intertidal diatoms are present in great abundance, can yield a sea level index point along with its elevation and depositional age. *Pseudopodosira kosugii* is known to be a useful indicator for identifying past sea levels during the Holocene. Along most of the Japanese coast, this species occurs abundantly in the successive diatom assemblages of a sedimentary sequence formed as a result of the Holocene marine transgression ('Jomon' transgression). Past sea-level reconstructions using intertidal diatom indicators (*P. kosugii* and *Terpsinoë americana*) were made for the Tofutsu core collected in Hokkaido. A brief account of a diatom-inferred sea-level change during the last 8,000 years was also shown for the Harimanada coast on the border of the northeastern Seto Inland Sea.

Key index words: diatom analysis, Holocene, marine limit, *Pseudopodosira kosugii*, relative sea-level change, sea-level index point