

Paleoenvironmental analysis of inland aquatic areas based on fossil diatom

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There are some inland deposits of the late Cenozoic in central Kyushu. Fossil diatom analysis is one of tools for paleoenvironmental reconstruction. Fossil diatom assemblages show some aquatic conditions depositional areas. As such, we analyzed fossil diatoms in order to reconstruct of the aquatic environments of depositional areas in central Kyushu. The formations sampled for this work are shown as follows;

Pliocene ; Tsubusagawa Formation

Lower Pleistocene; Otagawa, Oyama, and Thuetate Formations

Middle Pleistocene; Nogami, Asono, Yoshino, and Tsumori Foramtions

Upper Pleistocene to Holocene; Uchinomaki Formation

The results of diatom analysis on this work and pollen analyses (Iwauchi and Hase, 1997; Iwauchi, 1994) are as follows;

1) Lake expansion (Yoshino and Oyama Formations)

In the lower part of the Yoshino Formation a lake changed to a stable condition after its expansion. In the Oyama Formation, a lake also changed from reductive to expansive.

2) Llake reduction (Uchinomaki Foramtion)

At the sedimentary interval of the Uchinomaki Formation, a lake/river/swamp transitional environment occurred.

3) Unstable conditions caused by reduction of aquatic areas (Yoshino and Oyama Formations)

4) Change of aquatic areas caused by fluctuation of precipitation (Tsumori Formation)

A damp condition showed by Taxodiaceae pollen increase was correlative with occurrence of planktonic diatom increasing.

5) Change of lake environments

i) Central part of lakes (Nogami Formation, Asono Formation, Yoshino Formation, Thubusagawa Formation)

Planktonic diatoms were produced in high rates because of long lasting lake stability.

ii) The coastal zone of lakes (Nogami Formation(Kuroiga area), Asono Formation, Otagawa Formation)

iii) Central part of water areas (Oyama Formation, Thubusagawa Formation, Thumori Formation)

As it is assumed that expansion or reduction of lake is related to fluctuation of climate, based on the consideration of pollen analysis, two patterns are realized,

1) In matching the results of diatom and pollen analyses; sedimentation occurred in a relatively small aquatic area or in a near shore area of a large lake.

2) Where diatom and pollen analyses were not matched, should be that an aquatic area was relatively big and sedimentation occurred off shore.

In the second case, a planktonic diatom species, *Cyclotella radiosa*, had a pronounced occurrence of a very high ratio and a long time span of sedimentation. The Nogami, Asono and Yoshino Formations deposited in the middle Pleistocene, but the Tsuetate Formation, as researched, was deposited in the early Pleistocene suggested by fission track age determination. Also *Cyclotella radiosa* occurred in high rates in the Hiruzenbaru Formation (Hiruzenbaru Research Group, 1975), and it is assumed that the environmental conditions were similar through these areas were set at a far distance from each other.