

Neogene-Quaternary boundary in the shelf sediments; submarine sliding sediments of the Pliocene Dainenji Formation in th

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The Neogene-Quaternary boundary is approved 2.588 Ma, and defined the base of the Quaternary System/Period in terms of cooling of the earth, formed glacier in the northern and southern hemispheres. Submarine sliding sediments of the Dainenji Formation in the Pacific side of Fukushima caused for falling of sea level, leading global cooling on the boundary.

The Dainenji Formation is deposited on shelf environment and consists mainly of sandy siltstone and sandstone. It includes a number of volcanic ash layers, which serve as good key beds useful for precise correlation. Also high-resolution microfossil chronostratigraphy can be applied to age control for the formation. The depositional age of Dainenji Formation is 4.18-2.0 Ma. Previous studies carried out facies, geochemical, and diatom assemblage analyses for the lower and middle Dainenji Formation. The results indicate climate changing from warm to cold of latest Pliocene.

We studied diatom assemblage of the upper Dainenji Formation, which deposited in the submarine canyon formed by submarine sliding. The diatom assemblages assigned to the diatom zones NPD9 (2.7-2.4 Ma) of North Pacific diatom zonation (Yanagisawa and Akiba, 1998). By contrast middle Dainenji Formation is assigned to NPD8 (3.5-2.7 Ma). Therefore submarine sliding occurred on the Neogene-Quaternary boundary. These diatom assemblages are dominated cold-water and oceanic species. The assemblage indicate offshore environment, such as outer shelf and shelf-slope. But littoral and freshwater species increase upward. These results indicate global cooling caused falling of sea-level and inflow of littoral and fresh water.