Paleogene Radiolarian Biostratigraphy in the Boso Peninsula, Central Japan

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The Paleogene sedimentary rocks in the axial part of the Boso Peninsula were examined by the radiolarian biostratigraphy in this study.

The Boso Peninsula is located in the southeast Honshu arc, and situated only about 30 km north of the convergent boundary between the North American and the Philippine Sea Plates. The Mineoka Tectonic Belt in the axial part of the Boso Peninsula is adjacent to the easternmost part of the Cretaceous-Tertiary Shimanto accretionary complex. The Mineoka Belt, in addition, had played a role as a trench-slope break at least in the middle Miocene to Pliocene age. Therefore, forearc basin sediments predominate on the northern part of the Mineoka Tectonic Belt and on the southern part is dominated by trench-slope and accretionary sediments. For these reason, in order to distinguish these different geologic/tectonic setting sediments, it is essential to describe detail strata.

The sedimentary rocks in the south of the Mineoka Tectonic Belt were divided the rocks into six major stratigraphic units as follows in ascending order: the middle Eocene to lower Miocene Mineoka Group, the uppermost Oligocene to middle Miocene Hota Group, the middle Miocene to lower Pliocene Nanso Group, the middle to upper Miocene Nishizaki Formation, the upper Pliocene to lower Pleistocene Chikura Group, and the lower to middle Pleistocene Toyofusa Group. The first two stratigraphic units were divided as complex units, and the last four units were divided after their geologic/tectonic settings such as accretionary and trench-slope sediments.

The Paleogene sedimentary rocks are distributed around the Mieneoka Tectonic Belt, and they mainly occur in the Mineoka Group as blocks in sheared the lower to middle Miocene mudstone matrix like mélange, and slightly in the lowermost part of the Hota Group. The sedimentary rock associations around the Mineoka Belt are divided into the two characteristic units: the middle Eocene to Oligocene limestone and chert blocks, and the middle Eocene alternating beds blocks of sandstone and siltstone. The middle part of the Boso Peninsula is underlain by complex sedimentary rocks as the Mineoka Group, which includes ultramafic, metamorphic, basaltic, and pelagic to hemipelagic rocks, but the Hota Group is not composed of ophiolitic rocks. In addition, the biggish oldest sedimentary rock occurs from the Hota Group as early Eocene limestone conglomerate in thick sandstone bed along the Utono beach.

Almost the Paleogene radiolarian assemblages in this study were characterized by the occurrences of the Podocyrtis (Lmpterium) multichornia and Spongurus cruciferus. The early Eocene assemblage was characterized by the occurrence of the Calocycloma castum. The limestone/chert assemblage in the Mineoka Group was characterized by the occurrences of Dictyoprora mongolfieri, Lithochytris vespertilio, Podocyrtis (Lampterium) fasciolata, which are indicative in somewhere of middle Eocene to lowermost Oligocene. On the other hand, the mudstone assemblage in the Mineoka Group was characterized by the occurrence of the Thyrsocyrtis (Pentalacorys) triacantha and the absence of the P. (L.) multichornia. The uppermost Oligocene was defined by the silicoflagellata and diatom, and characterized the absence of the low latitude index fossils such as the Cyrtocapsella tetrapera and Lychnocanoma elongata. The L. elongate co-occurs with the C. tetrapera in the lower Miocene assemblage.

These Paleogene radiolarian assemblages in the Boso Peninsula are little more different than the low latitude assemblage, such as Sanfillippo and Nigrini (1998) summerized. Therefore, in order to discuss much more detail of the depositional age, we should build the independent middle latitude biostratigraphy.