

# Biostratigraphy of calcareous nannofossils and inferred sea surface conditions around the Brunhes–Matuyama Boundary of the Kokumoto Formation, Kazusa Group, distributed in the Boso Peninsula, central Japan

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A Pleistocene formation, the Kokumoto Formation of the Kazusa Group, widely distributes in the middle part of the Boso Peninsula, central Japan. The formation exposed in the Chiba composite section is one of the GSSP (Global Boundary Stratotype Section and Point) candidate for the lower/middle Pleistocene boundary as same as two other candidates, Montalbano Jonico and Valle di Manche sections (e.g., Ogg et al., 2016). The Kokumoto Formation in the section includes a clear boundary of the Brunhes-Matsuyama geomagnetic boundary (MBB) and thus, a lot of chronologic and/or chronostratigraphic studies in the formation have been done (e.g., Suganuma et al., 2015). Recently, paleoenvironmental and paleoceanographic studies have also performed in order to clarify past sea surface conditions, land vegetation, and related paleoclimatic changes during this time around the Northwestern Pacific region (e.g., Haneda et al., 2016). This study added some new calcareous nannofossil data to Kameo et al. (2016) and discusses nannofossil events around the MBB and sea surface conditions, especially temporal and spatial changes of the Kuroshio Current, one of the major sea surface currents around Japanese Islands. Approximately 60 mudstone samples were examined in the middle part of the Kokumoto Formation and well-preserved, abundant calcareous nannofossils were obtained. At least fifteen genera and 16 species are observed throughout the examined section but no characteristic changes of nannofossil occurrences are observed. Even though any last and/or first occurrences of specific species were not detected, larger *Gephyrocapsa* specimens are characteristically found in the upper part of the examined formation. Their occurrences might correspond to the presence of larger specimens of *Gephyrocapsa* sp. C (Matsuoka and Okada, 1990), and/or *Gephyrocapsa* sp.3 (Rio et al., 1990). It means that the base of occurrence of larger forms of *Gephyrocapsa* sp. 3. can be a possible biohorizon near the MBB. At the same time, some environmental nannofossil indicators near the Japanese islands, were characteristically found. *Florisphaera profunda*, a lower photic taxon that preferred stable sea surface conditions (Ahagon et al., 1993), and *Umbilicosphaera sibogae*, a Kuroshio water taxon (Tanaka, 1990) became abundant after the boundary of the MIS 20/19. It suggests that the northward penetration of the Kuroshio Current occurred after 790 ka. Moreover, some local upwelling events in the basin might be estimated because an upwelling indicator, *Coccolithus pelagicus braarudii*, was occasionally observed after the boundary of MIS 20/19.

## References

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