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Litho-stratigraphy and sedimentary environment of upper part of Kokumoto Formation with the L-M Pleistocene boundary

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The Lower-Middle Pleistocene Kazusa Group, deposited on bathyal-shelf in the Pacific Ocean with micro fossil, distributes widely in Boso peninsula. The group exposes continuously along Yoro river, Chiba section. The Kazusa group consists of Kurotaki formation (mainly tuffaceous gravelly sandstone), Katsuura formation (mainly alternation of sandstone with slump bed), Namihana formation (mainly siltstone with slump bed), Ohara formation (muddy alternation of sandstone and siltstone), Kiwada formation (muddy alternation of sandstone and siltstone with slump bed), Otadai formation (alternation of sandy alternation and muddy alternation of sandstone and siltstone), Umegase formation (mainly sandy alternation of sandstone and siltstone), Kokumoto formation (alternation of thick siltstone and sandy alternation of sandstone and siltstone), Kakinokidai formation (sandysiltstone with sandstone), Chonan formation (alternation of thin sandstone and thin siltstone) in ascending order. Total thickness of the Kazusa Group is over 2,000 meters with over 50 marker tephra. Depositional rate of it is rapid, about 2 m/kyr. So Chiba section have high potential for international stratotype section.

Kokumoto formation, about 350 meter thick, is composed of lowermost part, lower part, upper part and uppermost part in ascending order. Lowermost part, about 60 meter thick, consists of thick siltstone with thin sandstone bed and marker tephras, Ku6 and ku5. Lower part, about 120 meter thick, consists of sandy alternation of sandstone and siltstone with Ku3 tephra. Upper part, about 80 meter thick, consists of thick siltstone without slump bed and with thin sandstone and marker tephra (Byakubi zone (Byk-E, Byk-D, Byk-C, Byk-B, Byk-A), Tap-B, Tap-A, Tas-C, Tas-B, Tas-A, Ku2). The Matuyama?Brunhes boundary is in Byk zone. Uppermost part, about 90 meter thick, consists of sandy alternation of sandstone and siltstone with Ku0.1 tephra.

The upper part, thick siltstone, is interbedded with thin, 1-3cm thick, sandstone every 0.3-3 m thick and thin, 1-5 cm thick, sandysiltstone every 0.1-0.25 m thick without slump bed and thick mudflow bed. The siltstone have bathyal and sublittoral benthic foraminifera and many trace fossils. Grain size distribution in the siltstone have bimodal grain group. Main grain group is composed of fine silt and sub group consists of very fine sand. These characteristics show hemipelagic sedimentary environment in deep sea and very fine sand flow often into, namely deep sea slope.

Keywords: GSSP, The Lower-Middle Pleistocene boundary, Kokumoto Formation, Kazusa Group, Tabuchi section