

The Chiba composite section (a candidate of the L-M Pleistocene GSSP): recent advances and future perspectives

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In the Chiba composite section, along the Yoro, Yanagawa, and Kogusabata rivers in the Bozo Peninsula, the Kokumoto Formation (Kazusa Group) represents an expanded and well-exposed sedimentary succession across the Lower-Middle Pleistocene boundary. The predominant silty beds of the Chiba composite section are intensely bioturbated and lack evidence of episodic deposition such as slumps or muddy turbidites, which interpreted to be hemipelagite formed by deposition of fine-grained suspended material under stable and calm bottom-water conditions. High-resolution oxygen isotope stratigraphic studies for the Kokumoto Formation reveal that a continuous sedimentary record from MIS 21 to MIS 18, with extremely high sedimentation rates up to 200 cm/kyr. The Matuyama-Brunhes boundary (MBB) is clearly observed at immediately above the widespread Byk-E tephra bed. A high-precision U-Pb zircon age of 772.7 ± 7.2 ka for the tephra coupled with the oxygen isotope chronology provides a highly accurate MBB age of 770.2 ± 7.3 ka. This MBB age is consistent with the latest MBB ages from high-resolution marine sediments and an Antarctic ice core. Because the MBB customarily serves as the primary guide for the Lower-Middle Pleistocene Subseries boundary, the Chiba composite section is considered an excellent candidate for its global boundary stratotype section and point (GSSP). For a better chronological constraint and global correlation of the section, more detailed magneto- and oxygen isotope stratigraphy will be obtained. And also, analyses of Mg/Ca in foraminifera and pollen assemblage will be carried out for a high-resolution paleoclimatic reconstruction during MIS 19.