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Stratigraphy of the L-M Pleistocene boundary section in the Kokumoto Formation with re-definition of the Byk-TNTT tephra

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Detailed stratigraphy of the Kazusa Group was surveyed for development of water-soluble natural gas on many marker tephra in Boso peninsula (Kanehara et al.,1949; Shinada et al.,1951; Mitsunashi et al.,1959; Mitsunashi et al.,1961; Ishiwada et al.,1971; Mitsunashi et al.,1979). Magnetostratigraphy (Nakagawa et al., 1969; Niitsuma, 1976; Okada & Niitsuma, 1989), planktonic foraminifera (Oda,1977), nannofossils (Takayama,1967; Sato et al., 1988) and diatom (Cherepanova et al.,2002) were studied on the detailed stratigraphy for international correlation.

The Early-Middle Pleistocene boundary is in the middle part of the Kokumoto Formation in Kazusa Group (Kumai, 1996). Many marker tephra are interbeded in Kiwada F., Otadai F., Umegase F. and Kakinokidai F. Only 5 marker tephra are intercalated in Kokumoto F. Over twenty thin tephra, pumice bed, scoria bed and vitric fine tuff were fined out in the middle silty part of the Kokumoto F. for detailed stratigraphy around the Early-Middle Pleistocene boundary in Yoro river route, type route of the Kazusa G. (WQSB, 1996). Byakubi(Byk) tephra, 1-3cm thick vitric fine tuff under 27m thick from Ku2 distribute in Byakubi district along Yoro river. Matuyama?Brunhes magnetic reversal was fined out in the middle silty part under Ku2 tephra (Nakagawa et al.,1969). Aida(1997) showed that the magnetic reversal distribute just below the Byk tephra. TNTT tephra and the Matuyama?Brunhes magnetic reversal just below the TNTT tephra were fined under Ku2 on Yanagawa route (Niitsuma,1976). Same tephra and the magnetic reversal were fined on Heizo rute and Chonan route (Okada & Niitsuma, 1989). White vitric tephra are interbeded often in the Kazusa G. So marker tephra is necessary tephra association with over 2 tephra. 4 tephra, 3 scoria bed and 1 vitric fine tuff, were fine out just above Byk tephra on Yoro river route for detailed stratigraphy around the magnetic reversal by this study. And same tephra association were recognized just above the TNTT tephra in Yanagawa route, too.

Byk tephra zone is defined as follows. Byk tephra zone is composed of 5 tephra which in ascending order are Byk-E, Byk-D, Byk-C, Byk-B and Byk-A. Byk-B, Byk-C and Byk-D are medium sand grain scoria lenticular beds. Byk-A is 9 cm thick reddish gray vitric fine tuff. Byk-E is 1-3cm thick white vitric fine tuff. Byk-E tephra is correlated with TNTT tephra.

Keywords: L-M Pleistocene boundary, Kokumoto Formation, Kazusa Group, Byakubi tephra, TNTT tephra, Byk tephra zone