

# The Pliocene marker tephra beds and a major erosional event in the forearc basin fills exposed around the Tokyo Bay, Japan

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The Mio-Pleistocene forearc basin fills comprising the basement of the Tokyo metropolitan area are well exposed around the Tokyo Bay, especially on the Miura and Boso peninsulas. These deposits provide the type stratigraphy of the other equivalent sedimentary sequences in Japanese islands and northwest Pacific because many biostratigraphic datum planes, paleomagnetic reversal events, and other chronostratigraphic tools are available in these deposits. The forearc basin fills on the Miura and Boso peninsulas are called the Miura and Kazusa groups which were deposited during the late Miocene-Pliocene and during the Pliocene-middle Pleistocene (Chibanian), respectively. Although many widespread tephra beds have been reported in the Plio-Pleistocene on the Boso Peninsula, there are a few widespread tephra beds recognized in the Miura Peninsula.

We focused on the Pliocene vitric tephra beds and describe their stratigraphic positions, lithologic characteristics and chemical compositions for stratigraphic correlation. As a result, three tephra beds intercalated in the Pliocene forearc basin fill were correlated between the Miura and Boso peninsulas, based on stratigraphic levels, lithologic characteristics and chemical compositions of glass shards. The tephra correlations are consistent with biostratigraphy and magnetostratigraphy established by the previous studies. These tephra beds are important chronological indices, which contributes to construct composite sections through the Pliocene in the forearc basin for study on regional paleoenvironment and basin evolution. We also revealed a previously overlooked major erosional event, in which stratigraphic horizons corresponding to the uppermost Kiyosumi Formation and most of the Anno Formation are missing due to submarine landslide(s) in the Miura Peninsula. Missing horizons ranges max. 1.3 m.y. if the top of the Zushi Formation and base of the upper Ikego Formation were approximately estimated at between 4.5 Ma and at 3.2 Ma, respectively. Tephra correlations would bring on further valuable aspects on the stratigraphic framework of Tokyo metropolitan area and general modeling for forearc basin evolution.

Keywords: forearc basin fill, Kazusa Group, Miura Group, tephra correlation, submarine landslide