

Zircon LA-ICP-MS U-Pb dating on some Quaternary tephtras in Boso Peninsula

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Zircon U-Pb dating using LA-ICP-MS was applied to some Quaternary tephtras in Boso Peninsula, central Japan. Accurate age determination of these tephtras is of critical importance because they are relevant to a candidate site for the Global Boundary Stratotype Section and Point of the early-middle Pleistocene boundary. Recently, a precise zircon SHRIMP U-Pb age of 0.773 ± 0.007 Ma from a tephtra just below the Matuyama-Brunhes (MB) boundary was reported (Suganuma et al., 2015). Here, we show other precise zircon LA-ICP-MS U-Pb ages from the Ks11 and Ch2 tephtras above the MB boundary. The Ks11 tephtra yielded a weighted mean age of 0.52 ± 0.04 Ma and the Ch2 tephtra yielded a weighted mean age of 0.61 ± 0.02 Ma, both of which are in agreement with the stratigraphy. The good agreement between zircon U-Pb ages and the stratigraphy validates the reliability of the established stratigraphy and our dating approach. These U-Pb ages should help to further establish Japanese and worldwide Pleistocene chronostratigraphy.

Keywords: U-Pb dating, zircon, tephtra, Matuyama-Brunhes boundary