

High density sampling FT dating of the Miocene Shitara Group, central Japan

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A total of 35 rock samples were collected from the Miocene Shitara Group (sedimentary Hokusetsu Subgroup plus overlying volcanic Nansetsu Subgroup) in the Horai-Shitara area in Aichi Prefecture, central Japan, to elucidate the geologic age of the group by means of fission-track (FT) dating of zircon. Four samples of volcanic ash collected from the upper stratigraphic horizons of the Hokusetsu Subgroup yielded FT ages indicating late Early Miocene deposition; the weighted-mean was 17.3 +/- 0.6 Ma (error represents 1 sigma). This result is concordant with an estimate from radiolarian biostratigraphy (Hoshi et al., 2000). On the other hand, 27 samples of felsic lava and welded pyroclastics collected from the Nansetsu Subgroup gave FT ages suggesting geologically instantaneous deposition around 15 Ma. Four samples from baked parts of country rock of north-south striking dikes showed FT ages of about 14-15 Ma, which is concordant with previous K-Ar dating results (Tsunakawa et al., 1983). Because the north-south trending dikes were formed during the final stage of volcanism (Takada, 1988), it is concluded that volcanism in this area occurred within a short period (probably less than one million years) around 15 Ma. The present study supports an interpretation that the base of the Nansetsu Subgroup is unconformable on the Hokusetsu.