Paleointensity study on lava flows of Fuji Volcano and implications for the atmospheric ^{14}C variation for the last 30 kyr

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The atmospheric ^{14}C production rate is considered to be controlled by the solar activity and geomagnetic field intensity. The ^{14}C variation of timescale of the order of 10-100 years is mainly caused by the solar activity, while the ^{14}C variation of longer timescales is probably related to the geomagnetic field intensity change. We can recognize a decreasing trend in the atmospheric ^{14}C for the last 30 kyr and an increasing trend in paleointensity data in the database for the same period. However, a quantitative evaluation on the relationship between the geomagnetic dipole moment and the atmospheric ^{14}C has been difficult, because the paleointensity database shows a very large scatter. The present study attempts to obtain reliable paleointensities from ^{14}C dated lava flows and then discuss the relationship between absolute paleointensity and the atmospheric ^{14}C. We sampled seven lava flows of 4-30 ka ^{14}C ages of Fuji and Aso Volcanoes in Japan. These ages were reported from the charred material in/below the lava flows or organic sediment below the lava flows in previous studies. Sixty-three samples were subjected to the LTD-DHT Shaw paleointensty experiment (Tsunakawa-Shaw experiment), and forty-six of them passed the selection criteria. These paleointensity data and the ^{14}C data reported for the same lava flows give a constraint on the relationship between virtual axial dipole moment and the atmospheric ^{14}C.

Keywords: paleointensity, 14C, Fuji Volcano

