

The ESR dating of rhyolites in Kozushima and the evaluation of the effect of loss of radioactive elements due to weathering

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The eruption ages of two weathered rhyolites (Ohsawa-yama and Awanomikoto-yama) from Kozushima Island in Japan were measured by ESR method. Due to weathering, the loss of radioactive elements (thus, the change of annual dose) took place and this effect was considered in this study. The loss of K₂O over elapsed weathering time was negligible for Ohsawa-yama. In contrast, ~20 % of loss was observed for Awanomikoto-yama. The ESR dating was conducted using Quartz samples extracted from the two rhyolites. The age of Ohsawa-yama was calculated to be 26,000 y. B. P. based on the constant annual dose. The age of Awanomikoto-yama was calculated to be 52,000 y. B. P. if linear losses of K and U over elapsed time were assumed, while the age was ~10 % higher if constant annual dose was assumed.