

Thickness of AT tephra in the Uwa-basin in western Shikoku, southwest Japan

TSUJI, Tomohiro^{1*}, IKEDA, Michiharu¹, NISHIZAKA, Naoki², Ishikawa Yoshihiko², SAKAKIBARA, Masayuki³

¹Department of Civil Engineering, Shikoku Research Institute Incorporated, ²Shikoku Electric Power Co. Inc., ³Department of Earth Science, Graduate School of Science and Engineering, Ehime University

To estimate accurate thicknesses of widespread tephra is important to anticipate potential size and influence of the eruption. However, to estimate it is sometimes difficult due to post-depositional remobilization and resedimentation. Then we drilled nine boreholes and four geo-slicers at the Uwa basin in western Shikoku, with observation and grain-size analysis to estimate accurate thickness of AT tephra.

The Uwa basin is 2.5 km in north-south by 3 km in east-west located in the uppermost part of the Hijikawa River catchment and includes many layers of widespread tephra from Kyushu Island. AT exists at the depth of 1-3 m from the surface and well-preserved condition, depositing on humic soil and being covered by clay or humic clay. The thickness of AT is thinner near the margin of the basin and thicker in the center of the basin. The maximum thickness including resedimented layer is 170 cm. The representative sequence of AT is as following from the bottom.

A: White colored glassy tephra consists of very fine sized glass shards with minor medium sized pumice. The thickness is 5 cm.

B: Brown gray colored laminae-rich tephra consists of medium to fine sized glass shards. The thickness is less than 50 cm.

C: Massive tephra consists of fine sized glass shards. The thickness is less than 50 cm.

D: Gray brown colored laminae-rich tephra consists of fine sized glass shards with heterogeneous clasts. The thickness is less than 90 cm.

Remobilized layer is recognized based on sedimentary structure and heterogeneous clasts. D layer is interpreted as remobilized layer consists of highly concentrated glass shards. There are many examples of thick AT in southwest Japan. Further observation from these may contribute to distinguish original and remobilized tephra layer.

Keywords: AT tephra, thicknesses, Uwa basin, western Shikoku