

Analysis of the magnetization intensity in Mt. Unzen using an air-borne magnetic survey data

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We carried out airborne geophysical and LiDAR survey around the lava dome of Mt. Unzen, under a contract with Kyushu district Maintenance-and-Repair Office, Ministry of Land, Infrastructure and Transport.

Aeromagnetic and electromagnetic data was collected during airborne geophysical surveys. The former was analysed by means of three-dimensional inversion techniques, and subsurface magnetic structure (magnetic-intensity distribution) to the depth of 1000m was derived. In addition, comparing with aeromagnetic data obtained at 1999 by the Shimabara Development and Protection Bureau, Nagasaki Prefecture, clearly showed the temporal change in the pattern of magnetic anomalies, which was also analysed by time-lapse inversion technique.

In this study, we reported the results of the above survey and analysis, with special attention to three-dimensional magnetic structure and its temporal change for about a decade.

Keywords: Airborne magnetic survey, Airborne geophysics, Three-dimensional inversion, Mt. Unzen, Lava dome, slope failure