

Vertical density profile of the 15 September 1991 pyroclastic surge at Unzen Volcano

Takashi Kusano[1], Keiko Suzuki-Kamata[2], Hiroaki Sato[3], Hiromitsu Taniguchi[4]

[1] Natural Sci., Kobe Univ, [2] Earth and Planetary Sci, Kobe Univ., [3] Earth and Planetary Sci, Kobe Univ, [4] CNEAS, Tohoku Univ

Vertical variation of the flow density of the ash-cloud surge associated with the September 15, 1991 pyroclastic flow at Unzen Volcano, was estimated by measuring the ash deposits in a 3-floored building of the Ohnokoba Elementary School. We obtained density of the ash-cloud surge to be 43.6kg/m³ in the 1st floor, 7.8kg/m³ in the 2nd floor, and 3.7kg/m³ in the 3rd floor. The obtained values are compared with the results estimated from the formulation of the vertical density profile in a surge by Valentine (1987). As a result, assuming that the ash-cloud surge have thickness of 80m, the density profile obtained from the school building give best agreement with the density profile determined on the basis of formulation by Valentine (1987).