

Particle source modeling using modified Tephra2; an application using Izu-Oshima 1986 eruption

MANNEN, Kazutaka^{1*}

¹Hot Springs Research Institute

Modeling of particle release from eruption plume is critical to improve fallout forecast and also an important theme on physical volcanology. Gravity current model such as Bursik et al. (1992) has assumed particle release take place from the bottom of the horizontally spreading umbrella cloud. On the other hand, advection-diffusion models after Suzuki (1985) have modeled particle release from uprising eruption column.

In this study, a modified version of Tephra2, which is an advection-diffusion model including fallout from the umbrella, is used to obtain source parameters of the 1986B eruption of Izu-Oshima volcano. The best fit parameters such as column height, characteristic width of column, and distribution of particle release (expressed using two parameters of Suzuki function; A and lamda) are obtained as follows.

The best fit column height deduced to be 12km is consistent to the observation of the eruption; however, particle release from the umbrella is very limited and release from the column is significant. The characteristic column width is more than 1000m. This result may consistent to the fact that the eruption is a fissure eruption from more than 1km long vent system.

Keywords: eruption column, Izu-Oshima, tephra, ash fall