

Numerical simulations of ballistic fragment ejection and blast-wave propagation induced by the volcanic explosion

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In order to develop the numerical method that can predict the damages quantitatively induced by volcanic explosion, we improved the codes of numerical simulation of ballistic fragment ejection and blast-wave propagation by adapting the method to the scaling rule. The simulator developed by the present study can predict the volcanic hazard under the arbitrary explosion energy and depth. The new codes of numerical simulations were confirmed its propriety by the simulation in the Usu 2000 eruption. As a result, the phenomena we could succeed in the simulation were the shape of explosion cloud, height and duration of explosion-cloud, and the distributions of ballistic fragments.