

MP radar observation of the explosive eruption of Sakurajima on May 10th, 2014

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Although it has been recognized that volcanic ash clouds can be captured by weather radars from the late 1960s, the technique to estimate the amount of pyroclastic materials is not established now. On the other hand, MP (polarimetric) weather radar techniques have been rapidly developed in the field of Quantitative Precipitation Estimation (QPE) and Hydrometeor Classification (HC). We are now trying to develop Quantitative Ash Estimation (QAE) techniques by MP radar, however, false echo is one of the obstacles of QAE.

In this research, we tested a method of determination of false echo region by correlation coefficient (ρ_{hv}), which represents non-homogeneity of meteorological clutters, to the case of explosive eruption of Sakurajima on May 10th, 2014. Then, we analyzed frequency distributions of polarimetric parameters in the volcanic plume regions and the false echo regions. As a result, it is considered that the false echo region depended on multiple factors.

Keywords: volcanic plume, MP radar, polarimetric radar, false echo