# "Invisible" volcanic eruption plume/cloud observation with polarimetric weather radar

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Japan Meteorological Agency (JMA) conducts operational observations of volcanic eruption plumes with cameras, however, they are not visually observed on cloudy or rainy conditions. Weather radar is a useful tool for monitoring such "invisible" volcanic eruptions. A probabilistic estimation method for plume height (Sato et al.(2018)), which is an important parameter for measuring the scale of the eruption, was developed, therefore, more accurate estimation became possible. However, for quantitative estimation of pyroclastic materials (e.q., volcanic ash and lapilli) inside the plume and for discrimination between volcanic and precipitation echoes, it is necessary to observe volcanic eruption plumes using more advanced instruments such as polarimetric radar. In 2016, Meteorological Research Institute (MRI) installed a polarimetric radar (MRI-XMP) near Sakurajima, an active volcano in Japan, and has been observing volcanic eruption plumes. In this presentation, we will show analysis results of such "invisible" eruption cases.

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