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Ku-Band Rapid Scanning Doppler Radar for Volcanic Eruption Monitoring [U+FF08] KuRAD [U+FF09]

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Recent domestic and international studies have found that meteorological radars are effective for the quantitative evaluation of pyroclastic material. Based on such findings, Kagoshima University began outfitting a high-speed scan Doppler radar (KuRAD for short) for use in volcanic observations as a part of a research project entitled 'Creating a Community Resilient to Large Volcanic Eruptions' (2016 – 2021). When a large-scale eruption occurs, the ash fall distribution will be measured by dynamic radar observation and the information gathered will be provided to the national and local government officials in charge of disaster prevention so as to increase the safety of local evacuees and the rescue and reconstruction crews working in the affected areas.
KuRAD is a research Doppler radar intended to dynamically observe and analyze the multiple dangers that accompany volcanic eruptions: i.e. smoke columns, pyroclastic flows and ash clouds. KuRAD is also used to observe heavy rainfalls, which themselves may cause multiple disasters.
•High speed antenna scan capable of observing the three-dimensional development of rapidly changing eruption columns at 1 minute intervals.
•High spatial resolution data at 2m range intervals revealing the detailed structures of volcanic plumes and pyroclastic flows.
•The radar is transportable and is authorized to operate at the locations of 7 active volcanoes in Kyusyu, Japan.
•The radar can be operated remotely from Kagoshima University.
The paper will show preliminary results of KuRAD observations of Sakurajima volcanic eruption during April to June, 2017.