

Monitoring of Sakurajima Volcano using Cosmo-SkyMed

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Sakurajima volcano is located in southwestern part of Japan, and currently a most active volcano in Japan. Eruptive activities from Showa-crater have activated since 2009, and several explosive eruptions occurred in 2012. On July 24, 2012, another large eruption occurred from Minamidake-crater after a lapse of 18 months. To understand current condition and future unrest of Sakurajima, periodic monitoring is required. Although it is generally difficult to make a field observation in dangerous active volcanoes, a satellite remote sensing can make observations of even ongoing volcanoes periodically. Especially, Synthetic Aperture Radar (SAR) sensor is well-suited for monitoring active volcanoes because it can penetrate ash clouds and can observe targets like an active vent. Moreover, SAR data are applicable to use a Differential Interferometric SAR (DInSAR) technique to detect crustal movement associated with the magmatic activities. In this study, we used COSMO-SkyMed data for monitoring Sakurajima volcano and tried DInSAR processing. Monitoring using high-resolution amplitude images revealed changes of backscattering intensity probably due to some kind of surface change within or around the crater. DInSAR processing suffered from low coherence, therefore we acquired quite limited geodetic information.

Keywords: SAR, Sakurajima, DInSAR, Cosmo-SkyMed