

The Active volcanoes in Japan as viewed from ALOS/PALSAR Interferometry (3)

Shinobu Ando^{1*}, Keiichi Fukui¹, Makoto Saito²

¹MRI, ²Volc/JMA

ALOS has an L-band SAR (PALSAR), which is not affected by vegetation, and the interference is good even in the mountainous area. So these methods are effective for the crustal deformation observation of volcanic areas.

In previous studies, we reported the analysis result about domestic active volcanic areas, using InSAR of ALOS 'Daichi'. However, these pair which we used was limited to the special data because the observation period since ALOS launching was not that long. And then we are not able to use about a data of snowy season even if there were enough SAR image data. Because InSAR method is affected by a snow. Fortunately, ALOS 'Daichi' has continued operating smoothly since and data for about three years has been accumulated. Therefore we tried interference analysis with pairs of around two years without using the data from the snow season. The interference processing in long term pairs of more than one year had good correlation and was effective for detecting crustal deformations. As a result of volcanic activity in Mt. Tarumae, we were able to detect the local crustal deformation. In this report, we are mainly going to talk about the crustal deformation around an active volcano using the SAR interference method.

Some of PALSAR DATA using this report were prepared by ALOS 'Daichi' Domestic Demonstration on Disaster Management Application that CCPVE. Also, some of PALSAR DATA were prepared by PIXEL (PALSAR Interferometry Consortium to Study our Evolving Land surface). PALSAR DATA belongs to METI/JAXA (Ministry of Economy Trade and Industry/ Japan Aerospace Exploration agency). We would like to thank Dr. Shimada (JAXA) for the use of his SIGMA-SAR software. In the process of the InSAR, we used 'the digital elevation map 50m mesh' provided by GSI (Geological Survey Institute) and some figures were made using GMT (P. Wessel and W.H.F. Smith, 1999). We are also grateful to Dr. Okuyama (HVO) and Dr. Miyagi (JAXA) for the advice of drawing method by GMT.

Keywords: InSAR, ALOS/PALSAR, crustal deformation, active volcano