

## PALSAR-2/InSAR analysis using RINC

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Advanced Land Observing Satellite-2 (ALOS-2) was launched on 24 May 2014, and distribution of PALSAR-2 (SAR sensor onboard on ALOS-2) data was began in 25 Nov. 2014. On the other hand, we are developing InSAR tools, named RINC, for researching on advanced SAR analysis techniques using PALSAR-2 and other SAR data (e.g., Ozawa, 2014). In this presentation, we introduce some case studies of PALSAR-2/InSAR analysis using RINC.

PALSAR-2 has three observation modes; stripmap, ScanSAR, and Spotlight. In InSAR analysis using stripmap mode data, high coherence was obtained for most pairs and topographic and orbital phase components could be removed by simulation based on orbit data included in images. Then we applied PALSAR-2/InSAR analysis to the Kuchinoerabujima (volcanic island) and the Ontake volcano and detected phase differences which may be due to surface deformation around the crater. In Ogasawara-Iwoto, obvious crustal deformation associated with volcanic activity was obtained. For the Northern Nagano Earthquake occurred on 22 Nov. 2014, we applied PALSAR-2/InSAR and detected crustal deformation associated with the earthquake.

We attempted to apply InSAR analysis to ScanSAR mode data (490km swath), and obtained fringes in the whole image, although coherence was low. Phase gap among swaths was negligible. However phase difference with long wavelength was remained in the differential interferogram. We attempted to apply InSAR analysis to spotlight mode images for Ogasawara-Iwoto, and high coherence could be obtained. However, artificial phase gap was obtained. These are severe problems on detection of surface deformation, and then its resolution is necessary.

Keywords: PALSAR-2, InSAR, RINC, Kuchinoerabujima, Ontake, the northern Nagano Earthquake