

## Crustal Deformation caused by the Earthquake of Northern Nagano Prefecture using InSAR analysis of ALOS-2/PALSAR-2 data

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ALOS-2, was launched on May 24, 2014, has an L-band SAR (PALSAR-2) in the same way as ALOS/PALSAR. PALSAR-2 is of help to understand of a ground surface state, and its interferometric coherence is highly effective for the crustal deformation observation.

An earthquake of M6.7 occurred near the northern Nagano prefecture on November 22, 2014. The maximum seismic intensity of this earthquake was 6-Lower. We analyzed the crustal deformation caused by this earthquake from ALOS-2/PALSAR-2 data interferograms. In this study, we used September 19, 2014 ? November 28, 2014 for ascending orbit (path:126, frame:720, right looking) and October 2, 2014 ? November 27, 2014 for descending orbit (path:25, frame:2840, left looking), and able to get a good interference result. Microwave from the satellite is irradiated from the west-southwest and west-northwest sky, incident angle in the around of the epicenter is approximately 39 and 37 degree, respectively. As the result, the eastern area from epicenter shows up to 8 fringes (=95.2 cm) crustal deformation toward the satellite in the radar-line-of-sight direction. Furthermore, Kamishiro fault has been longitudinal from north-northeast to south-southwest in the vicinity of the epicenter, and phase discontinuous line has been confirmed along the fault trace.

Some of PALSAR data were prepared by the Japan Aerospace Exploration Agency (JAXA) via the Geospatial Information Authority of Japan (GSI) as part of the project "ALOS-2 Domestic Demonstration on Disaster Management Application" of the SAR analysis of earthquake Working Group. Also, we used some of PALSAR-2 data that are shared within PALSAR Interferometry Consortium to Study our Evolving Land surface (PIXEL). PALSAR-2 data belongs to JAXA. We would like to thank Dr. Ozawa (NIED) for the use of his RINC software. In the process of the InSAR, we used Digital Ellipsoidal Height Model (DEHM) based on "the digital elevation map 10m-mesh" provided by GSI, and Generic Mapping Tools (P.Wessel and W.H.F.Smith, 1999) to prepare illustrations.

Keywords: InSAR, Crustal deformation, ALOS-2/PALSAR-2, earthquake in northern Nagano prefecture