

Ground surface deformation monitoring all over Japan by InSAR using ALOS-2 data (first report)

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The Geospatial Information Authority of Japan (GSI) monitored ground surface deformation in 66 areas of volcano, subsidence and landslide all over Japan by InSAR using ALOS SAR data from 2006 to 2011. After ALOS stopped its operation in May 2011, the regular InSAR analysis could not be continued.

ALOS-2, a successor of ALOS, was launched on 24 May, 2014 and started the basic observation on 4 August. The observed SAR data has been provided since 25 November, 2014. GSI restarts the monitoring by InSAR using ALOS-2 data. The target area is all land areas all over Japan, expanded from the particular areas in the era of ALOS. Basically all data acquired by the basic observation mode will be processed. These advancements of the monitoring strategy from the time of ALOS are achieved by the constantly short baseline of ALOS-2 and the improvement of our processing system.

InSAR results will be published as one of the layers of the geospatial information library on GSI Maps, a web map provided by GSI and where various geospatial information can be shown as well as background maps. This style of publication would make it easy to interpret the InSAR results and identify the location of the deformation, and promote the use of InSAR results. The interpretation of the InSAR results will be added in the future.

In ALOS-2 Basic Observation Scenario, disaster base map observations by various observation modes and off-nadir angles are planned for one year after the start of the basic observation. Therefore the amount of the available data for InSAR analysis is not large because the InSAR analysis requires two or more data acquired by the same mode and off-nadir angle. The full operation of the monitoring will start around August 2015.

In this presentation we report the first InSAR results using a limited amount of ScanSAR data and the future plan of the monitoring.

Keywords: InSAR, ALOS-2, deformation, subsidence, landslide, volcano