

InSAR analysis all over Japan by ALOS-2 (Daichi-2) / PALSAR-2 data

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The Geospatial Information Authority of Japan (GSI) has approached to monitor ground surface deformation of earthquake, volcanic activity, subsidence and landslide all over Japan by InSAR analysis using ALOS-2 (Daichi-2) /PALSAR-2 data. We have processed 2 mode observation dataset for InSAR analysis, which one is strip map mode (band of 50km and resolution of 3m with basic observation scenario in Japan) and another one is scan SAR mode (band of 350km and resolution of 100m with basic observation scenario in Japan).

As a result, we can detect ground surface deformation of earthquake and volcanic activity, subsidence of withdrawing ground water, including temporal subsidence around snow-covered area in winter caused by withdrawing ground water for melting snow, landfill settlement and landslide. There are some wide decorrelation areas in InSAR images analyzed in summer season observation dataset of ascending orbit and one of possibility of decorrelation is the influence of the activity of ionosphere.

We have translated from InSAR images to tiled geospatial data for a web map of GSI called "GSI Maps". Various geospatial information can be shown as well as background maps, including topographic map, aerial photograph, volcanic map and others. This style of publication makes it easy to interpret ground surface deformation of detecting by InSAR with overlaying topographical and geological information.

In this presentation, we report InSAR results all over Japan and challenges.

Keywords: InSAR, ALOS-2, GSI Maps, volcano, earthquake, subsidence