[EJ] Evening Poster | S (Solid Earth Sciences) | S-TT Technology & Techniques

[S-TT48]Synthetic Aperture Radar

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Mon. May 21, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

ALOS-2 and Sentinel-1, which have highly enhanced capacity compared to previous SAR satellites, were launched in 2014, and their utilization has been widely expanding as the data has accumulated. Now we are facing a new and abundant era of the satellite SAR, along with a worldwide trend to an open and free data policy of satellite data, and with next-generation advanced SAR satellite plans by several countries. In addition, SAR technologies with other platforms, such as ground-based SAR with high temporal resolution and UAV (Unmanned Aerial Vehicle) SAR with flexible operability, have also been developed and used for various targets. These facts indicate that the SAR utilization data has become widespread in both basic researches (e.g., earth science) and diverse applications (e.g., disaster prevention and forest monitoring). In this session, we would like to share a broad knowledge and information regarding SAR. A wide range of research topics from basic researches to advanced applications will be welcomed.

[STT48-P11]PALSAR-2 InSAR image production using 5m- and 10m-resolution Digital Elevation Model in Northern Nagano Prefecture, Japan

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Keywords:ALOS-2, InSAR, Landslide

InSAR images were produced using ALOS-2/PALSAR-2 data, taken in the study area of Northern Nagano Prefecture, Japan. These data were taken between 9 Dec 2014 and 30 Jan 2018 from descending orbit, right look (path19, frame 2880), and processed at the look of 8 by 8 in both range and azimuth direction. In processing the data, software RINC 0.39 (Ozawa et al., 2016) were used.In the production of the InSAR images, as a trial, three kinds of Digital Ellipsoidal Height Model, DEHM (Tobitaet al., 2005) were used for eliminate topographic effect. This is because finer resolution of DEHM is expected to give good coherence of InSAR image than coarser one.

Type I DEHM was produced from 5m DEMs (DgitalElevation Models) and Japanese Geoid height data 2011 (Miyahara et al., 2014), published by GSI of Japan. In the area where 5m DEMs are not published, 10m DEMs were used and interpolated into 5m resolution.

Type II DEHM was produced from 10m DEMs. In the area where 5m DEMs are published, these data were resampled into 10m resolution. Japanese Geoid height data 2011 was also used.

Type III DEHM was produced from only 10m DEMs, and EGM96 was used as geoid height data.

As a result, it was found that Type III DEHM tends to give best coherence of InSAR image. In the future it will be considered that how well the Type III DEHM works to detect landslide surface deformation in the study area. This study used PALSAR-2 data provided by JAXA, in the special study (B) in 2017, ERI, Tokyo Univ. and Type III DEHM was also provided in the special study.

References

Miyahara et al., 2014, http://www.gsi.go.jp/common/000099005.pdf

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