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

[S-TT48]Synthetic Aperture Radar

convener:Yu Morishita(Geospatial Information Authority of Japan), Shoko Kobayashi(Tamagawa University), Youhei Kinoshita(一般財団法人リモート・センシング技術センター, 共同), Takahiro Abe(Earth Observation Research Center, Japan Aerospace Exploration Agency)
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-P05]Detection of ground motion after Kumamoto earthquake 2016 using the time series interference SAR data.

*takahashi koya[1], Masanobu Shimada[1] (1.tokyo denki university)
Keywords:interferometry, aso

Interferometric SAR processing used in this study is a technique to measure the amount of change of the ground surface from the phase difference of images of two periods observed by synthetic aperture radar (SAR). Applicability of this technology is high, and it is also used for changes of places that people do not enter, such as active volcanoes, and discovery of deforestation areas due to deforestation, in addition to ground fluctuations due to earthquakes.

On April 14, 2016, an earthquake with a magnitude of 6.2 occurred in the Kumamoto district, Kumamoto Prefecture, where the epicenter occurred. Two more days later on April 16, a larger earthquake of 7.3, 7.0 (main shock) occurred, bringing enormous damage to the whole of Kyushu, mainly in Kumamoto Prefecture. The main shock on April 16 was due to the activities of the Futada River fault zone, and large crustal deformation was detected in the Aso caldera. Particularly local variations in Aso city have been noted, and researches are being conducted on large fluctuations in Aso City Uchinomaki, kario, and matoishi.
We used the data of Aso City obtained from April 16 th to the present by synthetic aperture radar (SAR), and detected the variation and verified the accuracy. The oldest data actually used in this study is May 2, and there is an interval of about half a month from April 16. Even after May 2, earthquakes with seismic intensity of 3 or more are measured frequently in Aso city In order to investigate the relationship between these earthquakes and ground changes, we chose the number of electronic reference points of the Geographical Survey Institute in the image for the selection of observation points. The number was 10 in the Ascending image and 12 in the Descending image. A graph of each variation was compared with the leveling survey of the Geographical Survey Institute. As a result, we got about 4 cm difference at large places. However, if it was a small place, it was less than 1 cm, and the number was not small. From this, it is considered that the detection and discovery of the ground deformation by periodic observation after the earthquake in the synthetic aperture radar's differential interference analysis is significant, and in the future it is assumed

that more accurate soil change due to error reduction and calibration. We want to continue to detect.