

# SAR interferometry using RADARSAT-2, ALOS and ALOS-2 data; case study in Kanto region

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Radar frequency bands used for satellite SAR are mainly L-, C- and X-band. The used frequency band is an important factor for InSAR because difference of the frequency band have a great impact on coherence and measurement precision of displacement. Each frequency band has advantages and disadvantages, therefore, selected use of an appropriate frequency band depending on targets or combined use of multiple frequency bands can enhances the capability of detection of displacement.

In Japan, Japanese L-band satellites ALOS and ALOS-2 data are often used. However, these data have disadvantages such as lower measurement precision and lower observation frequency than other satellites' data. Moreover, no data exists for more than three years, from May 2011, when ALOS stopped its operation, to August 2014, started observations by ALOS-2, meaning that no surface displacement can be investigated. It is important to fill the blank period for objectives such as subsidence and volcanoes, which should be monitored continuously over a long period, especially because the blank period is just after the 2011 off the Pacific coast of Tohoku Earthquake.

Canadian C-band RADARSAT-2 is one of the few SAR satellites operated in the blank period of the ALOS series. C-band has higher measurement precision and larger amount of data in a specific region than L-band, whereas C-band is more vulnerable to vegetation than L-band. We were provided with RADARSAT-2 data in Kanto region, Japan, including the blank period of the ALOS series, under bilateral cooperative agreements of GSI-JAXA and JAXA-CSA. In this presentation, we will report results of InSAR analysis using RADARSAT-2, ALOS and ALOS-2 data in Kanto region including around the Tachikawa fault and the Hakone volcano, and their comparison.

Keywords: InSAR, RADARSAT-2, ALOS, ALOS-2, C-band, L-band