Disaster management issues of the displacement distribution map after 2016 Kumamoto earthquake based on time-series DInSAR analysis

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In this study, Differential SAR Interferometry (DInSAR) was applied for time series analysis of the ground surface displacement induced by the 2016 Kumamoto earthquake and subsequent forcing events (aftershocks and rainfalls). We developed a new visualization method (the displacement distribution maps) using ALOS-2 dataset as follows:
1) detecting displacement distribution from results of DInSAR analysis,
2) calculating amount of displacement from slant range differences, and
3) mapping the amount of displacement in mesh and road section.
Probable causes of the displacement detected from DInSAR analysis (e.g. landslide, subsidence, liquefaction of the ground induced by the earthquake) were examined by field observation. We found that some of the displacement were related with land cover changes such as vegetation growth and replacement of roads and houses.
Finally, the effectiveness of the displacement distribution map for disaster prevention and points for further improvement were discussed.

Keywords: Displacement distribution map, Differential SAR Interferometry, Landslide, The 2016 Kumamoto earthquake, ALOS-2

