Trial of detection for damaged urban area and landslide area from wide range of image obtained by L-ban SAR (PALSAR-2)

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PALSAR-2 (Phased Array type L-band Synthetic Aperture Radar 2), L-band SAR on-board Advanced Land Observing Satellite-2 (ALOS-2), data were used to detect disaster areas caused by the 2016 Kumamoto earthquake.
1. Coherence change technique with coherence filter [1] was used to detect damaged urban areas.
2. Alpha angle [2] and HH-VV coherence [3] change techniques were used to detect landslide areas.
The coherence change technique with coherence filter identifies candidates of severely damaged urban areas located along a fault, which induces the earthquake. The detected damaged areas are Mashiro town, Koyo area in Minamiaso village, which incudes Aso campus of Tokai university, Aso Ohashi bridge, and some of landside areas.
Some landslides occurred in a forest area before the disasters were detected by using the alpha angle and HH-VV coherence change techniques. But miss-identification were often observed. Additional forest mask was produced from the image taken before the disaster, and tested to reduce the miss-identification. It is confirmed that the forest mask works well to reduce the miss-identification of landslide area.

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