Relataion between the 2016 Kumamoto earthquake-induced landslide distribution and surface deformation detected by ALOS-2/PALSAR-2 data

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In the 2016 Kumamoto earthquake, Japan, preshock (M6.5, on 14 April) and mainshock (M7.3, on 16 April) jolted not only the Kumamoto Plain but also mountain areas. Especially, mainshock induced many landsldie in mountain area of the western part of Aso Volcano. This study focused on the mainshock and tried to find the relation between earthquake-induced surface deformation and landslide distribution. I used ALOS-2/PALSAR-2 ascending and descending orbits data, observed on 15 and 29 April. Both data were observed left side from the orbit, and both are observed in Stripmap mode 1). Specifications of ascending data are beam U1-4, off-nadir angle 21.9 degree; specifications of descending data are beam U2-6, off-nadir angle 29.1 degree, according to JAXA. I produced images of SAR interferometry for both orbits data, and performed 2.5D analysis (Geospatial Information Authority of Japan, 2016) to detect surface deformation using both images of SAR interferometry. Then I overlayed landslide inventory data (Chigira and Matsushi, 2016) on the EW (east-west) and UD (up-down) components of surface deformation data. I found that the area where surface was remarkablly deformed was coincident with the area where landslides occurred.

References
Chigira M and Matsushi U (2016): Condition of slope failures by the 2016 Kumamoto earthquake (Report No.2).
http://www.slope.dpri.kyoto-u.ac.jp/disaster_reports/2016KumamotoEq/2016KumamotoEq2.html
Geospatial Information Authority of Japan (2016) : Result of 2.5D analysis for surface deformation triggered by the 2016 Kumamoto earthauake.
http://www.gsi.go.jp

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