

Detection of landslide surface deformation around Dhunche, Trishuli River watershed in Nepal using time-series InSAR images

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Dhunche in Trishuli River watershed, Nepal is the town (ca. 3,000m in elevation) that is located 46km north from Kathumandu, where is in the transition area from lesser Himalaya to High Himalaya. The Gorkha earthquake-induced landslides were concentrated around the town, there is the risk that heavy rains in monsoon seasons will reactivate such the landslides. Therefore, continuous monitoring of slight deformation by landslides is important to prevent disasters. In this study I used Advanced Land Observing Satellite-2 (ALOS-2)/Phased Array L-band Synthetic Aperture Radar-2 (PALSAR-2) observed before and after the earthquake, 21 Feb 2015 and 2 May, in the monsoon season of 25 Jul and 22 Aug, and in the late monsoon season of 22 Aug and 3 Oct, and produced SAR interferograms using RINC 0.47 software (Ozawa 2014). By interpreting these InSAR images, I found that there are (1) landslides slightly deformed by the earthquake and continuously and slightly deformed, (2) landslides which was not deformed by the earthquake but continuously and slightly deformed. These knowledges are thought to be basic materials to map hazard of future landslides. PALSAR-2 data used in this study were provided by JAXA in the framework of special collaborative research (B) "Surface deformation study using a new generation SAR" by Earthquake Research Institute, the University of Tokyo. This study was also supported by "the Nepal Earthquake and Hazard Mapping of Future Landslides for Making the Plan of Better Reconstruction" (Principal investigator, Prof. Chigira) related to the April 2015 Nepal earthquake in the J-RAPID Program by Japan Science and Technology Agency (JST).

* Reference

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