Detection of surface displacement and landslide blocks in the southwest area of Mt. Hakusan using interferometric SAR analysis

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It is important to estimate surface displacements of landslides and discriminate active landslide blocks to take counter measures for landslide-related disaster. Interferometric SAR (InSAR) analysis, which utilizes remote sensing technology, would be a suitable method for the purpose, because the spatial distribution of surface displacement can be obtained, and active landslide blocks would be estimated. In this study, we investigated landslide surface displacement in the southwest area of Mt. Hakusan using InSAR analysis. We used SAR data acquired at 8th October 2014 and 15th July 2015 in an ascending orbit, and at 20th September 2015 and 12nd June 2016 in a descending orbit. As a result of analysis, we found landslide displacement up to 10 cm around the Jinnosukedani and Yunotani areas between October 2014 and July 2015. And, significant displacement was not estimated at the Bettoudani area. On the other hand, between September 2015 and June 2016, more broad areas displaced in the Jinnosukedani area. And, displacement was found in the northern part of the Yunotani area. From the result, we interpreted that the Yunotani area consists of several landslide blocks. Our result demonstrates that the effectiveness of InSAR analysis for monitoring around the landslide area.

Keywords: InSAR, Landslide, Monitoring