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Volcanic activity monitoring in Mt. Baekdu using SAR and LAHARZ model

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Mt. Baekdu is located on the border between China and North Korea with high risk to large explosive eruptions with not available efficient field work because of rugged mountain terrain. A multi-band SAR interferometry was applied to a time-series processing from 1992 to now in this study. First of all, Japanese Earth Resources Satellites (JERS-1) L-band SAR data is useful to measure surface deformation with time-series method in heavily vegetation area such as mountain and forest regions. We make multiple-interferogram to measure surface deformation with time-series in Mt. Baekdu area and successfully generate time-series rate map from 1992 to 1998 using JERS-1 SAR data at previous work. We also used ALOS-PALSAR data for making time-series surface deformation map from 2006 to 2011. Radarsat-2 C-band SAR data is not proper to make interferogram in this area because of relatively short wavelength from 2010 to 2012. Moreover, TerraSAR-X X-band SAR data is not easily make interferograms with time-series continuously from 2012 to 2015. We also generate inundation area map from simulation of Laharz model for volcanic hazards risk estimation in Mt. Baekdu area. This study can help to monitor of active volcano with a dangerous and thick forest area covered by snow mostly half of the year.