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## Scenario Based Analysis of Lahar Simulation of Mt. Baekdu using LAHARZ\_py

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Mt. Baekdusan which located the border of North Korea and China, is known as a potentially active volcano in a typical mountainous terrain. We prepared a digital elevation model of Mt. Baekdusan area and created a hazard map based on topographical factors and structural lineament analysis. Factors used in vulnerability analysis included geographical data involving aspect and slope distribution, as well as contributory area of upslope, tangential gradient curvature, profile gradient curvature, and the distribution of wetness index among the elements that comprise topography. In addition, the stability analysis was conducted based on the lineament intensity map. Concerning the disaster vulnerability of Mt. Baekdusan region, the south and south west area of Mt. Baekdusan has a highest risk of disaster (grade 4-5) while the risk level decreases in the north eastern region. And generation of lahar from volcanic activity at Mt. Baekdu, can be a catastrophic event considering the scale of Cheonji lake, which is a caldera lake at the top of the mountain. In order to comprehensively address the impact of lahar for Mt. Baekdu, three distinct parameters, H/L ration, flow direction and lahar volume, for LAHARZ\_py simulation were varied. Considering distinct lahar generation pattern, lahar volume, characteristics and location of volcanic event, 1,248 scenario based simulations can be delineated. Several pitfalls such as over estimation of lahar volume and directions were excluded and the numbers of final scenarios were reduced to 632. The simulation cases for LAHARZ\_py can be helpful to evaluate extent and cost of damage generated by lahar near Mt. Baekdu. This research was supported by a grant [MPSS-NH-2015-81] through the Disaster and Safety Management Institute funded by Ministry of Public Safety and Security of Korean government.