



Application of airborne laser scanning for rockfall susceptibility assessment

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The primary objective of this study was to present spatial relationships between past rockfalls and their related factors using the frequency ratio (FR) model in a National Park in Korea. The study area is characterized by postglacial rockfall risk. When rockfalls occur along the designated visitors' route, the results can be catastrophic. Nine rockfalls causing damage to structures along the visitors' route occurred in Chun Valley study area, between 2007 and 2014. Five factors related to rockfall occurrence, namely slope, aspect, curvature, topographic wetness index (TWI), and distance from the visitors' route, were derived from airborne laser scanning (ASL) data using a geographic information system (GIS). Rockfall susceptibility was calculated according to the FR of each factor. Areas with high susceptibility to rockfall had slopes of less than 50 degrees, a north or northeast aspect, concave curvature, high TWI, and were less than 10 m from the visitors' route. The results indicated a regular relationship between rockfall susceptibility and the investigated factors that can be applied to obtain a threshold value of rockfall susceptibility in the study area.