

Surface changes of rock slopes in the Shirouma-Daisekkei Valley, the Northern Japanese Alps

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In order to understand the geomorphological characteristics of slope failure points on rock slopes of the Shirouma-Daisekkei valley, we investigated the surface changes of rock slopes using three-dimensional topographic models based on SfM (structure from motion) with digital aerial images from the airplane, drone (Phantom4) and Cessna. Slope failure points and these surface changes were extracted by comparing three-dimensional topographic models. We clarified a difference in the slope depending on the slope direction at Mt. shakushi. The number and area of collapses have been more pronounced on southeast slopes than northeast slopes since 1976. For large slope failure in 2005, we clarified the rock mass of 60 m height and 10 m thickness was collapsed. In recent years, based on remote sensing and field investigations, rock slope retreat was confirmed in areas where joints developed more densely than surrounding those areas.

Keywords: rockfall, rock failure, SfM, Hakuba-Daisekkei, UAV

