

A practitioner's tool for assessing glide crack activity

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Glide cracks can result in full-depth glide avalanche release. Avalanches from glide cracks are notoriously difficult to forecast, but are a reoccurring problem in a number of different avalanche forecasting programs across a range of snow climates. Despite this, there is no consensus for how to best manage, mitigate, or even observe glide cracks and the potential resultant avalanche activity. It is thought that an increase in the rate of snow gliding occurs prior to full-depth avalanche activity, so frequent measuring of glide crack movement provides an index of instability. Therefore, a comprehensive avalanche program with glide crack avalanche activity, should at the least, undertake some form of direct monitoring of glide crack movement.

In this paper we present a simple, cheap and repeatable method to track glide crack activity using a series of stakes, reflectors and a laser rangefinder (LaserTech TruPulse360B) linked to a GPS (Trimble Geo XH). We tested the methodology in April 2010, on a glide crack above the Going to the Sun Road in Glacier National Park, Montana, USA. This study suggests a new method to better track the development and movement of glide cracks. It is hoped that by introducing a workable method to easily record glide crack movement, avalanche forecasters will improve their understanding of when, or if, avalanche activity will ensue. Our initial results suggest that these new observations, when combined with local micrometeorological data will result in improved process understanding and forecasting of these phenomena.