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 dif-
ficult 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 glid-
ing 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, Mont-
tana, 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 forecast-
ers 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.