## Comparison of Different Snow Stability Tests Including the Extended Column Test

<u>Kurt Winkler</u>, Jürg Schweizer

*WSL Institute for Snow and Avalanche Research SLF, Davos, Switzerland*

Several tests have been proposed in the past for evaluating snow stability. However, their performance is presently unclear since few comparative studies have been done. During winter 2007- 2008 we have collected a dataset of 146 snow profiles, consisting of snow stratigraphy, a rutschblock test (RB), one to two extended column tests (ECT) and in most of the cases also one to two compression tests (CT). We studied whether the tests were able to predict stability. Study slopes were classified as rather unstable, when either signs of instability such as whumpfs or recent avalanche activity on nearby slopes were observed, or the profile was classified as poor or very poor. The CT had an almost perfect probability of detection, but as the structural stability index (threshold sum), the CT largely overestimated instability (high proportion of false alarms). Of the small scale tests the ECT was best suited to differentiate between stable and unstable situations. By including the ECT score (number of tabs), the number of false alarms was slightly reduced. The performance was similar to the RB which is, however, not independent of the stability classification we used. With two adjoining ECTs it was possible to classify 87% of our test slopes with an accuracy of about 90% in rather stable or rather unstable. Comparing two adjacent stability test results showed that only in about half of the pairs the same weak layer showed up as the most critical one. The ECT proved more difficult to perform than the RB, but was done faster than the RB. This advantage of the ECT contrasts with the lack of an intermediate stability level.