



## **Ski pole test: A comparison with traditional observation techniques**

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The ski pole test is a quick and simple method to estimate the snow hardness. It is often used by avalanche practitioners and backcountry skiers.

This study demonstrates the capability of the ski pole test. A push pull gauge mounted on the ski pole records the time series of the force which is necessary to penetrate the snowpack.

Snow hardness data were obtained by the SnowMicroPen, the Swiss Rammsonde, the ski pole test and snow pit observations according to the International Classification for Seasonal Snow on the Ground. The data sets had different vertical resolutions and were converted to a conjoint coordinate system. Assuming a constant penetration speed with the ski pole the time series of the push pull gauge could be transformed to a distance above ground.

The position of noticeable layers and the level of snow hardness were used to evaluate this technique. The data acquired by the ski pole test (human and push pull gauge) compared to the data from traditional observation techniques allow an estimation of the accuracy of the ski pole test.

The results show that in many cases the major layers in the snowpack can be detected by the ski pole test with sufficient accuracy.