

A STRUCTURED ASSESSMENT PROCEDURE FOR LOCAL AVALANCHE COMMISSIONS

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INTRODUCTION

Avalanche warning is an important part of an integrative approach to avalanche protection. In Bavaria, approximately 75 percent of all avalanche tracks that pose a threat to towns and infrastructure lie within the jurisdiction of the local avalanche commissions and are therefore covered within local risk management plans. Both qualified, expert assessments and recommendations of the avalanche commission form the basis of decisions regarding artificial release of avalanches (which is carried out by the responsible safety authorities) and closures of roads, ski pistes and other winter sport areas.

Tab. 1 Elements of integral avalanche protection in Bavaria

Integral avalanche protection in Bavaria			
spatial/regional planning	avalanche warning avalanche commission	technical avalanche protection	care and maintenance of protection forests

BASIS OF DECISION-MAKING

Snow and avalanche related assessments by the avalanche commission are founded upon:

1. interpretation of data from automatic meteorological stations, and
2. internal observations and analysis of the local snowpack.

The integration of both meteorological data and snowpack analyses makes it possible to come to logical and retraceable decisions. It is crucial, however, that the snowpack is not regarded simply as a collection of various types of snow crystals, but rather as the result of a diverse, meteorologically-influenced process. Weak layers in a snowpack, for example, are a result of such a process. Through an understanding of the respective processes (“process-oriented thinking”), the avalanche commission is able to use local snowpack conditions to infer the conditions in inaccessible areas, such as avalanche release zones.

STRUCTURED DECISION-MAKING

In Bavaria, the analysis of a snowpack follows a clear and structured procedure:

1. The first step is the “systematic snow pack analysis.” Here the snowpack is assessed for the existence of weak layers. The so-called “small block-test” enables the determination of thin layers which may be visually undetectable. A comparison using five specific (negative) criteria offers a guideline for the evaluation of the respective weak layer – is(does) the weak layer (i) break easily and smoothly; (ii) thin; (iii) comprised of large crystals; (iv) located ≤ 1 m under the surface; and/or (v) covered by soft, cohesive snow?
2. Following the weak layer analysis, it is decided which type of avalanche (loose snow, slab) is possible. For slab avalanches, an attempt is made, based on the snowpack analysis, to estimate the degree of additional loading (spontaneous, light, heavy) required to initiate an avalanche release.
3. The results of the analysis lead to the decision that either direct implementation of a measure is required (German: “5-vor-12-Situation”) or that no immediate measures are necessary (German:

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“halb-12-Situation”). In the latter case, it is the responsibility of the avalanche commission to decide which developments in weather or snowpack conditions would bring about the “5-vor-12-Situation.” Should this situation arise, further actions must be agreed upon.

This structured procedure offers a founded decision-making system which can be well-documented and follows a comprehensive protocol that can be legally justified. The uniformity of procedure also allows a seamless integration of avalanche warning services into the regional risk management system.

REFERENCES

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