

Numerical Simulation of the Survival Chance Optimized Search Strip Width

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When using transceivers (or avalanche beacons) to search for fully buried avalanche victims, the search strategy depends on the signal search strip width which influences the search time until the first signal from the buried subjects can be received by the rescuer. It depends on technical characteristics of the avalanche rescue devices, the avalanche scenario as well as the rescuer's behaviour. The larger the signal search strip width, the shorter is the search time and therefore the higher the survival chance of the buried subject. However, if the search strip width is chosen too large, the probability to miss a buried subject increases, which makes time-consuming multiple searches necessary - and decreases survival chances. Therefore, the search strip width needs to be optimized. Only a few years ago, with the advent of digital transceivers, it was realized that the search strip width is not a universal constant but is a device specific property depending primarily on the range of the transceiver. Several approaches on how to determine the signal search strip width have been presented in the past. Most of them use rather conservative assumptions for the different input variables. A newly developed simulation approach for the optimization of the search strip width allows considering more realistic (rather than worst case) assumptions. Preliminary results suggest that the optimal signal search strip width is higher than previously assumed. In future applications, the simulation may be used to optimize a broad variety of search parameters or even entire search systems.