

TRIP PLANNING WITH **G K M R**

AVALANCHE AND WEATHER FORECAST

1. Danger level Select the mountain range
2. Avalanche problem Select the terrain
3. Avalanche prone locations
4. Detailed hazard description
5. Current weather and trends
6. Snow cover information

TOOLS: Avalanche and weather forecast, topographic map, automatic weather station and snow cover data, pictures, slope maps etc.

IDENTIFYING THE HAZARD **G**

- Identify cruxes (▶ “Crux finder” on p.6)
- Assess local conditions (▶ Example on p.10, local data preferred)
- Estimate the likelihood of triggering at the crux:
 - ▶ Simple approach: based on slope angle classes in the „crux check” on p.7
 - ▶ Detailed rating: example on p.11 (back cover folds out)

ANTICIPATING THE CONSEQUENCES **K**

- Estimate the consequences of a release: Slope size? Release volume?
Terrain traps? Safe grouping spots?
 - ▶ Simple: rate consequences with the „crux check” on p.7
 - ▶ Detailed: follow the example on p.11 (back cover folds out)

CONSIDERING MITIGATION **M**

- Group management (e.g. spreading out)
- Alternative plans or by-passes? Alternative objectives?

ASSESSING THE RISK **R**

- Does the selected terrain fit the conditions?
 - ▶ Simple: follow the „crux check” on p.7 to obtain a risk estimate
 - ▶ Detailed: Weigh Hazard ↔ Consequences (p.11)
- Is the trip within the group’s comfort zone?

COMMUNICATION

- Present the intended trip and alternative plans
- Communicate the schedule
- Check and prepare gear

CRUX FINDER

1. Any steep slope ($\geq 30^\circ$) is potential avalanche terrain. Select all steep slopes along and above your intended route as cruxes.
2. Slopes that do not fit the description of avalanche prone locations (as mentioned in the avalanche forecast) can be dropped from the cruxes. Extreme terrain ($\geq 40^\circ$) always represents a crux and requires detailed evaluation.
3. The slopes above your route that you don't cross can be dropped from the cruxes, too, if remote triggering and natural release can be ruled out based on the avalanche problem. The exposure on the remaining slopes can be estimated with a simplified topographical model.

Remote triggering is typical with persistent weak layers or new snow problems. In these cases, slopes above the intended route need to be considered. If snow drifts (or wind slabs) are the only problem, remote triggering is rather rare. Remote triggering of wet slabs is rare. Avalanche forecasts usually address the frequency of natural avalanches if it is relevant.

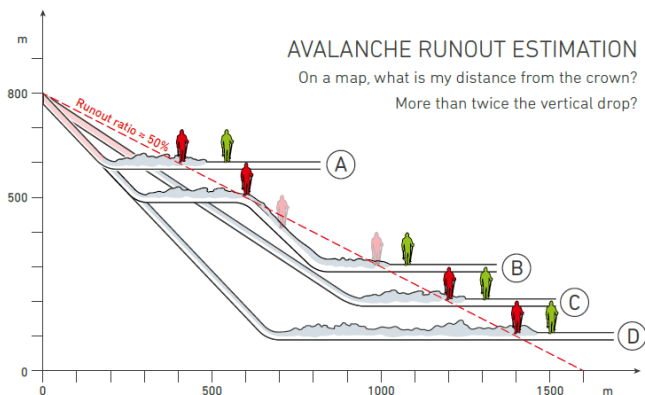


FIGURE: A typical skier-triggered avalanche runs twice as many horizontal meters as it drops vertically, i.e. the runout ratio is 50%. The sketched avalanches stop roughly where the runout ratio intersects the terrain. The expected runout reaches the red figures, the green ones are likely outside. In case B, the avalanche will rather not cross the first step in the terrain.

CRUX CHECK

A RISK EVALUATION TOOL

APPROACH FOR A BASIC RISK CHECK DURING TRIP PLANNING:

- There is greater likelihood of triggering with increasing slope angle. For a rough hazard rating, pick the slope angle class that is appropriate for the crux slope : 30 – 34°, 35 – 39°, ≥ 40°.
- Unfavorable terrain can increase the consequences of avalanche release. Answering the 4 questions shows how serious the consequences would be (back cover folds out).
- The right column tells you if a crux slope is «critical» by combining the hazard rating and the consequences

RECOMMENDATIONS:

- Trips with «critical» crux slopes are not recommended if alternative routes are lacking.
- Preparing lower risk alternatives is particularly encouraged if skier triggering or natural release is expected.

| | G | LIKELIHOOD OF TRIGGERING | +K | CONSEQUENCES | =R | RISK |
|--|----------|---------------------------------|-----------|--|-----------|---|
| SLOPES IDENTIFIED WITH THE "CRUX FINDER" | ≥ 40° | Slopes steeper than 39° | | <input type="checkbox"/> Sizeable slope? <input type="checkbox"/> Large release volume? <input type="checkbox"/> Terrain traps? <input type="checkbox"/> No safe spots? | | Extreme terrain is always considered a critical crux. |
| | ≥ 35° | Slope angle 35° – 39° | | <input type="checkbox"/> Sizeable slope? <input type="checkbox"/> Large release volume? <input type="checkbox"/> Terrain traps? <input type="checkbox"/> No safe spots? | | With 1 or more checks the crux is critical. |
| | ≥ 30° | Hangneigung 30° – 34° | | <input type="checkbox"/> Sizeable slope? <input type="checkbox"/> Large release volume? <input type="checkbox"/> Terrain traps? <input type="checkbox"/> No safe spots? | | With 2 or more checks the crux is critical. |
| | < 30° | Runout zones? (▶ S. 06) | | | | |