**AVALANCHE ARE DANGEROUS!**

- Even small avalanches can result in death or serious injuries to those caught in their path.
- About 80% of avalanche victims are killed by the first avalanche they triggered.

**General precaution for risk reduction**

- Stay informed on weather and avalanche conditions.
- Participate in avalanche education.
- Keep your mental state desirable and communicate with others.
- Cover avalanche routes before entering.

**AVAILANCE SIZE SCALE**

- **5 Meter** - considered small
- **10 Meter** - considered moderate
- **20 Meter** - considered large

**AVAILANCE DANGER SCALE**

- **1 Neutral** - low snow and important aspects
- **2 Possible** - snow and important aspects
- **3 Considerable** - snow and important aspects
- **4 Very critical** - snow and important aspects
- **5 Critical** - snow and important aspects

**RISK FACTORS**

- **Increasing risk:**
  - **Low visibility:**
  - **Poor weather conditions:**
  - **Presence of other avalanches:**

- **Decreasing risk:**
  - **Low density snow pack:**
  - **Clear weather:**
  - **No other avalanches:**

**AVAILANCE HAZARDS**

- **Melt water**:
  - **Wet snow:**
  - **Wind slab:**
  - **Slab:**
  - **Lotic:**

**AVAILANCE AWARENESS**

- **Be aware of conditions:**
  - **Check weather forecast:**
  - **Check avalanche bulletin:**
  - **Check slope conditions:**

**AVAILANCE AVOIDANCE**

- **Avoid dangerous terrain:**
  - **Avoid wind slab:**
  - **Avoid slab:**
  - **Avoid cohesive:**

**AVAILANCE ASSESSMENT**

- **Use simple risk assessment:**
  - **Check slope conditions:**
  - **Check weather:**
  - **Check avalanche bulletin:**

**AVAILANCE MITIGATION**

- **Use risk management:**
  - **Use risk reduction measures:**
  - **Use risk acceptance:**

**AVAILANCE INTEGRATION**

- **Integrate avalanche awareness:**
  - **Integrate avalanche training:**
  - **Integrate avalanche planning:**

**AVAILANCE APPLICATION**

- **Apply avalanche knowledge:**
  - **Apply avalanche training:**
  - **Apply avalanche planning:**

**AVAILANCE ASSESSMENT & DECISION FRAMEWORK 3x3**

1. **Conditions**
   - **Weather forecast:**
   - **Avalanche bulletin:**
   - **Observations:**

2. **Human factors**
   - **Avalanche awareness:**
   - **Avalanche training:**
   - **Risk management:**

3. **Decision**
   - **Risk acceptance:**
   - **Risk mitigation:**
   - **Risk reduction:**

**TYPICAL AVALANCHE PROBLEMS**

- **Type:**
  - **Type and size of expected avalanches:**
  - **Type of terrain:**
  - **Type of snowpack:**

- **Location:**
  - **Location of the avalanche:**
  - **Location of the people:**
  - **Location of the equipment:**

- **Duration:**
  - **Duration of avalanche:**
  - **Duration of release:**
  - **Duration of travel:**

- **Consequences:**
  - **Consequences of the avalanche:**
  - **Consequences for the people:**
  - **Consequences for the equipment:**

**DETECTION MAKING FOR INDIVIDUAL SLOPES**

- **Important questions:**
  - **What is the type of triggering possible?**
  - **What is the most important risk management measure?**

- **Risk management:**
  - **Risk reduction:**
  - **Risk acceptance:**

- **Conclusion:**
  - **Conclusion of the avalanche:**

**AVAILANCE BULLETIN**

- **The avalanche bulletin provides information on the avalanche situation and helps to assess the avalanche danger.**
- **It is based on observations and descriptions of the avalanche situation, including the general conditions, and it is issued by the avalanche office of the canton.**

**AVAILANCE REDUCTION METHOD GRM**

- **Factors:**
  - **Factors affecting the avalanche danger:**
  - **Factors affecting the risk:**

- **Decision tree:**
  - **Decision tree for risk assessment:**
  - **Decision tree for risk management:**

**AVAILANCE TERMINOLOGY**

- **Geographical:**
  - **Geographical names:**
  - **Geographical features:**

- **Meteorological:**
  - **Meteorological conditions:**
  - **Meteorological phenomena:**

- **Avalanche:**
  - **Avalanche types:**
  - **Avalanche features:**

**AVAILANCE PREVENTION**

- **Precautions:**
  - **General precautions:**
  - **Specific precautions:**

**AVAILANCE PROTECTION**

- **Protection measures:**
  - **Protection measures for the individual slope:**
  - **Protection measures for the entire trip:**

**AVAILANCE PREPAREDNESS**

- **Preparation for avalanches:**
  - **Preparation of the individual slope:**
  - **Preparation of the entire trip:**

**AVAILANCE PRACTICE**

- **Practising avalanche safety:**
  - **Practising avalanche awareness:**
  - **Practising avalanche skill:**

**AVAILANCE POLICY**

- **Policy for avalanches:**
  - **Policy for avalanche safety:**
  - **Policy for avalanche research:**

**AVAILANCE PROFESSIONAL**

- **Professional roles:**
  - **Professional responsibilities:**
  - **Professional qualifications:**

**AVAILANCE PROFESSIONAL ASSOCIATION**

- **Professional association:**
  - **Professional association for avalanche safety:**
  - **Professional association for avalanche research:**

**AVAILANCE PROFESSIONAL BOARD**

- **Professional board:**
  - **Professional board for avalanche safety:**
  - **Professional board for avalanche research:**
**SLAB AVALANCHE**

The most dangerous avalanche type for backcountry recreationists

Slab avalanche starts with an initial failure in a buried weak layer. Slab avalanches are dangerous, because the slab is a cool snow package and if the weak layer fractures subliminally and the slab is difficult to stop a slab avalanche will occur.

**NEW SNOW PROBLEM**

Critical amount of new snow reached or at least Considerable avalanche danger

- 10–20 cm when conditions are unfavourable
- 20–30 cm when conditions are fairly unfavourable

Favourable:
- Snow in the upper metre is well-bonded
- New snow layers are well-bonded
- Most snow has melted and refroze

Unfavourable:
- Snow in the upper metre is not well-bonded
- New snow layers are not well-bonded
- Most snow has not melted and refroze

**OLD SNOW PROBLEM**

With an old snow problem weak layers are predominantly:
- Soft layers with large facets or depth hoar with few bonds or
- Weak layers with faceted snow.

**WIND SLAB PROBLEM**

Winds are the architect of slab avalanches through the creation of wind slabs.

Conditions for wind slab creation:
- Loose or low-density snow
- Strong and gusty, with wind speeds exceeding 30 km/h

Wind slabs are cohesive (solid slab) and may be formed on or off-slope. Wind slabs in the area are often highly visible.

**SNOWPACK EVALUATION**

The avalanche forecast and the GEI stability map provides information about the snowpack. In backcountry terrain several methods can be helpful for assessing the snowpack especially for old snow problems when warning signs are present.

**TERRAIN**

Slope angle
- The essential slope angle for assessing the slope hazard category. Slope angle rules are based on the below the notch, especially at Considerable avalanche danger. Slope angle maps with colored isohypses are very useful to determine slope angles.

**TYPICAL AVALANCHE**

- Between 35° and 45°
- Highly avalanche-prone

**NOTES**

- If there are signs indicating an avalanche problem, the question arises: Is the avalanche situation favourable?

- Favourable:
  - The first sunny day after a snowfall
  - Unfavourable:
  - The first storm day after a snowfall

- Unfavourable old snow layers
- Unfavourable weak layers
- Unfavourable layering

- Favourable old snow layers
- Favourable weak layers
- Favourable layering

- Important questions:
  - What went well last time?
  - What went wrong last time?
  - What could we have done differently next time?
  - What went well this time?
  - What went wrong this time?
  - What could we have done differently next time?

- What went well this time does not necessarily work out next time.

- Always take a bad feeling seriously.

- Don't give in to temptation!

- Facts: Don't give in to temptation!

- Feelings against new observations and

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