Recreational avalanche accidents in Switzerland

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History

• 1884 people died in 1194 avalanches (annual mean 24.5)

• before 1970’s: 30% of fatalities occurred in or around buildings, while travelling or working on roads, railways or on groomed ski runs

• since 1970’s: 90% of fatalities during recreational activities in uncontrolled terrain
Number of avalanche fatalities since 1939/37

Avalanche fatalities since 1936/37

- Red: building
- Orange: transportation routes
- Blue: off-piste, back-country
- Grey: unknown

Number of fatalities
20-year period 92/93 to 11/12

• 3519 people caught in 1902 avalanches

• 50% of reported avalanches with severe consequences (fatality, injury, full burial)
  • 90% in uncontrolled terrain:
    • 417 died
    • 805 full burials (head in snow)
    • off-piste 33% - back-country touring 67%
    • 90% during months Dec-Apr
    • 55% on weekends
    • 95% dry slab avalanches
20-year period 92/93 to 11/12
Reported avalanches

- 96/97 introduction of reporting via fax
- Ratio between serious accidents and accidents without harm dropped (85:15 to 50:50).
- Number of reported avalanches increased, ratio remained stable
Reported avalanches in Davos

Recreational avalanche accidents (1992/93 – 2011/12)
Reported avalanches in Davos

- Well observed region
- Some avalanche incidents still go unreported
## Avalanche Size and Terrain characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>no harm</th>
<th>serious</th>
<th>fatal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fracture depth (cm)</td>
<td>40</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Width (m)</td>
<td>50</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Vertical drop (m)</td>
<td>90</td>
<td>150</td>
<td>180</td>
</tr>
<tr>
<td>Length (m)</td>
<td>150</td>
<td>250</td>
<td>320</td>
</tr>
<tr>
<td>Unfavorable terrain</td>
<td>27%</td>
<td>57%</td>
<td>59%</td>
</tr>
</tbody>
</table>
Burial and Rescue

- 805 people were fully buried (median burial duration 30 min)
- Burial duration decreased significantly during recent decade
Median burial depth

- Companion rescue
- Rescue teams 100 cm
Burial and Rescue

- burial duration lowest and hence survival rate highest when visible clues indicated burial location
Avalanche Danger

- 59% at danger level 3
- 35% at danger level 2
Avalanche danger and activity

**Off-piste:** 4-times more accidents at level 3 than at level 2

**Back-country:**
- Equal number of accidents at level 2 and 3 (44% each)
- More fatalities at level 3 (51% vs 44%)
Conclusions

• In Switzerland an estimated 20% of avalanche accidents go unreported (particularly those with less severe consequences).

• Almost all avalanche accidents involving people occur in uncontrolled terrain during recreational activities.

• Number of fatalities during last 20 years lower (22) than long-term mean (77 years: 24.5)
Conclusions

• Burial times could be reduced and hence survival rate has increased.
• Despite positive trends: an avalanche involvement remains potentially life-threatening.
Whiterisk

- Relaunch for the upcoming winter, release planned for december
- Interactive web-platform
- including trip-planning tool
- Free basic version
- Full version at cost
- Languages de, fr, it, en
Unterwegs // Vorbereitung

Welche Tour / Variante ist möglich?
Eine gute Tourenplanung ist die Basis für ein erfolgreiches Bergsteigen! Wir sind dabei, uns vertraut zu machen mit den Sicherheitselementen und der Planung.

1. Filter
Planung
Tourziel mit Alternativen und Zeitplan.

2. Filter

3. Filter

Vorhältnisse, Gelände, Mensch

Passen Vorhältnisse, Gelände und Mensch zusammen?
Alarmzeichen

Bei vorhandenen Alarmzeichen sind die Bedingungen für Schneebrettplawinen gegeben. Wenn wir keine Alarmzeichen wahrnehmen, kann trotzdem Lawinengefahr bestehen!
Thanks for your attention