WHAT DO SKI MOUNTAINEERS KNOW ABOUT SNOW COVER AND AVALANCHE FORMATION? - RESULTS OF AN INQUIRY

Peter Höller

EXTENDED ABSTRACT

As a result of overcrowded skiing areas we can observe an increasing of ski mountaineers in the last ten years. But avalanche education of these ski mountaineers is not sufficient, so that avalanche accidents increased in this period, too. Fig. 1 shows the number of persons killed by avalanches; most of the avalanche accidents occur on tour (especially in the middle of the last decade). More than a half of persons killed will be found in the category "ski mountaineers" and "touring skiers" (see fig. 2).

To find some more details about avalanche education of ski mountaineers our institute started an inquiry in 1990. 500 questionnaires were distributed by the two Austrian alpine clubs; about 50 questions have to be answered. Some aspects of this study are given in the following summary:

- avalanche education: only 19% of the ski mountaineers have ever completed an adequate avalanche education.
-avalanche beacon: handling with the avalanche beacon is trained only from 60% of the ski mountaineers regulary (fig. 3).
-snow and avalanche formation: about one third of the ski mountaineers don't know that formation of depth hoar is favoured if snow cover is low (fig. 4).

1. Institute for Avalanche Research, Innsbruck, Austria
The very high avalanche danger on north facing slopes is realized not yet by most of the ski mountaineers. About 30% of the ski mountaineers suppose, that there is an increasing of snow stability if air temperature is low (fig. 5).

- conclusion: avalanche education of many ski mountaineers is very poor in fact. To provide avalanche accidents in future it is necessary to give more and detailed informations in TV and radio and to encourage ski mountaineers to improve their knowledge about snow and avalanches.

REFERENCES

BAUER, H.:

BRUGGER, M. u. FALK, M.:

FÖHN, P. u. ETTER, H. J.:

HÖLLER, P.:

HOLM, K.:
Die Befragung 1, UTB No 372, 3. Auflage (1986)

LUZIAN, R.:
MERWALD, I.:

SCHAFFHAUSER, H.; HÖLLER, P.; HAUK, E.:

SCHAFFHAUSER, H.:

SCHAFFHAUSER, H. u. HÖLLER, P.:

VALLA, F.:
Number of persons killed by avalanches in Austria (1978/79-1988/89)

<table>
<thead>
<tr>
<th></th>
<th>78/79</th>
<th>79/80</th>
<th>80/81</th>
<th>81/82</th>
<th>82/83</th>
<th>83/84</th>
<th>84/85</th>
<th>85/86</th>
<th>86/87</th>
<th>87/88</th>
<th>88/89</th>
</tr>
</thead>
<tbody>
<tr>
<td>others</td>
<td>4</td>
<td>10</td>
<td>10</td>
<td>2</td>
<td>5</td>
<td>11</td>
<td>3</td>
<td>13</td>
<td>2</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>tour</td>
<td>7</td>
<td>1</td>
<td>6</td>
<td>25</td>
<td>17</td>
<td>25</td>
<td>29</td>
<td>26</td>
<td>17</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>off piste</td>
<td>8</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>8</td>
<td>4</td>
<td>12</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>cross country</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 1

(BAUER, MERWALD, SCHAFFHAUSER, FWA)

Percentage of persons killed by avalanches

<table>
<thead>
<tr>
<th></th>
<th>piste skiers</th>
<th>off piste skiers</th>
<th>cross country skiers</th>
<th>touring skiers</th>
<th>others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2%</td>
<td>20%</td>
<td>1%</td>
<td>54%</td>
<td>23%</td>
</tr>
</tbody>
</table>


Fig. 2

(BAUER, MERWALD, SCHAFFHAUSER, FWA)
Question 16: Do you train the handling of the avalanche beacon regularly?

![Pie chart showing the percentage of people who train regularly, sometimes, or never.]

Fig. 3

Question 25: Do you think that formation of depth hoar is favoured if snow cover is low?

![Pie chart showing the percentage of people who think yes or no.]

Fig. 4
Question 43: Which effect has low air temperature (during a long period) on stability of snow cover?

![Pie chart showing percentages]

- Increasing: 31%
- Decreasing: 35%
- No change: 34%

Fig. 5