International Commission for Alpine Rescue
ICAR
Terrestrial Rescue Commission
Avalanche Rescue Commission

Presentations of the Terrestrial Rescue Commission

Place:	Åre, Hotel Holiday Club
Date:	October 21, 2011
Time:	8:30 a.m.
Participants:	Members of the Commissions for Terrestrial Rescue and Avalanche Rescue
Chairmen:	Bruno Jelk and Hans-Jürg Etter
Minutes:	Fabienne Jelk

Bruno Jelk: The helicopter manufacturers want to stipulate what kind of belt the rescuers have to wear. This has to be prevented. President Gerold Biner will make a petition available on the internet to counteract this.

Dale Atkins, MRA: Butterflies and Avalanches: Common Errors in Avalanche Rescue

Butterfly effect: A small change at the beginning can lead to a big problem; it is cumulative. An error is a process in which we do not reach the goal originally intended. When analyzing errors, four factors have to be examined: What happened, when, how, and why. A rescue operation has different phases: Alert, locate, access, stabilize, and transport. Errors can happen in all phases; for example if the distress call comes in too late or someone does not have a shovel, the whole process changes. Dale analyzed avalanche accidents from 1980 to 2011. He looked at the errors. The disturbing fact is that the same errors are being made repeatedly. Often, small errors turn into big problems. One problem, for example, is that rescuers get caught in secondary avalanches (on average 2.6). Another problem is groupthink; which led to 2 deaths. In companion rescue there is a trend for overconfidence. Based on this mistake there was at least one death. Errors in organization: No rescue plan, leadership problems, badly trained people, bad physical condition of rescuers, groupthink. In groupthink the individual stops thinking for himself/herself. They simply agree and stop being critical. Errors in information: Bad communication, wrong information, no reevaluation after new information, cell phones (they help rescue lives but people depend too often on cell phones), SPOT-PLB (GPS: Good devices but cannot always be utilized). Errors in tactics: Inadequate search, lack of proficiency with Recco and other search devices, searching the wrong area. Often it is an accumulation of small mistakes. Inattentiveness leads to failure to notice changes because we are concentrating on something else. New devices and equipment do not mean a better rescue. Often rescues are done by the book, but they are slow. Some incidents do not carry major consequences, but there are also serious incidents. Mistakes can happen because of inattentiveness, memory lapses (not remembering the evacuation plan), forgetting (forgetting devices), applying rules

incorrectly (applying good rules impropery, applying bad rules), violating rules. Mistakes are not made on purpose. What can be done: Implementing a risk management plan, looking at types of errors, nurturing a “feeling of uneasiness”, good communication, using an advocatus diaboli (someone who always second-guesses and criticizes, with which groupthink can be turned off), and asking why something happened.

Question: None.

File: 11-butterflies_avalanches_atkins_2011.pdf

Claude Jacot, ENSA: Accidentology and Prevention
Talks about accidentology in sports. Safety needs to be a shared competency. In sports accidentology can help to establish new rules and recommendations in order to prevent new accidents. For mountain sports in 1996 SNOM was established. SNOM covers mountain sportsmen, victims, and the small circle of victims who called the rescue service. Accident data is collected, processed, and analyzed. Each year two reports on accidentology and the important facts on prevention are published. Ski accidents, for example, happen through collisions, no collision, and avalanche accidents. There are different categories for the victims (wounded, not wounded, dead). One criterion is age, then organized or non-organized activity, competitive sports or leisure sports, etc. The information is used to create statistics. Then we have to figure out how to best reach these groups of victims in order to be preventative. One problem is that there are accidents which cannot be specifically categorized. With this system synergies are managed and recommendations and suggestions can be relayed to the appropriate groups.

Questions: None.

File: 12-Jacot-SNOSM_Are 2011.pdf

Marek Biskupic, HZS: Avalanche Hazard Prevention and Control Above Highly Frequented Places and Settlements in Slovakia
Describes strategies for avalanche prevention in areas that are densely populated or are visited by a lot of tourists. There are 17 such areas in Slovakia. In the past Slovakia had avalanches with many deaths (for example in 1968). In 1972 the avalanche prevention center was established. They are tasked with actively triggering avalanches by blasting and passive prevention by building avalanche barriers, publishing information, closing of roads. For blasting they use pole charges. The avalanche barriers are made of steel. He then describes various avalanches. Further prevention is done by publishing the avalanche bulletin. Snow profiles are regularly assessed and then published. The problem with this is that not all people can interpret avalanche bulletins. Training for blasting of avalanches is done on old avalanche run-outs.

Questions: Hans-Jürg Etter: In the last years did people have to be evacuated, how successful was this, and did the police help?
In the past 2 years there were no evacuations. In 2009 a hut needed to be evacuated, which could be done without the assistance of the police.

File: 13-Biskupic-prevention-Slovaika.pdf

Bruno Jelk, KWRO: Prevention and Rescue Organization for Areas Intensively Used by the Public – Avalanche Service Mattertal

The state requested a structure for the avalanche service in Mattertal. Zermatt is a tourist area. It is accessible by train and one road, which is not yet completely protected. In Mattertal there are many avalanche chutes. In the past there were often major avalanches. The avalanche service Mattertal is subordinate to the Department of Transportation, Construction, and Environment. Six counties joined together for an avalanche warning service. Each county has 2 observers. They relay their observations to the chief of the observation service. His function is only to warn. Decisions are made either by the railroad master, the road crew chief, or the county. Within the county there is another organization (in Zermatt it is the Municipal Operations Staff Zermatt). The observation service has 4 IMIS stations, 3 weather stations, and on most masts of the cable cars there are wind gauges. Afterwards, there is an assessment and decision-making. All decisions by the observation service, however, have only an advisory function. All assessments and decisions are taken down in a report. Informational data, satellite pictures, etc. are printed and classified. Decisions are made within the avalanche service or the action committee. In case of blasting, the information first goes to the road crew chief, the railroad master, and the municipal council (for closing the road, the railroad, or the municipal roads and trails). In Zermatt we now also use Avalanche Towers (Sprengmast). Before blasting, the roads and railroad as well as trails have to be closed; safety personnel have to deployed, and the area needs to be watched for possible people on foot. Starting at around 20-30 centimeters of fresh snow, blasting is initiated, which is done by specialists. The actual blasting does not occur until the railroad and/or road crew chief give the word that the railroad or the road is closed. At night the danger areas are lit up with spotlights. With the warning system accidents like the one in 1985 (11 deaths on the road between Taesch-Zermatt due to an avalanche) could be prevented. The same warning system was applied for the summer months; glacial fractures, glacial lakes that fill up in summer or new ones that are being built, rock slides, etc. are reported or observed. In such instances geologists are called in. Such organizations have to be adapted to the specific area.

Questions: Hans-Jürg Etter: Where are the biggest problems in these operations from planning to the end?
In winter the observation starts with the first snow, the decisions are always a balancing act. In summer any movement is reported. There is much potential for danger, and one hopes that nothing happens. Evacuation is a problem. In Zermatt there is a plan for the evacuation of 800 people; however, when Zermatt is full, there are 35,000 people. There is also the problem of people who do not want to be evacuated. What happens when such a person is buried?

File: 14-Jelk-Lawinendienst Mattertal.pdf

Ian Tomm, CAA, CAC: The Boulder Mountain Avalanche – 1 year later

On March 13, 2010 a snowmobile race takes place on Boulder Mountain. A group of about 100 people was buried by an avalanche. Two people died. There were 12 helicopters involved in the rescue, and the rescue operation lasted 3 days. The police started an investigation into the organizers of the event. There were 13 police

investigators, the criminal division led the investigation. It was established that the participants did not heed the avalanche warning. The government knew that this event was going to take place, but it was not authorized. The snowmobile club did not inform the local authorities in order to avoid paying fees. A few of the participants consumed cocaine. The companion rescue worked. All persons had been dug out by the time the professional SAR team arrived. The avalanche beacons were useless because too many people were involved. Civil suits were also submitted. A year before the accident there were 19 avalanche accidents in which snowmobiles were involved. Afterward, the coroner submitted recommendations. The snowmobile operators have always downplayed the risk of avalanches. What is the Canadian avalanche center doing? The coroner's report was the basis for the recommendations. The snowmobile operators and riders have to be informed. Brochures etc. were made. Airbags were recommended. They are valuable in snowmobiling. Rescue courses are offered. Companion rescue needs to be promoted. The report also mentioned that avalanche bulletins need to be distributed better. They are now also put up in hotels. An App for smartphones was developed (this had to be compatible with iPhones and Androids). Road signs are now used for avalanche prevention as well. The snowmobile areas are recorded on maps. The areas are divided into grades of difficulty. The avalanche risk can be compared between trails. This all is coupled with the avalanche bulletin. The trails can be selected in order to gain more information. The goal is that these maps and information can be downloaded to smartphones. The snowmobile operators collaborate very well with the avalanche center. Another point in the report was that most accidents happen in areas where there is no avalanche prognosis. The problem is that an avalanche bulletin cannot be created if the data is not available. There is a project in which amateurs as well as professionals report data to the avalanche center. Media relations were important. Warnings are distributed through the media. Safe snowmobiling is now being promoted as something good. There is advertising for snowmobiling but at the same time the message is that it is to be executed safely. The snowmobile manufactures have also implemented changes. When buying a snowmobile, certain material is complimentary.

Questions: There are also many snowmobiles in Sweden. How do you measure the success of this program?
Based on deaths. The number of snowmobilers who read the bulletin, attend classes, and the efforts of the snowmobile touring operators are measured.
Is there a program in Canada like in Sweden where there are guided tours in avalanche areas?
Some providers have tried this.
Johann from Sweden: Are there recommendations regarding prevention?
The accidents created enormous costs. Such accidents could also happen in Sweden if nothing is being done.

File: 15-Boulder Mountain - 1 Year Later.pdf

Hans-Jürg Etter: Prevention and Rescue Organization for Areas Used Intensively by the Public, Gemeindelawinendienst Davos, CH

Davos is the biggest town in the mountains in Europe and for Switzerland it covers a big area; there are 13,000 residents, and about 14,150 hotel beds. There are avalanche chutes all the way down into the town. After the catastrophe in 1951 the construction of

steel snow bridges, rock and snow fences etc. was initiated. What can the avalanche service do? Passively by warning and closing, actively by artificial triggering of avalanches. This is not ideal in areas of settlement due to the risk of the avalanche coming down into the valley. When blasting, communication is enormously important. There were problems with this; the responsible parties for the county and the ski areas need to communicate. It happened that the railroad and the roads were closed, but the cross-country ski trails were still open. This was purely a communication problem, and also because different people were responsible for the roads and the cross-country ski trails. There needs to be a legal basis for evacuations. Duties are divided. There are these who deliver warnings and on the other hand there is the executive branch who carries out actions. There are organizational charts. All this has to be organized before a catastrophe; this is required by law. What tools are there? Information systems etc., clear presentation and filing of data, action plan. Wrong decisions cannot be avoided; however, if the basis for the decision can be informed, one is in a better position. The area is divided into risk zones. Telephone lists etc. are drawn up. All apartments need to be able to be reached. Evacuations should only happen in extreme cases. The problem with evacuations is who to send to carry out the evacuation? In Davos there are not enough police, but the fire department is in uniform. We have found out that it is better to send the firefighters to evacuate. People who do not want to be evacuated sign a document. What happens when these people are buried? That needs to be weighed up carefully. Very important is the media. They can be involved positively. If you fail to do this, they will broadcast anything and you lose control of the information. For blasting we now also use Avalanche Towers (Sprengmast) instead of mortars. When blasting, the person in charge needs to be up-to-date. Another important aspect is insurance and salary of the people involved. Competencies have to be clearly established before an occurrence.

Questions: None.

Bruno Jelk: In 1999 a house was evacuated. The owner did not leave. The guests did evacuate, but they did not return. Therefore, the owner submitted a claim for compensation.

File: 16-Etter-Org Law D Davos.pdf

Markus Hölzl, BAS: Ski touring in South Tyrol

Talks about a project about statistical collection of winter sportsmen. They wanted to know how many winter sportsmen move about outside the ski slopes. There was no concrete data available yet. At various starting points, ski tourers and snowshoers were counted. There had been cases in the past where ski tourers and snowshoers were treated like criminals when they triggered an avalanche. They wanted to show the authorities that ski tourers and snowshoers are not rarities but that these activities had developed into popular sports. Therefore, the counting was undertaken by voluntary mountain rescuers and officers of the Guardia di Finanza. The statistical analysis was done by the Department of Statistics. They evaluated the number of snowshoers and ski tourers, number of people in a group, starting time of the group, etc. On February 19, 2010 counts were done at 143 places; 6010 sportsmen were counted. The weather that day was good but the avalanche situation was critical (III). The sportsmen took this into

account. Seven percent were by themselves. There were more snowshoers than expected. The starting time was disturbingly late. A press conference was held in regard to these counts. The media response was enormous. In 2011, 5575 sportsmen were counted over the course of a week. This count emphasized more on specifics (educational background, male or female, ski tourer or snowshoer). The snowshoers in general start later but frequent the same areas. The definitive results are not yet available. First insights: Children and older people use snowshoes, only half of them can assess the avalanche risk correctly, 75% stated they had read the avalanche condition report but only 53% of them were able to recall the correct avalanche danger level. Snowshoers seldom consult the avalanche condition reports and can hardly interpret them either. Many North Tyrolians come to the South Tyrolian Wipptal; they know the avalanche bulletin from North Tyrol, however, in the South Tyrolian Wipptal a completely different avalanche situation applies. Two-thirds were equipped with the standard equipment of avalanche beacon, probe, and shovel. Eighty percent of the ski tourers and only 13% of the snowshoers carried the standard equipment. Conclusion: More than half of all ski tourers and snowshoers combined do not fulfill the basic safety requirements. Snowshoers do not inform themselves about avalanche danger levels. They are a specific clientele who need to be involved in the informational campaign. The question becomes whether the avalanche situation report should be simplified. Loners and equipment are a problem.

Questions: None.

File: 17-BERGRETTUNGSDIENST IM ALPENVEREIN SÜDTIROL.ppsx

Andres Bardill, ARS: Redundancy-To What Extent Practical and At What Point too restrictive?

Redundancy can be understood positively or negatively. Negative: Something is superfluous. Positive: Doubly safe. Redundant areas: Operation and operational readiness. It needs to be questioned whether the available material can cover the area, does the alert work (cell phone, pager, etc.), are the personnel trained adequately, is there enough personnel, are the systems redundant (material up-to-date etc.), is the communication redundant. These questions should always be posed. Limits of redundancy in mountain rescue are for example weight, the limited operational use of means. When one of the means fails, there should be a plan B. Another aspect is self-responsibility. Legally speaking, this requires knowledge of the risk, expert knowledge, authority, decision-making powers, ability, and possibility.

Questions: Nils: Are there concrete suggestions regarding self-responsibility in mountain rescue?
A mountain rescuer needs to have a great self-responsibility and also live this. This is an important aspect of training. The rescuer needs to assume self-responsibility, which he will need when he is suddenly by himself out and about.

Files: 18-Bardil-Redundanzen_d.pdf/18-Bardil-Redundanzen_3.pdf

End of Meeting: 12:10 p.m.

For the English Translation: Olivia A. Cashner