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

Presentations of the Terrestrial and Avalanche Rescue Commissions

Place:	Bol, Croatia, Hotel Elaphusa
Datum:	October 18, 2013
Time:	8 a.m.
Present:	Members of the Terrestrial and Avalanche Rescue Commissions
Chairmen:	Gebhard Barbisch and Dominique Létang
Minutes:	Fabienne Jelk

Tom Koller, OeBRD: Testing of Slings and Reepschnüren

Tom Koller is an expert for TÜV Austria and tested slings and Reepschnur ropes. Over the last years, new materials such as Dyneema have taken hold on the market. The basis for the tests was the EU norm 566, which states that all slings, independent of the materials used, have to have a minimum breaking strength of 22 kN. The maximal body impact is standardized at 6 kN. Materials properties such as tensile strength, elasticity, melting point, cut resistance, etc. were tested on a vertical test stand with an 80-kg steel body.

Dyneema: There was already massive damage to the point of material breakage at fall factor 1 at a height of only 60 cm.

Polyamide (16mm/60cm/22kn): Peak values were around 11 kN, considerably lower than with other materials. Visually, the slings were not showing any signs of damage.

Dyneema knot efficiency (6mm/60 cm/22 kN): Using an overhand loop, peak strength was measured at 7 kn. The sling broke at the knot. Water knot: Peak strength was measured at 18 kN. The ropes had varied burn marks.

Polyamide knot efficiency: There was no obvious visual damage.

Reepschnüre Dyneema (5.1 mm/18kn) - SF1/SF2: Water knot and stopped loop: They did not break.

Dyneema vs. Polyamide knot efficiency: There are great differences in efficiency in favor of Polyamide. Reepschnuere made of Dyneema are superior to Polyamide. Using Dyneema with a clove hitch has proven favorable in alpine stands; however, in fixed stands for alpine rescue, Polyamide is preferable.

Presentation: 08-Materilatest von Schlingen BRD OOe.pdf

Questions/Remarks:

Bruno Jelk: Is it still applicable that one is not allowed to make knots with Dyneema?

Dyneema ropes have nothing to do with Dyneema Reepschnur. Dyneema ropes are not made for knots and use is still prohibited.

Remark: Dyneema has a lower melting point than Polyamide. Testing in a more humid environment showed different results.

Tom Koller: During testing, no Dyneema-Reepschnur broke.

GRIM Andorra: The Alpify App

The App is meant to increase the safety of people recreating in the outdoors. It connects the user to the rescue services. It is an easy way to alert rescue services. The App is free and works on iPhone as well as Android. It sends a text message to the dispatch center with the exact location of the distress call. It not only shows the current position but also the path the person had taken within the last hours. One can communicate with other App users at any time. Information can be exchanged. The App works in all countries using Alpify; for example Courchevel, Las Lenas, Valle nevado Chile, etc. Using the App is demonstrated.

Presentation: 09-Alpify.pdf

Questions/Remarks:

Bruno Jelk: Are there no problems with data security?

No. When the user downloads the App, he agrees to the terms. This was reviewed.

Question: What does the App cost?

That depends on the number of people using the App.

Participant: Romania also developed an App that is free. It consists of three parts; touristic information and also a part that one has to sign up for. This part shows one's position and how much battery is left. The App is free for all.

Question: Since running Apps drains the battery very quickly, how does your App work once one is connected to the system?

The coordinates are only sent every 2 minutes. Therefore, only 7% of battery power is used per day to run the App.

Can one also use the GSM network to find the person?

Yes, since the mountains are open terrain. Everything works together.

Matts Nilsson, Swedish Police: Mountain Rescuer Training in Sweden

Mountain rescuers in Sweden all live in the mountains. Communications during operations are relayed through the police. Training includes use of communication equipment, logistics, etc. Annually, mountain rescuers get paid for 16 hours of training; 8 hours in summer and 8 hours in winter. Each rescuer also undergoes a quality check annually. There is a specialized course for incident commanders. In Sweden great distances need to be traveled; sometimes it requires up to 2 hours to reach the operational area. Other challenges include darkness and cold weather. In Sweden the police are responsible for avalanche rescue. Avalanche beacons also need to be in operation during summer time. There was a big avalanche in Are last winter. There were 150 people on the avalanche run-out. The search lasted for 5 hours. The buried person did not have an avalanche beacon. The future is the establishing of a National Center of Swedish Mountain Rescue in Oestersund. The information exchange between rescuers is important. If someone wants to go to Sweden to take part in training, they are welcome to do so.

A moment of silence is observed for Kent Herrstroem.

Presentation: 10-Sweden-MR-Education.pdf

Pascal Strapazzon GSM, Stéphane Marcellin GSM: Night Vision Goggles (NVG)

Experiences in using night vision goggles are presented. France requires a special permit to use night vision devices. In -17 degrees Celsius they can run for about 20 hours. They are waterproof. In difficult weather (snow, rain, moonless night) their use is less efficient as the vision gets blurred. The device is very expensive and very sensitive and is therefore stored in a safe. NVG can be used in 3 different ways: 1) attached to a helmet. The difficulties in this scenario are the weight and adjusting settings. Also, a headlamp cannot be used at the same time, and a winch cable can damage the goggles. The advantage is that the device can be installed easily and one's arms are free. 2) It can also be attached to the head with a harness. The problems are the same as with the helmet installation. This method is used in the military. 3) The NVG can be handheld. The risk is in damaging the device and the disadvantage is not having the hands free and the sight picture is less stable. Rescuers use NVG mostly handheld. Pictures are shown with and without NVG. Challenges: Field of vision reduced to 40 degrees, picture is mostly green, reduced depth perception, and the pilot can be blinded. Advantages: Persons can be identified more easily. The device is very useful for rescuers. However, not every call at night should be accepted even with NVG. Night operations should be an exception and only be undertaken when lives are at stake.

Presentation: 11-JVN Presentation JVN.pdf

Questions/Remarks:

> Question: How many operations do you undertake at night with NVG a year, and how do you guarantee usage of the device when there are no incidents?

There are 10-15 incidents a year in which NVG are used. If the device has not been used in 15 months, a training flight with the device has to be made.

Vittorio Bellagamba, SAGF Italy: Smartphone Localization of Rescuers

The idea was to improve search speed. A system with two components was developed; an App and a web site to coordinate rescue services. The dashboard can be accessed via the internet. It shows, for example, which teams are operational, where they are at, where they are going, and search areas can be defined. The system was integrated in the Talk Finder. It is important that the dashboard and Talk Finder can be used at the same time. The App relays 911 calls, for example if someone doesn't move for a long time or if a rescuer doesn't move out of a certain area within a certain amount of time. If there is internet access, it will go through the dashboard; if not, it'll send a text message. A rescuer can also activate a distress call manually.

Presentation: 12-Agesic-SAGF.pdf

Questions/Remarks: None.

Lukas Dürr, WSL Davos: Recreational Avalanche Accidents in Switzerland

Data was collected regarding avalanche accidents in open terrain. Before 1970, 30% of avalanches included buildings and residential areas. After 1970, 90% of avalanche accidents happened in open terrain. A closer look is given to the past 20 years. 417 persons died in avalanches; approximately 27% were completely buried and 40% partially; roughly 13% died, 20% were injured, and 70% were unscathed. Avalanches reported to the WSL increased significantly in the 1990s, mostly due to the increase in population as well as improvements in communications. The ratio between reported avalanches and avalanches with serious consequences changed to 50:50, which means avalanches are also reported if there are no serious consequences. At a ratio of 57:59, avalanches with serious consequences include unfavorable terrain such as trees, rocks, and terrain pitfalls. The terrain also influences the seriousness of the outcome. The average burial time was 30 minutes. The burial time significantly decreased in the past 20 years. In self aid buddy care there was a reduction from 15 minutes in the first 10 years to 10 minutes in the second decade, in organized rescue from 105 minutes to 60 minutes. 60% of avalanche accidents happened during danger level 3. Approximately 20% of avalanches still do not get reported. Conclusion: burial time was reduced and survival rate, therefore, increased. An avalanche accident, however, is still a dangerous incident. In December 2013 „Whiterisk", an all-inclusive teaching material, will be published.

Presentation: 13-SLF-2013_IKAR_Unfallauswertung.pdf

Questions/Remarks:

Question Dale Atkins: What was the longest survival time of a buried person?

Gebhard Barbisch: 24 hours; that was a few years ago.

Dominique Micheloud: 17 hours.

Per-Olov Wikberg: In Sweden a person actually survived for 6 days.

Dale Atkins: 22-23 hours.

Dominique Létang/participant from France: There was a special case in France where ski tourers found blood in the snow. They thought it might be an animal and started digging. Instead they found a person who had been buried between 7 and 8 hours. The person survived without consequences.

Per-Olov Wikberg, Mountain Safety Council of Sweden: Off-Piste Skiing – Risk Minimization and Risk Acceptance?

There was interest in knowing more about potential Swedish avalanche victims. There is a mountain safety council that includes organizations of physicians, mountain rescuers, etc. 2012/2013 was a bad avalanche winter. There were 7 Swedish fatalities. 82% of the victims died in other countries, 18% in Sweden. We wanted to know more about these victims, their level of knowledge, risk willingness, their routines, etc. A survey was posted on the biggest freerider forum. 1127 people completed the survey. 93% stated that they take the lift to get up the mountain and then go out of bounds to ski or tour. This group was looked at more closely. Their answers were compared to avalanche deaths. 62% carry avalanche rescue material. More than 30% never train its use, however. 81% believe that they are well familiar with it. 54% participated in an avalanche course. 60% skied for more than 20 days a winter. 36% had been in an avalanche. 83% ski out of bounds. Conclusion: The Swedes are well equipped, train relatively often with their equipment, ski often – trend increasing. The skiers know the risk but still want to go. This poses questions like what can we do? ICAR is a good platform to answer these questions.

Presentation: 14-MSC-Sweden-Freeridesurvey.pdf

Questions/Remarks:

Nils Farlund: Swedes are better skiers than Norwegians. Sweden is a modern country. Its citizens are constantly needing to change their identities, for which they put themselves into situations that give them attention. Freeriding is such a situation. Manufacturers and tourism specialists dare people to try this. Marketing strategies and advertisement have to be changed. ICAR has a chance to raise awareness.

Dominique Létang: Someone once told me that prevention will render rescue services extinct. There will be no more rescue if there is that much prevention. It is sad to have to say this, though. Prevention is important.

Rec B 0004

Kirk Mauthner presents the proposal for Rec B 0004.

Only a figure-eight or double fisherman's knot should be used. The recommendation should be applied to kernmantle ropes only and therefore no brand names are used.

The proposed text is as follows:

Knots for Joining Conventional Kernmantle Rescue Ropes

Only a Figure Eight Follow-Through or a Double Fisherman's Knot are allowed for joining and extending conventional kernmantle nylon and/or polyester rescue ropes (e.g. ropes conforming to EN 1891 or CI 1801-98) for the purpose of mountain rescue operations.

This text is unanimously accepted.

The recommendation can be downloaded from the home page.

Lunch recess: 12 noon to 2 p.m.

Bernd Zehetleitner, Bergwacht Bayern, RECCO AB; Dale Atkins, Alpine Rescue Team, MRA/RECCO AB: Reflectors on Transceivers

More and more winter sportsmen, as well as rescuers, use RECCO reflectors. RECCO is still useful because many winter sportsmen do not have an avalanche beacon or the batteries are dead or the device cannot be located for other reasons. There are now avalanche beacons that have RECCO reflectors. These cannot be used for a RECCO search but help victims to be found faster. This is useful if the beacon doesn't work. It can also be an advantage in case of multiple burials. It is also advantageous for rescuers in case of a secondary avalanche and there is no time to switch the setting on the beacon.

Advantage in rescue: RECCO is always on the person; it is never off, no maintenance and no battery, light and simple. RECCO is an ideal addition to the avalanche beacon. Active and passive technologies are combined. The disadvantage is that the rescue is not made easier if the rescuer is also carrying a reflector. The rescuers need good basic training and need to know how to handle distant signals. All rescuers need this advanced training. If the reflector carried by the rescuer can be removed or shielded, then it is not a problem. The easiest solution would be for all rescuers to carry removable reflectors. One problem is avalanches in proximity to ski areas where many people are on the run-out who cannot be coordinated. Normally, though, a RECCO search is done at the beginning when there are not that many people present. Solution: Rescuers need to be able to identify interference and cut it out. Many mountain rescue teams already carry removable backup systems, i.e. belts with reflectors. Interference can be a problem if the detector arrives late on the run-out and there are already many people present. Another problem is an uncoordinated search begun too fast; and also if additional rescuers or helpers arrive on the run-out during the search. The main issue in the past was lack of training of people searching. Training needs to be done under realistic circumstances. Five techniques were developed to deal with interference: aim detector, organize, position, train, shield. Rescuers have always been equipped with RECCO; the novelty now is that the beacons are equipped with it as well. Interference can be an opportunity to find a person without a reflector. Currently, they are working on a device for helicopter searches.

Presentation: 15-RECCO_Bernd_Zehetleitner.pdf

Questions/Remarks:

> Nils Farlund: RECCO is presented as a possible method but not „the real" method, and that is good.

Michael Rust, Pieps: Pieps ABS Avalanche Balloon System

A new avalanche airbag technology is presented; Jetforce. Air is forced into the balloon with a kind of ventilator and lithium-ion battery. Schematics are shown. The battery can be easily charged and it is approved for travel on airplanes. The system works reliably down to -30 degrees Celsius. Four points are important: there is an automatic system self-test to activate the system, the system is rechargeable, activation training without added fees, and the system is easy to pack. After it is activated there is a 3-minute timer where air keeps being blown into the system. After 3 minutes the air is sucked out, so the victim has an air pocket and digging out is easier. Another advantage is the possibility of several activations. Four activations are possible during regular temperatures. The system is demonstrated. Different sizes of backpacks are also offered together with the system. After the system is activated, the air intake can be stopped manually and the air can be sucked out manually.

Presentation: 16-Pieps-JetForce ICAR.pdf

Questions/Remarks:

Question: How much does it weigh?

That depends on the size of the backpack. However, it is not more or less than other systems. The 24-liter backpack is 3 kg. The price has not been fixed yet but will be similar to other systems.

Question: What happens to the ventilator in powdery snow?

The system was tested in snow and inside a lab. The system always works no matter what the conditions. Snow conditions have no influence on the functionality of the system.

Question: Does the device need to go back to the manufacturer for maintenance?

As long as the device indicates working condition, it does not have to be sent to the manufacturer. It is a self-control mechanism.

Question: Does the pressure on the bag influence inflation?

No.

Frédéric Jarry, ANENA: Avalanche Burial Duration

Last year France counted 36 deaths. Most people are buried during freeriding or ski touring. The percentage of freeriders amongst avalanche fatalities is very high in France. There are a lot of freeriders and not all carry an avalanche beacon and shovel. There was a big increase in well-equipped ski tourers being completely buried between 2001 and 2011; however, there was not such a marked increase with well-equipped freeriders. In France we need to work on equipping freeriders with avalanche beacons or RECCO. Alpinists were not, or not well, equipped. So there is a need for improvement there as well. Of note, cause of death in accidents in mountaineering is often not burial. Freeriders are rescued 80% of the time through organized rescue and 20% self aid buddy care. There is a higher percentage of self aid buddy care rescue in ski touring. Many freeriders carry a beacon but don’t know how to

use it. Alpinists are rescued solely through organized rescue. Ski tourers are often found through beacons. Freeriders have a higher percentage of being found by probe or dog. Ski tourers with electronic devices are usually buried for 30 minutes; without electronics 1 hour 55 minutes. Freeriders with equipment 25 minutes; without equipment 1 hour 10 minutes. There is a better survival rate with electronic equipment. Prevention measures worked with ski tourers; freeriders still need more work.

Presentation: 17-Equipement ensevelis France ICAR 2013.pdf

Questions/Remarks:

Toni Grab: Good equipment not only includes shovel, beacon, and probe but also airbag.

Agreed; however, one also needs a brain.

Question for Lukas Dürr: There is improvement possible in the out of bounds area. What is that potential?

People are nowadays well equipped, including airbag systems; however, often they lack common sense. They are well equipped but not as well trained as ski tourers.

Gebhard Barbisch: In freeriding usually the only trained person is the guide.

End of Meeting: 3:15 p.m.

Gebhard Barbisch
Commission for terrestrial rescue
President

For the English Translation: Olivia A. Cashner