Internationale Kommission für Alpines Rettungswesen IKAR
Kommission für Bodenrettung
International Commission for Alpine Rescue ICAR
Commission for Terrestrial Rescue
Commission Internationale de Sauvetage Alpin CISA
Sauvetage Terrestre

Presentations Terrestrial Rescue Commission

Place: Lake Tahoe, Nevada, USA, Harveys Hotel

Date: October 8, 2014

Time: 8 a.m.

Participants: Members of the Terrestrial Rescue Commission
Members of the Avalanche Rescue Commission
Members of the Air Rescue Commission (at 2 p.m.)

Chairmen: Dominique Létang and Gebhard Barbisch

Minutes: Fabienne Jelk

Per Olov Wikberg, Swedisch Mountain Safety Council: Snowmobiling in Sweden in 2014 – Trends, Attitudes to Risk & Knowledge about Avalanches

Presents a study regarding snowmobilers. Goal of the study was to communicate to snowmobilers the accident causes, risk, etc. In 2014 Sweden had roughly 285,000 snowmobiles and 70% of these ride in the mountains. Over the course of 10 years more than 100 snowmobilers died in accidents, and many were drunk. Lots of the accidents happen with snowmobilers falling through the lake ice. A survey with 24 questions was distributed among about 3000 snowmobilers who were reached through snowmobile magazines as well as social media. The information regarding the accidents from 2003 to 2013 was then compared with the results of the study.

Study results:

- 39% of riders are 30 years of age or younger
- 34% admitted to riding often or sometimes in dangerous avalanche areas
- Only 14% carry an avalanche beacon and a probe
- 81% have had experience with avalanche accidents

In conclusion, more snowmobilers free ride in steep and avalanche-prone terrain. Snowmobilers have less knowledge of avalanche risks and use of avalanche rescue equipment than, for example, skiers. There will be more accidents in the future. The

snowmobilers' knowledge of avalanche risks and appropriate equipment use needs to be improved.

Questions/Comments: None

File: 09-ICAR_Snowmobiling2014.pdf

Pascal Strappazzon, Stéphane Marcellin, GMSP Haute Savoie: Multi-Victim Rescue on Mont Ruan

The accident happened on August 30, 2009. The call was received at 0907 hours. The person making the emergency call was in full panic. A rescue team went to the location and found that there had been an ice break-off at the edge of the glacier.

The first assessment looked as follows:

- One female, not injured but in shock
- One male buried in ice up to his abdomen, screaming he was a hemophiliac
- One leg that was sticking out of the ice and was moving
- One hand sticking out of the ice
- Screaming coming from under the ice blocks

The first rescuer moved the woman and three uninjured witnesses to safety. The second rescuer took care of the hemophiliac. The rest of the rescue team worked their way towards the other buried victims using chainsaws and pick axes. Temperatures kept rising, increasing the risk of more ice breaking off. Two people were still buried. One of them was recovered dead after 4 hours. At 1300 hours the operation was suspended due to the elevated risks. A sixth victim was still missing. Four of the six victims were rescued alive.

Difficulties at the accident site:
No network and therefore no continuous contact with Centre 15 and CODIS 74. There was no medical leadership on scene; there was only a quick triage and the victims were taken to the nearest hospital, not the one best suited for their conditions. Ideally, a physician would have taken over the lead at the accident site. The victims should all have been moved to one safe location on site, be reevaluated by the physician at that time, and then transported to the appropriate hospital(s).

Questions/Comments: None

File: 10-Intervention du Mont Ruan le 30 aout 2009.pdf

Ten. Col. Fabio Mannucci, SAGF: A Study for Promoting Rescue Success of Avalanche Dog Handler Units

Presents a study assessing the stress factors for avalanche rescue dogs. Seventeen dogs were used in the study, all of different age, breed and sex. At the beginning of the test the dogs and their handlers were flown to the avalanche field. The handler rappelled with his dog. On the field the dog's pulse rate, blood work and rectal body temperature were checked. Then the dog had to search for buried victims. The same medical values were reassessed immediately after the search as well as 2

hours after the operation. All values were compared. The highest values were taken during the helicopter ride and while rappelling, which seems to be the highest stress factor. However, the values were still within normal range and did renormalize. The actual work on the avalanche does not seem to negatively affect the health and overall well-being of the dogs.

Questions/Comments: None

File: 11-SAGF-Dog-Study.ppt

Dominic Bestler, Uepaa!: How Uepaa! quickens your Rescue Mission

This end-user App was developed to save lives. A video of its functions is shown. Data can be sent outside the cell phone network. Localization is shared with other Uepaa! users. App users can be localized directly from the helicopter. Ueppa! also shows where the network coverage was and how to get there. In an emergency personal data, localization, technical information, and vital signs are sent to the rescue organization. Rescuers can also see the last known position of the victim, date and time at that position, and battery charge. This system also works when there is no network coverage. How does that work? It uses a technology developed by ETH Zurich called multi hop technology. Smartphones with Uepaa! communicate with each other and exchange data. There is an additional App that is only for rescuers (rescue App). This enables a rescuer to search for a specific user. It works like a scanner and can be used from the air as well as on the ground. As soon as there is a connection the rescuer receives an alarm and knows that the victim is close by. The standard version of Uepaa! is free. There is also a premium version for a fee.

Questions/Comments:

> How close do the phones have to be in order to be able to communicate with each other?

That depends on the smartphone. The distance is between 50 and 450 meters.

> What does the map look like? Did you develop it?

The maps are from an American company.

> Is this App also available in Canada and the USA?

Not yet.

File: 12-UEPAA_2014_10_08_IKAR_Bestler.pdf

Felix Meier: Field Line Search Revisited

What do the field lines of avalanche beacons look like? Depending on the position of the beacon, the field lines are different. There is also a blind spot. The different positions of field lines depending on the position of the avalanche beacon are shown. In a worst case scenario, following the horizontal orientation path is 41%

longer than the direct path. For a long time there were beacons with two antennae instead of three. The third antenna is a great advantage since with two antennae there are double peaks.

Questions/Comments: None

File: 13-Field-Line-Meier.pdf

Manuel Genswein: Terrestrial Recco Search

Shown is a different method for a terrestrial search using Recco. Goal is to optimize the current protocol. The search strategy should correspond with the technical characteristics of the device and error messages avoided. Several studies were carried out. It was established that the searcher has to systematically search the 180-degree angle in front of him. Sideways movement has to be consequently done. The rotation needs to be approximately 50 degrees. Therefore, there are two movements; the rotation in 50 degrees (rotate), and the horizontal movement in a 180-degree angle (sweep). The rotating and sweeping have to be done simultaneously. In order to avoid interference, the device should be directed at oneself to see if there is a signal. If the interference cannot be mitigated, it can be blocked with one's vest or body. The search can begin once the interference has been negated.

Questions/Comments:

> Felix Meier: Sweeping 180 degrees and rotating 50 degrees is difficult. Wouldn't it be simpler to just move the device in 180 degrees and to rotate the device once at the end of the movement?

In the field, the device is rotated and sweeping is done at a speed that is comfortable. Important is the rotational angle.

> Bruno Jelk: The bigger problem is that rescuers tend to hold the device too high causing unwanted reflections.

Rotating at a constant 50 degrees the device is held lower.

File: 14-Recco-IKAR-2014-Genswein.pdf

Marc Blancher: Avalanche Victim Resuscitation Checklist, Presentation and Discussion

Marc Blancher presents the Avalanche Victim Resuscitation Checklist and how to use it. First the patient's ID and date and time of the avalanche are noted. The length of burial and whether or not there was an air pocket are also noted. Further parameters such as body temperature are then filled in. The checklist was developed for medical personnel to ensure that all vital information gets transferred and does not get lost. It helps triage multiple victims and concentrate efforts on victims that still have a chance of survival. The checklist should be used by the rescuers as well as the physicians.

Questions/Comments:

Gebhard Barbisch: The system only works if mountain rescuers actually use the checklist and it is made a standard. For the common rescuer only the white part is important, which is simple to fill in.

> Lukas Dürr: Suggests making the product smaller so that it fits into a first aid kit.

So far there have only been prototypes, but they will make sure that the card will fit into a bag or first aid kit and that the rescuers can carry a minimum of two checklists with them. Feedback regarding use of the checklist would also be appreciated.

> The checklist could be separated into a section for the first responder and a section for the physician. For most it is quite complicated; how can, for example, the core temperature be measured in the field?

It is not the checklist's ambition to list all medical rules. The main goal is to recognize hypothermic victims who have a chance of survival. It is not meant to tell physicians how to proceed. To measure core temperature there are thermometers with probes that reach down the esophagus. However, there is also a box "temperature unknown" which assumes a temperature of less than 30 degrees Celsius. The temperature can also be measured tympanically when the heart is still beating. Currently all commissions of ICAR are involved. There is also a project to improve medical triage and to focus resource efforts on victims who have the best chance of survival.

> The rescue of victims is very important. Where does the liability lie for the notes on the checklist?

The name of the ALS provider is written down. He carries the responsibility. The name of the BLS provider is also written down. After all, we are all professionals and should be working as exactly as possible.

File: 15-2014_Checkliste_Präsentation_OBRD.pdf

Fidel Elsensohn: Multi-Victim Task Group - Presentation and Discussion

The goal of the group is to make recommendations on how to proceed in accidents with multiple victims, not from a medical standpoint but a technical one. All aspects need to be covered. The goal is cooperation between the different commissions. Not only avalanche accidents should be covered but other situations as well. The idea is to take the current catastrophe plan standard and to add new input, not reinventing the wheel. The Terrestrial and Avalanche Rescue Commissions are asked to name participants for this task group.

Questions/Comments:

> Gebhard Barbisch: It is important for terrestrial rescuers to also have medical knowledge. As many as possible should be contributing to this task group.

Dominique Létang: The Avalanche Rescue Commission is very much interested in participating in this group.

Marc Blancher shows a first draft. Nine items are slated for analysis.

Fidel Elsensohn: The nine points could first be discussed within the commissions and then the commission can decide who would be best suited to relay the answers for which item. The result should be ready for approval in 2 years.

Jeff Burko: He would have liked to see a publication about causes of death in avalanche accidents. There needs to be more information from other commissions; for example, how long does it take to dig someone out, etc. There also needs to be a contribution from the Terrestrial Rescue Commission. All commissions need to be involved.

Manuel Genswein: The studies with Jeff Burko had the goal of finding out how to ensure the best chance of survival.

Dale Atkins: This is a great opportunity to get all the commissions together. First we need to find out how many cases there were and then we can start with the questions.

Alistair Reaf: There had been such an exercise the first day and it was very useful. However, there are structure and interface issues which also have to be analyzed.

Elsensohn: Task groups for the different topics need to be formed. However, the focus needs to be on mountain rescue.

Blaise Agresti: There needs to be leadership for the collaboration between commissions. It is good that ICAR is discussing these questions. In order to achieve results, however, clear organization, structure, and processes need to be established.

Hermann Brugger: He agrees. In a major rescue many organizations are involved and rules of other organizations (for example WHO) have to adhere to.

Fidel Elsensohn: There needs to be an emphasis. Focus should be on mountain rescue. Current rules are adapted as opposed to creating new ones. The other organizations are to be considered.

Guillaume Oudot, Petzl: Le Lezard

Jean Baptiste Estachy, Patrick Guillout and Adrien Dumas present Lezard which is a sling for winch rescue. During a winch rescue the tricky moment is when the rescuer and maybe even the victim are connected to the rock face and the helicopter at the same time. If the helicopter needs to move quickly due to turbulence, for example, it can create very dangerous situations as the helicopter would still be connected to the rock face. Lezard makes this moment safer by unhooking itself when the helicopter changes its position. Under normal circumstances the rescuer

can unhook Lezard manually. All rescuers liked Lezard and saw many advantages. Lezard is carried in addition to the regular sling. As soon as the rescuer is away from the rock face and the helicopter, the regular sling is used to secure oneself. Lezard is only used for the dropping and picking up of rescuers but not while the rescuer is preparing the victim on the rock face. Good training is needed in order to use Lezard. Everyone, pilots and rescuers, need to know the device. There are margins of error and rescuers need to know the system well.

Questions/Comments:

When is the device attached to the winch?

When the rescuer comes down he makes a stand, if there isn't already one. Then Lezard can be attached and the winch hook released.

File: http://www.petzl.com/en/Professional/New/LEZARD?I=INT#.VG0BGL6IIW8

Alf Peter Kahrs, Dan Halvorsen, Norway: High Risk Avalanche Search

There have still been situations in which rescuers get buried during avalanche rescue missions. In dangerous situations, there is a lot of pressure; from the rescuers, the media, families and friends of the victims. In order to reduce the risk a new method was tested which would allow searches even in dangerous conditions. In April 2014 four skiers got buried. It was too dangerous for the rescuers to go onto the avalanche cone. The rescuer stays connected to the helicopter by rope. The pilot can see the rescuer as well as the avalanche danger area. They used a 30-meter rope, a 4-kilogram weight, a 10-meter rope, and a good communication system. This method also allowed the rescuer to do the fine search and dig. As soon as danger occurs, for example with a secondary avalanche, the rescuer is pulled up by the helicopter. Important is the physician who is in constant contact with the pilot and the rescuer. There is no injury risk when one is pulled up by the helicopter, even rapidly.

How long is the rope?

The total length is about 40 meters. Ten meters lie on the ground to which the rescuer is tied to.

File: 16-High-Risk-Search-Helicopter.pdf

Pascal Strappazon, Stéphane Marcellin, GMSP Haute Savoie: Multi-Victim Rescue Organization

This is about the organization of different helpers during a major event. The first level includes a command structure as well as a communication system that is used in all situations and applies to all participants. A second level included risk analysis. It is shown in detail how this works. Medical example: the victims are divided into categories (black, red, yellow, and green). The "black" are unconscious and are not breathing; they have priority. Identification maps are being used on the victims. The maps are carried by the rescuers. Each victim gets a color and a number. The map is equipped with an electronic chip and is hung around the victim's neck. What are still

missing are stickers or straps that could be put on the victim and his corresponding equipment. At this point a second group of rescuers comes in and takes care of transporting the victims. The color triage determines the priority of transportation. The victims are taken from the accident site to a medical forward post where a physician evaluates the cards and adjusts the colors if necessary. There is also psychological help available. There is also a collection point for uninjured victims as well as corpses. Legal aspects have to be adhered to for which police delegates are available. In order to read the map chips, a tablet is needed.

File: 17-Multi victim GSM.ppt

End of Meeting: 5:20 p.m.

For the English Translation: Olivia A. Cashner