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

Presentations of the Terrestrial and Avalanche Rescue Commissions

Place:	Krynica, Poland, Hotel Czarny Potok
Date:	October 5, 2012
Time:	8 a.m.
Participants:	Members of the Terrestrial and Avalanche Rescue Commissions
Chairmen:	Bruno Jelk , Gebhard Barbisch, and Dominique Létang
Minutes:	Fabienne Jelk

Nicola Campani, Guarda di Finanza, Italy: A New Device for a New Rescue Process

There are already many different stretcher carry systems. They wanted to develop a system that was as light as possible. Normally a frame will be reinforced with inflatable elements. There are different problems to solve: damage through friction on rocks, a pump system is needed, achieving the needed pressure, weightbearing capacity, stiffness. The current inflatable stretchers are mainly used in water. A solution has now been found. With this carry system different pump systems can be used and patients with a weight up to 180 kilograms can be carried. There is a layer to stabilize the patient's spine. This layer is removable and can also be used in water. The stretcher weighs 8 kilograms at the most and is very small and compact. While the stretcher is not inflated, it can be wrapped around the patient and then inflated, for example with a hand pump. This way the patient can be brought into the right position without having to turn him/her. This carry system can also be utilized with the winch on the helicopter. This system was tested in 2008 on Cho Oyu and in 2011 on Gasherbrum. The elements can also be inflated with oxygen tanks. Advantages: The patient is well protected and comfortable. The system is sturdy but nevertheless elastic enough so that the patient feels comfortable. The stretcher floats on water as well as deep snow.

Questions/Remarks:

Bruno Jelk: Can the stretcher be pulled on snow?

Campani: The stretcher can be used by itself in water as well as on snow. In addition, it can be combined with other elements. The stretcher can be used for all kinds of rescue operations.

Is this stretcher certified for flight and if yes by whom?

Campani: A part of it, the winch sack, is certified for flight. The mattress and the safety valve are low pressure units and do not have to be certified. However, this is still being tested.

Did you consider increasing the thickness on the side of the mattress?

Campani: We discussed that yesterday. This is still a prototype. There are considerations for various extras, like side frames. The idea was to develop a stretcher that can be applied in various situations.

File:
12-SAGF new device.pdf

Lukas Dürr, SLF: New Products for Forecasting Avalanches in Switzerland

How can information be distributed to the end users in a multilingual environment? Due to adaption to the new media everything had to be redesigned. Prior to this we used to talk about regions, i.e. the Bernese Oberland; especially foreigners would have difficulties identifying regions. Therefore we are now working with graphics. Everything is published in 4 languages, and special attention is given to having no contradictions between each product. We are following the information pyramid: Basic information, then information about the core zone, snow pack, weather, and finally access to raw data. This new product can be found at www.slf.ch on the internet or through the App "White Risk" and also as printable bulletin. The new product focuses on the end user knowing which text refers to which area. This was not always easy up to now. The App also contains knowledge content regarding snow and avalanche dangers. We publish this twice a day in 4 languages. The translation carries problems in itself. Translations are now done in a building block system. There is a set of 100 blocks which can be combined. Another problem is that this cannot be communicated by phone or teletext since it is a graphic product and there is no longer a text product.

Questions/Remarks:

Will the "White Risk" product be changed?

Dürr: Yes. "White Risk" consists of different parts. Not all of those parts are going to be ready at the same time, but next winter it should go online.

Where do you apply the building block system?

Dürr: Describing the dangers on the App and in the internet. A majority of users prefer standardized texts. They recognize the text and therefore know exactly what they mean and what and where they apply.

Can your data be used on other, non-SLF web sites?

Dürr: No.

What systems does the App work with?

Dürr: Apple and Android. Not for Windows Mobile.

Have you considered classifying the terrain?

Dürr: Not yet. There are slope maps. These are the more commonly used tools.

Dürr takes a few minutes to talk about a climbing accident:

There was a deadly accident 2 weeks ago on a climbing route. The rope broke. The route was equipped with fixed aluminum carabiners. A carabiner in the middle of the route caused a problem. Through rope friction sharp edges developed on the carabiner. One should be careful with not removing carabiners on a route.

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13-SLF-New-Bulletin.pdf

Andrzey Pozlutko, Piotr Kaplon, GOPR: Alpine Emergency Notification Application

The App concept is to locate a person who is in difficulty. The App works with Apple and Android. There is a button that can be activated which then relays the coordinates and other information such as name and phone number. This information is put in when the App is set up. The information can be transmitted to any place where an internet connection is available and is compatible with all browsers. The advantage of the App is that an alert notification can be sent at any time. The person sending the alert can be quickly localized and the family can be notified as well. Time can be saved. The App works with text messaging, so an alert can be sent out even when the signal strength is weak.

Questions/Remarks:

> The data transmitted are private. How are they stored (privacy)?

Pozlutko/Kaplon: The data is stored on a secure server.

> Gebhard Barbisch: What happens if someone in Austria, for example, answers this call?

Pozlutko/Kaplon: The alert goes to the super user.

> Gebhard Barbisch: These Apps need to be checked. The users need to know which App has to be used in which country. What happens if someone in Austria, for example, uses your App?

Pozlutko/Kaplon: Ideal would be an App that can be used in different countries. This App is only for Poland.

> There is a danger that users of Apps like these will risk more. Therefore, marketing of such Apps should be carefully considered.

Pozlutko/Kaplon: The product is mainly to make the tourists feel safe.

> Gebhard Barbisch: It is important to mention that the App is not about providing more safety but to be able to immediately notify the authorities in case of an emergency. No one is safer in the mountains just because of this App.
>
> Bruno Jelk: This question comes up with each and every device in modern rescue. There is always the reaction that people will engage in more risk. However, the advantages outweigh these concerns. There are also alpinists who have bad luck and have an accident, and these people can be helped faster. The problem with the App can be that people will send off an alert and

then move afterwards. This has to be taken into considerations by rescue organizations.

Lukas Dürr: Before Apps, one collected phone numbers as well as radio frequencies from abroad. Now we collect Apps. In my opinion ICAR needs to coordinate these Apps.

File:
14-gopr-Alarm-Applikation.pdf

Jiri Brozek, Czech Republic: Application for Mobile Phones in Mountain Rescue Stations

There are no high mountain ranges in the Czech Republic. The trails are well marked with signs and poles. The Czech mountain rescue was established in 1934 and is partially federally organized. An App with the following contents was developed: Call with GPS support, information about ski areas, mountain huts, mountain rescue, weather, avalanche situation, first aid. When using the App, either an alarm is sent by text message or a call is made. The text message can still be sent when the signal strength is very weak. The recipient receives a text message with name, coordinates, and phone number. The position is shown on a map. The App works in German, English, and Czech on Apple and Android. The search is started when the notification comes in. We use GPS, a topographical map, radios, and dogs. The communication of the Garmin device happens online and also works over radio. Advantages: Easy system, the operation and search can be started immediately. The search covers the indicated location.

Questions/Remarks:

Dogfinder is used in the Czech Republic. In Germany and Austria this is not authorized. Is this going to remain allowable in the Czech Republic?

Brozek: Yes, we have a permit.

File:
15-Brozek-HS_Alarm-App.pdf

Gebhard Barbisch, OeBRD: Avalanche Accident in the Arlberg Region

This accident took place on February 17, 2012. One of the persons involved was a member of a royal family. The prosecuting attorney's office got involved and forwarded the case to the attorney general in Innsbruck and they in turn forwarded the case to the Justice Department in Vienna. Prince F. went skiing with his friend F.M. There was no ski instructor or mountain guide involved. Both carried avalanche beacons, which were turned on. The friend also carried an airbag. The avalanche situation was delicate, danger level 4 for days. The freerider area, in which they both were, is often used. The slope in the accident area goes up to 42 degrees. At the entry area there were detonation marks. That day they had tried to detonate avalanches in this area, with a negative result. Where and who triggered the avalanche is still under investigation. Prince F. was carried away by the avalanche and was completely buried at approximately 30 centimeters in the area of the ski route. His friend F.M. was also carried away but was able to deploy the airbag and got hung up in bushes a little above and to the side of the avalanche cone. The distance between the two

was big. F.M. as well as third parties notified the ski patrol in Lech. Without delay they activated an avalanche rescue operation through the mountain rescue headquarters. The ski patrol in Lech was already on high alert due to the critical avalanche situation. The calls to ski patrol and mountain rescue came in at 12:15 p.m. The Heliport Zürs is approximately 6.7 kilometers from the site of operation. They landed at 12:28 p.m. The emergency physician and the operations leader were dropped off. The helicopter then collected more rescuers. At the same time mountain rescuers who were out and about as ski guides arrived on site. At this point friend F.M. was still walking in the snow down to the site. No one knew who it was they were searching for. At 12:28 p.m. there was a first transceiver contact; first probe contact was at 12:30 p.m. By 12:35 p.m. the head had been freed. At 1 p.m. the victim was transported by Skidoo to the helicopter, which took off at 1:20 p.m. to Innsbruck (Feldkirch was not able to admit the patient). Only when the patient was readied for transport did they find out who the victim was. Prince F. was reanimated with an AutoPulse device. This device uses a rechargeable battery. A replacement battery is always on board and the care of the batteries by the team is documented. The device was used in order to transport the patient by Skidoo to the helicopter. During this leg of the rescue, the first battery depleted. The reanimation continued by hand while the battery was changed. There was never an interruption in the reanimation. During the transport on the helicopter, the device was turned off because the patient did not need it anymore. As soon as it was common knowledge who the patient was, the mountain rescue was notified that PR was going to be done by the security directorate and only in agreement with the royal family. The authorities established a press office, which included mountain rescue, royal family, police, community Lech and tourism. PR work took over a week. The newspaper "Bild" then incorrectly published that the patient was only doing so badly because there had been a mishap on the helicopter; the battery of the reanimation device had been empty.

Questions/Remarks:

> This device is used often in France. It is important to keep checking the batteries; charging as well as depleting them. This is a good device to help with reanimation, but reanimation can be just as well done without this device.

Barbisch: I agree with this. The device is used in addition to manual reanimation.

> Have you done anything about the journalist?

Barbisch: "Bild" can be sued. A company called Wucher has done so.

> Toni Grab: How is the Prince, who used an avalanche beacon, doing, and how is his friend, who used a beacon and an airbag, doing?

Barbisch: One is physically and the other mentally in bad shape.

Comment, added on 10/21/2012: the prosecutor's office suspended the investigation. Friend F.M. cannot be reproached.

File:
16-Barbisch-IKAR-Lawineneinsatz-Arlberg.pdf

Malik Karaoui, France: iSis – Intelligent System for Mountaineering Rescue

The system works on iPhone 4S and 5. There are three alarms; when falling, accelerating, or manual. In case of a fall or acceleration, the alarm is sent automatically after analysis of various data. After the alarm a Bluetooth Cloud is initialized. The application helps save time and various data is available immediately, i.e. if the person is allergic to something. The system also has a search function. People who are found in an avalanche can be marked. The search function is very exact. The search can be switched from GPS to Bluetooth. With that the search can be done more precisely. iSis has an unlimited range. A slope can be visualized out to 50 kilometers. However, an internet network is necessary. If there is no network, Bluetooth has to be used, which limits the range to 100 meters. Multiple alarms can be managed at the same time. iSis costs less than an avalanche beacon. Use is easy, no training is necessary. Advantage: Fast notification, transmission of lots of information, low cost. This application is free for rescue organizations.

Questions/Remarks:

> What happens when the internet does not work? Water and snow can influence the Bluetooth connection.

Karaoui: During the first tests 2 years ago, the phones were buried in snow and then searched for with Bluetooth. Down to 2 meters under the snow there were no problems. The tests were done during day, night, good weather and bad weather. If the burial depth is 4 or 5 meters, there could be problems.

> Dominique Létang: We worked with Malik. We also worked on the application not initiating false alarms. One of the problems we could not solve was the application automatically sending a notification when the cell phone falls off the chair lift. Could you give us more information regarding grid search?

Karaoui: There are 3 numbers (favorites) which receive notification of the alarm. In a ski area, however, the number of the rescue station is automatically saved as a 4th favorite.

> What about battery life, how does it affect it?

Karaoui: The GPS data is updated every 10 minutes. The devices for measuring the necessary data do not use that much battery power. The device can be used for the day without problems.

> Is every fall or jump measured? Does the system set off an alarm when jumping?

Karaoui: The analysis window when free-falling or in an avalanche is 60 seconds. If the person keeps going within the 60 seconds, the alarm is not set off. A signal lets the user know when the alarm was set off. There is a second signal when the call is received by the rescue station. This can help to calm down the victim.

> The GPS accuracy is 10-15 meters. In an avalanche this would need to be more exact. Is there a solution to this?

Karaoui: iPhones 4S and 5 can also read American data and are connected to Russian satellites; that is why the data is more accurate. The software analyzes the GPS data every 90 seconds anew, so the reading becomes more accurate. The device switches automatically

to Bluetooth. Therefore, the person buried in the snow is being scanned and can be located accurately.

> The operating temperature for iPhones is posted as 0 to +35 degrees. Do you have a solution for that?

Karaoui: Users carry the avalanche beacon under the jacket. The manual states that the iPhone should be worn under the jacket. The problem persists for the rescuers, but one can buy a good cover or sheath. Also, the device was used on Aiguille du Midi for 4 hours without cover and it worked.

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17-ISIS-App.pdf

Mathias Hausmann, UEPAA: Epidemic Emergency Calls By Mobile Mesh Network – Test by ICAR Experts

ETH Zurich developed a technology which connects phones in areas where there is no cell coverage. Each cell phone transmits data/emergency calls by WLAN from one cell phone to the next until one has coverage. Data can therefore reach a cell phone that is within coverage. The basic idea was to integrate an avalanche beacon or SPOT in a cell phone. Immediate buddy care shall be possible, i.e. for the ones who do not have an avalanche beacon or have a medical problem close to a hiking trail. The phone also recognizes accidents and sends out the alarm; false alarms due to the automatic alarm feature in the cell phone are always problematic. That is why UEPAA involves other people on site into the confirmation process and first aid. False alarms can be completely ruled out with this. The basic principle is to not be in the outdoors alone. This App supports grouping and decision making in case of an emergency, especially for inexperienced alpinists. Cell phones with this App are constantly in contact with other cell phones. Last known positions are thus collected from areas without coverage. This environment is integrated in case of an emergency and there is the option of buddy care without having to start an air rescue. The App also works and connects to a cell phone in a helicopter. UEPAA is currently testing this together with REGA. Data transmission is via WLAN because it has a greater range than Bluetooth and works on all smartphones. There is a worldwide free basis App planned, and alpinists can activate special functions for a fee. For rescue: Faster notification, phone ID is transmitted, last known positions (new also from areas without coverage); these are updated and transmitted to the rescue team, especially if the person moves. Phone to phone range is 400 meters; with an external antenna on the helicopter up to 1 kilometer is possible if there are no obstacles.

Information and opinions regarding this to ikar@uepaa.ch

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18-Uepaa.pdf

End of Meeting: 12 noon

For the English Translation: Olivia A. Cashner