



Terrestrial Rescue Commission Presentations

Place: Åre, Hotel Holiday Club
Date: October 20, 2011
Time: 10:30 a.m.
Participants: Members of the Terrestrial Rescue Commission
Chairmen: Bruno Jelk and Gebhard Barbisch
Minutes: Fabienne Jelk

Foreword by a Colleague from Iceland:

Every 2 years there is a conference in Iceland. The next one is from October 19 through October 21, 2012. You are welcome to participate.

Marek Biskupic, SK: Mobile Technologies and Relevance for Search and Rescue Operations in Slovakia

Talks about the possibility of locating cell phones. There are areas in the Tatras where there is no reception or bad reception. Those areas are not ideal for tracking cell phones. In the Low Tatras tracking cell phones is more of an option. If the cell phone is turned off, the cell tower through which the last call went can still be determined. If the cell phone is turned on, the area in which the phone is currently located can be determined. If it is a foreign cell phone provider, it is only possible to find out when the phone had been used the last time. He presents several cases in which locating people through their cell phones were successful and also cases in which it was not possible to locate them. Conclusion: locating someone through their cell phone depends on the reception coverage by the provider. There are only few cell towers in the mountains. There are also problems at the country borders. The GPS does not work in forested areas.

Questions: Colleague from France: Tracking cell phones was also attempted in France. There were cases where the provider stated that the person was in the city and did not need to be looked for which was incorrect. Are there devices with which people can be found when they carry their cell phones turned on?

Bruno Jelk: Currently, tracking cell phones in the mountains is still very inaccurate. There are several devices through which cell phones can now be located. The problem with this is privacy issues.

Kirk Mauthner, MRA: Mirrored Systems

Talks about using a two-rope system in which each rope is fully capable of being the mainline as well as the back-up. During edge transitions, if something catastrophic happens, it can result in high forces to the back-up system. If the mainline fails, the back-up line has to work. Various back-up systems were tested with the "belay competence drop test". The back-up line can only be considered "competent" if the load can be stopped within 1 meter. There are also other criteria. Not many back-up systems fulfill the criteria. During edge transitions there is also the danger that the ropes are being pulled over sharp edges if the attendant stumbles. It is more likely for a rope under tension to rip than an untensioned one. Therefore, the back-up line is only kept hand-tight when transitioning over edges. As soon as the edge has been passed, tension is applied to both ropes. This also helps to prevent rock falls caused by the ropes. The tests also showed that the load can fall farther if the rope is untensioned. He shows a film and describes a rescue in which such a mirrored system was utilized. In summary, mirrored systems improve risk management. Both ropes need to be fully capable of being either a mainline or a back-up line. Rescuers and material are used more efficiently.

Questions: Can the risk be minimized by tensioning both ropes during the edge transition?

Which risk?

That one or both ropes fail. Is the risk not greater if only one rope carries the load?

If both ropes are pulled over the edge under tension, the risk is much greater; and we are only talking about edge transitioning.

Peter Veider, OeBRD: Alarm and Operational Lead – Grossglockner

Describes a major event on the Grossglockner that happened between October 29 and November 3, 2010. On October 29 five Polish and 8 Czech mountain climbers ascended to the Stuedlhuetten. The next day the Czech roped party entered the normal route. The Polish mountain climbers took the Stuedlgrat. They climbed in a 3-man and 2-man roped party. The teams separated at about 5:30 p.m. because the 3-man party had difficulties with conditioning. At 6:50 p.m. the 2-man team reached the summit after an ascent of over 11 hours. This team did not descend through the Stuedlgrat as agreed upon but through the normal route and spent the night on the Adlersruhe, contrary to their agreement with the other team to stay at the Stuedlhuetten overnight. From that point on there was no more communication between the two Polish roped teams. The 2-man party realized the next day at 12:10 p.m. that the 3-man team was not at the Stuedlhuetten and made a distress call. Another emergency call was made by the mother of one of the missing climbers, stating that her son had contacted her that morning at 7:34 a.m., saying he had a lower leg fracture. The weather was bad. At 7:35 p.m. the rescuers found the body of a climber which was attached to a safety post. The climber had been left behind by his roped party in order for them to get help from the 2-man team. The weather stayed bad on November 1 and 2. A rescue was still only possible terrestrially. On November 3 the remaining 2 Polish mountain climbers were found dead. The site of their discovery was at a completely different place from where the rescuers had been looking for them.

Conclusion: The accident was based on a chain of events of several mistakes made by the Polish mountain climbers: Wrong choice of route (conditioning was not good enough for this route), separation of the two roped parties, leaving behind a climber, the climbers not sending a distress call, attempted descent of the two remaining climbers of the 3-man team. Language problems also caused difficulties with the rescue. Therefore, attempts have been made at gathering better information through new Apps and techniques in such situations.

An App is being developed that will work with all Smartphones. In case of an emergency call, the location will be automatically transmitted to dispatch. Dispatch can then relay the exact location of the person in distress to the rescuers. When abroad, the data needs to be updated.

Remarks regarding the App:

Bruno Jelk: There was a case in Switzerland where a sledder initiated a distress call through the App but then kept on moving. Therefore, the rescuers were looking for him in the wrong place.

Peter Veider: Dispatch calls the person back and gives orders as to what the person needs to do. Dispatch is also able to see how much battery life the cell phone carries.

Bruno Jelk: Describes a case in which a paraglider had an accident. He told emergency services where he was, but he could not be found in that location. He was then instructed on how to download the REGA-App, and ultimately he was found 7 kilometers from where he had claimed to be initially.

Helmut Schmid, Bavaria: What kind of operational, technical measures could have been undertaken in case of a timely emergency call?

Peter Veider: Not much else could have been done.

Gebhard Barbisch: Peculiar in this case was that one mountain climber called his mother but did not make a distress call.

Colleague from France regarding locating cell phones: Where coverage is good, it is up to the provider to give the exact location. In areas where there is no coverage, there is a system called Lutes that can track all cell phones in the area. It is very expensive at 100,000 Euro. So far only intelligence services have this system available. It is also possible to listen in on calls.

Peter Veider: IMSI catcher is the name of the system which is also being used in Austria. A rough localization was possible with this system. However, only the Department of the Interior has this system at this time.

Gebhard Barbisch: Providers have repeaters which they utilize when one of their transmitters fails. These could be brought to the area in which a person is missing. The problem is logistics.

Question: How did you ensure the safety of the rescuers in this operation?

Peter Veider: There was an operational command who examined if and how the rescuers should be deployed. It was definitely borderline, but the rescuers did not risk anything foolishly.

Jean-Baptiste Estachy: Use of Traction Pulley

Shows a technique they developed through which someone can be flown out of a crag without the rescuer having to uncouple from the helicopter. A film is shown. When the emergency call comes in, one has to try to gather as much information as possible. The terrain needs to be analyzed in order to determine whether the traction pulley can be utilized.

The rescuer is in constant contact with the team. The rescuer goes to the victim, hooks him/her up, cuts the rope of the victim, lets the pilot know, and then the pilot can then fly away with the rescuer and the victim. The necessary material is always readily available in the helicopter. The three most important factors are training of the rescuers, communication, and one has to always be able to abort the operation and utilize a different technique.

Bruno Jelk: We use Grillon.

Questions: None.

Anders Eriksson, Swedish Police: Cross-border Mountain Rescue

The presentation talks about a cross-border mountain rescue between Norway and Sweden. The collaboration developed through a large-scale project. The goal is to improve efficiency of cross-border rescues as well as communication between the teams. Harsh conditions favor the Norwegian and Swedish mountains. There are high altitude mountains but also wide areas, swamps, caverns. Great distances have to be overcome; 27,000 square kilometers need to be covered. The weather can change very quickly. It is not always possible to use a helicopter. It can be difficult to orient oneself in the terrain. Very few people live in this area, but during peak season up to 20,000 tourists will come and visit. These travel with skis or snowmobiles or are hiking. Operations usually involve fractures, missing persons, but also water accidents. Various communication means and rescue means etc are utilized. Thanks to the project, these aspects could be improved. The rescues occur faster and safer. The project consists of 3 aspects: Improvement of the ability and information across the border, improvement of communication, improvement of search methods. Afterwards, exercises in cave rescue, whitewater, glacier rescue, and exercises with canine units are shown. Exercises are also done with 15-year-old students. They are taught how to get back out of the water in case they break through the ice. Examples of real-life rescues are shown. Half the money for the project comes from the EU. There is a binder with information regarding the project.

Questions: None.

Theo Maurer, ARS: Alpine Rescue Switzerland in Long-Distance Gondola Rescue

The presentation is about terrestrial long-distance gondola rescue without a helicopter. In Switzerland, the cable car operators are themselves responsible for the mountain and emergency organization. Alpine Rescue Switzerland is only involved when the cable car operators cannot fulfill the requirements. The cooperation is then regulated with a written agreement. Collaboration will increase in the future. The rescues are done terrestrially when the helicopters cannot be deployed due to bad weather. If the persons cannot be rappelled directly to the ground, the rescues become fastidious. Example: Paraglider on the Brienzer Rothorn. The span of the cables from one anchor to the other was 1 kilometer. Underneath there were constant wet slides, so rappelling to the ground was impossible. Because of the rotor wash of the helicopter, the rescue was done terrestrially. There was a risk that the paraglider could be blown off the cable. A rescuer was rappelled over the cable with the cable rescue device. He first secured the pilot and then stowed away the canopy. Afterwards there was a direct relay to the helicopter. Example: East Switzerland, Saentis. A paraglider got caught in a cable of a transport cable car. The rescuer was rappelled from the summit station downwards. The pilot was then rappelled to the ground. Following, the rescuer was pulled up with the Paillardet winch with the cable rescue device. These rescues are especially tasking for the rescuer who is being rappelled by himself. Material utilized: Cable rescue device which demands two independent pulleys, one for the victim and one for the rescuer. In addition, there has to be a descent device. Alpine Rescue Switzerland uses Rollgliss. The belay and haul ropes are half-static ropes, the longest is 600 meters. One problem is the

slacking of the haul rope. Therefore, the rope is hung on the track rope by means of a hanger every 40-50 meters. When people have to be pulled up over long distances, a fast winch is needed. A motorized winch was tested which could pull 30 meters a second. ICAR recommendation #5 is not utilized in these cases. These operations are rare. Therefore, good material and good training of the rescuers are important.

Bruno Jelk: Hanging up the haul rope is a good idea. They had a case where a rescuer could not reach the cabin because the rope was sagging all the way to the ground.

Questions: None.

Ray Bellringer: Alpine Rescue in New Zealand

New Zealand is 2 small islands at the end of the world. The first people arrived 900 years ago. There are a little over 4 million residents. There are two mountain regions on the northern island. Those are volcanoes. The southern island is dominated by a mountain chain stretching several hundred kilometers. The highest mountain is Aoraki/Mount Cook. There are 2 coordinating offices for SAR operations in New Zealand. The only mountain rescue team is stationed on Mount Cook. There are 18 huts on this mountain. New Zealanders as well as international climbers frequent Mount Cook. In 1914 there was the first documented death. There are 3-5 deaths per year; about 64 people are still missing. Four people are full-time employees and 4 people help out. Fifty percent of the rescuers' work are operations and training, the other 50 percent are other tasks a park ranger has to carry out. Usually helicopters are used for rescues. In bad weather there is no terrestrial rescue since the rescuers would not survive such an operation. There are also avalanche accidents. Several accidents on Mount Cook are presented. A 30-meter-long longline is used for most rescues. There is tight collaboration with the police. He describes an accident of a woman who fell into a riverbed. A debriefing is held after each operation. He also presents an accident of two Japanese mountain climbers with which they had lost contact. On day 3 they found the tent, but the helicopter could not land due to the wind. Therefore, a bag of food, clothing, and a radio was dropped. However, the Japanese did not find this bag. A storm followed in which the Japanese lost their tent. When the rescuers finally were able to land, only one mountain climber was still alive. He had survived because he dug a hole with a pen and a helmet. The temperature was -21 degrees during the rescue. There are also many forested areas in New Zealand. A lot of volunteers participate in search operations. Many people drown in New Zealand. This is called the "New Zealand Death".

Terrestrial Resce and Avlanche Rescue Commissions Presentations

Chairmen: Bruno Jelk, Gebhard Barbisch and Hans-Jürg Etter

Hrvoje Dujmic CMRS: Planning Safety in Nonurban Terrain

Croatia is a small country, but more than 10 million tourists visit every year. Most of them go to the Adria. The mountains border the sea. There are about 800 operations per year. Prevention is important. A few years ago the rescuers were made responsible, by law, for rescues in nonurban areas. Presented are accidents on the Ilija, 961 meters above sea level. There were 4 deaths in 3 years (2003-2005). They were all hikers, not climbers. They were tourists who came to enjoy the beach and then went hiking. The trails were hardly marked and the maps were bad. The accidents all had the same MO. Therefore, it was considered how such accidents can be prevented. The most difficult part was to reach the tourists themselves. The message to the tourists had to be changed. The maps had to be improved

and the trails had to be marked better. In addition, mountain huts needed to be built. The whole area was mapped. The hiking trails were recorded by GPS and then the coordinates were published. In the meantime several huts were built. Classes were offered to people who worked in the Adventure industry. There is no law that requires them to attend classes; however, most of them participated voluntarily. There are also classes for children, and the natives are educated as well. Additionally, there is also a cross-border program, the EU IPA Cross-Border Cooperation Program. This includes, for example, trails getting new markers, buying materials, updated training for rescuers. A similar project is planned in Bosnia-Herzegovina. These projects are supported by the EU. ICAR is also a very good platform for this collaboration.

Questions: None.

Bob Sayer, CA: Emergency Response Plan

Talks about Emergency Rescue Plans. Various changes were made to their emergency rescue plans in the past few years. The goal of such a plan among other things is to regulate competencies and assignments, to develop checklist to ensure nothing gets forgotten, to make the decision making process easier under pressure, etc. In Mike Wiegele Heliskiresort the organization has to do rescue operations themselves. There are 30 mountain guides, 1 physician, 10 helicopters. There are 4 types of rescues: Type 1 can be managed by the guide on site; type 2 the guide needs support from another guide or a helicopter; type 3 are bigger events that make outside help necessary (for example the police); type 4 a helicopter is missing. When an emergency call comes in, the first guide arriving at the site is the rescue leader. He makes the decisions. The second guide who arrives at the site is the accident site commandant. He defines such things as evacuation zones, takes over communication and makes sure that no one gets forgotten in the end. The base coordinator watches the rescue operation from the lodge. He knows where the material is that is needed for the rescue and watches the checklist. There is also a base commandant. He is responsible, for example, for the coordination with the police and the helicopter operators. In order to ensure the safety of the rescuers, something new was introduced in the past few years. For each rescue a 3-man safety committee is convened which is not part of the rescue itself. The rescue leader cannot participate. The safety committee can abort a rescue due to safety concerns. In order to be successful in rescues, roles and tasks need to be clearly defined. For each task 3 people are trained. When assigning these tasks, the ability of the personnel has to be considered. Exercises are held routinely. Five exercise runs are needed at a minimum in order for the system to work appropriately. External monitoring needs to be guaranteed. A debrief needs to be done after each rescue.

Questions: None.

Andzey Gorka, TOPR: Methods of Analysis of Avalanche Accidents and Processing of Avalanche Data – Case of Mala Koszysta , Polish Tatras, 15th March 2011

Andzey Gorka invites all people who already have experience with Dyneema ropes to Zakopane next June where an experience exchange is to take place.

Describes an avalanche on March 15, 2011. goal of the analysis is improving the rescues, improving the medical care, and issuance of warnings for dangerous areas. The data was collected via GPS and other methods. There are analyses of the GPS data, rescue operations, medical reports, weather reports, videos, photos, etc. GPS data show, among other things, where the victims were lying, the extent of the avalanche, and where the fracture was. With this data, avalanche maps can be drawn. The GPS data is also used to generate 3D maps. The detailed rescue report entails the timeline of the rescue, which rescuers had which tasks assigned, etc. The medical report consists of the time of digging the person out, the position

of the victim, his/her temperature, etc. The weather report shows wind force etc. it is also analyzed how the avalanche situation developed 14 days before the incident. He presents the analysis in context with an accident on the Mala Koszysta. There were 3 victims which were buried very closely together. The conclusions were: One victim died on the way to the hospital. The victims had left their avalanche beacons in the car. Twenty minutes after the alarm, the rescuers were on site. There were many rescuers on site who were not able to help. One conclusion was that it is better to have fewer but well trained rescuers. Due to the weather conditions, the avalanche was predictable. The victims had triggered the avalanche themselves.

Questions: None.

Antonia Nerin, ES: A Hospital between Sky and Earth; Sanitary Logistics in the Khumbu Valley during Spanish Lhotse 2011 Expedition

Describes taking care of frostbite on site. The goal in 2011 was to take care of the residents of Khumbus and supply the base camp. There were 4 physicians. He shows a case in Dingpoche where a woman had kidney stones. Each spring a medical expedition is undertaken to the Khumbu Valley. There is cooperation with the helicopter operators. He shows a film of a rescue in Nepal with the Swiss pilot Daniel Aufdenblatten. One of the rescued persons had frostbite on his feet. People are examined to find out what the effect of the altitude on the human body has. Among other things blood counts are analyzed at 8000 meters above sea level and the difference between blood counts in Nepalese and European people. Mountain climbers are examined at base camp before the climb Mount Everest. The native residents as well as the mountain climbers get care. A first-aid kit is assembled for mountain climbers that they can use on the mountain. In case of frostbite on the feet, the feet should first be submerged in hot water, 37-38 degrees Celsius. The same applies to the hands. The problem with frostbite is the microcirculation. The hot bath stimulates the blood circulation. It is important to react quickly. Blisters must not be opened. Through scintigraphy it can be determined what needs to be amputated. Insurances need to cover illness as well as accident. Costs for rescue and return to home should also be covered.

Questions: None.

End of Meeting: 5:30 p.m.