



**ICAR-Congress – Killarney / Ireland 2015  
Presentations Terrestrial Rescue Commission**

Place: Killarney (Ireland), Brehon Conference Center  
Date: October 15, 2015  
Time: 10:30 a.m.  
Participants: Members of the Terrestrial Rescue Commission  
Members of the Avalanche Rescue Commission (from 2 p.m. to 4:30 p.m.)  
Member of the Air Rescue Commission (from 2 p.m. to 4:30 p.m.)  
Chairmen: Gebhard Barbisch and Kirk Mauthner  
Minutes: Fabienne Jelk

**1. I. Ziak HZS, J. Janiga HZS: Positive and Negative Aspects of the Mountain Rescue Service Operational Management**

I. Ziak and J. Janiga present the procedure during emergency calls. When a rescue call comes in, it is always about algorithms versus improvisation. The incident commander plays an important role. He decides based on objective as well as subjective criteria. In Slovakia today the objective criteria make up 70% as opposed to 10% in the past. The objective and subjective criteria as well as the duration of reaching a decision based on these criteria are presented. Different flow charts and levels, depending on the incident, were developed. These also include NACA concepts; outlining the severity of the injuries, accessibility, possibility of air rescue, etc.

Questions/Comments: None.

*File: 20151015-TER-01-HZS\_JOZO\_EN.pdf*

**2. Jan Gorniak: Mobile Applications in Mountain Rescue**

There are many apps being used in rescue. Those apps should be simple. The newly developed mGOPR app has new functions that are very important for rescue; location, information about the person, vital functions (pulse and body temperature), medical information, available help, warnings, guidelines, etc. During an emergency, the coordinates of the origin of the

call are transmitted. The app contains the planned route, past activities in the mountains, and tools such as compass, altimeter, and inclinometer. The app also contains touristic data as well as information about GOPR.

Questions/Comments: None.

*File: 20151015-TER-02-mGOPR.pdf*

### **3. Javier Chamorro: Centum, Research and Technology, Company Representation**

The company developed a sensor (airborne sensing base transceiver station) which can find, identify, and locate cell phones. It also provides cell phone communication. Information from the cell phone provider is not necessary. The sensor is used in combination with a camera. The sensor also works in areas where there is no cell phone reception. The sensor can be utilized by police and rescue organizations. In rescue the sensor helps locate missing persons and the ability to communicate with these persons.

Question: Felix Meier: Can the sensor locate avalanche beacons or Recco?

Avalanche beacons are difficult. Recco should be possible with little expenditure. Currently, the sensor is set for cell phones.

Question: Fred Alistair: There are legal issues with the use of the system in the UK. How is that in other countries?

There are certain countries where this is an issue. However, the system also allows looking for only one specific number.

*Files: 20151015-TER-03-CENTUM-Lifeseeker.pdf  
20151015-TER-03B-CRT - 2. LifeSeeker - Video.mp4  
20151015-TER-03C-CRT - 2. Lifeseeker\_EN.pdf*

### **4. K. Mauthner, PC: Comparison of Sharp Edge Testing between Two Tension Rope System and Single Mainline with Dedicated Safety Line techniques, and How this Affects Human Factors**

Kirk Mauthner talks about human factors when using different systems in rope rescue. Several factors are complicit: human factors, terrain, dangers such as lightning, materials, and methods/techniques. Two systems of rope rescue over sharp edges are shown:

- A) Single mainline with dedicated safety line
- B) Two tension ropes.

In order to determine the better of the two systems, data is needed. A rope under tension is more likely to be damaged when it is running over a sharp edge than a rope not under tension.

Tests of both systems are shown. Results: There is no data to suggest that system A minimizes the risk compared to system B. Edge protection is always a must. System B completed the tests better.

Ropes with less tension are less damaged by sharp edges. It is important, however, to regularly train and supervise the persons working with these systems.

Question: How is system B easier?

The training is the same for both ropes. Anyone working on the system can see the others. When someone is well trained, he can work with someone who isn't as well trained.

Question: What type of ropes was used?

Fiber ropes, 11 mm. Dyneema ropes were not tested.

Question: Where was the rope anchored?

The ropes were anchored in a way so as to not affect the test results.

Comment: Italy has the same issue. It works better when using dynamic systems.

*Files: 20151015-TER-04A-Kirk-Mauthner.pdf*

*20151015-TER-04B-Two-tensioned-Tests - 1080p.mov*

## **5. Tom Wood: Suicide Missions - Coping with Suicide Recoveries and PTSD in the Mountains**

As a mountain rescuer one wants to rescue people. Tom Wood participated in over 70 body recoveries. Many rescuers cannot deal with these situations. Noticeably, in the western mountain states of the US (Arizona, Colorado, Oregon, Washington, Utah, Idaho, Wyoming, Montana, New Mexico, Nevada, and Alaska) the suicide rates are high. In Colorado in 2014, there were 1058 suicides. Possible causes range from altitude, isolation, rate of gun owners, to alcohol. Today's mentality is to solve problems on our own without asking for help in time. There are higher suicide rates among rescuers, firefighters, and police officers. Many incidents they are dispatched to involve suicides. The manner in which these suicide incidents are discussed after the mission can influence one's own suicidal thoughts. It is difficult to judge how much a rescuer can bear. The breaking strength of a carabiner is much easier to determine.

Strategies on how to deal with these issues are presented: allowing oneself to not always be strong, seek help from appropriate people/groups, repeatedly asking team members if they need help, support team members when they show weakness. One does not have to be a psychologist to give help, only human. Sometimes humor is a good way to deal with the situation but it can also be inappropriate.

These issues need to be addressed. CISD (critical incident stress debriefing) is one way to accomplish that.

Ten warning signs of potential suicidal thoughts are listed: continually talking or thinking about suicide, clinical depression, death wish, loss of interest, stating of committing suicide, to feel helpless, hopeless, or worthless, putting one's affairs in order, talking about how it would be better to not be here anymore, suddenly being calm and happy instead of depressed, talking about suicide, to say goodbye to people.

Questions/Comments: None.

*File: 20151015-TER-06-SUICIDE MISSIONS.pdf*

## **6. J. Loriette, GSM; M. Alemonte GSM; L. Legoff GSM; F. Petitjean, GSM: Germanwings Accident**

On March 24, 2015 a Germanwings Airbus A320 with 150 people onboard crashed in Seyne-les-Alpes.

10:42 a.m.: Airplane disappears from radar. Rescue plans are put together: SATER (Aero Terrestrial Rescue Plan, information gathering, research and rescue) and NOVI (Rescue Phase).

During the first phase (rescue phase) the worst-case scenario was assumed; 150 injured, no access by road, bad weather. Initially, a pressure failure was thought to be the cause of the crash.

10:56-10:59 a.m.: The first helicopters take off.

11:07 a.m.: The first helicopter is on scene. It was obvious that the plane had been completely destroyed. The plane was easily identified. Problem: Crash site; steepness, one hour ETA.

11:15-11:35 a.m.: Rescuers are winched down. Body parts are recovered. No survivors.

11:35 a.m.: Landing at the crash site. After it was clear that there were no survivors, it was no longer a rescue mission but a legal operation. The gendarmerie was now involved. Their mission: Identification of the victims, investigation of the cause of the crash, organization of official visits and the care of the next of kin.

Body parts had to be identified, personal items collected, and the cause investigated. Body parts were collected and identified by DNA. A new process was used which allows DNA to be analyzed within 2 ½ hours. 2866

biological samples were analyzed which represented 150 different DNA strands.

17 helicopters were operational on the day of the crash. These had to be coordinated and monitored. 150 flying hours between Tuesday and Saturday, including 350 winch operations and no incidents.

Media presence was enormous. The use of mountain rescuers had to be organized. Rescuers were on duty for 3 days and then switched out. One rescuer worked with one investigator. Accidents during the operation had to be avoided. There were never more than 50 rescuers/investigators at the crash site at anytime. The rescuers were looked after psychologically. Dangerous materials were also a concern (chemicals, radioactivity). Soil, air, and water had to be analyzed to determine the health risk for the rescuers and the environment.

Psychologists and interpreters were organized for the families. The problem was that no one was used to this type of situation. Families of 16 countries and 4 religions were involved. These people had to be informed, supported, and taken care of. A clear organization and clear goals were important.

Question: What did the operation teach?

Which vehicles could be utilized; only Land Rovers were able to navigate the terrain and more were needed.

One rescuer had the need to give the victims a face. A forensic physician advised against it. The body recovery work needs to be separated from taking care of the families.

Question: Who carried the cost?

Germanwings carried part. They replaced the rescue material that had been damaged during the operation.

Question: Were the rescuers also taken care of physically not just psychologically?

Yes, but there were no incidents during the whole operation.

Question: Were the plans that had been made before the crash appropriate?

Risks had to be considered. There are training sessions for these kinds of incidents, but the reality is always different. The coordination needs to be trained beforehand as there are many organizations involved in such a big incident.

*Files: 20151015-TER-06A-Crash A320-AHP-Mars-2015-Anglais.mpg  
20151015-TER-06B-H-Presentation-crash A320.pdf  
20151015-TER-06C-Germanwings.pdf*

*20151015-TER-06D-CRASH A320-VA\_EN-VALIDATION.mp4*  
*20151015-TER-06E -Germanwings.pdf*  
*20151015-TER-06F-Coordination-terrestre.pdf*

## **7. M. Genswein, P. Fauchere, Raphy Richard: Scoop and Run Evacuation Procedure**

How can we work on an avalanche run out while it is still dangerous (secondary avalanches)? How can the rescuer be flown out immediately? What tools are used; hoist or human external cargo? The pros and cons of both systems are shown. Air Glacier uses human external cargo. An industrial-rated shock absorber is used in conjunction with a static rope and a steel carabiner. Only seat harnesses without chest straps are utilized. This allows for more freedom to move when shoveling and working in general.

Manuel Genswein talks about the evacuation procedure:

Fine search and point localizing with avalanche beacons or Recco on the ground; a probe is an indispensable visual reference, especially during helicopter downwash; standard technique when digging for the buried person; shovels are secured to the rescuers with a thin line; some helicopter equipment does not allow for the transport of 2 rescuers and a patient at the same time (winch); one rescuer needs to monitor the situation either from the helicopter or a safe place above the accident site.

Comment: Canada has avalanches that are dangerous to work on. The above-mentioned system is used as plan B if otherwise a rescue would not be possible. The communication between the rescuers and the pilot is important.

*File: 20151015-TER-07-Scoop-and-Run-Evacuation-Procedure.pdf*

## **8. E. Ragoni Airwork: EASA CS-CM-005 Certification**

The EASA Certification Memorandum „CM-CS-005 PCDS“ (based on CS-27./29.865) for „Personnel Carrying Device System“ (PCDS), simple design, includes almost all EN norms for PSE concerning falls as well as the mountaineering norms for carabiners and harnesses. This means EASA has accepted the EU guideline 89/686/EWG and the harmonized EN norms for PSE. The PSE equipment carried by air rescuers, physicians, winch operators, mountain rescuers, dog handlers, firefighters and so forth should meet these requirements in 99.9% of cases. In other words, there is almost exclusively certified PSE equipment (PCDS Simple) on the European market and in use.

EASA is now demanding that these simple PCDS (PSAgA) with the minor change of a cross reference matrix be adopted by the air service and monitored by the maintenance organization. The more standardized the air service becomes, the easier this will be since there will be less variation in equipment.

The problem is that the people not belonging to the air service (mountain rescuers, dog handlers, firefighters, etc.) are not required to adhere to this standard. The sheer diversity of equipment makes implementation and monitoring through the air service almost impossible. For example, REGA has 60 rescue assisting helicopters but 3000 ARS/SAC rescuers. In Austria alone over 10,000 rescuers are operational.

The certification of complex PCDS and implementation of simple PCDS for the air service is cumbersome but doable. Implementation of this standard on third parties, including patients, and their equipment in helicopter operations are almost insolvable. Completely impossible is the demand of EASA in AD 15-117 for the PCDS maintenance wherein the pilot has to get out and check if the third party and/or patient have the approved PSE/simple PCDS before he can transport them. Therefore, all Swiss and international associations representatives are working on establishing a special provision which would allow any PSE to be hooked up to the HEC system or the winch.

Questions/Comments: None.

*File: 20151015-TER-08-Ragoni.pdf*

## **9. N. Kleever BWB: G7 Summit Preparation**

In June of this year the G7 summit was held in Schloss Elmau. Participants of the "group of seven" included Angela Merkel and Barak Obama accompanied by numerous other people. The meeting always attracts enormous media coverage. Protests were expected. The highest security level was applied. The preparations took a year. The mountain rescue stations of Garmisch-Partenkirchen, Krün, Mittenwald and Wettersteinalm were involved. Three secure areas were defined. The public was only allowed access to secure area 3. Two thousand protesters were expected with a planned protest march on Saturday. The three secure areas were separated through rockfall nets. During this time, injured hikers, police officers or protesters were expected which were supposed to be reached within the usual timeframe despite the mobility restrictions and even through blockades and risky situations. Boards and magnetic maps were used for organization, including personal maps for the participants and personnel as well as in each vehicle. There were also situational maps for



helicopters and rescue organizations and action maps depicting risks and terrain.

Questions/Comments: None.

*File: 20151015-TER-08\_BWB-G7.pdf*

End of Meeting: 5:20 p.m.

For the English Translation: Olivia A. Cashner