



Report on International Commission for Alpine Rescue

Dates: 14 – 17 October 2016

Location: Borovets, Bulgaria

By: Tarn Pilkington (10/11/16)

Summary:

I attended the annual ICAR meeting in Borovets, Bulgaria (14-17 October 2016) as the NZ LANDSAR representative. Some 320 delegates from throughout the world attended over the five day period.

This was the first time I attended ICAR. I found the conference to be very well organised and structured. The standard of presentations was generally high and the content was very valuable to me personally as an ACR team member, a practising mountain guide and as a crew member of the Lakes District Air Rescue Trust. I extend my thanks personally and on behalf of LANDSAR NZ to the Bulgarian Red Cross and the community of Borovets for a well run conference.

The atmosphere was professional and inclusive and I made several useful contacts. Everyone was very approachable and was highly motivated to share and learn from one another.

The continuation of ICAR is of international importance as it ensures the continuing development and sharing of techniques that directly benefits member countries and the wider rescue and mountain community. NZ as a small country has a tremendous amount to gain from continual involvement with ICAR. LANDSAR NZ must continue representation at ICAR as it is a very valuable platform for keeping abreast of technical developments and techniques in alpine rescue. There should also be emphasis on contributing our knowledge, information and research at successive conferences.

I would further add that in the future LANDSAR should consider sending representatives from other disciplines including search dogs and helicopter rescue services.

Further information specific to the Borovets ICAR meeting is linked here

<http://www.alpine-rescue.org/xCMS5/WebObjects/nexus5.woa/wa/menu?id=1063>

An overview of ICAR is linked here

<https://vimeo.com/136475345>

Key ICAR recommendations are linked here;

<http://www.alpine-rescue.org/xCMS5/WebObjects/nexus5.woa/wa/icar?menuid=1066>

Overview of Conference

The ICAR conference is divided into four commissions – terrestrial, air rescue, avalanche rescue and alpine emergency medicine. Presentations occur simultaneously so attendees have to prioritise what they wish to attend. There is an incredible amount of information to digest during the four days and I have tried where possible to refer the reader for further information. My notes on content are just that and they do not reflect my preference for specific techniques. Readers should research topics further.

A video of the conference highlights will be available from Topograph Media in due course..

The ICAR website will publish presentations (Powerpoint etc) of this years presentations at <http://www.alpine-rescue.org/xCMS5/WebObjects/nexus5.woa/wa/icar?menuid=1077&rubricid=257&articleid=13233>

Day 1 - Pre-congress Workshop Day on Avalanche Rescue

Over 200 participants rotated through ten practical stations around Borovets Ski area. The stations were divided equally between indoor and outdoor. A description of some of the stations is provided below;

- **Avalanche probing** – Different probing strategies for avalanche rescue. The key point here was the need for rescue team leaders to differentiate between trained and untrained rescuers (Using Slalom probing for example is for trained rescuers and requires practise. ICAR recommends slalom probing for rescue teams as a key skill. <http://www.alpine-rescue.org/ikar-cisa/documents/2016/ikar20160127001940.pdf> and Geschwein <http://www.alpine-rescue.org/ikar-cisa/documents/2014/ikar20141205001397.pdf> <http://www.avalanche.net.nz/Files/ISSW-O15-03-Slalom-Probing-MG.pdf>
One step probing with 50 X 50cm grid for untrained rescuers was advocated.
Also concentrating on probing to 1.5M on first pass – mark probes accordingly to 1.5M. The importance of probe line integrity was emphasised with continuing checks and always correcting line by stepping backwards, not forwards.
- **Recco Rescue System**- search techniques – New changes to search techniques with the Recco device. Importance of self checking for interfering devices and wearing shielding vest. New angle for device angle (30 degrees or 4m to slope). The latest unit has the ability to receive avalanche transceiver signals.
<http://www.recco.com/the-recco-system>
- **Avalanche search phases and techniques using avalanche transceivers** – the key points the presenters were making here was that during the coarse phase of the search, the transceiver should be rotated through both axis and held up to the ear. Also that rescuers should scan the search area visually and listen for clues at all times and not just focus on the transceiver signals.
- **Helicopter long line rescue of subjects in an avalanche** – AIR GLACIERS
Switzerland demonstrated a technique for long line avalanche rescue where two rescuers remained attached whilst performing a transceiver search and patient extraction where there was further secondary avalanche danger. The rescuers were attached with four metre sheathed steel cables. The anti swing bag was also removed to prevent fouling in debris. The steel cable were to prevent damage from shovels or other equipment.
- **ICAR Mountain Safety Knowledge Base** – Manuel Geschwein presented his concept for a universal database for information on best practice for all rescue techniques. Members would pay to join for access.
- **Avalanche victim extraction shovelling techniques**- Conveyor techniques were advocated with a emphasis for in line shovel teams (one behind another and switching out continually.)
- **Avalanche transceiver safety, maintenance and interference** - Approved ICAR methods for carriage are in manufacturer harness and in a zipped pocket but must be attached to the rescuer via lanyard. Interference – in transmit any other device should be at a minimum of 20cms separation as there is a significant loss of range when metal objects are in proximity in both send and receive./ In search this should be 50cms and any other device should be turned off. http://arc.lib.montana.edu/snow-science/objects/ISSW13_paper_P1-34.pdf
- **Scoop and Run** – Medical exercise focusing on rapid extraction of victims where significant objective danger is present. Focus was on risk assessment, planning rapid extraction strategies with low rescuer exposure.

- **Manufacturer equipment updates** – Several manufacturers presented their latest wares. There was also an exhibition area where manufacturers and distributors had booth setups.

Local demonstrations – The Bulgarian search dogs completed a series of drills and searches and a chairlift evacuation was also demonstrated – all in persistent fog!.

Equipment on display of interest:

- **ORTOVOX** – now manufacturing the lightest Airbag system. This is refillable and the system is interchangeable. <https://www.ortovox.com/uk/shop/backpacks/avalanche-backpacks/>
- **Automatic release mechanisms in helicopter long line rescues.** Two devices were on display which were designed to be a handsfree mechanism utilised in steep pick off situations.. The Automatic release sling <http://www.a-ss.no/om-oss/> and the Petzl Lezard <https://www.petzl.com/BE/en/Professional/Lanyards-and-energy-absorbers/LEZARD#.WDOIvGR95v8>. My preference was the Petzl Lezard as it does not require a replacement pin like the Swedish device. Both devices eliminate the risk (to a large degree) the helicopter pulling the rescuer on a fixed attachment to the cliff.
- **Centum – Lifeseeker.** One of the flashiest radio systems for tracking mobile phones on victims. This device can track a phone that is outside coverage areas. Information can be sent to the persons phone and be controlled via software at a base station. NOTE: There were at least three presentations on mobile phone tracking at ICAR this year. It demonstrated the emphasis agencies are placing on smartphones as a means of communication and tracking victims. <http://centum.es/en/products/lifeseeker>
- **Vaccuform** - <http://mujweb.cz/plemsluz/>
Excellent range of splint and stretchers with simultaneous vaccum and inflation properties.

A full list of exhibitors is to be found on the last page.

Days 2 - 4 -

Note: Not all the presentations are listed here – All powerpoints should be available on the ICAR website soon)

- Welcome, Presidents Report , Previous minutes acceptance, New member presentations.
- **SAROS** – Slovenia – Software developed to plan and track resources during SAROPS. Rescuers have trackable cards that are monitored live. Interfaces with google Earth and other map software. USB sticks for rescuers allows offline use
- **Lost person Behaviour** (Kjetil Hoidal, Norway)– Dog searching – 256 active dogs in Norway of which 112 are avalanche specialist. Dogs tracked by GPS using Garmin Basecamp. Chips on dogs are Astra. Presentation looked at statistical analysis of real missions and using this information for future planning. One key conclusion was that dogs should be utilised in rapid coarse searches along tracks as a high percentage of “missing persons” are within certain distances. Dogs are more likely to find persons on track or within 7pm of track.
- **Dual Capability two tensioned rope systems** (Kirk Mauthner Canada)– paper comparing two tensioned systems vs mainline/backup system. Conclusions were that safety margins in TTRS is better over edge and with drop tests. There were however no discernible differences with rockfall testing. There is a 350 page report by Kurt on this. He also advocated cross connecting anchors so that in a anchor failure event that the rescuers were not secured to one anchor (eg Mainline anchor only).

- **Norwegian Alpine Rescue** (Stein Moller) – overview of Norwegian system – 10 teams with 250 volunteers. Have developed a national procedures book which is revised every year – a national database stores rescuer info and reports.
- **Probing Strategies** (M Geschwein) – Much is already written about this. Key points were slalom probing is recommended due to coverage and ergonomics– (refer AVA REC 00011). It is appropriate to trained rescuers whereas untrained personnel should use one hole per step. Discussed the three pass approach at different configurations. ICAR now has posters for the 3-pass approach and the 3 methods of probing, used according to the training and skill of probers. robust discussion on the 50x50cm in high density probing and the justification for it – allows for variation in searcher techniques and is all based on the probability of detection
- **French PSAP(Public Safety Answering points – Gendloc app** – method for sending and tracking victims on smartphones — accuracy is 5M – 6000 messages sent in 2015. their control centres. It is a new application to locate mobile phones. Lost person calls 112 emergency number on their mobile phone
 - The PSAP sends a text message containing a confirmation link to lost person’s smart phone
 - The lost person formally allows transmission of their location by clicking on the link and follows the instructions (a phone company upgrade is required to automate this process) The geolocation is then sent to the PSAP. Gendloc is an open source app.
- **Burial duration, depth and airpocket – Survival analysis** (Brugger) and **Avalanche triage Monte Carlo simulation in avalanche rescue** (Geschwein) – Part of this presentation looked at historical papers on survival and compared with Canada in 2011. Conclusions were that Canada had a higher rate of fatalities due to trauma. In Europe survival was increased due to logistics of rescue services. Other conclusions included that survival drops rapidly(as previously demonstrated) in the first 35 minutes. Artificial air pocket devices will increase survivability in full burial situations. Geschweins presentation looked at statistical modelling and applying data of victims into a simulation. He concluded that in performing CPR a target time of 5-7 minutes should be allowed before moving on to next patient. It was agreed that this theory needed more work – Brugger vs Geschwein!.
- **Core temperature and influence of low ambient temperature on epitympanic temperature measurement.** (Strapazzon) – discussed his research on the difficulty of measuring core temperature in avalanche victims. Current research efforts are being put into refining epitympanic probes. Canadians are looking at Oesophageal probes. Discussed application of Swiss Scale for Hypothermia
(<https://sjtrem.biomedcentral.com/articles/10.1186/s13049-016-0210-y>)
- **A multi-day high risk avalanche search and recovery operation on the Polar Circus (Webster)**
 - Two climbers on a 9 pitch grade 5 ice climb, 700m, avalanche exposure, one is caught
 - Significant snow storm shortly after notification by the other climber
 - It took 6 days to complete the recovery from the avalanche and subsequent snow .
 - 42 avalanches triggered by explosive as part of the recovery
 - Recco detection off the circuitry of the climber’s head lamp buried at 2.8m
 - Climbers did not have avalanche self-rescue gear or avalanche transceivers

- **Accident in the Tatra mountains, Poland- hypothermia considerations**
 - Accident in Mieguszowiecka – in the night, severe hypothermia, intermittent CPR, mobile ECMO.
 - Alpine rescue teams and a helicopter recover injured party with severe hypothermia who arrests. Teams recommended intermittent CPR for 5 mins with five mins of travel. Patient died at hospital. However in some other cases hypothermic victims have survived long extractions where intermittent CPR was only possible.
- **When rope meets rotor.** (Shimanski) – Overview of tail rotor rope strike whilst attached to belay line. This video is online - <http://www.dailymail.co.uk/news/article-3575774/Terrifying-moment-helicopter-blade-catches-safety-ropes-rescue-crew-10-000-feet-Utah-mountain-expert-pilot-saves-everyone.html>
- **Scoop and Run – Medical Decision Making** (N.Hozl)
 - Decision making on if, or how much, medical treatment administered prior to evacuating
 - SAR Strategies: the experience and outlook from the Austrian Mountain Rescue
 - Responsible for emergency rescue in alpine areas across Austria
 - 99.9% volunteers
 - Mainly on-piste rescue
 - Includes specialised groups for canyoning, avalanche dogs, cable car evacuations •
 - Use of technology increasing including use of apps
 - Recognition in the need for user competence in the use of technology
 - a patient. Depends on the surrounding environment and the safety and risk to rescuers and the patient
 - Immediate extrication with medical treatment delayed until safe – run first then treat
 - Life saving treatment only and immediate evacuation – scoop and run
 - Complete urgent medical treatment and then evacuate - treat and run
 - Full on-site medical treatment then evacuate - stay and play • Some example case studies were examined
- **From theory to terrain – MCI avalanche case study (Pasquier et al).**
 - Looked at a complex multi burial event – very good presentation
 - Rescuers should train hard for complex situations therefore less improvisation
 - Medical personnel must be trained in avalanche rescue techniques
 - Doctor should be at head when excavated
 - Mechanical chest compression devices are key in transport to ensure quality CPR. Patients to ECMO asap.
- **Avalanche survival after rescue with the RECCO rescue system** (Strappazon) – Case study where two were recovered – neither had avalanche transceivers or other rescue equipment. The Recco detected a signal that was reflected back from the victim’s mobile phone. A number of other similar cases were identified in the presentation.

During the last day there were other good presentations on MCIs. These presentations will be available on the ICAR website soon.

- **International Alpine Trauma Registry**
 - IATR established with the aim of collecting and reporting information in a standard form on major trauma. It includes patient record, pre-hospital, in-hospital and outcome information.
 - New Zealand should get involved with this in 2018 as it will go international
- **Update on accidental hypothermia (Paal)**
 - This update is endorsed by ICAR MedCom
 - Some case studies of persons with no vital signs - rewarmed and fully recovered. Proven in children with cold water drownings.
 - The use of intermittent CPR when not able to continuous deliver CPR

- if core temp unknown or <28°C alternating 5 min CPR and ≤ 5 min without CPR
- if core temp <20°C alternating 5 min CPR and ≤ 10 min without CPR • The importance of pre-hospital insulation of the patient
 - The rewarming process in the hospital environment is key - ECMO
 - Reinforces the need for an accidental hypothermia protocol.

Further notes on ICAR Mountain Safety Knowledge Base

This project if green lighted will see best practices documented and stored in a database. This project is of international importance as it would help standardise techniques, fund development of resources and hopefully research efforts as well. The legal and funding issues look like a significant stumbling block right now but the concept is sound. NZ would continue to benefit from a database like this.

68th Assembly of Delegates

As a ICAR member I was required to vote on various issues. This included whether new applicants should be admitted as members. No new applicants were turned down for entry.

Future ICAR Congresses

2017 Soldew, Andorra 18 – 21 October with the theme of rescue from big walls Note: ISSW
 2018 in Innsbruck, Austria: Sun-Fri, October 7-12, 2018
 2018 Chamonix, France 17 – 20 October with the workshop day on the Friday 2019
 Zakopane, Poland - October
 2020 Thessalonika, Greece - October

Exhibitors

Mamot Barryvox avalanche safety equipment
 BCA avalanche safety equipment
 Heleseilerei human external cargo heavy lifting slings
 Victorinox knives
 Paramo clothing
 Arcteryx clothing
 Smallfoot inflatable compact ultra-light weight snowshoes and rescue sled
 Pieps avalanche transceivers
 Avabag avalanche safety equipment and airbag floatation devices
 CMI mountain equipment
 Centrum LifeSeeker mobile phone finding & tracking technology
 Automatic Release Sling for helicopter rescue
 Tyronont mountain rescue equipment
 PeakZero clothing
 Milo clothing
 SingingRock
 Vakuform
 Bell Helicopters