



Notes on the 68th International Commission for Alpine Rescue (ICAR) Congress 2016

Rik Head



Meeting at Borovets, Bulgaria 19-21 October 2016 hosted by Bulgaria Mountain Rescue and Bulgaria Red Cross. Some 320 delegates from throughout the world attended.

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

Pre-congress Workshop Day in the field

Some 230 participants rotated through ten work stations located around Borovets. Due to the weather the stations were divided equally between indoor and outdoor. The topics were:

- Rapid assessment and improvised evacuation without harming the patient
- Helicopter attached evacuation of a buried subject in an avalanche
- ICAR Mountain Safety Knowledge Base – how it can serve rescuers
- Evacuation strategies – immediate evacuation without medical intervention, scoop & run
- Recco avalanche search techniques
- Avalanche search phases and techniques using avalanche transceivers, multiple burials
- Avalanche probing and line search practice
- Avalanche transceiver safety, maintenance and interference, including manufacturer service on a 3-year basis
- The Avalanche Rescue Olympics – teams avalanche searching with multiple victims
- Manufacturer equipment updates on avalanche safety equipment and avi bags



The Congress

The congress consisted of presentations, demonstrations together with the ICAR Assembly of Delegates meeting and the ICAR Commissions.

SarOS™

Slovenia

- The newly developed Slovenian SAR operating system being used to migrate from manual systems
- Divided into workable modules with standardised mapping, resource management, communications and incident operations

- USB stick has all maps and the app and hence available off line
- Searchers have membership card that can be scanned going into the field, identifies skills as well

Lost Person Behaviour

Norway

- A lost person statistical analysis based on Norwegian rescue dog incidents
- Based on Rob Koster's Lost Person Behaviour to see if there were any variations
- Dogs trained for avalanche, wilderness and urban disaster
- Details of dog team call out statistics in Norway

National Guidelines for terrestrial search methods in Norway

Norway

- Norway thin population density across the country
- SAR coordinated by Police
- Combination of volunteer groups, Government and specialised units
- "Mandatory" guidelines developed with common terms and approaches
- Cultural change as standardised processes rolled out across the country
- Improved efficiency when operating between groups
- New common waterproof paper manual for all

Dual capacity two tensioned rope systems testing

Canada

- Scientific testing in BC, Canada compared with the traditional main single rope with a backup system - *the use of dual tensioned ropes is most definitely safer with a significant reduction in risk*. The report is available on line from kirk.mauthner@gmail.com
- *Must always use two equally loaded ropes, each capable of taking the whole load*
- For safety, need to cross connect all personnel at the top to both anchors

Avalanche probing strategies

ICAR AviCom

- Recent changes – only probe to 1.5m depth in the first pass – gives the greatest chance of survival from time of burial – this fits the timeline for avalanche survival
- ICAR now has posters for the 3-pass approach and the 3 methods of probing, used according to the training and skill of probers
- There was an explanation of how probing has evolved and its acceptance by ICAR plus 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

EU Project CIPRAS

Serbia/Croatia

- Funds (€323,000) from EU to volunteer emergency services in both countries to improve training and coordination for rescue between Serbia and Croatia
- Consists of workshops, practice and exercises, standardisation of equipment, technology support and a common manual

French PSAP solution for victim's location

France

- For lost people who want to be found – 60% of people have smart phones and 82% of active people. The limitation of smart phone apps is that they must be pre-loaded and are often geographically limited
- Both Police and Fire **Public Safety Answering Points** (PSAPs) have the Gendloc app in their control centres. It is a new application to facilitate the location of mobile phones
- The process is:
 - 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

- The big advantages are that it is PSAP initiated, controlled by the lost person and it is not limited to a geographic area or a specific country. It is quick and saves the use of other emergency services resources. There is also optional tracking of the lost person. The limitation, of course, is that there must be phone coverage and use of a smart phone. In the UK the received SMS automatically activates the phone's data and GPS capability and sends the location back to the PSAP.
- Gendloc is open sourced.

Centrum LifeSeeker

Mobile phone finding, tracking and communications technology usable from a helicopter day and night. Works in areas with or without normal phone coverage and can act as a communications relay. Will geolocate the lost person's phone without the person's intervention

The Norwegian Mountain Code to help those in the mountains to stay safe

Norway

- Norwegian Red Cross advice on how to stay safe in the mountains
 1. Plan your trip and inform others
 2. Adapt planned route to ability and conditions
 3. Weather and avalanche warnings
 4. Be prepared for bad weather
 5. Have necessary equipment
 6. Choose safe route
 7. Use map and compass
 8. Do not be ashamed to turn back
 9. Conserve your energy and seek shelter
- There are two more levels of more detailed information available and a booklet
- With increased tourism numbers, keeping them safe is becoming a problem

Avalanche Search and Recovery

Canada

- A multi-day high risk avalanche search and recovery operation on the Polar Circus technical ice climb, 150km from Banff in remote wilderness of western Canada
- 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 ice 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 from the circuitry of the climber's head lamp buried at 2.8m
- Climbers did not have avalanche self-rescue gear or avalanche transceivers

SAR Strategies: the experience and outlook from the Austrian Mountain Rescue

Austria

- 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

Scoop and Run – Medical Decision Making

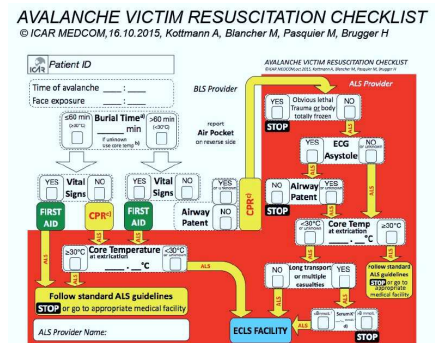
ICAR MedCom

- Decision making on if, or how much medical treatment administered prior to evacuating a patient. Depends on the surrounding environment and the safety and risk to rescuers and the patient
 - Immediate extrication with any treatment delayed until safe – **run first then treat**
 - Life-saving treatment only and immediate evacuation – **scoop and run**
 - Complete urgent medical treatment only and then evacuation - **treat and run**
 - Full on-site medical treatment then evacuation - **stay and play**
- Some example case studies were examined

Medical Commission – mini updates on various subjects

- Avalanche Victim Resuscitation Checklist – discussion on the future of it. The design, education tool, distribution, translation and on-going research, compatibility with other national and international standards
- canyon rescue in Spain
- India expedition medicine for mountaineers – incorporating climbing a summit as part of the training
- Changing mountaineering casualty statistics in Japan – increase in call outs but the number of deaths remains largely unchanged

ICAR MedCom



Downhill Bike Park GPS Location

France

A trail marking location system for downhill mountain biking tracks in Chamonix area of France.

- Allows identification of the location of injured bikers who are often not seen from the air
- 65km of slopes / increased users and hence increased rescue activity
- Well publicised, markers are colour-coded for trail difficulty
- Geo-linked to the emergency services mapping system/Gendloc
- Used for two years in Chamonix area ski resorts
- Some 500 markers used to localise the biker location
- In 2015 was being implemented in multiple areas

Case Studies and Reports

- **Accident in Mieguszowiecka** – during the night, severe hypothermia, intermittent CPR, mobile ECMO
- Accident occurred on High Tatra, Poland December 2015. A good example of trans-institutional and trans-national cooperation
- **Theory to Terrain** – a case study of where the theory and the practice aligned in the particular terrain. It worked well with some improvisation for a multi person avalanche burial. It highlights the importance of planning, pre-season and ongoing refresher training
- **Mass casualty incident** – Bergwacht mountain rescue helicopter involvement in a train crash in Germany. This disaster demonstrates that mountain rescue is now being involved in a much wider range of incidents away from their mountainous primary area of operations, often in support of other emergency services for other national emergency events such as floods, etc. Highlights the need for ongoing cross agency training
- **Case report on avalanche survival after detection with the RECCO rescue system**
Neither skier had avalanche transceivers or other avalanche rescue equipment. The Recco detected a signal reflected back from the victim's mobile phone. A number of other similar cases were identified in the presentation

Swiss Alpine Rescue - SAR Management Methodology

Switzerland

- SAR professionals now embracing technology
- There are choices in resources and technologies
- There is a push for private searches, other groups getting involved can be a problem
- Case study incident at Arosa - missing person, night search, helicopters with FLIR (weather limited), mountain rescuers, ski patrol, over-snow resources. There was an avalanche close to ski area. No use of search dogs in this instance. Missing person was an on-piste skier, found off piste, buried and dead, no avalanche safety equipment
- Rescue services must not be influenced from outside but must follow procedures

EURAC Research - International Alpine Trauma Registry

- IATR established with the aim of collecting and reporting information in a standard form on major alpine trauma. It includes patient record, pre-hospital, in-hospital and outcome information

EURAC Research - International Avalanche Registry

- Set up and operating to determine and compare the key characteristics of pre-hospital care and the pattern of injury. Should result in determining the impact of rescue strategies and treatment recommendations on patient outcomes

Medical Study

Austria

- Retrospective Tyrolian study on pre-hospital management and outcomes of avalanche patients with out-of-hospital cardiac arrest (1996-2009, 212 patients) and the practical implication of avalanche rescue – use of MedCom Guidelines
- *No hypothermic avalanche victim with a patent airway is dead until rewarmed and dead*

Multi casualty incidents in mountains and remote areas

ICAR MedCom

- The principles for multi casualty incidents must be adapted for mountain rescue incidents
- Success depends on the preparedness of mountain rescue teams
- Requires recognition of the situation, safety, initial response, leadership and command, specific requirements, triage, medical commander, tools, identification and traceability
- Issues include time, terrain, weather, helicopters, communications, management of both uninjured and injured victims
- Requirement for planning, preparation, training, interagency cooperation, leadership

Update on accidental hypothermia

ICAR MedCom

- This update is endorsed by ICAR MedCom
- A number of case studies of persons with no vital signs rewarmed and full recovery
- The use of intermittent CPR when not able to deliver continuous CPR
 - if core temp unknown or $<28^{\circ}\text{C}$ alternating 5 min CPR and ≤ 5 min without CPR
 - if core temp $<20^{\circ}\text{C}$ alternating 5 min CPR and ≤ 10 min without CPR
- The importance of pre-hospital insulation of the patient
- Rewarming process in the hospital environment
- Reinforces the need for an accidental hypothermia protocol

Avalanche Multi Casualty Incident in Val Frejus, France

France

- Multi burial avalanche incident - 52 in group with 20 buried of which 15 self-rescued, 2 were immediately identified as dead and, in the end, 5 died on scene
- Involvement at a local, regional and a national level
- Factors for success were professionalism, preparedness with triage, good first decisions, luck
- The processes worked well due to registry, training

Lessons

- Chief commander and medical commander not together and could not communicate by radio
- Only one radio channel for all rescuers
- MCI cards were not really used, only 3 tagged, two patients counted twice
- Evacuation priority of some patients
- The good, the not so good and the bad:
 - Good – recognition of disaster, safety, initial response and triage excellent, organisation of evacuation
 - Good and bad – disaster preparation, leadership and command
 - Bad – identification and uncertainty

- Unsure - communications
- Difficult decisions, ability to focus, situational awareness
- Need someone to stand back and overview the incident
- Need to concentrate on those who are still alive

Traditional, social and new media in the aid of search operations

Poland

- Tatra National Park is an alpine area on Poland/Slovic border, not allowed off track in NP
- 700 rescues /year, 10-20 long duration rescues
- LCD displays in huts to provide weather and avalanche conditions
- Example case studies using the various forms of media – local media, social media, local networks, live feeds, mobile devices, mobile app possibilities

Congress Demonstrations

- Bulgaria search dogs
- Chairlift evacuation



ICAR Commission Meetings

ICAR has four Technical Commissions. Together these commissions cover all aspects of mountain rescue:

- Terrestrial Rescue Commission
- Air Rescue Commission
- Avalanche Rescue Commission (inc Sub-Commissions for Dog-Handlers and Prevention)
- Alpine Emergency Medicine Commission.

There were meetings of each Commission and work group throughout the Congress. Each Commission reported on the various meetings and associated activities conducted during the previous year. Specific Commission reports are posted on the ICAR web site within 2-3 months following an ICAR meeting. Highlights of this congress are already on the ICAR web site.

The Board and ultimately the ICAR Assembly of Delegates accepted a number of Commission recommendations, set the locations for the next four congresses and accepted a number of new members. Meeting minutes, accepted recommendations/updates and details of new members are available on the alpine-rescue.org web site.

Trade Displays

- Petzl mountain and rescue equipment
- Smallfoot inflatable compact ultra-light weight snowshoes and rescue sled
- Centrum LifeSeeker mobile phone finding & tracking technology
- Automatic Release Sling for helicopter rescue
- Avabag avalanche safety equipment and airbag floatation devices

- Pieps avalanche transceivers
- CMI mountain equipment
- Bell Helicopters
- Arcteryx clothing
- Tyronont mountain rescue equipment
- PeakZero clothing
- Milo clothing
- Victorinox knives
- Paramo clothing
- Mamot Barryvox avalanche safety equipment
- BCA avalanche safety equipment
- Resero Connect alpine rescue network
- TAS natural hazard control solutions
- Heleseilerei human external cargo heavy lifting slings
- Vanquisher amphibious rescue transporter
- SingingRock mountaineering equipment
- Vakuform pack and safety equipment



Rik Head Additional Notes

This year there was a significant **focus on avalanche** and associated rescue

One item that stood out was the **importance of standardisation** amongst rescue groups of rescue techniques, especially for avalanche. Currently there are a variety of strategies, systems, techniques and methods for the same purpose – often missing compatibility, inefficient – need improved communications and exchange of knowledge

The **ICAR Mountain Safety Knowledge Base** aims to provide a consensus and best practice approach based on the science and consultation with appropriate world standards organisations. Currently it covers safety, accident prevention and rescue in various aspects of mountainous areas. There was serious discussion on how it should proceed forward with consideration of some cost recovery to fund future R&D and ongoing development

Readers of this report are directed to the ICAR and the International Snow Science Workshops (ISSW) web sites for more detailed information and many of the original reports.

ISSW issw.net

ICAR alpine-rescue.org

This report is the Rik Head view of the 2016 ICAR Congress. It focuses on the Terrestrial Commission, with some Medical and some Avalanche. Due to the number of concurrent activities information was not able to be collected on all presentations. In addition, there may be errors in my understanding of some presentations that may need correction at some later time.

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