

2016 TERRESTRIAL RESCUE REPORT TO THE MOUNTAIN RESCUE ASSOCIATION

International Commission for Alpine Rescue

Kommission für Bodenrettung/Commission pour le Sauvetage Terrestre/Commission for Terrestrial Rescue



Borovets, Bulgaria, 19-22 October, 2016

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“ICAR provides a platform for mountain rescue and related organizations to disseminate knowledge with the prime goal of improving mountain rescue services and their safety. It is an independent, worldwide organization that respects its members and promotes international cooperation.”



INTRODUCTION

The International Commission for Alpine Rescue (ICAR) met for its annual Congress in Borovets, Bulgaria 19-22 October, 2016. These are some of the highlights of ICAR, with an emphasis on information and presentations that relate to the Terrestrial Rescue Commission.

Borovets ([Bulgarian](#): Боровец), known as **Chamkoria** (Чамкория) until the middle of the 20th century, is a popular [Bulgarian](#) mountain resort situated in [Sofia Province](#), on the northern slopes of [Rila](#), at an altitude of 1350 m. Borovets is 10 km from [Samokov](#), 73 km from [Sofia](#) and 125 km from [Plovdiv](#).

Borovets is the oldest Bulgarian winter resort with a history that dates back to 1896. Borovets was originally established at the end of the 19th Century as a hunting place for the Bulgarian Kings. Borovets gradually developed into a modern ski resort with hotels, restaurants, bars and a network of ski runs and lifts along the slopes of the Rila Mountains, providing for a whole range of winter sports. The resort has twice hosted World Cup Alpine Skiing rounds (1981 and 1984), while the Biathlon track is one of the best in the world. (Wikipedia)



The host team, Mountain Rescue Service at the Bulgarian Red Cross, was established in 1933 before joining the Bulgarian Red Cross in 1951. Today, more than 500 volunteers on 32 teams make up the Bulgarian MRS.

THE ICAR CONGRESS

Presenters from around the world were required to submit proposals and papers in advance, with a standard 20 minute presentation period followed by 10 minutes of questions. The theme of this year's congress was The Search Function: Improving the Search Before the Rescue. This theme was reflected in the avalanche rescue Commission's stations during the Practical Day workshop on 19 October.

This year's congress drew more than 400 rescuers from nearly 40 countries. Representing the MRA were Dr. Ken Zafren (Medical), Charley Shimanski (Air Rescue), Tom Wood and Dr. Alison Sheets (Terrestrial Rescue), and Marc Beverly and Oyvind Henningson (Avalanche Rescue). Additionally, representing the MRA was ICAR Board Member Dan Hourihan and Rick Lorenz (Olympic Mountain Rescue).

Attendance of the U.S. delegates was made possible by support from **CMC Rescue, Pigeon Mountain Industries**, the **MRA** and a significant private donor wishing to remain anonymous. The U.S. MRA delegates are grateful to our sponsors for the long term support of this important international exchange.

As always, Topograph Media was present to film the conference, and their excellent two-part video summary can be found at <https://vimeo.com/topographmedia>. ICAR is grateful for the continued support of CMC, Petzl, PMI and Tyromont. It is the financial support of these sponsors that makes the annual ICAR videos a reality.

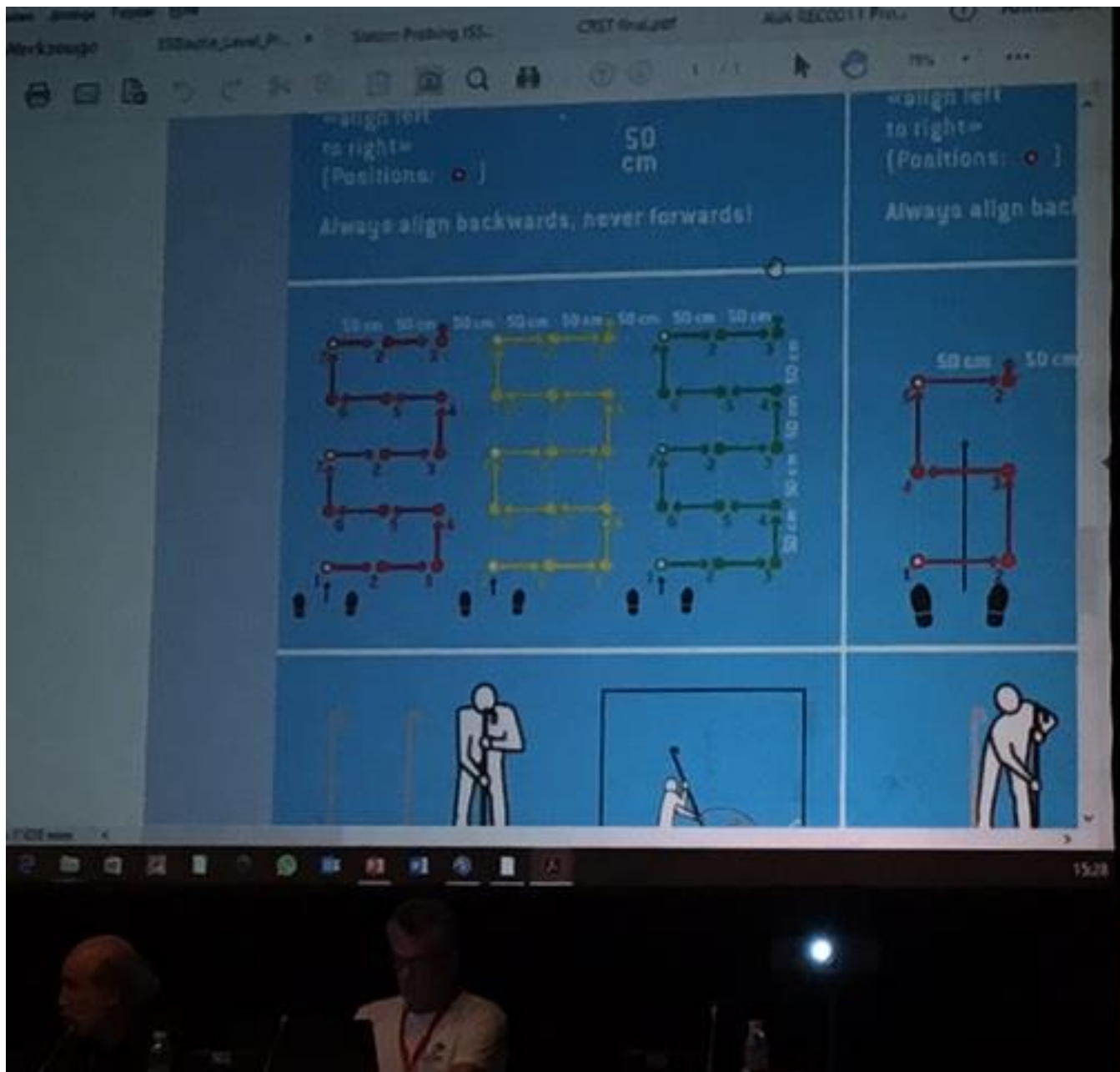
ICAR PRE-CONFERENCE PRACTICAL DAY

Held on October 19th, the day preceding the Congress, the 2016 Avalanche Rescue-themed practical day took place on the foggy green slopes of the nearby ski area and challenged the 233 attendees to increase their avalanche rescue skills and knowledge. Mountain rescuers teamed up with several manufacturers to offer a handful of hands-on stations that covered everything from new slalom probing strategies to avalanche transceiver practice with multiple burials.



Of particular interest was the station that demonstrated helicopter long line quick extraction with high avalanche danger. Using a powered winch (simulating the lift of a helicopter) that lifted two rescuers via a ski lift tower, this rescue technique would allow the helicopter to take off in the event of a second avalanche, thereby lifting the rescuers above the avalanche before it hit. Narrated by Doctor Gregoire Zen Ruffinen, with Air Glacier, Switzerland, this technique utilized custom four meter long rope-covered wire cable that could potentially lift two rescuers and one subject. Though risky, a couple teams have utilized this technique to protect the ground searchers from the danger of secondary slides.





Klaus Wagenbichler, with OBRD, Salzburg, Austria, headed up the slalom probing station on the foggy, but green, slopes. Slalom probing, in contrast to left, center and then right probing techniques, is less fatiguing on probers because they only do the center probe, then step left or right before moving forward. When viewed in the diagram above, the slalom probing pattern resembles a zig-zag pattern.

Recco hosted a station that instructed rescuers the best way to isolate their Recco units from distracting signals and the best way to perform a self-check before attempted to search a debris field. Instructor Jan Peder Hoggen, an avalanche trainer with the Norwegian Red Cross,

encouraged Recco searchers to use the Recco unit like they would a flashlight while looking for lost car keys in the dark-pointing it at the ground four meters to the front and making rotating, sweeping arcs approximately 20 meters wide, from 10 o'clock to 2 o'clock.

The transceiver search station was headed up by Polish Mountain Rescuer Kuba Hornowski, with Tatra Mountain Rescue in Zakopane. Using the newly released ICAR posters for transceiver search techniques as the talking points, Kuba stressed the importance of mastering each phase of the transceiver search process. Also, it's critical, he said, to remember to focus on the buried person, not just the transceiver. This wider field of focus should better equip the rescuer to find clues on the surface instead of simply following the instructions on the transceiver screen.

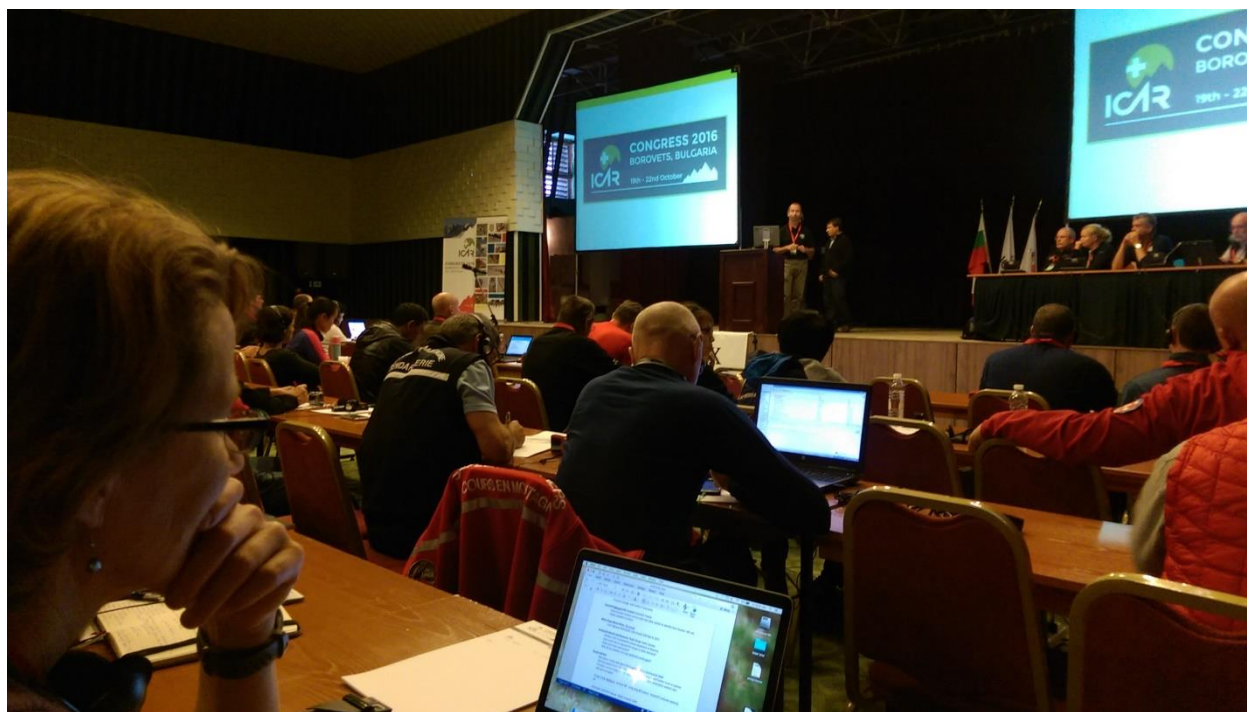
Tying in closely with the posters used to illustrate transceiver search best practices, the Mountain Safety Knowledge Database, brainchild of Meilen, Switzerland native Manuel Genswen, aims to increase the skill levels of mountain rescuers by making standardized information more readily accessible to those seeking to up their game. Available in 13 languages, and compiled by ICAR sanctioned working groups, the database would be available for a nominal fee. Look to future ICAR bulletins for more information on this newly minted idea.





When most of us hear the term Scoop and Run, said Dr. Natalie Holtzl, from the German Association of Mountain & Expedition Medicine, we often downplay the risk assessment phase of the rescue. Using two scenarios where patients were located in precarious or dangerous environments (such as a lightning strike victim suspended from a via ferrata route-above). Dr. Holtzl challenged rescuers to minimize their exposure to risk by preplanning and getting the patients to an area that would allow for a more lengthy and thorough assessment. Dr. Julia Fieler, with the Norwegian Red Cross, also laid out an avalanche rescue scenario which put rescuers in a similar predicament and forced them to use the concept of A,B,C,D,E (Airway, Breathing, Circulation, Disability and Exposure) to direct their efforts.

TERRESTRIAL RESCUE ASSEMBLY OF DELEGATES, October 20, 2016



The first official day of the 2016 ICAR Conference began on Thursday, October 20th. The day began on a somber note as ICAR members observed a moment of silence for pioneer Bavarian mountain rescuer Dr. Karl “Bene” Gotzfried. Also included in that moment of silence was Mountain Rescue Ireland’s own Catriona Lucas, who died in the line of duty in 2016. She was Ireland’s first SAR line of duty fatality.

On a lighter note, the members of the Terrestrial Rescue Commission voted to re-elect President Gebhard Barbisch and Vice-President Kirk Mauthner to another four year term.

The following previously published Terrestrial Rescue Recommendations were discussed:

TER-REC 0001

Discussion points: It is not the goal to eliminate screw-lock carabiners. It is about central anchoring, which should be included. The wording central anchoring could be wrongly interpreted. At this time one could interpret this to mean that Delta cannot be used. Suggestions for different wording? Add a Q to EN 12275? Not necessary. No changes suggested. Comment Gebhard Barbisch in addition to the minutes: After the meeting open topics came up which require a work group. The recommendation will get a note on the homepage indicating that changes are being worked on.

TER-REC 0004

Streibel Herbert objected that certain knots had been excluded; for example two-loop figure eight. Result of the discussion: There is no argument against including certain knots; however, for certain uses certain knots are not useful. The usage has to be the deciding factor. The recommendation will not be removed from the homepage but a comment will be added that the recommendation is being edited. The work group will continue to work on the recommendation.

TER-REC 0005

Herbert Streibel asks regarding the two rope system. The last update on the recommendation is from 2005. It is necessary to overhaul the recommendation. Question: What exactly is meant by „three dimensional separation“?

Answer: It refers to two anchoring systems which are independent of each other. The anchors have to be separate. The anchors are not connected to each other. Kirk Mauthner: This needs to be discussed as two anchors do not protect. There will also be a comment on the homepage on this recommendation that it is being revised. The work group will update the recommendation.

TER-REC 0007

Discussion point: The UIAA and ICAR need to cooperate more closely regarding standards. Kirk Mauthner: UIAA has already been contacted. The material used needs to be added. The recommendation will be revised and discussed with UIAA. There will be a comment on the homepage.

TER-REC 0009

This needs an addition that states when a system is changed, the whole system will need to be re-tested and not just the changed part.

DAY ONE PRESENTATIONS

Norwegian Search and Rescue Dogs presented research regarding lost person behavior. Similar to previous work by Robert Koester, they analyzed 9 years of search missions with the goal of justifying search tactics, improving search efficiency and decreasing time to subject find. Most

subjects are found along linear structures like gullies or ridge tops and they recommend faster dog searches to cover larger areas in the initial response. A search pattern along the “bicycle spokes” from the IPP should be combined with the more traditional “search segment” to maximize more likely areas. Sadly, suicide plays a large role in generating call outs in Norway but 62% of suicidal parties are found within 50 meters of a trail or road.

Kirk Mauthner expanded on his previous ITRS presentation on two rope systems. With support from the Canadian Government he tested a variety of twin rope systems for performance in sharp edges, rock fall vulnerability, maximum arrest force distance, stopping distance comparison, force limiting requirements and human factors. Briefly, his evidence based guidelines determine that a twin tensioned single point tie-in configuration performed the best in his series. “Each rope system must be fully capable and competent as both a mainline and a back-up line, at the same time”. He advocates identical devices on both ropes.

Mauthner did not advocate particular brake/belay devices but established minimum performance guidelines and did question if “we are using the right ropes” given poor performance of all ropes under sharp edge pendulum testing. Human factor investigation addressed the “override” ability of some brake systems and the maximum force required that a “back up” rope handler should see. He recommended 0.1kN to ensure all rescuers can achieve this function with the average of grip strength still considered 0.5kN. Also, by building “twin” systems, the complexity and subsequent human error may be reduced. Two tensioned rope systems provide 35-50% reduction in maximum arrest force and 50-90% shorter stopping distance than other systems which reduces risk.

Joint Session TER-AIR

Alpine SAR/Civilian Air-Norwegian Rescue Group coordination strategies. They have adopted standardization of equipment, maintenance, inspection and training across the country. They coordinate closely with military resources.

Jan-Gunnar Hole presented a helicopter safety release device he developed that is similar in concept to the Petzel Lizard. His is made from webbing and incorporates a strain release device adopted from sky diving technology.

Dieter Kotlaba on the Ortovox Emergency Card now included with all their packs and advocating wide adoption. This small card would have owner’s health information, contact information for rescue resources or family and a place for accident and illness information to be added by companion or SAR responders in the case of an incident. Available in multiple languages. fammon@ortovox.com to inquire about cards.

Joint Session TER-AVA

Manuel Genswein is encouraging trained rescuers to adopt slalom probing as a faster, less strenuous means of performing a probe search. Eliminates the guidon cord and need for a leader outside of the line. See Avalanche Commission Report for more details but expect to see this technique in the future.

The French Police and Search and Rescue working on cell phone based technology to find lost parties. Peculiarities of French Law make it mandatory that a person formally allow location data to be transmitted from their phone to another user. Consequently, this technology necessitates a cooperative missing person. GenLoc and Goeloc18 both working with variable benefits and ease of use. Again, expect to see this type of technology spreading rapidly for use when cellular coverage available.

DAY TWO PRESENTATIONS

LifeSeeker, Centum (Research and Technology) Search missions can be done in various manners, using air or just terrestrial. New means are constantly developed, and the widespread use of Smartphones is taken advantage of. Smartphones can be identified and located as well as allow communication with the victim. Technological searches can be done at night, in bad weather, difficult terrain and are far reaching as they shorten the search time which in turn results in reduced cost. The device is a very good addition to the current search methods and devices. The device works by radio and is not dependent on cell coverage; therefore, we can locate missing persons without their participation. Procedure: Alarm call comes in, flight to search area, locate cell phone. The system automatically starts the geo-locating. Communication with the lost person is possible. After locating the person the rescue begins. The device is very precise, to within 20 meters.

Improvement of SAR in non-urban and rural areas, ruins and collapsed objects/EU Project Cipras (CMRS, Robert Jagodic) Cipras is a project of the mountain rescue services of Croatia and Serbia (HGSS and GSSS, respectively). The goal is to improve emergency services in the nonurban and rural areas. The project is supported by the EU. While the urban areas have good emergency service coverage, the rest of the population is pretty much left to their own devices during emergencies, and local rescuers have not been sufficiently trained. EU ECHO can be petitioned to financially support a project by submitting the problem with an idea for a solution, based on which the EU committee makes a decision for or against support. A project that is being presented aims at improving the cooperation in cave rescues; involved are the Croatian Mountain Rescue Service and the Cave Rescue Service of Slovenia. The current problem is not enough resources for extensive cave rescues, i.e. the rescue in the Riesending caves. Solution: Workshops and training to standardize rescue techniques develop guidelines, exchange of medical knowledge, requisition of material, founding of a European Cave Rescue Association (ECRA). Timeframe for project: 2 years, budget EUR400'000

Guideline for terrestrial search methods (V. Standahl Olsen, NC) Presented were search method guidelines that were developed for terrestrial rescue in Norway. Norway is an elongated country with a long coastline and low population density. Rescue units are divided into federal organizations, volunteers, and professional rescue units who all work together. Communication and a unified search method are tantamount to good collaboration. This also applies to the different services within each unit such as dog handlers or air rescue and so forth. The guidelines are a 100-page book which regulates the procedure during rescue missions. One

of the goals is to pass on knowledge and to point out dangers. The guidelines were printed on waterproof paper and distributed to all rescuers. Improvements have been noticed since introduction of the guidelines.

Search and Rescue Strategies: Experience and outlook from the Austrian Mountain Rescue

(Martin Gurdet, ÖBRD) Martin Gurdet represented the Austrian Mountain Rescue Service, which was founded on October 12 and 13, 1946. This was following an avalanche accident in 1896 on the Reisthalersteig on the Rax. There are 7,000 to 8,000 missions annually. The organization is divided into 7 sub-organizations and 291 units spread across the country. Donations, grants, payments for rescue missions, and government subsidies make up the income. The emergency number is 140. Search Strategies: First the situation is assessed; where was the person last seen, destination, who called it in, etc. Then the planning of the search and the actual mission follow. There is a constant reevaluation during the mission. Technical Means: Wireless providers can locate missing persons (emergency search). This method is highly inaccurate and needs cooperation with the police, who are excellent. This method is only allowed in emergencies. Furthermore there are helicopters equipped with FLIR (forward-looking infrared camera) and video cameras. These can be used to send live feeds to dispatch. Future: There is an abundance of technology; cell phones with GPS and Apps, GPS and satellite transmitters, IMSI catchers, FLIR, night vision, data banks from police, hospitals, ambulances. This technology needs to be used appropriately.

The Norwegian Mountain Code (Julia Fieler, Kjetil Hoidal) After a series of fatal accidents the Mountain Code was established in 1950. A lot has changed since then so the code was revised in 2015. Here are 9 points that need to be considered when in the mountains:

1. Plan your tour and inform others where you are going.
2. Adapt the tour to your capabilities and the situation.
3. Watch the weather and avalanche situation.
4. Be prepared for bad and cold weather even on short tours.
5. Take the necessary equipment so that you can help yourself as well as others.
6. Choose safe routes, consider the danger of avalanches and ice fall.
7. Use map and compass. Ensure that you always know where you are at.
8. Don't be ashamed to turn around.
9. Use your energy wisely and seek shelter if needed. The code is divided into three levels, depending on training level. Each point has practical suggestions. The Mountain Code is not considered a law but a guideline. It can be used for training. It should be translated into several languages and distributed through the media, especially digitally

Location System for Downhill-Biking Accidents on Ski Slopes (A. Lagroy de Croute, A. Krim, CRS F) Presented is a system to locate mountain bike paths. This became necessary as downhill biking in ski areas increased rapidly and accidents happened more often. The system was developed by Fabien Ecartot in Sierra Chevalier. Signs were put up along the mountain bike routes. These signs allow the bikers to communicate where they are at. The signs are placed 80-150 meters apart and are sequentially numbered. Each sign has the emergency number, the name of the route, and the number of the sign. The color of the signs indicates the difficulty of

the mountain bike route. The system only works if the bikers know what the signs mean and how to proceed in case of an accident. This information is being distributed by flyers. In case of an accident, the victim can be directly located. The physician is informed and the rescue initiated. In 2015 this system was also introduced in „Les 2 Alpes“. The system was also integrated with the GENDLOC database. Rescues were optimized through faster locating of the victims; the fine localization was improved especially. Goal would be to introduce the system in all of France as well as other countries, and also on hiking trails.

Joint meeting of the Terrestrial and Air Commissions

When Rope Meets Rotor (Charley Shimanski, MRA) A simple climbing rope can bring down a helicopter. Presented is an accident in which there were luckily no casualties. The accident happened on September 9, 2015 in Utah. The Utah Highway Patrol wanted to recover the body of an extreme sportswoman who died on her 60th hike. She had been located in steep terrain and it was obvious that she was dead. The body was put in a stretcher and everything was prepared for the flight out with the helicopter. The stretcher was taken to a place where the helicopter could land and the stretcher loaded. The Eurocopter came in and the stretcher was loaded when all of a sudden the rotor caught on a rope and flung it into the tail rotor. The tail rotor cut out for a short moment. The tail section touched the crag. The pilot was able to pull down the helicopter, fly away, and land. The rope was cut. A more serious accident was avoided because of the pilot's quick and good reaction.

Joint Meeting of the Terrestrial, Avalanche and Air Commissions

Multi-Day Search, Recovery of an Avalanche Victim on a Technical Ice Climb (Brian Webster, PC) Presents a rescue mission that lasted from February 5 through 11, 2015. The rescue included components of terrestrial, air, and avalanche rescue. The accident happened at around 5 p.m. in the Polar Circus Ice Climb, a very remote area in Banff National Park in the Canadian Rocky Mountains. Above the route there is a prominent avalanche area. Two climbers were ascending an icefall when an avalanche came down and buried one of the climbers. The climbers did not carry avalanche beacons so his companion was unable to locate him. After his descent he drove about an hour to get help. The alarm reached the rescue team at 11:30 p.m. The weather got worse and the avalanche danger rose. The rescuers were able to reach the scene by helicopter. The assumption was that the buried climber was dead and this was a recovery mission. The bad weather continued through days 2 and 3. The slopes above the accident site were blasted before the rescuer and his dog were set down on the avalanche runout. Day 4 brought 43 blasts. This led to the accident site being avalanched 14 more times. At the end of day 5 a weak Recco signal was found. However, the search had to be interrupted because of increasing avalanche danger due to solar radiation. The next day an avalanche dog was flown onto the avalanche runout which also weakly indicated at the same point. Probing began at that point and the buried climber was found at a depth of 2.8 meters. The Recco signal had been triggered by a headlamp in the backpack of the victim. During the rescue the question came up how much risk the rescuers should take in view of this being a recovery. Also, how much time and money should be invested in a case like this? Another question is why the climbers did not carry avalanche beacons in this area.

Joint workshop of the Terrestrial, Avalanche, Air Rescue and Medical Commissions

Scoop and Run This workshop attempted to define the term “scoop and run”. What does scoop and run mean from a medical standpoint (Natalie Hölzl, Fidel Elsensohn)? It is about caring for a patient in difficult terrain in which one wants to get the patient away from the accident scene as soon as possible. The patient is being brought to a place where one can better take care of him or her. It is also about reducing the risk for rescuers. It is also about situations in which the patient needs to be brought to a hospital quickly so as not to waste time. In both cases only basic care is applied on scene (ABCDE). Scoop and run does not mean rescue by winch from a crag in which the patient only receives minimal or no care. Scoop and run is a decision that depends on several factors; i.e. the risk for the rescuers and the patient at the scene, room for caring for the patient, type and severity of injury, available material for the care, and how many victims there are. Scoop and run should be done without additionally injuring the patient. Take home message: The right care for the right patient at the right place within the right time. Gebhard Barbisch gave an example from a mountain rescuer’s perspective: On February 14, 2016 there was a rescue in Mellenkopf in Vorarlberg (Austria). A person fell 50 meters through a cornice with all the equipment. The victim did not answer. When the rescuers got there, the patient was not moving anymore. A quick evacuation was done without medical care for the patient. The rescuers stayed on the longline and flew the victim out in a triangle sling. The decision to scoop and run was made by the rescuers after they had done a risk assessment. Factors were the great avalanche risk, unbroken cornices, extremely steep terrain and therefore no possibility of doing anything on the face. The decision to scoop and run was made again from a medical standpoint. This was based on the victim having very severe injuries, the hospital only being 2 flying minutes away, and the weather was cold and windy. Patrick Fauchère, Raphael Richard, and Manuel Genswein discussed a method that was developed to quickly evacuate rescuers in case of a secondary avalanche. The rescuers stay connected to the helicopter line while working on the avalanche runout and the material is connected to the rescuers. This is not scoop and run, however, since the helicopter hovers up to 20 minutes above the rescuers. Dan Halvorson: In Norway the system has already been tested and was used last winter, but the method was not called scoop and run. The opinions of several of the participants were taken into consideration during the presentation. Fred Alistair: They use „rapid evacuation“. This nomenclature could be used instead Sweden: Scoop and run has been discussed for a long time in the medical community with regards to trauma care. If the physician is good, he’ll get better and better. One could use the CRM concept. U.S. Avalanche delegate Marc Beverly mentioned that at the University of New Mexico, they have been getting away from calling it „scoop and run“. The term suggested bad or even no medical care and that is not correct. France: it depends on the situation, how fast can the patient be brought to the physician, and so forth. Canada, University of Calgary: when we teach the students to act quickly, the word being applied is focused and not fast.

Accident on Kazainica Miegoszowiecka, High Tatras, Poland (Lukasz Migiel, Tomasz Dorocha)

Members of Polish Mountain Rescue presented this case study involving a rescue that took place at the Polish border on December 30, 2015. One of three climbers fell. TOPR was notified at 5:36 p.m. The climber who had fallen was still attached to the others. They were able to hold him but not to pull him up because the terrain was very steep and they weren’t trained well

enough. At 10 p.m. the first rescuers arrived on scene. At 10:30 p.m. two paramedics were with the patient who didn't have a pulse anymore but no life-threatening injuries. He was thought to have hypothermia. During the rescue, the patient had to be resuscitated several times. The core temperature was 17 degrees. Polish helicopters cannot fly at night but Slovakian helicopters can. The Ministry of the Interior gave the permission to use a helicopter from Slovakia. At 3:53 a.m. the patient was evacuated by the helicopter. Once in the hospital, the patient was warmed up. His core temperature had been 15 degrees on arrival. The regular core temperature was achieved by 6 a.m. but the patient no longer had any heart activity. The potassium level was also very low. The patient was declared dead. The positive aspect of the rescue was the cooperation across the borders, which could pave the way for mutual cooperation on future missions.

DAY THREE MORNING PLENARY SESSIONS

Case reports involving MCI in the mountains. A train accident Mass Casualty Incident with poor access case study was presented, with discussion on the importance of safety, staging, site control, patient identification and evacuation, multiagency coordination. Also stressed was the importance of establishing and maintaining an ICS like structure.

MCI avalanche- speed of access with helicopters and ability to get multiple rescue personnel on site measured against risk to rescue personnel. Must do risk analysis from air, external beacon on ship can determine number of subject. "Mental Map" of site important to maintain and use for requesting additional resource. In one particular avalanche, 4 doctors and a total of 20 rescuers were able to recover and evacuate 4 avalanche victims within an hour of the avalanche. Two of the victims were in close proximity and the searcher needed to know how to switch to and utilize the analogue function on his beacon. Air Glacier practices medical theory and treatment of avalanche victims every fall and has clear treatment guidelines to maximize patient survival.

The **Mountain Safety Knowledge Data Base** was presented again as in the pre-conference workshop. This rather large project will undoubtedly continue and will become the "standard" in many ways. There was much discussion on verbiage about recommendations vs standards. Also, who will develop them, maintain and update recommendations as they arise, were discussed. Legal and financial issues may also develop as some parts of the document may be proprietary.

Peter Paal presented **Accidental Hypothermia-an update**, essential an update on the previous Swiss Staging System. Some changes include no specific temperature for severe (level IV) hypothermia, based on symptoms. Serum potassium of >12 mmol considered non-survivable (6.4 highest survived in avalanche victim). Intermittent CPR and automatic CPR devices encouraged.

EURAC International Avalanche Registry was established to try to improve data collection of avalanche incidents across national borders. Specifically for comparing key characteristics of pre-hospital care and patterns of injury.

ASSEMBLY OF DELEGATES (SATURDAY AFTERNOON, OCTOBER 22nd)

ICAR President Franz Stampfli invited each of the Commission Chairs to summarize the activities of their commission during the 2016 congress (see individual Commission reports on the MRA website at <http://www.mra.org/index.php/training/ikar-reports>) A complete copy of the minutes of the Assembly of Delegates is available at:

<http://www.alpine-rescue.org/xCMS5/WebObjects/nexus5.woa/wa/ikar?menuid=1069&rubricid=257&articleid=13234>

New organizations were voted on and approved for ICAR membership. These new member organizations include:

- MAPMR – Macedonian Association for Protection and Mountain Rescue in Inaccessible
- Terrain Asclepius > C
- SBO – Svenska Bergsguideorganisationen > C
- ASBG – Asociation Sociocultural Bombeiros de Galicia > B
- CAA – Canadian Avalanche Association > B
- CARDA – Canadian Avalanche Rescue Dog Association > B
- NARG – Norske Alpine Redningsgrupper > B
- RCS – Red Cross of Serbia > B (depending on resolving of open issue)
- SAS – Silverton Avalanche School > B
- KARA – Korean Alpine Rescue Association > A
- SMA – Swedish Maritime Administration > A
- TCSAR – Teton County Search and Rescue > A
- GSSFBIH – Gorska Služba Spašavanja Federacije Bosne i Hercegovine > A

Membership categories reflect the number of votes allotted in the General Assembly. “A” member organizations have two votes, “B” member organizations receive one vote and “C” member organizations do not vote but can participate in ICAR activities, see:

<http://www.alpine-rescue.org/xCMS5/WebObjects/nexus5.woa/wa/ikar?menuid=1049&rubricid=238&articleid=10978>

The MRA is an “A” member organization. There are now 4 SAR organizations from the U.S. that are voting members of ICAR (the MRA, Wasatch Backcountry Rescue, the Silverton Avalanche School and Teton County SAR).



The 2017 ICAR Assembly of Delegate minutes can be found at <http://www.alpine-rescue.org/xCMS5/WebObjects/nexus5.woa/wa/icar?menuid=1069&rubricid=257&articleid=13174>

CONCLUSION

The 2017 ICAR Congress will be held October 18-22 in Andorra. There will be a Practical Day of preconference field presentations coordinated by the Terrestrial Rescue Commission. The overall theme of the Practical Day and Congress will be Big Wall Rescues. If any individuals or organizations have an interest in putting together a presentation or field demonstration for the Pre-Conference Practical Day, please contact Terrestrial Delegates Tom Wood (twood@pmirop.com) or Dr. Alison Sheets (alisonsheets@usa.net) At the conclusion of the Congress, the ICAR flag was officially transferred from the Bulgarian MRS to Andorra Mountain Rescue.

Many thanks to the MRA and its sponsors for investing in our participation at the 2016 ICAR Congress, please contact the MRA if you would like to learn more about (or participate in) the MRA's involvement in the international mountain rescue community.

Respectfully Submitted,

Tom Wood, MRA

Dr. Alison Sheets, MRA

U.S. ICAR Terrestrial Commission Delegates