

TERRESTRIAL RESCUE REPORT

International Commission for Alpine Rescue



IKAR-CISA



Krynica-Zdroj, Poland 3-7 October, 2012

Prepared By:

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INTRODUCTION The International Committee for Alpine Rescue (IKAR-CISA) met for its annual congress in Krynica-Zdroj, Poland, 3-7 October, 2012.

Krynica-Zdrój (until 31 December 2001 **Krynica**) is a [town](#) in [Nowy Sącz County](#), [Lesser Poland Voivodeship](#), Poland. It is inhabited by over eleven thousand people. It is the biggest [spa town](#) in Poland often called the *Pearl of Polish Spas*; and a popular tourist and [winter sports destination](#) situated in the heart of the [Beskids](#) mountain range.



Krynica was first recorded in official documents in 1547 and became a town in 1889. Due to its convenient location, infrastructure and rail connections with major cities in Europe, Krynica-Zdrój (Zdrój means mineral spring in Polish) was the location of winter sports tournaments already in the [interwar period](#), including the [1931 World Ice Hockey Championships](#), the 1958 and 1962 [FIL World Luge Championships](#), the 1935 [FIL European Luge Championships](#) and the 2004 [Euro Ice Hockey Challenge](#) played in the town.

A [gondola lift](#) built in 1997 on the [Jaworzyna Krynicka](#) mountain overlooking Krynica, and subsequent investment in modern skiing facilities made Krynica one of the most important ski resorts in Poland. Nearby [Beskid Sadecki](#) mountains are also a perfect setting for recreational cross-country skiing in winter and mountain-biking in summer.

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The 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 decision to address this theme was prompted by the desire to present an expanded sample of national perspectives and practices.

This year's congress drew more than 300 rescuers from over 30 countries. Representing the MRA at Krynica were Casey Ping (Air Rescue Commission), Dr. Ken Zafren (Alpine Medicine Commission), Dale Atkins (Avalanche Rescue Commission) and Dan Hourihan (Terrestrial Rescue Commission). Simultaneous translation was provided for all major sessions in English, French and German with the latest equipment and headphones, as well as sound proof booths for the translators. Attendance of the U.S. delegates was made possible by support from **CMC Rescue, Goodrich Corp., RECCO, 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.

Many delegates arrived in Krynica on the afternoon and evening of Tuesday, October 2. A day of Terrestrial Rescue field demonstrations and exercises was held on Wednesday, October 3 and regular sessions began with a grand opening and welcome on Wednesday evening. Delegates were housed and fed at the Czarny Potok Hotel and Resort and the general meetings were held in a first class conference hall at that location. There was a vendors exhibition with displays of outdoor and rescue equipment.

Wednesday Sessions: Practical demonstrations, organized by the Terrestrial Rescue Commission, were held at a field location two hours drive from Krynica. More than 200 rescuers took part in the day's activities. At the venue, there were eight stations demonstrating a variety of terrestrial and rescue equipment innovations, including the arrival of two helicopters. Groups were organized by language: German, French and English. These sessions and the entire Congress are covered in greater detail in a video produced by Rick Lorenz and his Topograph Media staff. At 39 minutes the video is longer than past years, and includes an in-depth look at the use of Dyneema rope in the Tyrol, and a recent study on hypothermia just published by the Medical Commission. There are also some new features, including narrators speaking in their native language with English subtitles provided. The video was produced with the generous support of the following sponsors: Petzl, CMC Rescue, Goodrich, Eurocopter and IKAR, go to: <http://vimeo.com/55387544>.



Comments on the video are welcome and can be sent to topographmedia@gmail.com.

Thursday Sessions: The Terrestrial Rescue Commission met for its opening session. Terrestrial Rescue Commission President Bruno Jelk made opening comments and thanked the Krynica organizers. After these general comments, the Commission proceeded with its established meeting agenda and scheduled presentations.

Terrestrial Rescue Commission Issues: The minutes from last year's meeting in Are, Sweden were read and approved.

All existing Terrestrial Rescue recommendations and standards were reviewed and reaffirmed (see below). This was a valuable exercise, as many of these recommendations have been on the books for years and, in their reaffirming, validates the conservative approach undertaken by IKAR regarding their development.



Bruno Jelk

Commission Vice-President Gebhard Barbisch, Austria, summarized the new statistics collection methodology. It is not ready for posting on the IKAR website, but should be finished and posted in late 2012.

Long-time Commission President Bruno Jelk, Switzerland, gave his final address to the Terrestrial Rescue Commission. The Krynica congress is his last as Commission President. He will be replaced by Gebhard Barbisch and Kirk Mauthner, Canada, will serve as Commission Vice-President.

The Terrestrial Rescue Commission will organize next year's practical field day in Croatia. Next year's congress will be held on the island of Bol, near Split, Croatia and hosted by the Croatian Mountain Rescue Service.

Comment: You can find a list of existing IKAR Recommendations and Standards at the publicly accessible website at www.ikar-cisa.org. IKAR is facing some of the same issues as MRA in terms of standards and increased government regulation. Most IKAR countries rely primarily on volunteer teams, with the exception of the professional mountain police in France.

Dyneema Rope System: Peter Veider, Austria

Mr. Veider detailed the extensive testing and certification process undertaken regarding the use of Dyneema ropes in Austrian mountain rescue operations. Dyneema is commonly referred to as Spectra based ropes and slings in North America. He listed many of the limitations of Dyneema use, which include: No rappelling, no knots (with the exception of the butterfly and bowline in certain circumstances), and lowering operations under only certain conditions, friction heating in excess of 140 C (284 F). Mr. Veider stated that the heat sensitivity problem was easily managed in the field with the use of proven techniques and provided a quick demonstration of end loop splicing to address the knot issue. After extensive testing, the use of Dyneema rope systems has been officially certified for use by organized Austrian mountain rescue teams. With five (5) full years and thousands of missions as a data set, there has been no documented accident involving Dyneema. Though the material develops a "fuzzy" exterior after use, during the testing of 8 mm ropes after a variety of multiple uses, no test produced a tensile breaking strength of less than 3800 kgs. (8377 lbs.). Dyneema ropes have a shelf life of 10 years. During the past 5 years, 3,100 mountain rescuers in Austria have been trained in the use of Dyneema rope systems. Mr. Veider very strongly advocates their use, with the caveat that the limitations detailed above be respected and they must not be used without training. Extensive documentation regarding the testing and use of Dyneema ropes exists, although often in German, and interested parties are recommended to conduct online searches for "dyneema ropes in mountain rescue".



Comment: The use of Dyneema or Spectra based ropes for mountain rescue has not gained widespread popularity in North America. The use of Spectra sling material enjoys somewhat more popularity. Due to its significant strength to weight ratio (the greatest of any manmade material) and general durability, heat sensitivity notwithstanding, its application may hold great promise in certain mountain rescue lowering and raising operations.

Manaslu Avalanche, Nepal, 23 September 2012: Jacek Jawien, GOPR, Poland

Jacek Jawien, GOPR, was a member of a Manaslu expedition and was present when the avalanche of 23 September occurred. He returned to Poland three days prior to this IKAR presentation. He presented a first-hand summary of the event. Many mountain climbing teams were on Manaslu because China had closed the border, which prompted a change in prospective goals to a readily available peak: Manaslu. As a result, 25 expeditions were on the mountain; a lot of people in a small



area. Spring on Manaslu is dangerous; fall is better. A few days before the accident everything looked safe; the glacier was basically snowless. There were 231 climbers present on the mountain. After a nice-weather period, there came a 7-day bad weather period with snow and rain. The upper mountain received multiple feet of snow. After one or two additional nights with minimal additional snowfall, the alpinists felt safe. The snow pack in Camp 1 was not very deep. After the bad-weather period, the weather was nice again and the climbers went to the highest possible area (Camp 3). Camp 3 consisted of 20-25 tents, which sheltered many Sherpas as well as

experienced and non-experienced mountaineers. The avalanche was triggered by a massive serac that broke loose on a high ridge. There were few signs of an impending avalanche before it happened and the weather was good. No one knows how big the serac was that caused the avalanche. The avalanche occurred at 5 a.m. and swept 31 people with it. Camp 3 was completely covered and Camp 2 partially. Many mountaineers were swept into crevasses; some could not free themselves.



Post Avalanche



Camp 3, Pre-Avalanche

The dimensions of the avalanche were enormous. At first there was no professional help available; the call for help was made about half an hour after the avalanche. The first helicopters arrived between 8:00 and 8:30 a.m. A meeting was held with the Sherpas to decide whether or not to climb up to the avalanche deposition at Camps 2 and 3. They decided to send a group of experts. The helicopter rescue was done by a local Nepalese company, Simrik Air. The people in charge of this company first asked who was going to pay them before they flew out. The rest of the organization was just as difficult, since the helicopters were all stationed in different places far away from the avalanche.

In total, there were 11 fatalities, 10 individuals with serious injuries and 8 with minor injuries. Eighteen helicopter flights into the deposition area were needed.

Comment: It is the opinion of Mr. Jawein that the Himalaya region is in sore need of a professionally organized helicopter rescue capability. Due to the extensive travel and response distances in the region and the lack of adequate understanding of insurance guarantees, this preplanning and training effort would be highly advantageous. It should be noted that there were few, if any, avalanche beacons amongst the climbers. There were many probes, but their intended use was to determine crevasse-less tent placement on the glaciers.

Doctrine for Using Search Dogs When Searching for Missing Persons: Marcel Meier, Swiss



Mr. Meier presented a basic summary of principles regarding the use of canine resources in the search for missing persons. He outlined the general use of air scent and tracking/trailing dogs and the training and certification process established by Swiss Alpine Rescue. In general, it takes a minimum of 3 years to train a dog to a fully operational level. For Swiss Alpine Rescue, rescuers must be an operational team member for a minimum of 2 years prior to becoming a canine handler.

He emphasized two main points. First, any effective canine search must be conducted as an investigation with all relevant situational and subject information provided to the handler, associated with a thorough documentation of search effort. Second, canine resources are most effective in the very early stages of a search and must be called upon immediately. The first day is considered optimal, with increasing time considered sub-optimal and increasingly decremental.

Comment: Although basic in terms of new information for experienced SAR responders, the presentation reiterated the most important concepts associated with search protocols; investigate and deploy a mix of resources, including dogs, early. Of particular note, the Swiss protocols which ensure that a canine handler is a SAR responder, first, and a canine handler, second, is extremely important. Such is the case with law enforcement canine handlers in the U.S., who are police officers first, but not always the case in SAR.

Virtual Search Planning: Dan Hourihan, U.S., MRA

Mr. Hourihan described the process of remotely planning a search for a missing person utilizing all known facts in the case, in conjunction with the use of software mapping programs. Specifically, the use of Google Earth and Google Earth Pro were demonstrated. The ultimate goal is to properly provide a situational analysis which identifies the high probability areas (Probability of Area: POA) for the deployment of search resources.

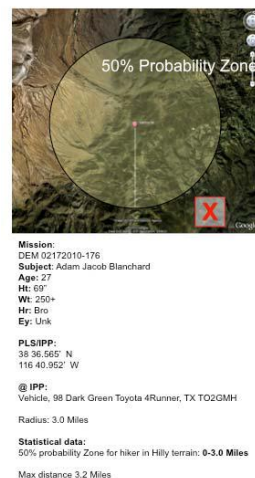
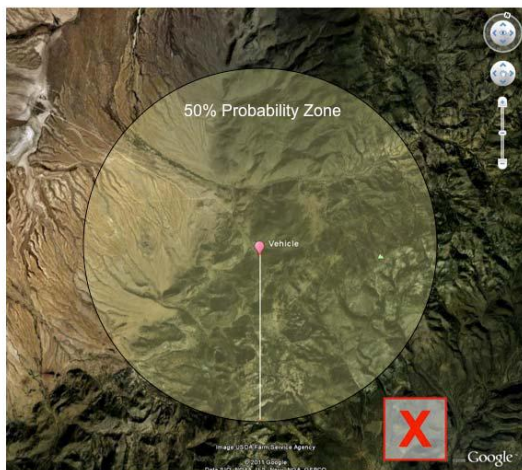
It is commonly accepted that the actions taken in the initial stages of a search significantly affect its eventual duration and outcome. Often, search planning efforts in the initial operational period are considered secondary to the perceived and real need for immediate action. As a result, decisions regarding the deployment and allocation of resources are based upon incomplete or inaccurate

information. The phrase “Can’t see the forest for the trees” comes to mind. Detaching the planning function from the organic chaos associated with initial search operations helps ensure that a complete analysis of available facts occurs. Combined with the terrain analysis possible with software mapping applications, the accuracy of probable subject location predictions is greatly enhanced. Google Earth Pro makes it possible to actually “fly” the known or intended route of the subject prior to becoming missing. This is a very powerful tool for identifying possible terrain traps and decision points when assessing probable search areas.

Detaching the planning function from the chaos of operations can be a matter of yards, with assured insulation, or miles, even thousands. In order to be effective, the process must have the following:

- Planners must have access to all the known facts surrounding the incident, including any historical area information and a solid subject profile.
- Access to a computer or other web-enabled hardware with appropriate mapping software.
- Full communications capability with Incident Command, e.g. electronic, network-based, phone, fax, etc.
- On-going investigation.

It is important that the analysis and probability predictions be presented to the Incident Command operations function in a concise and understandable package. Hourihan provided an example of the format that he and his colleagues use in the state of Nevada and for searches elsewhere. Equally important is the provision of definitive probability predictions, not an analysis which equivocates or is “fuzzy”, which is of little value to the tactical decision makers. The product can be delivered as a PDF, a Powerpoint presentation, an MS Word document, or photo file.



Planning data:

Based upon the searching data of the subject (left), the following search techniques and areas are suggested for this search.

Fact: Map purchased in Ely was not present in vehicle

Opinion: Subject left the vehicle with this in his possession.

Fact: Vehicle disabled

Opinion: given the work done to aid the vehicle, victim was heavily reliant on the vehicle and walking was last option

Fact: Subject stopped working on vehicle

Opinion: Realized that he was injured or daylight became an issue in this activity. He stopped due to this.

Fact: Several guns and ammunition located in vehicle. All have matches except the small caliber handgun ammo, which has no gun associated with it.

Opinion: Subject had this gun in his possession when he left the vehicle.

Fact: Subject unfamiliar with area and terrain, hence the map

Opinion: Subject not likely to move cross country in unfamiliar terrain

Fact: Subject had been in Ely, then in Tonopah, NV, Feb 4, 2011, then vehicle located 61 road miles NE of Tonopah

Opinion: Subject was attempting to return to Ely or was attracted to this area from coming through prior Feb 04, 2011

Subject most likely had to endure the night, was not prepared, and became hypothermic, resulting in unconsciousness, absent outside.

Initial search efforts should concentrate on the roadway leading west from the IPP to a distance of 3.0 miles. This includes all general dirt roads and 50 meters either side of the roadway for the entire distance. Look at all culverts, outbuildings, ditches, and possible man-made structures, and other places that would provide shelter for someone the size of the subject. Look where the subject would fit, not necessarily where they (or you, the searcher) would go.

Snowfall has destroyed the possibility of tracking unless it melts and the area around the vehicle remains undisturbed. If data becomes use a backup to look at the IPP and determine a direction of travel. Attempt to track if this situation presents itself.

Look for predatory birds (ravens, buzzards, etc) when possible and use H&D K-9 in these high probability areas.

Keep tracking financials associated with this subject. Track / Ping cell phone, although the phone is most likely out of power.

Subject is prob: Immobile/unresponsive so high POD values must be achieved. Clues to seek: Map book, footprints, gun, CASINGS FROM WEAPON, clothing associated with Subject

Based on known information that subject was trying to “get away” from family, and with the vehicle being stuck, subject may be distraught. This coupled with only a possible handgun missing may lead to a possibility the subject was suicidal. This is highly subjective though given the limited information on the subject and his history.

In conclusion, Hourihan cited cases where this process was utilized with very successful results. In both cases, key facts were overlooked by the Incident Command planning function. In at least one case, involving veteran searchers, this improper analysis resulted in a several day delay of the subject’s discovery, found deceased. An autopsy determined his death occurred sometime during the first full day of the search.

Mountain Rescuer – Profession, Qualification, Certification: Sabin CornoIU, Romania

Mr. CornoIU detailed the process of training and certifying mountain rescue personnel in Romania. Beginning in 1996 the organization of mountain rescue in Romania was regulated by law. Mountain Rescuer, as a profession, was officially recognized. The training of mountain rescuers is done by the national association of mountain rescuers. Rescuers have to be physically fit and able to ski, able to deal with stress and have analytical ability. There are three different programs that lead to the certification as mountain rescuer; a total of about 600 hours. There are 5 topics: material (160 hrs), technique (240 hrs), organization (80 hrs), protective laws/standards (80 hrs) and first aid (160 hrs). Training is split between regional and national training locations. At the end of the course the participant receives a certificate of competence. The program includes recurrency evaluation.

Additionally, rescuers must pass a physical and a criminal background check. This specific training and qualification program has been in place for 3 years and 300 of the 1000 mountain rescuers nationwide have received a certificate of competence.

Search Operations and the Adequate Use of Resources: Andres Bardill, Swiss Alpine Rescue**Uniformity in the training, management and tactics for search operations.**

Mr. Bardill, Managing Director, Swiss Alpine Rescue, discussed the growing significance of missing person searches for mountain rescue teams and the need for increased training and training materials. He cited several cases of less than satisfactory searches, which resulted from inadequate or untimely response, poor use of resources, and general improper situation analysis. The consequences being increased subject vulnerability and exposure, increased demand and safety concerns for responders, and increased mission costs. As a result, Swiss Alpine Rescue developed a set of guidelines to be used by the incident operations function to more standardize the search function by responders. These guidelines are incorporated in the overall Swiss Alpine Rescue training manual.



Comment: Many of the problems in search operations described by Mr. Bardill are the focus of the Virtual Search Planning process described earlier in this report. Guidelines are a good thing, but the factors that are inherent in all incidents, in the DNA, e.g. chaos, a lack of information, inaccurate information, will always be a challenge and require an effective search planning effort to complement resource allocation and field tactics.

Summary: This year's IKAR Congress provided many demonstrations of rescue technique, as well as new equipment and devices. These have been excellently reviewed in the video referred to earlier in this report produced by Topograph Media, you are encouraged to view it.

On Friday, October 5, a joint Terrestrial Rescue and Avalanche Rescue Commission meeting was held with presentations focusing on both specialties. The presentations by the Terrestrial Commission are included in this report and those specific to Avalanche can be found in the Avalanche Rescue Commission report posted on the MRA website at www.mra.org.

All Commission Meeting, Saturday, October 6

A meeting of all IKAR commissions was held on October 6 with presentations applicable to all. The following summaries will focus on those presentations with relevance to Terrestrial Rescue.

Hypothermia Protocol: Dr. Doug Brown, Canada

Dr. Brown presented new and important information regarding the protocols associated with hypothermia victims' assessment and treatment. The results of this research will be published and a more thorough review of his presentation can be found in the IKAR Alpine Medicine Commission report and the Topograph Media video.

Comment: This information is very important for all mountain rescuers who may encounter subjects experiencing hypothermia in any of its stages.

Climbing Fall, Rescue Mission, Kjerag, Norway: Dan Halvorsen, Norwegian Mountain Rescue

Mr. Halvorsen detailed a highly technical, multi-day rescue effort. Two climbers were attempting a very difficult mixed climb, in winter conditions, on a big wall located in the Kjerag fjord on the southwestern Norwegian coast. The climbers were the victims of a major rockfall event; a very large flake peeled while being climbed. Responders did not know the status of the climbers and conducted operations as a rescue until eventually it was determined to be a recovery based upon infrared images and lack of movement.

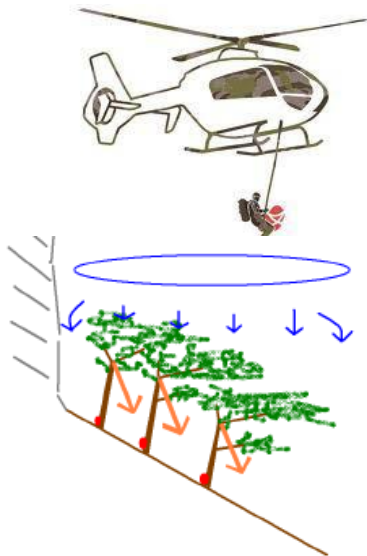


Due to falling rocks and overhanging ice, helicopter access was severely limited and it was Day 3 before a plan and final recovery efforts were realized. Recovery efforts were additionally affected by the fact that the rescue team members knew the climbers, media attention, and persistent bad weather. Low ceilings, wind, and icing conditions added to the helicopter access problems.

Via Ferrata Accident: Cpt. Laurent Jaunatre, CRS Alpes, France

The Mountain Rescue Unit of the French National Police responded to a report of a fallen climber from a Via Ferrata. The accident was witnessed and reported by a Belgian couple also climbing on the Via Ferrata, but not with the victim. The fallen climber fell approximately 120 feet into a forested area at the base of the cliff after striking a ledge approximately 30 feet above the forest.

A team of rescuers responded in an EC 145 helicopter to the scene and one rescuer was lowered via hoist to the forest to locate the subject. As the helicopter powered out after dropping off the rescuer, a tree was blown over by prop blast and fell on the rescuer, severely injuring him. A second rescuer and doctor were then lowered to provide aid. After treating the rescuer and securing him in a litter, the helicopter returned to hoist the litter. As the helicopter came in to hover and hoist, a second tree was blown over. This resulted in injury to the doctor and additional injury to the rescuer in the litter, as the litter was picked up and dropped on its face. Subsequently, all parties were successfully transported, the two parties on the Via Ferrata, who were too shaken to climb, were rescued and the original subject was found deceased. It was determined that the climber died upon impact and was the victim of a broken anchor shock absorber, old and tied in a knot to shorten.



Conclusion: The doctor suffered 5 broken ribs and returned to work after 15 days. The injured rescuer suffered much more serious injuries and is scheduled to return to work after an 8 month recovery period. It was determined that the trees had been weakened by rockfall during the construction of the Via Ferrata combined with naturally shallow root systems on the steep terrain. New protocols were developed regarding helicopter hoist operations in this type of situation:

- Increase hoist operation height to reduce rotor turbulence
- Choose a hoist operation area (for rescuer deposit) far away from cliff base (at least 100m) in a suspected unsafe place.
- For the victim evacuation : Hoist operation on site is NOT AN OPTION when trees are weakened by rock fall impacts.

Delegates' Meeting, Saturday, October 6

IKAR President Gerold Biner invited each of the Commission Chairs to summarize the activities of their commission during the Krynica congress (see individual Commission reports on the MRA website at <http://www.mra.org/index.php/training/ikar-reports>). He summarized the 2012 theme of "Preventative Safety in the Mountains" by reiterating the value of mountain safety education and PSAR. He lauded the work of the new "Preventative Safety" forum on the IKAR website to be spearheaded by the Swedish IKAR delegation for the next two years. Additionally, he cited the

various accomplishments of the individual commissions, as reported in the MRA delegate commission reports. A complete copy of the minutes of the Delegates' meeting can be found at: <http://www.ikar-cisa.org/ikar-cisa/documents/2012/ikar20121215001029.pdf> .

The 2013 IKAR Congress will be held in October on the island of Bol in Croatia. There will be a day of field presentations coordinated by the Terrestrial Rescue Commission. The overall theme of the Congress will be "The Mountain Rescue – Helicopter Interface". Additionally, Dan Hourihan, with the assistance of Topograph Media, made a presentation regarding the proposed 2014 IKAR Congress at Lake Tahoe in Nevada. It is the protocol that proposed Congress sites be voted on at the full Delegates' meeting two years prior to the event. A total of 77 possible votes were cast with the results 74 in favor, 3 abstentions, and 0 opposed. This will mark the first IKAR Congress held in the United States.

Respectfully Submitted,

Dan Hourihan, MRA
U.S. IKAR Terrestrial Commission Delegate

