

# TERRESTRIAL RESCUE REPORT

International Commission for Alpine Rescue

Kommission für Luftrettung • Commission pour le Sauvetage Aérien • Commission for Air Rescue



# IKAR-CISA



**Pontresina, Switzerland, 17 – 21 October 2007**

Prepared By:

Rick Lorenz  
Olympic Mountain Rescue  
Mountain Rescue Association  
1410 South Mountain View Ave.  
Tacoma WA 98465  
[fmlorenz1@aol.com](mailto:fmlorenz1@aol.com)

Dan Hourihan  
Alaska Mountain Rescue Group  
Mountain Rescue Association  
P.O. Box 771252  
Eagle River, Alaska 99577  
[dfhourihan@yahoo.com](mailto:dfhourihan@yahoo.com)

## **INTRODUCTION**

The International Committee for Alpine Rescue (IKAR-CISA) met for its annual congress in Pontresina, Switzerland between 17 and 21 October 2007. Pontresina is located in the southeast of Switzerland, in the highest-altitude valley that branches off from the Upper Engadine Region. It's a sunny place, protected from the winds, the main village lies on a slope opening towards the southwest. It is surrounded by dense woods of larch and stone pine trees. Pontresina ascends from 1,777m (5,830 ft) to 1,860m (6,102 ft.) above sea level.

Pontresina is a traditional Engadine village, divided into four distinct residential areas - Laret, San Spiert, Giarsun and Carlihof. The 12th Century mountain church of Santa Maria as well as many typical Engadine houses built in the 17th and 18th Centuries have been well preserved and some carefully restored.

Some 1,860 people live in Pontresina (with about 6,700 added in the prime winter tourist season). This little valley is one of the last strongholds of Romansh, one of the four national languages of

Switzerland, a holdover from the Latin spoken by Roman era occupiers. Today it is spoken by less than 1% of the Swiss population. Names of houses, streets and places are predominantly Romansh, and students speak Romansh at school. The mayor of Pontresina gave greetings to the 2007 IKAR Congress in Romansh, English, German and French .

The theme of this years IKAR meeting was “Training of Mountain Rescuers” and 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.

This was by far the biggest gathering sponsored by IKAR, with more than 300 rescuers from 27 countries represented. Representing the MRA at Pontresina were Dan Hourihan and Rick Lorenz (Terrestrial Commission) Dr. Ken Zafren (Medical Commission) Dale Atkins (Avalanche Commission) and Ken Phillips (Air 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 US Terrestrial delegates was made possible by a grant from **CMC Rescue**. The US MRA delegates are grateful to CMC Rescue for the long term support of this important international exchange.

**The Congress:** Most delegates arrived in Pontresina on the afternoon and evening of Wednesday, October 17, and the regular sessions began with a grand opening and welcome at 0830 Thursday morning. Delegates stayed in two hotels nearby and the general meetings were held in a first class conference hall in the center of town. The meals and social functions were held in the individual hotels, just a five minute walk from the general meeting area. Next door to the meeting area there was a vendors exhibition with three floors of displays of outdoor and rescue equipment.



Pontresina Conference Hall

**General Commission Issues:** The minutes from last year’s meeting in Kranjska Gora, Slovenia, were read.

Toni Grab, IKAR President has agreed to serve another term, until 2010, and Bruno Jelk, the Terrestrial Commission Chair, will also stay in his current job at least until 2009. Gebhard Barbisch, the vice-chair of Terrestrial, has agreed to serve on the IKAR Board as well. Note: Toni and Gebhard are both long-time friends of U.S. MRA, having attended MRA annual meetings in Seattle and Anchorage.

Bruno Jelk commented that IKAR was composed of both unpaid and paid professional organizations. He stated that a higher standard of training and experience for the paid professional groups was anticipated and acceptable. As an example, the French High Mountain Police (PGHM) have exceptional standards that are made possible because they are full time civil servants.

Comment: You can find a list of existing IKAR Recommendations and Standards at the publicly accessible website at [www.ikar-cisa.org](http://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. (Lorenz)

**Wednesday Sessions:** Practical demonstrations were held on the Corvatsch Glacier. This was by far the largest number of rescuers attending an IKAR “pre-conference” event, with 150 people at the venue high above Saint Moritz. The high capacity tram (110 people) was used to bring the group to mid station, and a smaller gondola was used to ascend to the top of the lift for glacier access. At the venue there were six stations each for Avalanche and Terrestrial demonstrations, and spectator groups were organized by language: German, French and English. Demonstrations included use of mono, bi, and tri pod cliff evacuation operations, crevasse extrication, as well as use of the RECCO system and avalanche dog innovations.



Corvatsch Glacier



**Left:** Bergwacht (Bavarian Mountain Rescue) demo raising system with Tyromont carbon fiber bi-pod (base has been bolted to the rock).

**Right:** Crevasse rescue demo on the Corvatsch Glacier.



**Thursday Sessions:** The Terrestrial and Avalanche Commissions met together for the opening session. Terrestrial Commission President Bruno Jelk made opening comments and thanked the Pontresina organizers. After these general comments, the two commissions separated for the balance of the day to address discipline specific topics.

**Session 1 Modern Crevasse Rescue and Recovery, Zermatt, Switzerland:** Bruno Jelk

Bruno Jelk delivered an outstanding presentation describing the modern crevasse rescue and recovery techniques utilized on the glaciers in the Zermatt region. These techniques involve the extensive use of bipod and tripod systems combined with the use of generator-driven electric hammers. The Swiss utilize the KED, in combination with traditional littering, for patient stabilization and transport. Due to the extensive travel on the highly popular glaciers surrounding Zermatt, the number of crevasse falls is very high. A large number of travelers have vanished on glacier trips and are presumed to have perished in a crevasse. The Zermatt Rescue Station uses these “cold case” searches as training opportunities.



Tripod with Matterhorn





**Left:** Generator helo-slung to the crevasse site.

**Right:** Electric hammer used to excavate crevasse prior to rescue or recovery operation.



Comment: The use of generator supported power drills in crevasse operations is not new in the U.S., but the high incidence of crevasse accidents in the Zermatt region has led to the refinement of these techniques.

### **Session 2 Practical uses of Static and Dynamic Rope: Dr. Albert Wenk**

Dynamic rope has evolved over the past thirty years, used generally by climbers as a single rope to catch a fall, and the trend seems to be towards lighter and thinner. “Static” ropes are better described as low stretch and have been in use at least since the 1890’s. It is important to understand that all materials have limits and there is no perfect system.

The newer Dyneema rope is a high strength, low stretch (less than 3.8%) with superior abrasion resistance, and it performs very well when wet. It has its disadvantages, it will not take knots (must be machine spliced) and it has a lower melting point. It has little or no energy absorption, another limitation.

Dyneema Rope is now widely used in Europe for its high strength, light weight and durability. In Europe, it has largely replaced the wire cable that was widely used for several years. As mentioned, the advantages of Dyneema come with limitations, and specialized training is necessary. It is just coming on the American market. US Rigging in Santa Ana, California intends to market it soon.

### **Session 3 Review of the Petzl ASAP mobile fall arrester and I’D descender:**

A Petzl company representative described the uses and limitations of the ASAP and I’D.

#### **Petzl ASAP**

- The ASAP is not designed to arrest a two-person fall. Each person should have his own fall arrest system.
- The use of a single ASAP to back-up two people must remain exceptional and done only if all of the following conditions are met:
  - for rope rescue work - emergency rappel pick-off of an immobile hanging victim.
  - when all the risks of falling and shock loading (anchor failure, pendulum, sudden loading, etc.) are minimized.
  - when the operation is led by a person experienced with this type of rescue.
  - when using the ABSORBICA L57 absorbing lanyard, without an extension.



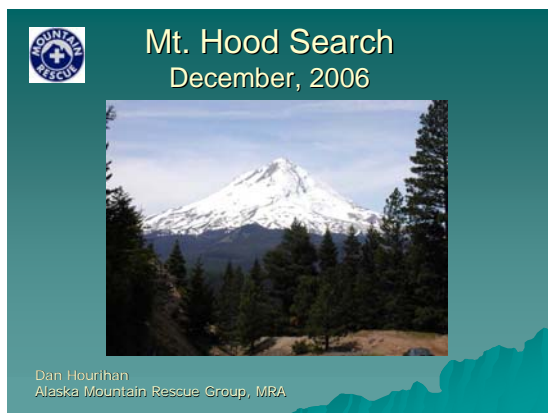
## Petzl I'D

- Personal Protective Equipment CE certified to EN341 - Descenders
- However, both rope access and rescue may use the I'D with a two-person load under exceptional circumstances
- Situation of use with a rescue load:
  - Lower a two-person load
  - Belay a two-person load
- Extra-friction must be added in order to handle a rescue load on the I'D



The amount of friction to be added depends on the characteristics of the rope (diameter, construction...) and the rescue system itself (redirection or not)

## Session 4 Mount Hood Search, December, 2006: Dan Hourihan, MRA



Hourihan delivered a presentation that detailed the rescue and recovery efforts on Mt. Hood in December, 2006, when three climbers went missing during a severe winter storm. The presentation detailed daily search activities and the effect of weather on mission objectives, strategies, and tactics. Additionally, he described the political aftermath in the Oregon legislature and the efforts of the mountain rescue community to mitigate impractical measures in the legislation of climbing activities on Mt. Hood. The topic of legislating climbing safety is familiar to many IKAR participant national organizations and generated lively discussion.

## Session 5 Rescue Mission, Swiss Alps, September, 2006: Christopher Berclaz, KWRO

The presenter detailed a helicopter mission which took place in September, 2006. The original call was for an apparent cardiac arrest, which proved true and efforts to revive the subject with CPR failed. Upon preparing to depart the original mission location, a call was received diverting the helo to a report of an overturned boat on a lake approximately 15 minutes flight time away. Arriving at the scene, it was determined that two subjects had self-rescued and one was still with the boat: without a personal flotation device and unable to swim. Lacking the equipment onboard to effect a rescue (i.e. no ropes, slings, or flotation devices), the helo returned to base and secured short and long haul gear. Efforts to short and long haul from the water were hampered by prop wash and the inability of the subject to secure himself to the line. Ultimately, they ended up dragging the boat and subject to the shore with a line slung from the helo, where he was treated for hypothermia and transported.

Comment: The presenter's point in this presentation is the need to deploy with adequate equipment and training to deal with situations that may arise in the topography in which a crew is operating. Although the crew was trained in short and long haul operations, they did not have the equipment on board and had not trained in water incidents. This team has changed its protocols and now deploys with a full complement of basic rescue gear, regardless of the nature of the original call.



**Session 6 Modern Rescue Technique:** Peter Veider, Austrian (Tirol) Mountain Rescue



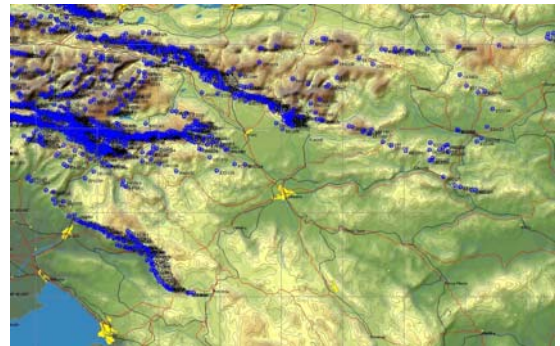
Peter summarized the evolution of rescue techniques in the Tirol (Austria) by detailing current best practices employed by local teams. At the heart of these best practices is the adoption of certain core “standards” by all Tirolean rescue stations. They include: system redundancy with all ropes loaded (common tension), a minimum defined gear list for each rescuer, the use of dyneema rope for certain defined operations, small team training and operations (4 to 6 rescuer teams), and the intrinsic concept of simplicity in technical problem solutions.

Comment: This trend in the Tirol is similar to the “best practices” employed by many teams in the MRA. The development of reasonable team standards is seen as a necessary tool to achieve a consistently high level of safety and performance, without unnecessarily constraining options during the dynamic nature of rescue operations. Although the concepts of simplicity and small team operations are not new, minimal resource reliance and the idea that the “simplest solution is usually the best” is time proven wisdom.

**Session 7 Problems of Paraglider Rescue:** Simon Copi, Slovenian Mountain Rescue

Simon detailed the problems associated with the rescue of downed paragliders in the mountainous terrain of northern Slovenia. With a tremendous increase in popularity, the Soca Valley sees 12,000+ paraglider flights per year, many of which exceed 100 km in length. In 2006, there were more than 130 incidents requiring rescue or recovery operations. Approximately 33% of all missions utilized helicopter access and the average time from notification to incident site access was 3 hours. Copi described the various techniques used to extricate subjects and their equipment from large trees and provided a statistical analysis of injury severity vs. type of crash site terrain. Water landings were by far the most serious, due to a high incidence of drownings. The major challenges associated with paraglider rescues were agency cost (all rescues are performed free of cost) and rescuer time commitment demands on volunteer mountain rescue teams.

Thermic map – flights longer than 100km



**Session 8 The Bergwacht Bayern (Bavarian Mountain Rescue):** Otto Moslang, Germany

Otto Moslang, the Director of Germany’s Bavarian Mountain Rescue, provided an overview of the organization, membership, and training requirements of the Bergwacht Bayern. Divided into seven regions, the Bergwacht Bayern covers an area in SE Germany that comprises approximately ¼ of the country and includes Germany’s share of the Alps. They provide mountain rescue, disaster response (including confined space rescue), swiftwater rescue, and wildfire response throughout the Bayern. The Bergwacht, although comprised primarily of volunteers, receives government funding and has 48 Operations Stations serving 119 local rescue stations. The Bergwacht has 4,400 operations members and averages more than 12,000 operations/year.





Membership and training is organized on five levels: aptitude, basic, advanced, operations leader, and instructor. Each level has clearly defined and strenuous training and skills requirements and an established completion timeframe. Skills verification and associated training modules are recurrent. Depending upon the training requirement, training is conducted at the local and regional levels.

Comment: Although demanding, Bergwacht membership requirements provide a clear and motivating ladder for individual skill and operational responsibility development.

Long renowned for mountain rescue excellence, the Bergwacht owes much of its acclaim to this rigorous competency training, which draws more than 4,400 members.

### Session 9 Avalanche Response Risk Management:

Krister Kristensen, Norway

Kristensen presented a thought provoking approach to risk analysis and management in the SAR environment. He detailed the U.S. Coast Guard’s operational risk management system and compared it to the decision making process existant in most avalanche rescue incidents. The system measures risk (high, medium, low) vs. gain (high, medium, low) and defines acceptable actions dependent upon that evaluation. He listed the common variables considered in avalanche response and developed a matrix to serve as a guideline in operational risk management decision making.

**US Coast Guard**

Beyond the checklist format

U. S. C. G. Aviation Risk Assessment

Ref.: United States Coast Guard. Operational Risk Management COMDTINST 3500.3

Comment: Long recognized as a critical leadership skill, risk analysis as a component of decision making is often a purely subjective process. This attempt to quantify the variables in the process can be a valuable tool for decision makers. Although no matrix can provide guidance with 100% certainty, it can assist in a full consideration of variables and options in the pressure packed environment of rescue response. Created for avalanche responses, this general matrix approach can be modified to be suitable for a variety of SAR applications, including technical rope operations.

**Risk/benefit matrix (example)**

Risk \ Benefit	High	Medium	Low
Low	Acceptable, common risk reduction measures. Continuously monitoring of risk factors.	Acceptable, common risk reduction measures. Continuously monitoring of risk factors.	Acceptable, common risk reduction measures. Continuously monitoring of risk factor.
Moderate	Acceptable, common risk reduction measures. Continuously monitoring of risk factors.	Acceptable with all available consequence reduction measures. Continuous monitoring and rescue preparedness. Limit exposure in time.	Not acceptable at present. Wait until risk factors change.
Considerable	Acceptable with all available consequence reduction measures. Continuous monitoring and rescue preparedness. Limit exposure in time.	Not acceptable at present. Wait until risk factors change.	Not acceptable at present.
High	Acceptable only with continuous and all available consequence reduction measures. Continuous monitoring re-evaluation and rescue preparedness. Limit exposure in time and space.	Not acceptable at present.	
Very high		Not acceptable at present.	

### Session 10 General Delegates’ Meeting

A full copy of the Delegates’ Meeting minutes can be found at: <http://www.ikar-cisa.org/eXtraEngine3/WebObjects/eXtraEngine3.woa/wa/menu?id=248&lang=en>

The 2008 IKAR Congress will be held in Chamonix, France October 8-12, 2008. This Congress will mark the 50<sup>th</sup> anniversary of the French government sponsored mountain rescue organization and the 60<sup>th</sup> anniversary of the International Committee for Alpine Rescue (IKAR).

Themes for the 2008 Congress will be established by each respective commission (Alpine Medicine, Air Rescue, Avalanche Rescue, and Terrestrial Rescue). The theme for Terrestrial Rescue will be "Mountain Rescue Involvement in Disaster Rescue", a topic very current to discussions in the U.S. mountain rescue community.

Respectfully Submitted,

Dan Hourihan, Alaska Mountain Rescue Group, MRA  
Rick Lorenz, Olympic Mountain Rescue, MRA