

AVALANCHE RESCUE REPORT

International Commission for Alpine Rescue

Lawinenkommission • Commission d'avalanche • Avalanche Rescue Commission



IKAR-CISA

8 – 11 October 2008 — Chamonix – Mont Blanc, France

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The following report is based on notes and commentary by Atkins, and on the official minutes prepared by Mr. Robert Bissig (CH) and translated by Mr. Chris Utzinger (US). Special thanks goes to both men, and especially to Mr. Utzinger (Ravalli County Search and Rescue) who was not able to attend but has been instrumental in providing translations for the commission's president and vice president for many years.

INTRODUCTION

The Avalanche Rescue Commission of IKAR meets yearly at the Annual Meeting of the IKAR. In some years a special winter skills meeting may be held. Within the Avalanche Rescue Commission is a sub-group of rescue dog handlers. These rescuers host typically a summer time meeting. (Details for the summer 2009 meeting are available later in this report.) It is my privilege to represent the MRA on the IKAR Avalanche Rescue Commission. I serve as the vice-president of the Avalanche Rescue Commission.

The Mountain Rescue Association (MRA) benefits from participation in IKAR in many ways. Perhaps the most important benefit is the opportunity to gain knowledge and skills from the leaders of mountain rescue from around the world, especially in Europe. The knowledge and skills learned can help MRA teams and members do their jobs faster and safer. In recent years the reach of IKAR has been expanding beyond Europe and North America. Japanese representation has been present for several years, and this year New Zealand participated in the Commission's meetings.

The Avalanche Rescue Commission provides a forum discussion and exchange of ideas. The commission also generates guidelines related to avalanche rescue that are typically adopted at national levels. In the past, the Avalanche Rescue Commission recommended the use of the single 457 kHz frequency for avalanche rescue beacons and of the international 5-level danger ratings.

The Avalanche Rescue Commission is a comprehensive composite of the international avalanche community with representation from national mountain rescue associations, avalanche research and forecasting institutions, national alpine clubs, and avalanche-rescue equipment manufacturers.

OCTOBER 8, MEETINGS & WORKSHOP

Avalanche Rescue Dog Handlers

The Avalanche Rescue Dog Group is a small group of dedicated handlers that share interests and skills between the Avalanche Rescue Commission and the Terrestrial Commission; however, their numbers are too few to create a new Rescue Dog Commission. It is the hope of this group (and of this author) that more time and resources will be provided to this group at future IKAR congresses.

Dog handlers from 9 member countries meet during the late afternoon. Dean Cardinale and Jake Hutchinson, fellow US IKAR-member organization Wasatch Backcountry Rescue (UT), ably represented the US interests. Important actions from the group include:

- Seeking an information exchange on trainings that could lead to training standards.
- Establishing the work group described by Lunde earlier (work group was formally established)
- Summer meeting at Mt Velebit, Baske Ostarije, Croatia on June 11–14, 2009. Topic will be “Summer Search”. For additional information please visit/contact:
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The minutes of the Avalanche Rescue Dog Group are available on the IKAR website:
<http://www.ikar-cisa.org/ikar-cisa/documents/2008/ikar20081208000260.pdf>

Field Day Workshop

The Terrestrial Commission organized a field day session at Les Grands Montets, a very popular winter ski resort located in Argentière, just up valley from Chamonix-Mont Blanc. The day started with two cable car rides ferrying participants nearly 5000 vertical feet to the glaciers at the top of the Grands Montets. The field day provides participants time to observe and/or try new techniques or rescue equipment that is provided by different rescue teams or manufacturers.

Below are some photos of the field day. Additional details will likely be provided in the Terrestrial Report as this author was instructing at the RECCO Rescue System station. More than 100 rescuers participated in the day's activities.



The base area at Les Grands Montets.



The top of the Grands Montets. Twenty-five years ago, one walked out on to snow. Since then, the glaciers have melted dramatically.



Crevasse rescue demo. A sailing block and tackle rig was used so only one hauler was needed.



An adjustable length pole with a quick clip allows a rescuer to quickly attach a line to a stuck person.



A sailing block and tackle – probably a 6:1 – was used so only one hauler was needed



PGHM demonstrate and radio / GPS system that provides real time mapping and locating of field teams. .



RECCO Rescue System training with new R9 Detector.



RECCO Rescue System training with new R9 Detector.



The German Bergwach demonstrate a portable, manual rope winch



The German Bergwach demonstrating their winch.



Austrian demonstrating moving along fixed ropes.

OCTOBER 9, COMMISSION MEETING

Commission president Hans-Jürg Etter (CH) welcomed 61 participants from 19 countries as the formal meeting started in the top floor of the revered *Maison de la Montagne*. The meeting kicked off with a presentation by La Chamoniarde's (Chamonix High Mountain Office) of their new winter safety video (<http://www.chamonet.com/the-mountains/mountain-safety-and-awareness.htm>). Mr. Etter was joined by the commission's vice president, Dale Atkins (US).

The meeting was held in both German and English with Mr. Manuel Genswein (CH) serving ably as translator.

Summary of Avalanche Accidents, 2007–08

USA: The 36 avalanche fatalities were the greatest number killed since the early mining days (late 1800s to early 1900s). It was an extraordinary winter as all the deaths and nearly all accidents were concentrated into a three-month period. In Utah, Wasatch Backcountry Rescue reported 8 helicopter bases and helicopters are equipped with Barryvox VS 2000 Pro Ext and external antennas. External helicopter antennas are also used by Teton County, Wyoming, and King County, Washington.

Norway: The 2007/2008 winter was the third mildest winter on record. There were 32 avalanche rescue missions with 4 fatalities.

France: The fewest number accidents since 1989, because the weather and snow conditions were good during the main season. There were 29 avalanche fatalities in 15 accidents. A single accident on the Mt. Blanc du Tacul on August 24 killed 8 climbers. Among out-of-bounds skiers and riders, there was a decline from 12 to 3 fatalities, compared to the previous year.

Italy: The weather conditions were similar to those in France. There were 36 avalanche accidents in which 17 people died. Remarkable were the concentration of accidents in mid January, the increasing number of snowmobile accidents (uncommon in Europe), and 8 buried victims in the summer.

Germany: There were 3 avalanche accidents in the Allgäu, Mittenwald and Garmisch, (Zugspitz area) with 2 fatalities and 2 injuries.

Catalonia: Due to the shallow snowpack, there were only 2 accidents. In one accident 2 died.

Canada: The 18 avalanche fatalities were slightly above the 10-year average of 15. Special accidents include one fatality on an open ski run as well as one in a closed portion of a ski area.

Spain: There were 4 avalanche fatalities in 8 accidents (3 in the Pyrenees and 1 in the Sierra Nevada).

Switzerland: There were 89 accidents with injuries or deaths and 27 with property damage. In January, there was a concentration of accidents. Among the 151 people caught in avalanches, there were 11 fatalities and 33 injuries. Overall, there were fewer avalanche deaths but with more close calls resulting in a higher than average number of people caught.

Risk Management – Mr. Etter addressed the topic of risk management and described a case where the rescue operation had to be suspended because of weather conditions increasing the risks to rescuers before the victim could be found. The case reminded rescuers of the needs to balance risk and potential success, to maintain safety.

Resource Shortage – Mr. Markus Wray (Alpine Rettung Schweiz, CH) presented an extraordinarily situation when weather, avalanches, and an international ski race conspired to hobble rescuers. On 13 January 2008, 30-40 cm of new snow resulted 8 avalanche accidents; 5 of the accidents were within 40 km of Davos and 3 became actual call outs. The area was left critically short of helicopters because of a World Cup ski race at Lauberhorn (near Wengen). The situation was handled, though with some difficulty. The message was not to forget to maintain sufficient rescue resources at home even when a national event draws away resources.

Results From 2008 Workgroups

NOTE: All recommendations (below) produced during this year's Avalanche Rescue Commission meeting by the Work Groups have been approved by the Avalanche Rescue Commission, and have been passed along to the general membership of IKAR for consideration/consultation. The membership has 1 year to review and revise the commission's recommendation, upon which the General Assembly will adopt the recommendation at the next annual meeting in September 2010.

Glossary and Standardization of Key Terms, D. Atkins and M. Genswein: Atkins migrated the 15-year-old IKAR glossary (prepared by Pavle Segula (SL)) into Microsoft Word. The goal is to expand the glossary from 6 languages to 13+. Currently the glossary covers more than 1700 snow- and avalanche-related terms. The glossary will be made available on the IKAR website, both as a download (.doc format) and as a searchable on-line glossary. The glossary will also be linked to other international glossaries in member countries.

Genswein presented a draft of standardized key terms for search phases. The common terms are primarily used for transceiver searching; however, can be applied to all search methods. Standardizing the terms allows for easier exchange across languages. The recommendation REC L 0009 is available on the IKAR website:

<http://www.ikar-cisa.org/ikar-cisa/documents/2008/ikar20081208000268.pdf>

Avalanche Prevention and Best Practices, Clair Isrelson (CA): Over the past couple of years Isrelson has directed a team to survey avalanche prevention efforts in various countries to define the best practices. 13 countries participated in this first-of-its kind study, information was reported voluntarily and might be incomplete. Results were categorized into the following 5 sections:

- Public avalanche / weather forecasts
- Avalanche education for recreationists
- Safety of public and private infrastructure
- Safety precautions for rescue units
- Organization of avalanche rescue

Details about the study can be found on the Canadian Avalanche Association's web site:

www.avalanche.ca

From the study the following recommendation was made.

1. A credible professional organization issues scheduled avalanche forecasts for popular winter mountain recreation areas.
2. Avalanche training courses for non-professionals are readily available.
3. Comprehensive programs protect highly used public places from avalanches.
4. Avalanche professionals require specialized training / credentials / certifications.
5. Organized avalanche rescue services exist for all avalanche prone areas of the country.

The complete recommendation proposed by the Avalanche Rescue Commission, REC L 0008 is available on the IKAR website:

<http://www.ikar-cisa.org/ikar-cisa/documents/2008/ikar20081208000265.pdf>

Search Strip Widths, Jürge Schweizer (CH): [Note: The following is from the official minutes, with minor edits for readability. DA] Defining a search strip width means finding an optimal balance between chances of survival and probability of detection. Schweizer provides a review of previous studies. Subsequent to the discussion of the topic in Pontresina, Genswein developed a simulation to determine a search strip width that provides optimal chances of survival. Schweizer expands on technical aspects and describes 4 different methods/variations of determining a search strip width. In the discussion, method 3 (incl. the simulation) finds acceptance. This method has the specific advantage of taking technical innovation into consideration, without having to modify the system. Franz Kröll (Ortovox) mentions that he will verify the method with his own data.

Schweizer's preferred method is the following:

1. All manufacturers of avalanche rescue beacons shall determine the so-called "realistic maximum range" as specified in the appendix.
2. The signal search strip width to be marked on the transceiver is then
 - (a) about equal to 1.25 (± 0.1) times the realistic maximum range for beacons without digital signal processing (DSP),
 - (b) about equal to 1.35 (± 0.1) times the realistic maximum range for beacons with 1 receiving antenna and with DSP, and
 - (c) about equal to 1.45 (± 0.1) times the realistic maximum range for beacons with 2 receiving antenna and with DSP.
3. In the user manual the manufacturer shall specify the type of cooperation required by the rescuer (for example, the need to slowly rotate the transceiver during signal search).

Schweizer's proposal for the determination of the optimal search strip width (useful range) is accepted unanimously as an ICAR recommendation.

The complete recommendation proposed by the Avalanche Rescue Commission, REC L 0007 is available on the IKAR website:

<http://www.ikar-cisa.org/ikar-cisa/documents/2008/ikar20081208000262.pdf>

New Workgroup for 2009

Information for Dog Handlers, Albert Lunde (Norwegian Red Cross, NO) proposed formally investigating success factors in the use of avalanche dogs. Years ago Atkins described some common experiences, but no formal studies have been done with avalanche rescue dogs and handlers. Lunde told that in Norway behavioral differences between training and missions are starting to be observed. He proposed a study that would seek to identify qualitative and quantitative key factors for the efficient deployment of avalanche dogs and derive recommendations to improve training for both dogs and handlers.

The commission voted to approve a new working group headed by Lunde who will draft a working document with the purpose of the project and send it to the member organizations. This winter the avalanche dog handlers sub group will meet, as already planned, and further discuss a new formation of the group. Heini Malue (Bergwacht Bayern, DE) will keep minutes of that meeting.

Avalanche Accident Statistics, 2007–08

The 156 reported avalanche deaths (table 1), from member countries, were slightly above to the long-term (25) average of 154 deaths. However, when compared to the previous 10-year period, avalanche deaths last winter were very slightly, 1% from 158 to 156.

While last winter's avalanche deaths were similar to the 10-year average, last winter's number was up significantly when compared to the 10-year period from 1987/88 to 1998/99. (Avalanche fatalities are tallied over the hydrologic year from 1 October to 30 September.) From 1987/88 to 1998/99 avalanche deaths averaged 136 per winter.

Table 2 provides a percent comparison by activity for last winter and the two previous 10-year periods. Note worthy was last winter's decline in *Free Ride* (Out-of-area) deaths from the previous 10 years. This decline was probably due to the remarkably strong snow cover enjoyed by the western European countries. The large percentage of people killed in buildings during the 1997/98 to 2006/07 period can be directly attributed to the huge number of people killed (76) in buildings in the Alps during the winter of 1998/99. In the past 25 years the next highest number was only 13 killed, in 1983/84. *Snowmobile* deaths have risen steadily in North America over the past 20 years.

(Tables 1 and 2 are located on page 8.)

Country	Backcountry skiing / snowboard	Freeride (off piste / out-of-area)	In Ski Area (piste)	Alpinist	Roads	Buildings	Snow-mobile	Other	Total
Andorra	–	–	–	–	–	–	–	–	NR
Austria	19	7	0	2	0	0	0	1	29
Bulgaria	0	0	0	0	0	0	0	0	0
Canada	5	0	1	3	0	0	7	2	18
Croatia	0	0	0	0	0	0	0	0	0
Czech Republic	0	0	0	0	0	0	0	0	0
France	14	3	0	12	0	0	0	0	29
Germany	1	0	0	0	0	0	0	0	1
Great Britain	–	–	–	–	–	–	–	–	NR
Iceland	0	0	0	0	0	0	0	0	0
Ireland	–	–	–	–	–	–	–	–	NR
Italy	8	4	0	1	0	0	4	0	17
Liechtenstein	0	0	0	0	0	0	0	0	0
Norway	2	0	0	0	0	0	1	1	4
Poland	1	0	0	1	0	0	0	0	2
Romania	0	0	0	0	0	0	0	0	0
Switzerland	4	2	1	3	1	0	0	0	11
Slovakia	2	0	0	0	0	0	0	0	2
Slovenia	0	0	0	1	0	0	0	0	1
Spain & Cantalonia	3	3	0	0	0	0	0	0	6
Sweden	0	0	0	0	0	0	0	0	0
USA	8	7	1	2	0	2	13	3	36
Total	67	26	3	25	1	2	25	7	156
%%.%	43.0	16.7	1.9	16.0	0.6	1.3	16.0	4.5	100.0

Table 1. Avalanche deaths from IKAR countries, 2007/08.

activity	PERCENT		
	2007/08	1997/98–2006/07 10-yr mean	1987/88–1998/99 10-yr mean
Backcountry skiing & snowboarding	43.0	39.4	43.8
Free ride	16.7	23.9	20.7
In Area	1.9	0.8	2.8
Alpinist	16.0	13.8	20.2
Roads	0.6	1.5	1.5
Buildings	1.3	5.7	1.4
Snowmobiles	16.0	9.5	3.9
Others	4.5	5.4	5.7
TOTALS	100.0%	100.0%	100.0%

Table 2. Comparison of the percentage of avalanche deaths by activity over the past 20 years. .

OCTOBER 10, JOINT AVALANCHE & TERRESTRIAL COMMISSION PRESENTATIONS

A brief summary of the avalanche-oriented presentations are offered below.

Active Personal Protection Gear for Avalanche Rescue: Past and Future Developments

A joint presentation by John Michalle Schmetz (FR) and Manuel Genswein (CH). This presentation was focused around the history and the future of air-bag systems. The first commercial system (Avalanche Air Bag System, ABS) was presented in 1985. Since then there have been 200 well documented uses of the system in 167 avalanches. Of the 200 uses, in 180 cases the air bag was deployed successfully, however, in 20 cases the air bag was not deployed successfully. Of the 20 cases it was determined the problem was human caused. The most frequent mistake (12) was not pulling the release handle. In 2 cases the cartridge was empty. In two single cases the handle was missing or torn off.

The situation of not pulling the handle occurred from both intentional and unintentional actions where victims either could not, forgot to, or chose not to pull the handle. Genswein proposed a possible solution using a remote trigger mechanism. The concept is simple, and users would have primary control; however, a remote triggering could deploy the system if the user were unable to. The configuration would follow master/master or master/slave arrangements where someone in the "community" (group) could trigger the air bag.

Air bag systems have been shown effective in preventing burial and saving lives. This extra feature could be a helpful, so study and development will continue.

3x3 (Risk Assessment) in Winter Rescue Operations.

Theo Maurer (CH) shared a practical decision support tool developed and used by Alpine Rettung Schweiz. The matrix compares weather conditions, terrain, and human factors at three levels: before the mission, in planning and site operations, and in the continuous reassessment of risk. From the matrix a GO/NO GO guide is determined.

Location Means by High Frequency Radio Waves

Arne Bestmann (DE) of the private German Lambda 4 research group presented an intriguing working prototype of a future rescue tool that uses high frequency radio waves. A bit like a high-tech version of RECCO this system is directional, but uses higher frequencies and a battery powered reflector. Lambda 4 admits to many hurdles that must be overcome, so the functioning prototype is a very long ways away from even being tested in the field, but it does provide some insight to what the future might have in store for rescuers. Bestmann reports they will be working with rescue experts to learn more of the needs for organized rescue. (www.lambda4.com)

The Efficiency of Companion Rescuers with Minimal Training

Manuel Genswein (CH) presented a research project that looked at companion transceiver rescue and found that even with minimal amounts of training people can be turned into effective rescuers. Some results from his study include:

- deep burials (3m) take a very long time to dig,
- maybe better to move on if encountering a deep burial, in a multi-burial situation
- triple antenna beacons were faster in the hands of inexperienced users
- marking function did not always work in multiple burial situations
- performance increased when instructors applied rules strictly
- performance also increased when problems in drills were stopped and corrected quickly

The RECCO R9 Detector: Development and Cooperation Plans of Advanced Rescue Technology for Rescue Teams.

Dale Atkins, (RECCO AB, US) shared the history and development of the RECCO Rescue System's new 9th generation detector. Atkins also shared insights about the entire network of users that includes rescue teams, clothing, boot, and helmet brands, professional athletes, and outdoor enthusiasts and how all benefit by supporting RECCO. The presentation ended with some new training tips for using RECCO detectors. (www.recco.com).

Avalanche Beacons: Ensuring interoperability and backward compatibility

Rolf Matzner (Ortovox, DE) gave an interesting talk behind the philosophy and design criteria for Ortovox.avalanche rescue beacons. Matzner's talk described the human factors involved when man uses a machine and how these relate to new and old avalanche beacons, plus he also covered the problems and solutions for ensuring old beacons will work with today's and tomorrow's transceivers. Current technology, actually it is old technology, limits the future potential of avalanche rescue beacons.

Avalanche Accident in Tatra Mountains

Slavek Riemen (PL) presented an interesting case report where organized rescue replaced companion rescue efforts. A very experienced group (considerable time in the Himalayas) of climbers were following a ridge line when a cornice collapsed, sweeping one member down the mountainside. His companions were un-willing to start a companion rescue because they deemed conditions too dangerous. A mobile phone call to the rescue base mobilized a helicopter and rescuers. The rescue team flew to the site, found the injured man and evacuated him to the hospital within 45 minutes of the accident.

This accident was remarkably similar to an accident that occurred near Loveland Pass, Colorado (April 2008). There a cornice collapsed catching a snowshoer who was buried with her arm out. Her companion could not see her and could not easily descend. He called 911 for help. Rescuers flew to the site, spotted the victim, evacuated her to the hospital, and were back searching for her companion, when we finally reached the debris.

Today, in many situations, organized avalanche rescue in the US is notified and responds fast. However, this attitude is oddly not recognized by many rescuers who still perceive the notification and response effort as it occurred a generation ago. Sometimes organized rescue directly assists companion rescue efforts, and in a few cases, even takes the place of companion rescue.

OCTOBER 11, PRESENTATIONS TO JOINT SESSION – ALL COMMISSIONS

A morning session of presentations were available to members of all commissions. The presentations represented activities in each of the main commissions. Only a brief summary of the avalanche-oriented presentations are offered below.

Mt. Blanc du Tacul

Jean Louis Verdier (FR - Chamonix-Mont Blanc) and Regis Lavergne (FR - PGHM) described the difficulties and challenges faced by rescuers when a large avalanche struck one of the traditional climbing routes on Mt. Blanc. More than 40 climbers were on the route when the avalanche – triggered by a serac fall – swept down at 03h. The PGHM launched an immediate and large response that involved French and Italian rescuers and 4 helicopters. By the end of the day, eight climbers were missing and presumed to have been buried and killed in the avalanche. Remarkably, only 7 climbers required hospitalization, but even their injuries were relatively light: cuts, bruises, and fractures. Dangerous conditions prevented on-the-ground searching in many areas of the glacier, so bodies were left in-situ. As snow melts the area will be revisited and appropriate actions taken.

Virtual Communities and Social Networks: New Resources for Mountain Rescue

Dale Atkins (US) presented how virtual communities and social networks (Internet based), have changed how information is exchanged. Not only has how information exchanged changed, but also the rate and reach of the exchange has changed tremendously in recent years. Atkins described how social networking can benefit rescue teams at the operational level, and how they might also cause problems, too. Atkins presented several successful and unsuccessful uses of social networks in SAR operations. Concluding points for mountain rescue teams included:

- should have a small and creditable presence on web sites (social networks and virtual communities)
- educate community how to report mountain accidents
- educate community how mountain rescue works
- be willing to accept their assistance

Times have changed regarding the use and flow of information, and rescuers can likely benefit by adopting new attitudes and technologies that can assist in both operational settings and in more general situations, like safety and prevention.

Issues and Suggested Best Practices for Avalanche Safety Programs

Clair Israelson (CA) presented the same presentation his work group presented to the Avalanche Rescue Commission.

OCTOBER 11, BOARD MEETING AND ASSEMBLY OF THE DELEGATES

The afternoon of the last day was spent on IKAR business. A short Board of Directors meeting was held right after lunch, which was followed by Reports of the Commission Presidents. Later in the afternoon the Assembly of Delegates (voting members) met to vote on membership issues, recommendations, and general business issues. No actions were taken affecting the Avalanche Rescue Commission.

2009 MEETING – ZERMATT, CH - 22–27 SEPTEMBER

The 61st IKAR Congress will be hosted by the Kantonalen Walliser Rettungsorganisation (KWRO) and the Zermatt Rescue Station in late September. The congress has been moved earlier by several weeks to fit with the International Snow Science Workshop – Davos, to be held 27 September to 2 October.

RECOMMENDATION REGARDING THE MRA INVOLVEMENT IN FUTURE IKAR MEETINGS

It is this writer's opinion the MRA remain involved in IKAR. The exchange of ideas, knowledge, and skills, is of huge benefit to the MRA membership. The analysis, consideration and/or application of this information, skills, and equipment can benefit all teams from training to actual mission operations. IKAR can help MRA teams become better, safer, and more efficient rescuers. The challenge to the MRA is better bring and share this knowledge to the MRA community. I look forward to helping.

DISCLOSURE

I, Dale Atkins, am a volunteer MRA member (Alpine Rescue Team, Evergreen CO) and I am also employed by RECCO AB. RECCO AB, paid for my travel, lodging, and congress fees to the 2008 IKAR congress, reducing the costs of the MRA's participation. I am very aware of the potential for conflict of interests and have in the past withdrawn myself from specific voting actions. During the 2008 meeting no voting took place involving the RECCO system.