Report on the meeting of the

TERRESTRIAL COMMISSION

OF CISA-IKAR

(International Commission for Alpine Rescue)
Malbun, Liechtenstein – 19-24 October 2002

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And
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Rick Lorenz and I attended the IKAR. After my presentation of "Risks in Mountain Rescue", an adaptation from Charley Shimanski, I provided representation at the MedCom, while Rick attended all Terrestrial events.

The official welcome was made by Gebhard Barbisch, vice chair, made the remarks at the meeting because Bruno Jelk was unable to speak due to a flu. A contact list was handed around and the final list, in EXCEL format with e-mail addresses, is included as Attachment 1. No questions were asked regarding the minutes of last year's IKAR meeting at Makarska. Franz Marx presented feedback on the meeting. Questions were taken afterward. Bruno thanked the Romanian representatives again for hosting the Terrestrial summer meeting in Brasov.

While spouses went on a tour of local museums, historic buildings and shops, commissions met.

Terrestrial Rescue and Avalanche Rescue, Joint Meeting held on Thursday, Oct. 17 at 1330 hours

Presentations:

Rescue from Cable Railway (tram), Slovenia
Energy and Loading, Swiss Test Laboratory, France
Evaluating Risks in Mountain Rescue, USA
Belay Device, Wales
Improvisation Ability of Rescuers, Swiss
Project Paramount, Austria/ Germany

How to work with Psychical Stress after Rescue Operations, Frfance
RECCO Advances, Sweden
Mountain Rescue Leadership, USA

Avalanche Probe advances, Germany
Conceptions for Trainings, Swiss
Ascom System RTX 457, Swiss

Assessment of Hazards & Risks. Panel. (Michael Larcher, Martin Engler, Bruno Jelk,)
Michael Laercher, has video, cards (Stop or Go), magazine samples in risk in avi. For users awa rescuers

- Know statistics of accidents & deaths.
- Old focus was temp, weather, snow pack…very difficult to gage, esp pack
- Today: which are important as factors?
- Planning (weather, avi conditions maps, abilities, avi gear
- Ascent. Ck beacons, distances apart 10m p 30 degrees; staying together
- Descent. Behaviour, one after another 30m, one at a time at 35 d slope, good training and explanations by guide & ensure all in party heard all instructions. Staying together otherwise.
- Levels 1-5 risk levels, based on terrain, conditions. 3-death/injury less likely, 4-likely, 5-wahrscheinlich (very probable)
- Levels: 2 - ≥40 degree, 20 meter radius of slope
- 3 - ≥35, more area to avoid because more runout
- 4 – ≥30,
- New focus more on seasoned people as victims.
- New snow, wind…trieb deep, avi-ed, durchfeuchtung, settling noises? Assessed as dangerous? Alt route, turn back.

Martin Engler, :
www.av-snowcard.de, www.lawinenbuch.de

- Similar to above. 5 factors that would trigger an avi. Risk buffer built in. Toward non rescuers
- The factors are checked by professionals. Experienced tend not to use these assessment cards.
- Trap: experienced/experts feel too confident when they do dangerous/level 3+slopes 50-100 times s problem and begin to act as though it will not happen in the future.
- Studied many accidents, patterns/ impressions:
    - Classic factors were there and should have been warnings. Why didn't user heed?
        - Charge in s thinking/ ignore signs or discount them
        - Too many factors to consider leaves many to overlook/forget some
        - If complex factors/ too much to consider/ can't recall: Restrict self to simpler slopes
- Compares to crew resource management/ cockpit factors
- Planning & Strategy: assess hazard and degree based on cards…
- Summary observations:
    - Ignoring obvious signs/ factors
    - Is it fate? Not usually
    - If picture or assessment is unclear, use reduction method: less steep slope.
- We need a medium – too cautious may be too much.

Robert Bolognesi,

- NivoTest (meteorisk) method for Avi risk assessment. For non-rescuers. Rick L will photo it.

- Risk = avalanche probability x potential damage. (eg, hi prob x no one skis there = low/no risk)
- Criteria (additional criteria for rescuers): Local weather (wind), local snow conditions (snow profiles, stability tests), recent local avis (types & sizes), topography of route (natural protection escapes/spots), ability of group (rescuers: number, tireless, lookout…). (victims: number, time since accident...). Is not a checklist better than a scoring system?

Werner Muenter (yes, that Muenter. Referred to as half hitch over there, because it is half of a clove hitch)

- Goal: reduce Avi victims by 50%. 1 minute to make assessment/decision
- The most experienced trigger the worst avalanches.
- We need to restructure our training from existing methods.
- Experience seems to breed ignorance of factors and risk. “The avalanche does not know that you are an expert.”
- Our thinking has changed recently. Recently we have spent more time on risk assessment vs. safe(ty) thinking.
- We don’t need airbags, we need sand paper/nails on the steering wheel: more air bags and safety features, more risks we take.
- What statistics and thoughts we relied on in the eighties (stability) and nineties (pure risk assessment), we can no longer rely on for planning risk management….
- Our current data is unclear and is unreliable to make good conclusions.
- Solutions:High tech, low brain; full insurance or low tech, high brain.
- Suggestions:
    a. Low tech, high brain.
    b. Redevise assessment method using both sides of brain. Cognition, cybernetics, combination of both.
- 80s we tried to overcome insecurity and it did not work. Answer is more likely to deal with it.
- If we can apply several rules of thumb which can apply 95% of time and that are simple, we have a great solution. – this is probability.
- Danger(hazard) is a given. The risk, we can choose.
- Mensch x schneedecke = schneebrett
- 3x3 risk assessment method. Conditions, terrain, man. (9 factors)
- Statistics again help greatly to understand risk, develop good assessments and mitigate them.
- Pattern example: stats show most occur an north facing, >39 d, therefore, no going above 39 d will reduce accidents by 33%

France ENSA (Ski Academy in Chamonix) Testing Frank Charlet

Frank informed the audience that they are constantly testing new equipment and obtaining detailed specifications for old equipment. They are currently looking into a rope for a highline (for crossing gullies and canyoning), that doesn’t have to be tightened parallel any more. Bruno Jelk asked if anything changes when the weight is loaded in the middle of the rope.
Frank stated this makes no difference. Question: Can more load be added by tightening the rope more? Frank: It is a question of margin of safety, but technically speaking it would be possible. Question: How is the rope secured if not with a winch or is it also possible to use a Petzel GriGri belay device? Answer: Petzl states that the GriGri is not designed for this type of application. It is merely a belay device to belay a lead climber. Albert Wenk: He has performed tests on this subject and will present the results during his presentation. There were further comments by the French on margins of safety, using a single 9 mm rope and a 62 kilo load, commonly found in a canyoning environment. Frank stated that this would provide a 6 to 1

safety margin, as compared to a 1.5 to 1 margin for a worst case carabineer fall. Frank concluded from this that one rope is sufficient for rescue use, unless there is a high risk to the rope from abrasion or a stone fall.

France **ARVA 9000** **Bernard Gauderon**

Bernard briefly announced the new direction of ARVA by explaining multiple burial searches with distance and direction indication and demonstrated a training CD-ROM to learn to use the ARVA. The new CD-ROM is available in French, German and English

Switzerland **Checkup System CS 3000** **Martin Baumann**

Martin described the new testing and maintenance options for Barryvox products. This includes hookups for laptops and printers to display results. Question: What is the reason for an organization to change the transceiver configuration? Martin: This can be useful if you want to allow mountain guides to use both the digital and analog configuration and limit guests to the digital configuration. Question: How long does it take to test a Barryvox transceiver? Martin: It takes about a minute per transceiver.

Switzerland **Mammut Barryvox** **Albert Wenk**

Albert presented Mammut's idea of building a clinometer into the Barryvox transceiver. He stresses that so far it is still in development.

Sweden **RECCO Detector System.** **Bernd Zehetleitner**

Bernd presented the current statistics from France, indicating widespread use of the product and improved success rates. Then he explained improvements on the detector regarding frailty, weight and technology. Question: What about the efficiency of using RECCO from a helicopter which sometimes leads to disturbances in the frequencies? Answer: The problem has been solved with the new detector. Question: How about interferences between cell phones and RECCO? Answer: If the cell phone is carried on the back and is turned off, there shouldn't be any interference. By the way, not all cell phones do interfere.

Switzerland ***Avalanche Rescue Training*** ***Manuel Genswein***

Switzerland assigns and conducts operations on a country wide basis, so helicopter resources can be diverted easily. All training is conducted out of the Zurich Airport, and there is a single national training for Operations Leaders. Detailed statistics were presented for 67 rescues; the system generally works well except for December 22, 2001 when there were seven incidents in Switzerland in three hours, overwhelming the system. The Swiss have used rescue beacons in helicopters with success, and they have been confronted with a number of situations where the partners of the buried persons know the location of the burial but have no shovels. They have plans to improve crew training and air-ground communication. There is a plan to equip all helicopters used in rescue to be equipped with a permanently installed receiver beacon for avalanche assignments.

USA **Mountain Rescue Leadership** **Rick Lorenz, US MRA**

Summary: Leadership is often the decisive element in why some outdoor activities, including climbs and rescues, succeed or fail. It has been defined as the "capacity to move others toward a common goal, with a focus and competency they would not achieve on their own." It is not a science that can be mastered from a book, but it is an art that can be learned. There are natural

leaders, but the skills can be taught, and Mountain Rescue organizations should devote time to the subject. This presentation takes some principles of leadership that are taught and practiced in the US Marine Corps and applies them to the Mountain Rescue environment. In the US, military principles have been incorporated into search management techniques, in the Incident Command System (ICS), in use in most state and federal agencies. The basic leadership principles are tested ultimately in the field, where rescuers are required to work together in a challenging environment.

Mountain Rescue leadership principles:

- Know yourself and seek self-improvement.
- Be tactically and technically proficient.
- Know when to admit the situation is dangerous or beyond your capabilities.
- Make sound and timely decisions.
- Set the example.
- Know your Rescuers, their capabilities and limitations.
- Delegate authority but not responsibility.
- Know the limits of your span of control.
- Keep your Rescuers informed.
- Ensure assigned tasks are understood, supervised, and accomplished. (SMEAC)
- Train your Rescuers as a team.
- Stress safety and balance risk with the mission to be accomplished.

Safety standards can vary between purely recreational climbs, major mountaineering expeditions, and military operations where mission accomplishment may make safety in lower priority. In rescues, the responsibility for achieving a balance between safety and mission accomplishment rests with the leader. Training for junior leaders will ensure that they will be ready when called. A useful five paragraph order (SMEAC) can be developed using the standard NATO format, and it can have application to the mountain rescue environment : Situation, Mission, Execution, Administration and Logistics, Command and Control. The same format is useful in small groups in the field and large complex searches.

In the US there is a well-developed search and emergency management system based on military principles, known as the Incident Command System (ICS). There are a host of publications available on the internet through the National Wildfire Coordinating Center, and publications can be downloaded from the site: http://wildlandfire.net Question: In Norway we heard a term such as “maneuver tactics.” What does that mean? Answer: We are all volunteers and do not apply any special maneuver tactics, other than using the Incident Command System on large incidents.

Switzerland SAC Avalanche incidents 2001/2002 Dominik Hunziker

See the Avalanche report, additional details will be provided on CD-ROM, scheduled to be issued by IKAR.

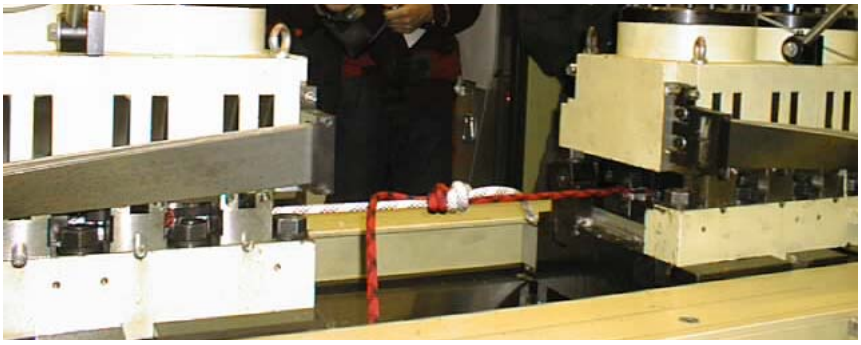
Equipment Demonstrations: Switzerland Albert Wenk

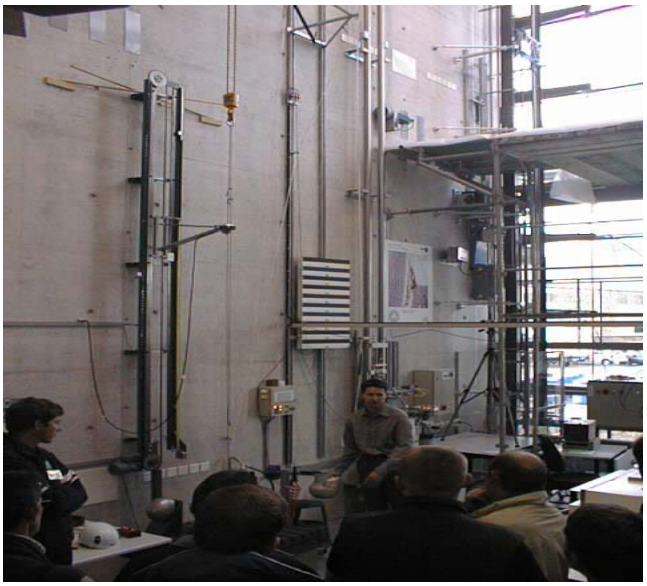
A series of presentations were made, Mr. Jäggin, CEO of Black Diamond Europe and Mr. Schneider of Petzl briefly presented their new equipment. Black Diamond is making increasing

inroads into the European market. More information can be found on the CD-ROM and the respective websites of the manufacturers.

Friday Morning Oct 18, 2002

Test Labs: All participants attended the Swiss National Testing Labs (EMPA) in St. Gallen, transportation was by bus. EMPA has some of the most sophisticated equipment in the world; they test everything from major industrial equipment to bike helmets and watches. There were demonstrations of drop tests for helmets, breaking strength for ropes and knots, as well as various mechanical devices under different dynamic conditions.





Friday Afternoon, Oct 18, 2002 1300

There were presentations by RECCO and Genswein, at the same time Terrestrial officials worked on the agenda for the remaining meetings.

Meeting of the Terrestrial Rescue and Air Rescue Commissions, Fri, Oct. 18, 1400 hours

France PGHM Risk and near-accidents on rescue missions Claudon, Poirot, Bernier

The French have developed a system for reporting of near-accidents on rescue missions, which then are transmitted anonymously to the different rescue stations. Felix Meier: The web site of IKAR already provides a channel for such publications. PGHM Answer: The colleagues of the PGHM agreed to publish the information there. However, they would like it to remain directly accessible for everyone via their own PGHM web site. There was an additional presentation by PGHM concerning safety and risk assessment in training and rescues. There is always some degree of danger and the object is to limit the danger. The French have developed a uniform system of documentation and risk assessment in mountain rescue, reporting it in the publication "Rescue Measures Taken" (apparently only available in French). There are 31 cases of problems in rescue documented between 1997 and 2001, including cases of rescuers failing to properly tie-in to the subject. Some of the conclusions drawn in the study are: "The rescuer should always be above the subject" and "Avoid working alone."

Switzerland SAC/Rega Quality assurance Dominik Hunziker

There was a description of the approval/certification required for a piece of rescue equipment that can be considered part of an aircraft under EU standards. For the helicopter short haul "Airmed" package an EU ISO 9000 certification was initially required, presenting an extremely high threshold and complex approval. There is a web of lengthy procedures in both industry and aviation. It was finally settled to rely upon a previously approved system of industrial swivels and hooks to complete the system. Steel rope with a poly mantle was used because of the positive characteristics of fiber rope plus the strength of steel. It was determined that 77 kilograms for each person was not enough for planning purposes, and the system had to be rated for 120 kg per person, to include gear and possible dynamic loads.
Question: Are rescuers in Switzerland paid for their training? Answer: The rescuers are volunteers, but they can be paid for missions; on-call time is not paid for.

Switzerland KWRO Case study of a successful mission Gerold Biner

Gerold presented a water rescue mission from the summer of 2002 in which a local citizen wanted to cross the Vispe River over a pipe and fell into the ice cold water. The difficulty of the mission was that the pilot didn't have a reference point since the victim kept floating downstream and the rescuer on the winch had to hold onto the victim with bare hands. The efforts of the crew were rewarded by being able to save a life.

Germany Helicopter rescue with static line Stefan Gritsch

A video from the German Air Force showed how rescue missions are performed in areas where landing is not an option (for example in a mine field). This method was developed by the Deutsche Bundeswehr and is their standard procedure. The German Air Force is regularly involved in mountain rescue and has adapted the technique to civilian rescue use.

Dinner Friday : On Friday night we took the ski lift to the summit house restaurant, more than 100 rescuers and their guests bundled in plastic bags and parkas against a fresh wet snow. We had a delicious meal at the, including the kase knopfler and rounds of local beer. On the way down there was a motor failure in the lift, due to ice accumulation. Some of us spent 45 minutes or more in the dark and snow, inching towards the bottom of the lift. With all those experienced rescuers from so many countries, dozens of plans were hatched for self rescue, but our Liechtenstein hosts were able to get us down with only minor embarrassment.

Continuation of the meeting of the Terrestrial Rescue Commission, Sat, Oct. 19, 1030 hours

Switzerland SAC (Mt. Rescue) Forces – Stress Pankraz Hauser

Using a training model assembled in front of the classroom, Pankraz explained forces and stress on ropes with varying angles, loads and directional pulleys. The system was a seven foot square frame with adjustable points along the outside of the frame used for attaching pulleys and ropes. A hand-held scale permitted the forces to be read as the instructor changed the relative angles. This was a useful and portable demonstration system that can be easily set up for classroom use.

England & Wales 540 Belay device Mike Margeson

Mike provided a presentation and demonstration of the Canadian Traverse “540” rescue belay device. The system is now in use in the UK, and there was much interest from the audience. When Mike made the plan for this presentation he was unaware that one of the developers of the device, Kirk Mauthner, would be in the audience. Kirk was happy to just watch the presentation but he responded to a few questions from the audience.

Austria / Germany Paramount Project Gebhard Barbisch

This is a new project involving Austrian Mountain Rescue and the European Union. PARAMOUNT (Public Safety & Commercial Info-Mobility Applications & Services in the Mountains) is a research and development project supported by a number of European

organizations. It is designed as a comprehensive location based service (LBS) for hikers and mountaineers in the Alps and Pyrenees. A prototype for such a service will be developed and evaluated in dedicated test areas. The following core services are planned to be established, as part of a network for users who pay for the service:

INFOTOUR: This service component will provide local information and navigation data to the user, e.g. routing, 3D views of surrounding, information on points of interest (huts, summits, public transportation stations etc.) and local weather forecast.

SAFETOUR: In addition to the information described above this service will provide safety relevant data, i.e. warnings of thunderstorms, information on avalanche risks, information on the severity of trails. It will also allow for tracking registered users in dangerous terrain and alerting/coordinating search& rescue services in emergency cases.

DATATOUR: As this is a critical matter this service will only be available to a group of registered (paid) users. This group will collect the following information:

- Trails and service roads
- Information on condition of trails (personal evaluation)
- Capturing / updating information on Points of Interest

The processing and verification of the collected data will be performed automatically at the main server.

The communication between the servers, providing the services described above, and the mobile devices (Pocket PC with GPS/Compass module and mobile phone unit) will be realized by the usage of GPRS mobile telecommunication. The data will be transferred via HTTP protocol using XML (Extensible Markup Language). If this project is successful, hikers and climbers will eventually have available a single piece of hardware that combines the function of a pocket PC, cell phone and GPS. It can also serve as a personal locating device, both for subjects and rescuers. More information on this project can be found at: http://www.paramount-tours.com.

France PGHM (High Mountain Police) Radios in cave rescue Marc Almante

Marc presented slides on a rescue mission in the caves of Bergea near Grenoble. As a result of research the British have developed a new radio system; NICOLA is the current version of the system which several countries are working on zealously. It has the ability to penetrate 400 meters of rock, depending on conditions. It is about the size of a car radio and requires specialized training to operate.

Continuation of the meeting of the Terrestrial Rescue and the Avalanche Rescue Commissions, Sat, Oct. 19, 0800 hours

USA Risks in mountain rescue Tim Kovacs

Tim Kovacs can provide a summary, including PowerPoint slides. It was an adaptation of the Charley Shimanski MRA Program, but with several modifications.

USA ***Partnership Program*** ***Rick Lorenz***

Summary : There are a number of very successful “sister” relationships between US states and cities with regions and cities in Russia and Eastern Europe. For Example, there is an existing sister state relationship between Colorado and Slovenia, and Seattle has sister city relationships with Nantes, France, Taejon, Korea, and Tashkent, Uzbekistan. The purpose of these programs is to build friendships, encourage cultural and professional ties, and develop cooperative ventures. A number of MRA teams have informally developed ties with international teams, and we hosted Chinese and Israeli teams at the 2002 MRA Spring meeting in Estes Park. At that meeting the MRA Board supported the idea of developing a more formal partnership program that would establish links between MRA and international teams. Rick Lorenz from Tacoma Mountain Rescue brought the proposal to the IKAR meeting in Brasov, Romania, in July 2002, and a number of IKAR teams supported the venture.

Teams can be matched on a statewide basis, for example Colorado would pair with Austria and then individual teams within each area would be connected. The number of volunteer teams in Austria exceeds the number of MRA teams in Colorado. Matches can also be made on an individual basis, based on similar size and interest. Some countries have only a handful of teams, such as Poland and Slovakia. As in the US, the IKAR teams are primarily volunteers, although thee are a number of professional teams such as the High Mountain Police in France.

Dan Hourahan, the MRA President, sent out a letter to all MRA teams in September 2002, soliciting support for the program, and encouraging sign up. Charlie Shimanski and Rick Lorenz agreed to form an exchange committee, and a page (“International Exchange”) was created on the MRA website to record and disseminate information about the program. Dan’s letter was posted on the site, which will record all international exchange activity. As a result of this letter, ten US teams signed up to be assigned a partnership. Rick Lorenz filed a report with MRA on this in December 2002, listing three new team partnerships, plus the formation of a regional Colorado/Austria partnership. See the MRA website for more details.

Sweden **Exchange Program** **Sten Lindgren**

Swedish Mountain Rescue sent a dozen representatives to Malbun, the organization includes both professional police and volunteers from all over Sweden, including Lapland in the far north. They made a standing offer to host any Mountain Rescue representatives from the US (or any other country) for one or two weeks, meals and lodging would be covered, not including air transportation. They will pick you up at the airport and arrange lodging in members homes, plus tours and demonstrations of Swedish rescue capabilities. They ask in return that Swedish rescuers be extended the same offer at a later time in the visitor’s home country. The program coordinator is Sten Lindgren, cifro.sten@ebrevet.nu If any MRA members take them up on the offer, please let your MRA international exchange committee know.

Switzerland KWRO **Avalanche incident in Zinal** **Augustin Rion**

Augustin presented the tragic events of an avalanche incident in Zinal / Valais, where 2 rescuers lost their lives – some food for thought. One of the problems was that a large number of rescuers descended on the scene immediately after the burial, many were not wearing rescue beacons, and those who were wearing them had turned them off to participate in the search. As a result, more than a dozen rescuers were caught in another avalanche, with additional loss of life. The presence of television media crews on the scene was apparently a factor in increasing the number of unnecessary people confusion at the rescue site.

Final session of the Terrestrial Commission:
Next IKAR meeting: The next IKAR Conference will be held in Scotland. Croatia and Scotland volunteered to host the separate Terrestrial meeting in the summer or spring.
Scotland's proposal for Terrestrial to meet in Scotland two days prior to the main IKAR conference was accepted because it would lower cost and travel time. The delegates elected Scotland as location for the meeting, and dates were set for Sept 30 to October 5, 2003. Gebhard reminded the delegates to start thinking about a location for 2004.

Other items discussed: Danilo Skerbinek commented favorably on yesterday's visit to the Swiss Testing Lab (EMPA); this visit was a great benefit. His suggestion for further review at the testing lab the use of anchors. Canada proposed that Kirk Mauthner present his rope techniques in Scotland, he is the developer of the well regarded "Rigging for Rescue" programs in the US and Canada. Kirk was in attendance at Malbun, his first IKAR meeting, and seemed to be interested in further participation in IKAR.

Rescue Standards: Bruno Jelk stated again his belief that rescue organizations must be careful when developing written standards. He made the point that the operation leader must always have the latitude to deviate from the standard in the interest of safety or when it becomes essential to the mission. For example, if IKAR develops a standard that two ropes are required for a particular type of system, failure to use a second rope could automatically be considered negligent, and could even become a basis of legal liability for the rescuer.
Felix Meier of Switzerland is working on the project of developing rescue standards for IKAR, and he welcomes comments at felix.meier@smile.ch He is fluent in German, French and English, and would be a good contact for anyone in the US facing the same issues.

Equipment Acquisition in Europe: Martin Hepting would like to introduce the topic price reduction on equipment which would allow local rescue organizations to purchase at lower prices. Editors Note: In the US most teams use "pro deals" or non-profit discounts for team equipment. In Europe many teams rely on team equipment that would normally be characterized as "personal" in the US. Franz Marx stated that the Austrian Mountain Rescue in Kärnten is currently looking into buying equipment cheaper. Bivy bags were bought for EUR 20 ($20) each, which are now issued to the members free of charge. For purchases of personal equipment in Austria, the following key is used: 1/3 is paid for by the government, 1/3 by the regional rescue unit and 1/3 by the rescuers themselves. Karl Götzfried states that many rescuers believe that personal equipment may be used on rescue missions. This is, however, not accepted by all organizations, such as the TÜV, therefore it might be the job of IKAR to come up with a proposal in this regard. Milan Sekelski states that various new EU standards for equipment are not available to his team. He would like to be able to access them, maybe via IKAR's web site.

Final Remarks : Gebhard Barbisch and Bruno Jelk thanked all the participants, presenters as well as the interpreters on behalf of the commission's president. He also thanks Nathalie for writing the minutes as well as all other tasks she has performed for the commission.

Respectfully Submitted,

Rick Lorenz and Tim Kovacs