International Commission for Alpine Rescue

Presentations – Commission for Terrestrial Rescue

Place:	Jackson, Wyoming
Date :	09. Oktober 2025
Time:	09.30 Uhr
Present:	Members or the Terrestrial Rescue Commission
	Members oft he Doghandler Subcommissoin (from 11.30 Uhr to 12.00 Uhr)
	Members oft he Air Rescue Commission (from 16.30 Uhr to 17.00 Uhr
Chair:	Gebhard Barbisch
Minutes:	Fabienne Jelk

Shared Tensioned Rope Systems - Final Draft TERCOM Recommendation Nr. 5 - WG-Leader - Kirk Mauthner

The working group worked intensively on revising Recommendation No. 5. When rappelling or hoisting people with fiber ropes, there is a risk that a rope may fail by being cut on an edge. This problem is exacerbated by increasing tension on fiber ropes. Other materials or technologies have not yet replaced the use of fiber ropes in mountain rescue operations, so the risk of rope failure must still be taken into account. The solution is a shared tensioned rope system.

Shared tensioned rope systems do not necessarily have to consist of two ropes. They can also be systems that use only one fiber rope, such as a drop loop system, but these should be designed to be redundant. A more comprehensive definition of this recommendation is therefore necessary.

The following recommendation is proposed:

For rappelling or hoisting people in high-risk terrain (circumstances that could result in serious injury or death), the ICAR Terrestrial Rescue Committee recommends the use of Tensioned Rope Rescue Systems (TRRS) that distribute the tension/forces across all ropes connected to the rescue load.

Tensioned Rope Rescue Systems can consist of either two ropes or one rope with a drop loop system. If the entire load/tension is applied to one rope, additional risk assessments by the rescue team are required.

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ICAR recommends redundantly equipped systems, including anchors, so that the failure of one component does not lead to accidents. A critical point requires additional risk assessment. A certain distance between the ropes is preferable.

Redundant: The system is designed so that the failure of one part does not lead to the failure of the entire system.

Advantages of shared tensioned rope systems:

– Reduces the risk of accidents due to sharp edges.

– Reduces the forces acting on the system.

– Reduces the fall height due to the pre-tensioning.

– Reduces the risk of rockfall caused by the ropes.

The adoption of the recommendations is put to a vote. It is adopted without any dissenting votes.

Wildfire - Final Draft - TERCOM Recommenation Nr. 11 - Workgroup Leader - Gebhard Barbisch

It is important to define our tasks and responsibilities.

Mountain rescue organizations must be prepared for the following when responding to forest fires:

- Evacuations (firefighters, forest workers, hikers).
- Rescue operations.
- Support operations (logistical support, air support, rope techniques).

Ongoing communication with local fire departments during an operation is essential, as are joint training sessions and exercises to further strengthen cooperation.

However, we should not engage in firefighting or become a firefighting organization.

The IKAR recommends:

Structurally: Fire departments always take the lead in such operations.

The role of mountain rescue teams is to support the firefighters:

- Preparatory planning and implementation of safety measures for firefighters.

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- Securing firefighters during firefighting operations.
- Securing firefighters when entering and leaving the fire site.
- Securing firefighting equipment.
- Transporting supplies of firefighting material
- Providing first aid (heat damage, injuries, etc.).
- Providing logistical support with special vehicles or other equipment.
- Support through knowledge of the terrain.

Restriction: Mountain rescuers must not be involved in firefighting under any circumstances. This is the sole responsibility of the fire departments.

Training: Ongoing exchange and training/exercises with the fire departments for good cooperation and ongoing exchange and training with the special equipment are essential.

Equipment and procedures: Some of our members have already prepared relevant documentation for equipment and the organization of cooperation. These are made available and can be accessed via the links provided in the article on the ICAR website regarding this recommendation.

The recommendation is accepted without dissent.

Bolts, Pitons and Anchor Systems WG – TERCOM - Leader Stefan Blochum

The establishment of anchors for rescue operations is being discussed. The anchors should ensure complete safety for the rescuers. The following applies to all anchors:

- The strength of the anchor should be adapted to the expected load, the terrain, and the planned operation.
- They should be redundant.
- They should distribute the load across the individual anchor points.
- They should have a clear main anchor point.
- They should minimize the potential for shock loads.

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There are two main types of anchor systems:

Fixed directional anchors:

A fixed directional anchor distributes the load from the main anchor to the various anchor points that are set in the direction of the estimated force. Fixed systems are directional and should distribute the load evenly when loaded in the intended direction.

Advantage: If one securing point fails, a shock load is prevented. The load on the remaining securing points is less. These systems should be used when the individual anchor points are only loaded in certain directions (and/or when their strength is less than the total load).

Self-equalizing system:

The anchor moves with the person attached to it when their direction changes. These systems should only be used in cases where the anchor points are directionally stable (and where each anchor point is strong enough to bear the entire load).

The recommendation is currently being revised and will be put to a vote in Innsbruck in 2026.

Lost Person Behavior - Update - Robert J. Koester

Introducing the ISRID 2.0 system.

What is the best way to deal with missing persons?

The goal is to find the person as quickly as possible. It is useful to know how people behave in the terrain. They orient themselves based on the terrain, distances, and their sense of direction. For example, some people have problems orienting themselves. This has been the case since childhood and is hereditary. These people cannot orient themselves using features in the terrain or follow roads with right and left turns.

What is Lost Person Behavior?

- A book or an app
- The results of a large database (ISRID)
- The development of individual behavior profiles
- The development of general topic categories.
- A series of statistics, markings on maps, and behaviors of lost persons.
- The analysis of scenarios.

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Cases of missing/lost persons are recorded in a database. This is the ISRID (International Search and Rescue Incident Database). The database has now been expanded to include various categories.

The example of a missing 81-year-old man is shown. He has various health problems (heart, arthritis, obesity). He has been missing three times before. He is lightly dressed and does not know the area.

Where is he most likely to be? There are various possibilities. When searching, one must also consider places that are considered unlikely. Various factors must be taken into account: a child behaves differently than an adult. A distinction must be made between whether the person is a hiker or a fugitive, etc.

Data and information from missing persons cases are collected. The data is recorded in a reporting system that includes various categories:

1. External forces such as water.
2. Vehicles used.
3. Cognitive abilities of the missing person.
4. Age.
5. Activity (angler, hunter, etc.).

New sports have now been added and integrated. New features based on the landscape have also been added.

Mobile phone tracking is carried out. In some cases, the missing person may have a tracking device. Women are more likely to survive at the beginning. The longer the person is missing, the more likely men are to survive.

With the help of ISRID, various probabilities are calculated as to where the missing person might be (statistical scenarios).

For questions/comments: Robert@dbs-sar.com, www.dbs-sar.com

ISRID 2.0

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A different approach to drone deployment – Ralph Gisler, ARS

Ralph Gisler works in drone coordination at ARS.

The question arises as to how drones can best be used.

ARS consists of 84 rescue stations. The first step is to analyze what these stations already have and what they still need. Those who use the drones must be trained. The goal would be to establish a professional drone structure. This requires a lot of work and a willingness to learn on an ongoing basis.

Once the decision has been made to use drones, existing local resources will be needed. The ARS does not provide rescue stations with drone equipment. It also works together with the police.

The ARS/Rega Performance Profile strategy is as follows:

- Alarm.

- Visual search.

- Rega 11 ireso: Helicopter for searching for people (equipped with Life-Seeker, thermal imaging camera, searchlight, night vision device, 4-axis autopilot).

- REGA has its own drones. This is still in progress.

- Rega drone support.

Example: A drone is used in the search for a 22-year-old mountaineer in Klöntal/Glarus. Another example: Drones are used to evacuate people from blocked cable cars. This allows the rescue operation to be monitored. Drones can also be used to check the terrain in the event of imminent rockfalls. Drones can also be used to check the terrain in the event of avalanches.

File: 20251009-1330-ARS-Drone-Approach.pdf

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From Innovation to Intervention - The Impact of Drones and AI in Mountain Rescue - Ciprian Zamfirescu, Sabin Corniou / Salvamont

Romania has 17 AI and drone data analysis centers and a national AI drone analysis center.

The question arises as to how a radio network can best be set up across terrain with mountains, valleys, etc. This is done with the help of drones. A Vodafone 5G network can be set up by flying antennas to specific locations using drones.

Furthermore, data is analyzed with the help of drones. Photogrammetry is combined with AI to find people.

A rescue operation that took place at night is shown. The search was carried out using a drone, which transmitted the coordinates of the accident victims/missing persons. 5G and UAVs can improve rescue operations. In the future, drones will be used more frequently in various situations to improve rescue operations.

AI can be used to locate people. Drones and AI can also be used for water rescues and searching for people in the water. For example, drones can be used to bring people who are in distress in the water to shore. Drones are also used to transport materials.

The future? Robotic people and dogs

If you have any questions or comments, please contact: sabin@cjgorj.ro, flywithcip@gmail.com

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Enhancing operations safety through reduced exposure time - Allesandro Alberioli/SAGF

The safety of rescuers should be increased by reducing response times. Training for rescuers is essential. The longer a rescue takes, the longer rescuers are exposed to danger (cold, avalanches, landslides). Terrestrial rescue and air rescue services must be able to work well together. This also requires joint training.

The following are essential for the SAGF:

- The ability to work in any terrain.

- Technical skills must be applicable in any terrain and for any type of rescue.

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- Operational competencies in helicopter rescue must be in place.

- Decision-making ability with regard to the strategies to be applied during training or in helicopter and terrestrial rescue operations.

These skills require constant training and continuous further education.

How helicopter rescues can be optimized and made faster:

- Using the NEW ARK (Anti Rotation Kit) for the stretcher.

- Using the RESCUE TRIANGLE (Pegasus).

- Using a special net designed specifically for lowering and lifting people and light loads.

The Use of Radio Networks in the Mont Blanc Massif - Major Frederic Auvet UCTM/PGHM; Océane Vibert , La Chamoniarde

The presentation deals with communication in rescue operations. The VHF Radio Network was introduced in 1987 and is operated by La Chamoniarde. It ensures communication during rescue operations and operates at 150 MHz. It consists of 2 repeaters, 2 listening stations (listening basis) and 17 stations in mountain huts.

The example of an avalanche on Mont Joly is used to show how communication can be ensured during such an operation. Seven people were involved, two of whom were completely buried. Four helicopters used the repeater to communicate with the PGHM. All communication took place via two channels. Communication with rear bases must be possible. These are bases that are far away in the field.

Limitations of the system: limited range.

What is the solution for long distances: GSM. However, this cannot be used everywhere in the mountains. The solution for this: LTE. This is very efficient for communication over long distances.

Three systems: VHF – LTE – GSM.

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A complex situation cannot be solved with just one communication system. The system must be adapted to the terrain and the situation. All of this must be prepared in advance in a communication plan.

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Modernisation of Terrestrial Rescue Equipment and Techniques in the Slovenian Mountain Rescue Service - Miha Kenda/GRZS

78% of Slovenia is covered by mountains.

Rope technology was introduced in the 1990s. Then, for several years, there were no major developments in rescue techniques.

The aim of the modernization was to ensure that every rescuer had a personal technical rescue kit, enabling them to use all rope-based rescue techniques. There is also a Team Technical Rescue Kit. There are two of these in each rescue station. The rescue kits must be lightweight, multifunctional, and easy to use, have sufficient breaking strength, and be efficient at pulling loads.

Using the example of the rigging system (pulling up and lowering loads), this looks as follows:

Personal Technical Rescue Kit:

At an angle of less than 45 degrees: Lifting: Progress Capture, Lowering: Reverso, HMS (Munter Hitch).

At an angle greater than 45 degrees: RIG technique,

Team Technical Rescue Kit:

Maestro technique, winch technique.

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Integration of Drones in Norwegian SAR Operations - Bernt Inge Hansen, Ivar Windju, Norwegian Red Cross, Norwegian Peoples Aid

The introduction of drones began around 2012. In 2016, laws were enacted that set requirements for drone operators and documentation. The police began using drones in 2019.

Why drones? They enable observation from above and access to rough terrain, reduce the risk to rescuers, allow sensors to be placed in strategic locations, and are an interesting technology. Norway has large unpopulated areas where drones can be used.

The JRCC is the lead agency for rescue services in Norway. There are many other organizations with rescue service responsibilities, which necessitates coordination, including with regard to the use of drones. This led to the enactment of the National Guidelines for the Coordination of Air Resources in the Rescue Service. Before starting an operation in an area, the JRCC must be contacted. Before flying into the area of operation, two-way communication and a separation plan must be established. Every use of drones is published in an information system called “HemsWX.”

Coordination worked because the individual actors understood that they were pursuing the same goal. There was a willingness and a need to agree on specific procedures. Sharing information became easier. The organizations trust each other.

For questions/comments: bernt.inge.hansen@rodekors.org, ivar.windju@npaid.org.

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End of Meeting: 17.00

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