Proceedings of the Terrestrial Commission of the International Commission for Alpine Rescue
### Details

<table>
<thead>
<tr>
<th>General Detail</th>
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</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>
# Table of Contents

1. **Introduction** ......................................................... 4

2. **Terrestrial Commission** ............................................... 4
   2.1 Pre Conference Technical Rope Workshops ........................ 4
   2.2 Use of Rescue Frames .............................................. 4
   2.3 Dyneema Rope In MR ............................................. 5
   2.4 Motorised 4 Stroke Power Ascenders ............................ 6
   2.5 Inflatable Stretcher for Cliff and Canyon Rescue ............ 6

Other Developments .......................................................... 7
   3 Swiss Mountain Rescue - Rope Rescue Training Manual ........ 7
   3.1 Virtual Search Planning ........................................... 7
   3.2 Professional Qualification in Mountain Rescue ............... 7
   3.3 Accidental Hypothermia .......................................... 7

4. **Summary** ................................................................... 8
1 Introduction

The Terrestrial Commission conducted its' business over 2 sessions of two hours each. For the remainder of the conference business was conducted in joint session with the Avalanche Commission. The conference concluded with a final meeting of all commissions, Terrestrial, Avalanche, Air Rescue and Medical.

Prior to the conference a one day workshop was delivered at a remote gorge location. Most of the demonstrations were of the latest terrestrial rescue techniques and equipment. The latest technical advances for mobile phones apps were also on show.

The information contained in the report is a brief reflection of the conference activities, there was 25 lectures attended on the terrestrial commission with a similar amount attended on the other commissions.

A meeting of the ICAR Prevention and Mountain Safety working group was attended by Stuart Johnston and Ken Marsden.

2 Terrestrial Commission

The workshops were led by a variety of ICAR members and commercial product and research companies, especially in the world mobile phone apps, there are many diverse technologies for the public to use and will soon to hit the market place… please read: Ken Marsden ICAR report for further technology information.

2.1 Pre-conference technical workshops

2.2 Rescue A-Frames

- Poland MR took lead on introducing their new lightweight carbon material high angle rescue A-frame, this lightweight easy to carry and assembled frame is used for crevasse and high angle rock rescues. It has adjustable width and height, can convert to a tripod, maximum load is 300Kg. Frame stability plates can take ice screws or stakes for non-winter terrain. This frame was designed by Austrian MR and was supported by Peter Vider. This new rescue frame was clearly designed for use in any MR steep ground recovery, low level or mountain terrain.
2.3 Tension Lines Using Dyneema Rope

For the cynical amongst you out there, yes I agree dyneema rope has specific applications and there are a number of rigging situations Dyneema rope is not entirely suitable, which means the operator and rigging manager requires a much higher knowledge and skill level.

An overview and background:

1. Dyneema® is a trade mark of the Dutch company DSM Dyneema® and consists of high modulus polyethylene HMPE
2. HMPE is a high-strength material with positive, negative and potentially dangerous characteristics
3. Other HMPE materials are: e.g. Spectra®fiber by Honeywell, Plasma®
4. Dyneema rescue rope is rated to 1000Kn that is the inner core pre stretched, the outer sheath is only a protective sheath
5. You can now buy a pre made dyneema prusik, slippage is around 300Kg or 3KN, the loops at the end are spliced
6. Tare test have taken place up to 3800KG or 38KN load
7. With correct use durability can be up to 10 years

Considerations of use:

- Not used for abseiling
- Limited use with knot types as the rope is severely degraded in strength
- At 70° the rope shows signs of heat damage at 140° the rope melts
- Has poor discard criteria
- Minimum deviations and minimum impacts
- Takes a long time to dry due to water in-between the braids
- Poor abrasion resistance when slipping over rocks, will reduce the rope life dramatically
- Pollution (fine particles)
- Static rope only, must not be used as a climbing rope, high slippage of knots and slippage between rope core and rope sheath
- Will fail on high speed abseiling and can be damaged easily if used incorrectly with rescue winches

Rope advantages

A. Is very light weight, small diameter gives high performance
B. Outdoor operations, in water (long term exposure) no diameter variance, cooling by water (rope clips).g. 8 mm DY1 = 4 kg/100m, UL 50 kN gross, net 42KN
C. UV resistant, lighter than water
D. Fix rope for air rescue (in CH up to 200 m) + alternating loads, small diameter, lightweight e.g. 14 mm DY1 = 800 kg HEC, 10.5 kg /100m + EC certified for HEC (system certification) + high performance rope end fitting (deviation < 10%) + long end-to-end splicing is possible.

Conclusions

Dyneema is a very efficient material when correctly used
Dyneema is a very dangerous material when incorrectly used.
2.4 Motorised 4 Stroke Power Ascenders
Swiss MR took the lead - Not a new concept to the market place, but new to operations in mountain rescue, the operation is always backed up by a second rope using an ASAP. The power ascender shown in the photo below has a seat system for the rescuer or casualty who, need to be wearing a safety harness for safety clipping to the power ascender. The only drawback is casualties need the use of their legs so they can walk up or down the cliff face. Delegates took the opportunity to have a go. Rescue kit companies such as (singing rock) distribute 4 stroke power ascenders. The working load is 200KG or 2KN.

2.5 Inflatable Stretcher for Cliff and Canyon Rescue
Italian MR took lead on this demonstration, the stretcher below rolls up - shoulder carry style storage. The mattress is inflated by air from a small gas container which is carried by the rescuer; the entire system weighs around 7KG or 0.7KN. The system has a fully integrated patient secure system and certified horizontal lifting strops. The mattress has a built in pressure release valve, so the user can not over-inflate. The mattress is covered in a reinforced material to help prevent puncturing from sharp edges. This stretcher is still undergoing testing in high altitude rescue environments.
3 Swiss Mountain Rescue - Rope Rescue Training Manual

Swiss MR have produced a mountain rescue handbook which covers a huge range of topics, in fact just about everything you can think of appears in the manual. It’s a clip folder A5 size which makes easy insertion of any updates or new technical content pages.

The manual is available in 6 languages and of course it’s available in English. For a demonstration of the manual content and to buy one visit: www.alpinerettung.ch

3.1 Virtual Search Planning

This session lecture was led by Dan Hourihan MRA (USA), Dan led by using a case study example of a missing person to which after 3 days of search local authorities drew a blank. This led to their national search management service getting involved and information/intelligence analysed by the search advisory service led to the find of the missing person. Essentially the main theme of search management is how experienced/nationally based search incident managers can assist a major search without being on the ground locally.

The key message from Dan’s talk was aimed at the advantages of a collaboration approach to search management without taking the incident lead. Many states within the USA have search management centres which provide advice for SAR operations who’s primary role is to assist local search authorities on the ground.

3.2 Professional Qualification in Mountain Rescue

Romania MR, this lecture was presented by the head of Romania MR services; their main reason for driving a national programme was to prevent and reduce their accident statistics to MR personnel. The programme takes around three years to complete and is modular. They took sometime establishing a national framework for training which is competence based training and assessment. The Romanian Government has completely driven this process and financially supports the national training programme. Team members remain volunteers. Romania has over 1000 volunteers, since launching their national training programme they have qualified just over 300.

There was no evidence presented as to whether their approach was working, their system was very new.

3.3 Accidental Hypothermia

This lecture was led by Dr Doug Brown Canadian MR, Vancouver based. We had no representatives at the medical commission; this talk was one that crossed over to the terrestrial commission sessions.

A new journal to be published in November 2012 presenting recent research covers the following areas’

- CPR in hypothermia patients, simplifying the clinical staging, the cool and the dead, field potassium levels, timings, additional research on cardiac stability, emergency rewarming i.e. field procedures!
- Hypothermia and trauma
- Transport of hypothermia patients
- Levels of hypothermia consciousness and treatment
- Hypothermia, chain of survival
- Managing cold patients
4 Summary

This report is not intended to make definitive or difficult conclusions but provide a brief summary of the terrestrial commission activities during the 2013 conference. However, this event was my first ICAR conference and it made me wonder why Scottish MR hasn’t been regularly attending ICAR. My only conclusion is past funding constraints. I do hope we can plan for future events and send more team members from around Scotland.

ICAR is essentially a global platform for MR across the world it’s a serious pathway to share research, knowledge, skills and ideas. Mountain Rescue teams around the world all share similar common issues which include:

A. Keeping MR personnel safe
B. Providing a good level of emergency care for our patients
C. Working with and training volunteers
D. Working with multiple rescue agencies
E. Maintaining skills and using research

ICAR commissions have independent commission presidents and vice presidents, papers and demonstrations are presented by members, many are very instructive or simply informative, there is no doubt exchanging experiences can make us do a difficult job safer and more efficient and as Bruno Jelk past president of ICAR terrestrial group 2013 said; *(unfortunately mountain rescuers often die when carrying their duties, we need to do our utmost to avoid fatal accidents as far as possible… Rescuers safety is paramount and we all need to continue to analyse ways of improving it)*.

There were three case studies presented where MR personnel died whilst carrying out their duties and there were many near misses presented too. Most of those case studies were presented by some of the most prestigious and busiest rescue teams in the Alps who were happy for their story to be told for the benefit of other MR teams to learn from.

Case studies were presented without fear of being judged or criticised and some of those case studies were publically high profile some are still going through court proceedings in their home nations.

I am happy to share any further information about my notes within this report and I do hope more Scottish MR personnel will attend ICAR conferences in the future.

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Hotel and conference facility.