



**MRA Report on The 68th ICAR Congress
Borovets, Bulgaria 19-21 October 2016
By Oyvind Henningsen
MRA Alternate Delegate Avalanche Commission**

Thank you very much for letting me represent the MRA as an alternate delegate to the IKAR Avalanche Commission. It is an honor and privilege to be standing on the shoulders of so many individuals and high quality professional rescue organizations that comprise the MRA.

Attending the ICAR is a tremendous opportunity for learning and sharing of rescue techniques, stories and experience. I am humbled by the dedicated service of mountain rescuers around the world and particularly my fellow MRA delegates in attendance; Charlie Shimanski (Air), Marc Beverly (Avalanche), Tom Wood (Terrestrial), Alison Sheets (Terrestrial), and Ken Zafren (Medical).

Future Congresses

2017	October 18-21 Soldeu, Andorra
2018	October 17-20 Chamonix, France
2019	Zakopane, Poland
2020	Thessaloniki, Greece

The 2016 Congress was arranged by the Bulgarian Mountain Rescue and the Bulgarian Red Cross. More than 30 countries were represented with over 320 delegates in total. The arrangement was professional and the venue was suitable, a large hotel in a ski town at 1350m in the Rila Mountain range about an hours drive from the airport in Sofia. The theme of this year's congress was "Search function – improving the search before the rescue"

Pre-congress Workshop Day

About 230 participants rotated through ten workshops located around Borovets. Due to inclement weather stations were divided equally between indoor and outdoor. The topics covered were:

- Helicopter evacuation of a buried subject in an avalanche – another “scoop and run” strategy where a subject is located via helicopter search techniques and 2 rescuers are inserted in high risk avalanche terrain with the task of fine searching, probing, shoveling, and extricating subject all while staying attached to the longline of the helicopter. This is a very advanced technique and protocols and recommendations are being developed in regards to situations where this is appropriate, gear that is suitable, training that is needed, etc. It is a promising technique for minimizing time rescuers spend in high risk avalanche terrain.

- Evacuation strategies – immediate evacuation without medical intervention, scoop & run with intermittent CPR discussion and demonstration. There is recent evidence of the benefits of intermittent CPR particularly in avalanche rescue cases of hypothermia induced cardiac arrest. It seems that many countries in Europe is accepting the benefits of intermittent CPR and are rewriting their response protocols. Discussions with my local EMS directors have shown that the US is not at the stage yet but recent articles and presentations to the EMS community in my area shows a marked interest in looking at new European protocols both for hypothermia treatment and resuscitation decisions making for avalanche victims. I would encourage all MRA teams to review the ICAR avalanche victim resuscitation checklist developed by the ICAR Medcom. Also a close read of one of the most comprehensive articles on hypothermia released to date is recommended <http://sjtrem.biomedcentral.com/articles/10.1186/s13049-016-0303-7> Rapid assessment and improvised evacuation without harming the patient – scenario with basic level on medical care and scoop and run decisions. Subjects were presented in difficult to access positions with injuries of a nature where participants had to make decisions quickly in regards to the movement and protection of the subjects without making further harm.

- RECCO search techniques – demonstrations were made on the best practices in the use of RECCO search techniques. The device continues to have practical applications in locating people buried by avalanches. Improved techniques increases the usefulness of the RECCO in avalanche rescue response. However, the device is used incorrectly during rescues and the POD is vastly reduced due to improper rescuer techniques and application/nonapplication.

- Avalanche search phases and avalanche transceiver techniques involving multiple burials. Best practices were discussed and presented. Training in these techniques is important for optimal performance of mountain rescuers.

- Probing and probe line search strategies discussion with practice – participants were led through a discussion of different techniques and best practices and were involved in practice of probe line techniques. There are many techniques practiced around the world and researched and demonstrated best practices were presented.

- Avalanche Rescue Olympics – a team competition with multiple victims. A fun station where teamwork, techniques and decision making were challenged.

- Manufacturer presentations - updates on avalanche safety equipment given by several manufacturers presented interesting differences of opinion. It is clear that recommendations by ICAR in regards to specifications for the best type of avalanche rescue gear is facing competition from financial / marketing / and other considerations that influence the manufacturing of gear.

- ICAR Mountain Safety Knowledge Base – The concept was described and a talk of how having best practices developed and readily available for mountain rescue organizations and other interest groups would be beneficial.

Excavation strategies were discussed with a review of shoveling techniques and updates to the conveyor belt technique shared.

- Avalanche transceiver safety, maintenance and interference, best practices. Best practices for avalanche transceiver safety, wear, care, and maintenance were presented. Discussions on interference experienced during avalanche searches around the world revealed a real issue that unless handled appropriately can lead to poor results during rescues.

Media link – as usual the team from Topographic Media – Rick and Matt Lorenz made excellent documentation in video format of the proceedings of the ICAR 2016 -

<http://www.alpine-rescue.org/xCMS5/WebObjects/nexus5.woa/wa/icar?menuid=1063&rubricid=255&articleid=13141>

Mountain Rescue Knowledgebase

I participated in an Avalanche Commission working group in the Stubai Mountains this spring. Representatives from many countries met for a week to talk about best practices in avalanche rescue. The results of the working group were put to practice in small clinics during the pre-

conference workshop day in Borovets. Marc Beverly, our MRA delegate to the avalanche commission has presented a very thorough report on the presentations in the avalanche commission so I will share my experience with a particular eye to the avalanche rescue best practices that were developed and discussed.

What came out of the working group in Stubai was a “Avalanche Rescue Knowledgebase” It was the beginnings of a work on collecting best practices in avalanche rescue and was a sort of prototype topic. This work and scope has now been expanded and Manuel Genswein made a presentation to ICAR of his proposal and concept of a Mountain Safety Knowledgebase which basically would cover a collection of best practices in **ALL** aspects of mountain rescue with a non-conclusive list of potential topics as below

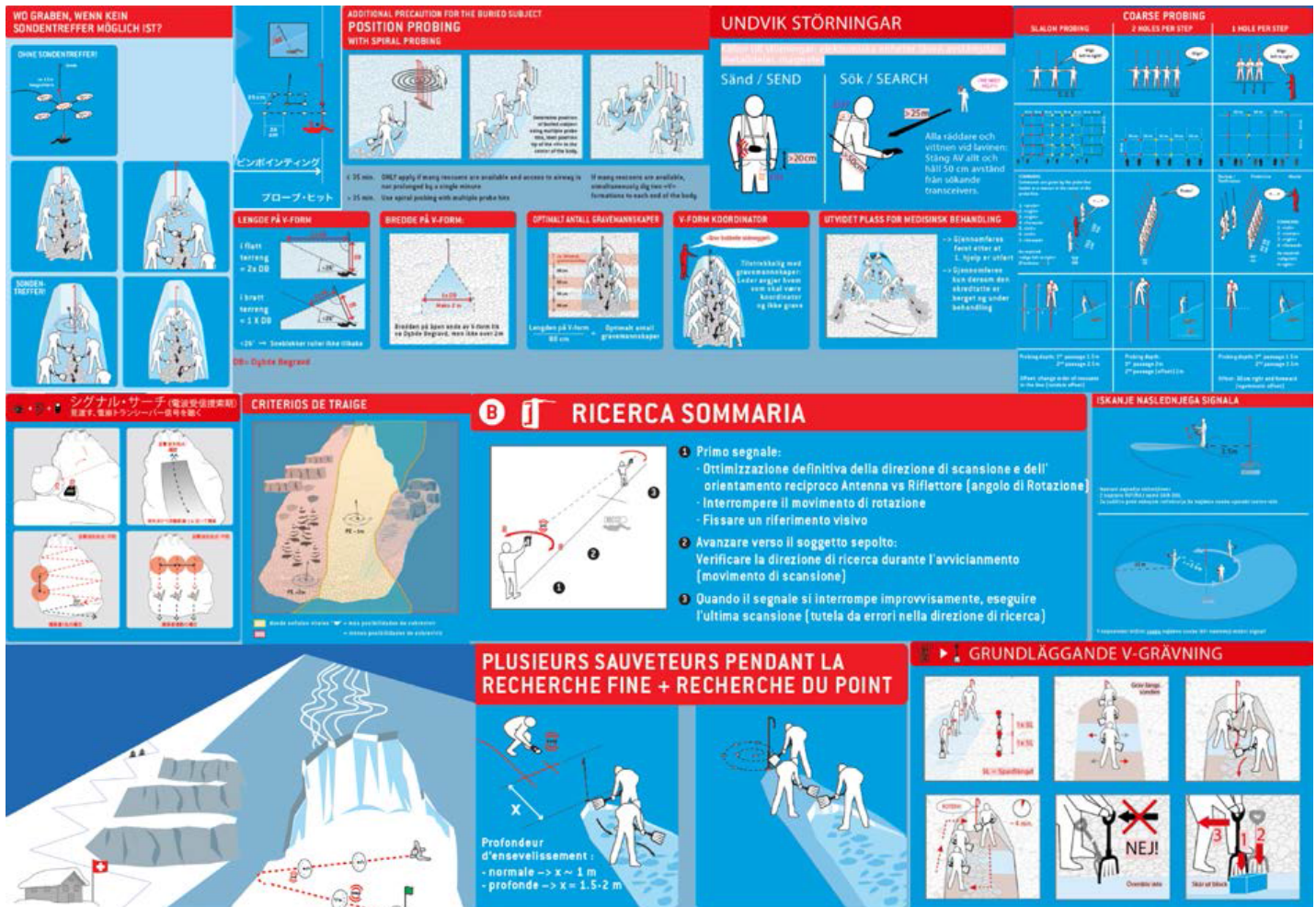
- Safety, accident prevention and rescue in rock climbing
- Safety, accident prevention and rescue in ice climbing
- Safety, accident prevention and rescue in glacier travel
- Safety, accident prevention and rescue in canyons
- **Safety, accident prevention and rescue in avalanche terrain**
- Safety, accident prevention and rescue in cold environments
- Safety, accident prevention and rescue in caves
- Safety and accident prevention in alpine air rescue
- Mountain emergency medicine

Genswein presented the mission of the Mountain Safety Knowledgebase as:

- document "best practice in mountain safety" in a database
- describe strategies, techniques, methods, systems in a standardized format, using standardized illustrations and terminology
- lead the "best practice" consensus workgroups on a world-wide level in collaboration with expert groups of its member organizations
- standardize terminology in mountain safety across different disciplines of mountain safety
- define and ensure standardized terminology across different languages and countries in collaboration with expert groups of its member organizations
- organize, lead and promote projects to evaluate "best practice" in mountain safety on a world-wide level in collaboration with expert groups of its member organizations
- efficiently distribute the content of the knowledgebase to all those in need of mountain safety know-how
- ensure a sustainable future development of mountain safety know-how by an institutional representation of IPR providers towards various users groups of mountain safety know-how
- harmonize course curricula across "Mountain Safety Knowledgebase" member organizations
- standardize course materials and lesson plans for indoor and outdoor modules
- define minimum standards for specific functions in guiding, rescue or worksite safety between the members of the "Mountain Safety Knowledgebase"

- increase safety due to harmonized minimum standards
- avoid unfair competition due to harmonized minimum standards

The current avalanche knowledgebase contains over 2,200 illustrations divided into 174 subjects in 13 different languages. Below are random illustrations from the database.



Below is an example of the organization of the Mountain Safety Knowledgebase. This covers the area of slalom probing. I believe it could be a very powerful tool for MRA organizations to contribute to and to use as a learning, teaching, and reference tool.

Slalom probing is a way of coarse probing for avalanche victims. The database describes current best practice coarse probing techniques as below. Coarse probing is just one type search strategy and the database provides several overview illustrations of different probing strategies and helpful tools and recommendations for which strategy to apply when and how. An overview illustration is included below.

Mountain Safety Knowledgebase

Safety, Accident Prevention and Rescue in Avalanche Terrain

Avalanche Rescue

Search

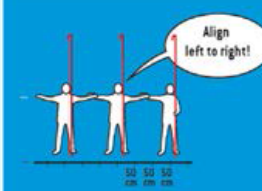
Probing

Probe lines

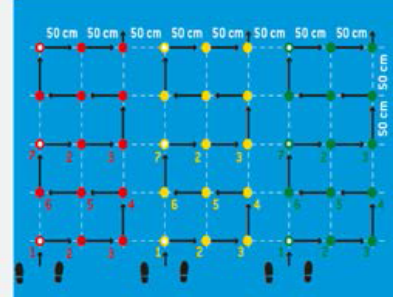
Coarse Probing

Slalom Probing

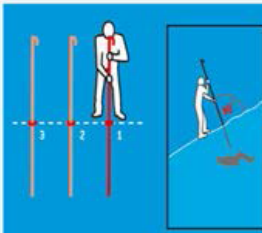
SLALOM PROBING



Align left to right!



50 cm 50 cm 50 cm 50 cm 50 cm 50 cm 50 cm 50 cm 50 cm 50 cm



3 2 1

Probing depth: 1st passage 1.5m
2nd passage 2.5m

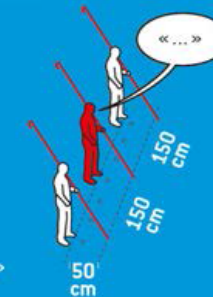
Offset: change order of rescuers in the line (random offset)

COMMANDS:

Commands are given by the probe line leader or a rescuer in the center of the probe line.

- 1: «probe»
- 2: «right»
- 3: «right»
- 4: «forward»
- 5: «left»
- 6: «left»
- 7: «forward»

As required:
«align left to right»
[Positions: •]



150 cm 150 cm 50 cm

Instruction Text:

Probe master is not required, at this stage it is often more efficient to use a rescuer in the middle of the probe line as improvised probe master.

The probing depth in the first passage is an optimization between:
"area search speed" (m²/rescuer/min)
"likelihood of survival / burial depth"
"percentage of buried subjects / burial depth"

After the first unsuccessful passage in coarse probing, apply it a second time.
A systematic offset of 25cm (1/2 grid width) is very difficult to maintain.
The offset of the grid for the second passage is more efficiently introduced by lining up the rescuers in another position in the probe line.
Every rescuer has a slightly different probing pattern which leads to a randomized probing pattern.

After a second unsuccessful application of course search, apply fine probing.
This must be done with a probe master and very strict marking.

Combine the search with dog teams as soon as possible: The scent cone has a better probability to reach the surface due to the perforation.
After fine probing in a strict manner, removal of the probed layers (1m safety margin to the unprobed debris) with a snow groomer should be considered.

Instruction Video:



Scientific Paper:

Slalom Probing ISSW 2014 Genswein et al



ICAR Recommendation:

AVA REC0011



Concept Mountain Safety Knowledgebase - Manuel Genswein - Draft V 0.9 - All rights reserved

Probing is only one part of an overall search strategy and search strategy is only one part of a Mountain Rescue response to an avalanche accident. The database breaks down very complex situations to understandable smaller pieces. It will assist the individual rescuer in understanding and developing proper techniques and it will help the overall team and command personnel respond better and safer to avalanche rescue situations.

COARSE PROBING

SLALOM PROBING

2 HOLES PER STEP

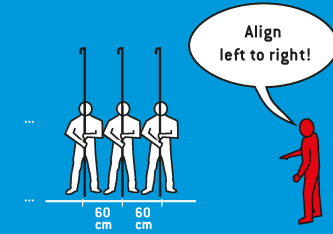
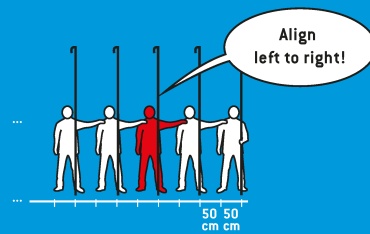
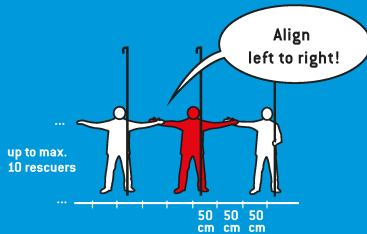
1 HOLE PER STEP

AREA SEARCH SPEED

Criteria:
trained personnel
easy terrain (no trees ...)

Criteria:
trained personnel
difficult terrain (forest ...)

Criteria:
less training required
applicable when bystanders
need to get trained on the spot

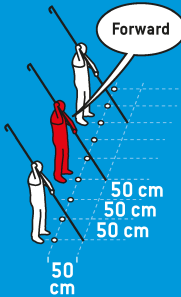


COMMANDS:
Commands are given by the probe line leader or a rescuer in the center of the probe line.

- 1: «probe»
- 2: «right»
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- 4: «forward»
- 5: «left»
- 6: «left»
- 7: «forward»

As required:
«align left to right»
(Positions: ●)

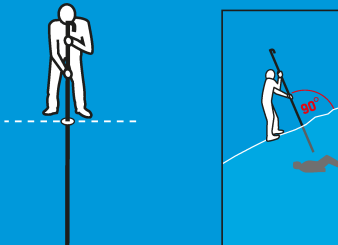
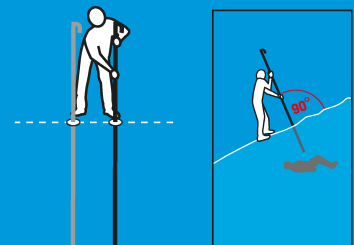
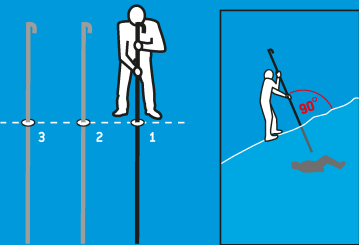
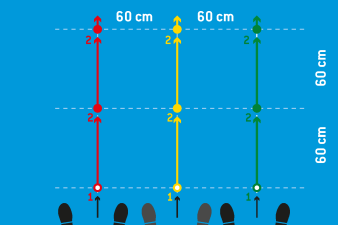
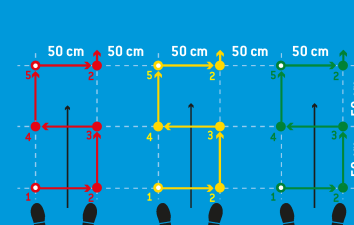
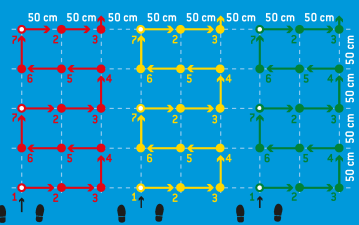
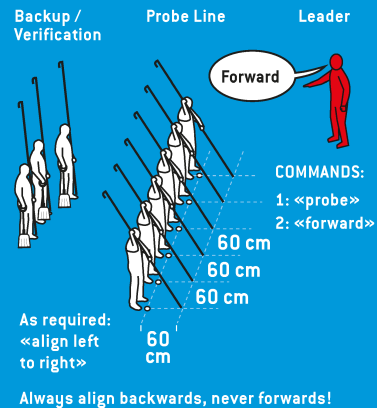
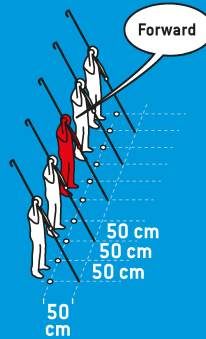
Always align backwards, never forwards!



- COMMANDS:**
- 1: «probe»
 - 2: «right»
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 - 4: «left»
 - 5: «forward»

As required:
«align left to right»
(Positions: ●)

Always align backwards, never forwards!



Probing depth:
1st passage 1.5m
2nd passage at least 2.5m

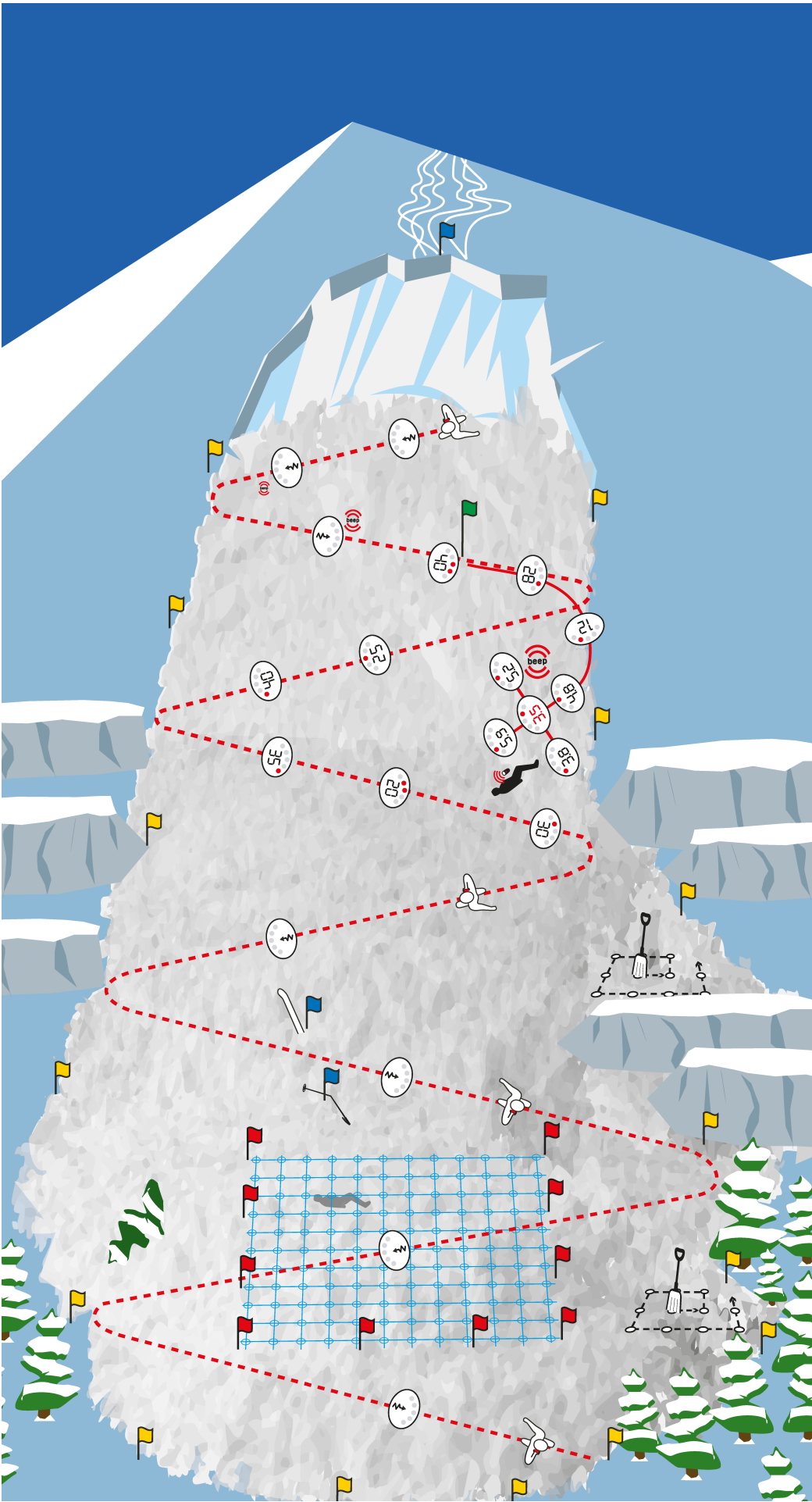
Offset for 2nd passage:
start first line 25cm forward,
change order of rescuers
in the line (random offset)

Probing depth:
1st passage 1.5m
2nd passage at least 2.5m

Offset for 2nd passage:
25cm right and forward
(systematic offset)

Probing depth:
1st passage 1.5m
2nd passage at least 2.5m

Offset for 2nd passage:
30cm right and forward
(systematic offset)



The Mountain Rescue Knowledgebase development is a massive concept. There are legitimate concerns about the size of the concept shutting the concept down before it really gets off the ground. In my presentations to various interest groups on the avalanche part of the Knowledgebase that has been developed I have experienced a high level of interest in the information and a general support for the concept. There is a hunger for clear guidelines and sharing of best practices on a grand scale.

Please note that the illustrations are copyrighted and the ownership of Manuel Genswein. Further information can be obtained from Genswein: manuel@genswein.com. All MRA organizations and individuals are encouraged to provide feedback and input to Genswein directly.

For a more complete report on the work and accident and other presentations of the 2016 ICAR Avalanche Commission please see the report filed by the MRA delegate Mark Beverly. I welcome any questions; my contact information is provided below.

Respectfully submitted,

Oyvind Henningsen
Everett Mountain Rescue Unit
USA ICAR Avalanche Commission Alternate Delegate
206 979 9553
telemarkski@comcast.net

Further notes:

- The representatives from the MRA interacted with rescuers from around the world and with each other in a professional manner and were able to share and discuss mountain rescue techniques and practices.
- There is a wealth of information on mountain rescue techniques available. It is important to learn from self and others in order to perform to the best of ones abilities while taking the highest level of safety precautions. There should be little need to duplicate mistakes over time and over space. The Mountain Rescue Knowledgebase is an effort to share information between rescuers that goes above meeting and discussing with a select few a time or two a year. It is an interesting concept that I hope will garner and gain support from worldwide organizations and individuals.
- Videotaping of all presentations at ICAR should be suggested in an effort for more rescuers to participate in the learning
- All delegates to ICAR should be encouraged to make presentations to their local rescue groups and at MRA regional meetings in an effort to broader distribute the knowledge