

MERIDIAN

Summer 2018

The Quarterly Publication of the Mountain Rescue Association



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Heat Safety from the Desert Mountain Region



Spring Conference
2017 ICAR Reports

Rescue on the Crestone Needle



MOUNTAIN
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Summer 2018

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Cover Photo: CAMRA partnered with the Southern Arizona Rescue Association for a 2013 Grand Canyon cleanup project sponsored by the Arizona Mountaineering Club. Photo courtesy of CAMRA.

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President's Message Summer 2018

By Art Fortini, MRA President

Since the last issue of the *Meridian*, some noteworthy events have taken place. Perhaps the most significant of these was the national meeting, which was hosted by Rocky Mountain House SAR at the Goldeye Center in Alberta, Canada. Two days of pre-conference training opportunities followed by two additional days of classroom sessions gave the attendees ample amounts of information and insights to bring back to their teams. Sharing information with each other and being able to learn from experts in various fields is one of the key values of being part of the MRA. Doing it with the majestic Canadian Rockies as the backdrop, well, it doesn't get much better than that!

Following the four days of field and classroom sessions was the MRA business meeting on Sunday morning. One of the first orders of business was voting Appalachian Mountain Rescue (North Carolina) into the MRA as an associate member team and Naval Air Station Lemoore as an *ex-officio* team. Congratulations and welcome to the family!

We then viewed two new videos created by Charley Shimanski and the MRA Education committee. One was focused on *Who we are* and the other focused on *What we do*. Both of these videos will be available to all MRA teams to use for fundraising, recruiting, PR events, etc. Materials such as these are another one of the perks of being part of the MRA.

The education committee announced that three training classes are currently available on the MRA Online Education Basecamp (training.MRA.org): *Helicopter Safety*, *Situational Awareness*, and *Risks in Mountain Rescue Operations*. A certificate of completion is available to anyone who takes these classes, and like the videos, these training materials are all available to MRA members at no cost. Additional training materials – these geared toward the general public – are being developed with topics that will include avalanche, backcountry safety, and backcountry leadership.

The MRA is the lead agency representing the United States at the International Commission for Alpine Rescue (ICAR), and every year, the MRA sends four delegate and four alternate delegates to the ICAR annual meeting. These delegates are elected each year by the MRA membership at the June meeting. This year we had the pleasure of electing Chris van Tilburg (Hood River Crag Rats – Medical), Mike Finger (Salt Lake City SAR – Avalanche), and Dale Wang (Rocky Mountain Rescue – Terrestrial Rescue) as the MRA's newest alternate delegates. They will be joining Alison Sheets, Tom Wood, Oyvind Henningsen, Charley Shimanski, and Casey Ping as our representatives to ICAR.

As happens every year, there was a changing of the guard. In even numbered years we elect a member at large, the vice president, and the president, and in alternate years we elect the other member-at-large and the secretary/treasurer. In this year's elections, Alison Sheets (Rocky Mountain Rescue) stayed on as member at large, Doug McCall (Seattle Mountain Rescue), former member at large, was elected vice president, and Art Fortini (Sierra Madre Search & Rescue) was elected president. Glenn Henderson

(Riverside Mountain Rescue) was elected member at large for a 1-year term to fill in the vacancy created by Doug's advancement to vice president. Antonio Arizo (Ventura County – Easy Valley SAR) continues on as secretary/treasurer, and Kayley Bell continues on as the MRA's executive secretary.

Please join me in thanking Mark Miraglia, Skeet Glatterer, Joe Edmark, and Greg Foley who were ready, willing, and able to step into roles on the officers' committee. The fact that we had so many strong candidates willing to run for office underscores the strength of our organization.

Please also join me in thanking Bryan Enberg, the MRA's outgoing president, for his two years of exemplary service as president and numerous years of service on the officers' committee prior to that. As the immediate past president, we'll still be seeing a lot of him. Being out of office in the MRA doesn't mean being out of work!

Although it happened prior to the meeting, another big event was going live with the MRA's new Sharepoint site. Committees, regions, and individual teams can each create workspaces for sharing documents and communicating with others in their group and with other groups. Hats off to Bryan Enberg for seeing this project through from start to finish!

Looking toward the future, we have several exciting events coming up. First is the International Technical Rescue Symposium, of which the MRA is a proud and long-term sponsor. The symposium brings together technical rescue experts from the mountain rescue, cave rescue, fire rescue, and rope access communities. For three days, attendees get to share thoughts and ideas on how to do what we do with increased efficiency, increased effectiveness, and increased safety. This year's symposium will be held in Portland, OR from November 1st – 4th.

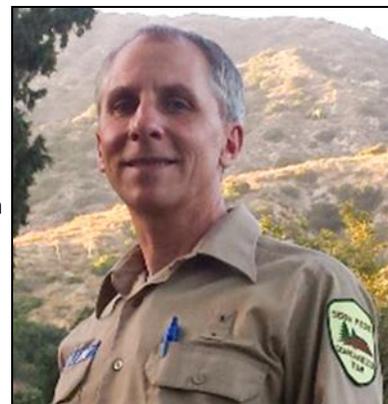
The next big event is the MRA winter business meeting, which will be held in West Valley City, UT, just outside Salt Lake City, from February 1st – 3rd, 2019. For those of you who want to see how the MRA functions as an organization and what goes on behind the scenes, this is the meeting for you.

For the next MRA Spring meeting, we're going back to where it all began: Timberline Lodge on the slopes of Mt. Hood, OR. The 2019 meeting will celebrate the MRA's 60th anniversary, and Portland Mountain Rescue is planning what promises to be an amazing event. The field and classroom sessions will be held June 7th and 8th, and the business meeting will be on June 9th. Save the dates and come join the celebration!

Yours in service,

Art Fortini

Art Fortini
President, Mountain Rescue Association
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MRA President Art Fortini.
(Image courtesy of Art Fortini.)

MRA Spring Conference Recap

By Shelley Littin, Eugene Mountain Rescue

The MRA 2018 spring conference was held at the Goldeye Conference Center just outside of Nordegg, Alberta, hosted by Rocky Mountain House Search and Rescue team. Preconference activities included wilderness survival, beginning and advanced companion rescue, advanced technical rope rescue, helicopter training, and glacier travel and crevasse rescue.

A variety of sessions offered presentations on New Zealand SAR, trauma care, bleeding control, crisis leadership, situational awareness, radio discipline, risk assessment, and hypothermia, and more.

Kirk Mauthner, creator of the MPD, gave a presentation and demonstration of dual capability two-tension rope systems, with the take-home that rigorous testing has determined that such systems afford less tension on each rope, resulting in reduced chance of breakage or failure in numerous edge transition, static and dynamic load, and rockfall scenarios.

Outgoing president Bryan Enberg gave a "State of the MRA" presentation that highlighted recent MRA developments such as initiation of a Microsoft SharePoint program for all MRA members to easily and securely share and view files and collaborate on documentation. The MRA also commissioned two marketing and recruitment videos, one overview of what the MRA is and does, and one that takes viewers through an example mission: a search and rescue of a missing child. Both videos will soon be broadly available for use by individual MRA teams and can be customized with individual teams' logos and names.

Conference highlights included presentations on mountain rescue in Banff National Park, a HEC (human external cargo) demonstration by our hosts' helitac team, and banquet speaker Canadian alpinist Barry Blanchard, who brought the audience through a compelling photographic journey of his life of technical mountaineering in the Canadian Rockies and Himalayas, including first ascents and stunt doubling for films such as *Vertical Limit*, *Cliffhanger*, and *K2*.

The annual conference enables the multinational MRA, associate, and ex-officio team members to gather to share rescue stories, technical developments, and lessons learned, fostering technical, intellectual, and emotional support among our mountain rescue community.

The 2019 spring conference celebrating the MRA's 60th anniversary will be hosted by Portland Mountain Rescue at Timberline Lodge on Mt. Hood, Oregon on June 7–8.



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Heat Safety Tips from the Desert Mountain Region

By Heather Zunino, WFA, Rescue Technician I, and John Nassar, MD, Operations Chief Central Arizona Mountain Rescue Association

The heat is on for us on the Central Arizona Mountain Rescue Association, aka CAMRA. Phoenix's first 100-degree temperature of 2018 arrived on April 10. While many mountain rescue teams welcome melting snow and warmer weather, teams in the American southwest are preparing for a long few months ahead.

CAMRA serves Arizona's Maricopa County, which is the 4th most populous county in the U.S., the 15th largest by land area ^{[1][2]}, and home to Phoenix, one of the hottest cities in the U.S. (as those who attended the 2013 MRA spring conference here may well attest).

On average, Phoenix experiences 310 days of sunshine, 92 days per year over 100 degrees Fahrenheit, and reaches its first 100-degree temperature on May 12. Last year, Phoenix hit 119 degrees and tied the 4th highest temperature on record for the city ^[4]. This is when some of our most challenging rescues occur, and preparation is more critical than ever.

Staying hydrated in Maricopa county takes a conscious effort to stay ahead of the curve. Typical practice for exercising in the heat includes pre-hydration, where extra water is consumed 12 – 24 hours before the scheduled high-intensity activity. If only it were possible to schedule missions ahead of time! Despite the unpredictability of mission callouts, the basic idea behind pre-hydration still stands—drink more water! There are no shortcuts to hydration, and our team members are constantly nursing a water bottle to maintain mission readiness.

Rescuers also need to regularly train in the heat and sun. One to two hours of heat-exposed exertion per day for 10-14 consecutive days provides heat acclimatization that allows our bodies to increase heat tolerance ^[7]. This doesn't mean taking a 50lb pack up 3,000 feet of elevation at noon in mid-July; it does mean hiking with some weight while the sun is up (just after sunrise or just before sunset is best). Rescuers need to understand their bodies and know their limits. All mountain rescue volunteers know missions generally feel uncomfortable and are very fatiguing. However, failing to train properly in the sun can cause a rescuer to go from being uncomfortable to being a subject – jeopardizing the mission and themselves.

Heat acclimatization and hyperhydration can only go so far when you are physically exerting yourself during a mountain rescue mission in 100-plus degree heat. High environmental heat and strenuous physical exercise can and will contribute to heat-related illness. Rescue mountaineers must be able to recognize and distinguish among various heat-related illnesses. An excellent resource is the Wilderness Medical Society Practice Guideline on Heat-Related Illness ^[7]. This is readily available on the Internet and well worth a read.

Heat exhaustion is a mild to moderate heat-related illness, usually associated with hypovolemia (dehydration) as well.

Signs and symptoms of mild to moderate heat illness (heat exhaustion)

- Extreme thirst, fatigue, discomfort, anxiety, dizziness, edema, syncope, cramps
- Pale, cool, and clammy skin, low blood pressure, rapid heart rate, rapid respirations
- Core temperature less than 104 degrees Fahrenheit

Treatment for mild to moderate heat illness (heat exhaustion) in the field

- Rest in a cool and shady area (passive cooling)
- Oral or IV hydration to replace fluid and salts
- Evaporative cooling by loosening clothing, spraying the skin surface with water, and fanning to facilitate convection

Rehydration with oral rehydration solutions or sports drinks, and rest in a cool environment are acceptable treatments for mild heat-related illness. Oral rehydration is avoided in patients with abdominal pain, nausea, vomiting, altered levels of consciousness, suspected head injury, or penetrating injury. Because oral rehydration and cooling measures are not always adequate or indicated, CAMRA and the Southern Arizona Rescue Association in Tucson, AZ, established IV hydration protocols through our medical directors that allow even our basic EMTs to administer IV hydration for heat-related illness not only for our subjects, but also for our team members.

The onset of heat exhaustion can easily go unnoticed, but it can be deadly as this condition progresses to heat stroke. Heat stroke is a severe heat-related illness characterized by altered mental status and a core temperature greater than 104 degrees Fahrenheit. This is a true medical emergency and requires rapid whole-body cooling. For those few people who do survive heat stroke, even after weeks of therapy, the consequences can last a lifetime – including reduced heat tolerance and even brain damage.

Cold water immersion is the optimal treatment to reduce the body's core temperature during heat stroke. Removing the patient's clothes and submersing the trunk in a body of water such as a lake or stream may be the only option in the field to achieve cold water immersion therapy. Conductive cooling by applying cold packs and/or ice towels is an alternative when cold water immersion is not available. Evacuation becomes a high priority during heat stroke.

Signs and symptoms of severe heat illness (heat stroke)

- Altered mental status, seizure, coma

- Core body temperature greater than 104 degrees Fahrenheit

Treatment for severe heat illness (heat stroke) in the field

- Remove subject from the sun and heat (passive cooling)
- Supportive care of airway, breathing, circulation
- Cold water immersion
- Conductive cooling with cold packs/ice towels
- IV hydration
- High priority evacuation

In 2016 alone, Maricopa County saw 130 heat-related deaths; surprisingly 69 percent of these were people under 50 years old^[5].

It's important to keep a look out for the signs and symptoms of heat exhaustion not only exhibited by rescue subjects, but also by the rescuers themselves. The symptoms of dehydration can sneak up on anyone, and it's easy to dismiss personal needs with the adrenaline rush of a mission. Never forget your safety priorities: the health of you and your teammates takes precedence over the subject.

Check-in with yourself frequently. Ask yourself: "When was the last time I drank water? Ate food? Went to the bathroom?" Keep an eye on your teammates to make sure they are drinking water as well. If someone isn't acting like themselves, say something. To save someone else, you and your team need to be healthy.

Just as training may change seasonally, so should the contents of a rescue pack. For the Desert Mountain Region teams serving Phoenix, Tucson, Flagstaff, and Las Vegas, most of our personal rescue packs' weight comes from water. This is exaggerated during the summer. In elevated temperatures, the average person loses approximately 3.4 liters of water in 24 hours. When vigorously exercising, that amount nearly doubles to 6.6 liters^[6]. The subject will mostly likely need fluids as well, so a summer rescue pack can easily contain one to two gallons water. Salt is also an important ingredient to staying healthy in the field. Drinking sports drinks in addition to water can relieve or prevent hyponatremia, a condition where the body is lacking enough salt to function properly. In desert areas, shade may not be readily available, so it's important to be able to make shade in the field. A lightweight emergency blanket and some paracord will do the trick while adding minimal weight. Of course, the rescuer's first line of defense against the sun is appropriate clothing (such as lightweight long-sleeved shirts and sunglasses) and plenty of sunscreen.

In order to deal with the extreme environment of the Southwest, all members of CAMRA are required to pass a wilderness first aid class and eventually become wilderness emergency medical technicians. Through our wilderness special operations protocol, we are able to return our team members to field duty without a trip to the hospital. Prior to this protocol, IV hydration management was limited to our paramedic team members. We have now been able to expand this treatment option to specially trained basic EMTs, which greatly benefits not only our patients but also our team members. This requires a considerable time commitment, but it has served the team very well. At a minimum, consider taking a wilderness first aid class – even if you're not currently a member of a mountain rescue team. You never know when you'll stumble upon someone who needs help staying cool this summer!

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It's important to keep a look out for the signs and symptoms of heat exhaustion not only exhibited by rescue subjects, but also by the rescuers themselves. Photo courtesy of CAMRA.

Rescuer Spotlight: Rev. Dr. Scott Beebe, Vail Mountain Rescue

Interview by Shelley Littin

Rev. Dr. Scott Beebe accepted the MRA Lifesaving Award at the MRA 2018 spring conference on behalf of himself, SAR paramedic Jimmy Vonesh, and aviators CW5 Pat Gates, CW4 Darren Freyer, SFC Chuck Whaley, SSG Daryl Foster, and MAJ Scott Tucker, for “valor above and beyond the call of duty in rendering aid to a subject who most likely would have perished without assistance.” I spoke with Scott about his August 13, 2017 pickoff operation of a critically injured climber and his partner on the Crestone Needle of the Sangre de Cristo mountains of Colorado.

How did you first get involved in mountain rescue?

I got into search and rescue in October of 2010. There was a fellow lost on Mount Holy Cross. I’m a Lutheran pastor, and the guy who was lost turned out to work in our head office in Chicago. During the search the missing fellow’s fiancé and father showed up at the trailhead, and the mission coordinator knew that I was a minister, and he called me and said “I have a couple of Lutherans here asking for a minister; I think they’re your brand.” I went to the trailhead to meet the family and shepherd them through the search process, and I got to see the team in action. I had never seen anything like it: the passion, camaraderie, dedication. When the mission ended the coordinator invited me to come to a meeting, and I was hooked. I’ve been on the team ever since.

What roles do you fill for Vail Mountain Rescue?

I am the de facto chaplain, also a rescue member, mission coordinator, and membership director for the team, and I’m on the hoist rescue team. There are eight folks on Aspen Mountain Rescue and eight on Vail Mountain Rescue who work with the Army National Guard at the High Altitude Aviation Training Site in Eagle, Colorado. We train with the pilots, mostly flying in Black Hawks, but sometimes also Lakotas or Chinooks. We go where we need to be inserted, or for pickoffs, like the mission back in August.

Tell me about that mission back in August on the Crestone Needle.

It was August 13 of last year. It was a Sunday. The two fellows, Josh Collman and Jordan Harris had gone on a hike traversing Crestone Peak and Crestone Needle, two 14,000-foot peaks. They were trying to find the route down, and about 200 feet below the summit, Josh took a 100-foot fall. It was a good 1,000-foot drop, but he hit a horizontal slab of about three-foot by three-foot. His left ankle snapped at a 90-degree angle and the bone shot out the side. His friend Jordan was able to down climb to him. Josh had severed an artery and was bleeding, so Jordan tried to make a tourniquet out of hiking poles but wasn’t able to clamp enough to stop the bleed.

They were able to get out a 911 call. In the meantime, an electrical storm moved in, bringing rain that turned to sleet, and then to snow, and that effectively grounded the ground teams. They couldn’t get up the mountain because the weather was too bad.

Late in the afternoon, maybe around five o’clock, Jimmy Vonesh – one of our SAR paramedics – and I got in the Black Hawk and flew down. We were initially told these guys were at Cottonwood Lake, south of Crestone Needle. Our plan was to land, get out of the chopper, do medical, and get back in. We got there and of course nobody was at the lake, so we called the reporting party, who had been in contact with the guys and told us they could see the lake, but they weren’t at the lake.

We took about six passes of the Crestone Needle, and finally I caught sight of the light from their cell phone. They were in this deep gully, and there was no place to land above or below in order to get to them, so we moved in and hovered above them. The helicopter blades were about 10 feet from the rock.

I clipped in and they lowered me down. The guys were sitting on this little bench with a waterfall coming down beside them, and the crew chief missed my cutoff sign and put me in the waterfall. I radioed and said “this isn’t gonna work!” So he raised me back up and plonked me in the snow bank instead. I had to stay connected because there was no place that I could stand to detach from the hoist. The pilot was watching the rotator blades so close to the cliffs and hoping a gust of wind wouldn’t push us into the rocks, or that would have been all she wrote.



Jimmy Vonesh (left) and Scott Beebe after successfully retrieving the two subjects from the Crestone Needle. Image Courtesy of Scott Beebe/Vail Mountain Rescue.

You're a volunteer. This mission was incredibly difficult; it was twilight, conditions were iffy at best. You didn't think about saying no to this one?

Nope. This is what we train for.

I was able to get Josh out on the jungle penetrator – the device we use to scoop patients for a hoist – and then I went back down and got Jordan onto the seat, and on the way up he kissed me on the cheek and proposed marriage – I told him I'd have to check with my wife Christi – and then he offered to have my baby. I told him I already had two teenage daughters, so probably not.

That's real gratitude, I guess!

Ha! I'm sure he was delirious. When we got back into the chopper the crew chief held up his hand to me with his thumb and index finger spread apart – I didn't know what he meant. We headed to the flight deck, transferred our patient to a waiting Flight for Life helicopter, and then we had to go to Alimosa since we were low on gas.

I said to the crew chief: "what did you mean when you held up your fingers with that little space?" And he said, "we had that much time before I was gonna cut the cable and leave you up there." Our memorandum of understanding is once the sun goes down, our mission is over. We had that much daylight left.

We flew back to our landing zone, and Jimmy and I got off the chopper. The incident commander looked at my pants and said "what the hell happened to you?" I hadn't even noticed my pants were covered with Josh's blood – he had been bleeding all over the deck of the helicopter. Fortunately, we were able to get it all cleaned out, except for my underwear. So, I told the sheriff he owed me a pair of underwear, but he said "I can't do that. They come in a three pack, and you only lost one pair."

We thought that Josh was going to lose his foot for sure, but they were able to get him into the emergency room in Pueblo, where they actually saved his foot. Josh and Jordan came up to our cache a couple of months ago, walked in to say thanks, and took the team out for dinner.

How does your mountain rescue life fit in with being a pastor?

One of our team members said of me: "you take saving souls very seriously!" I've been a pastor for 33 years. I'm at Mount of the Holy Cross Lutheran here in Vail. I've also always had a passion for the outdoors: boy scout, eagle scout, love to hunt, camp, fish, and ski. I've found being part of mountain rescue has been a way to fulfill those passions. I love helping people, and I've never seen a group of folks like the people on this team. When new people come, I tell them: "I will crawl across broken glass on my hands and knees for anyone on this team, and I know they'll do the same for me." I've seen people walk off the job, leave dinner, leave family events, to go find folks that are hurt, lost, or missing. I am incredibly proud to be part of the team. I love the work.

And you have a doctorate of theology?

I have an earned doctorate I got back in 1999, but of all the honors I've received over the years, this Mountain Rescue Association Life Saving Award means more to me than anything.

How come?

I think so many things in ministry, as a pastor, are intangible. You get up Sunday morning, you give a service, you counsel relationships, perform weddings, baptisms, all the rest, and then you wonder if anyone heard anything or learned anything from you.

But as I walked off that helicopter, Jimmy and I gave each other high fives, and I felt like I'd accomplished something. Every time we go on a mission, find a person who's lost, help someone who's injured, or if there's been a fatality, we help bring someone back to their loved ones: there's a concreteness to the action, it's something that feeds my soul. Both jobs fit together. I think they're two halves of the whole.



Scott Beebe (center) with Josh Collman (left) and Jordan Harris at the Vail Mountain Rescue cache after Josh and Jordan visited the group to say thank you. Image courtesy of Scott Beebe/Vail Mountain Rescue.



Rescuers Scott Beebe and Jimmy Vonesh climb aboard the UH-60 Blackhawk at the start of their mission on August 13, 2017. Image courtesy of Scott Beebe/Vail Mountain Rescue.

2017 International Commission for Alpine Rescue (ICAR) Assembly of Delegates—Terrestrial Rescue Commission Report



By MRA Terrestrial Rescue Commission Delegates; Dave Clarke, Portland Mountain Rescue and Tom Wood, Alpine Rescue Team

2017 ICAR ASSEMBLY OF DELEGATES OVERVIEW

The 69th annual ICAR Congress and Assembly of Delegates took place in the small mountain resort village of Soldeau, Andorra from October 18th-22nd. Hosted and organized by local rescuers from the Bombers d'Andorra, the four-day gathering was attended by a few hundred mountain rescuers from all over the world. The Mountain Rescue Association sent 7 delegates for representation in each of the 4 commissions (Air Rescue, Avalanche Rescue, Alpine Emergency Medical and Terrestrial Rescue).

This year's preconference field day was the terrestrial theme of Big Wall Rescues. The final day's Assembly of Delegates marked an historic moment in the history of ICAR in that major changes to ICAR membership categories were presented and ratified and ICAR topped 100 member organizations from 37 countries.

Also of note, longtime MRA MedComm Delegate Dr. Ken Zafren (Alaska Mountain Rescue Group, above) was unanimously elected as an Honorary ICAR Member, (D type membership), becoming the first American mountain rescuer to receive that honor.

As always, the full videos from Topograph Media beautifully captured the full ICAR experience, and they can be viewed by clicking on this link:

<https://vimeo.com/242661300>



ANDORRA

Bordered by France to the north and Spain to the south, Andorra is nestled within the Pyrenees Mountains and is officially known as a principality. It is the 16th smallest nation in the world (181 square miles), with a population of about 77,000. A mountainous country, it's capital city of la Vella is the highest in Europe at 1,023 meters.

The official language is Catalan, which was officially spoken for the first time at an ICAR Congress this year. Spanish, French and Portuguese are also often spoken. With only 120 full time firefighters/rescuers in the

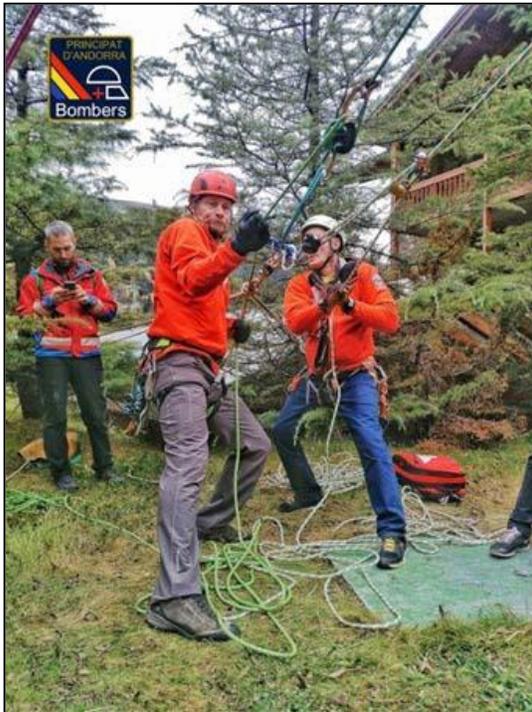
country, and all of the terrain being mountainous with several world-class resorts, the Andorra Bombers have their hands full each year during ski season as the country can see more than 10 million visitors annually.

PRECONFERENCE PRACTICAL DAY

2017 ICAR Preconference Practical Day, Terrestrial Rescue theme was Big Wall Rescues, with several different stations being set up and run (in the rain of course) by various rescue organizations.

MRA Delegates Alison Sheets, Dave Clarke and Tom Wood ran a monopod station that demonstrated the benefits of a dual tensioned system utilizing a high directional monopod (the TerrAdaptor) with load sharing anchors and backties for raising and lowering a





litter during a big wall (or hotel rooftop) rescue.

Friction mitigation on the raise (Tom Wood and Dave Clarke hauling on the left) and a better edge transition for the rescuer demonstrated why high directional can make for a safer and more efficient rescue. The rain made for a soggy day, but Dave Clarke and Alison Sheets, below, still kept smiling through the nine repetitions of the rescue demonstration.

Italian station: This showed rappel techniques using brake plate, carabiners, and 10mm ropes. Italy has 7000 responders with 700 rope technicians. They keep gear universal and use no mechanical devices due to freezing, wet/dirty ropes. They showed two alternatives to a prusik, called a bolognese and taz knots. For rappel/belay they use the Kong Gigi for one-person belay and the Kong Totem for heavier loads. They use the flat single overhand bend to tie ropes together with a 40-60 cm tail (easy to pass and slide over edge).

Italian rescuers also demonstrated how a Canyoneering team floated a litter with a waterproof patient bag. They did a raising with litter with the rescuer as counterweight—they use rescuer counterweight as much as possible because it's quick. They used a single rope with a vertical raise, with the tail of the rope tied also to the tail of the litter. When they reached the edge, they used a pike and pivot: a second rescuer at the edge tied a separate rope to the litter top and unclipped the raising rope, which allowed the raising rope to act as the pivot rope since it was attached the tail.

The French rescuers showed a two-rescuer recovery and spinal immobilization of a patient on a rope on a cliff using hard collar and Kendrick Extrication Device (KED). They then showed three techniques for transferring a patient from the ground to the KED: a two-person transfer and a single person transfer.

The rescue of a big-wall injured climber using a single rope technique was demonstrated by the Slovenians. They first showed rope pickoff using a rig similar to an CMC Aztek. They then did a two-person, single-rope rappel with the Petzl ID.

The Austrians worked to show techniques at extrication for suspension intolerance. Mechanism of injury was venous pooling and neurologically mediated unconsciousness from a climber hanging by a waist harness for an extended period. The take home from the Austrians: After extrication of a patient hanging by seat harness, keep supine. (NOTE: At present, the ICAR MedComm is working on recommendations for treatment of Suspension Intolerance)

Pelvic fracture stabilization techniques using a pelvic binder were shown by the Germans. (As a side note, somewhat controversial in the US) (Christopher Van Tilburg and Tom Wood)

TERRESTRIAL RESCUE ASSEMBLY OF DELEGATES

Revision of ICAR Terrestrial Rescue Recommendations:

Led by the Terrestrial Rescue Commission President Gebhard Barbisch and Vice President Kirk Mauthner, the Terrestrial Rescue delegates met on the first day for both presentations and to discuss revisions to several ICAR Terrestrial Rescue recommendations. It is important to note that ICAR makes recommendations for mountain rescue, but these recommendations should not be construed as standards or guidelines.

Here are the Terrestrial Rescue Commission recommendation revisions that were voted on and approved:

TER-REC0001 – Using Connector/Carabiner in Mountain Rescue Organizations

Current: Using of Carabiner with Self-Lock-Systems in Mountain Rescue Organizations

20051016-TER-REC0001 Commission for Terrestrial Rescue Recommendation

The ICAR terrestrial rescue committee recommends at organized mountain rescue operations for main and central carabiners and for air rescue operations only the use of push/ pull and twist carabiners which is conform to EN 12275Q.

New: The ICAR Terrestrial Rescue Commission recommends at organized mountain rescue operations for main/central attachment points and for air rescue operations only the use of:

- Triple action gate carabiners or
- connectors/carabiners with a screw gate.

- Connectors/carabiners must conform to EN 12275 or EN 362 and/or NFPA 1983 US-Standard
- Steel main or central connectors if used with air rescue.

Connectors/carabiners used in flight rescue operations as a part of the equipment of the crew or helicopter are regulated by an extra recommendation AIR-REC0014HECHHO- Equipment from the ICAR Air Rescue Commission.

Discussion: Change: Removal of "and".

Q. Question regarding triple action carabiners: Can one also use carabiners that are opened through pressure on the backside (Klettersteig carabiners)? These conform to EN 362.

A. No, but they can be used for securing oneself.

A reference will be included that the recommendation concerns main and central carabiners.

Change: "Incidents" is replaced by "activities" (in explanatory notes).

Vote: The recommendation with the changes is approved.

File: 20171019-1030-TER-REC0001-E-Final.pdf

TER-REC0004 – Rope Connection for Rope Extensions

Current: Static Rope Knots for Rope Extension

20141007-TER-REC0004 Commission for Terrestrial Rescue Recommendation

Knots for Joining Conventional Kernmantle Rescue Ropes:

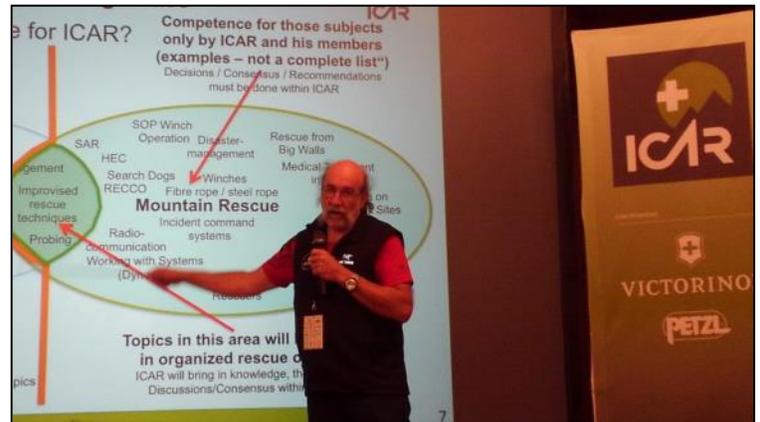
Only a figure eight follow through, a flat figure eight or a double fisherman's knot are allowed for joining and extending conventional kernmantle nylon and/or polyester rescue ropes conforming to EN 1891 or CI 1809-98 for the purpose of mountain rescue operations.

New: Static rope Knots for rope Extension or Rope Connections for Rope Extension

Suitable knots for connecting ropes to extend them are:

- Ropes with sewn terminations: 10-mm standard maillon connector
- Ropes with NO GROUND CONTACT:
 - o Double or triple fisherman's bend.
- Ropes with NO GROUND CONTACT BUT HIGH TENSION:
 - o Reef (square) bend with double fisherman's backup or Double or triple fisherman's bend or
 - o Figure eight bend
- Ropes WITH GROUND CONTACT:
 - o Flat Double overhand knot
 - o Postman's knot
 - o Single flat overhand knot when load not more than one person and with ropes of the same diameter and type.

Pictures of these notes can be found in Section 4. Glossary



All knots must be properly dressed and all strands must be individually set prior to use. Bends require tails to be at least 10 times the rope diameter. Knots require sufficient tail to allow at least one roll.

Discussion: Removed: Static rope knots for rope extension in the title.

Q. Triple fisherman's bend: Were the different prerequisites of Dyneema ropes taken into consideration?

A. There are two types of fisherman's knots, both of them were meant. Change: Kernmantle is included in the title of the recommendation.

Q. Regarding the tail of the knot: One rule is 10 times the diameter. Is that applicable here as well?

A. This does not work with all ropes or knots. Tucked knots require longer tails. The recommendation will be amended accordingly.

Add-on to the recommendation: All knots must be properly dressed and all strands must be individually set prior use. Bends require tails to be at least 10 times the rope diameter. Knots require sufficient tail to allow at least one roll.

Change: Several expressions in the explanatory notes (bend, knot).

Vote: The recommendations with the changes are approved.

File: 20171019-1100-TER-REC0004-E-Final.pdf

TER-REC0005 – Redundancy for Lowering or Raising People with Fiber Ropes

(Program switch – 10.06.2017)

Current: Redundancy for Lowering or Raising People with Fiber Ropes

20051016-TER-REC0005 Commission for Terrestrial Rescue Recommendation

The ICAR Terrestrial Rescue Committee recommends for lowering or raising people with fiber ropes fundamentally two anchors, three dimensional apart as practical, have to be used.

One anchor is for the load rope or winch, the other is for the belay (rope).

If fiber rope winches are used the load rope runs over the winch. Using the winch the load is lowered or raised.

The three dimensional separated belay line runs through a braking device.

If the course of the rope on the winch must be changed the belay line has to be fixed to hold the rope.

A practical three dimensional separation of the load rope and the belay line is necessary to prevent damage and shearing of both ropes at the same time.

The belay line always must be kept tight over the whole rope length. For no reasons loose rope slings are allowed to develop.

New: Redundancy for Lowering or Raising People with Fiber Ropes

The ICAR Terrestrial Rescue Commission recommends two-tensioned rope systems for high consequence terrain when lowering or raising with fiber ropes that provide a mutual backup in the event of a failure of one of the rope systems.

Redundant anchor systems should be used for two-tensioned rope systems, preferably with some separation between ropes.

Whether using fiber rope winches or pulley systems, sharing the tension between rope systems is recommended, including when switching between lowering and raising.

If all tension is to be placed on one rope, then an additional risk assessment must be made.

Discussion: Q. PGHM winch: The system PGHM uses does not conform to the recommendation. The tension cannot be placed on two ropes except if there are two winches.

A. There are many winches than can only handle one rope. However, there are winches that can handle the two-tension rope system.

Explanation Herbert Streibel: A redundant location does not require two separate locations. Everything is already doubled. The location needs a safety factor of 10.

Winches: There is one winch that can pull up both ropes at the same time, which is why the two-tension rope system was adopted.

Explanation Kirk Mauthner: The two ropes do not need to carry equally divided tension. The risk is already reduced if the tension can be divided.

Comment Tom Wood: We need to differentiate between ropes:

natural fibers are not meant.

Change: Adding to the title conventional Kernmantle ropes. Problem: some use Dyneema ropes. Therefore, add fiber ropes in the title. This will be further defined in the glossary as no natural fiber ropes.

Winch problem: Kirk Mauthner poses the question if "winch" should be removed.

Winch will not be removed but the following added to the recommendation: If all tension is to be placed on one rope, then an additional risk assessment must be made.

Addition to the glossary: High consequence terrain: Conditions which can lead to serious injuries.

Vote: The recommendation with changes is approved.

File: 20171019-1130-TER-REC0005-E-Final.pdf

(Tom Wood)

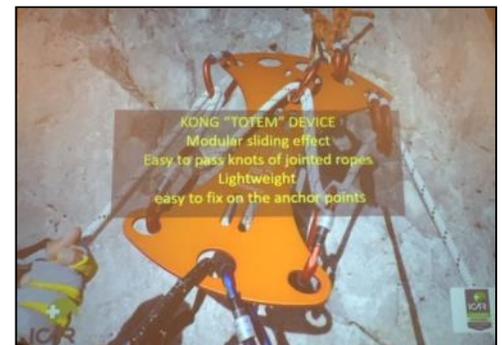
PRESENTATIONS:

In addition to the revision of the Terrestrial Rescue recommendations, there were several excellent Terrestrial Rescue Commission presentations given, with most of them being tied to the 2017 theme of Big Wall Rescues.

Lowering Techniques on Big Walls

Ennio Rizotti from the Italian National Service for Mountain and Cave Rescue (CNSAS) gave an interesting presentation on the techniques they use for lowering rescue loads on big walls. I'm not sure if it is a translation error or a difference in terminology but they used the term rappelling for what we would call lowering in North America. The Italians have a well developed national system with 6583 volunteers based out of 242 alpine rescue stations and 27 cave rescue stations. Twenty seven bases have hoist equipped helicopter teams. All the teams use the same equipment and are trained by national instructors, so they can work together seamlessly.

They utilize several Descent Control Devices (DCDs) depending on the height and configuration of the wall. Devices include the Gigi plate, Alpine Brake Tube, Totem and a person based technique called the Cortinian "M." They use dynamic and semi static ropes 50-200meters in length but longer lowers are easy as they can easily pass knots through the Totem or Tube brake devices. As the photos show, they use a two-rope system but run both



Descent Control Devices used by CNSAS.

ropes through the same device(s.) This method simplifies speed control but doesn't give full redundancy. They also lower a subject in a litter with two attendants. They demonstrated some of these techniques during the practical day which can be seen in the [Topograph Media Video](#) at minute 13:20-15:00.

They concluded with the following points being necessary for successful operations on big walls:

- Pre-emptive knowledge of the big wall
- Operating procedures must be clear to all rescuers
- Place only the indispensable operators on the wall
- Do not throw down ropes without rescuers
- All rescuers must have a radio

(Dave Clarke)

Rescue Systems for Deep Cave Pits

This presentation showed the cave rescue techniques used in very deep cave pits by the Italian National Service for Mountain and Cave Rescue (CNSAS). For example, the Vrtiglavica cave in Slovenia has 600 meter deep pits that are 50 meter wide. Others have 300 meter ice pitches in the pits. The rescue team's focus is to minimize the number of rescuers and the amount of gear necessary. The presentation mentioned the use of preexisting static lines set up with re-belayes to eliminate rope contact with edges. This creates an excellent environment for using counterweight raises. However, dealing with such deep pits they have refined their systems to be highly efficient. They illustrated two of them with some excellent animated graphics that hopefully will be made available on the ICAR website; they are worth checking out to better understand these systems. Additionally, CNSAS has made available their 364 page "Cave Rescue Handbook" as a free download.

The first system uses three rescuers who essentially rotate through the roles as they ascend. They "leapfrog" past each other as they ascend, sharing the physically demanding tasks. This poses fewer risks as there are fewer rescuers to move around thereby reducing the potential

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TEAM MANAGEMENT

Method A THREE OPERATORS

Method B OPERATORS ON EVERY COUNTERWEIGHT

ICAR

STRUCTURE OF DEEP UNDERGROUND PITCHES

VRTIGLAVICA

UNDERGROUND PITCHES: > 600m HIGH AND > 50m WIDE.

Vrtiglavica, cave Kanin Mountains, Western Julian Alps - Slovenia

ICAR

for rockfall or mistakes. The cons are that the operators must be highly skilled and fit as fatigue is a major factor in these deep pits. The second system stages a rescuer at every pitch and is faster but takes more skilled rescuers, has more potential for human error, and more people exposed to potential rockfall. (Dave Clarke)

Rescue Systems with the Canyon Stretcher for Big Walls in Canyons

A final presentation from the Italian National Service for Mountain and Cave Rescue (CNSAS) was about their use of the Kong “Canyon stretcher” for waterfall rescues in canyoneering accidents. They use three different systems on their tall waterfalls: a top to bottom lower with multiple ropes joined, multiple 60m pitches, and joining just two ropes to skip every other belay station. They use 10mm static lines and a two-tensioned rope system in areas with a potential for rockfall. The litter is often in

A- TOP TO BOTTOM, MULTIPLE ROPES JOINED

PRO:
• FAST

CONS:
• MANY ROPES NEEDED

WHERE TO:
• LONG OVERHANGING PITCHES WITHOUT LEDGES.

Single overhand flat knot

B- BELAY TO BELAY with 60m ROPE

PRO:
• EASY LATERAL SHIFTS.
• ONE ROPE NEEDED.

CONS:
• SLOWER.

WHERE TO:
• DEEP LOW ANGLE PITCHES, WITH LEDGES.

120 m
60 m

C- JOINED ROPES (> 120m) SKIPPING INTERMEDIATE BELAYS

NOTE:
• BEST COMPROMISE BETWEEN 'A' AND 'B'

120 m

PREFERRED LOWERING DEVICE IS 'OKA', EASY TO LOCK ROPE.

ADDITIONAL FRICTION

a vertical orientation to avoid rockfall and the waterfall itself.

The attendant follows the litter rappelling on a separate line. The DCD is the Kong “OKA.” The CNSAS also demonstrated a counter balance raise with the Canyon stretcher during the practical day which can be seen in the Toograph Media video at minute 15:00-17:35. (Dave Clarke)

The Rigopiano Hotel Avalanche Disaster

On the afternoon of 18 January 2017, a major avalanche occurred on Gran Sasso d’Italia a mountain in Rigopiano, a tourist destination in Southern Italy’s Abruzzo region. The avalanche struck the luxury resort Hotel Rigopiano, killing twenty-nine people and injuring eleven others. It was reported that shortly after a series of earthquakes hit the region, many of the hotel guests were gathered on the ground floor of the hotel awaiting evacuation when the avalanche struck. At the time, there were forty people in the hotel including twenty-eight guests and twelve employees. Upon impact, the avalanche caused part of the roof of the hotel to collapse, and moved it 10 meters down the mountain.

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The avalanche largely destroyed the resort Hotel Riopiano. A total of eleven people were rescued following the avalanche, including two people who survived the avalanche because they were standing outside the hotel when the avalanche hit. The survivors trapped inside the hotel, sheltered by lofts that had not collapsed, were located around 12:00 on 20 January, over 30 hours after the avalanche. Overall, five adults and four children trapped below the ruins and the snow were rescued, the last ones after 58 hours, having survived on frozen snow. Ten out of the eleven people rescued received minor injuries related to hypothermia. The eleventh person also received a compression injury to his upper arm, which he underwent surgery for. On 23 January, rescuers recovered a twelfth body, but also located three puppies alive under the snow, indicating that the twenty-two people missing may still be alive. However, it was later revealed that no one else had survived the avalanche.

Two causal factors for the avalanche of 2017 include a series of earthquakes that struck the region earlier in the day (four above a magnitude of five followed by over 100 smaller quakes) and the record snowfall which occurred in the region for days prior to the earthquakes and avalanche. Later analysis revealed that the average slab depth was two meters and the total volume of 180,000 cubic meters. Further the hotel was built in an area that has a 50-100 year avalanche frequency. With the last major slide occurring in 1956.

The initial response to the incident was delayed due to miscommunication. There was limited cell coverage and no land lines were functional after the earthquake. Eventually one cell call made it through to a dispatch center but was incomplete and was not deemed to be credible. Dispatchers called the hotel owner who was not on site and he reported that he didn't know of any problem.

First responders had difficulty reaching the hotel due to large amounts of snow which had fallen for several days prior to the accident, and did not arrive at the scene until 0430 local time. When rescuers arrived on scene, they stated that the hotel had been buried under at least four meters of snow, and that it could take days before they would know if there were any survivors. In addition, a base camp for rescue workers with ambulances was set up in the town of Penne approximately 10 km away. There is only one access road to the hotel which was blocked by the snowfall. In fact, the recovery efforts went on for six days.

Eventually the response involved over a hundred rescuers from many agencies including: military, police, firefighters, carabinieri, forest rangers, mountain rescue, Guardia di Finanza, and civil protection. I thought that the response was especially impressive considering that the region was already in disaster response mode from the earthquakes. For example, it was cited that one quarter of the regions people were without power. Many responders did not have avalanche training or PPE. The access road was exposed to a lot of potential new avalanches complicating the response. Rescuers also employed a cell phone eavesdropping device used for anti-terrorism known as an IMSI catcher to locate buried phones.

All told the incident response was quite impressive considering the delayed reporting and the fact that it occurred during the response to another regional earthquake disaster. The presentation closed with the memorable quote "No one can choose how to die but everyone can choose how to live." (Dave Clarke)



BASE Jumping In Norway: Some Aspects for Rescue

Dan Halvorsen, an Air Rescue Technical Advisor delivered an interesting presentation with stats from Norway about BASE jumping fatalities. As it does here in North America, BASE refers to the departure points of: Buildings, Antennae, Spans, and Earth. He also detailed some of the problems and solutions from rescuing BASE jumpers from the big walls in Norway. The Topograph Media ICAR video has a segment of Dan and an overview of his presentation from minute 5:25 to 9:00 in the video.

Between 1984 and 2017 there were 34 fatal BASE jumping accidents in Norway. They report that BASE jumping is 5-8 times higher risk than parachuting from a plane. However, in recent years the equipment has become safer. The accidents that Dan reported on involve jumping from big walls in the Fjords.

Some of the dangers for rescuers are that often the victims are in areas that are not frequented by climbers so there is loose rock and often difficult access. He showed an impressive slide of the dust cloud from a massive rockfall during a rescue in Trollveggen. Additionally, there is the danger of the rotor wash from rescue helicopters inflating the chute and sending the victim into an uncontrollable fall. This happened inadvertently in one rescue, in this case the subject was already deceased.

Other difficulties associated with helicopter rescues on these big walls are determining if the subject is dead or alive and just gaining access to the cliff face. Other presentations mentioned how other teams deal with these challenges and it was interesting to see how different solutions have evolved in different countries. In the case of the Norwegians, they presented their approach using the cable hoist, long lines and "super long lines." Their rescues are conducted jointly by alpine rescue groups and air rescue squadrons.

They utilize a SeaKing rescue helicopter with a crew of six including a doctor. It has dual hydraulic hoists with 245' of cable. In the long line and super long line procedures a rope of the needed length is added as an extension to the end of the cable. Typically, the rescuers are set down above the subject and rappel down to the site. Due to the long distance between the rescuer and the pilot they rely on radio communication rather than hand signals. The main criteria for line length is to keep the aircraft above the big wall thereby greatly reducing the risk of a rotor strike and minimizing the effects of terrain influenced winds. The downside is that the greater line length worsens the depth perception issues for the pilot.

With the long line procedure, the crew identifies a suitable insertion point for the rescuer(s) above the subject and

Superlongline vs. Longline

Superlongline

- Helicopter does not have to descend along the wall
- Helicopter can hover above deep ravines/gullies
- Helicopter can hover above difficult wind conditions
- Less downwash on accident site
- Less rockfall hazard
- Facilitates rescues in very steep or narrow places

Longline

- Helicopter has to descend along the wall
- Helicopter has to hover in an offset position
- Facilitates extraction of a larger number of casualties or rescuers

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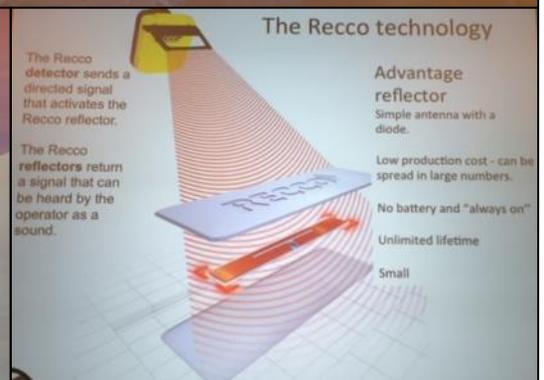
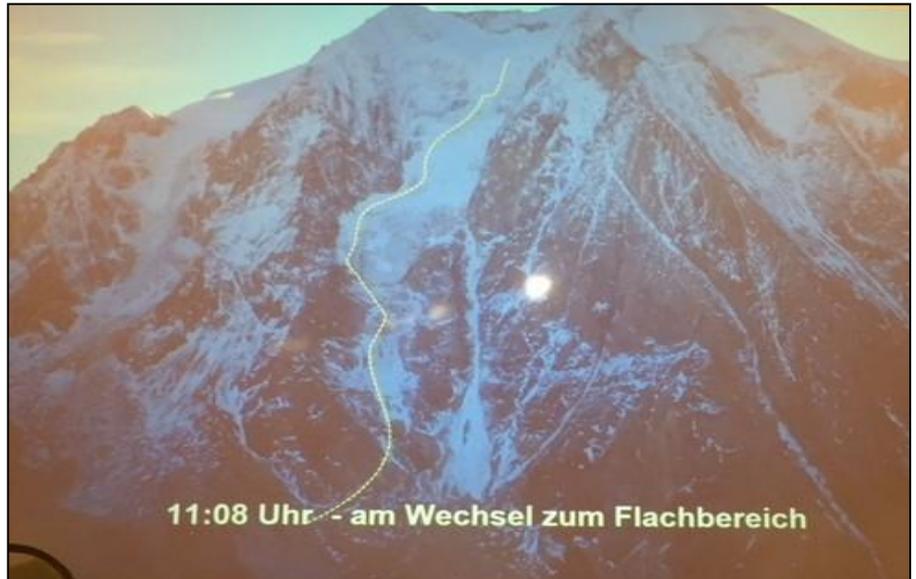
patagonia

then extends the hoist cable with a 60m rope to keep the helo above the wall. The rescuer is then inserted in a short haul fashion, they rappel down to the subject bringing the end of longline with them (while the helo descends along the wall and hovers in an offset position) to pull the end of the cable in to the extraction point. Then the longline is used as a tag line to control the load during the hoist operation. One advantage is that this technique can be repeated to extract several subjects and/or rescuers.

The super long line technique differs in that as the rescuer(s) descend by rappelling or lowering to the subject they lay out a third un-tensioned rope which will become the super long line. In this case a rescuer would stay at the upper belay station and that is where the extraction connection to the helo is made. The advantages are that the helo doesn't have to descend along the wall and that it can hover above steep ravines or gullies, there is less rock fall hazard and less rotor wash at the accident site. (Dave Clarke)

Rescue on the Hochferner Northface

Matthias Hofer a climbing guide from South Tyrol Italy related the story of a difficult search and recovery following a climbing accident in Oct.2016 on the Hochferner northface which is an 11,235' peak in northern Italy. You can see Mattias summarize his presentation on the ICAR video by Topograph Media (minutes 1:30-13:30.) The mission was made more difficult since three of the four subjects were mountain rescue teammates. However, the presentation was made more interesting by the fact that they recovered a camera with 70 photos and a GPS watch with a track and heart rate data. This enabled the team to do a more detailed analysis of the accident.



An initial response was started at 2300 hours when it was reported that the climbers hadn't returned. Once on scene the rescuers quickly realized that the climbers had been hit by an avalanche and had fallen 84 meters downslope. The first responders found two bodies almost immediately but then searched for four days to locate the remaining two. The key to finding them was the use of the Recco SAR, a new Recco detector that is slung beneath a helicopter. The team had just trained on a prototype version of the device two weeks prior. The last body was located with a hand held Recco detector and was under two meters of snow. Luckily that climber had a Recco reflector on his helmet which Recco reports can be detected up to 600 meters away in ideal conditions.

The Recco detectors can locate other electronic devices but the actual reflectors are able to be picked up from a much greater distance. The Recco SAR device is currently still in development with seven units being tested in Europe. The company hopes to have them in North America soon. (Dave Clarke)

Backcountry Zero: Rock Safety and Self Rescue Skills

Teton County Search and Rescue member Stephanie Thomas presented examples of how their rescue team has partnered with the Teton County Search and Rescue Foundation (TCSARF) to put together a comprehensive public education program for backcountry safety in the Tetons. Since 2015 the Backcountry Zero program, based in Jackson Hole, has been working to reduce injuries and fatalities in the mountains of Wyoming. According to their website, "Backcountry Zero is a four-season, cross-sport, community-led program created by the Teton County Search and Rescue Foundation to inspire, educate, collaborate, and foster leadership in order to develop and heighten awareness for safer practices in the backcountry. Backcountry Zero aims to cultivate a culture among user groups with a common language of principles that guide safer, enhanced decision-making and travel in the backcountry. These aims are accomplished through working with the community (guides, teachers, mentors, retailers) to create program touchpoints, and through crafting and implementing events, educational opportunities and workshops, granting programs, and shareable multimedia."

For more information, visit their website at: <http://www.backcountryzero.com/#ride> (Tom Wood)

2017 ICAR CONGRESS ASSEMBLY OF DELEGATES (FINAL DAY)

On the last day of the Congress, all assembled delegates met for the annual business meeting and to vote on important ICAR issues. There were 35 A and 26 B members present. The Assembly of Delegates had a total of 96 votes, with a majority needing 49 votes to pass. The MRA is one of five organizations (the others being Teton County SAR, Silverton Avalanche School, Wasatch Backcountry Rescue and the newly approved University of New Mexico International Mountain Medicine Center) representing mountain rescue organizations in the United States to ICAR.

Several new organizations were approved for ICAR membership, including:

DAF-JKCMOX – Dutch Armed Forces / Joint Centre of Competence for Military Operation > C Members

ISMM – International Society for Mountain Medicine > C Members

LDMRSDA – Lake District Mountain Rescue Search Dog Association > B Members

CMH – Centre Médical Hélicopté > B Members (CMH becomes ICAR's 100th Member Organization!)

GERA – Grupo Especial de Rescate en Altura / Cuerpo de Bomberos de la Comunidad de Madrid > B Members

UIM-PGME – Unitat Intervenció en Muntanya / Policia de la Generalitat Mossos d'Esquadra > B Members

UNM-IMMC – University of New Mexico / International Mountain Medicine Center > B Members

Dr. Ken Zafren as ICAR Honorary Member > D Member

New ICAR Membership Category Structure:

The Assembly of Delegates were presented with and unanimously approved an historic restructuring of the ICAR Membership Categories. This was done in response to the results of a 2017 survey sent to ICAR member organizations by ICAR Board member Dan Hourihan (Douglas County, Nevada SAR). The new member categories are designed to better reflect the current roles played by each ICAR member organization within their area of responsibility. The MRA retains its status as an A member organization, making it the only A member organization from the U.S. The new ICAR Membership Categories are listed below.

- **Type A:** Rescue organizations of a Nation or national importance* who cover all the aspects of mountain rescue and fulfil recommendations set out by the ICAR Assembly of Delegates. Type A member organizations have 4 delegate votes at the ICAR Assembly of Delegates. The annual membership fee is € 1'000.
- **Type B1:** Rescue organizations of regional importance including alpine associations** and organizations who cover part of the aspects of organized mountain rescue. They should fulfil recommendations set out by the ICAR Assembly of Delegates. Type B1 member organizations have 2 delegate votes at the ICAR Assembly of Delegates. The annual membership fee is € 500.
- **Type B2:** Subject specific organizations who cover part of the aspects of mountain rescue. Their rescue activities should fulfil recommendations set out by the ICAR Assembly of Delegates. Type B2 member organizations have 1 delegate vote at the ICAR Assembly of Delegates. The annual membership fee is € 400.
- **Type C:** Organizations within the field of mountain rescue who are not directly active in the ICAR and organizations that aspire to be members who cannot currently meet the guidelines for A or B membership. Their rescue activities should fulfil recommendations set out by the ICAR Assembly of Delegates. Type C member organizations do not have any voting right at the ICAR Assembly of Delegates. The annual membership fee is € 200. A waiver of this fee for a limited amount of time in specific and justified cases is at the discretion of the ICAR Executive Board.
- **Type D:** A person of special merit with regard to ICAR may be appointed as Honorary Member or Honorary President by the ICAR Assembly of Delegates, following the nomination by an ICAR Member Organization. Type D members do not have any voting right at the ICAR Assembly of Delegates. There is no annual fee for this membership type.
- **Type E:** Organizations, with no organized mountain rescue mission, who support ICAR goals. Type E members do not have any voting right at the ICAR Assembly of Delegates. There is no annual fee for this membership type.

* National importance is determined by a relationship with the national government which states the organization will be called upon in national need.

** An alpine association that maintains an organized mountain rescue component within their membership.

Mountain Safety Knowledge Base

ICAR President Franz Stampfli informed the ICAR Assembly of Delegates about the "MSKB-MSI Memorandum of Understanding DRAFT" received for joint signature by UIAA, IFMGA, ENSA, SLF & ICAR.

The ICAR Executive Board had studied/discussed the paper and came to the decision that it may be signed, as it develops the basics to which we can agree.

Future ICAR dates and locations:

ICAR Convention 2018 in Chamonix, France October 16-20, 2018, Registration will open in April 2018, General Topic will be "The Influence of Climate Change to Mountain Rescue Operations"

ICAR Convention 2019 in Zakopane, Poland October 8-13, 2019

The complete official minutes of the 69th Assembly of Delegates can be found here: <http://www.alpine-rescue.org/ikar-cisa/documents/2017/ikar20171208004550.pdf> (Tom Wood)

Air Rescue Report—International Commission for Alpine Rescue (ICAR)



Kommission für Luftrettung/Commission pour le Sauvetage Aérien; October 18-21, 2017; Soldeu, Andorra

Prepared by Brian Webster, Safety Specialist; Parks Canada and Charley Shimanski, Mountain Rescue Program Coordinator; Flight for Life Colorado

Introduction

The International Committee for Alpine Rescue (ICAR) annual meeting was held in Soldeu, Andorra from October 18-21, 2017. The event was hosted by the Mountain Rescue Group of the Bombers (fire department – Bombers d'Andorra / Grup Rescat de Muntanya - <https://www.bombers.ad>)

The Air-Rescue Commission was attended by a record of 52 delegates representing 17 countries (Austria, Bulgaria, Canada, Croatia, Czech Republic, France, Germany, Italy, Norway, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, and USA). The Air Rescue Commission was chaired by Patrick Fauchère (KWRO/OCVS, Switzerland).

Air Rescue Commission presentations took place over three days. On Thursday, October 19, the Commission met separately to discuss rescue accidents and hear presentations on rescue hazards and procedures. The afternoon of October 19th and October 20th included a few presentations held jointly with the ICAR Terrestrial Commission as well.

Air Rescue Commission President

Patrick Fauchère; Flight Operations Manager; Air-Glaciers

Patrick Fauchère is the President of the ICAR Air Rescue Commission.

Patrick has been a helicopter crew member since 1981, and a pilot since 1989. He has more than 11,000 hours as a helicopter pilot, all in mountain areas (Switzerland, India, and Bhutan). 3,200 of those hours have been under rescue missions, including 2,000 HHO or HEC missions.

Patrick has been a delegate to the ICAR Air Rescue Commission since 1999, -Vice President of the ICAR Air Rescue Commission from 2004-2008, and President of the Air Rescue commission since 2008.

Professionally, Patrick served from 2004-2012 as Flight Safety Manager of Air Glaciers, Switzerland, and as their Flight Operations Manager since 2012.

Patrick is a board member of the Swiss Helicopter Association and the European Helicopter Association (EHA), and serves as the EHA Delegate at the EASA (European Aviation Safety Agency). He participates in different working groups at EASA (SPO, HEMS, PCDS).

After ten years as ICAR Air Rescue commission President, Patrick has announced his retirement as Commission President following the 2018 Congress in Chamonix.

Air Rescue Commission Presentations

In addition to this written narrative summary of the Air Rescue Commission proceedings, Air Rescue Commission delegates are given separate access to the PowerPoint and other electronic presentations made by delegates, when those presentations can be made available.

Congress Video

Once again, Topograph Media developed an extraordinary video recap of the conference, with thanks to their loyal 2017 Sponsors Petzl, PMI and TYROMONT. The Two Part Series is available at these links:

- [ICAR 2017 Andorra Video by Topograph Media Part 1](#)
- [ICAR 2017 Andorra Video by Topograph Media Part 2](#)

Field Demonstration by Host Team

Bombers d'Andorra / Grup Rescat de Muntanya

On the opening evening of the Congress, Bombers d'Andorra / Grup Rescat de Muntanya entertained the entire Assembly of Delegates with live two demonstrations.



Patrick Fauchère ICAR Air Rescue Commission President.



During the Friday evening social hour, the host team demonstrated a rescue of a subject from a cable.

One of the demonstrations was of a rescuer being inserted by helicopter hoist to a subject suspended from a chairlift cable. Once free of the helicopter hoist system, the rescuer then rigged a separate system to lower the subject to the ground.

Incidents and Accidents

The following reports were presented during the Air Rescue Commission meetings by the Commission delegates from several countries:

Switzerland—Incorrect Engine Start Procedure

In a high stress rescue situation in bad weather, the pilot failed to engage the second engine of an EC135 at the start of mission. Shortly after take-off, the pilot noticed the second engine was not engaged to flight mode and landed the aircraft without incident.

The helicopter was checked over. Usage Monitoring System (UMS) showed no over-limits. The helicopter was released to service the next day. This incident could have been prevented if a checklist protocol had been utilized in the start-up procedure.

France—Cable Strike/Damaged Aircraft

Shortly after takeoff from a rescue operation, the main rotor struck an electrical cable resulting in damage to the helicopter. There were no injuries. The pilot was familiar with the terrain, and the hoist operator was new to the program. The aircraft returned to the original landing zone. The rotor blades were replaced.

Italy—Helicopter Crash

In January, during an avalanche response in the Dolomites a helicopter crashed resulting in six fatalities (investigation still on-going). There were two contributing issues (high stress rescue operation and bad weather). The plan was to perform a short winch operation. The aircraft flew into terrain, and was destroyed. The rescuer, dog handler, doctor, paramedic, hoist operator and pilot were all killed.

Canada—Helicopter Crash/Lost Reference

While heli-skiing in western Canada the pilot and guide decided to go to a non-standard landing (landing that had not been staked with landing flags). There was about 50 cm of fresh low density snow. Pilot used a tree outside of the rotor disk for reference, but while landing reference was lost due to blowing snow. The pilot hovered for about 40 seconds and then started drifting sideways, caught a skid and rolled the helicopter. One person was significantly injured.

Class D Operation/Rotor—Strike with Rock

While performing a fixed line Class D mission on a steep rock face, the helicopter blades struck the cliff face. The pilot was able to maintain control of the aircraft, drop the rescuer off and then land without further incident. There were no injuries, but the aircraft suffered significant damage. The pilot described reacting to a wind gust prior to the blade strike.

The conclusion was that there was not enough rotor clearance for safe operations. A suggestion was made that in steep terrain sling operations, a “dry run” is conducted (with no rescuer on line) in order for the pilot to get a better sense of operational limits.

Norway—Class D Operation/Rotor Strike with Tree

Norwegian Air Ambulance-While conducting a Class D mission in narrow terrain, the helicopter’s rotors hit a tree. The aircraft lost control and dragged the rescuer and patient through the trees. There were no injuries. The incident was associated with not following SOP’s for the procedure.

The program has a procedure to always to perform a “ROPE Rescue” Checklist/Safety Check.

ROPE is an acronym as follows:

R = Reconnaissance of the area

O = Operating Procedure assessment

P = Power check

E = Entry and Exit assessment

The crew neglected to perform this ROPE checklist.

After this accident report, there was a discussion in the Air Rescue Commission about the idea of using checklists more universally.



Moments after this photograph was taken, this helicopter’s main rotor blades struck the rock at the 3 o’clock position during an attempt to insert a rescuer on a longline. There were no injuries, but the aircraft suffered significant damage.

France—Hoist Incident/Entanglement

While conducting a rescue mission (in 2016) in the Mont Blanc area at 12,000 feet, a rescuer and three uninjured mountaineers were being hoisted up to the helicopter. An entanglement issue resulted in 4 people being lifted on the cable (the pilot expected only 3 people). The maximum load on the winch was exceeded and the pilot experienced the helicopter descending.

The pilot performed an emergency landing at Midi Pass at 10,000 feet. There were no injuries or damage to the aircraft. The program replaced the hoist.



Quelle: ORF.at

Austria—Class D Operation/Lost Power

While conducting a fixed line operation at 7300' the pilot lost power in a down draft. The rescuer and two patients who were on the line hit the ground and were dragged across the ground before the rope was cut by sharp rocks. The rescuer and one patient were killed. The second patient was seriously injured. There was no damage to the aircraft.

Helicopter Crash/Lost—Tail Rotor Effectiveness

An Austrian rescue helicopter (MD902) with three persons on board landed at an alpine shelter at 11,300 feet (+7 degrees C) to pick up one patient with a suspected heart attack. When the helicopter attempted to take off after loading the patient, tail rotor effectiveness was lost, the aircraft began to turn in a clockwise direction and then tipped to the side and crashed. There was one injury.

United States—Possible Engine Failure

Saint Louis, Missouri - Kids Flight (July, 2017)-A HEMS flight The inter-hospital flight with this aircraft (BK117 B-1) took off at 2019 hrs for St. Louis (MO) Children's Hospital. The pilot reported that the helicopter "experienced a sharp change in attitude yawing to the left with a hard-upward bump" followed by a change in the engine noise. The No. 1 engine low warning light, the No. 1 generator light, and the battery discharge warning lights were illuminated. He entered an autorotation by applying right forward cyclic and lowering the collective to full down.

The helicopter landed right skid low and skidded for about 100 ft. The main rotor blades hit the ground as the helicopter rolled onto its right side. The pilot and flight crew, with the patient on a stretcher, egressed the helicopter with minimal injuries.

Another Possible Engine Failure

Duke University, "Life Flight" – Perquimans County, North Carolina (September 8, 2017) – The MBB BK117- C2 helicopter, N146DU, was en route to Duke University Hospital from Sentara Albemarle Medical Center. Several witnesses reported observing "heavy/dark" smoke trailing behind the helicopter, also a "popping noise," They then watched it turn twice and descend before it disappeared from sight. The pilot, two flight nurses, and the patient died in the crash.

Hoist Fatality – Fall to the Ground



Fort Hood Texas, US Army (September 12, 2017) – During a medical evacuation hoist training a soldier fell from the hoist to his death. An Investigation is underway and no further information exists.

Scotland—Report Released on Rescue Accident

Ben Nevis, Scotland (February 13, 2013) A long-overdue Service Inquiry Report was released by the UK government January 2017. The incident involved a RAF Sea King that was dispatched to rescue a fallen climber on Ben Nevis in Scotland following an ice climbing fall on lead. A rescue helicopter from RAF Lossiemouth was trying to get him on board when the safety rope was severed before he had been secured. The victim fell hundreds of feet to his death. Contributing Cause Summary*:

- The winchman (hoist rescuer) verbally "expressed concern at the complexity of the rescue" to the flight crew raising the option of involving the ground rescue team.
- Complexity of the rope system encountered by the winchman upon reaching the accident scene.
- Investigative conclusion of winchman feeling a "perceived pressure to perform"
- Failure to follow pre-existing established procedural sequence of
 - ◆ Strop (placed on casualty)
 - ◆ Connect (strop to hoist hook)
 - ◆ Cut (ropes attached to casualty)

Mexico—Flight into Power Lines

Mexicali, Mexico - Hughes MD 530 - El Centinela Hills in Mexicali, A hiker had died from injuries sustained when she fell into a gorge.

The government says the crew had found the woman's body and was bringing back rescue workers when the helicopter hit an electrical power cable. All four on board died.

Joint Presentations with the ICAR Terrestrial Commission

Several presentations relative to helicopter Human External Cargo (HEC) were made to joint sessions of the Air Rescue and Terrestrial Rescue Commissions.

Yosemite Offset Technique By Charley Shimanski, USA Mountain Rescue Association

Charley Shimanski presented The Yosemite "Offset Technique", including video of the technique in action in Yosemite National Park. The "Big Walls" of Yosemite National Park include El Capitan, which is 3,000 vertical feet of granite.

A rescuer suspended below the helicopter, or a crewmember on board the helicopter, throws a "throw bag" with 1.5 mm "pilot line" attached to an 8 mm cord. The line is then ultimately pulled over to the wall. A rescuer can then be pulled over to the site.

Occasionally, the subject can self-rescue by pulling over a gear bag that contains survival gear or replaces lost climbing gear.

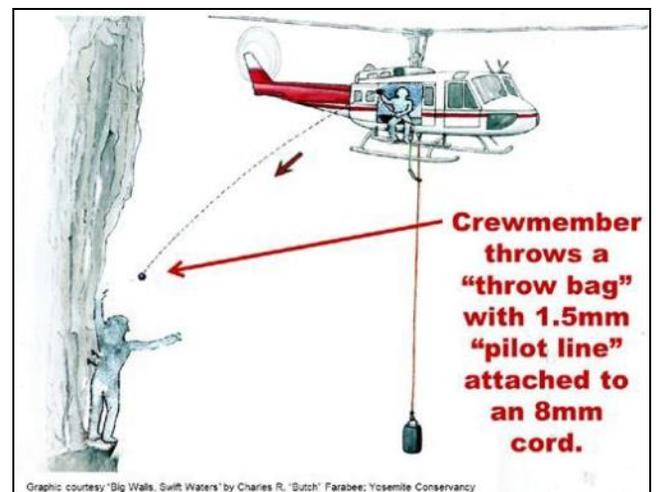
The technique is far more complicated than the description above, and rescuers are encouraged to watch the [Yosemite Offset Technique video](#) on Vimeo.

Rescue techniques in Big Walls Theo Maurer, Head of Training (Swiss Alpine Rescue), and Mountain guide

Theo Maurer presented techniques used by Alpine Rettung Schweiz for Big Wall rescues, including mountains like Wendenstöcke (200 – 300 metres vertical, overhanging) and Eiger - North Face (1800 metres rock, snow, ice). These included 1) Helicopter with a rescue winch (winch rope up to 85 metres long) and 2) Helicopter with a longline on a central hook (rope length up to 230 metres). Mr. Maurer then profiled an example of a rescue of a BASE jumper on Lauterbrunnen that included a particularly complicated rescue of a survivor below a 25 metre overhang.



Four rescuers were killed in the crash of this helicopter when it encountered power lines during a body recovery of a deceased hiker.



The Yosemite Offset Technique enables rescuers to access a vertical wall while suspended beneath a rescue helicopter. Graphic courtesy "Big Walls, Swift Waters" by Charles R. "Butch" Farabee; Yosemite Conservancy.



Air Rescue Commission Presentations

High-line Rescue Demonstration—By Renaud Guillermet (France)

This presentation acknowledged the increase of high-lines being set up in the high mountains and the expectation that sooner or later someone would have to be rescued from them. A rescue scenario was set up where a rescuer was lowered onto a highline by a hoist helicopter. The rescuer treated the patient and then patient and rescuer were hoisted off the high-line. Discussion revolved around integrity of the high-line and the need for rescuer staying attached to helicopter while preparing patient for evacuation.

Overview of BASE Jumping in Norway By Dan Halvorson

This presentation gave a summary of base jumping in Norway and spoke to the number of fatalities (34 fatalities from 1978-2017) and the need for rescuers to conduct rescues or recoveries in steep mountain terrain often in areas where climbers do not go. There are local demands within Norway calling for regulation or prohibition of Base jumping.

Concerns from a rescuer standpoint were:

- Difficult and dangerous access to victim
- Is the victim alive or deceased (difficult decision from the helicopter window).

The risk of getting too close with the helicopter and re-inflating the parachute and blowing patient or body away was discussed. (The presentation profiled one case where a body (deceased) was blown away by downwash from the helicopter.).



Dan Halvorson presented policies and procedures for rescuing and recovering BASE jumpers in Norway

Super-Long-line Procedure and Rescue in Norway by Stein Faisen Mollar (Norway) and Fredrik Jomaas Major

This presentation summarized the use of a super- long-line (with Sea King helicopter) for rescue off of big walls in Norway. This technique is a rope extension to the hoist cable and allows the helicopter to stay above the rim of the wall. Advantages are

- Helicopter does not have to descend along the wall
- Helicopter can hover above difficult wind conditions
- Less down-wash on accident site
- Less rock fall hazard
- Reduces potential for blade strikes
- Facilitates rescue in very steep terrain

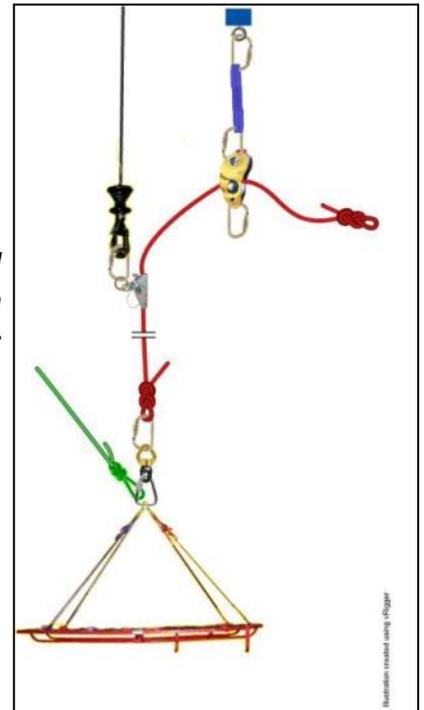
Once the rescuer and patient are suspended on the super-long-line then the load and rope can be hoisted into the helicopter.

Review of Sea King and AW 101 Helicopters in Norwegian Military by Major Fredrik Jomaas

This presentation summarized the use of the Westland Sea King helicopter in the Norwegian military and its current transition to a new helicopter (the Augusta Westland AW 101). The Sea Kings have been in service since 1973 and have logged 40,000 missions. The military received their first AW 101 in 2017 and expect to complete the transition of the new helicopter to all six of their bases by 2020. There is a transfer of 45 years of experience (with the Sea King to the AW 101) in three years.

Study on Rotor Wash Effect on BASE-Jumper Parachute by Major Fredrik Jomaas

This presentation examines and compares the effect of downwash on a deployed base jumper's parachute (attached to a simulated person) by a Sea King helicopter (8500 kg) and an



This presentation summarized the use of a super-long-line (with Sea King helicopter) for rescue off of big walls in Norway.

	Sea King	EC 135
400 feet	One min 40 sec. Moved 15 m.	4 Min 30 sec. Moved 5 m
300 feet	60 sec. Sudden move	2.5 min. Sudden move 15 m
200 feet	20 sec. Sudden move	45 second. Sudden movement >15 m
120 feet	6-8 sec. Tight rope	15 sec. Tight rope

Movement of BASE-jumper Chute by Helicopter

EC 135 helicopter (2600 Kg). Not surprisingly the Sea King's downwash inflated the chute and caused movement sooner than the EC 135 but what was surprising is that both helicopters inflated the chute and caused movement from as far away as 400 feet. Also of note is the chute remained inflated for a period of time after the helicopter had left. The take home from this study is that you cannot get close to a base-jumper accident site (where the chute is deployed) with a helicopter without risking moving the subject.

Overview of SAR and Air Ambulance (HEMS) Operations in Norway by Dan Halvorson (Norway)

There is national coordination and management between military SAR assets (RNoAF 330sqn) and state operated Air Ambulance (HEMS) service.

- SAR units do 55% HEMS missions
- HEMS units do 5% SAR missions

Air Ambulance is state operated on contract with civilian HEMS operators. The current contract expires in 2018.

New contract for 2018,

- Expect to cost 375 euros
- Tender has 500 requirements
- Helicopters include H135, H145, and AW 139
- Will have SAR capacity
- Will have IFR capacity

Texbor Smart Sling For Class D—Smart-Sling presentation

The Manufacturer presented their Smart Sling product.

Vortex Discussion—www.vrasf.org

A film was presented that illustrates Vortex Ring State/Settling under power. The film was shot with a spray helicopter and perfectly shows the effect of the vortex ring state on an aircraft. The recovery technique shown allows the pilot to get out of such state rapidly.

Rope Test by Airwork& Heliseilerei Gmbh—Airwork & Heliseileirei

Airwork & Heliseileirei presented a test they did in reaction to the Austrian HEC accident (see above). The test shows 3 different ropes used for HEC operations (2 with core and cover bearing and one with only the core bearing the load). The purpose of the test was to evaluate the reaction of the core to cutting. The results were significant as the 2 core and cover-bearing rope failed quickly while the loss of cover on the core-bearing (only) rope experienced less consequences.

A video will be included in downloadable Dropbox files available to ICAR Air Rescue Commission Delegates.

2018 ICAR - The 2018 ICAR Congress will be held in Chamonix, France. For further information regarding this report, contact:

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**Charley Shimanski, Mountain Rescue
Program Coordinator**



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MRA MedCom, 2018

The MRA Medical Committee, or MedCom, is a group of medical experts that are active field responders and medical advisors of MRA teams. In addition to mountain medicine, our expertise includes wilderness, international travel, tactical, and military medicine. MedCom produces a quarterly medical column for *Meridian* and occasionally answers questions of MRA members. The original chair was Dr. Bill Clem, followed by Dr. Ken Zafren, and Dr. Skeet Glatterer. Dr. Christopher Van Tilburg is the current chair. Queries to MRA MedCom can be sent to Dr. Van Tilburg at vantilburg@gorge.net.

Cassie Lowry Edmark (Everett Mountain Rescue) is an osteopathic medical student from Washington State. Since becoming a Wilderness EMT prior to medical school, Cassie has remained active in ski patrol and mountain rescue. In addition to developing her career as a physician, her focuses are on the advancement in clinical research in hypothermia and altitude with the pre-hospital application of this knowledge in austere environments.

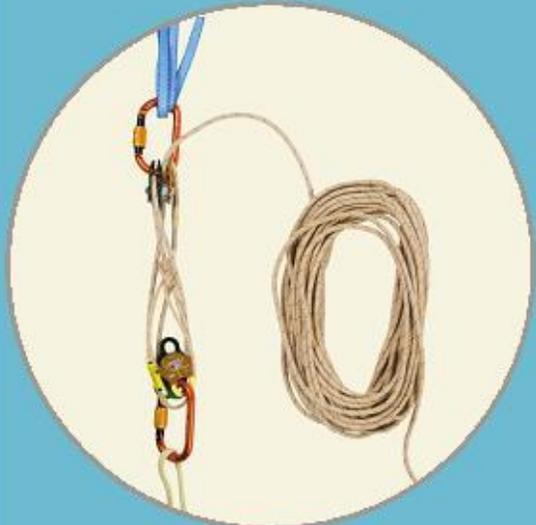
Skeet Glatterer, MD, FAWM (Alpine Rescue Team) is a cardiothoracic surgeon. Active with the Wilderness Medical Society since 1999, he serves as an instructor for WMS-affiliated Advanced Wilderness Life Support courses, and for a private company for AWLS, and Wilderness EMT courses. Involvement with mountain rescue began in 2004 with the Alpine Rescue Team in Colorado, where he is the team's Medical Director. A past ski patroller, he is a contributor, and Instructor Trainer, for the National Ski Patrol's Outdoor Emergency Care publications and programs. He is a current Member at Large for the MRA.

Seth Hawkins, MD (Appalachian Mountain Rescue) is Assistant Professor at Wake Forest University and emergency physician at Catawba Valley Medical Center. He is Executive Editor of Wilderness Medicine Magazine and author of numerous books, book chapters, and articles including Vertical Aid and Wilderness EMS.

Timothy R. Hurtado, DO, FACEP (El Paso County Search and Rescue) practices Emergency Medicine in Colorado Springs, Colorado. Prior to medical school, he worked as an EMT and firefighter for the US Forest Service as a Hotshot and a Smokejumper. He has been active with Search and Rescue locally and with the US Park Service. Dr. Hurtado is currently Medical Director for El Paso County Search and Rescue, El Paso County EMS North Group Consortium, and Penrose-St. Francis EMS Institute and Assistant Medical Director for Colorado Springs Fire Department and Teller County EMS Consortium

Jeff Isaac, PA, (Crested Butte SAR) is an emergency medicine PA and the director of the GVH Mountain Clinic in Crested Butte, Colorado. He is a team leader with Crested Butte SAR and has been an instructor with Wilderness Medical Associates since 1981, and the curriculum director for the company since 2004. He is the author of *Wilderness and Rescue Medicine* and *The Outward Bound Wilderness First Aid Handbook* as well as numerous magazine articles on wilderness, rescue, and marine medicine. He is a US Coast Guard licensed captain and a former Outward Bound instructor and course director.

Alison Sheets MD (Rocky Mountain Rescue Group) is the medical director and active field member of Rocky Mountain Rescue Group. In 2017 she responded to over 60 missions. Dr. Sheets is the current Region Chair for the Rocky Mountain Region of the MRA and holds an at large position amongst the national MRA officers. She became the MRA ICAR MEDCOM delegate in 2017. Additionally, she is a physician advisor for the Colorado Ava-



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lanche Information Center and has recently become as AWLS instructor. She is currently working as an Emergency Physician in Boulder, Colorado.

Will Smith MD, Paramedic, FAWM ([Teton County SAR and Grand Teton National Park SAR](#)) practices Emergency Medicine in Jackson Hole, Wyoming and is a Clinical Assistant Professor for the University of Washington School of Medicine, as well as the Medical Director for the US National Park Service. Locally, he serves as the Co-Medical Director for Grand Teton National Park, Teton County Search & Rescue, Bridger Teton National Forest, and Jackson Hole Fire/EMS. Dr. Smith also serves as a Lt. Colonel in the U.S. Army Reserve Medical Corps. Dr. Smith has also serves as a Subject Matter Expert for DARPA.

Don Slack, MD, (Skagit Mountain Rescue and Bellingham Mountain Rescue) is a Pacific Northwest native and longtime Mountain Rescue member, currently active with both Skagit and Bellingham Mountain Rescue. He practices Emergency Medicine in Mt Vernon, Washington and is long-time medical advisor for North Cascades National Park. He is board certified in emergency medicine and emergency medical services.

Christopher Van Tilburg MD FAWM (Crag Rats) is medical advisor and active field member for Crag Rats, of Hood River Oregon. He works in the Emergency Department, Occupational and Travel Medicine Clinic, and at Mountain Clinic at Mount Hood Meadows for Providence Hood River Memorial Hospital. He is author of 11 books, including Mountain Rescue Doctor (St. Martins, 2007) and Search and Rescue Stories (Falcon, 2017).

AJ Wheeler, MD. (Teton County SAR and Grand Teton National Park SAR) is an Emergency Physician in Jackson Hole Wyoming. Dr. Wheeler is Co-Medical Director and active member of Teton County Search and Rescue and Co-Medical Director of Grand Teton National Park EMS and Bridger Teton National Forest. Dr. Wheeler also works actively with Jackson Hole Ski Patrol and Grand Targhee Ski Patrol. He also is associate faculty at the University of Utah and works closely with the Wilderness Medicine Fellowship there to provide an experience in Search and Rescue and Research into Wilderness Medicine.

Ken Zafren, MD, FAAEM, FACEP, FAWM (Alaska Mountain Rescue Group) is an emergency physician in Anchorage, Alaska and a Clinical Professor of Emergency Medicine at Stanford University in California. He has many years of experience in mountain rescue, starting with Rocky Mountain Rescue Group in Boulder, Colorado in the mid-1970s. Dr. Zafren is a Medical Advisor for the Alaska Mountain Rescue Group and a past Medical Director for the Denali National Park Mountaineering Rangers. He is a past Chairman of the Medical Committee of the Mountain Rescue Association and has served as Vice-President of the ICAR Med-Com.



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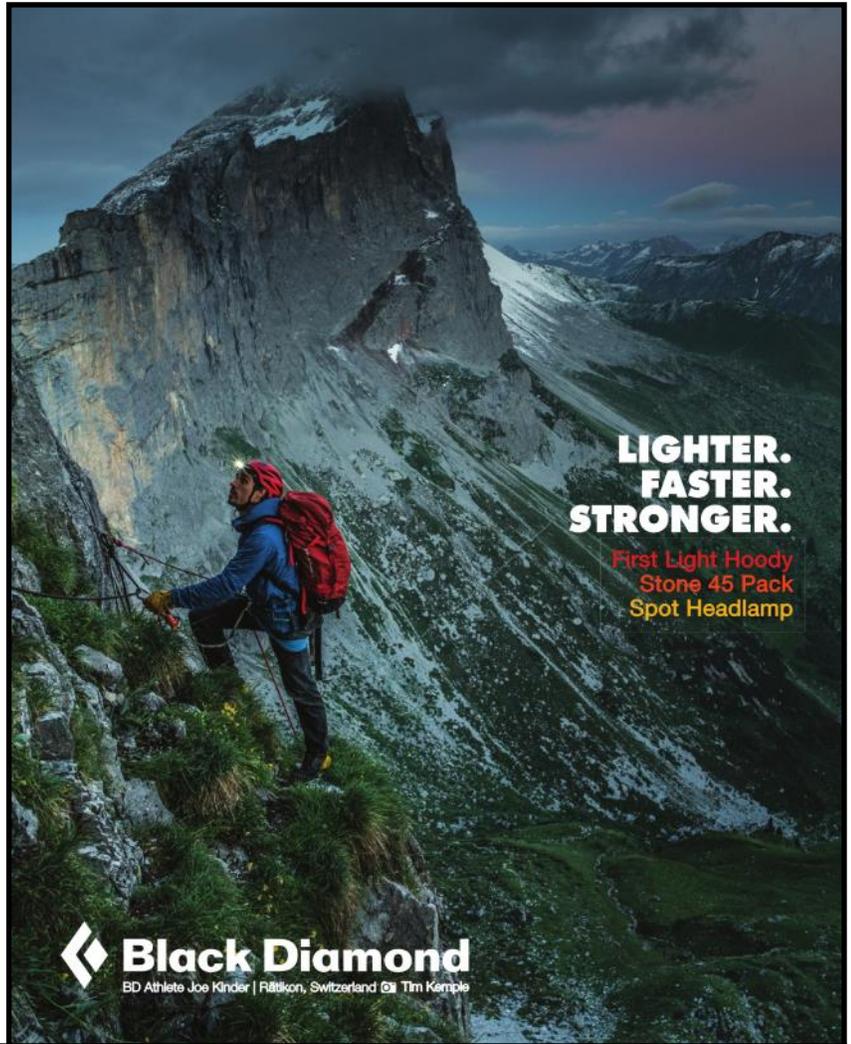
One of the benefits afforded to MRA members is the opportunity to grow – not just within the organization, but as a person. Currently, several national positions are available for someone with the appropriate level of interest, enthusiasm, skill, and/or desire. Yes that means *you*.

Corporate Sponsors

Rocky Henderson, longtime chair of the MRA fundraising committee, is looking for someone to take over representing the MRA at the Outdoor Retailers trade show. The trade show, which is huge and which Rocky used to great avail in lining up pro deals and sponsors for the MRA, used to be held in Salt Lake City, but is now held twice a year in the Denver area. To stay in touch with our sponsors and to continue to attract new sponsors, we are looking for someone – preferably from Colorado – to take over this important function. The two most important traits needed are professionalism and the ability to provide a consistent presence, year after year, to develop personal relationships. The heavy lifting has already been done, and we have an excellent foundation of high quality sponsors for you to build upon. If you're interested and would like to get involved, please send a note to President@MRA.org, and we'll provide you with all the information you need.

Fundraising

Jennifer Baldwin, after many years at the helm, is stepping down as our national fundraising chair, and we need a replacement. The fundraising chair is responsible for maintaining contact with our existing corporate sponsors regarding contact information, invoices, agreements, etc; attracting new sponsors; responding to inquiries from existing sponsors and potential new sponsors; and generally maintaining a positive working relationship with them. Maintaining those relationships generally involves attending the Outdoor Retailers trade show and spending some face time with them. If you're interested in working with our current sponsors and developing new ones, please send a note to jbaldwin14@gmail.com, and Jennifer will contact you.



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Tina Lutz, Tille Hodel and Roger Kellenberg return to Winter Park after a day of backcountry. Photo: Credit Manager



Molenaar Birthday Group at the Paradise Inn. Photo courtesy of Karen Molenaar.

Dee Molenaar and Family Celebrate 100th Year Birthday at Mount Rainier

By Rick Lorenz, Washington Region, Mountain Rescue Association

Dee Molenaar and his family celebrated his 100th Birthday on June 23, 2018, making the trip to Paradise Inn at Mount Rainier. The family appreciated the special escort provided by Park Rangers after they arrived at the Park and at the entrance to the Paradise Inn.

Dee was born in Los Angeles in 1918 and in 1938 extended his climbing horizon to the glaciated volcanoes of the Pacific Northwest, where he began many years of close association with Mount Rainier as a summit guide and park ranger. During World War II, Dee served as a photographer in the U.S. Coast Guard in the Aleutian Islands and Western Pacific, returning to the University of Washington (UW), to earn a bachelor's degree in geology. After the war Dee and his brother "K" started seasonal guiding at Mount Rainier. At the time, the guides were often college students on summer break. In July 1947 he was on the South Tahoma Glacier participating in the attempted recovery of the victims of the crash of a Marine Corps C-46 that killed 32 Marines the previous December.

Dee joined the National Park Service as a seasonal ranger at Mount Rainier in the summer of 1948. For two summers he lived with his wife "Lee" in a small cabin in the Paradise Campground, then located near the Paradise Inn. After graduation from the UW, Dee was hired as a permanent ranger in the summer of 1950 and lived with his wife on the upper floor of the "Old Station" during the winter of 1950-51. At that time the road was not plowed above Narada Falls, and they were the only winter residents of the Paradise Valley. They used snowshoes to get to Paradise, and after a heavy snow they had to climb down a ladder through an 8 ft. shaft to get access to the front door of the Station. During his four years with the National Park Service, Dee climbed and photographed widely in the Park, and worked closely with the "Whittaker Boys" when they began guiding operations in 1951 and 1952.

Dee later climbed peaks throughout the western United States, Alaska, Canada, the Alps, and the Himalayas, and has hiked in the Andes, New Zealand, and Antarctica. He participated in major expeditions to Mount St. Elias in Alaska in 1946 and in the ill-fated 1953 American expedition to K2. The team reached a high point of 25,450 ft, but they were trapped by a storm in their high camp after a team member was seriously injured. A desperate retreat down the mountain followed, during which all were nearly killed in a fall arrested by Seattle mountaineer Pete Schoening. The expedition has been widely praised for the courage shown by the climbers in their attempt to save a team member, and for the team spirit and the bonds of friendship it fostered.

Dee was also a key member of the Seattle Mountain Rescue Council, participating in and photographing its first mission in the Olympic Mountains in 1948. He was on the first major mountain rescue of the newly formed Mountain Rescue Association (MRA) in 1960 on Mount McKinley. He was with Jim Whittaker and Robert Kennedy for the first ascent of Mount Kennedy in the Yukon in 1965.

Dee authored the award-winning book *The Challenge of Rainier*, the definitive work published in 1971 by Mountaineers Books that is now in its ninth printing. Dee's pencil and ink sketches and maps of Mount Rainier appear in numerous mountaineering journals and magazines, and in guidebooks and autobiographies written by fellow mountaineers. His book, *Mountains Don't Care, But We Do!* was the first compilation of the early history of the MRA, published in 2009 in honor of the fiftieth anniversary of the Association. To watch the documentary film on the same topic, featuring interviews with Jim Whittaker and Dee, go to this link: <https://vimeo.com/27697321>

Dee has inspired generations of Americans to enjoy the great outdoors, and no individual has done more to record and celebrate the history of Mount Rainier.



Jim and Lou Whittaker with Dee at the family celebration in Ashford after the family trip to Paradise, June 23, 2018. Photo courtesy of Karen Molenaar.



Photo of Dee taken in 1951. Courtesy of the Molenaar Family Photo Archives.

Save the Date: SARGIS10

The NAPSG Foundation Search & Rescue (SAR) Working Group is pleased to announce our 10th Annual SAR and GIS Workshop! Join us for this annual opportunity that brings together professionals from diverse backgrounds, “so that others may live.”

What is SAR? Search and Rescue, with a focus on missing person search operations and wide area search post-disaster.

What is GIS? Geographic Information Systems – “data you can see on map.”

Target Audience

The primary audience will be SAR Personnel and GIS Specialists who are interested in Public Safety. We especially encourage National Park Service, FEMA USAR, and Mountain Rescue Association team members to join us for this **no-cost workshop!**

When: October 25 – 27, 2018

Where: West Valley College, Saratoga, CA (USNG – [10SEG87452481](#))

Learn more and register: <https://www.napsgfoundation.org/save-the-date-sargis10/>

[See the event proceedings from SARGIS9 here.](#)

To find out more about SARGIS and the SAR Working Group, use this interactive [Cascade Story Map](#).

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Do you know where to find the MRA?



<https://www.facebook.com/MountainRescueAssociation>



<http://twitter.com/MtRescueassoc>



<http://mtrescueassoc.blogspot.com>

Editor's Note

Ah, summertime: garden-fresh strawberries, mesquite barbecue, climbing mountains... driving through blizzardly weather conditions on the incredible Icefields Parkway of Banff and Jasper National Parks after the MRA spring conference....

I stepped into the role of Meridian editor at the conference this year, only to find myself staring down an impending deadline for the summer edition, and well, there's nothing like sharing the love – especial thanks to Art Fortini, Heather Zunino, John Nassar, Chris Van Tilburg, and Rick Lorenz for their prompt delivery of excellent articles on extremely short notice!

For those who don't know me: I joined the MRA in fall of 2013. I'm currently active on two teams, Southern Arizona Rescue Association and Eugene Mountain Rescue (my work involves frequent travel, and by now the TSA folks just sigh when I sling my rescue pack onto the airport scanner).

I am excited – and honestly a bit daunted – to take on this role, but especially after hearing the “war stories” so enthusiastically swapped around the bonfire in Nordegg until well past midnight, I know we have no shortage of lessons learned, knowledge gained, and tantalizing tales to share with one another. As I am quickly learning, the Meridian is shaped by you: the MRA members, affiliates, and supporters. These are your stories. And until we meet again, let this be our virtual bonfire.

I am extremely grateful that I am not alone in this task: MRA members Lois Grossman and Daniel Farrell have generously agreed to share editing responsibilities with me! Please don't hesitate to reach out to us at MeridianEditor@mra.org to discuss article ideas – whether it's something you might like to write or would just like to read in a future edition – or simply to get acquainted. We look forward to hearing from you!

Wishing everyone a safe summer season,

Shelley Littin

Meridian Editor



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Photo Gallery

Photo Contest!

Meridian editors and MRA officers will vote on a winner and honorable mentions, which will be featured in the Fall edition of the Meridian and on MRA social media. The only requirement for this first contest is that the photo must follow HIPAA restrictions where patients are concerned: subjects must not be personally identifiable by their faces or any other feature in the photo. Please submit your photos for consideration, including a caption and photographer name and team, to MeridianEditor@mra.org by October 1.



Ahlstrom Air Chief Pilot Kyle Wadden pointing out landmarks. Photo: Eva Sophia Shimanski



Ahlstrom Air Chief Pilot Kyle Wadden holding hover during Full Power Insertion training. Photo by Eva Sophia Shimanski



MRA Honor Guard. Photo by Wayne Howse.

Photo Gallery

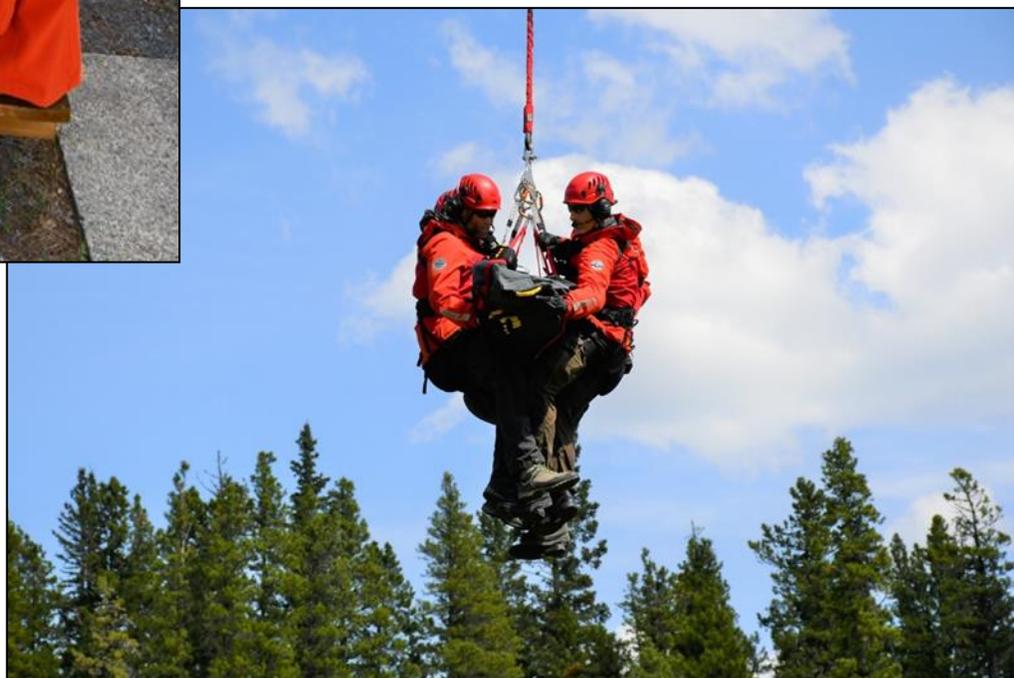


Technical systems training. Photo by Wayne Howse.



Sharing a meal and mission stories. Photo by Wayne Howse.

Human External Cargo (HEC) demonstration by Rocky SAR. Photo by Wayne Howse.



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