

Planning for Rescue in the Glacier Caves of Mount Rainier

- 
- Backcountry Zero: Reducing Fatalities*
 - June Conference Call for Speakers*
 - Air Rescue: Picking the Right Rescue Device*



MOUNTAIN
RESCUE
ASSOCIATION

Winter 2016

President's Message Winter 2016	4
MRA Coalition Supports International Mount Rainier Cave Study	5
2016 MRA Spring Conference	11
Exercise Associated Hyponatremia: A Case Report and Practical Aspects for Mountain Rescue	14
Backcountry Zero: A Community Wide Vision to Reduce Fatalities in the Jackson Hole Backcountry	15
Air Rescue: Picking the Right Rescue Device	16
ITRS 2015, Portland, Oregon, November 5-8, 2015	18
International Technical Rescue Symposium 2016	19
Rescuer Spotlight	20
2016 Winter Business Meeting Report	23
Photo Gallery	24
A Note From the Editor	25
MRA Store	26

Cover Photo: Ice cave below Mt. Rainier Summit. Photo by FX DeRuydts, 2015. <http://www.deruydtsphotography.com>.

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President's Message

Winter 2016

By Dave Clarke, MRA President

I'd like to take some time here to share with you an update on two of the MRA's programs that have been substantially improved in the last few years: Our mission statistics collection and our corporate sponsorship program. Although the MRA has been an all-volunteer organization from its inception, a few years ago our board recognized a recurring problem. We had great ideas and talent for moving the organization forward but most of us are simply too busy to devote the time required toward developing new initiatives. So, for key projects like these two, we are paying for some of the development and we've recruited dedicated volunteers to manage them.

Our mission statistics collection program has received a fantastic upgrade with the purchase of a license for each MRA team for the Arc GIS platform. It has many great capabilities that we are just beginning to realize. Just yesterday, I watched the latest webinar about this program. You can view this and many other informative [webinars](#) on our website. The short version is that our new statistics program brings mission information together with a host of maps and graphic tools to tell the story of the MRA's work. This information is available for team use for research, marketing, and fundraising. Of course, like our old system of reporting annual stats on a spreadsheet, this system still requires that someone from each team input the data. (If your team hasn't been reporting your stats you can contact [Monty Bell](#) to get started). Unlike the old system, the Arc GIS makes it much easier to enter data after (or even during) each mission. Further, your team can now retrieve data from the system and customize it for your needs and I think you'll agree that this is a great benefit of MRA membership. Thanks go to Monty Bell, of San Diego Mountain Rescue, our long-time Statistics Committee Chair, to Jon Pedder of Sierra Madre Mountain Rescue, and to Paul Doherty of the National Alliance for Public Safety GIS Foundation for their excellent work. Also, we all owe a big thank you to Linda Finco of China Lake MRU who tirelessly and generously managed our old stats program for many years.

The second program is our corporate sponsorship program aka, Fundraising. Several years ago past presidents, Charley Shimanski and Rocky Henderson recognized that the "MRA brand" was a valuable commodity and that many companies would love an opportunity to partner with us. The questions were: how to bring this about, and who would do the work? After much discussion, the board voted to fund the project and we hired Jennifer Baldwin of Portland Mountain Rescue to handle the logistics and correspondence. In Rocky's words, "The goal is to build a pipeline." It took some expense upfront but has paid off with a steady flow of income. Thanks go to Jennifer and Rocky who have been hard at work; you can see their results by looking at the list of sponsors on page 3 of this edition. Also, thanks to all MRA rescuers—your courage, compassion, and commitment create the value that these fine

companies want to be associated with.

An interesting connection between the two programs is that the marketing folks at our sponsors want to know more about the MRA in order to justify their participation. The Arc GIS program provides a terrific way to share our story. I will be learning, along with you, how to best utilize this tool to that end.

Of course, this talk of sponsorship dollars raises the excellent question: "What do we spend the money on?" Our board spends much of our two annual business meetings answering that question. At our February 7, 2016, winter business meeting, we will be hearing proposals for scholarships to send rescuers to MRA conferences, and establishing a workgroup to determine the future of our education program. In addition, there are routine expenses for any organization that must be covered. I encourage all interested members to attend a business meeting and help us address these issues. Together we will keep the MRA moving forward and help our member teams to provide the best possible service to those in need in the mountains.

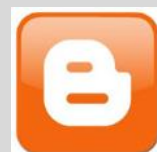
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MRA Coalition Supports International Mount Rainier Cave Study

By Eddy Cartaya, Deschutes and Portland Mountain Rescue Units, and law enforcement officer for the US Forest Service.

In August, 2015, an ambitious group of researchers conducted a thirteen day expedition into the summit cave systems of Mt. Rainier, in Washington state, to map the system, establish a SAR pre-plan for the caves, and to conduct microbiology and climatology research. They also hoped to establish an internal monitoring methodology to detect future eruptive or hydrothermal activity. Dr. Penelope Boston of New Mexico Institute of Mining and Technology, was the Principle Investigator for the study, specializing in Geomicrobiology, and extremophile organisms. Dr. Lee Florea of Ball State University led studies in geochemistry, and Dr. Andreas Pflitsch of Ruhr University, Germany, led the climatology, and air-flow studies. The expedition was partially funded by the Mountain Rescue Association (MRA), and supported by one of largest coalitions of MRA teams ever to be on the mountain at one time. The resulting expedition was the largest operational event to occur in the history of Mt. Rainier National Park.

Introduction

Mt. Rainier is an active volcano, soaring nearly three miles above sea level, and is actually considered the most dangerous volcano in the Cascade Range based on its eruptive and destructive lahar activity, proximity to population centers, and lack of early warning indicators. It may not look as active, as say, Mt. Hood, or Mt. Saint Helens, which have very visible and dramatic steam vents and sulfur plumes, but make no mistake, Mt. Rainier is alive and well.

Mt. Rainier has two overlapping craters, a West Crater and an East Crater. The East crater is the larger and more defined of the two, and is the one that south side climbers have to walk across to get to the true summit on the Columbia Crest. Both craters have ice caps filling them, which mask the very active nature of the volcano. A few bare spots here and there are visible in the summer, and a few wisps of steam can be seen oozing out of the bare soil near the summit, and out of the occasional fumarole cave. But under that ice cap, of unknown depth, lies a huge labyrinth of steam carved passages, hidden lakes, boiling point fumarole clusters, and areas flooded with lethal magmatic gases.

Mt. Rainier has what is known as a hydrothermal system under it. Simply, geothermal heat from magma deep inside melts the ice coating the mountain's surface. This water percolates down, is heated, and returns as steam, dissolving minerals and changing rock structure on its way back up. As such, the steam is often infused with magmatic gases, such as Carbon Dioxide, CO₂; Hydrogen Sulfide, H₂S; Sulfur Dioxide, SO₂, and others. This systemic process slowly transforms much of the lava rock rubble in the summit cone into a clayish type substance, which over time, gets satu-



Aid climbing to place ablation markers high on cave wall. Photo by Francois Xavier De Ruydts.

rated and collapses under its own weight, creating avalanches of mud, ice, and rock known as lahars. The process also creates a complex system of caves under the ice caps. Steam rises, so unlike water carved glacier caves, such as those on Mt. Hood, which trend downward, these caves trend upwards and radially, toward the crater rim, eventually creating openings along the rim of each crater. Wind blows through these openings, moving heat around in very complex and episodic patterns, driven by an as yet to be modeled combination of barometric differences; Bernoulli and chimney effect forces of outside winds blowing over and past openings, and micro-convective influences derived from the fumaroles deep inside the caves. The steam fumaroles themselves are episodic, sometimes dormant, and sometimes spewing steam and gases several meters high.

The Dark Side of the Moon

During the many planning meetings with Mt. Rainier staff, we were reminded that this was the biggest, and most ambitious expedition to take place in the history of the park. Iain Morris, of Portland

Mountain Rescue commented to me during a meeting that “you may as well be on the back side of the moon”, in terms of rescue planning. Both were right. In fact, when Boeing and the US Department of Defense picked Mt. Rainier’s summit for a [secret experiment in 1959](#) to simulate life on a lunar base, a report noted dryly: “It seems hardly necessary to look elsewhere on this earth for more severe environmental conditions.”

Summit conditions are unpredictable and brutal. Winds exceeding one hundred miles per hour are not uncommon. Rescues by helicopter from the summit are a big deal, and will only occur in optimal weather and visibility, neither of which are common traits of the summit. And, that’s for a SUMMIT rescue. Now add a CAVE rescue to that, and not just ANY cave, but a glacier ice cave, that moves, is full of volcanic vents, and has areas of unbreathable air, that likewise change location episodically. Having done and instructed both cave rescue and mountain rescue for many years, I can tell you cave rescue is the most arduous, unforgiving, and logistically and organizationally-challenging type of rescue there is. And, that’s for a cave you can drive to. An unexplored cave system, miles long, maze-like, buried hundreds of feet under the summit ice cap of Mt. Rainier, with the highest entrance just a bit below the summit, with areas of poison gas and hundreds of fumaroles that decide to sporadically spit steam or sulfur, at an elevation known to cause rampant altitude illness, is a new kind of crazy. If ever there were an area with a poor probability of rescue, it would be here. It’s not just the moon...it’s a cave buried under the dark side of the moon!

The Park Service administrators made it clear that the duty to extract any people with injuries from the cave was all on us. Once out of the caves, we would be assisted in getting down the mountain by Climbing Rangers IF the weather and conditions allowed. As expedition leader, I had to assume that we were our own rescuers. So, we brought the best of the best in the fields of cave rescue and alpine caving. The National Cave Rescue Commission (NCRC) specializes in teaching and planning for cave rescues, so we had several NCRC members with us, mostly instructors and national coordinators. The Mountain Rescue Association (MRA), specializes in mountain rescue, so we brought as many MRA members as possi-

ble, including our president, a long time veteran of all our glacier cave adventures. A few of us are involved in both arenas—a rare animal indeed, but very much needed.

Medically, we had to plan to deal with anything from altitude illness, trauma, burns, gas poisoning, cardiac events, frostbite, and drowning, with no dependency on outside help. To be able to respond, we had our own emergency room doctor, paramedic, and numerous EMT’s on staff. Our field hospital consisted of a Gamow bag, carbon fiber O2 tanks, trauma kits, IV’s, and a full run of altitude, trauma, and internal medicines.

We had to have the best and the lightest extrication and technical rescue gear available. There would be no helicopter to haul our gear to the summit, so every ounce was counted and budgeted. Our patient packaging set up was a hybrid of NCRC and MRA methods. A mini Sked was our litter. The new Ferno half board vacuum splint was for both immobilization and thermal insulation. The Ferno APLS Rigid bag was our mid packaging layer, along with a heat blanket, and a tarp to finish it out.

Ropes were all 8 or 9 mm, with an array of the new Petzl Laser Speed ice screws (super light), and Yates 24” angle pickets, at only 10 oz. each. A detailed plan for rigging was included in the Incident Action Plan, which would have to rely mostly on crevasse rescue type rigging, and counter balance hauls for long pulls. The gear used by each research member would be part of any given rescue system. When you travel light, your knowledge of rescue rigging has to be exceptional, so you can still engineer your safety factors with components much lighter than normally used. The rescue techniques and packaging represented a unique integration of NCRC and MRA methodologies...by necessity.

Hilleberg sponsored the expedition with their best tents, which weathered brutal 85 mph winds unscathed. Cracker Jack First Response Specialists provided rental for all medical, PPE, solar power, etc. A special, custom rigged power array was designed and built by Corvallis Mountain Rescue Unit’s Scott Linn. Industrial Scientific gave the expedition a special rental deal on three advanced atmospheric monitors, specially programed to target the hazards that we expected. As it turned out, those monitors saved several lives during the expedition!



Summit base camp on a NICE day! Photo by Francois Xavier De Ruydts.



Craig McClure, at the Cracker Jack Response warehouse with Dr. Peeples and Tom Gall, from PMR preparing the medical payload. Photo by Eddy Cartaya.

This was an EXPENSIVE expedition. It would not have happened without grant support. The National Geographic Expeditions Council granted us \$10,000.00 to support our logistics and medical needs. The Mazamas Research Grant Committee graciously gave us \$3500.00 to support our science data loggers. The MRA granted us \$1500.00 to obtain the state of the art survey units for cave surveying. These units are now marked and available for other MRA teams to sign out for either cave survey, or fall analysis work (post climber fatality investigations). Petzl granted us \$1500.00 for our power array and REI granted us \$1500.00 for food, fuel, and other supplies.

A Coalition of Effort and Teams

After fourteen months of planning, one thousand pages of proposals and permits, and thousands of hours of prep work, the expedition kicked off. As stated above, there was no helicopter involved, as the caves are deep within a federally designated Wilderness Area. In response, we recruited the heroic help of dozens of porters, whom we referred to as our Sherpas, in honor of the Nepalese mountaineers who support the Himalayan expeditions. Our Sherpas had to lay routes, ropes, anchors, climb technical routes with brutal weight, build camps, and then leave, without the luxury of staying or enjoying the comforts that the researchers would have at the summit.



Hilleberg Base Camp Tent with solar arrays. Photo by Eddy Cartaya.

Olympic Mountain Rescue's John Myers and Portland Mountain Rescue's Dave Clarke led our two waves of Sherpas. They climbed for days before and after the research team did their work at the summit. I think one of the most rewarding and special aspects of this entire project was the magnificent coalition of effort we had from so many teams. I am honored to mention them here, and make no mistake, the expedition would NOT have occurred without them!

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MRA Teams that assisted with the expedition:

- Corvallis Mountain Rescue (OR)
- Deschutes Mountain Rescue (OR)
- Everett Mountain Rescue (WA)
- Hood River Crag Rats (OR)
- Olympic Mountain Rescue (WA)
- Portland Mountain Rescue (OR)
- Volcano Rescue Team (WA)

Additionally, Douglas County Sheriff's Mountain Rescue Unit, from Oregon, participated in both the Sherpa effort as well as the expedition itself. This team has talent in both mountain and cave rescue. Also, International Mountain Guides very graciously carried up food and fuel for us on several days, to make up for the porter shortage we had mid-week.

One novel event occurred: Two of our survey teams, each going in opposite directions throughout the cave, pushed tighter and tighter leads, up hundreds of feet of UNDERGROUND elevation, until they eventually popped out less than 90 feet below the summit!! The Germans and I were just emerging on the crater rim from our own adventure when we ran into these teams, who were elated, saying it was the first time they had ever summited a mountain from underground!! That quickly became the new claim to fame, for those who completed the last few hundred feet of climbing to the summit...from UNDER the ice.

Benefits to Mountain SAR

Climbers reaching the summit in various conditions of exhaustion often seek shelter inside the fumarole caves. Sometimes the shelter is temporary, just enough to change layers, get out of the wind, eat, and regroup; and at other times to weather out an unexpected night on the summit. My first experience with the caves was the latter example, following a late winter climb to the summit via Gib Ledges in very deep snow, and arriving at the summit just before dark. During that long, cold night I explored the caves briefly and recognized the value that an organized study would bring to our understanding of glacier cave morphology, ecology, and climatology.



John Kaster (left), and Jared Smith (right) climbing under 70# packs. Photos by Francois Xavier De Ruydts.



Dave Clarke, MRA president, sorting gear at the Ingraham Flats camp. Photo by Francois Xavier De Ruydts.



Research team climbing upper Ingraham Glacier. Photo by Francois Xavier De Ruydts.



The author, Eddy Cartaya, checking gas monitors for signs of volcanic gases and oxygen levels. Photo by Francois Xavier De Ruydts.

Although this was primarily a science expedition, the single most important product that needed to be generated was a MAP. For scientific value, the map is the canvas upon which all scientific data is painted. It shows sample locations; data logger locations, wind flow data, and once all the science is crunched, the map will show trends and illustrate how each natural system in the cave interrelates with the others.

Take a moment to imagine a climber spending the night on the summit that goes down into the icy labyrinth looking for water, or warmth and never returns. Are they lost? What if they fall down a very steep, clay floored passage, are struck by a rock, or are overcome by gases or low oxygen? Maybe, they fell in a lake, got buried by an underground serac fall, or burned by a steam explosion.

The list of possibilities is long. These caves are not safe places. (Remember, our climber is in the crater of an active volcano, at 14,400 feet, with a billion tons of ice over their head...ice that moves!) By the time their overdue status is reported, the golden hour for acute medical care is shot to Hell.

How do you manage such a response? How do you run a search operation under the ice? Radios don't work. GPS doesn't work. You don't have a map, and even if you did, it's not like it has a UTM or Lat Long grid overlaid on it to call in your position. Where do search first? What are the attractants and hazards? Where do you stage gear and people? Where do you package? Will your gear even fit where the patient is? What entrance do you use, if and when you find the subject?


Imagine the cave entrance as the event horizon, and the cave as a black hole. You'll have a massive surface operation, and massive underground operation, and



Surveying in cave with a Disto Laser purchased with MRA Funds. John Punches of Douglas County Sheriff's Mountain Rescue Unit and the Training Officer for the National Cave Rescue Commission. Photo by Francois Xavier De Ruydts.

hopefully some kind of communication system linking the two. Typically that is done with a wired phone system designed for cave rescue. How do you run commo (communications) lines through the cave? From where, and then, to where?

A map is the single best resource to manage this mayhem. A good map will show all entrances, slopes, water, fumaroles, areas of bad air, flat spots to package a patient to set up a warming tent, areas to stage gear and people, and critical passage junctions that can be numbered as reference points, both for underground rescuers and as a common point to communicate to your ICP. A cave map for a pre-plan will be color coded with search zones, so as to help plan




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and manage a cave search, and generate proper POA's and POD's. The nature of the entrances are also listed, so when the patient IS found, search managers can decide which entrance is the best to use for the extraction method needed. It may NOT be the closest entrance.

A map of this system will be invaluable to any kind of operation in the cave. Remember, unless you spend nine days living on the summit like we did, you, as a responder, will not likely be very well acclimated to the elevation. You will be very tired and operating under the influence of altitude. Some of the symptoms of CO₂ poisoning almost exactly replicate altitude illness, and if you don't know you're standing in a pool of CO₂, you may try to power through it until you collapse...and die. Hopefully any responding agency will know enough to deploy ANYONE underground there with a volcanic gas monitor that reads O₂, CO₂, SO₂, and H₂S at a minimum! Having supplemental air would also be highly recommended.

Not having this map would be like searching for a lost hiker at 14,000 feet, in deep snow, at night, in a complex trail system with areas of lethal gas, with no radio, GPS, or map. Not much fun for a search manager, huh? How do these weigh in for your risk assessment?

The MRA recognized the value of a map of this high alpine cave system, for the reasons stated above. Many on the expedition are veterans of our other glacier cave expeditions into Mt. St Helens and Mt. Hood, and are also MRA members. The grant from the MRA helped to purchase two sets of innovative survey equipment that helped to create this awesome map. These special laser devices read distance, slope, and magnetic azimuth, as well as special blue tooth readers that allow surveyors to sketch details directly onto a screen as they go. Without this grant, and the devices, this map had no chance of being created. Sure, there are older ways to do a cave survey, but they are very slow and tedious. Hypothermia is always a specter in the caves, and folks are constantly exhausted from the arduous climb and the altitude, so these devices not only made it possible, but they made the work safer for our teammates.

Another benefit of measuring the geometry of the cave system is that ice is very reactive to changes in thermal activity. By measuring the output of the fumaroles with data loggers, and periodically measuring the cave's volume, we may be able to detect small changes in the volcano's thermal output, which may well be the only early warning indicator that things are heating up....pun intended. Such changes are not detectable from the surface or satellite. An increase in steam output, as indicated by the lake levels rising, or passage volume increasing, could help predict an edifice collapse or lahar, or possibly even a future eruption. This kind of in-cave volcano hazard monitoring is a fairly new concept, and can only be done by volumetric surveys and internal conditions monitoring.



Dr. Andreas Pflitch leads climate studies at Adelie Lake, the highest lake in North America... hundreds of feet below the summit ice cap! Photo by James Frystak.

What's Next?

The map of the East Crater cave is still in production and will feature nearly two miles of complex passage. It will be integrated into a detailed SAR pre-plan for the East Crater Cave, and feature many written details. Such pre-planning is one of the main functions for the National Cave Rescue Commission. The West Crater cave was not completed due to unexpected encounters with bad air. We will be returning in 2016 to complete this map with even more advanced techniques and safety measures. Our science team will also return to continue their studies. Rest assured, we will once again call upon the expertise and dedication of the Mountain Rescue Association to help carry this expedition through to success!



Raw survey overlaid on Google earth image of summit showing layout of East Crater Cave system. Cartography by David Riggs, expedition survey supervisor. Image courtesy Google Earth.

2016 Mountain Rescue Association National Spring Conference Hosted by Olympic Mountain Rescue

June 9-12 Red Lion Hotel Port Angeles, Washington



For registration information visit:

<http://mraconference2016.com/>

Early Registration Ends April 15

Call for Speakers Deadline March 1, 2016
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- Pacific Northwest Banquet & MRA Awards Ceremony -
- National SAR Memorial Service & Honor Guard Dedication Ceremony -
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Call for Speakers MRA National Conference June 9-12 2016

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The MRA National Conference is the largest annual gathering of mountain rescue professionals. The 2016 conference will feature instructional courses, technical field sessions, equipment demonstrations and social events that cater to all experience levels. From Search and Rescue professionals and incident commanders to first year members, all will have the opportunity to learn new skills and share their knowledge with peers.

Subject matter includes mountain rescue techniques and skills, search skills, incident command management, and pioneering technology discussing the future of mountain rescue. Attendees will include professionals, both paid and non-paid, all facets of search and rescue from throughout the United States and abroad. Attendees will represent many job functions and all will share a favorite pursuit: search and rescue.

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Speakers will be given a discounted registration fee for the 2016 MRA National Conference. Deadline for submission is March 1, 2016. Please provide the following information for program consideration to the Presenter coordinator: John Myers - MRAConference2016@gmail.com

2016 MRA Presenter Request Form

Presentation Title _____

Organization _____

Presenter(s) Name _____

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NATIONAL SPRING CONFERENCE
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Presentation Type ☐ Lecture ☐ Demonstration ☐ Field Session ☐ Panel

Length of Lecture ☐ 30 mins ☐ 45 mins ☐ 60 mins

Length of Field Session ☐ 2 hours ☐ 4 hours ☐ 8 hours ☐ Other

A/V Equipment Required ☐ Laptop ☐ Projector ☐ Speakers ☐ Wifi

Presenter Biography

Presentation Description

For a field session what logistical/equipment needs do you have?

Presenters will be given a discounted registration fee for the 2016 MRA National Conference. **Deadline for submission is March 1, 2016.** Please provide the following information above for program consideration or questions to the Presentation coordinator at MRAConference2016@gmail.com

Exercise Associated Hyponatremia: A Case Report and Practical Aspects for Mountain Rescue

By Don Slack, MD. Skagit and Bellingham Mt Rescue, Medical Advisor, North Cascades National Park.

In June of 2015, North Cascades National Park rangers responded to a report of a 32-year old male hiker with weakness and fainting. The patient had begun hiking mid-morning on a day when the high temperature for Marblemount, Washington was 91°F (the average high for late June is 75°F). During the hike, he reportedly drank 8-10 quarts of water and ate an unknown amount of food. He began to feel weak and then collapsed on the trail. He walked to a creek with assistance and was placed in the water to cool. He subsequently developed vomiting and seizures. On arrival, Rangers found him unresponsive, legs immersed in the creek and having frequent seizures. He was moved out of the water and given supplemental oxygen. A helicopter hoist evacuation was requested. At the time of the hoist, his oxygen saturation was critically low (SpO2 50%) with a fast pulse of 170. He continued to be unresponsive with intermittent seizures. An intraosseus (IO) line, similar to an IV but placed into bone, was established in flight and an anti-seizure medication (midazolam), was administered.

Upon arrival at the hospital, his seizure activity had stopped. He continued to be unresponsive, but his temperature, heart rate, blood pressure and blood oxygen saturations were normal. He was placed on ventilator support because of depressed mental status. Labs revealed a critically low serum sodium level of 116. A concentrated sodium solution was administered intravenously. On the first day in the hospital, he was removed from the ventilator. During his 3-day hospital stay he recovered to normal mental status.

This case of a young, previously healthy, male who exercised in a hot environment and drank a large quantity of water illustrates severe exercise associated hyponatremia (EAH). Hyponatremia is a state of low serum sodium. Serum is the liquid medium of blood without any cells. Hyponatremia occurs when serum sodium levels go below 135. EAH has been recognized as a condition that can occur in endurance athletes, military trainees and desert hikers. Acute hyponatremia causes swelling of the brain that can lead to the major manifestations of EAH: changes in mental status, seizures and death. Sodium levels are determined typically by kidney function and can be markedly decrease by excessive water intake. During sustained heavy exercise, there may be a hormonally-caused decrease in excretion of water by the kidneys. If this is accompanied by excessive water intake, especially with loss of sodium due to sweating, serum sodium can be dangerously decreased. Other factors that can contribute to hyponatremia include excessively low or high body mass, poor fitness and long duration of activity.

Drinking commercially available hydration fluids has not been shown to be protective against EAH. Although they contain sodium, hydration fluids are not sufficiently salty to prevent EAH due to excessive fluid intake. Current recommendations for prevention of EAH are to drink when thirsty. It also makes sense to be fit and to be acclimatized to exercise in a hot climate.

Early symptoms of EAH include weakness, dizziness, nausea, vomiting and headache. Severe cases involve confusion, unsteadiness (ataxia), seizures, coma and death. EAH is very difficult to distinguish from heat illness or, if it occurs at high altitude, from altitude sickness. EAH may progress after exercise is stopped due to absorption of water from the gut. It is not possible to definitely con-

firm or exclude EAH without measuring serum sodium. This capability is rare outside a hospital setting.

It is vital that rescue teams be aware of and consider EAH when they encounter a person with symptoms that could be due to EAH. If the symptoms occur in the setting of prolonged exertion and excessive or possibly excessive fluid intake, EAH should be considered likely. In a hot environment in which heat illness is also likely, treatment for both heat illness and EAH may be necessary. Patients should be protected from the hot environment. Unless the patient is alert and clearly thirsty, it may be wise to restrict fluid intake and to monitor urine output. Since EAH may be associated with hormonal changes that decrease urine output, fluids should be withheld until urine output is observed. If the patient is symptomatic and EAH is suspected, oral replacement of sodium may be useful if the patient can safely swallow. An example of a solution would be 3-4 bullion cubes in a half-cup (125cc), of water. This would be unlikely to harm a dehydrated patient and would help a patient with EAH.

If the body temperature is high or thought to be high in a patient with altered mental status or seizures, the patient likely has heat stroke. Urgent cooling, preferably by cold water immersion, is the treatment of choice. Heat stroke requires immediate treatment. Attention should be paid to patient safety, including airway protection. If EAH is suspected, Emergency Medical Services (EMS) personnel should be advised. EAH is not well known to most EMS providers. It may be useful to advise them tactfully, that IV fluids could be harmful. They should be encouraged to contact online medical direction prior to administering IV fluids.

EAH is a serious and potentially fatal complication of prolonged exercise associated with excessive water intake. For Mountain Rescue it is important first, to care for ourselves by hydrating to thirst and not forcing hydration as has been advocated by some in the past. Second, we need to keep EAH in mind when we encounter the "sick" patient in the backcountry, especially as an alternate cause of symptoms that might otherwise be considered linked to heat or altitude. It may be helpful to ask about the patient's recent water consumption; copious intake of fluids makes EAH more likely. Caution is necessary with oral hydration in the setting of possible EAH. If oral intake is safe, oral salt (sodium) supplementation may be useful. For a more detailed discussion of EAH, see the Wilderness Medical Society Practice Guidelines for Treatment of Exercise-Associated Hyponatremia 2014 Update.¹

Reference

1. Bennett BL, Hew-Butler T, Hoffman MD, Rogers IR, Rosner MH, Wilderness Medical S. Wilderness Medical Society practice guidelines for treatment of exercise-associated hyponatremia: 2014 update. Wilderness Environ Med. 2014;25 (4 Suppl): S30-42.

All medical articles for the Meridian are reviewed and endorsed by the MRA Medical Committee; however, this article is for general information only. The MedCom makes no representation regarding the medical or legal information provided, and the views expressed do not necessarily reflect those of the MRA.

As always, your suggestions and comments are encouraged—either directly to the author, to me, or via the ListServ to the MedCom.

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Backcountry Zero: A Community Wide Vision to Reduce Fatalities in the Jackson Hole Backcountry

By Stephanie Thomas, Executive Director, Teton County Search and Rescue Foundation, Jackson, Wyoming.

Back in 2012 as the Teton County Search and Rescue Foundation (TCSARF) was embarking on their first strategic planning session as the new supporting organization of the TCSAR volunteers; one member of the organization wrote on a brainstorming board “0 deaths in the Tetons”. The idea was thrown out there—was that the ultimate goal? Was that possible? And what would need to be done to make that happen? Fast forward to the fall of 2014 at the ICAR conference hosted in Lake Tahoe where Dale Atkins of RECCO spoke about the Swedish project, Vision Zero, and the impact it has had on vehicular fatalities in Sweden (greatly reducing them) and challenged the mountain community to see what we could do with this idea.

As the Executive Director of TCSARF it is my job and the mission of my organization to support the TCSAR volunteers through direct support, community education and advocacy. We do this in a number of ways, from purchasing equipment, providing meals at trainings and even building a facility for training and gear storage. We also host classes for the community, work with local government to ensure proper funding and work with community partners on outreach projects. It's a well supported organization with a budget of around a half million dollars. But our numbers of rescues and fatalities have stayed steady if not increased since the inception of our organization in 1993. In order to truly support the volunteers, we needed the community's input and participation to lower the number of “close calls” and tragedies our team responds to 24/7.

Backcountry Zero is a four-season, cross sport community led program that was created to inspire, educate and foster leadership in order to heighten awareness for safer practices in the backcountry. With the help of the Jenny Lake Rangers in Grand Teton National Park, TCSAR volunteers and TCSARF board members, the framework of Backcountry Zero aims to cultivate a culture among user groups with a common language that guides enhanced decision-making and travel in the backcountry.

Backcountry Zero officially launched November 7, 2015 with the first annual Wyoming Snow and Avalanche Workshop (WYSAW). With support from the Wyoming Travel and Tourism Board and Rocky Mountain Bank, this year's theme was “A Conversation About Risk”, inspired by the launch of Backcountry Zero. With keynote speaker Grant Statham, a panel discussion led by Drew Hardesty and numerous other world class speakers, this 1st annual event drew a sold out crowd to the Center for the Arts on an off-season day in Jackson, WY. The feedback from the event was in-

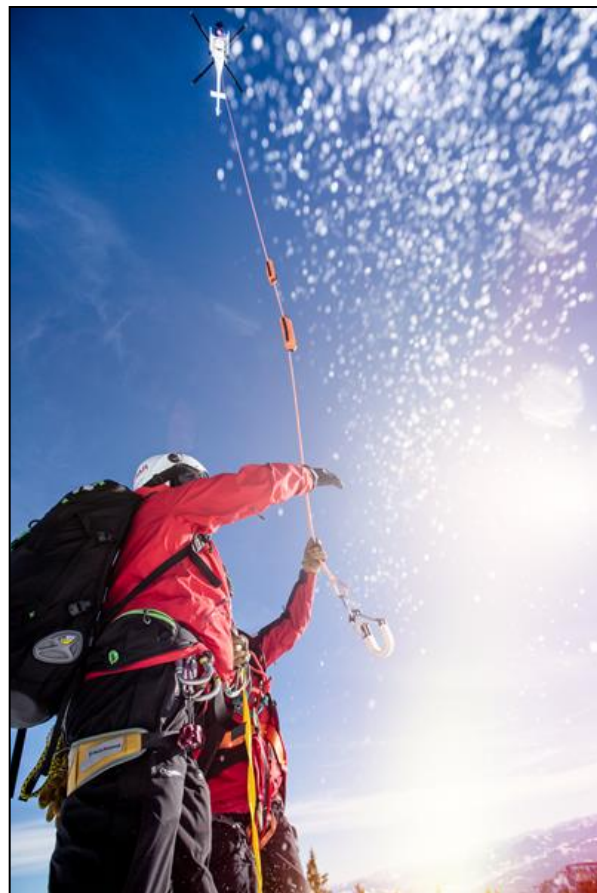


Photo by Andy Bardon.

spiring, motivating and created a sense that Backcountry Zero was exactly what our community had been looking for after years of tragic deaths that have affected our community in huge ways.

Backcountry Zero is a grassroots four-season approach to reducing fatalities. We need to create a conversation that speaks to the whole community. Focusing on a specific sport isn't possible when we have dedicated community members that do everything from ski mountaineering to fishing, to mountain biking. If you are a beacon-wearing backcountry skier, you'd better be a PFD-wearing angler or we haven't helped create the culture shift we are looking for. Backcountry Zero and the TCSARF is happy to host classes, create events like WYSAW and continue to release inspiring PSA's and videos to help make a difference. But, we believe the real difference comes when Backcountry Zero comes up at dinner parties, at the grocery store or the night before you plan a big backcountry adventure. It's about the conversations we all are having with our peers that really makes an impact on our community and the success of this program. We are here to help support those conversations by providing funding, program space and resources but we're looking to the Jackson Hole community to create the systems that affect their peer groups, family and friends. It's that part of the program that will have the biggest impact.

To learn more about the Backcountry Zero program and see some of the progress we've made, please like us on Facebook or visit us at www.backcountryzero.com

Air Rescue: Picking the Right Rescue Device

By Casey Ping, the ICAR Air Rescue Commission delegate from the US.

The rescue strop was developed for extricating victims from the water. The earliest versions were designed for uninjured military aviation personnel who were trained in its use.

Over the years the number of civilian agencies performing helicopter rescue has grown dramatically. Additionally, the victims these teams are rescuing are from a cross-section of society. They include young, old, physically fit, and obese. These devices are frequently used in different environments including land rescue. Some land rescue situations are time sensitive because of the situation the victim is in (cliffs, trees etc.). This could be a very appropriate application of the device. We also see use of the rescue strop when other rescue devices may be more appropriate.

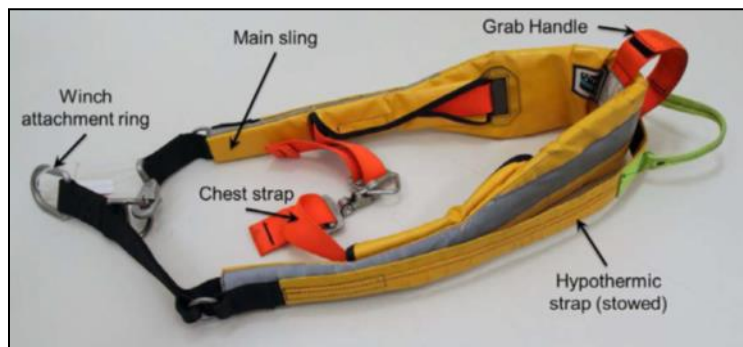
There have been and continue to be incidents and accidents involving these devices. Rescue strops and cinch collars offer an expedient method to extricate a patient from a hazardous environment. They are ideally used when the environmental conditions require rapid extraction and are the most immediate factor in victim survival. However, there are factors that may lead to fatal outcomes in using a rescue strop.

In 2013, a patient was fatally injured after falling from a rescue strop during a hoist operation in Australia. The 65-year-old male victim (138 KG with significant underlying medical condition) injured his ankle during a hunting trip. Due to difficult terrain and patient size a hoist rescue was requested. The helicopter crew had two rescue options: litter or rescue strop. Because of overhead obstacles the helicopter crew felt the litter was not a viable option. They elected to proceed with extrication via the rescue strop attended by rescuer. The hoist extrication appeared normal but as the hoist continued the victim's level of consciousness decreased. As the rescuer and victim approached the aircraft the rescuer tried to communicate with the victim, ordering him to keep his arms down. As the victim approached the aircraft the hoist operator indicated that the victim appeared limp. The hoist operator and rescuer attempted to pin the victim against the skid to keep him from slipping further. They also attempted to hold on to the patient but approximately 70 seconds after the hoist commenced the victim slipped out of the rescue strop and fell to the ground sustaining fatal injuries.

There has been some clinical research done on the physiologic effect of rescue strops or cinch collars on patients, (F St C Golden 1997, Haagensen 1998, Kempema 2011, Murphy 1998). All of these clinical studies confirm the physiologic effects of lifting patients vertically with a device that is designed to fit around the back and under the arms of the patient. These devices result in significant decreases in lung capacity and increases in heart rate and respiratory rates. One study (Madsen et al 1998) was initiated after a soldier was left suspended for 6 minutes and subsequently died.



Rescue Strops manufactured by Life Support International (above) and Safety Equipment Technical Services Pty Ltd (below).



Common to all studies was the use of healthy adults. It is safe to assume that these effects would be compounded when the patient has underlying medical conditions, is elderly, obese or hypothermic.

Many rescue organizations utilize a double lift on hypothermic patients. This allows the patient to assume a more horizontal position and reduces chest constriction and ventilatory compromise.

Rescue strops are designed for adult patients. They do not adequately secure children (depending on size).

Based on these events and information it is recommended that organizations review:

Training

Rescue personnel should:

- Be involved in a structured initial and recurrent training program for the procedures and equipment to be used by the organization.
- Be familiar with the physiologic effects of rescue strop type devices.
- Be properly trained in the selection of the correct rescue device for the patient and circumstances.



Double Lift Technique with two rescue strops. Image from <http://www.airborne-sys.com/pages/view/helicopter-rescue-strops>.

Equipment

Ideally, helicopter crews/rescue personnel should have multiple rescue devices available to them. This will allow them to choose the best device for the patient's condition. A rescue triangle or screamer suit may be a better choice for the patient where a litter is not required or appropriate AND the patient is not in a high risk environment. A good combination is a litter, rescue triangle/screamer suit and rescue strop.

Rescue strops should be equipped with a crotch strap. The crotch strap is a last line of safety that will prevent the patient from sliding out of the rescue strop.

Procedures

Mission Briefing

All participants should be included in the mission briefing whenever possible. The mission brief should include at a minimum: risk/benefit, hazard identification, obstacle awareness, operational plan (changes to the plan should be communicated as soon as possible), and the emergency plan of action.

Mission

Communication systems should be in place to allow air to ground, ground to air and allow the rescuer to communicate with the aircraft. Lack of communication is a common theme in helicopter rescue incidents. There should be a set of standardized hand signals for when radio communications are lost or not possible.

Rescue equipment selection for the patient/victim dependent upon presentation and condition. If a rescue strop is chosen, it should:

- Be appropriate for the patient/victim being rescued.
- Include a crotch strap whenever possible.
- Be attended by a qualified rescuer.
- Aircrew should minimize time the patient is in the device.
- If patient is at high risk of physiologic effects or hypothermic, consider the use of double strops.

The rescue strop is a valuable and lifesaving piece of equipment for those patients/victims that find themselves in high risk situations. It does have significant physiologic effects that must be considered but rescue personnel can reduce the impact of these effects through education and by modifying their procedures.



Lifesaving Systems Helicopter Rescue Quick Strop.

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ITRS

International
Tech Rescue
Symposium

ITRS 2015, Portland, Oregon, November 5-8, 2015

Review by Tom Gall, Portland Mountain Rescue, OR.

The International Technical Rescue Symposium (ITRS) was held in Portland, Oregon this year and this was my first opportunity to attend and be amazed. CMC Rescue, www.cmcrescue.com, and Pigeon Mountain Industries (PMI), www.pmirope.com, have sponsored this symposium since 1984. CMC and PMI (a partnership of competitors) have sponsored ITRS for years, doing an amazing amount of work to bring renowned presenters together to benefit all of us. The symposium has a limited number of attendees each year (180 this year) to better allow interactions and discussion among participants. This strategy was successful as there were many animated discussions taking place, many including wild hand gestures and body positions to illustrate concepts. These discussions were seen taking place in hallways, elevators, bathrooms, over lunch and in the pub. Some even occurred during the primary sponsor's (CMC and PMI) hospitality evening before the symposium even started! Now most MRA members are people of action and love to see and participate in demonstrations or get grubby out in the field; I'm certainly that way. The thought of sitting and listening to research papers being presented for three days didn't seem too exciting—someone mentioned, "Death by PowerPoint." However, the mind needs exercise too. I came away amazed at the amount of work, creative thinking and time spent by the presenters to test and analyze their particular theory or concept "with the goal of making us safer and more efficient at saving lives" (ITRS website). At the end, my brain needed a rest.

There were twenty papers presented with much to stimulate the mind. Many did have PowerPoint presentations with the obligatory bar graph. Someone also said, "You can't have a PowerPoint without a bar graph." There were some photos and videos as well; it's always fun to see destructive failure tests, especially in slo-mo video. Lots of gear was injured or died while making these movies.

Saturday evening was capped by a banquet with guest speaker Sgt. Robert Coates, SAR Technician and Instructor at the Canadian Forces School of Search and Rescue, in Comox, BC. He brought stimulating stories and photos of his career in SAR. His wife Tanya, a Canadian Forces C-130 pilot, was there. She flies them and he jumps out of them.

At the conclusion of two and a half days of presentations attendees were asked to vote for *Best of Show* in various categories. Here are the results:

Most Practical Presentation

Information that the rescuer can take home and put to use immediately to improve capability: "A Review of Webbing Anchor Research" presented by Tom Evans and Sarah Truebe, from SAR3 (aka "SARCubed" or SARRR).

Best New Research

Original research or testing that is well documented and relates to technical rescue on a practical level, and has good scientific procedure: "What if Trees had Ratings in kN? Tree Anchor Ratings Based on Wind Loading" presented by John Mor-

ton, from Snohomish County SAR, Everett Mountain Rescue. (Also awarded Best Overall Presentation—for receiving the most votes in all categories.)

Most Enjoyable Presentation

Entertaining and relevant, Power-Point or high-tech A/V not required: "Search and Rescue in the Middle East" presented by Majid Saberzadeh, Santa Clara County Sheriff's Office SAR, and a member of Yosemite SAR (YOSAR).

Most Thought Provoking Presentation

Generates discussion or questions, will be a topic for team discussion, makes you question one of your systems or procedures: "Rescue Tripod Instability" presented by Richard Delaney, from Australian Rope Access Association, RopeLab.

Best Paper Provided

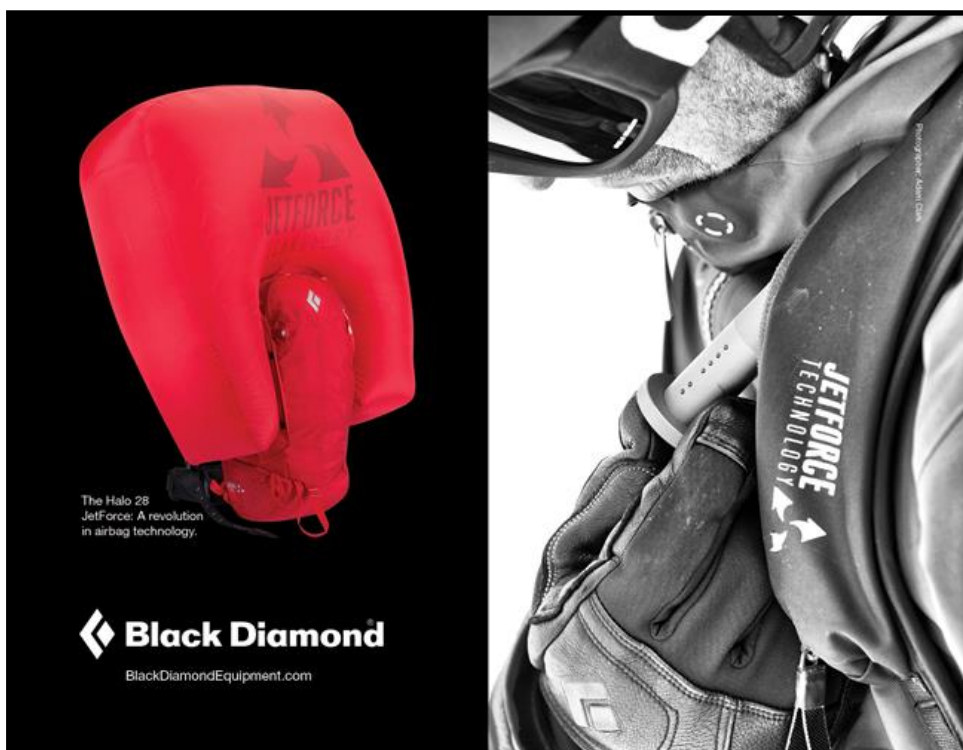
Based on the format, readability and content of the actual written paper, a paper most likely to be used for future reference, that you might distribute to your team or use for training, a paper you might use in the field: "The Sharp End of Edge Testing" presented by Mike Forbes, from RopeCraft.

The sold-out symposium did give much food for thought while the opportunity to interact with the most critical thinkers in the field was inspiring. If you've ever questioned "Why?" or "What would happen if...?" then you'll like the modus operandi of ITRS: "Do try this at home!" and do your own testing under safe and controlled conditions.

Our unit has training on Mt. Hood tomorrow—hmmm, wonder what I can rip up? Onward!



Author, Tom Gall. Photo by Laurie Clarke.



ITRS

International Technical Rescue Symposium

Call for papers

The International Technical Rescue Symposium (ITRS) is soliciting presentation proposals for the Program. Persons gather from across the spectrum of rescue disciplines to share news and views on advances in equipment and techniques, technical problems and issues of moral concern. This event is of interest to technical rigging and rescue professionals from all walks.

The Symposium

The Technical Rescue Symposium brings together a wide variety of people involved in rescue, including those in mountain rescue, law enforcement, military, park service, water rescue, outdoor recreation, fire service and rescue squads, along with equipment manufacturers and distributors.

ITRS is jointly sponsored by the Mountain Rescue Association, Fire-Rescue Magazine, the National Association for Search & Rescue, Society of Professional Rope Access Technicians and the National Cave Rescue Commission of the National Speleological Society.

From Theoretical Presentations—to those with Practical Applications

- Controversial Issues
- New Equipment
- New Developments in Gear Technology
- Research and Testing Results
- Technique and Systems Discussions
- Medical Considerations in Rescue
- Analysis of High Angle Accidents
- Development in Helicopter Rescue
- Equipment Standards

ITRS Presentations Proposals

Presentation proposals may be made by submitting a one-page abstract and a one-paragraph presenter bio by August 17th to:

ITRS Program Coordinator
c/o PMI Denver
3850 York Street
Denver CO 80205 303-800-1708 ext. 41
Email: itrsprogram@pmirope.com

A presenter agreement will be provided on request. Final Proceedings papers (2-8 pages) will be due by October 5th.

ITRS Presentation Awards

To encourage and reward excellence in presentation, the co-hosts have inaugurated a "presenter award" program. The program is looking to award and acknowledge presentations which reflect experience in: facts and data (rather than opinion or conclusion); choice of topic (applicable to field work); and state of the art technical rescue. After the final presentation, the attendees will vote

on the presentations based on seven categories; one award going to each category. Each winner will receive a \$200 honorarium.

Limited Enrollment:

In order to encourage the informal free flow of information involving all participants, enrollment has been limited to 150 persons. If necessary, a waiting list will be constructed.

For more information on ITRS, visit www.itrsonline.org

International Technical Rescue Symposium 2016

Thursday, November 03, 2016 6:00 PM -

Sunday, November 06, 2016 2:00 PM (Mountain Time)

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[Map and Directions](#)

Contact Information

Phone: 706-764-1437 ext. 234

Email: scox@pmirope.com

Thursday	
Check-In and Informal Meet and Greet:	6:00-10:00 PM
Friday	
Presentations Begin at:	8:30 AM
Saturday	
Presentations Begin at:	8:30 AM
Sunday	
Presentations Between:	8:30 AM - 12:00 PM
ASTM F32 Committee Meeting:	2:00 PM - 5:30 PM
Monday	
ASTM	8:00 AM - 1:00 PM

Rescuer Spotlight

An Interview with Loui McCurley, long time member of Alpine Rescue Team in Evergreen, Colorado; CEO of PMI, which is a long time supporter and sponsor of the MRA. PMI provides the infrastructure and personnel for the MRA's successful Webinar training series.

To suggest someone for an interview, submit his or her name to [Meridian Editor](#).

Can you tell me what it was that attracted you to mountain rescue, in the first place?

I fell off a cliff!!

When I was a teenager, I was out hiking in the Colorado Rockies with several friends, and decided to take a "shortcut". It happened to be mid-January, and I happened to be wearing cowboy boots, my footwear of choice in those days.

My shortcut was definitely a quicker route back to the car, but the last great hurdle was a 40-foot cliff—which I tried (unsuccessfully) to downclimb. I tumbled and bounced my way down the near-vertical rock face, eventually landing just a short distance from the car.

I may have lost consciousness for a moment, but the next thing I remember is seeing swirling clouds above the treetops, and thinking I was dead because I couldn't breathe. In a few moments I got my wind back and even managed to get up, brush myself off, and



The author, Loui McCurley. Photo by Bob McCurley.

by the time my hiking companions arrived I was leaning against the car trying (unsuccessfully) to appear nonchalant.

Because it was a tumbling fall I was not badly injured. My hands and arms and legs were scraped up pretty badly, and my ego was badly bruised...but I never forgot the experience.

I was fired from my job because my hands were scraped up, and that left me with a good bit of extra time. Soon thereafter, I was given an opportunity to join Alpine Rescue Team. I figured that it was Providence telling me that it was time to give a little something back.

I took to mountain rescue like a fish to water. I loved the physicality of it, the excuse to be out working hard in the Colorado mountains, and I especially loved the rigging. Alpine Rescue Team was (and is) one of the busier backcountry teams in the country, and the training requirements are stringent, so I got a lot of practice. Ropes and systems fascinated me. I found that I had a pretty natural "seat of the pants" sort of ability to analyze the strengths and weaknesses of systems, and I wasn't afraid to ask, "Why?" or to try different things. I also had a knack for being able to make somewhat complicated concepts make sense to others, so I enjoyed teaching.

What do you wish you had known when you started, that you know now?

That the most important things in life are the amazing people you will get to know along the way.

Early in my rescue career I was intrigued by the assortment of gear we were using for rescue back then (laid ropes, homemade

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Photo: © Eric S. Thompson Photography
Loui McCurley and crew on Elk, Kearsage, and Silliman, Hokkaido, Japan.

braking devices, recreational climbing gear), and I was dismayed at the lack of information available relative to the manner in which we were using it.

I became obsessed with knowing, understanding, learning about the systems and equipment we use. Floor clerks in climbing shops got to know me well, and would quickly find someone else to help when they saw me coming, because I would ask SO many questions! I used truck winches to break things, I “drop tested” things by throwing weights off bridges, I spent as much time as possible picking the brains of people who were smarter and more experienced than me, and I began learning about other specialty areas of technical rescue (caving, fire-rescue, confined-space, etc.).

As I devoured information, I also got to know SO many amazing people whose lives are committed to search and rescue and safety at height!

Search and rescue is filled with some amazing human beings, and I am humbled and thankful for the many friends and acquaintances all across the country—and indeed the world—who I have encountered along this journey. I am inspired by the incredible opportunity we have as humans to have positive impact in one another’s lives, and the incredible passion of the people in rescue. The stuff God puts in our lives is put there not for us to wallow in or to hang on the wall and admire, but for us to use to facilitate something bigger, particularly in the lives of others. We don’t always know why certain things happen in our lives, but that’s okay. Our job is really just to do the best we can with whatever comes our way, and to do the best we can for others.

Can you tell us a bit about what you do when you are not on a mission, or training for one?

Well, I am blessed to be a wife and a mom and a grandma and a daughter, so family is an important part of my life. My husband and I are “empty nesters” and he is also part of Alpine Rescue Team, so that helps us to be able to spend more time together.

My husband is also a pastor, and a few years ago we planted a church in a small town in Colorado. In addition to spending time with my family, when I am not working with PMI or Alpine Rescue Team I am spending as much time as possible with the people in our fellowship. Being a pastor’s wife is one of the most awesome things I have had opportunity to do in my life. It has really opened my eyes to priorities beyond the illusion of urgency in our everyday lives. More than ever, I finally am beginning to understand the importance of engaging with people over the stuff that’s really important in life.

In addition, I confess to still being a bit ‘driven’ by the technical aspects of equipment and rigging. As CEO of Pigeon Mountain Industries (PMI), even when I am not on a mission myself I am constantly reminded of those who are. In fact, a lot of my co-workers at PMI are also SAR people, which gives the company a great perspective and a special passion for what we do. I feel fortunate to be in a profession where I can serve the search and rescue field that I value so highly.

Oh, and I enjoy writing. I have written numerous articles over the years, as well as contributing to several editions of the books High

Angle Rescue Techniques (Hudson/Vines) and Wilderness Medicine (Auerbach) and recently I was invited to contribute to a book called Fall Protection and Prevention (Hongwei Hsao) by a PhD at NIOSH, which will be published later this year. In 2013, I released a book of my own, Falls From Height: A Guide to Rescue Planning, and will release another later this year called Professional Rope Access: A Guide to Working Safely at Height.

Five years from now, what do you want to have accomplished or contributed to the MRA?

Knowledge and understanding are key for me. I am an analytical person, and I like to ask WHY? I believe that we should do what we do from a place of informed, intentional commitment. Our actions and decisions need to make sense, and to make that happen people deserve to be supplied with facts. I believe that people should be armed with information, and given an opportunity to understand something before they invest their time, money, and energy in it.

Once I was exposed to rescue outside my own limited world at Alpine, I was struck by the differences in rigging philosophies, and just how many “right” ways there were to execute a technical rescue. If I can contribute anything at all to the MRA, or to the world of technical rescue in general, I’d like for it to be that understanding.

Everyone has different strengths and gifts, and most people are motivated toward excellence. Given the opportunity, most people will take a concept and improve upon it if you only give them the chance. So, I’d like to keep finding more ways to promulgate the dissemination of information and collaboration. That’s why helping



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to put on the Technical Rescue Symposium has always been so important to me, PMI supports a great deal of research and testing, and it's why I've contributed to various articles and books over the years. It is my deep hope that by learning and understanding more, the tendency toward a dogmatic, local approach to rescue methods will decrease and MRA members will be motivated to embrace differences.

Can you share a story about an event that involved you and the MRA that was a game changer for you?

I was fortunate early in my time at Alpine to be able to visit other MRA teams, and to be exposed to different ways of doing things. A few years after I joined Alpine, I spent a year traveling around the world, visiting rescue programs in places like Europe, Asia, Australia, and New Zealand. A high point of the trip was visiting Hamish MacInnes, in Scotland. Over a cup of tea we chatted about the difference between the testing mandated by equipment standards versus what field practitioners really need to know. This especially struck a chord with me.

Kevlar was a new thing in life safety ropes then, and we were discussing that people who should know better were putting Kevlar ropes into service simply on the virtue of their vast strength—without any consideration to their self-destructive action during bending, or to the lack of force absorption.

Here, a light bulb came on for me. They weren't doing it because they were trying to do something dangerous, they were doing it because of a disconnect between the requirements in the standards and what was important in the real world. I was filled with a need to understand our equipment and systems even more, and I resolved to make it my mission to learn as much information as possible and to do all I could to facilitate the sharing of information between people whenever it was within my power to do so, so that we could all make more INFORMED decisions.

I came back to the States and helped found Alpine Center for Rescue Studies, a non-profit research and testing organization whose mission was to perform fee-based research and testing on behalf of for-profit organizations, and to use the revenue to pay for free testing for non-profit organizations and rescuers.

One of the contracts that I secured in my work with Alpine Center for Rescue Studies was as a standards consultant for PMI. The rest, as they say, is history—I found a kindred soul in Steve Hudson; our priorities and outlook were similar, our strengths complemented one another, and we worked exceptionally well together. He hired me to work for PMI, where I work to this day.

As for the old research and testing lab, Alpine Center for Rescue Studies has closed its doors, but I still love ropes and rigging and spend whatever time I can doing it. I am still an active member of Alpine Rescue Team, I am a certified Rope Access Technician, and I still spend as

much time as possible with my husband Bob in the Colorado Rockies—NOT falling off cliffs!!

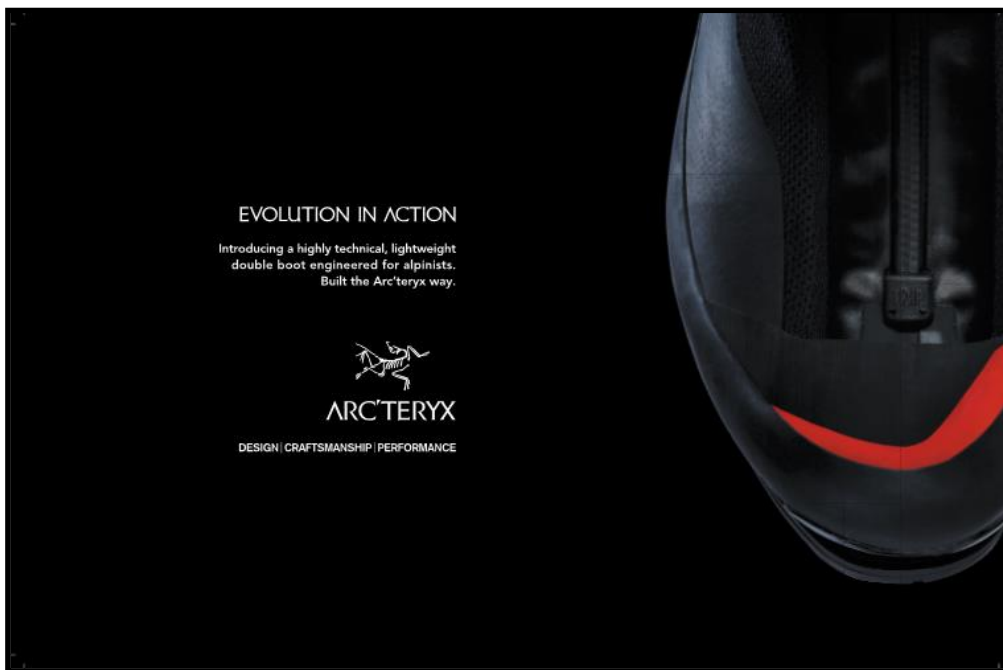
Of all the SAR missions you have been on, what one mission taught you the most?

Every mission is a learning experience, whether for the technical aspects or the human aspects. One that stands out took place back in the early 1990's. It was a search for a lost hunter in a remote part of Colorado, not in our normal response area. I was a young mission leader, with a lot to learn, and caught in that awkward place of not just wanting to do things right, but also wanting to be sure not to do anything really stupid in the eyes of my peers. Multiple times I "squished" "hunches" that I had, deferring instead to the more experienced rescuers in our midst.

We searched for multiple days with very little in the way of clues, and ultimately the search was suspended, without finding the subject.

Many, many years later someone inadvertently found the subject in an area that I believe would likely have been better covered had I been stronger in asserting my views.

Search and Rescue is as much Art as it is Science; the "science" part can be studied and taught, but nothing but experience can grow one's artistic talent in this area. The aforementioned mission is not the last time I have been part of a mission whose outcome was delayed as a direct result of the tendency to focus solely on facts, figures, and scientific assumption without including an appropriate dousing of art.



2016 Winter Business Meeting Report

By Dave Clarke, MRA President

Our 2016 winter business meeting was held in West Valley City, Utah, on February 5-7. We had a record attendance with 55 attendees, 30 voting delegates and 18 teams voting by Proxy. In order to meet the Meridian deadline this is a quick recap of the major discussion and decision points. On Tuesday Feb. 16, we will host a webinar that recaps the meeting in greater detail. Look for an email soon with registration details. You can also see the [Draft Meeting Minutes](#) online.

Rocky Henderson, our Fundraising Chair, kicked off the discussion with a recap of the MRA's vision and mission and challenged the group to find ways to put our funds to work to affect that mission. Saturday morning consisted of reports and discussion on our new conference scholarship program, our statistics collection, a report on our newly purchased insurance, and a proposal for a professional quality video highlighting the MRA. The afternoon consisted of four breakout sessions to develop plans for the high priority "strategic initiatives" identified in last year's strategic planning process. Those are, training and education, safety, internal marketing, and conference and meeting support. Those plans will be fleshed out and implemented in the coming weeks. Several of the initiatives require significant funding and that set the stage for discussion Saturday evening in the hospitality suite regarding funding motions to be made during the business meeting on Sunday.

Sunday is the official business meeting where motions are made and votes are cast. We began with a moment of silence to honor our founders Dick Pooley and Wolf Bauer and other fallen MRA members. One of the first orders of business was to vote Douglas County (NV) SAR in as a "regular member" having recently passed their accreditations, congratulations to them. After some routine business we began to craft this year's budget, specifically, deciding what to add to the basic maintenance items. After lengthy discussion, here is a list of the major items that got funded:

- Up to \$7,000 to upgrade our website, fix existing problems, and to find a new host.
- Conference scholarships: each region was budgeted \$1,000 plus \$50 for each dues paying team in their region to be used to encourage new attendance at our conference and business meetings.
- Up to \$10,000 to modernize our online training and education program.
- Up to \$15,000 to produce a professional quality video promoting the MRA that can be used by all of our teams.
- Up to \$3,000 for a representative from the MRA to aid and support our conference host teams.
- Increase the ICAR budget from \$7,000 to \$10,000 to support alternate delegate attendance.

The final budget ended up \$15,000 in the red for the year. However there was strong consensus among the Board that the approved items represented a good investment in our future and in fulfilling our mission. Thus, they are a good use of our savings from previous years. In spite of this year's deficit spending we still remain in a healthy financial position with plenty of reserves.

The meeting adjourned with a sense of accomplishment but also with an awareness that we have much important work to do to ensure that our association continues to meet your needs as we all strive to improve service to those in need in the mountains.

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Photo Gallery



One of the ice caves under the summit of Mt Rainier, 2015. Photo by FX DeRuydts.

A Note From the Editor—

We lost two friends in the past few months that were there at the very beginning of the MRA: Dick Pooley and Wolf Bauer. Both men were tireless in their efforts and determination to create an organization that would stand the test of time. What a loss! Many of you knew them personally, and many more have heard about the 'legend' that each man was. The *Meridian* tips its hat toward the legacy they built for us. I wonder who will fill their shoes.

Remember that the *Meridian* depends upon you. The *Meridian* would not exist without members contributing articles, notices, and stories. What is your team doing that works really well? What have you trained in lately that might help others develop their own skills? Do you have a story that you think readers would be excited to read? Can you share a photograph that shows your team in action, or takes our breath away, because it's so awesome? *Contribute!*

Happy trails,
Laurie Clarke



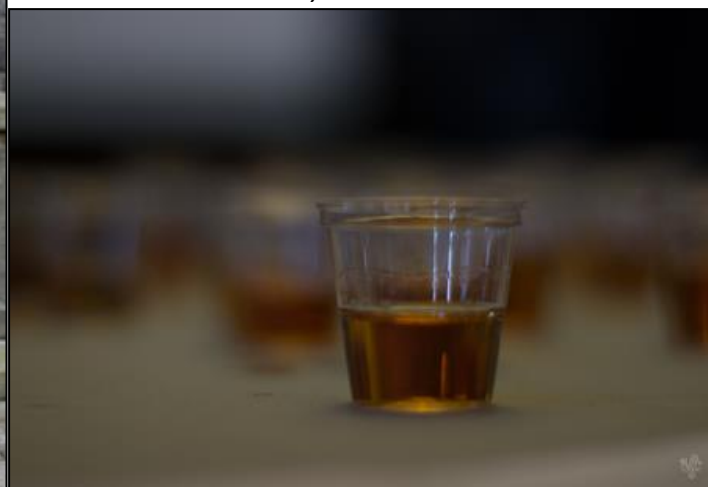
The deadlines for sending in articles, photos, and announcements are:

April 1, July 1, October 1, and January 1

Contributions can be submitted to [Meridian Editor](#).



The MRA Honor Guard and the "Final Toast" at Dick Pooley's Memorial Service. Photos by Laurie Clarke.



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