



# WHITE BOOK

**AVALANCHE AWARENESS  
PROVIDED BY RECCO**

GETTING CAUGHT IN  
AN AVALANCHE IS NOT  
SIMPLY BAD LUCK.  
AVALANCHES HAPPEN FOR  
PARTICULAR REASONS AT  
SPECIFIC PLACES AND  
AT SPECIFIC POINTS OF TIME.



**BY**  
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**AWARDED 2006 BY THE MOUNTAIN RESCUE**  
**ASSOCIATION FOR "OUTSTANDING CONTRIBUTION**  
**TO AVALANCHE EDUCATION AND SAFETY".**

**"Knowledge and information about snow and avalanches  
are the key to preventing avalanche accidents."**

#### **AVALANCHE SAFETY**

Avalanche safety and survival requires you to gain knowledge and experience of snow, avalanches and rescue. Avalanches are a danger for anyone who enjoys snow. Anyone who is slightly athletic can easily find himself or herself in avalanche terrain. Many avalanche accidents occur near ski areas when someone ventures out-of-bounds in search of powder snow and untracked slopes.

Staying alive in avalanche terrain not only involves learning about avalanches but also travelling with experienced and practiced companions, carrying rescue equipment and knowing how to use it, obeying ski area signs and warnings, being flexible about when and where to go, and lastly, being able to say "not today".

This little booklet contains information and tips that can help you and your friends stay safer in avalanche terrain.

**BRUNO JELK,  
HEAD OF MOUNTAIN  
RESCUE IN ZERMATT,  
SWITZERLAND, SINCE 1970.  
PRESIDENT TERRESTRIAL  
COMMISSION, ICAR  
(INTERNATIONAL  
COMMISSION FOR ALPINE  
RESCUE). ONE OF THE  
WORLD'S MOST EXPE-  
RIENCED AVALANCHE  
RESCUERS.**

*"Thanks to cell phones, avalanche alarms are given more quickly today than in the past. Last year, in Switzerland, we received 80% of all alarm calls via cell phones.*

*A quick avalanche alarm is one thing, but searching the area and finding those who are buried has to be done as well. Rescue systems such as transceivers or RECCO are decisive for this.*

*The third critical factor is the time it takes to dig. A study by SAC (the Swiss Alpine Club) showed that four cubic meters of snow have to be moved in digging out a person buried under one meter of snow. That is the equivalent of one and a half to two tons of snow. It is common sense that this is almost impossible without good equipment.*

*Last year in Switzerland, 75% of all avalanche victims who were completely buried and carried transceivers were dug out by the organized rescue services.*



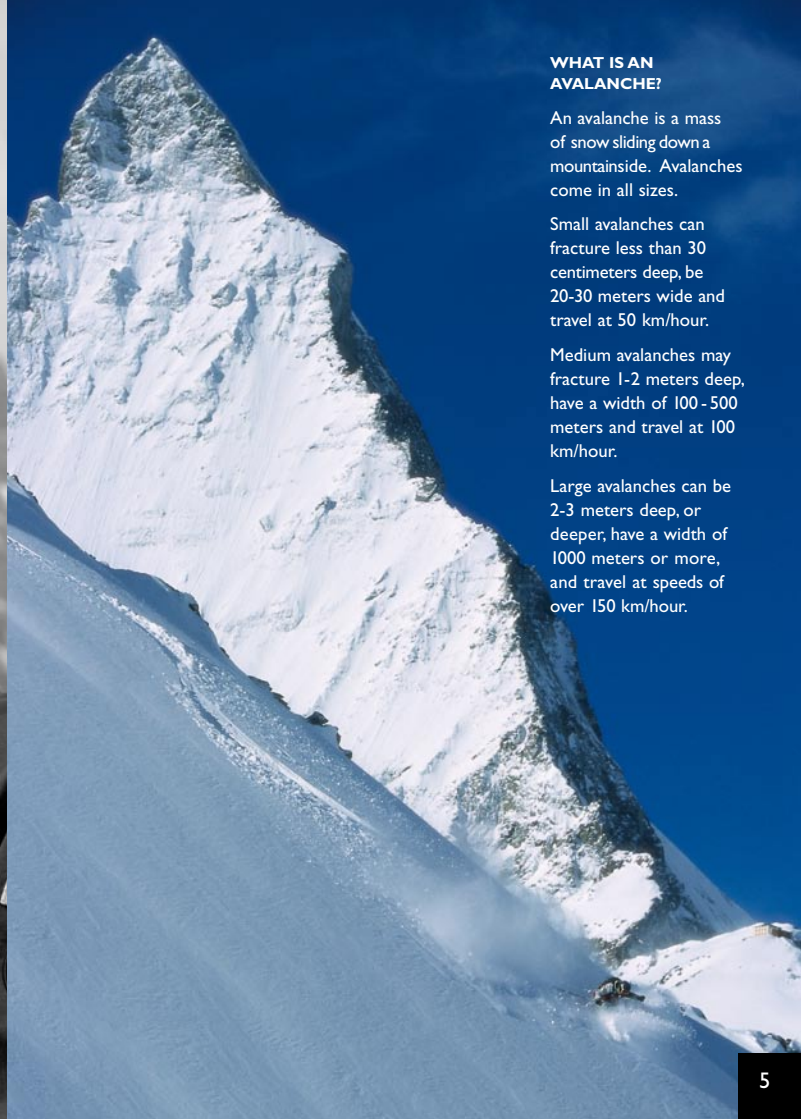
## **WHAT IS AN AVALANCHE?**

An avalanche is a mass of snow sliding down a mountainside. Avalanches come in all sizes.

Small avalanches can fracture less than 30 centimeters deep, be 20-30 meters wide and travel at 50 km/hour.

Medium avalanches may fracture 1-2 meters deep, have a width of 100-500 meters and travel at 100 km/hour.

Large avalanches can be 2-3 meters deep, or deeper, have a width of 1000 meters or more, and travel at speeds of over 150 km/hour.





**“An avalanche has four ingredients: a steep slope, a slab, a weak layer in the snow cover and a trigger.”**

### TYPES OF AVALANCHES

There are two basic types of avalanches: loose snow and slab. Loose snow and slab avalanches can both release in dry snow, damp snow, or wet snow.

**LOOSE SNOW** avalanches occur in snow that lacks cohesion, such as fresh, new snow that has not bonded, or wet snow that has lost its cohesion because of thaw. Loose snow avalanches are sometimes called point releases, because the avalanche starts at a point and spreads out into a triangle as it slides down the mountainside. Loose snow avalanches tend to be small in size and seldom cause injury.

However, the consequences of even a small loose snow avalanche can be very serious or even fatal if you are swept into a terrain trap.

**SLAB** avalanches occur when one or more layers of snow have bonded into a cohesive slab. The slab can stay in place until the downhill stress exceeds the snow's strength. The downhill stress is caused by gravity steadily pulling on the snow, and this stress can be increased by the added weight of new or

wind-blown snow, or the weight of a person. When the slab fractures, cracks shoot out through the slab, and the snow breaks loose from its anchors at the top, sides and bottom. The snow slab material can vary greatly. The slab can be very soft (excellent powder skiing) or very hard, like a wooden floor. Slab avalanches are the most dangerous for people and property because they can move large amounts of snow at high speed.

**JEFF GRELLA, VANS EQUIPMENT DIRECTOR OF RESEARCH AND DEVELOPMENT VANS SNOW, SWITCH, AGENCY, PRO-TEC BRANDS.**

*"At Vans we build equipment that embodies the free spirit personified in the youth culture of today's riders. That's why we feature Recco reflectors in select Vans and Pro-Tec models."*

**ANDREAS WIIG, TEAM VANS SNOW.**

*"During the season I spend a lot of time freeriding, and I'm always exploring new spots in the backcountry, whether it's in the resort or way out in the wilderness. You never know what's going to happen next, especially when it comes to avalanches. I always keep that in mind when I'm out there, and we have to do our best to be prepared. Wearing the Vans boots and outerwear with the Recco system makes it easier focus on the fun part of snowboarding, and still feel safe."*



**CHRIS COULTER, TEAM VANS SNOW.**

*"Every season more ski resorts are getting the Recco system. I feel just a little bit safer wearing my Vans outerwear and boots. Avalanches are a real danger and you never know for sure when one is going to happen."*



**“Most people who are dug out from avalanches unfortunately have neither RECCO reflectors nor transceivers.”**

**BERND ZEHETLEITNER,  
MOUNTAIN GUIDE AND  
RESCUER WITHIN  
BERGWACHT, GERMANY.  
RESPONSIBLE FOR AVALANCHE  
RESCUE TRAINING.**

*“During the last few years Bergwacht has shown that it is possible to find avalanche victims quickly and thus save their lives, thanks to modern technology. Rapid localization increases the chance of an avalanche victim surviving, and also reduces risk to the rescuers.*

*Although minutes are important in an avalanche rescue, people survive under snow for long periods. We always work on the assumption of finding people alive. For example, I was present when we dug out a snowboarder who had been covered by an avalanche for 11 hours.*

*Unfortunately, most people who are dug out from avalanches have neither Recco reflectors nor transceivers.”*

**RAPHAEL MÜLLER  
HEAD OF RESCUE  
OPERATION,  
BERGWACHT  
BAYERN, GERMANY  
– HINTERSTEIN,  
GERMANY,  
DECEMBER 31, 2005.**

On New Year's Eve a 29-year-old woman and her friend left the village of Hinterstein (1284 m) to spend the night in the Prinz Luitpold Hut (1846 m). Having left in the afternoon, the pair snowshoed upwards toward the hut. Just before sundown and at around 1700 meters, the woman triggered a slab avalanche. The

churning mass of snow swept her about 150 meters into a narrow and nearly inaccessible gully- and buried her under 1.5 meters of snow.

Fortunately, her partner was not caught and called the police, who in turn notified the mountain rescue team of Hinterstein. The time was 1645 hours and the daylight was fading quickly. A helicopter was dispatched immediately and transported a doctor, a medic, and two rescuers equipped with a Recco detector and an avalanche rescue dog. The search

had the potential to be very difficult and time consuming: no avalanche beacon on the victim, dangerous terrain, rapidly approaching darkness, and deteriorating weather. After approximately 15 minutes of searching the woman was located with the Recco detector and pinpointed with probes. She was immediately dug out of the snow, and although buried for 45 minutes, she was alive and conscious. In darkness she was winched aboard a hovering rescue helicopter and flown to a hospital.



**THIERRY MARGUERON,  
MOUNTAIN GUIDE AND  
SKI PATROL DIRECTOR  
– VAL FRÉJUS, FRANCE,  
JANUARY 29, 2006.**

Word of the avalanche accident reached the ski patrol three minutes after the slide and their response was immediate. In one additional minute two ski patrollers reached the top of the 50-meter wide by 200-meter long avalanche and started a transceiver search and

a Recco search. Events continued to happen fast. After one minute of searching the patroller with the Recco detector received a signal. The patrollers probed the spot and quickly confirmed the victim's exact location. After 10 minutes of digging the victim's head was uncovered from under 1.5 meters of snow. He was breathing and conscious after the 17-minute burial. Three

more ski patrollers arrived and joined in to free the buried rider. Entombed in a sitting position, his feet – still attached to his board – were two meters beneath the snow surface. A doctor provided initial treatment while awaiting the rescue helicopter. The victim was evacuated by helicopter to the regional hospital where he arrived with no apparent injuries and in only a slight hypothermic state.

**JOEL GOMEZ,  
SESSIONS FOUNDER  
AND CEO.**

*“Sessions has one of the longest-standing relationships with Recco within the ski and snowboarding industries. For over a decade we have prided ourselves on the fact that we are always the first to introduce value-added technologies into our outerwear in an effort to give our customers the premium selection that they deserve. By bringing Recco reflectors into our entire range, we can offer a renewed sense of safety to our customers that many of our competitors cannot. Primarily used in avalanche rescue, the Recco system is also equally valuable to those who brave the back-country and out-of-bounds areas at resorts worldwide. What has potential to be a desperate situation can be greatly reduced by something as small and inexpensive as the Recco reflectors in Sessions outerwear.”*

## WHEN ARE AVALANCHES MOST LIKELY TO OCCUR?

The risk of an avalanche increases during major snowstorms and periods of thaw. More than three-quarters of avalanches release during or just after large snowstorms. There is no rule of thumb on how much new snow will cause conditions to become dangerous, but the greater the snowfall, the greater the stress, the greater the danger. While most avalanches occur during a storm, many avalanche accidents occur shortly after a storm when the weather is nice but the snow remains unstable.

The faster the snow falls the faster the danger increases. For example, 30 cm of snow falling in six hours is far more dangerous than 30 cm falling in 24 hours.

Someone once said, "The building blocks of an avalanche are made of snow, but wind is the builder."

This is especially true at higher elevations. Here, the wind can transport tremendous quantities of snow onto steep leeward slopes. The wind can strip snow off windward slopes and deposit it onto leeward slopes at a much faster rate than snow falling from the clouds. When winds cause blowing snow the avalanche danger can quickly increase on leeward slopes.

Snow stability can be significantly affected by changes in snow temperature that create strong or weak layers of snow.

Snow temperatures affect the rate at which snow gains or loses strength.

Snow temperatures are strongly influenced by

air temperature and solar radiation.


Temperature trends are much more important than a single temperature reading. In a cold snowpack, unstable snow conditions persist because the strengthening process is slowed down, or unstable conditions can even worsen when the snowpack loses strength. Thus, dangerous avalanche conditions can persist for days or even weeks after a storm.

When snow is warm it typically settles quickly and becomes stronger and more stable. However, melt caused by intense warming, especially in the springtime, turns the snow wet and melts bonds between snow grains and snow layers.

This can rapidly increase the risk of avalanches.

A slope that is stable in the morning can become unstable by afternoon.

**"The building blocks of an avalanche  
are made of snow, but wind is the builder."**



**PETER SCHORY,  
DIRECTOR OF SNOW  
SAFETY AND SKI PATROL,  
SNOWBIRD SKI RESORT,  
USA.**

*"The Recco System is now an integral tool that we use for avalanche rescue. The system is used in all initial searches in our resort and also in the backcountry. It is an additional tool for us to use as rescue workers and gives the avalanche victim one more chance, the chance of surviving when completely buried. I've been working with the Recco Avalanche Rescue System since 1985, and the latest technology improvements in the Recco System gives our rescue groups confidence that if avalanche victims are equipped with reflectors, we will be able to find them."*

## WHERE DO AVALANCHES OCCUR?

Avalanches occur on steep slopes that make for great skiing and snowboarding. Slope angle is the most important factor leading to avalanches. As the slope angle increases, so too does the stress exerted on the snow. Most avalanches (about 90%) release on slopes of 30-45 degrees. When the snow is very unstable it is possible to trigger an avalanche from shallow or even flat slopes below steep slopes. The fractures can start at the bottom of the slope and then propagate upslope, releasing the slab. It is akin to pulling out the bottom log from a woodpile.

Avalanches release most often on leeward slopes (facing away from the wind). Winds strip away snow from windward slopes and deposit the snow as a slab layer on leeward slopes. The way in which a slope faces the sun is also important. Slopes facing away from the sun (north aspects) have a colder and weaker

snowpack, and this is more apt to avalanche than south-facing slopes. However, south aspects (facing the sun) can be more prone to wet avalanches during periods of thaw.

If the slope is steep enough and the snow weak enough, avalanches can run on any slope no matter how short or how long. Trees, bushes, and rocks tend to anchor the snow but do not necessarily prevent avalanches. Once an avalanche releases it can flow through trees and rocks.

Most avalanches occur in the backcountry, outside developed ski areas. Within ski areas the ski patrols use a combined program of monitoring, compaction, and explosives to make for a safe and enjoyable experience. However, off piste or out-of-bounds, there is no such program. By simply passing under a 6-millimeter strand of rope one goes from a safe and managed environment to the uncertainty of the wilderness.



**“Avalanches occur on steep slopes that make for great skiing and snowboarding.”**

### **PY LEBLANC, TEAM ATOMIC.**

*“Being a good skier doesn’t mean that you are safe in the mountains. Knowledge and having the right gear makes your backcountry adventure much safer. As a passionate big mountain skier, I am always pushing my limits. Being smart and having the right gear is key for survival. When I am heli-skiing, I feel that the Recco technology is the safest, fastest and most accurate tool in case of an avalanche.”*



“Last winter in the Alps I experienced my greatest fear when skiing. Avalanche. Skiing in the backcountry with an avi danger of only 2-3 and well equipped with beacon, shovel and probe, I felt pretty safe. Mother Nature proved me wrong and I got buried in an avalanche unable to move or even breathe. I could feel that my breath would not last very long if I was not found soon. This time I was lucky and

my friends were able to dig me out within minutes. By wearing my The North Face clothes, which contains Recco reflectors, gives me an additional sense of security knowing that professionals will help me out if I should need it.”

#### HOW TO KEEP FROM GETTING CAUGHT IN AN AVALANCHE

You can reliably avoid avalanches by recognizing and avoiding avalanche terrain. But this recommendation is not practical for many people who enjoy steep slopes and powder snow. Recreating in avalanche terrain is all about taking risks, and taking risks must be tempered with good judgment.

You cannot eliminate all risk if you travel in avalanche terrain, but you can minimize risk by using good technique, such as: climbing, descending, or crossing avalanche areas one person at a time; climbing or descending the edge of a slope rather than the center; crossing a slope at the very top or bottom, if possible; carrying avalanche rescue gear; and knowing how to use

it, and turning back or altering your route if you detect signs of unstable snow.

#### HOW TO RECOGNIZE AVALANCHE TERRAIN

Most large avalanche paths are obvious: an open slope, bowl, or gully above timberline that leads to a swath through the trees. But small avalanche paths in the trees can be just as dangerous. Slope angle is the most important factor, so you should carry a slope meter or inclinometer to measure slope angles. You also need to observe snow deposition patterns and the effects of anchors such as rocks or trees that might prevent avalanches on some slopes.

Finally, bent or damaged trees are good clues that show where avalanches have run in the past.

**KARINA HOLLEKIM,  
TEAM THE NORTH FACE  
FREE SKIER AND B.A.S.E  
JUMPER.**




**BRYAN IGUCHI,  
VOLCOM PRO.**

*"You can never be too cautious in the mountains. In addition to my avalanche transceiver knowing that I have the Recco system in my gear. It gives me a little more reassurance while riding the Jackson Hole Mountain Resort. A lot of ski resorts are now equipped with the Recco detectors. A great thing about the systems is that it's always there for you. You don't have to turn it on or off and it doesn't require any batteries."*

**MARK LANDVIK,  
VOLCOM PRO.**

*"Being in the backcountry you always want to be prepared for anything that could happen. With the Recco system becoming more mainstream in resorts throughout the US and around the world, it's nice to have the Recco system in our line."*



#### **HOW CAN YOU RECOGNIZE UNSTABLE SNOW AND DANGEROUS AVALANCHE CONDITIONS**

Certainly any time the weather conditions are adding stress (new snow, blowing snow) or reducing strength (prolonged cold or thaw) the avalanche danger may increase. When the snow cover is very unstable, nature often broadcasts clear danger signals.

Recent avalanches are the best clue. Snow that cracks, collapses, or makes "whumping," or hollow drum-like sounds is also unstable. Weak layers that can be found by digging snow pits are

signs of unstable snow. Snow that has become wet from thaw or rain can be dangerous.

Even if you find no signs of unstable snow, you should always travel using the techniques listed earlier in How To Keep From Getting Caught In An Avalanche.

#### **WHAT RESCUE GEAR SHOULD YOU CARRY?**

The essential rescue gear that everyone should carry when going into the backcountry is an avalanche beacon (or transceiver), shovel, and a collapsible or ski-pole probe. You and your friends should practice

frequently so as to be proficient in using your beacon. Albeit the beacon is the primary rescue tool for backcountry skiers, RECCO reflectors should always be used. Even for people venturing far into the backcountry the RECCO System saves significant search-time when a rescue team responds.

## MINIMIZE RISK, AND SURVIVE AVALANCHES

Most avalanche victims, or someone else in their group, trigger the slide that catches them. Therefore, most accidents are preventable. Accidents usually happen because of ignorance, arrogance, overconfidence, or distractions.

- Ignorance can be overcome by avalanche education and by reading the avalanche bulletin.
- Arrogance can be overcome by recognizing that even you make a mistake.
- Overconfidence can be overcome by expecting the unexpected.
- Distractions can be overcome by focusing on the terrain, weather, and snow conditions.

## WHAT ARE SOME COMMON MISTAKES MADE BY AVALANCHE VICTIMS?

Perhaps the most common mistake is simply not thinking about avalanches. Most people never experience an avalanche. They ski and ride steep slopes and never experience an avalanche, but they do remember the experience of fantastic powder. Over a winter or many winters, people repeat this process of riding steep slopes and not experiencing avalanches. Past experiences become representative of what they expect to happen today. Their memories reveal no avalanches in the past, so there should be no avalanches today. If you do not understand snow and avalanches but keep venturing into avalanche terrain, you are playing a deadly game of Russian Roulette.

Eventually your luck will run out. Here are more common mistakes made by avalanche victims:

- Rushing for first tracks.
- Thinking the snow is safe because they are in the trees.
- Thinking they're safe because they are with an expert skier or rider. Just because someone is an "expert" skier or rider, does not also mean they are an avalanche expert.
- Thinking the snow is safe because others have gone before them.
- Thinking they're safe because they have been here before, or in familiar terrain.
- Thinking the slope is safe because it is too small to avalanche.
- Thinking their rescue gear will let them survive an avalanche.

"Quiksilver firmly believe in the technology and benefits of the Recco system for our customers. The product enhances the value of our garments, which is crucial to our goal as a company within the board-sports industry. We support all actions in the promotion of safety and avalanche awareness that are taken by Recco."

DAVE ROSENBERGER,  
VICE PRESIDENT SALES,  
QUIKSILVER WINTERSPORTS.

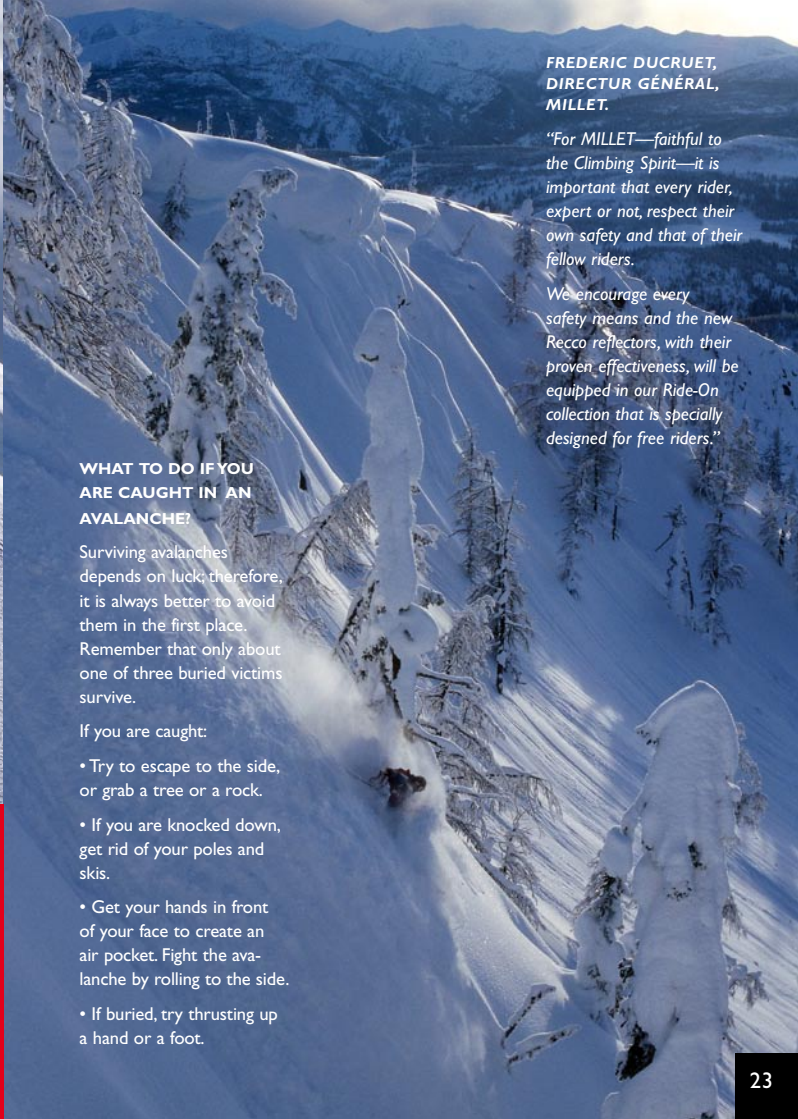


**MATTIAS FREDRIKSSON,**  
PHOTOGRAPHER OF THE  
WORLD'S BEST SKIERS,  
SNOWBOARDERS AND  
MOUNTAIN BIKE RIDERS.  
PRESENTER AT 2003  
PRO PHOTOGRAPHER  
SHOWDOWN IN WHISTLER,  
BC, CANADA.  
BASED IN ÅRE, SWEDEN.  
[www.mattiasfredriksson.com](http://www.mattiasfredriksson.com)

"For me, wearing Recco reflectors and my transceiver are as obvious as bringing my camera."

"As The North Face continues to encourage our consumers to Never Stop Exploring, the Recco system helps them do it more responsibly and confidently. The Recco system is a powerful avalanche recovery tool and The North Face is proud to offer it in our Snowsport Collection."

**LETITIA FERRIER,**  
STRATEGIC MARKETING  
MANAGER, THE NORTH FACE.



**FREDERIC DUCRUET,**  
DIRECTUR GÉNÉRAL,  
MILLET.

"For MILLET—faithful to the Climbing Spirit—it is important that every rider, expert or not, respect their own safety and that of their fellow riders.

We encourage every safety means and the new Recco reflectors, with their proven effectiveness, will be equipped in our Ride-On collection that is specially designed for free riders."

#### **WHAT TO DO IF YOU ARE CAUGHT IN AN AVALANCHE?**

Surviving avalanches depends on luck; therefore, it is always better to avoid them in the first place. Remember that only about one of three buried victims survive.

If you are caught:

- Try to escape to the side, or grab a tree or a rock.
- If you are knocked down, get rid of your poles and skis.
- Get your hands in front of your face to create an air pocket. Fight the avalanche by rolling to the side.
- If buried, try thrusting up a hand or a foot.

## WHAT CAN YOU DO IF YOUR FRIEND IS CAUGHT?

- Watch your friend closely to establish a last seen area.

- If possible, alert rescue services by telephone, by dialing 911 in North America and 112 in Europe, but do not go for help prematurely. Stay and search for as long as possible. In the wide-open spaces of North America cellular telephones may

not always work. It is vital that you and your companions carry and know how to use avalanche rescue gear.

- Mark the spot where your friend was last seen and search down slope from this spot.

- Use your beacon and watch for clues. If no beacons, spot probe, then coarse probe likely burial areas.

- Quickly and carefully dig out your friend.

Be ready to treat for asphyxiation, impact injuries, shock, and hypothermia.

Death can come in as little as a few minutes, but some victims survive for many hours under the snow.

The longest survival in North America is 25.5 hours. All buried victims deserve the benefit of the doubt that they might be the next survivor.

**JON OLSSON,  
PROFESSIONAL FREE RIDER,  
ONE TIME GOLD MEDALIST,  
TWO TIMES SILVER MEDALIST  
AND THREE TIMES BRONZE  
MEDALIST AT WINTER X GAMES.**

“Life is all about calculated risk-taking.

RECCO reflectors give one more chance”.



**VINCENT RAVANEL,  
MOUNTAIN GUIDE IN  
CHAMONIX, FRANCE.  
RESPONSIBLE FOR  
SAFETY WITHIN THE  
COMPAGNIE DES GUIDES  
DE CHAMONIX.**

*“When I take my customers off piste or backcountry, we carry transceivers, shovels and probes.*

*I always wear reflectors, and I advise my customers to do so as well. More and more people in Chamonix go off piste. Many of them are unaware of the dangers, some did not even plan to go off piste that morning.*

*Reflectors are the only way of systematically equipping everybody with a permanent and efficient search system.”*



**ERIN COMSTOCK, ROXY,  
TEAM SNOW.**

*“Living and riding in Utah I am always concerned about avalanches. I try to stay prepared by wearing a beacon but it also brings a piece to mind knowing I have the Recco system in my outerwear. The resorts use this system as another way to help in a rescue, so when I am snowboarding on a fresh powder day, I feel a bit safer in my Roxy Outerwear.”*

**AMBER STACKHOUSE,  
ROXY, TEAM SNOW.**

*“Many hazards exist in the backcountry, so it is a comfort to know I have the extra protection of the built-in Recco system.”*

## **LEARN ABOUT CURRENT AVALANCHE CONDITIONS**

Throughout North America and Europe avalanche forecast centers prepare bulletins providing current and forecast snow and avalanche conditions.

Some centers even prepare detailed mountain weather forecasts, too. Links to this information is available over the Internet at [www.avalanche.org](http://www.avalanche.org) or by recorded message on telephone hotlines.

This information is for trip planning only, but it does give you an idea of what to expect. Once in the backcountry, you may encounter different conditions and may have to alter your routes or plans accordingly in the interest of avalanche safety.



## **SOME FINAL THOUGHTS**

Just because the sky is blue, the snow soft and deep, and you are with capable and rescue-equipped friends, does not mean you should ski or ride that steep slope. Even before you reach that slope, you should be “thinking avalanche.” Pay attention to the three other ingredients for a slab avalanche – you are the fourth ingredient. Are they present? Are other

clues that indicate unstable snow and avalanches present, too? Discuss the situation with your companions. If you decide to go-for-it, stop and consider why your judgment might be wrong. This check might reveal something you missed or dismissed earlier in your decision-making process.

Lastly, evaluate conditions from the perspective of an avalanche. What may be important to you is not

important to the avalanche. Remember avalanches don't care about your friends, your goals, or schedule, or how skilled or knowledgeable or how well equipped you are, or even that you are familiar with the area.

If you think like an avalanche, it is time to look for a less-steep slope or perhaps even to turn around.

## RECCO Avalanche Rescue System

RECCO® is an avalanche rescue system utilized by more than 500 rescue organizations worldwide to assist in the efficient location of burials. First introduced in 1983, the technology was developed by Magnus Granhed with the cooperation of Stockholm's Royal Institute of Technology in response to his personal experience with an avalanche tragedy. Since then, the system has proven itself effective in the field and been adopted by an extensive network of major ski resorts, helicopter skiing operations and search-and-rescue organizations in Europe, Japan and North America.

The RECCO System enables rapid directional pinpointing of a victim's precise location using harmonic radar. The two-part system consists of a RECCO® detector used by organized rescue groups and RECCO® reflectors that are integrated into

apparel, helmets, protection gear or boots.

There is no learning curve for use of the RECCO reflector. The piece can't be forgotten since it is permanently attached and it needs no batteries to function. The manufacturer has taken responsibility for incorporating the reflector into their design, so no additional investment is required of the consumer. RECCO reflectors do not prevent avalanches nor do they guarantee location or survival in the event of a burial, but they do assist organized rescue crews in pinpointing the burial location.

Although similar in search procedure to transceivers,

the RECCO System is not intended for companion rescue and is not an alternative to transceiver use in the backcountry. Complementary in function, the system is an additional tool that does not interfere with other rescue methods such as avalanche dogs, transceiver searches or probe lines. The RECCO System facilitates a faster organized search for rescuers and provides skiers and snowboarders with one more chance to be found in time.



## The RECCO story

The RECCO Avalanche Rescue System is now in place in more than 500 areas throughout the world, and is the only system for rescuing avalanche victims specifically designed for the average skier. The company was established in Sweden by Magnus Granhed in 1983, but the RECCO story actually began back in 1973, with a fatal avalanche...

It was December 30, 1973, in Åre, up in the Swedish mountains. The snow had become much deeper during the month, and this was followed by a period of cold weather with light snowfall. Then, three days before the accident, there was a sudden switch to milder temperatures with occasional rain and snow.

After lunch that day, Magnus Granhed, the founder of the RECCO System, took the lift up to the popular Mörvikshumeln. He was half way up, when he heard a tremendous roaring sound. After passing the last rise he saw that an avalanche from the Svartberget mountain had come to a halt in a ravine.

People nearby were shouting: "There's been an avalanche!" But as so often in the aftermath of an avalanche, nobody knew how many people, or who, had been swept away in its path. "We started to search with our ski poles," recalls Magnus. Later, probes and avalanche rescue dogs were brought to the site; in those days that was the only help available. "I felt so utterly helpless poking a ski pole into the snow in an area as large as 100 meters by 100 meters."

Locating and digging out the two skiers took about three hours, by which time the Swedish mid-winter darkness had already descended upon Åre. They were both dead. And it turned out that one of them was a friend of Magnus. "I felt absolutely dreadful. I knew that he had a wife and a child. You are not prepared for this sort of thing. There you are out enjoying skiing in the sunshine, and then suddenly somebody is dead."

Through his work with the RECCO project, he has met many people who have lost relatives or friends in avalanches. They often talk about trying to understand how somebody who has been regarded as being very responsible could be killed in an avalanche. "I can

hardly think of a more tragic accident than when a person is killed in the prime of life, leaving parents as well as children to mourn."

### ARE THERE BETTER SEARCH METHODS?

The accident in Åre set him thinking about the possibility of an electronic locating device which could trace people buried under avalanches. Magnus Granhed had just graduated with a Master of Science degree, and turned to Professor Bengt Enander, Department of Electromagnetic Theory at the Royal Institute of Technology in Stockholm. Bengt Enander led a research project in radiometry that included a study of the thermic radiation of the human body to see if it might be possible to detect cancer tumors.

Could this be a way to locate buried skiers? A number of tests were undertaken in the Swedish mountains, but it soon became clear that snow was too heterogeneous a medium to enable a rescuer to locate a buried body with the help of radiometry. So then they moved on to try out other techniques.

Work on this took about two years, and finally led to a PhD within Enander's

research team. The thesis contained a presentation of the technique that came to form the basis for the RECCO System. If you could not locate a buried body with the help of radiometry, then why not provide every skier with some sort of reflector, so the researchers reasoned. Transceivers had been introduced in the late-1960s, and there had been talk of creating a passive system, as the transceivers were considered to be too expensive

the search equipment. The harmonic, however, is much weaker than the search signal, and that was the great challenge in the project. The search equipment that the rescuers work with actually comprises two elements: a transmitter and a highly sensitive receiver. We had to somehow filter out the strong search signal so that the weak signal from the reflector would be noticeable. We like to compare that with standing next to a jet plane as it takes

different frequencies were sent through the snow. "It gave us an understanding of how temperature and moistness of the snow affect the signals," says Granhed.

### **THE FIRST MODEL WEIGHED 16 KG**

The first prototype was constructed in the winter of 1980-81, and field tests were carried out. For the first time, a rescue team was able to do a search and hear the confirming

helicopter, which made it feasible to cover large areas quickly," recalls Magnus Granhed.

### **THE FIRST LIVE RESCUE USING THE RECCO SYSTEM**

First live rescue of an avalanche victim using the RECCO System took place in 1987. It was in Lenzerheide in Switzerland, where reflectors had gone on sale that winter. The victim was a local female skier who worked in a sport shop.

On the day the accident happened, she had been given a pair of reflectors by a sales rep who had visited the shop. She put the reflectors in her breast pocket before taking the lift up the mountain. When the accident occurred, she was one of a group of five skiers, the first two of whom passed the field of snow without any problem. When it was her turn, however, an avalanche started and she was buried under it.

The rescue team failed to find her with probes and an avalanche dog, but fortunately a detector-equipped helicopter came to the scene and from the air it was able to pick up a signal from the woman. By then she had been buried for over 30 minutes, and appeared to

be dead when the team dug her out. But the story had a happy ending because she was rushed to hospital and successfully resuscitated.

### **NATO CHOOSES RECCO**

In the late 1980s, the RECCO System had a major commercial breakthrough when NATO opted to use it on a large scale. The reason for this decision was a tragic avalanche accident in the Norwegian Vassdalen in 1987, when 16 soldiers lost their lives. After two years of tests and evaluations, the Norwegian military authorities chose the RECCO System and equipped every soldier with reflectors. Several NATO member countries followed suit, as their winter training took place in Norway.

"It wasn't until the 1990s that the RECCO System began to be properly established, becoming more than a local phenomenon," says Magnus Granhed. The explanation for the growing interest in the RECCO System was a combination of lower price and the fact that the search equipment had become much lighter and easier to handle. This was thanks to the mobile telephone industry, which developed increasingly smaller components for cell

phones during the mid and late 1990s.

### **REFLECTORS INCORPORATED INTO OUTERWEAR**

Following the lead of the increasing number of ski areas that have acquired RECCO search equipment, at present more than 500 ski areas worldwide. A growing number of manufacturers of outerwear, ski and snowboard boots, protection gear and helmets incorporate reflectors in their products. And it is not only the search equipment that has been continuously developed and improved, having progressed through six generations since the start; the reflectors have also gone through major developmental stages. "Twenty years of work lie behind today's small reflectors. Despite their size they are a considerable improvement on the clumsy things we used in the beginning", explains Granhed. So, has there been a change in attitudes to safety since the avalanche at Åre thirty years ago?

"Oh, definitely," says Magnus. "Among skiers as well as at ski areas. Somebody once said that off-piste skiing isn't dangerous, but skiing in avalanche-prone areas is. It has taken a generation for that attitude to take root."

## **"We started testing the system in Zermatt in 1984."**

and too complicated to be used by everyone. Work was carried out in this field, for example at the University of Grenoble, but none of the projects resulted in a functional product.

### **THE PROBLEM WAS SOLVED WITH HARMONIC RADAR**

At that point, the best option seemed to be what is known as harmonic radar. With that technology it had become possible to create a directional receiver which could locate a reflector worn by the avalanche victim. Just as is the case today, the reflector consisted of a diode that generates a harmonic when it is hit by the radar signal from

off and being able to hear the rustling of leaves being raked together just close by," says Magnus, and continues: "At first, we had a range in air of 5 meters, and now we can manage more than 200 meters. I don't think anybody would have thought we'd ever be able to optimize the system to that extent."

### **PURPOSE-BUILT EXPERIMENTAL LABORATORY IN ÅRE**

In those days, knowledge of harmonic radar was limited and little was known about the behavior of microwaves in snow. In the winter of 1978-79, an experimental laboratory was set up in Åre in order to find out more. Every two hours, signals of

sound signal when the search antenna was directed straight towards a buried reflector, just as with the current RECCO System. And the closer they came to the target, the louder the signal became.

The first equipment for commercial use was introduced in 1983. It weighed all of 16 kg – the model in use today weighs only 1.6 kg. "We started testing the system in Zermatt in 1984, largely thanks to Air Zermatt and Bruno Jelk, head of the rescue services. He was very experienced in avalanche search and rescue operations and could see the potential of the RECCO System. Some of the tests involved searching for a

**ANDORRA**

Arcalis  
 Pas de la casa  
 Soldeu – El Tarter

**Helicopter base**  
 Andorra (Bombers)

**ARGENTINA**

Las Lenas

**AUSTRIA**

Aberg Hinterthal  
 Auffach Wildschönau  
 Bad Aussee  
 Bischofshofen  
 Ellmau-Going  
 Fiss  
 Galtür  
 Gasteinertal  
 Graz Thalerhof  
 Hauser Kaibling  
 Heiligenblut  
 Hintertux (Zillertal)  
 Hochgurgl  
 Hochgurgl  
 Ischgl  
 Kaltenbach  
 Kappl  
 Kautneral  
 Kitzbühel  
 Kössen  
 Lech  
 Leogang  
 Loser-Sandling  
 Mayrhofen  
 Mellau  
 Murau/Kreischberg  
 Möltaler Gletscher  
 Nassfeld  
 Nauders  
 Nordpark  
 Obbergurgl  
 Obertauern  
 Pitztal  
 Prätichl  
 Saalbach/  
 Hinterglemm  
 Schladming  
 Schopernau  
 Schruns  
 Serfaus

Sillian  
 Silvretta Nova/  
 St. Gallenkirch  
 St. Anton  
 St. Jakob/Deferegggen  
 St. Johann in Tirol  
 Stubaital  
 Stuben  
 Sölden  
 Westendorf  
 Wilder Kaiser  
 Zauchensee  
 Zell am See  
 Zillertal Arena  
 Zillertal 2000

**Helicopter bases**

Ebensee  
 Graz Thalerhof  
 Hintertux Zillertal  
 Hochgurgl  
 Innsbruck  
 Karres bei Imst  
 Kitzbühel  
 Klagenfurt  
 Lech/Zürs  
 Lienz  
 Ludesch  
 Niederöblarn  
 Patergassen  
 Reutte  
 Salzburg  
 Schwaz  
 Sölden  
 St. Anton  
 Zams  
 Zell am See

**CANADA**

Apex, BC  
 Baldface Cat Skiing,  
 Nelson, BC  
 Big White, BC  
 Blackcomb, BC  
 Castle Mountain, AB  
 Cypress Mountain, BC  
 Duffy Lake, BC  
 Fernie, BC  
 Gaspésie-Avalanche  
 Center, QC  
 Golden S&R, BC  
 Kootenay Mountain, BC  
 Kananaskis Parks, AB  
 Kicking Horse Mountain, BC  
 Kootenay Pass, BC  
 (MoTH)  
 Lake Louise, AB

Marmot Basin, AB  
 Mt. Washington, BC  
 Norquay Ski Resort, AB  
 North Shore Rescue,  
 Vancouver, BC  
 Panorama, BC  
 Red Mountain,  
 Rossland, BC  
 Sun Peaks Resort, BC  
 SunshineVillage, AB  
 Whistler, BC  
 Whistler SAR, BC  
 Whitewater, BC

**Parks Canada**

Banff, AB  
 Jasper, AB  
 Lake Louise, AB  
 Rogers Pass, BC  
 Sunwapta, AB

**Royal Canadian Mounted Police**

Nelson, BC

**Helicopter Skiing Operations**

Bella Coola Heli  
 Sports, BC

**CHILE**

Ski Portillo  
 Ylläs

**FRANCE**

Allos le Seignus  
 Alpe d'Huez  
 Arêches Beaufort  
 Argentière  
 Auron  
 Aussois  
 Avoriaz  
 Ax-les-Thermes  
 Barèges  
 Bonneval/Arc  
 Cauterets  
 Chamonix  
 Chamrousse  
 Châtel  
 Courchevel  
 Flaine  
 Garmnie  
 Gourette  
 Guzet  
 Isola 2000  
 La Clusaz  
 La Foux d'Allos  
 La Giétzaz

La Grave  
 La Mongie  
 La Norma  
 La Pierre St. Martin  
 La Plagne  
 La Rosière  
 La Toussuire  
 Le Corbier  
 Le Grand Bornand  
 Le Tour  
 Les Arcs  
 Les Carroz d'Arache  
 Les Contamines  
 Les Deux Alpes  
 Les Karellis  
 Les 7 Laux  
 Luz Ardiden  
 Mégeve  
 Méribel  
 Ménuires  
 Montgenèvre  
 Morzine  
 Mottaret  
 Orcières-Merlette  
 Orelle  
 Pelvoux  
 Peyragudes  
 Piau-Gangly  
 Pralognan-la-Vanoise  
 Pra-Loup  
 Pruz sur Arly  
 Puy St. Vincent  
 Risoul  
 Serre Chevalier  
 St. Foy (Tarentaise)  
 St. François  
 Longchamps  
 St. Gervais  
 St. Jean d'Aulps  
 St. Lary  
 St. Nicolas de Véroce  
 St. Sorlin d'Arves  
 Superbagnère  
 Tignes  
 Valberg  
 Val Cenis  
 Val d'Isère  
 Val Fréjus  
 Vallouire  
 Valmorel  
 Val Thorens  
 Vars

**Helicopter bases & SAR**

Alpe d'Huez  
 (CRS+PGHM)  
 Annecy (PGHM/Pom-

piers 74)  
 Briançon (CRS+PGHM)  
 Chamonix (PGHM)  
 Colmar (PGM)  
 Courchevel  
 (CRS+PGHM)  
 Digne (PGHM Jausier)  
 Garmnie (CRS)  
 Grenoble  
 (CRS+PGHM)  
 Modane (CRS+PGHM)  
 Mont Dore (PGM)  
 Nice (CRS+PGHM)  
 Pau (Pompiers  
 64/PGHM)  
 Perpignan  
 (CRS+PGHM)  
 Savignac les Ormeaux  
 (PGHM)  
 Tarbes (CRS+PGHM)  
 CRS Bagnère de  
 Luchon  
 CRS Garmnie  
 CRS Pyrénées 2000  
 CRS St. Lary  
 PGHM Annecy  
 PGHM Bagnère de  
 Luchon  
 PGHM Bourg St.  
 Maurice  
 PGHM Ossèja  
 PGHM Pierrefitte  
 Pompiers 73 St. Alban  
 Laysse  
 Pompiers 74 Annecy

**GERMANY**

Bad Reichenhall  
 Berchtesgaden  
 Fellhorn  
 (Oberstdorf)  
 Hörnerbahn/  
 Bolsterlang  
 Ifen (Kleinwalsertal)  
 Kreuzegg/Oster-  
 felder (Garmisch)  
 Nebelhorn  
 (Oberstdorf)  
 Oberstaufen  
 Spitzingsee  
 (Bergwacht)  
 Valmendingerhorn  
 Zugspitze  
 (Garmisch)

**Helicopter bases**

Kempten  
 München

Murnau  
 SAR Landsberg

**Mountain rescue bases (Bergwacht)**

Berchtesgaden  
 Bergen  
 Garmisch  
 Lenggries  
 Pfrinten  
 Schliersee  
 Sonthofen

**ITALY**

Abetone  
 Alba di Canazei  
 Alagna Valsesia  
 Alleghe  
 Alpe di Siusi/Seiseralm  
 Arabba  
 Artesina  
 Bardonecchia  
 Bormio-Stelvio  
 Campodolcino  
 Campo Tures/Sand in  
 Taufers-Mte Spicco  
 Canazei-Belvedere  
 Canazei-Passo Pordoi  
 Cavalese  
 Cervinia  
 Ces  
 Champoluc  
 Champorcher  
 Chiesa Val Malenco  
 Cimone-Sestola  
 Claviere  
 Colverde  
 Cortina d'Ampezzo  
 Courmayeur-Pte  
 Helbronner  
 Curon alla Muta  
 Erba  
 Falcade  
 Foppolo  
 Forni di Sopra  
 Gadertal  
 Gressoney-la-Trinité  
 Gromo  
 Klausberg  
 Laces  
 Lana (Ultimo e Passirio)  
 La Thuile  
 Levico Terme  
 Livigno  
 Lizzola  
 Madesimo  
 Madonna di  
 Campiglio

Malga Ciapela  
 Malga Sanon  
 Maransa  
 Moena  
 Monte Elmo  
 Obereggen  
 Pampeago  
 Passo Pordoi  
 Passo Rolle  
 Passo S. Pellegrino  
 Nord  
 Passo S. Pellegrino Sud  
 Passo Tonale-Funivia  
 Peio Terme  
 Prancavallo  
 Pila  
 Plan de Coronas/Kron-  
 platz  
 Ponte di Legno  
 Pozza di Fassa  
 Prati di Tivo  
 Racines/Ratschings  
 Resia/Reschen  
 Schöneben  
 Niseko Pietore  
 Salice d'Ulzio/Sauze  
 d'Oulx  
 San Sicario  
 San Simone  
 Santa Caterina Valfurva  
 Sella Nevea  
 Selva di Val Gardena  
 Sesto/Sexten Pusteria+  
 Sestriere  
 Solda/Sulden  
 Speikboden  
 Sterzing (Vipiteno)  
 Tarvisio  
 Trafoi  
 Ultental (Val d'Ultimo)  
 Valdaora  
 Val Gardena/Grödental  
 Vallelunga/Melago  
 Val Sarentino  
 Val Sesenies/Schnalstal-  
 Ghiacciaio  
 Valtourneche  
 Vilpiano

**Helicopter bases**

Alpe di Siusi/Seiseralm  
 Aosta  
 Bolzano/Bozen  
 Borgosesia  
 Bressanone/Brixen  
 Como  
 Courmayeur  
 Esine

Lecco  
 Levaldigi-Cuneo  
 Pieve di Cadore  
 Tolmezzo  
 Torino  
 Trento  
 Treviso  
 Udine  
 Sondrio

**JAPAN**

Alpha Resort Tomamu  
 (Hokkaido)  
 Alts Bandai Resort  
 (Fukushima)  
 Arai Spa & Resort  
 (Nigata)  
 Hakuba Cortina  
 (Nagano)  
 Hakuba Goryo  
 (Nagano)  
 Hakuba Happo-One  
 (Nagano)  
 Naeba Resort (Nigata)  
 Niseko Annupuri  
 (Hokkaido)  
 Niseko Hanazono  
 (Hokkaido)  
 Niseko Higashiyama  
 (Hokkaido)  
 Niseko Hirafu (Hok-  
 kaido)  
 Tenjin Daira (Hokkaido)  
 Tsugaiké-Kogen  
 (Nagano)  
 Tsugaiké-Shizen  
 Ropeway (Nagano)

**Mountain rescue/fire & rescue bases**

Avalanche Control  
 Team Nagano  
 Gakunan Nakano City  
 Fire & Rescue  
 Gakuhoku Liyama City  
 Fire & Rescue  
 Hakuba Kita Alps Fire  
 & Rescue  
 Hakuba Sotaiyko  
 Mountain Rescue

**LIECHTENSTEIN**

Malbun

**NORWAY**

Hemsedal  
 Hordadal  
 Longyearbyen, Svalbard

Narvik  
Rogaland  
Tromsø  
Trysil  
Voss

#### NEW ZEALAND

Mount Hutt, South Island  
Porter Heights, South Island  
Temple Basin, South Island  
Turoa, North Island  
Treble Cone, South Island  
Whakapapa, North Island

#### POLAND

Jelenia Gora  
Zakopane, Tatra

#### SPAIN

Baqueira  
Camprodon  
Candanchú  
La Poblá de Segur  
La Molina  
Seu d'Urgell  
Vall de Núria  
Vielha

#### Helicopter base

Ripoll

#### SWEDEN

Abisko  
Björkliden  
Borgafjäll  
Bydalsfjällen  
Dundret  
Duved  
Hemavan  
Idre Fjäll  
Kittelfjäll  
Ramundberget  
Riksgränsen  
Stöten  
Tandådalen/Hundfjället  
Tännålen  
Vemdalen  
Åre

#### SWITZERLAND

Adelboden  
Andermatt  
Anzère  
Arolla  
Arosa

Beckenried  
Bellwald  
Bettmeralp  
Blatten Belalp  
Bosco Gurin  
Brigels  
Bruni/Engelberg  
Champéry - Les Crozets  
Churwalden  
Crans-Montana  
Davos  
Disentis/Mustér  
Engelberg  
Evölene  
Fiesch  
Flims

Flumserberg  
Furtschellas  
Grimentz  
Grindelwald  
Haute-Nendaz  
Hochwang  
Hoch-Ybrig  
Klosters  
Laax  
La Fouly  
Laucheralp  
Lauterbrunnen  
Lenzerheide  
Les Diablerets  
Leukerbad  
Leysin

Meiringen  
Melchsee-Frutt  
Morgins-Champoussin  
Mürren  
Obersaxen  
Ovronnaz  
Pontresina  
Saas-Fee  
Samnaun  
Savognin  
Schwarzsee  
Scoül  
Sedrun  
Silvaplana  
Stoss  
Sörenberg  
St. Moritz  
Toggenburg  
Unterwasser  
Wengen  
Verbier  
Villars  
Zermatt  
Zinal  
Zuoz

#### Helicopter bases

Bern (REGA)  
Dübendorf (REGA)  
Erstfeld (REGA)  
Gordola (REGA)  
Gsteigwiler (REGA)  
Lausanne (REGA)  
Lodrino (Heli-TV/Elisos)  
Mollis (REGA)  
Raron (Air Zermatt)  
Samedan (REGA + Heli Bernina)  
Sion (Air Glaciers)  
St. Gallen (REGA)  
Untervaz (REGA)  
Zermatt (Air Zermatt)  
Zweisimmen (REGA)

#### USA

Alpental, WA  
Alpine Meadows, CA  
Alta, UT  
Alyeska, AK  
Arapahoe Basin, CO  
Arizona Snowbowl, AZ  
Aspen Highlands, CO  
Aspen Mountain, CO  
Bear Valley, CA  
Beaver Creek, CO  
Big Mountain, MT  
Big Sky, MT  
Breckenridge, CO  
Bridger Bowl, MT  
Brighton, UT  
Copper Mountain, CO  
Crested Butte, CO  
Crystal Mountain, WA  
Deer Valley, UT  
Grand Targhee, WY  
Heavenly, CA  
Jackson Hole, WY  
June Mountain, CA  
Kirkwood, CA  
Las Vegas Ski & Snowboard Resort, NV  
Lookout Pass, ID  
Loveland Ski Areas, CO  
Mammoth Mountain, CA  
Moonlight Basin, MT  
Mount Baker, WA  
Mount Bachelor, OR  
Mount Hood  
Meadows, OR  
Mt. Rose, NV  
Park City, UT  
Schweitzer, ID  
Snoqualmie Pass, WA

Snowbasin, UT  
Snowbird, UT  
Snowmass, CO  
Solitude, UT  
Squaw Valley, CA  
Stevens Pass, WA  
Sugarbowl, CA  
Sundance Resort, UT  
Sun Valley, ID  
Taos, NM  
Telluride, CO  
Teton Gravity Research, WY  
The Canyons, UT  
The Yellowstone Club, MT  
Vail, CO  
Wolf Creek, CO

#### USA Parks

Yellowstone National Park  
Mt. Rainier National Park

#### USA SAR Groups

Alaska Mountain Rescue Group, AK  
Alpine Rescue Team, CO  
Chelan County Sheriff SAR, WA  
Ravalli County SAR, MT  
Summit County Rescue Group, CO  
Wasatch Backcountry Rescue, UT

#### Helicopter bases

Alta, UT  
Salt Lake County Sheriff SAR, UT  
Snowbird, UT

#### Helicopter Skiing

**Operations**  
Chugach Powder Guides, AK  
Girdwood, AK  
Ruby Mountain Heli-Ski, Lamolle, NV  
Wasatch Powderbird Guides, Snowbird, UT  
Sun Valley Heli-Ski, Sun Valley, ID

*THE NUMBER OF RESORTS INCREASES CONSTANTLY.*

GO TO  
[WWW.RECCO.COM](http://WWW.RECCO.COM)  
FOR AN UPDATED LIST.

#### WHAT IS THE RANGE?

The RECCO® System's maximum range through the air is 200 meters; the working range through snow is approximately 20 meters.

#### DO I EVER NEED TO REPLACE A BATTERY IN THE RECCO® REFLECTOR?

No. It is a passive device that does not require a battery for operation.

#### CAN I USE A RECCO REFLECTOR INSTEAD OF A TRANSCIVER?

No. The RECCO System is a great complement to - but not a replacement for - a transceiver.

#### CAN SKI PATROL USE BOTH TRANSCIVERS AND A RECCO® DETECTOR SIMULTANEOUSLY IN A SEARCH SITUATION?

Yes, since their function is complementary they can both be used at the same time in the same search area.

#### CAN THE RECCO SYSTEM BE USED FROM A HELICOPTER?

Yes. The RECCO System is a useful tool for helicopter-based search efforts.

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AVALANCHES GO TO

USA  
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AVALANCHE RESCUE SYSTEM



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