

THE B.I.S.C.C. SKIING WHITE PAPERS

Written by Bob Valentine Trueman IVSI Coach.

Avalanches, Myths and facts

More and more skiers are taking to off-piste skiing and skiing the back-country. This can be dangerous terrain and the simple goal of this short working paper is to acquaint you with some interesting avalanche facts, dispel a few avalanche myths, and increase your knowledge slightly. It's only the most meagre start but it could save your life.

The simplest survival technique is this - if you plan to head off into the back country use a professional guide. This is not just because they know their business, but because they are plugged into the local network of other guides. Every day, at every lift and every mountain restaurant they exchange up-to-date information about descent routes and snow conditions. This information is vital.

If you don't use a guide then get learning your craft right now, and remember your craft is **snow-craft** not skiing, or boarding ability. One of the biggest killers around avalanches is the mistaken belief that skilfulness as a skier or boarder will be some kind of protection. Not so; it is more likely to lead you into danger.

A French guide friend of mine from Chamonix, says that over there they reckon you can become a very good skier in five years, but to understand the snow takes more than one lifetime. There is something very ominous about that.

If you plan to head off-piste, however near or far, you will be in a new environment. Not a planned and tamed one like the area of the pistes, but an uncontrolled one, and to some extent an unpredictable one.

It sounds scary, and it can be. But it doesn't have to be. There are some rules, and there is a huge amount of knowledge and information about avalanches; how they work, how they vary, how they start and how they stop. There is much you can do to protect yourself, but no one in the world, not even the world's top avalanche experts can predict when or where one will start.

The two most important facts

First, the reassuring one – snow is stable according to the experts, 95% of the time!
Second, the worrying one – **the vast majority of avalanches which kill people, are started by the people they kill.** Which may sound eminently just, but is still very unfortunate.

You could say that the most dangerous things about killer avalanches, are their victims. Without their victims most avalanches would never have come about in the first place. Of course there are exceptions which wipe out villages occasionally, but very few and overall they kill fewer people than victim-initiated ones.

So what is the average avalanche starter like? Unsurprisingly 96% are male. Almost all are skiers, boarders or mountaineers of considerable ability, and they are very aware of their technical skill. Most are between the ages of 25 and 40, which is an interesting coincidence because the avalanches they start are almost all on slopes of

between 25 and 40 degrees. Much above 40 degrees and the snow may well have slid off already. Most are middle class, and most are experienced and knowledgeable about their sport, **except with respect to understanding snow and avalanches.**

One of the factors which contributes to the very small number of women victims is that they are subject much less to peer pressure and “machismo”. Our women folk are much less likely to say to themselves that “I’ll be ok, I’m pretty good and I can pull this off”. Rather they are likely to decide to fight, another day.

Some more facts – and some more myths.

WHAT SIZE ARE THEY?

Most of the avalanches with which this short paper is concerned, are slab avalanches. Most sport-related avalanche deaths are caused by slab avalanches. Surprisingly perhaps most slabs which avalanche are thin - only between 30cms and 50 cms deep. The majority will cover an area about the size of a football pitch, and weigh hundreds if not thousands of tons.

HOW FAST ARE THEY?

This will amaze you. The initial fracture occurs at over 200mph. Thereafter the slab accelerates from zero to between 15 and 25 kph in just three seconds, but just a further **three seconds** after that it is likely to be travelling at 130kph.! That’s 80mph!

So the idea that you are likely to be able to ski off it to safety, is pretty much a myth. It is extremely regrettable that the extreme skier video makers have managed to catch one or two skiers being lucky enough to ski off to the side. This has led to a very dangerous misconception. The first thing that happens is that you fall over, and then you are at the mercy of lady luck.

WHO SURVIVES?

Approximately 25% of those caught in an avalanche, are dead before the avalanche stops, through serious trauma caused by striking rocks or trees, or simply being mangled by the huge snow blocks which form, and which are as hard as concrete.

Of those still alive at the bottom, those who are lucky enough to have access to the surface or a permanent air supply will probably survive.

If you are buried (and you are likely to be), time is your enemy. You can forget the myth about spitting to see which way is down, and then digging yourself out in the opposite direction. Which way is up is immaterial. Your mouth and nose will be so packed with ice that you couldn’t spit if you wanted to. Even if you could, you will be so tightly ice-packed that you will not be able to move even a finger, never mind move hands and arms. So your survival is all up to the folk you are skiing with (the rescue services are not likely to be there in time if you are buried).

In 1995 I helped to dig-out a skier who had started an avalanche which deposited him no more than 20 mtrs from the piste. He had been fortunate enough to be just below the surface and with one hand and arm free of the snow – and yet he was completely helpless, unable to get himself out, and slowly freezing to death. He had been there

about twenty minutes when we heard him; in another twenty minutes he would have been too cold to make himself heard.

If your head is dug clear in less than 15 minutes you have about a 97% chance of **surviving**. Great news. The bad news is that you might have suffered some brain damage after ten minutes or even less.

After that the survival graph simply collapses. After half an hour only 30% of those who were alive when the avalanche stopped are still alive (that's 23% of the original total – 77% are now dead). After that 30 minutes anyone left alive will be the one lucky enough to have a sizeable air pocket, and if you do then you've got about two hours, after which hypo-thermia will get you! It's tough at the top isn't it?

So what's the **good** news?

Well, happily there is some. The good news is that you can do a huge amount to help yourself not get caught in one in the first place. All it takes is for you to start learning about snow; start being less cock-sure; and stop making “first tracks” – you know, all that whoopee stuff – “Yeah untracked fresh snow, gotta be the first down this!” Instead, be last one down it, they might need you for digging duty. Some other good tips are :-

- NEVER go under ropes which are there to stop you proceeding, unless you really do know what you're doing.
- NEVER assume you know what you are doing.
- ALWAYS go with someone experienced in that resort, preferably a professional guide. The great thing about guides is that they have a very firmly held conviction that getting home that night is a highly desirable goal.
- NEVER ignore warning signs.
- NEVER listen to the chap who says “..should be ok, we went down there yesterday”. Yesterday was a different day.
- ALWAYS let what one American avalanche expert calls the “Volunteer Avalanche Testers” go first onto any slope of which you may have reason to be suspicious. There are always plenty of idiots who want to be first onto that area of beautiful untracked snow. And let a few of them go, not just one.
- ALWAYS check out the avalanche condition signs which are to be found dotted about the mountain at key lift stations. Remember that “Moderate Risk” - N^o 3 on most warning sign posts – still means that there will be slopes on which human-triggered avalanches are perfectly possible, and they could be of considerable size and power.

Avalanche risk assessment is extremely difficult; very few people are expert at it; and it is all a matter of judgement.

The best judgement you can make is to get hold of some books and learn them. Go on avalanche awareness and rescue courses. Practice avalanche rescue. And never think you know it – none of us does.

The British Int'l Ski Coaching Club (B.I.S.C.C.) provides a variety of “off-piste” and back-country course weeks, which include training **on**-piste to ready you for off-

piste; off-piste skiing; powder skiing and back-country skiing adventures all using top U.I.G.H.M. mountain guides.

If you would like to know more about avalanches **email us at** “**avalanche@biscc.org.uk** “ and we will have a coach make contact with you and discuss how we may be able to help. If you want course information email **courses@biscc.org.uk** or visit **www.bobski.com** where a course list is published.

© Bob Valentine Trueman 2005