

## HOW TO RUN AN AVALANCHE COURSE WHEN YOU HAVE NO SNOW. A PECULIARLY SCOTTISH PERSPECTIVE !!!

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**ABSTRACT:** Scotland can be an exasperating place to run avalanche education courses. One day you can be wading around in thigh deep, highly unstable windslab. The next day a thaw will have stripped the hill bare leaving a very stable but ultimately boring snowpack. A flexible approach, a good imagination and a sense of humour is a pre-requisite for all avalanche instructors working in the Highlands of Scotland. This paper looks at some of the teaching methods we have adopted to help us run avalanche education courses in Scotland's fickle maritime climate.

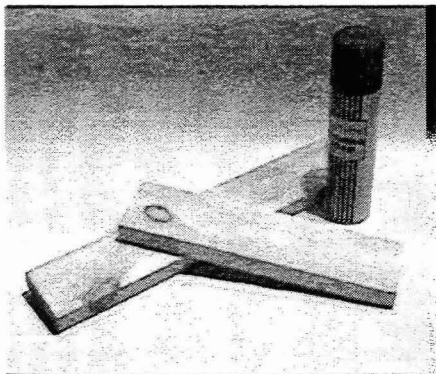
### 1. INTRODUCTION

Although Scotland lies very close to the Arctic Circle its Maritime climate produces conditions which are often extremely changeable. It is important to take advantage of favourable teaching conditions when they occur. When they don't, then making use of slides, video footage, props and role play helps us run informative and enjoyable avalanche course. Some ideas are new, some borrowed but all are available for other avalanche educationalists to go away and use themselves.

### 2. WOOD AND FOAM (Blag Blocks)

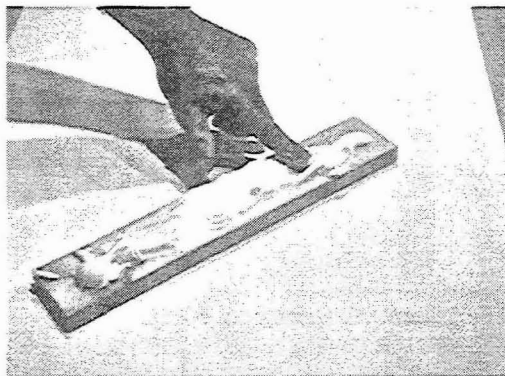
This practical but simplistic exercise helps demonstrate the concepts of layering in the snowpack and the mechanism of slab release.

All you need are two bits of wood a can of shaving foam and an audience.

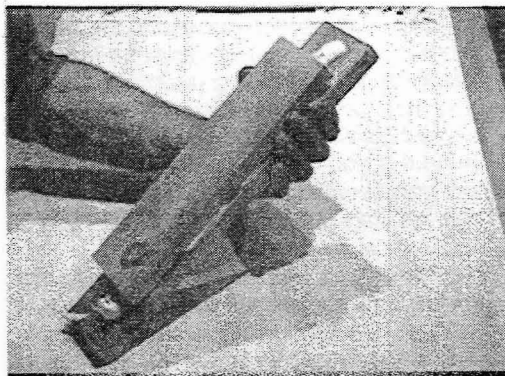


I often describe it; 'the first piece of wood is the bed surface, not necessarily a hard icy layer, but a firmer layer of snow already on the ground. Next a storm comes in. To start with the snow is soft' (put a dollop of foam onto the

block and spread out to a depth of one centimetre or so).



'The storm now intensifies and the snow that is deposited is firmer, more cohesive, slabby' (lay on the second piece of wood). 'On the flat its not a problem. Put it at an angle then perhaps it is with most slab avalanches occurring between 30 and 45 degrees' (demonstrate this by tipping the wood and foam to the required angles but holding onto the top piece of wood to prevent a pre-release).



'This unstable snowpack might sit like this for seconds, minutes, hours, days even and then something or someone comes skiing or

walking along and their weight is enough to overload things' (allow block to slide down on shaving foam, this works better if you crank the angle up a bit).

Other issues that can be raised if appropriate are;

If the top block is lifted off shaving foam is found on both bits of wood demonstrating that the shear failure has occurred within the weak layer.

By changing the layering order and stating that the soft snow lies on the slab which is itself well bonded to the old firm layer then there is a low hazard of slab avalanche but in the right conditions loose snow slides are possible.

This demonstration is further complimented by showing video footage of slab avalanche releases.

This exercise can also be used in the field by substituting blocks of wood and foam for your favourite strawberry jam sandwich and talking through how the top piece of bread could slide off if you hold the whole thing at an angle. Take care not to drop your lunch in the snow. Better still use a sandwich borrowed from one of your students.

## 2. LOOSE PERSON AVALANCHE

This practical demonstration involves the lecture audience.

Briefly describe how a loose snow/single point release starts with a small amount of cohesionless snow and picks up more as it slides downhill.

Get everyone to stand up and be snow crystals with long fragile arms and although all close together not actually bonded to each other (you might have to get them to move closer together if there are any spaces in the audience). Tell them that all this is taking place on a steep snow slope and things are looking quite precarious.

Describe how if anyone is tapped on the shoulder they in turn should tap the shoulders of the people within reach in front of them and then sit down. Now run round to the back of the audience and select someone in the centre to be first snow crystal to be dislodged. Tap them on the shoulder and 'hey presto' a wave of people sitting down should propagate in front of you and with luck should leave a wedge of seated people with those 'untapped' folk left standing conspicuously with their arms in the air at the margins.

For anyone who did not understand the instructions and are left standing within the wedge (probably looking around perplexed and embarrassed by this time) then they can be said to simulate a stand of trees, rock outcrop (an island of safety).

This demonstration can be conducted in the field with smaller groups standing close together acting like snow crystals. Get one person to slowly fall back in to another to start the process off. Try to encourage the participants not to be too over zealous otherwise you may be faced with a law-suit from students with broken limbs. Worth reading Steve Congers article (Avalanche Review, December 1999).

## 3. JIGSAW

This teaching aid was developed from an idea put forward at the ISSW '94 by Jill Fredston.

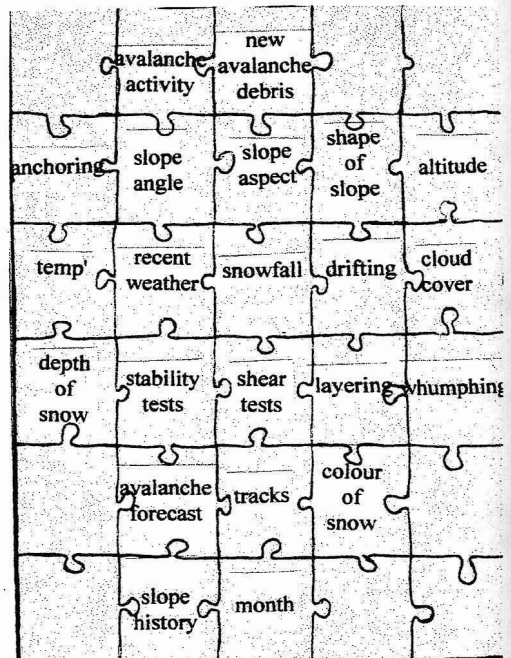
It helps students consider what information should be taken into account before venturing onto a snow slope and helps them rationalise a multitude of variables.

Set the scene by giving them this statement;

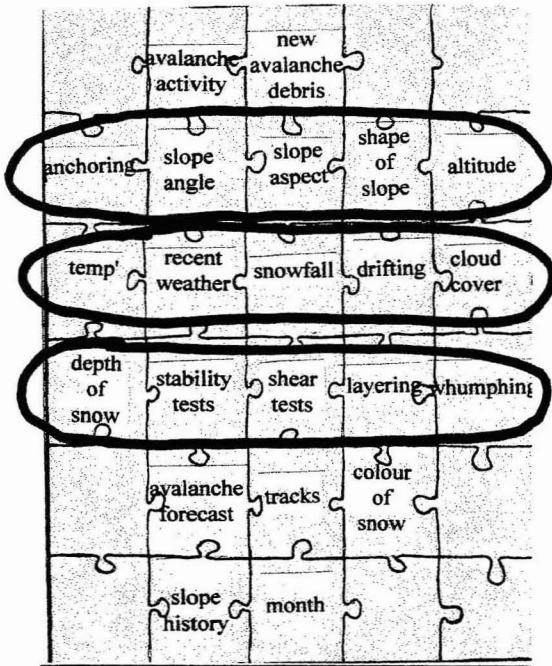
'You have been back country skiing for the day. It's getting late and you arrive at the top of a slope that you planned to ski. Make a list of all the factors that you think you need to consider before you make your decision'.

Working in pairs they can then read out what they have written whilst the results are scribed straight onto a template on an overhead projector. List everything but put terrain, weather and snowpack factors on the same line. Avalanche occurrence and recent debris, nature's biggest clues, gets pride of place at the top. All other information although worthwhile ends up below.

Jigsaws tend to end up looking like this:



I then talk through the results and circle the rows listing terrain, weather and snowpack.



This exercise seems to help students rationalise their thoughts in what initially seems quite a complex process. This theme can be continued on the mountain getting students to give yes or no answers to the questions;

1. Is the terrain capable of producing avalanches?
2. Could the snow slide?
3. Is the weather contributing to instability?
4. What are your alternatives?

#### 4. A ROCK AND A HARD PLACE

We all know that the best but most nerve racking conditions for running avalanche courses is when the snowpack is unstable. An exercise that works well and stops you getting too many grey hairs from having to get your group any where near avalanche start zones and is also particularly effective when snow conditions are stable is to;

Get onto a slope where the answer to question 1. above is yes.

Give the group fictional stability test results and weather conditions and let them come up with solutions to question 4.

By changing the weightings of the information you give, you can vary the scenarios to suit yourself and your group.

This then leads neatly on to a session on group dynamics, route choice and safe travel techniques in an environment where the perceived risk is high but the actual hazard is low.

#### 5. VIRTUAL RESCUE

Another classroom exercise which can proceed a rescue session is by showing the series of four slides taken by Tom Fankhanel of the skier triggering a slab avalanche.

Show your group the slides at real speed leaving the last slide on. Tell them they are one of the people stood at the top. What are they going to do now? Tell them you are starting a stop-watch which helps add some urgency to the proceedings.

If you have done a sketch diagram of the last slide on a big piece of paper you can mark in where they last saw the skier, how they are going to get to the debris site, the size of the area that they are going to search and the search technique.

This is a good one as the skier had actually skied out of this one but students often forget to mention to check for tracks leaving the debris.

#### SUMMARY

I have found all these exercises useful at various times as teaching aids on courses. Please feel free to steal/borrow them for your own lessons.

Although a serious subject there's no need for us to be when we're teaching it.