
BE AVALANCHE AWARE!
90%
OF VICTIMS TRIGGER THEIR OWN AVALANCHE
GUIDELINES
FOR WALKERS, SKIERS, CLIMBERS, AND SNOWBOARDERS

BE AVALANCHE AWARE!

HOW TO USE THESE GUIDELINES

IDENTIFYING AVALANCHE HAZARD IN THE HILLS AND MOUNTAINS THROUGHOUT THE WINTER IS A CHALLENGING PROCESS.

Constantly changing weather factors, from temperature and snowfall to wind speed and direction, can affect the strength and stability of the snowpack. So it's vital to keep a close watch on conditions during the season – especially throughout any mountain excursions.

This guide outlines the decision-making process and the fundamental considerations of assessing avalanche hazards in the winter mountains. With the advice on these pages, together with the corresponding resources overleaf, you should be able to make better judgements on where and when to go.

When making any decision in the winter mountains always consider these 3 factors:

These factors should be considered during each of these 3 important phases:

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PLANNING AT HOME

This is the most important phase in evaluating avalanche hazard. By gathering avalanche information and updates on conditions throughout the winter, you will be better equipped to make the right decisions on any excursion – as well as having an indication of what's happening beneath the snow's surface.

RESOURCES

WEATHER & CONDITIONS

ATTENTION!	ADVICE	RESOURCES
Snow is lying on the hills and mountains? Expect the risk of avalanches in many locations.	Read published avalanche reports and consider weather forecasts for wind, precipitation and temperature. Obtain any additional information from other people or organisations on where and what level of hazard exists.	8
Windy? Wind above speeds of 15mph will transport snow and form unstable windslab.	Check map and, using wind direction, work out where new snow will probably lie. It will usually form on a range of sheltered or lee slopes. Read avalanche report text carefully to determine the places where new and unstable snow may be accumulating.	1 8
Cold or Warm? Low temperatures over a few days (e.g., freezing levels at 900m and below produces and maintains instabilities in the snowpack, while warm temps and rain at summit levels produce rapid instabilities in the snowpack).	Read avalanche reports regulalry and research snowpack history to identify where avalanche snow instabilities may be. Read weather forecasts daily, noting weather patterns, including wind speed and direction, temperature, precipitation amount and freezing levels.	8

YOU & YOUR PARTY

Using Map and Compass Poor visibility requires good navigation ability to avoid avalanche hazard areas.	Read published avalanche reports to determine where and what level of hazard exists. Get additional information from other people who know about the place you are visiting. Use the contour tool to check slope angles and shape.	8 9
Equipment and Clothing Good clothing and equipment is essential for managing yourself safely in winter conditions.	It is essential that you are confident in using crampons and ice axes, as it is important to travel securely to avoid avalanche-prone slopes. If you are on skis or snowboard, it is important that you carry transceivers, probes and shovels – and that you are well-practiced in using them.	
Experience You must be equipped, skilled and prepared for your particular trip.	Are you fit for travelling in deep snow? Are severe winter conditions a possibility (windy, blizzards, hard and icy snow surface)? If the terrain is remote, steep and complex, this will require good mountain skills. Ensure you have a flexible plan.	

MOUNTAIN LANDSCAPE

Is it steep? Most avalanche occur on slopes steeper than 30°.	Read published avalanche reports to determine where and what level of hazard exists. Do you understand what the hazard level actually means in your chosen location? Use the contour tool to check slope angles and shape.	3 8 9
What slope aspects will you encounter? Wind will transport snow and form unstable windslab above speeds of 15mph.	Look at a map to determine where new snow may lie. It usually forms on a range of sheltered or lee slopes. Read avalanche report to determine where other unstable places may be or speak to people who have current knowledge of the area, like ski patrol or trusted local climbers.	1
Complex terrain? This will require good navigation and constant evaluation of avalanche hazard, especially in poor visibility.	Good navigation and route finding is essential to avoid unstable slopes and the threat of being carried into bad places (e.g., terrain traps or convex slopes) by even small avalanches. Carefully read avalanche reports, maps and guide books to identify potentially hazardous places.	5

BE AVALANCHE AWARE!

YOUR MOUNTAIN JOURNEY

You should already have a good understanding of the avalanche hazard before you set out. Throughout the day you should continually observe weather and snow conditions both underfoot and around you – and consider its effect on avalanche hazards along your planned route.

RESOURCES

ATTENTION!	ADVICE	RESOURCES
WEATHER & CONDITIONS		
Poor visibility? You will not be able to make route choice observations.	Consider large scale, safer terrain features for travel. Accurate navigation will be necessary to avoid potential unstable slopes.	2
Avalanche activity? Seeing avalanche activity indicates an unstable snowpack.	Note the aspect where the avalanche took place and avoid slopes of similar aspect.	
Windy? Snow moving around at your feet or on ridges etc indicates unstable snow is accumulating.	Snowpack instabilities should be expected - note aspects where new snow is accumulating and select an alternative.	1 2
Snowpack cracks underfoot? Small or large surface cracks, and whoomping sounds are clear signs of instability.	Weaknesses are present in the snowpack, as well as windslab - note aspect and select alternative. Monitor how the snowpack behaves underfoot throughout the day. Think ahead: if this is what you find here, what does it mean for the rest of your journey?	4
Cold or Warm? Low temperatures over a few days (e.g. freezing levels at 900m and below produces and maintains instabilities in the snowpack, while warm tempertures and rain at summit levels produce rapid instabilities in the snowpack).	Remember info from avalanche report but use your senses too - look and feel constantly. Instabilities will persist in the snowpack when it is cold. Check for cracking underfoot throughout the day and during your journey - note aspects. If it is warm, consider cornice collapse triggering avalanche from above.	7 8
YOU & YOUR PARTY		
Poor visibility? Can you navigate well?	Poor visibility requires requires good navigation ability to avoid avalanche hazard. If you are not confident, select alternative objective in safe terrain.	2
Equipment and Clothing? Do you have the right clothing and equipment, and know how to use it?	Check to see you have everything you need before starting out. If you are wearing transceivers, make sure that they are turned on and check your partner's too. Carry a probe and shovel.	
Are the conditions different to what you expected? Are you (and party) coping well?	Monitor your progress if the snow is deep and the winter conditions are severe. If terrain is remote, steep and complex, good mountain skills and fitness will be vital. If you are unsure, consider an alternative plan.	
MOUNTAIN LANDSCAPE		
Unstable slopes? Can you see that your proposed journey crosses identified unstable slopes or are you are uncertain?	Consider alternative routes and safer terrain. Be aware of collapsing cornices and/or people above you triggering an avalanche.	2
What is happening around you? Snow distribution continually changes, especially during windy days.	Always look at the landscape around you and observe where snow is lying or where unstable slopes could be. Use this information throughout the day to help you choose safer routes to travel.	
Complex terrain? This will require good navigation and consideration of avalanche hazard especially in poor visibility.	Good route finding is essential for avoiding unstable slopes and the threat of being carried into confined places by avalanches. Carefully read avalanche reports and relate this information to maps and guide books to identify potentially hazardous places.	5

BE AVALANCHE AWARE!

KEY PLACES DURING YOUR DAY

By the time you reach the foot of a key slope during your journey, you should be well aware of the avalanche hazard – through careful planning and from making observations throughout the day. If you are not, you will be at a huge disadvantage, without the knowledge and understanding to make good decisions. At key places, consider your own condition. Are you fatigued? How is your party? Is the weather poor? Be open to changing your plan.

RESOURCES

ATTENTION!	ADVICE	
Poor visibility? Considerably limits your ability to make safe route choices and may expose you to avalanche hazard.	If you cannot see slope shapes and you believe that slopes are unstable, or if you are uncertain, consider alternative plans.	2
Avalanche activity or unstable snow? Seeing avalanche activity indicates an unstable snowpack.	Note the aspect where the avalanche took place. If you have observed signs of instability, avoid slopes of similar aspect.	2 5
Windy, drifting snow, snowing? Is snow continuing to accumulate?	Snow pack instabilities should be expected, especially high up in gullies and at the tops of slopes. Snow accumulating at rates greater than 2cm/hr is critical for increased instability and avalanches.	2

WEATHER & CONDITIONS

Uncertain? You think there may be instabilities and/or the weather is poor.	Make decisions collectively and only proceed when everyone is confident. Avoid pressing on because you think others want to continue. Are you fatigued? Is the weather intimidating? Be open to changing your plan.	
Other people? If other people are around, does that make it ok?	Avalanches can occur on a slope even if tracks or people are already present. Weaknesses in the snowpack may be confined to small areas but once triggered can effect the whole slope.	
Party Management Avoid grouping together on a slope.	Keeping a good distance apart is always good practice when travelling and reduces exposure to avalanche involvement. Think about where to stop.	2 5
Does it feel right?	If you are feeling uncertain there may be a good reason.	

YOU & YOUR PARTY

Uncertain? Not sure about your location or your options.	Consider consequences of an avalanche small or large. Are you in narrow valleys, below or above cliffs and boulders? These can all worsen the avalanche effect. Avoid these places if you are uncertain or instability is present. Choose alternative route.	2 5
Convex (bulging) slopes? Avalanches will release from these locations if instabilities are present.	Avoid convexities, these are places where the snowpack is under greatest stress, activity here may trigger an avalanche.	6
Slope stability?	It is not always possible to be certain about the stability of a slope. If you are concerned, choose safer route options, consider alternatives or retreat. Remember you can always come back another day.	2 5

MOUNTAIN LANDSCAPE

BE AVALANCHE AWARE!

TERRAIN FACTORS & OBSERVATIONS

BE AVALANCHE AWARE!

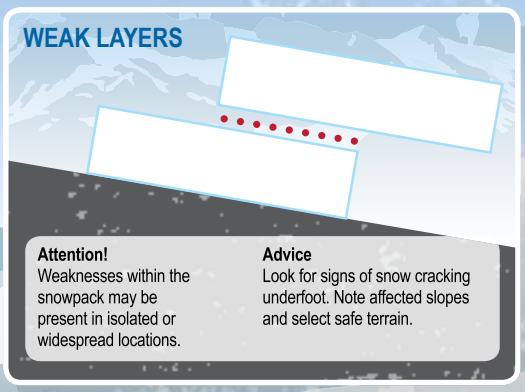
7 KEY SNOW STABILITY OBSERVATIONS

WHAT DO THESE DIAGRAMS MEAN?

These show the snow stability observations which the avalanche forecaster considers most important and are included in the online avalanche information reports.

So if any of these are highlighted in the avalanche forecast, it is important that you read the reports carefully to establish where the hazard lies. It is also vital that you look for these signs yourself while travelling in the winter mountains.

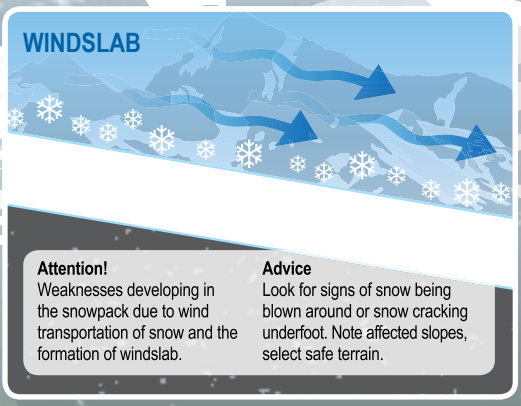
WEAK LAYERS



Attention!
Weaknesses within the snowpack may be present in isolated or widespread locations.

Advice
Look for signs of snow cracking underfoot. Note affected slopes and select safe terrain.

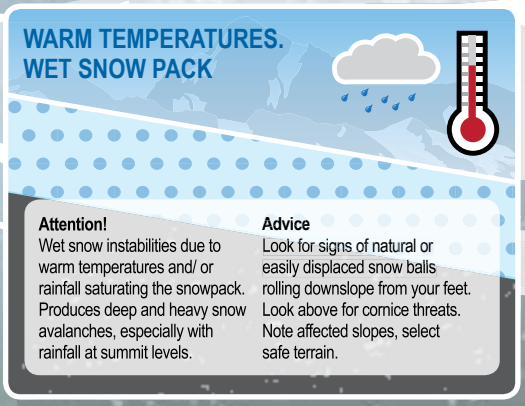
WINDSLAB



Attention!
Weaknesses developing in the snowpack due to wind transportation of snow and the formation of windslab.

Advice
Look for signs of snow being blown around or snow cracking underfoot. Note affected slopes, select safe terrain.

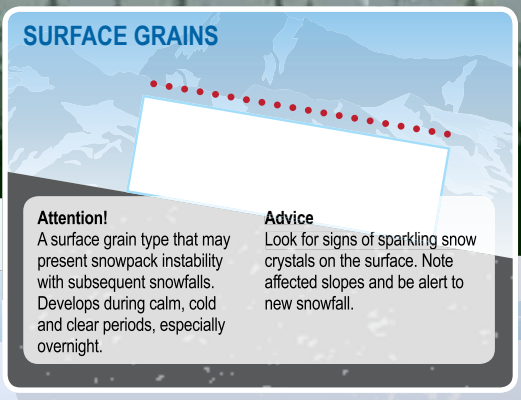
WARM TEMPERATURES. WET SNOW PACK



Attention!
Wet snow instabilities due to warm temperatures and/ or rainfall saturating the snowpack. Produces deep and heavy snow avalanches, especially with rainfall at summit levels.

Advice
Look for signs of natural or easily displaced snow balls rolling downslope from your feet. Look above for cornice threats. Note affected slopes, select safe terrain.

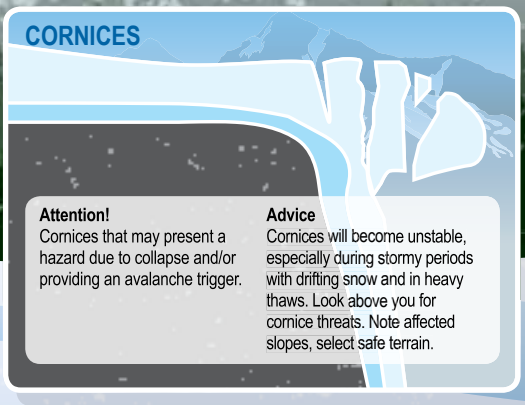
SURFACE GRAINS



Attention!
A surface grain type that may present snowpack instability with subsequent snowfalls. Develops during calm, cold and clear periods, especially overnight.

Advice
Look for signs of sparkling snow crystals on the surface. Note affected slopes and be alert to new snowfall.

CORNICES



Attention!
Cornices that may present a hazard due to collapse and/or providing an avalanche trigger.

Advice
Cornices will become unstable, especially during stormy periods with drifting snow and in heavy thaws. Look above you for cornice threats. Note affected slopes, select safe terrain.

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8 AVALANCHE HAZARD & TRAVEL ADVICE TABLE

HAZARD LEVEL	TRAVEL ADVICE
 VERY HIGH	Widespread natural avalanches will occur – and a single person load will trigger an avalanche on most slopes. Good visibility and route-finding in mountain terrain is essential, as is experience in avalanche hazard evaluation. You should be aware of – and avoid – runout zones at low altitudes, while it's vital that you manage your group carefully and use mountain features (e.g., ridges and protected slopes) to travel safely.
 HIGH	Natural avalanches will occur – and a single person load will trigger an avalanche on some slopes. Good visibility and route-finding in mountain terrain is essential, as is experience in avalanche hazard evaluation. You should be aware of – and avoid – runout zones at low altitudes, while it's vital that you manage your group carefully and use mountain features (e.g., ridges and protected slopes) to travel safely.
 CONSIDERABLE	Natural avalanches may occur – and a single person load is likely to trigger an avalanche on some slopes. Good visibility and route-finding in mountain terrain is important, as is experience in avalanche hazard evaluation. It's vital that you manage your group carefully and use mountain features (e.g., ridges and protected slopes) to travel safely.
 MODERATE	Human-triggered avalanches are possible, so good visibility and good route selection is important, especially in steep locations as indicated in the reports. You should manage your group carefully, keeping good spacing between people to reduce loading on slopes, while using mountain features (e.g., ridges and protected slopes) to travel safely.
 LOW	Human-triggered avalanches not likely. Generally safe travel conditions.

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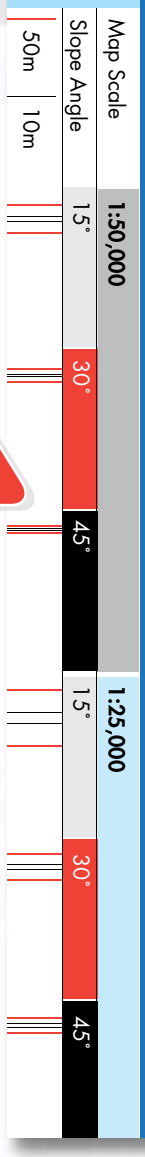
EXTERNAL LINKS & RESOURCES

9

Use this contour tool for determining slope angle on your map.



Contour tool not for use with PDF version

WHERE TO GET WEATHER FORECASTS:

www.metoffice.gov.uk/public/weather/mountain-forecast/
www.mwis.org.uk/areas.php

WHERE TO GET AVALANCHE FORECAST REPORTS:

www.sais.gov.uk
www.avalanches.org

WHERE TO GET MOUNTAIN ACTIVITY INFORMATION:

www.mcofs.org.uk
www.thebmc.co.uk

MOUNTAIN RESCUE – CALL 999 OR 112

Be prepared to supply the following informtion:

- Who is calling: name, phone number, location.
- What happened?
- Where did the accident happen?
- When did the accident happen?
- How many completely buried victims?
- Weather in the area?
- Avalanche beacons worn?

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COLLABORATIVE AGENCIES

- sportscotland Avalanche Information Service
- Snow And Avalanche Foundation of Scotland
- British Mountain Guides
- Glenmore Lodge National Outdoor Training Centre Scotland
- Plas y Brenin National Outdoor Training Centre England
- Mountaineering Council of Scotland
- British Association of Ski Patrollers
- British Mountaineering Council
- Police Scotland
- Mountain Rescue Committee of Scotland
- Scottish Mountaineering Club
- British Association of International Mountain Leaders
- Mountain Training UK
- Mountain Training Scotland
- Association of Mountaineering Instructors
- SLF (Snow and Avalanche Research) Switzerland

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