

Hill Skills: Contour interpretation by Roger Wild

The most useful feature on the map for navigating in the mountains is the contour line. Contour features can nearly always be identified on the ground even when covered in snow, and developing your contour interpretation skills is vital if you want to feel confident navigating in all conditions and on all terrain.

What is a contour line?

A contour line is a line on the map joining points of equal height. The 'vertical interval' is the height between each contour, and this will be shown on the map. Ordnance Survey 1:50,000 and 1:25,000 maps have a 10-metre vertical interval while the British Mountain Maps 1:40,000 scale maps have a 15-metre vertical interval. Some popular maps of the French Alps have a 10-metre vertical interval which changes to 20-metres when you cross over the border into Switzerland. So beware!

What is a contour feature?

What is a contour feature? It's actually pretty simple, as there are actually only six general types:

Ring contours: which portray knolls and hills (RC)

Saddles (S), bwlchs, bealachs(S)

Slopes: which could be gentle (GS), medium (MS) or steep (SS)

Valleys: they come in different shapes and sizes (V)

Ridges: which can be small, medium or large (R)

Flat areas: the absence of contours can be useful (F)



Example contour features by permission of Harvey Maps.

The illustration map above shows examples of all these features (the letters in brackets shown above refer to the features indicated on the map).

Contour interpretation

Contour interpretation is about relating the contour features on the map to the real features on the ground, and vice versa. Once the map is set, this can be done in three main ways:

1. Evaluate the ground under your feet. Defining the type of feature it forms will help with identifying it on the map. This can be done in both good and poor visibility.
2. In good visibility, look at features beyond your immediate location and identify them on the map. These features may be close-by or several hundreds of metres away.

3. In poor visibility, examine the contour features on the map and form a mental picture of what the ground ahead of you would look like if the visibility was good. Anticipating what the ground will be like before you arrive is very useful – it forces you to interpret the contours on the map.

Like all skills, the more you practice the better you become. On days with good visibility there may be a tendency to walk along looking at the view or chatting away, rather than studying the map in detail. A habit worth acquiring is to always spend part of each hill day developing your contour interpretation skills – even if it's not really necessary at the time. You could set a limit on the time you'll spend on this, maybe half an hour, or until you reach a particular landmark.

Build up a repertoire of images by matching up features on the ground with the contours on the map. For example, the illustration map shows two examples of a ridge (R). The westerly ridge is fairly narrow but is relatively easy angled (although there may be a short, steep section at the apex of the thick contour) whereas the easterly ridge is broader and steeper. By identifying these features on the ground you'll be able to store their images away for use in other situations where the terrain is similar.

Another example of feature variations can be found by examining slopes: how close together are the contours on a steep or medium slope, and how do you define a steep

Expert Q&A



This issue's expert is Nigel Williams. Nigel has been Head of Training at Glenmore Lodge for 11 years. A Mountain Instructor, nordic skier and orienteering coach, he's passionate about the coaching of navigation.

Q. Is orienteering a good way to develop my navigation skills?

A. Definitely. Most of us don't practice the full range of navigation skills on a regular basis. Orienteering provides a brilliant afternoon's walk with a map. A mid-level course (light green) is about 3-4km, offering a dozen legs requiring navigation strategies and map and compass skills. A forest can be the equivalent of mist. You don't have to run or wear lycra and you'll marvel at the detail of the maps. See www.britishorienteering.org.uk to find an event.

Q. Does getting lost mean I'm a poor navigator?

A. No. Navigation is an art, not a science. Even the best of us get lost occasionally, usually because we've lost concentration. In fact I'd recommend getting a bit 'cartographically challenged' in order to practice your re-location skills. Again, orienteering provides an ideal opportunity to practice for real, and hopefully you won't end up 20km away from the car.

Q. What do you look for when buying a compass?

A. A compass is a scientific instrument, you generally get what you pay for. A long base plate is essential if you are aiming at things, keeping to a bearing and pacing. I like a good magnifying glass, especially with complex detail on say a 1:25,000 map. It is amazing what additional map information you can pick up when on ridges or between letters of words etc. I don't tend to like too much clutter on the base plate as I use centimetres and millimetres mostly to measure distances on the map.

Practice your navigation in good visibility.
Photo: Alex Messenger.



or medium slope anyway? Generally 45-degrees is too steep for walking, whereas 27-degrees is a reasonable angle, which we will call a medium slope. How do we know if the contours on the map are going uphill or downhill? Here's a few ways:

1. Look for the contour heights which are incorporated within the contour lines. Also remember that the contour height figures are printed on the map facing uphill – if you're looking at the figures the right way up you're looking uphill (on the map) and if

they're upside down you're looking downhill (on the map).

2. Rivers and streams flow downhill – they are useful indicators of high and low ground on the map.

3. Find the nearest hill (on the map) this will usually make it clear.

Develop a library of mental images of different features and how they are represented on the map by contours. This will increase your ability to work out where you are and to anticipate the ground which lies further ahead in your

journey. Once you begin to master contour interpretation, you'll feel more confident when navigating in the hills. ■

This is one of the navigation skills taken from the MCofS 'Navigators' Dozen' – a list of everything you need to know about mountain navigation. Roger Wild is the MCofS Mountain Safety Advisor. Roger co-wrote and co-directed the forthcoming Hill Walking Essentials DVD with Jon Garside (BMC) and Mal Creasey (Mountain Leader Training England).

Q. What is the most important element of teaching navigation?

A. Building confidence. Someone once said that "Navigation is 25% map work, 25% compass work and 50% confidence in the other two". Forget grid references and learning map symbols in the classroom – start navigating on small-scale orienteering maps with lots of information. Have a steady progression of learning, from map setting through to re-location skills, and use a non-threatening environment (such as school grounds or a park) before hitting a forest then the hills.

Q. What is the best way to introduce young children to navigation?

A. Orienteering! It's a family-friendly activity, kids can relate to the map scale and courses are graded in colours like ski runs. The teaching methodology has provided the UK with world-class navigators in every age group, whilst many of us who learnt 'map reading' (as opposed to navigation) on a 1:50,000 OS map in school struggle to navigate effectively later in life.

FURTHER INFORMATION



Hillwalking

Hillwalking is the official handbook of the Walking Group Leader and Mountain Leader scheme and it's packed full of advice to help you make the most of your time in Britain's hills and mountains.

www.mltuk.org

The Navigator's Dozen

Check out the Navigator's Dozen on the MCofS website for more navigational tips. www.mcofs.org.uk/navigators-dozen.asp

