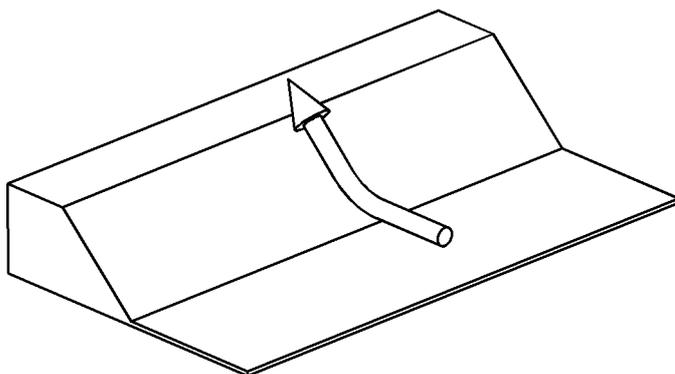


Before reading this article please read the [Safety Notice](http://www.50k-or-bust.com) which can be found at www.50k-or-bust.com . The index for other safety and training articles can be found at [http://www.50k-or-bust.com/PG Safety And Training Articles.htm](http://www.50k-or-bust.com/PG%20Safety%20And%20Training%20Articles.htm)

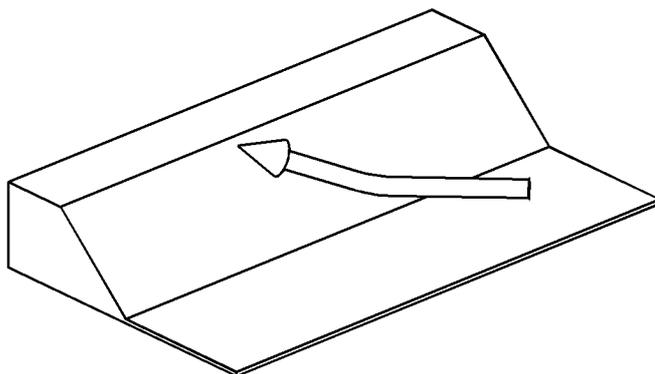
Slope Crosswinds - Nigel Page

Let's have a look at some things which can happen when the wind is not blowing directly onto a hill. With the wind directly "on" a long ridge (diag.1) we assume that all the air will go up over it.



(diag.1)

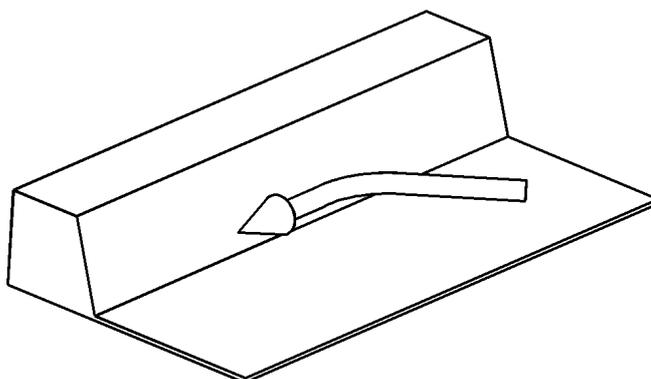
What happens when the wind is not directly "on" the hill?



(diag.2)

Air is deflected partly upwards and partly along the slope (diag.2). The air is deflected less upwards and there is less lift than when the wind is directly "on" the hill.

What if the hill is very steep?



(diag.3)

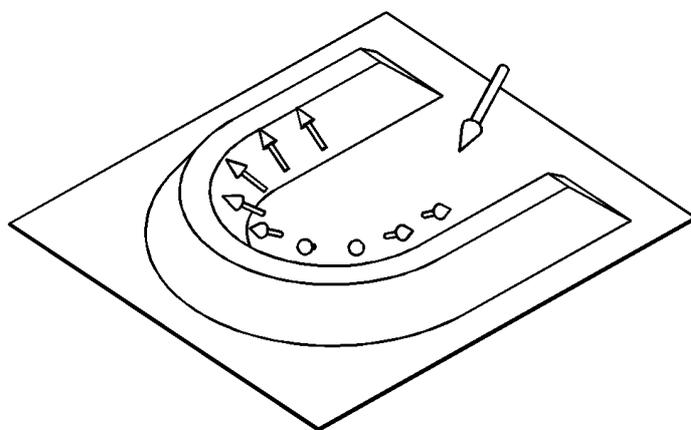
On the steep slope (diag.3) air is deflected more horizontally than with the shallow slope

and as a result we have even less lift. This is opposite to what we might expect if the the wind was directly “on” the hill, almost counterintuitive. With the wind blowing strongly across the slope any lumps and bumps on the surface are going to create turbulence too. Not a comfortable place to fly!

When the wind is not directly “on” the hill shallow slopes often work better and more safely than steep ones.

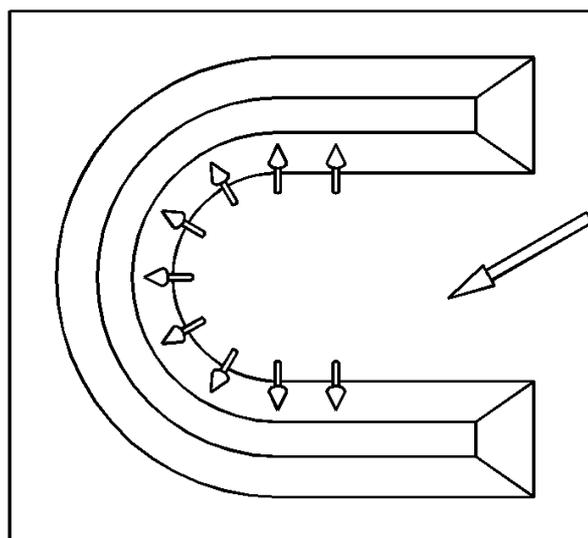
If the wind direction is too far across a hill it usually becomes unsoarable. However, it is sometimes surprising how “crossed” the wind can be and it still be possible to soar. Thermal action may “help” the slope lift and “pull” the wind onto the hill, but other factors can increase the lift on a slope too.

Sometimes lift is produced where wind blowing into the open end of a “dead end” valley forces air upwards around the rim (diags.4,5).



(diag.4)

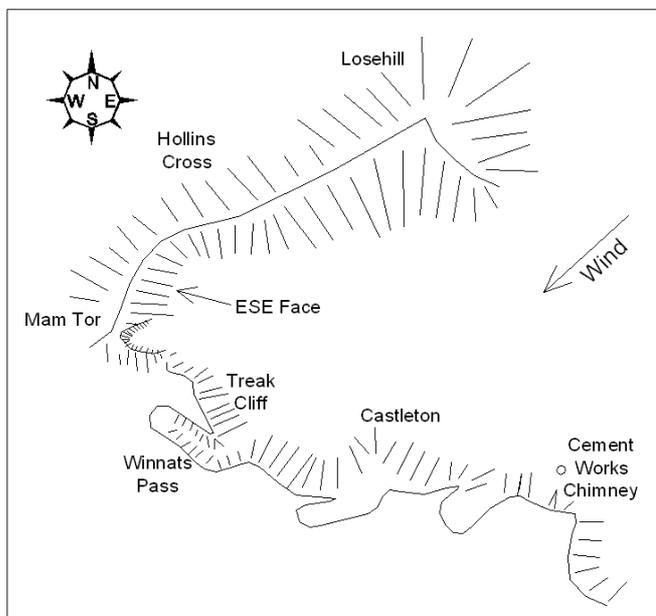
The geostrophic (meteo) wind is blowing into the open end of the valley at an angle, but air is still forced up all round the bowl at the end.



(diag.5)

These diagrams are exaggerated, but we might be able to soar all of the bowl even with the wind blowing only approximately into the end of the valley. Look familiar?

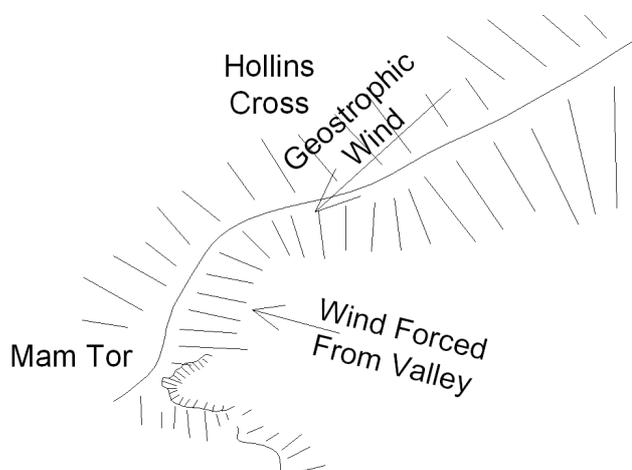
This sort of condition sometimes occurs in the Hope Valley enabling us to soar large areas of the west end in easterly winds. Diag. 6 shows the valley in a NE geostrophic wind.



(diag.6)

Some time ago before the cement works emissions were cleaned up it was much easier to see the direction of smoke from the chimney than at present. The smoke would show the approximate geostrophic wind direction quite clearly. It appears that we can sometimes soar from the SE face at Hollins Cross round to Treak Cliff and the NE face near Castleton in any approximately easterly direction.

Smoke or no smoke this is fine when it all works, but sometimes things are not so simple. Let's have a closer look at what can go on in the area around the ESE face of Mam Tor in a NE geostrophic wind (diag.7).



(diag.7)

Air forced up from the valley enables us to soar the ESE face of Mam Tor which is higher than the rest of the ridge. The NE geostrophic wind may not affect us here or may only make it feel as if the wind is a bit "off" the hill. However it may come over the lower ridge towards Hollins Cross as occasional gusts making the ESE face an area of potential turbulence and sink.

It pays to be aware of the direction of the geostrophic wind. Any steep slope with the wind strongly "crossed" should be flown with extreme caution. It may feel OK but may suffer unexpected and severe gusting and sink. If we find ourselves caught out this way we should resist the temptation to try and slope land in such difficult air. Much better to put some space between ourselves and the hill. If in doubt, run away and land somewhere safe!