

## Using wind shifts to your advantage

from : <http://www.tacktick.com/files/userguides/Usingwindshifts.pdf>

Your Tacktick compass has three primary functions:

- To aid in the detection of wind shifts
- To indicate the direction of the next mark
- To help establish bias in the starting line



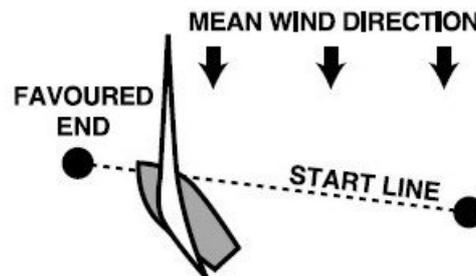
### Establishing the mean wind direction

Launch in good time and allow at least half an hour to determine the mean wind direction, as there may be an oscillating wind-stream with a period of 30 minutes or more. Establish the wind direction by sailing close hauled and noting compass headings, then split the difference between the average port and starboard headings. Alternatively set your Tacktick into its wind-shift mode and keeping an eye on the accuracy of your set-up, adjusting as required until you are satisfied you have the mean direction.

The more time you spend at this stage, the more accurately you will establish the size and frequency of the wind's directional shifts.

### Starting

The start line may not be set at exactly 90° to the mean wind direction. The crew who position their boat at the favoured end of the line will have an advantage. The digital precision of your Tacktick compass will help you to establish which end is favoured. Consult your user guide to understand how to work with your Tacktick at the start line.

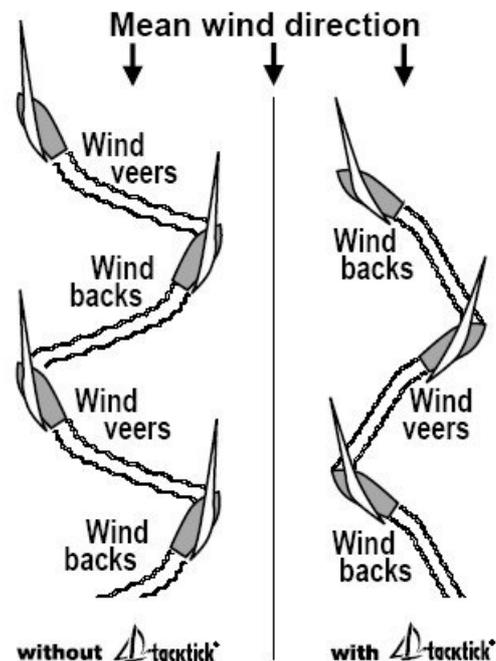


Note that a last minute wind shift may appear to favour one end of the line, but watch out! It may still be that the line is square to the mean wind and it will then pay you to start at the apparently unfavoured end, where the line will be less densely populated.

### General hints on shifting winds

Discounting extreme meteorological conditions such as thunderstorms, there are four main types of windshift:

1. A periodic shift in an oscillating wind-stream. In this case, success depends on estimating the mean direction correctly, and it is usually best to sail on the lifted tack. Note that it is possible to sail through a small header and still be lifted in relation to the mean wind - at this point you will pass a crew who simply tack on headers. Shifts of this type are often experienced in a variable north-wester in UK and continental waters. Small cumulus clouds are a trade mark of this type of wind-stream



2. A shift in the mean wind direction due to do changes in the overall pressure system. The weather forecast and weather maps may warn of this; which is why it is all important to be armed with an up-to-date local forecast before going afloat.

3. A 'bent' wind due to shore effects. A Championship course is supposed to be laid well away from land, but if the wind is blowing diagonally offshore it nearly always pays to work a little way inshore early in the beat as the opportunity allows. Should it then become apparent that the inshore course is favoured, you are in a good position to take advantage of it. Beware of going in too far too soon, or against an oscillating shift.

4. Sea breeze. This may arrive as a reversal of the wind direction, or the wind may swing towards the direction of the sea breeze. Try to ascertain in advance what is the usual sea breeze direction. The basic requirement for a sea breeze is sunshine: as the land is heated the air above it rises, and the colder air is drawn in from the sea. A strong offshore component in the prevailing wind - usually about 15 knots - will nullify the sea breeze. There may be local signs to give a clue as to the arrival of a sea breeze - ask around, but a good rough guide is that for about 20 minutes before hand, the wind will slowly die. Once the sea breeze is filling in, don't look for oscillating shifts. As it strengthens it will more closely approach its usual direction and later in the afternoon, the process will tend to reverse. The sea breeze will try to flow smoothly inshore and, being a rather shallow air movement will tend to flow around obstructions such as cliffs, rather than over them.

### **Using the shifts**

The basic action required in an oscillating wind system is the opposite to that when meeting major weather system shifts, bent winds or when the sea breeze effect swings the wind-stream.

In the first case, it is necessary to tack on headers, in the other cases it is usually best to sail on further when headed: the further you sail the more the effect is likely to increase and the greater will be the benefit when you finally tack for the weather mark.

### **And understanding them**

If you are working an oscillating system and one of the other types of shift appears - perhaps without warning - be prepared to cut your losses and sail across to the better side of the beat. If for example, you tack on a header and are then freed more and more, identifiably more than for previous shifts, then you should suspect this is happening.

Serious winners are most likely to be those who appreciate the art of this subject, and react rapidly to it.

### **The benefits of a Tacktick precision digital compass**

Tacktick compasses are precise, lightweight, and easy to read, so you can spend less time looking at the compass, and more time thinking through the tactics.

They are also portable and straightforward to install, so you can take your Tacktick from boat to boat, and rapidly set up for tactical racing.

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