

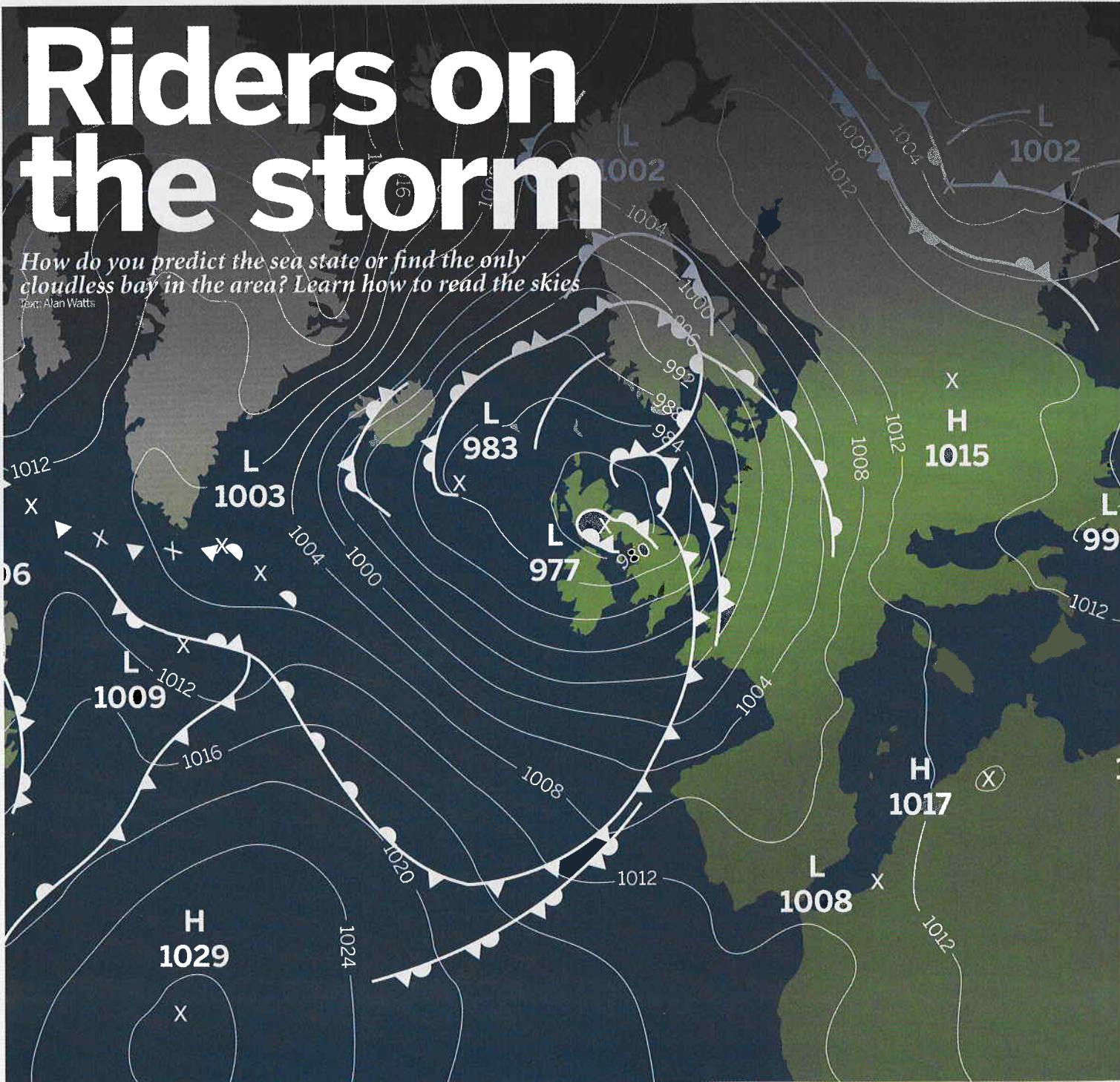
KNOWHOW

All the answers to the important questions

Riders on the storm

How do you predict the sea state or find the only cloudless bay in the area? Learn how to read the skies

Text: Alan Watts



Weather and forecasting has an incredibly important role to play when preparing for a trip and when on passage. Thankfully today's computer-generated forecasts and input from satellites and radar have taken much of the guesswork out of general forecasts.

The Met Office can now give you five-day forecasts. These are good to get a general feel for the days ahead, but there's often a big difference between what the forecast says and

what we experience out on the water. For instance, a forecast of calm conditions in Lyme Bay can often see people setting out only to discover a truly miserable sea state as they round Portland Bill.

This is explained because the forecast doesn't – and can't – predict hyper-local conditions of the kind boaters deal with on every passage. It is therefore important to analyse wind, cloud, rainfall and predicted

fronts to give yourself a better idea of what weather you may experience in your local cruising area.

How can you find those areas that will get the best weather on a changeable weekend trip? And what skills can you call on to ensure your passages are as safe and comfortable as possible? If already out on passage, knowing how fronts work could help you decide when to turn back or when to try to outrun bad weather.

HOW DO I ASSESS THE CONDITIONS?

You can get the coastal and inshore waters forecasts either from the BBC's or the Met Office's websites. Otherwise you can fall back on the Shipping Forecast, which is of debatable use to motorboaters unless you're planning on heading across the Channel. Local radio stations probably give the best service if you are not going so far afield.

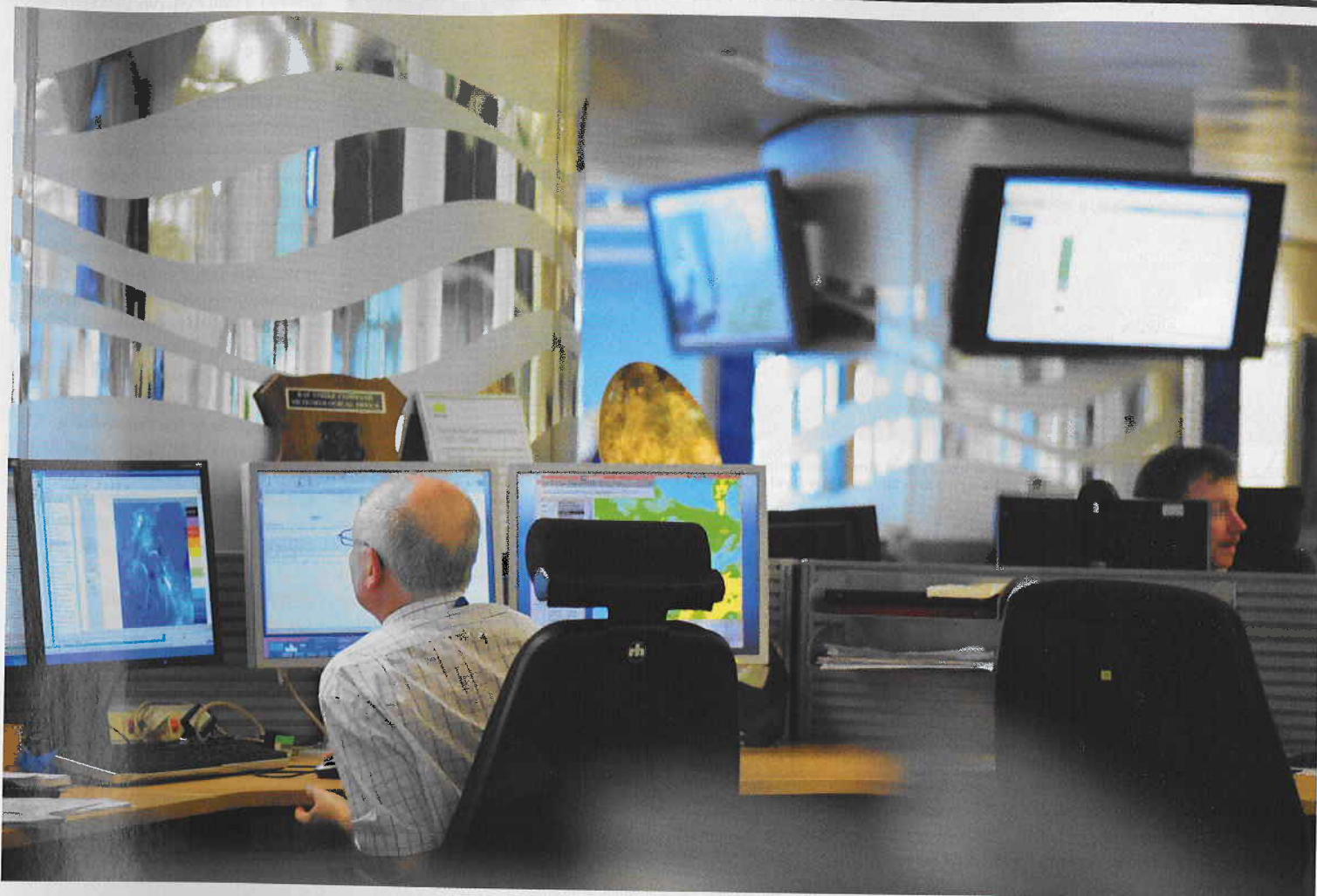


Photo: Tim Pestridge, Alamy

Forecasters at the Met Office's HQ in Exeter are able to predict with a reasonable amount of accuracy what the weather will do up to five days ahead. Pooling these forecasts together with your own knowledge and more in-depth local forecasts will help you work out what the weather will be doing while you're on the water

Having to climb over the promontory gives the airstream a lift, which can produce the right conditions to make a hole in the clouds

If you're familiar with weather charts, then the forecast charts of the Met Office (www.weathercharts.org) are a good option for planning ahead. They are issued for professionals but once you have got used to ignoring things like 'thickness' and know what 'gradient of the isobars' means then you will often see how fronts that appear as a single line on the TV are in reality several fronts, explaining why the front you expected to clear seems to hang on and continues to get you wet.

HOW CAN LOCAL GEOGRAPHY AFFECT CONDITIONS?

Local geography can produce real quirks in the weather. For example, just within the entrance to Salcombe estuary in Devon there is a delightful little cove called South Sands, which is

sheltered by a massive promontory called Overbecks. When the wind is from the south-west it has to blow over this promontory. Even when the rest of the coast is shrouded in low cloud and fog, this can create sunny intervals at South Sands. Go a few hundred metres further inland – to the head of Salcombe estuary, for example – and the murk closes in again. This is because stable airstreams are prone to develop waves (see Figure 1 – stable winds) creating localised breaks in the clouds. Even if the sun does not come out then at least it can make for a break from the drizzle.

However, if the air should become unstable, as happens when a cold front or occlusion passes, then far from creating a sheltered anchorage in the lee of the headland, this can actually



FIGURE 1: The top diagram shows how unstable airstreams continue to climb after being forced up over a promontory, causing heavy showers. The lower diagram shows how a stable airstream forms a wave pattern, creating breaks in the cloud.

make for more dangerous localised conditions. Now the lift up over the promontory allows the airstream to create rising currents large enough to

build into a shower or squall, meaning you get wet, and have an uncomfortable ride at anchor (see Figure 1 – unstable winds).

CLOUD GUIDE

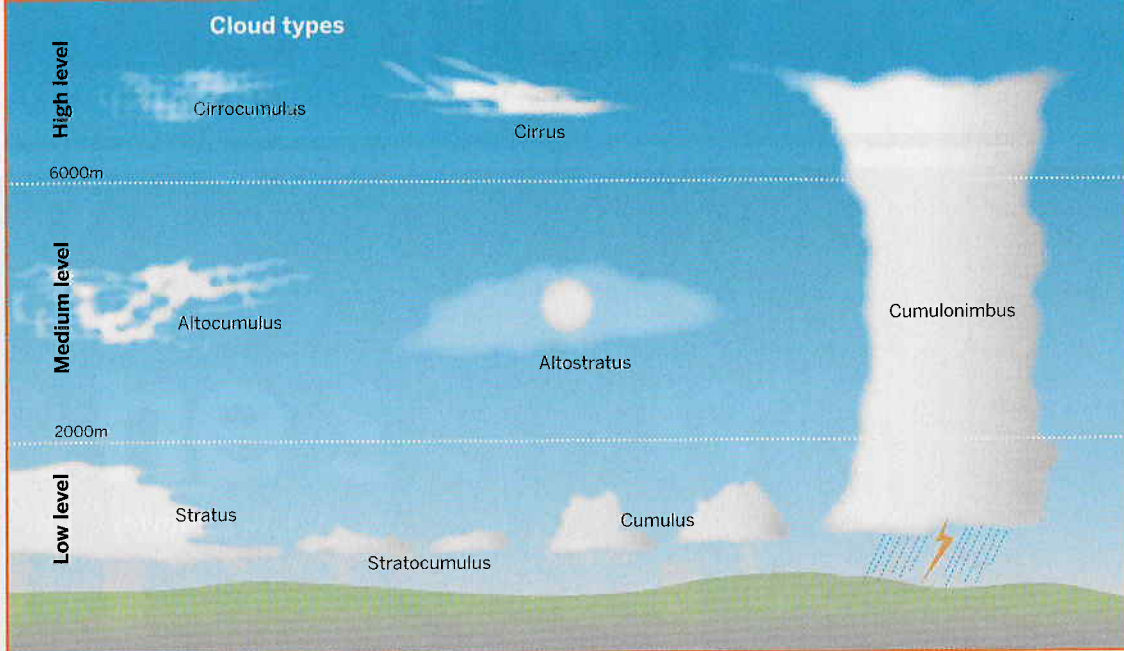


FIGURE 2: High clouds are mainly comprised of ice crystals since their temperature is so cold at their elevation. Medium-level clouds tend to be made up of water droplets and ice crystals, and low-level clouds are mainly made up of water droplets

DOES THE WEATHER FOLLOW A PATTERN?

Generally, yes, and that pattern depends on what's upwind of you. If it's land and not much water then your weather will be land weather. If there are tens of miles of water between your boat and the nearest sizeable lump of land, then it will be sea weather.

If the weather is stable and there are no fronts approaching, land weather goes through a set of daily changes where wind and cloud tend to be least around dawn. The wind increases during the forenoon and becomes strongest in the early afternoon. It then decreases through the evening and into the night. Thus wave conditions often follow this diurnal variation.

Sea weather does the opposite. The afternoon wind is, in general, at its lowest during the day and builds to a maximum in the evening and night. Of course the increase and decrease of isobar wind will make a nonsense of these rules but even so they are a good guide as to what usually happens.

WHAT SHOULD I BE WARY OF?

More than anything, showers. This word on the domestic forecast covers a wide range of weather where rain is going to be on and off, but a true shower comes from cumulus or cumulonimbus clouds whose bases are a few hundred feet up and whose tops may reach up to 30,000 feet or more (see Figure 2).

These showers – as opposed to periods of rain from layer clouds – start and stop suddenly and are often intense. Importantly, they may bring sizeable gusts to the surface and may temporarily double the wind speed. Even if you think you are nicely tucked

Real showers start and stop suddenly and are often intense, may bring sizeable gusts to the surface and could double the wind speed

up in the lee of some rocky bay or cove, the downdraughts from these cumulus clouds can bring local squalls, which have not been softened by having to traverse higher ground. To assess the strength of shower clouds, look at the tops of them. If they are pretty solid, then there's a good chance of a shower.

The biggest squalls (from which you cannot hide) come from cold fronts as they pass. The showers appear suddenly, from an angry-looking line of cloud stretched across the wind. This is a line squall and most often the wind direction suddenly shifts clockwise (veers) so that what was the sheltering direction can open up to a

full fetch – and the wave pattern that goes with it.

Wherever you are, the passage of a sharp cold front can produce some nasty and uncomfortable conditions. It is therefore very important to note whether a cold front has been forecast and to keep an eye out for it when on passage or at anchor.

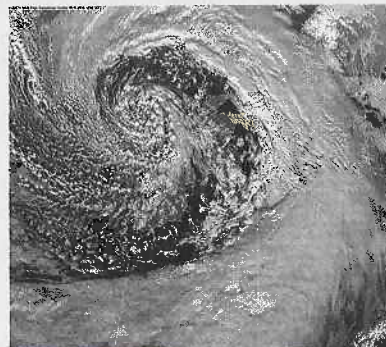
HOW CAN I TELL IF THE WIND WILL PICK UP?

Wind almost always increases when lows are forecast to approach. The actual low centre doesn't have to be anywhere near you. If you're in the English Channel, a low tracking across Scotland is almost certain to markedly increase the wind you're experiencing. If you're in the Western Isles the habitual low pressure to the south of Iceland will do the same.

So keep an eye on the forecast charts as well as the local inshore waters forecast. And don't forget that while most weather travels from west to east, falling pressure over Europe may well translate to wind increasing from somewhere north.

HOW CAN I PREDICT THE LIKELY SEA STATE?

There are three things that control the height of waves. Firstly there's wind strength, to which you must add fetch – the distance the waves have travelled from the nearest sizeable lump of land – and duration (how long the wind has blown from this direction). The simplest way to tie up these factors is with a diagram like Figure 3 (right).



Lows: the swirl of cloud to the west of Scotland marks the centre of a very deep area of low pressure during winter



A rare perfect spring day: cloudless skies on March 27, 2012 as the UK sits under a large area of high pressure



A rolling wall of cloud signals the passing of a weather front. The best way to see what fronts are coming in the next five days is through the Met Office's surface pressure charts available at www.weathercharts.org

Photos: Met Office

Photos: B.A.E. Inc/Alamy

HOW DO I USE THE WAVE PREDICTOR?

The big arrows outside the circle (see right) are fetch arrows, showing how far each segment of the diagram is upwind from land. For instance, if you have 30 miles of open water for the wind to traverse you choose the arrow showing 30 on the left of the diagram.

Then you need to get an idea of the Beaufort force – the outer segment indicates a Force 8, and this decreases as you near the centre of the circle.

So if you're 30 miles from land, and the forecast said to expect Force 4-5 winds, then you're likely to get slight (S) to moderate (M) conditions on the water if the wind has blown steadily from that direction for four to five hours.

The times sitting along each segment (numerals in diagram) shown are those necessary for the waves to reach their full height at those wind speeds. Experiencing four or five hours of wind from one direction is unusual so the waves should not be as high as indicated on the diagram. Tidal rips should be allowed for, as should the effect of bars and shallows.

WHAT ABOUT SWELL?

Seaway is composed of two components: there are the waves generated by the wind, and then there is the swell.

The swell is what is left over after we take away the wind-generated waves. It's therefore important to not only know what the local wind is doing, but what strong wind systems could have

generated the swell created on that day. Swell waves will travel as far as the open ocean allows. Wave recorders in the Southwest Approaches – the body of water to the south-west of Britain -- can detect waves from storms that are over the South Atlantic, several thousand miles away.

Such long-distance swell waves may be small but the message is there – an Atlantic storm not far (by these standards) to the west can invade a set-fair local bit of sea and may make what looks like an idyllic situation lumpy and uncomfortable.

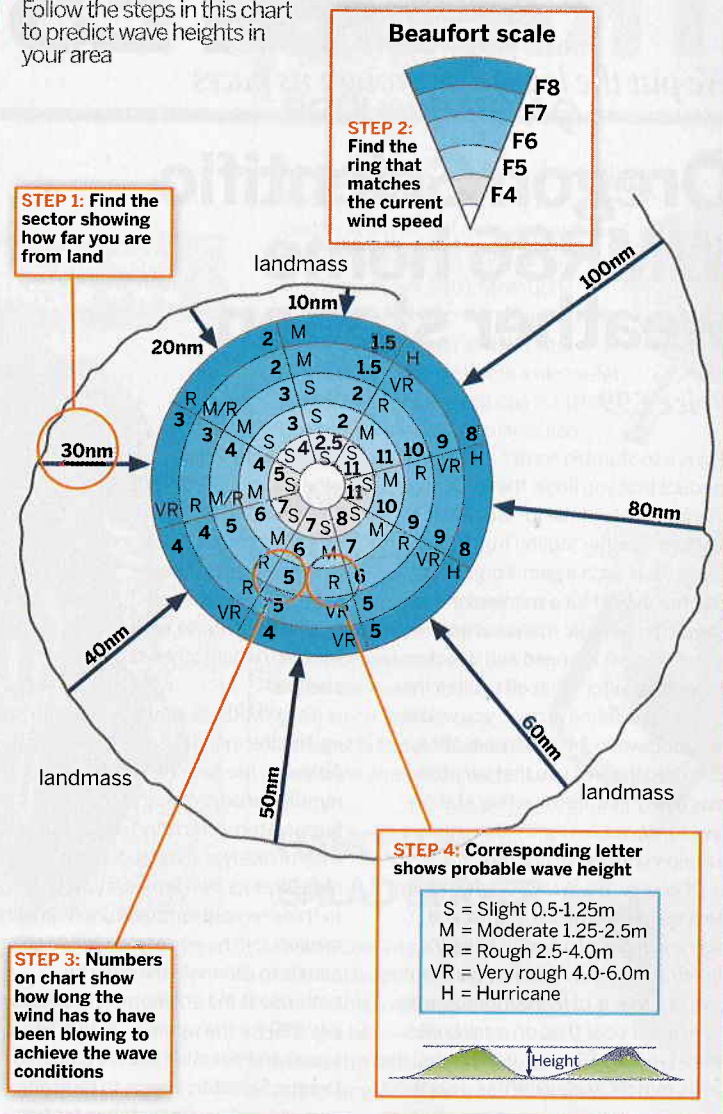
FINALLY, DOES THE OLD SAYING ABOUT RED SKIES RING TRUE?

To an extent, yes. Weather generally moves from west to east. A red sky at night (shepherd's delight) means there are no clouds on the windward horizon obstructing the red rays of the setting sun lighting up clouds moving away to the east. No clouds on the windward horizon generally means fair weather is on its way. A red sky in the morning means the rising sun in the east is lighting up the undersides of moisture-bearing clouds coming in from the west, meaning rain (shepherd's warning) is likely. **MBY**

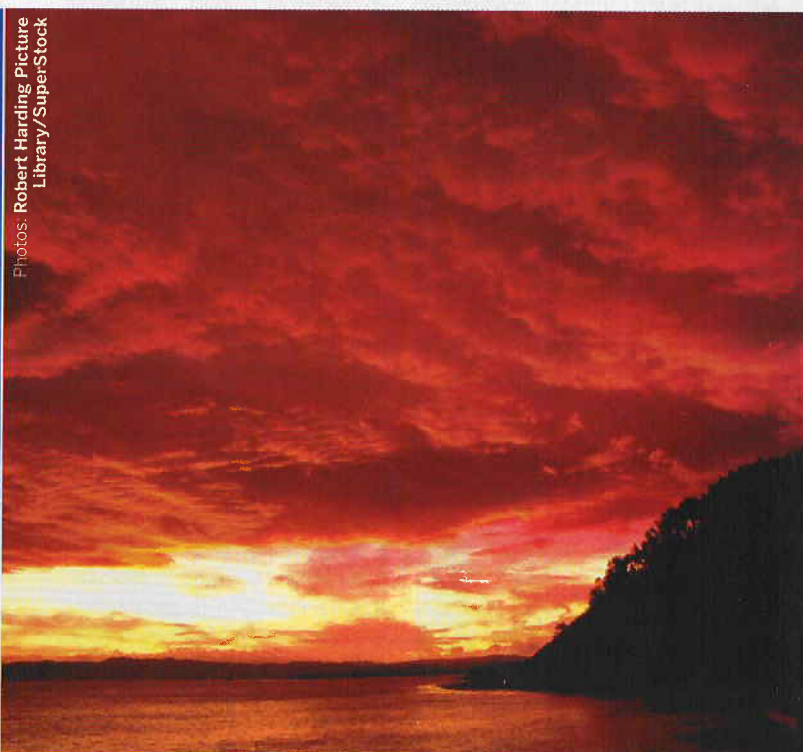
Alan Watts was a Met Office forecaster before starting a teaching and writing career. He was also a weather adviser to the British Olympic sailing team. Alan recently published the fourth edition of his popular book, Instand Weather Forecasting, published by Adlard Coles Nautical, £7.99.

FIGURE 3: WAVE PREDICTOR

Follow the steps in this chart to predict wave heights in your area



A squall coming down under a cumulonimbus cloud at sea. More than any other, these are the clouds to watch out for as they can produce a suddenly veering wind that can open up your cosy anchorage to a full fetch



The old adage generally holds true: red sky at night means the sun is shining through a clear atmosphere at clouds moving away from you – heralding a clear sky in the morning, and calm, easy conditions