

How to read the weather map

Warm front

Because warm air is a higher temperature and less dense than cooler air, warm fronts are pushed up as they move into a region. As it goes higher, moisture condenses into cloud and rain, although it often clears quickly. The warm front is marked as a line with semicircles pointing in the direction it is heading.

Troughs and ridges

A trough is an elongated area of low pressure that extends out of a low pressure system. It is marked on the map by a dotted line. A ridge is an elongated area of pressure spinning off a high pressure system and is drawn on the map as a finger-shaped isobars. Pressure on the top of the ridge is higher than either side of it.

Isobars

The lines on the map that join places with the same mean sea level barometric pressure. The central pressure of each system is written in numerals in a measure of hectopascals (hPa). A high typically could be around 1020 hPa or higher while an intense cyclone could have a central low pressure of around 960 or lower.

Wind symbols

Dots are placed on the weather map to indicate calm conditions. Wind is recorded as small lines, with an increasing number of ticks on the end of each line to indicate a stronger wind speed. The lines are angled according to wind direction. Isobars grouped closely together also can indicate windy conditions.

Low pressure

A region on the map, indicated with an L, where the atmospheric pressure is lower than the surrounding area, usually caused by moist warmer air being forced up. The air in a low spins clockwise and often creates cloudy and unstable conditions, which if spun into a tight pattern with decreasing surface pressure, can become a cyclone.

Rainfall

Is shown on the weather map as an area of shading and represents widespread rainfall recorded in that area in the preceding 12 hours. Colour coded maps showing current and past rainfall totals across the state and nation are available on various Bureau of Meteorology webpages.

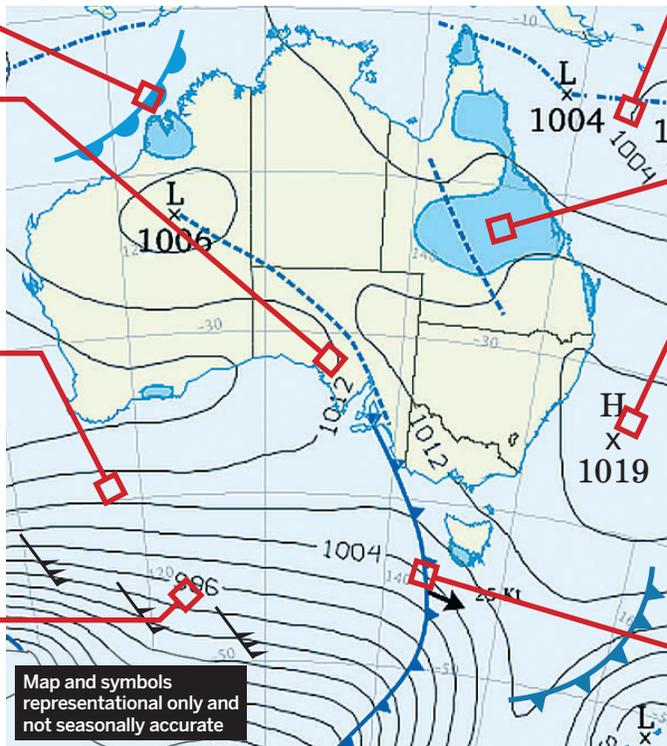
High pressure

Regions where the pressure on the Earth's surface is greater, caused usually by a mass of sinking air, are called highs and are indicated on the map with an H. In the southern hemisphere, highs spin in an anticlockwise direction and are associated with clear skies and fair weather. Often bigger and longer lasting than lows.

Cold front

Occurs when a mass of cold air moves into a region and undercuts an area of warmer air. The temperature differences across a cold front can be extreme. The air is often unstable, windy and can create storms. A cold front is marked on the weather map as a line with barbs pointing in the direction of its movement.

It might look like a tangle of lines, circles and arrows but unlocking the mysteries of the standard weather map is quite easy. Here's what the key symbols mean:



Bureau of Meteorology

The BoM radar

The latest weather information is just a computer click away.

The Bureau of Meteorology's website (www.bom.gov.au) shows images from 60 weather radars throughout Australia, including 13 in Queensland – Cairns, Willis Island, Townsville, Bowen, Mackay, Gladstone, Gympie, Marburg, Warrego, Longreach, Brisbane (Mt Stapleton), Mornington Island and Weipa.

The radar images (pictured), which are updated every six to 10 minutes, show where rain has fallen, the intensity of rain and cloud mass.

In Brisbane, images can also be viewed from a new Doppler radar.



Doppler is a method of measuring the shift in frequency of radio waves to perceive air motion in a weather mass and can measure rainfall much more accurately.

The BoM weather sites also provide latest temperatures, humidity, wind direction and speed and comprehensive weather education tools and advice.

History repeats

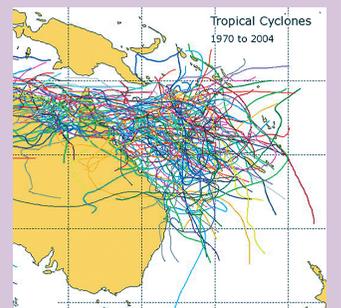
Technology has revolutionised weather forecasting, but when it comes to predicting the future, the past is still helpful to forecasters.

Weather experts rely heavily on the use of complex mathematical models that analyse data through supercomputers.

The models feed off the global network of weather observations, using the laws of physics to predict how the atmosphere evolves.

Others include maps which show the tracks of cyclones in Queensland over the past 30 years (pictured).

Outputs from these various models are then used to form weather charts which project



conditions for the coming seven days and provide a basis for each daily forecast.

When it comes to longer range predictions, such as a three-month outlook for rainfall, forecasters use bureau records which date back more than 100 years to assess the likelihood that weather history could repeat.