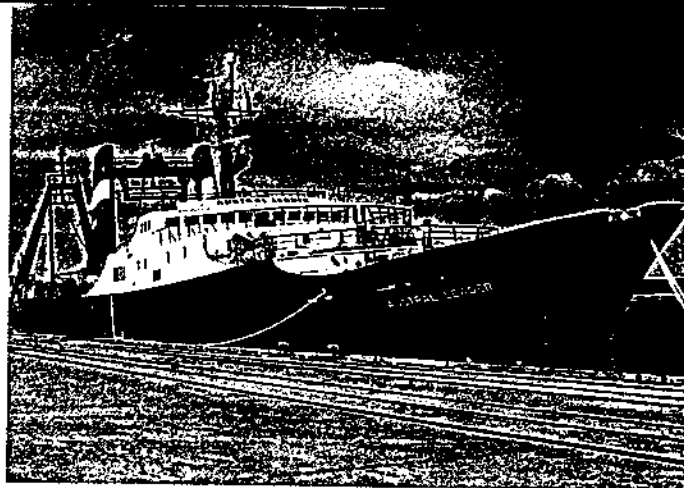


MARINE WEATHER SERVICES



Marine Forecasts and Warnings

Routine coastal waters and high seas forecasts and warnings are produced by the Bureau of Meteorology and broadcast by Telstra marine radio and are available from a variety of other sources.

Routine Coastal Waters Forecasts are for areas within 60 nautical miles (nm) of the coast (see map for coastal waters sections). They are issued by Regional Forecasting Centres in each capital city several times daily and monitored for changes which may occur.

Routine High Seas Forecasts are issued twice daily by the Regional Forecasting Centres in Perth, Darwin, Brisbane and Melbourne for the areas beyond the coastal waters surrounding Australia.

Warnings for Coastal Waters are issued whenever strong winds, gales, storm or hurricane-force winds are expected. The initial warning attempts to achieve a 12 to 24-hour lead-time and warnings are renewed every 6 hours.

Warnings to Shipping on the High Seas are issued whenever gale, storm or hurricane-force winds are expected. The initial warning attempts to achieve a 12 to 24-hour lead-time and warnings are renewed every 6 hours.

NOTE: Australian and International practice refers to weather system positions for marine use in DEGREES and TENTHS of a degree. For example 25.4 South is the latitude of twenty five decimal four degrees south, NOT twenty five degrees four minutes south. To convert the decimal to minutes, multiply by 60, i.e. 0.4 degrees = 24 minutes.

Winds

Winds flow in order to more evenly distribute heat between the equator and polar regions. Wind direction and speed are determined by the patterns of highs, lows and fronts seen on weather maps and by local effects such as sea-breezes and thunderstorm downdrafts. When the isobars (lines of equal pressure) around highs and lows become more closely spaced, then winds increase. That is, the higher (or tighter) the pressure gradient, the stronger the wind speed.

Stronger wind speeds are associated with tropical cyclones, lows and cold fronts. Sudden squalls are associated with thunderstorms, heavy showers or the passage of a cold front or low pressure trough and can happen in clear skies (e.g. the Southerly Buster in NSW). The very strongest winds are caused by tropical cyclones, deep mid-latitude low pressure systems and tornadoes/water spouts.

Definitions and Terminology

Wind speed mentioned in forecasts and coastal observations is measured as the average speed over a 10-minute period. Gusts may be 40 per cent stronger than the speed. *Note: 10 knots = 18.5 km/h. and 10 km/h = 5.4 knots.*

Wind direction is given in the 16 compass points and is the direction the wind is coming from. A knot (kn) is the unit given to a speed of one nautical mile per hour.

Strong wind: 25 to 33 kn (remembering this is a 10-minute average) **Gale force:** 34 to 47 kn **Storm force:** 48 to 63 kn **Hurricane force:** more than 63 kn.

Wave height is vertical distance between the top of crest and bottom of trough.

Wind (or sea) waves are generated by the local prevailing wind and vary in size according to the length of time a particular wind has been blowing, the fetch (distance the wind has blown over the sea) and the water depth.

Swell waves are the regular longer period waves that were generated by the winds of distant weather systems. There may be more than one set of swell waves travelling in different directions, causing a confused sea state.

Sea state is the combination of wind waves and swell.

The forecasts of wave and swell height are meant to represent the average of the highest one-third of the waves. Hence some waves will be higher and some lower than the forecast wave height.

King/Freak waves occur when wind waves and/or a combination of swell waves join to form a very high wave. Shape and depth of the seabed is also important.

UTC (Universal Time Coordinate): time references in warnings for high seas are given in UTC. Australian Eastern Standard Time is UTC + 10 hrs. Western Standard Time is UTC + 8 hrs.

Forecast & Warning Delivery Systems

Coastal Marine Radio

Telstra operates marine radio transmitters around the Australian coastline with marine (Coastal and High Seas) forecasts and warnings broadcast at scheduled times on the following frequencies: 2201, 4426, 6507, 8176, 12365 kHz, and VHF Channel 67 (Some centres only. Check with Telstra Maritime)

Broadcast schedules can be obtained from the Bureau's Weather By Fax and Internet services (see reverse side) or from Telstra's Customer Service Centre on 1800 810 023. When a weather warning is issued it will be broadcast when first received, and then at scheduled broadcast times.

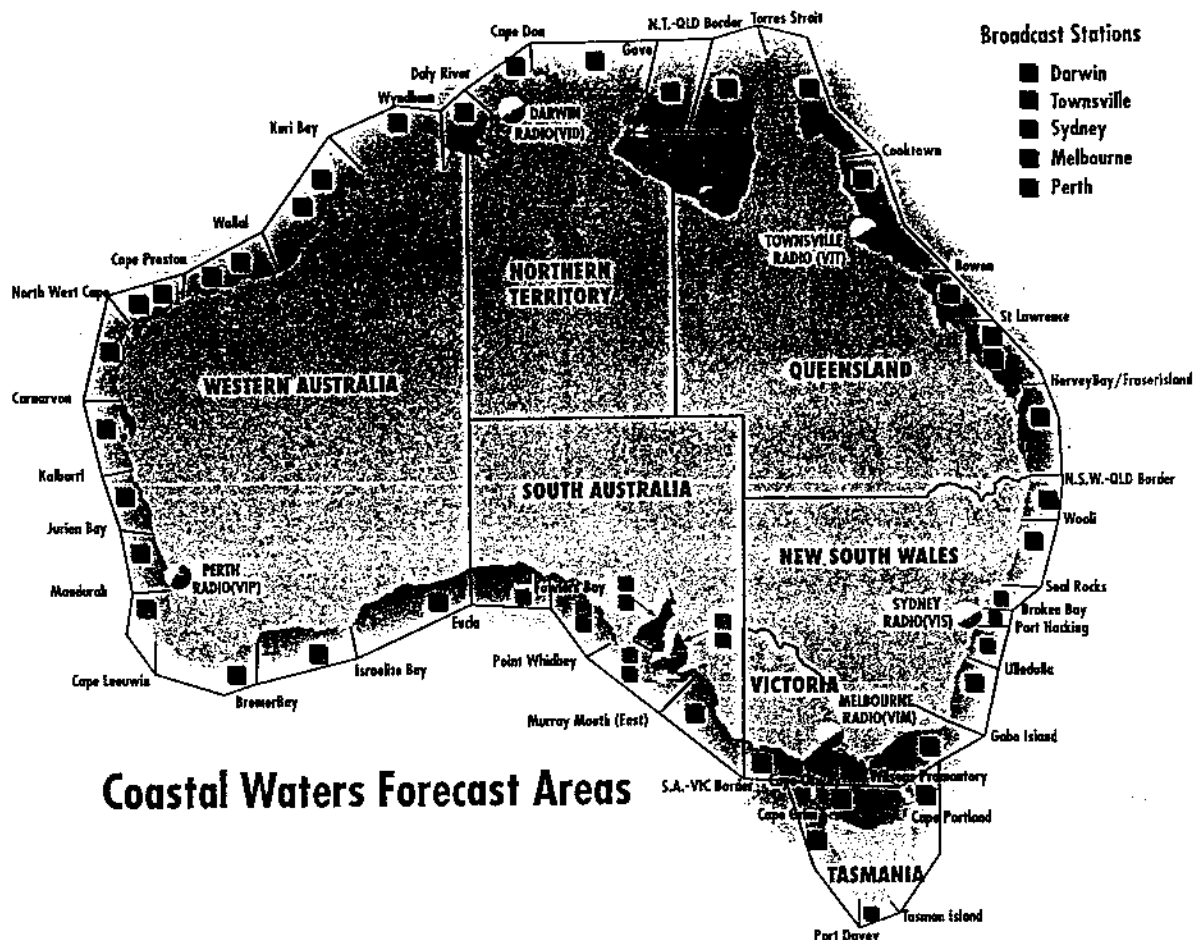
Public Broadcast Radio/TV Stations

The Bureau distributes coastal waters forecasts and warnings to the ABC and commercial networks (both city & country stations). Broadcasting of these varies between stations.

Recorded Telephone Services

The Bureau operates a number of recorded services via Weathercall for coastal waters forecasts and warnings. Call costs for 1900 services are 75c per minute - higher from mobile & public phones. Check your local telephone directory, dial 1900 155 346 or poll Weather By Fax on 1902 935 254 for a list of your local numbers. Services are:

- **Local Waters Forecasts:** Supplied for capital city boating.
- **Severe Weather Warning Service:** Marine and land based warnings.
- **Marine Forecasts:** Full coastal waters forecasts and latest actual reports.



Coastal Waters Forecast Areas

Weather By Fax

The Bureau of Meteorology uses the Telstra polling fax system (Infifax) and provides around 200 fax products, including weather charts (updated 3-hourly), satellite photos (updated hourly), weather radar reports, the latest warnings, routine coastal waters forecasts and the latest actual reports. Call costs for fax products are 60cents per minute, higher from mobile or satellite phone.

Set your Fax in 'Poll Receive' mode and dial 1800 630 100 for a Free Main Directory. This system can also be accessed through a personal computer or lap-top using a modem. Access is also available via Seaphone and Inmarsat.

AXM/AXI HF Radio Fax

HF Radio Fax transmits a range of weather charts and warning summaries on a 24-hour schedule which can be obtained via Weather By Fax (includes Coastal Radio) on 1902 935 046, on the Bureau's World Wide Web site or by phoning one of the Bureau's capital city offices. AXM/AXI does not transmit routine forecast text or satellite pictures.

This system is operated by the Royal Australian Navy on behalf of the Bureau of Meteorology using two HF radio transmitters at Canberra and Darwin. Reception requires a marine fax unit attached to your HF radio or a Personal Computer connected through a HF demodulator.

Satellite Communications

Telstra's Satcom services and Inmarsat can be used to access faxed marine weather forecasts and warnings through the Infifax system. Contact Optus MobileSat for details an access to voice and fax data. As part of the Global Marine Distress & Safety System (GMDSS) Telstra transmits via Satcom-C a complete range of marine safety information, including weather warnings, free of charge.

Internet

Information about the range of Bureau of Meteorology forecast and warning products is available on the Internet via the World Wide Web. The address of the Bureau's Home Page on the Internet is: <http://www.bom.gov.au>. The menu includes the latest satellite photo, weather maps, marine forecasts and warnings and a range of educational pages. Enhanced marine, satellite and weather radar products using passwords are also available via credit card facilities from the Bureau's Home Page.

Bureau of Meteorology Contacts

Brisbane:	Tel: 07 3239 8700	Sydney:	Tel: 02 9296 1555
Melbourne:	Tel: 03 9669 4915	Hobart:	Tel: 03 6221 2000
Adelaide:	Tel: 08 8366 2600	Perth:	Tel: 08 9263 2222
Darwin:	Tel: 08 8920 3800		

Wind, Waves, Weather Booklet

A more detailed explanation of meteorological systems and local weather effects is available for a number of sections of the Australian coastline in a Bureau of Meteorology Boating Weather Series booklet entitled *Wind, Waves, Weather*. Contact the Bureau office in your capital city for details on availability.

Safety Hints

1. Know the local factors that influence sea conditions and know where to reach shelter quickly.
2. Learn how to read the weather map (pamphlet available).
3. Be aware that the weather map in the morning newspaper was drawn the day before.
4. Always check the latest forecast and warnings before going to sea and know what conditions exceed your safety limits.
5. Beware of rapidly darkening and lowering cloud - squalls may be imminent.
6. When at sea, listen to the weather reports on public or Telstra marine radio.
7. Be flexible - change your plans if necessary.



BUREAU OF METEOROLOGY
DEPARTMENT OF THE ENVIRONMENT

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