



Australian Government

Bureau of Meteorology

Tropical Cyclone Technical Bulletin

Introduction

In 2006 the Bureau of Meteorology introduced a new nationally consistent bulletin of technical data for tropical cyclones in the Australian Region. Each of the three Tropical Cyclone Warning Centres in Australia (Perth, Darwin and Brisbane) produces the technical bulletin each six hours while a cyclone is active in its respective area of responsibility. The product has been designed to be both human-readable and easily parsed by computer software. The following information is provided to assist in decoding the bulletin.

A minor adjustment to be introduced from 2 March 2009 will be the introduction of a new parameter the “Identifier” – a unique system number to be included on a new line after the name.

Product Structure

The product is presented in **plain ASCII text**. Structure will be maintained at all times to assist computer parsing but at times some fields may be omitted (ie. sections may contain no data). Colons are used as the principal delimiter. A sample is attached at the end of the document to illustrate the structure. The sample bulletin is coloured for illustration purposes only. The **blue** text represents data; the **teal** text represents unit identifiers and punctuation.

There was a separate truncated web version introduced in 2006, however from November 2008 the full technical bulletin appears on the web. Note that since this is a technical bulletin – some scientific information and comments are not expected to be understood by all readers.

Explanation of parts:

IDD29999

This is a product code.

TROPICAL CYCLONE TECHNICAL BULLETIN: **NORTHERN** REGION, AUSTRALIA

This is the header; it indicates which of the three Australian Regions the cyclone is located in.

Issued by **DARWIN** TROPICAL CYCLONE WARNING CENTRE

at: **1930** UTC **24/03/2006**

This indicates the issue time and location for the product. Note the format of time and date:

- Time: hhmm
- Date: dd/mm/yyyy

Name: **Frankie** This indicates the name of the cyclone. For a system that is below cyclone strength this would say “tropical low” for a developing system, “ex-TC Frankie” for a recently decayed system. *The place holder was changed from “Tropical Cyclone” to “Name” in 2008*

Identifier: **04U** A unique number code for each system for the season (reset at the start of the new season *1 July*). *Introduced March 2009*

Data At: **1800** UTC

This indicates the time of the observational data and the base time for the forecasts. The date can be determined from the issue time, (data at 2300UTC for an issue time of 0030 is from the previous day).

Conversions: 0000UTC = 0800WST, 0900WDT, 0930CST, 1000EST, 1030EDT

Latitude: **10.6S**

Longitude: **126.6E**

Location observed in decimal degrees at the above-mentioned time.

Location Accuracy: **within 45 nm (80 km)**

Data is provided in both nautical miles and kilometres with rounding applied (ie the figures provided will not be exactly equivalent).

Movement Towards: **west southwest (210 deg)**

If movement is slow or erratic this field will be left blank.

Speed of Movement: **8 knots (15 km/h)**

Values for speed of movement are provided in both knots and kilometres per hour. Rounding applies, so the values may not be equivalent. This field will always contain a numeric value. If the system is stationary, the value 0 will be used. Speed of movement is typically calculated over a 6-hour period, but may be estimated over a shorter time span in some circumstances.

Maximum 10-Minute Wind: **35 knots (65 km/h)**

This is the estimated maximum sustained wind speed in the cyclone. The Bureau of Meteorology quotes “mean” winds **averaged over 10 minutes, at a standard level of 10m above the surface.**

Maximum 3-Second Wind Gust: **50 knots (95 km/h)**

Estimated maximum wind gust **averaged over 3 seconds, at a standard level of 10m above the surface.**

Note: these wind speed estimates will generally ignore localised topographic effects.

Central Pressure: **997 hPa**

Estimated atmospheric pressure at the surface near the centre of the cyclone. This figure is typically derived from DvorakCI-wind-pressure relationships (which vary across the three Australian regions). Cyclone intensity is denoted by wind speed. Two cyclones of similar intensity may be ascribed different central pressures.

Radius of 34-knot winds NE quadrant: **100 nm (185 km)**

Estimated average distance, in the indicated quadrant, from the centre of the cyclone to the outer extent of gale-force winds.

Radius of 64-Knot Winds:

Wind distribution of hurricane-force winds is assumed to be axisymmetric.

Dvorak Intensity Code: [T3.0/3.0/D1.0/24HRS](#)

Standard code format for transmitting intensity estimation via Dvorak method. Where surface observations or other data indicate a different intensity the CI may not equate to the stated wind intensity of the system.

Pressure of outermost isobar: [1008 hPa](#)

This is the pressure of the outermost cyclonically curved closed isobar (2 hPa increments). (Pressure-wind relationships are generally used in a delta-P form.)

Storm depth: [Deep](#)

This indicates the depth of the storm through the atmosphere. This will be one of three values (if available):

- Shallow (*top below 700hPa (~3000m above MSL)*)
- Medium (*top between 700hPa and 400hPa (~3000-7000m above MSL)*)
- Deep (*top above 400hPa (~7000m above MSL)*)

Included for legacy reasons, all systems with significant areas of deep convection that are not diurnal in nature will be designated “Deep”.

FORECAST DATA

+12: [25/0600: 10.5S 125.7E: 075 \(140\): 040 \(075\): 995](#)

The header data is separated by colons, as is the forecast data. The headers at the start of the section indicate what the forecast values represent. Note that the +60: and +72: forecast are always omitted from the web version.

REMARKS:

Free text; focusing on synoptic reasoning, application of Dvorak technique, significant observations, etcetera. There are some fixed notes added to the Remarks section of the web version.

==

Because the remarks section is free text, there may be a colon embedded in it, hence a distinctive marker (two “equals” signs on a new line) indicates the end of the remarks section.

The next bulletin for this system will be issued by: [25/0130 UTC by Darwin TCWC](#).

The final part of the product will be a standard advice indicating the expected issue time for the next bulletin, and the issuing office (if within the Australian Region). The time of issue is immediately after the only colon in the sentence. If there is not expected to be another bulletin issued, the following sentence is substituted:

There will be no further bulletins for this system unless it [re-intensifies](#)

For parsing purposes; if no colon and date/time is contained in the final sentence then no further issue is scheduled.

SAMPLE PRODUCT

Note, **this product is in plain text**, the colours illustrated here are to assist the above explanation

IDD29999

TROPICAL CYCLONE TECHNICAL BULLETIN: AUSTRALIA - NORTHERN REGION

Issued by DARWIN TROPICAL CYCLONE WARNING CENTRE

at: 1930 UTC 24/03/1996

Name: Frankie

Identifier: 04U

Data At: 1800 UTC

Latitude: 11.4S

Longitude: 136.6E

Location Accuracy: within 45 nm (80 km)

Movement Towards: west southwest (210 deg)

Speed of Movement: 8 knots (15 km/h)

Maximum 10-Minute Wind: 35 knots (65 km/h)

Maximum 3-Second Wind Gust: 50 knots (95 km/h)

Central Pressure: 997 hPa

Radius of 34-knot winds NE quadrant: 100 nm (185 km)

Radius of 34-knot winds SE quadrant: 100 nm (185 km)

Radius of 34-knot winds SW quadrant: 80 nm (145 km)

Radius of 34-knot winds NW quadrant: 40 nm (75 km)

Radius of 48-knot winds NE quadrant:

Radius of 48-knot winds SE quadrant:

Radius of 48-knot winds SW quadrant:

Radius of 48-knot winds NW quadrant:

Radius of 64-Knot Winds:

Radius of Maximum Winds: 30 nm (55 km)

Dvorak Intensity Code: T3.0/3.0/D1.0/24HRS

Pressure of outermost isobar: 1008 hPa

Radius of outermost closed isobar: 140 nm (260 km)

Storm depth: Deep

FORECAST DATA

Date/Time (UTC)	Location (degrees)	Loc. Accuracy (nm (km))	Max Wind (knots (km/h))	Central Pressure (hPa)
+12: 25/0600:	11.5S 135.7E:	075 (140):	040 (075):	995
+24: 25/1800:	11.5S 134.3E:	095 (175):	045 (080):	990
+36: 26/0600:	11.7S 132.9E:	100 (185):	050 (110):	980
+48: 26/1800:	12.3S 132.2E:	120 (220):	060 (090):	985
+60: 27/0600:	:	:	:	:
+72: 27/1800:	13.9S 130.2E:	170 (320):	035 (065):	995

REMARKS:

Frankie continues to develop steadily, with excellent outflow in the upper levels. Dvorak based on 0.6-wrap curved band evident in VIS for last 4 hours. Further intensification is expected due to favourable environmental conditions, including high SSTs and very low vertical wind shear. The cyclone is expected to move steadily towards the southwest, being steered around the northwest flank of a mid level ridge and cross the coast in 24 to 36 hours.

Copyright Commonwealth of Australia

==

The next bulletin for this system will be issued by: 25/0130 UTC by Darwin TCWC.

Alternative last line:

There will be no further bulletins for this system unless it re-intensifies