



Unnamed Tropical Cyclone

29-30 July 2007

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A. Summary

An out of season tropical low briefly reached cyclone intensity near 90°E but was not named operationally. Intensification was assisted by warmer than average sea surface temperatures exceeding 28°C, favourable low level shear and strong upper level outflow associated with the approach of a mid-latitude trough to the south. The estimate of cyclone intensity being reached was strongly influenced by quickscat imagery rather than conventional Dvorak estimates. This was only the second tropical cyclone to be recorded in July in the Australian region since satellite records commenced. There was no known impact from this event.

B. Meteorological Description

A low formed within the near equatorial trough on 26 July. Quickscat showed a broad trough near 4°S 86°E at 26/01UTC and then a tighter circulation with a well defined LLCC at 26/1241UTC. Convection however, remained largely unorganised. Convection was more widespread for a period on the 27th with the 27/12UTC Quickscat again showing a well-defined centre. This pattern of unorganised convection continued through the 28th although winds showed strengthening in southern quadrants. Convection improved in organisation on the 29th in response to ongoing favourable shear and strong outflow to the south associated with a strong mid-latitude trough. The low moved southeast moving east of 90°E into the western region at about 29/12UTC.

Cyclone intensity is estimated at 29/06UTC continuing to 30/06UTC. Initially a curved band pattern of 0.6 wrap could be analysed but this was not sustained on subsequent imagery. Indeed conventional Dvorak estimates during this period were in the region of 2.5-3.0. During operations the lower value was chosen but upon reanalysis the higher value was decided being biased from supporting Quickscat images at 29/11 and 29/2310UTC. The 29/11UTC Quickscat image only captures the eastern part of the system and although being on the edge of the swathe there are some 30-40 knot wind flags on the eastern flank. The corresponding NRCS image shows a well-defined low wind (dark) spot surrounded by high winds (bright) typical of a tropical cyclone. The fact that strong winds are more likely on the southern side suggests probable gales surrounding at least half the circulation. The various solutions for the 29/23UTC Quickscat have incorrect first choices, however, the ambiguity plots and the NRCS wind speed plots (see Figure 2) confirm that gales surround the centre. The coinciding imagery suggests the intensity was below DT3.0 although the Dvorak shear pattern carries considerable scope for subjectivity. The Quickscat is also supported by the 29/15UTC ASCAT imagery which showed 30-40 knots winds about the centre.

Early on the 30th there was some short-lived convection that developed to the west of the low level circulation centre that probably prolonged gales in that quadrant however after 30/06UTC the centre was well exposed and gales are estimated to have then been confined to southern quadrants as a ridge developed well to the south following the passage of the mid-latitude trough. CIMMS shows the shear increasing above 20 knots by the 30th with the passage of the upper trough.

During the 30th the weakening low became influenced by the low level easterly flow and recurved to the west crossing west of 90°E at about 31/06UTC.

The ADT showed raw values being above 3.0 from 29/2130 until 30/06UTC when using the shear pattern and the corresponding CI exceeded 2.7 from 30/0430-0730UTC.

Sea Surface Temperatures

The low formed over warmer than normal waters in excess of 28°C but as the system moved south of 10°S it encountered cooler water of less than 27°C and during the 30th when it reached 12°S the SSTs were estimated at being below 25°C.

Historical significance

This is only the second tropical cyclone to have formed during July in the Western region. TC *Lindsay* formed in a similar area on 10-11 July 1996 and briefly reached cyclone intensity for just 21 hours. In the TC database there are also two July events in the eastern region, one in 1935 that may have only been a tropical low or a hybrid given that the pressure was given as 1002hPa and the other in 1963 which was subtropical being south of 30°S.

It is arguable that without QSCAT imagery that this system would not have been classified a tropical cyclone going by imagery alone. This type of system may not be represented in the historical database which is significant when making conclusions about trends in the frequency of tropical cyclones.

C. Impact

The low remained over open water and there were no known impacts.

D. Observations

There were no surface observations available for this system.

E. Forecast Performance

Computer model track guidance were generally of little use for this unnamed system and suggested the system would remain west of 90°E.

As a result the three-day Tropical Cyclone Outlook issued on 28 and 29 July maintained that the low would remain west of 90°E. The high seas warning was issued on 30 July initially for gales on the southern side of the low, and then for a potential cyclone to develop. Technical bulletins were issued on 30 July but a forecast track map was not.

Table 1. Best track summary for Unnamed Tropical Cyclone 26 July –1 August 2007.

Year	Month	Day	Hour (UTC)	Position Latitude S	Position Long. E	Position Accuracy nm	Max wind 10min knots	Max gust knots	Central Pressure hPa	Rad. of Gales nm	Rad. of storm force winds	Radius of Hurricane force winds	Radius Max. Wind (RMW)
2007	7	26	12	-3.0	86.3	30	20	45	1004				
2007	7	26	18	-3.4	86.3	30	20	45	1004				
2007	7	27	00	-3.7	86.2	30	25	45	1002				
2007	7	27	06	-4.1	86.1	30	25	45	1000				
2007	7	27	12	-4.4	86.1	20	25	45	1000				
2007	7	27	18	-4.8	86.0	30	25	45	1000				
2007	7	28	00	-5.3	86.0	30	25	45	1000				
2007	7	28	06	-6.0	86.0	30	25	45	1000				
2007	7	28	12	-6.6	86.5	30	25	45	1000				
2007	7	28	18	-7.3	87.4	40	25	45	1000				
2007	7	29	00	-8.1	88.4	30	30	45	998				
2007	7	29	06	-9.0	89.0	30	35	50	994	90			30
2007	7	29	12	-9.8	89.9	20	40	55	992	90			30
2007	7	29	18	-10.4	90.4	30	40	55	992	90			30
2007	7	30	00	-11.0	91.2	20	40	55	992	90			30
2007	7	30	03	-11.2	91.6	20	35	50	994	85			30
2007	7	30	06	-11.7	91.7	20	35	50	994	70			30
2007	7	30	12	-12.1	91.6	20	30	45	998				
2007	7	30	18	-12.3	91.0	20	30	45	998				
2007	7	31	00	-12.2	90.3	20	25	45	1000				
2007	7	31	06	-12.0	89.9	20	25	45	1000				
2007	7	31	12	-12.0	89.6	20	25	45	1000				
2007	7	31	18	-12.0	88.8	20	25	45	1004				
2007	7	1	00	-12.0	87.9	20	25	45	1004				

Figure 1. Track of Unnamed Tropical Cyclone, 26 July 1 August 2007.

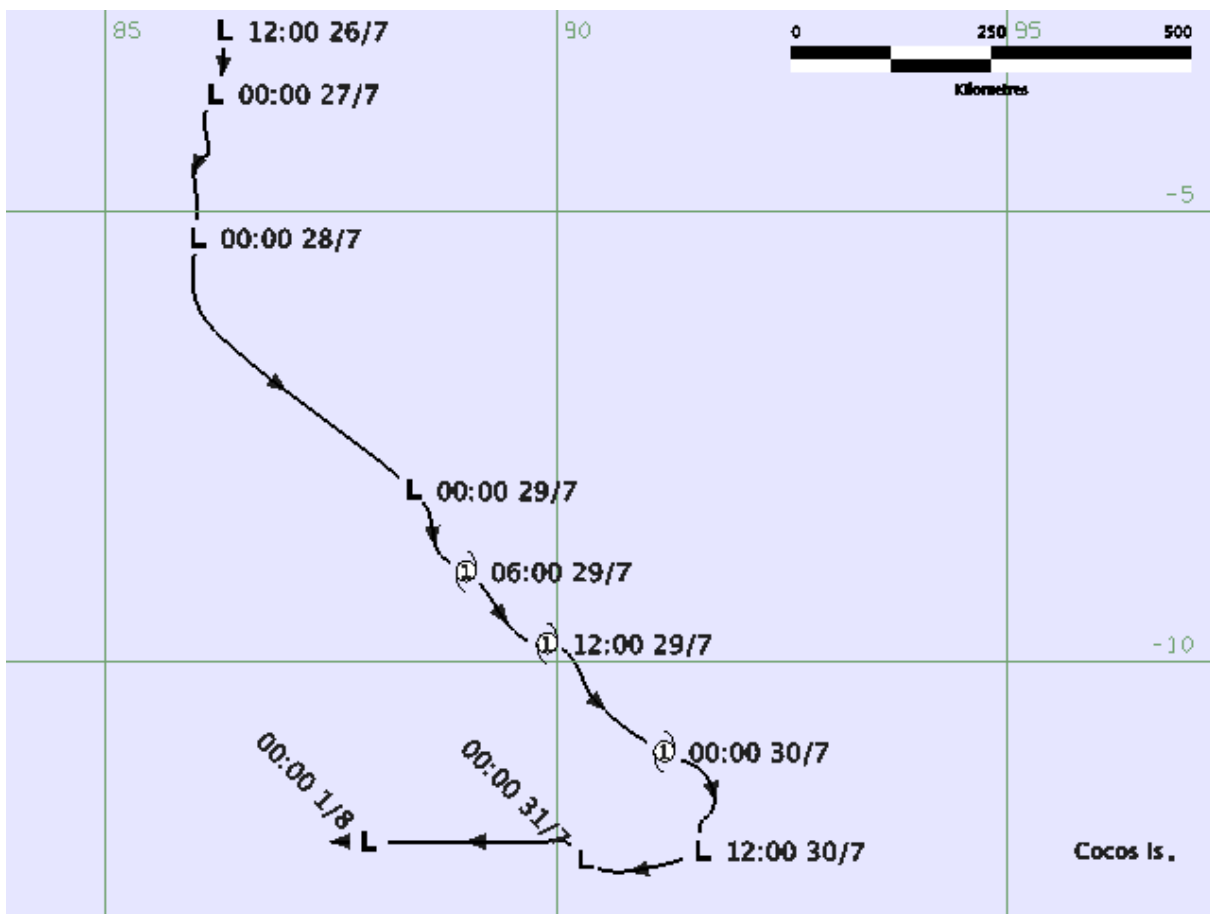


Figure 2. BYU Quikscat analysis for Unnamed Tropical Cyclone, 23UTC 29 July 2007.

BYU Quikscat Hires Wind Speed Date: 07/29/2007 Storm Center Time: Jul 29 23:04 UTC 2007
File Name: P1B20072102304q.NONAME_070730_01S_Wrave3 Storm Name: NONAME Storm Number: 01

