Australian Government
Bureau of Meteorology

Unnamed Tropical Cyclone (25U)

29 March – 04 April 2011

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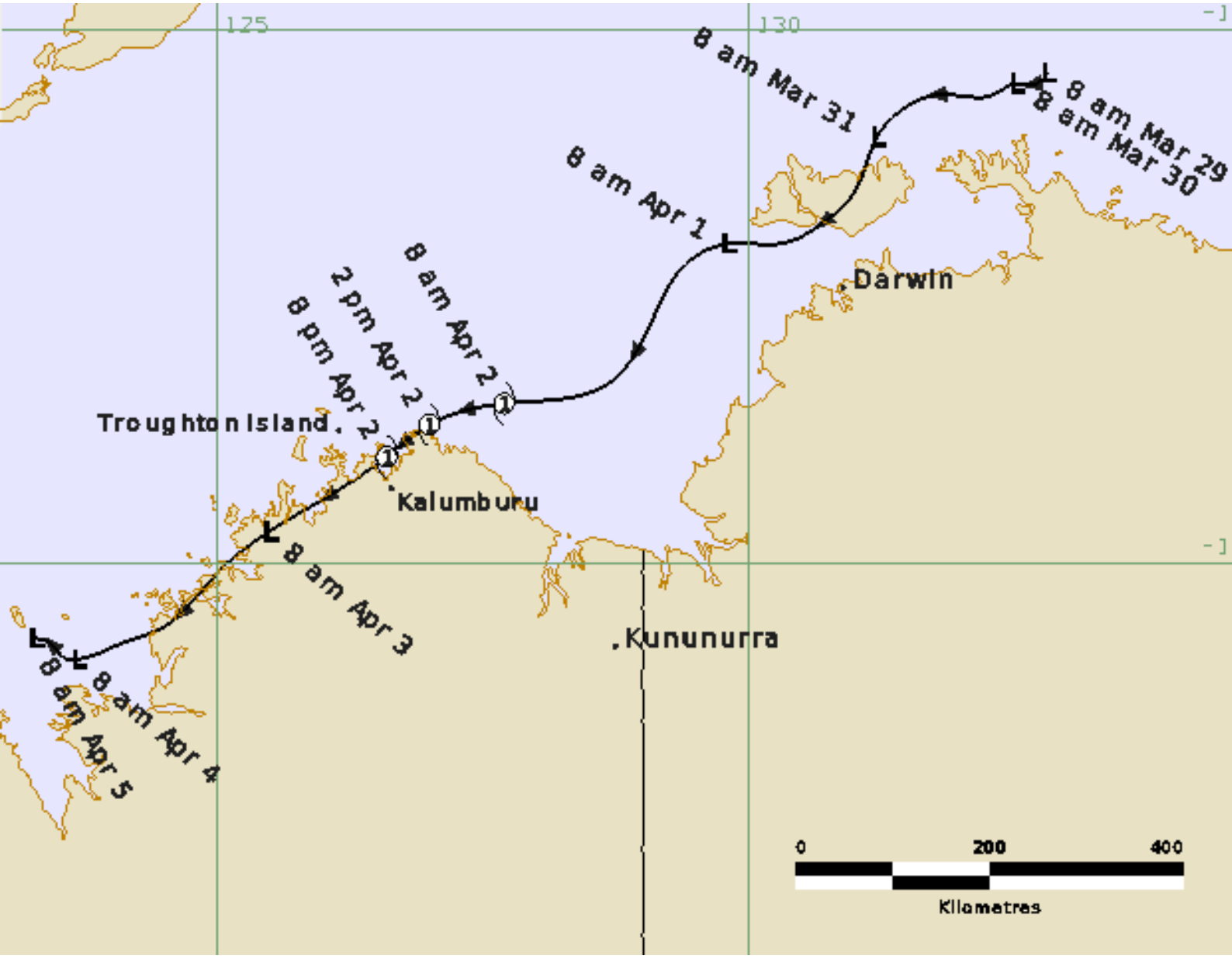
14 February 2022



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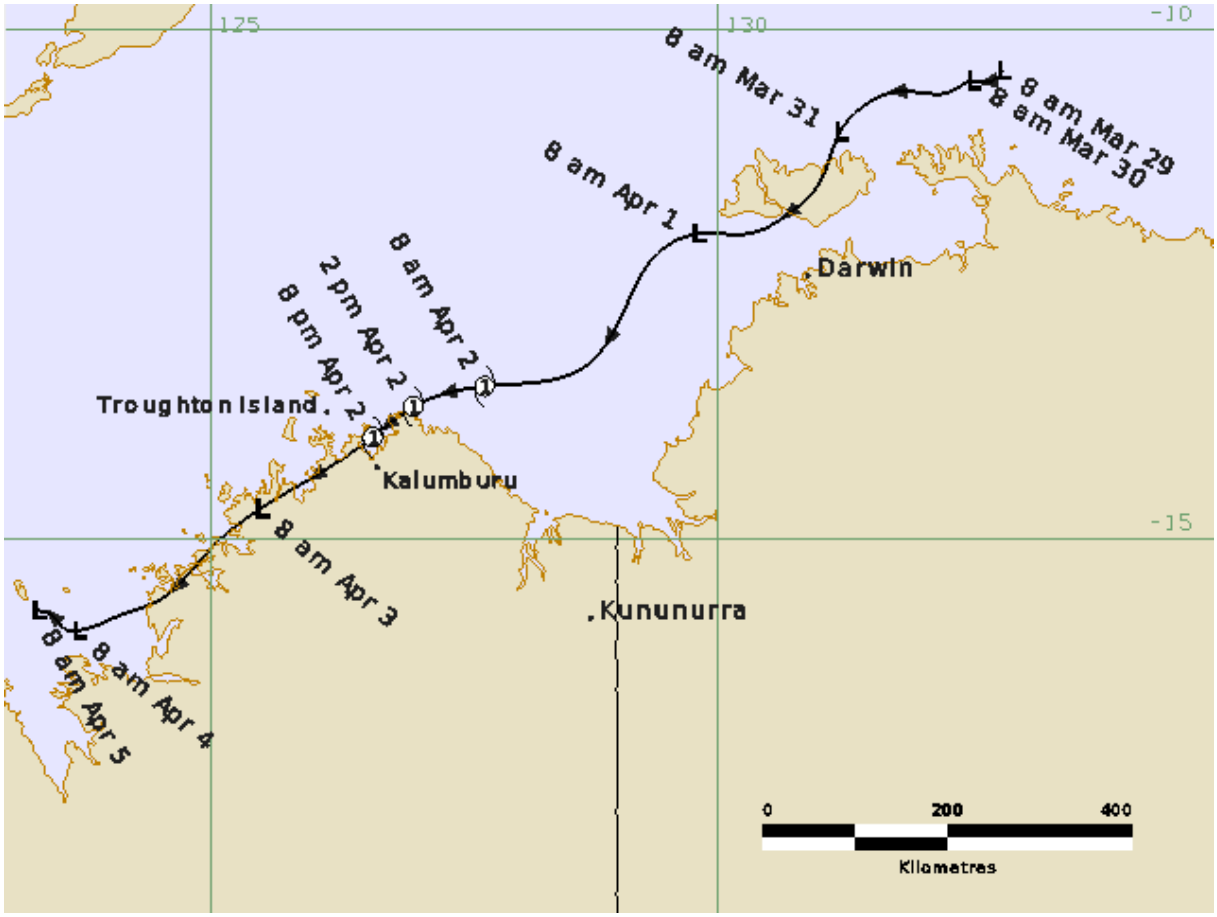
1 Summary

A tropical low that formed off the Northern Territory coast moved southwest passing along the Kimberley coast. Upon reanalysis the system is estimated to have reached tropical cyclone intensity for a period on 2 April as it came onto the north Kimberley coast and hence is classified as an unnamed tropical cyclone.

There were no known significant impacts from this event although heavy rain accompanied the system. Weekly falls exceeded 200 millimetres (mm) along the track.

FIGURE 1 Best track of Unnamed Tropical Cyclone (25U), 29 March – 5 April 2011 (times in AWST, UTC+8).



2 Meteorological Description

2.1 Intensity analysis

A low formed in the monsoon trough in late March north of the Northern Territory coast and tracked to the southwest over the Tiwi Islands.

Deep convection became more organised in the overnight period from 1-2 April as the system moved over open waters of the Joseph Bonaparte Gulf and tropical cyclone intensity is estimated on the morning of 2 April. An Advanced Scatterometer (ASCAT) pass at 0118 Universal Time Coordinated (UTC) 2 April (AWST=UTC+8 hours) showed gales around the centre to indicate tropical cyclone intensity. Satellite imagery indicated a tight inner core that was evident on the Advanced Microwave Scanning Radiometer for EOS (AMSRE) microwave pass at 0453 UTC when the centre was located near the north Kimberley coast, refer Figure 3. By 1200 UTC the centre was close to Kalumburu and gales were recorded at Troughton Island during the following two hours.

From 1200 UTC 2 April the tropical cyclone weakened due to interactions with land as it moved near the coast and to increasing easterly wind shear. Although forecasts indicated the possibility of intensification as the circulation moved west off the Kimberley coast on 4-5 April, deep convection failed to redevelop and the system subsequently dissipated.

2.2 Structure

The ASCAT, microwave and Troughton Island information all highlighted the very small size of the core of 25U. Gales were estimated to extend 30-40 nautical miles (nm) (55-75 kilometres (km)) from the centre decreasing in southern quadrants because of land interaction from 0600 to 1200 UTC 2 April.

2.3 Motion

The system was steered to the west southwest by a strong mid-level ridge over continental Australia.

FIGURE 2. Winds from ASCAT-A at 0118 UTC 2 April 2011.

Images courtesy NOAA: https://manati.star.nesdis.noaa.gov/datasets/ASCATData.php

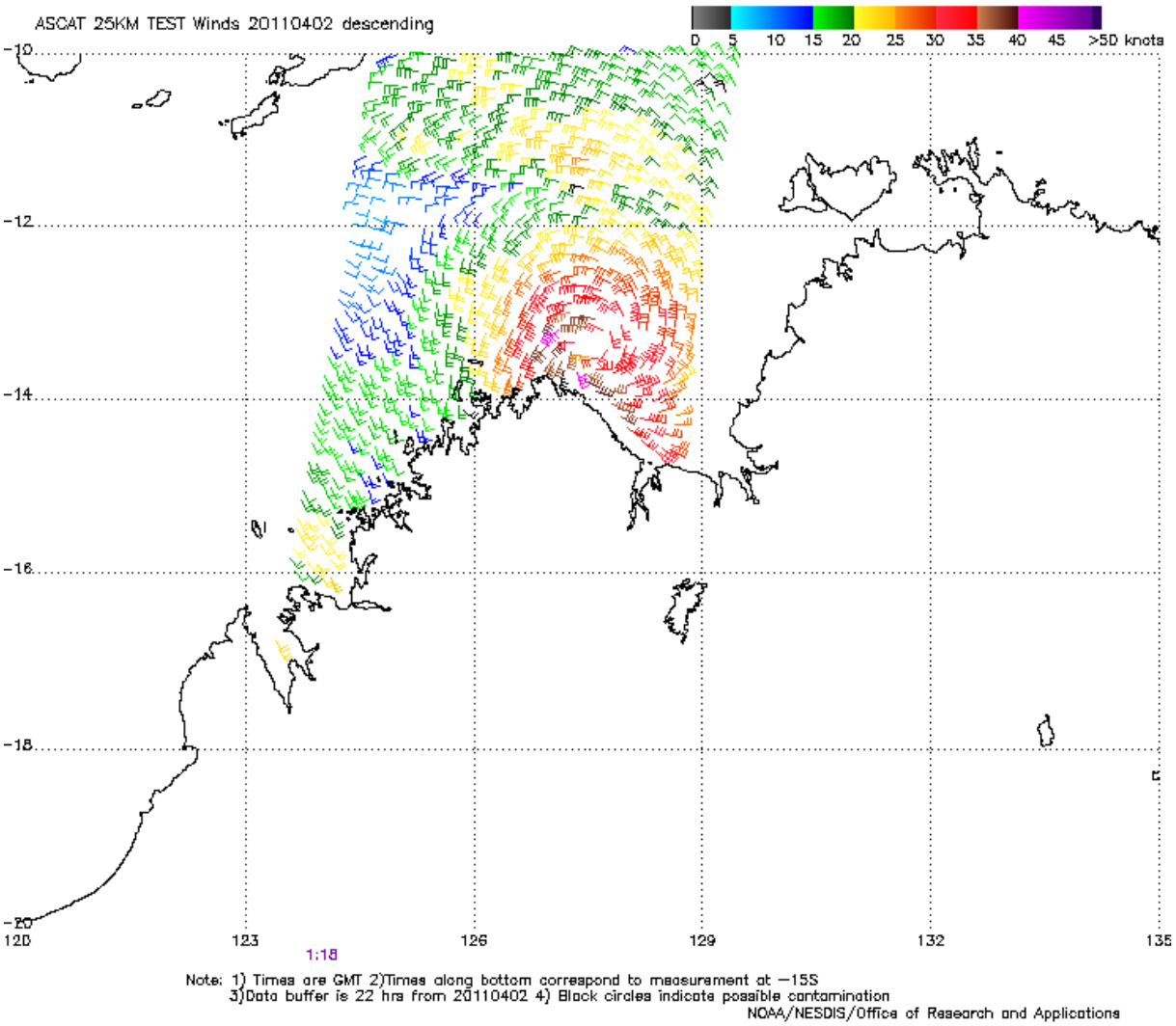
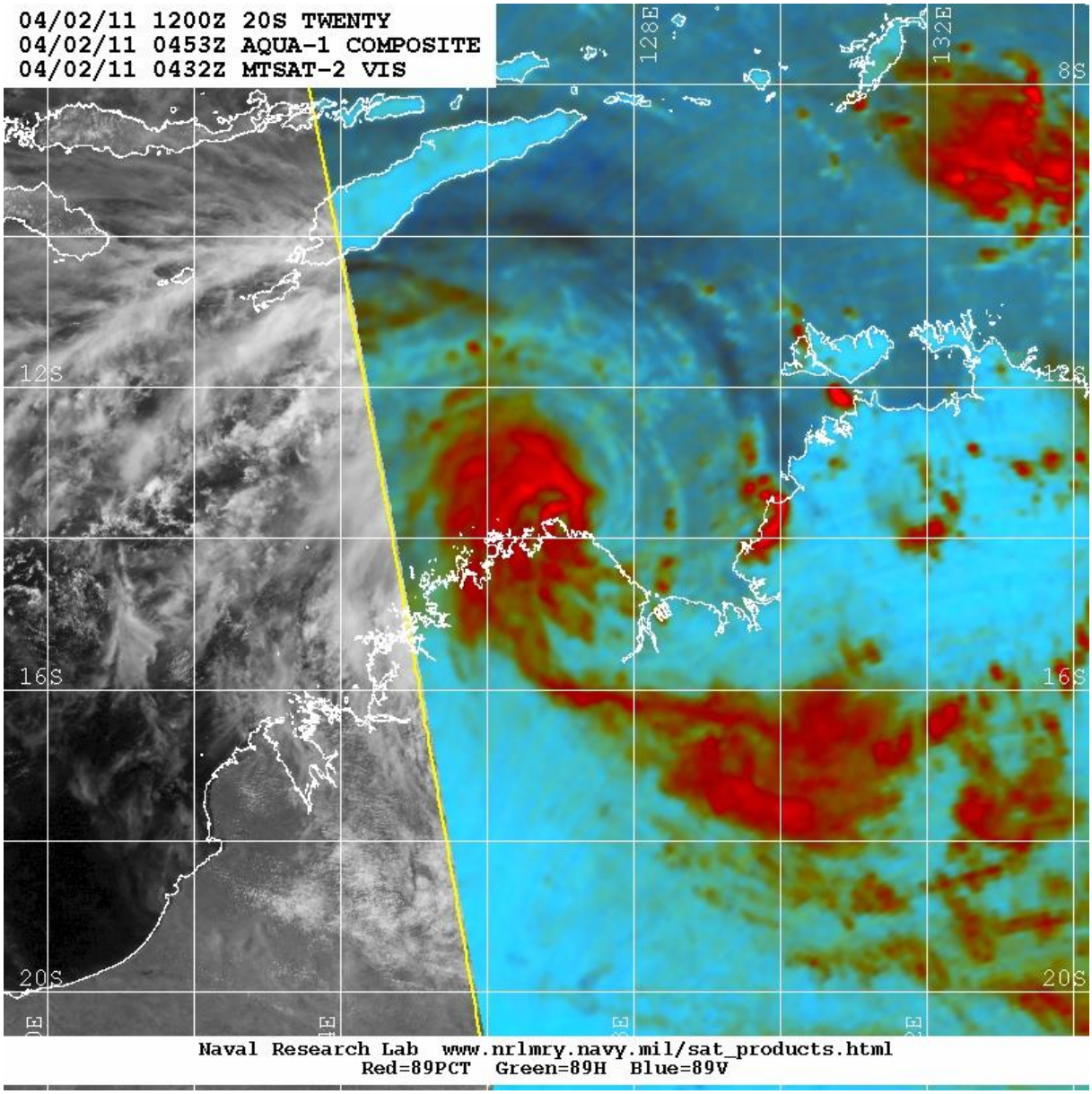


FIGURE 3. AMSRE 89 GHz composite microwave at 0453 UTC 2 April.

Image courtesy NRL: https://www.nrlmry.navy.mil/TC.html



3 Impact and 4. Observations

Heavy rain fell across the northern Kimberley and Top End (refer Figure 4) but there were no known significant impacts from this system.

Troughton Island observations

Gales were recorded between 1200-1400 UTC (2000-2200 AWST) 2 April.

FIGURE 4. Weekly rainfall distribution for week ending 5 April 2011.

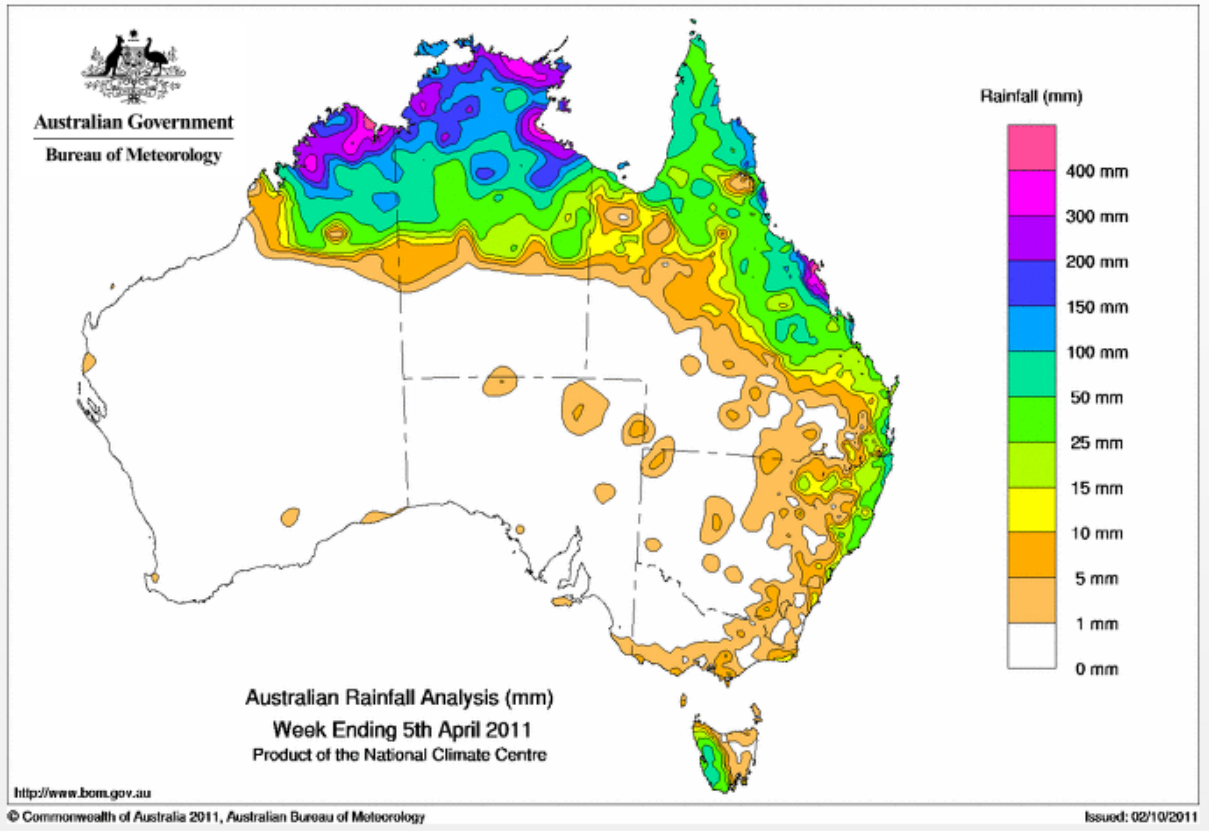


TABLE 1. Best track summary for Unnamed Tropical Cyclone 25U 1-3 April 2011.

Refer to the Australian Tropical Cyclone database for complete listing of parameters and track from 29 March to 5 April. Note: UTC is WST - 8 hours.

Year	Month	Day	Hour UTC	Pos. Lat. S	Pos. Long. E	Pos. Acc. nm	Max Wind 10min kn	Max gust kn	Cent. Press. hPa	Rad. of gales (NE/SE/ SW/NW)	RMW n mi
2011	04	01	00	12.0	129.8	30	25	45	1001	-	-
2011	04	01	06	12.2	129.4	30	25	45	1000	-	-
2011	04	01	12	12.7	129.1	30	25	45	1001	-	-
2011	04	01	18	13.3	128.7	25	30	45	999	-	-
2011	04	02	00	13.5	127.7	15	35	50	998	30/40/40/40	15
2011	04	02	06	13.7	127.0	15	40	55	994	40/30/30/40	15
2011	04	02	12	14.0	126.6	20	35	50	996	40/ - /20/40	15
2011	04	02	18	14.4	126.0	20	30	45	996	-	-
2011	04	03	00	14.7	125.5	25	25	45	998		-

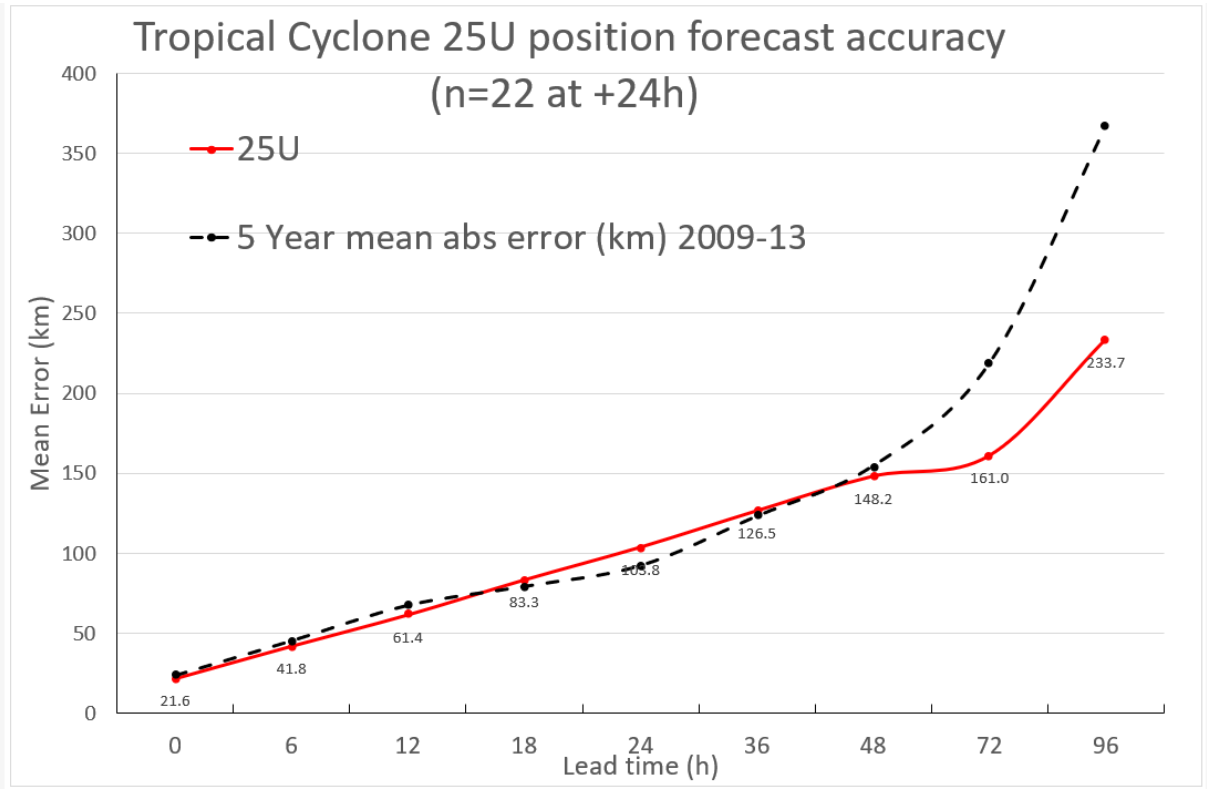
5. Forecast Performance

The initial Tropical Cyclone Watch was issued on 30 March, initially for the Tiwi Islands, and then to the mainland parts west of Cape Hotham including Darwin, extending to the northern Kimberley.

Figure 5 is a plot of the accuracy figures for 25U compared to the five-year mean 2009/10 to 2013/14 showing the forecast positions close to average until +48h but significantly better at +72 (n=13) and +96h (n=9). There were insufficient points to plot the +120h forecast.

	00	**06**	**12**	**18**	**24**	**36**	**48**	**72**	**96**	**120**
Position Absolute error (km)	22	42	61	83	104	127	148	161	234	361*
Intensity Absolute error (kn)	1.7	5.1	7.8	11.3	12.2	17.3	21.1	24.0	28.9	32.5*
Sample Size	22	22	22	22	22	19	17	13	9	4*

Figure 5. Accuracy statistics for Tropical Cyclone 25U.


Tropical Cyclone 25U position forecast accuracy
(n=22 at +24h)
25U
5 Year mean abs error (km) 2009-13
Mean Error (km)
Lead time (h)
400
350
300
250
200
150
100
50
0
0
6
12
18
24
36
48
72
96
21.6
41.8
61.4
83.3
103.8
126.5
148.2
161.0
233.7