



Australian Government
Bureau of Meteorology

Tropical Cyclone *Rosita*

17-21 April 2000

Perth Tropical Cyclone Warning Centre
Bureau of Meteorology

A. Summary

Tropical Cyclone *Rosita* was one of the most severe tropical cyclones to cross the west Kimberley coast in the last 100 years. It crossed the coast as a category 5 cyclone 40 kilometres south of Broome at 0100 WST 20 April. *Rosita* was a small but very powerful cyclone. Its region of very destructive winds passed south of Broome by only 15 kilometres or so. After crossing the coast it moved southeast across the north of the Great Sandy desert passing across the community of Balgo Hills around 2200 WST 20 April approximately 700 kilometres inland. It was estimated to be still a category 1 cyclone and caused some damage to trees and property.

B. Meteorological Description

Intensity Analysis

Rosita started as a weak low in the Timor Sea on 14 April. It moved west southwest during 15 April and then turned southward during 16 – 17 April. It was estimated to have reached tropical cyclone strength about 1800 WST 17 April. On the morning of the 18 April a ship passed very close to the cyclone centre with a relatively high pressure of 997 hPa but reported near storm force winds. Intensification of *Rosita* occurred during the period where it moved through the axis of the high level ridge.

Motion

The motion of *Rosita* was initially determined by a mid-level ridge. The cyclone moved through the ridge on 17 - 18 April and began an east southeast movement after it was captured by the westerly flow south of the ridge early on 19 April. It increased in speed from 15 km/h to more than 30 km/h after it made landfall. The northward movement of the mid-latitude ridge during the period of capture was well illustrated by the Halls Creek 500 hPa winds which changed from north northeast during 18 April to west northwest on 19 April.

Structure

Rosita was located north of the high level ridge axis during cyclogenesis and experienced some shear. As it moved into the ridge it became highly symmetric and underwent extremely rapid intensification. It was a small cyclone with a radius to gales about half the average for cyclones in northwest

Australia. The core of very destructive winds extended only about 25 kilometres from the centre.

C. Impact

The most severe structural damage occurred in the region of Cape Villaret some 40 kilometres to the south southwest of Broome. The Eco-beach tourist resort was devastated, as was nearby Yardoogarra station. The owners of Yardoogarra Station spent a terrifying night battling to save their lives. They firstly sheltered in the homestead but when the western walls of the homestead collapsed and the roof began to lift they decided to move to an adjacent brick and iron outhouse. They experienced the eye of the cyclone for a period of between 1/4 and 1/2 an hour before the very destructive winds returned with even greater ferocity.

The area around the homestead appeared to be totally devastated. A caravan parked between the outhouse and the homestead blew away and disintegrated. A Volvo semi-trailer was blown on to its side. All vegetation in the area was stripped totally bare of leaf material. It was estimated that 200 head of cattle were lost, most drowned by the storm surge. The swathe of severe destruction to the vegetation was estimated to be only 15-20 kilometres wide.

The Eco Beach tourist resort some 5 kilometres to the west of Yardoogarra was devastated. The resort had been built to withstand Category 3 winds. Only about 10 out of the 40 accommodation huts remained. The main restaurant and bar was demolished and the reception centre was very badly damaged. The centre of the cyclone passed just to the north of the settlement and the most destructive winds were from the south. It appeared as if some of the huts had become airborne and smashed into other buildings. A sea container that weighed 2.5 tonne and was filled with 2-3 tonne of equipment was blown 700 metres across a row of sand dunes and into the resort area. The extent of the devastation to the vegetation in this area gave the impression that a major bushfire had passed through the region.

There was evidence of severe coastal erosion of the coastal topography just to the south of Broome on the eastern side of Roebuck Bay. Further to the south there was clear evidence that the storm surge had breached the coastal dunes.

The main homestead on Thangoo station (28 kilometres to the south southeast of Broome) received only minor structural damage but was in the region of the maximum storm surge. Thangoo is about 2.5 kilometres inland from coastal mangroves. The Station owner reported that the station front gate and fencing had debris deposited up to the second top strand, about 1 metre above ground level. The cyclone crossed the coast 2 hours after the time of the high tide. If it had crossed at high tide sea water may have washed through the homestead. Another station homestead 7 kilometres to the west was sheltered by coastal dunes and escaped significant structural

damage. It was estimated the debris line from storm surge on the northern side of the dunes was 15 to 20 feet above sea level.

Although there was extensive damage to trees in Broome, most buildings remained unscathed. Particularly badly affected were African Mahogany trees which were either snapped off or uprooted by the winds. There was severe erosion to parts of Cable Beach. An area of the previously sandy beach was completely covered by rocks. There was very little property damage. Power supplies were cut to many parts of the town for a period of several days.

D. Observations

Wind

Broome maximum wind gust was 153 km/h around midnight 19 April.

Rainfall

167 mm of rainfall was recorded in the 24 hours to 0900 WST 20 April at Broome.

Table 1. Best track summary for Tropical Cyclone *Rosita*, 17 – 21 April 2000.

Year	Month	Day	Hour (UTC)	Position Latitude S	Position Longitude E	Max wind 10min knots	Central Pressure hPa	Rad. of Gales nm
2000	04	14	0400	9.5	127.0	0	1006	
2000	04	15	0400	12.0	122.0	20	1004	
2000	04	15	1000	12.2	121.0	20	1004	
2000	04	15	1600	12.3	120.0	25	1000	
2000	04	15	2200	12.6	119.7	25	1000	
2000	04	16	0400	12.9	119.6	25	1000	
2000	04	16	1000	13.1	119.5	25	1000	
2000	04	16	1600	13.3	119.5	25	1000	
2000	04	16	2200	13.6	119.5	25	1000	
2000	04	17	0400	14.0	119.5	25	1000	
2000	04	17	1000	14.6	119.4	25	1000	40
2000	04	17	1600	15.2	119.3	25	1000	40
2000	04	17	2200	15.7	119.3	35	995	40
2000	04	18	0400	16.3	119.3	35	995	40
2000	04	18	1000	16.8	119.3	50	985	40
2000	04	18	1600	17.2	119.4	65	970	40
2000	04	18	2200	17.4	119.9	75	960	40
2000	04	19	0400	17.6	120.3	85	950	40
2000	04	19	0700	17.7	120.7	100	930	40
2000	04	19	1000	17.8	121.1	100	930	40
2000	04	19	1300	17.9	121.6	100	930	40
2000	04	19	1600	18.2	122.0	100	930	40
2000	04	19	1900	18.5	122.5	95	940	40
2000	04	19	2200	18.7	123.0	85	950	40
2000	04	20	0100	19.0	123.5	75	960	40
2000	04	20	1000	19.9	125.7	50	985	40
2000	04	20	1300	20.1	126.6	35	995	40
2000	04	20	1600	20.3	127.7	35	995	40
2000	04	20	2200	20.6	129.7	25	1000	

Figure 1. Track of Tropical Cyclone *Rosita*, 14 -21 April 2000.

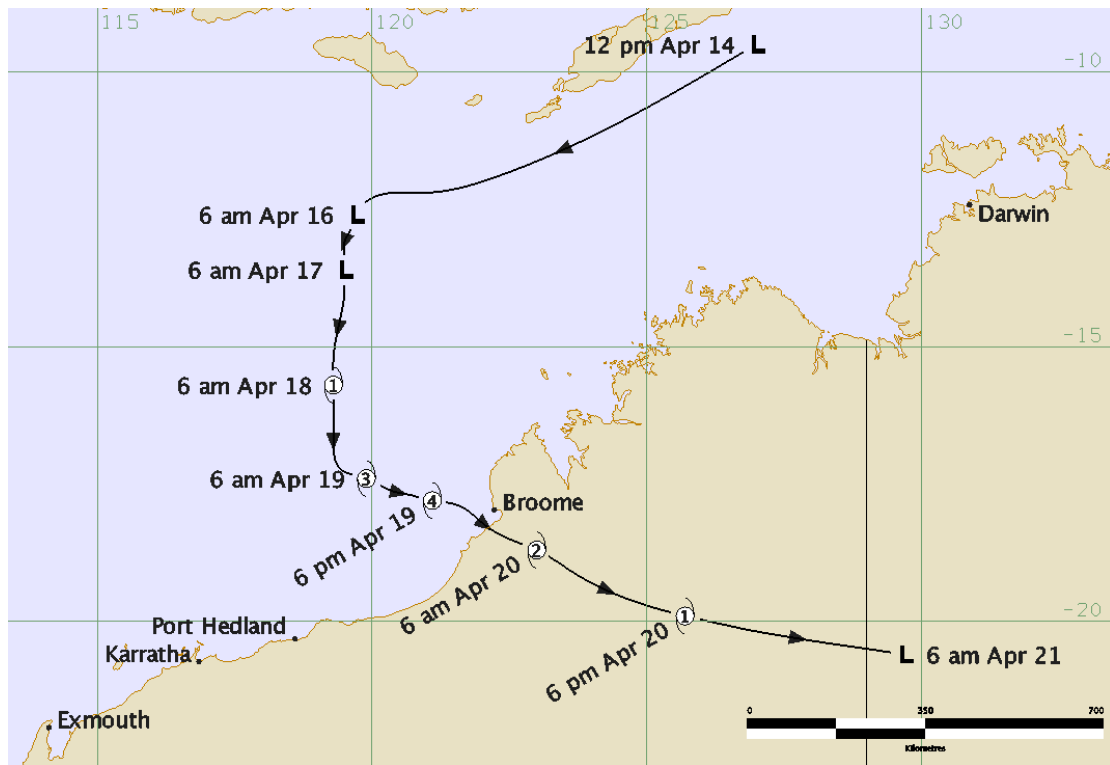


Figure 2. Broome radar image showing the eye of severe Tropical Cyclone *Rosita* over the coast 40 km south of Broome at 0040 WST 20 April 2000.

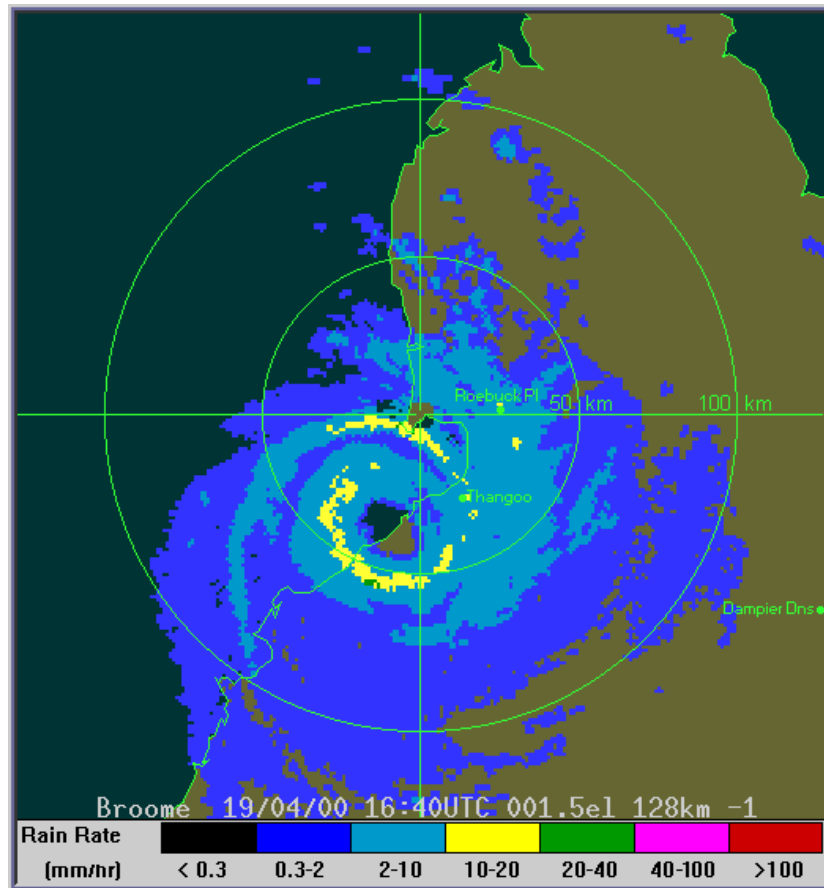


Figure 3. Infra red satellite image showing eye of *Rosita* at landfall. Courtesy of Japan Meteorological Agency.

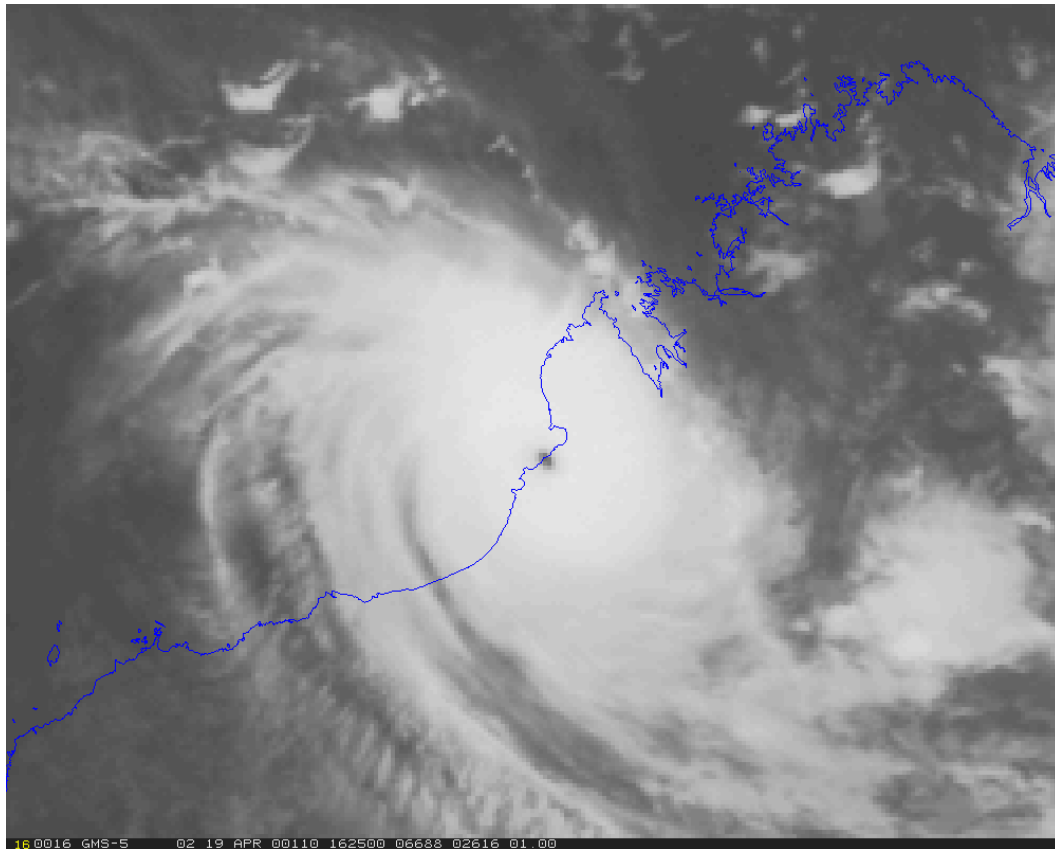


Figure 4. Erosion along Roebuck Bay.



Figure 5. Breach of coastal dunes due to storm surge on Thangoo station.



Figure 6. Devastation to Yardoogarra Station homestead.



Figure 7. The remains of the Eco Beach Resort restaurant and bar.



Figure 8. Erosion on Cable Beach in Broome.

