

Tropical Cyclone Beryl 26/11/1973 to 04/12/1973

(i) General

Shortly after cyclone "Annie" developed in the vicinity of Cocos Island another system became active farther east. This was tropical cyclone "Beryl", the third cyclone of the season to affect the Northwestern Australian Region and the second to cross the Western Australian coast. Damage resulting from the cyclone's crossing the coast was slight as the storm was then weakening and the area affected, from Northwest Cape 120 km southwards, had a relatively sparse population.

A fishing boat was wrecked at Learmonth. For a period the ocean-going oil rig "Big John" near 11.8°S 123.3°E was evacuated; however, no damage was sustained on the rig as "Beryl" veered away.

(ii) Development

Most of the information regarding the development of cyclone "Beryl" was obtained from satellite photographs. At times ships were affected by the system but these effects were so small that they implied that the cyclone was very compact.

The developmental curve as obtained from the satellite photographs shows a slow regular deepening of the system over five days and then a subsequent weakening over three days prior to landfall. After crossing the coast the system filled very rapidly.

While "Beryl" was developing the general synoptic pattern consisted of a major high pressure cell in the Indian Ocean off Western Australia and a broad low pressure area over the State. This pattern persisted for about three days and then became mobile with a high moving into the Great Australian Bight and a low pressure trough developing along the west coast. As "Beryl" moved inland this trough also moved eastward.

The upper wind regime is not easy to determine owing to the scarcity of reports but it appears that an anti-cyclonic area overlaid the cyclone above 300 mb. As the cyclone approached the Northwest Cape an east-west oriented 500 mb trough was located near Carnarvon. This persisted after the cyclone had filled.

The first anti-cyclonically curved isobar outside the system at maturity was 1008 mb.

(iii) Features of the Track (Fig. 3.1)

During the eight days that cyclone "Beryl" was active it travelled a distance of about 2000 km. A feature of the track was the slow eastward drift during the cyclone's incipient stage. During these first four days "Beryl" moved about 320 km but thereafter, as it approached maturity, it began moving more rapidly in a southwesterly direction. On 2 December it recurved slightly towards the south and then maintained this trajectory until it crossed the coast midway between Northwest Cape and Carnarvon.

(iv) Rainfall, Flooding and Flood Damage

Rainfall associated with cyclone "Beryl" was fairly minor, most places in the East and West Gascoyne and the Fortescue recording less than 15 mm. A few isolated heavy falls were reported in the 24 hours to 9 am 4 December. The most noteworthy were Learmonth 62 mm, Mt Gould 47 mm and Cardabia 37 mm.

The general lack of rainfall from this cyclone is probably attributable to the fact that it was a decaying system when it began affecting the continent. Doubtless heavier falls of rain occurred over the ocean when "Beryl" was at its most intense.

No flooding or flood damage was reported.

(v) Winds and Related Damage

In the Dvorak classification "Beryl" was estimated to be T 4.5 at its most intense stage. The maximum sustained winds associated with a cyclone of this intensity are generally about 125 km/h. At no time were winds of this speed reported. The only reports of winds exceeding gale force, 63 km/h, came from Learmonth on the night of 3 December when the wind speed ranged between 60 km/h and 80 km/h from 1300 to 1600 GMT. The wind, at first an easterly, gradually backed reaching northerly by 1830 GMT 3 December.

While "Beryl" was over the sea some ship reports were received. The winds experienced by these ships indicate that the zone of strong winds associated with the cyclone was very restricted areally.

Damage caused by the wind was slight, however an 8 m fibreglass fishing boat was wrecked at Learmonth jetty. One prawning trawler was beached but later refloated.

(vi) Seas and Swell

Although "Beryl" passed within 400 km of some ships and ocean-going oil rigs seas were not reported as more than slight. The highest swell experienced was 4.0 m from the northwest, the report coming from the tender "Sydney Tide" when it was some 150 km east of the centre.

Seas close to the centre were probably rough to very rough on 1 and 2 December when "Beryl" was most developed.

(vii) Analysis of Satellite Photographs

In the ESSA 8 photograph of 260135 GMT the Intertropic Convergence Zone (ITCZ) was well marked by a broad band of cloud oriented along about 8°S and stretching from 90°E to Cape York. The beginnings of a tropical dip were apparent near 115°E and cyclone "Annie" was developing near Cocos Island.

The next day in the ESSA 8 photograph of 270226 GMT a marked cloud circulation was apparent, centred near 10°S 117°E. This circulation displayed T 2 characteristics in Dvorak's scheme. Intensification was forecast to continue. Over the next four days the system intensified slowly reaching a peak of T 4.5 in the ESSA 8 photo of 010201 GMT. The isolation of the cloud system from convective feed in indicated that maximum intensity had been reached. Subsequently the cyclone began to degenerate. After "Beryl" had crossed the coast on 4 December it very quickly became a small amorphous cloud area, which dissipated completely during that day.

A summary of data from the ESSA 8 cloud photographs is contained in Table 3.1.

Table 3.1 Data from Satellite Photographs

Satellite Name	Orbit Number	Date/Time GMT	Estimated posn. of centre		Final T No.	Min. Sea Level Pressure (mb)
			°S	°E		
ESSA 8	22677	260135	10.2	117.0	1.5	1007
	22690	270226	9.9	117.2	2	1003
	22702	280122	11.2	117.5	3	994
	22715	290214	10.8	118.0	3.5	988
	22727	300110	11.1	118.3	4	981
	22740	010201	13.6	116.7	4.5	973
	22753	020252	16.4	114.0	4.5	973
	22765	030149	20.0	114.2	3.5	988