

Tropical cyclone Jenny 23/03/1974 to 31/03/1974

(i) General

"Jenny" was the eleventh tropical cyclone to operate in the Northwestern Australian Region. Previously "Jenny" had been an active system in the Northern Australian Region but had weakened considerably prior to moving into the Northwestern Region. After about 36 hours however it redeveloped and attained tropical cyclone characteristics which it maintained from 25 to 30 March.

Few reports from the vicinity of the cyclone were received and no damage was resorted.

(ii) Development

When the low pressure system which had been tropical cyclone "Jenny" entered the Northwestern Australian Region its central pressure was about 1007 mb. Based on the evidence deduced from the cloud photographs taken by meteorological satellites the system redeveloped on 25 March. Its development was not regular as an interruption to the development occurred on 27 March. Deepening however continued for a further 24 hours with an estimated minimum sea level pressure of 988 mb being reached on 28 March. "Jenny" then weakened with the central pressure rising to about 1010 mb by 31 March. At this time the system was no more than a perturbation in the southeasterly flow.

On 28 March the first anticyclonically curved isobar outside the system was 1012 mb.

(iii) Features of the Track (Fig. 11.1)

"Jenny" was active in the region for seven days during which time it travelled about 3000 km.

Having moved westward of longitude 125°E the tropical system "Jenny" continued its westward trajectory with only minor deviations until 27 March. On that day the cyclone began to recurve southwards and on 28 March established a southeasterly track. During this part of its life the system travelled considerably more slowly than it did prior to recurvature, 8 km/h compared with 27 km/h.

A combination of mechanisms from the low, middle and high troposphere satisfactorily explain the path of the cyclone. An upper anticyclone became established in the vicinity of Port Hedland on 25 March and "Jenny" can be thought of as having followed a path near the outer limit of this circulation. At the same time as "Jenny" was beginning to cross the ridge line on 26 and 27 March a cold front was evident in the lower and middle troposphere to the south of the cyclone. These probably all contributed to the recurvature of "Jenny" to the southeast. However the front was weakening and with the establishment of a new low level high pressure system areas the Western Australian coast "Jenny" decelerated and began to fill rapidly.

(iv) Rainfall

As the cyclone's course took it away from the continent its likelihood of producing rain at land stations was at all times slight. None of the falls of rain which were reported in the Kimberley as "Jenny" was redeveloping can be attributed to the cyclone. Cloud photographs suggest that these falls were caused by thunderstorms located in a low pressure zone to the east of the cyclone.

(v) Winds

Ship reports in the vicinity of the cyclone were few and of these none reported winds reaching gale force. It is estimated however by means of the Dvorak technique that winds exceeding 90 km/h were probably generated near the centre on 28 March. The maximum wind actually reported was 56 km/h at 261800 GMT from the ship "Baron Renfrew" when it was about 195 km to the north of "Jenny".

(vi) Seas and Swell

Of the reports of sea conditions near cyclone "Jenny" none mentioned sea waves or swells exceeding moderate amplitude. However near the centre it is probable that rough seas and a heavy swell were generated from 26 to 29 March.

(vii) Satellite Analysis

The history of the development and movement of cyclone "Jenny" while in the Northwest Australian Region was followed using cloud photographs obtained from the ESSA 8, NOAA 2 and NOAA 3 satellites. On 24 March the broken mass of cloud which had been cyclone "Jenny" entered the Northwest Australian Region. In the ESSA 8 photograph of 250142 considerable development and organisation of the cloud mass was evident. The presence of deep convective clouds near the system centre and the spreading cirrus outflow indicated that this regeneration of "Jenny" would continue. The cyclone was more organised on 26 March being estimated at T 2.5 in the Dvorak Classification. However the presence of a stratocumulus field immediately to the west of the cyclone suggested ongoing weakening. In the ESSA 8 photograph of 270324 GMT it was clear that development had been inhibited but the stratocumulus field had virtually dissipated and in the next 24 hours redevelopment continued. At its peak intensity of 28 March "Jenny" was estimated at T 3.5. From that day the cirrus outflow became more unidirectional across the cyclone and inflow bands markedly less convective. By 31 March there remained merely a patch of low level stratocumulus cloud where the cyclone filled.

A summary of the data deduced from the satellite photographs is tabulated in Table 11.1.

Table 11.1

Data from Satellite Photographs

Satellite Name	Orbit Number	Date/Time (GMT)	Estimates posn. of centre		Final T No.	Min. Sea Level Pressure (mb)
			°S	°E		
ESSA 8	24158	240050	12.5	123.5	1.5	-
	24171	250142	13.2	116.7	2	1003
	24184	260233	15.4	110.4	2.5	999
	24197	270324	17.0	106.0	2.5	999
	24209	280220	18.9	106.2	3.5	988
	24222	290311	20.5	107.0	2	1003
	24234	300207	21.5	107.5	1.5	1006
	24247	310301	22.7	109.0	1	-