

Tropical Cyclone Vida 16/03/1975 – 21/03/1975

(i) General

The eighth cyclone of the season was named “Vida”. It originated in the Cocos Island area and initially travelled eastward before its course gradually changed until it was almost southerly. From the Northwest Cape southwards “Vida” travelled very rapidly almost parallel to the coast until when passing the latitude of Perth its course altered and became more southeasterly. “Vida” did not cross land but passed within about 50 km of Cape Leeuwin. It was the third cyclone of the season to affect Western Australia directly, the earlier two being “Trixie” and “Wilma”.

Gale force winds and strong squalls caused some structural failures and severely damaged small aircraft along the lower west coast. Winds at Fremantle reached 128 km/h. It is estimated that damage approaching the value of \$1 million was caused by cyclone “Vida”.

(ii) Development

From observations received from Cocos Island and ships in the vicinity a convergence zone was analysed as existing immediately to the north of Cocos Island on 15th March. By 16th March this convergence line had moved south of the islands and had begun to develop a cyclonic circulation. The surface pressure at Cocos Island fell by about 5 mb reaching 1002 mb by 162000 GMT. The wind strength also increased and attained gale force at 162250 GMT.

Cloud photographs of the system transmitted from the ESSA 8 and NOAA 4 satellites were the main sources of information about the cyclone from 17th to 19th March. These indicated that “Vida” was of the slow developing type.

From 191200 GMT ship observations and reports from coastal stations were more useful in determining the position of the system and its other characteristics. These reports suggest that “Vida” was a cyclone of only moderate intensity but that its effects extended over a very large area. The lowest pressure reported was 990.0 mb by the ship “State of Rajasthan” at 200000 GMT when it was about 35 km to the southwest of the cyclone. At that same time gale force winds were reported over a radius of about 320 km.

At its closest approach to the coast “Vida” was weakening as a tropical cyclone. This occurred at 200700 GMT when “Vida” was located about 50 km southwest of Cape Leeuwin where the mean sea level surface pressure at the time was 992.5 mb.

After moving south of the continent it became more difficult to track “Vida” as a separate system as it amalgamated with a southern cold front. By 210100 GMT on the cloud photographs “Vida” was no longer distinguishable within the broad mass of pre-frontal cloud.

The value of the first anticyclonically curved isobar outside the system on 19th March was 1008 mb.

(iii) Features of the Track (fig..1)

“Once it had developed “Vida” moved very rapidly in a generally southsoutheasterly direction. In a life-span of five days it travelled about 4500 km.

The unusual feature of the track followed by “Vida” was that it travelled in a generally easterly direction for the first two days at an average speed of about 20 km/h and then in the next 24 hours as its course changed to the southeast and south its speed increased to about 50 km/h. This speed was maintained until the system merged with a southern front on 21st March.

The direction of movement assumed by “Vida” during the various stages of its existence were not easily explained. The changes in the upper level wind direction did not relate unequivocally to the track followed by “Vida”. At first an upper anticyclone was located very close to the cyclone centre. On 19th March the upper northwesterlies ahead of the cold front could not account for themselves for the near southerly movement which occurred that day. The relative locations of the low level anticyclone and approaching cold front probably played roles in determining the resultant movement of “Vida”. On 20th March the cyclone’s direct involvement with the cold front was another complicating factor.

(iv) Rainfall

In spite of its proximity to the west coast of Western Australia during 19th and 20th March “Vida” produced very little rain. The heaviest fall in the 24 hours ending at 0100 GMT occurred at Cape Leeuwin with a recording of 17 mm on 20th March. At the Bureau of Meteorology Regional Office in Perth 9 mm were recorded in the same period.

(v) Winds and Related Damage

In contrast with the lack of rain associated with “Vida” the strong winds had a widespread effect. Gales were reported at all coastal stations from Kalbarri southward to Bremer bay. At Fremantle Signal Station maximum gusts recorded was 128 km/h. Closer to the cyclone centre storm force winds were experienced by several ships south of latitude 30°S . These included in the table of selected ship reports (Table 8.1).

The first report of gale force winds caused by cyclone “Vida” was from Cocos Island at 162250 GMT when the wind reached 67 km/h. Until 191200GMT when ship reports became more frequent the only vessel to report gale force winds was the “British Queen” at 181000 and 181300 GMT.

Widespread damage was caused by the strong winds in the Perth metropolitan area and among coastal communities farther south. Most of the damage was similar to that experienced during winter gales. Most injuries were minor. Walls collapsed at the Perry Lakes Stadium causing damage estimated at several thousands of dollars. A \$2000 fibreglass swimming pool at Mt Hawthorn was lifted by the winds and then dumped, wrecking it. Roofing was torn off St Andrew’s Church in St George’s Terrace and the church’s spire was loosened.

The mostly costly damage occurred among small craft moored at Rockingham. Estimates of the damage caused there were put as high as \$500,000. A 7 m yacht was sunk, a 6 m cabin cruiser was smashed when another craft was lifted and deposited on it. Over a dozen other craft were beached.

(vi) Seas and Swell

Rough to very rough seas and a heavy swell were generated by cyclone “Vida”.

The first report of such sea conditions came from the “British Queen” at 18000 GMT. Thereafter similar reports were frequent until the cyclone dissipated on 21st March. Some reports are included in Table 8.1.

(vii) Satellite Analysis

In the ESSA 8 photograph of 160302 GMT considerable development was evident in the structure of the clouds associated with a low pressure system near Cocos Island. A low level cloud system centre could be determined near a dense overcast mass. The whole system was located on the southern side of a band of cloud varying latitudinal extent but of an overall zonal orientation. This was probably a part of the Inter-tropic Convergence Zone (ITCZ). Cloud bands were feeding in to the cyclonic system. In the Dovak scheme it was estimated to be T2.5 with ongoing development anticipated.

On 17th March the ITCZ seemed more broken and further north but was still attached by a broad feeder band of convective cloud to the cloud mass defining “Vida”. By 18th March this convective feeder was considerably weaker but the system centre had moved under the edge of the Central Dense Overcast (CDO). “Vida” at this time was estimated to be a T 3.5 system thus indicating that the slow development had occurred. In the ESSA 8 photograph of 190140 GMT the cyclone appeared to have reached its peak intensity with an estimated central pressure of 984 mb. It had moved rapidly southeastward in the previous 24 hours and was entering a region of strong unidirectional flow aloft. Subsequent weakening was therefore indicted. On 20th March the cyclone began to interact with a mass of prefrontal cloud. A cloud circulation centre could still be distinguished and this corresponded well with that deduced from surface observations. In the photograph taken by ESSA 8 24 hours later (210139 GMT) only a patch of cloud with an indeterminate centre remained attached to the broad band of the cold front.

A summary of the data deduced from the satellite photographs is given in Table 8.2.

Table 8.1

Selected Ship Reports

Ship	Position °S °E	Date/ Time (GMT)	Bearing/ Distance From centre (km)	Wind (km/h)	Sea (m)	Swell	Weather	Pressure (mb)
British Queen	13.8 107.7	181000	050/290	020/ 68	2.5	NNE 4.5	Heavy rain squalls	1003.0
British Queen	13.6 107.6	181300	030/330	-/ 82	Rough	Heavy	Heavy rain squalls	1005.7
Iron Hunter	26.7 111.0	191200	130/040	080/ 83			Heavy Cont rain	1011.0
Asia- morality	27.6 110.9	191200	160/170	080/ 67	1.5		Cont mod drizzle	1001.5
British Hussar	29.2 112.0	191400	150/230	070/74	Rough	Heavy		1002.2
Asia- morality	27.6 110.8	191800	360/140	020/ 78	1.5	020/4		995.0
Sprightly	30.5 113.9	191800	120/140	090/ 74			Mod Intermitt rain	1002.6
British Hussar	30.7 113.9	192300	070/100	030/ 87	Very Rough	Heavy Short	Mod Intermitt drizzle	997.5
British Hussar	31.3 114.5	200000	090/230	030/ 96	Very Rough	Heavy	Showers	999.0
Sprightly	31.2 114.1	200000	090/200	020/104			Mod Intermitt rain	999.2
State of Rajasthan	31.8 112.2	200000	040/020	130/ 46		Mod	Light rain	990.0
Trebartha	32.2 11.25	200300	330/120	300/ 74	5	050/4		998.1
Ship	32.4 115.2	200300	030/230	020/ 83	5			999.9
Leeds	35.4 117.5	200500	290/380	070/ 82	Very Rough			1001

Table 8.2

Data from Satellite Photographs

Satellite Name	Orbit Number	Date/Time (GMT)	Estimated posn. of centre °S	Estimated posn. of centre °E	Final T No.	Min. Sea Level Pressure (mb)
ESSA 8	28641	160302	13.5	95.5	2.5	999
	28653	170159	13.7	99	3	994
	28666	180250	13.8	103.5	3.5	988
	28678	190140	21	109	3.5	984
	28690	20048	32.5	112.5	2.5	988
	28703	210139	38.5	123	1	1003

