Tropical Cyclone Norah 28/10/1974 – 04/11/1974

(i) General

The second cyclone of the season, “Norah”, also spent its entire life over the waters of the eastern and central Indian Ocean.

“Norah” was a compact system of moderate intensity. The cyclone passed within 200 km to the north and west of Cocos Island but without causing strong winds or any damage, although it is estimated that winds near the centre would have reached over 100 km/h on 1st November.

(ii) Development

In following the development pattern of cyclone “Norah” data from the meteorological stations at Cocos Island and Christmas Island was supplementary to that deduced from the cloud photographs.

Cyclone “Norah” developed in a broad mass of convective centred between Christmas Island and Java. This cloud mass had obviously become organised into a cyclonic circulation by 30th October and later that day at 1930 GMT the mean sea level pressure at Cocos Island fell to 1007.6 mb, the minimum recorded pressure associated with cyclone “Norah”. According to the evidence of the cloud photographs “Norah” developed at about the typical rate but reached its highest intensity on 1st November only two days after the circulation centre was first identified. At the time the minimum pressure was estimated to be about 981 mb. The cyclone then begun to weaken and by 4th November was no longer easily identifiable.

The value of the first anticyclonically curved isobar on 1st November was 1012 mb.

(iii) Features of the Track (fig. 2.1)

During its developing and mature stages “Norah” followed a generally west southwestward track. As it weakened however its movement became gradually more westnorthwestward. “Norah” was a definable system for seven days and in that time travelled 3350 km at a relatively constant speed of about 20 km/h. There were no unusual features.

No middle or upper level troughs were located at any time in the vicinity of cyclone “Norah”. The path followed by the cyclone agrees well with its having been steered by the easterly flow on the northern side of the upper level anticyclone. A series of aircraft reports at about the 250 mb level confirm the location of the axis of the anticyclone. At low level the persistence of the subtropical ridge to the south of the cyclone was the main feature. The ridge in the longitude of “Norah” was weakened temporarily on 1st November as a rapidly moving cold front passed eastward, however no effect on the cyclone’s movement was detected.

(iv) Rainfall

As “Norah spent its entire life over the ocean little is known of the rainfall distribution. Rain was reported at Christmas Island and Cocos Island on several days as the cyclone moved past. The 24 hour falls ending at 0100 GMT are given in table 2.1. The only noteworthy fall was the 71 mm at Cocos Island on 31st October.

Table 2.1 Rainfall Totals for 24 hours ending 0100 GMT for Christmas Island and Cocos Island

	Dates					
Station	**28**	**29**	**30**	**31**	**1**	**2**
Christmas Island	19	10	9	-	-	-
Cocos Island	0.4	-	6	71	6	6

(v) Winds

Neither Christmas Island nor Cocos Island experienced gale force winds while “Norah” operated in their neighbourhood. It is estimated by using the Dvorak technique that winds of about 110 km/h were probably generated near the centre on 1st November.

The maximum wind reported was 46 km/h at 301000 GMT at Cocos Island.

(vi) Sea and Swell

As with the winds, little data relating to the seas and swell generated by “Norah” is available. Throughout the whole period that “Norah” was in the vicinity, Cocos Island reported a moderate southeasterly swell indicating possibly that any significant swell was not caused by the cyclone until after it was west of Cocos Island. It is probable that rough seas and a heavy swell were generated as “Norah” approached its maximum intensity on 1st November.

(vii) Satellite Analysis

Transmissions from the ESSA 8 and NOAA 3 meteorological satellites were received at Perth TCWC daily but the cyclonic system was not always visible as it was located near the northwestern edge of the area viewed. A summary of the data is given in Table 2.2.

For some days before intensification occurred a mass of cloud was present in the general area in which “Norah” developed. On 28th and 29th October the cloud mass possessed very little structure whereas in the ESSA 8 photograph of 300246 GMT considerable organisation was evident with the cloud system centre Cleary visible. Further intensification occurred over the next two days and an “eye” became visible on 31st October. On 1st November the cyclone was estimated to be T 4 in the Dvorak classification but because of the general isolation of the system from further convective inflow weakening was predicated to follow. Some degeneration was apparent on 2nd November. Photographs received on 3rd November did not show the cyclone area but on the 4th November a remnant of the system was located near 11°S 74°E. “Norah had continued to weaken and had moved westnorthwest from its position on 2nd November.

Table 1.1 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	26896	280304	8	105	0.5	
	26908	290201	7.5	103	0.5	
	26921	300246	9.8	98.5	2	1003
	26934	310343	11.6	94.5	3	994
NOAA	4454	010245	12.5	91.1	4	981
ESSA 8	26959	020331	13.3	87.5	3	994
-	-	03XXX	No photo	No photo	-	-
NOAA 4	4491	040151	11	74	-	-