

## **Tropical Cyclone Roma 18/04/1973-23/04/1973**

### (i) General

“Roma” was the fourth Indian Ocean Cyclone of the season. It lasted for five days and is believed to have been severe on 20<sup>th</sup> and 21<sup>st</sup> April when wind speeds near the centre were estimated to have reached about 100 km/h. The cyclone formed almost midway between Cocos Island and the Chagos Archipelago and it travelled in a generally southerly direction. Its course oscillated in and out of the Perth TCWC area of the responsibility.

### (ii) Development

In the days immediately preceding the formation of cyclone “Roma” westerly winds were known to exist between latitudes 5°S and 10°S from longitudes 75°E to 85°E. The formation of an identifiable cyclonic circulation followed the strengthening of the southwest trades south and east of this area. At the same time an anticyclone was intensifying some 2100 km west of Perth near 33°S 90°E. This system appears to have reached maximum intensity at 171800 GMT with an estimated central pressure of 1031 mb.

Subsequently the anticyclone weakened while “Roma” grew slowly more intense, its central pressure deepening to an estimated 982 mb between 200300 GMT and 210300 GMT in the vicinity of 17°S.

As the cyclone moved steadily towards higher latitudes the moist low level feed-in began to decrease and the high level out-flow to increase thus weakening the system. On 23<sup>rd</sup> April the system became part of a prefrontal trough and thereafter a centre was no longer distinguishable.

The first anticyclonically curved isobar outside the cyclone at maturity was 1008 mb on 20<sup>th</sup> April.

### (iii) Features of the Track (fig. 10.1)

The track of cyclone “Roma” was one of multiple recurvature, this feature being established entirely from satellite data. In the five days of its existence tropical cyclone “Roma” travelled about 1400 km. It is quite possible that in the absence of satellite information “Roma” could have remained undetected.

At first the cyclone moved in a westerly direction. Within 24 hours of being identified it had recurved and throughout most of 19<sup>th</sup> April moved southsoutheast at about 7 km/h.

On 20<sup>th</sup> April the cyclone changed course and for the following 24 hours appears to have moved at about 15 km/h towards the southwest. By 21001 GMT it had recurved again and was moving southeastward at a slightly increased speed at about 9 km/h. After 23<sup>rd</sup> April the system could no longer be distinguished from a cloud band preceding a southern frontal system.

During the period of “Roma” existence several rapidly moving cold fronts traversed the longitudes of the cyclone’s activity but at higher latitudes. The resultant fluctuations of the subtropical ridge as it was affected by these systems could have influenced the erratic path taken by “Roma”.

(iv) Winds, Seas and Related Damage

No report of conditions in the area influenced by the cyclone was received; however using satellite data sustained winds of about 100 km/h are believed to have existed near the centre when “Roma” was at maturity.

(v) Satellite Analysis

“Roma” was one of the tree central Indian Ocean cyclones in this season whose existence possibly would not have been noted but for regular satellite surveillance.

An extensive area of cloud was evident on satellite photographs in the region 10°S between 75°E and 90°E for several days prior to 18<sup>th</sup> April 1973. On that day the system had evidently started to become organised about a centre near 12°S 83°E. Further intensification was likely according to Dvorak’s criteria. Deepening occurred during the next 48 hours with the cyclone reaching a peak current intensity number T-4 on 20<sup>th</sup> April. Thereafter the system began to weaken as the moist inflow decreased and upper level out-flows increased.

Data from the satellite photographs using the Dvorak analysis method is shown in Table 10.1.

Table 10.1 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	19891	180335	12.0	83.0	2	1001
	19904	190426	14.0	80.5	3	992
	19916	200322	17.0	81.0	4	982
	19929	210413	18.5	80.5	4	982
	19941	220309	21.0	80.0	2.5	987
	19954	230401	22.5	79.5	1.5	997