



Australian Government
Bureau of Meteorology

Tropical Cyclone *Melanie*

28 October – 12 November 1996

Perth Tropical Cyclone Warning Centre
Bureau of Meteorology

A. Summary

Melanie was an early season westward moving Indian Ocean cyclone that moved west of 90°E as a category one cyclone and was renamed *Bellamine* by La Reunion RSMC. The cyclone went on to attain a peak intensity of 90 knots over open waters.

Although Cocos Islands was in a cyclone warning phase for the developing low, TC *Melanie* had no direct impact on the islands.

B. Meteorological Description

Intensity

During the formation stage of *Melanie* a monsoon low was apparent near 10°N 100°E giving rise to an enhanced equatorial westerly flow. Initial development was slow as it was located on the northwest flank of the upper ridge and encountered considerable northeasterly shear. *Melanie* reached cyclone strength on 31 October to the northwest of the Cocos Islands. *Melanie* intensified further as it moved westwards out of the Perth TCWC region early on 2 November and was re-named *Bellamine* by La Reunion RSMC. Peak intensity was reached on 7 November with maximum mean winds of 90 knots, just after the system crossed west of 80°E. *Bellamine* weakened below cyclone strength on 10 November near 22°S 79°E.

Motion and Structure

Initially the low was in a weak steering environment as it moved west southwest north of a weak ridge axis. For TC *Melanie*'s lifetime it remained north of the mid-level ridge and thus generally moved in a westerly direction apart from a period during 3 November when a mid-level trough to the south of the cyclone caused a more southwesterly track. After this the mid-level ridge re-established itself to the south of the system causing it to resume a more west southwest track.

The main intensification period during 3 November coincided with TC *Melanie/Bellamine* moving into the upper ridge axis and thus being in a low shear environment.

C. Impact

Although Cocos Islands was in a cyclone warning phase for the developing low, TC *Melanie* had no direct impact on the islands.

D. Observations

There were no reports of significant winds or rainfall associated with TC *Melanie*.

Table 1. Best track summary for *Melanie* 28 October – 6 November 1996

Note: Add 8 hours to convert to WST. Refer to best track database for complete track details.

| Year | Month | Day | Hour (UTC) | Position Latitude S | Position Longitude E | Max wind 10min knots | Central Pressure hPa | Rad. of Gales nm |
|------|-------|-----|------------|---------------------|----------------------|----------------------|----------------------|------------------|
| 1996 | 10 | 28 | 1000 | 9.1 | 97.8 | 25 | 1002 | |
| 1996 | 10 | 28 | 2200 | 9.3 | 97.1 | 25 | 1000 | |
| 1996 | 10 | 29 | 1000 | 9.6 | 96.4 | 25 | 1000 | |
| 1996 | 10 | 29 | 2200 | 9.9 | 96.0 | 25 | 1000 | |
| 1996 | 10 | 30 | 0700 | 10.1 | 95.6 | 25 | 1000 | |
| 1996 | 10 | 30 | 1000 | 10.1 | 95.4 | 30 | 998 | |
| 1996 | 10 | 30 | 2200 | 10.0 | 95.3 | 30 | 998 | |
| 1996 | 10 | 31 | 0100 | 9.9 | 95.2 | 30 | 998 | |
| 1996 | 10 | 31 | 1000 | 9.3 | 94.4 | 30 | 998 | |
| 1996 | 10 | 31 | 1600 | 9.0 | 93.6 | 35 | 995 | 110 |
| 1996 | 10 | 31 | 2200 | 8.7 | 92.6 | 40 | 990 | 110 |
| 1996 | 11 | 1 | 0100 | 8.6 | 92.2 | 40 | 990 | 110 |
| 1996 | 11 | 1 | 0400 | 8.6 | 91.8 | 40 | 990 | 110 |
| 1996 | 11 | 1 | 1000 | 8.6 | 91.0 | 40 | 990 | 135 |
| 1996 | 11 | 1 | 1600 | 8.6 | 90.2 | 40 | 990 | 135 |
| 1996 | 11 | 1 | 2200 | 8.6 | 89.4 | 45 | 985 | 135 |
| 1996 | 11 | 2 | 0100 | 8.6 | 89.0 | 45 | 985 | 135 |
| 1996 | 11 | 2 | 0400 | 8.6 | 88.7 | 45 | 985 | 135 |
| 1996 | 11 | 2 | 1000 | 8.7 | 88.2 | 55 | 980 | 135 |
| 1996 | 11 | 2 | 2200 | 9.4 | 87.2 | 70 | 965 | 135 |
| 1996 | 11 | 3 | 0400 | 9.4 | 86.8 | 75 | 960 | 135 |
| 1996 | 11 | 3 | 0700 | 10.0 | 86.7 | 80 | 955 | 145 |
| 1996 | 11 | 3 | 1000 | 10.1 | 86.6 | 85 | 950 | 145 |
| 1996 | 11 | 3 | 1600 | 10.2 | 86.0 | 95 | 940 | 160 |
| 1996 | 11 | 3 | 2200 | 10.3 | 85.6 | 105 | 925 | 160 |
| 1996 | 11 | 4 | 0400 | 10.4 | 85.4 | 105 | 920 | 160 |
| 1996 | 11 | 4 | 1000 | 10.4 | 85.2 | 105 | 920 | 160 |
| 1996 | 11 | 5 | 0100 | 10.6 | 84.7 | 90 | 945 | 160 |
| 1996 | 11 | 5 | 0400 | 10.6 | 84.5 | 85 | 950 | 160 |
| 1996 | 11 | 5 | 0700 | 10.7 | 84.2 | 80 | 955 | 160 |
| 1996 | 11 | 5 | 1000 | 10.9 | 83.9 | 85 | 950 | 160 |
| 1996 | 11 | 5 | 2200 | 11.3 | 82.5 | 90 | 945 | 160 |
| 1996 | 11 | 6 | 0700 | 11.5 | 81.3 | 95 | 935 | 160 |
| 1996 | 11 | 6 | 1000 | 11.6 | 80.9 | 100 | 930 | 160 |
| 1996 | 11 | 6 | 1600 | 11.7 | 80.2 | 95 | 935 | 160 |

Figure 1. Track of Tropical Cyclone *Melanie*, 28 October - 7 November 1996

All times in WST.

