



Australian Government
Bureau of Meteorology

Severe Tropical Cyclone *Vivienne* 6 – 12 April 1994

Perth Tropical Cyclone Warning Centre
Bureau of Meteorology

A. Summary

A low that formed in the Timor Sea on 6 April rapidly developed as it moved to the southwest. *Vivienne* reached peak intensity of 80 knots (category three) on 8 April well to the north of the Western Australian coastline but from then on development was hampered by wind shear and gradually weakened being downgraded to a tropical low over open waters on 11 April.

There was no report of significant impact associated with tropical cyclone *Vivienne*.

B. Meteorological Description

Tropical cyclone *Vivienne* formed from a tropical low that had moved westward across the Timor Sea. The cyclone intensified rapidly during the afternoon and night of 7 April, reaching maximum intensity on the morning of 8 April when located well to the north of Broome. Its development from this time onwards was hampered by vertical wind shear. *Vivienne* moved on a west southwesterly path parallel to the WA coastline.

During the period prior to cyclogenesis severe tropical cyclone *Owen* was moving westward at comparable longitudes along 10°N. The increased westerly flow about the Equator due to *Owen* may have been a factor in increasing the cyclonic shear across the developing low.

Following formation, *Vivienne* moved along a southwesterly track around the northwest flank of the high-level anticyclone. Although the 500 hPa flow across the system was northerly, the flow below and above this level was more easterly. As the centre moved southwestward, an elongation of the high-level cloud occurred during 8 and 9 April, indicative of an increase in shear over the system. A significant contribution to the increase in shear was the strength of the easterly flow to the south of the cyclone generated by a strong ridge. Although an eye was visible for a brief period on 8 April this was lost as the shearing took effect.

During 9 April part of the low-level circulation appeared on the northwest side of the upper-level cloud features. As shearing proceeded, the cyclone movement was then influenced by easterly flow in the lower levels. By the morning of 10 April the centre was fully exposed on the northern edge of the main cloud mass. The centre moved west southwest and weakened. By early on 12 April the low was barely discernible

on satellite imagery and was almost stationary, having moved into a low-level col area between a new ridge ahead of a front to the south and the retreating anticyclone. The front peaked in amplitude well to the southwest of the cyclone and was moving away to the southeast as it approached.

C. Impact

There was no report of significant impact associated with tropical cyclone *Vivienne*.

D. Observations

Wind/Pressure and Rainfall

There was no report of significant wind and rainfall associated with tropical cyclone *Vivienne*.

Table 1. Best track summary for *Vivienne 6* – 12 April 1994

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 |
|------|-------|-----|------------|---------------------|----------------------|----------------------|----------------------|------------------|
| 1994 | 04 | 6 | 0000 | 10.2 | 126.6 | | 1006 | |
| 1994 | 04 | 6 | 0600 | 10.2 | 125.9 | | 1006 | |
| 1994 | 04 | 6 | 1200 | 10.4 | 125.2 | 20 | 1004 | |
| 1994 | 04 | 6 | 1800 | 10.5 | 124.5 | 25 | 1000 | |
| 1994 | 04 | 7 | 0000 | 10.7 | 123.8 | 25 | 1000 | |
| 1994 | 04 | 7 | 0300 | 10.8 | 123.2 | 35 | 995 | 15 |
| 1994 | 04 | 7 | 0600 | 11.1 | 122.9 | 35 | 995 | 25 |
| 1994 | 04 | 7 | 0900 | 11.4 | 122.4 | 40 | 990 | 55 |
| 1994 | 04 | 7 | 1200 | 11.8 | 122.1 | 45 | 985 | 80 |
| 1994 | 04 | 7 | 1500 | 11.9 | 121.8 | 55 | 980 | 120 |
| 1994 | 04 | 7 | 1800 | 12.2 | 121.6 | 60 | 975 | 120 |
| 1994 | 04 | 7 | 2100 | 12.3 | 121.2 | 70 | 965 | 120 |
| 1994 | 04 | 8 | 0000 | 12.5 | 121.0 | 80 | 955 | 120 |
| 1994 | 04 | 8 | 0300 | 12.7 | 120.6 | 80 | 955 | 120 |
| 1994 | 04 | 8 | 0600 | 13.1 | 120.3 | 75 | 960 | 110 |
| 1994 | 04 | 8 | 0900 | 13.5 | 120.1 | 75 | 960 | 110 |
| 1994 | 04 | 8 | 1200 | 13.8 | 119.7 | 75 | 960 | 110 |
| 1994 | 04 | 8 | 1500 | 14.0 | 119.5 | 75 | 960 | 110 |
| 1994 | 04 | 8 | 1800 | 14.2 | 119.3 | 75 | 960 | 110 |
| 1994 | 04 | 8 | 2100 | 14.3 | 119.1 | 75 | 960 | 110 |
| 1994 | 04 | 9 | 0000 | 14.4 | 118.9 | 75 | 960 | 110 |
| 1994 | 04 | 9 | 0300 | 14.4 | 118.3 | 75 | 960 | 110 |
| 1994 | 04 | 9 | 0600 | 14.4 | 117.7 | 70 | 965 | 110 |
| 1994 | 04 | 9 | 0900 | 14.4 | 117.1 | 65 | 970 | 110 |
| 1994 | 04 | 9 | 1200 | 14.4 | 116.5 | 60 | 975 | 80 |
| 1994 | 04 | 9 | 1500 | 14.4 | 115.1 | 55 | 980 | 55 |
| 1994 | 04 | 9 | 1800 | 14.5 | 115.4 | 45 | 985 | 55 |
| 1994 | 04 | 9 | 2100 | 14.5 | 114.8 | 40 | 990 | 55 |
| 1994 | 04 | 10 | 0000 | 14.6 | 114.1 | 40 | 990 | 55 |
| 1994 | 04 | 10 | 0300 | 15.0 | 113.3 | 40 | 990 | 55 |
| 1994 | 04 | 10 | 0600 | 15.4 | 112.5 | 40 | 990 | 55 |
| 1994 | 04 | 10 | 0900 | 15.6 | 111.6 | 40 | 990 | 55 |
| 1994 | 04 | 10 | 1200 | 15.9 | 110.7 | 40 | 990 | 55 |
| 1994 | 04 | 10 | 1500 | 16.1 | 109.1 | 40 | 990 | 55 |
| 1994 | 04 | 10 | 1800 | 16.2 | 109.0 | 35 | 995 | 25 |
| 1994 | 04 | 10 | 2100 | 16.4 | 108.1 | 35 | 995 | 25 |
| 1994 | 04 | 11 | 0000 | 16.6 | 107.5 | 25 | 1000 | |
| 1994 | 04 | 11 | 0600 | 17.0 | 106.5 | 20 | 1005 | |
| 1994 | 04 | 11 | 1200 | 17.3 | 105.6 | 20 | 1005 | |
| 1994 | 04 | 11 | 1800 | 17.4 | 105.2 | 20 | 1005 | |
| 1994 | 04 | 12 | 0000 | 17.7 | 105.1 | 20 | 1005 | |

Figure 1. Track of Tropical Cyclone *Vivienne*, 6 – 12 April 1994.
All times in WST.

