

Weather in the Tallong region - 2025

The weather in the Tallong Region will be analysed from a small network of rainfall observation stations as well as recording weather stations in Tallong and the South Marulan area associated the Boral quarry operations. Statistics of monthly and annual rainfall will highlight geographic influences as well as observations of significant rainfall events. These and temperature data will be used to compare with the Bureau of Meteorology (BOM) summaries for 2025.

Australia's climate in 2025 (BOM source)

Temperature

- Australia's fourth-warmest year since national records began in 1910, with the national annual average temperature 1.23 °C above the 1961–1990 average.
- The national average maximum temperature was 1.48 °C above average, the equal fourth-warmest on record.
- The national average minimum temperature was 0.98 °C above average, and the eighth-warmest on record.

Rainfall

- Nationally-averaged rainfall was 8% above the 1961–1990 average, at 503 mm.
- Rainfall was below average for most of Tasmania, Victoria and South Australia, much of inland New South Wales and large parts of southern Western Australia.
- Rainfall was above average for much of Queensland, northern and eastern parts of the Northern Territory, coastal areas of New South Wales and a large area in the north of Western Australia and smaller areas scattered across its south.

The Tallong Analyses

The current network of observations stations is shown in Table 1 together with their geographic co-ordinates and length of observation records. Their locations are also shown in Figure 1.

Rainfall

The monthly and annual rainfall data from all the stations are shown in Table 2; the Peppertree and Limestone data are from the automatic weather stations whereas the other data are the manual readings. This table shows that the months of January, July and August were wet and in fact well above average, whereas October was a very dry month. These data lead to 2025 being above average on an annual basis which is consistent with the BOM findings above. The reasons for some above average monthly rainfall totals will be evident from some of the analyses of significant rainfall events below.

Significant Weather Events in 2025

The significant rainfall events during 2025 are shown in Table 3. Some of the days with very significant rain will be discussed in relation to the surface synoptic scale weather/pressure maps although availability of the rainfall radar data over the region is limited due to BOM expenses. This limits the interpretations.

January 11, 2025

A low pressure (Figure 2) trough line rain parallel to the NSW coastline leading to some thunderstorm activity inland (Figure 3). There was a significant difference across the region with Black recording 46 mm while the two South Marulan

stations only 15-18 mm. This can be typical of thunderstorms of limited size which wander between stations causing local impacts.

January 16, 2025

24-hour rainfall totals between 39 and 54 mm were recorded at all stations at 0900 AEDT on January 16, 2025 (Table 3). Interestingly the lowest total was observed by Black closer to the coast but the reason can be seen in the synoptic scale pressure maps and radar images. At 1600 AEST (Figure 4) there was a low pressure region centred to the west of Tallong with a N-S trough line extending northwards. The low pressure centre moved south but the trough line persisted at 2200 AEST (Figure 5). These triggered a N-S line of heavy rain and thunderstorms which were observed at 1735 AEST (Figure 6). This line of storms then moved to the NE by 1940 AEST (Figure 7), thus reducing the impact on the Black station. By 0449 AEST on 16/1/2025 more patchy rain was again observed over our region (Figure 8).

February 9 and 10

Unfortunately there are no radar images available for these days. However, the observations in Table 3 indicate the highest rainfalls occurred closer to the coast. On February 9 it appears that there were thunderstorms as well because Botticchio, Clark and Tallong Park all recorded higher totals than Leese and the South Marulan stations. The synoptic pressure map (Figure 9) indicated an onshore flow from the NE and two low pressure troughs, one inland and the other an extension of a cold front in the SE. These would have produced significant rainfall nearer the coast and maybe at more inland sites as the data suggest. In Figure 10 the patterns indicated a strong onshore flow and two low pressure troughs, one parallel to the coast and the other inland again leading to lower falls than the previous day but higher towards the coast.

February 14

There was a cold front running virtually N-S in the SE of NSW which linked with an inland trough line running to the NNW (Figure 11). These combined features lead to near weak northerly airflows and the highest rain recorded at Black (38.4 mm) although there was a significant variability across the region (Table 3); the Botticchio value is an aberration. The value at Limestone (33 mm) was much higher than nearby Peppertree (27.5 mm) and across the valley. The rain radar (Figure 12) indicated a large band of rain passing over the region the previous evening with patchy areas of higher intensities (yellow to orange images). This patchiness might have led to the regional variability.

April 30

The next day of significant rain for which rain radar images are available was on April 30. The synoptic weather pattern (Figure 13) leading to this event indicated a SE wind with two complex trough lines off the SE coast of NSW. In Table 3 there was a reasonably uniform distribution of rain across the Tallong region (13 to 18 mm) but both Limestone and Peppertree were significantly higher (27.5 to 29.8). The radar showed a broad area of rain the previous evening but with embedded heavier patches (Figure 14). Such a local thunderstorm could have caused the heavier South Marulan readings.

May 23

Extreme rain was experienced over the Tallong region up to 0900 AEST on May 23 (Table 3). The values of Black and Botticchio were estimates due to their absence. However, Dugald Black indicated his 85 mm from a nearby station would be fairly accurate based on previous experience. Values elsewhere varied from 34.5 mm at Peppertree to 57 mm at Botticchio (a 48 hour total to May 24 - more likely <50 mm for the 24 hours to May 23). The synoptic weather patterns responsible are shown in Figures 15 and 16. There was a very complex low pressure trough line from NE to Central NSW on the evening of May 22 which then developed into a low pressure centre in SW NSW with a trough line extending to the NE. This led to wide spread rain across central and eastern NSW with embedded patches of heavier falls (Figures 17-19). Generally the winds were onshore from the NE which led to the highest value at the Black station as the air was lifted from the coast over the escarpment.

July 2

There was a very intense (cut-off?) low pressure region which developed off the coast (Figure 20) and lead to strong southerly winds over our region. Very high 24 hour totals of between 74.5 and 84.2 mm over Tallong and lower values in South Marulan (58-60 mm) were recorded [Table 3]. The radar images in Figures 21-23 indicated widespread rain with intense areas over eastern NSW which gradually moved to the SW but were still impacting us after 0900 AEST on July 2.

August 3

Values of the 24 hour rainfall to 0900 AEST varied from 24.5 to 31 mm over Tallong and 17.2 to 20 mm in South Marulan (Table 3). The synoptic conditions leading to these observations indicated a low pressure region centred in NE NSW with an associated E-W trough and onshore winds over Tallong (Figure 24). A patchy SE-NW rain band formed in the afternoon of August 2 and gradually moved to the SW over our region. (Figures 25-26).

September 11

High rainfall totals were observed across the whole region ranging from 61.5 to 73 mm (Table 3). An inland low pressure region was centred west of Tallong with a very complex mixture of a cold front and trough lines (Figure 27). As a result there was a large area of rain over the region south of Sydney (Figure 28) which then intensified later in the evening of September 10 into a band of heavier rain (Figure 29) with a SW to NW orientation.

November 23

By contrast with other days, the synoptic map on this occasion was fairly simple with an inland trough in the north of NSW and weak onshore winds from the NE (Figure 30). This lead to a band of rain moving from the NW towards the coast (Figure 31) with rain over region highest at the Leese and Bottichio stations (36.5 and 34 mm respectively), lower towards the coast (29 mm at Black) and lower again in South Marulan (19 to 22.2 mm) [Table 3].

December 21

While there are no radar images available for this analysis, the totals across the region varied dramatically. At the Black station 33 mm was recorded but only 7 mm at the Peppertree Quarry (Table 3). This suggests the impact of smaller scale thunderstorms meandering between the stations. One synoptic map (Figure 32) taken at 2200 AEST on December 20, was close to the recording of 9.2 mm in a 15 minute period at 2100 AEST on the Tallong weather station. This suggests a thunderstorm occurred. Even though the pressure patterns were quite complex south of continental Australia they were less so over our region.

Rainfall Summary

Rainfall through the Tallong Region is influenced by inland low pressure troughs which generate thunderstorms that can have random movements causing local heavy falls. Such inland troughs sometimes feed tropical moisture from NW Australia causing heavy rainfall across arid regions for Australia. With onshore movement of the moist air masses it is usual that stations closer to the coast record the higher totals. Onshore flows can be due to troughs and low pressure systems sitting off the coast or cold fronts moving up from the south-east.

Temperatures

Temperature data are recorded every 15 minutes at three stations in the region: 467 Mulwaree Drive Tallong and at the Peppertree and Limestone New quarries in South Marulan. It is interesting to contrast the data from each station with the more general observations from the BOM 2025 weather summary above. In Table 4 there are the monthly and time variation statistics of temperatures at 1.2 m for 467 Mulwaree Drive, Tallong for 2025. It appears that based on the daily average temperatures, 2025 was warmer than the long term averages for the following months: February, March, May and October. In Table 5, the annual average temperatures are displayed for all stations; note the Limestone/New value in 2025 is based on 15 minute data. At Tallong 2025 was the second highest observed and above the long term average whereas at Peppertree it was below the long term average; Limestone New was the second highest, but with a limited data record and is just presented here for comparison. The average minimum temperatures versus season in Table 6

indicate lower than average summer and autumn minima temperatures at both Tallong and Peppertree stations; minima were warmer in winter and spring in Tallong (1 to 1.3°C) by comparison with Peppertree, but the winter minima at Peppertree were the equal lowest (2.4°C) on record there. The seasonal maxima temperatures in Table 7 indicate that they were similar to the long term averages in Summer and winter, higher in autumn (about 1.3°C) and spring (0.2 to 0.9°C). The minima and maxima temperatures are averaged over all seasons in Table 8. At Tallong the annual average minimum temperatures were 0.8°C above the long term average (by comparison to 0.98°C of the BOM) whereas at Peppertree they were lower by 0.4°C. The annual average maximum temperatures were between 0.4 and 0.2°C higher than the long term average by comparison with the BOM data of 1.48°C. Other previous years were higher at both Tallong and Peppertree stations (Table 8).

Geoffrey Clark

March, 2026

Acknowledgements

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| Station Name | Rain gauge | | | | | Observation | Data Type |
|-------------------------|---------------------------|-----------|------------|--------------------|-----------|-------------------|--|
| | Geographic co-ordinates ° | | Altitude m | UTM Co-ordinates m | | | |
| Black | 150.14853 | -34.79079 | 627 | 239100.7 | 6146450.4 | 2004 to 2025 | Daily rainfall |
| Leese | 150.10872 | -34.72306 | 685 | 235240.3 | 6153860.8 | 2001 to 2025 | Daily rainfall |
| Botticchio | 150.10233 | -34.71478 | 629 | 234628.3 | 6154761.6 | 1998 to 2025 | Daily rainfall |
| Tallong Park | 150.08223 | -34.71642 | 611 | 226647.2 | 6149450.4 | 2025 onwards | Daily rainfall |
| Clark | 150.0195 | -34.69582 | 634 | 226978.1 | 6156644.2 | 2006 to 2025 | T,RH,Dew,u, θ ,Rain, Daily rain |
| Boral Peppertree | 150.02472 | -34.74641 | 607 | 227623 | 6151046 | 2012 to 2025 | T,RH,u, θ , σ_{θ} ,Rain,Radiation, Evaporation |
| Limestone -New | 150.01346 | -34.76331 | 613 | 226647.2 | 6149139.9 | Feb. 2023 onwards | T,RH,u, θ , σ_{θ} ,Rain, Radiation, Evaporation |

Where

| T | RH | u | θ | Rain | σ_{θ} | Radiation |
|-------------|-------------------|------------|----------------|------|-----------------------------------|-----------------|
| Temperature | Relative Humidity | Wind Speed | Wind Direction | Rain | Wind direction Standard Deviation | Solar Radiation |

| Location | No. of Years | Jan | Feb | Mar | Apr | May | June | July | August | Sept | Oct | Nov | Dec | Total | Highest |
|----------|--------------|-------|-------|------|------|-------|------|-------|--------|------|------|------|------|--------|---------|
| Black | 22 | 152.6 | 128.3 | 75.9 | 75.1 | 139.2 | 16.7 | 134.9 | 135.8 | 91.7 | 22.7 | 65.8 | 57.0 | 1095.7 | 4th |

| | | | | | | | | | | | | | | | |
|---------------|----|-------|-------|------|------|------|------|-------|-------|------|------|------|------|-------|-----|
| Leese | 25 | 134.5 | 94.0 | 78.0 | 56.5 | 93.0 | 9.5 | 126.0 | 146.0 | 82.5 | 16.0 | 74.5 | 33.5 | 944.0 | 7th |
| Botticchio | 28 | 132.5 | 96.5 | 70.0 | 53.0 | 98.5 | 10.5 | 142.0 | 154.0 | 85.5 | 15.0 | 74.5 | 35.0 | 967.0 | 8th |
| Tallong Park | 1 | 118.5 | 86.5 | 62.5 | 58.0 | 85.5 | 18.5 | 146.5 | 143.5 | 81.5 | 12.0 | 57.0 | 29.0 | 899.0 | |
| Clark | 20 | 125.5 | 103.1 | 51.5 | 55.3 | 77.6 | 9.6 | 133.6 | 131.6 | 73.9 | 14.0 | 62.4 | 31.1 | 869.2 | 7th |
| Peppertree | 14 | 102.5 | 77.0 | 53.0 | 53.0 | 61.5 | 10.0 | 98.5 | 102.0 | 76.0 | 20.5 | 38.5 | 22.0 | 714.5 | 8th |
| Limestone-New | 2 | 99.8 | 86.4 | 49.8 | 64.8 | 69.6 | 9.0 | 98.4 | 98.6 | 78.4 | 22.4 | 44.8 | 23.4 | 745.4 | 2nd |

2025 rainfall data

Table 2

| Date | Dugald Black | Christina Leese | Margaret Botticchio | Geoff Clark | Tallong Park | Peppertree Quarry | Limestone New |
|-----------------|--------------|-----------------|---------------------|-------------|--------------|-------------------|---------------|
| January | | | | | | | |
| 11 | 46.0 | 17.5 | 16.0 | 29.0 | 22.0 | 15.0 | 18.2 |
| 16 | 39.4 | 52.0 | 54.0 | 42.0 | 42.5 | 44.0 | 42.0 |
| February | | | | | | | |
| 9 | 42.8 | 29.5 | 33.0 | 39.4 | 34.0 | 22.5 | 20.4 |
| 10 | 20.6 | 16.0 | 17.0 | 12.8 | 17.0 | 8.0 | 10.6 |
| 15 | 38.4 | 22.0 | 0.0 | 25.8 | 20.0 | 27.5 | 33.0 |
| April | | | | | | | |
| 23 | 24.5 | 24.5 | 24.5 | 28.9 | 22.0 | 17.0 | 24.6 |
| 30 | 16.8 | 14.5 | 16.8 | 13.2 | 18.0 | 27.5 | 29.8 |
| May | | | | | | | |
| 23 | 85? | 46.5 | 57? | 45.0 | 40.0 | 34.5 | 40.0 |

| July | | | | | | | |
|-----------|------|------|------|------|-------|------|------|
| 1 | 10.7 | 9.5 | 14.0 | 10.7 | | 6.5 | 6.2 |
| 2 | 84.2 | 74.5 | 82.0 | 82.8 | 115.0 | 58.0 | 60.0 |
| 3 | 15.8 | 13.0 | 14.0 | 12.0 | | 8.5 | 8.6 |
| | | | | | | | |
| August | | | | | | | |
| 2 | 16.0 | 22.5 | 25.0 | 21.3 | 56.0 | 12.5 | 12.0 |
| 3 | 24.5 | 28.5 | 31.0 | 26.2 | | 20.0 | 17.2 |
| 21 | 22.4 | 11.0 | 23.0 | 17.5 | 14.0 | 14.0 | 13.0 |
| 22 | 21.4 | 23.0 | 21.0 | 18.3 | 20.0 | | 14.0 |
| | | | | | | | |
| September | | | | | | | |
| 11 | 73.0 | 64.5 | 67.0 | 61.5 | 67.0 | N/A | 66.8 |
| | | | | | | | |
| November | | | | | | | |
| 1 | 19.2 | 10.5 | 12.0 | 10.7 | | N/A | 6.6 |
| 23 | 29.0 | 36.5 | 34.0 | 29.7 | 27.0 | 19.0 | 22.2 |
| | | | | | | | |
| December | | | | | | | |
| 21 | 33.0 | 11.0 | 14.0 | 9.0 | 9.0 | 7.0 | 10.4 |

Table 3 Significant rainfall events during 2025

Tallong at 1.2m Dates :010125 to 311225
 Dry Bulb Temperature (deg.c)
 Time (EST.)

| Month | 0000-0300 | 0300-0600 | 0600-0900 | 0900-1200 | 1200-1500 | 1500-1800 | 1800-2100 | 2100-2400 | Average | | Extreme | |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|------------|--------------|---------|
| | | | | | | | | | Minimum | Maximum | Minimum | Maximum |
| January | 15.4 | 14.8 | 17.2 | 22.3 | 23.8 | 20.8 | 17.7 | 16.1 | 14.0 | 25.4 | 8.4 | 37.2 |
| | 2.3 | 2.3 | 4.0 | 6.2 | 6.6 | 4.6 | 2.9 | 2.3 | standard | deviations | | |
| | 372 | 372 | 372 | 362 | 360 | 360 | 360 | 370 | number | of | observations | |
| February | 17.0 | 16.4 | 18.3 | 23.3 | 26.4 | 24.2 | 20.2 | 18.1 | 15.7 | 27.5 | 12.8 | 35.1 |

| | | | | | | | | | | | | |
|-----------|------|------|------|------|------|------|------|------|----------|------------|--------------|------|
| | 1.8 | 1.4 | 2.2 | 3.5 | 4.2 | 4.5 | 3.2 | 2.2 | standard | deviations | | |
| | 156 | 156 | 156 | 156 | 149 | 144 | 144 | 144 | number | of | observations | |
| March | 15.6 | 15.0 | 16.2 | 20.9 | 23.4 | 21.8 | 18.2 | 16.5 | 14.1 | 24.4 | 4.8 | 35.1 |
| | 2.7 | 2.8 | 3.1 | 4.2 | 5.1 | 5.1 | 3.4 | 2.8 | standard | deviations | | |
| | 360 | 360 | 360 | 366 | 372 | 372 | 372 | 372 | number | of | observations | |
| April | 11.2 | 10.4 | 11.7 | 17.9 | 20.4 | 18.5 | 14.1 | 12.0 | 9.1 | 21.3 | 4.0 | 27.7 |
| | 2.7 | 2.9 | 2.8 | 3.1 | 3.5 | 3.3 | 2.2 | 2.3 | standard | deviations | | |
| | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | number | of | observations | |
| May | 8.8 | 8.0 | 8.3 | 13.0 | 16.0 | 14.0 | 10.8 | 9.5 | 6.5 | 17.0 | -1.2 | 22.2 |
| | 3.4 | 3.6 | 3.8 | 3.1 | 2.8 | 3.2 | 2.7 | 3.1 | standard | deviations | | |
| | 372 | 372 | 372 | 372 | 372 | 372 | 372 | 372 | number | of | observations | |
| June | 2.6 | 1.7 | 1.8 | 8.2 | 12.2 | 10.0 | 5.6 | 3.8 | 0.2 | 13.3 | -5.6 | 19.0 |
| | 3.8 | 4.0 | 4.0 | 3.3 | 3.0 | 3.2 | 2.5 | 3.2 | standard | deviations | | |
| | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | number | of | observations | |
| July | 5.4 | 4.9 | 5.0 | 9.0 | 11.4 | 9.8 | 7.2 | 6.1 | 3.1 | 12.2 | -3.4 | 19.0 |
| | 3.4 | 3.7 | 3.5 | 2.3 | 2.3 | 2.2 | 2.0 | 2.9 | standard | deviations | | |
| | 372 | 372 | 372 | 372 | 372 | 372 | 372 | 372 | number | of | observations | |
| August | 6.5 | 6.2 | 6.6 | 10.4 | 12.4 | 11.1 | 8.4 | 7.2 | 4.7 | 13.5 | -2.6 | 22.2 |
| | 3.0 | 3.1 | 2.8 | 2.5 | 2.7 | 2.7 | 2.5 | 2.8 | standard | deviations | | |
| | 372 | 372 | 372 | 372 | 372 | 372 | 372 | 372 | number | of | observations | |
| September | 8.5 | 7.7 | 9.5 | 15.4 | 17.7 | 15.9 | 11.9 | 9.9 | 5.8 | 18.5 | -0.7 | 26.5 |
| | 4.1 | 4.4 | 4.5 | 3.9 | 3.8 | 4.0 | 4.0 | 3.9 | standard | deviations | | |
| | 360 | 360 | 360 | 360 | 360 | 360 | 360 | 360 | number | of | observations | |
| October | 10.9 | 10.4 | 13.8 | 19.9 | 21.1 | 18.3 | 14.1 | 12.1 | 8.3 | 22.5 | 2.3 | 31.3 |
| | 3.5 | 4.0 | 4.2 | 4.3 | 4.9 | 5.4 | 4.0 | 3.3 | standard | deviations | | |
| | 372 | 372 | 372 | 372 | 372 | 372 | 372 | 372 | number | of | observations | |
| November | 11.6 | 10.6 | 15.3 | 20.5 | 21.8 | 20.5 | 16.3 | 13.1 | 9.4 | 23.6 | 0.6 | 30.8 |
| | 3.2 | 3.8 | 4.5 | 4.8 | 5.1 | 5.1 | 4.1 | 3.1 | standard | deviations | | |
| | 360 | 360 | 360 | 360 | 359 | 360 | 360 | 360 | number | of | observations | |
| December | 13.1 | 12.2 | 16.7 | 23.3 | 25.4 | 22.6 | 17.9 | 14.9 | 11.1 | 26.9 | 4.6 | 38.7 |
| | 3.9 | 3.9 | 5.1 | 5.8 | 6.0 | 6.6 | 5.6 | 4.1 | standard | deviations | | |
| | 372 | 372 | 372 | 372 | 372 | 372 | 372 | 372 | number | of | observations | |

Table 4: Temperatures at 467 Mulwaree Drive, Tallong - 2025

| 467 Mulwaree Drive, Tallong | | |
|------------------------------------|----------------|------------|
| Annual average temperatures | | |
| Year | Average | No. |
| 2012 | 12.3 | 35135 |
| 2013 | 13.5 | 33252 |
| 2014 | 13.3 | 35040 |
| 2015 | 12.8 | 34942 |
| 2016 | 13.5 | 35131 |
| 2017 | 13.2 | 35037 |
| 2018 | 13.3 | 35040 |
| 2019 | 13.7 | 34379 |
| 2020 | 13.0 | 35126 |
| 2021 | 12.1 | 34989 |
| 2022 | 12.1 | 35030 |
| 2023 | 13.2 | 34007 |
| 2024 | 14.0 | 35135 |
| 2025 | 13.5 | 33466 |
| Average | 13.2 | |

| Peppertree Quarry | | |
|------------------------------------|----------------|------------|
| Annual average temperatures | | |
| Year | Average | No. |
| 2012 | 12.8 | 35121 |
| 2013 | 13.7 | 34997 |
| 2014 | 14.1 | 32179 |
| 2015 | 13.4 | 35036 |
| 2016 | 14.1 | 35136 |
| 2017 | 13.9 | 35040 |
| 2018 | 14.0 | 35040 |
| 2019 | 14.3 | 35026 |
| 2020 | 13.4 | 35136 |
| 2021 | 12.5 | 35035 |
| 2022 | 13.2 | 35040 |
| 2023 | 13.6 | 35023 |
| 2024 | 13.8 | 34600 |
| 2025 | 13.4 | 35037 |
| Average | 13.6 | |

| South Marulan/New | | |
|------------------------------------|----------------|------------|
| Annual average temperatures | | |
| Year | Average | No. |
| 2012 | 12.5 | 8760 |
| 2013 | 13.6 | 8760 |
| 2014 | 13.6 | 8757 |
| 2015 | 13.0 | 8784 |
| 2016 | 13.9 | 8760 |
| 2017 | 13.6 | 8760 |
| 2018 | 13.7 | 8759 |
| 2019 | 14.1 | 8760 |
| 2020 | 13.4 | 8760 |
| 2021 | 12.5 | 8760 |
| 2022 | 12.5 | 8760 |
| 2023 | 13.5 | 8030 |
| 2024 | 14.1 | 8688 |
| 2025 | 13.7 | 35040 |
| Average | 13.4 | |

Table 5: Annual average temperatures for 467 Mulwaree Drive, Tallong, Peppertree Quarry and South Marulan/Limestone New

| 467 Mulwaree Drive, Tallong | | | | | Peppertree Quarry | | | | | South Marulan/New | | | | |
|------------------------------|--------|--------|--------|--------|------------------------------|--------|--------|--------|--------|------------------------------|--------|--------|--------|--------|
| Average Minimum Temperatures | | | | | Average Minimum Temperatures | | | | | Average Minimum Temperatures | | | | |
| Season | Summer | Autumn | Winter | Spring | Season | Summer | Autumn | Winter | Spring | Season | Summer | Autumn | Winter | Spring |
| 2012 | 12.7 | 7.4 | 2.1 | 6.7 | 2012 | 12.8 | 7.9 | 2.5 | 7.1 | 2012 | 12.7 | 7.8 | 2.5 | 6.8 |
| 2013 | 13.3 | 8.8 | 3.4 | 7.2 | 2013 | 13.4 | 8.3 | 3.8 | 7.7 | 2013 | 13.1 | 8.0 | 3.6 | 7.4 |
| 2014 | 13.2 | 8.9 | 2.8 | 8.0 | 2014 | 13.5 | 10.2 | 3.3 | 8.3 | 2014 | 13.0 | 9.2 | 3.2 | 7.8 |
| 2015 | 13.2 | 8.4 | 1.6 | 8.4 | 2015 | 13.8 | 8.8 | 2.4 | 9.0 | 2015 | 13.1 | 8.2 | 1.7 | 8.4 |
| 2016 | 14.0 | 9.8 | 3.7 | 7.3 | 2016 | 14.5 | 10.6 | 4.6 | 8.0 | 2016 | 13.9 | 9.8 | 4.1 | 7.5 |
| 2017 | 14.8 | 8.2 | 1.8 | 7.5 | 2017 | 15.0 | 9.0 | 2.6 | 8.2 | 2017 | 14.4 | 7.4 | 1.7 | 7.3 |
| 2018 | 13.6 | 8.8 | 2.3 | 7.2 | 2018 | 14.4 | 9.7 | 2.9 | 8.2 | 2018 | 13.6 | 8.7 | 2.0 | 7.4 |
| 2019 | 14.1 | 9.4 | 2.3 | 6.8 | 2019 | 14.6 | 9.8 | 2.9 | 6.8 | 2019 | 13.9 | 8.6 | 2.3 | 6.6 |
| 2020 | 14.0 | 8.2 | 3.1 | 8.8 | 2020 | 13.5 | 8.3 | 3.3 | 8.7 | 2020 | 14.0 | 8.2 | 3.0 | 8.9 |
| 2021 | 12.8 | 7.5 | 2.8 | 7.4 | 2021 | 12.6 | 7.4 | 3.0 | 7.2 | 2021 | 12.8 | 7.4 | 2.8 | 7.4 |
| 2022 | 12.8 | 9.8 | 3.3 | 7.6 | 2022 | 12.4 | 9.7 | 3.6 | 7.6 | 2022 | 12.7 | 9.8 | 3.5 | 7.6 |
| 2023 | 13.5 | 8.7 | 3.4 | 7.7 | 2023 | 13.3 | 8.0 | 3.4 | 7.6 | 2023 | 14.2 | 9.1 | 4.6 | 8.8 |
| 2024 | 15.0 | 9.2 | 4.4 | 9.1 | 2024 | 14.1 | 8.1 | 3.5 | 8.0 | 2024 | 14.9 | 9.2 | 4.8 | 9.3 |
| 2025 | 13.5 | 10.5 | 3.4 | 8.8 | 2025 | 12.6 | 9.4 | 2.4 | 7.5 | 2025 | 13.4 | 10.3 | 3.4 | 8.5 |
| Average | 13.7 | 8.8 | 2.9 | 7.8 | Average | 13.6 | 8.9 | 3.2 | 7.9 | Average | 13.6 | 8.7 | 3.1 | 7.8 |

Table 6: Average minimum temperatures for 467 Mulwaree Drive, Tallong, Peppertree Quarry and South Marulan/Limestone New

| 467 Mulwaree Drive, Tallong | | | | | Peppertree Quarry | | | | | South Marulan/New Limestone | | | | |
|------------------------------|--------|--------|--------|--------|------------------------------|--------|--------|--------|--------|------------------------------|--------|--------|--------|--------|
| Average Maximum Temperatures | | | | | Average Maximum Temperatures | | | | | Average Maximum Temperatures | | | | |
| Season | Summer | Autumn | Winter | Spring | Season | Summer | Autumn | Winter | Spring | Season | Summer | Autumn | Winter | Spring |
| 2012 | 20.6 | 15.0 | 9.2 | 16.7 | 2012 | 24.1 | 18.3 | 12.3 | 20.4 | 2012 | 23.6 | 17.8 | 11.7 | 19.7 |
| 2013 | 22.6 | 16.9 | 10.1 | 17.1 | 2013 | 26.2 | 19.1 | 12.8 | 20.3 | 2013 | 26.0 | 19.0 | 12.7 | 20.1 |
| 2014 | 22.3 | 16.3 | 9.6 | 17.5 | 2014 | 26.0 | 19.4 | 12.3 | 21.3 | 2014 | 25.8 | 19.1 | 12.2 | 20.9 |
| 2015 | 21.6 | 15.5 | 8.7 | 17.1 | 2015 | 24.9 | 18.5 | 12.0 | 20.5 | 2015 | 24.7 | 18.2 | 11.6 | 20.3 |
| 2016 | 22.7 | 17.9 | 9.8 | 15.7 | 2016 | 26.2 | 21.0 | 12.4 | 18.6 | 2016 | 26.0 | 20.9 | 12.2 | 18.3 |
| 2017 | 23.8 | 15.5 | 9.5 | 16.7 | 2017 | 27.5 | 18.6 | 12.8 | 20.3 | 2017 | 27.4 | 18.4 | 12.7 | 20.1 |
| 2018 | 23.4 | 17.1 | 9.3 | 15.9 | 2018 | 27.4 | 20.7 | 12.4 | 19.5 | 2018 | 27.3 | 20.6 | 12.3 | 19.5 |
| 2019 | 24.0 | 17.1 | 9.6 | 17.4 | 2019 | 28.2 | 20.3 | 12.6 | 21.3 | 2019 | 28.2 | 20.1 | 12.6 | 21.4 |
| 2020 | 21.6 | 15.1 | 9.4 | 16.9 | 2020 | 25.0 | 17.8 | 12.1 | 19.9 | 2020 | 24.8 | 17.8 | 12.1 | 20.1 |
| 2021 | 20.2 | 14.9 | 9.3 | 15.0 | 2021 | 23.5 | 18.1 | 12.1 | 17.8 | 2021 | 23.2 | 18.0 | 12.1 | 17.7 |
| 2022 | 19.8 | 15.1 | 9.0 | 14.2 | 2022 | 22.9 | 17.7 | 11.7 | 17.0 | 2022 | 22.7 | 17.5 | 11.6 | 16.8 |
| 2023 | 21.8 | 15.7 | 10.4 | 17.9 | 2023 | 24.8 | 18.7 | 13.9 | 21.4 | 2023 | 24.4 | 18.1 | 13.4 | 20.7 |
| 2024 | 22.8 | 16.5 | 10.5 | 17.9 | 2024 | 25.5 | 19.3 | 12.6 | 20.1 | 2024 | 24.9 | 18.9 | 12.5 | 19.5 |
| 2025 | 22.1 | 17.3 | 9.7 | 17.6 | 2025 | 25.2 | 20.5 | 12.1 | 20.1 | 2025 | 24.6 | 19.8 | 12.0 | 19.8 |
| Average | 22.1 | 16.1 | 9.6 | 16.7 | Average | 25.5 | 19.1 | 12.4 | 19.9 | Average | 25.3 | 18.9 | 12.3 | 19.6 |

Table 7: Average maximum temperatures for 467 Mulwaree Drive, Tallong, Peppertree Quarry and South Marulan/Limestone New

| Year | Annual Average Minima Temperatures | | | | Annual Average Maxima Temperatures | | |
|----------------|------------------------------------|------------|-----------------|--|------------------------------------|------------|-----------------|
| | Tallong | Peppertree | Sth Marulan/New | | Tallong | Peppertree | Sth Marulan/New |
| 2012 | 7.2 | 7.6 | 7.5 | | 15.4 | 18.8 | 18.2 |
| 2013 | 8.2 | 8.3 | 8.0 | | 16.7 | 19.6 | 19.5 |
| 2014 | 8.2 | 8.8 | 8.3 | | 16.4 | 19.8 | 19.5 |
| 2015 | 7.9 | 8.5 | 7.9 | | 15.7 | 19.0 | 18.7 |
| 2016 | 8.7 | 9.4 | 8.8 | | 16.5 | 19.6 | 19.4 |
| 2017 | 8.1 | 8.7 | 7.7 | | 16.4 | 19.8 | 19.7 |
| 2018 | 8.0 | 8.8 | 7.9 | | 16.4 | 20.0 | 19.9 |
| 2019 | 8.2 | 8.5 | 7.9 | | 17.0 | 20.6 | 20.6 |
| 2020 | 8.5 | 8.5 | 8.5 | | 15.8 | 18.7 | 18.7 |
| 2021 | 7.6 | 7.6 | 7.6 | | 14.9 | 17.9 | 17.8 |
| 2022 | 8.5 | 8.3 | 8.4 | | 14.6 | 17.3 | 17.2 |
| 2023 | 8.3 | 8.1 | 9.2 | | 16.5 | 19.7 | 19.2 |
| 2024 | 9.4 | 8.4 | 9.6 | | 16.9 | 19.4 | 19.0 |
| 2025 | 9.1 | 8.0 | 8.9 | | 16.7 | 19.5 | 19.1 |
| Average | 8.3 | 8.4 | 8.3 | | 16.1 | 19.3 | 19.0 |

Table 8: Annual Average Minima and Maxima Temperatures

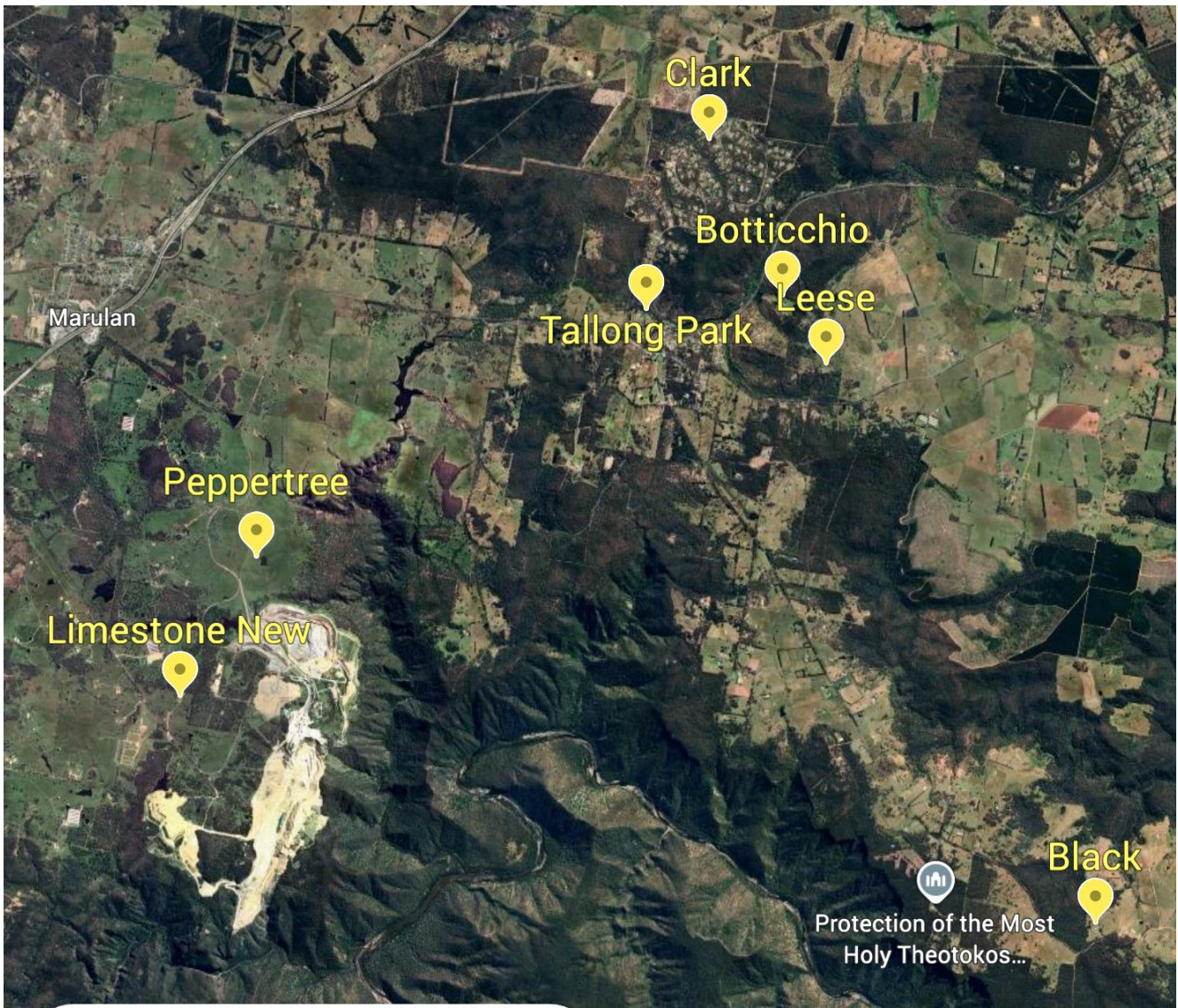


Figure 1: Location of the weather observation stations across the Tallong and South Marulan regions

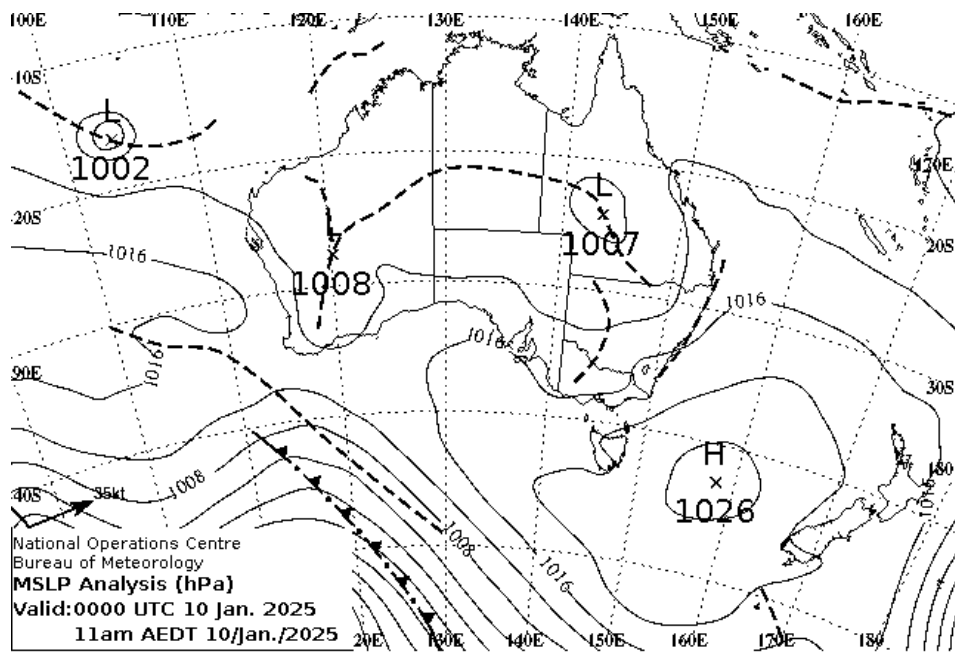


Figure 2: Surface pressure map 10/1/2025 10 AEST



Figure 3: Rain radar map 10/1/2025 1429AEST

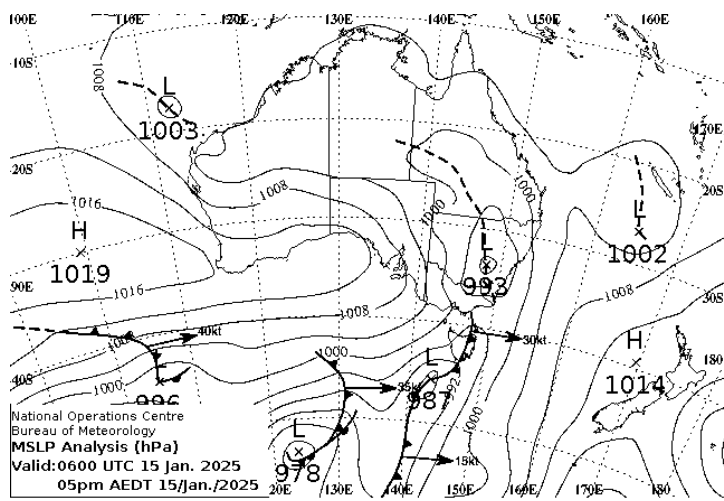


Figure 4: Synoptic pressure map 15/1/2025 1500AEST

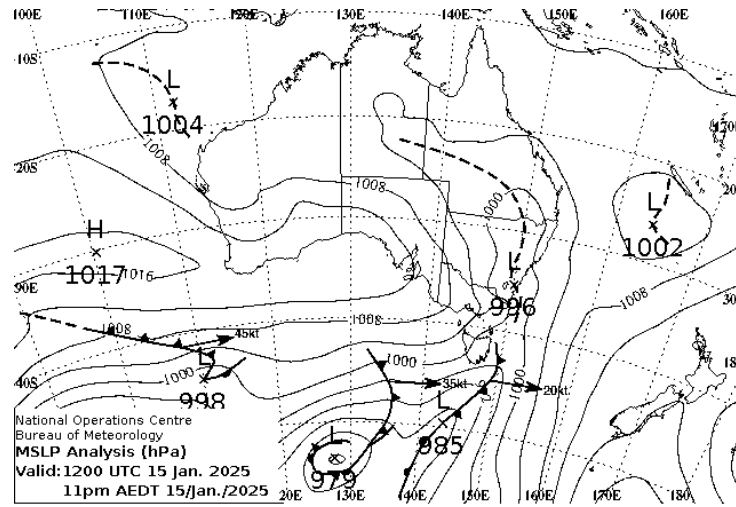


Figure 5: Synoptic pressure map 15/1/2025 2200AEST

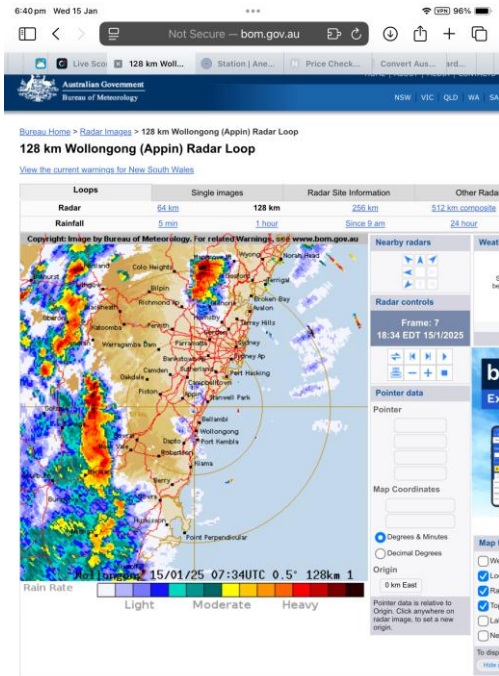


Figure 6: Radar 15/1/2025 1735AEST

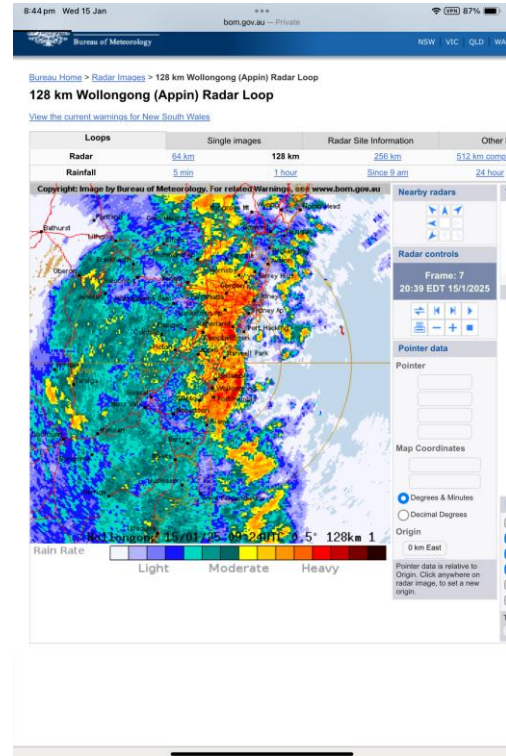


Figure 7: 15/1/2025 1940AEST

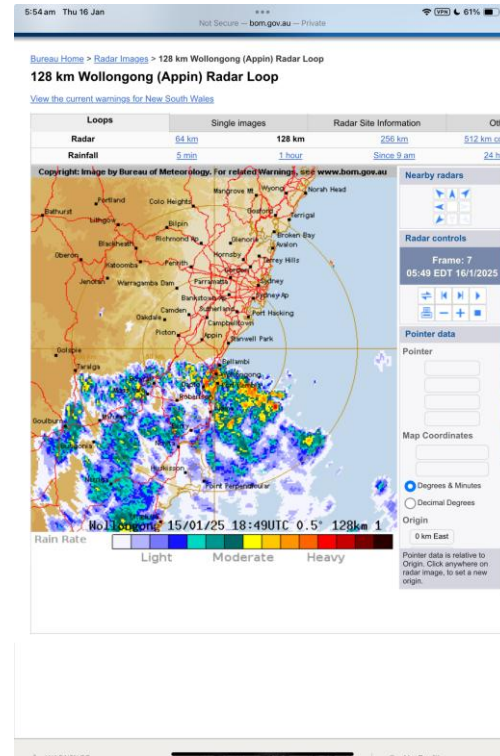


Figure 8: 16/1/2025 0449AEST

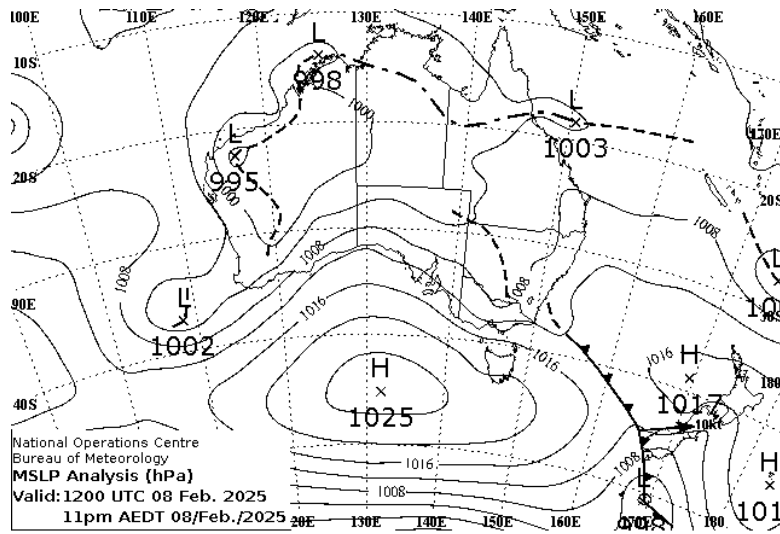


Figure 9: Synoptic pressure map 8/2/2025 2000AEST

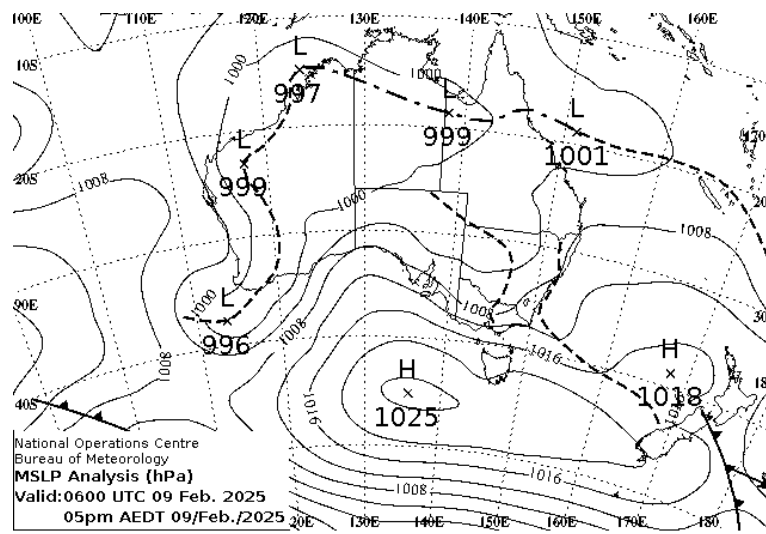


Figure 10: Synoptic pressure map 9/2/2025 1600AEST

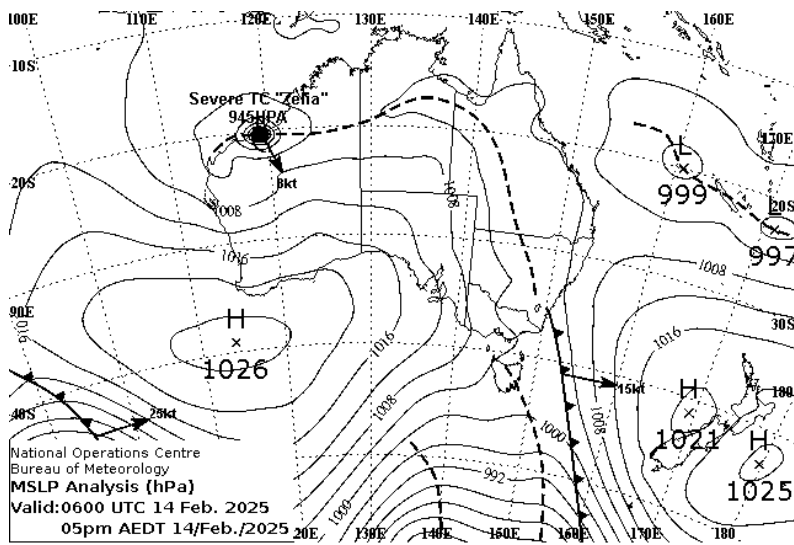


Figure 11: Synoptic pressure map 14/2/2025 1600AEST



Figure 12: Radar 14/2/2025 1804AEST

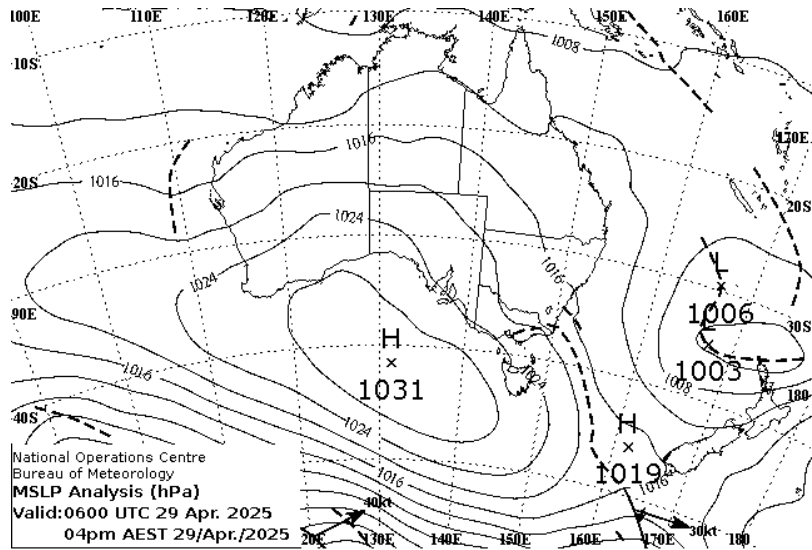


Figure 13: Synoptic pressure map 29/4/2025 1600AEST

Figure 14: Radar 29/4/2025 1844AEST

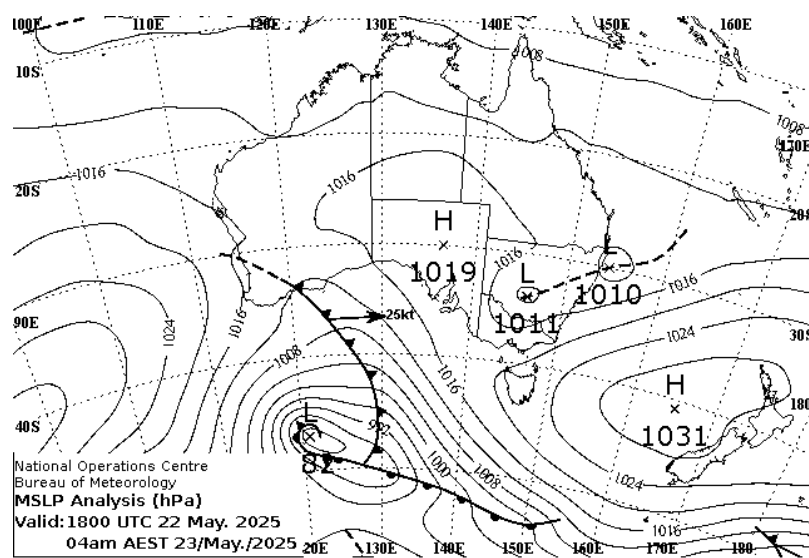
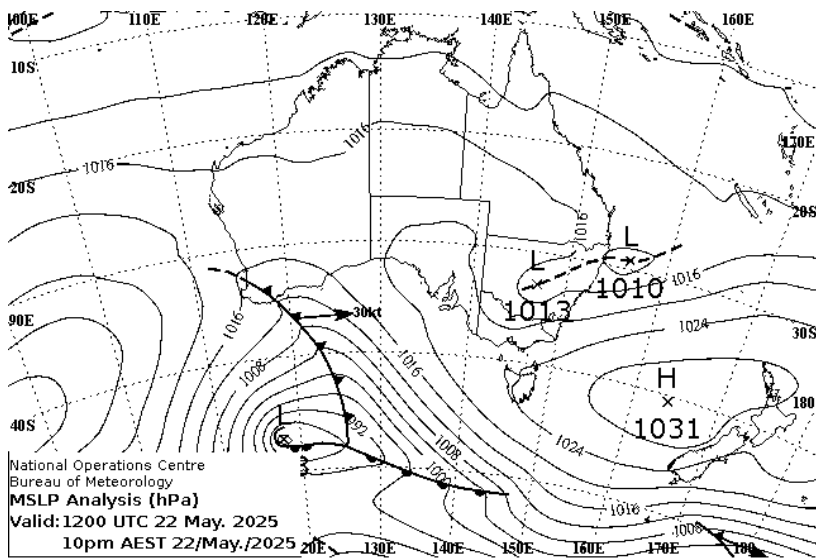


Figure 15: Synoptic pressure map 22/5/2025 2200AEST

Figure 16: Synoptic pressure map 23/5/2025 0400AEST

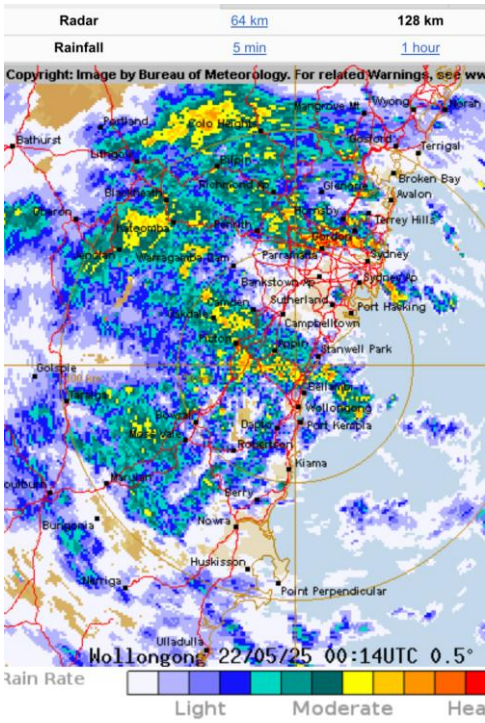


Figure 17: Radar 22/05/2025 1014AEST

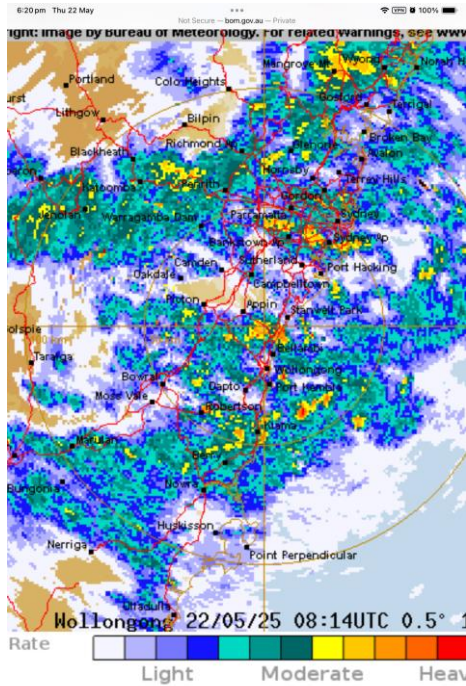


Figure 18: Radar 22/05/2025 1814AEST



Figure 19: Radar 23/05/2025 0654AEST

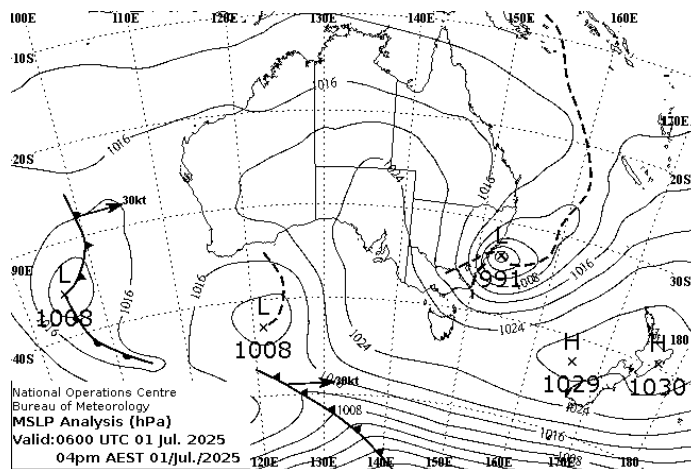


Figure 20: Synoptic pressure map 1/7/2025 1600AEST

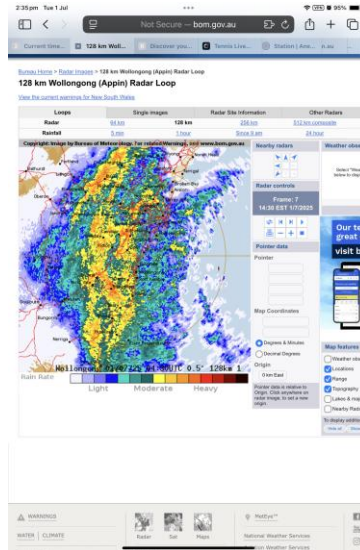


Figure 21: Radar 1/07/2025 1430AEST

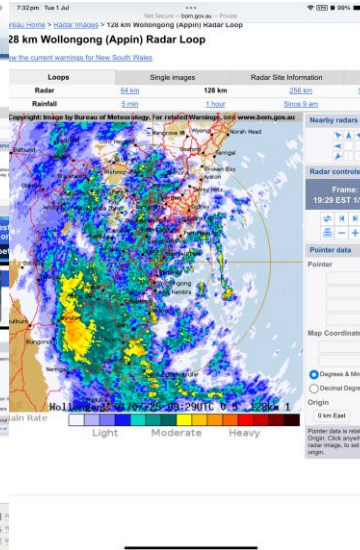


Figure 22: Radar 1/07/2025 1929AEST

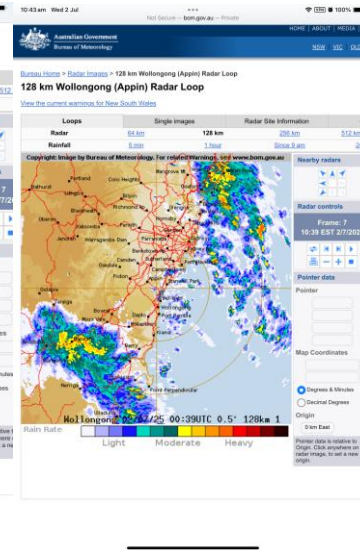


Figure 23: Radar 2/07/2025 1039AEST

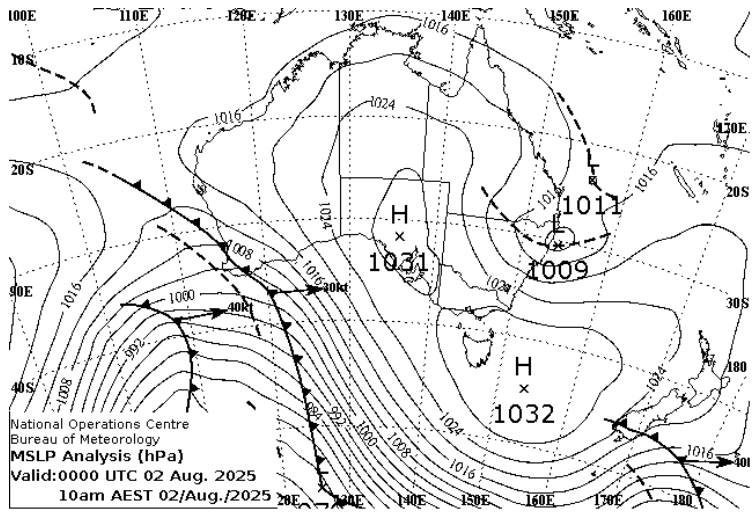


Figure 24: Synoptic pressure map 2/8/2025 1000AEST



Figure 25: Radar 2/8/2025 1232AEST



Figure 26: Radar 2/8/2025 1419AEST

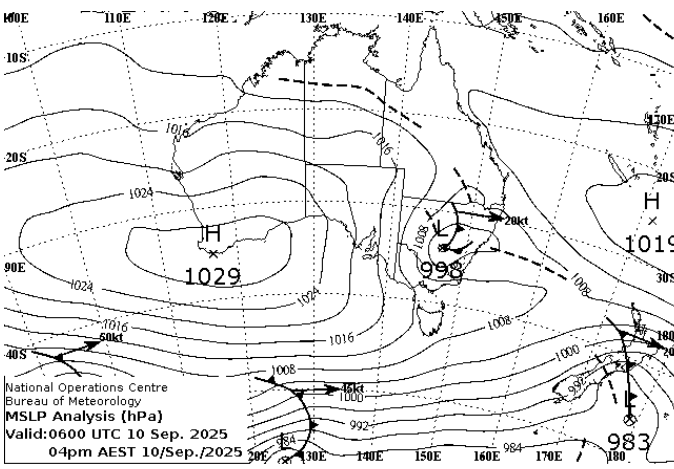


Figure 27: Synoptic pressure map 10/9/2025 1600AEST

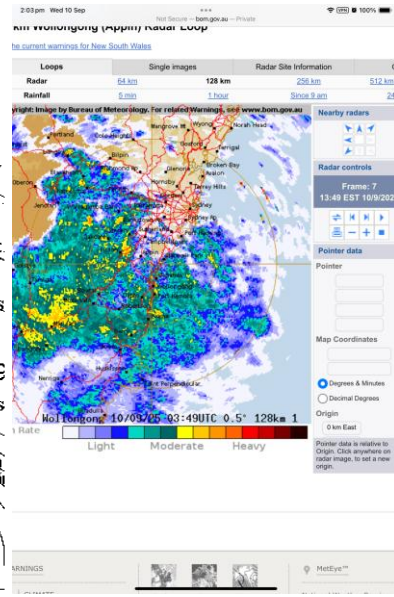


Figure 28: Radar 10/9/2025 1349AEST



Figure 29: Radar 10/9/2025 1939AEST

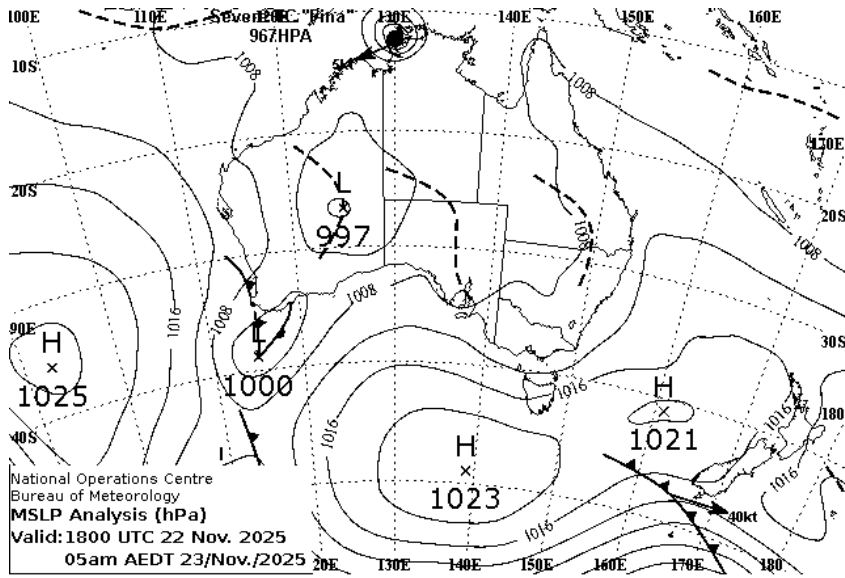


Figure 30: Synoptic pressure map 22/11/2025 0400AEST

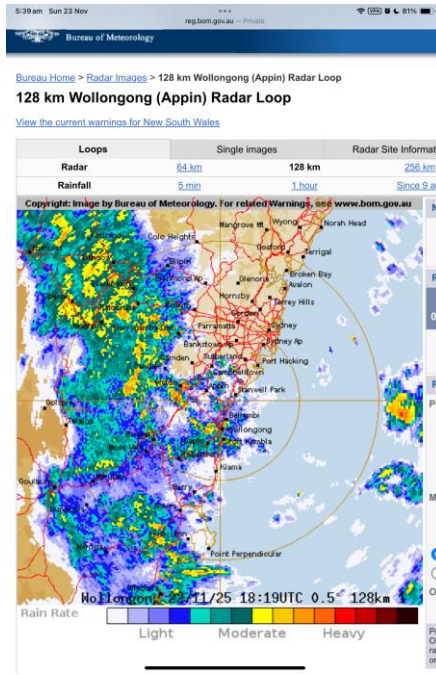


Figure 31: Radar 23/11/2025 0519AEST

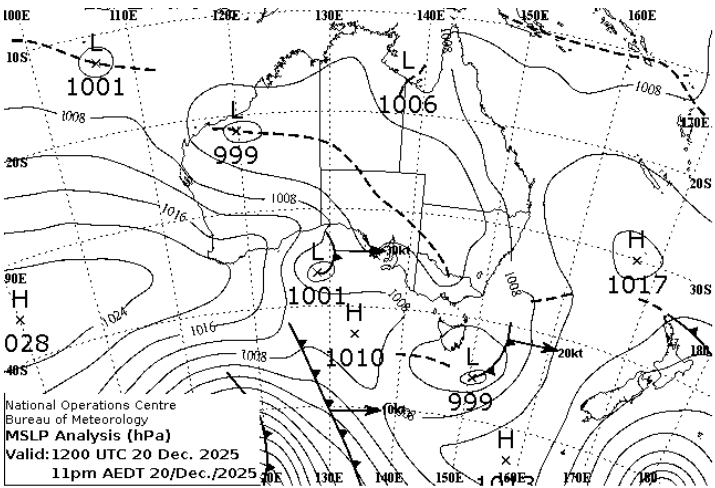


Figure 32: Synoptic pressure map 20/12/2025 2200AEST