



SPECIAL CLIMATE STATEMENT 11

An exceptionally hot February in much of southern and western Australia.

Issued 02 March 2007

Western Australia Climate Services Centre & National Climate Centre.

Summary

February 2007 was exceptionally hot across almost all of southern and western Australia. A large proportion of Western Australia and South Australia saw record high mean maximum temperatures, with records also occurring in the Northern Territory and Tasmania. It was very warm over the remainder of Australia, with the notable exception of Queensland. Mean maximum temperature anomalies were generally at least 2°C above average in these regions; however, in large parts of WA, the anomalies exceeded 5°C. As a result, WA, SA and Tasmania all recorded their hottest February on record, averaged spatially across each state. To emphasize the extreme maximum temperatures in many regions, Marble Bar in the WA Pilbara recorded a mean maximum temperature of 44.9°C. This is the highest mean monthly maximum temperature recorded in Australia for any month.

A very hot February in much of Western Australia

With the exception of the west coastal strip, almost all of WA saw well above average temperatures in February (Figure 1). In large areas of central and southeast WA, mean maximum temperatures were over 5°C above the 1961-1990 mean (Figure 2). As a result, WA recorded its hottest February since comparable records commenced in 1950. The spatially averaged mean maximum temperature for February 2007 for WA was 3.1°C above the 1961-90 mean (exceeding the previous hottest February in 1998 – anomaly of 2.6°C). This anomaly is also the largest recorded for any month, and the mean maximum averaged across WA (37.8°C) was just below the record for any month, 37.9°C in December 1972.

Many locations in WA saw record high mean monthly maximum temperatures (see WA monthly summary for individual records), including Marble Bar, which recorded a mean maximum temperature of 44.9°C. This exceeded the previous highest mean maximum since records commenced at the site in 1901, of 44.6°C in January 2005. More significantly, however, the mean exceeded the highest mean monthly maximum temperature recorded previously for Australia of 44.8°C at Emu Creek Station (in the Pilbara) in January 2005 and February 1998. Marble Bar had a record 43 consecutive days over 42°C from 16 January to 27 February, and a number of other locations, such as Newman (29 days) and Wiluna (21 days), set records for consecutive days over 40°C.

The first week of February saw exceptional heat, particularly in the southern inland. Hyden reached 48.6°C on 3 February, the highest temperature ever recorded so far south in WA, and all-time site records were set at many other locations, including Northam (48.1°C), Cunderdin (48.0°C), Narrogin (44.7°C) and Lake Grace (46.1°C). Meekatharra, which had only previously had five days over 45°C in 57 years of observations, had five in the first week of February 2007, including a record 45.5°C on 2 and 4 February.

Minimum temperatures were also particularly high in WA during February with many northern and eastern regions experiencing record high mean monthly values (Figure 3). Anomalies exceeded 4°C in central eastern parts of WA (Figure 4), and overall February 2007 was the hottest month on record in WA.

But it wasn't just hot in Western Australia

The above average February temperatures also extended across much of southern Australia (Figures 1, 2, 3 and 4) and as a consequence Australia recorded its 2nd hottest mean temperature for February, since comparable records commenced in 1950.

South Australia recorded its hottest February mean maximum temperature on record with its spatial average 3.3°C above the 1961-1990 mean, whilst it was also the 4th hottest February in SA in terms of mean minimum temperature. Although record high mean monthly maximum and minimum temperatures were generally restricted to the northwest of SA, almost all the state saw very much above average mean maximum temperatures and Adelaide recorded a mean maximum temperature of 32.9°C, its highest February mean maximum since 1906.

Other states also recorded a particularly hot February with Tasmania recording its hottest ever February in terms of minimum temperature, and 3rd hottest in terms of maximum temperature. As a result, the month saw the highest state mean (average of maximum and minimum) temperature for February on record (+2.3°C anomaly), which also made it the warmest month on record for Tasmania. Victoria recorded its 4th hottest February in terms of maximum temperature, and 5th hottest in terms of minimum temperature. New South Wales recorded its 5th hottest February for maximum temperature and 6th hottest February for minimum temperature. The Northern Territory saw its 7th hottest February in terms of maximum temperature, with areas in the southwest experiencing highest on record temperatures. (Please see the individual regional monthly climate summaries for more detail).

In most of eastern and central Australia the month was more notable for persistent heat, especially overnight, than it was for individual heatwaves. Melbourne set a record with 20 consecutive nights (as of 1 March) above 15°C, and Sydney set a February record of 22 nights above 20°C, whilst Alice Springs reached 35°C on every day of February for the first time. Three Tasmanian stations, Bushy Park, Ouse and Cressy, exceeded 22°C on every day of the month, the first time this has occurred in Tasmania.

TC season and rainfall

A contributing factor to the high temperatures across much of Australia was the lack of rainfall across large parts of the country in February, particularly in Western Australia (Figure 5). It was WA's 4th driest February (76% below the 1961-90 normal) since accurate records commenced in 1900. A notable feature was the poor monsoon over WA and parts of the NT. However, extreme heat is becoming an increasingly common occurrence over Australia in line with global warming. This means that months like February 2007 have an increased chance of occurrence and that these high temperatures cannot be attributed to natural climate variability alone.

The current summer is also notable for the lack of tropical cyclones. Since the start of the tropical cyclone season, only one tropical cyclone had occurred in the Australian region to the end of February, the first time this has occurred since the start of reliable records in the mid-1950's. The WA region had seen no tropical cyclones to the end of February, the first time this has occurred since the 1978-9 season (Tropical Cyclone Isobel in late December and early January was reanalysed after the event and found not to have reached tropical cyclone strength).

Further Information:

The following climate meteorologists can be contacted about this statement – Mr Glenn Cook in the WA Climate Services Centre on (08) 9263 2222 and Dr Blair Trewin in the National Climate Centre on (03) 9669 4623.

Figures

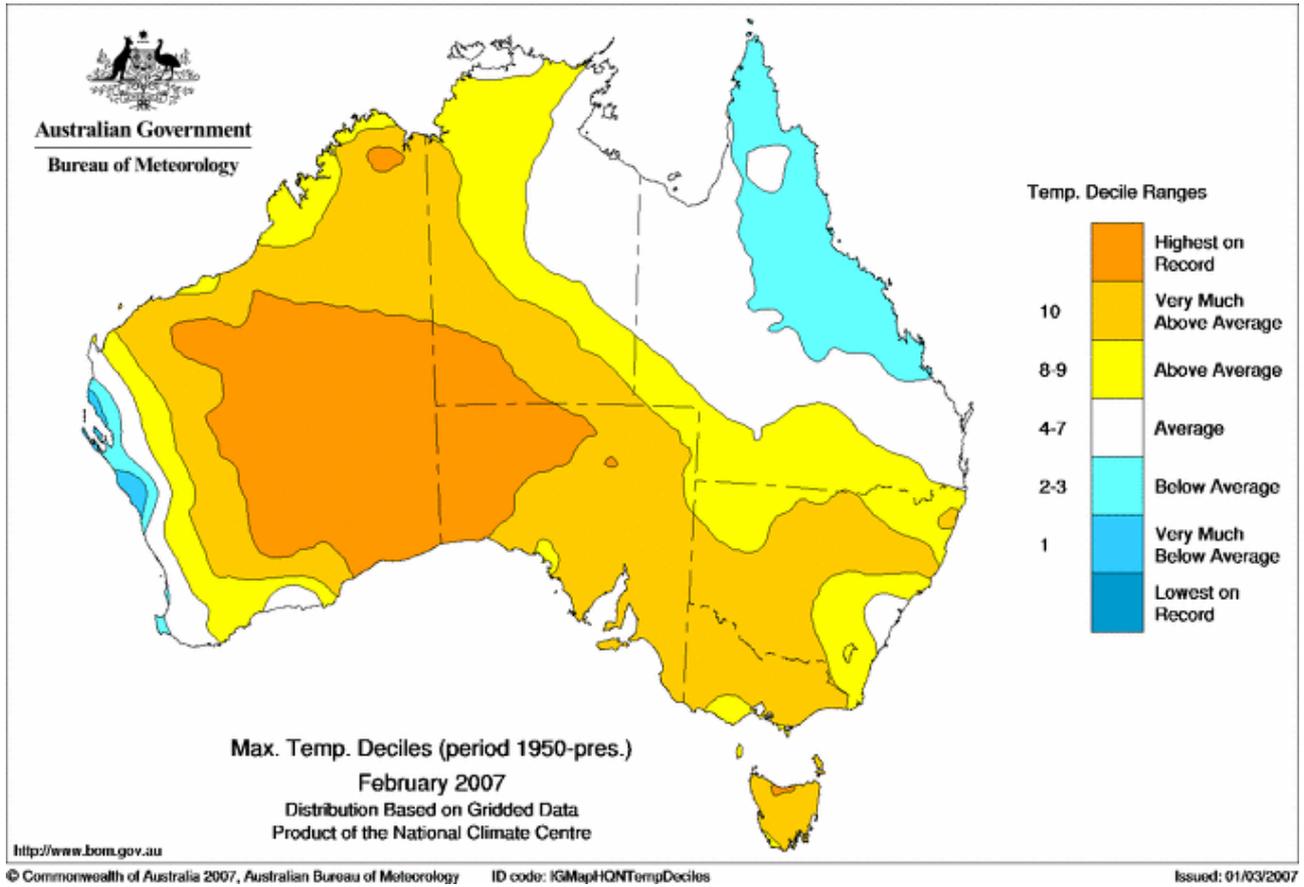


Figure 1. Mean monthly maximum temperature deciles for February 2007.

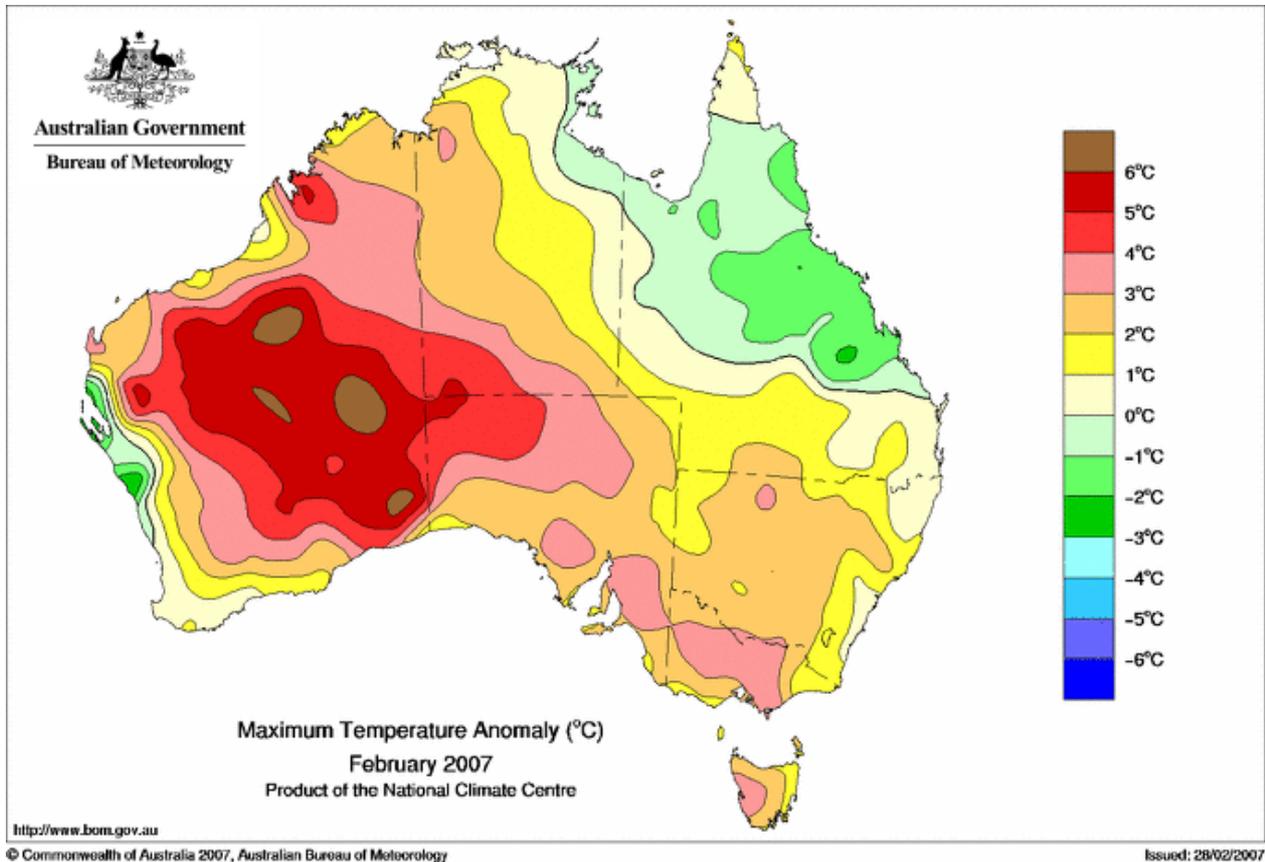


Figure 2. Mean monthly maximum temperature anomalies for February 2007.

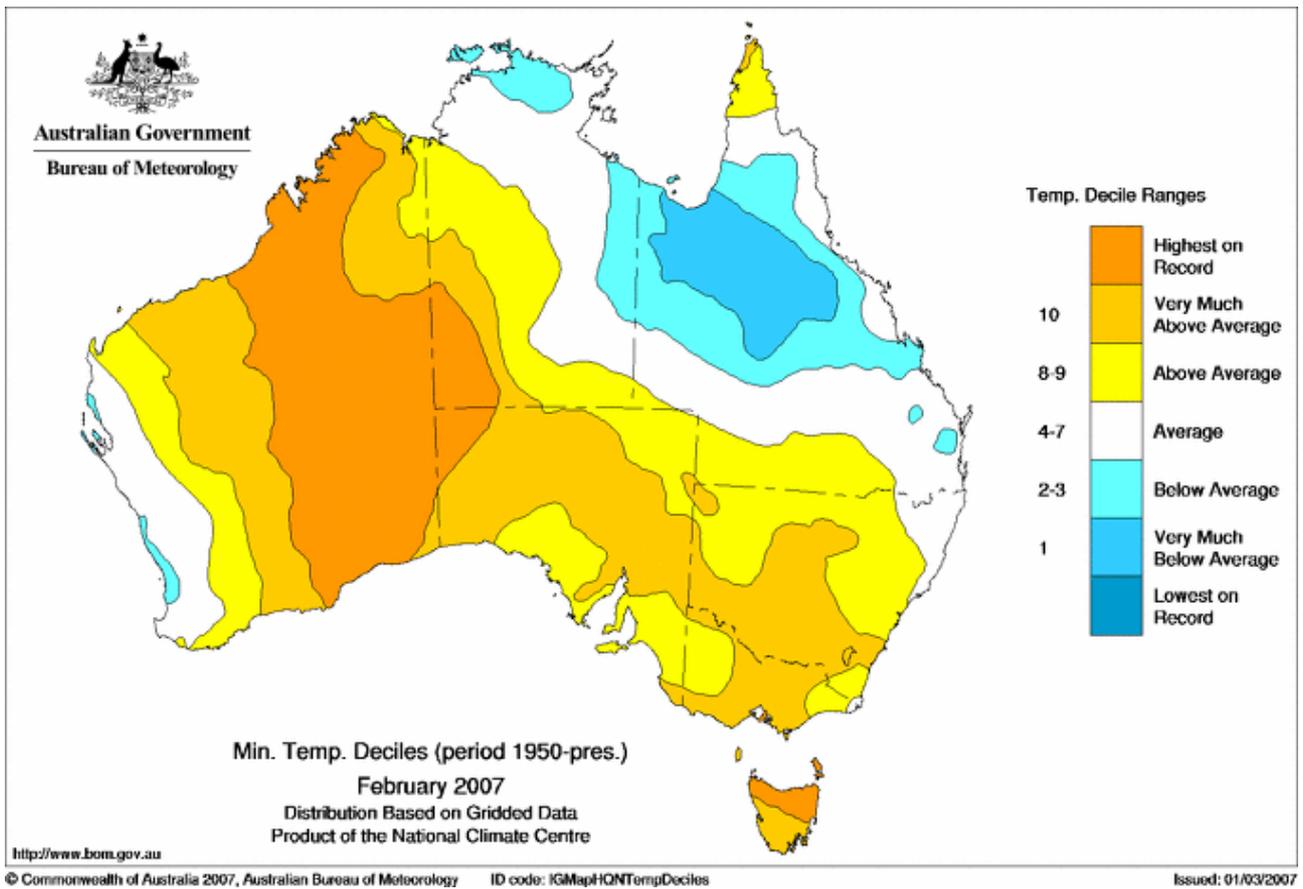


Figure 3. Mean monthly minimum temperature deciles for February 2007.

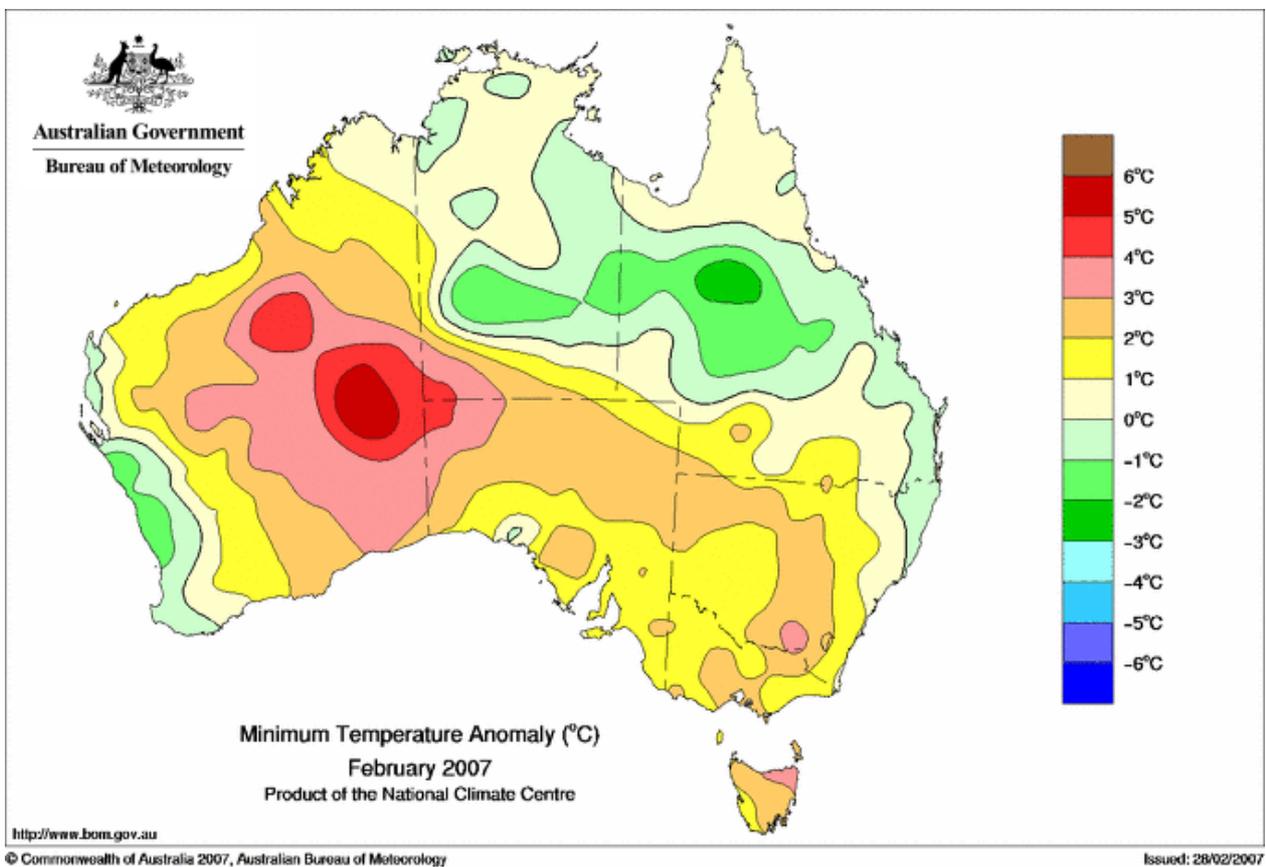


Figure 4. Mean monthly minimum temperature anomalies for February 2007.

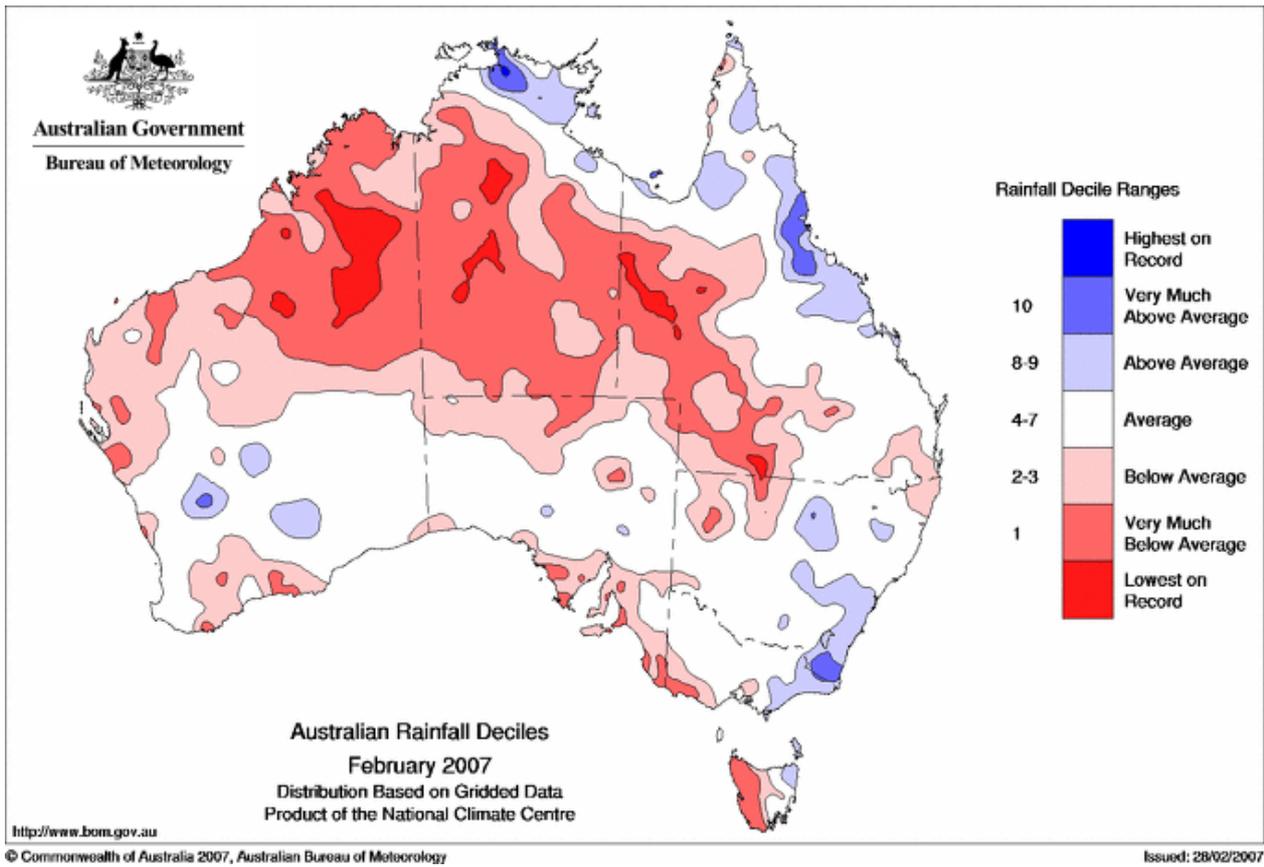


Figure 5. Australian rainfall deciles for February 2007.