

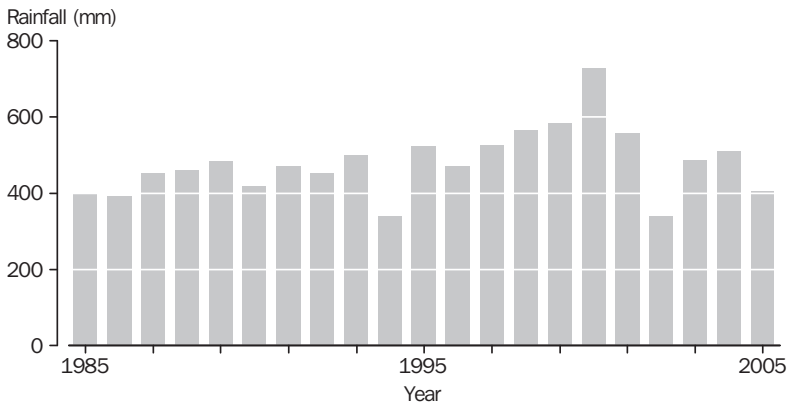
INTRODUCTION

The supply and use of water in Australia needs to be seen in the context of climate. In particular, rainfall in the years preceding the Water Account reference periods (i.e. 2000–01 and 2004–05) is important as this plays a large part in determining the amount of water available in the environment as surface and groundwater as well as in dams and other water storages.

Comparison of 2000–01 to 2004–05

The years preceding 2004–05 were dry compared to 2000–01 and the years immediately before. Graph A1.1 shows a peak in rainfall in 2000 followed by a trough in 2002. Maps A1.2 and A1.3 also highlight the spatial differences in rainfall patterns in 2001 compared to 2005.

A1.1 ANNUAL RAINFALL—1985 to 2005

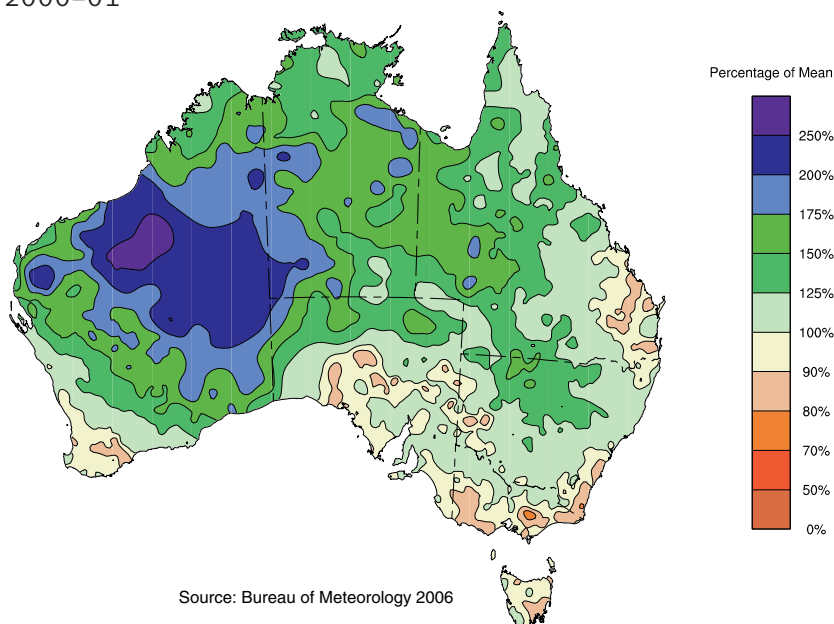
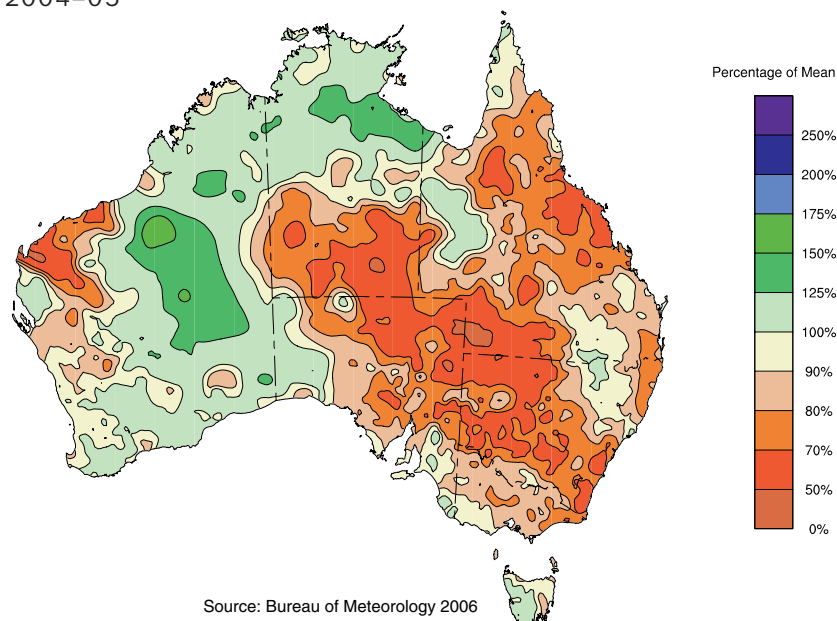


Source: Bureau of Meteorology 2006

CONDITIONS FOR 2004–05

The period from July 2004 to June 2005 was a dry and warm one over most of Australia. More than 90% of the country had below-normal rainfall for the 12-month period, making it the 9th driest July-June period in 106 years of records (MAP A1.4). The national area-averaged rainfall was 367 mm, 22% below the average for 1961 to 1990. The period from January to May 2005 was especially dry (the second driest on record, after 1965) Mean temperatures for Australia were the highest on record for a July-June period, being 0.76°C above the 1961 to 1990 mean, which broke the previous record of 0.72°C, set in 1997–98.

CONDITIONS FOR 2004–05

*continued***A1.2** PERCENTAGE OF MEAN ANNUAL RAINFALL, 1998–99 to 2000–01**A1.3** PERCENTAGE OF MEAN ANNUAL RAINFALL, 2002–03 to 2004–05

The most significant contributor to the dry and warm conditions in 2004–05 was a weak tropical monsoon in the summer of 2004–05. Wet season rainfall was well below normal through most of the tropics and subtropics, except for those areas directly under the paths of tropical cyclones. In particular, there were no episodes during the summer in which there was significant penetration of tropical moisture into central Australia. The only widespread rain through central Australia in 2004–05 fell in June 2005, which was a rather wet month through much of the country. Despite the June rains, it was the driest July–June period on record in parts of interior Western Australia, and large parts of the inland had less than 100 mm for the 12 months, with some areas receiving less than 50 mm. Before June rains lifted their July–June total to 68 mm, Alice Springs had only

CONDITIONS FOR 2004–05

continued

36.6 mm for the 12 months from June 2004 to May 2005, only 14% of normal and a record low for this period.

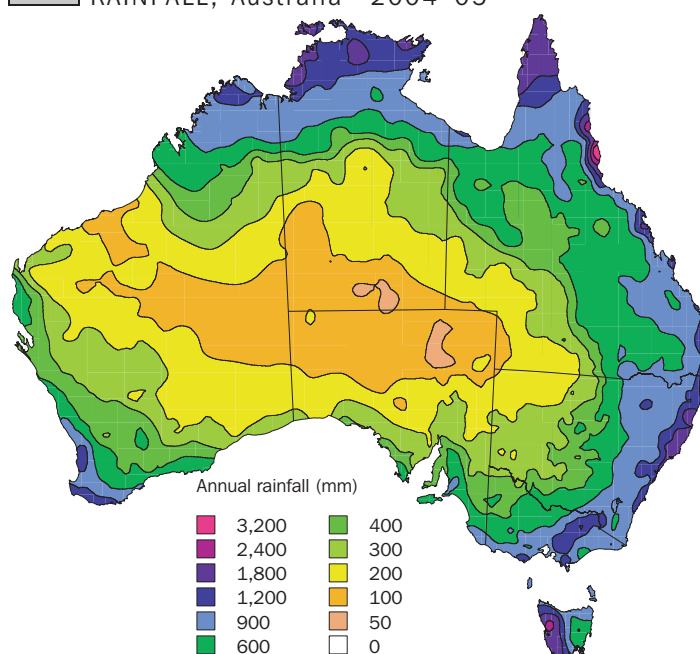
Much of Queensland was also drier than normal, whilst another notably dry area was northern Tasmania, where some locations had their driest 12-month period on record. Autumn 2005 was very dry through much of eastern and central Australia, particularly in Victoria and South Australia which both had their driest autumn on record. There were few substantial areas of above-normal rainfall. The most significant was around Carnarvon on the west coast of Western Australia, where 215 mm fell in July 2004, almost matching the annual average of 226 mm. Another area of above-average rainfall was in parts of northern inland New South Wales, which was particularly wet in October and December 2004, with some associated flooding in parts of the upper Murray-Darling basin. Victoria's rainfall for the 12-month period was generally close to normal, as was that in the south-west of Western Australia, where a wet autumn in 2005 offset a dry finish to 2004.

Temperatures in 2004–05 were well above normal, particularly from November 2004 onwards. Autumn 2005 was especially warm. April 2005 (2.58°C above average) was Australia's warmest month on record, in terms of the difference from the long-term average, with about two-thirds of the country having its warmest April on record.

Influenced by the relatively low rainfall and reduced cloud cover, temperatures in northern Australia during the tropical wet season (October–April) were also the highest on record.

Daytime maximum temperatures were particularly warm. In parts of the western Northern Territory they were more than 2°C above normal, whilst anomalies in the 1 to 2°C range occurred across extensive areas of New South Wales, the southern half of Queensland, the southern Northern Territory and the interior of Western Australia.

There were no significant areas of below-normal maximum temperatures. Overnight minimum temperatures were closer to normal (the generally dry conditions and reduced cloud cover leading to a wider-than-normal daily temperature range). They were 0.5 to 1.0°C above normal in most of Western Australia and south-western Queensland, but within 0.5°C of normal in most other areas.

A1.4 RAINFALL, Australia—2004–05

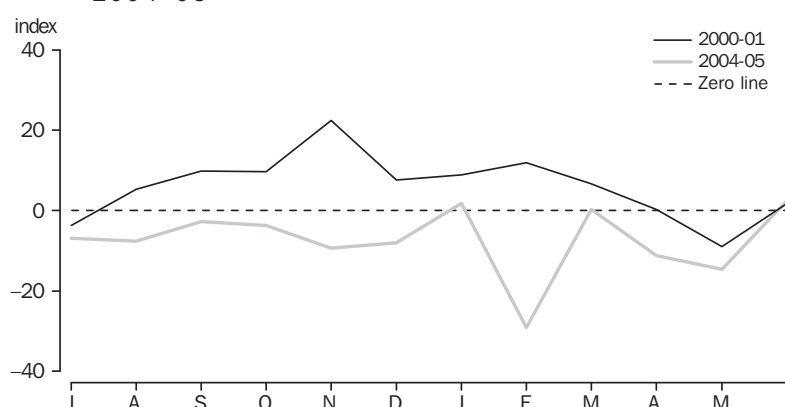
Source: Bureau of Meteorology 2006

EL NIÑO

El Niño refers to the extensive warming of the central and eastern Pacific that leads to a major shift in weather patterns across the Pacific. El Niño is measured by the Southern Oscillation Index (SOI) and is calculated from the monthly or seasonal fluctuations in the air pressure difference between Tahiti and Darwin. Sustained negative values of the SOI often indicate El Niño episodes. The SOI for 2000–01 and 2004–05 is presented in Graph A1.5.

In Australia (particularly eastern Australia), El Niño events are associated with an increased probability of drier conditions. These conditions contributed to 2004–05 being a period of below average rainfall over much of the continent, particularly in the north, and south-west, with a weak monsoon influencing climate in the tropical areas. This weak monsoon caused below average rainfall conditions in northern and central Australia, with the exception of those areas in the paths of tropical cyclones. Central areas of the Northern Territory and Queensland remained very dry, as well as areas of Western Australia and northern Tasmania. In comparison for much of 2000–01, the period of the last Water Account, Australia was under the influence of La Nina. Consistent with the weather patterns associated with La Nina, many areas of Australia had a wet year, particularly in the north of the continent.

A1.5 SOUTHERN OSCILLATION INDEX, July to June—2000–01 and 2004–05



Source: Bureau of Meteorology 2006