

5. Significant Events in 2001: A Retrospective

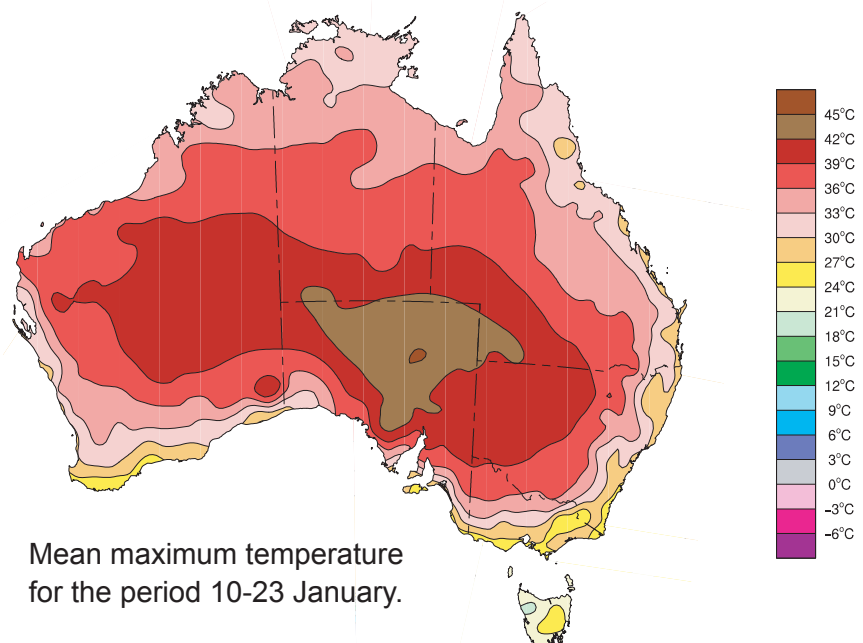
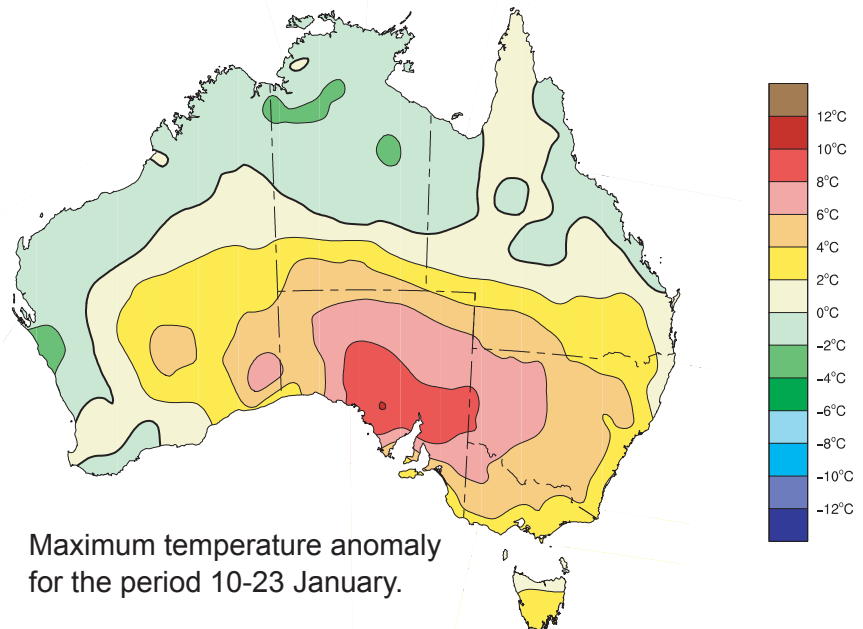
A La Niña climate pattern dominated the weather over northern and central Australia in the early months of 2001, resulting in very much above average rainfall. The waning of this pattern in autumn saw a return to more normal rainfall over most of the country. However, southern areas of the country experienced a mostly dry winter - early spring, associated with relatively weak midlatitude westerly flow over the Australian sector. Unusually cool conditions prevailed over the southern half in the period October to December, except along the east coast where serious bushfires broke out near the end of December.

For the year as a whole, rainfall was well above average over the western two-thirds of the continent, with a very wet 2000/01 summer in the north and west. Central Australia received very much above average rainfall during January, March, June, October and December. On the other hand, much of eastern Australia experienced a dry 2001, and the southwestern corner was particularly dry, with record low autumn and early winter rains. For the third consecutive year, Australia as a whole had close to normal temperatures: the east of the continent was generally warmer than normal, while over central and western parts the wet conditions were accompanied by lower than normal temperatures in 2001.

January and February were exceptionally hot over extensive areas of south-central and southeastern Australia. In the second and third weeks of January, extreme heat affected a broad area of southern and inland Australia, with maximum temperatures at many centres approaching those of the infamous January 1939 heatwave. The main period of heat occurred between the 10th and 23rd, when most of central and eastern Australia was baked by a merciless 14-day heat-wave. The temperature reached 45°C somewhere in the country on all but one day during this period, peaking at 48°C at several locations including Ceduna, Kyancutta and Wudinna in South Australia, and White Cliffs and Tibooburra in NSW. Even western Sydney reached 46°C on the 15th. Over this fortnight, maximum temperatures were 5 to 10°C above normal over virtually all of S.A., the western half of NSW and northern Victoria (see map above). The mean for the period approached 45°C at Oodnadatta and Marree in northern South Australia (see map below). Unusually hot and many cases dry conditions prevailed over essentially the same areas in February, and also extended into Tasmania.

By contrast, heavy rain fell late in January around Alice Springs, which received 240mm in four days (annual average, 280mm). Flooding closed off most roads, and temporarily isolated Alice Springs. Heavy rain also soaked northern and eastern New South Wales - many northeastern centres received over 200mm in the 24 hours ended 9am on 2nd February, with peak falls up to 550mm in 72 hours. The Sydney metropolitan area received 150-250mm in the 48 hours ended 9am on 1st February, with heaviest falls in southwestern suburbs. Flash flooding was frequent, and there was some river flooding, but preceding dry conditions may have reduced the overall severity of flooding.

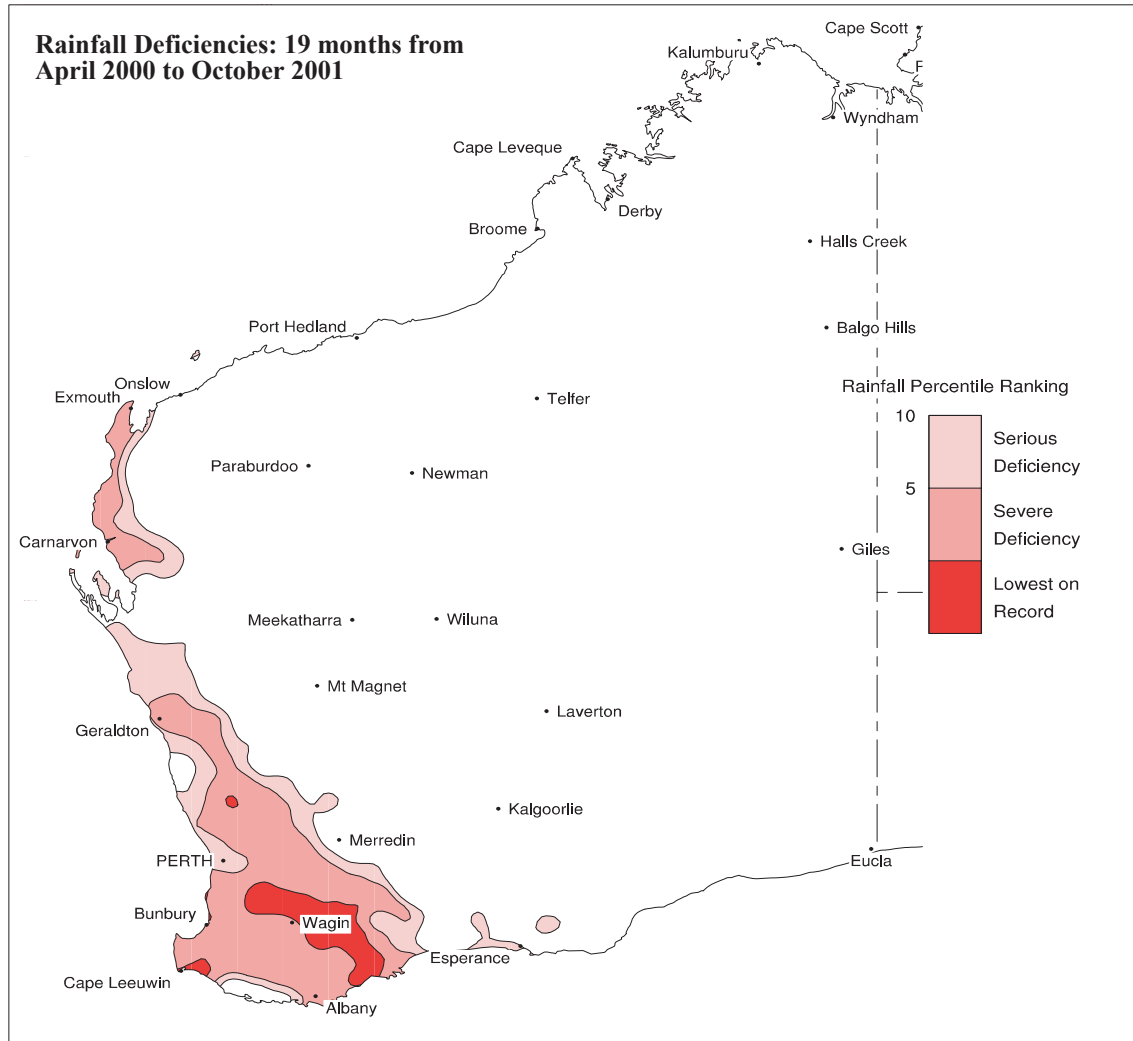
As the northern wet season ended and the La Niña-like pattern waned, conditions in April and May were mainly dry over Australia as high pressure predominated. Generally clear night skies led to below normal minimum temperatures in most areas. Southern Victoria, suffering from years of below average rainfall, experienced heavy, though somewhat patchy, rain in late March, and again in late April. In the latter event, some of the areas worst-affected by the drought that commenced late in 1996 benefited most - notably the area west and southwest of Melbourne, which received over 150mm in four days. Parts of the hilly country southeast and southwest of Melbourne received as much as 400mm at this time. But there was a quick return to dry conditions, so the rain had no lasting impact on storages. Southwestern Australia continued to experience dry conditions - Perth record its lowest ever September to April rainfall total of 98.4mm (normal 258mm). The previous record (for over 124 years of record) was 114mm in 1957-58.



By the end of May, concern was being felt about signs of possible El Niño event development, but by mid-June this development appeared to have ceased. Northwest cloudbands during the first fortnight of June dumped 50-150mm over broad areas of central Australia and inland South Australia, areas where the annual average is less than 300mm.

The period from June to September was unusually dry and mild over much of southeastern Australia. In southwestern Australia, which is heavily dependent on winter rainfall, winter 2001 was extremely dry, with many places experiencing record low rainfall. In Perth, despite a "one-off" fall of 88.6mm late in July, this was the third driest winter on record, and came on top of an extremely dry previous nine months - all superimposed on a multidecadal "dry" extending back to the late 1960s. In early September, water restrictions were imposed on Perth residents, and on people in the inland Goldfields region who access water via a pipeline from the coast. The diagram below shows those areas of W.A. that have been deficient in rainfall since the start of the 2000 southern wet season. By contrast, Broome in northwest Australia received 90.2mm of rain on 17th July, easily beating the previous wettest *monthly* total of 72mm in 1956.

The mid-north coast area of NSW also had a very dry winter, and warm gusty winds fanned many bushfires in late winter-early spring. Scrub and grass fires were also more extensive than usual in the tropical savannah regions of the Northern Territory in August and September.



The period from October to December was unusually cool over most of the southern half of Australia, with maximum temperatures in October and December up to 3-5°C below average over south-central Australia. Most of the country experienced above average rainfall in October and November, with well above average rainfall in the former month relieving the prospect of water restrictions in the Melbourne metropolitan area. Frequent tropical moisture inflows into central Australia in late November and through much of December, produced extremely heavy rain and flooding in that area. Early in December as much as 260mm fell within a week, in an area where the annual average rainfall is only about 250-300mm a year. At Giles, in central Australia near the W. A./N.T./S.A. border, the December total rainfall of 338mm was the highest recorded there in any month. In fact, it was the highest official registration in the country for the month of December 2001.

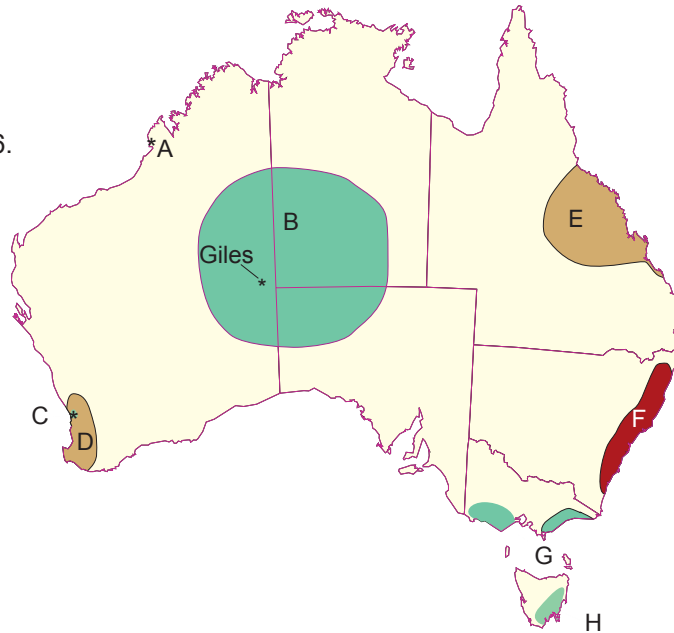
In contrast to these conditions, the eastern coast from southern New South Wales to the northern Cape York Peninsula was warmer than normal over the last three months. The onset of persistent hot dry northwesterly winds late in December resulted in disastrous bush-fires over the eastern New South Wales, in coastal districts and the adjacent ranges. The fires broke out on Christmas Eve and continued to burn through the first week of January 2002. As in January 1994, fires badly affected populated areas such as the Blue Mountains, and penetrated into some Sydney suburbs. Major losses occurred to property (over 170 homes destroyed) and forest areas (nearly 600,000 hectares burnt out), but fortunately there were no deaths. More than 20,000 firefighters from around the Australia were involved in the battle to suppress the fires.

A. Broome: 90.2mm in 24 hrs on 17th July. Previous **monthly** record of July was 72mm in 1956.

B. Very wet year especially January (240mm fell on 4 days in Alice Springs), March, June, October, and December (337.6mm Giles was wettest month ever).

C. Perth: 88.6mm in 24 hrs to 9am 30th July - 2nd wettest July day ever.

D. Extremely dry year. Very dry conditions extended back to April 2000.



E. Very dry year - many places had only about 50% of their annual average rainfall.

F. Dry winter-spring: bushfires mid-north coast late winter-spring. Persistent hot and dry westerly winds drove widespread severe bushfires from Christmas eve.

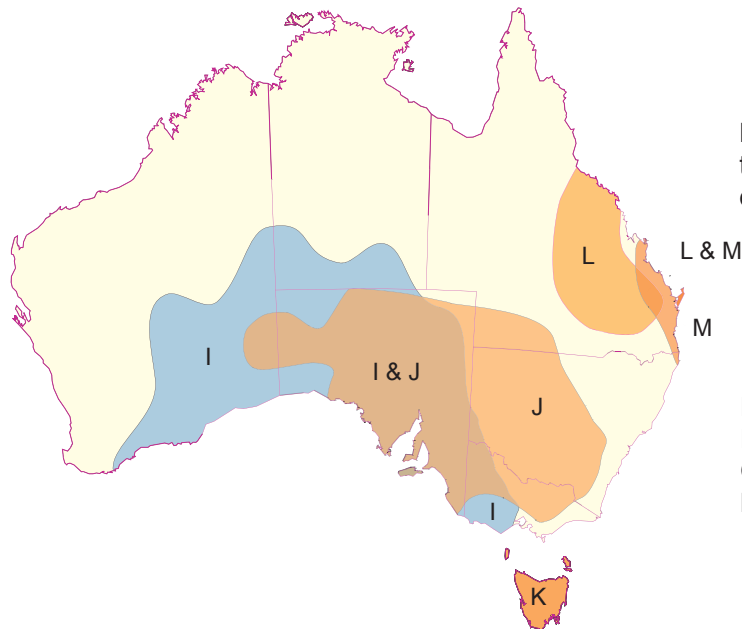
G. Heavy rain in April and again in October eased long running drought.

H. Cool, wet October - December: unusually high number of thunderstorms.

I. Exceptionally cool last 3 months particularly December.

J. Extreme heat during first three weeks of January. Daily temperatures reached 47-48 degrees C.

K. Very hot in Tasmania during January and February.



L. Warm year. Maximum temperatures were 1 to 2 degrees above average.

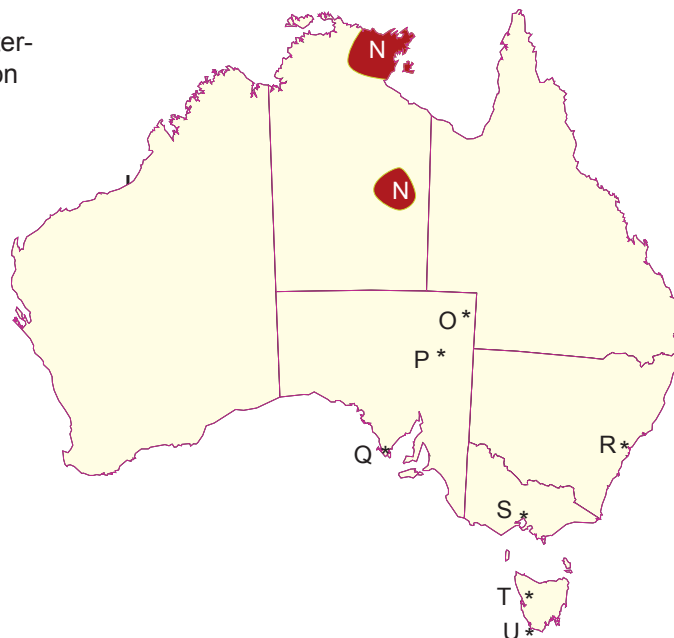
M. Heatwave in late December- the worst in SE Queensland since the great heatwave of 1903.

N. Extensive scrub-fires late winter-spring followed prolific wet season rainfall.

O. Innamincka: thunderstorm dumps 106mm in an hour on 5th February.

P. Marree: 23 consecutive days of 40.0 degrees C or higher from 1-23 January. Old record was 18 days in 1979.

Q. 2 February: Fire destroys 7 houses at Tulka near Port Lincoln.



R. Record wind-gust for NSW (excluding Lord Howe Island) at Richmond: 174km/h on 3rd December.

S. Melbourne has latest ever first 30 degrees C maximum in spring-summer (29th December).

T. Mt.Read: Rain on every day in June.

U. Maatsuyker Island: 172 km/h wind gust on 24th June.