



Issued 1 October 2024 — Monthly Summary for Australia — Product Code IDCKGC1AR0

Australia in September 2024

In brief

- The national area-averaged September rainfall total was 23.2% above the 1961–1990 average.
- September rainfall was above average for most of Tasmania, Northern Territory, northern and central Western Australia, and parts of far northern Queensland and north-eastern New South Wales.
- Rainfall was below average for most of the south-west of Western Australia, south-east South Australia, northern Victoria and large parts of New South Wales and Queensland.
- Australia's national area-averaged mean temperature was 1.89 °C above the 1961–1990 average, the fourth-highest for September since 1910.
- The national area-averaged mean maximum and mean minimum temperatures were 1.90 °C and 1.88 °C above average respectively.
- Mean maximum temperatures were above average for most of Queensland, New South Wales and Victoria and large parts of South Australia, the Northern Territory and Western Australia. Mean maximum temperatures were below average for south-western Tasmania.
- Mean minimum temperatures were above average for Tasmania, southern Victoria and the Northern Territory, much of Queensland, Western Australia and northern South Australia, and some areas of New South Wales. Mean minimum temperatures were below average for parts of the southern mainland.

Further information and tables of records for each state and the Northern Territory can be found in the individual [regional climate summaries](#), published on 3 October 2024.

Temperatures

Australia's national area-averaged mean temperature was 1.89 °C above the 1961–1990 average, the fourth-highest on record for September since 1910.

The area-averaged mean temperature for Western Australia was the third-highest for September on record, while for Queensland it was the fourth-highest on record.

The national area-averaged mean maximum temperature was 1.90 °C above average. Mean maximum temperatures were above to very much above average (in the highest 10% of all Septembers since 1910) for most of Queensland, New South Wales and Victoria and large parts of South Australia, the Northern Territory and Western Australia. Mean maximum temperatures were the highest on record for smaller areas along the northern and western coasts of the mainland.

Mean maximum temperatures were below average for south-western Tasmania.

The area averaged mean maximum temperature was above average for the Northern Territory and all states except Tasmania where it was the lowest for September since 2017.

The national area-averaged mean minimum temperature was 1.88 °C above average, the fourth-highest on record for September. Mean minimum temperatures were above to very much above average (in the highest 10% of all Septembers since 1910) for Tasmania, southern Victoria and the Northern Territory, much of Queensland, Western Australia, northern South Australia, and much of coastal New South Wales. Mean minimum temperatures were the highest on record for large parts of Kimberley and Pilbara in Western Australia and an area in the far south-west of

the Northern Territory. Many stations in these areas had their record highest mean minimum temperatures for September.

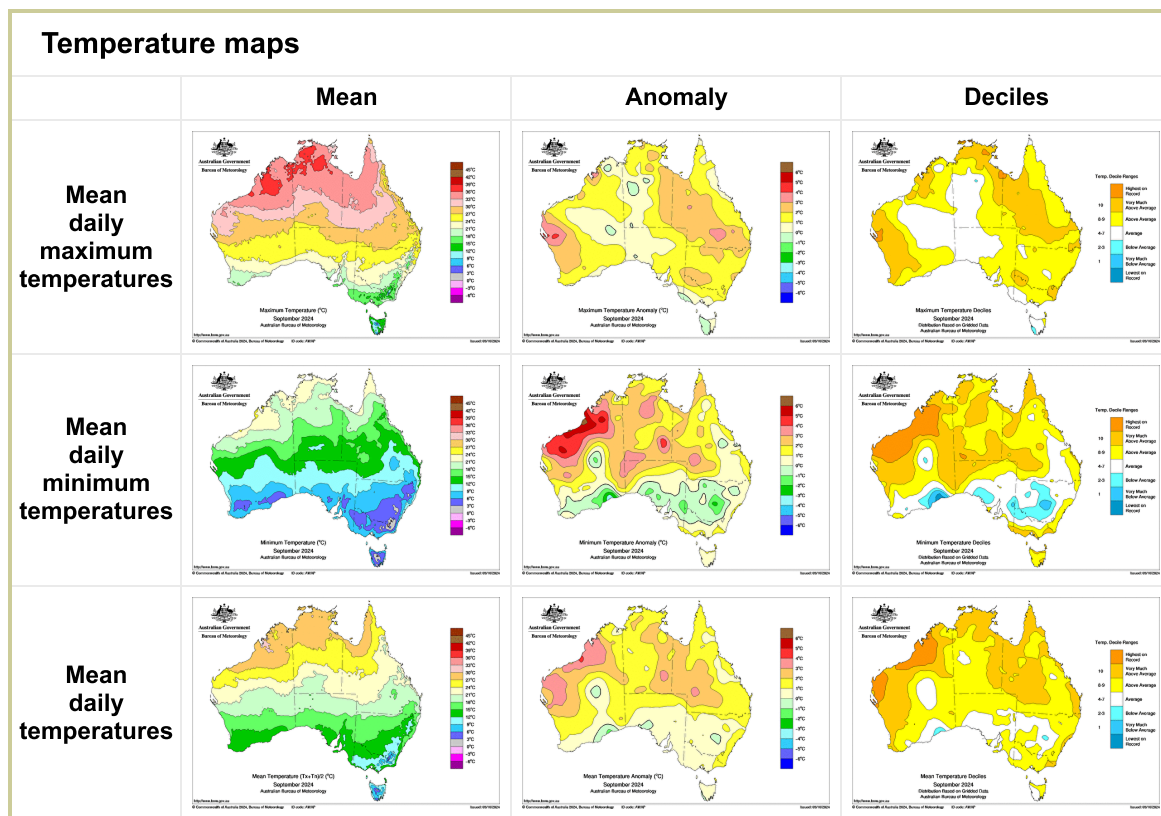
For Western Australia, the area-averaged mean minimum temperature was the highest on record, 2.34 °C above the 1961-1990 average for September. For both Queensland and the Northern Territory, it was the seventh-highest on record.

Mean minimum temperatures were below to very much below average for parts of Upper and Lower Western, Riverina and Central West Slopes and Plains districts in New South Wales; much of Victoria's Mallee and Wimmera districts; West Coast, Riverland, Murrayland and part of the southern North East Pastoral districts in South Australia; and Eucla district in Western Australia.

1-month temperature table ending September 2024

Areal average temperatures									
	Maximum Temperature			Minimum Temperature			Mean Temperature		
	Rank (of 115)	Anomaly (°C)	Comment	Rank (of 115)	Anomaly (°C)	Comment	Rank (of 115)	Anomaly (°C)	Comment
Australia	104	+1.90		112	+1.88	4th highest (record +2.52 °C in 2020)	112	+1.89	4th highest (record +2.86 °C in 2013)
Queensland	108	+2.43	8th highest	109	+2.31	7th highest	112	+2.37	4th highest (record +3.34 °C in 2013)
New South Wales	= 98	+2.14		81	+0.52		97	+1.33	
Victoria	89	+1.35		95	+0.63		98	+0.99	
Tasmania	38	-0.32		104	+0.94		76	+0.31	
South Australia	88	+1.59		90	+0.72		88	+1.16	
Western Australia	106	+1.87	10th highest	115	+2.34	highest (was +2.33 °C in 2023)	113	+2.11	3rd highest (record +2.94 °C in 2023)
Northern Territory	92	+1.53		109	+2.41	7th highest	104	+1.97	

Rank ranges from 1 (lowest) to 115 (highest). A rank marked with '=' indicates the value is tied for that rank. **Anomaly** is the departure from the long-term (1961–1990) average.



Rainfall

The national area-averaged September rainfall total was 23.2% above the 1961–1990 average.

Area-averaged rainfall for September was above average for Western Australia, the Northern Territory and Tasmania, and below average for the remaining states.

September rainfall was above to very much above average (in the highest 10% of all Septembers since 1900) for most of the Tasmania, Northern Territory, northern and central Western Australia, parts of the Cape York Peninsula in Queensland and north-eastern New South Wales. Rainfall was the highest on record for Western Australia's Kimberley, Pilbara and Northern Interior districts, extending into parts of Daly, Gregory and Tanami districts of the Northern Territory. Many stations in these areas, including some with more than 50 years of data, had their record highest total rainfall for September.

An upper-level low pressure system and a low pressure trough that moved into the Kimberley region of Western Australia and the Northern Territory's Top End, combined with tropical moisture resulted in unseasonable rainfall for these areas. The area-averaged rainfall for Western Australia overall was the seventh-highest on record for September. For the Northern Territory it was the seventh-highest on record and the highest since 2016. For Tasmania the area-averaged rainfall was the highest since 2003 due to a succession of cold fronts crossing the state.

Rainfall was below to very much below average (in the lowest 10% of all Septembers since 1900) for most of the South West Land Division in Western Australia, south-central and south-eastern South Australia, northern Victoria and parts of southern and central New South Wales. Rainfall was also below average for large areas of central, eastern and northern Queensland.

Significant weather and records

Strong winds across south-eastern Australia

Strong winds that affected southern Australia at the end of August, redeveloped over the south-east of the country due to a cold front that crossed south-eastern South Australia, Victoria, Tasmania and southern New South Wales on

1 and 2 September. Behind the front, multiple stations recorded wind gusts in excess of 100 km/h and many had their record highest daily wind gust for September or for any month. The strongest wind gusts during this event recorded in Tasmania were 157 km/h at King Island Airport and 154 km/h at Maatsuyker Island Lighthouse on the 1st, and 156 km/h at Hogan Island, Victoria, on the 2nd. Severe Weather Warnings for damaging to locally destructive winds were issued for much of south-eastern Australia, and Coastal Hazards Warnings were issued for Tasmania's west and north coasts and Victoria. There were media reports of extensive damage to property and vegetation caused by strong winds.

Flooding in Tasmania

A cold front that moved across south-eastern Australia on 1 September brought widespread rainfall to Tasmania. In the 24 hours to 9 am on the 2nd, the state's west and north generally received daily rainfall totals of 20 to 50 mm, and locally more than 60 mm. The highest daily totals of 81.4 mm and 69.0 mm were recorded at Pioneer and Bronte Heights respectively, and were the record highest daily rainfall totals for September for these stations.

The widespread rain across Tasmania contributed to already high river levels and Major Flood Warnings were issued for the Derwent River at Meadowbank Dam and Meaner River at Strathbridge.

Thunderstorms over Western Australia's interior

Between 9 and 11 September, a low pressure trough over western parts of Western Australia resulted in thunderstorms and showers for inland southern Pilbara and northern Gascoyne. Most of the stations had three-day rainfall totals (to 9 am on the 12th) between 5 and 30 mm, with the highest total of 40.0 mm recorded at Mount Vernon. This area has September average rainfall of 1 to 5 mm.

Thunderstorms and hail in Victoria

A cold front and an associated low pressure trough crossed Victoria on 11 September bringing rainfall, thunderstorms, showers and hail. Daily rainfall totals were generally light to moderate, with the highest totals of 10 to 30 mm recorded in eastern parts of the state. Thunderstorms developed over central, northern and eastern Victoria bringing hail to many areas. Castlemaine, north-west of Melbourne, experienced a hailstorm which covered parts of the town with thick layers of small hail (3 to 10 mm) and there were reports of flash flooding and building damage.

Cold conditions in south-eastern Australia

A cold front crossed south-eastern Australia on 13 and 14 September bringing showers, thunderstorms, gusty winds and hail. It was followed by a cold Antarctic airmass, strong winds, widespread light to moderate rainfall and localised hail, while snow was recorded at low levels in Tasmania and in alpine areas of Victoria and New South Wales. South-easterly winds directed by a high pressure ridge extended cold air into New South Wales, Queensland and across the Northern Territory. Between 14 and 17 September, large parts of Australia had daily maximum temperatures 2 to 6 degrees below the September average. Daily minimum temperatures were also below average, with large parts of south-eastern South Australia, Victoria, Tasmania and southern New South Wales recording minimum temperatures close to or below 0 °C. Keith (Munkora) had -4.6 °C on the 15th, a new record lowest daily minimum temperature for South Australia in September (previous record was -4.5 °C, set at Yongala on 6 September 1995). On the 16th, Cooma Airport (New South Wales) had -8.2 °C, Canberra Airport (ACT) had -6.9 °C, the record lowest daily September minimum temperature for the composite site (102 years of data), while Mount Hotham (Victoria) had -6.5°C. On the 17th, under the clear skies due to a high pressure system that developed in a wake of a cold front, low daily minimum temperatures were recorded across south-eastern South Australia. Several stations had their record lowest daily minimum temperature for September, including Adelaide (West Terrace), which has 100 years of temperature data. On the 18th, low daily minimum temperatures and frost extended to Victoria and southern New South Wales.

Several cold fronts moved over south-eastern Australia between 18 and 22 September, bringing more thunderstorms, showers, small hail and low temperatures mostly to south-eastern South Australia, southern Victoria and Tasmania. Strong winds affected southern Victoria and Tasmania, with the strongest wind gusts of 146 km/h and 139 km/h recorded at Maatsuyker Island Lighthouse and Hogan Island (both in Tasmania) on the 19th, when snow was again recorded in parts of Tasmania.

Unseasonable rain in north-western Australia

On 16 and 17 September, an upper-level low pressure system and a low pressure trough that moved into the Kimberley (Western Australia) and the Northern Territory's Top End, combined with tropical moisture, bringing showers and isolated thunderstorms to the area. The highest daily rainfall totals were observed across the western Top End, with daily totals generally between 20 and 50 mm in the 24 hours to 9 am on the 17th. Darwin Airport (80 years of data) recorded 52.4 mm, its fourth-highest daily rainfall total for September, and the highest since 1981.

Between 20 and 24 September, an upper-level low pressure trough combined with tropical moisture over north-western Australia, bringing widespread rain and isolated thunderstorms to northern Western Australia and western and southern Northern Territory. Many stations had their record highest daily rainfall for September. Rainfall and showers resulted in four-day (ending 9 am on 24 September) rainfall totals between 20 and 50 mm for many stations, with the highest total of 144.0 mm recorded at Yulmbu (Western Australia). The average September rainfall across the western Top End is 5-25 mm and less than 5 mm for most the remaining northern parts of the Northern Territory and for northern and central Western Australia.

The increased cloud cover and showers resulted in daily maximum temperatures generally 4-8 °C below the September average, with some stations, including Darwin Airport, observing their record lowest daily maximum temperature for September on the 17th.

Wet and cool in in the south-east of Australia

A cold front that crossed south-eastern Australia on 25 September, interacted with tropical moisture advected from the north-west by an upper-level low pressure trough, bringing widespread rainfall. Daily rainfall totals generally ranged between 5 and 15 mm in parts of South Australia, Victoria and Tasmania, and between 10 and 30 mm in inland and south-eastern New South Wales. The highest daily rainfall total in the 24 hours to 9 am on the 26th of 78.2 mm was recorded at Thredbo AWS (New South Wales).

Daily maximum temperatures across New South Wales decreased behind the cold front, with particularly cool temperatures on the 26th across Sydney and Illawarra, while snow showers were observed on the higher parts of Central Tablelands.

Widespread rain in eastern Australia

A low pressure system started to develop off the east coast of Australia late on 26 September resulting in widespread rainfall and thunderstorms for most of the south-eastern Queensland and north-eastern New South Wales. The heaviest rainfall was recorded across Southeast Coast in Queensland and Northern Rivers and Mid North Coast in New South Wales. The three-day rainfall totals (ending 9 am on 29 September) exceeded 100 mm at many stations, with the highest total of 280.6 mm recorded at McLeans Ridges (Lascott Drive) in New South Wales. The highest daily rainfall total during this event of 136.0 mm was recorded in the 24 hours to 9 am on the 29th at Rosebank (Repentance Creek) in New South Wales. Some stations had their record highest daily rainfall for September, although generally stations with less than 30 years of data.

Strong winds were recorded along the coast with gusts exceeding 90 km/h at some stations. Byron Bay (Cape Byron AWS) recorded a wind gust of 107 km/h on the 28th. A Damaging Wind Warning was issued for north-east coast of New South Wales and the bordering ranges between New South Wales and Queensland.

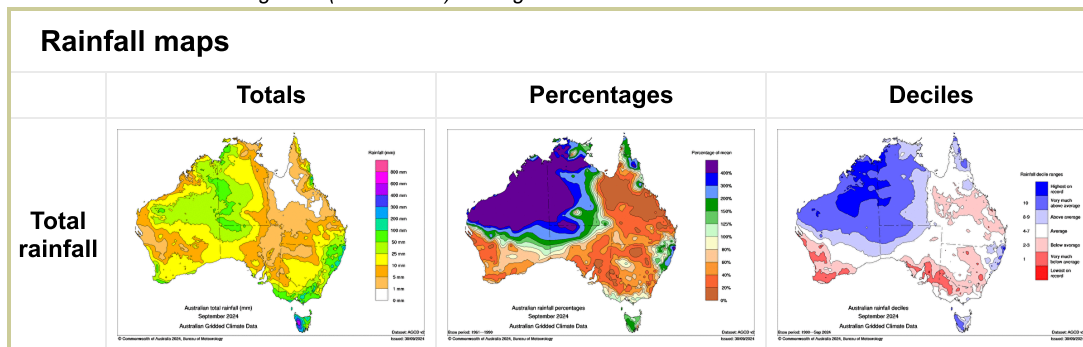
The low pressure system started to move away from the mainland on the 29th, with rain easing to isolated showers.

1-month rainfall table ending September 2024

Area-average rainfall				
	Rank (of 125)	Average (mm)	Departure from mean	Comment
Australia	95	20.4	+23%	
Queensland	44	6.0	-52%	
New South Wales	44	26.4	-25%	

Area-average rainfall				
	Rank (of 125)	Average (mm)	Departure from mean	Comment
Victoria	28	43.3	-33%	
Tasmania	116	195.2	+45%	10th highest; highest since 2003
South Australia	80	15.7	-11%	
Western Australia	119	20.2	+97%	7th highest
Northern Territory	119	26.7	+282%	7th highest
Murray-Darling Basin	33	18.3	-47%	

Rank ranges from 1 (lowest) to 125 (highest). A rank marked with '=' indicates the value is tied for that rank. **Departure from mean** is relative to the long-term (1961–1990) average.



Australian weather extremes during September 2024

Hottest day	41.9°C	Yampi Sound (Defence) (WA) on the 30th
Coldest day	-3.1°C	Mount Hotham (Vic.) on the 2nd
Coldest night	-8.2°C	Cooma Airport AWS (NSW) on the 16th
Warmest night	28.4°C	Curtin Aero (WA) on the 30th
Wettest day	136.0 mm	Rosebank (Repentance Creek) (NSW) on the 29th

Notes

National monthly and seasonal summaries are published on the first working day of the following month, based on information available at 3 pm on the first day of that month.

Long-term averages in this statement and associated tables are for the period 1961 to 1990 unless otherwise specified. Temperature area averages are derived from the ACORN-SAT version 2 dataset and temperature maps are derived from the [AWAP dataset](#). Rainfall area averages and maps, are derived from the [AGCD dataset](#).



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