

Monthly Weather Review

Western Australia

February 2009



Australian Government
Bureau of Meteorology

The *Monthly Weather Review - Western Australia* is produced twelve times each year by the Australian Bureau of Meteorology's Western Australia Climate Services Centre.

It is intended to provide a concise but informative overview of the temperatures, rainfall and significant weather events in Western Australia for the month.

To keep the *Monthly Weather Review* as timely as possible, much of the information is based on electronic reports. Although every effort is made to ensure the accuracy of these reports, the results can be considered only preliminary until complete quality control procedures have been carried out. Major discrepancies will be noted in later issues.

We are keen to ensure that the *Monthly Weather Review* is appropriate to the needs of its readers. If you have any comments or suggestions, please do not hesitate to contact us:

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You may also wish to visit the Bureau's home page, <http://www.bom.gov.au>.

Units of measurement

Except where noted, **temperature** is given in degrees Celsius (°C), **rainfall** in millimetres (mm), and **wind speed** in kilometres per hour (km/h).

Observation times and periods

Each station in Western Australia makes its main observation for the day at 9 am local time. At this time, the precipitation over the past 24 hours is determined, and maximum and minimum thermometers are also read and reset. In this publication, the following conventions are used for assigning dates to the observations made:

Maximum temperatures are for the 24 hours *from* 9 am on the date mentioned. They normally occur in the afternoon of that day.

Minimum temperatures are for the 24 hours *to* 9 am on the date mentioned. They normally occur in the early morning of that day.

Daily rainfall is for the 24 hours *to* 9 am on the date mentioned. This means a significant fraction of the rain may have occurred on the previous calendar day.

Monthly rainfall is for the period from 9 am on the last day of the previous month to 9 am on the last day of this month.

Maximum daily wind gusts are in the 24 hours from midnight to midnight.

Climatological values

The climatological averages shown in the text and tables are generally long-term means based on observations from all available years of record, which vary widely from site to site. They are not shown for sites with less than 30 years of record, as they cannot then be calculated reliably. Climatological extremes are generally taken from available observations from all available years of record. The number of years can vary substantially from site to site.

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Product code IDCKGC11R1. Prepared on 26 March 2009. ISSN 1836-3032

Cover photograph

Cumulus clouds over Mitchell Plateau near Port Warrander, Admiralty Gulf, North Kimberley, WA.

Photograph by Kerrie Goodchild, 28 January 2003. Copyright © 2008 Kerrie Goodchild. Used with permission.

If you have a photo you think would make a good cover for the Monthly Weather Review, please contact us at the address above.

Overview

- Monthly rainfall near average
- Mean daily maximum temperature near average.
- Mean daily minimum above average.

February 2009 in Western Australia was generally close to average in terms of monthly rainfall, though eastern parts saw below to very much below average rainfall, and tropical lows brought above to very much above average rainfall to parts of the Kimberley and western Pilbara. Significant flooding in the western Pilbara and northern Gascoyne occurred during the middle of the month with the passage of a tropical low, whilst at the end of the month, the eastern Pilbara experienced a similar event though rainfall totals were less. In the south, a cold front crossed the Southwest Land Division (SWLD) on the 25th bringing some welcome rainfall.

Across the state as a whole, daily maxima were near average, however central and eastern parts of the state were above to very much above average. Mean daily minima were above average for much of the state, though the north and east Kimberley saw below to very much below normal mean minima. Eucla managed to break its highest overnight temperature as a cold front passed through in the late morning on the 27th, and hot northerly winds kept temperatures above 30 °C the previous night.

Extremes in February 2009

Hottest day

(Highest daily maximum temperature)

46.1 °C at Gascoyne Junction on the 4th

46.1 °C at Port Hedland Airport on the 10th

Warmest days on average

(Highest mean daily maximum temperature)

40.8 °C at Gascoyne Junction

Coolest days on average

(Lowest mean daily maximum temperature)

23.2 °C at Albany

Coldest day

(Lowest daily maximum temperature)

16.2 °C at Manjimup on the 25th

Coldest night

(Lowest daily minimum temperature)

4.8 °C at Bridgetown on the 8th

Coolest nights on average

(Lowest mean daily minimum temperature)

12.7 °C at Bridgetown

12.7 °C at Collie East

Warmest nights on average

(Highest mean daily minimum temperature)

27.0 °C at Karratha Aero

Warmest night

(Highest daily minimum temperature)

31.2 °C at Newman Aero on the 2nd

Wettest overall

(Highest total rainfall)

633.9 mm at Kuri Bay

Wettest day

(Highest daily rainfall)

300.0 mm at Yalleen on the 17th

Highest wind gust

124 km/h at Mount Magnet Aero on the 5th

Significant weather

Tropical Cyclones

A low that developed over the Kimberley on the 3rd, moved off the west coast on the 4th and slowly developed as it tracked west over open waters. The low reached tropical cyclone intensity early on the 7th, and was named *Freddy*, about 650 kilometres north of Exmouth. After peaking at category 2 intensity on the 8th, *Freddy* gradually weakened as it began to track west-southwest and move over progressively cooler ocean waters. *Freddy* was downgraded below tropical cyclone intensity late on the 10th. There were no known direct impacts from *Freddy*, although there were disruptions to some offshore industry operations.

Tropical Lows

A weak low moved off the northwest Kimberley coast on the 11th and struggled to develop under strong wind shear. After a meandering path well off the Kimberley and Pilbara coasts, the low approached the far west Pilbara coast from the north on the 16th and combined with a mid-latitude upper trough to cause heavy rainfall over the western Pilbara and significant flooding on the Robe, Fortescue and Ashburton Rivers. The low slowed and crossed the west Pilbara coast near Onslow on the 17th and slowly weakened over the west Pilbara over the following days. Karratha Airport reported 139.6 mm of rainfall to 9 am on the 15th; Thevenard Island, 128.4 mm to 9 am on the 16th, and Yalleen 300.0 mm and Pannawonica 244.6 mm to 9 am on the 17th, whilst Thevenard Island recorded a wind gust of 93 km/h at 9:25 WDT (16th).

Several mining rail bridges and roads in the area were reported to be extensively damaged. The estimated river flow in the Robe River was higher than for TC *Monty* in 2004. Residents at Yarraloola homestead were evacuated by helicopter with floodwaters one metre deep through the homestead and rising when they left. The water pipeline servicing the Karratha region was damaged, threatening water shortages in the area. River levels were high in the region prior to this event because of heavy rain associated with TC *Dominic* in late January.

Heavy Rainfall

A tropical low, which developed in the Gulf of Carpentaria on the 20th, tracked westward along the NT Top End coast and north of the Kimberley. The low moved southwest off the Kimberley and Pilbara coast and on the 28th began to move southward and crossed the Pilbara coast at 21:00 WDT near Port Hedland. Heavy rain occurred on the 28th and combined with further rainfall on the 1st to cause flooding from the east Pilbara extending to the eastern Gascoyne and adjacent northern Goldfields and Interior early in March. Roads were closed as a result and some mining operations were disrupted.

Severe Thunderstorms

On the 4th, a squall line moved through the inland Pilbara about 03:00 WDT with North Pole Mine (near Marble Bar) recording 141.2 mm of rainfall in 1hr, which has an annual return rate over 1 in 100 years.

On the 28th, a thunderstorm caused house damage between Chittering and Toodyay at about 18:30 WDT. Seven houses were affected with three suffering roof damage. A severe thunderstorm was also reported from Mullewa on the 28th with strong winds, trees down and power failure.

Synoptic summary

On the 1st February 2009, a weak ridge lay to the south of Western Australia while a trough extended from the Kimberley through the Pilbara and down the west coast. Isolated showers occurred in the SWLD, whilst showers and thunderstorms were observed through the Interior, eastern Eucla, northern Central West, Gascoyne, western Pilbara and the Kimberley. An isolated thundery shower was reported in the South Coastal district early on the 2nd, and during the day the West Coast Trough moved inland. Showers and thunderstorms were restricted to the northern Interior, Kimberley, Pilbara and Gascoyne. A ridge began to extend along the south coast on the 3rd bringing slight showers to the Southwest and South Coastal districts in the onshore flow. A trough over the north of the state continued to trigger showers and thunderstorms in the Kimberley, Pilbara and northern Interior as a tropical low developed near Kuri Bay, while a few thundery showers occurred in the eastern Gascoyne. The ridge extended along the south coast on the 4th, as the tropical low moved westward off the Kimberley coast. Showers were reported in south coast districts in the onshore flow, and showers and thunderstorms continued through the Pilbara, Kimberley and northern Interior, with some heavy falls in the west Kimberley. A severe squall line moved through the eastern Pilbara on the 4th, with very heavy rainfall recorded, while a severe wind gust was reported at Learmonth as the result of a thunderstorm. Middle level instability caused some thundery showers in the Gascoyne, Goldfields, Eucla and southern Interior. On the 5th, a weak high developed south of WA as broad area of low pressure developed over most of the state. Some showers persisted near the south coast, and showers and thunderstorms were reported over all but southwestern parts of WA. Off the northwest coast, the tropical low continued moving in a westward direction, and further heavy falls were reported in the west Kimberley.

A weak ridge lay along the south coast on the 6th as a broad area of low pressure lay across central parts of the state and the tropical low moved further westward away from WA. Showers occurred near the south coast in the onshore flow, and showers and thunderstorms were observed in all districts outside of the SWLD, but also in the Southeast Coastal. On the 7th, the ridge strengthened over the south of the state following a weak cold front that brushed the southwest corner of the state. As a result, further showers occurred near the south coast whilst showers and thunderstorms occurred in all districts outside the SWLD. The tropical low well off the WA coast intensified and was named Tropical Cyclone Freddy early in the morning of the 7th. A high situated well to the south of WA maintained the strong ridge over southern parts of WA on the 8th with generally fine weather prevailing in the southern half, while in the north showers and

thunderstorms were restricted to the Kimberley, Pilbara, northern Gascoyne and northern Interior. TC Freddy continued to intensify, reaching category 2 briefly and moved further westward. The high moved slowly eastwards to the south of WA on the 9th and 10th maintaining fine weather in the south, while in the north, showers and thunderstorms persisted in the Kimberley, Pilbara, northern Gascoyne and northern Interior but contracted to the Kimberley, coastal Pilbara and northern Interior on the 10th. Category 1 TC Freddy tracked west-southwest and weakened below tropical cyclone intensity late on the 10th.

On the 11th, the ridge extended over much of the state pushing the trough in the north close to the Kimberley and Pilbara coasts as a tropical low tracked westward near the north Kimberley coast. Fine weather dominated most of the state apart from the northern Kimberley which experienced showers and thunderstorms, with some heavy falls in the northeast. A cold front moved over the SWLD on the 12th before slipping to the southeast on the 13th as a surface trough and associated low lingered over western WA districts until the 15th. Shower and thunderstorm activity was reported through western parts of the state during this period. In the north, shower and storm activity was mostly confined to the Kimberley and Pilbara as the tropical low followed a meandering path well off the WA coast. Very heavy rainfall was reported at various times across this period in the north and west Kimberley and along the Pilbara coast.

The West Coast Trough moved eastward on the 16th as a high ridged along the south coast and slowly moved eastward to be south of WA on the 18th. Isolated showers and storms over the eastern SWLD and southern Goldfields on the 16th mostly cleared on the 17th but returned on the 18th and extended to the western Eucla before clearing during the day. Some showers were also reported along the south coast, west of the trough. In the north, the tropical low hovered over the western Pilbara from the 16th to the 18th, with very heavy rainfall of 200 to 300 mm in the Pannawonica area reported for the 24 period to 9 am on the 17th. The resulting flooding caused extensive damage to roads, mining rail links and the water supply infrastructure for the town of Karratha. The estimated river flows in the area would indicate rainfall in excess of that recorded. Extensive cloud and rain was reported in the Gascoyne and northern Goldfields and extended into the Interior on the 18th, whilst thunderstorms occurred through the Pilbara and Kimberley during this period. The ridge strengthened to the south of the state on the 19th and 20th, while the low over the Pilbara weakened further. This resulted in mostly fine weather in the south as south coast showers became confined to the Eucla on the 20th, whilst showers and thunderstorms were reported in the Kimberley, Pilbara, northern Interior and far northern Gascoyne.

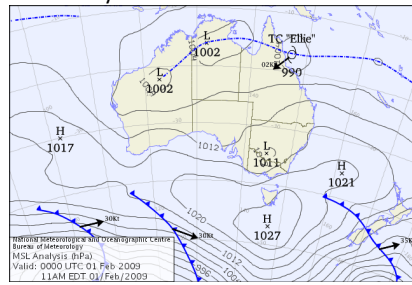
The high moved south of the Bight on the 21st as a trough near the west coast began to move inland during the afternoon as a weak front approached southwest WA. Isolated showers and storms developed down the trough in the central inland Pilbara, Gascoyne and SWLD, whilst showers and storms also occurred in the Kimberley and northern Interior. The weak cold front brushed the south coast on the 22nd bringing showers to the area, whilst isolated showers and thunderstorms continued on the trough in most SWLD districts but contracted to the Central Wheat Belt in the afternoon and developed in the east Gascoyne and north and west Goldfields. Isolated shower and thunderstorm activity continued through the Kimberley and Pilbara. On the 23rd, another high moved south of the Bight as a new trough developed near the west coast. Isolated showers and thunderstorms were observed in most WA districts. The trough moved eastwards on the 24th ahead of a cold front approaching from the west. Isolated showers and thunderstorms were observed in the north and east Kimberley, Pilbara, eastern Gascoyne and western Interior, becoming more widespread through the Goldfields, eastern SWLD and western Eucla.

A cold front crossed the SWLD on the 25th bringing useful rainfall to the Lower Southwest before rapidly weakening over land and moving eastwards along the south coast and out of the Eucla on the morning of the 26th, bringing some showers to these regions. Showers and thunderstorms were observed ahead of the front particularly in the Goldfields, where severe wind gusts were observed, and in the Eucla. Showers and storms mostly cleared the Goldfields and Eucla on the morning of the 26th whilst in the north, a tropical low moved westward north of the Kimberley coast on the 25th and 26th. Showers and storms were confined to the Kimberley and northern Interior on the 25th but extended to the eastern Pilbara and central Interior on the 26th with some heavy falls in the north Kimberley and a severe storm reported at Port Hedland with a severe wind gust. A weak high moved south of the state on the 27th with mostly fine weather in the SWLD and Goldfields, however showers and storms persisted in the far northeast Eucla, Interior, east Gascoyne, Pilbara and Kimberley as the tropical low tracked parallel with, but remained well off, the west Kimberley coast. On the 28th, a trough developed along the west coast with showers and thunderstorms developing in the SWLD, the southern Gascoyne and southern Goldfields. Severe storms were reported in the Lower West and Central West with some property damage. In the north, showers and thunderstorms continued in the Kimberley, Interior and eastern Pilbara as the tropical low began to move south toward the east Pilbara coast, and crossed near Port Hedland in the evening. Widespread rainfall occurred through the Kimberley and eastern Pilbara, with some heavy falls, that contributed to flooding in the eastern Pilbara, eastern Gascoyne and adjacent

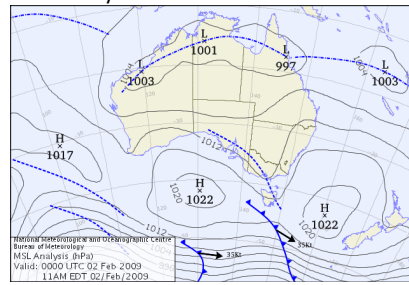
northern Goldfields and Interior over the following few days.

Daily mean sea level pressure analyses

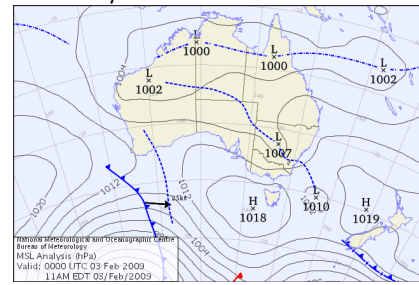
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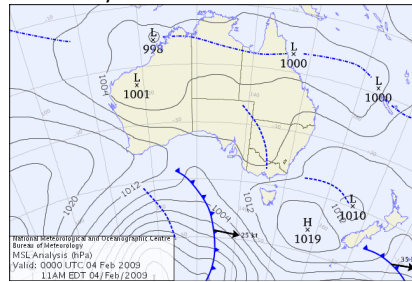
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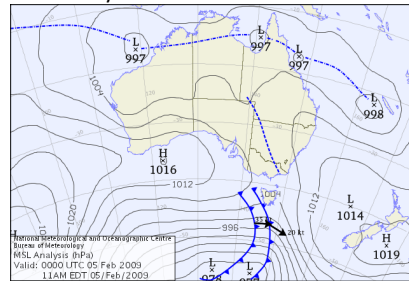
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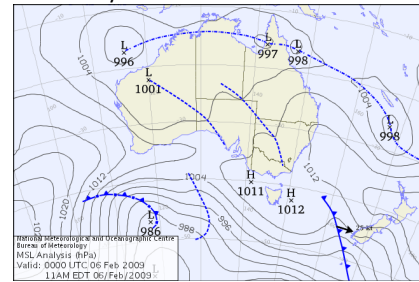
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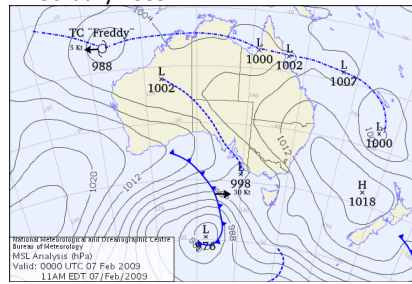
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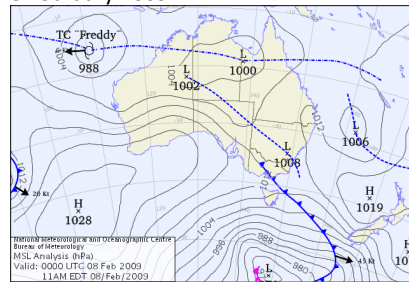
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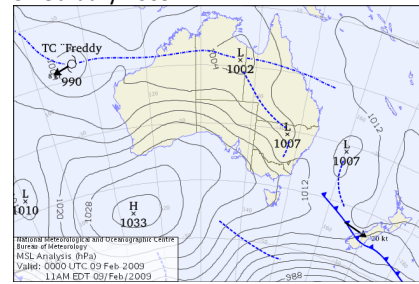
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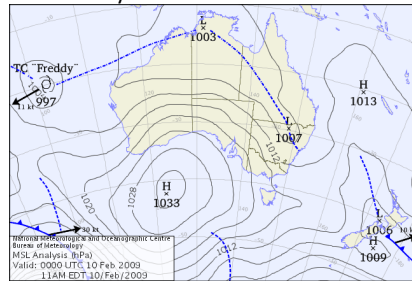
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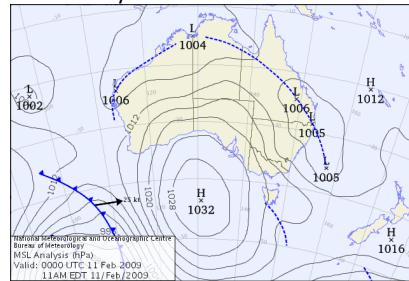
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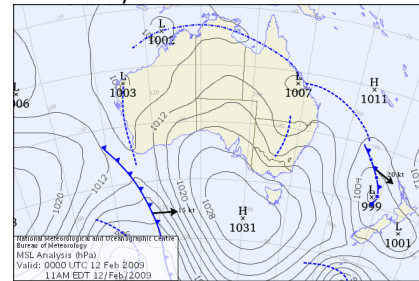
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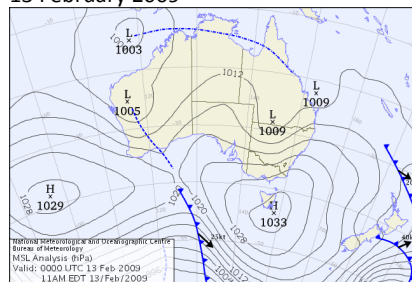
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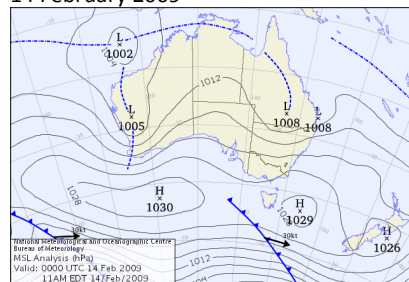
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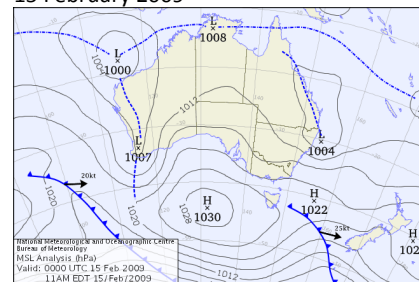
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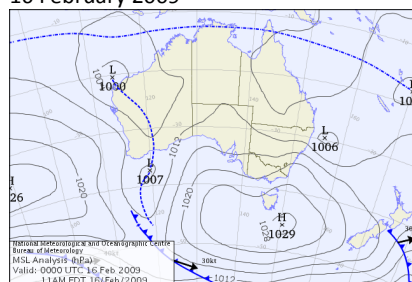
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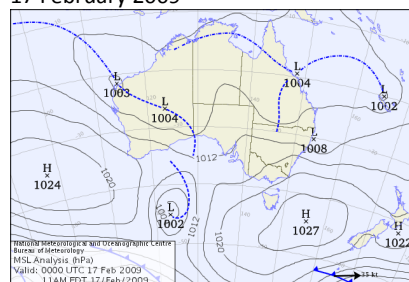
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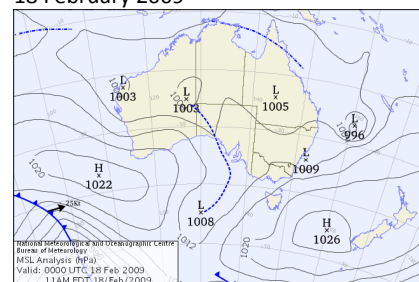
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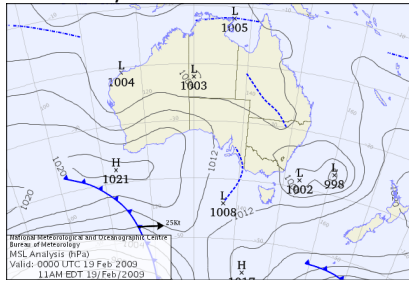
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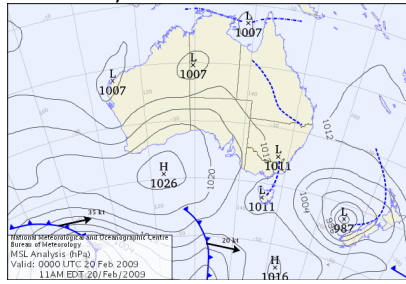
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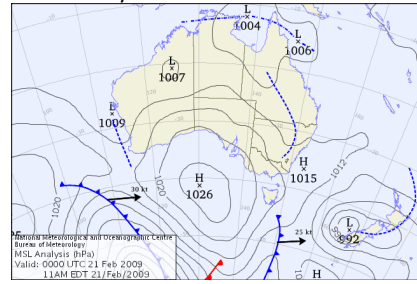
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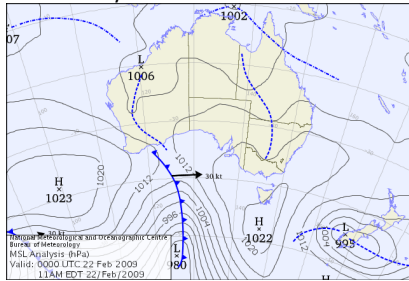
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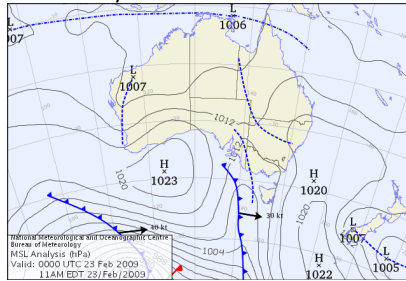
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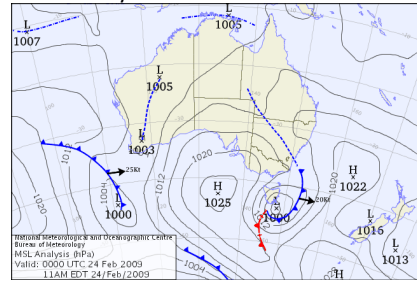
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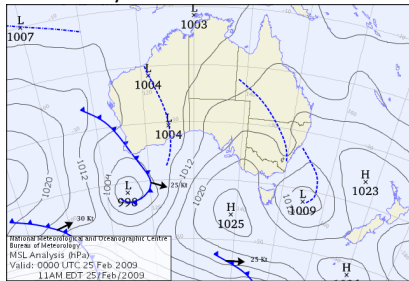
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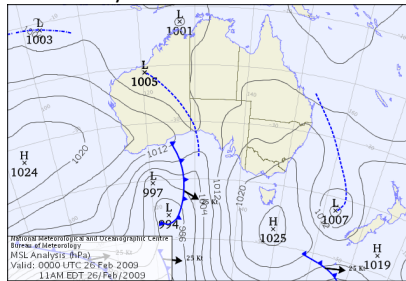
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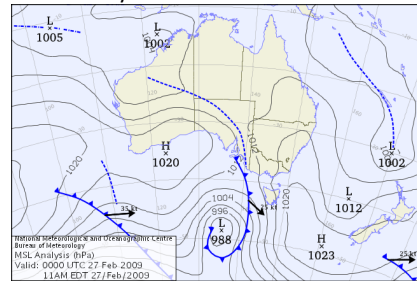
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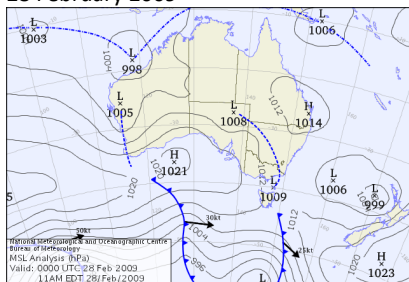
26 February 2009



27 February 2009



28 February 2009



Temperatures

State-wide, the February mean temperature (average of the maximum and minimum temperatures) was 28.7 °C, which is 0.6 °C above the long term mean. Central and southeast parts of the state were above to very much above average, while the north and east Kimberley was below to very much below average for mean temperature.

New temperature records

Record lowest February daily minimum temperature

	New record	Old record	Years of record
Pingelly	6.4 on the 26th	7.0 on the 16th in 1974	38
Kalbarri	11.9 on the 26th	12.3 on the 8th in 1994	36

Record highest February daily minimum temperature

	New record	Old record	Years of record
Eucla	30.2 on the 26th	29.4 on the 21st in 1997	48

Record highest February mean minimum temperature

	New record	Old record	Years of record
Yeelirrie	23.7	23.5 in 2007	35

Maximum temperatures

Mean maximum temperatures were above to very much above average across a belt from the Central West and southern Gascoyne through the northern Goldfields and into the Interior and Eucla, with temperatures up to 4 °C warmer than normal in parts of the Interior and Eucla. Conversely, the northern Kimberley and western Pilbara recorded below average mean maxima, up to 3 °C cooler than normal in the east Kimberley, in part due to the tropical lows that affected the area. Averaged across the state, the mean maximum temperature was near average.

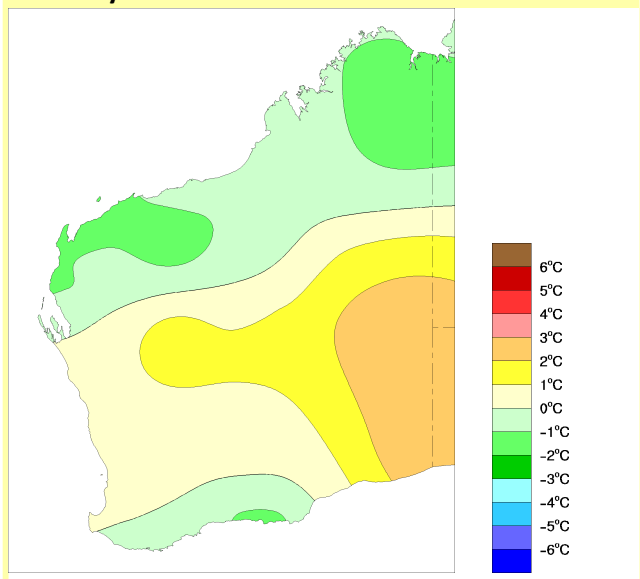
The hottest day was 46.1 °C at both Gascoyne Junction on the 4th and Port Hedland Airport on the 10th.

The warmest days on average were 40.8 °C at Gascoyne Junction, followed by 40.1 °C at Telfer Aero.

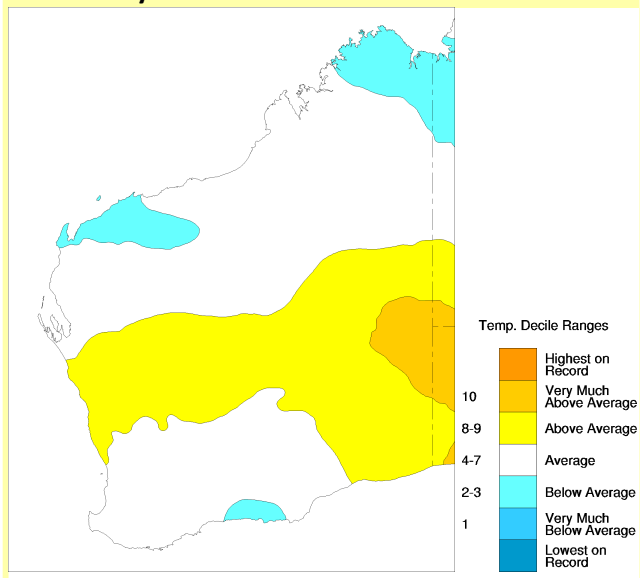
The coolest day was 16.2 °C at Manjimup on the 25th, followed by 17.0 °C at Rocky Gully on the 25th.

The coolest days on average were 23.2 °C at Albany, followed by 23.9 °C at Cape Leeuwin.

Anomalies of mean daily maximum temperature in February 2009



Decile rank of mean daily maximum temperature in February 2009



There could be discrepancies between the values shown on these maps and those at individual locations, as a result of the way the maps are generated.

Minimum temperatures

Mean daily minimum temperatures were above to very much above average across much of the state, apart from the southwest SWLD, which was near average, and the north and east Kimberley and which was below to very much below average. Mean minima were up to 3 °C above average in central parts of the state, and Yeelirrie in the northern Goldfields recorded its highest February mean minimum on record. Averaged across the state as a whole, the WA mean minimum temperature was above average.

Eucla recorded a minimum temperature of 30.2 °C on the 26th, breaking the previous annual extreme of 29.5 °C observed on 24 November 1982, with hot northerly winds and some cloud cover keeping temperatures up overnight after a maximum the previous day of 44.8 °C.

Cool air and clear skies underneath a high pressure system on the 26th following an unusually strong cold frontal passage the previous day caused cold overnight temperatures in the SWLD, with Kalbarri and Pingelly breaking their February lowest minimum temperature records.

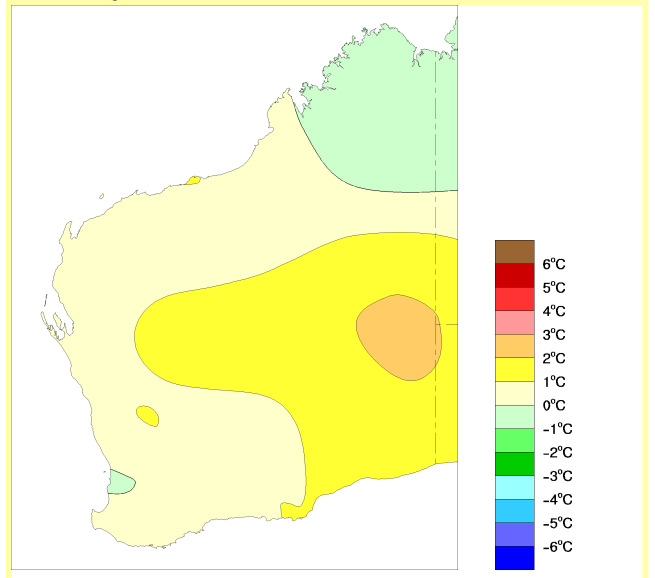
The coldest night was 4.8 °C at Bridgetown on the 8th, followed by 5.0 °C at Jarrahwod on the 8th.

The coolest nights on average were 12.7 °C at both Bridgetown and Collie East.

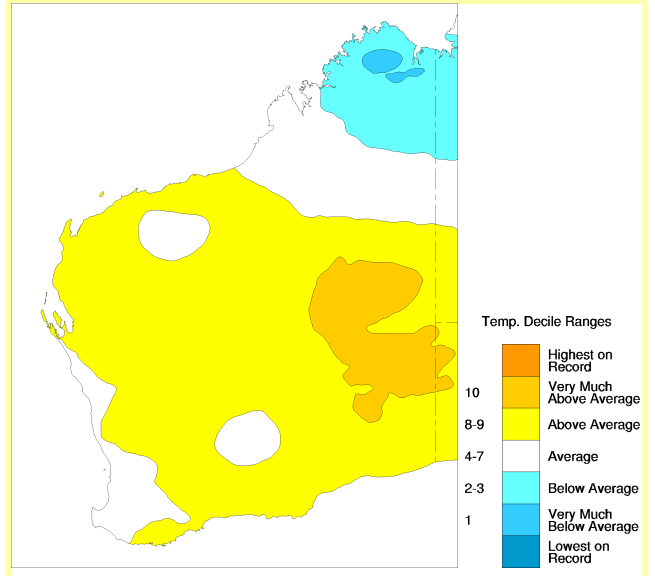
The warmest nights on average were 27.0 °C at Karratha Aero.

The warmest night was 31.2 °C at Newman Aero on the 2nd, followed by 31.1 °C at Gascoyne Junction on the 3rd.

Anomalies of mean daily minimum temperature in February 2009



Decile rank of mean daily minimum temperature in February 2009



There could be discrepancies between the values shown on these maps and those at individual locations, as a result of the way the maps are generated.

Rainfall

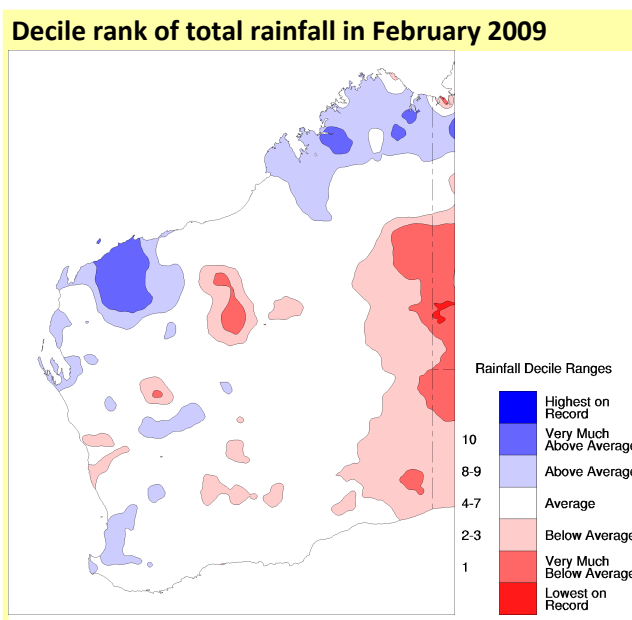
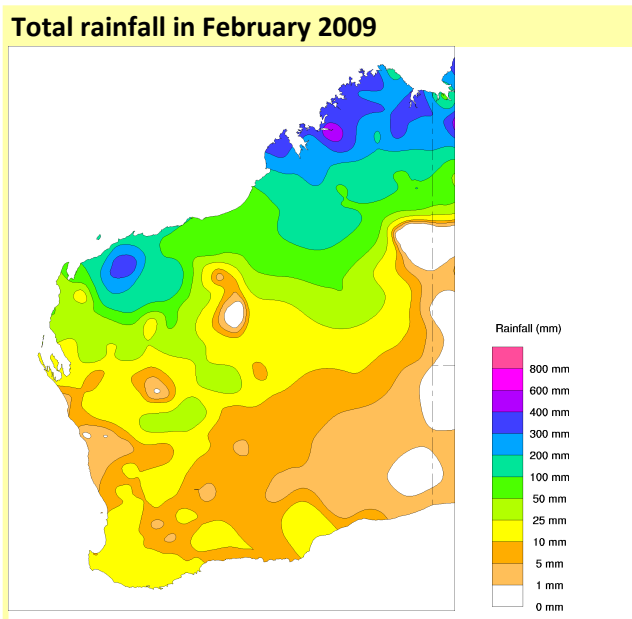
Rainfall in February 2009 was above to very much above average in parts of the western Pilbara and northern Kimberley. In contrast, inland parts of the eastern Pilbara, eastern Interior and eastern Eucla observed below to very much below average rainfall. Averaged across WA as a whole, rainfall in February 2009 was near average.

Tropical lows moving through or close to the Kimberley brought above average rainfall to most of the district in February, whilst one of these tropical lows moved over the west Pilbara and produced heavy rainfall and caused significant flooding on the Robe, Fortescue and Ashburton Rivers from the 15th to 17th. Several sites in the west Pilbara registered their highest daily rainfall for February on record on the 17th with values between 200 and 250 mm, whilst Yalleen (near Pannawonica) recorded a daily total of 300.0 mm and its highest monthly rainfall on record. A second tropical low crossed the coast near Port Hedland late on the 28th bringing heavy rainfall, which combined with further heavy rainfall on the 1st of March, caused flooding to parts of the eastern Pilbara, eastern Gascoyne and adjacent northern Goldfields and Interior early in March.

Also of note was an unusually strong cold front for February that moved over the SWLD on the 25th bringing rainfall to the Lower Southwest that lifted monthly totals in parts of the Lower West and Southwest into the above average range.

The wettest overall was 633.9 mm at Kuri Bay (some missing data), followed by 507.1 mm at Yalleen.

The wettest single day 300.0 mm at Yalleen on the 17th, followed by 244.6 mm at Pannawonica on the 17th.



There could be discrepancies between the values shown on these maps and those at individual locations, as a result of the way the maps are generated.

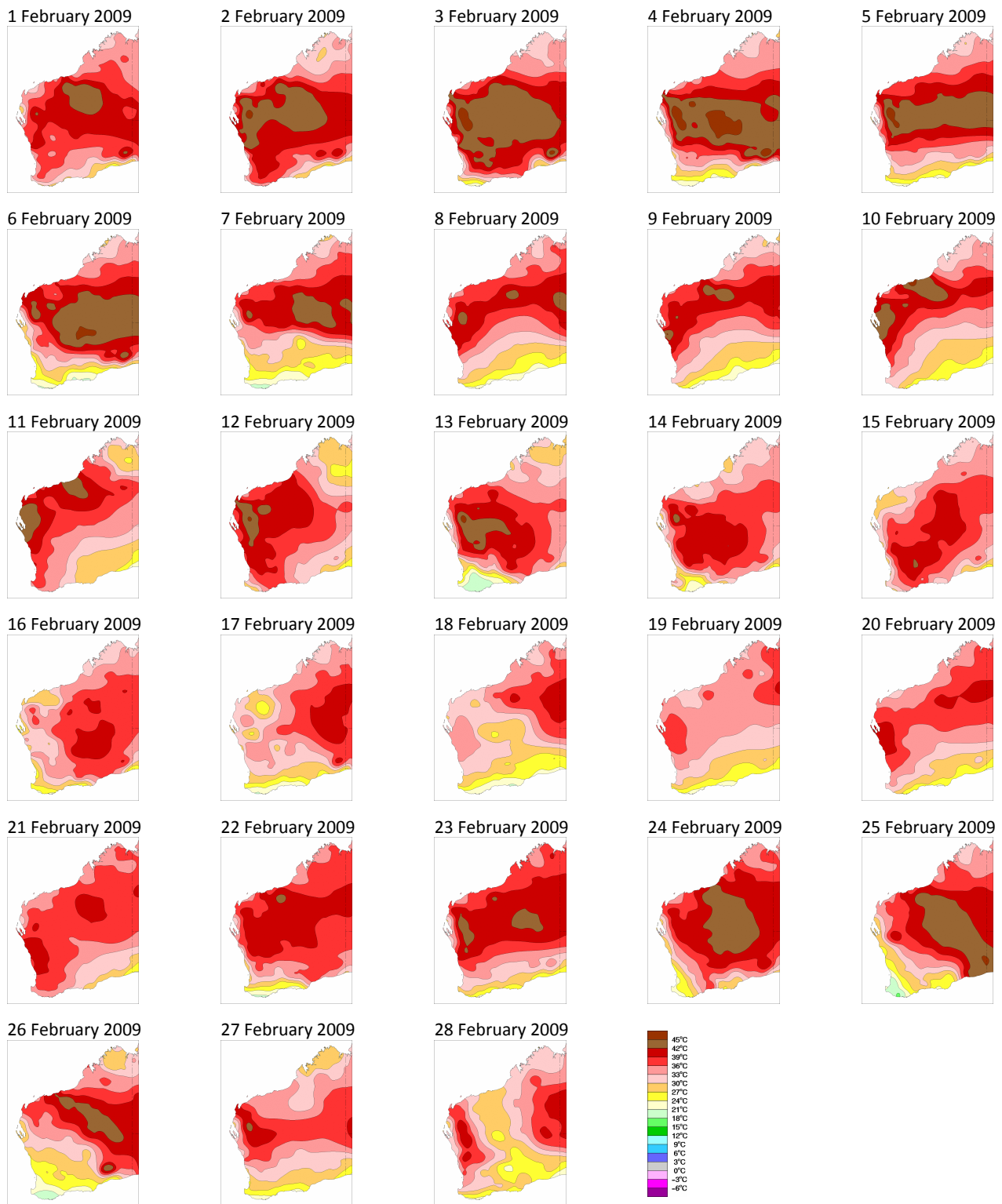
Record highest February daily rainfall

	New record	Old record	Years of record
Millstream	208.0 on the 17th	133.1 on the 19th in 1949	101
Red Hill	230.8 on the 17th	158.5 on the 26th in 1995	99
Pannawonica	244.6 on the 17th	228.0 on the 25th in 1989	38
Yalleen	300.0 on the 17th	150.0 on the 5th in 1993	38

Record highest February total rainfall

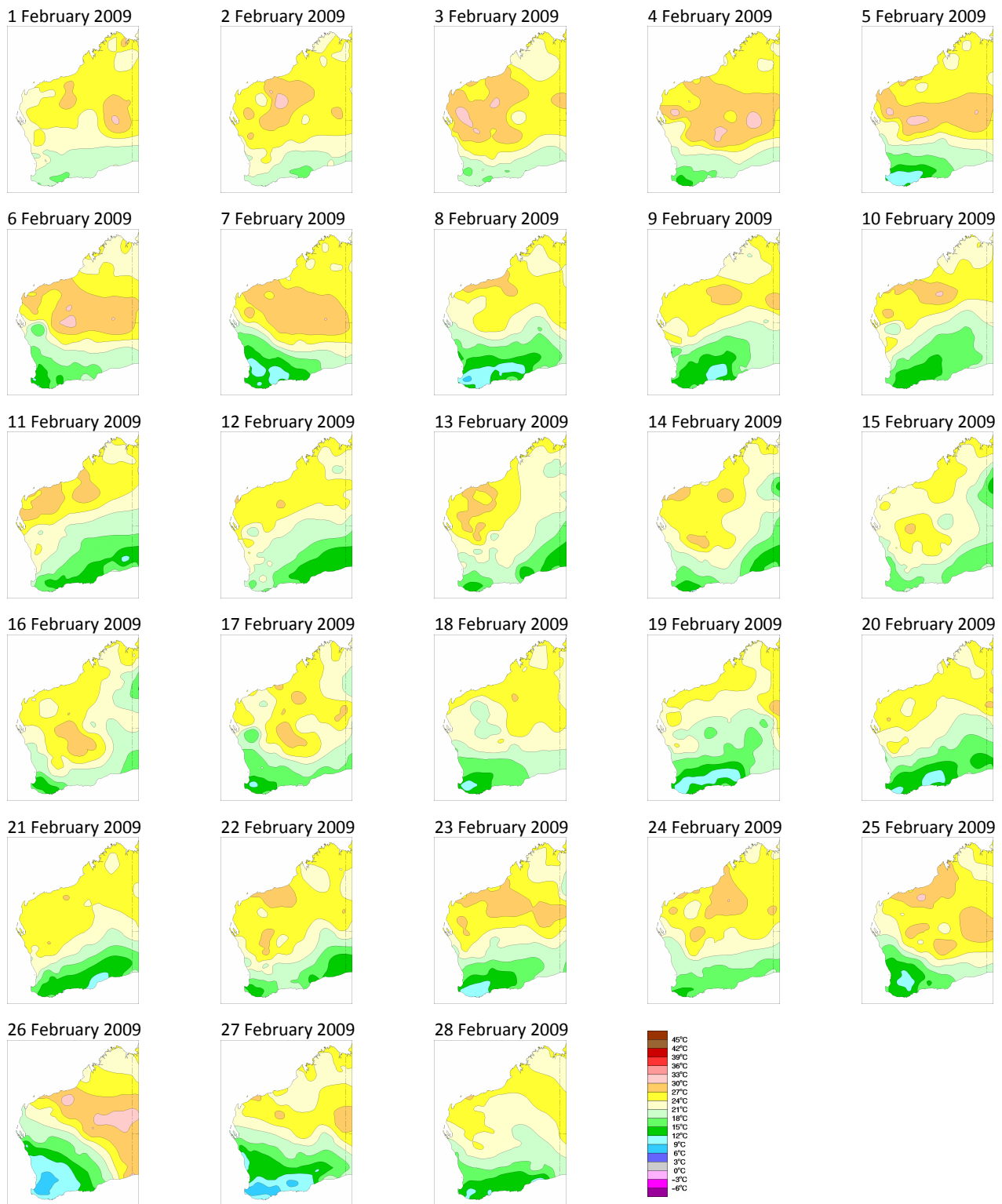
	New record	Old record	Years of record
Yalleen	507.1	417.0 in 1995	52

Daily maximum temperature for February 2009



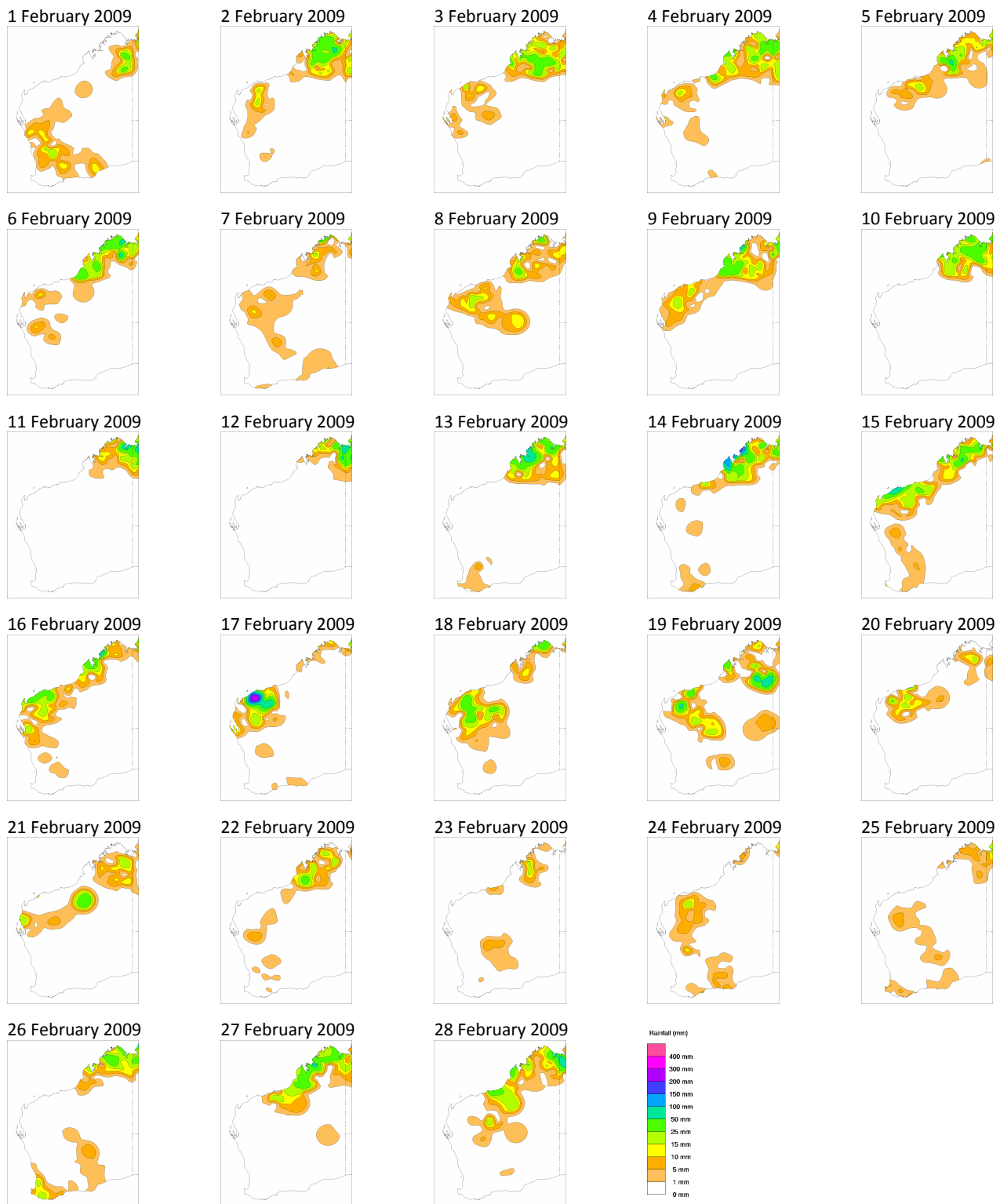
These maps are presented to give a statewide overview of conditions on each day through the month. There could be discrepancies between the values shown on these maps and those at individual locations, as a result of the way the maps are generated.

Daily minimum temperature for February 2009



These maps are presented to give a statewide overview of conditions on each day through the month. There could be discrepancies between the values shown on these maps and those at individual locations, as a result of the way the maps are generated.

Daily rainfall for February 2009



These maps are presented to give a statewide overview of conditions on each day through the month. There could be discrepancies between the values shown on these maps and those at individual locations, as a result of the way the maps are generated.

Summary of observations for Perth in February 2009

Observations and most climatological values are from the "Perth Metro" site at Mount Lawley, except for sunshine, evaporation and phenomena which are taken from Perth Airport. Extremes are captured from a composite of sites including Mount Lawley, former Regional Office sites near the city centre, and Perth Airport

	Observed this month		Climatological value	
Temperature				
Mean daily maximum temperature	31.8 °C		31.2 °C	
Mean daily minimum temperature	18.0 °C		18.0 °C	
Mean temperature	24.9 °C		24.6 °C	
Mean temperature at 9 am	22.2 °C		23.7 °C	
Mean temperature at 3 pm	29.8 °C		29.5 °C	
Highest temperature	40.1 °C	on the 12th	46.2 °C	on the 23rd in 1991
Lowest temperature	10.0 °C	on the 26th	8.7 °C	on the 1st in 1902
Days 30 °C or warmer	18		16.8	
Days 32 °C or warmer	12		12.3	
Days 35 °C or warmer	8		6.7	
Days 40 °C or warmer	1		1.0	
Nights 5 °C or cooler	0		0.0	
Nights 2 °C or cooler	0		0.0	
Humidity				
Mean relative humidity at 9 am	57 %		52 %	
Mean relative humidity at 3 pm	38 %		38 %	
Pressure				
Mean MSL pressure at 9 am	1012.0 hPa		1013.9 hPa	
Mean MSL pressure at 3 pm	1009.8 hPa		1011.5 hPa	
Wind				
Strongest wind gust	SSW 52 km/h	on the 6th	NNE 113 km/h	on the 20th in 1977
Mean wind speed at 9 am	13.5 km/h		14.2 km/h	
Mean wind speed at 3 pm	16.6 km/h		18.0 km/h	
Days with gale-force gusts	0		0.1	
Rainfall				
Total precipitation	8.2 mm		12.8 mm	
Number of rain days	3		2.2	
Wettest day	7.6 mm	on the 26th	120.6 mm	on the 9th in 1992
Sunshine				
Mean daily sunshine	10.8 hours		11.0 hours	
Evaporation				
Mean daily evaporation	9.1 mm		9.6 mm	
Phenomena				
Days of thunder	1		1.0	
Days of hail	0		0.0	
Days of frost	0		0.0	
Days of fog	1		0.4	
Days with mist or haze	15		13.7	

Daily and mean maximum temperatures for February 2009

Mean is the average of the daily maximum temperature for February 2009; it is only shown if there are sufficient days available. Anom is the difference between the mean daily maximum temperature for February 2009 and the long-term average maximum temperature for February. Decile is the decile rank of mean daily maximum temperature for February 2009 in the climate record of other February mean daily maximum temperatures; "L" indicates this is the lowest on record, and "H" it is the highest on record. Anomalies and deciles are only shown if there are sufficient years of climate record available. The lowest and highest maximum temperatures for each site for February 2009 are highlighted.

Table with columns for location, Mean, Anom, Decile, and days 1-28. Rows are grouped by region: North Kimberley (01), East Kimberley (02), West Kimberley (03), De Grey (04), West Gascoyne (06), East Gascoyne (07), North Coast (08), Central Coast (09), South Coast (09A), and South Central (10A).

Daily and mean maximum temperatures for February 2009

Mean is the average of the daily maximum temperature for February 2009; it is only shown if there are sufficient days available. **Anom** is the difference between the mean daily maximum temperature for February 2009 and the long-term average maximum temperature for February. **Decile** is the decile rank of mean daily maximum temperature for February 2009 in the climate record of other February mean daily maximum temperatures; "L" indicates this is the lowest on record, and "H" it is the highest on record. Anomalies and deciles are only shown if there are sufficient years of climate record available. The **lowest** and **highest** maximum temperatures for each site for February 2009 are highlighted.

Pingelly	31.6	+0.6	7	36.2	40.2	39.4	31.8	32.8	30.3	27.5	29.8	31.1	32.3	35.0	38.9	20.2	28.6	37.6	32.2	30.3	28.8	30.6		36.8	32.1	32.1	27.7	25.0	24.9	29.8	32.2			
Ravensthorpe	28.4	+0.1	6	30.2	36.1	34.2	24.3	27.3	23.2	21.0	24.5	25.6	27.7	31.4	36.2	23.2	31.0	33.8	29.8	23.1	22.5	25.5	28.2	34.5	23.2	28.1	35.6	30.5		26.6	29.5			
Wagin	30.4	+0.2	6	35.9	40.1	35.0	29.2	30.7	27.7	25.4	29.1	30.0	31.6	35.8	38.2	19.2	27.0	37.2	30.9	28.3	27.2	29.2	32.1	36.7	28.7	31.1	28.0	24.5	23.0	28.7	31.7			
Wandering	31.5			37.7	40.4	38.6	30.6	32.1	28.6	26.7	30.4	31.9	33.4	36.6	39.8	21.8	26.7	37.2	30.9	29.4	29.3	30.8	32.8	37.1	31.3	32.3	26.4	23.6	24.0	28.8	33.5			
Eucla (11)	Mean	Anom	Decile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28			
Balladonia	29.5	-1.1	4	29.2	30.7	38.2	32.0	28.5	25.5	26.5	24.5	23.2	25.6	28.2	32.2	36.3	34.5	34.0	36.1	28.1	24.8	25.1	27.5	30.2	36.6	28.7	29.7	25.8	27.2	28.2	28.3			
Eucla	26.5	+0.8	7	27.4	27.6	27.6	30.1	25.0	26.8	23.7	24.5	23.7	23.4	23.2	24.2	28.5	25.4	25.3	24.6	25.7	23.3	24.7	23.9	24.4	29.8	24.5	30.3	44.8	33.4	24.6	21.7			
Eyre	27.4	+1.0	8	25.6	26.2	27.0	26.3	24.8	26.2	26.0	23.2	24.2	23.4	24.8	29.0	34.8	29.2	28.4	36.0	26.5	23.6	25.1	24.6	26.0	35.7	24.6	33.7	40.8	24.4	25.1	23.3			
Forrest	34.2			40.8	39.2	43.6	45.5	34.0	41.6	27.0	27.3	26.8	26.6	28.4	31.9	35.6	35.7	35.1	37.3	38.5	26.2	29.2	29.5	30.7	36.5	32.7	40.3	44.5	35.9	29.4	27.6			
South East (12)	Mean	Anom	Decile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28			
Bulga Downs	36.9			37.2	39.5	42.0	42.0	38.6	43.6	32.5		31.6	32.2	34.5	38.1	44.4	41.6	39.4	36.4	29.7	32.4	33.4	34.9	37.8	39.8	37.6	41.0	37.6	30.5	34.2	33.5			
Kalgoorlie-Boulder Airport	32.7	+0.6	6	33.6	36.2	39.9	36.1	31.6	33.1	28.2	28.2	29.2	28.8	29.9	34.5	38.6	39.1	39.7	36.5	30.7	27.0	28.4	29.7	33.6	34.3	32.2	40.5	33.7	28.0	30.4	23.7			
Laverton Aero	35.4			37.8	40.7	42.2	43.1	38.6	42.8	26.2	30.8	30.7	30.0	31.9	36.2	39.2	39.3	38.7	39.6	31.8	29.3	31.3	32.1	34.5	38.3	36.6	42.1	40.4	29.1	32.2	26.1			
Leinster Aero	36.9			39.7	41.5	43.1	44.6	40.7	44.2	31.0	33.4	33.3	32.2	34.1	37.9	41.1	40.1	38.7	37.1	32.7	29.7	33.2	34.5	36.1	38.6	37.9	42.2	39.9	31.8	34.0	29.1			
Leonora	36.9	+1.7	8	39.0	41.4	43.6	44.4	39.2	44.5	30.8	31.7	31.4	31.0	33.2	38.0	41.7	41.0	41.2	41.5	34.5	33.0	32.0	34.0	36.6	38.2	36.6	42.5	37.2	32.0	33.3	30.6			
Norseman				34.2	36.7	39.5	29.5	29.1	28.8		27.7	27.9	27.5	29.1	33.0	37.1		37.0		35.6	27.7	28.0				34.4	30.0	34.5	28.5		28.4	26.0		
Salmon Gums Res.Stn.	28.9	-0.6	4	32.6	34.0	38.6	25.7		22.7	22.2	25.1	25.3	27.0	28.9	33.2	28.4	35.6	33.6	35.9	26.6	22.8	27.4	28.9	32.2	27.6	30.1	29.2	25.2	25.3	26.8	29.6			
Southern Cross Airfield				36.3	38.9	42.0	35.0	34.4	33.4	30.4	30.5	31.2	31.3	32.2												32.3	36.3	32.5	33.2	37.1	32.3	26.9	31.7	29.8
Yeelirrie	37.4	+1.6	8	39.0	41.5	43.5	44.5	41.9	43.3	35.0	34.5	34.4	33.4	35.3	39.0	41.4	39.8	38.1	37.8	33.6	27.0	33.2	35.2	36.1	39.0	40.0	42.3	40.0	32.9	36.6	28.6			
North East (13)	Mean	Anom	Decile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28			
Balgo Hills	38.2			37.0	38.1	38.5	40.2	39.9	39.9	40.6	40.3	39.6	38.0	29.5	32.5	36.6	37.8	38.5	39.1	39.4	37.0	40.0	37.7	39.0	41.1	40.5	39.4	36.0	36.9	38.4				
Carnegie	39.1			41.5	44.0	44.3	45.1	42.5	43.4	42.5	34.9	35.1	34.8	36.2	39.4	39.5	39.2	39.8	38.4	37.4	28.0	34.1	36.8	38.3		41.7	44.0	44.0	40.9	37.9	31.6			
Giles Meteorological Office	38.3	+2.4	10	38.7	40.5	42.0	41.2	42.2	42.1	40.7	38.8	38.9	35.3	34.6	35.3	35.0	35.2	35.7	36.8	39.2	39.0	33.5	36.2	37.1	38.1	40.2	40.0	40.3	39.8	38.4	38.5			
Telfer Aero	40.1	+1.6	7	43.9	42.8	43.3	39.2	41.1	42.2	41.7	42.3	43.1	43.7	42.3	40.6	36.4	37.1	39.7	38.3	37.4	39.1	35.4	39.2	40.4	41.1	41.1	43.2	43.5	42.0	31.3	32.4			
Warburton Airfield	39.3	+3.0	9	40.6	41.9	43.7	43.7	43.8	44.2	42.8	35.9	34.8	32.8	34.6	37.3	37.6	37.9	38.5	39.0	41.4	36.0	32.6	35.6	38.2	40.8	41.8	42.6	43.7	43.3	36.7	39.1			
Wiluna	37.7	+1.2	7	40.8	42.0	43.8	45.0	43.1	42.5	40.0	35.4	36.0	34.5	36.5	39.5		41.0	39.5	39.2	37.5	21.7	31.5	32.7			40.9	41.6	40.6	32.5	38.0	26.0			

Daily and mean minimum temperatures for February 2009

Mean is the average of the daily minimum temperature for February 2009; it is only shown if there are sufficient days available. Anom is the difference between the mean daily minimum temperature for February 2009 and the long-term average minimum temperature for February. Decile is the decile rank of mean daily minimum temperature for February 2009 in the climate record of other February mean daily minimum temperatures; "L" indicates this is the lowest on record, and "H" it is the highest on record. Anomalies and deciles are only shown if there are sufficient years of climate record available. The lowest and highest minimum temperatures for each site for February 2009 are highlighted.

Table with columns for location, Mean, Anom, Decile, and 28 days of daily minimum temperatures. Rows are grouped by region: North Kimberley (01), East Kimberley (02), West Kimberley (03), De Grey (04), Fortescue (05), West Gascoyne (06), East Gascoyne (07), Murchison (07A), North Coast (08), Central Coast (09), South Coast (09A), and North Central (10).

Daily and total rainfall for February 2009

Total is the total precipitation for February 2009; a missing total indicates there is concern about the quality of some of the daily values. **Avg** is the long-term average total precipitation for February. **Decile** is the decile rank of total precipitation for February 2009 in the climate record of other February totals; "L" indicates this is the lowest on record, and "H" it is the highest on record. Long-term average and decile rank are only shown if there are sufficient years of climate record available. Reports of zero precipitation are shown as ".". When a reading was accumulated over more than one day, "»" is shown on the days that are part of the accumulation.

Wanneroo	10.4	13	6																									10.4					
South Coast (09A)	Total	Avg	Decile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
Albany Airport	22.6	23	6			0.2	0.4			4.8						0.6	7.0	1.4												8.2			
Albany	15.4	23	5				0.4			2.4						0.2	2.8	1.8												1.4	6.4		
Boyup Brook		15																													10.2		
Bremer Bay	22.4	23	7														3.4	2.0											9.4	7.6			
Bridgetown Comparison	18.2	15	8							0.2						0.2													1.2	16.6			
Brunswick Junction	13.7	14	8																									2.5	11.2				
Bunbury	20.6												0.4			0.4													8.2	11.4		0.2	
Busseton Shire	6.7	11	7																										4.8	1.9			
Cape Leeuwin	11.2	16	6													0.6	0.2												2.4	8.0			
Cape Naturaliste	7.8	12	6							1.0						0.2													5.8	0.8			
Collie	13.0	14	8													0.4													12.6				
Denmark	22.2	28	6			0.4	0.8			»	»	7.4				1.8	»	»	3.2											8.6			
Donnybrook	18.6	15	8													0.2												3.4	14.0	1.0			
Dwellingup	23.2	22	7			2.8	0.2																						20.2				
Esperance Aero	15.0	26	5				0.6	0.2		0.2	1.6																	4.0	3.6		0.2		
Esperance Downs Research Stn	15.2	25	6							1.6	0.4																	6.0	1.4	0.2			
Esperance	8.4	25	4							0.6																		3.4	2.6				
Greenbushes	24.3	16	8													1.1	0.6												2.6	20.0			
Harvey	25.5															0.6													3.8	21.1			
Hopetoun		21																1.2															
Jarrahood	14.2	14	7													0.6													4.0	9.6			
Kendenup	14.4	18	7			0.2			0.2							1.4	2.6	»	1.2											8.8			
Mandurah	8.8																0.2												0.4	8.2			
Manjimup	17.8	19	7				0.2	0.2		0.2	0.2					3.2	0.4			0.2									0.6	12.6			
Margaret River	14.0	13	8				0.6			»	»	0.8				1.6	»	»	5.0										3.0	3.0			
Marradong	12.8	16	7													4.6														8.2			
Mount Barker	18.9	24	6				0.4									3.2	»	»	6.2		0.5									8.6			
Nannup	11.4	14	7													0.8													2.4	8.2			
Northcliffe	26.9	23	8			0.2	1.2	0.2								0.3	1.0												24.0				
Pemberton	14.8	20	7				0.6	1.4								0.8	0.5					0.1								11.2	0.2		
Pinjarra	12.4	13	8																										12.2	0.2			
Rocky Gully Town	21.0	21	7							1.2						2.8	2.2	0.7							0.3					13.8			
Roelands	22.6	12	9																									0.8	15.8	6.0			
Walpole	29.4	29	7			0.4	0.4			»	»	0.5				0.4	»	»	6.6	0.2	1.0								0.5	19.0	0.4		
Warner Glen	20.0	14	8				0.6			0.4						1.8														7.8	9.4		
Wellstead	26.6	23	8					1.4		0.2						2.0	6.8	1.4										6.4	0.2	8.2			
Windy Harbour	7.7					»	0.2									0.2	0.6	0.4											0.1	6.0	0.2		
Witchcliffe	12.8						0.6			0.4	0.2					1.4	3.8	0.2											3.2	2.8	0.2		
North Central (10)	Total	Avg	Decile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
Bencubbin	38.1	21	9	32.1													4.8	0.8								0.4							
Bolgart	14.0	17	7	7.2													2.0		0.6						4.2								
Cadoux	10.0	16	6	»	10.0																												
Cunderdin Airfield	2.8			1.8																					1.0								
Cunderdin	2.4	17	4	2.4																													
Doodlakine	2.4	16	5																2.4														
Dowerin	0.4	16	2	»	0.4																												
Goodlands	0.6	17	3															0.6															
Goomalling	6.0	14	6	»	»	»	3.6																	»	»	2.4							
Hines Hill	9.0	16	7	0.2													2.4	6.4															
Kellerberrin	12.6	15	7	»	»	9.6											»	3.0															
Merredin	8.6	16	6	2.0													4.4	1.4	0.8														
Moningar	25.8	17	8	23.4													1.0	0.8							0.6								
Northam	36.2	13	9	32.6													1.0								2.0					0.6			
Nungarin	35.4	18	9	31.0													4.0	0.4															
Tammin	3.4	16	5	3.4																													
Toodyay	8.0	12	7	2.8												1.0	0.8								1.0					2.4			
Trayning	17.0	16	7	12.0																													

Daily and total rainfall for February 2009

Total is the total precipitation for February 2009; a missing total indicates there is concern about the quality of some of the daily values. **Avg** is the long-term average total precipitation for February. **Decile** is the decile rank of total precipitation for February 2009 in the climate record of other February totals; "L" indicates this is the lowest on record, and "H" it is the highest on record. Long-term average and decile rank are only shown if there are sufficient years of climate record available. Reports of zero precipitation are shown as "-". When a reading was accumulated over more than one day, "»" is shown on the days that are part of the accumulation.

Station	Total	Avg	Decile	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Forrest	0.2									0.2																					
South East (12)	Total	Avg	Decile																												
Bulga Downs	12.2	29	5				1.4		6.4											0.4						4.0					
Bullfinch	2.6	23	3	2.0																						0.6					
Bulong	13.4	29	6	2.0					1.0													8.6			1.6	0.2					
Coolgardie	6.8	27	4	2.0																		3.6			1.2						
Kalgoorlie-Boulder Airport	4.4	31	3	0.8					0.4	0.2															2.0	0.8		0.2			
Laverton Aero	4.4								0.6												0.2								3.6		
Laverton	9.4	30	5																		0.4								9.0		
Leinster	14.7						4.4		2.4												0.1					6.6	1.2				
Leonora	5.2	30	4	0.6																					1.4		1.8	1.4			
Lort River	17.4	24	6				0.6													2.4						10.8	3.6				
Munglinup Melaleuca	10.6	32	3																								4.8	5.8			
Norseman	8.8	25	5	0.4				0.2	1.0																		7.2				
Salmon Gums Res.Stn.	1.8	24	2																		1.0							0.6	0.2		
Sandstone	42.5	32	8	33.0																									9.5		
Southern Cross Airfield									3.2																						
Westonia	9.2	18	6	5.0														4.2													
Yeelirrie	10.2	31	4																			0.4	2.8			5.0			2.0		
Yundamindra																											2.0	6.0	3.0		
North East (13)	Total	Avg	Decile																												
Balgo Hills	23.7	86	3	0.3	4.6		1.0	2.8			2.0														12.4		0.4				
Carnegie	13.8	52	4								10.8																				2.8
Giles Meteorological Office	6.2	45	3	0.2																						6.0					0.2
Telfer Aero	64.0	102	6	1.4				1.6	2.6	1.0															0.4	5.0	27.0				9.2
Warburton Airfield	9.0	35	5						0.6																					3.2	0.4
Wiluna	23.7	38	6							0.4																				0.8	