



Government of **Western Australia**  
Department of **Health**

# Medical Entomology Quarterly Report

## South West Health Region: Jul - Sep 2023



# Ross River virus disease case data summary

## Western Australia State Summary: Jul - Sep 2023

Data reflected in this summary of mosquito-borne disease is taken from the Western Australia Notifiable Infectious Disease Database (WANIDD) and includes enhanced surveillance data (ESD) collected by Population Health Units (PHUs) and local governments (LGs) (Note: only locations with notified cases of disease are shown in tables and figures). Data current as at 13 November 2023.

### Ross River virus (RRV) Western Australia (WA)

**33 RRV cases were notified across WA**, including 17 by lab only.

For WA, the number of RRV cases was **significantly below the long term mean for all months** this quarter.

For WA, the long term mean for RRV cases is 751 per year, and 74 for this quarter (based on all notified RRV cases in WA since July 2002).

**ESD from follow up surveys is important as it can indicate a different date of onset or place of exposure in 90% and 50% cases respectively.**

Follow up surveys/ESD were received for 8 cases this quarter.

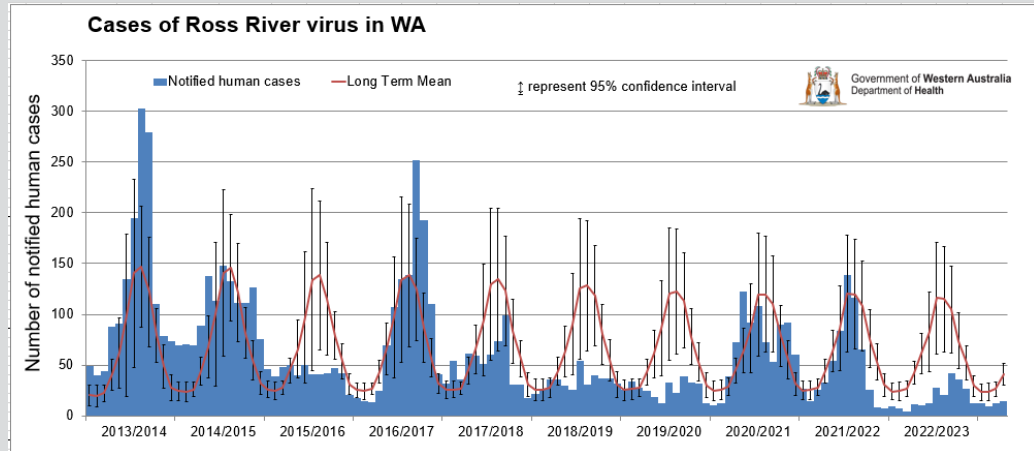
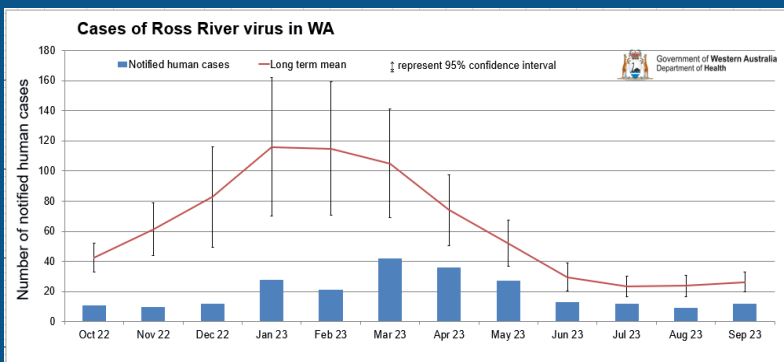
ESD/Follow-up Response Rate: 24%\*

\*calculated as number of follow up surveys received divided by number of notified cases.

**Please note:** Medical Entomology monitor WANIDD and request RRV follow up surveys for all lab notified metro cases unless advised by diagnosing doctor that case is an historical infection or false positive. PHUs are responsible for follow up surveys in regional areas – carried out by PHUs or LGs.

Serologically confirmed doctor-notified and laboratory reported cases of Ross River virus disease each month in WA, July 2023 - June 2024 #															
* Compiled by the Medical Entomology, WA Department of Health															
MEDICAL ENTOMOLOGY REGION	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total	Crude Rate	Age Std Rate
KIMBERLEY	2	2	1	0	1	0	0	0	0	0	0	0	6	16.6	18.1
PILBARA	0	0	1	0	0	0	0	0	0	0	0	0	1	1.6	1.4
GASCOYNE	0	0	1	0	0	0	0	0	0	0	0	0	1	10.8	12.3
MIDWEST	1	0	1	0	0	0	0	0	0	0	0	0	2	3.3	3.4
WHEATBELT	2	0	0	1	0	0	0	0	0	0	0	0	3	4.4	6.2
METRO	4	1	1	1	2	0	0	0	0	0	0	0	9	0.5	0.5
SW - PEEL	1	0	6	4	1	0	0	0	0	0	0	0	12	4.2	3.6
SW - LESCHENAULT	0	3	0	2	1	0	0	0	0	0	0	0	6	8.0	7.9
SW - Geographe	1	2	0	5	3	0	0	0	0	0	0	0	11	18.7	17.3
SW - ELSEWHERE	1	0	0	1	0	0	0	0	0	0	0	0	2	4.1	4.6
SOUTH WEST(Total)	3	5	6	12	5	0	0	0	0	0	0	0	31	6.7	
GREAT SOUTHERN	0	1	0	1	0	0	0	0	0	0	0	0	2	3.3	2.1
GOLDFIELDS-ESPERANCE	0	0	1	0	0	0	0	0	0	0	0	0	1	1.9	1.9
WA UNDETERMINED	0	0	0	0	0	0	0	0	0	0	0	0	0		
INTERSTATE	0	0	0	0	1	0	0	0	0	0	0	0	1		
<b>WA TOTAL (does not include interstate)</b>	<b>12</b>	<b>9</b>	<b>12</b>	<b>15</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>56</b>		

\* Crude Rate per 100, 000 and Age Standardised Rate per 100, 000 compared to Australian Standard Population (to eliminate the effect of differences in population age structures between geographic areas)



# Ross River virus disease case data summary

## South West Health Region: Jul - Sep 2023



Data reflected in this summary of mosquito-borne disease is taken from the Western Australia Notifiable Infectious Disease Database (WANIDD) and includes enhanced surveillance data (ESD) collected by Population Health Units and local governments (only locations with notified cases of disease are shown in tables and figures). Data current as at 13 November 2023.

### Ross River virus (RRV) South West Health Region

**7 RRV cases were notified**, including 3 by lab only.

The number of cases was **significantly above the long term mean for August** but **significantly below the long term mean for July and September**.

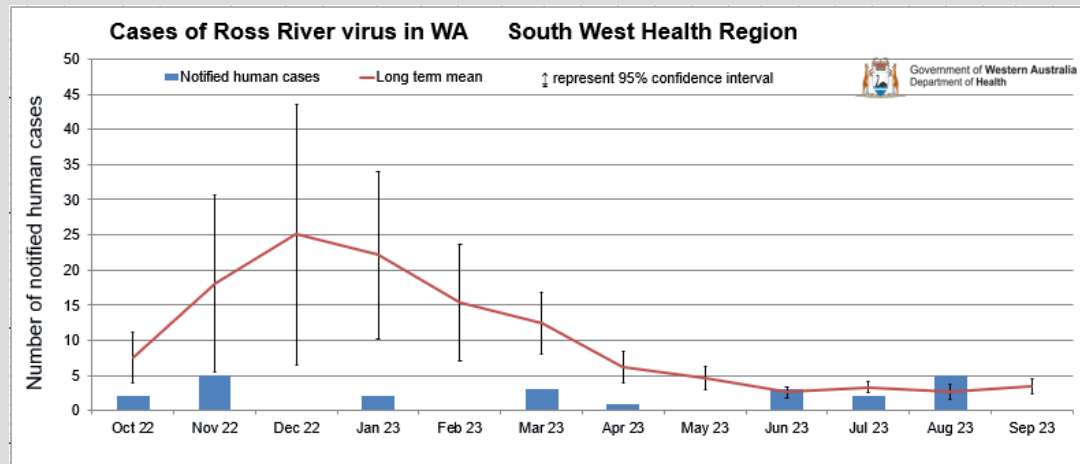
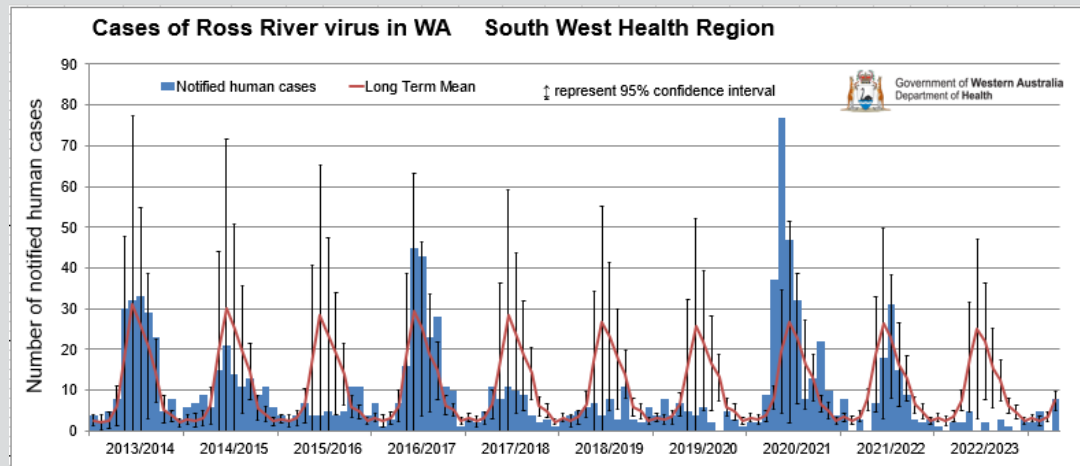
For this region, the long term mean for RRV cases is 123 per year, and about 9 cases for this quarter.

Follow-up data is available for 2 cases (Collie and Gelorup)

ESD/Follow-up Response Rate: 29%\*

\*calculated as number of follow up surveys (ESD) received divided by number of notified cases.

RRV South West 2023	Jul	Aug	Sep	Total
<b>SW - Elsewhere</b>	<b>1</b>			<b>1</b>
<b>Collie (S)</b>	<b>1</b>			<b>1</b>
COLLIE	1			1
<b>SW - Geographe</b>	<b>1</b>	<b>2</b>		<b>3</b>
<b>Capel (S)</b>	<b>1</b>	<b>1</b>		<b>2</b>
DALYELLUP	1			1
GELORUP		1		1
<b>Busselton (C)</b>		<b>1</b>		<b>1</b>
BUSSELTON		1		1
<b>SW - Leschenault</b>		<b>3</b>		<b>3</b>
<b>Bunbury (C)</b>		<b>1</b>		<b>1</b>
BUNBURY		1		1
<b>Dardanup (S)</b>		<b>1</b>		<b>1</b>
WATERLOO		1		1
<b>Harvey (S)</b>		<b>1</b>		<b>1</b>
AUSTRALIND		1		1
<b>Total</b>	<b>2</b>	<b>5</b>		<b>7</b>



# Barmah Forest virus disease case data summary

## State Summary and South West Health Region: Jul - Sep 2023

Data reflected in this summary of mosquito-borne disease is taken from the Western Australia Notifiable Infectious Disease Database (WANIDD) and includes enhanced surveillance data (ESD) collected by Population Health Units and local governments (only locations with notified cases of disease are shown in tables and figures). Data current as at 13 November 2023.

### Barmah Forest virus (BFV) Western Australia (WA)

6 BFV cases were notified across WA, including 2 by lab only.

For WA, the number of cases was within 1 or 2 cases of the monthly mean.

For WA, the long term mean for BFV cases is 29 per year, and 6 for this quarter.

ESD from follow up surveys is important as it can indicate a different date of onset or place of exposure in 90% and 50% cases respectively.

Follow up surveys/ESD were received for 2 cases this quarter.

ESD/Follow-up Response Rate: 33%\*

\*calculated as number of follow up surveys received divided by number of notified cases.

**Please note:** Medical Entomology monitor WANIDD and request BFV follow up surveys for all lab notified metro cases unless advised by diagnosing doctor that case is an historical infection or false positive. PHUs are responsible for follow up surveys in regional areas – carried out by PHUs or LGs.

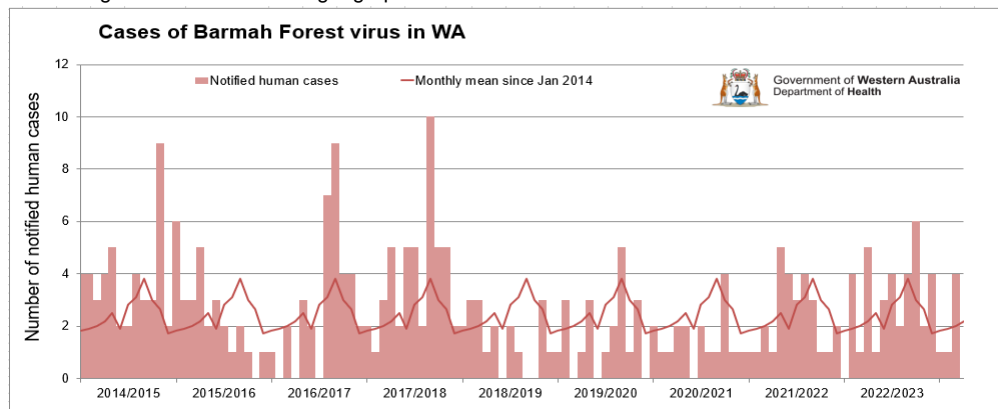
### Barmah Forest virus (BFV) South West Health Region

One BFV case was notified this quarter, by lab and doctor. No follow up data is available.

For this region, the long term mean for BFV cases is 6 cases per year and less than one for this quarter.

Serologically confirmed doctor-notified and laboratory reported cases of Barmah Forest virus disease each month in WA, July 2023 - June 2024 #														Total	Crude Rate	* Age Std Rate
* Compiled by the Medical Entomology, WA Department of Health																
MEDICAL ENTOMOLOGY REGION	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun				
KIMBERLEY	1	1	1	0	0	0	0	0	0	0	0	0	0	3	8.3	10.2
PILBARA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
GASCOYNE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
MIDWEST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
WHEATBELT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
METRO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
SW - PEEL	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.4	0.4
SW - LESCHENAULT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
SW - Geographe	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1.7	1.7
SW - ELSEWHERE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
SOUTH WEST(Total)	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0.4	0.4
GREAT SOUTHERN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
GOLDFIELDS-ESPERANCE	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1.9	1.4
WA UNDETERMINED	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
INTERSTATE	1	0	0	0	0	0	0	0	0	0	0	0	0	1		
<b>WA TOTAL (does not include interstate)</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>		

\* Crude Rate per 100, 000 population. Age Standardised Rate per 100, 000 population compared to Australian Standard Population, to eliminate the effect of differences in population age structures between geographic areas.



BFV WA 2023	Jul	Aug	Sep	Total
<b>Goldfields-Esperance</b>			1	1
Esperance (S)			1	1
GIBSON			1	1
<b>Kimberley</b>	1	1	1	3
Broome (S)	1			1
BROOME	1			1
<b>Wyndham-East Kimberley (S)</b>		1	1	2
KUNUNURRA		1		1
WYNDHAM			1	1
<b>SW - Geographe</b>			1	1
Capel (S)			1	1
DALYELLUP			1	1
<b>SW - Peel</b>			1	1
Mandurah (C)			1	1
HALLS HEAD			1	1
<b>Total</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>6</b>

# Climate Summary Jul to Sep 2023

[About Australian Climate \(bom.gov.au\)](http://bom.gov.au)

El Niño alert was issued from July and became an active El Niño event in mid September. Indian Ocean Dipole (IOD) was also neutral until declared positive in mid September. Southern Annular Mode (SAM) was negative in July, positive/neutral in August, and neutral/negative in September. Generally El Niño affects the north east of WA increasing likelihood for drier and warmer conditions. A positive IOD also typically increases the likelihood of drier conditions. The SAM has more influence on the south of WA, generally being a drying influence when positive.

## **Jul 2023: Very wet north east Kimberley & dry south coast; warmer in southwest, cooler nights in central WA**

July was unseasonably wet in the Kimberley, following a wet end to June. A dozen or so sites in the Kimberley had their [July records broken](#), or their [wettest July for at least 20 years](#). Wet and cloudy conditions also resulted in a number of sites in the Kimberley having their coldest July day on record on the 1<sup>st</sup> July. Conversely, for the South West Land Division as a whole, it was the driest July since 2012. Days were warmer than average in the southern half of WA, and close to average temps for the rest of WA (parts of north and east Kimberley were cooler). Nights were cooler than average for a large area from the western Pilbara and Gascoyne down to western Eucla district, and warmer in the far south SWLD and north-east Kimberley.

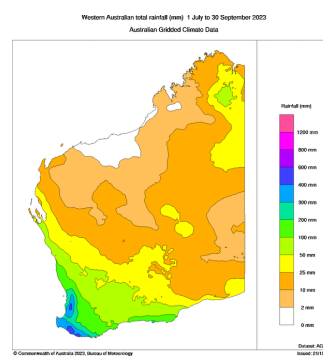
## **Aug 2023: Wet central WA & dry south west; warmer across WA**

August rainfall was drier than average from Kalbarri and down to the capes, and wetter than average in Central WA. A number of cold fronts moved across WA at the start of August, with about two dozen sites having their highest August daily rainfall on record. Day time temperatures were above average across WA, with mean maximum temperatures 3.61 °C above the 1961–1990 average. It was also the warmest August days and nights on record for many sites including Port Hedland, Broome and Geraldton. Maximum temperatures climbed to the low-to-mid 30s in western and southern WA during the last week of August. Also very much warmer nights for most of WA, except in the far north and southwest. A number of sites had their highest August minimum temperature on record. For WA as a whole, the mean minimum temperatures was 1.89 °C above the 1961–1990 average, the 2nd-highest on record.

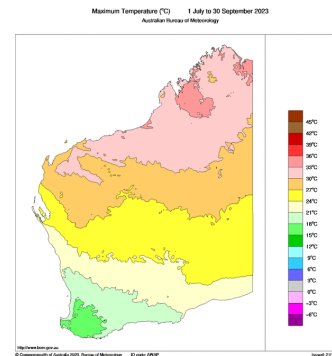
## **Sept 2023: Dry to average rainfall and warmest September on record**

September rainfall was below to near average in the southern half of WA. A cold front on the 13<sup>th</sup> and 14<sup>th</sup> brought widespread moderate daily rainfall in the southwest, with heavier falls in and around Busselton. Multiple sites had their highest September daily rainfall on record. Most of northern WA recorded no rainfall, with isolated light rainfall of less than 10 mm recorded in the Kimberley. Day and night time temps were very much above average for most of WA, and highest on record (since 1910) in a broad area from the inland north through central and south coast of the state. Night time temps in the Kimberley were about average. It was the warmest September on record (since 1910) for WA as a whole, with the mean temperature being 2.94 °C above the 1961–1990, more than half a degree higher than the previous record (2.37 °C anomaly in 2020). Towards the end of September, day time temps reached mid to high 30s in central and southern WA, and persisted in the low 40s in the Pilbara, as a deep trough moved inland from the west coast. Dozens of September temperature records were broken between the 27<sup>th</sup> and 29<sup>th</sup>.

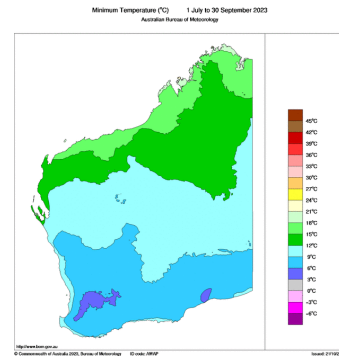
### **Actual and Deciles (Relative) Rainfall**



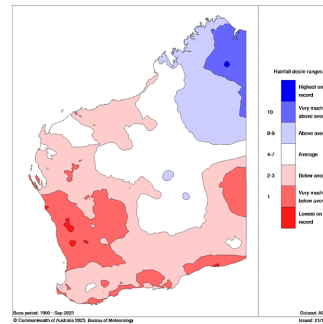
### **Actual and Deciles (Relative) Maximum Temperatures**



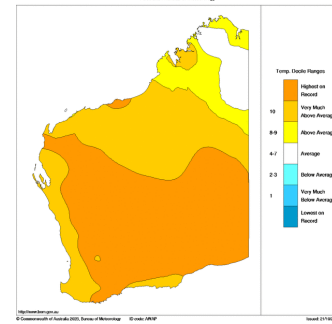
### **Actual and Deciles (Relative) Minimum Temperatures**



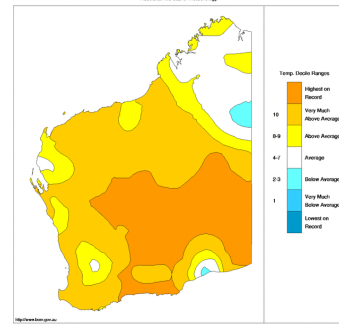
### **Western Australian rainfall deciles 1 July to 30 September 2023**



### **Maximum Temperature Deciles 1 July to 30 September 2023**



### **Minimum Temperature Deciles 1 July to 30 September 2023**



# Risk of mosquito borne disease continues across the Kimberley and Pilbara regions.

As we approach the warmer months in the South West, mosquito numbers are increasing.

Through our mosquito surveillance program, Ross River virus has been detected consistently in the South West since August 2023, with a [media statement released on August 29](#). People should continue to take appropriate precautions to prevent mosquito bites and disease.

Cases of Ross River virus in WA are still below the long term average, but we expect to see an increase in case numbers as we move into the summer period. Most of the cases this season have been reported from the Peel (12) and Geographe (11) regions of the South West.

In northern WA enhanced surveillance activities have started again, with officers from ME based in Kununurra for the next eight months. No flavivirus activity has been detected since early September, and no human cases of JE, Kunjin or MVE have been reported since July.

**Major Climate Drivers in WA:** Weather forecasts based on interactions between oceanic and atmospheric conditions.

For more info see [Australian Climate Influences](#)

**El Niño/ La Niña (ENSO Pacific Ocean)** mainly affects north and east of WA

**El Niño:** Typically associated with drier conditions, decreased tidal activity and warmer days in south. Late start to northern wet season with less cyclones and less flooding.

**La Niña:** Typically associated with wetter, cooler days and warmer nights (due to increased cloud cover). Earlier start to the northern wet season with more tropical cyclones. More conducive to mosquito breeding and possible mosquito-borne virus activity.

**Indian Ocean Dipole (IOD)** mainly affects mid two thirds of WA.

**Positive IOD:** Typically associated with reduced winter/spring rainfall, warmer conditions in the south, and cooler in the north.

**Negative IOD:** Typically associated with wetter winter/spring, cooler days in the south, warmer in the north with increased chances of rainfall/flooding.

**Southern Annular Mode (SAM)** mainly affects south of WA, affect varies by season - still under research – trending towards more positive less effect in summer.

**Positive SAM:** warmer and drier conditions. Boosted by La Nina conditions.

**Negative SAM:** cooler and wetter conditions.

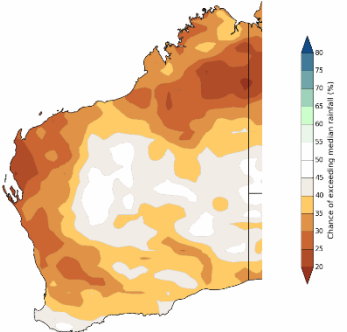
# Climate outlook for Western Australia Dec 2023 to Feb 2024

## Australian Bureau of Meteorology Outlooks for December 2023 to February 2024

Issued 14 Aug 2023 [Australian climate outlooks \(bom.gov.au\)](#)

### Drier than average for most of WA

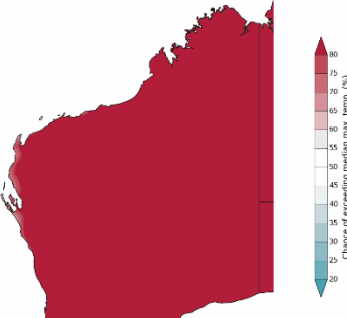
Chance of exceeding the median rainfall for December 2023 to February 2024



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Model ACCESS G2  
Issue 14/08/2023  
Model Run: 0611/2023  
Issue: 0611/2023

### Warmer than average days for all of WA

Chance of exceeding the median maximum temperature for December 2023 to February 2024



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Model ACCESS G2  
Issue 14/08/2023  
Model Run: 0611/2023  
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### Climate Driver Update

**El Niño underway and likely to continue through to early Autumn.**

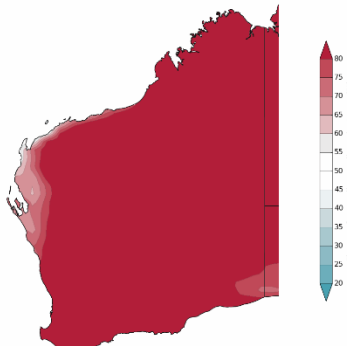
**IOD:** Positive IOD current and likely to persist into early December. Combined with El Niño, the drying effect is typically stronger and more widespread across Australia.

**SAM** is currently positive and expected to return to neutral this week.

**Longer-term trends:** Australia's climate has warmed by ~1.48 °C since 1910, leading to an increase in the frequency of extreme heat events.

### Warmer than average nights for most of WA

Chance of exceeding the median minimum temperature for December 2023 to February 2024



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