



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

# Medical Entomology Quarterly Report

## Kimberley Health Region: Oct - Dec 2023



# Ross River virus disease case data summary

## Western Australia State Summary: Oct - Dec 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 5 February 2024.

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

**104 RRV cases were notified across WA**, including 38 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 748 per year, and 183 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 20 cases this quarter.

ESD/Follow-up Response Rate: 19%\*

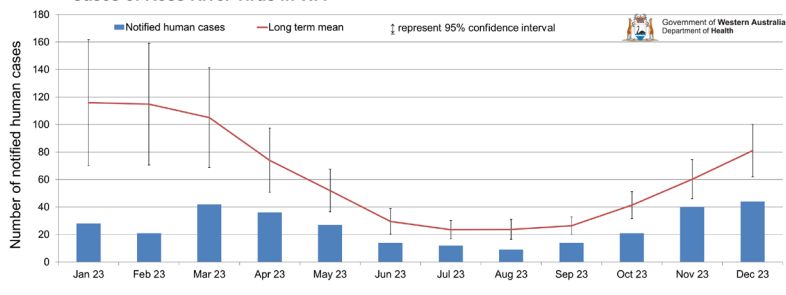
\*calculated as number of follow up surveys received divided by number of notified cases.

**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.

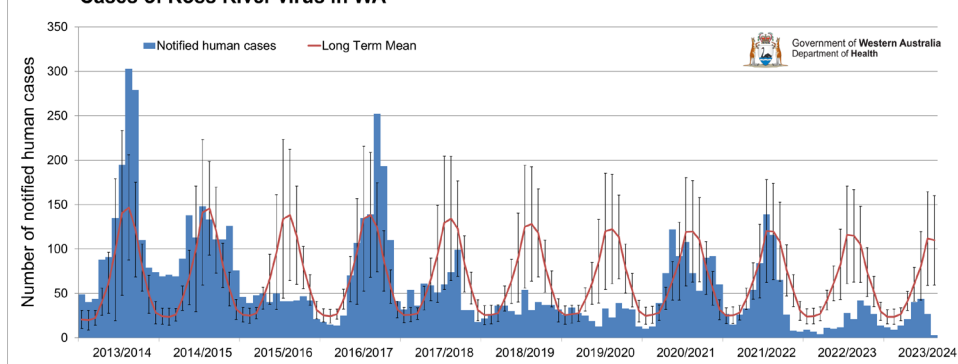
Serologically confirmed doctor-notified and laboratory reported cases of Ross River virus														disease each month in WA, July 2023 - June 2024 #		
*Compiled by the Medical Entomology, WA Department of Health														*		
MEDICAL ENTOMOLOGY REGION	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total	Crude Rate	Age Std Rate	
KIMBERLEY	2	2	2	1	2	2	0	0	0	0	0	0	11	30.5	34.3	
PILBARA	0	0	1	0	0	1	0	0	0	0	0	0	2	3.2	2.7	
GASCOYNE	0	0	1	0	0	0	0	0	0	0	0	0	1	10.8	12.3	
MIDWEST	1	0	1	0	1	1	0	0	0	0	0	0	4	6.7	5.8	
WHEATBELT	2	0	0	1	1	0	0	0	0	0	0	0	4	5.9	8.5	
METRO	4	1	1	1	2	6	6	1	0	0	0	0	22	1.2	1.1	
SW - PEEL	1	0	6	5	9	16	4	1	0	0	0	0	42	14.8	14.3	
SW - LESCHENAULT	0	3	0	1	8	8	3	1	0	0	0	0	24	32.2	33.5	
SW - Geographe	1	2	1	9	15	6	9	0	0	0	0	0	43	73.2	67.2	
SW - ELSEWHERE	1	0	0	1	2	2	3	0	0	0	0	0	9	18.5	20.5	
SOUTH WEST (Total)	3	5	7	16	34	32	19	2	0	0	0	0	118	25.4		
GREAT SOUTHERN	0	1	0	1	0	0	1	0	0	0	0	0	3	4.9	3.3	
GOLDFIELDS-ESPERANCE	0	0	1	1	0	1	0	0	0	0	0	0	3	5.6	5.0	
WA UNDETERMINED	0	0	0	0	0	0	0	0	0	0	0	0	0			
INTERSTATE	0	0	0	0	1	1	1	0	0	0	0	0	3			
<b>WA TOTAL (does not include interstate)</b>	<b>12</b>	<b>9</b>	<b>14</b>	<b>21</b>	<b>40</b>	<b>43</b>	<b>26</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>168</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)

Cases of Ross River virus in WA



Cases of Ross River virus in WA



# Ross River virus disease case data summary

## Kimberley Health Region: Oct - Dec 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 5 February 2024.

### Ross River virus (RRV) Kimberley Health Region

**5 RRV cases were notified**, including 2 by lab only.

The number of cases in November and December were above the **long term mean** in this quarter.

For this region, the long term mean for RRV cases is 54 per year, and about 4 cases 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.**

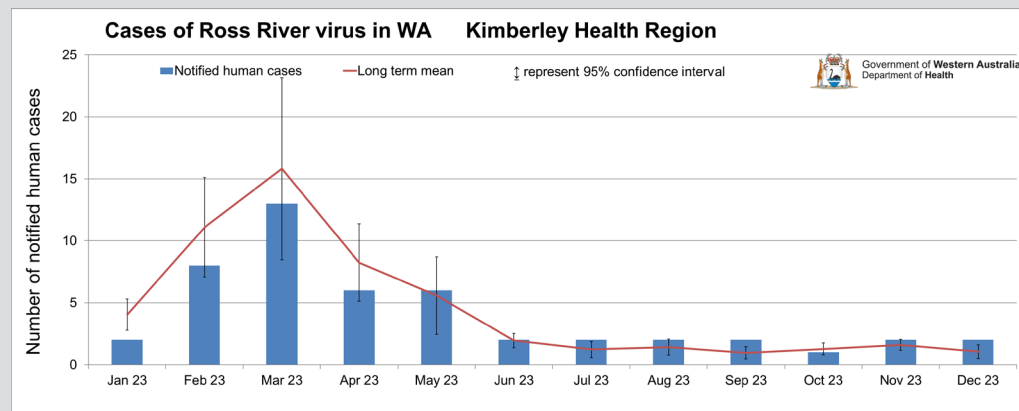
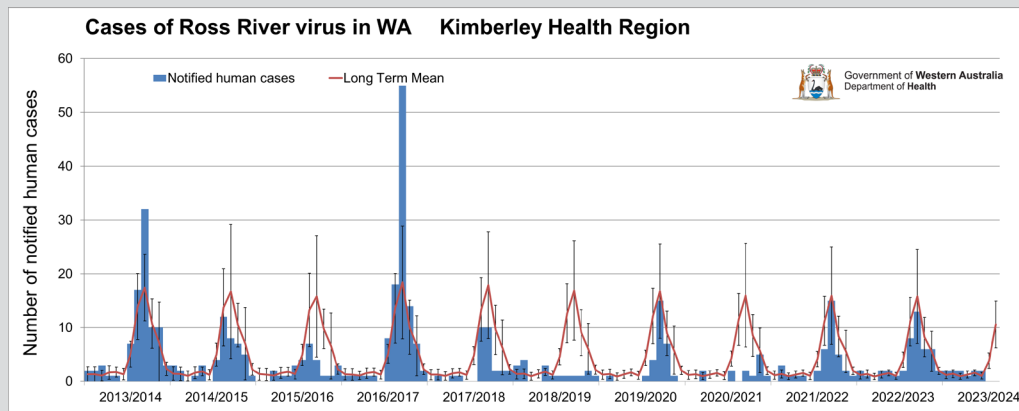
Follow up surveys/ESD were received for 1 case this quarter.

ESD/Follow-up Response Rate: 20%\*

\*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.

RRV Kimberley 2023	Oct	Nov	Dec	Total
<b>Kimberley</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>5</b>
<b>Broome (S)</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>
BROOME	1	1	1	3
<b>Derby-West Kimberley (S)</b>			<b>1</b>	<b>1</b>
FITZROY CROSSING			1	1
<b>Halls Creek (S)</b>		<b>1</b>		<b>1</b>
HALLS CREEK		1		1
<b>Total</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>5</b>



# Barmah Forest virus disease case data summary

## State Summary and Kimberley Health Region: Oct - Dec 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 5 February 2024.

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

4 BFV cases were notified across WA, including 1 by GP 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 7 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 3 cases this quarter.

ESD/Follow-up Response Rate: 75%\*

\*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.

BFV WA 2023	Oct	Nov	Dec	Total
<b>Kimberley</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>
<b>Broome (S)</b>	<b>1</b>		<b>1</b>	<b>1</b>
BROOME	1		1	1
<b>Wyndham-East Kimberley (S)</b>		<b>1</b>	<b>1</b>	<b>1</b>
WYNDHAM		1	1	1
<b>SW - Geographe</b>		<b>2</b>	<b>2</b>	<b>2</b>
<b>Capel (S)</b>		<b>1</b>	<b>1</b>	<b>1</b>
GELORUP		1	1	1
<b>Busselton (C)</b>		<b>1</b>	<b>1</b>	<b>1</b>
GEOGRAPHE		1	1	1
<b>Total</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>4</b>

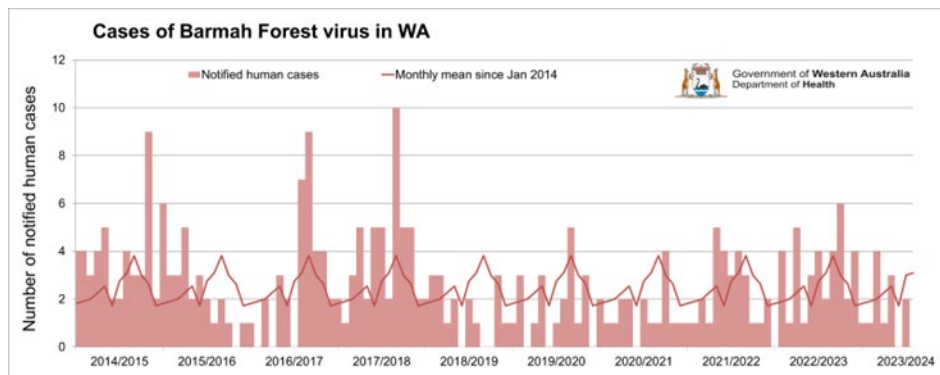
### Barmah Forest virus (BFV) Kimberley Health Region

2 BFV cases were notified, including one by GP only. Follow up data is available for the case in Broome.

For this region, the long term mean for BFV cases is about 7 cases per year and less than 2 for this quarter.

Serologically confirmed doctor-notified and laboratory reported cases of Barmah Forest 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	1	1	1	1	1	0	0	0	0	0	0	0	5	13.9	19.7	
PILBARA	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	
MIDWEST	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	
METRO	0	0	0	0	0	0	2	0	0	0	0	0	2	0.1	0.1	
SW - PEEL	0	0	1	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	
SW - Geographe	0	0	1	0	2	0	0	0	0	0	0	0	3	5.1	4.8	
SW - ELSEWHERE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	
SOUTH WEST (Total)	0	0	2	0	2	0	0	0	0	0	0	0	4	0.9	0.9	
GREAT SOUTHERN	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	
GOLDFIELD-S-E SPE RANCE	0	0	1	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			
INTERSTATE	1	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>1</b>	<b>3</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</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.



# Climate Summary Oct to Dec 2023

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

El Niño continued to be active from October to December. The Indian Ocean Dipole (IOD) strengthened in October, persisting in November and weakening in December. Southern Annular Mode (SAM) was neutral in October, positive/neutral in November, and positive 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.

## Oct 2023: Dry and warmer across WA

The area-averaged rainfall total for October was the lowest on record since 1900. Rainfall was very much below average across southern and eastern parts of WA and tending to average towards the NW coastline. Area-averaged maximum temperature was the third warmest on record at 3.12 °C above the 1961 - 1990 average. Day time temperatures for many parts of WA had their [highest October temperature on record](#), with a number of sites recording their [warmest October night on record](#). Most of these records were exceeded between the 15th and 17th when a deep heat trough crossed the state and generated temperatures of more than 12 °C above the October average over the west coast and southern parts of WA.

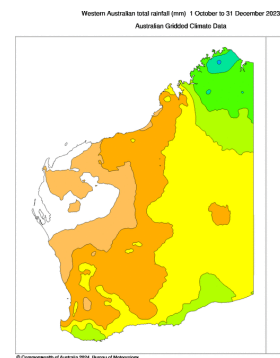
## Nov 2023: Driest November since 2019 and warmer across WA

November rainfall for all of WA was 10% above the 1961-1990 average, although it was the driest November since 2019. Below average rainfall was recorded along the coastal regions of the South West Land Division (SWLD) and southern Gascoyne. However, above average rainfall was recorded in the Pilbara and inland north-eastern, central and south-eastern regions. Maximum temperatures were above average for most of WA. Below average mean maximum temperatures were observed in the state's south-east coast. Many sites in the SWLD had their [warmest maximum temperature on record](#). Minimum temperatures were above average for most of WA. The highest mean minimum temperature on record was reported for the whole of the SWLD, 2.63°C above the 1961-1990 average.

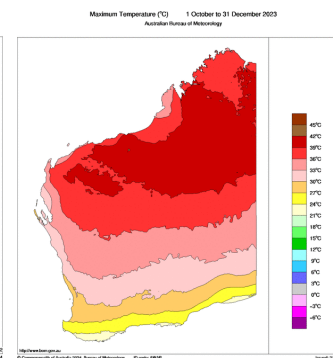
## Dec 2023: Below average rainfall and above average temperatures across WA

Below average rainfall was recorded for most of the northern and western half of the state, with Broome, western Pilbara and the Lower West including Perth recording no rainfall. The 2023-2024 wet season (Oct-Dec 2023) rainfall total was 1.4mm at Broome airport, the driest start to a wet season since 2011. Thunderstorms in the Kimberley on several days produced isolated moderate to heavy daily rainfalls, with Kalumburu recording a daily rainfall of 91.6mm on the 11<sup>th</sup> Dec. For the SWLD as a whole, December rainfall was 3.4mm, the ninth driest December on record. Maximum and minimum temperatures for most of the state were above to very much above average. Record high temperatures were observed in the Pilbara, with Marble Bar recording a maximum temperature of 49.3°C on the 30<sup>th</sup> Dec, the equal highest temperature in 122 years of observations, equalling with 27 Dec 2018.

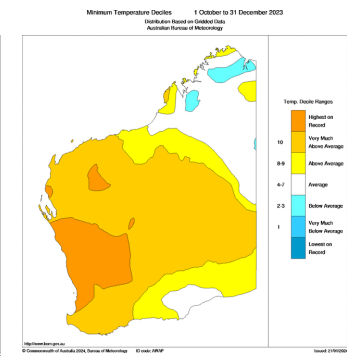
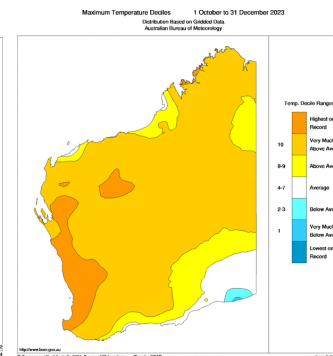
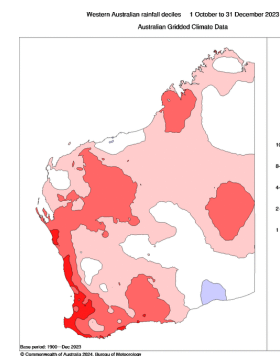
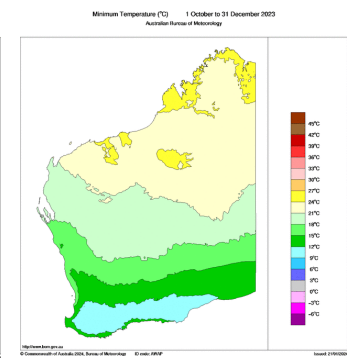
### Actual and Deciles (Relative) Rainfall



### Actual and Deciles (Relative) Maximum Temperatures



### Actual and Deciles (Relative) Minimum Temperatures



# Ross River virus activity detected in the South Metro and South West regions.

As we are in the peak time for Ross River virus activity in southern WA, it is important to remind the community to take precautions against mosquito bites.

Since August 2023 our mosquito surveillance program has detected Ross River virus in the South West and the South Metro regions.

Although cases of Ross River disease in WA are over double what was recorded at this time in 2022/23, they are still below the long term average. Most of the cases this season have been reported from the Geographe (43) and Peel (42) regions of the South West.

In northern WA enhanced surveillance activities are continuing, with officers from ME based in Kununurra until May. No flavivirus activity has been detected since early September 2023, and no human cases of JE, Kunjin or MVE have been reported since July 2023.

**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 March 2024 to May 2024

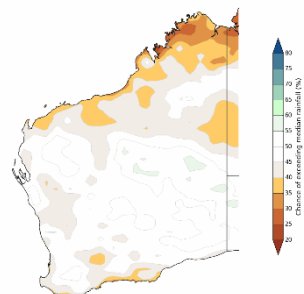
## Australian Bureau of Meteorology Outlooks for March 2024 to May 2024

Issued 8 February 2024 [Australian climate outlooks \(bom.gov.au\)](http://Australian climate outlooks (bom.gov.au))

### Average rainfall for most of WA

### Warmer than average days for all of WA

Chance of exceeding the median rainfall for March to May 2024

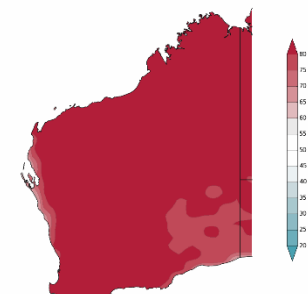


www.bom.gov.au/climate/ © Commonwealth of Australia 2024, Australian Bureau of Meteorology

Model: ACCESS-G2 Date: 08 Feb 2024 Issue: 18022024

Model: ACCESS-G2 Issue: 18022024

Chance of exceeding the median maximum temperature for March to May 2024



www.bom.gov.au/climate/ © Commonwealth of Australia 2024, Australian Bureau of Meteorology

Model: ACCESS-G2 Date: 08 Feb 2024 Issue: 18022024

Model: ACCESS-G2 Issue: 18022024

## Climate Driver Update

**El Niño ocean warmth past its peak, expected to return to neutral El Niño-Southern Oscillation (ENSO) levels in the southern hemisphere Autumn 2024.**

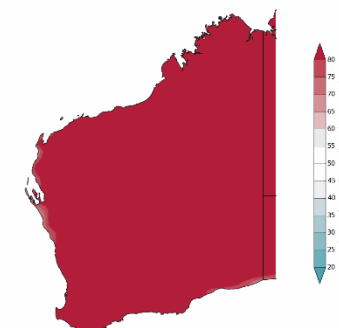
**IOD:** IOD has returned to neutral, forecasted to continue till at least April.

**SAM** is currently neutral.

**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 all of WA

Chance of exceeding the median minimum temperature for March to May 2024



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Model: ACCESS-G2 Date: 08 Feb 2024 Issue: 18022024

Model: ACCESS-G2 Issue: 18022024