



The Bureau  
of Meteorology

# Climate and water outlook – QLD Water Directorate

19 October 2023

**Matthew Coulton**

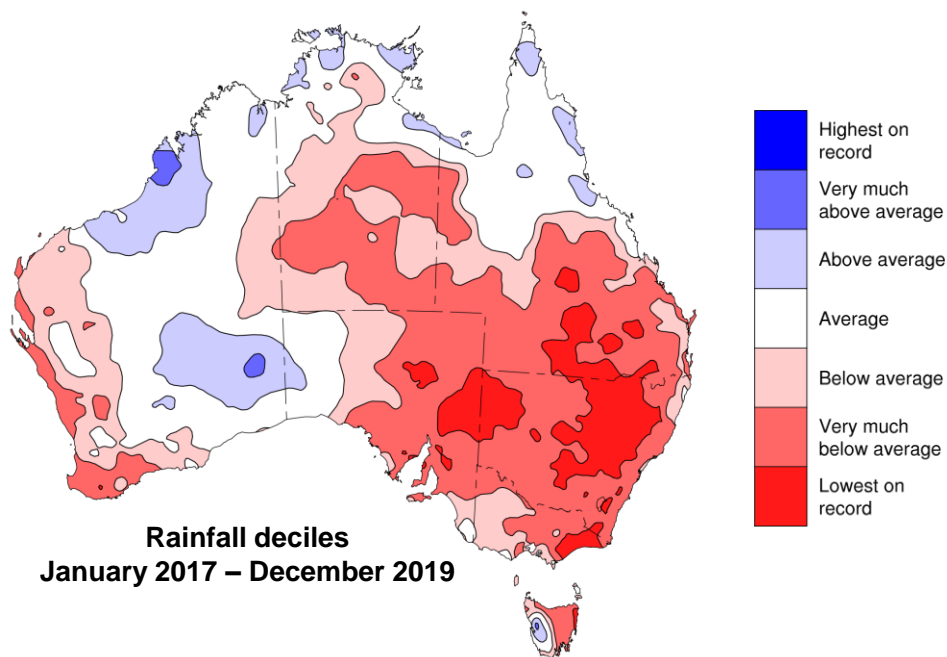
General Manager Agriculture and  
Water





# **A brief look at the last few years**

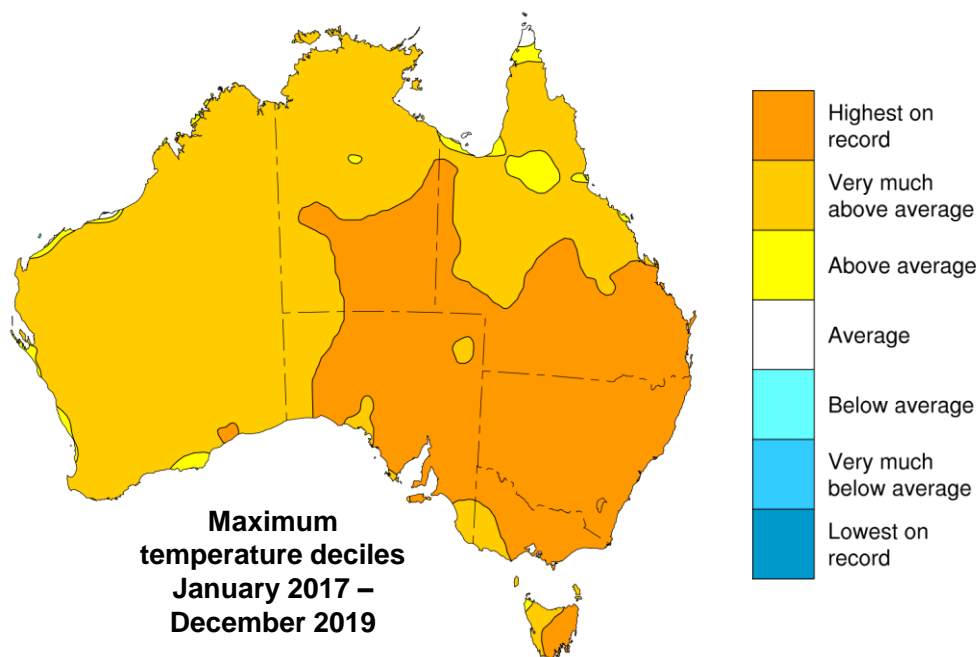
# Rainfall 2017-19



- Low rainfall records broken by very large margins in southeastern Australia.
- Average rainfall for the Murray–Darling Basin was more than 100 mm lower than the second driest period (January 1965 to December 1967).



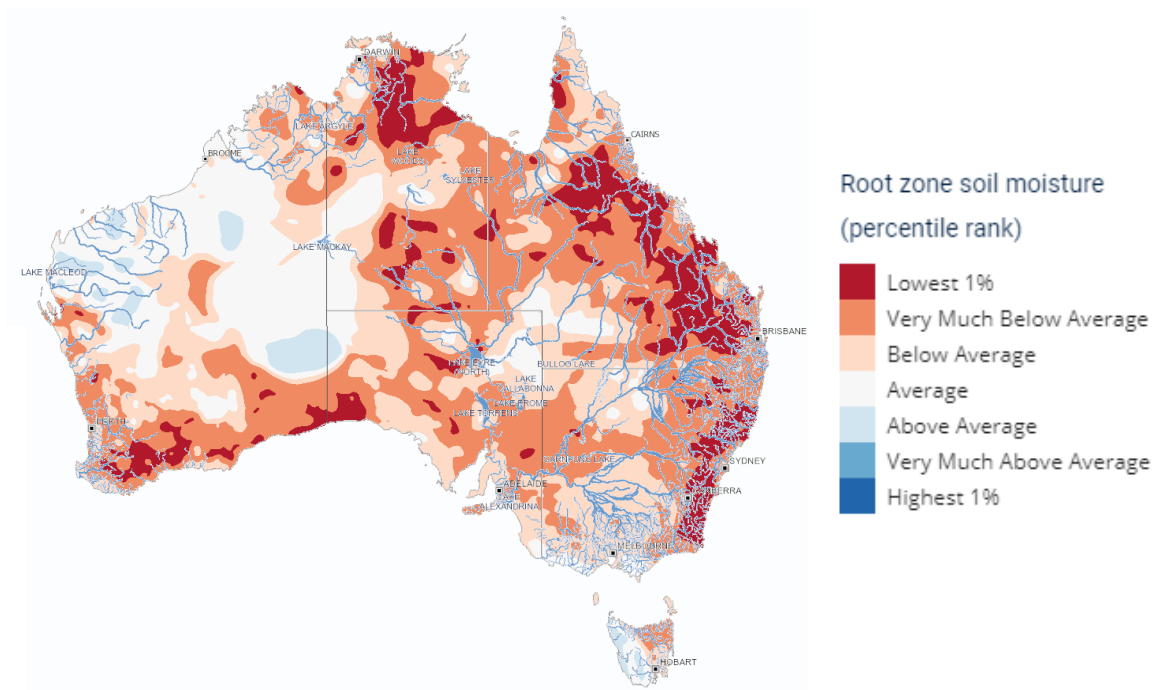
# Temperature 2017-19



- Drought conditions were compounded by record high temperatures and long periods of no rain in the southeast.
- 2019 was by far the hottest year on record nationally, 7<sup>th</sup> hottest in QLD.



# Root-zone soil moisture in December 2019

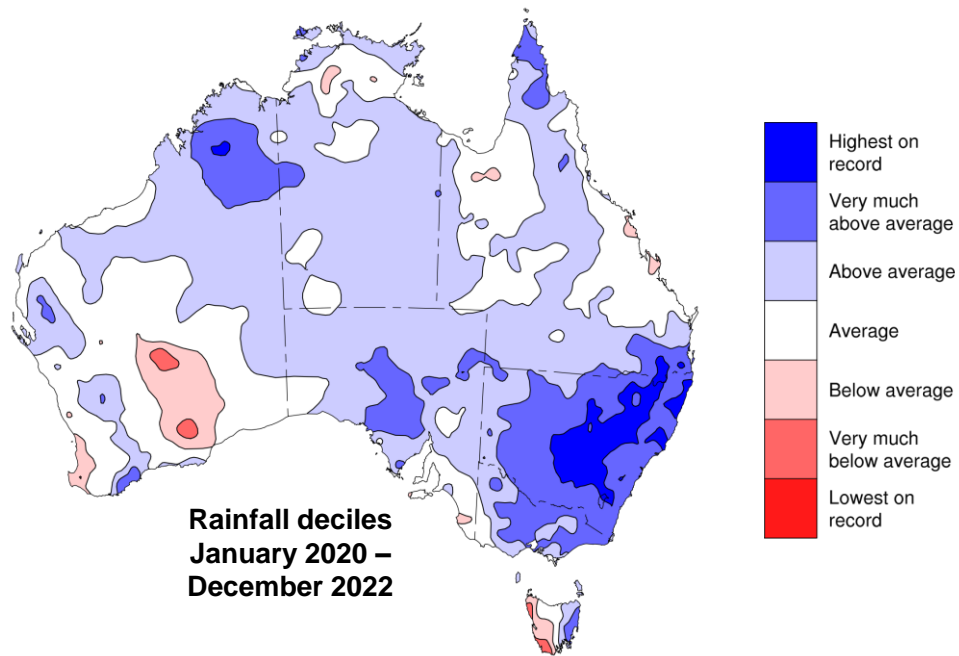


The landscape was record-dry in many parts of Australia.

Catchment areas along the Great Dividing Range, where most of Australia's runoff comes from, were particularly dry, meaning a lot of rain was required to get rivers flowing and fill dams.



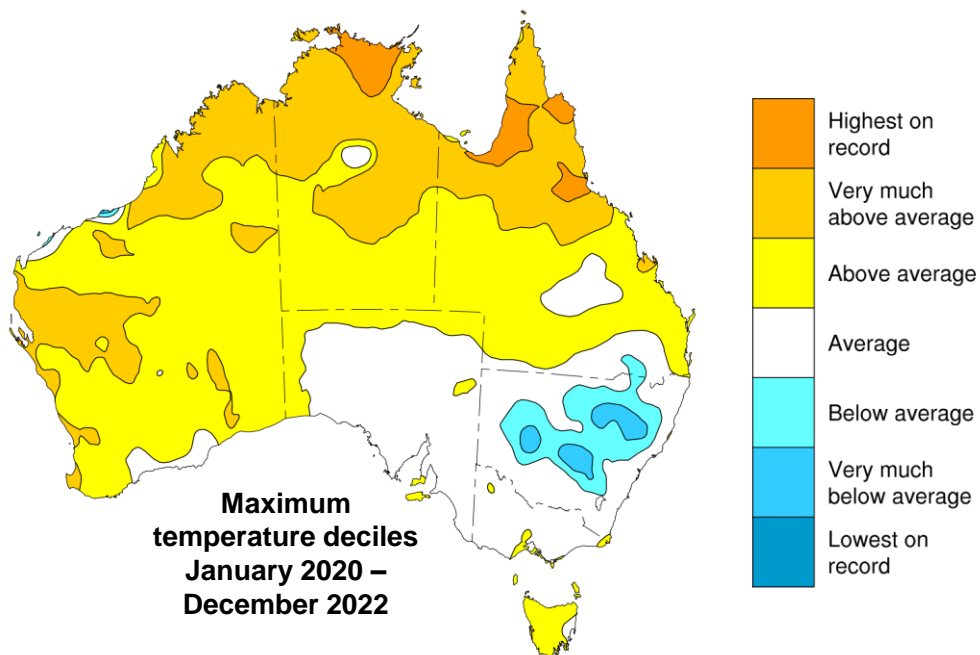
# Rainfall 2020-2022



- Wetter than average across much of Australia, but a mixed bag in QLD.



# Temperature 2020-2022

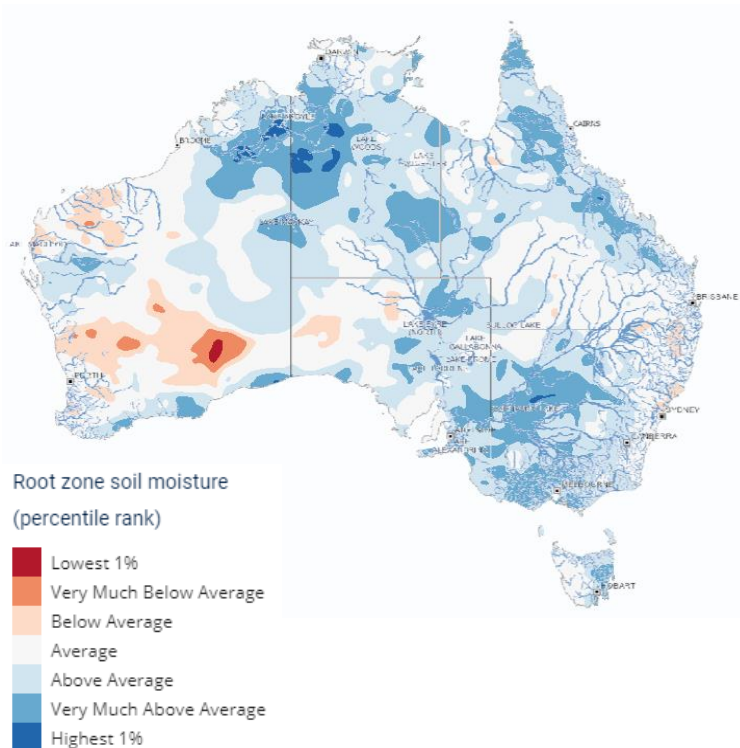


- La Nina conditions suppressed temperatures in NSW but most of QLD was still warmer than average.

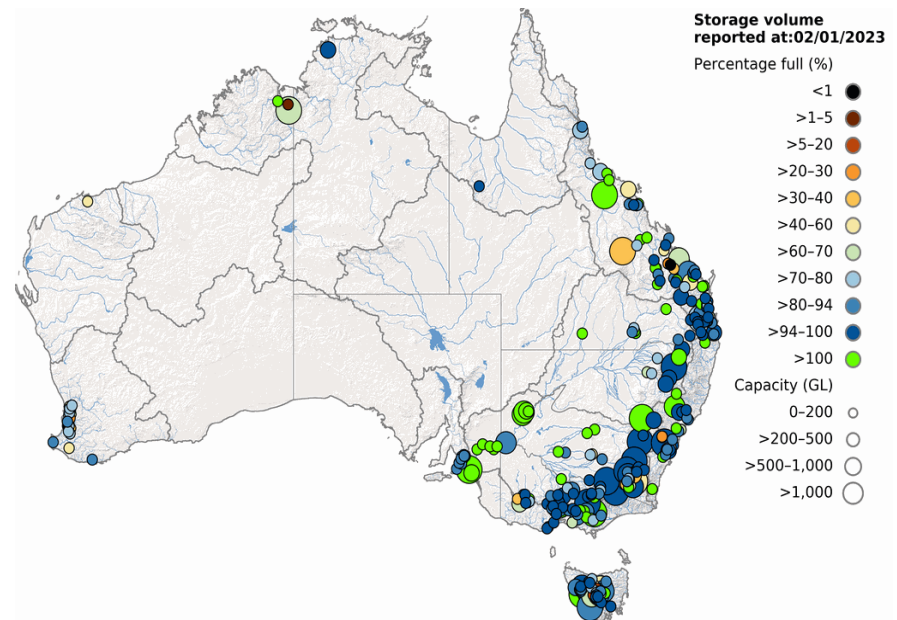




# Water in the soil and storages at the end of 2022



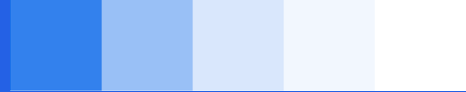
- Soils were wet in most places.



- Many QLD dams full, some spilling.

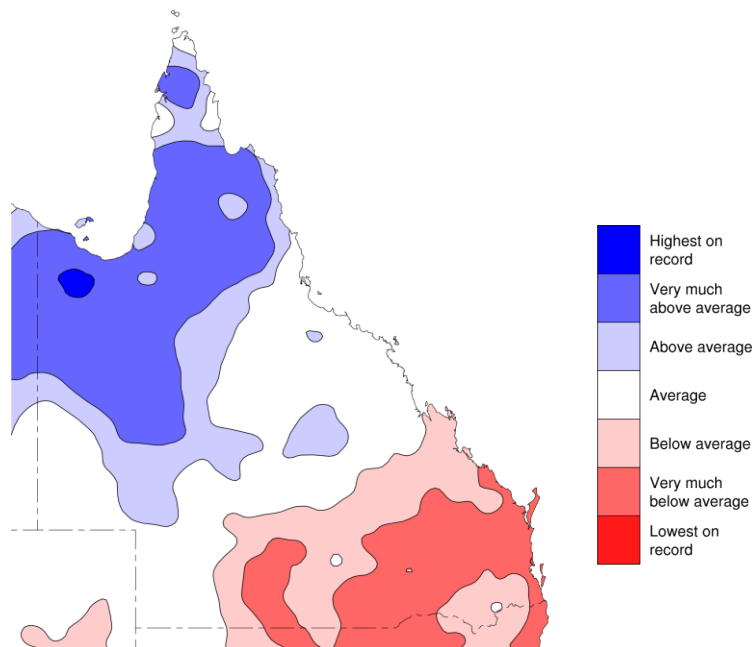






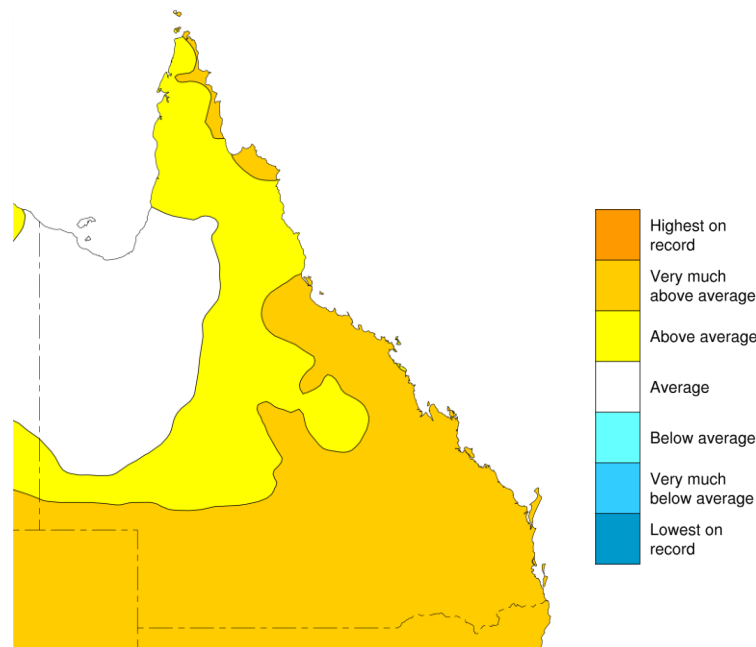
**Where are we now?**

# Rainfall and temperature year to date



**Rainfall deciles  
January – September 2023**

A wetter than average year in northern Australia, but increasingly dry in southeast QLD (lowest 10% of records). Nationally, September 2023 was the driest on record.

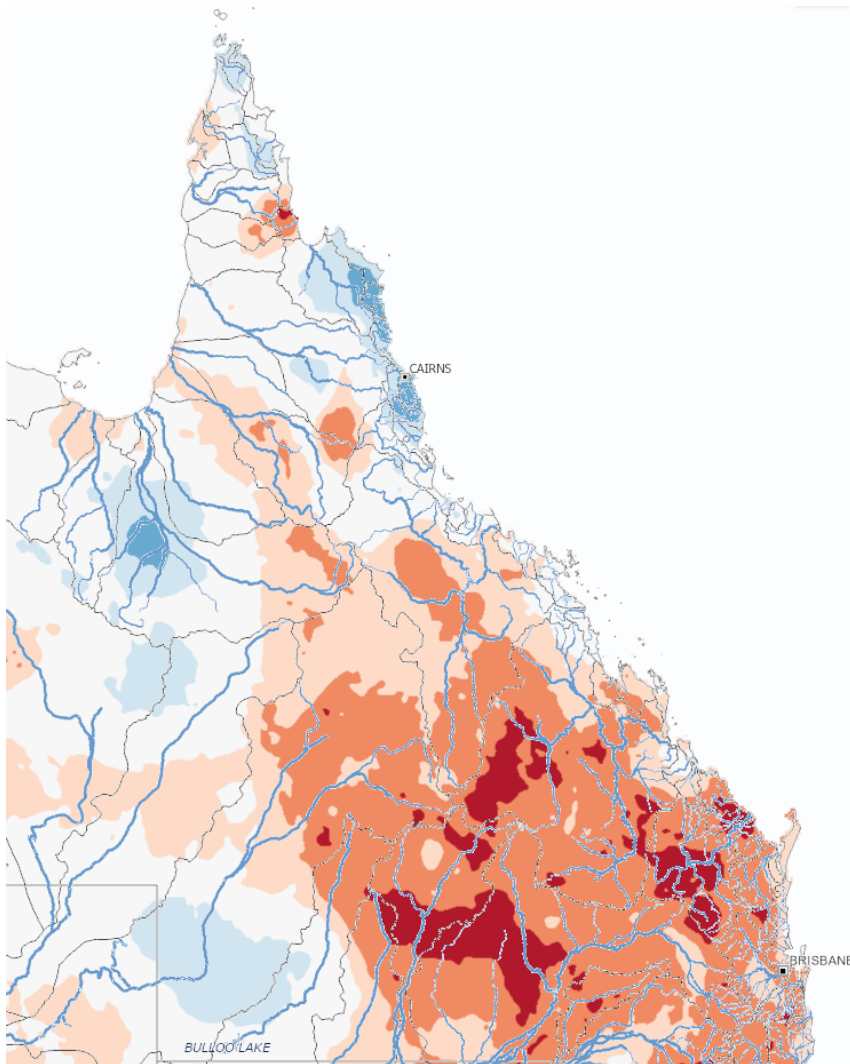


**Max temperature deciles  
January – September 2023**

Very much above average temperature in southern and eastern QLD (lowest 10% of records).

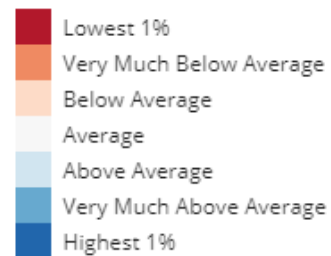


# Root-zone soil moisture in October 2023

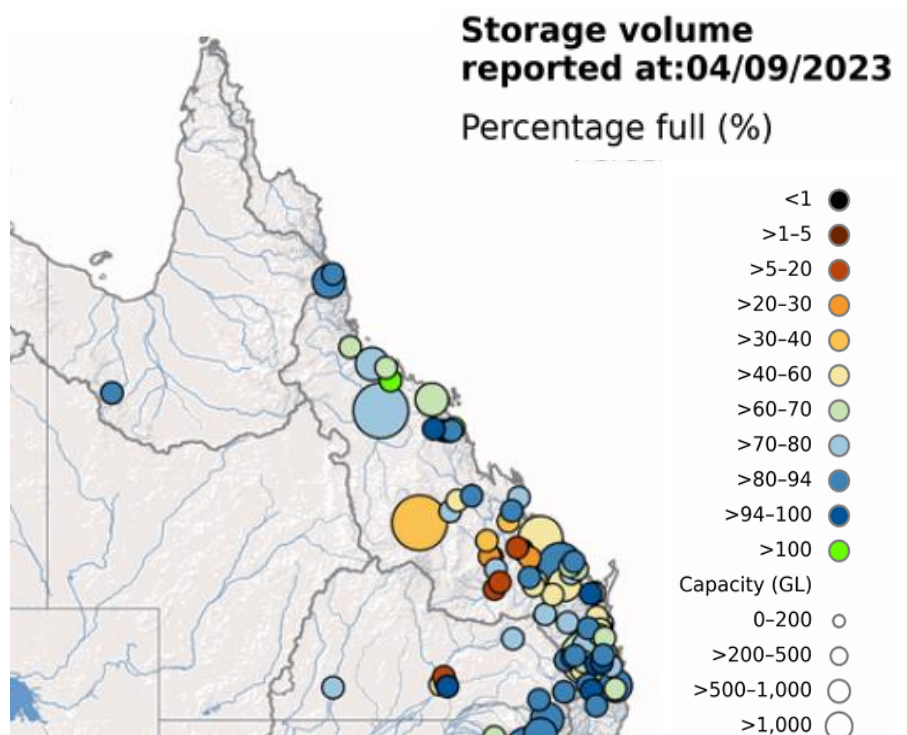


Many catchments in central and southeast QLD are very dry.

Root zone soil moisture  
(percentile rank)

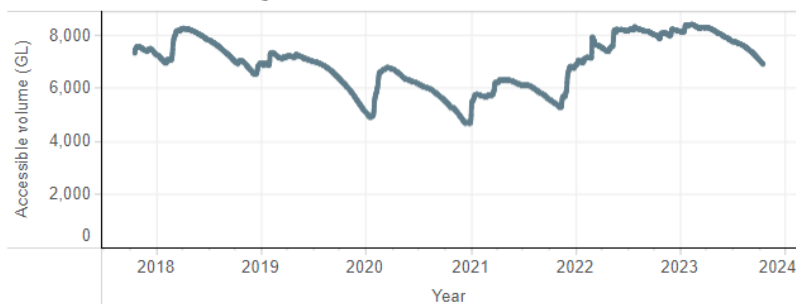


# Water – water in storage



Similar rate of decline to previous dry years, but with a high base at the start.

Accessible volume - Queensland



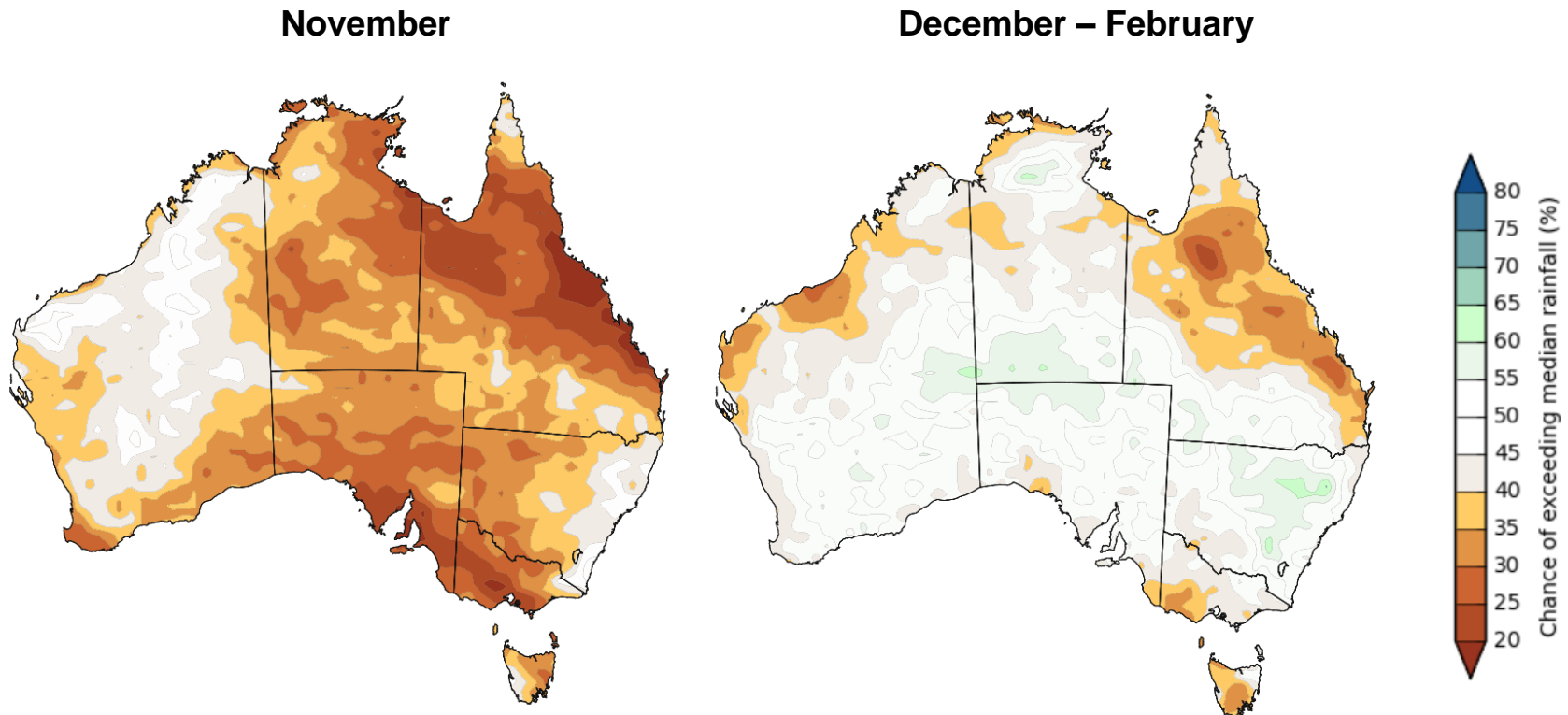


# Outlook for the season ahead

# Seasonal rainfall forecast

## – *chance of above or below median*

This is updated weekly on the Bureau's website - [www.bom.gov.au/climate/outlooks](http://www.bom.gov.au/climate/outlooks)



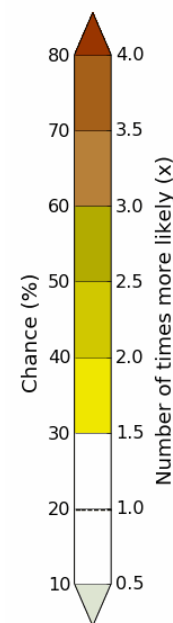
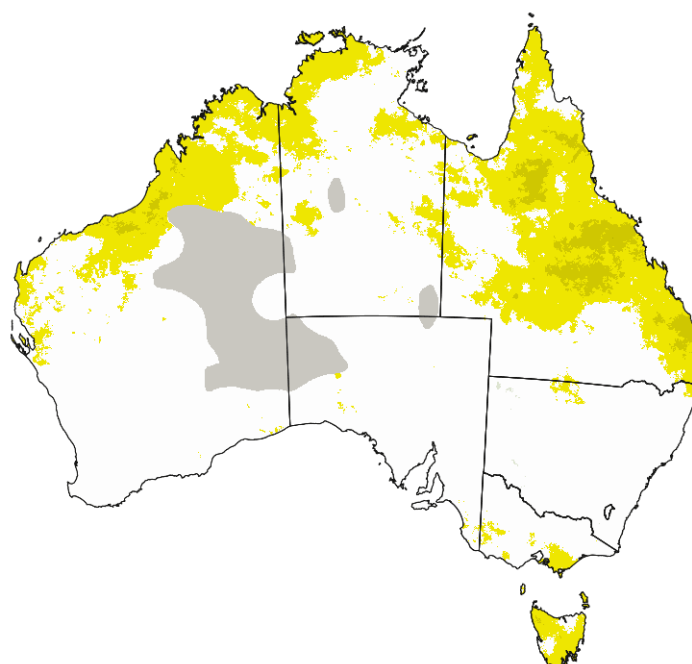
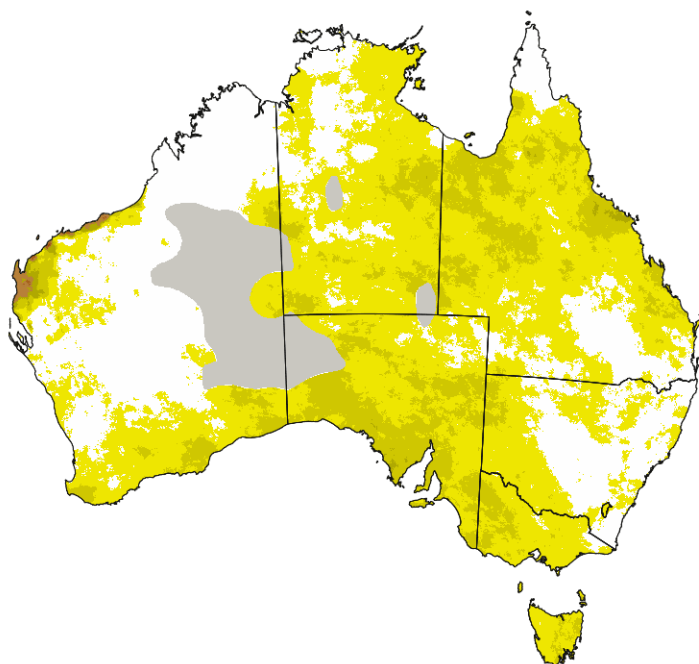
# Seasonal rainfall forecast

## – *chance of rainfall in the bottom 20% of records*

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November

December – February



■ Insufficient long-term observations  
--- Usual

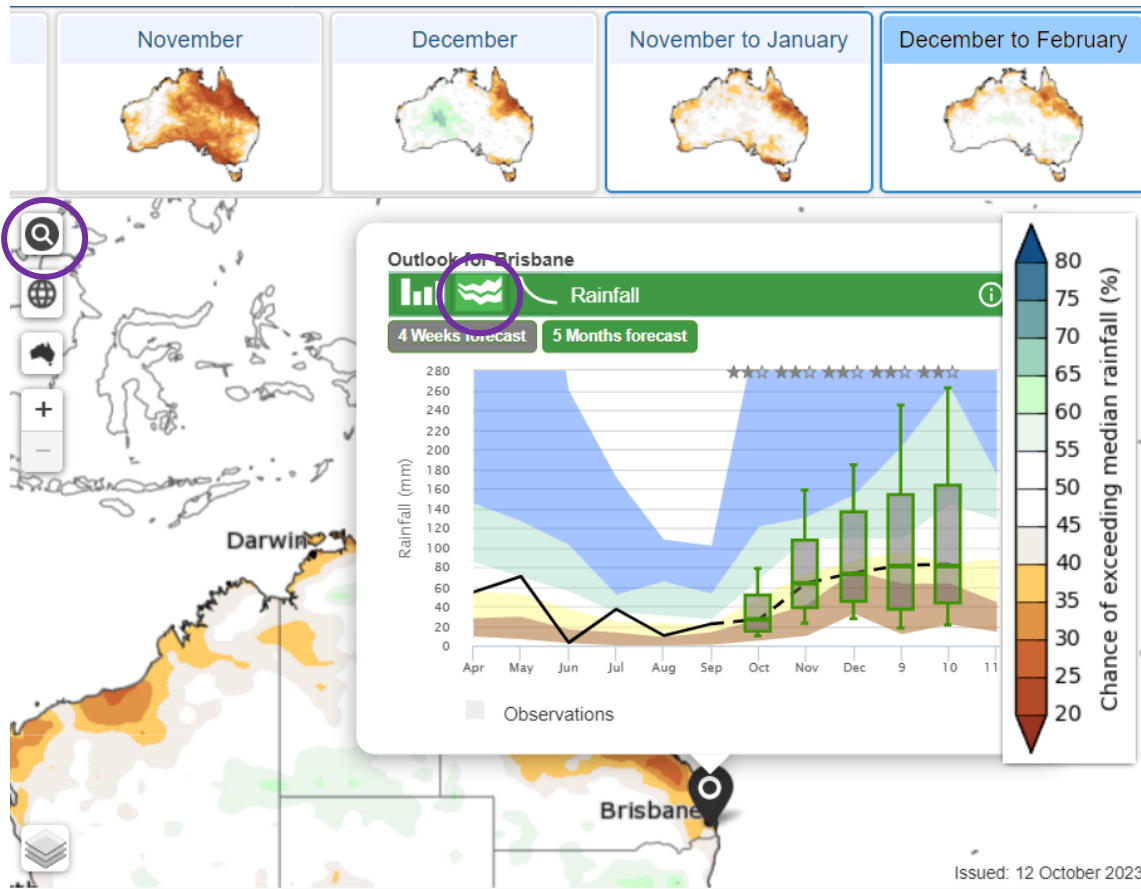




# Seasonal rainfall forecast

## – *understanding uncertainty*

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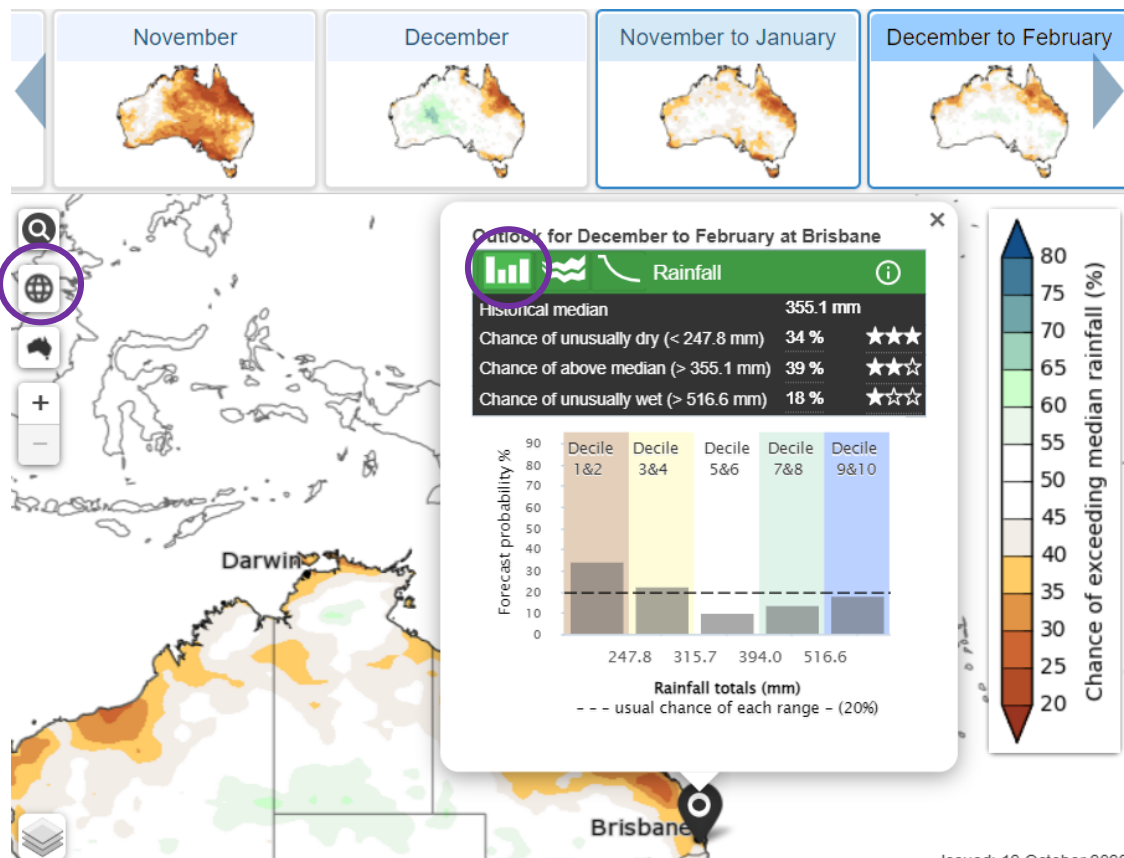
- Need to understand the level of certainty in forecast products to use them effectively.
- These long-range forecasts provide a lot more insight when you select a particular location.
- The uncertainty in the forecast varies significantly by location, the time of year and relevant climate drivers.



# Seasonal rainfall forecast

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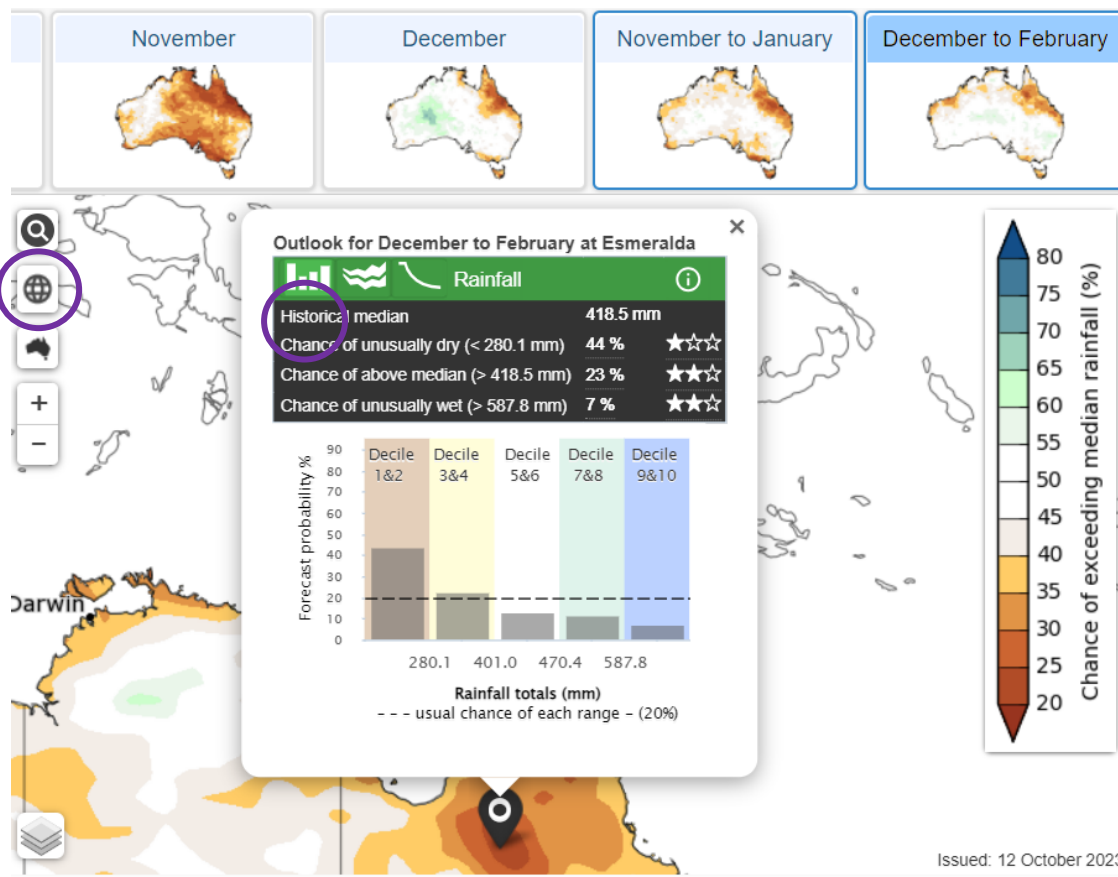
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# Seasonal rainfall forecast

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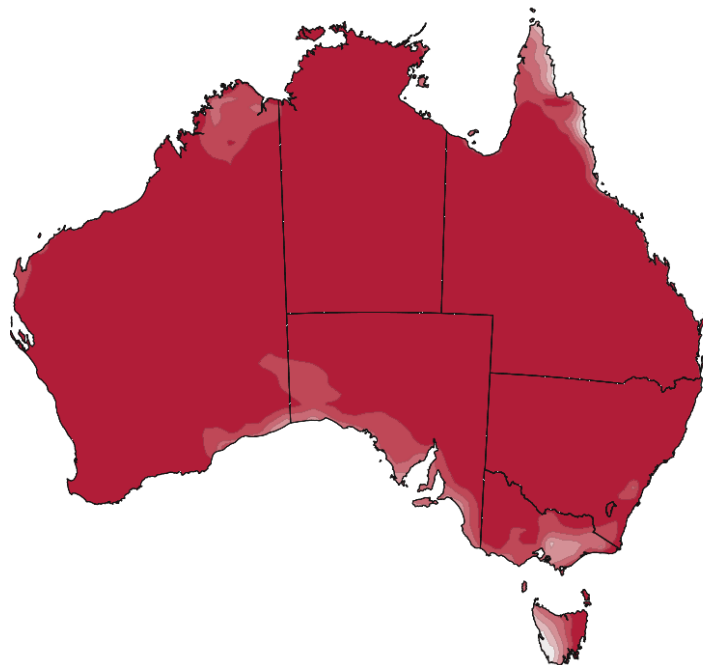


# Seasonal temperature forecast

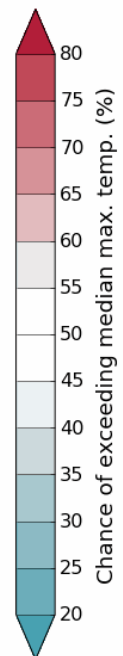
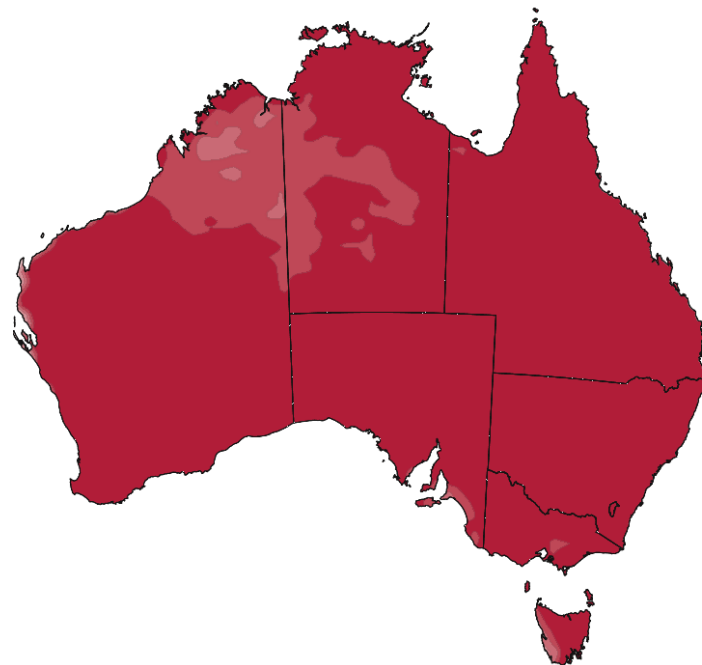
## – *chance of above median temperatures (daily max)*

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November



December – February



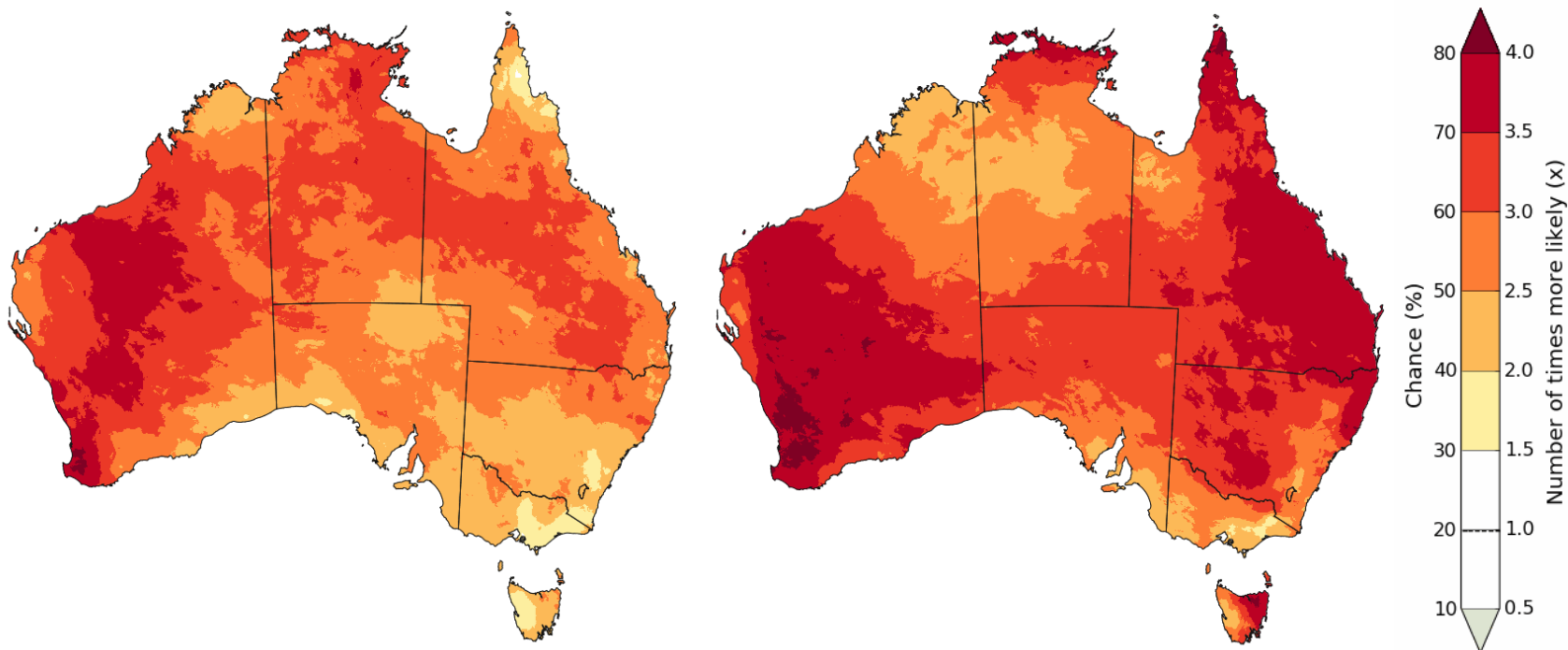
# Seasonal temperature forecast

## – *chance of temperature in the top 20% of records*

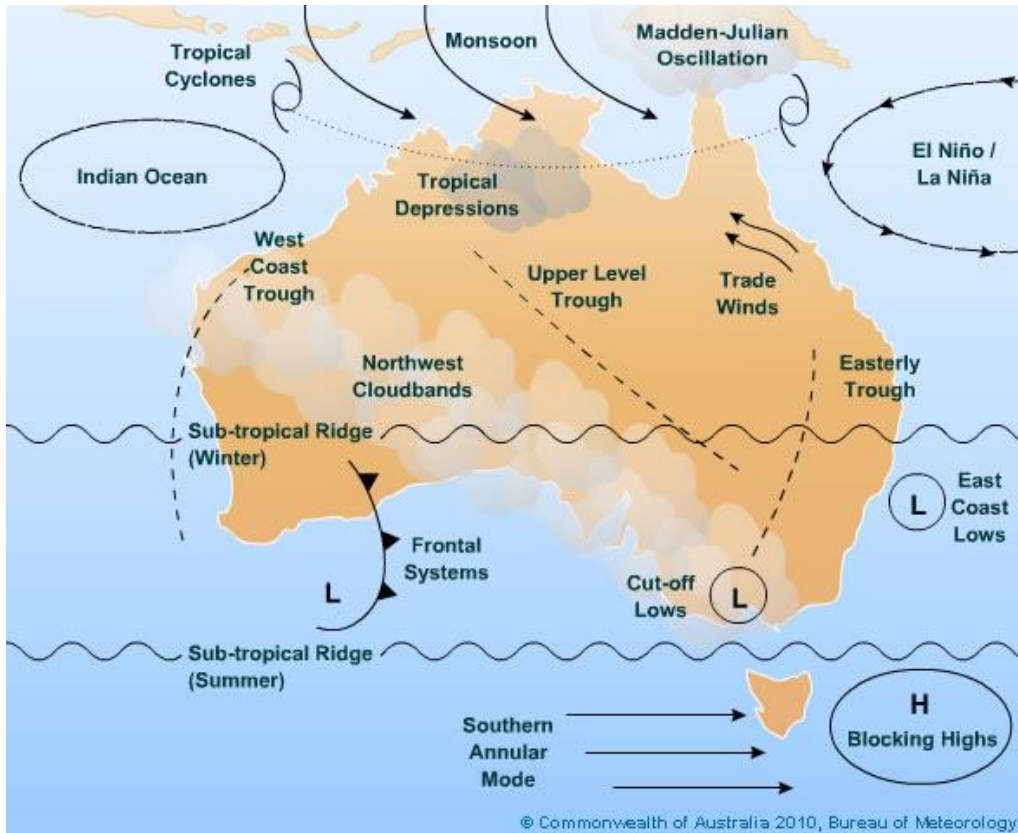
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# Climate Drivers

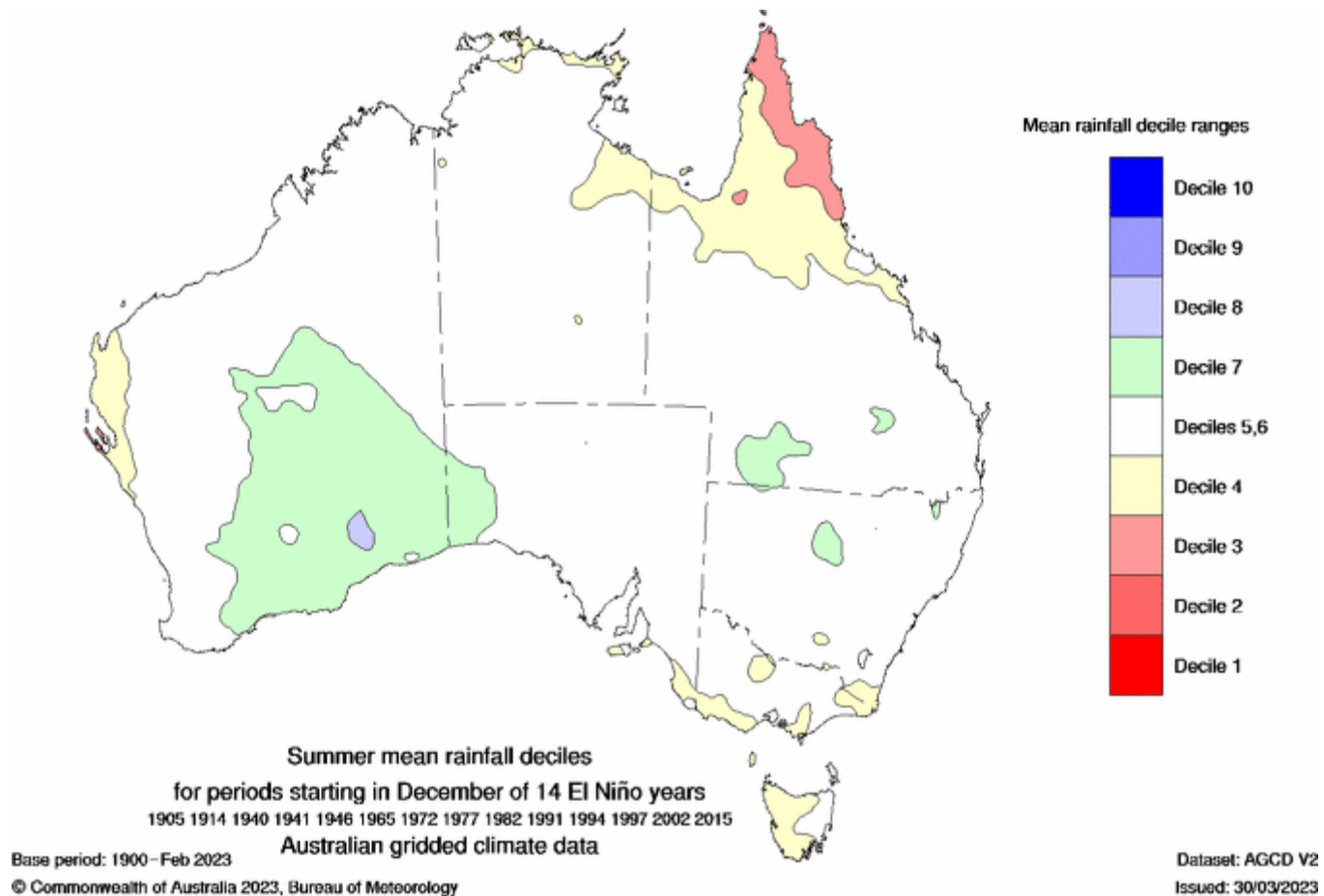


- There are many different drivers of Australia's weather and climate.
- They impact different parts of Australia differently, at different times.
- Some change quickly and some change over longer periods.
- **We encourage people to use the long-range forecast to understand the likely conditions for the season ahead, rather than focus on individual drivers.**



# Climate Drivers

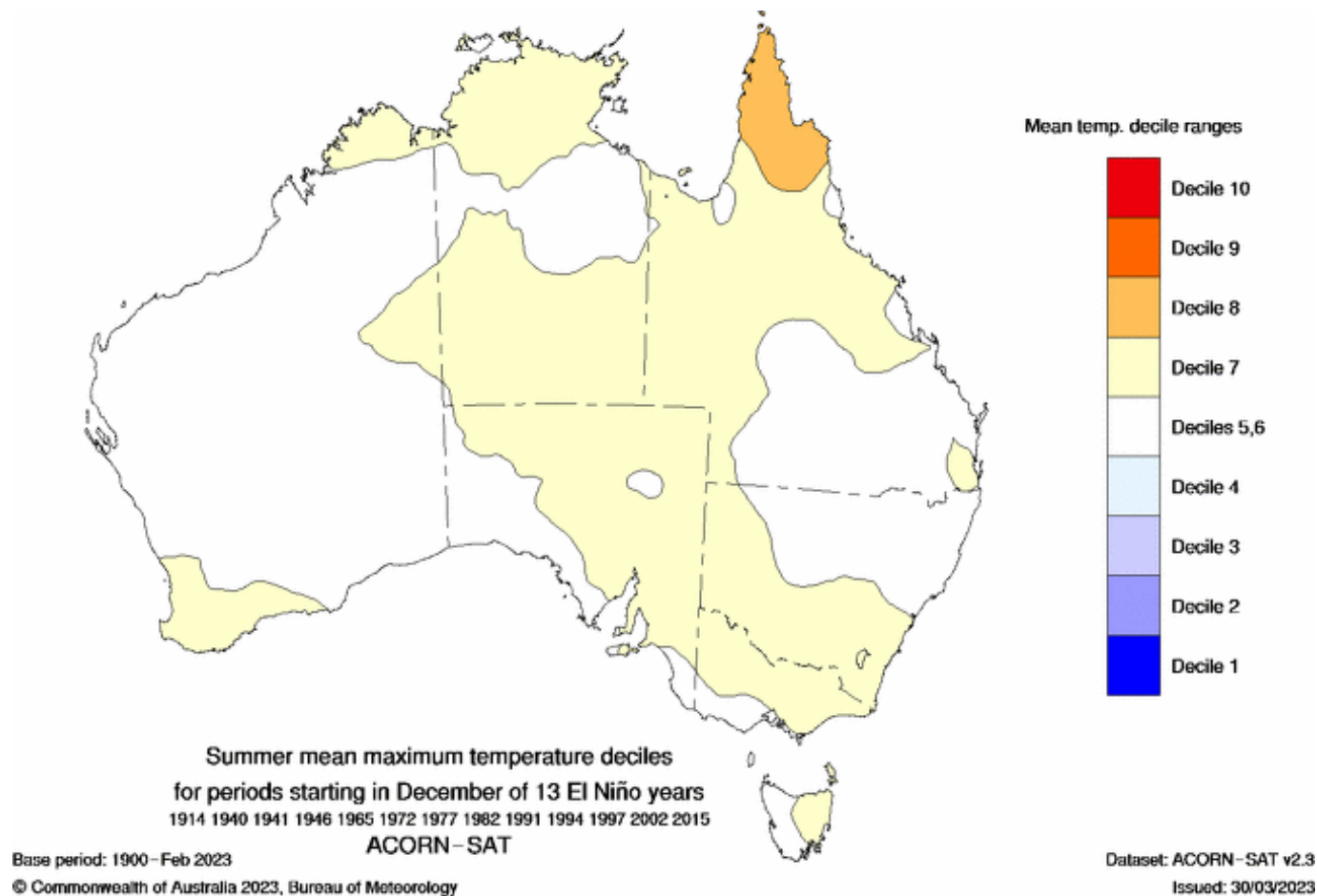
## – *influence of El Nino on summer rainfall*



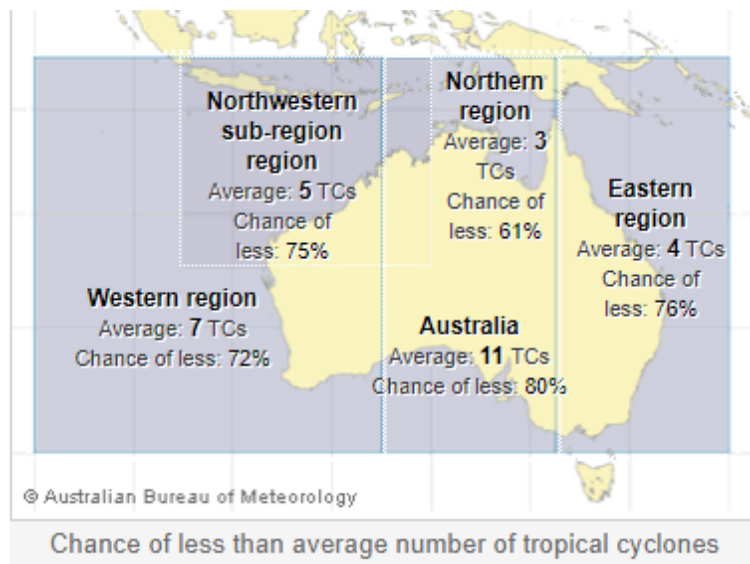


# Climate Drivers

## – *influence of El Nino on temperature*



# Cyclones – 2023-24 Outlook

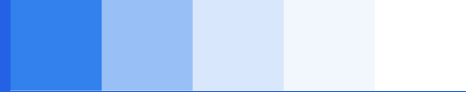


Region	Long-term average number of tropical cyclones	Chance of less tropical cyclones
Australian	11	80%
Western	7	72%
Northwestern sub-region	5	75%
Eastern	4	76%
Northern	3	61%

Long-term average number of tropical cyclones, using data from the 1969–70 season to this season.

- Since 1969 there have been, on average 3 tropical cyclones a year in the Northern region and 4 tropical cyclones in the Eastern region.
- Since 2000, there has been a decline in the formation of tropical cyclones in the Australian region.
- The number of tropical lows that form during El Niño years is typically fewer than the number that form during ENSO-neutral or La Niña years.





# Keep in touch

[water@bom.gov.au](mailto:water@bom.gov.au)