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Bureau of Meteorology

Climate of the South Coast of NSW: A look at regional climate influences, historic rainfall and recent conditions

*South Coast Beef Producers Association
Nowra, 24 February 2017*

Gary Allan
Climate Information Services Branch
Bureau of Meteorology



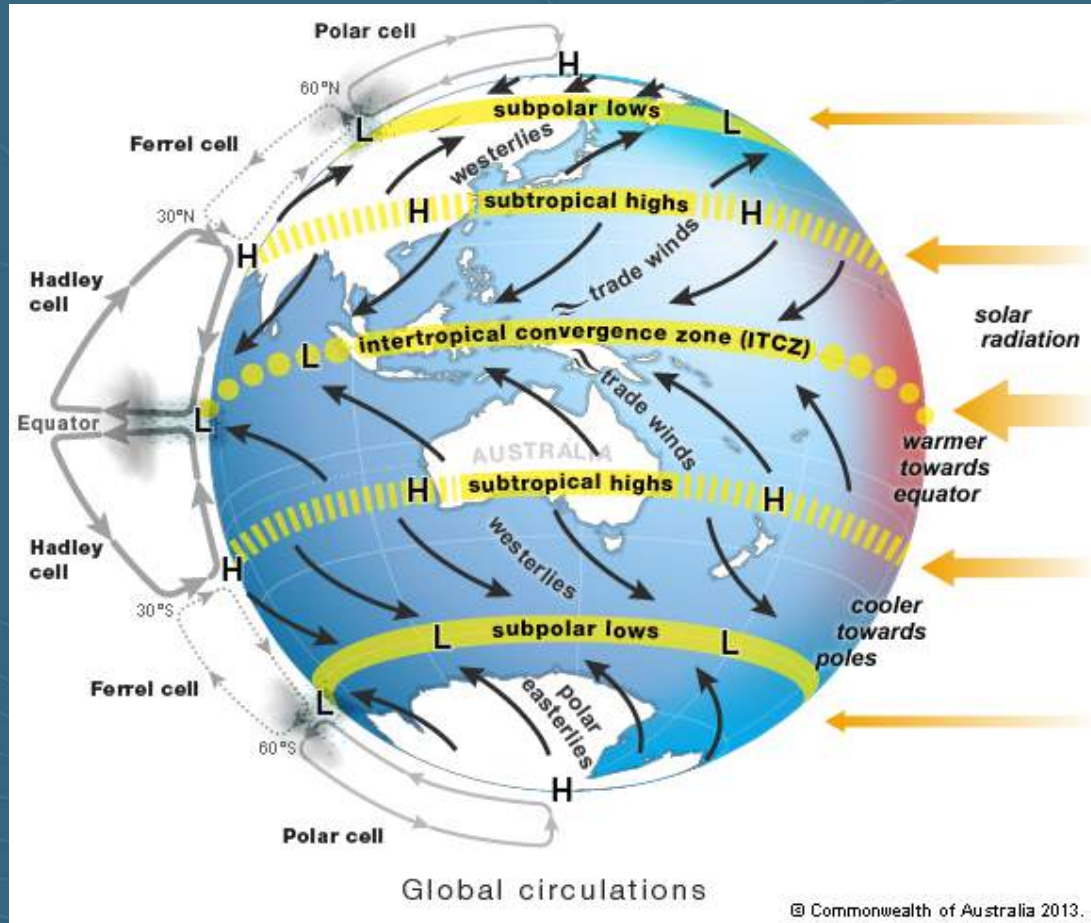
Overview

- Major climate influences on the south coast
- A look at historic rainfall, including trends
- Recent conditions – rainfall and temperature
- Outlook for autumn



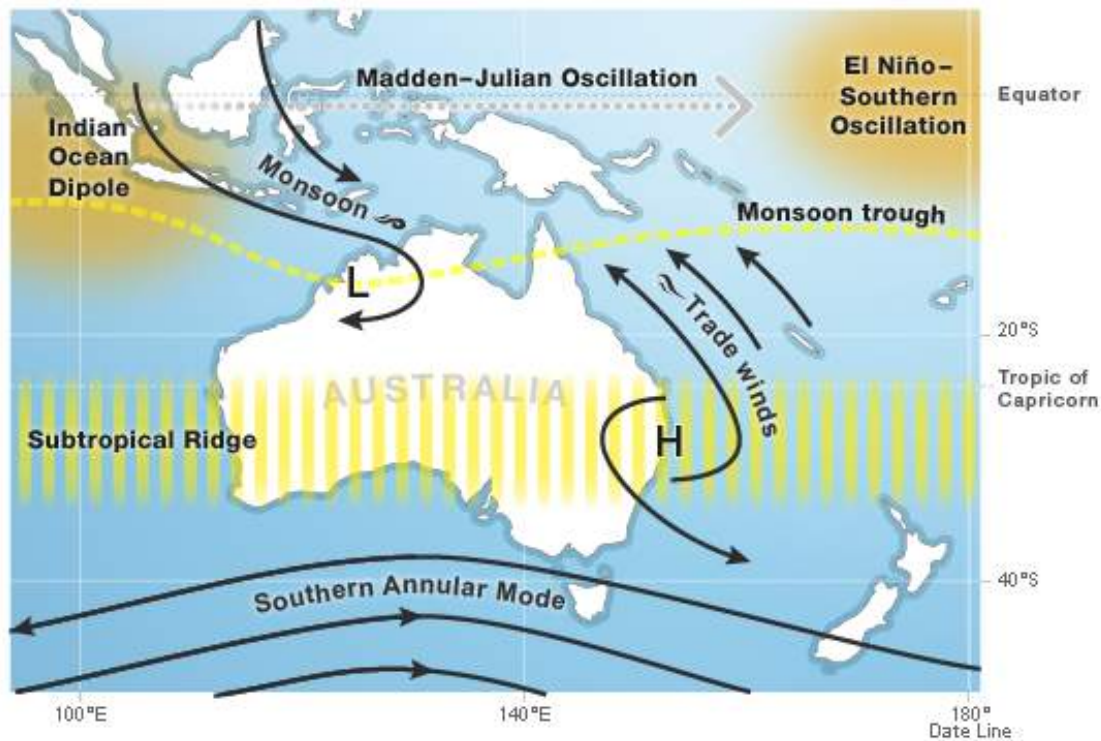
Global Circulation

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Major Climate Drivers of Australian Climate



Australian climate influences

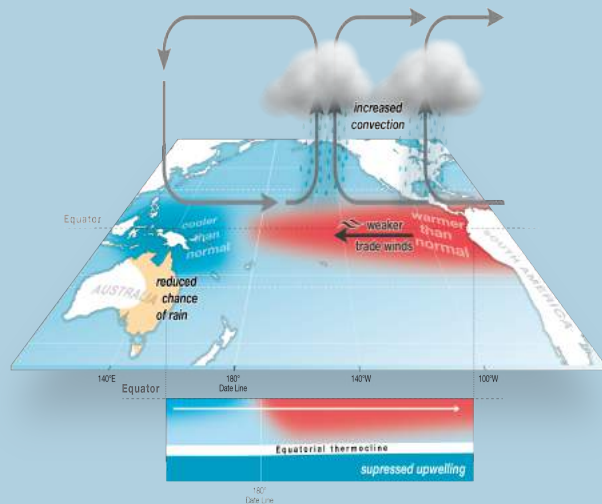


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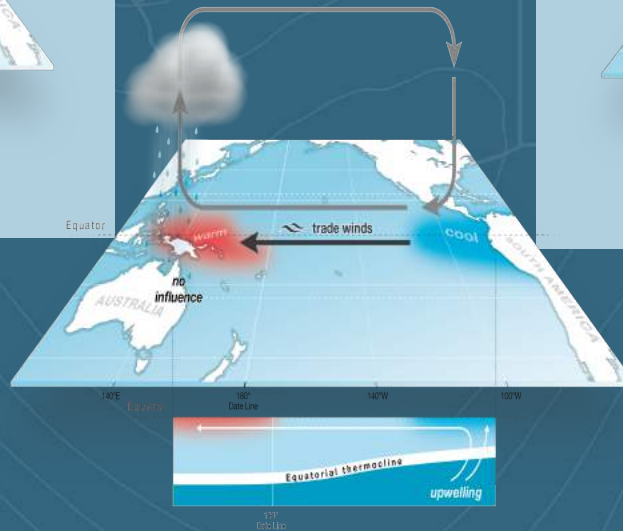
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El Niño Southern Oscillation (ENSO)

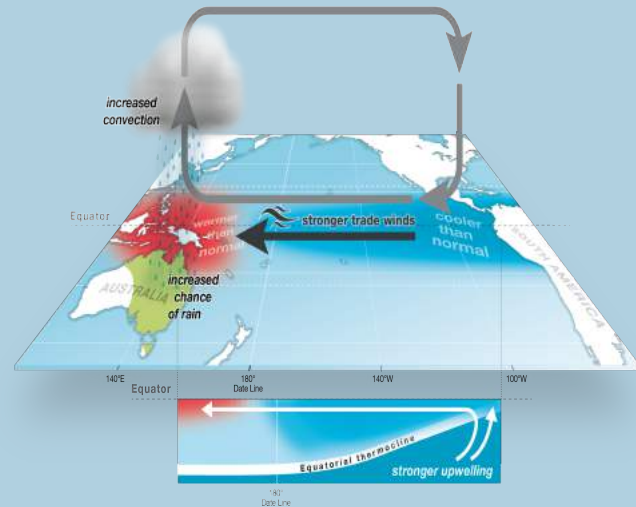
El Niño



Neutral phase



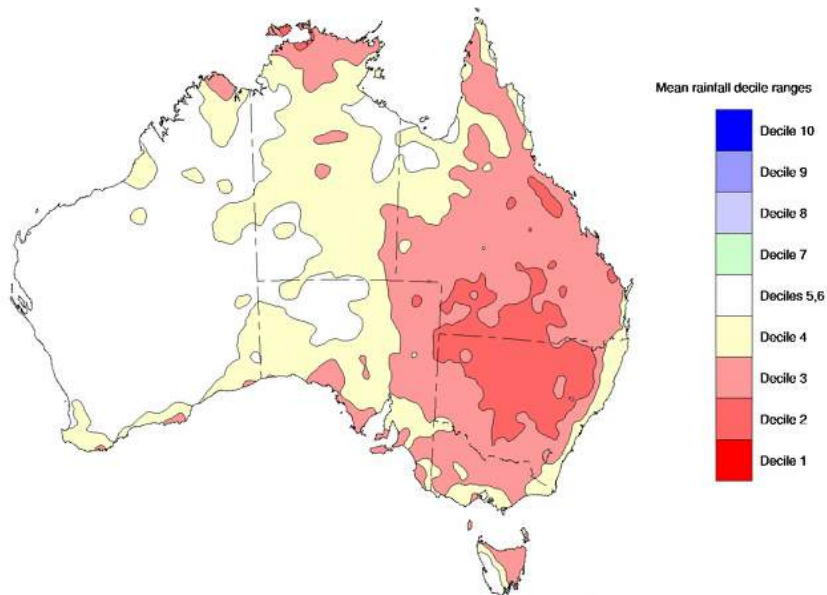
La Niña



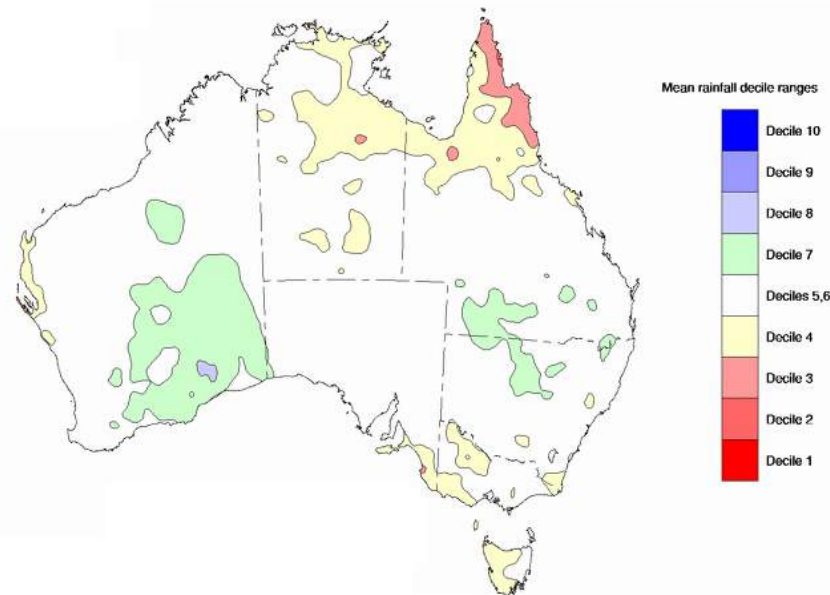


El Niño – Rainfall impacts

Winter–spring



Summer



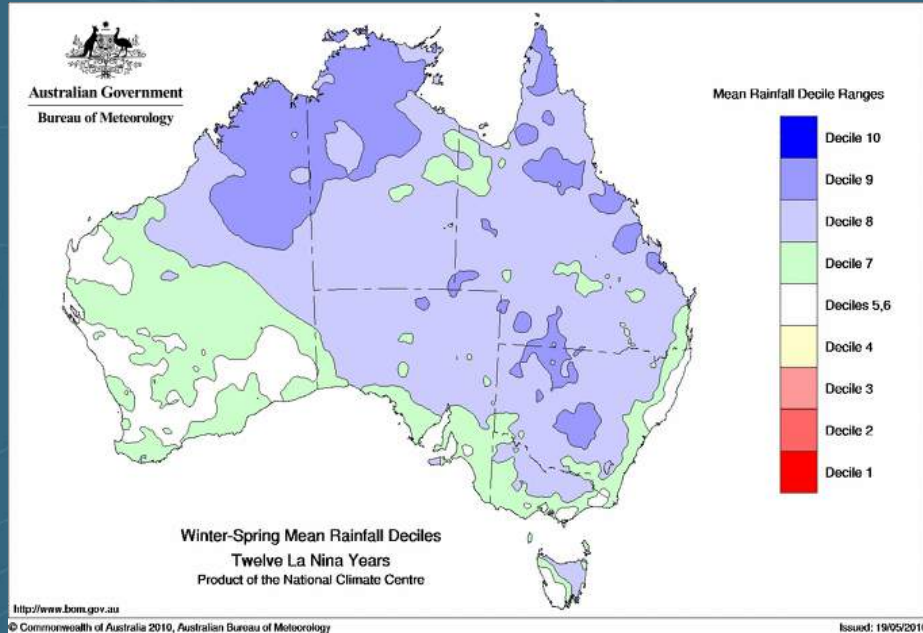
- Average conditions based on 12 moderate to strong El Niño events



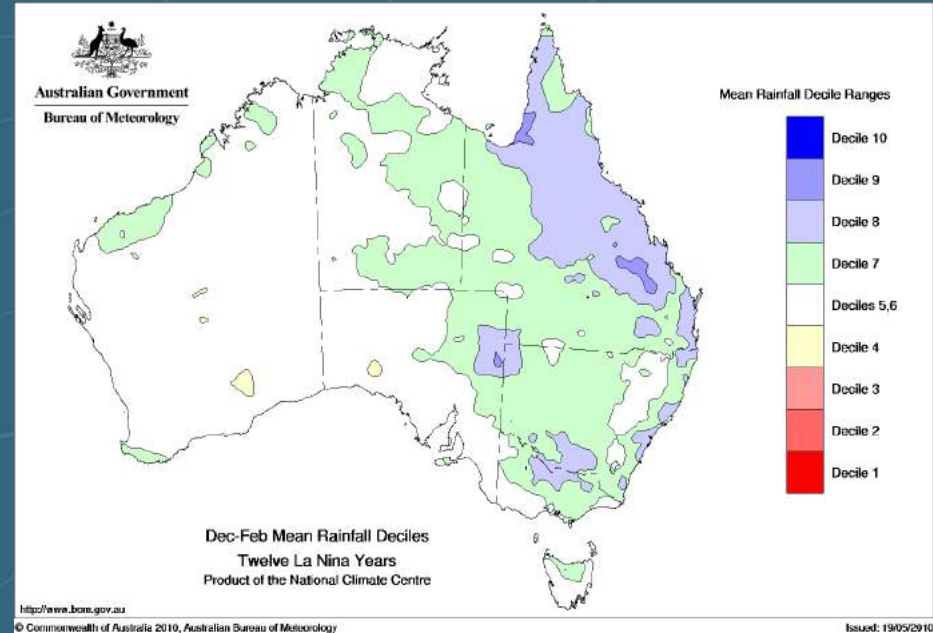
La Niña - Rainfall impacts

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Winter-Spring

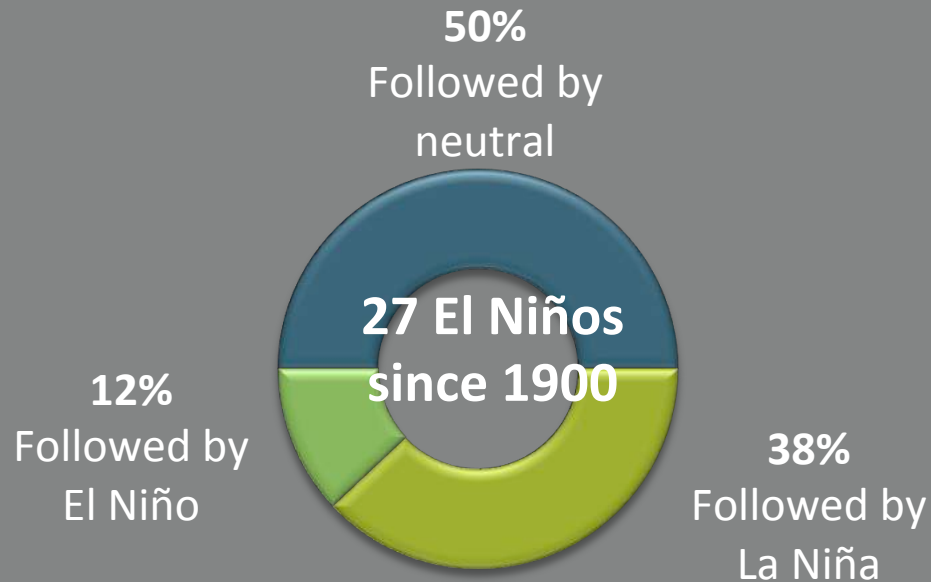


Summer





El Niño – what has followed events previously

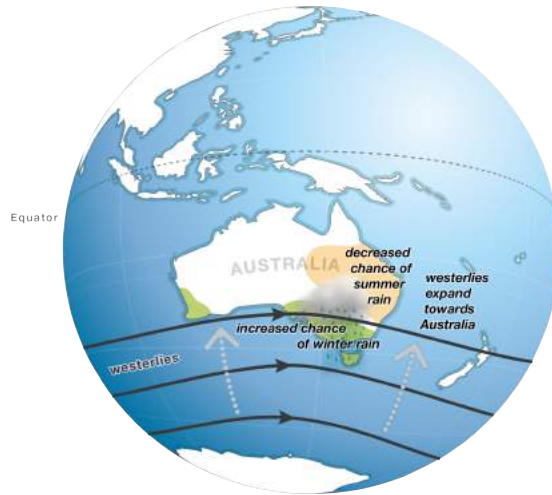




Other major influences

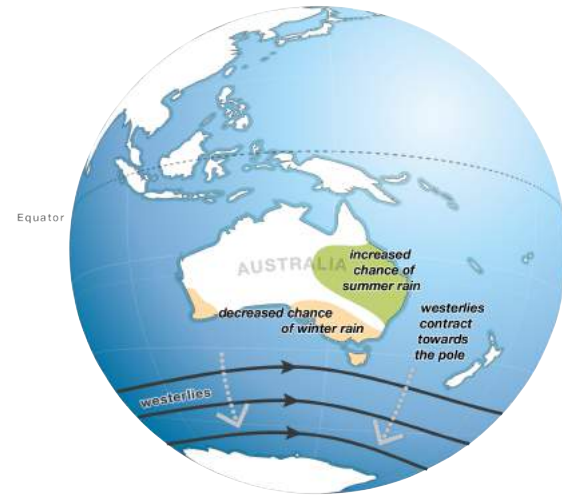
Southern Annular Mode (SAM)

Negative phase



Southern Annular Mode (SAM)

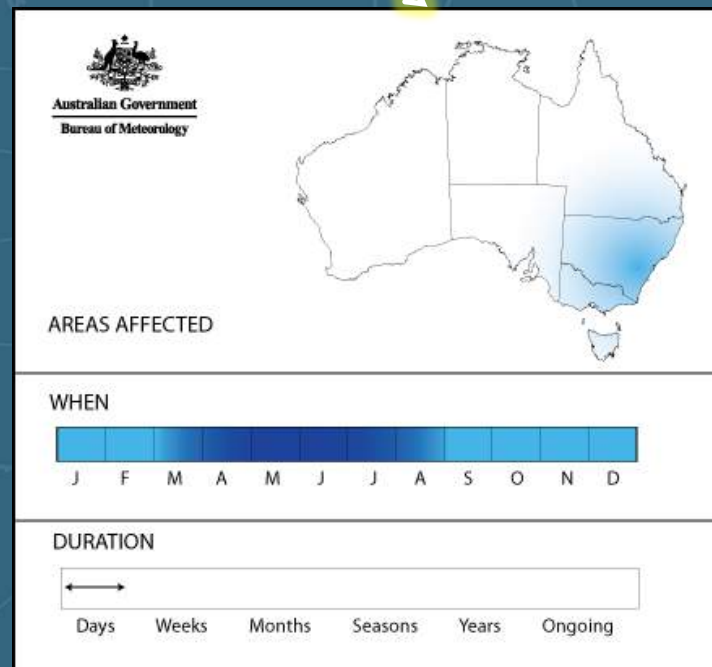
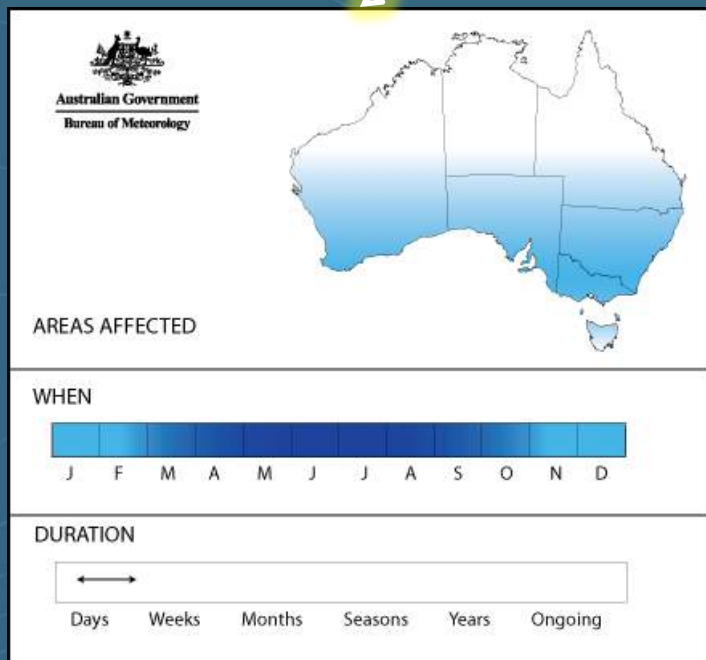
Positive phase





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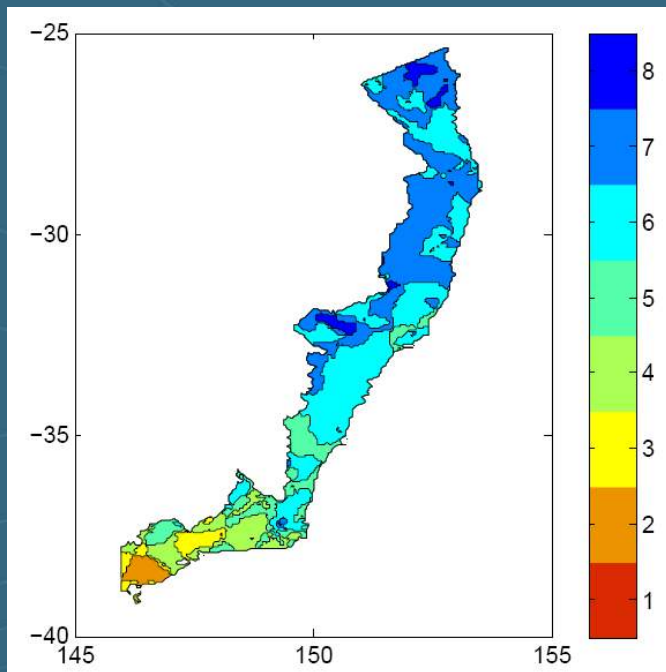
Key weather systems for South Coast RF – Cut-off Lows and East Coast Lows



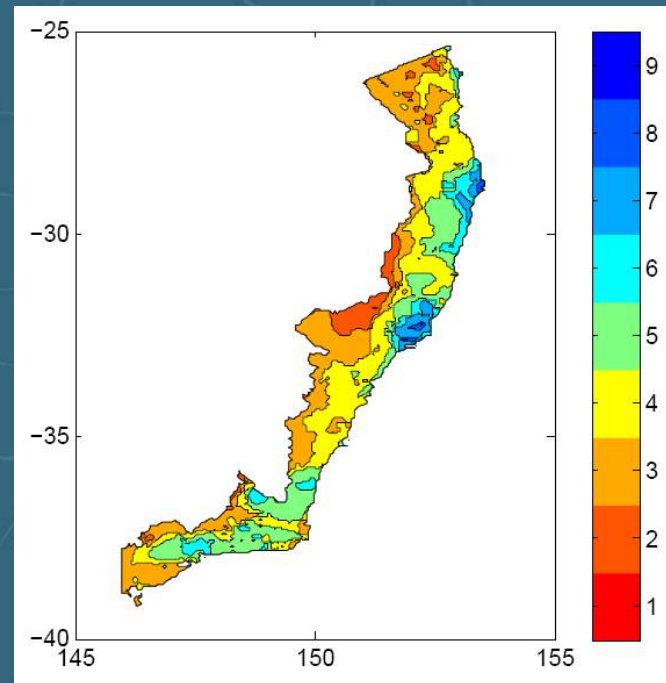


What about ENSO impacts on S.C. RF?

- Both La Niña (wetter) and El Niño (drier) had a consistent influence on winter rainfall along the NSW coast between 1970-2006 (the study period for this research)



La Niña (N=9)



El Niño (N=10)

Number of La Niña and El Niño winters with above average non-ECL rainfall

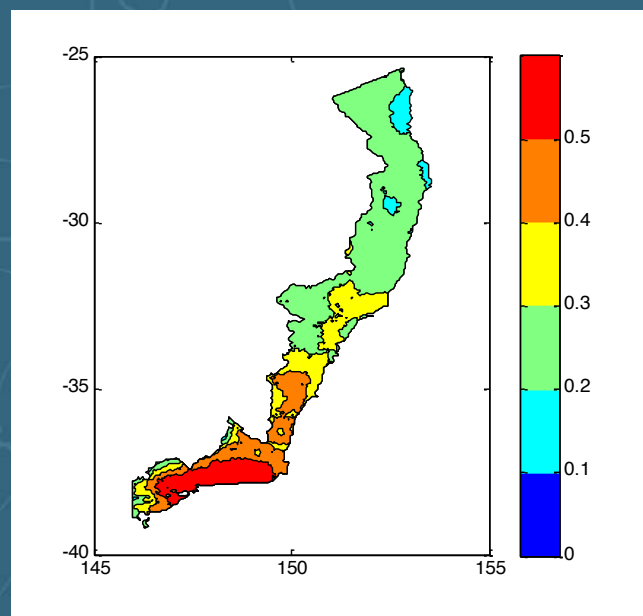
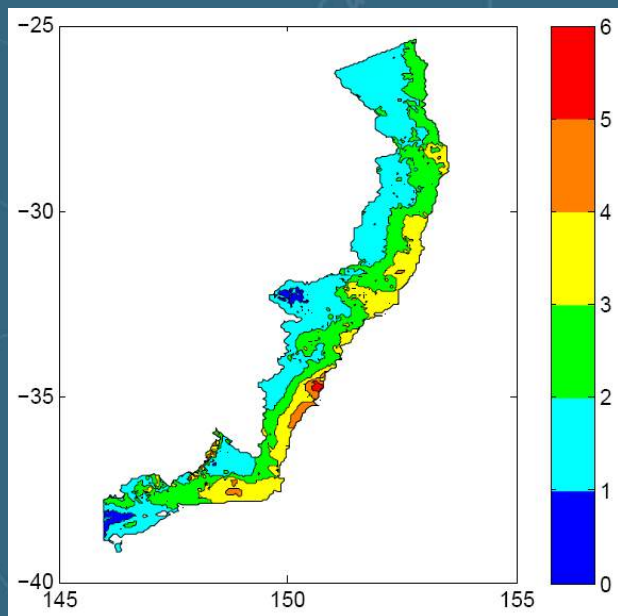
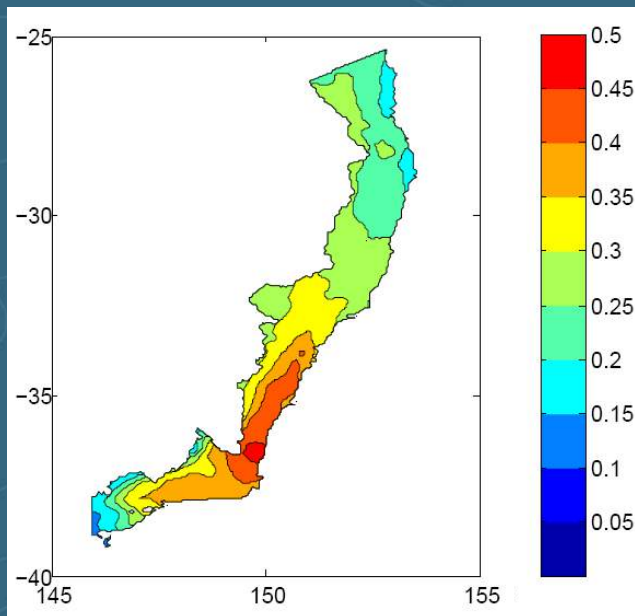


Key weather systems for South Coast RF – East Coast Lows (Winter dominant)

Proportion of May-October rainfall
due to ECLs

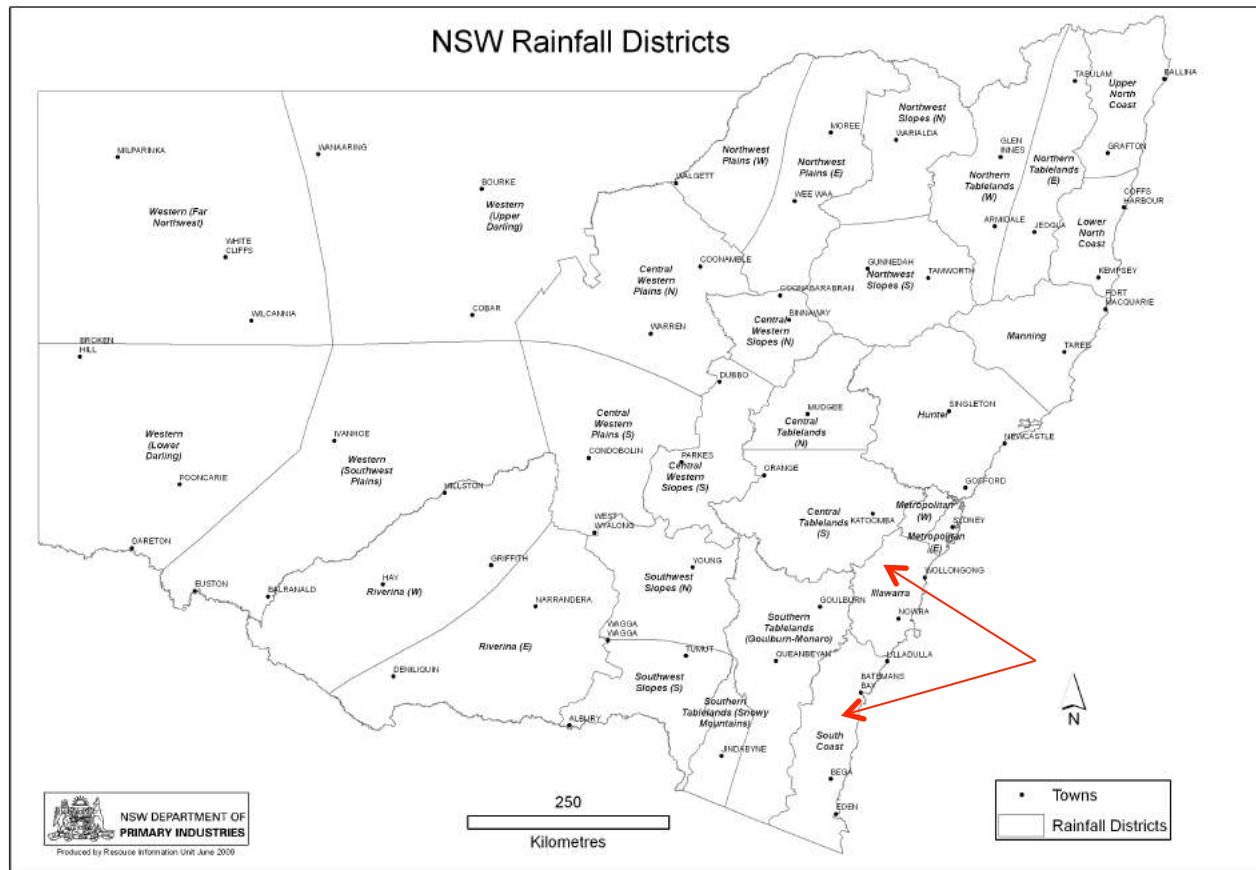
ECL days ≥ 25 mm p.a.

Proportion of days ≥ 25 mm due to ECLs





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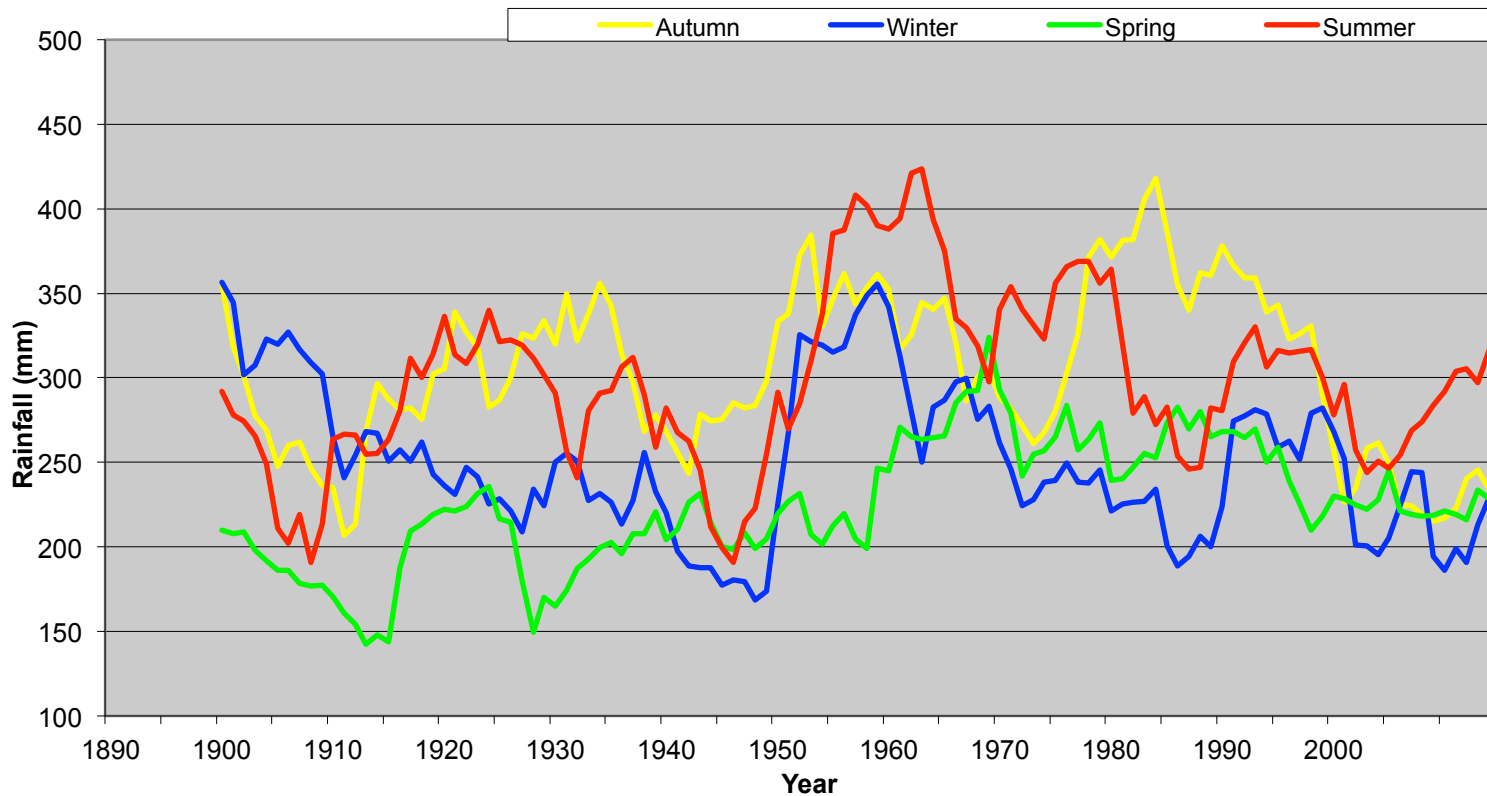


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Annual/Seasonal Rainfall – Illawarra

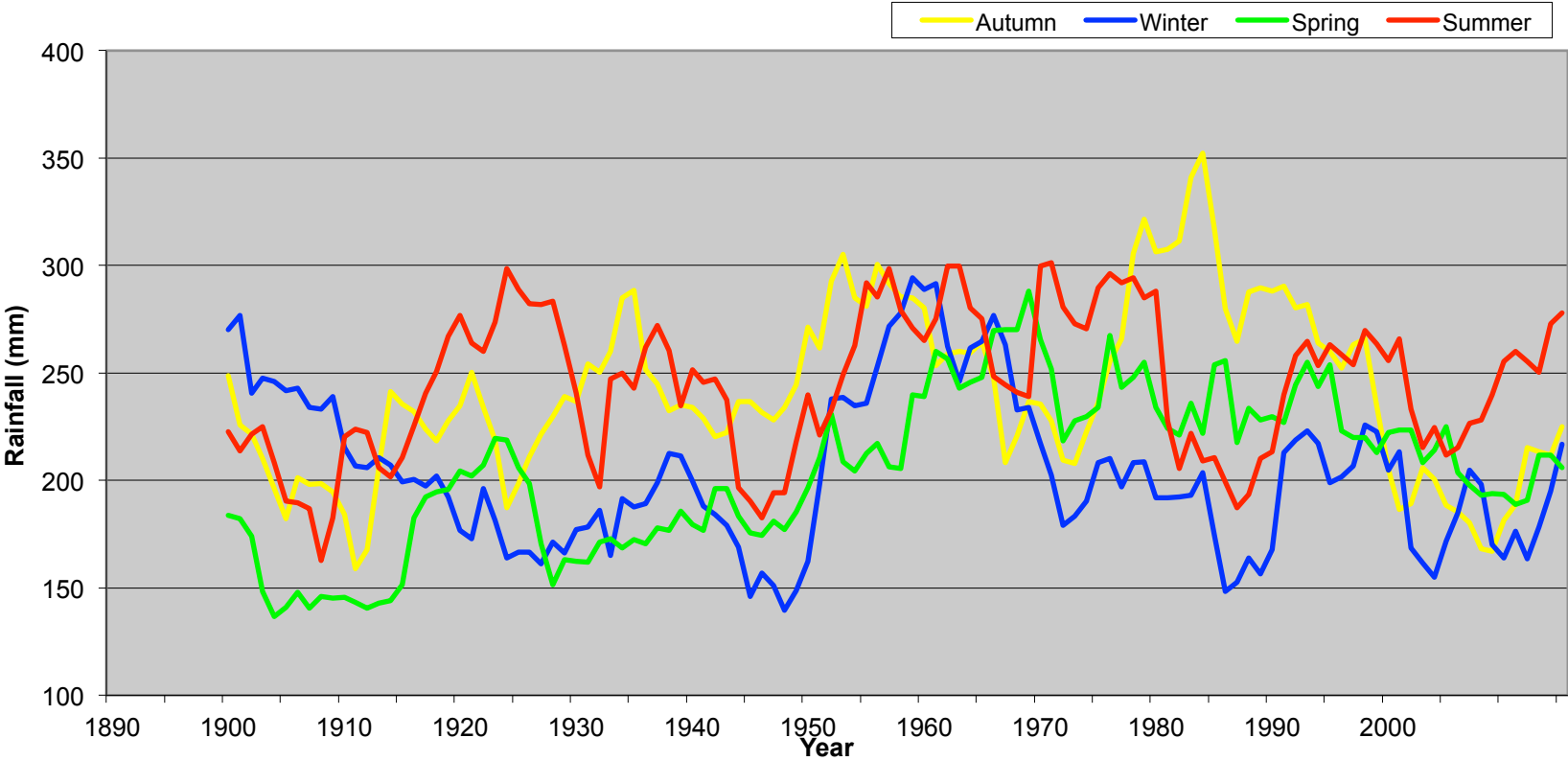
Seasonal Rainfall Trends (11 Year Moving Averages) for District 68 - Illawarra





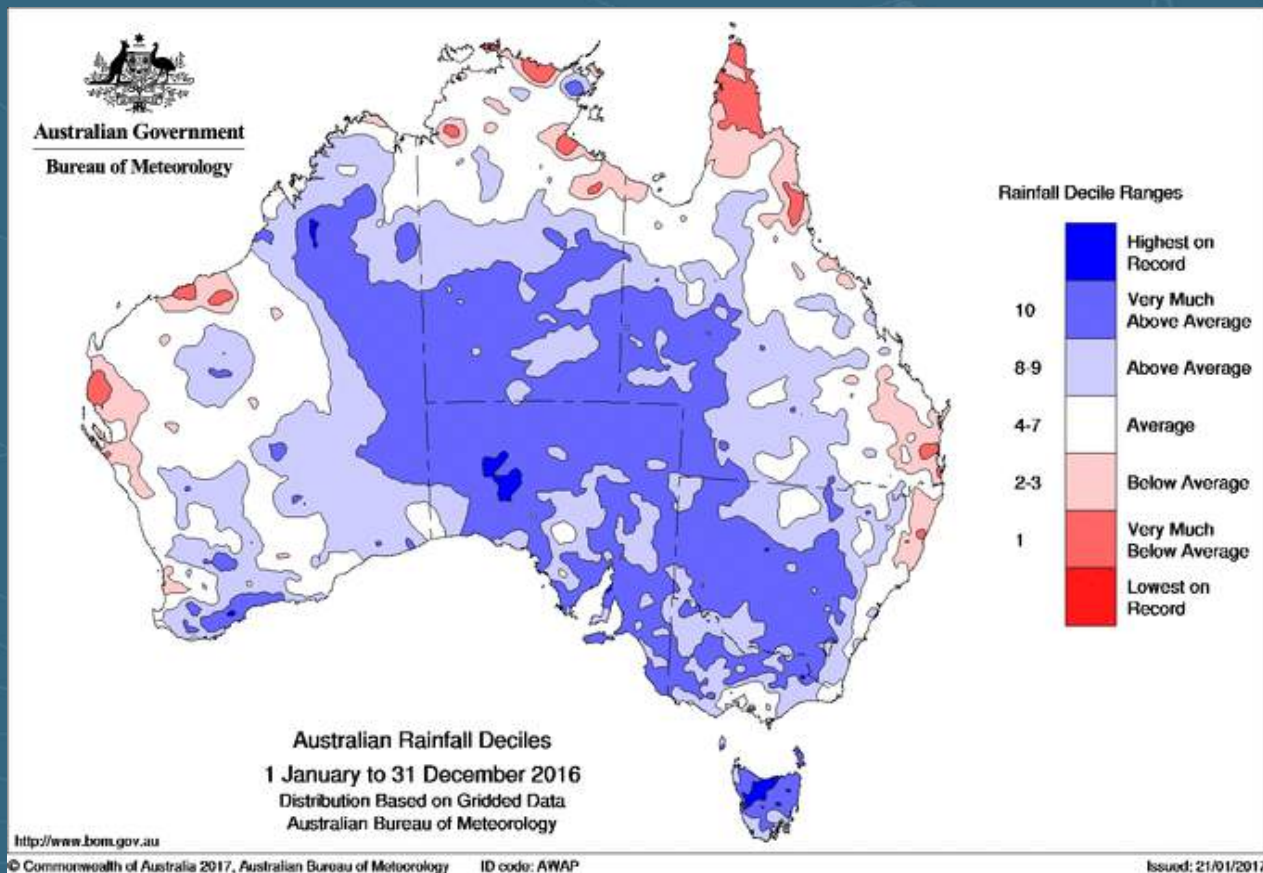
Annual/Seasonal Rainfall – South Coast

Seasonal Rainfall Trends (11 Year Moving Averages) for District 69 - South Coast



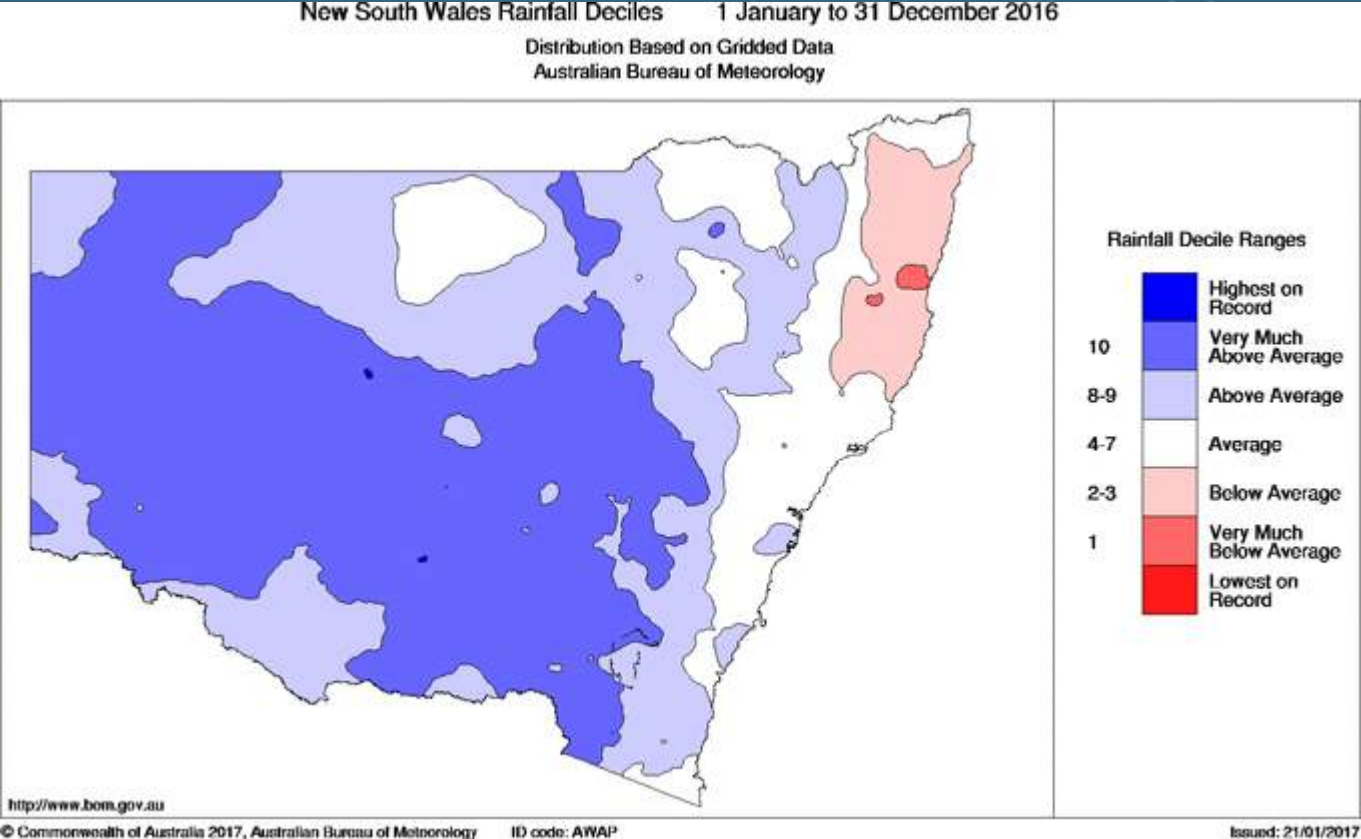


Australian Rainfall in 2016 – Annual



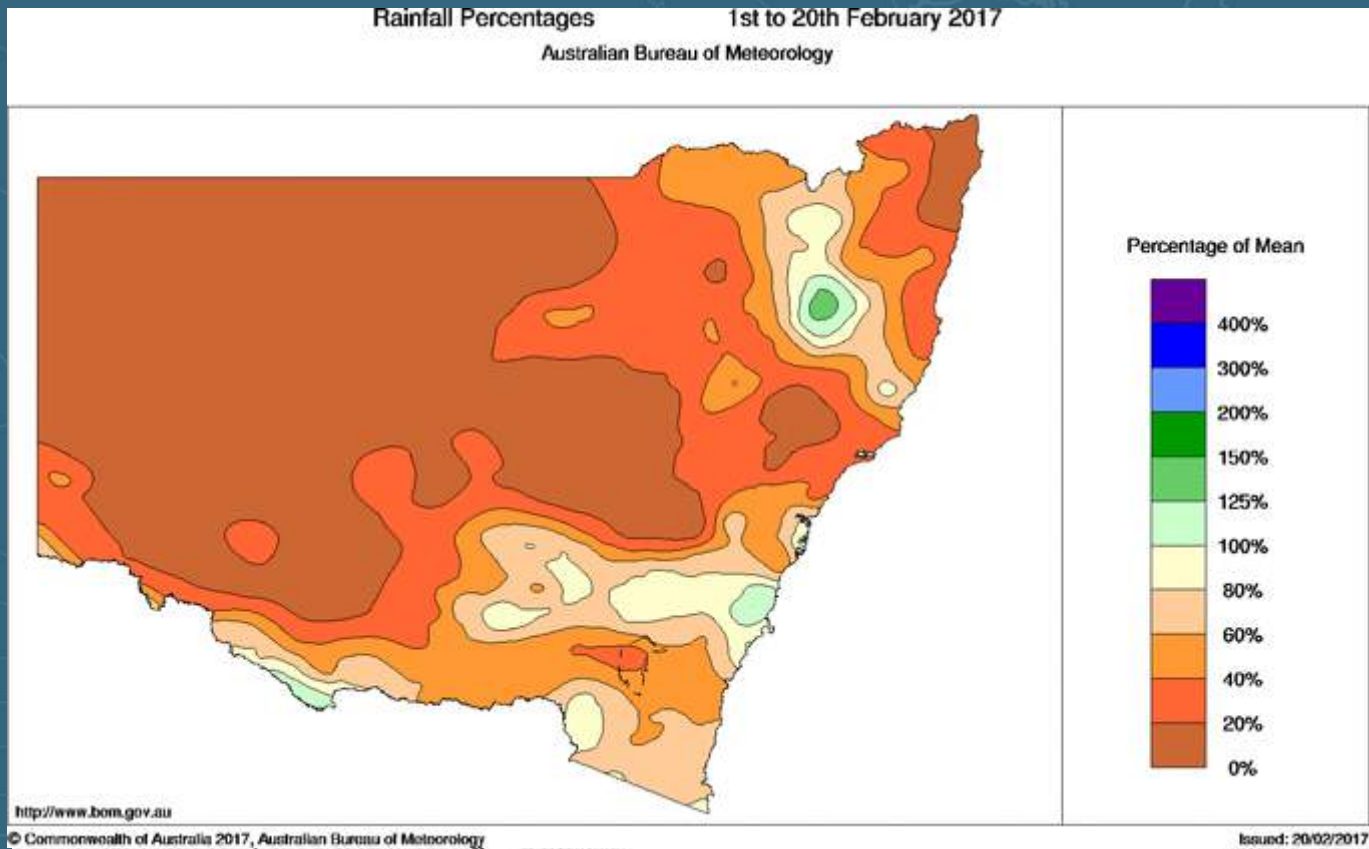


NSW Rainfall 2016 - Annual





NSW Rainfall 2016 - Monthly

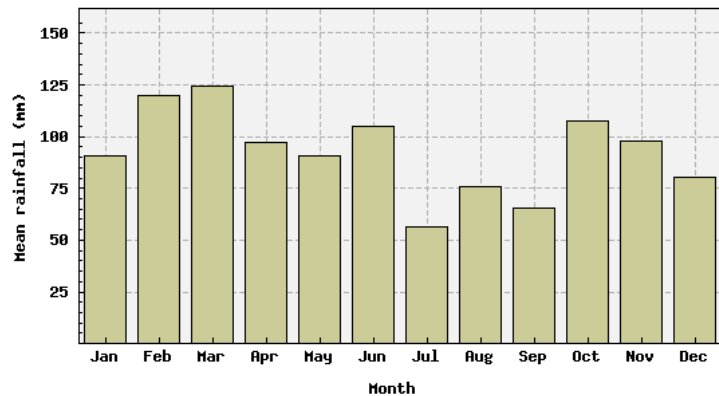




Local rainfall – Nowra

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Location: 068076 NOWRA RAN AIR STATION



068076 Mean rainfall (mm)

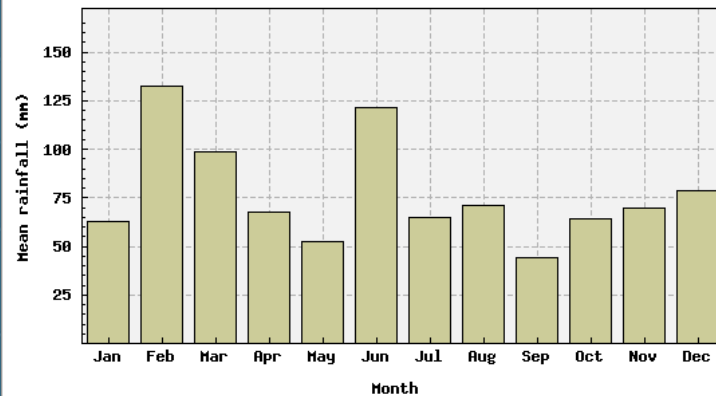


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1942-2000: Mean 1112 mm

Location: 068072 NOWRA RAN AIR STATION AWS



068072 Mean rainfall (mm)



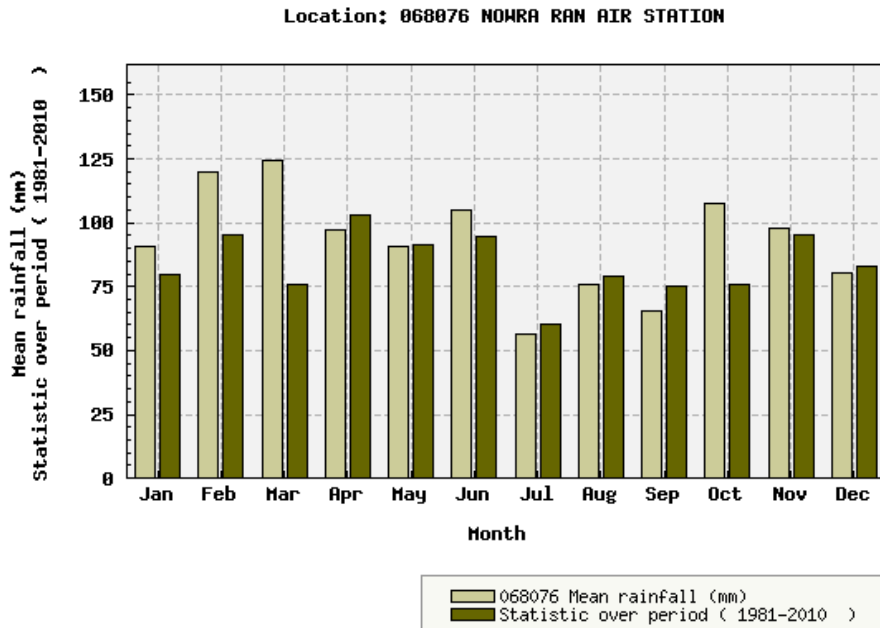
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2000-2016: Mean 925 mm



Local rainfall – Nowra



(1942-2000 Mean 1112 mm)

1951-80 Mean 1198 mm

1961-90 Mean 1172 mm

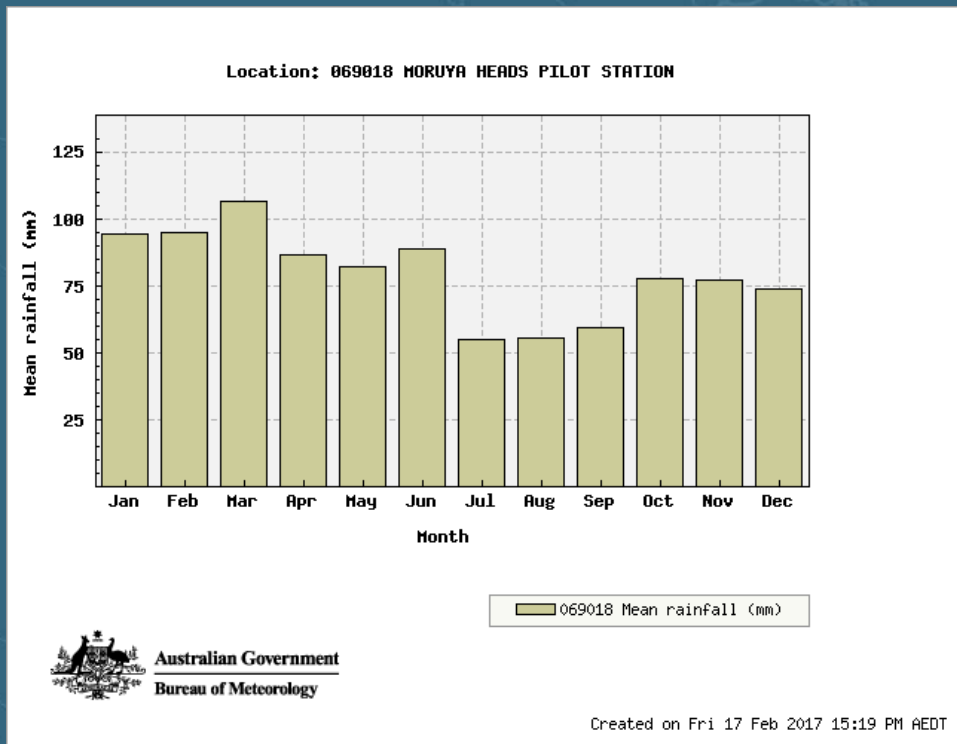
1971-2000 Mean 1085 mm

1981-2010 Mean 1009 mm

(2000-2016 Mean 925 mm)



Local rainfall – Moruya

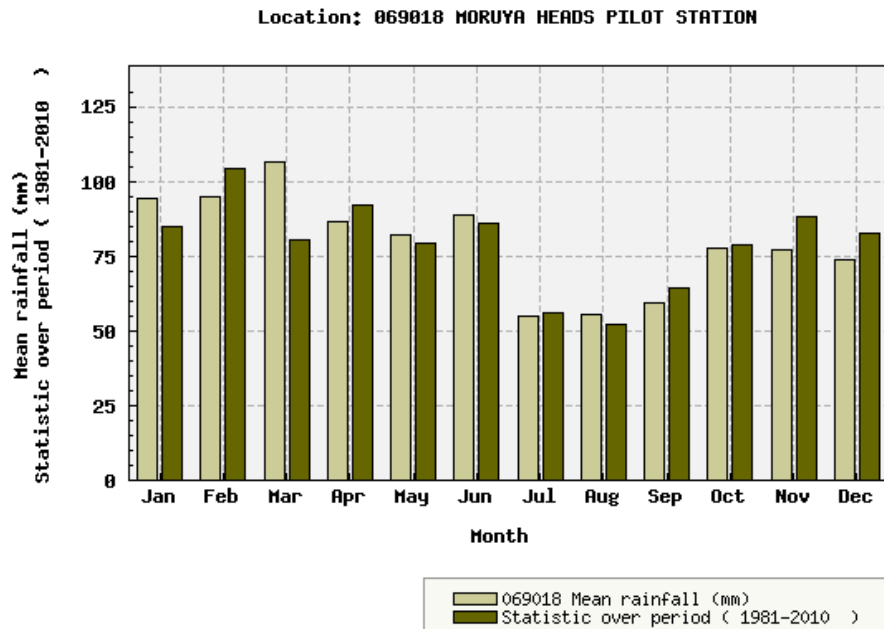


1875-2016: Mean 952 mm



Local rainfall – Moruya

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Created on Fri 17 Feb 2017 15:27 PM AEDT

(1875-2016 Mean: 952 mm)

1881-1910 Mean: 846 mm

1901-30 Mean: 823 mm

1931-60 Mean: 1010 mm

1951-80 Mean: 1085 mm

1971- 2000 Mean: 1073 mm

1981-2010 Mean: 951 mm

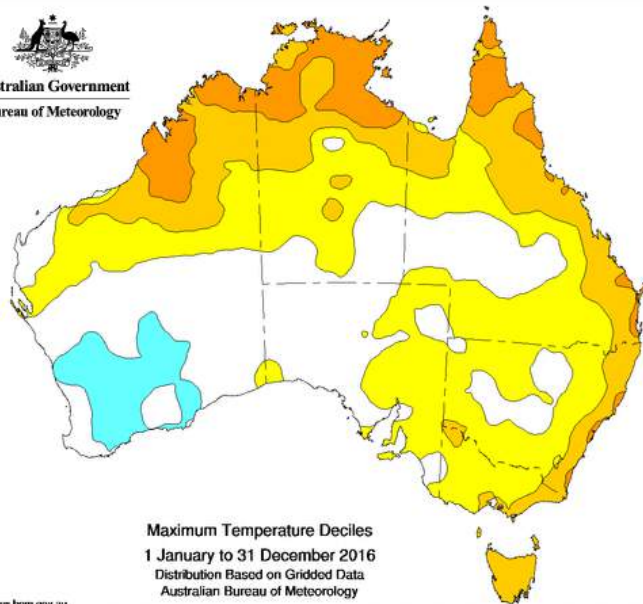


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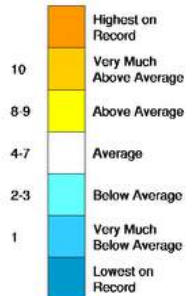
Temperature 2016



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Temp. Decile Ranges



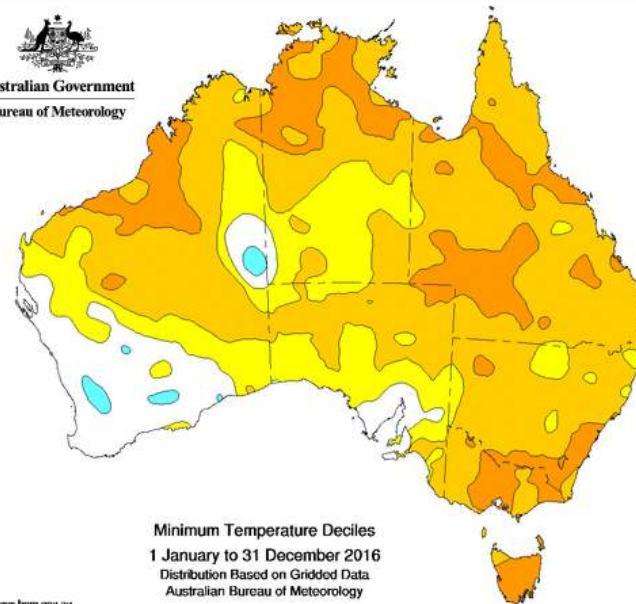
<http://www.bom.gov.au>

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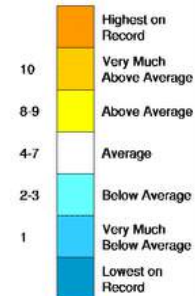
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Temp. Decile Ranges



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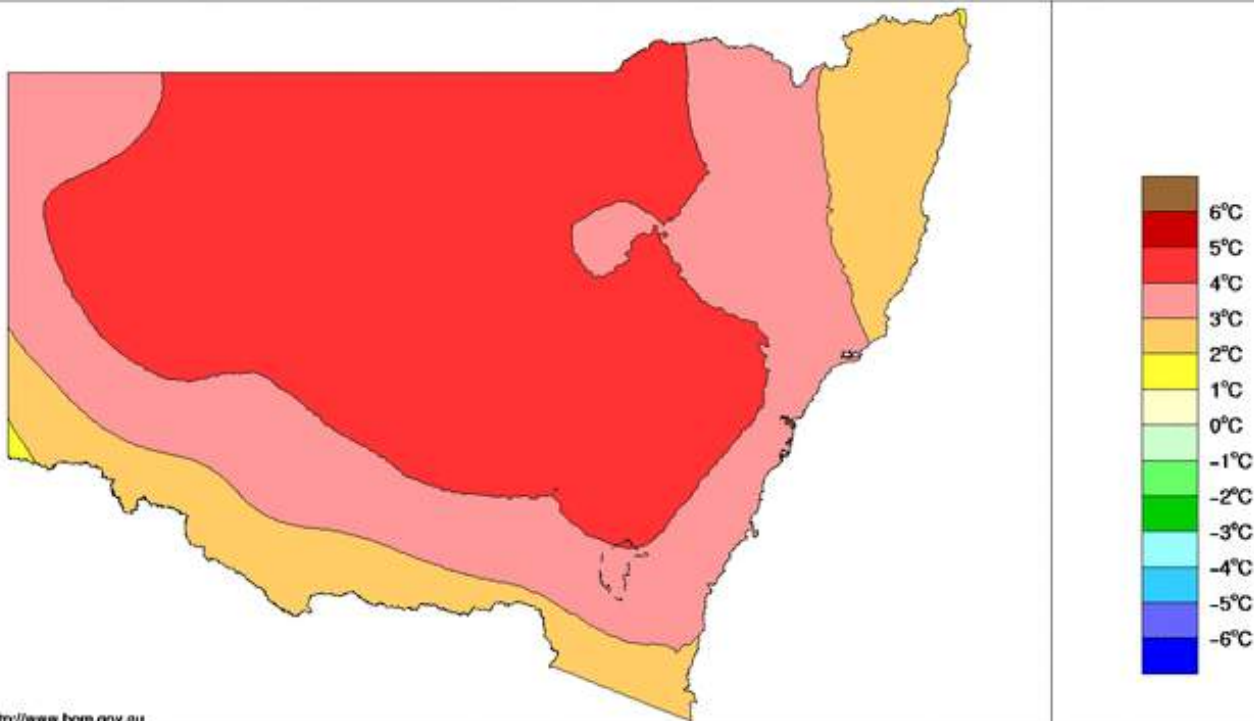
Maximum temperature deciles

Minimum temperature deciles



Temperatures this summer

Maximum Temperature Anomaly (°C) January 2017
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<http://www.bom.gov.au>



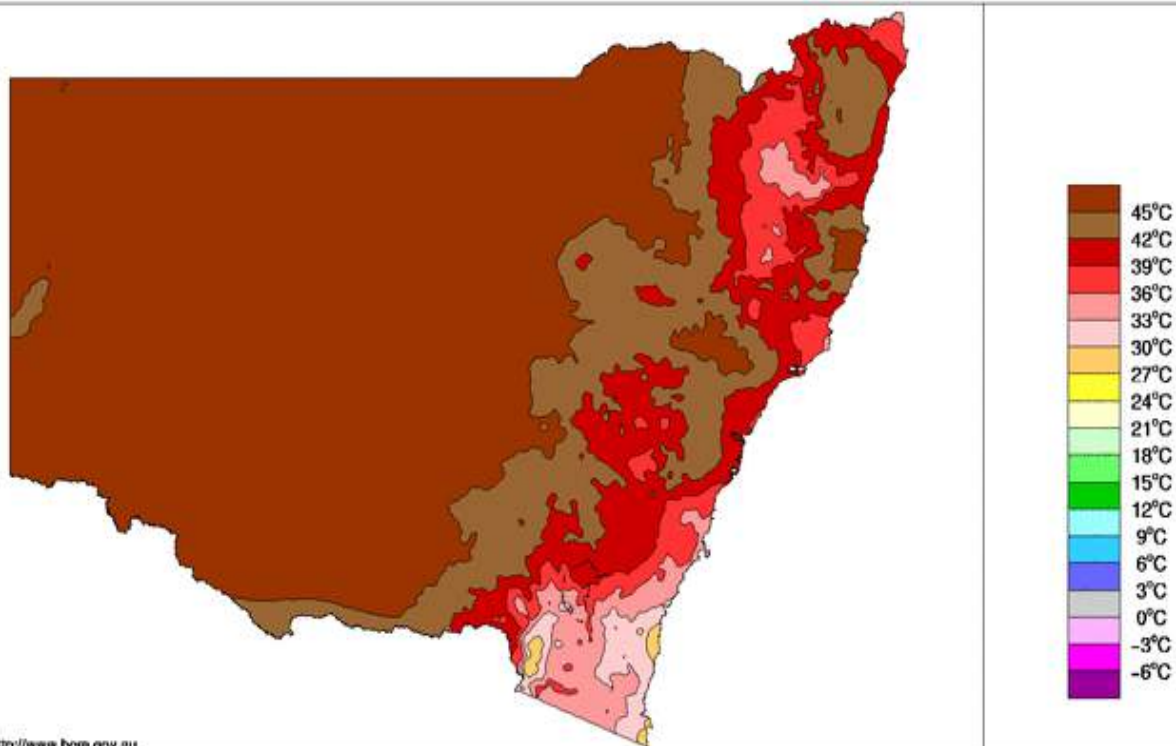
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Heatwaves

Highest Maximum Temperature (°C) Week Ending 14th February 2017

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Thank you.....

...now, let's look at the current
Seasonal Outlook