



October 2009 (next update by 12 November 2009)

# GROWING SEASON OUTLOOK

[www.agric.wa.gov.au/climate](http://www.agric.wa.gov.au/climate)

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## Summary

- Equatorial Pacific sea surface temperatures (SSTs) have indicated that weak El Niño conditions have been present in recent months. However, the Southern Oscillation Index (SOI) has remained neutral and the trade winds have strengthened in the eastern Pacific over the last month. Local Australian indicators are mixed as well. Barometric pressure has been well below normal over southern Australia and this has been related to frequent frontal activity and average to above average rainfall in most areas. To the north of Australia, below average rainfall has been related to above normal pressure and a persistent quiet phase of the Madden-Julian Oscillation (MJO).
- The most appropriate ESS analogue years selected with Australian indicators taken into account are the weak El Niño years 1951, 1963, 1986, 1991 and 1993. The median rainfall map of these years suggests that average to slightly above average rainfall is the most likely outcome across southern parts of Australia and that below average rainfall is more likely in northern parts of Australia.

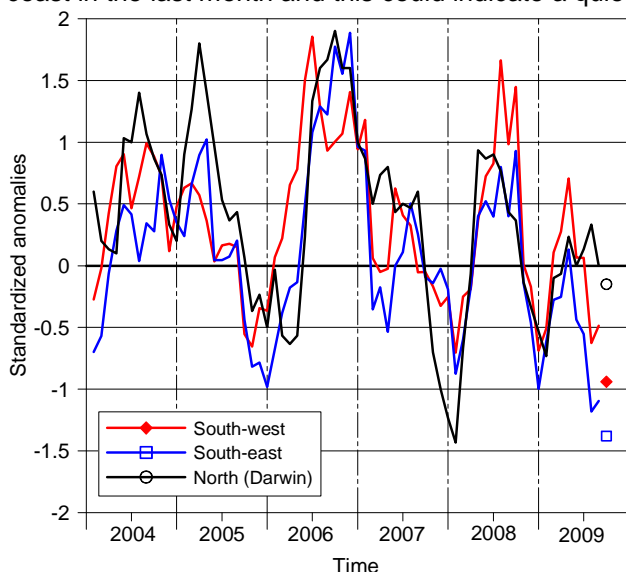
## Discussion of Climatic Indicators

### ENSO (El Niño – Southern Oscillation), or Pacific indicators

• Most dynamic computer models are predicting moderate to strong El Niño conditions to continue developing. The Department's experimental [ENSO Sequence System](#) (ESS) has selected analogues which suggest that the odds of each ENSO State by the end of the year are: weak El Niño 80%, neutral 20% and La Niña 0% (see [DAFWA ENSO Technical Summary](#)). This also highlights the mixed ocean and atmospheric conditions and the distinct possibility of El Niño conditions weakening over austral summer.

### Local Australian indicators

• [Sea surface temperatures](#) (SSTs) are slightly warmer than normal to the north of Australia and cooler than normal to the south of Australia. The Mean Sea Level Pressure (MSLP) has been well below normal across southern Australia in recent months (Fig. 1) and this has been related to frequent frontal activity and good rainfall in most southern regions. Cloud-band activity has been weak due to upper level convergence over Indonesia and the eastern equatorial Indian Ocean. This result is due in part to higher than normal pressure over Darwin (prior to September) and a persistence of the quiet phase of the MJO north of Australia. SSTs have cooled off the Pilbara coast in the last month and this could indicate a quiet start to the cyclone season in WA prior to the new year.



**Figure 1:** Three month mean sea level pressure anomalies averaged for south-western Australia (Geraldton, Corrigin), south-eastern Australia (Mildura, Alice Springs) and northern Australia (Darwin). The last 2-month mean pressures are shown with the symbol at the end of the time series. Drought to dry conditions are indicated with above normal pressure (stronger high pressures) in mid 2006-2008; better rainfall conditions are indicated with below normal pressure (stronger low pressures) in 2005, and late 2007 and 2008.

## Confidence in Outlook

The confidence placed in rainfall outlooks produced by ESS depends on how many global and local indicators are adding together to produce a consistent rainfall outcome and what agreement there is in the ESS analogue years. The ENSO state is compared with four local indicators and when there is agreement between the indicators a higher level of confidence is placed on the rainfall outlook. When local indicators are inconsistent with the global scale pattern (e.g. cold SST north of Australia in the 2007 La Niña) then confidence is lowered. Over the last three months there has been an improvement in most local indices, whereas the global scale has had a more negative El Niño pattern in place (note: this is the reverse situation to 2007).

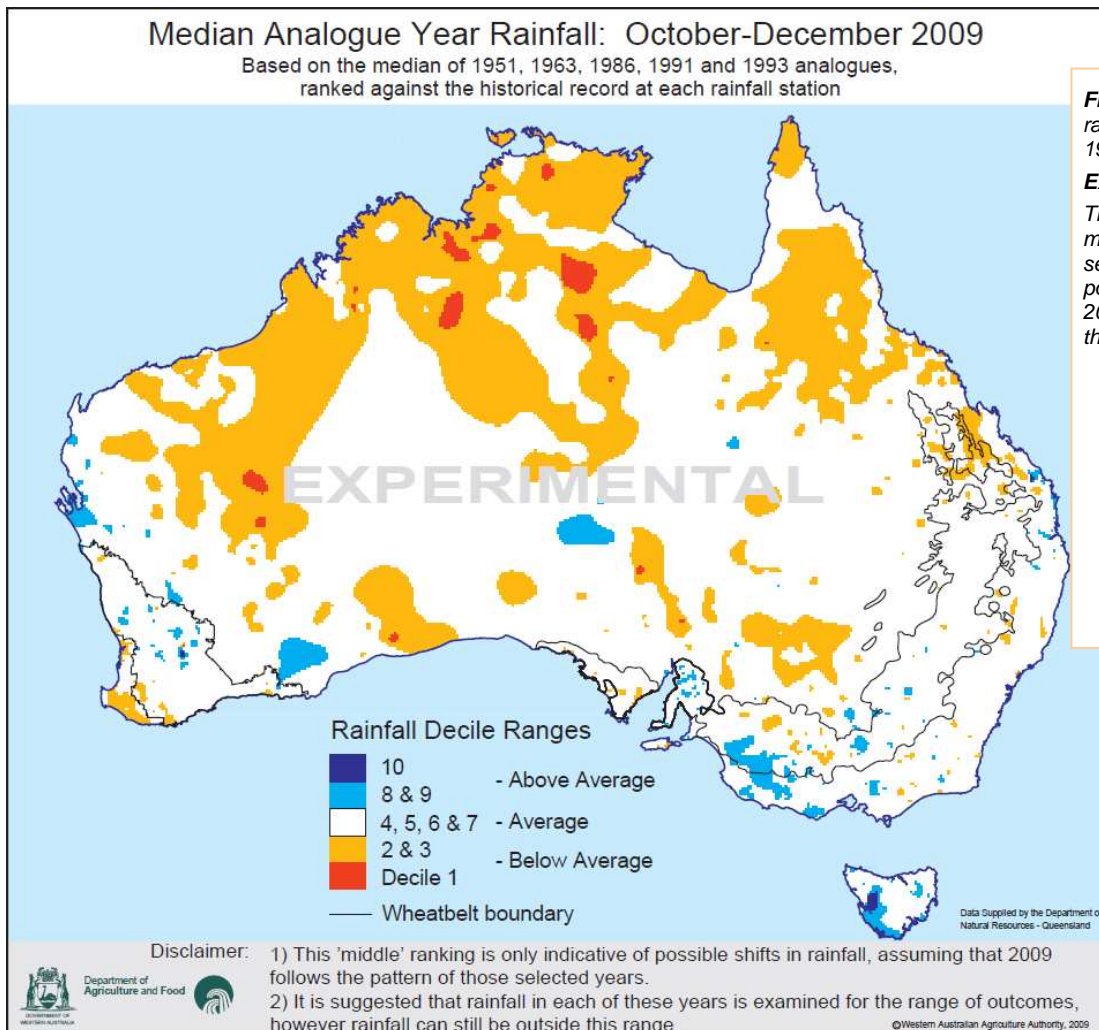
Table 1 WA Climate Indicators Summary

Climate Indicator	Meaning	Current status
1. ENSO state (global – Indo-Pacific)	Pressure, SST - picked by ESS	Weak El Nino (X)
2. Barometric Pressure over Australia	Strongly relates to rain – stronger high pressures relate to dry conditions	Below (above) normal pressure – good (poor) rainfall prospects for southern (northern) Australia (√ to X)
3. SST gradient north of Australia	How warm is ocean north and northwest of WA	SST gradient is slightly enhanced (√)
4. Cloud-band activity	Important in more northern cropping areas	Weak (X)
5. Frontal activity	Important in southern Australia	Regular (√)

(X) = negative trend, (-) = no trend indicated, (√) = positive trend

## Three Month Rainfall Outlook October to December 2009

The October to December rainfall outlook based on ESS analogue years shows rainfall from the five top ranked analogue years ranked by decile (rainfall record is grouped into equal tenths) with the middle rainfall ranking mapped (Figure 2). This means there are two drier years and two wetter years than the year that is mapped. The confidence in a dry outlook in the north is quite high given the Pacific warming and reduced cloudiness in the Indonesian region. Confidence in an average outlook in southern areas is moderate given the number of positive trends relevant to the south in Table 1.



**Figure 2** Median (middle) rainfall ranking of the five analogue years 1951, 1963, 1986, 1991 and 1993.

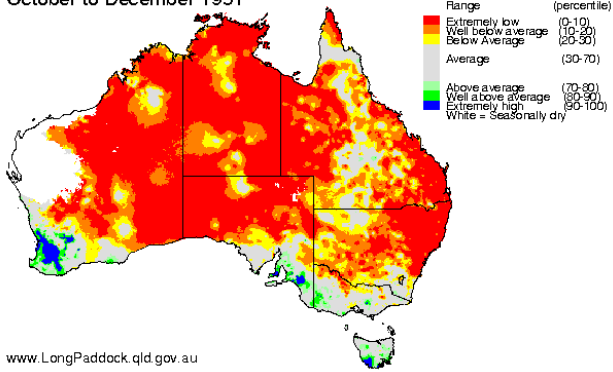
**Experimental Map disclaimer:**

This map should not be interpreted to mean that rainfall will be the same in the selected period, but may be indicative of possible trends in rainfall as long as 2009 conditions follows the pattern of those selected years.

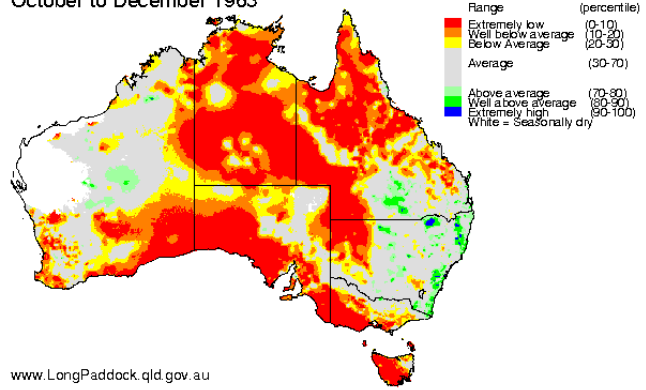
# October to December rainfall – Individual analogue years

For much of Australia there is a mixture of rainfall indicated from the different analogue years and this is consistent with the mixture in indicators listed in Table 1.

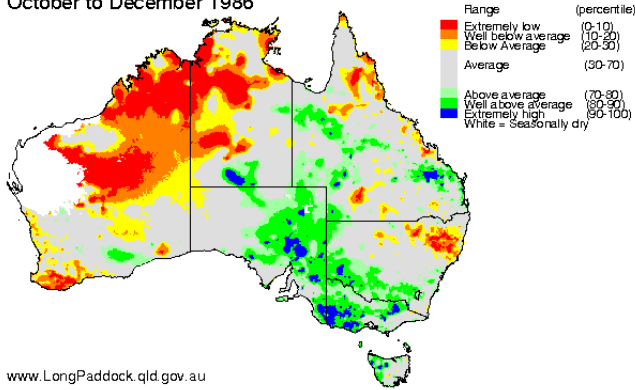
Rainfall Relative to Historical Records  
October to December 1951



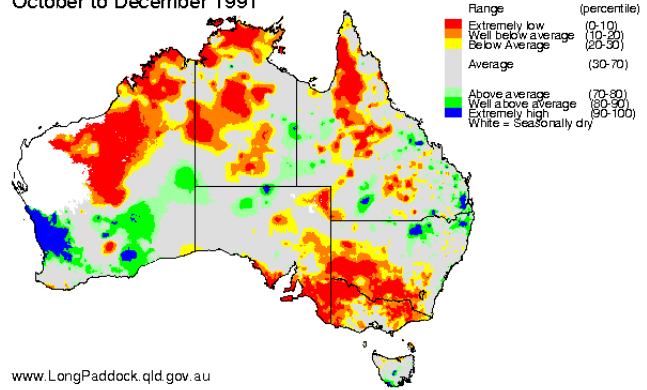
Rainfall Relative to Historical Records  
October to December 1963



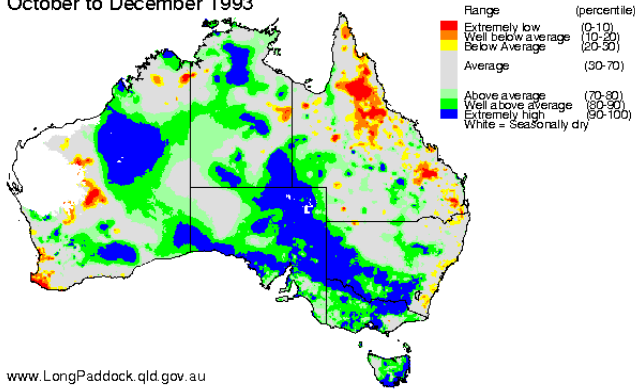
Rainfall Relative to Historical Records  
October to December 1986



Rainfall Relative to Historical Records  
October to December 1991



Rainfall Relative to Historical Records  
October to December 1993



**Experimental Map disclaimer:**

*This map should not be interpreted to mean that rainfall at any location will be the same in the selected period, but may be indicative of possible trends in rainfall as long as 2009 conditions follows the pattern of the selected years*

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## Other Seasonal Outlooks for south-west Western Australia

Some other agencies that produce seasonal rainfall (and for some temperature) outlooks are listed below. Four of the models have skill for October to December rainfall for the south- west of Western Australia.

A survey of these and other experimental models indicate the next three months' rainfall is more likely to be below normal rather than wetter. The outlook from the Queensland Department of Natural Resources and Mines indicates above median rainfall is more likely , while the Bureau of Meteorology's outlook indicates even chances for above or below normal rainfall for southern WA. The remaining outlooks (from the European Centre for Medium Range Weather Forecasts, the International Research Institute and the UK Met Office indicate below median rainfall is more likely for WA's agricultural area. The experimental seasonal prediction from the POAMA model from the Bureau of Meteorology indicates near-normal rainfall over most of southern Australia for October to December. Of all 8 systems surveyed, four indicated drier conditions, one indicated average rainfall, while two had neutral outlooks. Only one indicated wetter than normal conditions.

For temperature, the seven models available indicate a spread of temperature outlooks for October to December. Average or Warmer seasonal temperatures are indicated by three systems, while four models indicate cooler conditions..

- [Bureau of Meteorology](#)
- [Queensland Department of Natural Resources and Mines](#)
- [International Research Institute](#)
- [European Centre for Medium Range Weather Forecasts](#)
- [UK Met Office](#)
- [Experimental Centre for Climate Prediction](#)

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## Additional Information for Western Australia

October's edition of DAFWA's [Seasonal Update](#) which has a map of predicted wheat yield rankings, as well as seasonal rainfall summary.

Latest [Pestfax](#) – reports on diseases and pests threatening crops and pastures throughout the grain belt of WA

List of [tools to assist in decision making](#)

Farmnote on [where to find rainfall data](#)

Farmnote on [rainfall deciles](#)

Weather websites and short term outlooks:

[Australian Bureau of Meteorology](#)

[Water and the Land](#)

[Australian Weather News](#)

[Centre for Ocean-Land-Atmosphere Studies short term climate outlooks](#)

[US Navy's Fleet Numerical Meteorology and Oceanography Centre](#)

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