

# What is El Niño and what might it mean for Australia?

<http://www.bom.gov.au/climate/updates/articles/a008-el-nino-and-australia.shtml>

Issued June 2014

Australia's weather is influenced by many climate drivers. El Niño and La Niña have perhaps the strongest influence on year-to-year climate variability in Australia. They are a part of a natural cycle known as the El Niño–Southern Oscillation (ENSO) and are associated with a sustained period (many months) of warming (El Niño) or cooling (La Niña) in the central and eastern tropical Pacific. The ENSO cycle loosely operates over timescales from one to eight years.

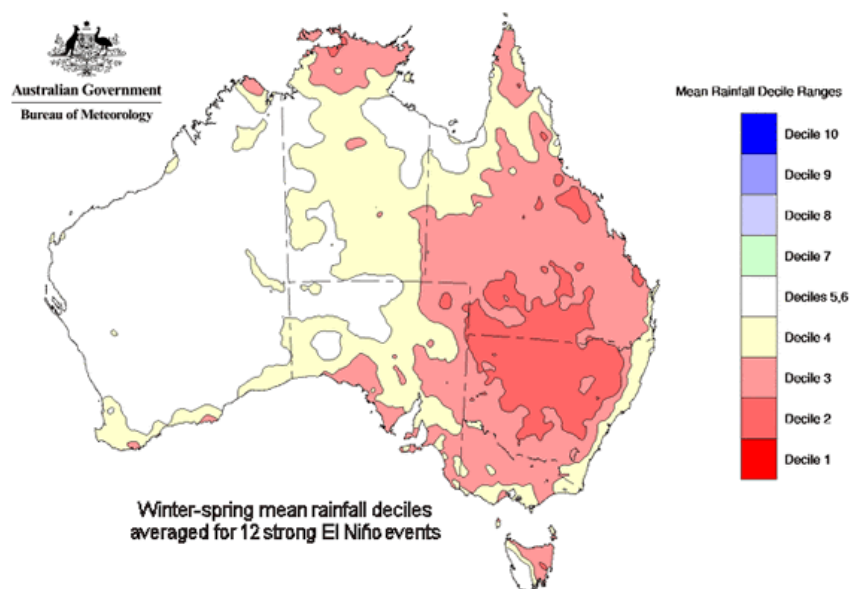
Potential effects of El Niño on Australia include:

- ✓ Reduced rainfall
- ✓ Warmer temperatures
- ✓ Shift in temperature extremes
- ✓ Increased frost risk
- ✓ Reduced tropical cyclone numbers
- ✓ Later monsoon onset
- ✓ Increased fire danger in southeast Australia
- ✓ Decreased alpine snow depths

## Reduced rainfall

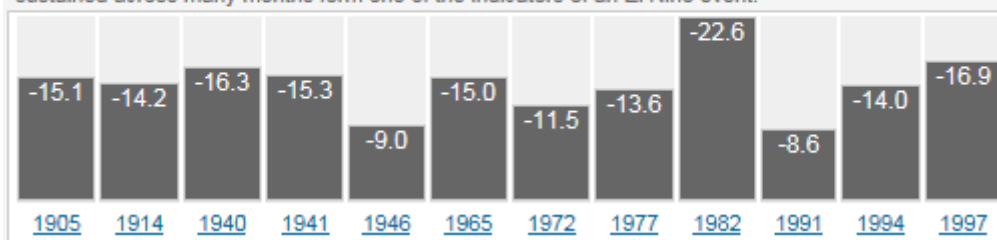
The shift in rainfall away from the western Pacific, associated with El Niño, means that Australian rainfall is *usually* reduced through winter–spring, particularly across the eastern and northern parts of the continent.

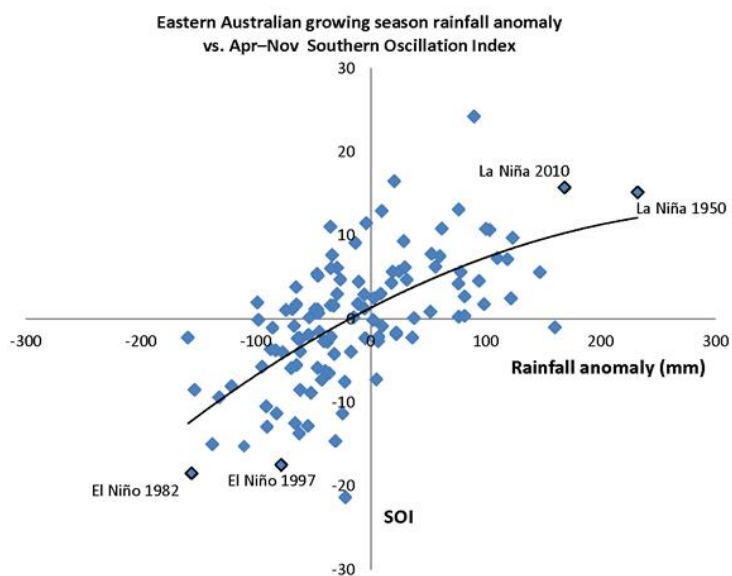
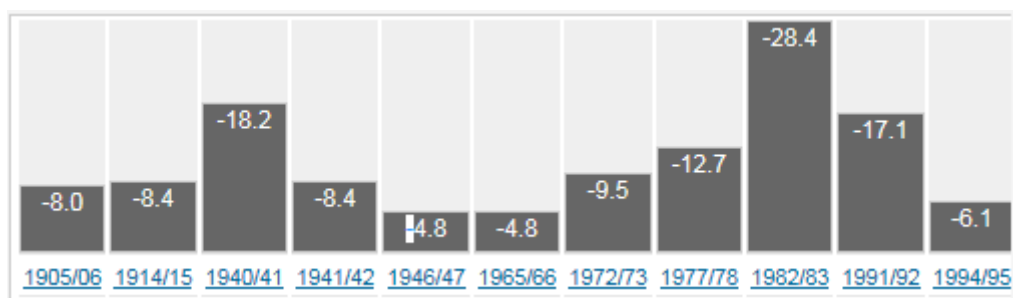
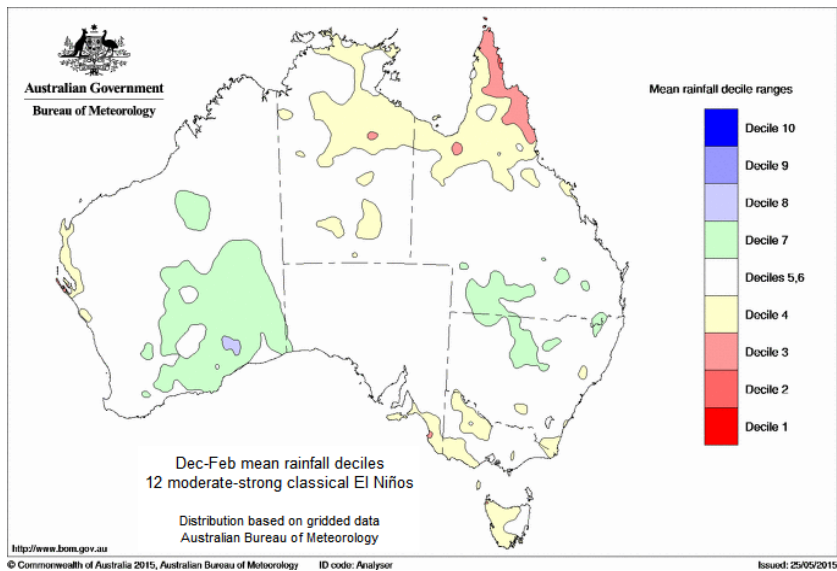
Nine of the ten driest winter–spring periods on record for eastern Australia occurred during El Niño years. In the Murray–Darling Basin, winter–spring rainfall averaged over all El Niño events since 1900 was 28% lower than the long-term average, with the severe droughts of 1982, 1994, 2002 and 2006 all associated with El Niño.



**Figure 1:** Australian winter/spring mean rainfall deciles for twelve El Niño events.

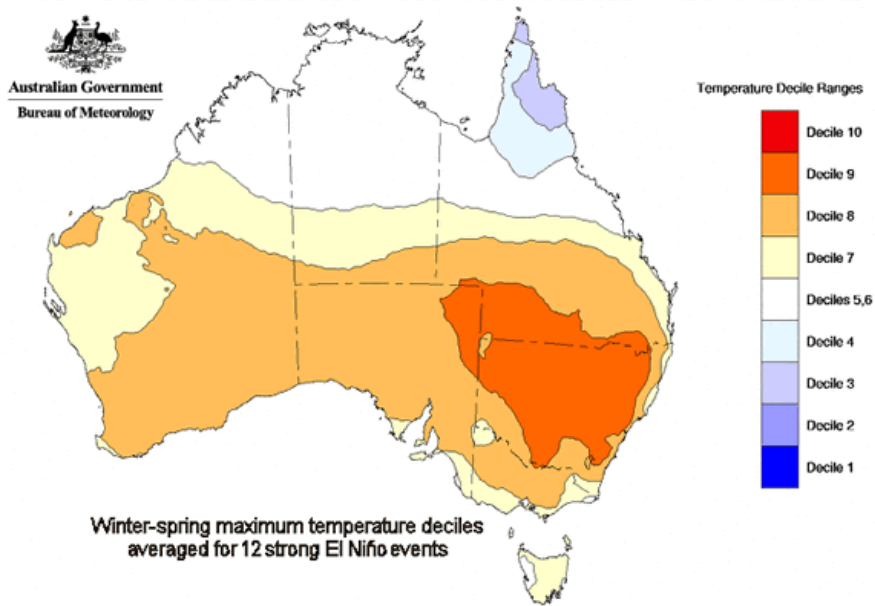
Average (June to November) SOI values for the twelve El Niño years. Strongly negative SOI values sustained across many months form one of the indicators of an El Niño event.





Growing season (April–November) rainfall anomalies for eastern Australian plotted against the SOI averaged for April–November for all years from 1900 to 2013, showing the varied effect of both strong and weak El Niño events on rainfall. El Niño is typically associated with sustained negative SOI values.

## Warmer temperatures



El Niño years tend to see warmer-than-average temperatures across most of southern Australia, particularly during the second half of the year.

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