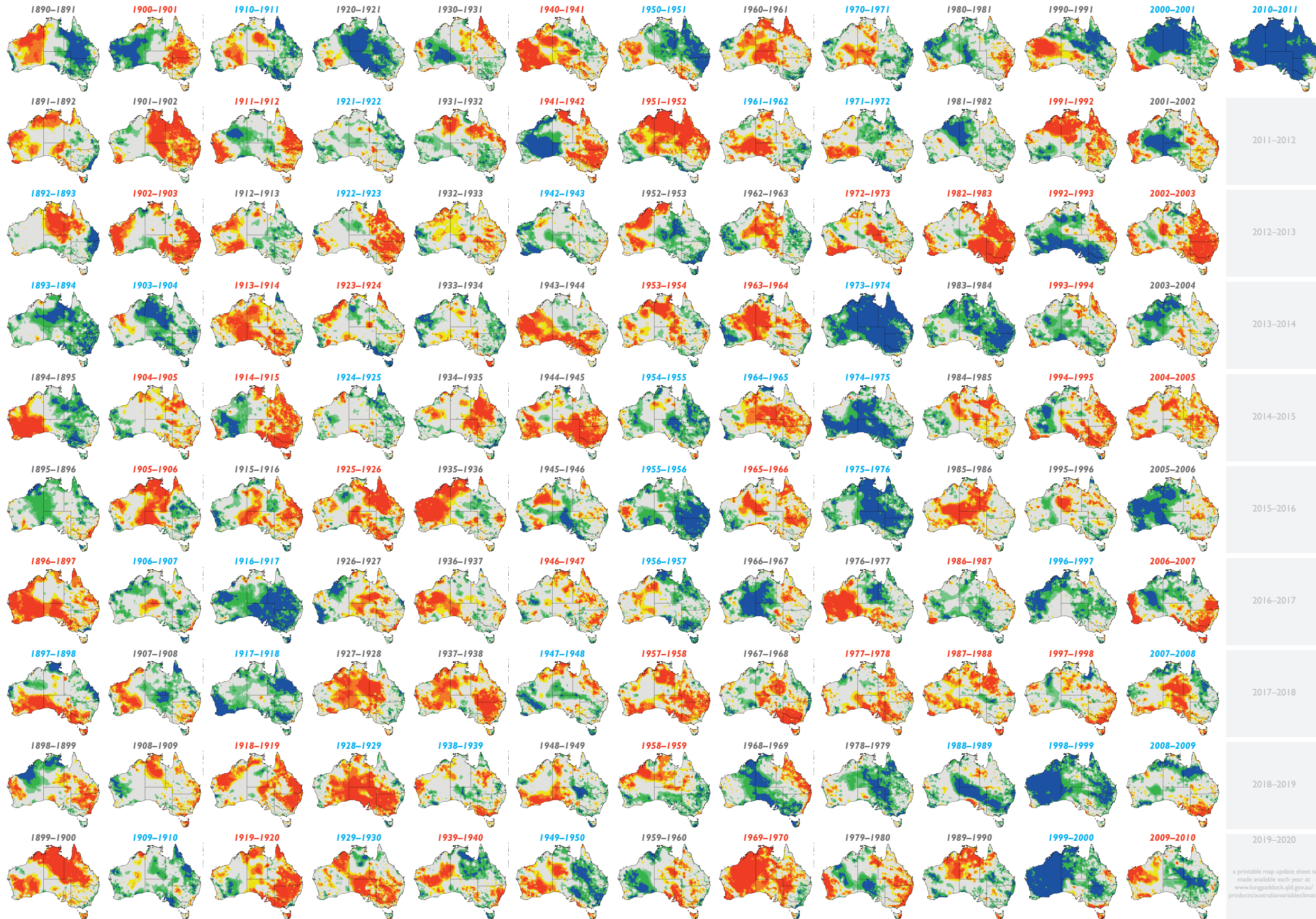


# Australia's Variable Rainfall

April to March Annual Australian Rainfall Relative to Historical Records 1890–2011



**Classification of years**  
Years are classified, according to colour, based on whether they are either 'El Niño' years (red), 'La Niña' years (blue) or 'ENSO Neutral' years (black).

**El Niño =**  
Originally referred specifically to a warming of the sea surface off the coast of Peru, now more generally refers to unusual warming of the central and eastern equatorial Pacific Ocean, strongly associated with persistently negative values of the Southern Oscillation Index (SOI).

**La Niña =**  
Now used to refer to the opposite of El Niño, or events associated with persistently positive values of the SOI.

**ENSO Neutral =**  
ENSO refers to the El Niño–Southern Oscillation which fluctuates between two extremes known as El Niño or La Niña (above). Years which do not fall in either extreme are classified as 'ENSO Neutral'.

El Niño and La Niña year classification is based on values of the Southern Oscillation Index (SOI)\* between June and March. An original classification proposed by Dr Rob Allan has been modified to allow for late-forming El Niño or La Niña events. Threshold values of the SOI have been adjusted such that the frequency of El Niño and La Niña years from 1950–51 to 2009–10 is similar to that obtained by the 'WMO RA IV Consensus Index and Definitions of El Niño and La Niña'\*\*.

An 'El Niño year' is indicated if the six-month average value of the SOI, ending in any month between November and March, was below a threshold value of negative 6.0.

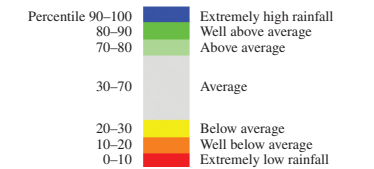
A 'La Niña year' is indicated if the six-month average value of the SOI, ending in any month between November and March, was above a threshold value of positive 6.0.

'ENSO Neutral' years are those which do not fall in either El Niño or La Niña categories (above).

\*Monthly SOI values calculated using base period 1933–1992 inclusive (monthly values available at: <http://www.bom.gov.au/climate/current/soihtm1.shtml>)

\*\*NOAA: World Meteorological Organisation Region IV Adopts Consensus El Niño and La Niña Index and Definitions, Press Release, April 28, 2005 (available at: <http://www.noaa.gov/news.noaa.gov/stories/2005/2428.htm>)

**Rainfall classification**  
Maps for each year show rainfall ranked against historical records from 1890 to 2011. The ranking is expressed as a percentile. For example, a percentile rank of 0–10 indicates that rainfall in that year ranks within the lowest ten per cent of rainfall values recorded at that location.



**Graph**  
The bottom graph shows fluctuations in the six-month moving average of the **Southern Oscillation Index (SOI)**. The SOI compares the difference in atmospheric pressure anomalies between Tahiti and Darwin. The graph also shows fluctuations in the **Inter-decadal Pacific Oscillation (IPO)** a slower moving fluctuation in Pacific Ocean sea surface temperatures which influences climate variability. The IPO values on the graph represent the 13-year average centred on that year (except in more recent years as all future values may not be available).

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- SOI data sourced from the Australian Bureau of Meteorology ([www.bom.gov.au](http://www.bom.gov.au)) with monthly values smoothed using a six-month moving average.
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