

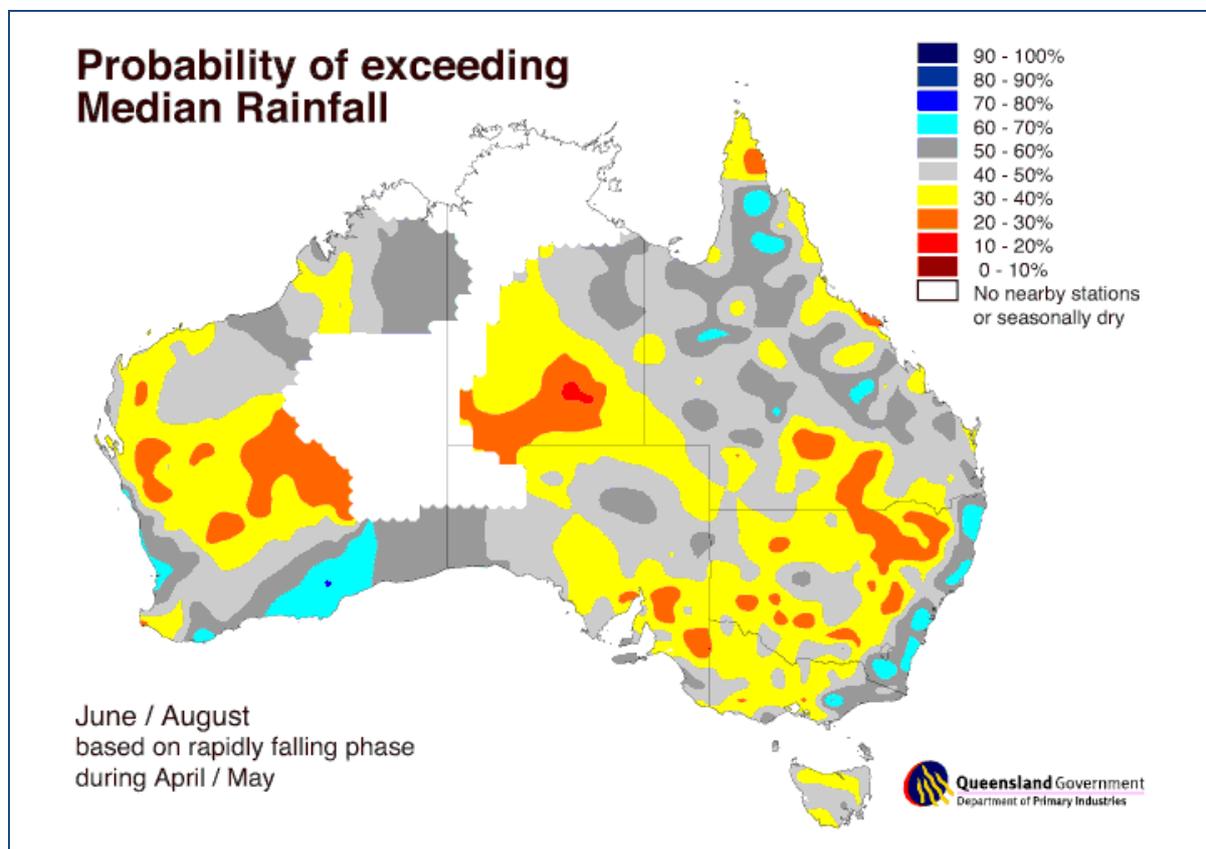


**2 June 2011**

The major La Niña event, that has produced major impacts over much (but not all) of Australia since winter, 2010 has now dissipated. Indeed, some indicators in the Pacific Ocean now suggest a changeover to completely the opposite rainfall pattern to that experienced this time last year. As a result, rainfall probability values suggest a high risk of below median rainfall for much of inland Australia – with the notable exception of the Central Highlands of Queensland, the coast of NSW and some near coastal areas of Queensland (see Figure 1 for details). We suggest close monitoring of this situation as autumn is often a period of volatility in Pacific Ocean systems.

For the overall June-August period, 2011, the 'SOI phase system' forecast suggests 'mixed' rainfall probability values for much of Australia but with notably low values through inland NSW and southern inland Queensland (please see Figure 1 and Figure 3).

The Southern Oscillation Index (SOI) 30-day average has fallen dramatically over recent weeks, with the latest value +2.0 (as at end of May) compared with a value of +23.9 as at end of April, 2011 (please see Figure 2).



**Figure 1.** Forecast rainfall probability values for June to August, 2011 (Stone, Hammer and Marcussen, 1996).

## Overview of climate forecasts

**With the La Niña pattern collapsing, climate models** suggest 'a high risk of below normal rainfall for many inland regions of Australia. An exception to this is the Central Highlands region of Queensland. Also, NSW coastal regions and some coastal areas of Queensland have slightly above normal chances of average or better rainfall for this period. However, some agencies (eg ECMWF) also suggest that rainfall will be reduced in later winter/spring months of this year in many parts of Queensland.

**For updated information, sometimes available on a daily basis,  
we recommend the following:**

International Research Institute (for Climate and Society):

<http://portal.iri.columbia.edu/portal/server.pt?open=512&objID=944&PageID=0&cached=true&mode=2&userID=2>

European Centre for Medium Range Weather Forecasting (ECMWF):

[http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal\\_range\\_for\\_ecast/nino\\_plumes\\_public\\_s3/](http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal_range_for_ecast/nino_plumes_public_s3/)

US Climate Prediction Centre:

<http://www.cpc.noaa.gov/products/precip/CWlink/MJO/enso.shtml>.

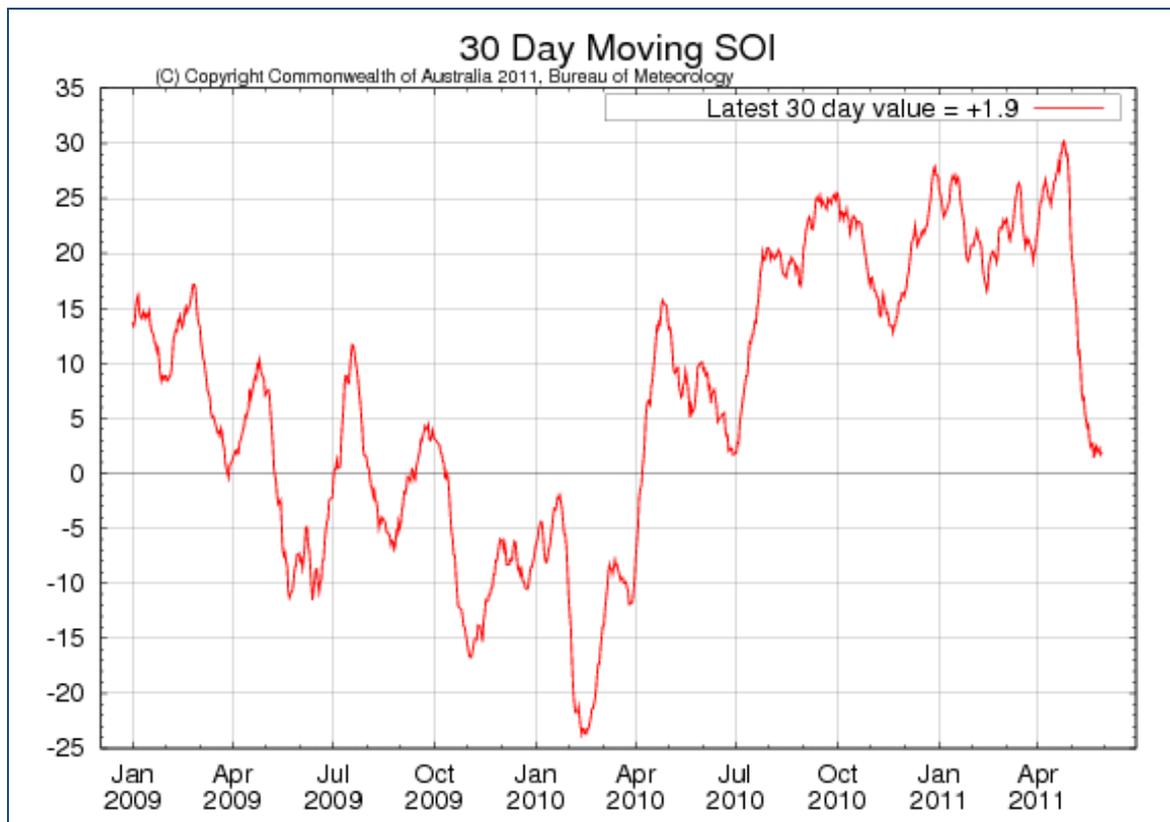
UK Met Office Hadley Centre:

[http://www.metoffice.gov.uk/research/seasonal/el\\_nino/index.html](http://www.metoffice.gov.uk/research/seasonal/el_nino/index.html) and we suggest that you explore the associated images from:

[http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal\\_range\\_for\\_ecast/group\\_public/seasonal\\_charts\\_public\\_rain!rain!1%20month!East%20Asia!200905!prob%20exceeding%20median!/](http://www.ecmwf.int/products/forecasts/d/charts/seasonal/forecast/seasonal_range_for_ecast/group_public/seasonal_charts_public_rain!rain!1%20month!East%20Asia!200905!prob%20exceeding%20median!/)

Bureau of Meteorology: [www.bom.gov.au/climate/ahead/ENSO-summary.shtml](http://www.bom.gov.au/climate/ahead/ENSO-summary.shtml) and:

[http://www.bom.gov.au/climate/ahead/rain\\_ahead.shtml](http://www.bom.gov.au/climate/ahead/rain_ahead.shtml).



**Figure 2.** Monthly SOI values since January 2009 – note the major shift upwards in SOI values during autumn 2009 and consistently strongly positive values thereafter (Graph courtesy BoM).

### Madden Julian Oscillation (MJO)

**Latest information in regards to the MJO suggests it will pass across mainly northern Australia in mid-late June.**

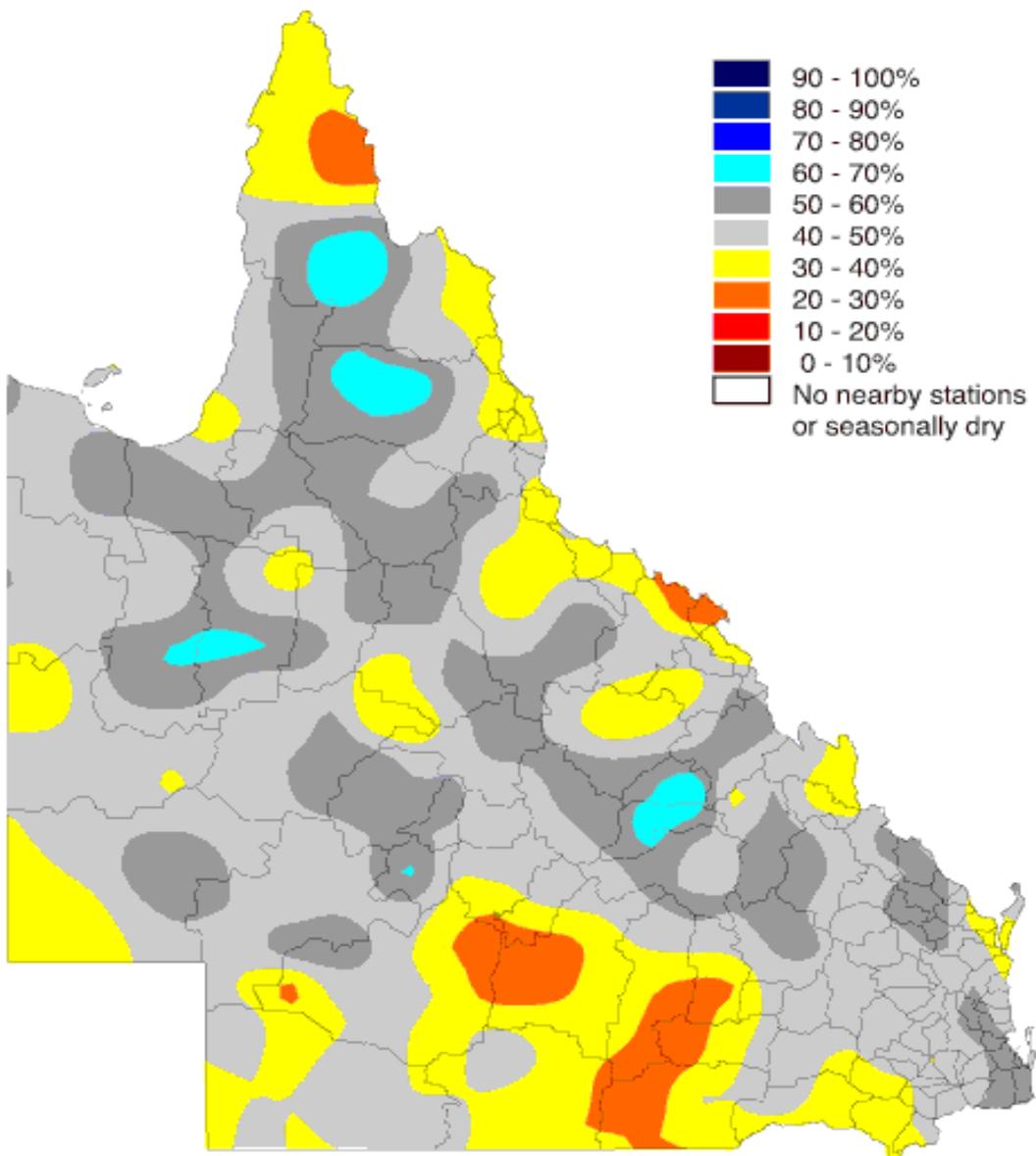
Updated information on the Madden Julian Oscillation (MJO) can be found at <http://www.bom.gov.au/climate/tropnote/tropnote.shtml>). See 'Weekly Tropical Climate Note' on <http://www.bom.gov.au/climate/tropnote/tropnote.shtml> for updated information.

*Results from the Bureau of Meteorology assessment of climate forecast systems used in these analyses is presented in the Appendix.*

*The aims of this review are to provide a critical analysis of climate forecasts and associated information from a wide range of credible sources.*

# Probability of exceeding Median Rainfall

for June / August  
based on rapidly falling phase  
during April / May

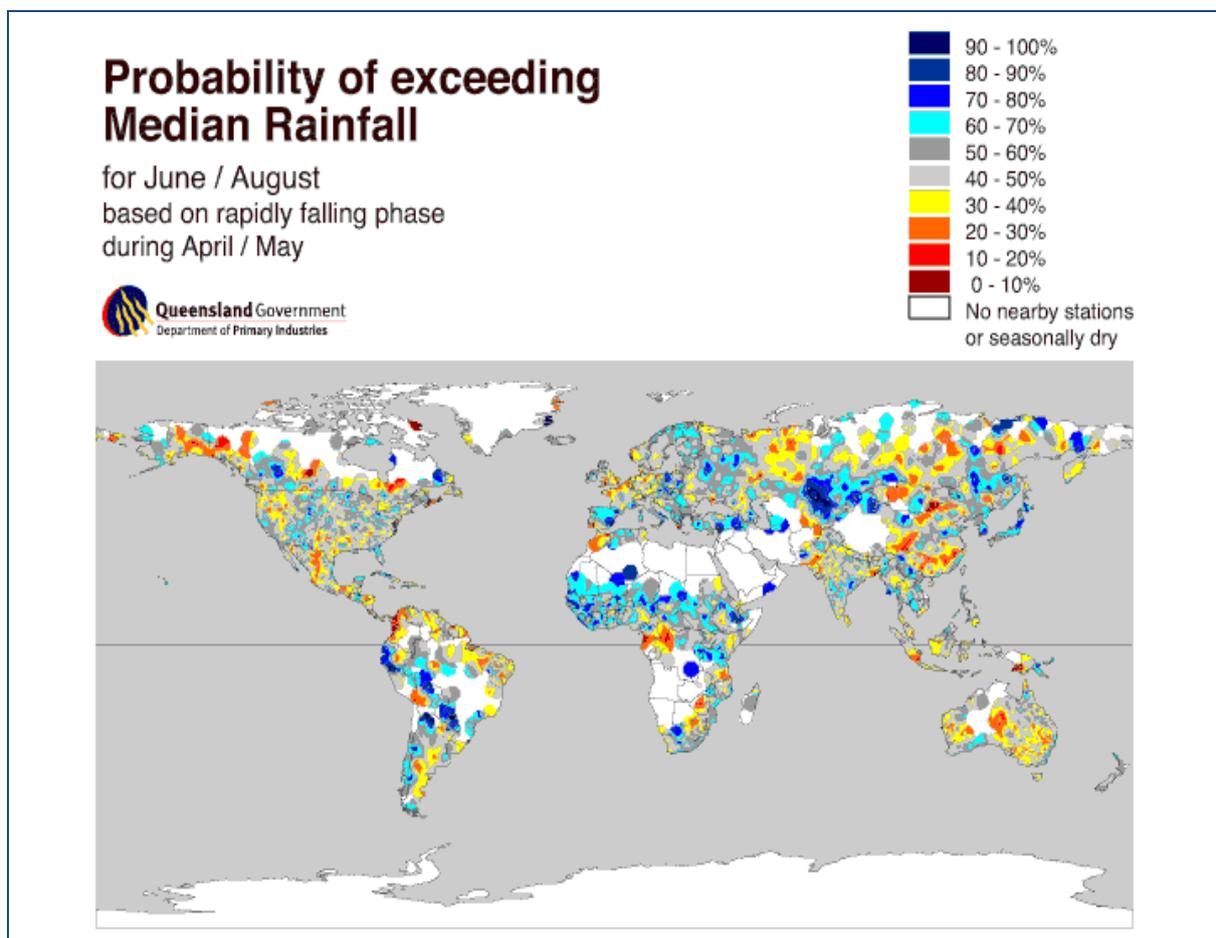


**Figure 3.** Rainfall forecast probability values for Queensland for June-August, 2011  
(Source: Stone, R.C., Hammer, G.L., and Marcussen, T. (1996) *Nature*, 384, 252-255).

Map source courtesy of and available at: <http://www.longpaddock.qld.gov.au/>  
Particularly useful forecast maps are available on the longpaddock web site  
(<http://www.longpaddock.qld.gov.au/>) and useful information is available on  
<http://www2.dpi.qld.gov.au/climate/>.

### Global Forecast Maps

Global rainfall probability forecast values are also contained in this coverage as per the map below (Figure 4).

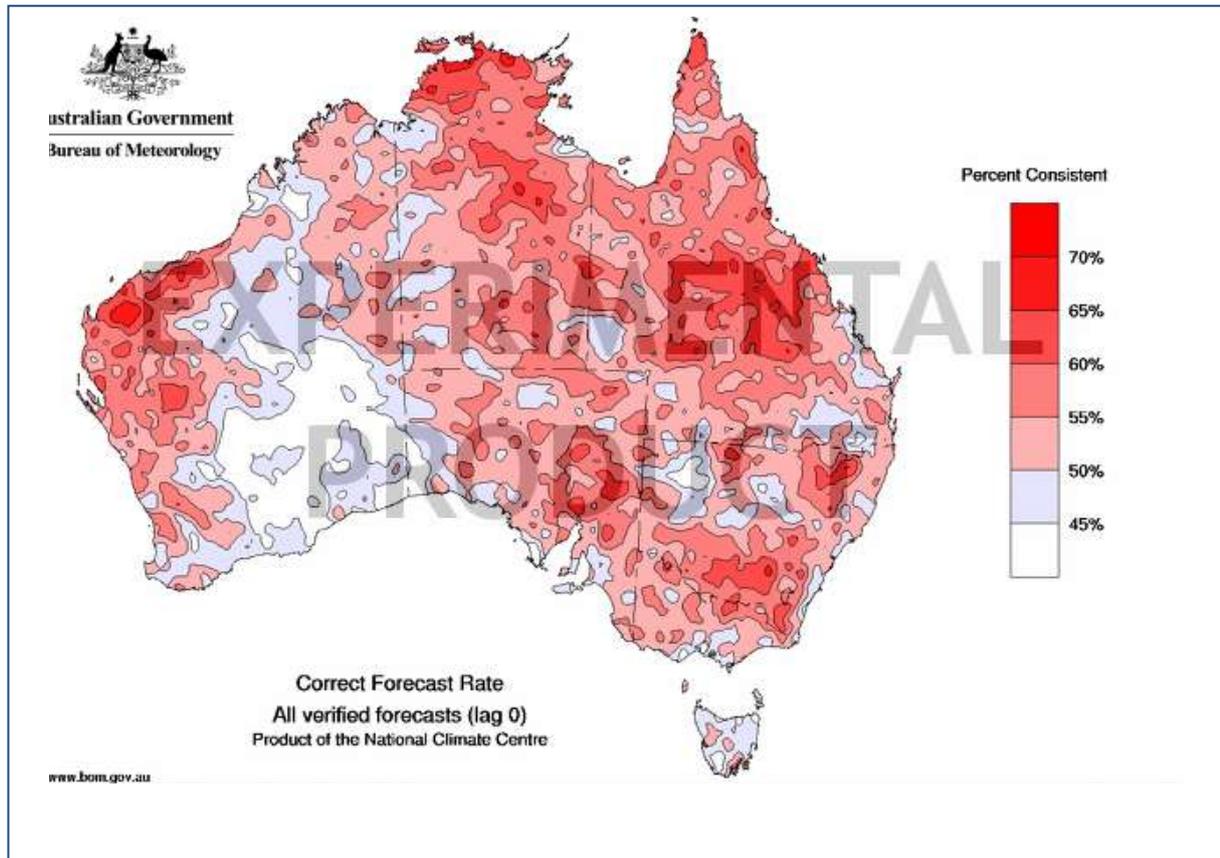


**Figure 4.** Rainfall probability values for global regions for June-August period, 2011.  
Map source courtesy of and available at: <http://www.longpaddock.qld.gov.au>

**Note the high rainfall probability values (probability of exceeding the long-term median) for central America, Brazil, western and central Africa (including the Sahel region), Spain, parts of central Asia and northern China (after Stone, Hammer and Marcussen, 1996).**

## Appendix

Independent verification in real-time analysis (note this relates to all forecasts for all months, not only when El Niño/La Niña were present). Dark red-shaded regions denote regions of high forecast 'skill' while regions shaded white (eg inland Western Australia) have relatively low forecast 'skill' using this method. (see Figure 5).



**Figure 5.** USQ/EPA/DPIF SOI phase system – independent verification results - all forecasts by each month's output over 10 years.