

Queensland Climate Change Centre of Excellence

Monthly Climate Statement—May 2012

Key messages

- Rainfall probabilities for May to July are currently near-normal
- Experimental long-lead outlook for next summer currently wetter than average
- ENSO conditions currently neutral but too early to factor into long-lead outlook for next summer
- Outlook for spring and summer rainfall clearer in June once current ENSO conditions further established

Findings for May 2012

The Queensland Climate Change Centre of Excellence (the Centre) considers that **the probability of above or below-median rainfall for the next three-month period (May to July) is normal (40-60 per cent) for most of Queensland. This outlook is based on the currently neutral state of the El Niño-Southern Oscillation (ENSO) phenomenon. The current sea-surface temperature pattern in the extra-tropical Pacific indicates a higher than normal probability of above-median rainfall for the coming summer (November to March).**

The Centre's understanding is based on the current and projected state of the ENSO phenomenon and on factors which alter the impact of ENSO on Queensland rainfall (e.g. the Pacific Decadal Oscillation (PDO)). The PDO modulates the impact of ENSO on summer rainfall in Queensland.

The Bureau of Meteorology (BoM) have stated that all major indicators of ENSO lie well within the ENSO-neutral range, with a survey of global models suggesting a continuation of neutral conditions, at least into early winter. BoM also notes an increased risk, indicated by some but not all models, of El Niño conditions evolving during winter or spring (['ENSO Wrap-Up'](#) April 24).

As at 1 May 2012, the Centre notes that:

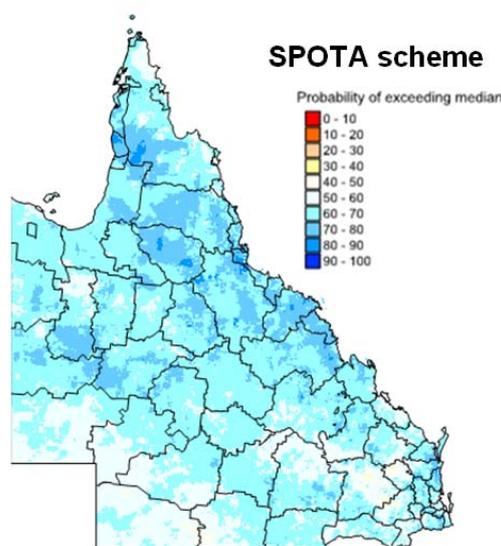
- the [SOI](#), a key atmospheric measure of ENSO, fell from positive values in March (+2.3), to below-average values in April (-6.2).

The April 2012 value of the SOI was the lowest since April 2010

- observed [sea-surface temperatures](#) in the key Niño 3.4 and Niño 4 regions warmed further in April and are currently near-normal
- the recent breakdown of the La Niña pattern is consistent with an historical tendency for ENSO events (i.e. La Niña or El Niño events) to break down over autumn
- the likely continuation of ENSO-neutral conditions over at least the early winter months is supported by most [global climate models](#)
- the outlook for spring and summer rainfall will be clearer in June once ENSO conditions are further established
- from next month, the Centre will closely monitor the sea-surface temperature pattern in the South-West Pacific which has the most relevance for summer rainfall in the Queensland region.

The Centre reaffirms previous advice that, at this time of year (known as the 'Autumn predictability gap'), ENSO indices are least reliable for seasonal forecasting. The Centre will closely monitor the SOI and sea-surface temperatures in coming months when ENSO conditions tend to 'lock in' and become a more reliable indicator of rainfall for the season ahead.

Probability of Exceeding Median Summer Rainfall
November 2012 - March 2013 based on the SPOTA-1 Index
as at April 1, 2012



Rainfall outlook

There are various approaches used to provide rainfall outlooks. These approaches tend to differ in terms of the components of the climate system that are considered and, for this reason, each approach may convey a different outlook, particularly for specific locations.

The Centre produces two statistical climate risk assessment schemes. They are:

- the experimental [SPOTA-1 scheme](#), which integrates sea-surface temperature information, including indices of ENSO and the PDO
- the [SOI phase scheme](#), which relies solely on the SOI, an atmospheric measure of ENSO.

The Centre's experimental [SPOTA-1 scheme](#) provides long-lead probabilities of summer (November to March) rainfall for Queensland from mid-April through to mid-November each year.

An initial outlook, for the upcoming 2012/13 summer, based on the experimental SPOTA-1 scheme is now available and indicates a higher than normal probability of above-median rainfall for much of Queensland. This outlook is based on an index of March sea-surface temperature anomalies in both the South-West Pacific and the North Pacific which, in part, reflect the current 'cool' state of the PDO. This outlook will be modified when the SPOTA-1 scheme takes into account a monthly ENSO index from June through to November this year.

The Centre's SOI phase scheme provides probabilities of rainfall for the coming three-month season based on SOI values over the previous two months. The SOI phase scheme currently indicates that the [probability of above or below-median rainfall](#) for the next three-month period (May to July) is near-normal (50 per cent) for most of Queensland. This analysis is based on the SOI having fallen from March to April as discussed further in the Centre's [commentary on rainfall based on phases of the SOI](#).

Rainfall over the last three-month period (February to April) has been average to above-average for much of Queensland, which was consistent with the SOI phase scheme's pre-season assessment.

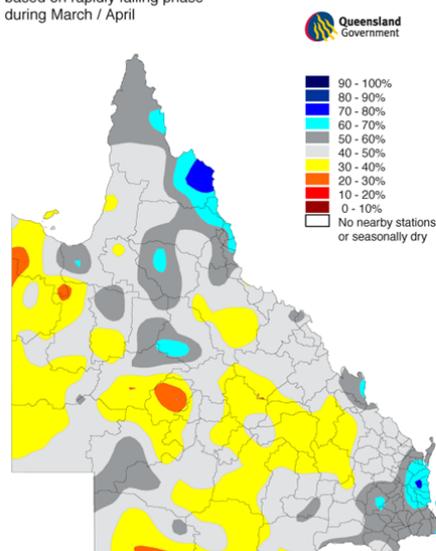
The SPOTA-1 and SOI-Phase schemes indicate probabilities based on historical relationships. It is important that the probabilistic nature of seasonal outlooks is understood and long-term risk management is undertaken. For example, if an outlook indicates a 70 per cent probability of above-median rainfall, this also means there is a 30 per cent probability of below-median rainfall.

Also an increased risk of above or below-median rainfall in Queensland will not necessarily result in above or below-median rainfall occurring throughout all of the state (see [Australia's Variable Rainfall poster](#), or the Centre's [archive of historical rainfall maps](#)).

Probability of exceeding Median Rainfall

for May / July
based on rapidly falling phase
during March / April

SOI Phase Scheme



The Centre understands that each of the above schemes may have their own particular following. Although such schemes cannot provide outlooks with absolute certainty, users of the information who follow a skilful scheme should benefit from doing so in the long-term. Users should consider the historical track record of any scheme, and such historical information is becoming increasingly available.

The Centre's Long Paddock website provides the historical archive of [SPOTA-1 reports](#) and [past commentaries](#) on the SOI phase scheme. Users should also consider the wide range of information available each month describing the current state of the ocean/climate system, for example the ['ENSO Wrap-Up'](#).

ENSO influences other climate variables apart from rainfall (e.g. temperature, pan evaporation and vapour pressure). This means that the impact of ENSO on crop or pasture growth can be stronger than on rainfall alone. The impact of ENSO on pasture growth is also dependent upon current pasture condition and soil water status. The Centre's AussieGRASS model takes these factors into account in producing seasonal pasture growth probabilities

For more information, please visit www.LongPaddock.qld.gov.au/climatestatement or contact QCCCE@climatechange.qld.gov.au.