

# Monthly Climate Statement — June 2014

## Key messages

- Seventy-five per cent of Queensland remains drought declared under State Government processes.
- For most of Queensland there is an equal likelihood of winter (June to August) rainfall being either above or below the long-term median.
- Furthermore, and with higher confidence, the probability of widespread wet conditions over Queensland next summer (November to March 2014/15) remains very low based on DSITIA's analysis of tropical and extra-tropical Pacific Ocean sea surface temperatures (SSTs).
- This latest long-lead outlook now factors in central equatorial Pacific Ocean SST anomalies, which are approaching El Niño thresholds.
- If an El Niño event develops, this pattern would likely persist until the end of summer 2014/15.

Currently:

- The [SOI](#), a key-atmospheric measure of ENSO, was +4.3 in May. The three-month mean SOI value from March to May was -0.4, remaining in the ENSO-neutral range.
- [Observed SST anomalies](#) in the key Niño 3.4 region of the central equatorial Pacific Ocean warmed by 0.21 °C from April (+0.24 °C) to May (+0.45 °C). SST anomalies have so far remained warm in June, with the latest weekly SST anomaly being +0.50 °C (as at 7 June).
- Most [international global climate models](#) currently indicate that central equatorial Pacific Ocean SSTs should continue to warm in the coming months, with at least a 70 per cent probability of El Niño conditions developing.

## What if an El Niño develops this year?

Currently, [75 per cent of Queensland remains drought declared](#) under State Government processes. While patchy rainfall from February to April brought relief to some drought affected regions, rainfall in May was low (below decile 1 in some areas). The high probability of an El Niño event developing in coming months, and with it the threat of another dry summer for some regions, poses a risk of current drought conditions becoming more protracted. This risk should be factored into decision making and allocation of resources. In this context, DSITIA's long-lead outlook for summer rainfall (opposite page) should be taken into consideration.

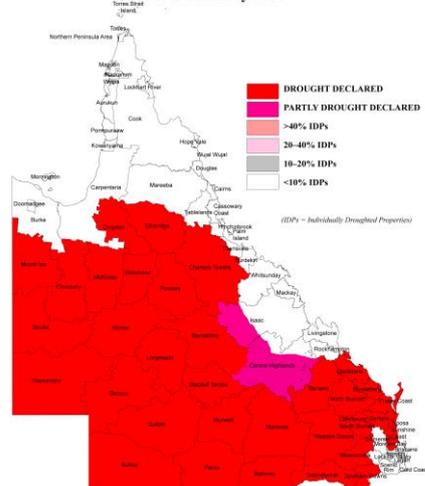
## Findings for June 2014

The Science Division of the Department of Science, Information Technology, Innovation and the Arts (DSITIA) considers that, **for most of Queensland, the probability of a wet summer (November to March 2014/15) is currently very low. The shorter term outlook for winter (June to August) rainfall is less clear, with an equal likelihood of either above or below median winter rainfall for most parts of Queensland.**

DSITIA's rainfall outlooks for Queensland are based on the current and projected state of the El Niño-Southern Oscillation (ENSO) phenomenon and on factors which alter the impact of ENSO on Queensland rainfall (i.e. the more slowly changing extra-tropical SST pattern in the Pacific Ocean).

At this time of year, and over the coming months, the prevailing ENSO pattern (as measured by indices such as the SOI or central equatorial Pacific Ocean SST anomalies) offers a useful basis for providing seasonal outlooks for winter, spring and summer.

## QUEENSLAND DROUGHT SITUATION



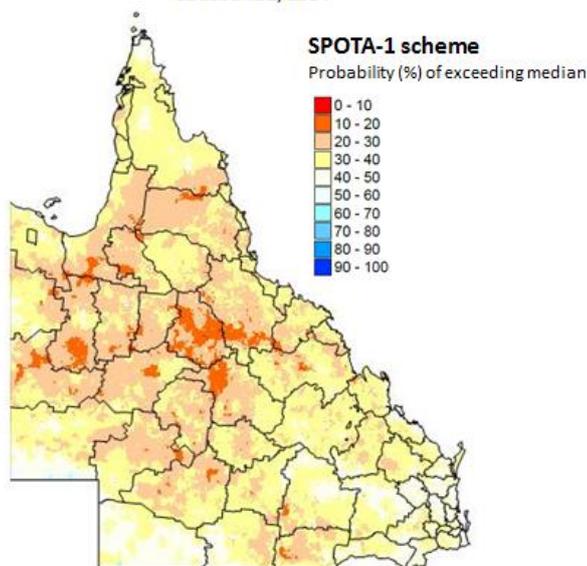
## Outlook for summer rainfall

DSITIA scientists have shown that extra-tropical SST anomalies, when measured in specific regions of the Pacific Ocean in March, provide a useful basis for long-lead forecasting of summer rainfall in Queensland. This outlook can be modified, with increasing accuracy, as the monthly ENSO-related SST pattern is also taken into account from June to November.

This understanding has been incorporated in an experimental system known as SPOTA-1 (Seasonal Pacific Ocean Temperature Analysis version 1), which has been operationally evaluated by DSITIA scientists for over a decade.

Currently DSITIA's long-lead outlook for summer rainfall indicates a high probability of below-average rainfall for most of Queensland over the coming summer (November to March 2014/15) and, conversely, a very low probability of widespread drought breaking rainfall. This outlook will be updated on a monthly basis until November, with accuracy increasing each month.

**Probability of Exceeding Median Summer Rainfall**  
November 2014 – March 2015 based on the SPOTA-1 Index  
as at June 1, 2014



It should be noted that:

- The current long-lead outlook is based on both extra-tropical and central equatorial Pacific Ocean SST anomalies.
- Central equatorial Pacific Ocean SST anomalies, in coming months, will define the state of ENSO ('El Niño', 'La Niña' or 'ENSO-neutral') for 2014/15.
- SST anomalies are approaching El Niño thresholds in the central equatorial Pacific Ocean, with a growing body of evidence pointing to the likely development of an El Niño pattern in coming months. The Bureau of Meteorology, in their latest ['ENSO Wrap-Up'](#) (issued June 3), note that the tropical Pacific Ocean remains on track for 'El Niño in 2014'.
- Should an El Niño event occur, this coupled oceanic and atmospheric pattern would likely persist over the coming summer (November to March).
- An El Niño pattern in the central equatorial Pacific Ocean, coupled with the recent extra-tropical Pacific Ocean SST pattern, would weaken the atmospheric Walker Circulation, leading to a high probability of dry conditions (< decile 3 rainfall) for much of Queensland over the coming summer.
- Irrespective of how ENSO develops, the probability of wet conditions (> decile 7 rainfall) for much of Queensland will remain low over the coming summer.
- DSITIA's long-lead outlook for summer rainfall will be updated each month until November, by factoring in the developing ENSO-related SST pattern.

### Why is SPOTA-1 labelled "Experimental"?

The SPOTA-1 system is currently labelled "Experimental" and will continue to be labelled as such until the details of the system, including its strong operational track record, are published in the international peer-reviewed scientific literature. Until then, further details on the current outlook and access to previous outlooks (since 2001) are currently provided on a password-protected area of the Long Paddock website (see the link below to request password).

For more information, please visit: [www.longpaddock.qld.gov.au/seasonalclimateoutlook](http://www.longpaddock.qld.gov.au/seasonalclimateoutlook)  
or contact Stuart Burgess at: [stuart.burgess@science.dsitia.qld.gov.au](mailto:stuart.burgess@science.dsitia.qld.gov.au)