

Monthly Climate Statement — August 2014

Key messages

- More than seventy-five per cent of Queensland is currently drought declared under State Government processes, including most inland regions and, most recently, all of south-eastern Queensland.
- For most of Queensland, there is a slightly increased probability of below-median August to October rainfall.
- The probability of a wet summer (November to March 2014/15) remains low.
- The probability of an El Niño event developing before summer remains higher than average, although lower than it has been in recent months.
- Rainfall probabilities will continue to be updated each month.

- While SSTs in the central equatorial Pacific have retreated to near-average levels, SSTs are warmer than normal in the western (Niño 4) and eastern (Niño 1+2) regions of the equatorial Pacific.
- Many [international global climate models](#) indicate resumed warming of central equatorial Pacific Ocean SSTs in coming months. However the probability of El Niño conditions developing before summer is now lower than previous modelling has indicated.
- Based on recent conditions and model outlooks, both the Australian Bureau of Meteorology in their [BoM 'ENSO Wrap-Up'](#) (issued 12 August) and the International Research Institute – USA in their [CPC/IRI 'ENSO Update'](#) (issued 7 August) support the view that, if an El Niño event does develop, it is increasingly likely to be a weak event.
- If an El Niño event does develop, it would likely persist until the end of summer 2014/15.

Findings for August 2014

The Science Division of the Department of Science, Information Technology, Innovation and the Arts (DSITIA) considers that, **for most of Queensland, there is a slightly increased probability of below-median August to October rainfall. The probability of a wet summer (November to March 2014/15) remains low.**

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 sea surface temperature (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 Southern Oscillation Index (SOI) or central equatorial Pacific Ocean SST anomalies) offers a useful basis for providing seasonal outlooks for winter, spring and summer.

Currently:

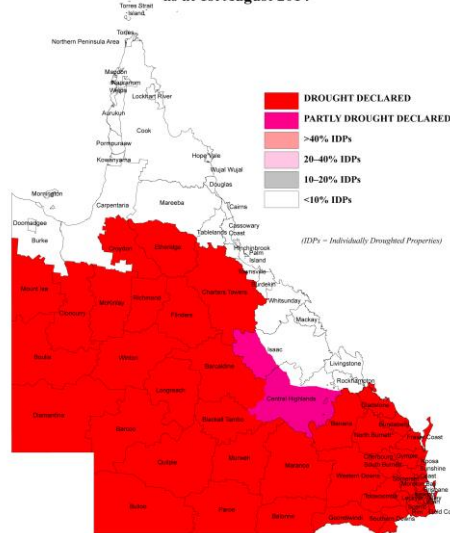
- The [SOI](#), a key-atmospheric measure of ENSO, averaged -0.2 from May to July, remaining in the ENSO-neutral range. Over the previous two months the SOI fell from -0.8 (June) to -4.0 (July) and, as at 18 August, the 30-day mean SOI value was -7.6.
- [Observed SST anomalies](#) in the key Niño 3.4 region of the central equatorial Pacific Ocean cooled from June (+0.46 °C) to July (+0.18 °C).

Great state. Great opportunity.

What if an El Niño develops this year?

As at 14 August, more than [75 per cent of Queensland is drought declared](#) under State Government processes, including most inland regions and all of south-eastern Queensland. The higher than average 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 (next page) should be taken into consideration.

QUEENSLAND DROUGHT SITUATION as at 1st August 2014



**Queensland
Government**

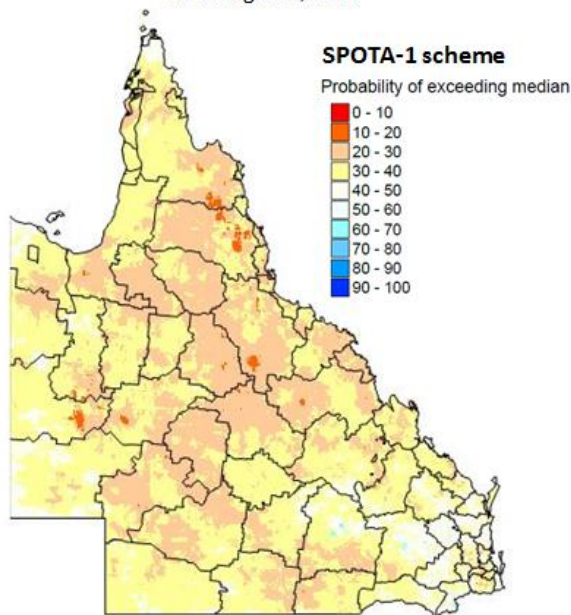
Outlook for summer rainfall

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 higher than normal probability of below-median rainfall for most of Queensland over the coming summer (November to March 2014/15) and, conversely, a 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 August 1, 2014



In summary, 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.
- Although central equatorial Pacific Ocean SST anomalies have recently retreated to near-average levels, the risk remains for resumed warming before summer.
- Should an El Niño event occur, it is increasingly likely to be a weak event. However, both 'weak' and 'strong' El Niño events have an equal tendency to produce dry conditions in Queensland.
- For Queensland, the state of the extra-tropical Pacific Ocean determines whether an El Niño event (weak or strong) is most likely to result in a dry summer.
- The extra-tropical SST pattern related to the Inter-decadal Pacific Oscillation is the main contributor to DSITIA's current long-lead outlook for summer rainfall.
- 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
or contact Stuart Burgess at: stuart.burgess@dsitia.qld.gov.au