

# Monthly Climate Statement — September 2016

## Key messages

- Eighty-four per cent of Queensland remains drought declared.
- Key indices of the El Niño–Southern Oscillation (ENSO) remain within the ENSO-neutral range (neither El Niño nor La Niña).
- The probability of exceeding median summer (November to March 2016/17) rainfall is currently higher than normal for most of Queensland.
- Updates to this outlook will factor in the evolving Pacific Ocean sea surface temperature (SST) pattern over coming months.

## Current conditions in detail

- The three-month (June to August) average value of the SOI was +4.0. [Monthly values of the SOI](#) for June, July and August were +3.7, +3.7 and +4.7 respectively. As at 13 September, the 30-day average SOI value was +9.3.
- Monthly SST anomalies in the Niño 3.4 region of the central equatorial Pacific for June, July and August were -0.1°C, -0.5°C and -0.5°C respectively. As at 10 September, the weekly Niño 3.4 region SST anomaly was -0.7°C.
- Rainfall totals across much of Queensland were extremely high over winter, with much of the state receiving totals of more than 50 mm (see maps below).

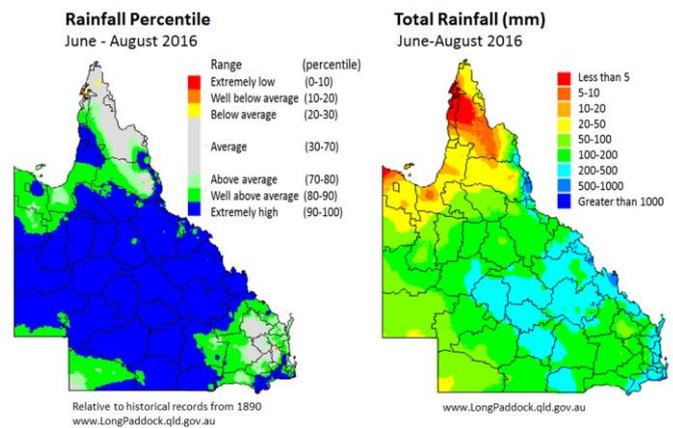
## Summary as at 15 September 2016

The Department of Science, Information Technology and Innovation's (DSITI's) seasonal outlooks for the Queensland summer are based on the state of the ENSO phenomenon prior to summer, 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).

**The Science Division of DSITI considers that, for most of Queensland, the probability of exceeding median summer (November to March 2016/17) rainfall is currently higher than normal.** This view is based on an analysis of tropical and extra-tropical Pacific Ocean SSTs.

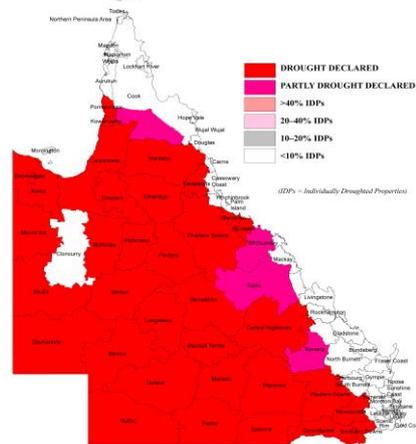
'El Niño', 'La Niña' and 'ENSO-neutral' are phases of the ENSO climate pattern. Key ENSO indicators, include the Southern Oscillation Index (SOI) and central equatorial Pacific Ocean SST anomalies. DSITI closely monitors these key ENSO indicators over winter and spring, a period when El Niño and La Niña events tend to form.

Although the SOI and central equatorial Pacific Ocean SST anomalies have been tracking toward La Niña thresholds, they remain within the ENSO-neutral range. Rather than speculate on the development of El Niño or La Niña events, DSITI bases the seasonal outlook for summer on the evolving SST pattern from autumn through to spring and updates this outlook on a monthly basis leading up to summer.



- [Eighty-four per cent of Queensland is drought declared](#) under state government processes (see map below).

## QUEENSLAND DROUGHT SITUATION as at 1st August 2016



## Outlook for summer (Nov-Mar 2016/17)

DSITI monitors tropical and extra-tropical Pacific Ocean SSTs, and on this basis provides a long-lead outlook for the coming summer (November to March). DSITI scientists have shown that tropical and extra-tropical SST anomalies, when measured in specific regions of the Pacific Ocean (e.g. on both sides of the SPCZ), provide a useful basis for long-lead forecasting of summer (November to March) rainfall in Queensland.

An initial summer rainfall outlook based solely on extra-tropical Pacific Ocean SSTs is produced as early as April and the accuracy of this long-lead outlook increases as the evolving ENSO-related SST pattern is also taken into account from May through to October. 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 DSITI scientists for over a decade.

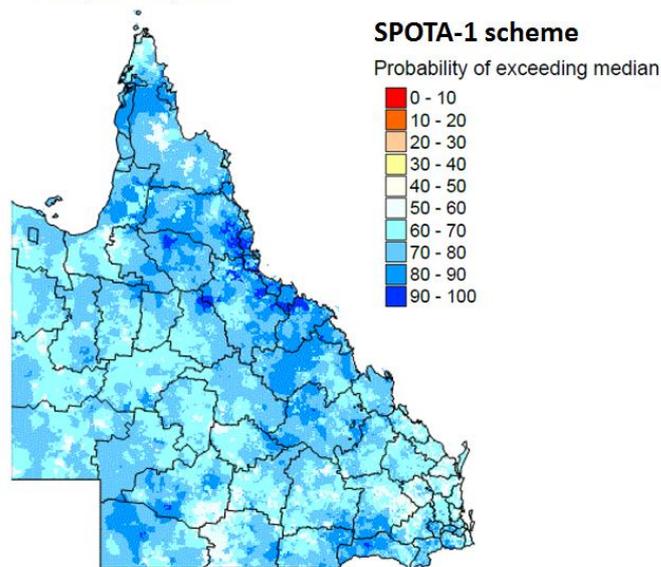
As at 1 September 2016, DSITI's long-lead outlook for summer (November to March 2016/17) indicates a higher than normal probability of exceeding median rainfall for most of Queensland (see adjacent map).

This outlook will be revised each month until November, taking into account the evolving ENSO pattern in the central equatorial Pacific.

It should be noted that seasonal outlooks are probabilistic, rather than deterministic, in nature. For example, if an outlook is described as having a 50 to 70 per cent probability of below median rainfall, there is also a 30 to 50 per cent probability of above median rainfall. Although outcomes with a high probability may be more likely, it does not mean that less probable events will not occur in any given year. Furthermore, an increased probability of above-median rainfall for Queensland will not necessarily result in above-median rainfall throughout all of the state.

### Probability of Exceeding Median Summer Rainfall

November 2016 – March 2017  
based on the SPOTA-1 Index  
as at September 1, 2016



### 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 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 (click the [SPOTA-1 link](#) to request password access).

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@dsiti.qld.gov.au