

## Monthly Climate Statement — July 2016

### Key messages

- The Southern Oscillation Index and central equatorial Pacific Ocean sea surface temperatures are within the ENSO-neutral range (neither El Niño nor La Niña).
- Rainfall for June was well-above average.
- Eighty-four per cent of Queensland is drought declared.
- The probability of exceeding median summer (November to March 2016/17) rainfall is currently slightly higher than normal for most of Queensland and lower than normal for the south-eastern corner.
- Updates to this outlook will factor in the evolving Pacific Ocean sea surface temperature pattern over coming months.

### Summary as at 15 July 2016

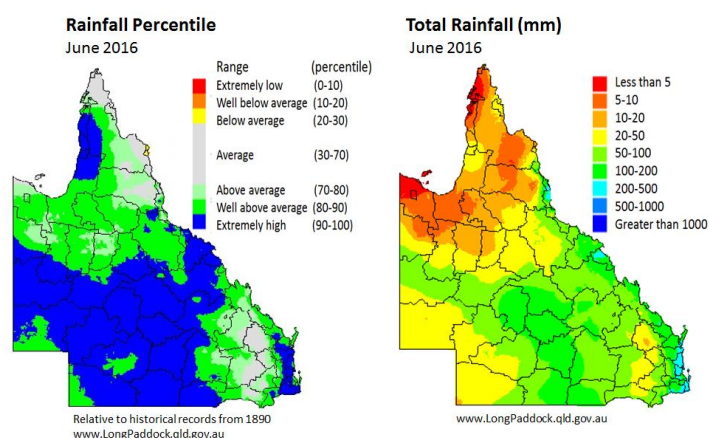
The Department of Science, Information Technology and Innovation's (DSITI's) seasonal outlooks for the Queensland summer are based on the state of the El Niño–Southern Oscillation (ENSO) phenomenon prior to summer, and on factors which alter the impact of ENSO on Queensland rainfall (i.e. the more slowly changing extra-tropical sea surface temperature (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 slightly higher than normal. However, parts of south-eastern Queensland currently have a lower than normal probability of exceeding median summer rainfall.** 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, including the Southern Oscillation Index (SOI) and central equatorial Pacific Ocean SSTs, are currently near average and within the ENSO-neutral range. DSITI closely monitors these key ENSO indicators over winter and spring, a period when El Niño and La Niña events tend to form. 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.

### Current conditions in detail

- Rainfall for June was well-above average across most of Queensland with the highest rainfall totals in excess of 200 mm occurring in some places along the east coast. Rainfall in excess of 100 mm was recorded over much of inland Queensland with only isolated regions receiving little or no June rainfall (see maps below).



- The unusually high rainfall in June was due to the occurrence of two east coast low events. Such events, although not common, are more likely to occur during the winter months. East coast low events are not associated with ENSO.
- [Eighty-four per cent of Queensland is drought declared](#) under state government processes.
- Key ENSO indicators, such as the SOI and equatorial Pacific Ocean SSTs are currently near average and within the ENSO-neutral range.
- The three-month (April to June) average value of the SOI was -4.1. The monthly values of the SOI for April, May and June were -19.1, +2.8 and +3.7 respectively. As at 13 July, the 30-day average SOI value was +4.2.
- Monthly SST anomalies in the Niño 3.4 region of the central equatorial Pacific for April, May and June were +1.1°C, +0.3°C and -0.1°C respectively. As at 9 July, the weekly Niño 3.4 region SST anomaly was -0.4°C.

## 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.

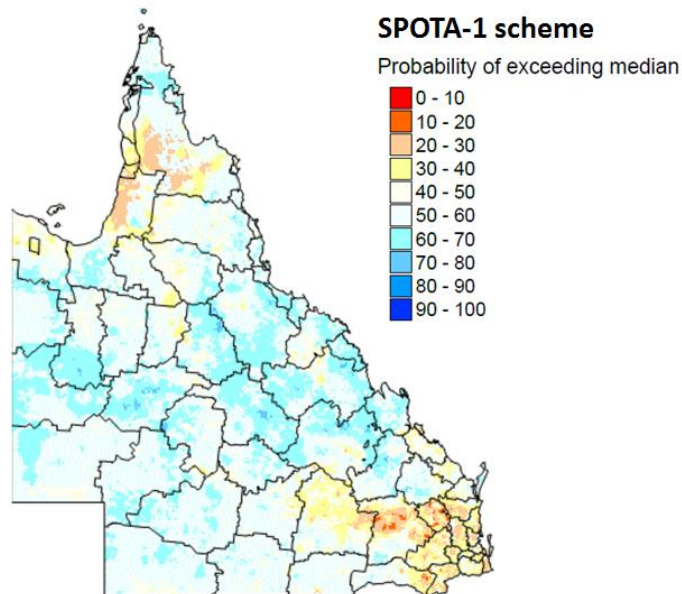
As at 1 July 2016, based on the extra-tropical Pacific Ocean SST pattern in March and the South-west Pacific SST pattern in June, DSITI's long-lead outlook for summer (November to March 2016/17) indicates a slightly higher than normal probability of exceeding median rainfall for most of Queensland (see adjacent map). However, parts south-eastern Queensland have a lower than normal probability of exceeding median summer rainfall.

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.

### Probability of Exceeding Median Summer Rainfall

November 2016 – March 2017  
based on the SPOTA-1 Index  
as at July 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)

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