

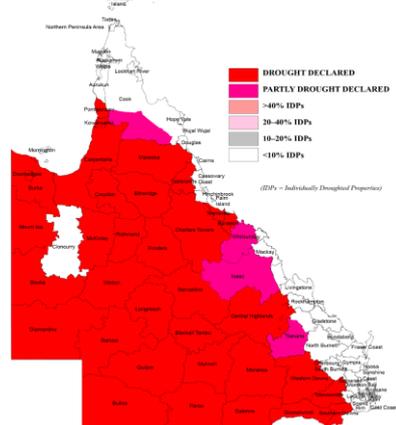
Monthly Climate Statement — May 2016

Key messages

- Eighty-four per cent of Queensland is currently drought declared.
- The probability of exceeding median summer (November to March 2016/17) rainfall is currently slightly higher than normal for most of Queensland.
- This long-lead outlook does not yet factor in central equatorial Pacific Ocean SST anomalies which will define the state of the El Niño-Southern Oscillation phenomenon in coming months.

- As at 1 May, [eighty-four per cent of Queensland was drought declared](#) under state government processes (see map below).

QUEENSLAND DROUGHT SITUATION
as at 1st May 2016



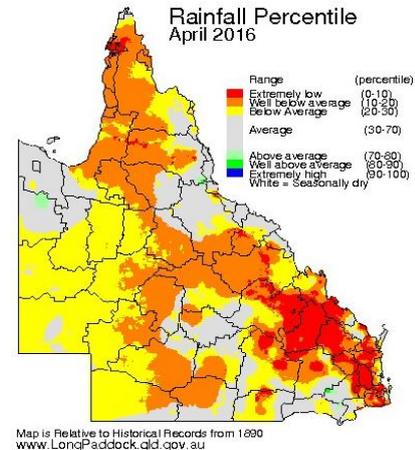
Findings as at 15 May 2016

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 rainfall for summer (November to March 2016/17) is currently slightly higher than normal.** This view is based on an analysis of the March extra-tropical Pacific Ocean SST pattern.

Currently:

- The El Niño has weakened, but SOI values remain negative and SSTs in the tropical Pacific Ocean remain warmer than average.
- The April value of the SOI was -19.1, compared to -6.3 for March and -19.1 for February. The three-month average SOI value for February to April was -14.8. As at 13 May, the 30-day average [SOI](#) value remained negative (-11.9).
- The April SST anomaly in the Niño 3.4 region of the equatorial Pacific Ocean was +1.1 °C, compared to +1.7 °C for March and +2.4 °C for February. As at 7 May, the weekly Niño 3.4 region SST anomaly was +0.8 °C.
- Only a few (no more than 10 per cent) [international climate models](#) indicate continued El Niño conditions beyond mid-2016.

- Rainfall for April was below-median across much of Queensland, especially in south-eastern parts (see rainfall percentile map below).



The El Niño - Southern Oscillation (ENSO)

At this time of year (known as the 'autumn predictability gap'), the ENSO pattern tends to change very rapidly. Although the change in the ENSO pattern over autumn may provide a guide as to the likely development of El Niño or La Niña events, it is not until late autumn (May) that the prevailing ENSO pattern (as measured by indices such as the SOI or central equatorial Pacific Ocean SST anomalies) begins to provide a useful basis for seasonal forecasting (i.e. for providing rainfall outlooks for winter, spring or summer). However, it is useful to monitor the change in ENSO indices over this time of year as a guide as to whether an El Niño or La Niña pattern may develop. Global climate models also provide a more formal means of assessing this likelihood.

Summer rainfall outlook (Nov-Mar 2016/17)

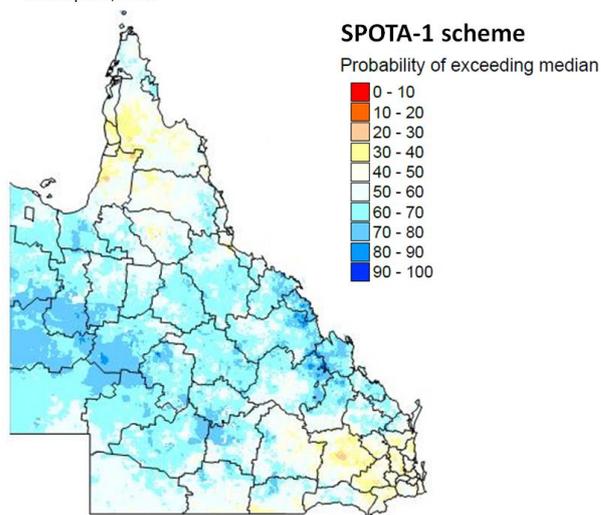
DSITI scientists have shown that extra-tropical SST anomalies, when measured in specific regions of the Pacific Ocean in March each year, provide a useful basis for long-lead forecasting of summer (November to March) rainfall in Queensland. The accuracy of this outlook increases as the evolving ENSO-related 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 April 2016, DSITI's initial long-lead outlook for summer (November to March 2016/17) indicated a slightly higher than normal probability of exceeding median rainfall for most of Queensland (see map opposite). As noted above, the current long-lead summer rainfall outlook is based solely on extra-tropical Pacific Ocean SST anomalies. This outlook will be revised each month from June to November, also taking into account the evolving ENSO pattern in the central equatorial Pacific.

It should also 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 April 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

or contact Stuart Burgess at: stuart.burgess@dsiti.qld.gov.au