

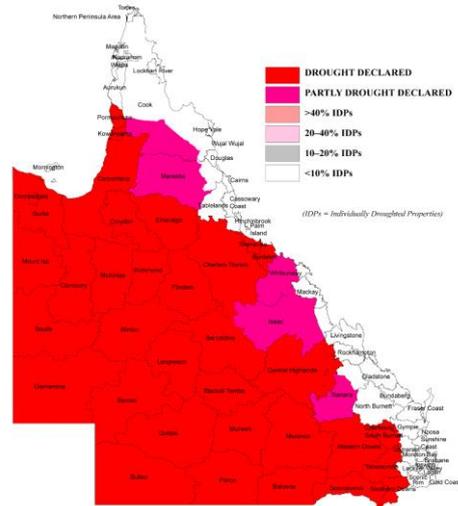
Monthly Climate Statement — January 2016

Key messages

- Eighty-six per cent of Queensland is currently drought declared.
- Leading into summer, there was an increased risk of below median summer rainfall for most of Queensland and this outlook holds for the remainder of summer (January to March).
- An increased probability of below median rainfall does not rule out the possibility of localised high rainfall events or mean that below median rainfall will occur across all of the state.
- With the exception of those shires in the far-north and far-west of the state which received heavy monsoonal rainfall in late December, most drought declared shires received near-average rainfall from October to December 2015.
- There remains a risk of one or more tropical cyclones making landfall in Queensland this summer.

- [Eighty-six per cent of Queensland has been drought declared since 1 November](#) under state government processes (see map below).

QUEENSLAND DROUGHT SITUATION as at 1st January 2016



Findings as at 15 January 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 there is an increased probability of below median rainfall for most of Queensland for the remainder of this summer (January to March).**

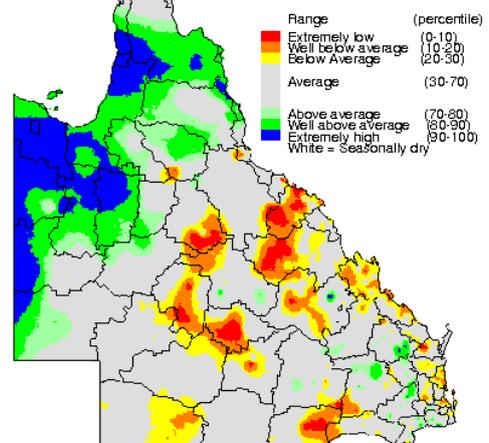
Currently:

- As at 13 January, the 30-day average [SOI](#) value remains very low (-13.5). The monthly value of the SOI was -10.1 in December, compared to -3.2 in November and -21.3 in October. The three-month (October to December) average was -11.5.
- The monthly SST anomaly in the Niño 3.4 region of the equatorial Pacific Ocean was +2.9 °C in December, compared to +3.0 °C in November and +2.5 °C in October. As at 6 January, the weekly Niño 3.4 region SST anomaly was +2.6 °C.
- The Bureau of Meteorology (ENSO Wrap Up, January 5), notes that the current El Niño has most likely passed its peak strength, with a return to ENSO neutral conditions not likely until late autumn or early winter. Most [international global climate models](#) indicate that the current warmth in the equatorial [Pacific Ocean SSTs](#) should weaken over autumn.

Great state. Great opportunity.

- With the exception of those shires in the far-north and far-west of the state which received heavy monsoonal rainfall in late December, most drought declared shires received near-average rainfall from October to December 2015, with rainfall totals being well-below average to extremely-low in some locations (see rainfall percentile map below).

Rainfall Percentile October to December 2015



Map is Relative to Historical Records from 1890
www.LongPaddock.qld.gov.au

- Some parts of south-western Queensland have received well-above average rainfall for the first two weeks in January, but elsewhere January rainfall has thus far been below average.

Summer rainfall outlook (Nov-Mar 2015/16)

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 November 2015, DSITI's final outlook for summer (November to March 2015/16) indicated a lower than normal probability of exceeding median rainfall for most of Queensland. Conversely, there was a low probability of drought-breaking rainfall, based on the evolving sea surface temperature pattern across the Pacific.

The final outlook for summer rainfall, which had been consistent since June this year, was closely related to the SST gradient measured across the South West Pacific Ocean in October, being indicative of the current strong El Niño event.

As at 10 January 2016, median summer (November to March) rainfall has yet to be exceeded for most of the state.

In summary, it should be noted that:

- Although the current El Niño pattern is likely to have peaked, it should persist over the remainder of summer (January to March).
- An increased risk of below median rainfall for most of Queensland means that there is also a low probability of widespread drought-breaking rainfall. However, this does not rule out the possibility of localised high rainfall events or mean that below median rainfall will occur across all of the state (see [Australia's Variable Rainfall poster](#), or the department's [archive of historical rainfall maps](#)).
- Users should also be aware 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.
- The Bureau of Meteorology, which provides advice on the tropical cyclone season (November to April), has noted, in regard to eastern Australia, that El Niño shifts the odds toward both fewer cyclones and a later first cyclone crossing of the season. Although the probability of tropical cyclones is lower than normal, the risk of a tropical cyclone making landfall remains over the remainder of summer.
- On average, two tropical cyclones make landfall in Queensland during the tropical cyclone season.

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 (see the link above 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