

Monthly Climate Statement — November 2016

Key messages

- The trend in sea-surface temperature anomalies over recent months continues to indicate developing La Niña conditions.
- The presence of weak La Niña conditions is now being discussed by international agencies although the Bureau of Meteorology maintains a 'La Niña Watch' status.
- DSITI considers that Pacific Ocean sea-surface temperatures indicate a higher than normal probability of above-average summer rainfall for most of Queensland.

Summary as at 15 November 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 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 higher than normal. This view is based on an analysis of tropical and extra-tropical Pacific Ocean sea-surface temperatures (SSTs).

'El Niño', 'La Niña' and 'ENSO-neutral' are phases of the ENSO climate pattern which has a strong influence on Queensland summer rainfall. DSITI closely monitors key ENSO indicators over winter and spring, a period when El Niño and La Niña events tend to form. The trend in SST anomalies over recent months continues to indicate a developing La Niña climate pattern.

The World Meteorological Organization notes, in its most recent '[El Niño/La Niña Update](#)', that "a La Niña-like pattern in the atmosphere has become evident". Likewise the '[ENSO Diagnostic Discussion](#)', issued jointly by NOAA and the International Research Institute for Climate and Society, notes the presence of "weak La Niña conditions". However the Australian Bureau of Meteorology continues to maintain a 'La Niña Watch' status.

- Monthly [SST anomalies](#) in the Niño 3.4 region of the central equatorial Pacific for August, September and October were -0.5°C, -0.6°C and -0.7°C respectively. As at 12 November, the weekly anomaly was -0.7°C.
- Monthly [values of the SOI](#) for August, September and October were +4.7, +13.8 and -4.5 respectively. The three-month (August to October) average value was +4.7.

Great state. Great opportunity.

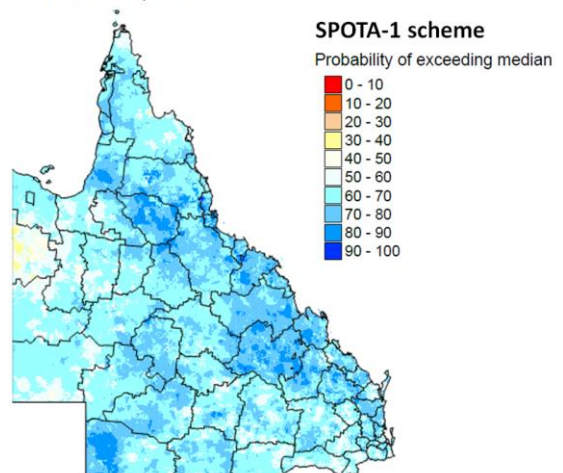
Outlook for summer (Nov-Mar 2016/17)

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). An initial summer rainfall outlook based solely on extra-tropical Pacific Ocean SSTs is produced in April and subsequently updated monthly until the beginning of summer (November). The accuracy of this long-lead outlook increases as the evolving ENSO-related SST pattern is taken into account from May through to October.

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

Probability of Exceeding Median Summer Rainfall

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



ENSO and summer rainfall

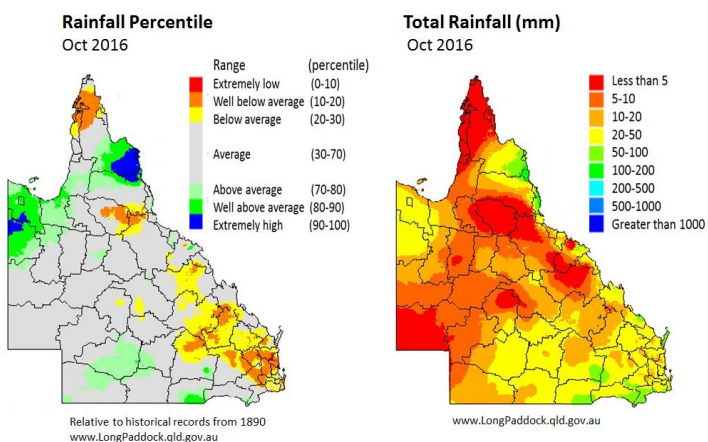
ENSO is a coupled ocean-atmosphere phenomenon which is global in extent. ENSO fluctuates between El Niño and La Niña states but tends to be highly persistent through spring and summer in the southern hemisphere. When ENSO indicators such as the SOI or sea-surface temperatures reach La Niña thresholds during spring, a La Niña pattern is likely to then 'lock in' for the following summer. In turn, this influences rainfall probabilities over summer. In Queensland, spring and summer seasons tend to be wetter than average during La Niña events, although this is not always the case. El Niño or La Niña patterns tend to break down in autumn (March to April).



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, this 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

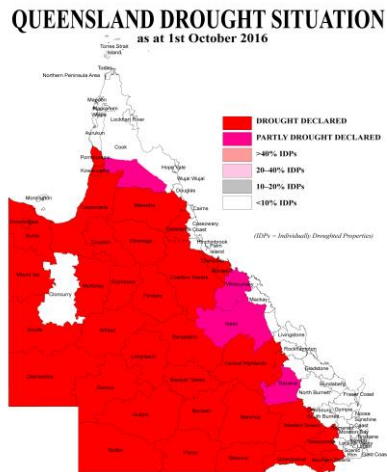
Recent rainfall

Rainfall totals were close to average for October across most of Queensland (see maps below).



Drought status of Queensland shires

As a result of protracted dry conditions over previous summers [eighty-four per cent of Queensland remains drought declared](#) under state government processes (see map below).



Tropical cyclones

The Bureau of Meteorology has advised that eastern Queensland is most likely to experience a near-average tropical cyclone season (November to April). On average, two tropical cyclones have made landfall in Queensland during the tropical cyclone season.

For more information, please visit: www.longpaddock.qld.gov.au/seasonalclimateoutlook or contact Stuart Burgess at: stuart.burgess@dsiti.qld.gov.au