

Monthly Climate Statement – July 2018

Key messages

- The Department of Environment and Science (DES) provides long-lead outlooks for summer rainfall in Queensland based on sea-surface temperature (SST) anomalies across the Pacific Ocean.
- Currently Pacific Ocean SST anomalies indicate, for most of Queensland, a higher than normal probability of exceeding median rainfall over the coming summer.
- DES will update this outlook for summer rainfall each month from August to November, taking into account any change in the Pacific Ocean SST pattern.

Summary as at 10 July 2018

The Department of Environment and Science (DES) monitors sea-surface temperature (SST) anomalies in key regions of the Pacific Ocean over autumn, winter and spring, and provides objective outlooks for summer (November to March) rainfall on this basis. **The Science Division of DES considers that the probability of exceeding median summer (November to March) rainfall is currently higher than normal for most of Queensland.**

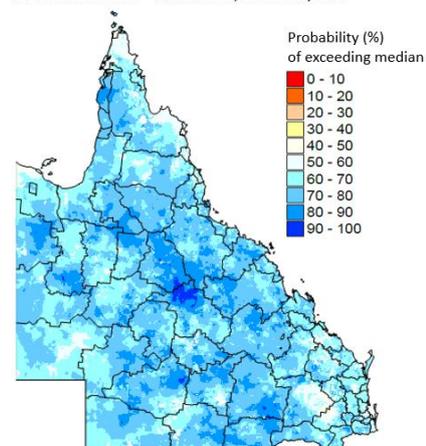
At this time of year, the relationship between the El Niño-Southern Oscillation (ENSO) and rainfall for the season ahead begins to strengthen. Key ENSO indices include the atmospheric Southern Oscillation Index (SOI) and SST anomalies in the central equatorial Pacific. These indices currently indicate ENSO-neutral conditions. However, SSTs in the Niño 3.4 region have warmed over the last two months (i.e. from -0.1°C in May to $+0.2^{\circ}\text{C}$ in June) accompanied by a sharp fall in the SOI (i.e. from $+2.7$ in May to -6.3 in June). The Bureau of Meteorology has recently revised its ENSO outlook from 'Inactive' to 'El Niño Watch'. In this regard the Bureau will be watching, over coming months, for a pattern of sustained negative SOI values and/or warm SST anomalies in the central equatorial Pacific before considering revising its ENSO outlook to 'El Niño Alert' status or, indeed, declaring an El Niño event.

Although the development of El Niño conditions over coming months is a possibility, DES currently maintains a positive outlook for summer rainfall as noted above. The adjacent map, which is based on historical relationships

between Pacific Ocean SST anomalies and rainfall, currently indicates at least a 60% probability of summer (November to March) rainfall exceeding the long-term median across most of Queensland. Whilst national and international agencies place emphasis on SSTs in the central equatorial Pacific, historically SSTs in the south-western Pacific from May to October are just as strongly related to Queensland summer rainfall. Hence, DES monitors SST anomalies in both the central and south-western Pacific. The currently favourable outlook for summer rainfall is primarily due to a warm SST anomaly in the south-western Pacific ($+1.1^{\circ}\text{C}$ in the key DES region) which is likely to persist over coming months.

DES will update this outlook each month from August to November. Should El Niño conditions emerge, and warm SST anomalies in the central equatorial Pacific approach the same warm levels as those in the south-western Pacific, the currently favourable outlook for summer rainfall will moderate.

Probability of exceeding median summer rainfall
for November 2018 – March 2019, as at 1 July 2018



It should be noted that seasonal outlooks are probabilistic, rather than deterministic, in nature. For example, if an outlook is described as having a 60 per cent probability of above median rainfall, there is also a 40 per cent probability of below median rainfall. In cases where outcomes with a high probability may be more likely, this does not mean that less probable events will not occur in any given year.

For more information please visit the Queensland Government Long Paddock website at: www.longpaddock.qld.gov.au/seasonal-climate-outlook. Alternatively please contact Stuart Burgess at: stuart.burgess@des.qld.gov.au.