

Monthly Climate Statement – January 2019

Key messages

- The El Niño-Southern Oscillation currently remains in a neutral state.
- The Science Division of DES considers that the probability of exceeding median rainfall for the remainder of summer (January to March) is near-normal for most of Queensland, although slightly lower than normal for parts of southern Queensland.
- The DES outlook is based on an objective analysis of Pacific Ocean sea-surface temperatures. However, the Bureau of Meteorology's ACCESS-S1 climate model indicates a higher than normal probability of below-median rainfall for much of Queensland.

Pacific Ocean SST anomalies from March through to October each year.

The final SPOTA-1 update for 2018 indicated a near-normal probability of exceeding median summer rainfall for most of Queensland, with a higher than normal probability of 'near-average' (Decile 3 to 7) summer rainfall, and a lower than normal probability of either a 'wet' or 'dry' summer (> Decile 7 or < Decile 3 summer rainfall respectively).

For the remainder of summer (January to March), the SPOTA-1 system continues to indicate a near-normal probability of exceeding median summer rainfall for most of Queensland, although slightly lower than normal for parts of southern Queensland (see map below).

Whilst the DES outlook is based on historical relationships between Pacific Ocean SSTs and Queensland summer rainfall, the Bureau of Meteorology constructs outlooks based on the ACCESS-S1 climate model. As at 15 January, the Bureau of Meteorology's outlook for January to March indicates a higher than normal probability of below-median rainfall for much of Queensland

(<http://www.bom.gov.au/climate/outlooks/>).

Summary as at 15 January 2019

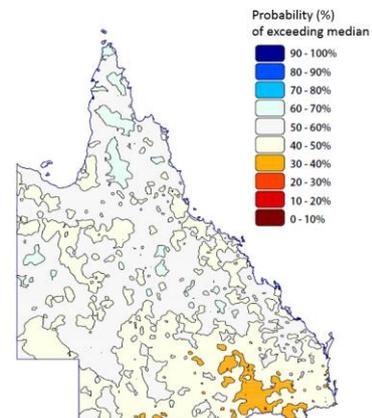
The Department of Environment and Science (DES) monitors sea-surface temperature (SST) anomalies in key regions of the Pacific Ocean over autumn, winter and spring, and provides objective outlooks for summer (November to March) rainfall on this basis. **The Science Division of DES considers that the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

Rainfall in Queensland over spring and summer is influenced by the El Niño-Southern Oscillation (ENSO) – a coupled atmospheric and oceanic phenomenon which is strongly persistent at seasonal timescales. Values of key ENSO indices, including the Southern Oscillation Index (SOI) and SSTs in the central equatorial Pacific Ocean, tend to 'lock-in' during spring and persist through summer (November to March).

National and international agencies agree that ENSO currently remains in a neutral state. Whereas central equatorial Pacific Ocean SSTs have been warmer than average (+0.9°C) over the last three months (October to December), average SOI values have remained slightly positive (+4.1).

DES calculates rainfall probabilities for the Queensland summer (November to March) based on an experimental system known as SPOTA-1 (Seasonal Pacific Ocean Temperature Analysis - version 1). SPOTA-1 provides an objective comparison of historical summer rainfall with

Probability of exceeding median rainfall for January to March 2019
based on the SPOTA-1 Index as at 1 November 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 contact Ken Day at: ken.a.day@des.qld.gov.au.