

Monthly Climate Statement – November 2019

Key messages

- The Bureau of Meteorology, and other international agencies, regard the current state of the ocean and atmosphere as being 'ENSO-neutral'.
- The relationship between ENSO indices and summer rainfall in Queensland is weakest during ENSO-neutral years.
- The Science and Technology Division of DES considers that the probability of exceeding median summer (November to March) rainfall is near-normal for much of Queensland.
- However, DES also notes that modelling undertaken by the Bureau of Meteorology currently indicates a higher than normal probability of below median rainfall for much of Queensland over the remainder of 2019.

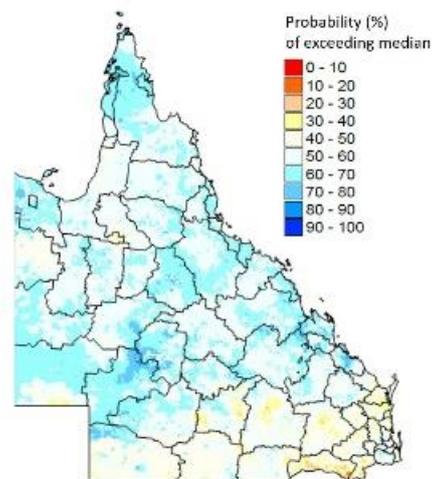
DES considers the SST gradient across the central and south-western Pacific (i.e. the South Pacific Convergence Zone) to be a stronger lead-indicator of summer rainfall in Queensland than either the SOI, or SSTs in the central equatorial Pacific measured in isolation (i.e. standard ENSO indices). Whilst SSTs in the central equatorial Pacific are strongly influenced by year-to-year fluctuations in ENSO, SSTs in the south-western Pacific are far more persistent. SSTs in both the central equatorial Pacific and south-western Pacific are currently warmer than average, resulting in a near-average SST gradient across the region as a whole. On this basis, DES considers that the probability of exceeding median summer (November to March) rainfall is near-normal for much of Queensland (see map below). However, DES also notes that climate modelling undertaken by the Bureau currently indicates a higher than normal probability of below median rainfall for much of Queensland over the remainder of 2019.

Summary as at 13 November 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 and Technology Division of DES considers that the probability of exceeding median summer (November to March) rainfall is near-normal for much of Queensland.** However, climate modelling undertaken by the Bureau of Meteorology currently indicates a higher than normal probability of below median rainfall for much of Queensland over the remainder of 2019.

The most closely monitored driver of Queensland rainfall is the El Niño-Southern Oscillation (ENSO) phenomenon. Climate scientists monitor several ENSO indices, including the atmospheric Southern Oscillation Index (SOI) and SST anomalies in the central equatorial Pacific Ocean. The SST anomaly in the Niño 3.4 region of the central Pacific warmed through October, averaging +0.6°C for the month. The SOI has averaged -7.0 over the last three months (August to October). Whilst index values are currently close to El Niño thresholds, the Bureau of Meteorology and international agencies regard current oceanic and atmospheric conditions as being 'ENSO-neutral'. The relationship between ENSO conditions and summer rainfall in Queensland is weakest during ENSO-neutral years.

Probability of exceeding median summer rainfall
for November 2019 – March 2020, as at 1 November 2019



Readers should note that seasonal outlooks are stated in terms of probabilities. For example, an outlook may be stated as 'a 60 to 70 per cent probability of above median rainfall'. Such a statement should be interpreted as also meaning a 30 to 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.

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