Monthly Climate Statement – December 2019

Key messages

- The El Niño-Southern Oscillation (ENSO) is currently classified as being in an 'ENSO-neutral' state (i.e. neither El Niño nor La Niña).
- However, based on the SOI alone, DES would classify current conditions as being in an El Niño state (see Australia's Variable Rainfall poster for the DES criteria).
- 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 leading into 2020.

Summary as at 5 December 2019

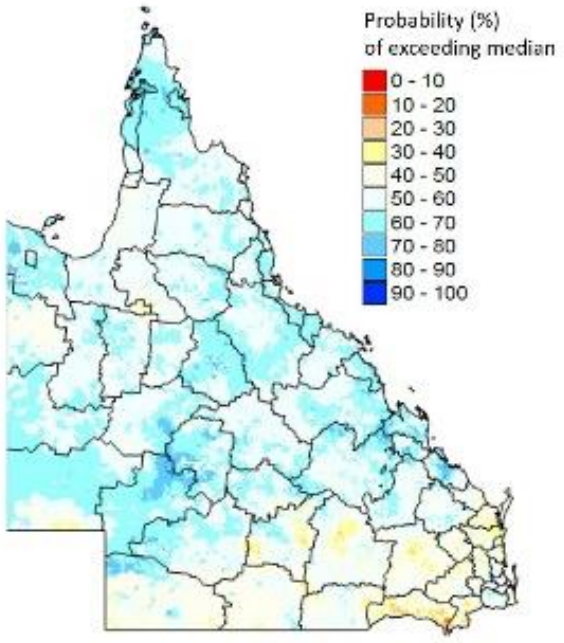
The Department of Environment and Science (DES) monitors sea-surface temperature (SST) anomalies in key regions of the Pacific Ocean over autumn, winter and spring, and provides objective outlooks for summer (November to March) rainfall on this basis. **The Science and Technology Division of DES considers 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 leading into 2020.

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 has been warmer than average over the last two months (+0.6°C for both October and November). Average values of the SOI have been quite low over the last three- and six-month periods (-9.1 for September to November and -8.0 for June to November).

The Bureau and international agencies currently classify ENSO conditions as being 'ENSO-neutral' (i.e. neither El Niño nor La Niña). However, based on the SOI alone, DES would classify current conditions as being in an El Niño state (see Australia's Variable Rainfall poster for the DES criteria).

Irrespective of the current ENSO classification, 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. In October, the SST gradient across the south-western Pacific was near-normal. Based on an objective assessment of Pacific Ocean SSTs, and their historical relationship with Queensland summer (November to March) rainfall, DES considers that the probability of exceeding median summer 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 leading into 2020.

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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