

Monthly Climate Statement – October 2020

Key messages

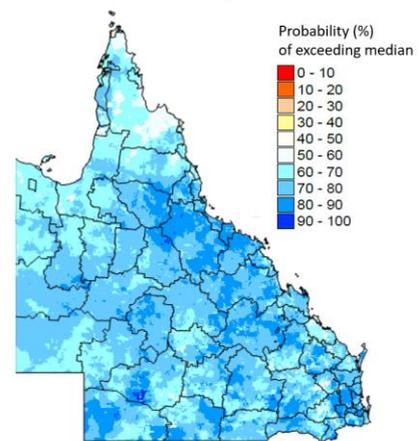
- The Science and Technology Division of DES considers that the probability of exceeding median summer (November to March) rainfall is currently higher than normal across Queensland.
- The current outlook for summer rainfall is based on sea-surface temperatures across the Pacific Ocean, including those regions related to the El Niño-Southern Oscillation (ENSO).
- The Bureau of Meteorology indicates that La Niña conditions have now developed in the tropical Pacific.
- A final outlook for summer rainfall will be provided in November, based on any further change to the ENSO-related sea-surface temperature pattern during October.

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 currently higher than normal across Queensland.**

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. Current values of these ENSO indices are consistent with La Niña conditions, which the Bureau of Meteorology indicates have now developed in the tropical Pacific. The SOI has risen over the last three months, and the most recent three-month average SOI value is quite positive (+7.5 for July to September). The SST anomaly in the Niño 3.4 region of the central equatorial Pacific has cooled over the last three months, and the most recent three-month average is -0.6°C . Climate models generally project further cooling of SSTs in the central equatorial Pacific over coming months.

The relationship between SST in the central equatorial Pacific and summer rainfall in Queensland strengthens through spring. The SST gradient from the central equatorial Pacific to the southwestern Pacific is a particularly useful long-lead indicator of summer rainfall in Queensland. The current DES outlook for summer rainfall in Queensland (below) is based on an objective analysis of SST gradients across key regions of the Pacific Ocean. On this basis, the Science and Technology Division of DES considers that the probability of exceeding median summer (November to March) rainfall is currently higher than normal across Queensland.

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



Sea-surface temperature anomalies in the central equatorial Pacific tend to 'lock in' over the winter, spring and summer seasons. This persistence provides a basis for seasonal forecasting. A final outlook for summer rainfall will be provided in November, based on any further change to the evolving ENSO-related SST pattern during October.

Readers should note that seasonal outlooks are expressed 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.

For more information, please contact Ken Day at: ken.a.day@des.qld.gov.au.