

# Monthly Climate Statement – July 2020

## Key messages

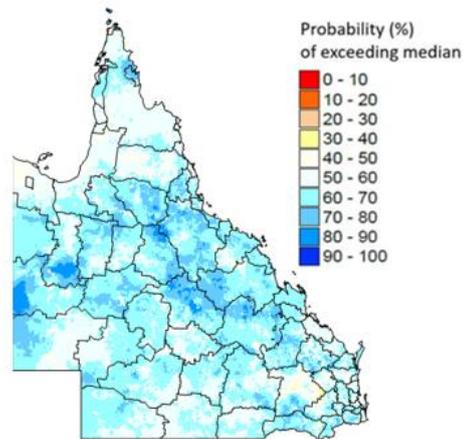
- The Science and Technology Division of DES considers that the probability of exceeding median summer (November to March) rainfall is currently higher than normal for much of Queensland.
- The current outlook for summer rainfall is based on sea-surface temperatures across the Pacific Ocean, including those regions related to the El Niño-Southern Oscillation (ENSO).
- The outlook for summer rainfall will be updated from August to November, factoring in the evolving ENSO-related sea-surface temperature pattern during this period.
- The Bureau of Meteorology has revised its ENSO Outlook from 'INACTIVE' to 'La Niña WATCH'.

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 for much of 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. The average SOI value over the last three months (April to June) was slightly negative (-2.4) and well-within the ENSO-neutral range. However, SSTs in central equatorial Pacific have cooled quite rapidly over the last three months, from near El Niño thresholds in April (+0.5°C) to a negative value in June (-0.4°C). Due to the recent cooling of SSTs in the central equatorial Pacific and further cooling projected by most climate models, the Bureau of Meteorology has now revised its ENSO Outlook from 'INACTIVE' to 'La Niña WATCH'.

The relationship between the SST anomaly in the central equatorial Pacific and summer rainfall in Queensland begins to strengthen over winter and through spring. However, at this time of year the SST gradient across the southwestern Pacific is more persistent and can provide a useful long-lead guide to summer rainfall probabilities. 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 for much of Queensland.

Probability of exceeding median summer rainfall  
for November 2020 - March 2021, as at 1 July 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. DES will provide updates of the outlook for summer rainfall from August to November, factoring in any change to the ENSO-related SST pattern during this period.

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.

The current outlook for summer rainfall does not incorporate SSTs for the period 25 to 30 June 2020, as these were not available.

For more information, please contact Ken Day at:  
[ken.a.day@des.qld.gov.au](mailto:ken.a.day@des.qld.gov.au).