

# Monthly Climate Statement – March 2023

## Key messages

- Key ENSO indices remained within La Niña thresholds at the end of February, but these are likely to moderate over the coming months.
- The sea-surface temperature pattern in the Pacific Ocean prior to summer indicated a higher than normal probability of exceeding median summer (November to March) rainfall across most of Queensland.
- So far this summer, an active northern monsoon season has resulted in wetter than normal conditions across much of northern, central and western Queensland, consistent with the prevailing La Niña climate pattern.
- Drier than average conditions have prevailed so far this summer in parts of southern and south-eastern Queensland.

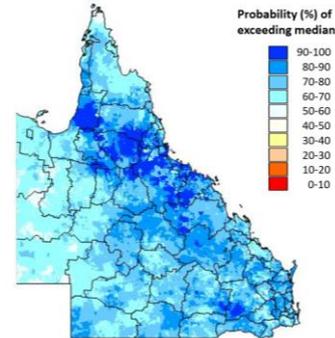
The Department of Environment and Science (DES) monitors sea-surface temperature (SST) anomalies in key regions of the Pacific Ocean over autumn, winter and spring, and provides objective outlooks for summer (November to March) rainfall on this basis. Based on the evolving SST pattern in the Pacific Ocean leading up to summer, **the Science Division of DES considered that the probability of exceeding median summer (November to March) rainfall is higher than normal for most 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. Associated with the 'La Niña' climate pattern, the most recent three-month average value of the SOI\* was quite positive (+13.5 for December to February) SST and the corresponding three-month average SST anomaly in the Niño 3.4 region\*\* was cooler than average (-0.7°C). However, the monthly Niño 3.4 anomaly weakened (from -0.8°C in December to -0.4°C in February). Going forward, March to April is generally a time when El Niño and La Niña events break down and new events form. This period, which is known as the 'autumn predictability gap', might therefore see currently strong SOI and cooler than average central equatorial Pacific SST anomalies moderate.

The DES outlook for summer rainfall in Queensland, issued at the beginning of November is based on an objective analysis of SST gradients across key regions of the Pacific Ocean, including those regions related to ENSO. On this basis, the Science Division of DES considered that the probability of

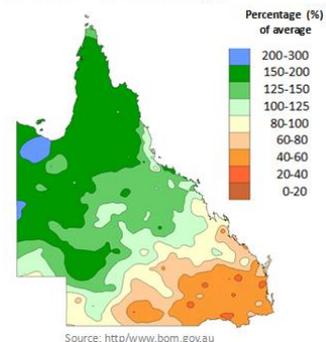
exceeding median summer (November to March) rainfall is higher than normal for most of Queensland (see map top right). This outlook for summer rainfall was the final update of this information for 2022.

Probability of exceeding median summer rainfall for November 2022 - March 2023, as at 1 November 2022



Rainfall so far this summer (November to February) has been above-average across much of northern, central and western Queensland, but well below-average in parts of southern and south-eastern Queensland (see map below).

Percentage of average rainfall November 2022 to February 2023



Readers are reminded that seasonal outlooks are expressed in terms of probabilities. The probabilities shown in the above map are based on an objective analysis of historical data and show the summer rainfall outcome in years when SST conditions were closest to the current year. This analysis may, for example, show that above-median summer rainfall occurred in 60 per cent of those years. However, this also means that summer rainfall was at, or below, the long-term median in 40 per cent of those years. Therefore, an outlook which states that there is 'a 60 per cent probability of above-median rainfall' should also be interpreted as there being 'a 40 per cent probability of median or below-median rainfall'.

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

\* [www.longpaddock.qld.gov.au/soi/soi-data-files](http://www.longpaddock.qld.gov.au/soi/soi-data-files) (monthly SOI 1887-1989 base period)  
 \*\* [www.cpc.ncep.noaa.gov/data/indices](http://www.cpc.ncep.noaa.gov/data/indices) (monthly OISST.v2.1 1991-2020 base period)