

Monthly Climate Statement – May 2022

Key messages

- The La Niña climate pattern of last summer has persisted into autumn.
- ENSO conditions over autumn generally do not persist through winter, leading to low forecast capacity at this time of year.
- The Science and Technology Division of DES considers that the probability of exceeding median rainfall for the coming summer (November to March) is currently slightly higher than normal for much of Queensland.
- The DES outlook for summer rainfall will be updated from June to November based on the evolving sea-surface temperature pattern in the Pacific Ocean.

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 March SST pattern in the Pacific Ocean, **the Science and Technology Division of DES considers that the probability of exceeding median summer (November to March) rainfall is currently slightly higher than normal for much of Queensland.**

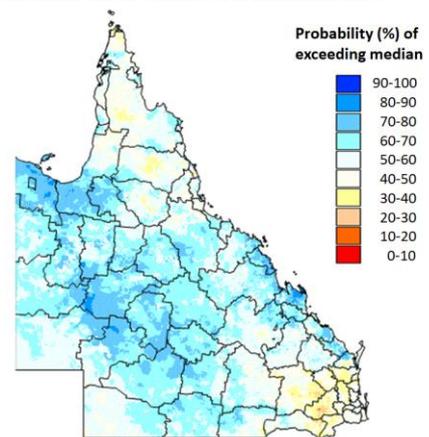
The most closely monitored driver of Queensland rainfall is the El Niño-Southern Oscillation (ENSO) phenomenon. Climate scientists monitor several ENSO indices, including the atmospheric Southern Oscillation Index (SOI) and SST anomalies in the central equatorial Pacific Ocean. Indicative of the prevailing 'La Niña' climate pattern, the most recent three-month average value of the SOI* was quite positive (+13.1 for February to April) and the corresponding three-month average SST anomaly in the Niño 3.4 region** was cooler than average (-0.9°C).

The 'autumn predictability gap'

El Niño and La Niña events tend to form in the austral winter or spring, persist through summer and break down in autumn. Seasonal outlooks are possible due to the persistence of the ENSO signal and associated rainfall and climate patterns over spring and summer. The lack of persistence of the ENSO signal from autumn to winter leads to low forecast capacity over this period – known as the 'autumn predictability gap' or 'autumn predictability barrier'.

Persistence of SST anomalies in the central equatorial Pacific, which tend to 'lock in' over the winter, spring and summer seasons, provides a basis for seasonal forecasting. Whilst a La Niña climate pattern has persisted into autumn, ENSO conditions over autumn generally do not persist through winter (June to August). This lack of persistence is known as the 'autumn predictability gap' (see inset). The current DES outlook for summer rainfall in Queensland is based on an objective analysis of SST in the extra-tropical 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 slightly higher than normal for much of Queensland (see map below). DES will provide an updated outlook for summer rainfall in June, factoring in the evolving ENSO-related SST pattern.

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



Readers are reminded that seasonal outlooks are expressed in terms of probabilities. The DES approach bases these probabilities on summer rainfall in previous years with similar SST conditions 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.

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