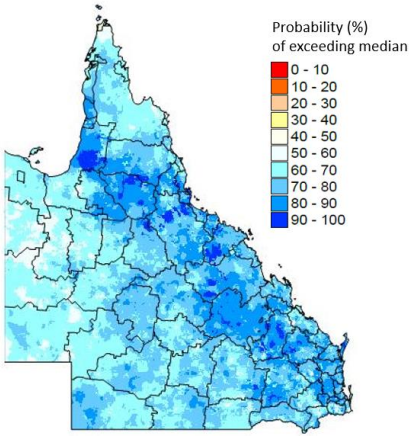
Monthly Climate Statement – March 2021

Key messages

- Values of key atmospheric and oceanic indices continue to exceed La Niña thresholds.
- The northern Australian monsoon has been quite active since late December.
- Rainfall over December to February was extremely high in parts of northern Queensland but extremely low in parts of 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 SST pattern in the Pacific Ocean leading up to summer, **the Science and Technology Division of DES considered that the probability of exceeding median summer (November to March) rainfall was higher than normal across Queensland (see map below).**

Probability of exceeding median summer rainfall
for November 2020 – March 2021, as at 1 November 2020

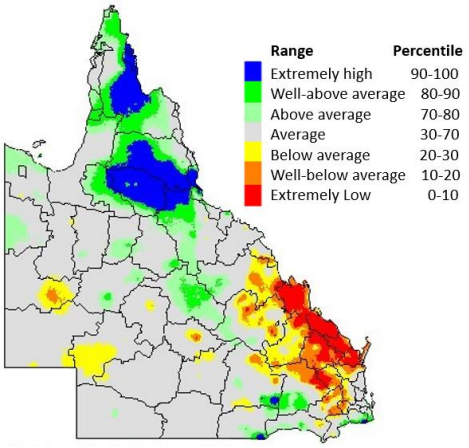


The most closely monitored driver of Queensland rainfall is the El Niño-Southern Oscillation (ENSO) phenomenon. This coupled ocean-atmosphere pattern tends to build over winter and spring and then persist through summer, influencing summer rainfall in Queensland. ENSO events tend to break down in autumn. Climate scientists monitor several ENSO indices, including the atmospheric Southern Oscillation Index (SOI) and SST anomalies in the Niño 3.4 region of the central equatorial Pacific Ocean. Indicative of the current 'La Niña' climate pattern, the SOI has remained quite positive (average +14.6) over the last three months (December to February) and the SST anomaly in the Niño 3.4 region has been cooler than average (-1.0°C).

The northern Australian monsoon has been quite active since late December. Tropical Cyclone Imogen made landfall near Karumba on 3 January, leading to localised high rainfall totals as the remnant low pressure system tracked toward the east coast near Ingham. Tropical Cyclone Kimi formed in the Coral Sea north-east of Cardwell on 17 January but stayed offshore. Associated high rainfall totals were limited to the tropical east coast between Cairns and Innisfail. In late January, a tropical low pressure system produced high rainfall across much of Cape York Peninsula. Over 28 February to 2 March, high rainfall also occurred between Bowen and Cape Flattery as Tropical Cyclone Niran formed in the Coral Sea east of Cardwell.

Rainfall over the last three-month period (December to February) was extremely high in parts of northern Queensland but extremely low in parts of south-eastern Queensland (see map below). The rest of Queensland largely received near-average rainfall over this three-month period.

Queensland rainfall percentiles
December 2020 to February 2021



Readers are cautioned that seasonal outlooks are expressed in terms of probabilities. Even though an outcome has a high probability of occurring based on historical records, a less likely outcome may still occur in any given year. For more information, please contact Ken Day at: ken.a.day@des.qld.gov.au.