Seasonal Climate Outlook – Tropical North Queensland

March 2026

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Photo by Lynne Eagle

6 March 2026

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Executive Summary

This is a review and considered opinion of various established seasonal and other more experimental forecast systems currently available and relevant for Northern Queensland from a range of sources, from Australia and internationally but mostly concentrating on the SOI phase system.

- Above normal rainfall probability values more likely for TNQ for this three-month period.

- Potential to 'swing the other way' (towards drier than normal patterns) as we progress into late autumn and winter.

- La Niña events (which we are now transitioning out of) often form the 'building-blocks' for the next El Niño. Most (but not all) El Niño events produce drier than normal conditions over eastern and northern Australia.

- A strong MJO event at this time of year can initially produce a flood event over north Queensland (as has recently occurred). Such an MJO can then produce 'westerly wind bursts' out in the tropical Pacific as it moves over the Pacific Ocean. This MJO can then 'kick-start' the processes for the next El Niño-induced drought.

- The Pacific-Indian Ocean system is currently showing signs of transition from a short-term La Niña pattern to a developing El Niño pattern (US Climate Prediction Center). However, it often takes until about late May for these systems to lock-in.

- Based on current estimates, the MJO would also likely be due again (after moving out of its current active phase) about early April, 2026.

- The SOI has again temporally increased in value. The SOI phase is (at the time of compiling this report) in a 'consistently positive phase'.

- This statistical SOI phase pattern is suggesting above normal rainfall probability values for most of the state and especially for TNQ.

- BoM seasonal forecasts for March to May 2026, meanwhile, are indicating above normal rainfall probability values (especially for Cape York) and close to average to above average probability values of exceeding the March to May median rainfall values for the remainder of TNQ.

- For the much longer-term (e.g. May to July and into winter for the sugar harvest period), the US CPC model is further suggesting an El Niño pattern has the potential to develop. For the coming June to August period, the European ECMWF experimental longer-term system has low rainfall probability values (e.g. ~30% probability of exceeding median rainfall) for parts of TNQ.

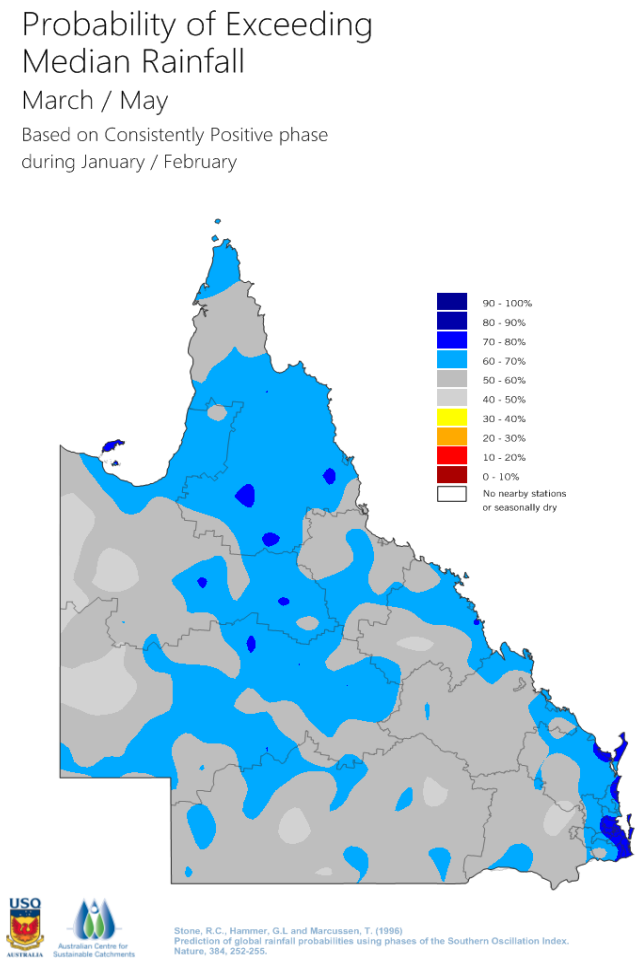
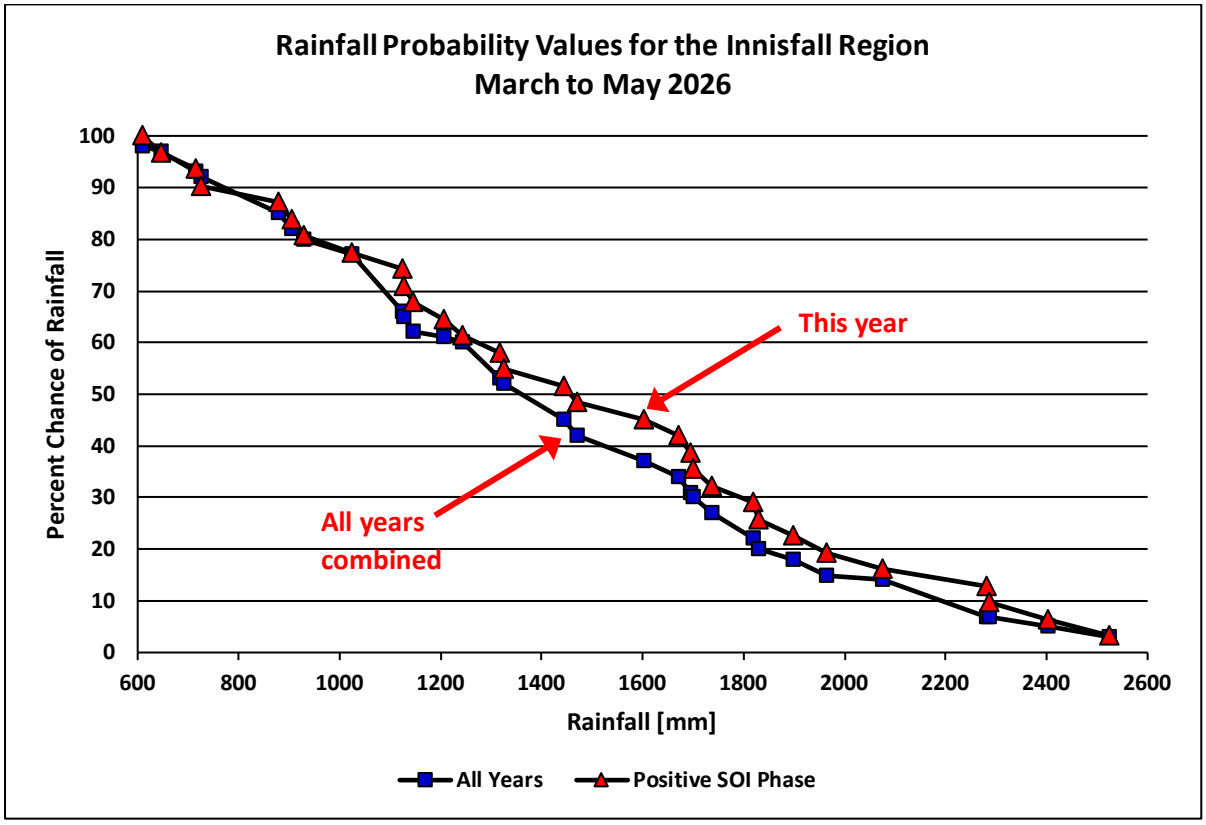


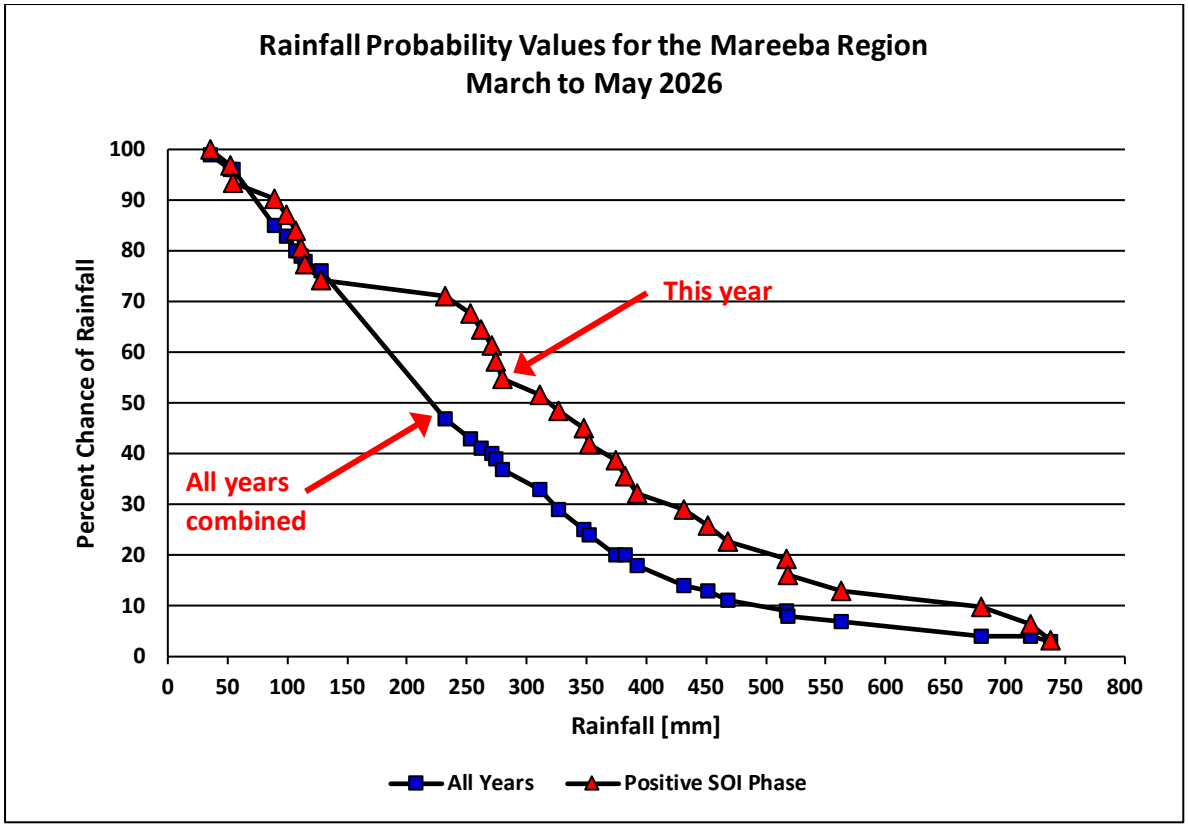
Figure 1: Probability of exceeding the long-term median rainfall for Queensland for March to May 2026 using the statistical 'SOI phase system'. Dark grey areas depict 50% to 60% probability of exceeding median rainfall amounts. Light blue to dark blue-shaded regions have a 60% to 80% (in some cases 90%) probability of exceeding median rainfall. The darker the blue the higher the probability values. Note that this is for total rainfall over the March to May 2026 period.

Detailed rainfall probability values for Innisfall, Mareeba and Proserpine for the March to May 2026 are provided in Table 1. These are based upon a statistical and probabilistic analysis of patterns (phases) of the Southern Oscillation Index (SOI) (after Stone et al., 1996; Fawcett and Stone, 2010; Muchow et al., 2002; Everingham et al., 2003).

This probabilistic output indicates that the probability of getting any amount of rain is currently showing values ‘slightly above to above the long-term average’ for Innisfail and ‘above normal’ for Mareeba and Proserpine for the **March to May** period.

We also show the rainfall distributions for all years on record by way of comparison to the current climate pattern.





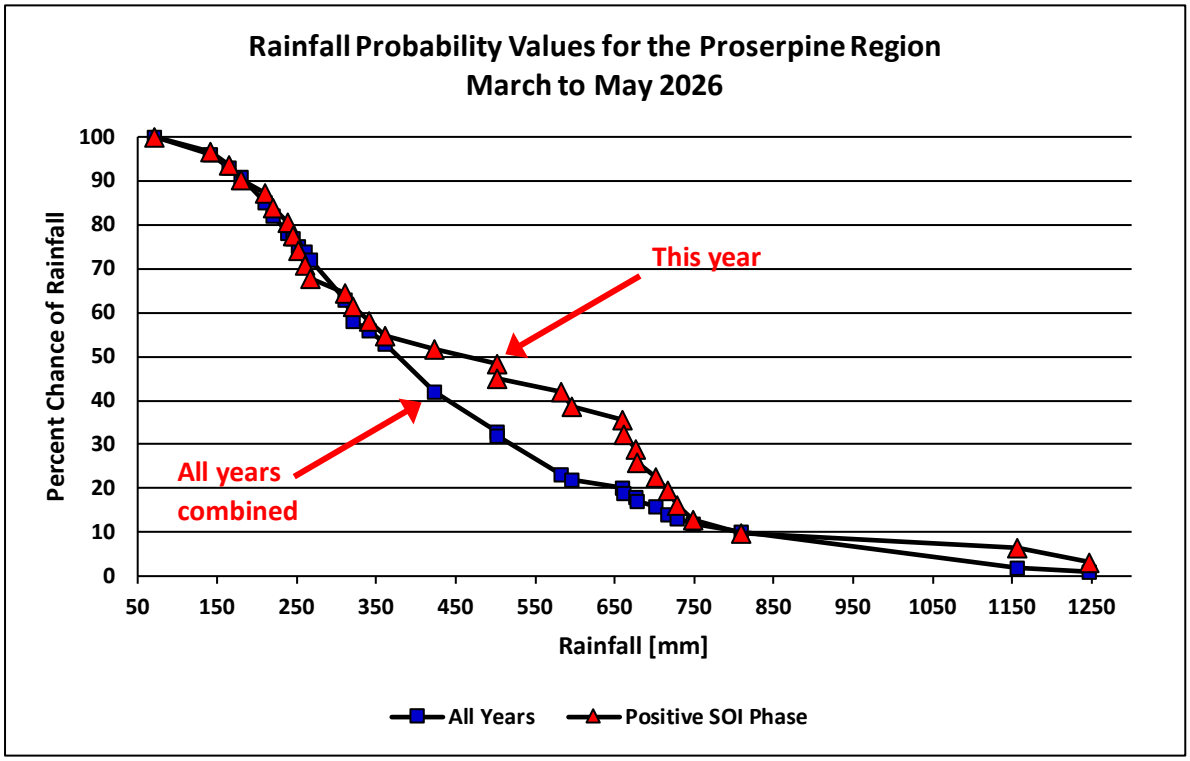


Figure 2: Rainfall probability values for the Innisfail, Mareeba and Proserpine region for the total March to May 2026 period.

Table 1: Percent chance of rainfall for Innisfail, Mareeba, and Proserpine for the total March to May 2026 period.

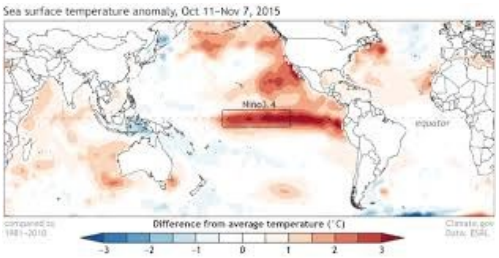
Percent Chance of Rainfall	Probability of recording given rainfall amounts in mm from March to May 2026		
	Innisfall	**Mareeba**	**Proserpine**
3% chance	2525	738	1247
10%	2287	680	810
20%	1948	505	712
30%	1793	418	671
40%	1688	367	592
50% (median rainfall value this current pattern)	1457	319	463
60%	1268	272	328
70%	1134	238	263
80%	953	113	240
90%	726	89	180
100%	610	35	72

Figure 3: Probability of exceeding the long-term median chart from the longer-term (experimental) ECMWF output for the June to August period, 2026. Regions light brown to orange have about a 30% probability of exceeding their median rainfall for this autumn period. Dark brown to organe shaded regions have ~20% probability of exceeding their median rainfall.

Glossary

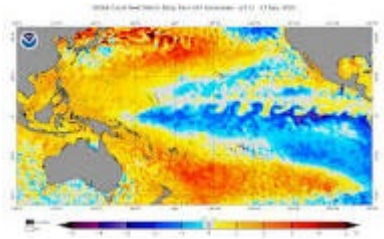
El Niño, La Niña, and the SOI (collectively often known as 'ENSO') is the most important year-to-year climate system operating on earth and affecting Australia. ENSO operates on a roughly year-to-year basis, generally persisting from around June of one year to May of the next.

An El Niño refers to a large region of much warmer than normal water in the eastern and/or central tropical Pacific Ocean. Contrasting with this area of warmer than normal sea-surface temperature (SST), cooler than normal sea-surface temperatures (SST) often also form in the western Pacific, including in the Coral Sea off the Queensland coast, and into the eastern Indian Ocean off Western Australia.



Typical El Niño sea surface temperature pattern (eg years like 1982/82, 1991/95, 2002/03, 2015/16). Note the warmer than normal water in the central and eastern Pacific.

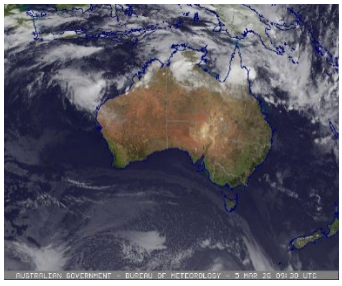
La Niña tends to develop in an opposite form to El Niño with much cooler surface and sub-surface water than normal in the central and/or eastern tropical Pacific, contrasting with warmer than normal surface and deeper water in the western Pacific, including the Coral Sea.



Typical strong La Nina pattern (e.g. 1955/56, 1973/74, 1998/99, 2011/12). Note the colder than normal water in the eastern and central Pacific, contrasting with warmer than normal water in the Coral Sea and western Pacific in this pattern.

This atmospheric part of ENSO is called the **Southern Oscillation**. The difference in pressure anomalies between Tahiti and Darwin can be measured and this then detects variation in the atmosphere (and which is linked to ENSO) above the tropical Pacific and is known as the **Southern Oscillation Index – or SOI**.

The **Madden-Julian Oscillation (MJO)** is a major, eastward-moving pattern of tropical clouds, rainfall, winds, and pressure that circles right around the globe (and across northern Australia) about every 30 to 50 days. (The mean return period of the MJO is around 40 days). The MJO can indicate when the main periods of rain or tropical cyclones are going to develop around northern Australia. In fact, the MJO is the dominant, subseasonal (i.e. weeks to a season) cause of rainfall variability in the world. The MJO played a major role in the floods that devastated the Gulf Country in 2019 and again more recently.



MJO active period showing increased cloud and tropical cyclone development during the monsoon over Northern Australia (March 5th, 2026).

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