Queensland Government
Department of the Environment, Tourism, Science and Innovation
March 2026 issue

QUEENSLAND CLIMATE ASSESSMENT REPORT

Current climate and seasonal outlook information to support sustainable grazing land, water, catchment and environmental management in Queensland.

SEASONAL CONDITIONS SUMMARY

FINDINGS AS AT 12 MARCH 2026

- **Twelve-month rainfall to the end of February 2026, averaged over the main grazing lands of Queensland, was 43 per cent above the long-term average (1890 to 2020).**
- **Rainfall over the last three-, six- and 12-month periods has been well-above average to extremely high over most of the State except southeast Queensland where percentiles were in the average to well-below average range.**
- **Sea surface temperatures in the tropical Pacific indicate continued weakening of La Niña conditions. All global models observed by BoM predict neutral ENSO conditions by early autumn.**
- **As at 1 November 2025, the Science Division of DETSI considers that the probability of exceeding median summer (November 2025 to March 2026) rainfall for much of Queensland is currently in the near-average to above-average range.**

IN THIS ISSUE

(click item to go to section).

CURRENT CONDITIONS

Historical Rainfall Variability and Drought Situation

Figure 1 shows 12-month rainfall averaged over the region of Queensland shown on the grey map (top right). This region carries over 80 per cent of the State's cattle and sheep herd and covers only 60 per cent of Queensland's land area. In each graph, rainfall is expressed as a percentage difference from the long-term (1890 to 2020) average. The upper graph shows the running 12-month rainfall anomaly since 1890, indicating the long-term history of wet and dry periods over this region. The lower graph focuses on changes since 2010 and shows, at selected times, those parts of Queensland drought-declared under State Government processes. Twelve-month rainfall to the end of February 2026, averaged over the main grazing lands of Queensland, was 43 per cent above the long-term average (1890 to 2020). Queensland currently has [no local government areas which are officially drought-declared](#).

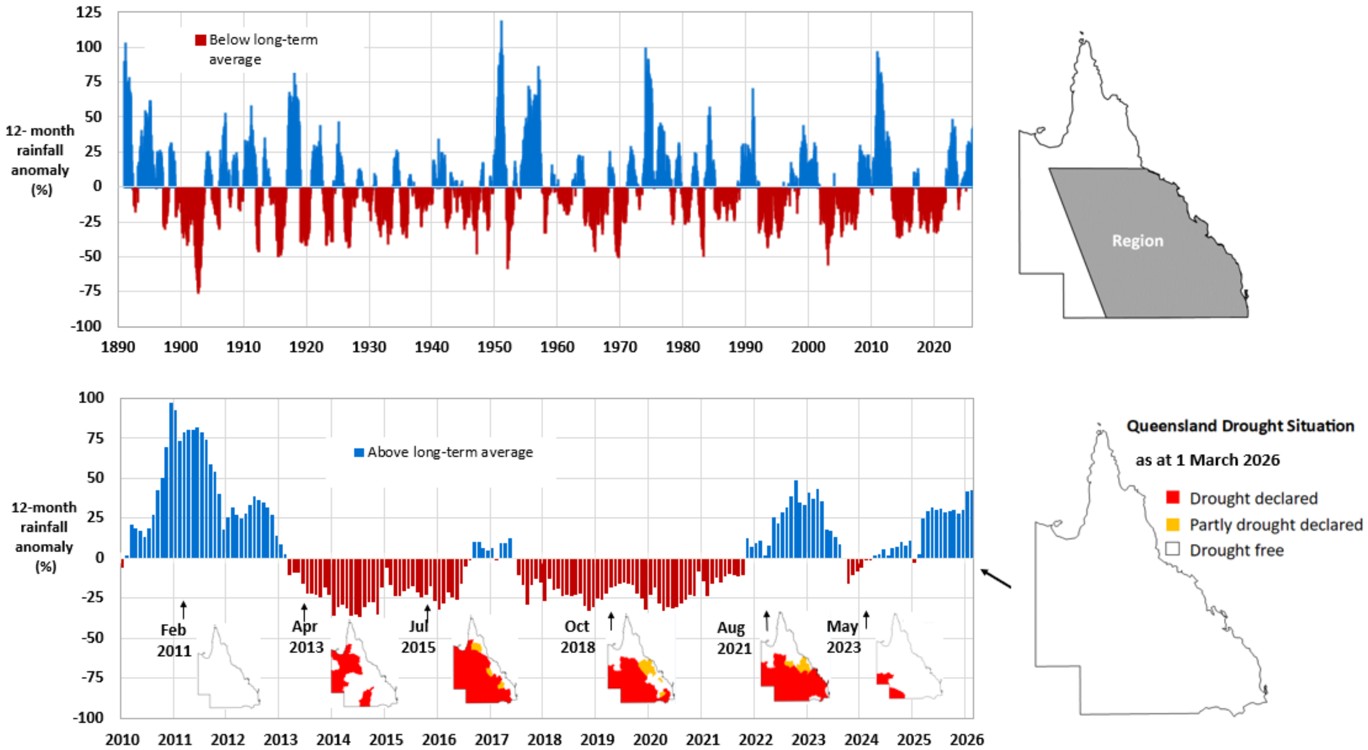


Fig.1: Historical 12-month rainfall anomalies
(Rainfall data source: https://www.longpaddock.qld.gov.au/silo/)

Rainfall and Pasture Growth Update

Figures 2 and 3 are products of the AussieGRASS Environmental Calculator (Carter et al. 2000). Figure 2 shows rainfall over the last three-, six- and 12-month periods (up to January 31, 2026) ranked against historical values. Persistent tropical activity for much of February has resulted in heavy rainfall across northern and western Queensland with minor flooding in some catchments. Rainfall over the last three-, six- and 12-month periods has been generally well-above average to extremely high over most of the State. Percentiles were in the average to well-below average range in southeast Queensland.

last 3 months December to February 2026 | **last 6 months** September to February 2026 | **last 12 months** March 2025 to February 2026

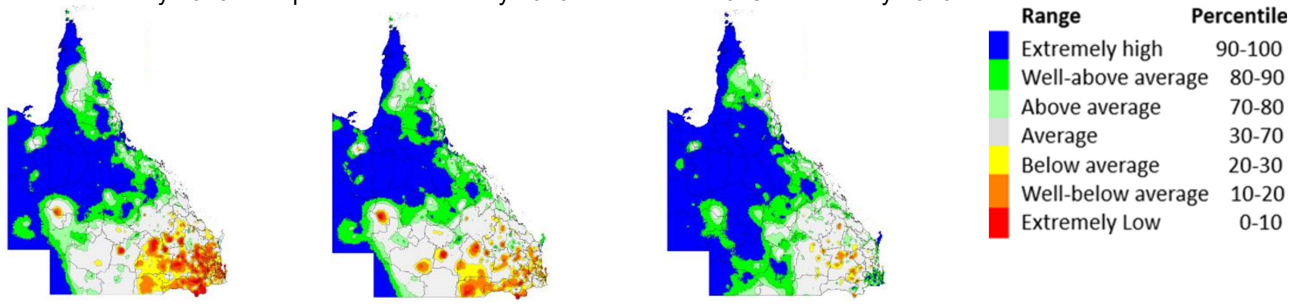


Fig. 2: Rainfall percentiles (base period 1890 to current)
(Source: https://www.longpaddock.qld.gov.au/aussiegrass/)

Figure 3-shows calculated pasture growth percentiles over the last three-, six-, and 12-month periods. The pattern of calculated pasture growth percentiles over the last three-, six-, and 12-month periods has broad similarities for much of the state to that of rainfall percentiles (above), ranging from extremely low to extremely high depending on region and length of period considered.

last 3 months December to February 2026 | **last 6 months** September to February 2026 | **last 12 months** March 2025 to February 2026

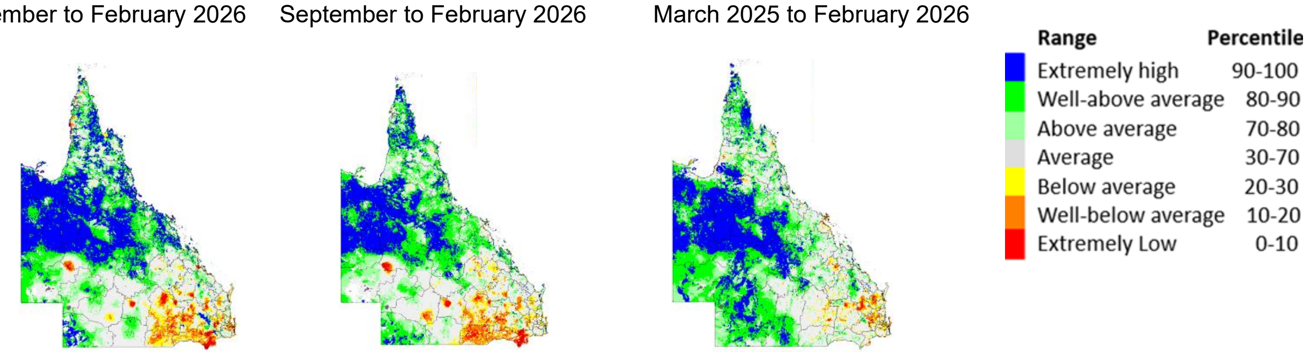


Fig. 3: Pasture growth percentiles (base period 1957 to current)
White shading indicates areas that normally have “seasonally low” pasture growth.
(Source: https://www.longpaddock.qld.gov.au/aussiegrass/)

Season-to-Date Rainfall versus November to March historical records

Rainfall for November to February 2026 period, averaged across Queensland’s major grazing lands region (grey region on the map in Fig.4), totalled 429 mm, and is above the long-term median for November to March period. The season is slightly lower than the 90th percentile and higher than the same period last year for November and February 2025.

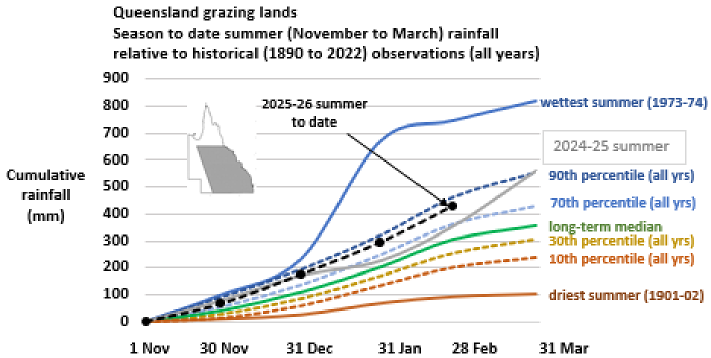


Fig. 4: November 2025 to March 2026 season accumulated rainfall as at 1 March 2026, compared to historical values.
Percentiles based on season-to-date rainfall at the end of each month since 1 November (based on data from 1890 to 2024).
Data source: https://www.longpaddock.qld.gov.au/silo/

El Niño-Southern Oscillation (ENSO)

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 sea-surface temperature (SST) anomalies in the central equatorial Pacific Ocean.

Rolling three-month average values of the SOI and central equatorial Pacific (Niño 3.4 region) SST anomalies since 2009 are shown in Figure 5. The most recent three-month (December to February) values of both the SOI (+5.9) and Niño 3.4 SST anomaly (-0.45°C) indicate a gradual weakening of La Niña conditions with SST anomalies in the equatorial Pacific showing a tendency towards warming (Figure 6). Most international models observed by BoM are projecting a return to neutral ENSO conditions by early autumn.

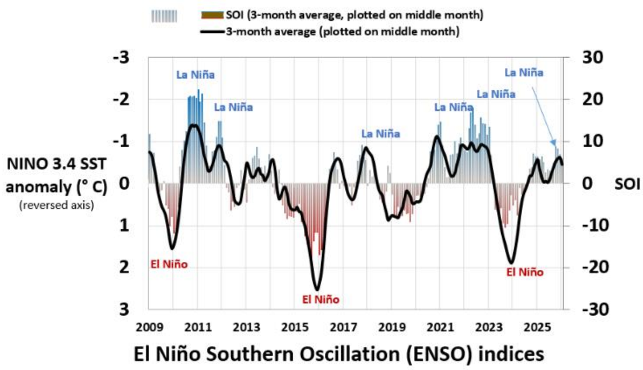


Fig. 5: El Niño Southern Oscillation (ENSO) Indices
SST source: www.cpc.ncep.noaa.gov/data/indices
(NINO3.4 SST, monthly OISST.v2.1 (1991 to 2020 base period)
SOI source: www.longpaddock.qld.gov.au/soi/soi-data-files
(monthly SOI 1887-1989 base period)

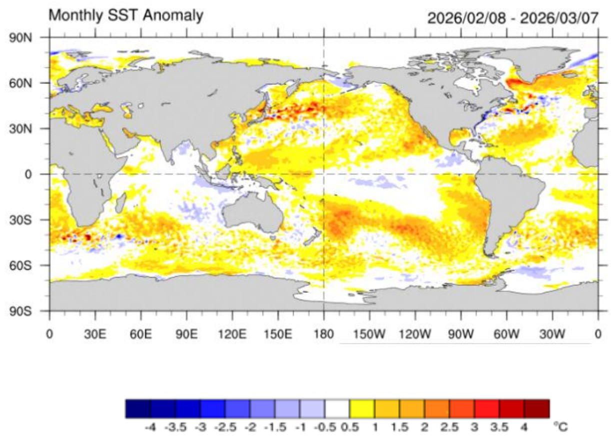


Fig. 6: Pacific Ocean sea-surface temperature anomalies (°C)
for 28 February to 7 March 2026 based on NOAA OISST.v3.1 SST data (1991 to 2020 based period) Map source: https://psl.noaa.gov/map/clim/sst.shtml

Madden-Julian Oscillation (MJO)

The [Madden-Julian Oscillation (MJO)](#) is a broad area of tropical convection (cloud and rainfall) which tracks east from the western Indian Ocean toward the eastern Pacific Ocean. This MJO cycle tends to recur on average every 30 to 60 days (intraseasonal), distinct from El Niño and La Niña events which typically persist for three to nine months. In Queensland, the MJO has its greatest influence on rainfall during the tropical cyclone season (November to April), particularly in northern parts of the State, as its passage can enhance the strength of the northern Australian monsoon and increase the chance of tropical cyclones. For example, two tropical cyclones made landfall in Queensland during the 2023-24 season ('Kirrily' on 25 January and 'Alfred' on 8 March), both occurred when the MJO was active in Australian-Western Pacific longitudes, unlike tropical cyclone Alfred which made landfall on 8 March 2025. Tropical activity from early March was expected to continue impacting northern Australia well into the second week of March. This activity was associated with a moderately strong MJO expected to eventually weaken as it moves across the Maritime continent towards the Western Pacific region. A moderately strong MJO over the Maritime Continent generally enhances rainfall over northern Australia.

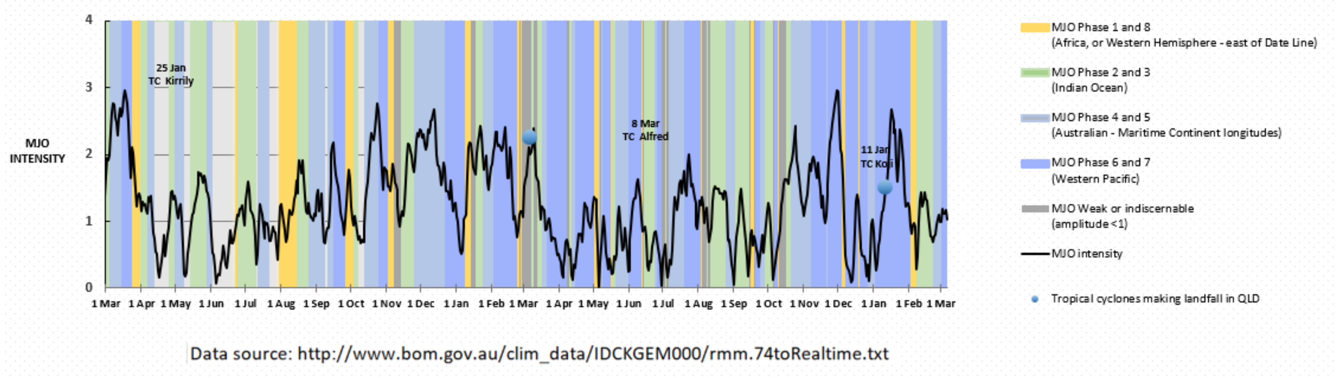


Fig. 7: Madden-Julian Oscillation intensity and phase-location

The graph shows the general location (coloured bars) and intensity (grey line) of the MJO from 1 March 2024 to 6 March 2026.
Data source: http://www.bom.gov.au/clim_data/IDCKGEM000/rmm.74toRealtime.txt

Long-lead Summer Rainfall Outlook

(produced on 5 November, based on SPOTA-1)

The Department of the Environment, Tourism, Science and Innovation (DETSI) monitors 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 current DETSI outlook for summer rainfall in Queensland is an objective analysis of historical conditions using an index based on SST anomalies measured in key regions of the extra-tropical Pacific Ocean, which factors-in the evolving ENSO-related SST pattern in the central and southwest Pacific. Historical SST gradients across these regions, from March to October, have been related to rainfall over much of Queensland in the following summer. On this basis, as at 1 November, the Science Division of DETSI considers that the probability of exceeding median summer (November to March) rainfall is within the near- to above-normal range (50 to 80 per cent) for much of Queensland. (Figs. 8 and 9).

This is the final DETSI outlook leading up to 2025/26 summer rainfall season (November to March).

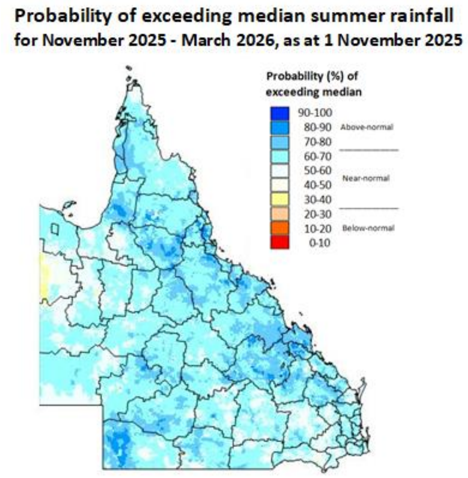


Fig. 8: Probability of exceeding median summer rainfall (for November 2025 to March 2026) as at 1 November 2025
Produced by the DETSI SPOTA-1 system.

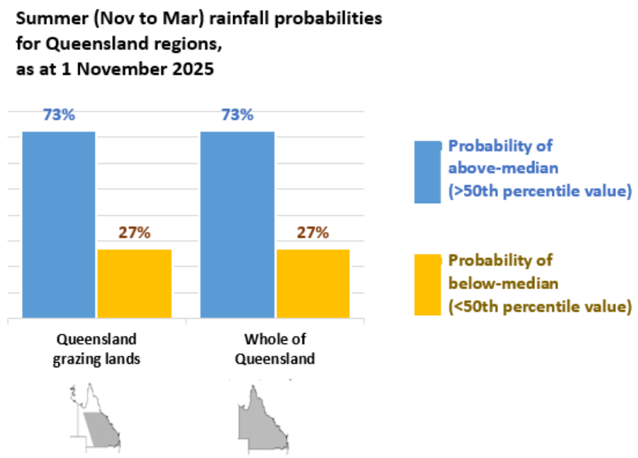


Fig. 9: Probabilities of above and below median summer rainfall (for November to March) as at 1 November 2025.
For the Queensland's major grazing region and the State as a whole, based on historical analogue year output from the DETSI SPOTA-1 system.

Three-month Rainfall Outlooks

based on international dynamical models

The maps in Figure 10 show rainfall probabilities for upcoming three-month periods, based on dynamical climate modelling, sourced from a range of international climate agencies. Rainfall probabilities differ for each model, on both a spatial and temporal basis, due to the different methodologies used.

For March to May period, models show higher-than-normal probability of above median rainfall for northern Queensland, particularly Cape York Peninsula, and normal to below-normal probability for the rest of the State.

Dynamical model outlook sources:

Australian Bureau of Meteorology http://www.bom.gov.au/jsp/sco/archive/

UK Met Office: http://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/glob-seas-prob

European C3S (Copernicus Climate Change Service) multi-model: https://climate.copernicus.eu/charts/c3s_seasonal/ (C3S multi-system (7)

NOAA North American Multi-model Ensemble -USA: https://www.cpc.ncep.noaa.gov/products/NMME/seasanom.shtml (Global prate)

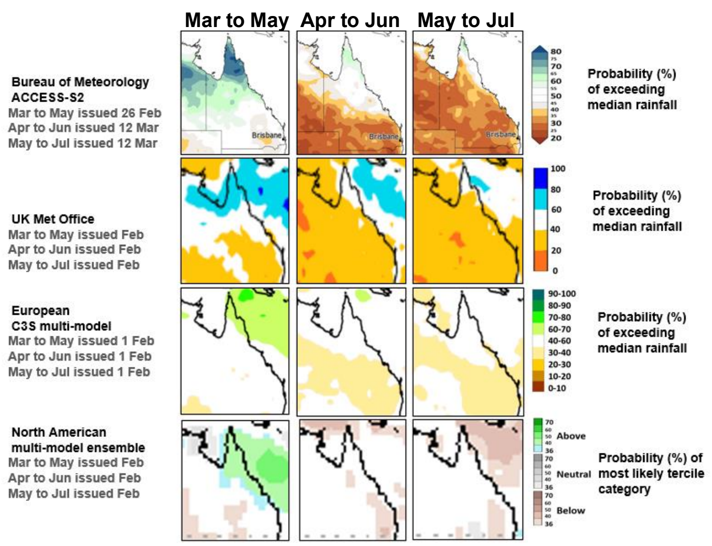


Fig. 10: Rainfall probabilities for March to July 2026, based on international dynamical models.

Three-month Rainfall Outlook

based on the SOI Phase system

The map in Figure 11 shows rainfall probabilities for the coming three-month period, based solely on a Consistently Positive 'phase' of the SOI at the end of February 2026, as determined by the SOI Phase system. The current phase of the SOI (click for more detail) is based on the most recent values of the SOI +8.0 for January and +11.2 for February 2026).

The map, which is based on 29 previous years (from 1889 to 2015) which had a 'Consistently Positive' phase of the SOI at the end of February 2026, indicates a generally 40 to 70 per cent probability of exceeding median March to May 2026 rainfall across much of Queensland.

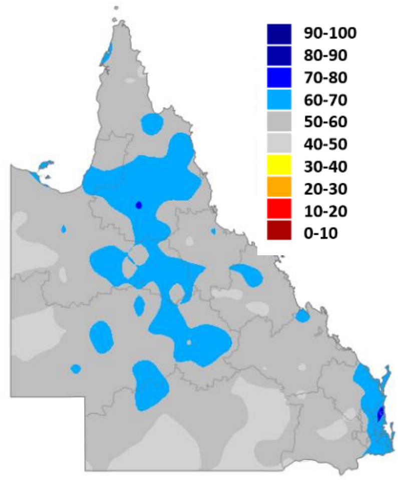
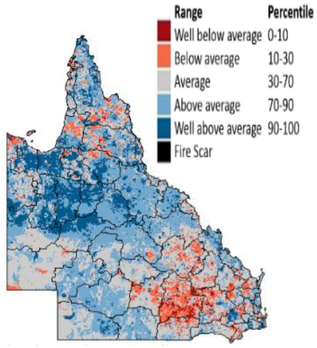
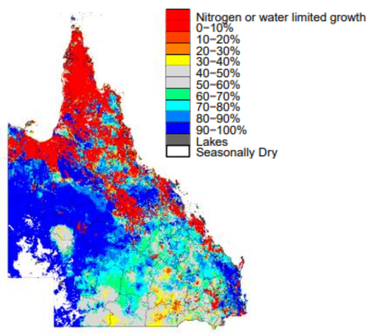


Fig. 11: Probability of exceeding median rainfall for March to May 2026 based on a 'Consistently Positive' phase of the SOI at the end of February 2026.

Pasture Outlook

Figures 12 and 13 are products of the AussieGRASS Environmental Calculator. Calculated pasture ground cover at the end of February 2026 (Fig. 12) ranged from average to well-above average in most parts, except for parts of southeast Queensland with below average ground cover. Figure 13 shows that the probability of exceeding median pasture growth over March to May 2026 is above-normal for most parts of Queensland, except for southern parts of the State with below-average ground cover. This calculation takes into account both current conditions (e.g., soil water content) and rainfall probabilities for the next three-month period) based on SOI Phase analogue years.





Relative to historical records since 1957

Fig. 12:

Calculated pasture cover at 28 February 2026.

Fig. 13:

Probability of exceeding median pasture growth for Mar to May 2026 based on a 'Consistently Positive' phase of the SOI at the end of February 2026.

REFERENCES AND RESOURCES

References:

Carter, J.O. *et al*. (2000). Aussie GRASS: Australian Grassland and Rangeland Assessment by Spatial Simulation. In 'Applications of seasonal climate forecasting in agricultural and natural ecosystems - the Australian experience.' (Eds. G. Hammer, N. Nicholls and C. Mitchell). Kluwer Academic Press, Netherlands, pp. 329-349.

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Day, K.A. and McKeon, G.M. (2018). An Index of Summer Rainfall for Queensland's Grazing Lands. *Journal of Applied Meteorology and Climatology*, **57**, 1623-41. https://doi.org/10.1175/JAMC-D-17-0148.1

McKeon, G. *et al.* (2004). 'Pasture Degradation and Recovery in Australia's Rangelands: Learning from History.' Queensland Department of Natural Resources, Mines, and Energy, Brisbane, Australia.

Stone, R. and Auliciems, A. (1992), SOI phase relationships with rainfall in eastern Australia. Int. J. Climatol., 12: 625-636. https://doi.org/10.1002/joc.3370120608

Stone, R., Hammer, G. & Marcussen, T. Prediction of global rainfall probabilities using phases of the Southern Oscillation Index. *Nature* **384**, 252–255 (1996). https://doi.org/10.1038/384252a0

Additional resources:

For further information on AussieGRASS, seasonal climate outlooks (including the SOI Phase scheme and the SPOTA-1 scheme) and Queensland drought declarations, visit the Long Paddock website, https://www.longpaddock.qld.gov.au.

MJO description: https://www.climate.gov/news-features/blogs/enso/what-mjo-and-why-do-we-care

General Disclaimer:

Information contained in this report is provided as general advice and the maps are designed to provide information relevant at a regional (shire) scale. More detailed information is required when making specific property scale management decisions. The State of Queensland, as represented by the Department of the Environment, Tourism, Science and Innovation, gives no warranty in relation to the data including without limitation, accuracy, reliability, completeness or fitness for a particular purpose.

It should be noted that seasonal outlooks are probabilistic and not deterministic in nature. For example, if an outlook indicates that there is an 80 per cent probability of exceeding median rainfall, should be interpreted as also meaning that there is a 20 per cent probability of rainfall being below the long-term median. 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. Users should also consider sourcing information related to the historical track record of any outlook scheme, and such information is becoming increasingly available.

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