

Monthly Climate Statement — March 2014

Key messages

- An active monsoon during February saw quite high rainfall totals in parts of northern and western Queensland.
- Rainfall totals in many parts of south-eastern Queensland have been in the driest 10 per cent of records over the last 3-, 6- and 12-month periods.
- Central Pacific Ocean sea-surface temperatures remain 'ENSO-neutral', although this may change in coming months.
- The current 'Rapidly Falling' SOI Phase indicates a slightly lower than normal probability of exceeding median rainfall over the next three-month period (March to May) for parts of northern and eastern Queensland.
- However, it should be kept in mind that seasonal outlooks, including outlooks for ENSO development, are least reliable at this time of year – a period known as the 'autumn predictability gap'.

- The observed [sea-surface temperature \(SST\) anomaly](#) (-0.6 °C) was below average in the key Niño 3.4 region of the central equatorial Pacific in February.
- Most [international global climate models](#) indicate that central equatorial Pacific SSTs should warm, but remain within the 'ENSO-neutral' range, through autumn.
- At this early stage, most international models are suggesting a higher than normal probability of El Niño conditions developing over winter. However, seasonal outlooks, including outlooks for ENSO development, are least reliable at this time of year – a period known as the 'autumn predictability gap'.

The 'autumn predictability gap'

El Niño and La Niña events tend to form in winter or spring, persist through summer and break down in autumn. Seasonal outlooks are based on the persistence of these events and their associated rainfall and climate patterns. Seasonal outlooks are therefore least reliable leading into autumn when El Niño or La Niña events tend to break down. This period is known as the 'autumn predictability gap'.

Findings for March 2014

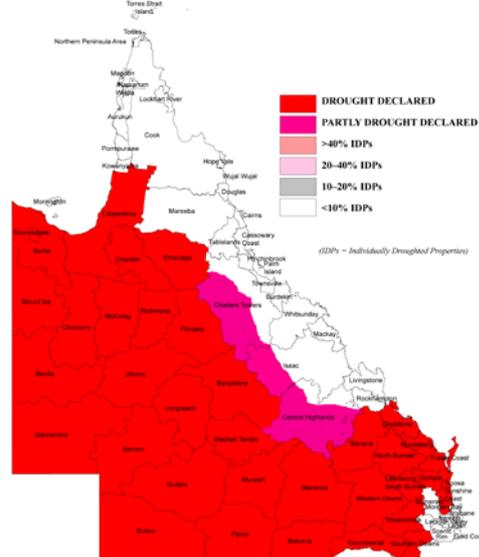
The Science Delivery Division of the Department of Science, Information Technology, Innovation and the Arts (DSITIA) considers that **there is a slightly lower than normal probability of exceeding median rainfall over the next three-month period (March to May) for parts of northern and eastern Queensland.** This view is based on DSITIA's analysis of the historical relationship between Queensland rainfall and the Southern Oscillation Index (SOI).

DSITIA's rainfall outlooks for Queensland are based on the current and projected state of the El Niño-Southern Oscillation (ENSO) phenomenon and on factors which alter the impact of ENSO on Queensland rainfall (e.g. the Pacific Decadal Oscillation (PDO)). Currently:

- The [SOI](#), a key-atmospheric measure of ENSO, rose from a quite positive value (+11.2) in January to a slightly negative value (-1.7) in February. The three-month mean SOI value from December to February was +2.9, remaining in the ENSO-neutral range.

Close to 80 per cent of Queensland is now (as at 7 March) [drought declared](#) under state government processes.

QUEENSLAND DROUGHT SITUATION as at 7th March 2014



Rainfall Outlook

There are various approaches used to provide rainfall outlooks. These approaches tend to differ in terms of methodology and, for this reason, each approach may convey a different outlook, particularly for specific locations.

Rainfall outlooks provided in this Climate Statement are based on:

- DSITIA's experimental long-lead [Seasonal Pacific Ocean Temperature Analysis version 1 scheme](#) (SPOTA-1 scheme), which integrates SST information, including indices of ENSO and the PDO.
- DSITIA's [SOI Phase scheme](#), which relies solely on the SOI, an atmospheric measure of ENSO.

The experimental SPOTA-1 scheme provides long-lead probabilities of summer (November to March) rainfall for Queensland from mid-April through to mid-November each year. This outlook takes into account a monthly ENSO index, as well as an index of March SST anomalies which reflect the phase of the PDO.

As at 1 November 2013, the final SPOTA-1 assessment for this summer (November 2013 to March 2014) indicated a higher than normal probability of 'near-average' to 'above-average' rainfall for much of Queensland.

DSITIA's SOI Phase scheme provides probabilities of rainfall for the coming three-month season based on SOI values over the previous two months. The SOI Phase scheme currently indicates that the [probability of above-median rainfall for the next three-month period](#) (March to May) is 40 to 60 per cent for most of Queensland, with lower probabilities for parts of northern and eastern Queensland. This analysis is based on the SOI being in a 'Rapidly Falling' phase at the end of February, as discussed further in the [Commentary on Rainfall Based on 'Phases' of the SOI](#).

The SPOTA-1 and SOI Phase schemes indicate probabilities based on historical relationships. It is important to understand the probabilistic nature of seasonal outlooks and to ensure that long-term risk management is undertaken. For example, if an outlook indicates a 70 per cent probability of above-median rainfall, this also means there is a 30 per cent probability of below-median rainfall. An increased risk of above- or below-median rainfall in Queensland will not necessarily result in above- or below-median rainfall occurring throughout all of the state (see [Australia's Variable Rainfall poster](#), or the department's [archive of historical rainfall maps](#)).

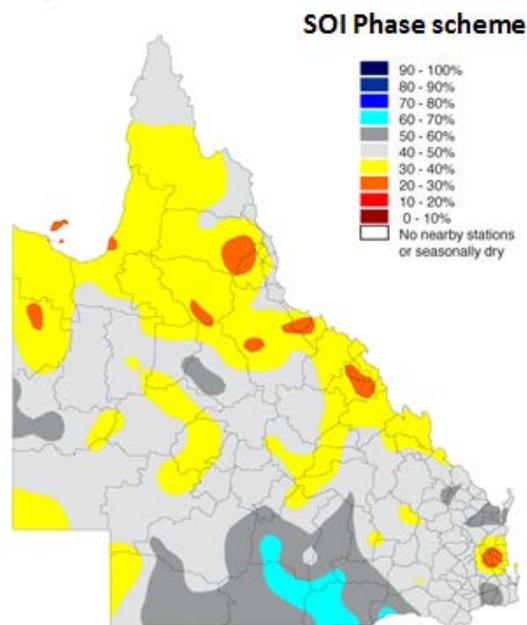
Each climate outlook scheme may have its own particular following. Although such schemes cannot provide outlooks with absolute certainty, users of the information who follow a skilful scheme should benefit from doing so in the long term. Users should consider the historical track record of any scheme, and such information is becoming increasingly available. DSITIA's Long Paddock website provides an archive of [SPOTA-1 reports](#) and [past commentaries](#) on the SOI Phase scheme.

While DSITIA places emphasis on the SPOTA-1 and SOI-Phase analyses, a much wider range of information from national and international agencies is also considered. DSITIA pays particular attention to the Bureau of Meteorology's '[ENSO Wrap-Up](#)' which is updated fortnightly on the Bureau of Meteorology website.

ENSO influences other climate variables apart from rainfall (e.g. temperature, pan evaporation and vapour pressure). This means that the impact of ENSO on crop or pasture growth can be stronger than on rainfall alone. The impact of ENSO on pasture growth, for example, is also dependent upon current pasture condition and soil water status. DSITIA's [AussieGRASS](#) model takes these factors into account in producing [seasonal pasture growth probabilities](#).

Probability of exceeding Median Rainfall

for March / May
based on rapidly falling phase
during January / February



For more information, please visit www.longpaddock.qld.gov.au/seasonalclimateoutlook or contact stuart.burgess@science.dsitia.qld.gov.au.