

# Monthly Climate Statement — June 2013

## Key messages

- Approximately one-third of Queensland is currently drought declared under State Government processes.
- For most of Queensland there is an equal likelihood of winter (June to August) rainfall being either above or below the long-term median. However, the probability of above-median winter rainfall is higher than normal in parts of the Darling Downs and southern border regions.
- DSITIA's experimental long-lead outlook for the 2013/14 summer (November to March) currently indicates, for much of Queensland, a slightly higher than normal probability of above-median rainfall.

- The majority of [international global climate models](#) suggest that sea-surface temperatures in the tropical Pacific Ocean will most likely remain within the 'ENSO-neutral' range throughout winter (June to August). However, in its '[ENSO Wrap-Up](#)' (4 June), the Bureau of Meteorology notes that "it remains possible that a La Niña event could develop later in the year".
- Over the coming months, DSITIA will closely monitor ENSO indices including the Southern Oscillation Index (SOI) and the sea-surface temperature pattern in the Pacific Ocean.

Rainfall in May was near or above the long-term median over much of Queensland. However, extensive areas of inland Queensland, and some northern regions, have experienced well-below average to extremely-low rainfall over the past six- and twelve-month periods.

As at 6 June, 14 of Queensland's 73 regional council areas, comprising 36 per cent of the State, were [drought declared](#). Mt Isa is the most recent regional council area to be drought declared (15 May 2013).

## Findings for June 2013

The Science Delivery Division of the Department of Science, Information Technology, Innovation and the Arts (DSITIA) notes that, **for most of Queensland, there is an equal likelihood of either above-median or below-median winter (June to August) rainfall. However, the probability of above-median winter rainfall is higher than normal in parts of the Darling Downs and southern border regions. DSITIA's experimental long-lead outlook for the 2013/14 summer (November to March) currently indicates, for much of Queensland, a slightly higher than normal probability of above-median rainfall.**

Seasonal forecasts are based on the current and projected state of the ENSO phenomenon and on factors which alter the impact of ENSO on Queensland rainfall (e.g. the Pacific Decadal Oscillation (PDO)). The PDO modulates the impact of ENSO on summer rainfall in Queensland.

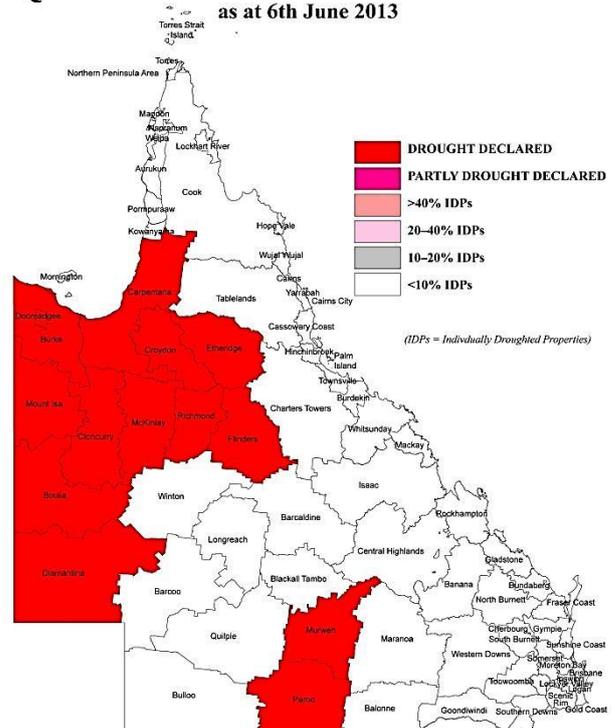
Currently:

- The [SOI](#), a key atmospheric measure of ENSO, averaged +6.0 over the March to May period, being slightly positive but remaining within the 'ENSO-neutral' range. However, as at 10 June, the SOI has been much higher (average +13.1 over the last 30-days).
- The observed [sea-surface temperature anomaly](#) (-0.3 °C) in the key Niño 3.4 region of the central equatorial Pacific, was slightly below average in May.

**Great state. Great opportunity.**

## QUEENSLAND DROUGHT SITUATION

as at 6th June 2013



## Rainfall Outlook

There are various approaches used to provide rainfall outlooks. These approaches tend to differ in terms of the components of the climate system that are considered. For this reason, each approach may convey a different outlook, particularly for specific locations.

DSITIA uses two statistical schemes to develop its forecasts of seasonal rainfall:

- the experimental long-lead [SPOTA-1 scheme](#), which integrates sea-surface temperature information, including indices of ENSO and the PDO; and
- the [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. An updated outlook for summer 2013/14 is now available. This outlook takes into account a monthly ENSO index, as well as an index of March sea-surface temperature anomalies which reflect the current 'cool' phase of the PDO. The current SPOTA-1 outlook indicates, for much of Queensland, a slightly higher than normal probability of above-median summer rainfall. This outlook will continue to be revised each month until November this year.

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 across most of Queensland](#) is 40 to 60 per cent for the next three-month period (June to August). However, the probability of above median rainfall for June to August is higher than normal in parts of the Darling Downs and southern border regions. This analysis is based on the SOI being in a 'Rapidly Rising' phase at the end of May, 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 that the probabilistic nature of seasonal outlooks is understood and 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](#)).

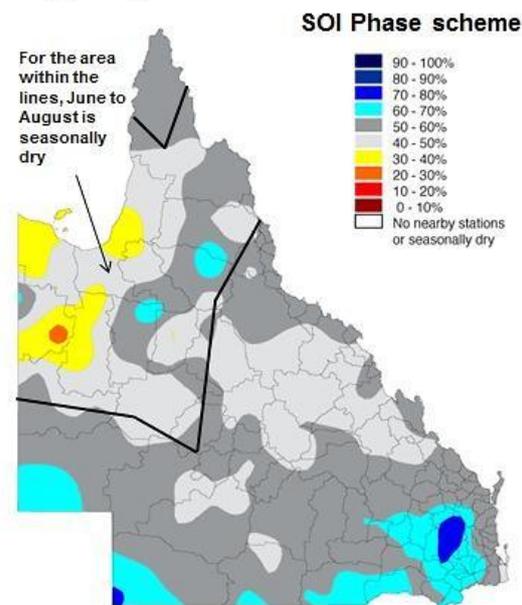
Each of the above schemes may have their own particular following. Although such schemes cannot provide outlooks with absolute certainty, users of the information who follow a skilful scheme should benefit from doing so in the long-term. Users should consider the historical track record of any scheme, 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.

Whilst 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's 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 June / August  
based on rapidly rising phase  
during April / May



For more information, please visit [www.longpaddock.qld.gov.au/seasonalclimateoutlook](http://www.longpaddock.qld.gov.au/seasonalclimateoutlook) or contact [ken.a.day@science.dsitia.qld.gov.au](mailto:ken.a.day@science.dsitia.qld.gov.au).