

Monthly Climate Statement—October 2012

Key messages

- Rainfall probabilities near-normal for the next three months (October to December)
- Near-average (decile 3-7) rainfall most likely for much of Queensland this summer (November to March)
- Oceanic and atmospheric indicators are currently within the 'ENSO-neutral' range
- The chance of El Niño conditions developing in 2012 has reduced
- Rainfall probabilities will continue to be updated each month

The majority of [international global climate models](#) surveyed by the Bureau of Meteorology ('[ENSO Wrap-Up](#)' October 9) suggest that sea-surface temperatures in the tropical Pacific Ocean, although likely to be warmer than normal, will remain within the 'ENSO-neutral' range during the coming summer.

In addition:

- The [SOI](#), a key atmospheric measure of ENSO, rose from a below-zero value in August (-6.2) to an above-average value (+3.2) in September.
- Observed [sea-surface temperatures](#) in the key Niño 3.4 region were, on average, 0.5° C warmer than normal during September. However, the most recent weekly values are now close to average.

The SOI and sea-surface temperatures will be closely monitored over coming months when ENSO conditions have historically tended to 'lock in' and become a more reliable indicator of rainfall for the season ahead. However, it should be noted that a cool phase of the PDO, as currently exists, tends to moderate the impact of El Niño on spring and summer rainfall. The outlook for spring and summer rainfall may change and will be updated monthly.

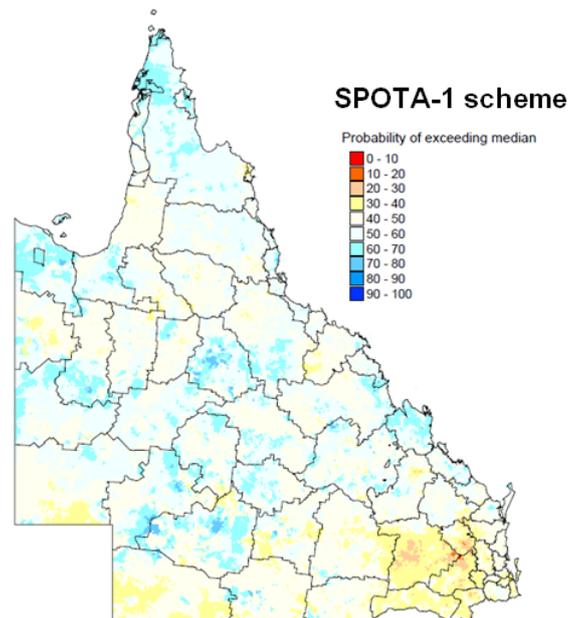
Findings for October 2012

It is considered that **the probability of above-median rainfall for the next three-month period (October to December) is near-normal (40 to 60 per cent) for most of Queensland. The long-range experimental Seasonal Pacific Ocean Temperature Analysis (SPOTA-1) scheme currently indicates that near-average (decile 3-7) rainfall is most likely for much of Queensland this summer (November to March).**

This assessment is 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)). The outlook for the October to December period is based on an historical analysis of Queensland rainfall and the Southern Oscillation Index (SOI). The long-lead outlook for summer is based on the current sea-surface temperature pattern in the extra-tropical Pacific.

As at 1 October 2012, it is noted that sea-surface temperature anomalies in the central equatorial Pacific are warmer than average but remain within the 'ENSO-neutral' range. Atmospheric indicators of ENSO, in particular the SOI, also remain within the 'ENSO-neutral' range.

Probability of Exceeding Median Summer Rainfall
November 2012 – March 2013 based on the SPOTA-1 Index
as at October 1, 2012



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 and, for this reason, each approach may convey a different outlook, particularly for specific locations.

DSITIA produces two statistical climate risk assessment schemes. They are:

- the experimental [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 assessment of rainfall probabilities for the upcoming 2012/13 summer, based on the experimental SPOTA-1 scheme, currently indicates that near-average (decile 3-7) rainfall is most likely for much of Queensland this summer (November to March). This assessment is based, in part, on an index of March sea-surface temperature anomalies which reflect the current 'cool' state of the PDO. This latest assessment, which also takes into account a monthly ENSO index, will be revised in 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 (October to December). This analysis is based on the SOI being in a 'Rapidly Rising' phase at the end of September, as discussed further in the [commentary on rainfall based on phases of the SOI](#).

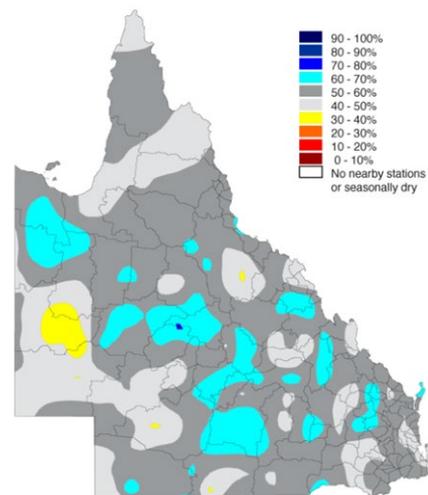
The SPOTA-1 and SOI Phase schemes indicate probabilities based on historical relationships. It is important that the probabilistic nature of seasonal outlooks is understood and long-term risk management is undertaken. For example, if an outlook indicates a 70 per cent probability of above-median rainfall, 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](#)).

Probability of exceeding Median Rainfall

for October / December
based on rapidly rising phase
during August / September

SOI Phase scheme



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 historical information is becoming increasingly available.

DSITIA's Long Paddock website provides the historical archive of [SPOTA-1 reports](#) and [past commentaries](#) on the SOI phase scheme. Users should also consider the wide range of information available each month describing the current state of the ocean/climate system, for example the ['ENSO Wrap-Up'](#).

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 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](#).

For more information, please visit www.LongPaddock.qld.gov.au/climatestatement or contact QCCCE@derm.qld.gov.au.