

Monthly Climate Statement—July 2012

Key messages

- Near-normal rainfall probabilities for July to September for most of Queensland
- Experimental long-lead outlook currently indicates a slightly higher than normal probability of above-median rainfall for the coming summer
- This long-lead outlook may moderate if El Niño conditions develop before summer, which is a possibility
- Rainfall probabilities will continue to be updated each month

In addition:

- The [SOI](#), a key atmospheric measure of ENSO, decreased significantly from May (-2.4) to June (-10.2).
- Observed [sea-surface temperatures](#) in the key Niño 3.4 region were almost 0.5° C above normal during June.

The SOI and sea-surface temperatures will be closely monitored over coming months when ENSO conditions tend 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.

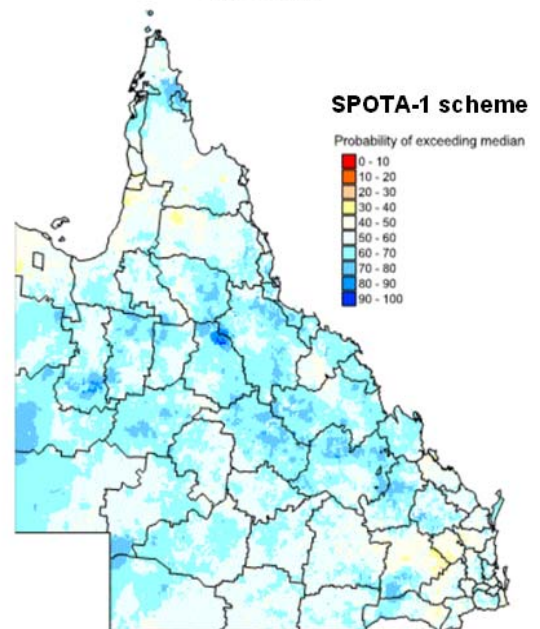
Findings for July 2012

It is considered that **the probability of above-median rainfall for the next three-month period (July to September) is near-normal (40-60 per cent) for most of Queensland. This outlook is based on the currently neutral state of the El Niño-Southern Oscillation (ENSO) phenomenon. However, the sea-surface temperature pattern in the extra-tropical Pacific currently indicates a slightly higher than normal probability of above-median rainfall for the coming summer (November to March).**

This assessment is 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.

As at 1 July 2012, it is noted that sea-surface temperature anomalies in the central equatorial Pacific are nearing El Niño thresholds. The SOI, an atmospheric measure of ENSO, has remained negative for the last three months (three-month average -6.3). Approximately 60 per cent of [international global climate models](#), and most models surveyed by the BoM ('[ENSO Wrap-Up](#)' July 3), indicate the possibility of an El Niño event developing before summer. Further warming of central Pacific sea-surface temperatures and/or a continuation of quite negative SOI values over the coming months would be required to confirm the development of an El Niño pattern.

Probability of Exceeding Median Summer Rainfall
November 2012 - March 2013 based on the SPOTA-1 Index
as at July 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, indicates a slightly higher than normal probability of above-median rainfall for much of Queensland. 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 from August through to 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](#) for the next three-month period (July to September) is near-normal (40-60 per cent) for most of Queensland, but slightly below normal (30-40 per cent) in some regions. This analysis is based on the SOI being in a rapidly falling phase at the end of June, as discussed further in the [commentary on rainfall based on phases of the SOI](#).

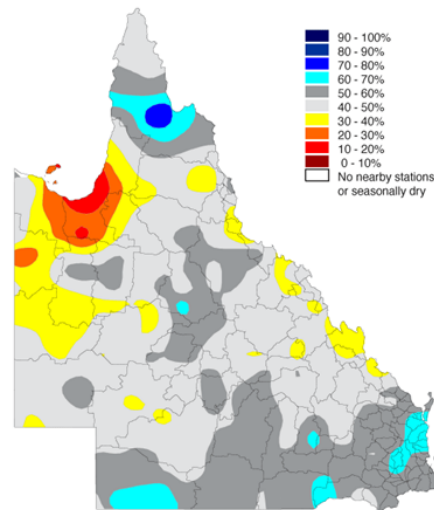
The SPOTA-1 and SOI phase schemes indicate probabilities based on historical relationships. It is important that the probabilistic nature of seasonal outlooks is understood and long-term risk management is undertaken. For example, if an outlook indicates a 70 per cent probability of above-median rainfall, this also means there is a 30 per cent probability of below-median rainfall.

Also 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 July / September
based on rapidly falling phase
during May / June

SOI Phase scheme



Each of the above schemes may have their own particular 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.