

Monthly Climate Statement — July 2013

Key messages

- Almost half of Queensland is now drought declared under State Government processes.
- For most of Queensland, there is a higher than normal probability of above-median July to September rainfall.
- For the coming summer (November to March), there is currently no strong signal for either wetter or drier than normal conditions in Queensland.

- Of 25 [international global climate models](#) surveyed by the International Research Institute for Climate and Society in the USA, 73 per cent currently suggest that sea-surface temperatures in the tropical Pacific Ocean will remain within the 'ENSO-neutral' range over the next three months (July to September). The analysis shows 19 per cent of models entering the La Niña range and 8 per cent entering the El Niño range.
- 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.

Findings for July 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 a higher than normal likelihood of above-median July to September rainfall. For the coming summer (November to March), there is currently no strong signal for either wetter or drier than normal conditions in Queensland.**

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:

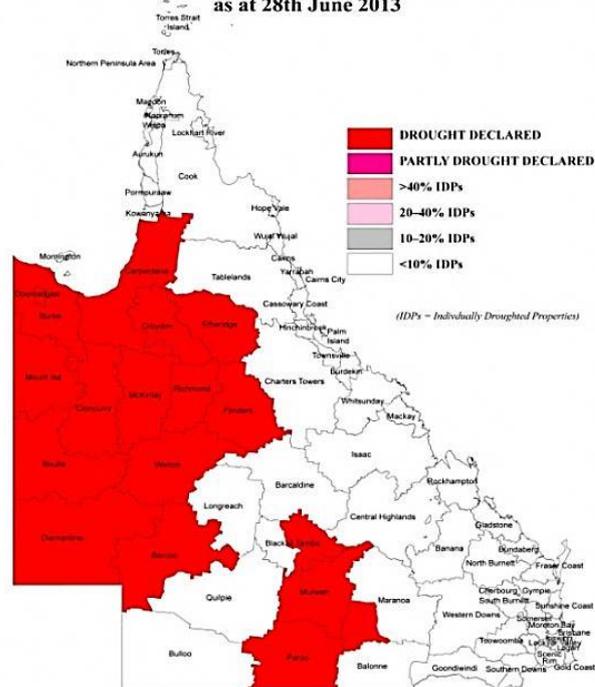
- The [SOI](#), a key atmospheric measure of ENSO, has been quite positive over the last two months (+8.0 in May, +10.6 in June). The latest three-month mean, from April to June 2013, is +6.6.
- The observed [sea-surface temperature anomaly](#) (-0.2 °C) in the key Niño 3.4 region of the central equatorial Pacific, was near average in June.
- In its ['ENSO Wrap-Up'](#) (2 July), the Bureau of Meteorology notes that "climate models suggest a neutral ENSO pattern will persist into the austral spring. However, the development of La Niña in 2013 cannot be totally ruled out yet".

Rainfall in June was above the long-term median in parts of South East 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 28 June, 44 per cent of Queensland is [drought declared](#). Barcoo and Winton are the most recent regional council areas to be fully drought declared. Blackall-Tambo and Maranoa have been partly drought declared.

QUEENSLAND DROUGHT SITUATION

as at 28th 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. For the coming summer, the SPOTA-1 scheme currently shows no strong signal for either wetter or drier than normal conditions in Queensland. 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 50 to 70 per cent for the next three-month period (July to September). This analysis is based on the SOI being in a 'Consistently Positive' 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.

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](#)).

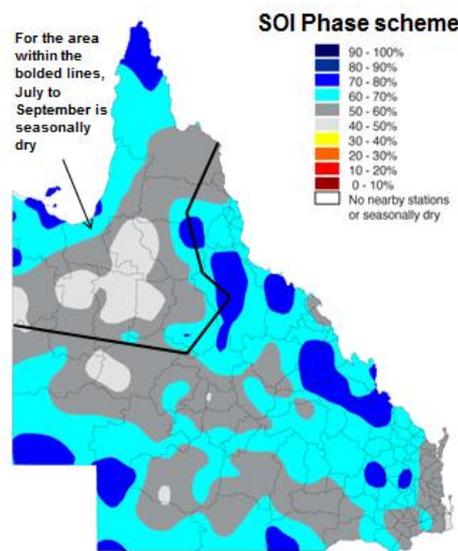
Each climate outlook scheme may have its own particular following. Although such schemes cannot provide outlooks with absolute certainty, users of the information who follow a skilful scheme should benefit from doing so in the long-term. Users should consider the historical track record of any scheme,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

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 July / September
based on consistently positive phase
during May / June



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