

# Queensland Climate Change Centre of Excellence

## Monthly Climate Statement—November 2011

### Key messages

- A La Niña climate pattern, although weaker than last year, is likely to persist during summer (November to March).
- The probability of exceeding median rainfall for the coming summer is higher than normal throughout most of Queensland.
- The probability of above-median summer rainfall, although higher than normal, is not as high as at the same time last year.
- The tropical cyclone season (November to April) is likely to be more active than normal.

### Findings for November 2011

The Queensland Climate Change Centre of Excellence (the Centre) considers that the **probability of above-median rainfall for the coming summer (from November 2011 to March 2012) is higher than normal** for most of Queensland, although not as high as at the same time last year. The Centre's view, which is based on a comparison of historical rainfall records and climate indices, is also supported by a range of evidence provided by national and international climate agencies. Furthermore, the Centre notes that the Bureau of Meteorology has indicated that the tropical cyclone season (November to April) is likely to be [more active than normal](#). The Queensland Regional Office of the Bureau of Meteorology is encouraging communities to [be prepared for 'perhaps one or two' tropical cyclones](#) making landfall in Queensland during the cyclone season.

As at 1 November 2011 the Centre notes that sea-surface temperature anomalies in the central equatorial Pacific and other indicators of the El Niño-Southern Oscillation (ENSO) phenomenon remain at, or have exceeded, La Niña thresholds. The [Southern Oscillation Index](#) (SOI), an atmospheric measure of ENSO, has averaged +7.8 over the last three months (August to October) and remains quite positive (+9.7 in October). Likewise sea-surface temperatures in the equatorial Pacific have reached La Niña thresholds.

The Bureau of Meteorology, in their latest ['ENSO Wrap-Up'](#) (issued 9 November 2011), note that the current La Niña event is likely to peak towards the end of 2011 and persist into early 2012. The Bureau also notes that the current La Niña event is unlikely to be as strong as the previous 2010–11 event.

The Centre has closely monitored sea-surface temperatures in specific regions of the Pacific Ocean since April this year to provide long-lead rainfall probabilities for the coming summer. These long-lead outlooks are based on the Centre's experimental Seasonal Pacific Ocean Temperature Analysis (SPOTA-1) scheme. SPOTA-1 takes into account both ENSO and a more persistent, but related, coupled ocean-atmosphere phenomenon known as the Pacific Decadal Oscillation (PDO). Like last year, the SPOTA-1 scheme has consistently indicated that the probability of above-median rainfall for the coming summer is higher than normal. The SPOTA-1 update this month is the final update for the 2011–12 summer season. The Centre has made a final calculation of rainfall probabilities for summer based on the SPOTA-1 scheme, including November to March, November to January, December to February and January to March. These probabilities won't be revised; however the Centre will continue to monitor the SOI and sea-surface temperatures and provide commentary on this basis.

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.

The Centre 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 Centre's 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. The sea-surface temperature gradient (west to east) across the South Pacific



Convergence Zone (i.e. between eastern Australia and the central Pacific) remains positive (+1.37 °C). According to the Centre's experimental SPOTA-1 scheme, a positive sea-surface temperature gradient across this region is favourable for summer rainfall in Queensland. The SPOTA-1 scheme currently indicates a higher-than-normal (60 to 80 per cent) probability of above-median rainfall throughout Queensland over the coming summer.

The Centre'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 exceeding median rainfall](#) across most of Queensland is 60 to 70 per cent which is higher than normal (50 per cent) for the next three-month period (November to January). This analysis is based on the fact that the SOI has remained consistently positive from September to October as discussed further in the Centre's [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.

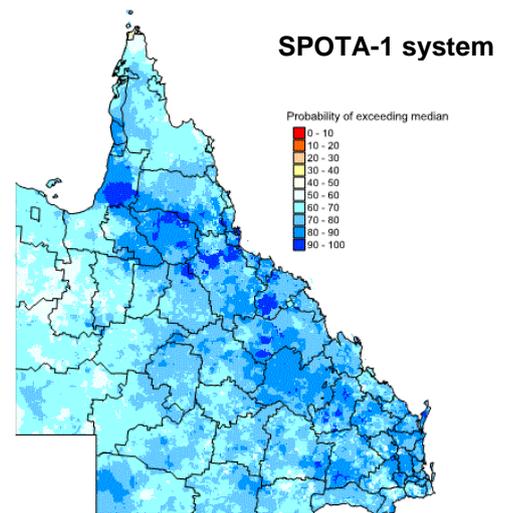
Additionally, an increased risk of above- or below-median rainfall in Queensland due to ENSO will not necessarily result in above- or below-median rainfall occurring throughout all of the state (see [Australia's Variable Rainfall poster](#) or the Centre's [archive of historical rainfall maps](#)).

The Centre understands that 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. The Centre'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

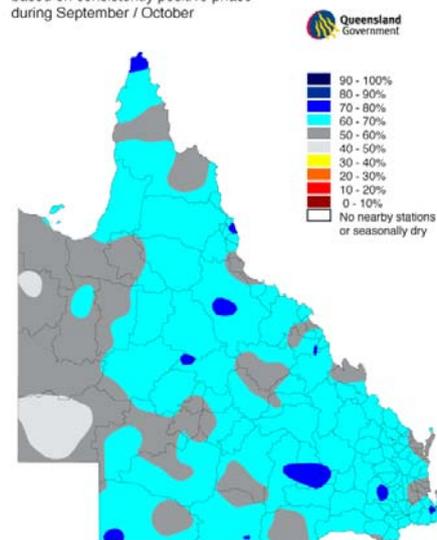
crop or pasture growth can be stronger than on rainfall alone. The impact of ENSO on pasture growth is also dependent upon current pasture condition and soil water status. The Centre's AussieGRASS model takes these factors into account in producing [seasonal pasture growth probabilities](#).

Probability of Exceeding Median Summer Rainfall  
November 2011 - March 2012 based on the SPOTA-1 Index  
as at November 1, 2011



Probability of exceeding  
Median Rainfall

for November / January  
based on consistently positive phase  
during September / October



**SOI Phase system**

For more information, please visit [www.LongPaddock.qld.gov.au/climatestatement](http://www.LongPaddock.qld.gov.au/climatestatement) or contact [QCCCE@climatechange.qld.gov.au](mailto:QCCCE@climatechange.qld.gov.au).