

# FIRE NOTE

ISSUE 34 JULY 2009

## SEASONAL BUSHFIRE ASSESSMENT 2009-2010 NORTHERN AUSTRALIA FIRE SEASON OUTLOOK – ISSUED JULY 2009

### BUSHFIRE POTENTIAL

Bushfire potential depends on many factors. The stage is set by the previous wet season. The volume, location and timing of rainfall are critically important when estimating fuel volumes and growth. They also affect the timing of the curing (that is, the drying) of the fuel.

The climate outlook for the next few months is also a crucial factor. Of particular interest are the future tendencies of Pacific sea surface temperature associated with the El Niño-Southern Oscillation, a major climate driver over Australia. Other less quantifiable factors, such as the distribution and readiness of fire-fighting resources, are also considered. The workshop's participants discuss these factors to obtain the consensus outlook.

### ANTECEDENT CONDITIONS

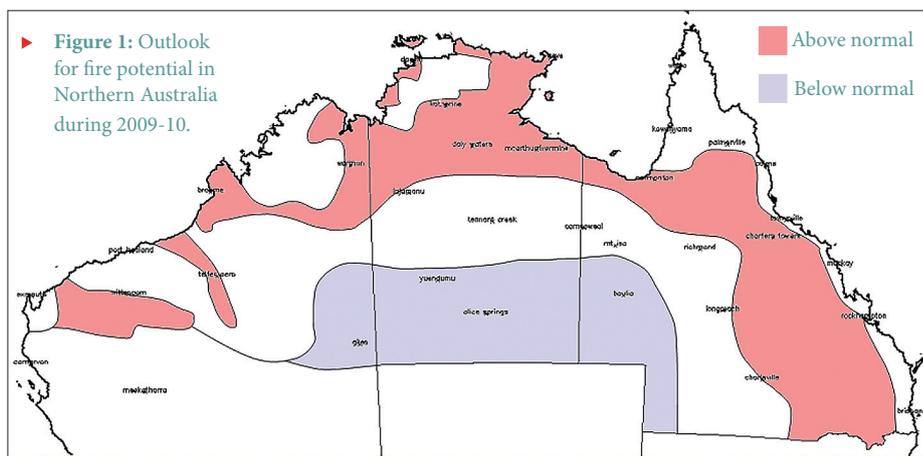
The 2008-09 northern wet season resulted in generally normal to above-normal precipitation across most of the region (Figure 2, next page), consistent with weak La Niña conditions in the Pacific.

A broad swathe of above-normal precipitation extended from the Kimberley region of Western Australia, through the central Northern Territory and into Queensland. The north-western Gulf regions of Queensland, in particular, experienced abundant precipitation and significant flooding.

In far western Western Australia, an unnamed tropical low and tropical cyclone Dominic in late January and early February brought heavy precipitation.

Southern portions of the Northern Territory also had heavy rain in November but since then, precipitation there has remained well below normal. The precipitation that did fall was not sufficient to result in a heavy fuel load being carried into the dry season.

At most locales, the wet season ended relatively early; since mid-February rainfall totals have been insignificant. This resulted in early grassland curing in many areas that may make fuel available for burning sooner than



### SUMMARY

Vast areas of northern Australia face above-normal fire potential for the remainder of the dry season. This was the consensus of the Northern Seasonal Bushfire Assessment Workshop that was held on 18 June this year in Cairns, Queensland.

The workshop was supported by the Bushfire CRC and brought together fire managers, severe weather meteorologists and climatologists to evaluate the fire potential for the upcoming season for the Northern Territory, Queensland and the northern part of Western Australia.

The experts cited regions in northern Australia that face above-normal fire potential as:

- In Queensland – north-western Gulf; the Great Dividing Range
- In the Northern Territory – eastern Arnhem Land; Victoria River District; Barkly; Gulf; greater Darwin and Port Keats areas
- In Western Australia – western Kimberley; Pindarland (including Broome); parts of the Pilbara and Far West.

However, much of central Australia faces below-normal fire potential.

This *Fire Note* briefly summarises the workshop's findings. The fire potential of southern Australia will be evaluated at a second workshop later in 2009.

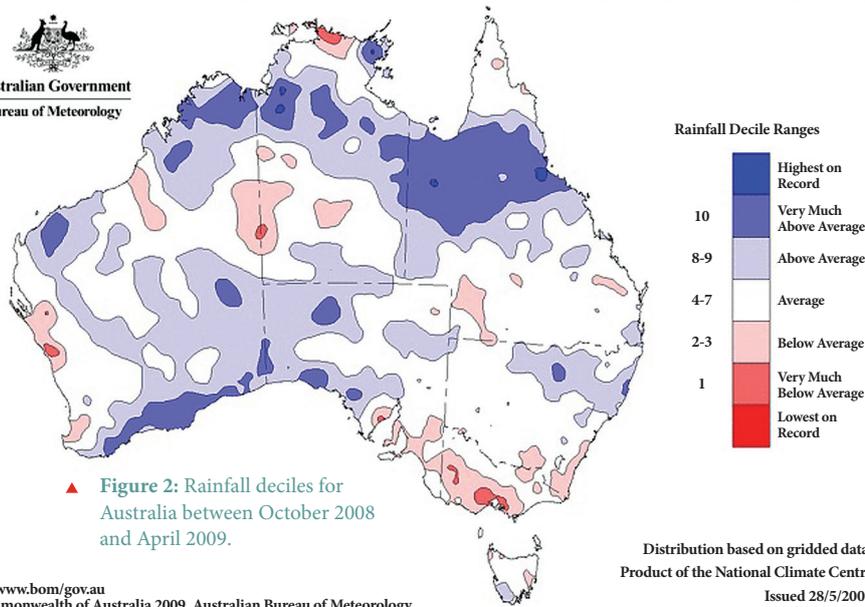
### VALUE OF THE OUTLOOK

The Seasonal Bushfire Outlook provides information to assist fire authorities in making strategic decisions such as resource planning and prescribed fire management, and to reduce the negative impacts of bushfire.

This workshop was coordinated by the Bushfire CRC as part of A2.1: Fire Weather and Fire Danger project. For more information, contact Chris Lucas (c.lucas@bom.gov.au) or Graham Mills (g.mills@bom.gov.au).

### PARTICIPANTS IN NORTHERN SEASONAL BUSHFIRE ASSESSMENT WORKSHOP

- Bureau of Meteorology
- Bushfires NT
- Fire and Emergency Services Authority (WA)
- Department of Environment and Conservation (WA)
- Queensland Fire and Rescue Service
- Queensland Parks and Wildlife Service



▲ **Figure 2:** Rainfall deciles for Australia between October 2008 and April 2009.

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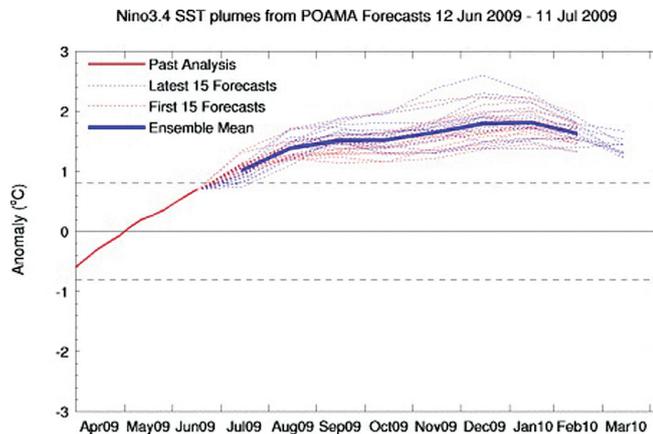
Distribution based on gridded data.  
Product of the National Climate Centre  
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normal. However, grassland curing may occur later in areas that were previously flooded.

### EXPECTED CLIMATE SCENARIO

The climate outlook for the remainder of 2009 is characterised by a warm Pacific Ocean, with greater-than-even odds that a full-blown El Niño will develop. The Predictive Ocean Atmosphere Model for Australia (POAMA) suggests that sea surface temperatures in the central and eastern Pacific will rise to 1.5 – 2.0 degrees above normal by the end of the calendar year (Figure 3). These simulations broadly agree with other international seasonal prediction models and reflect a continuation of current observed trends in the region.

Historically, El Niño years in northern Australia are characterised by a late start to the wet season and a shorter season overall. If this pattern recurs this coming season, the fire season across much of northern Australia could be expected to lengthen well into December and, perhaps, January. Queensland and the Northern Territory are particularly affected by this tendency.



▲ **Figure 3:** Ensemble forecast sea surface temperature anomalies over the central Pacific (NIN03.4) from POAMA.

## DEFINITIONS

**Fire potential:** The chance of a fire or number of fires occurring of such size, complexity or other impact (e.g. biodiversity or global emissions) which requires resources (from both a pre-emptive management and suppression capability) beyond the area in which it or they originate. Fire potential depends on many factors including weather and climate, fuel abundance and availability, recent fire history and fire-fighting resources available in an area.

**Rainfall decile:** a decile is a statistical technique that ranks sorted observations into 10 equal groups. A decile rainfall map (as seen in Figure 2, left) will show whether the rainfall is above average, average or below average for the chosen time period and area.

## REGIONAL SUMMARY

### Northern NT

Normal to above-median rainfall has produced moderate to abundant fuels. Pre-season burning has mitigated some of the risk but above normal fire potential is indicated in the Darwin and Port Keats areas, and eastern Arnhem Land.

### Central NT

Copious precipitation in the Victoria River and the Barkly regions has produced high fuel loads and above-normal fire potential. Normal fire potential is indicated for the Tanami, although localised areas which avoided fire in 2007 could see significant fire activity.

### Southern NT, south-west QLD

Despite moderate rainfall and grass growth in some regions, fuel loads remain low and will largely be mitigated by grazing. Below normal fire potential is expected in these regions.

### Kimberley, WA

Above-median rainfall during the wet season has produced abundant fuel growth, creating above-normal fire potential for the eastern portion and in Pindanland (including Broome). In western areas, a successful fuel

reduction program has lowered the coming season's potential to 'normal'.

### Pilbara and Far West WA

Normal to above-normal rainfall totals in parts of these regions, resulting from tropical activity, have produced abundant fuel. Further, a lack of widespread fire in previous seasons has added to the fuel load, some of which was reduced through fuel-reduction burning. Fire potential across these regions is rated at normal to above-normal.

### Cape York, QLD

Rainfall deciles across the region were mixed, with above-normal rains on the west coast and below-normal on the east. A typical season with normal fire potential is expected for this area.

### Central and north-west QLD

The past wet season saw normal to above-normal rainfall across much of this region, leading to abundant fuel loads. The grasses in the region are reaching an advanced state of curing. Above-normal fire potential is indicated for the area, with an early start to the fire season expected. Historically, fire activity in these regions is strongly influenced by El Niño.

**Fire Note is published jointly by the Bushfire Cooperative Research Centre (Bushfire CRC) and the Australasian Fire and Emergency Service Authorities Council (AFAC).**

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Bushfire CRC is a national research centre in the Cooperative Research Centre (CRC) program, formed in partnership with fire and land management agencies in 2003 to undertake end-user focused research. Bushfire CRC Limited ABN: 71 103 943 755

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AFAC is the peak representative body for fire, emergency services and land management agencies in the Australasia region. It was established in 1993 and has 26 full and 10 affiliate members.