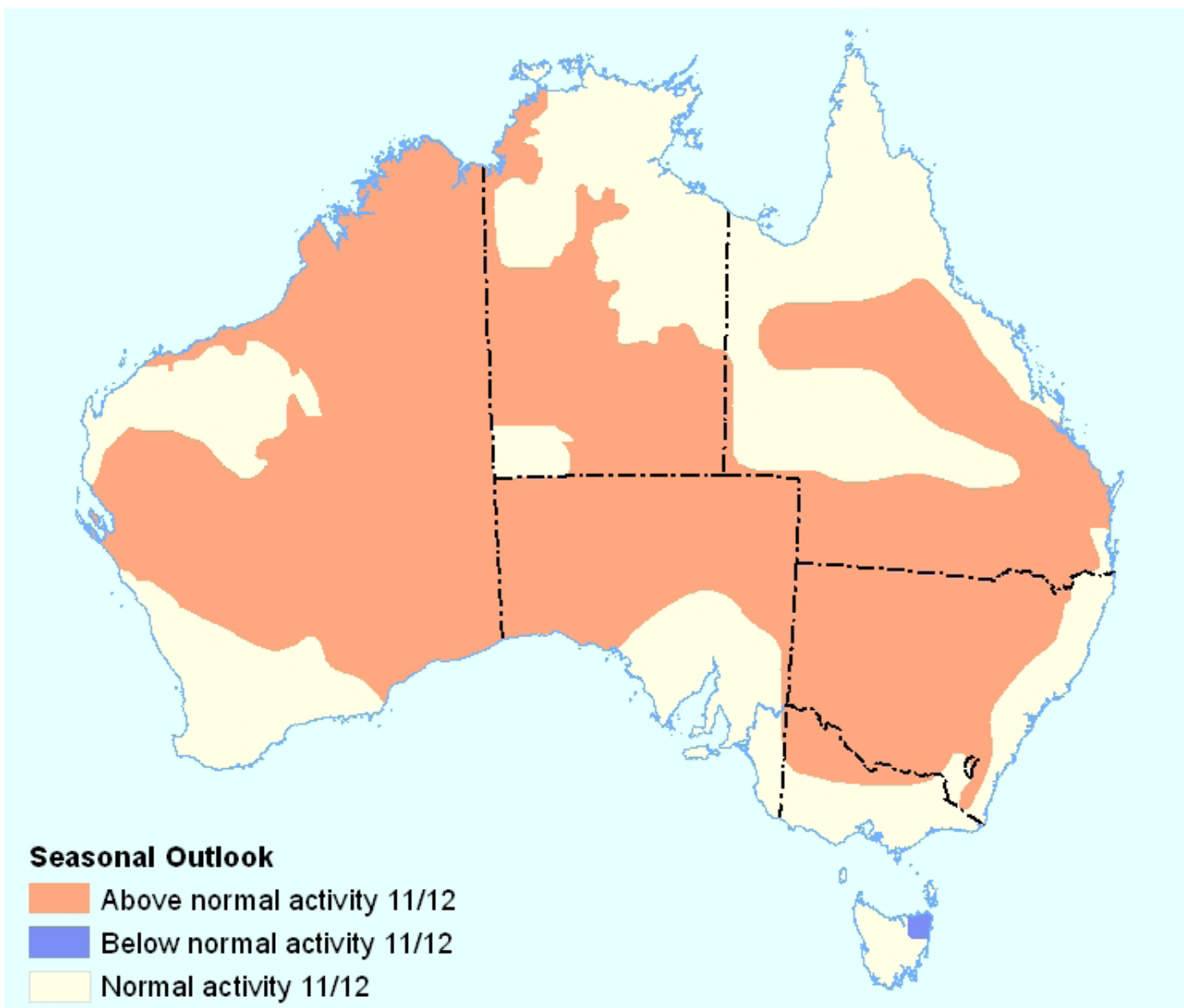


# FIRE NOTE

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## SOUTHERN AUSTRALIAN SEASONAL BUSHFIRE OUTLOOK 2011-12



### INTRODUCTION

A thick, tall band of grass extends across much of the middle of Australia from the Indian Ocean in the west to the Pacific Ocean in southern Queensland and the Great Dividing Range in New South Wales. The grass – waist- and even shoulder-high in places – has flourished because of the heavy

rains that accompanied the very strong La Niña event at the beginning of 2011.

With much of this grass now curing because of drier recent weather, the potential exists for above-normal bushfire activity across the centre of Australia during the 2011-12 southern fire season.

These expectations summarise the views of the attendees at the Southern Seasonal Bushfire Assessment Workshop, held in Adelaide on 23 and 24 August and chaired by Rob Sandford, Assistant Chief Officer of the Country Fire Service, South Australia. The workshop, supported by the Bushfire CRC, brought fire and land managers, climatologists

## DEFINITIONS

**Fire potential:** The chance of a fire or number of fires occurring of such size, complexity or other impact 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 1) will show whether the rainfall is above average, average or below average for the chosen time period and area.

and meteorologists together to evaluate the upcoming season for the southern part of Australia, below the Tropic of Capricorn.

This Fire Note is produced from the discussions held at the workshop. Fire Note 85, the seasonal outlook for northern Australia, was published on 9 August.

Bushfire potential depends on many factors. For grass fires, 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.

Workshop attendees noted that major grass fires – once common in many areas – have been relatively few in recent years because of the long drought that ended over much of Australia in 2010.

Some jurisdictions are already warning communities about the potential for major grass fires this season. New South Wales has proposed a sticker (right) to go on petrol pumps, for example.

## ANTECEDENT CONDITIONS

One of the strongest La Niña events on record was in full swing at the start of 2011. Severe weather including flooding was widespread across the east of the country. Notable examples included the Fitzroy River, Toowoomba, Grantham and Brisbane floods



▲ At the workshop, Bureau of Meteorology Senior Climatologist Grant Beard finishes his predictions for the coming fire season.



▲ A petrol pump label proposed in New South Wales.

in Queensland, and the severe floods in northern and western Victoria.

The excessive rains lasted until March. The eight months from August 2010 to March 2011 were the wettest such period on record – the Australia-wide average was 715mm compared with previous high of 671mm in 1973/74. Southwest Western Australia was the only region which was drier than average.

Consistent with the rainfall patterns, maximum temperatures were suppressed over much of the country at the start of the year, with decile 1 values for the January-February-March period across much of the Northern Territory and Western Australia, as well as parts of Queensland, New South Wales, South

Australia and Victoria. The Australia-wide maximum temperature was ranked sixth-lowest in the record since 1950.

Coinciding with the declining phase of La Niña, drier weather patterns returned to the southeast and southwest from April, the start of the southern wet season.

April to July rainfalls were in deciles 2 and 3 in southwest Western Australia, eastern and southern South Australia, northern Tasmania, northern Victoria, most of New South Wales west of the Divide; and far southwest Queensland. Above average totals were confined to the central to northern coastal areas of New South Wales, small pockets of southern Victoria, southern Tasmania and southeast Western Australia. During this same period, maximum temperatures were generally close to average, the exceptions being below average readings in coastal New South Wales and warmer than normal conditions in southwest Western Australia.

August to date has been warmer than average over the southern half of the country, significantly so in the southeast. Rainfall for the month has been near-to or above the average (monthly mean already exceeded in many areas) with the notable exceptions of western Tasmania, south-central Victoria and far northern New South Wales.

► **Top: Figure 1** – April to July rainfall deciles 2011.

**Below: Figure 2** – Chance of exceeding the median rainfall, September to November 2011.

## EXPECTED CLIMATE OUTLOOK

There are varying outlooks for ENSO (El Niño Southern Oscillation) over the coming season. Central equatorial Pacific Ocean (the key ENSO region) temperatures rose during autumn and early winter, but have been cooling since late June. The latest weekly NINO 3.4 index to 21 August was  $-0.6$  deg C. A minority of global models continue the cooling to beyond La Niña thresholds in the southern spring, so a resurgence of La Niña must be considered as a possibility. The consensus of the models is for Pacific Ocean temperatures remaining in the neutral range.

The Bureau's official spring seasonal outlook indicates an increased chance of below-average rainfall in central to southeast South Australia and the adjacent fringes of New South Wales and Victoria. In contrast, a wetter season is more likely in southwest Western Australia and far southwest Queensland. This outlook is largely driven by the Indian Ocean temperature patterns. The maximum temperature outlook shows an increased chance of a warmer than normal season in tropical areas and a small region ((Box 1))

## REGIONAL SUMMARIES

### South Australia

Above average fire potential is indicated in the western part of the West Coast, North East Pastoral and North West Pastoral districts due to rainfall received and conducive growing conditions. For the remainder of the state including the southern settled areas the most likely scenario is for near average levels of fire activity.

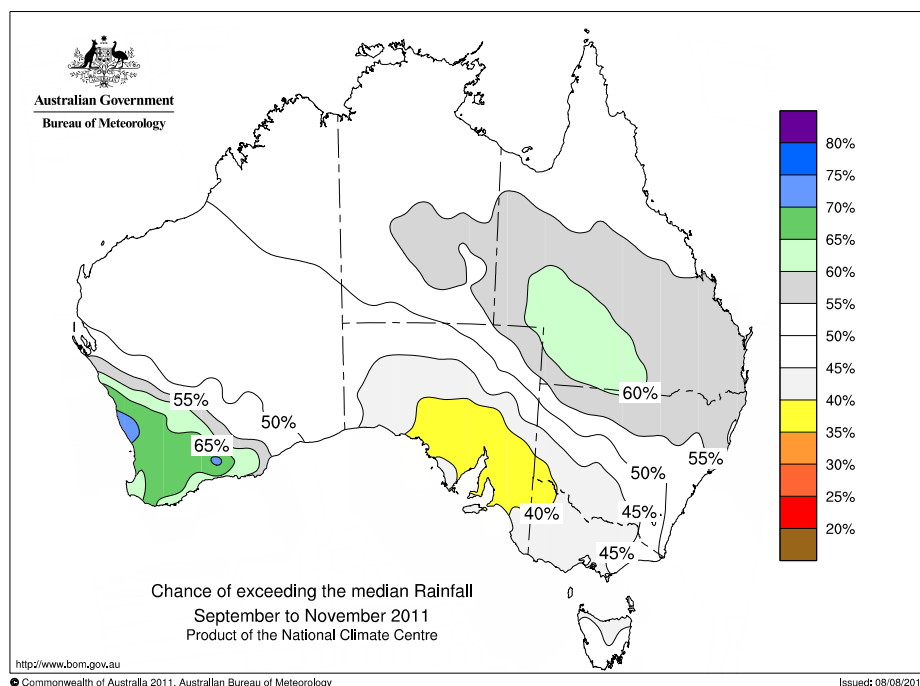
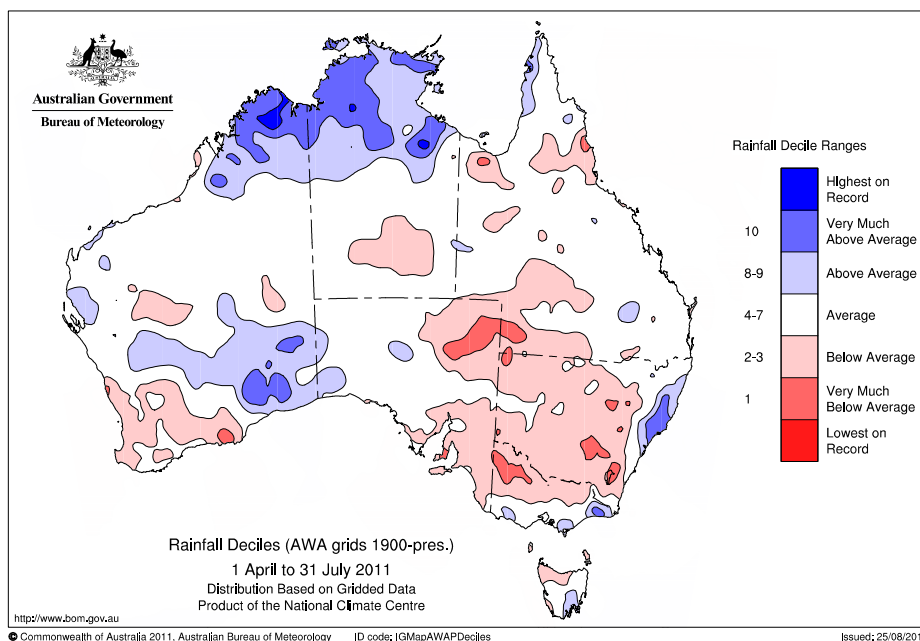
Resource implications of an average to above average fire danger season may see the need for firefighting resources for a longer period of time. The North East and North West Pastoral areas may pose resourcing issues during this fire season should above level of activity be experienced.

### Tasmania

Below normal fire season potential is expected in the northeast up until the end of November. Normal fire season potential is expected for the rest of the state. Grass fuel curing may increase the fire potential in the north later in the season. Below average moisture conditions persist in the southwest.

### Victoria

Grass growth across the state is prolific and widespread, representing a return to conditions more consistent with the long term average. After the prolonged dry spell,



agricultural stocking rates are low, and this is expected to contribute to the incidence of fast moving grass fires.

The Mallee and Wimmera desert country is a fire-prone landscape and it is normal for bushfires to occur each year. Overall there is an above average bushfire potential.

Record rainfall and partial inundation has resulted in significant and widespread native grass growth across the region. Prescribed burning has been hampered by residual soil moisture and by an increase in moisture in native grassland fuels.

The early emergence of crop and pasture species may see harvesting begin a month earlier than usual, which may see an earlier start to fires. Further rains will delay harvest and will increase fuel loads.

Less irrigation in Victoria's northern country may result in a greater than average incidence of fast moving grass fires in this area. Intensive cropping practices resulting in a lack of fallow paddocks may also contribute to this expectation.

In Victoria in August the scene for bushfire outlook, particularly for grass fires has been only partially set. Rain events during spring will increase grass fuel loads that will contribute to an increase in fire potential. This will warrant a reassessment of the current outlook.

### Western Australia

In the Mid-west, Desert and Nullarbor, there are extensive areas high of fuel loads as a consequence of the very prolific rainfall, in some areas among the highest on record, which has resulted in very high, consistent

and widespread grass growth. This has resulted in above average fire potential. In the southwest (including the Wheatbelt), spring and winter rainfall is approaching average in most areas. In the Wheatbelt, this has resulted in widespread areas of reasonable crops. In the southwest there is a legacy of deep soil moisture deficiency and if the rainfall does not continue to be average or above average, this region may move from normal fire potential to above-normal.

## Queensland

Record rainfall during spring 2010 and from December 2010 to April 2011 over southern Queensland provided a wet soil moisture profile that, coupled with a warm summer, created prolific grass growth over southern Queensland extending from Wide Bay to Gold Coast west to the South Australian border.

The grassland sward is continuous with high vertical structure and current curing rates ranging from 80 per cent in coastal areas to 100 per cent over vast inland areas. Forest areas have moist soil conditions with reduced fire potential however the warm temperatures and dry southerly influenced winds are continuing to dry soil moisture rapidly.

Forecast climate conditions indicate a drier spring period with the probability of average to below average precipitation for southern Queensland through September to November 2011 with increasing higher than average daytime temperatures.

Above-normal fire potential is assessed for a large area of southern Queensland, including the Beaudesert, Boonah, Lockyer and Brisbane Valleys through to the Sunshine Coast north to above Wide Bay and west to include most southern Queensland inland grassland areas to the Northern Territory and South Australian border.

Normal fire potential is assessed for South East coastal parts from the Sunshine Coast to Coolangatta and for a significant area of the Central West that includes the west of Taroom to Boulia and the Carnarvon Range area due to a combination of moist soil conditions, recent rainfall and reduced vegetation loading



◀ Mark Chladil, of the Tasmanian Fire Service, and Rob Sandford, of the South Australian Country Fire Service, checking an on-screen presentation during the workshop.

## PARTICIPATING AGENCIES

ACT Emergency Services Authority

ACT Parks Service

Australasian Fire and Emergency Service Authorities Council

Bureau of Meteorology

Bushfire Cooperative Research Centre

Country Fire Authority (Vic)

Country Fire Service (SA)

Department of Environment and Natural Resources (SA)

Department of Sustainability and Environment (Vic)

Fire and Emergency Services Authority (WA)

National Parks and Wildlife Service (NSW)

NSW Rural Fire Service

Queensland Fire and Rescue Service

Tasmania Fire Service

associated with the 2009 fires. As the spring fire season progresses and conditions change, these areas may be subjected to reassessment.

## New South Wales/Australian Capital Territory

Above average rainfall over the state for much of the previous year has resulted in heavy continuous grass fuel loads through most areas west of the Great Dividing Range and the tablelands. Above normal fire potential has been assessed inland due to dry conditions in the last few months plus increased likelihood of drier than average outlooks for spring. Northern parts of the inland are expected to begin their fire season first as these areas are already quite dry. Southern parts of the inland (Riverina and South Western fire areas) are

expected to follow. Coast and eastern ranges have received significant rainfall and given forecast average precipitation during spring the fire season is expected to be average.

## Note: Northern Territory

The small area of normal fire potential shown on the main map in the southwest Northern Territory reflects slightly lower rainfall and fuel loads in that region of central Australia. The record-breaking run of hot weather in January 2011 also contributed to lower fuel load accumulations. Full details of the Northern Territory outlook, as well as full details for northern Western Australia and northern Queensland, were given in the *Northern Australia Seasonal Outlook*, issued as Fire Note 85.

**Fire Note is published jointly by the Bushfire Cooperative Research Centre (Bushfire CRC) and the Australasian Fire and Emergency Service Authorities Council (AFAC). This Fire Note is prepared from available research at the time of publication to encourage discussion and debate. The contents of the Fire Note do not necessarily represent the views, policies, practices or positions of any of the individual agencies or organisations who are stakeholders of the Bushfire CRC.**

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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.  
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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 35 full and 10 affiliate member organisations.