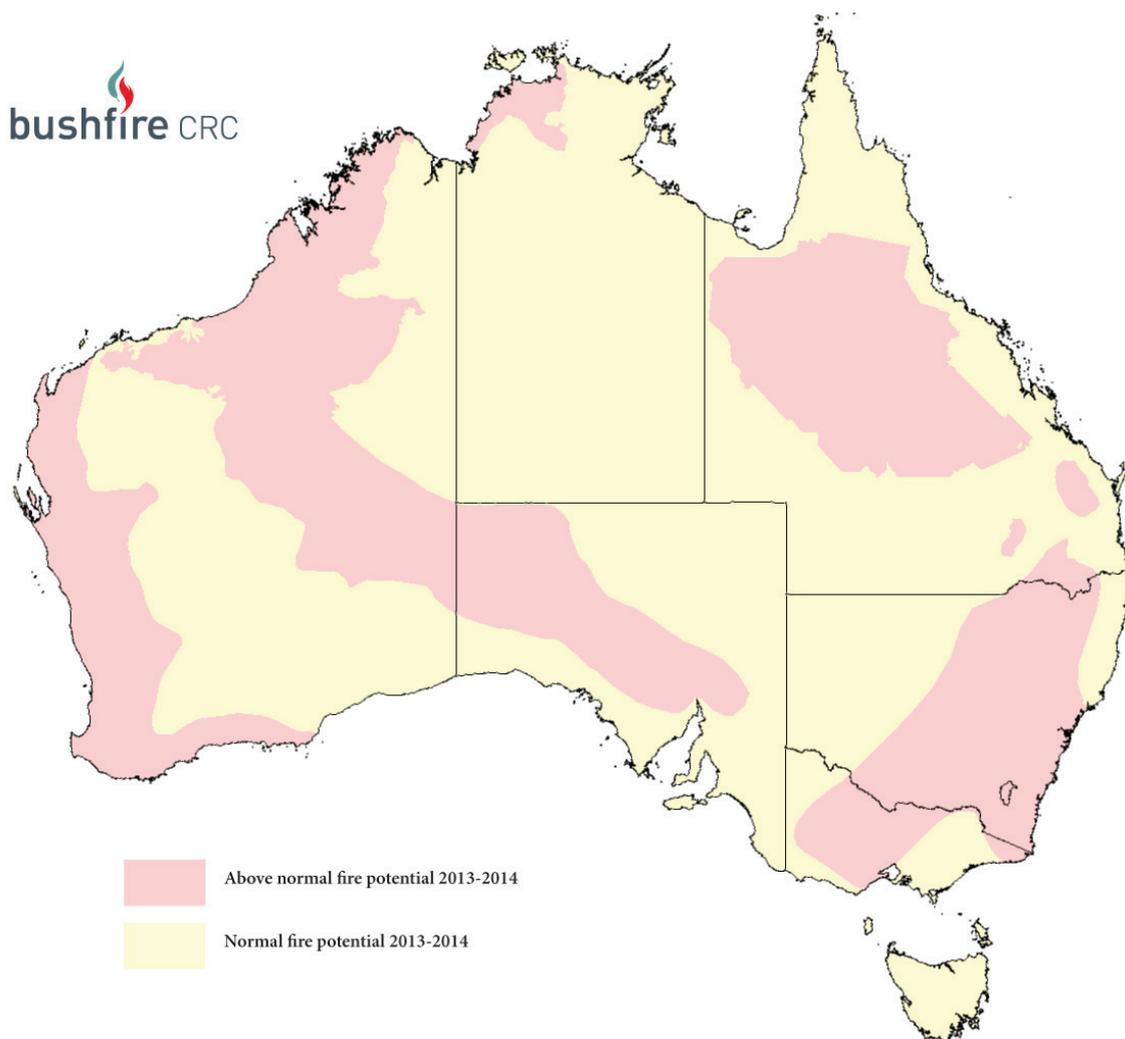


FIRE NOTE

ISSUE 116 SEPTEMBER 2013

SOUTHERN AUSTRALIA SEASONAL BUSHFIRE OUTLOOK 2013-14



SUMMARY

Large areas of southern Australia, especially along the east and west coasts extending inland, face above normal fire potential for the 2013-2014 fire season, despite the extensive fires in some parts of the country over the last 12 months. However, the area most at risk does not extend right across the country, as was seen in 2012-2013. The above normal forecast is due to abundant grass growth across inland Australia, due to above average rainfall since May 2013. These conditions, coupled with above average

temperatures across the country since January 2013, have resulted in a build up of fuel in grasslands. These higher temperatures have also seen forests begin to dry out. Elsewhere across southern Australia, the fire potential is considered to be normal for 2013-2014, but normal fire conditions can still produce fast running fires. The above map combines the southern bushfire outlook with the northern bushfire outlook, which was released as *Fire Note 113* in July. This seasonal bushfire outlook takes into account the bushfire potential through to 2014.

BUSHFIRE POTENTIAL

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 of firefighting resources, are also considered.

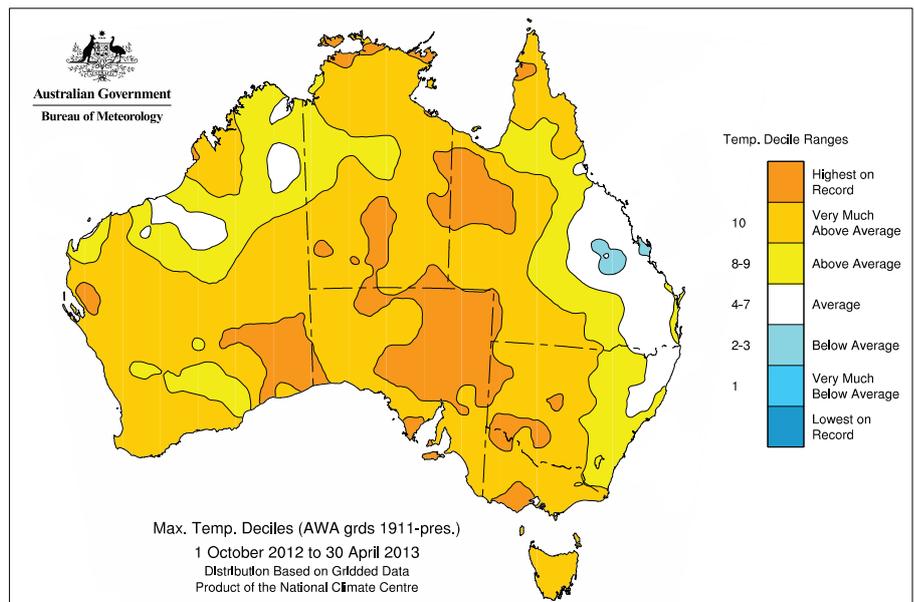
Chaired by Rick McRae, Special Risk Analyst at the Australian Capital Territory Emergency Service Agency, the Southern Seasonal Fire Assessment Workshop was held at the headquarters of the ACT Emergency Service Agency in Canberra on 20 August. The workshop, supported by the Bushfire CRC, brought fire and land managers, climatologists and meteorologists together to evaluate the upcoming season for the southern part of Australia.

During the proceedings they discussed the seasonal outlook for the imminent fire season, enabling the production of this *Fire Note*. Attendees included representatives of the Bushfire CRC, the Australasian Fire and Emergency Service Authorities Council (AFAC), the Bureau of Meteorology, the Australian Capital Territories Emergency Service Agency, the New South Wales Rural Fire Service, South Australia's Country Fire Service, the Tasmania Fire Service, Victoria's Country Fire Authority and Department of Environment and Primary Industries and Western Australia's Department of Parks and Wildlife, Department of Fire and Emergency Services and Local Government Association. The *Southern Australia 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.

ANTECEDENT CONDITIONS

Since the breakdown of La Niña conditions in April 2012, the El Niño Southern Oscillation (ENSO) has been in a neutral state. At the same time, significant sea surface temperature patterns in the Indian Ocean in 2012 and 2013 meant that this basin has exerted a strong influence on climate through the Indian Ocean Dipole (IOD).

July to October 2012 saw Australia under the influence of a positive IOD, resulting in below average rainfall across southern



DEFINITIONS

Fire potential: The chance of a fire or number of fires occurring of such size, complexity or other impact that 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 firefighting resources available in an area.

Decile: A decile is a statistical technique that ranks sorted observations into 10 equal groups. A decile map will show whether the rainfall or temperature is above average, average or below average for the chosen time period and area.

Australia in the lead up to summer. Average daytime temperatures during this period were above average across the majority of Australia.

The 2012/2013 northern Australian wet season (summer) saw vast areas from the Western Australian border, through to the Great Dividing Range along the east coast, record below average rainfall, with central Queensland, south east South Australia and western Victoria recording very much below average rainfall. Over this same period daytime temperatures were well above average across the majority of Australia (see map, above). Of particular note was an extensive Australia-wide heatwave lasting from late December through to mid/late January. As a result of this heatwave, Australia set new records for its hottest day, hottest January and hottest summer.

Since the beginning of the 2013 southern Australian wet season (May), the IOD has been negative (the opposite to its value in 2012), leading to above average rainfall from the Pilbara in WA, through to south east Australia. The exception to this is south west WA and parts of inland Queensland, which have recorded below average rainfall (see top map, page 3). During this same period daytime temperatures were above average across the Northern Territory, South Australia, inland Queensland, New South Wales, Victoria and Tasmania.

August saw the IOD ease, bringing with it below average rainfall south of the tropics. The exception to this was south west WA, south east South Australia, much of Victoria and Tasmania, which all received average to above average rainfall during this time. Warm to hot temperatures began early in August, with record warm temperatures in central Australia and very warm temperatures pushing into the south east of the country during the last week of August.

EXPECTED CLIMATE OUTLOOK

Neutral ENSO (neither La Niña nor El Niño) conditions have persisted since April 2012 and are expected to continue through spring and into summer 2013/2014. A negative IOD event (see antecedent conditions) is in progress and expected to continue until mid-spring, despite recent signs of easing. A negative IOD during winter/spring increases the chances of above normal rainfall over southern Australia. Warmer than normal sea surface temperatures currently persist around Australia, which can provide more moisture to the atmosphere. In combination with the right weather systems (e.g. interactions with cold fronts), these conditions may result in increased rainfall.

The Bureau's official spring seasonal outlook shows an increased chance of above average rainfall over most of south east Australia and the Top End of the Northern Territory (see bottom map, page 3). This outlook is influenced by the persistence of the negative IOD into mid-spring and above average sea surface temperatures around Australia. The maximum temperature outlook shows an increased chance of warmer than normal spring days over most of northern Australia, coastal WA, and Tasmania, while cooler days are more likely across central and north west Victoria (see map, page 4).

REGIONAL SUMMARIES

QUEENSLAND

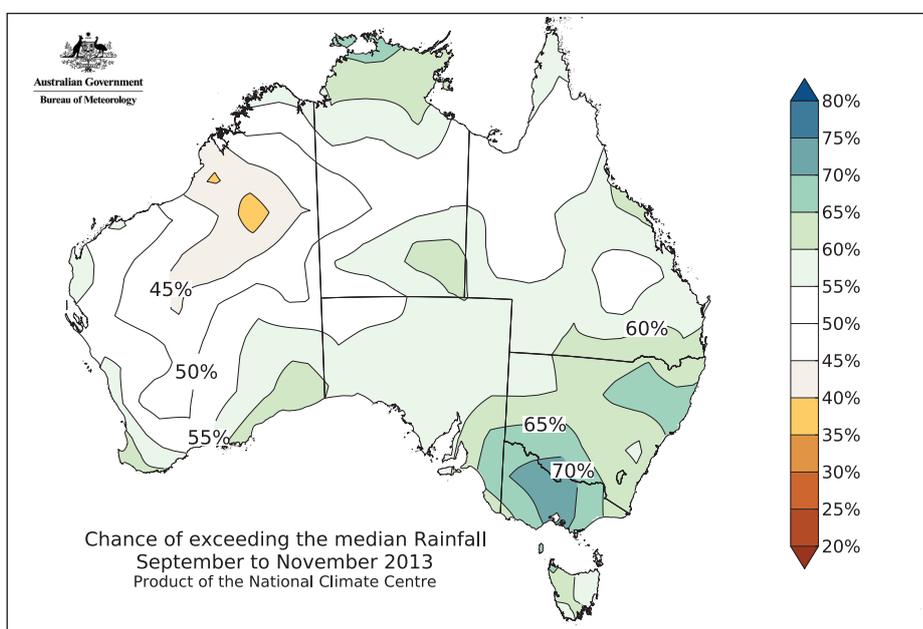
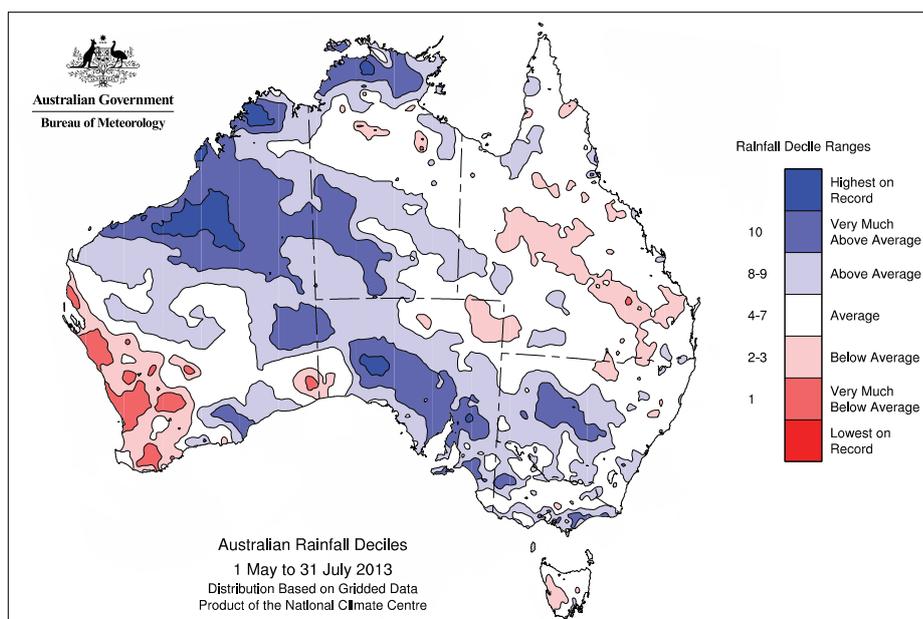
The fire season in Queensland is long and traditionally commences around July in the Cape York Peninsula and Gulf Country and progresses to the central inland and coastal areas south to the NSW border during spring and into summer. In the west and south west of the state the fire season can begin as early as August and extend well into February. However, timeframes can vary significantly from year to year, as they are largely dependent on long-term climate, short-term weather conditions and available fuel loads.

This season, the combination of Queensland's climate and seasonal trends has created vast variations in vegetation growth and fuel conditions. Northern Australia wet season rainfall was well above average for the southern coastal areas. In contrast, large areas of the Lower Gulf of Carpentaria, far western and southern Queensland received well below average rainfall during the same period. Over the winter months rainfall remained near to below average for most of the state, with the majority of south western, central west and north west Queensland now under drought declaration.

The grassland areas across the state have moderate to abundant fuel loads with a less continuous fuel bed than in previous years. This is due to a combination of large scale fires, rainfall deficiencies and stocking rates. As a result of milder temperatures this winter, grassland curing in the eastern areas is slightly lower than this time last year. In the north, far west and south west of the state grasslands are fully cured.

Despite large scale fires in the northern and western areas of Queensland during the last fire season, there are still vast areas with moderate to abundant grassland fuels and low stock levels that could experience large scale, fast running grass fires.

An above normal fire potential has been assessed for areas between Dalby and



Warwick, south to the NSW border and west to Goondiwindi. The area to the west between Wallumbilla and Dulacca, south to St George and an area extending from the Sunshine Coast Hinterland into the western areas of the Wide Bay Burnett region are also assessed as above normal fire potential.

NEW SOUTH WALES

Above average rainfall for much of the preceding three years is likely to continue the trend of heavy grass fuel loads throughout the grassland areas of NSW. These grassland areas include those west of the Great Dividing Range, the Tablelands and the Upper Hunter. Above normal fire potential is expected to continue in these areas due to high grass fuel loads, combined with the predicted ENSO neutral (that is, neither El Niño or La Niña) summer outlook. Normal fire conditions are likely in far west NSW.

Over much of the forested areas of NSW, below average rainfall since July has resulted in a drying trend in forest fuels. If this trend continues, above normal fire activity conditions are expected for the forested areas of central and southern NSW coast and ranges. A slightly higher chance for above average rainfall is likely to result in a normal fire season for both the far north coast and north coast.

AUSTRALIAN CAPITAL TERRITORY

The outlook for the grasslands reflects the current vigorous grass growth which will continue into spring and the drying trend in the Bureau of Meteorology's seasonal outlook. As a result, above normal fire potential has been assessed for the grasslands in the ACT. The recovery of fuels since the 2003 fires continues to be monitored and managed. However should the forests dry out as we head into summer, there are concerns for the potential for above normal forest fire activity.

VICTORIA

Over the past 12 months, much of Victoria has experienced below average rainfall. The exception is the east, where average rainfall occurred. Forests are expected to be more flammable than normal due to the lingering effect of last summer's extreme dryness and heat, with dry underlying soil profiles and more abundant dead elevated, near-surface and bark fuels in these forests.

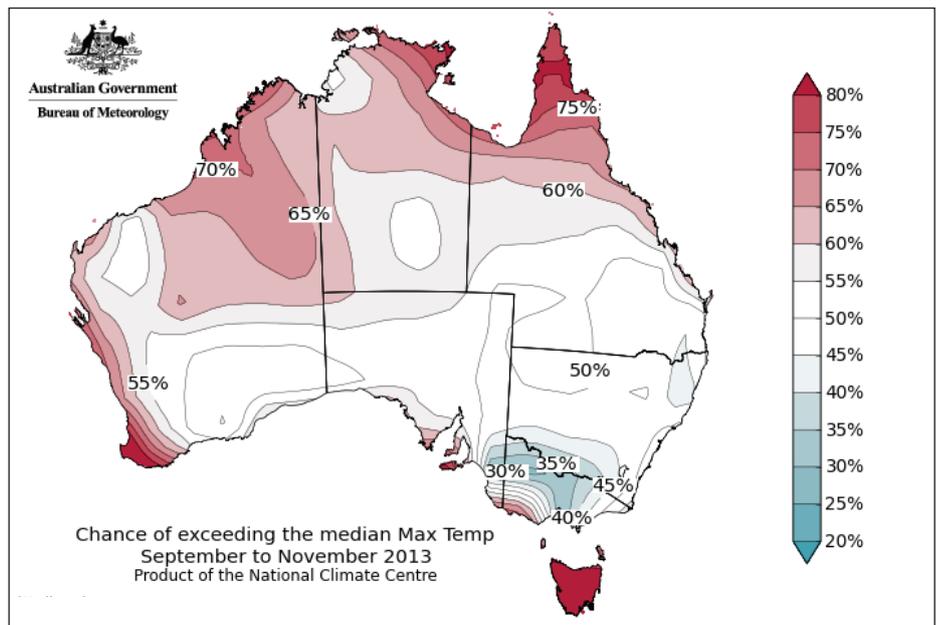
Despite some chance of above average spring rains and reasonable winter rainfall, significant underlying dryness is likely to continue to be present in many western and central forests. These areas can expect above normal fire potential. Strong drying of soils and fuels has also commenced in East Gippsland, which may result in early bushfire activity if this trend continues.

The exception to this is in coastal parts of the South West, Mallee and West and South Gippsland, where above average rainfall has occurred in the past few months. As a result of this rain, a normal fire season is expected in these areas.

Current expectations are for average to above average grass growth in western Victoria and the north east of the state, based on receiving average to above average rain during spring. The timing and severity of grass fires will depend strongly on rainfall patterns throughout spring.

TASMANIA

Normal fire potential is expected for the lead up to summer, except for small areas in the Derwent Valley and the mid-East Coast, both of which are currently drier than usual. The majority of Tasmania has either average or above average soil moisture and this will reduce fire activity while promoting growth, which may become available for large fires in the New Year. The fuel types which are less dependent upon soil moisture levels, such as moorland, heaths and scrub, have a normal fire potential. Forest fuels in the north of the state will require a considerable drying period to be available for widespread fires.



SOUTH AUSTRALIA

Above normal fire potential is predicted in the North West Pastoral and Flinders districts due to abundant and continuous grass fuels. This is as a result of the previous season's growth remaining, and the rainfall received, linked with conducive growing conditions. For the remainder of the state, including the agricultural areas, the most likely scenario is for near normal levels of fire activity.

Both the North West Pastoral and Flinders districts have received above average rainfall. When this is combined with the abundant fuel loads from the previous growing season, the result is above normal fire potential for both districts. The area adjacent to the Northern Territory border (communities north of the APY Lands) is of normal fire potential, recognising that the Northern Territory has not indicated above normal level of activity.

Resource implications of an above normal fire danger season may see the need for firefighting resources committed to incidents for a longer period of time. The North West Pastoral and Flinders districts

may pose resourcing issues this fire season, as was experienced in the North West Pastoral district last season, where firefighters and aircraft were committed for lengthy periods.

WESTERN AUSTRALIA

Across the Mid West and Desert regions, above normal fire potential is expected as a consequence of high rainfall, which has resulted in very high annual grass growth and high fuel loads.

Above normal bushfire potential is also forecast in the South West, which has seen reduced rainfall, soil moisture deficit and high fuel loads.

The Wheatbelt has been assessed as having a normal fire potential, with average to below average rainfall resulting in average fuel loads. In the Nullarbor, normal fire potential is expected east of the Fraser Range.

For full details of the seasonal bushfire outlook for the Northern Territory, as well as northern Western Australia and northern Queensland, see the *Northern Australia Seasonal Outlook 2013*, issued as *Fire Note 113*.

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.

Bushfire Cooperative Research Centre
Level 5/340 Albert Street
East Melbourne VIC 3002
Telephone: 03 9412 9600
www.bushfirecrc.com

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

Australasian Fire and Emergency Service Authorities Council
Level 5/340 Albert Street
East Melbourne VIC 3002
Telephone: 03 9419 2388
www.afac.com.au

AFAC is the peak body for Australasian fire, land management and emergency services, creating synergy across the industry. AFAC was established in 1993.