

Dust activity	Reduced from last month; higher than April average
Wind strength	Reduced from last month; average for April
Groundcover	Unchanged from last month; much better than April 2016
Rainfall	Below average in the north east; above in the south west
Land management	High levels of stubble burning

Dust activity

There was a large reduction in dust activity in April 2017 compared to the previous month; however, the values were higher (average of 1.3h/site) compared to the April average since 2010 (0.6h/site). Most of dust was in the southern part of the network and occurred on 9 April. Strong south westerly winds that exceeding 50km/h at some sites caused the widespread dust. Walpeup (11h) and Kyalite (7h) were the two dustiest sites. The visibility at Walpeup dropped below 1km at the height of the event. Hillston and West Wyalong each had 3h of dust which came from the farming areas around Hillston.

Craig Bretherton from the EPA southern region stated that ...*"a number of reports were made to the EPA during April from the community about smoke impacts from stubble fires in the Riverina and southern NSW. DustWatch does not monitor smoke as such but the EPA has been using DustWatch data and satellite imagery to monitor the number of fires larger than one hectare. Burning in April 2017 was perceived to be more than previous years..."*

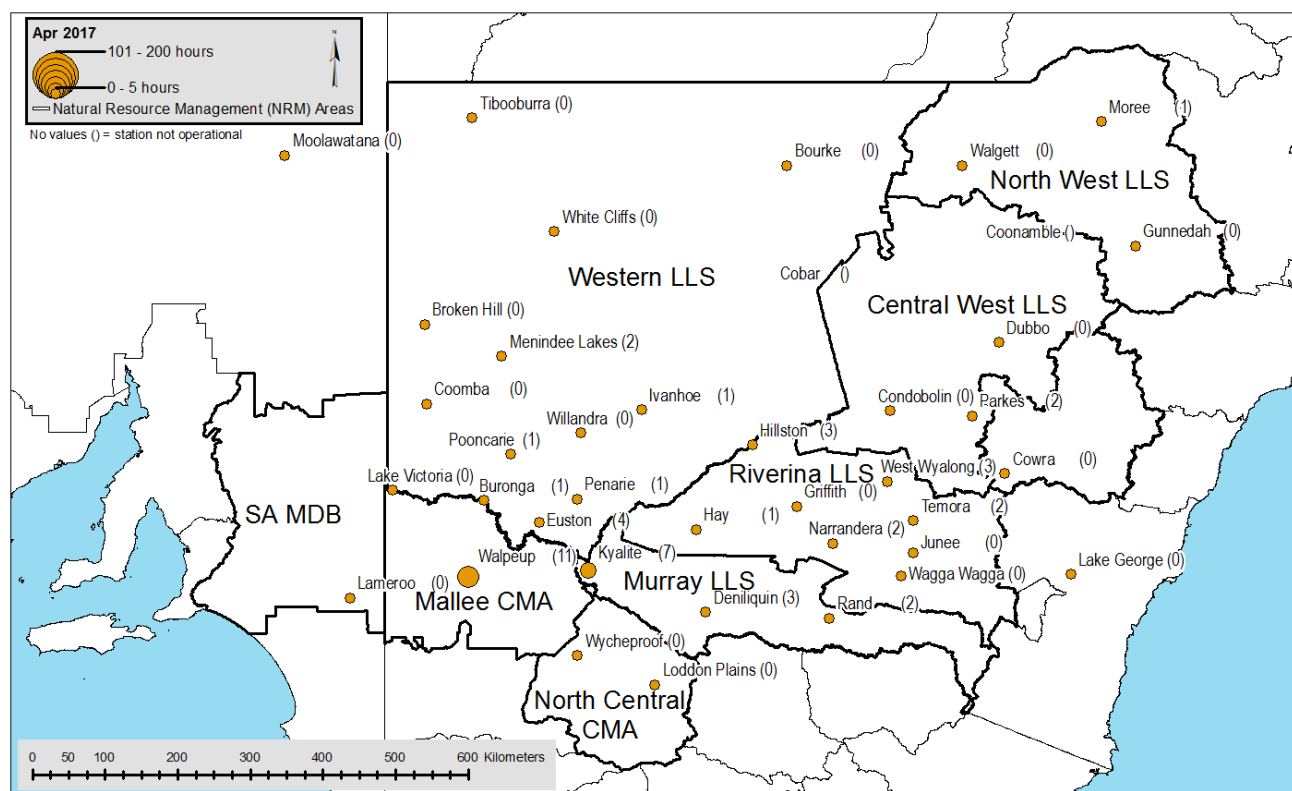


Figure 1: Hours of dust activity (number in brackets) at each DustWatch site in April 2017

Groundcover

Groundcover has remained almost unchanged at a very high level for this time of the year (Table1). The area with groundcover > 50 percent (green and yellow colours in Figure 2) is covering most of New South Wales and Victoria and the southern parts of South Australia. Isolated paddocks Hillston and around Moree and Walgett and the far north west of New South Wales have cover below 50 percent. In Victoria isolated paddocks in the Mallee are below 50 percent groundcover and are the source of dust storms when wind speeds are exceeding 50km/h (Figure 1).

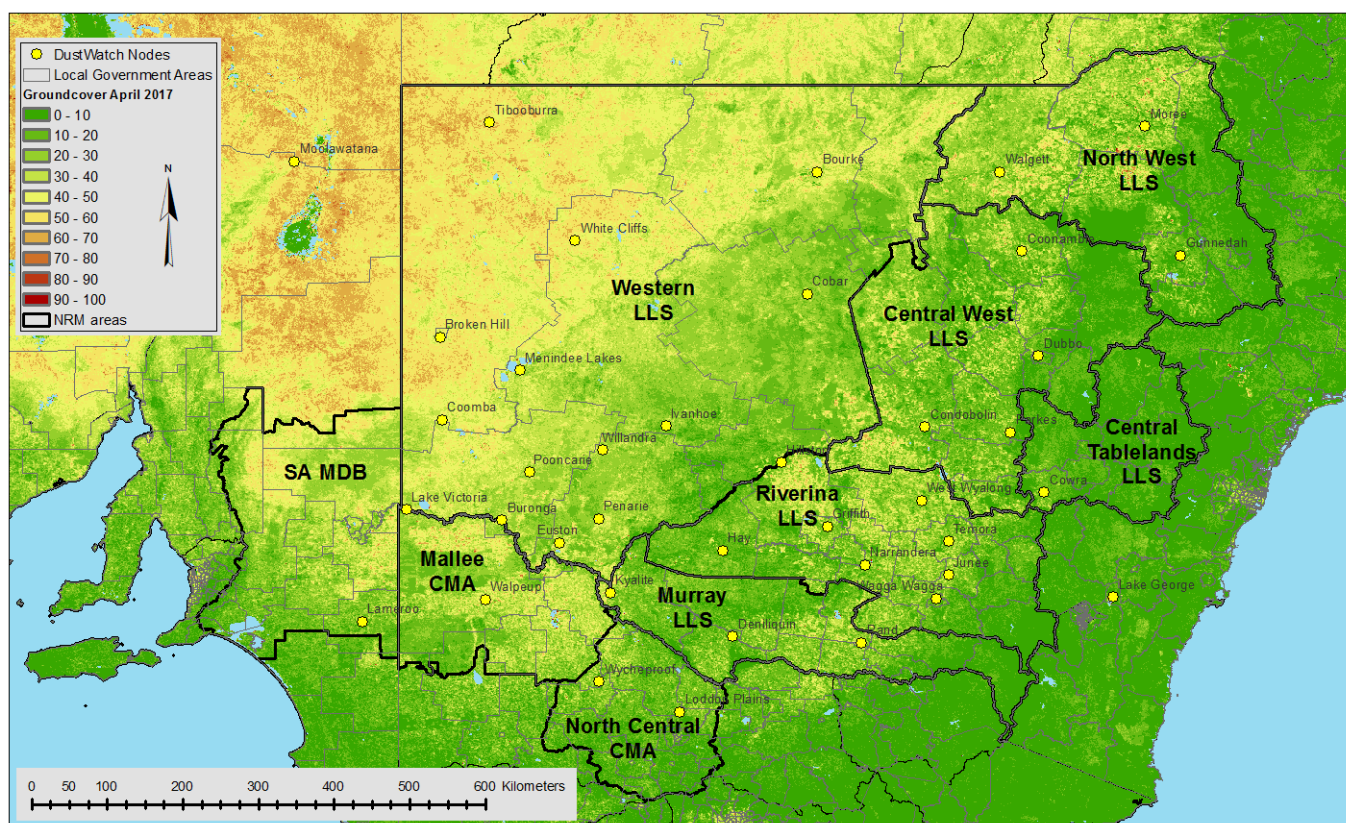


Figure 2: Groundcover for April 2017 as determined from MODIS.

Table 1: Percent NRM area with groundcover >50% for April 2016 to April 2017 as determined from MODIS.

Date	Central West	Mallee	Murray	North Central	North West	Riverina	SA MDB	Western	Central Tablelands
Apr 2016	95	82	99	94	96	96	88	62	100
May 2016	98	89	99	98	95	99	91	77	100
Jun 2016	99	96	100	100	97	100	96	90	100
Jul 2016	100	99	100	100	98	100	99	94	100
Aug 2016	100	99	100	100	99	100	98	92	100
Sep 2016	100	99	100	100	99	100	98	91	100
Oct 2016	99	99	100	100	99	99	96	83	100
Nov 2016	99	98	99	100	99	99	92	78	100
Dec 2016	99	96	100	100	99	99	88	70	100
Jan 2017	99	93	100	100	99	99	86	72	100
Feb 2017	99	90	100	99	99	98	88	71	100
Mar 2017	99	95	100	100	99	99	91	77	100
Apr 2017	98	95	99	100	98	98	94	79	100

Groundcover change

There was little change (less than plus or minus 20%) in the absolute amount of groundcover across the DustWatch network (white colours in Figure 3) or in the area above 50 percent groundcover in Natural Resource Management regions (Table 1 and Figure 4) between December 2016 and April 2017.

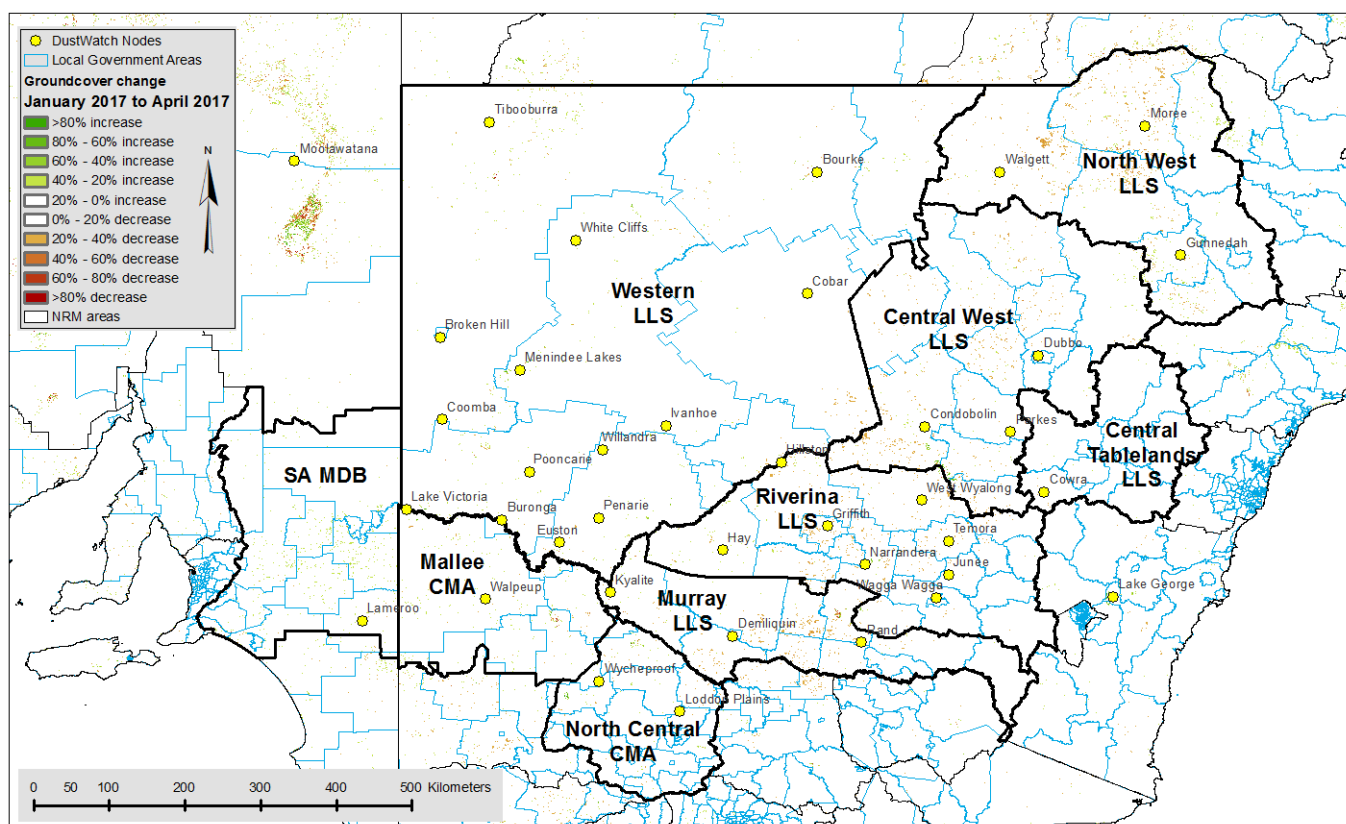


Figure 3: Groundcover change between December 2017 and April 2017 as determined from MODIS.

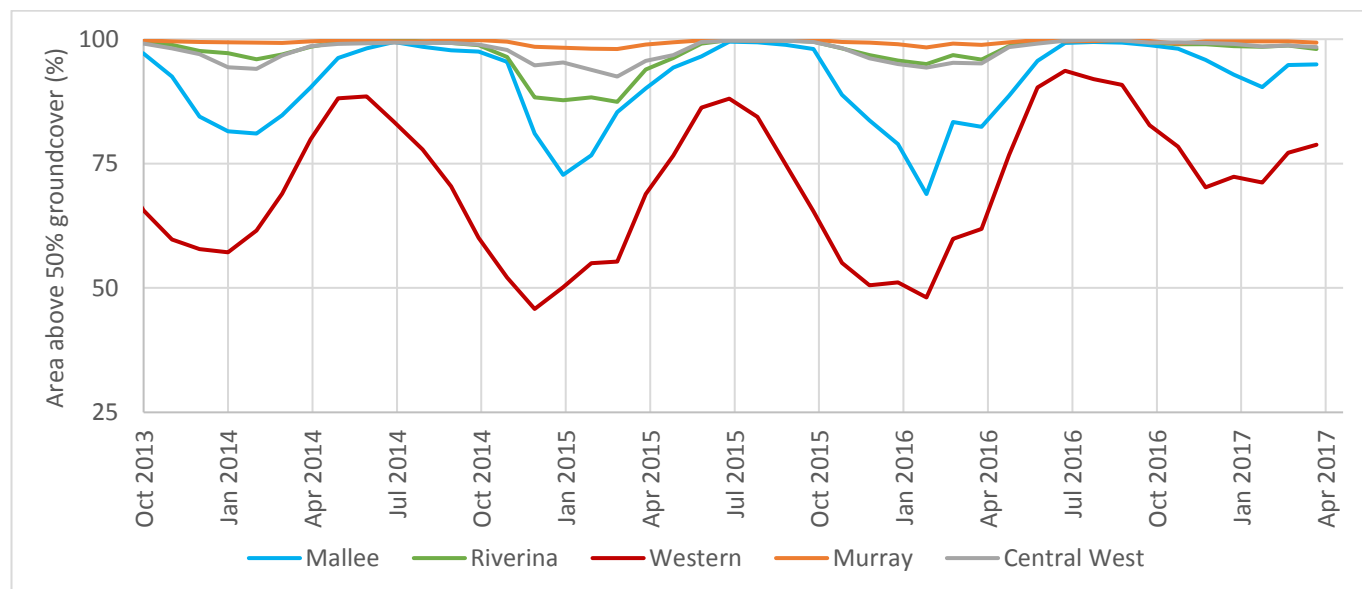


Figure 4: Area above 50% cover for selected NRM regions as determined from MODIS.

Rainfall

Very little rain filled the rain gauges in the north of New South Wales in April 2017. In contrast southern New South Wales, across the border into Victoria and most of South Australia received substantial rainfall, in cases exceeding 100mm (Figure 5). These high rainfall figures in the south and west were in the top 10% of Bureau of Meteorology records (blue colours in Figure 6a).

The 3 monthly deciles map (Figure 6b) is still showing a significant rainfall deficiency (red colours in Figure 6b) in north western New South Wales and across the border into southern Queensland.

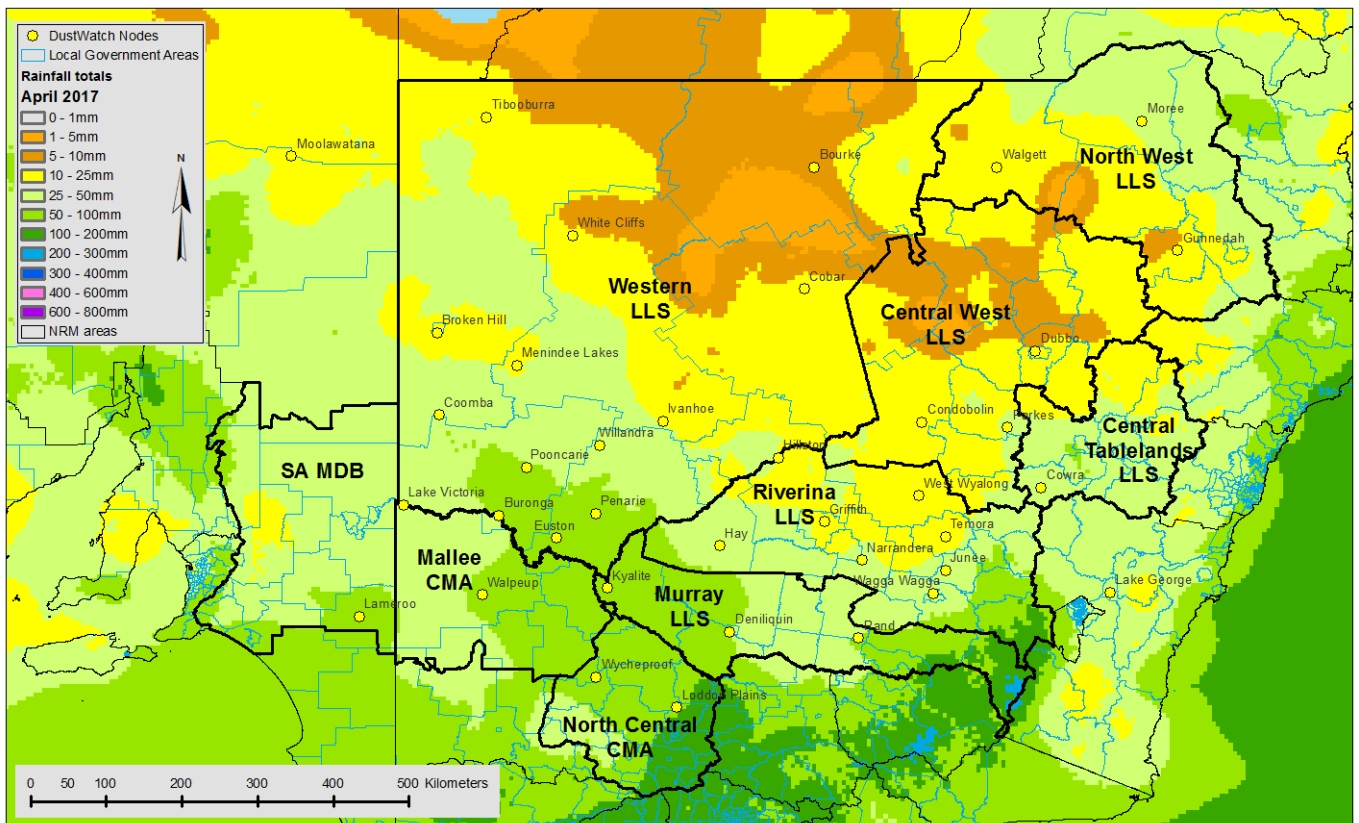


Figure 5: Rainfall totals for April 2017

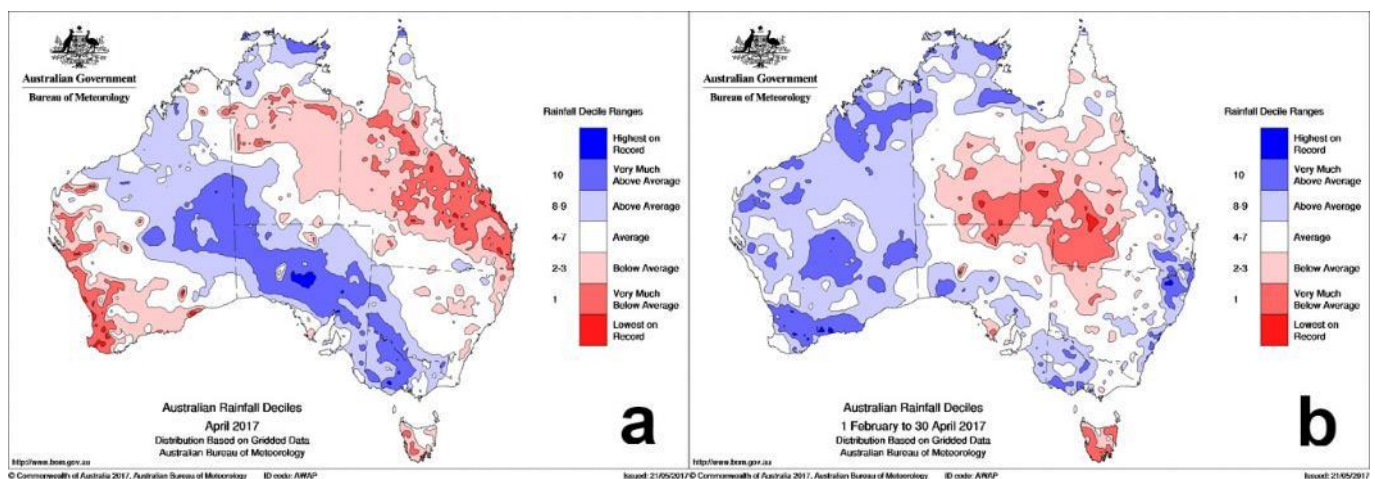


Figure 6: Rainfall deciles for April 2017 (a) and 1 February 2017 to 30 April 2017 (b)

MODIS satellite

Fire numbers in April 2017 were substantial (Figure 7). In fact, fires from the early part of the month (yellow and green dots) are not visible on the image below as they are covered by later fire markers. The insert in the image (orange box) shows a small 100km area surrounding Wagga Wagga but even then, most dots from the first week (yellow) are covered by later markers.

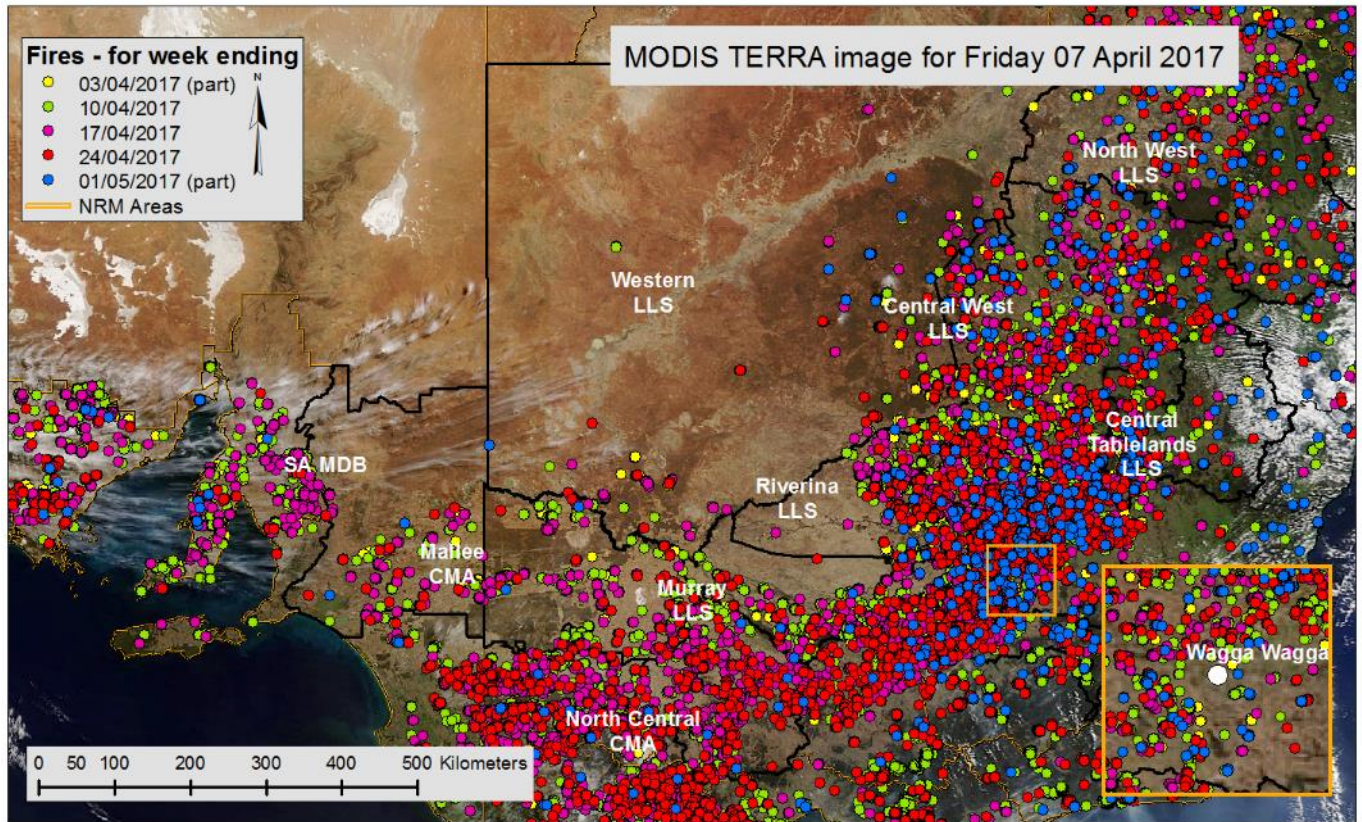


Figure 7: Active burning fires in April 2017 as determined from MODIS satellite.

Photo 1: Stubble burning near Cowra 21/04/2017 – Stephan Heidenreich.



The DustWatch team

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The MODIS image is courtesy of MODIS Rapid Response Project at NASA/GSFC; the fire data is courtesy of the Fire Information for Resource Management System (FIRMS) and the rainfall maps are from the Australian Bureau of Meteorology. This project would not be possible without funding from: the National Landcare Programme, Riverina, Western, Central West, Central Tablelands and Murray Local Land Services (LLS) in NSW; the NSW EPA, the Mallee and North Central CMAs in Victoria and Murray Darling Basin NRM in South Australia and in-kind contributions from Griffith University in Queensland, CSIRO, TERN and the Australian National University. We particularly thank our many DustWatch volunteers who provide observations and help maintain the instruments.

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