

# DustWatch Report

### March 2017

Dust activity	Dust storms in the south
Wind strength	Much windier than expected for March
Groundcover	Unchanged but much better than expected for March
Rainfall	Very dry in the west and wet in the east
Land management	Isolated paddock burning started in late March

#### **Dust activity**

March 2017 was dustier than we would have predicted from the groundcover values and dust activity in February. Cyclone Debbie was the main reason for this. Not only did it cause severe destruction where it made landfall on 27 March 2017 but it also triggered very strong winds in southern Australia. This produced a severe dust haze in the south west of New South Wales and across the border in the Victorian Mallee (red circle in Figure 1). The dust was widespread and dense enough to be visible on the MODIS satellite image (Figure 7). It was also the subject of many social media posts on 27 March 2017 with some great pictures posted. Some are featured on the last two pages of this report. Data and reports from DustWatchers earlier in the month (12 March – Photo 5) indicate that the south east of New South Wales around Wagga Wagga had bare paddocks that were contributing to the dust activity in March 2017.



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

#### Groundcover

Groundcover is exceptionally good for this time of the year (Figure 2). The Local Land Services – Western Region in particular has achieved a very good result with 78% of its area above 50% groundcover. In comparison, this value was 62% and 55% respectively in the last two years (Table 1). Dust emissions have predominantly originated from the Victorian Mallee where bare paddocks are the source of the dust during March 2017 (red circle in Figure 2). Saying that – measured values from the DustWatch network, reports from volunteers and pictures on social media suggests that bare paddocks in the Local Land Services – Riverina and Murray region have added to the dust loads in March 2017. This highlights the fact that even a very small area with paddocks below 50% groundcover (in this case 1% and 2% respectively – Table 1) can create some substantial dust.



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

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

Date	Central West	Mallee	Murray	North Central	North West	Riverina	SA MDB	Western	Central Tablelands
Jul 2016	100	100	100	100	99	100	99	97	100
Aug 2016	100	100	100	100	99	100	98	94	100
Sep 2016	100	100	100	100	99	100	98	96	100
Oct 2016	100	99	100	100	99	100	96	88	100
Nov 2016	99	97	99	100	99	99	93	83	100
Dec 2016	99	95	100	100	99	99	89	74	100
Jan 2017	99	93	99	100	99	98	87	77	100
Feb 2017	98	91	99	99	98	98	89	73	100
Mar 2017	98	93	99	100	99	98	89	78	100

#### **Groundcover change**

There has been very little change in groundcover between December and March (Figure 3). This is normal for this time of the year. The minimum area below 50% groundcover generally occurs in January and values rise after that (Figure 4). Figure 4 in paticular highlights the little change in groundcover and the exceptionally good overall values for all Natural Resource Management regions within the DustWatch network.



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



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

# Rainfall

Very little rain filled the rain gauges in the western part of New South Wales in March 2016 (Figure 5), in fact the western fringe of the state and across the border into South Australia was in the driest 10% of records for the month (Figure 6a). In contrast the eastern half of New South Wales received very good falls in excess of 50mm (Figure 5). This was in the wettest 10% of Bureau of Meteorology records for the month (Figure 6a).

The area below average rainfall for the past three months (Figure 6b) has increased substantially for New South Wales.



Figure 5: Rainfall totals for March 2017



Figure 6: Rainfall deciles for March 2017 (a) and 1 January 2017 to 31 March 2017 (b)

## **MODIS** satellite

Fire numbers in March 2017 increased dramatically from February 2017. This is normal for this time of the year. Most fires were in the last week of March (yellow dots in Figure 7) when landholders are beginning to prepare paddocks for the upcoming cropping season (Photo 1). The dust storm on March was large enough to be visible on the image below with the plume sitting just ahead of the cloud band.



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



Photo 1: Stubble burning near Hillston 17/03/2017 – Stephan Heidenreich.

## Social media

There were some amazing dust images on social media in March 2017. A big "thank you very much" to everyone that has given us permission to use their images. Apart from being stunning photos they are a great resource for us here at DustWatch as they "round out the picture" of dust events that are occurring.



Photo 2: Dust storm near Waitchie 27/03/2017 – Jassey Hender.



Photo 3: Dust storm near Winnindoo 27/03/2017 - Becky Horsham.



Photo 4: Dust storm over Mildura 27/03/2017 – Brodie Lawn, Irymple Community-based wind erosion monitoring across Australia



Photo 5: Dust storm near Wagga Wagga 12/03/2017 - Roger Dietrich, Old Junee

#### The DustWatch team

#### Contact us at <u>dustwatch@environment.nsw.gov.au</u>

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Australian Government



Community-based wind erosion monitoring across Australia