

Dust activity	Reduced from May 2020; on par with previous years
Wind strength	Very few hours of strong winds; average for June
Groundcover	Improving, but at a slower pace
Rainfall	Good falls in the east, dry in the west

Dust activity

Favourable growing conditions ([NSW Department of Industry: Seasonal conditions](#)) have continued to increase the area with greater than 50% groundcover (Figure 2, Table 1) across large parts of inland NSW. This, coupled with the very few hours of strong winds in June 2020, resulted in the hours of raised dust measured by our regional air quality monitoring network dropping substantially from 21 hours in May 2020 to five hours in June 2020 (Figure 1).

No severe dust storms were recorded in June 2020.

Groundcover is likely to have reached its peak for 2020 (Figure 4) and will start to decline from July onwards. Follow up rainfall and grazing management will determine the groundcover minimum in the later parts of summer 2020–21 and any associated dust activity.

Real time measurements from all our monitoring sites are at: [Rural air quality network – live data](#)

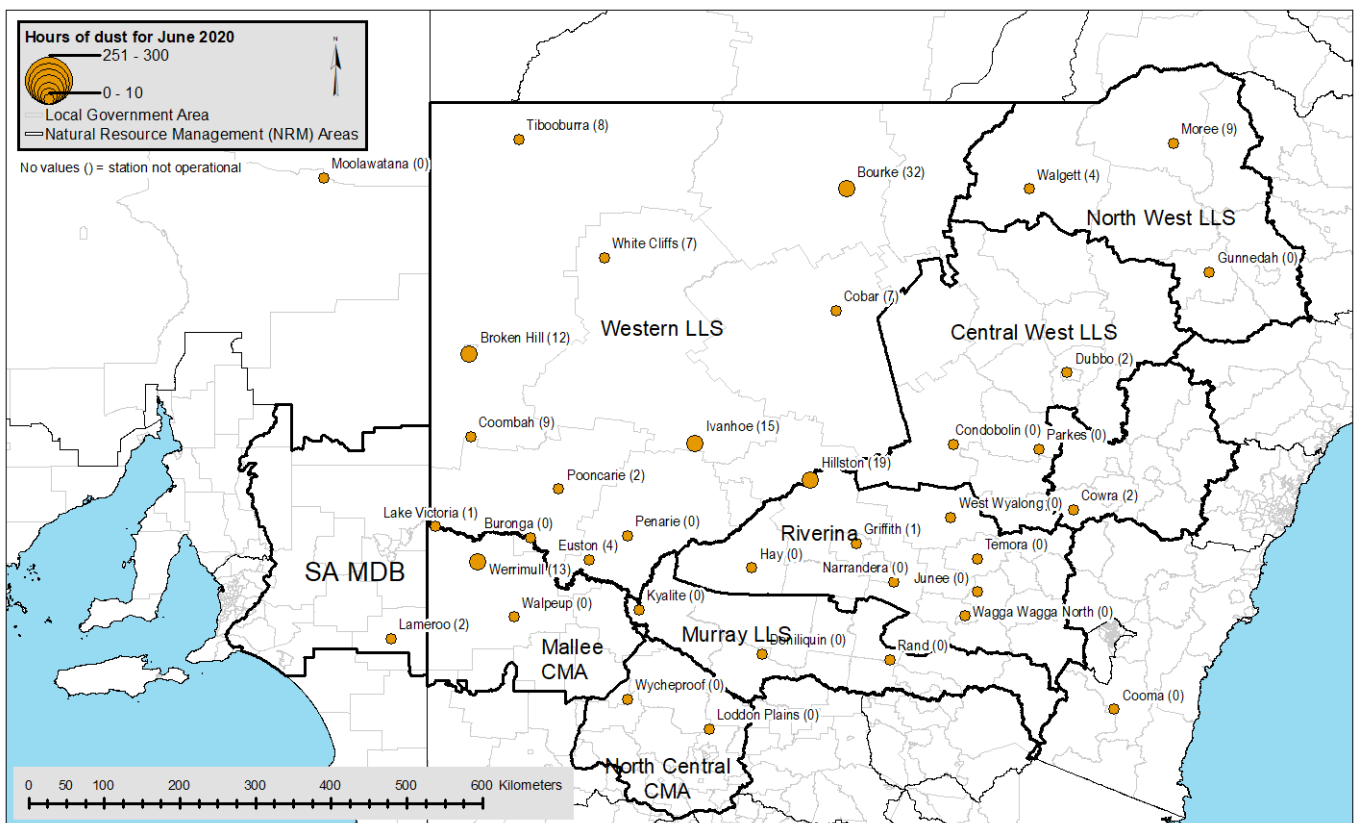


Figure 1 Hours of dust activity (number in brackets) at each DustWatch site in June 2020

Groundcover

The area with more than 50% groundcover (yellow and green colours in Figure 2) has continued to increase, albeit at a slower rate than in the previous months (Table 1). The Local Land Services Western Region, for example, has recovered from a very low 22% in December 2019 to a much better 71% in June 2020. Dry conditions have prevailed on the western side of the Darling River (Figure 5 and 6b). This is reflected in the area below 50% groundcover figures (red and yellow colours in Figure 2 and Table 1) and the corresponding hours of raised dust (Figure 1)

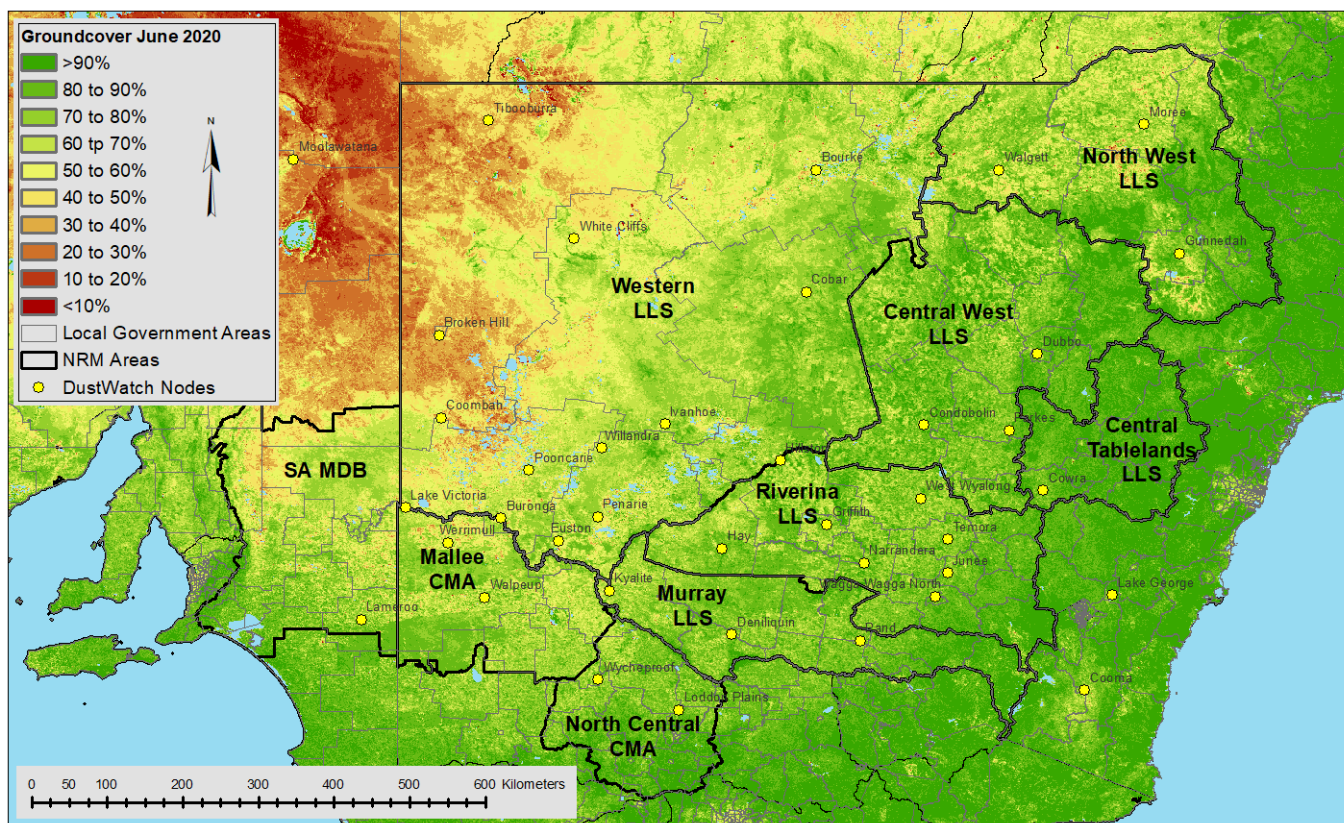


Figure 2 Groundcover for June 2020 as determined from MODIS by CSIRO

Table 1 Percentage of each NRM with cover >50% for June 2019 to June 2020

Date	Central West	Mallee	Murray	North Central	North West	Riverina	SA MDB	Western	Central Tablelands
Jun 2019	87	94	99	100	84	99	89	68	100
Jul 2019	85	97	100	100	79	100	91	66	100
Aug 2019	72	95	100	100	74	99	87	54	100
Sept 2019	61	90	97	100	68	94	79	42	100
Oct 2019	51	87	96	100	64	88	71	34	99
Nov 2019	42	80	90	99	55	76	63	26	98
Dec 2019	36	73	84	98	48	67	59	22	96
Jan 2020	38	71	86	98	52	69	58	26	96
Feb 2020	56	67	78	95	72	68	58	28	98
Mar 2020	81	70	85	96	79	81	65	36	99
Apr 2020	96	80	96	99	83	96	72	53	100
May 2020	98	92	99	100	90	99	82	67	100
Jun 2020	100	96	100	100	97	100	87	71	100

Groundcover change

The good groundcover growth across large parts of inland NSW (green colours in Figure 3, Figure 4) is a result of the favourable climate conditions, particularly the above average rainfall received by most of inland NSW over the past three months. (Figure 6b). June is generally the month with the best groundcover across the State. Groundcover is likely to decline from July onwards (Figure 4). June groundcover level is similar to the last two years (Figure 4). Groundcover level for the Local Land Services Western Region are already low and will continue to decline without follow up rainfall

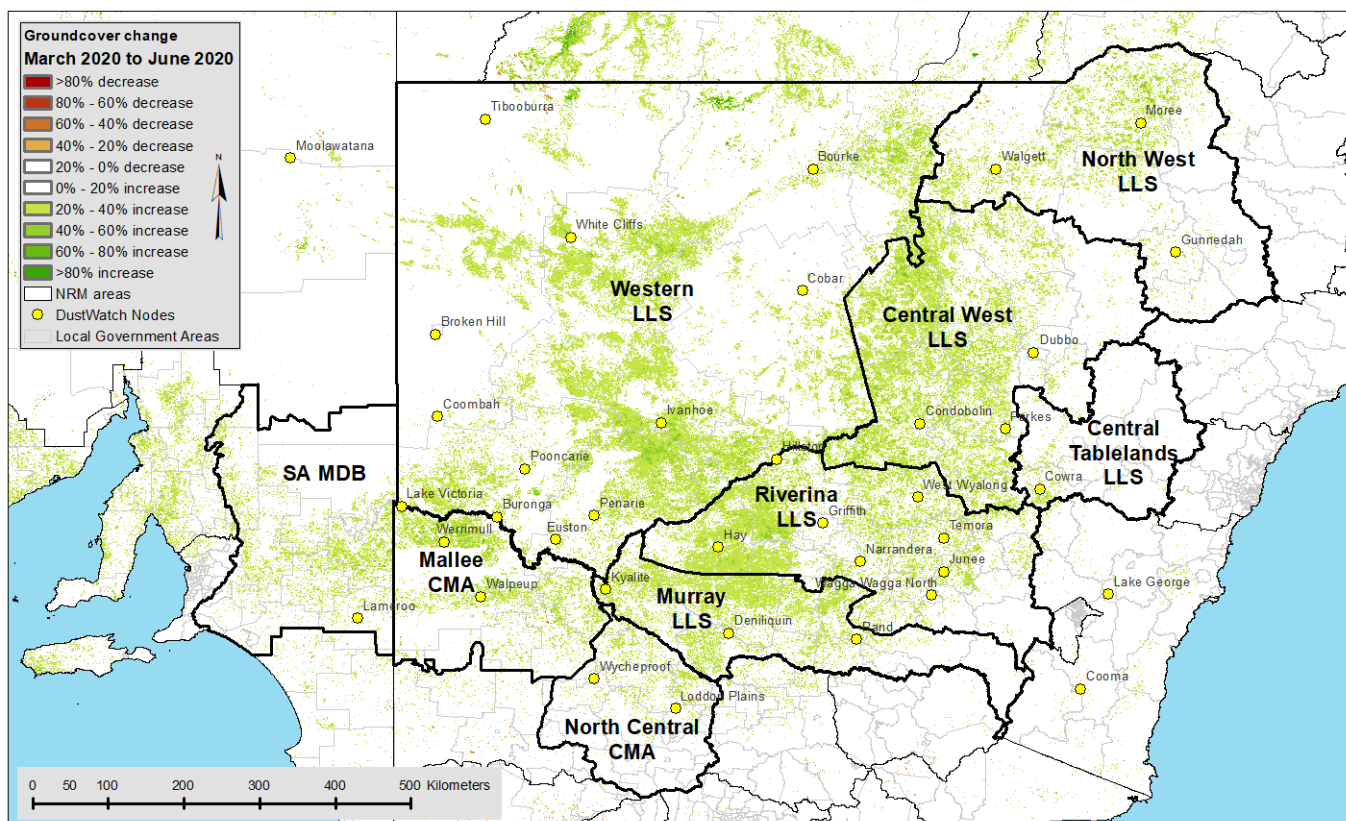


Figure 3 Groundcover change between March 2020 and June 2020 as determined from MODIS

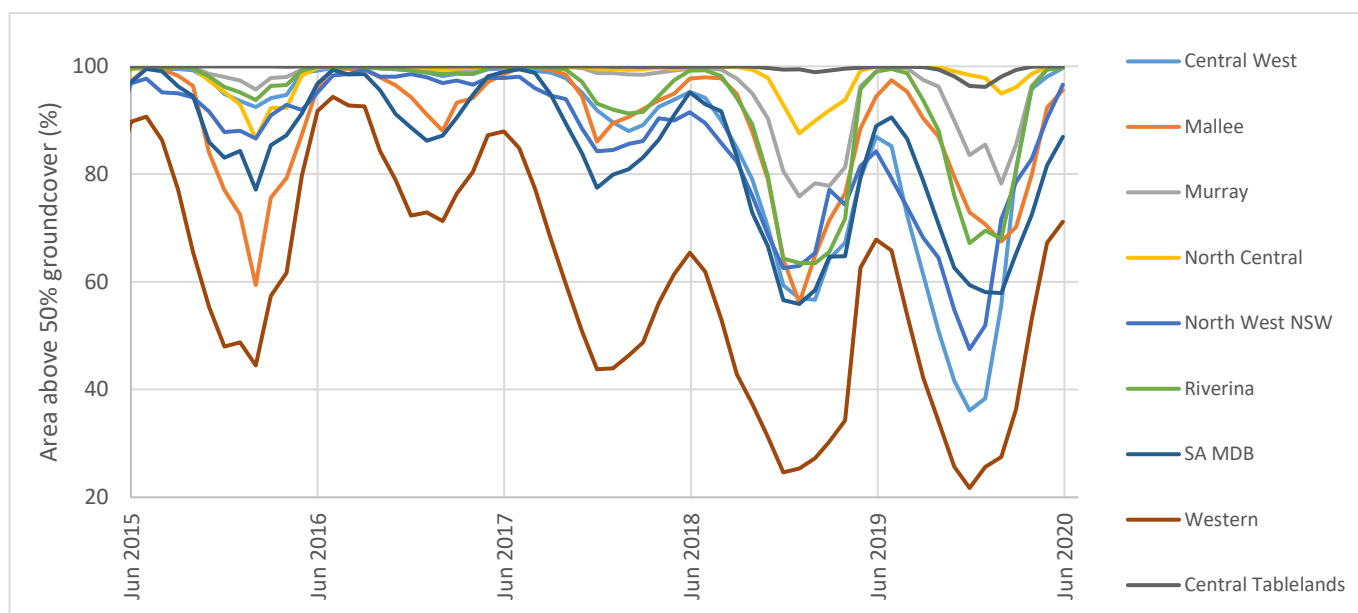


Figure 4 Area (%) of NRM with more than 50% cover since June 2015 as determined from MODIS

Rainfall

Very little rainfall was recorded across the western parts of New South Wales with below 25mm in the gauges west of a line from Walgett to Deniliquin (Figure 5). Most of western NSW was in the driest 10% of rainfall records (Figure 6a). Notably, the Monaro region around Cooma and the far south east coast received very little rain too and are still considered in drought by NSW Department of Industry ([Latest NSW Drought maps](#)).

In contrast, very good falls were recorded on the eastern side of the Local Land Services Riverina and Murray Regions.

Despite the good rainfall, some areas of western NSW are still in intense drought. Updates on the latest drought status across the state can be found on the Department of Primary Industries website at: [Latest NSW Drought maps](#).

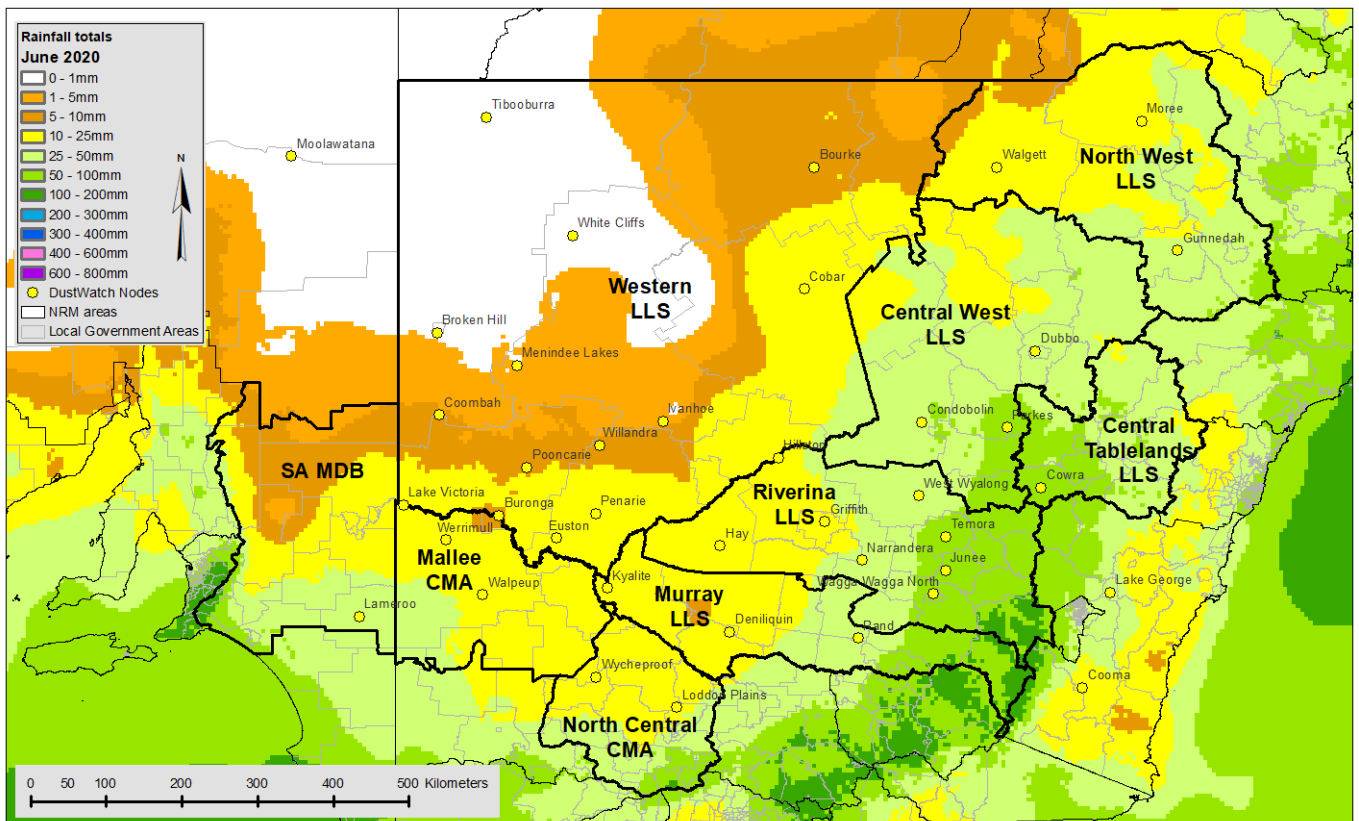


Figure 5 Rainfall totals for June 2020 (source: Bureau of Meteorology)

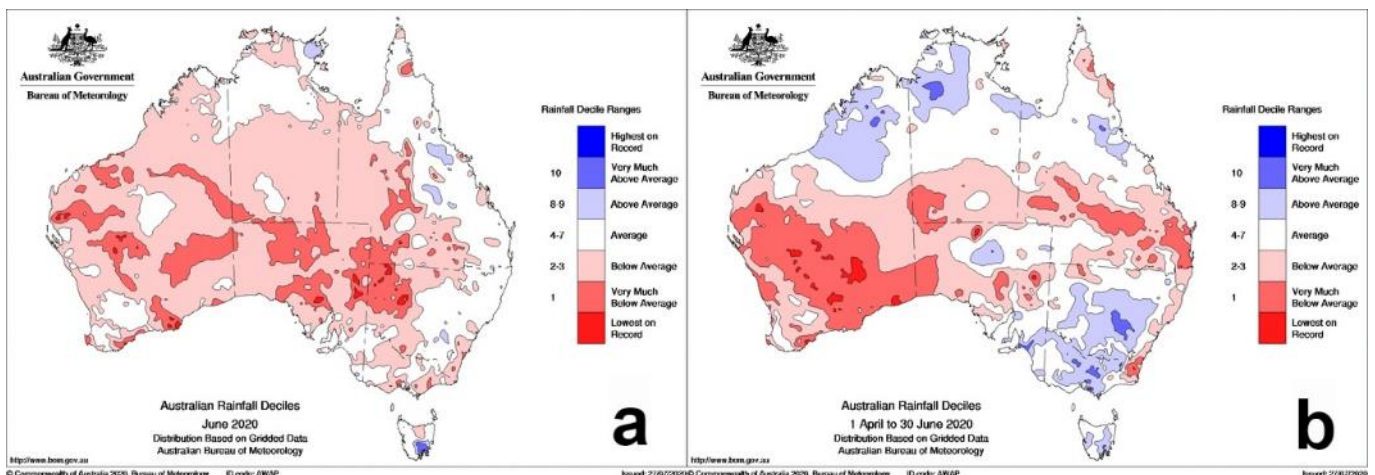


Figure 6 Rainfall deciles for June 2020 (a) and 1 April 2020 to 30 June 2020 (3 month - b)

VIIRS fires and satellite image

Haze from smoke and dust is difficult to separate for our volunteers and our instruments. That is why we use satellite imagery to manually classify every measurement into either dust or smoke. The satellite detected 1469 hot spots (375m pixel with temperature anomalies) in June 2020, about half the number detected in May 2020 (2317) (Figures 7 and 8).

Note: The number of hot spots is not equal to the number of fires. Large fires have multiple hot spots as each detection cell only covers 375m * 375m. Cloud can obscure hot spots reducing the number of detections.

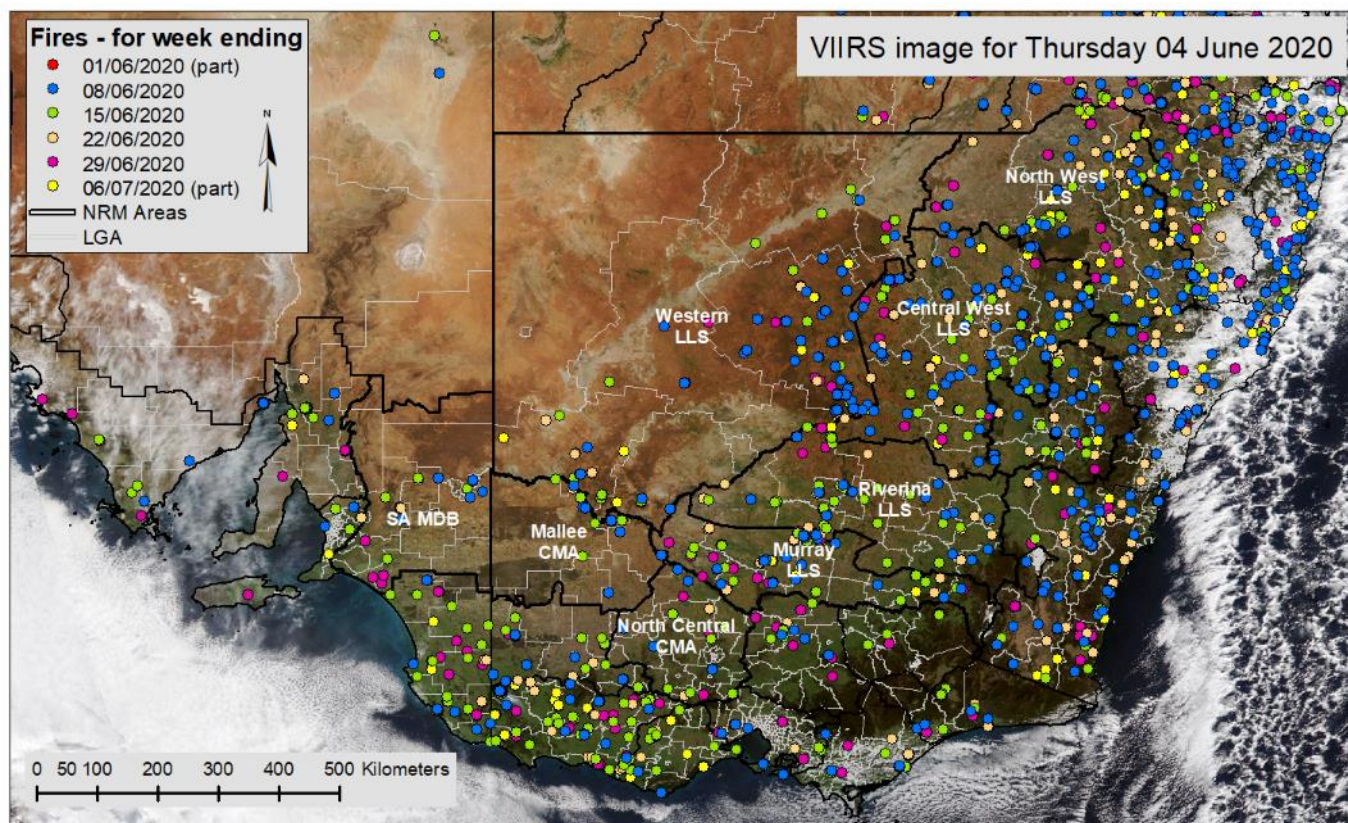


Figure 7 Pixels (375m) with active burning fires in June 2020 as determined from VIIRS satellite

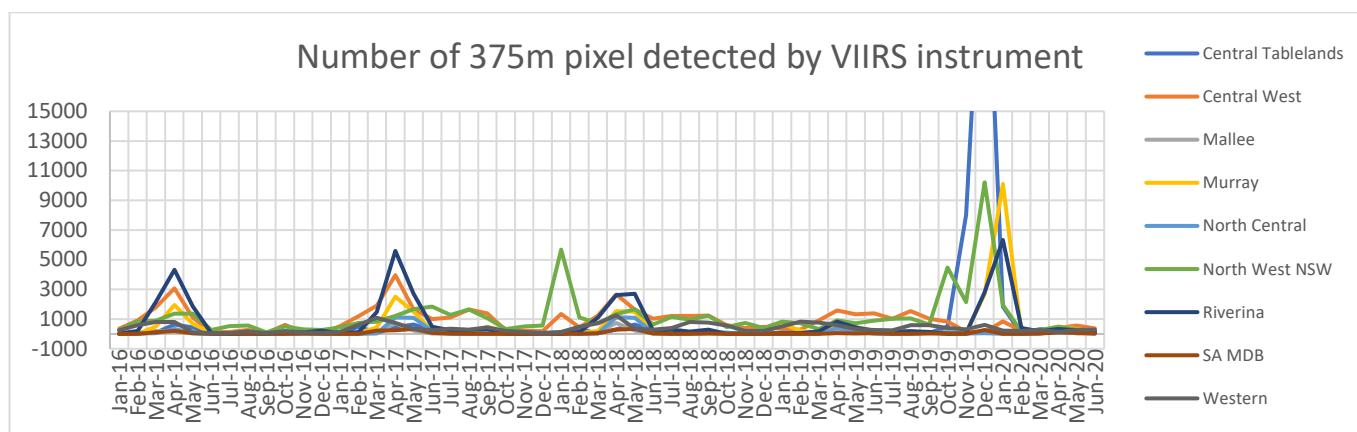


Figure 8 Number of 375 m pixels with active burning fires between January 2016 and June 2020.

The DustWatch team

Contact us at dustwatch@environment.nsw.gov.au

Dust data supplied by the Department of Planning, Industry and Environment Rural Air Quality network. The MODIS image is courtesy of MODIS Rapid Response Project at NASA/GSFC; the VIIRS 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, Western 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, 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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