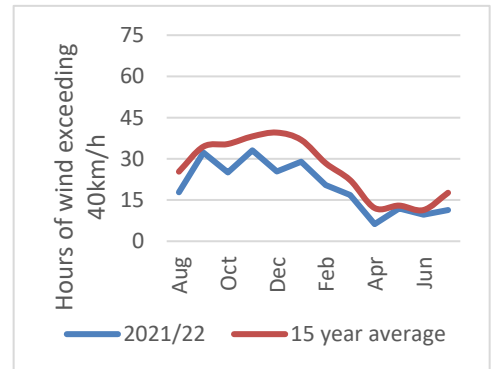


<b>Dust activity</b>	Very little dust activity; minor dust in the Mallee
<b>Wind strength</b>	Very low; much below 15-year average
<b>Groundcover</b>	Increasing; highest July since 2017
<b>Rainfall</b>	Very low in the west; flooding on the east coast

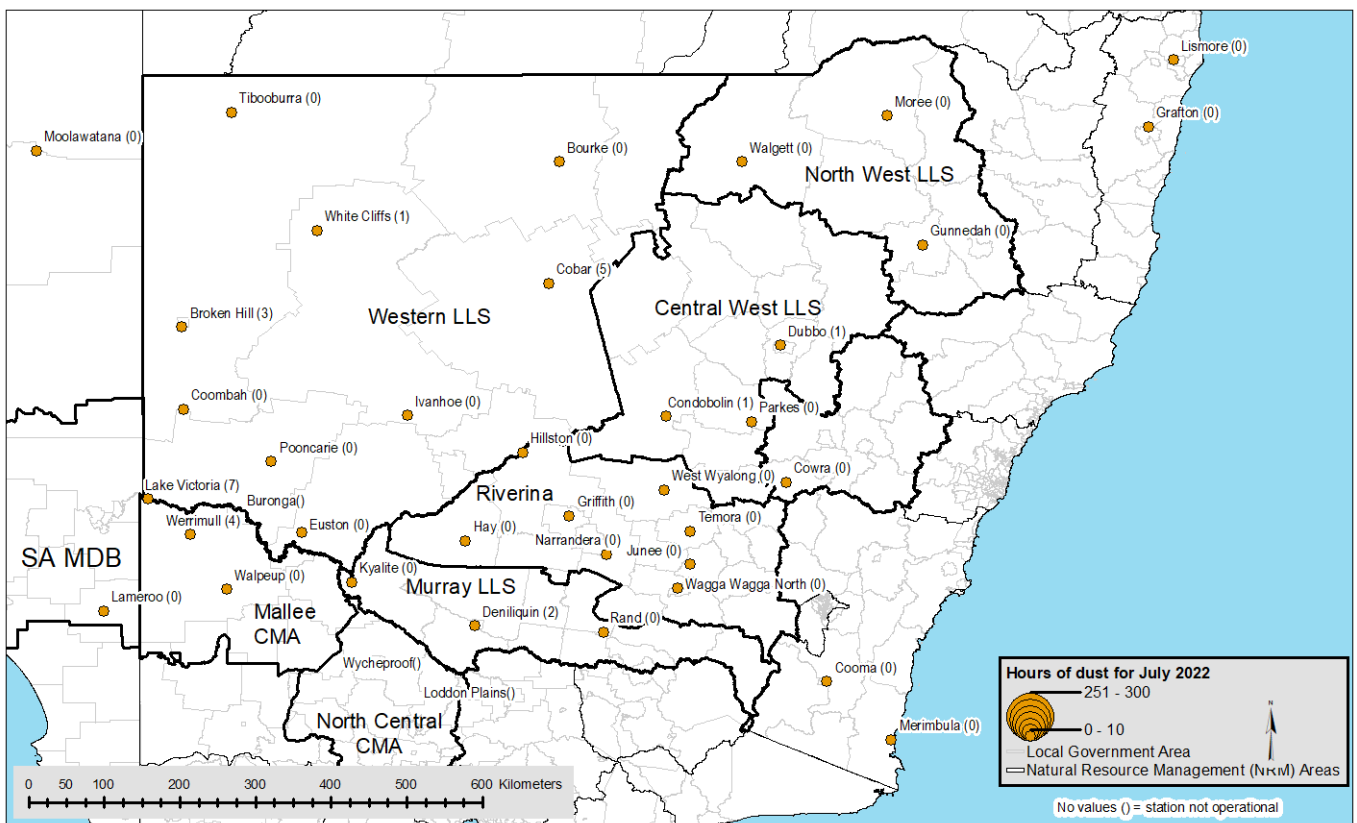
## Dust activity

There was almost no measurable dust activity in July 2022 (Figure 2). The only exception was some minor dust in the Mallee overnight on 17 July 2022. Lower than average wind strength (hours of winds > 40km/h) contributed to the low dust values (Figure 1). The other factor contributing to the low dust hours was the increased groundcover across the western parts of New South Wales and into South Australia and Victoria, with spring groundcover values this high not seen since 2017 (Table 1).



**Figure 1** Hours of wind exceeding 40km/h – average across all sites

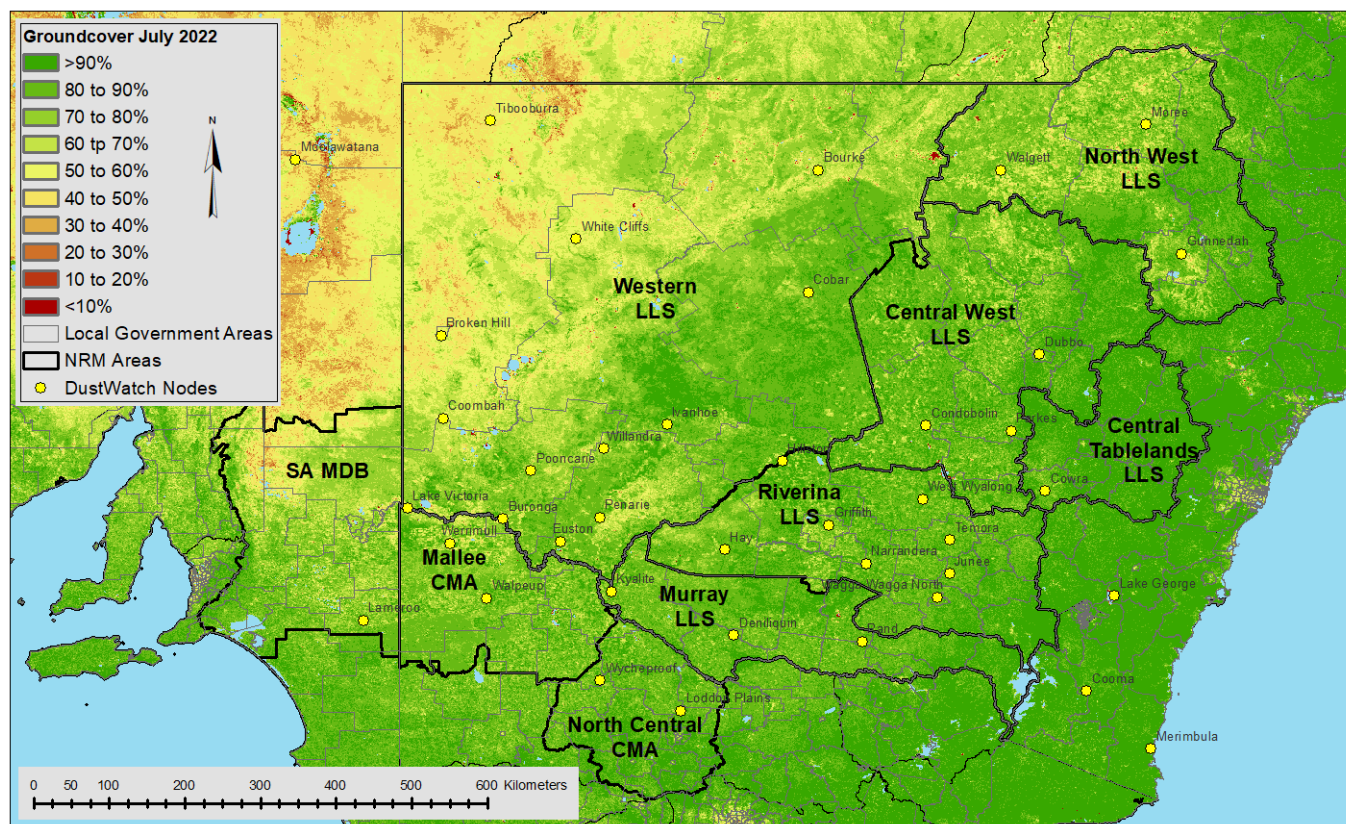
Note: Real time dust measurements from all our monitoring sites are at: Rural air quality network – live data



**Figure 2** Hours of dust activity (number in brackets) at each DustWatch site in July 2022

# Groundcover

The area with > 50% groundcover (green and yellow colours in Figure 3) has likely peaked for spring 2022. For example, the Local Land Services Western region, which saw an impressive 10% increase in the area with more than 50% groundcover last month, is now stable at 91% (Table 1). There are no areas other than fire scars visible with less than 30% groundcover (dark red colours in Figure 3).



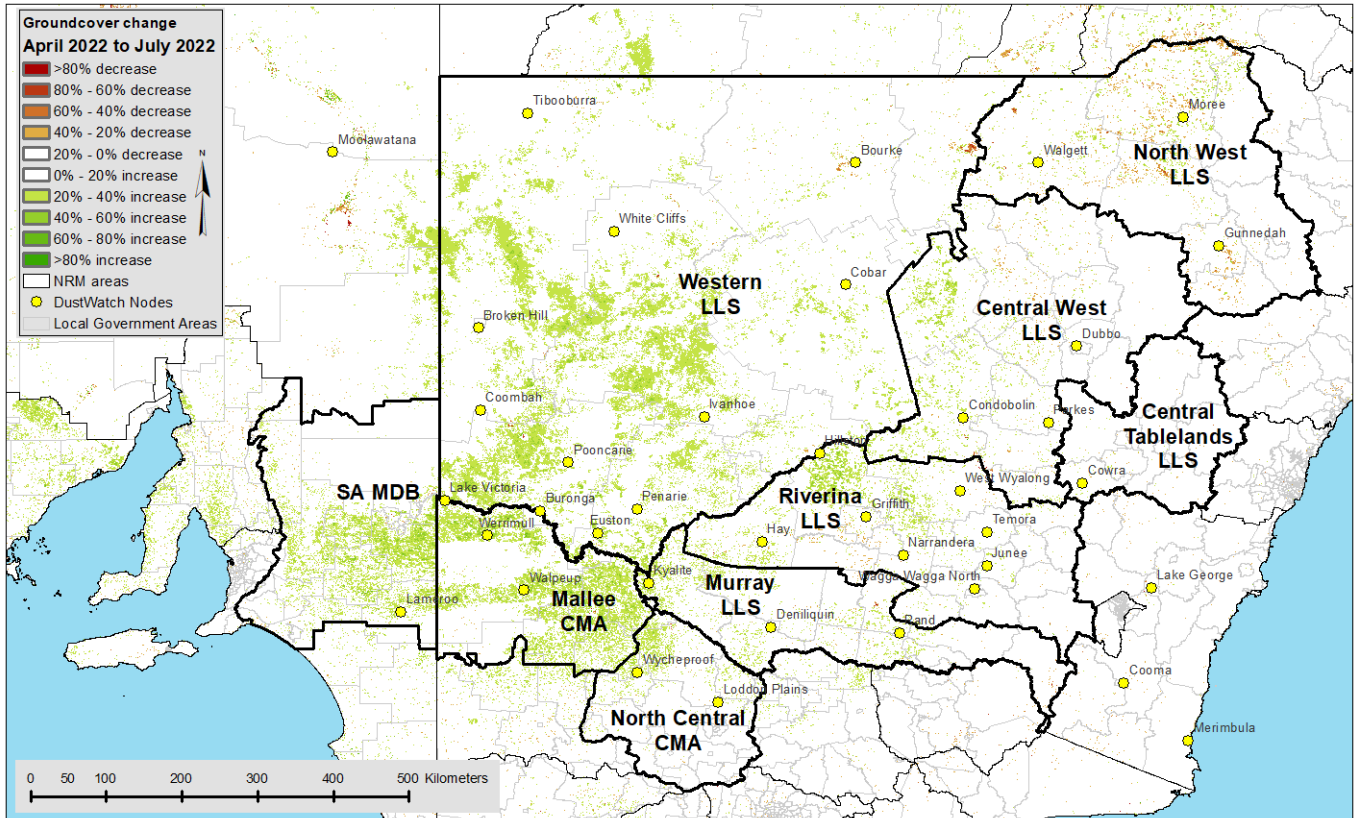
**Figure 3** Groundcover for July 2022 as determined from MODIS by CSIRO

**Table 1** Percentage of each NRM with cover >50% for July 2021 to July 2022

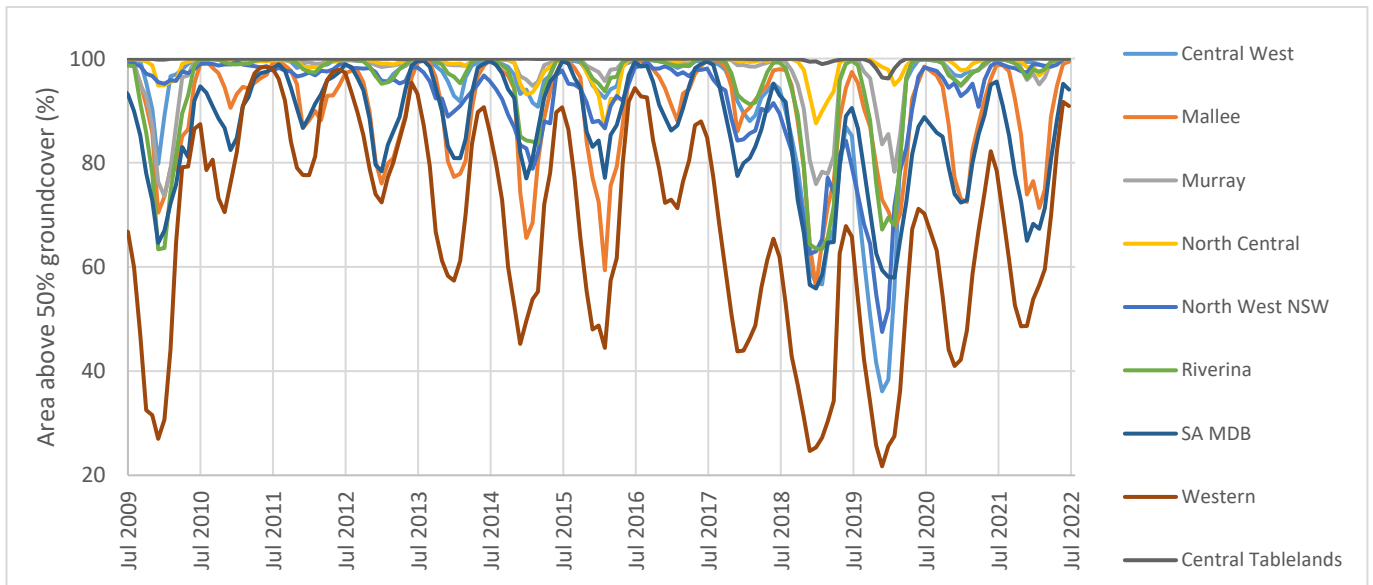
Date	Central West	Mallee	Murray	North Central	North West	Riverina	SA MDB	Western	Central Tablelands
Jul 2021	100	99	100	100	99	100	96	78	100
Aug 2021	100	99	100	100	99	100	91	70	100
Sep 2021	100	98	100	100	98	100	85	61	100
Oct 2021	100	92	99	100	98	99	78	53	100
Nov 2021	99	85	98	99	98	98	73	49	100
Dec 2021	99	74	96	98	97	96	65	49	100
Jan 2022	99	76	97	98	99	98	68	54	100
Feb 2022	99	71	95	97	99	97	67	57	100
Mar 2022	98	75	96	98	99	98	71	60	100
Apr 2022	99	89	99	99	98	99	81	70	100
May 2022	100	95	100	100	99	100	88	82	100
Jun 2022	100	99	100	100	100	100	95	92	100
Jul 2022	100	99	100	100	100	100	94	91	100

# Groundcover change

The groundcover change over the past 3 months was predominantly a cover increase (green colours in Figure 4) in the western parts of New South Wales and across the border into South Australia and Victoria following good winter rainfall (Figure 7b). In contrast, isolated paddocks in the Local Land Services North West and Central West Regions show a significant groundcover reduction (red colours in Figure 4).



**Figure 4** Groundcover difference between April 2022 and July 2022



**Figure 5** Area (%) of NRM with more than 50% cover since July 2009

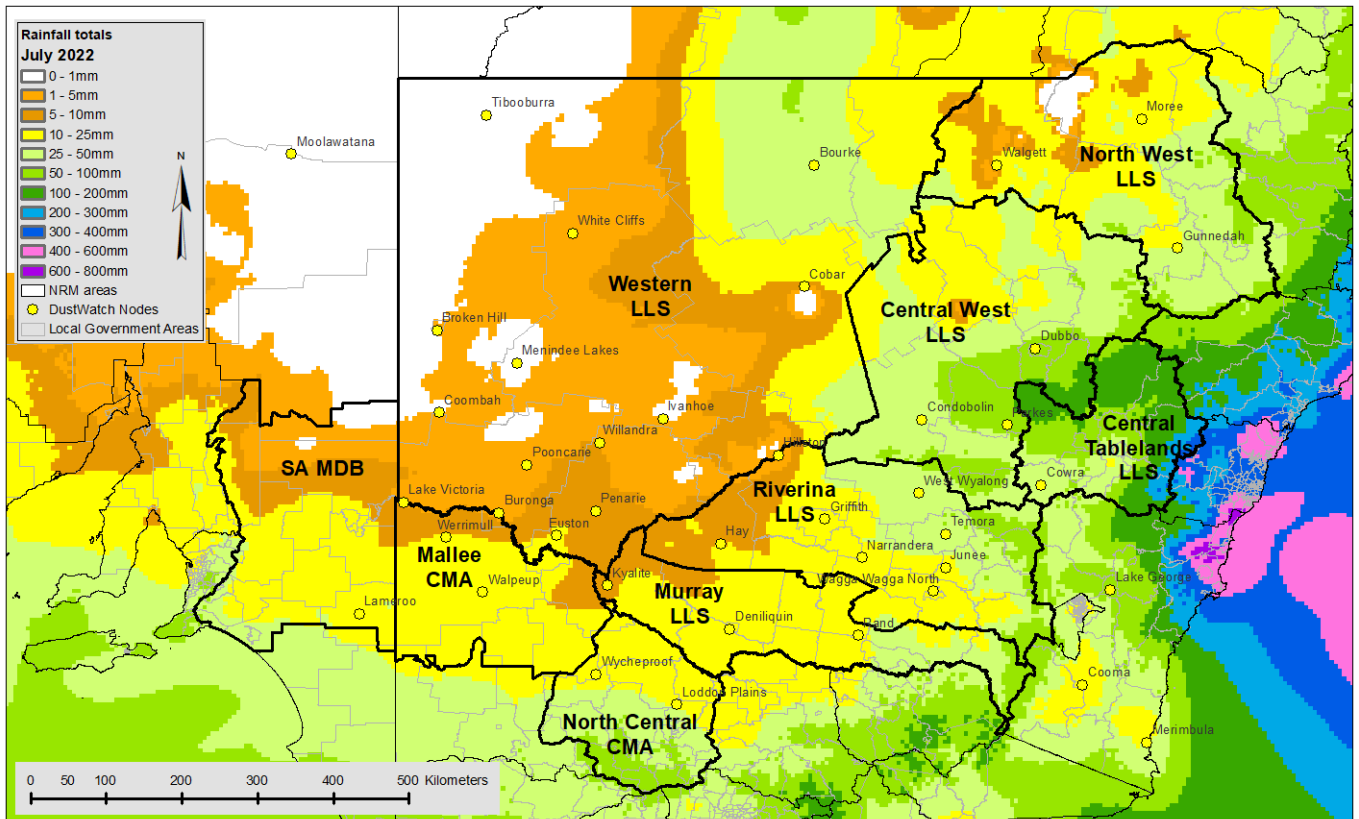


# Rainfall

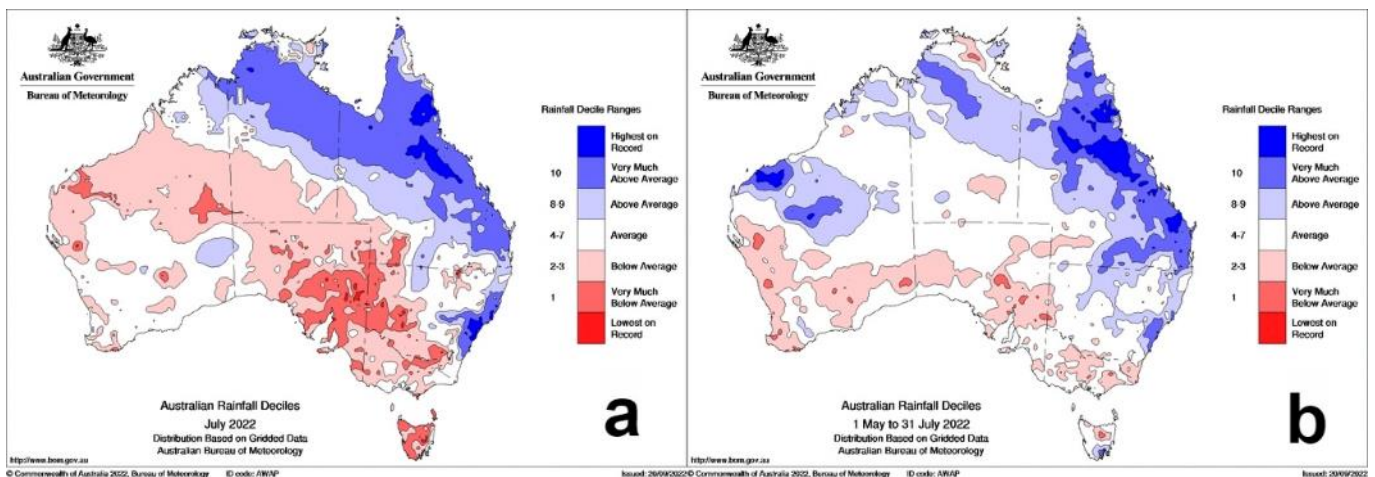
Very little rainfall was recorded in inland New South Wales during July 2022, apart from the area around Bourke. In contrast, coastal areas saw more than 600 mm for the month, leading to flash flooding in some areas (Figure 6).

The coastal rainfall was in the highest 10% of records, with some small areas recording the highest on record (Figure 7a). In contrast, the western parts of the state were in the driest 10% of records, with some recording the lowest rainfall on record (Figure 7a).

These 2 extremes have pushed most of New South Wales back into more average conditions in the last 3 months (Figure 7b).



**Figure 6** Rainfall totals for July 2022 (source: Bureau of Meteorology)

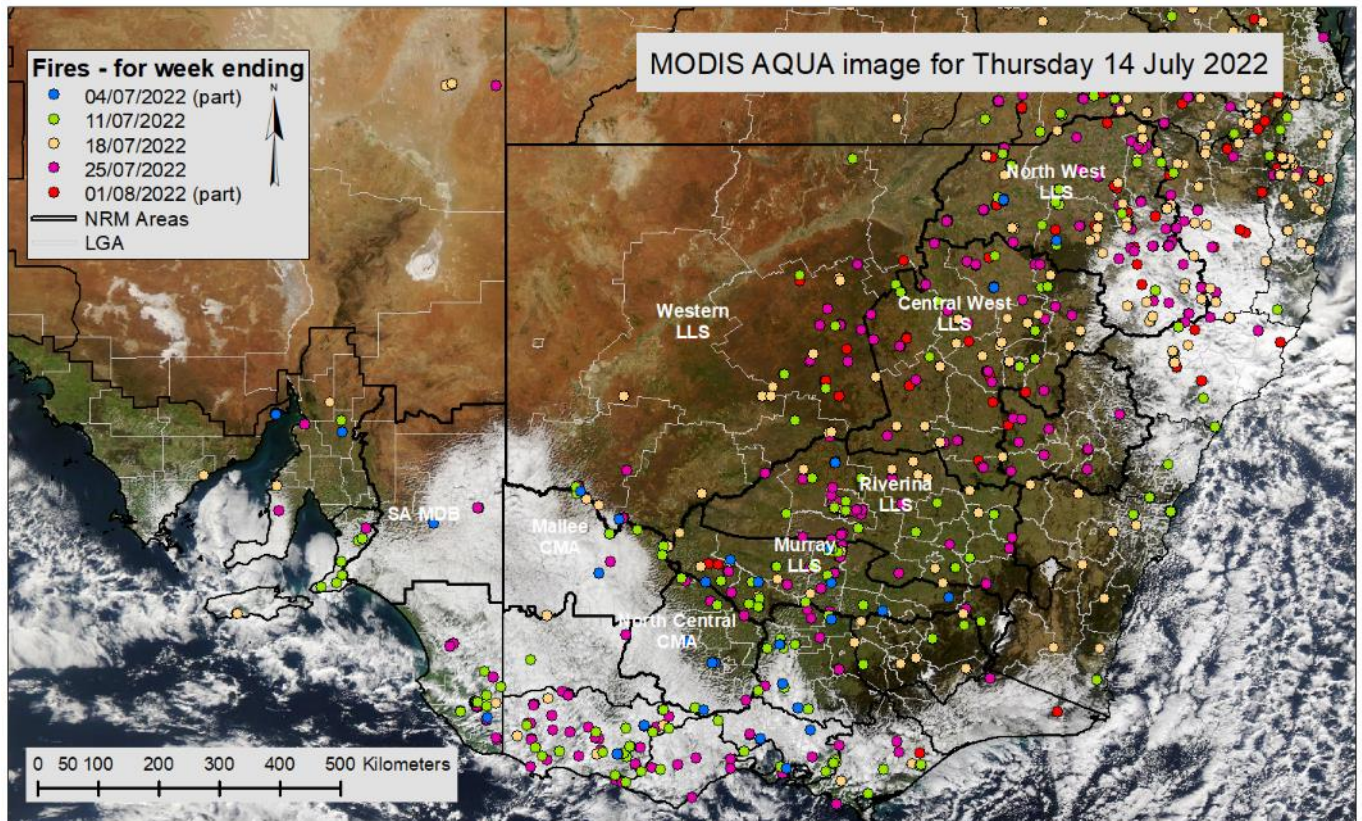


**Figure 7** Rainfall deciles for July 2022 (a) and 1 May 2022 to 31 July 2022 (b)

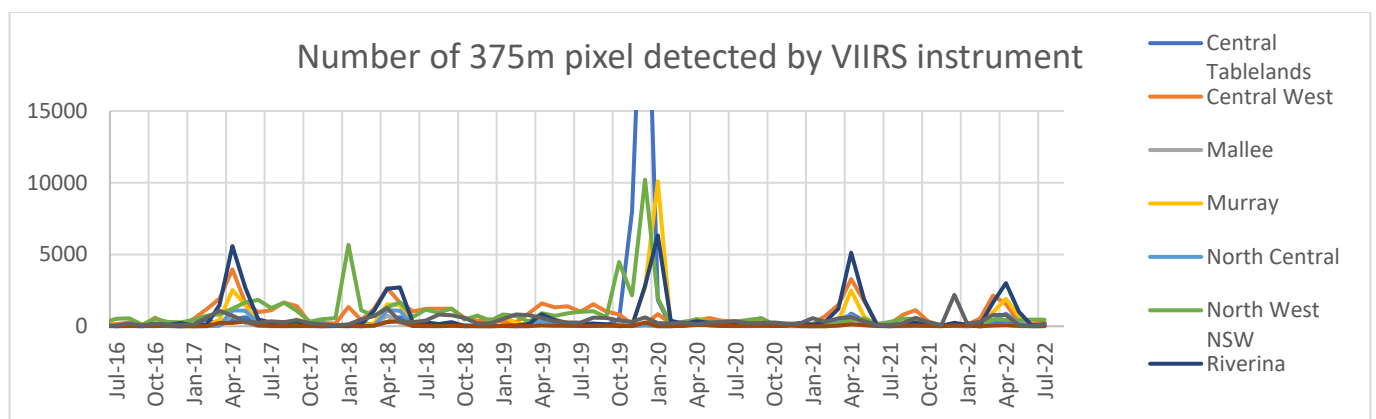
# VIIRS fires and satellite image

Haze from smoke and dust is difficult to separate. We use satellite imagery to manually classify every measurement into dust or smoke. The satellite detected 1161 hot spots (375m pixel with temperature anomalies) in July 2022 (Figures 8 and 9), around 30% more than the 850 hot spots detected in June 2022. Fires were evenly distributed across the Natural Resource Management areas.

**Note: The number of hot spots is not equal to the number of fires.** Large fires have multiple hot spots, thereby increasing the number of detections. Cloud or fog can obscure hot spots, thereby reducing the number of detections.



**Figure 8** Pixels (375m) with active burning fires in July 2022 as determined from VIIRS satellite



**Figure 9** Number of 375m pixels with active burning fires between July 2016 and July 2022

## The DustWatch team

Dust data supplied by the Department of Planning 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 Program, 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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