

Community-based wind erosion monitoring across Australia

Dust activity	Significant increase in dust; double the March average
Wind strength	Decrease from February, below long-term average
Groundcover	Increases in Western Local Land Services, mostly unchanged elsewhere
Rainfall	Decrease rainfall; generally average to below average

Dust activity

Dust activity at long-term sites doubled from February to March, averaging 18.9 hours, twice the usual amount for this time of year. Dust was predominately observed across southern areas of the wheat/sheep belt, particularly in the Murray and Riverina Local Land Services regions (Figure 2). This is likely due to drier-than-average conditions in these regions, particularly in the Murray and Riverina Local Land Services (Figure 6 and Figure 7). Below-average winds may have hindered dust transport (Figure 1).

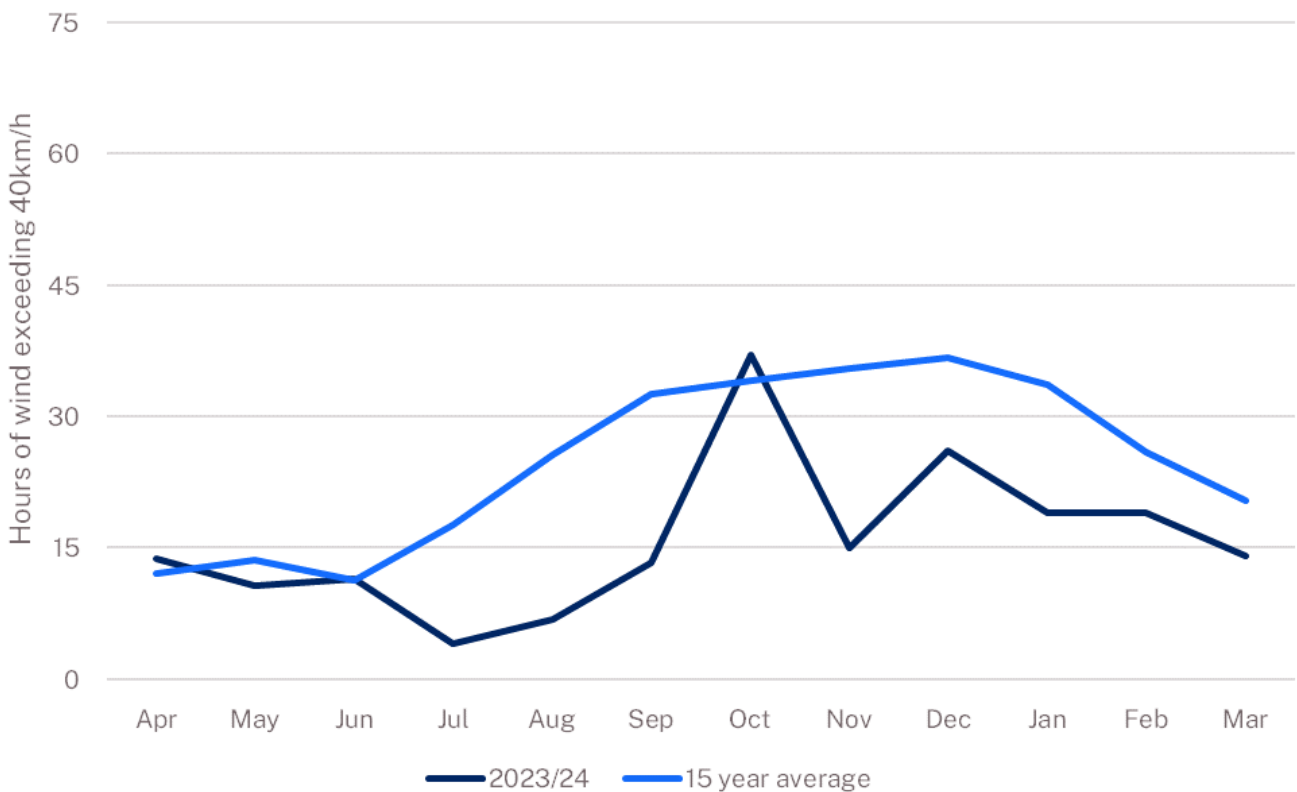


Figure 1 Hours of wind exceeding 40km/h – average across all sites

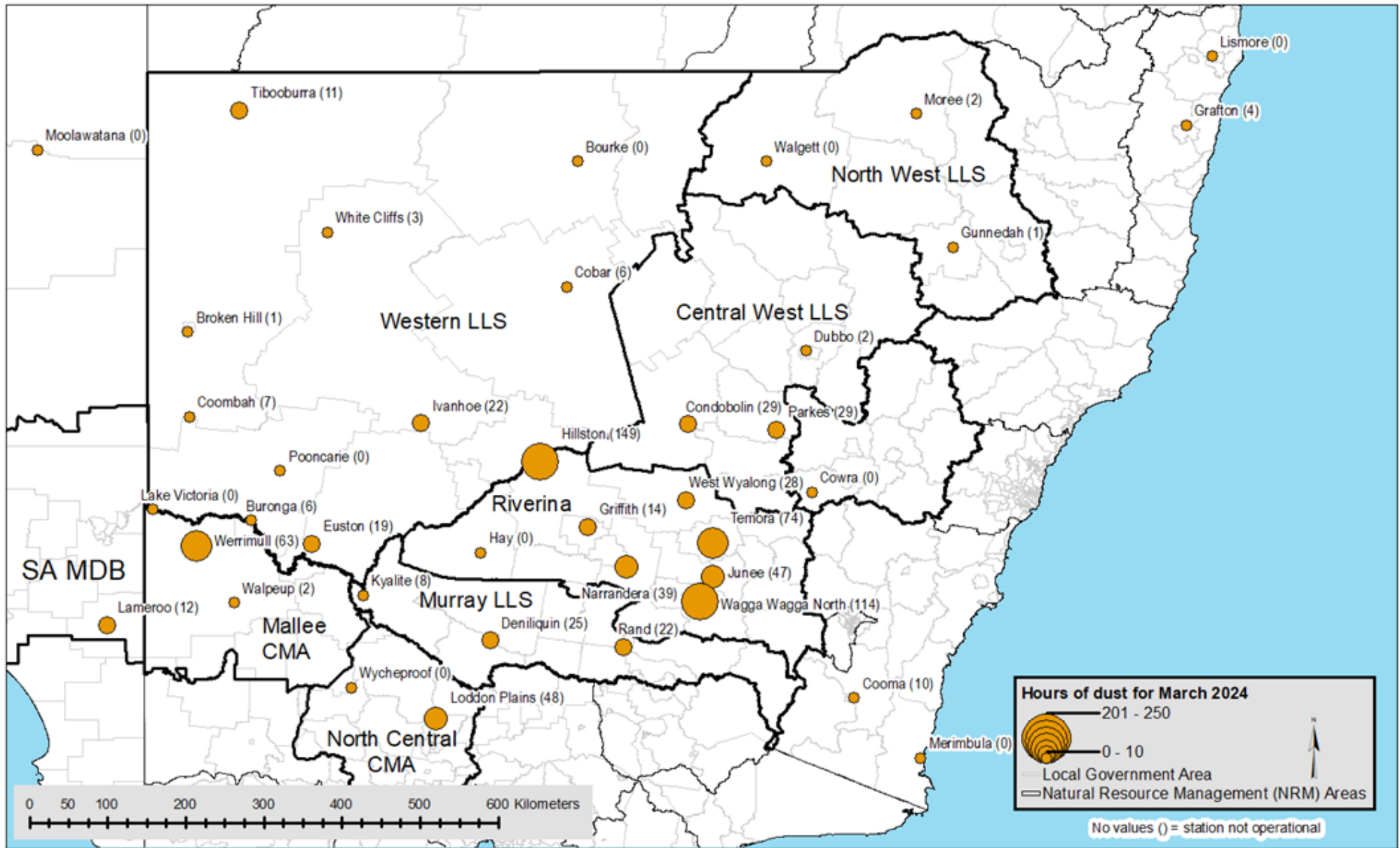


Figure 2 Hours of dust activity (number in brackets) at each DustWatch site in March 2024

Groundcover

The area with greater than 50% groundcover (green and yellow colours in Figure 3) has remained relatively stable in most areas, with noticeable improvements in the Western Local Land Services and South Australian Murray–Darling Basin (Figure 3 and Table 1). These regions recorded increases of 4% and 6%, respectively, while the Mallee Catchment Management Authority also recorded a 2% increase. Groundcover values remained stable or fell by 1% in other regions (Table 1).

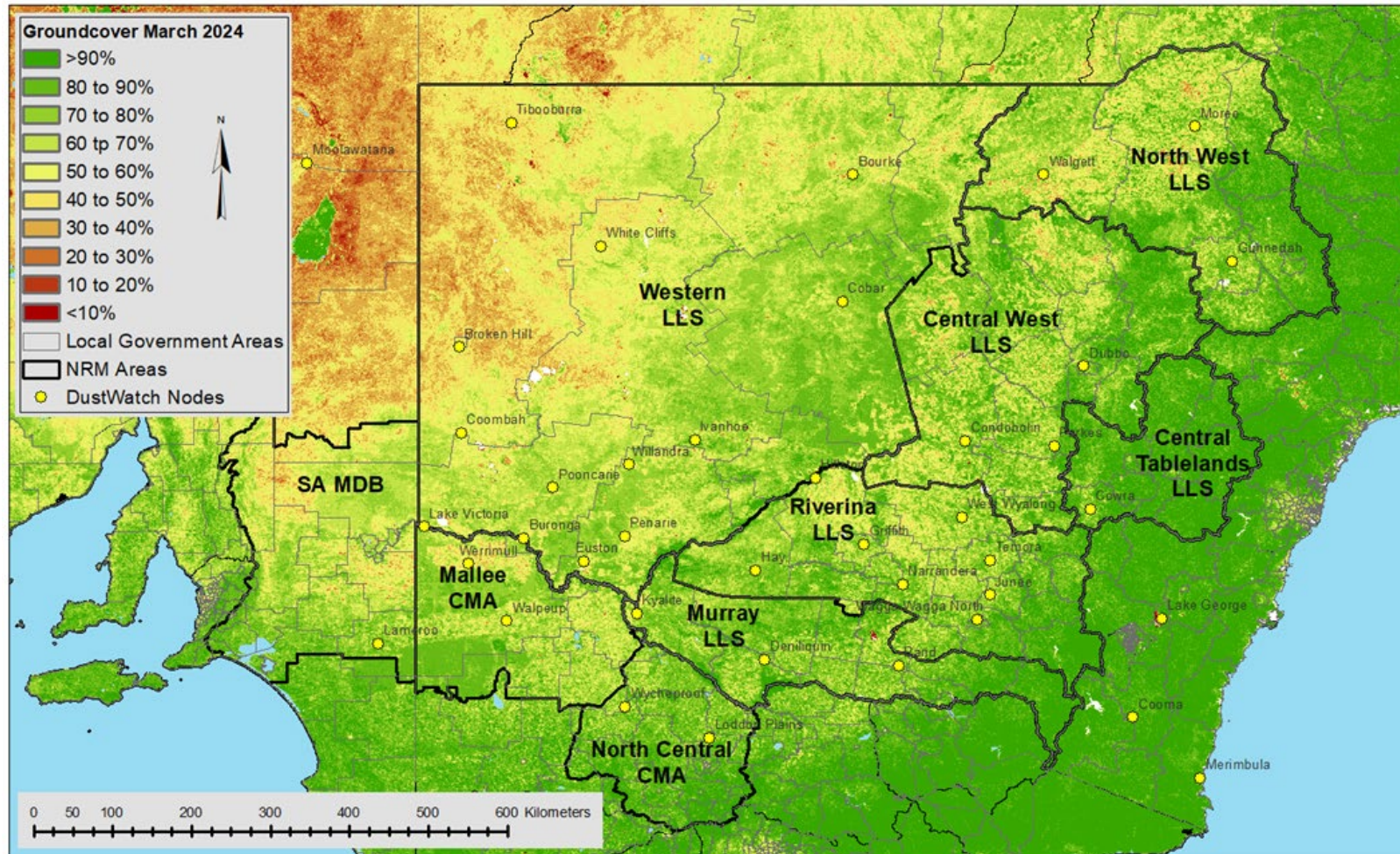


Figure 3 Groundcover for March 2024 as determined from MODIS by CSIRO

Table 1 Percentage of each NRM with cover >50% for April 2023 to March 2024

Date	Central West	Mallee	Murray	North Central	North-West	Riverina	SA MDB	Western	Central Tablelands
Apr 2023	98	97	100	100	97	100	95	83	100
May 2023	99	97	100	100	98	100	97	86	100
Jun 2023	100	99	100	100	99	100	98	90	100
Jul 2023	100	100	100	100	98	100	98	90	100
Aug 2023	99	100	100	100	97	100	97	87	100
Sep 2023	99	100	100	100	96	100	95	78	100
Oct 2023	98	99	100	100	95	100	92	71	100
Nov 2023	98	99	100	100	96	100	92	71	100
Dec 2023	96	95	100	100	94	99	81	64	100
Jan 2024	97	90	99	100	93	99	81	66	100
Feb 2024	96	92	99	100	93	98	81	73	100
Mar 2024	95	94	99	100	93	97	87	77	100

Groundcover change

Significant groundcover improvements (green colours in Figure 4) are visible from east of Wilcannia through to south-west Queensland, Lake Frome and Lake Callabonna in South Australia and Narran Lake between Walgett and Bourke. This is likely the result of average to above-average rainfall in the 3 months to the end of March 2024, including good falls in early February. Patchy improvements are present along the Darling River Corridor, including lakes along the Great Darling Anabranh, areas of the north-west, Central West and Riverina Local Land Services. Sparse groundcover reductions (orange colours in Figure 4) are visible in parts of the wheat/sheep belt. This reduction is also shown for March in Figure 5.

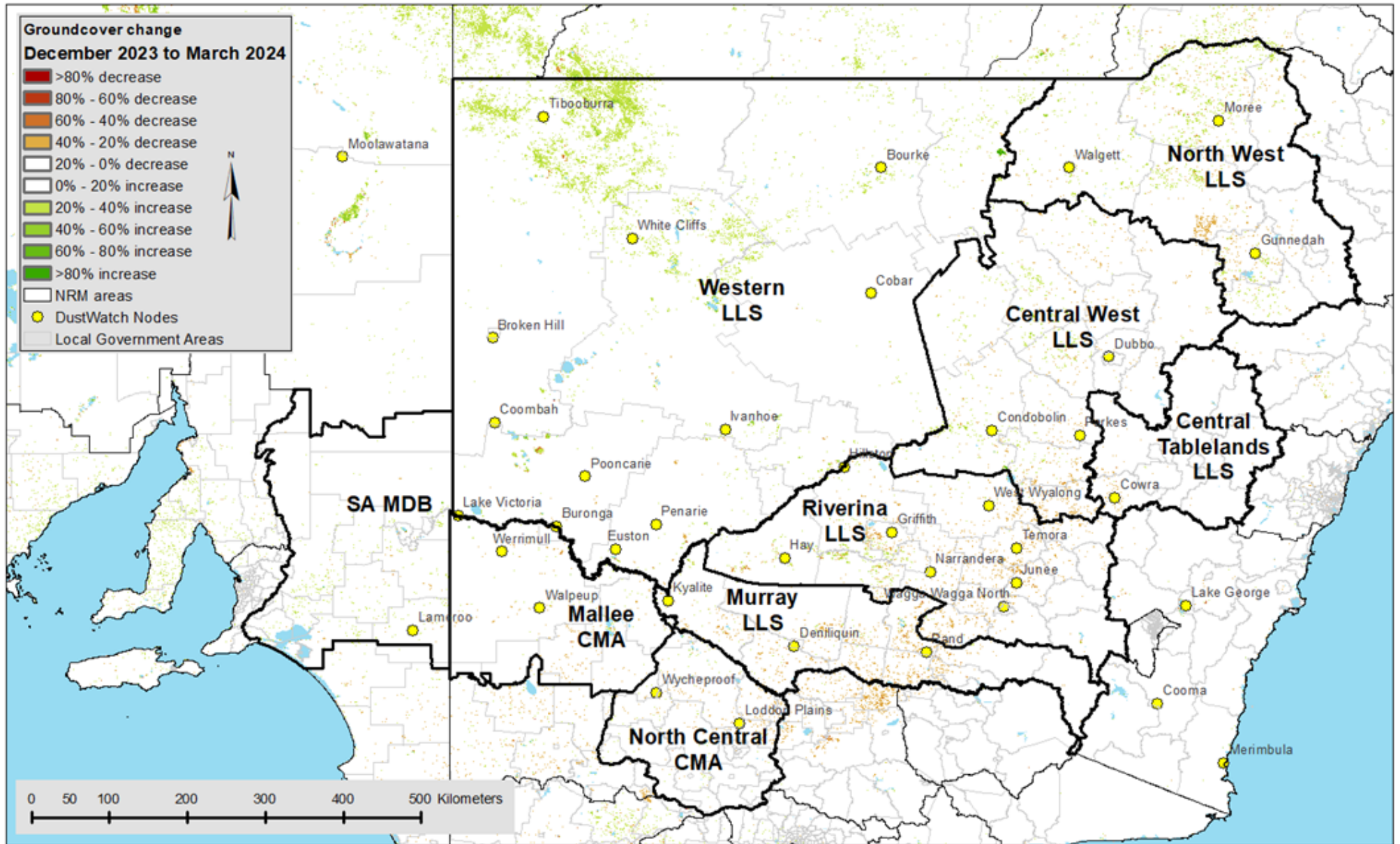


Figure 4 Groundcover difference between December 2023 and March 2024

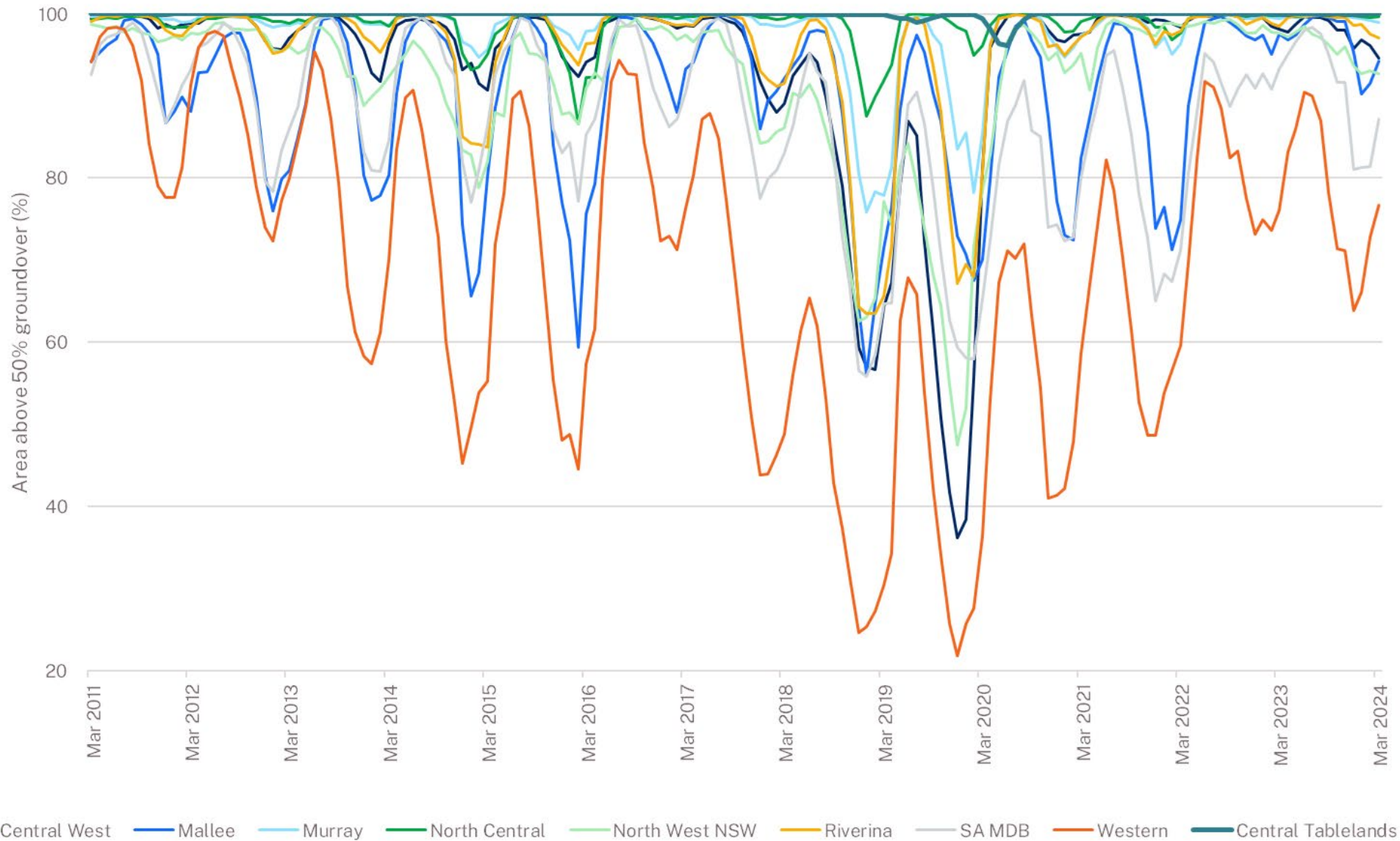


Figure 5 Area (%) of NRM with more than 50% cover since March 2011

Rainfall

Total rainfall in March generally ranged between 10 to 100 mm in the northern inland and between 0 to 25 mm in the southern inland (Figure 6). Rainfall deciles were average to below average for most parts of the state, while areas in the north-west recorded above-average rainfall (Figure 7a). Most noticeable is the decrease in rainfall in the south-west part of the state compared to February 2024, with some areas recording less than 1 mm of rainfall. Most of the state had average to very high rainfall in the 3 months leading up to the end of March, but the north-east third of the state had below-average rainfall (Figure 7b).

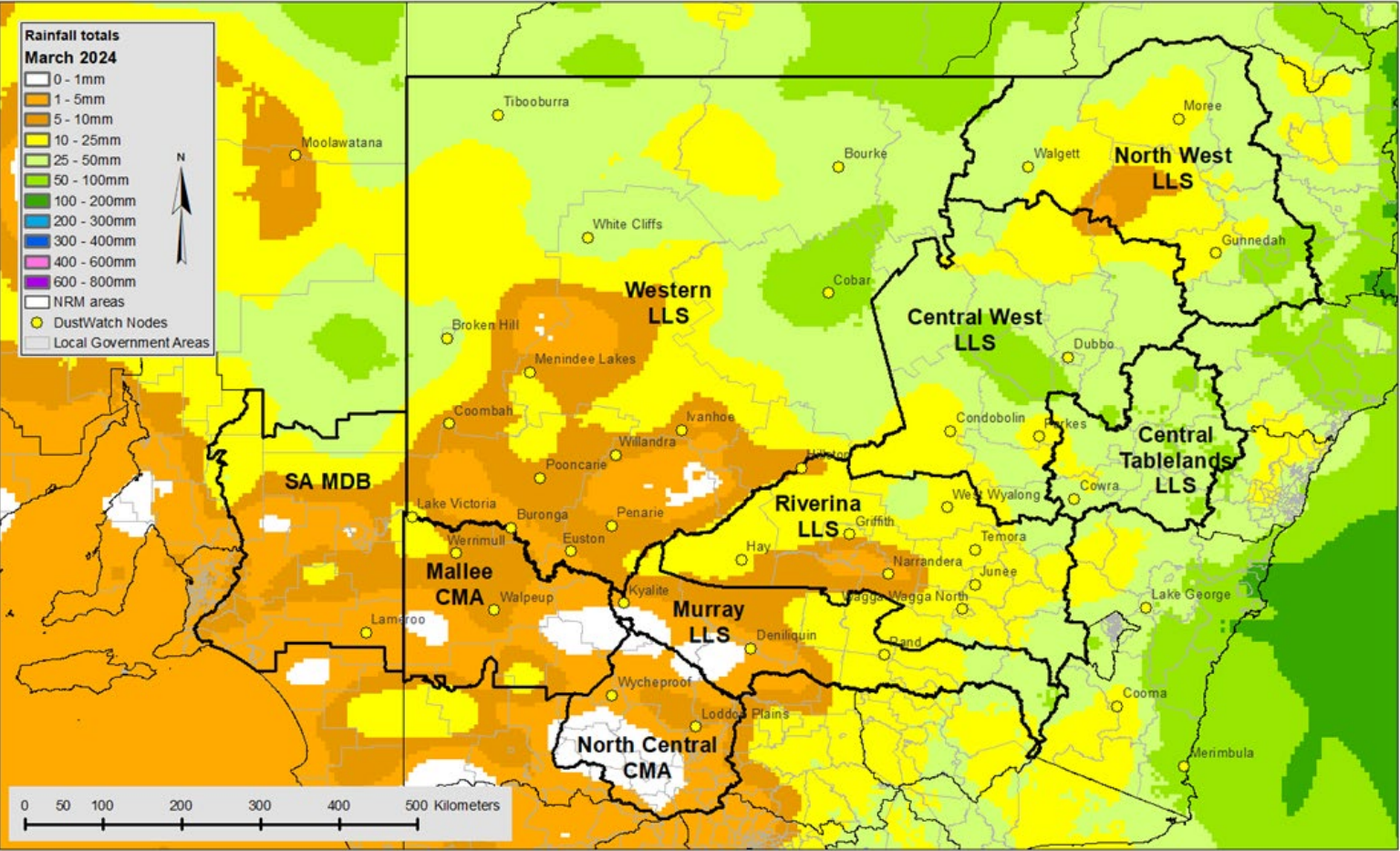


Figure 6 Rainfall totals for March 2024 (source: Bureau of Meteorology)

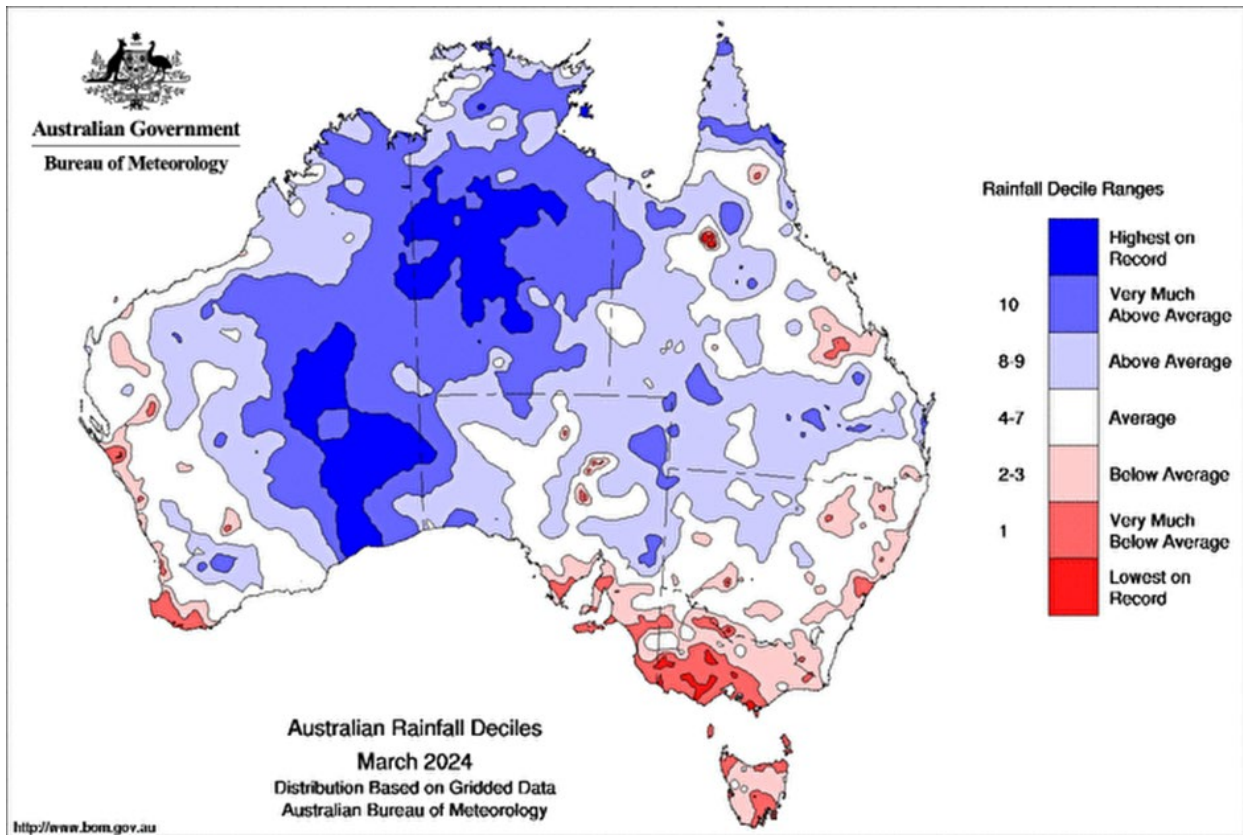


Figure 7(a) Rainfall deciles for March 2024

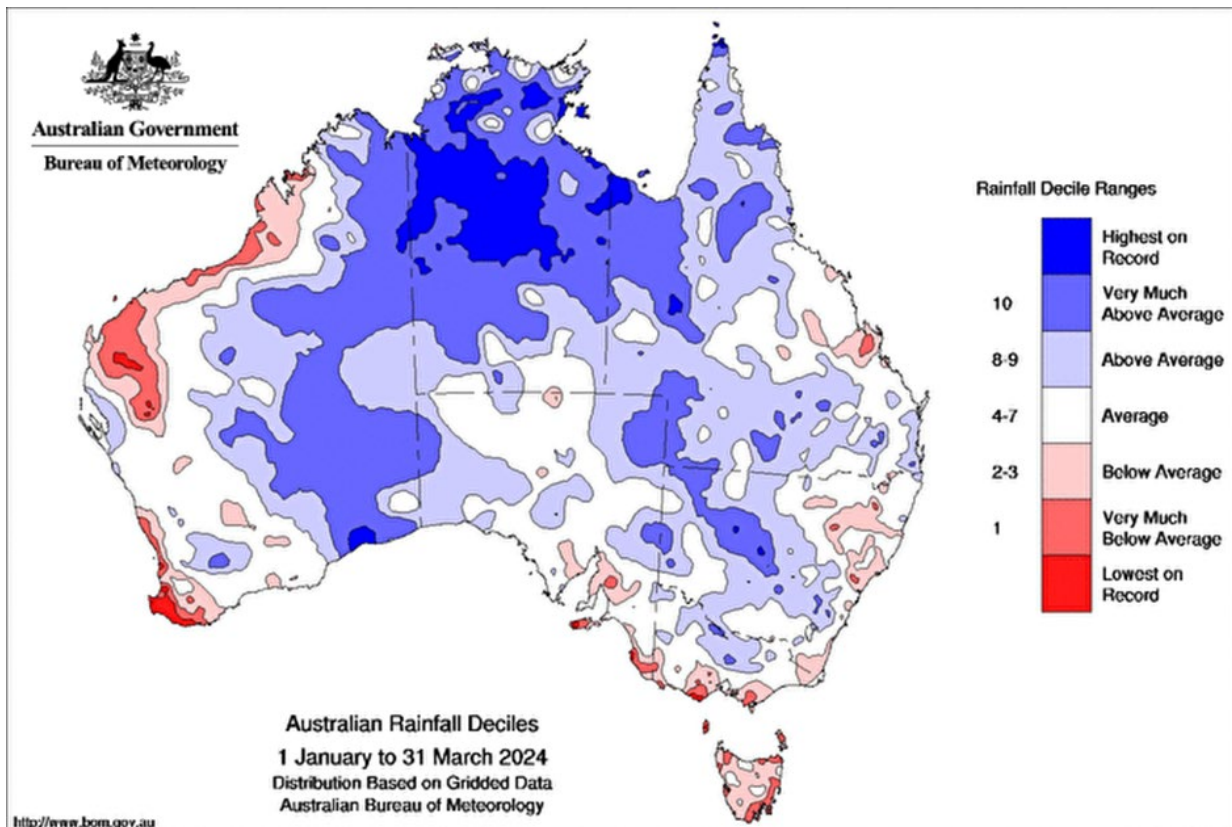


Figure 7(b) Rainfall deciles for 1 January 2024 to 31 March 2024

VIIRS fires and satellite image

Haze from smoke and dust is difficult to separate. We use satellite imagery to classify every measurement into dust or smoke manually. The satellite detected 5,461 hot spots (375 m pixel with temperature anomalies) in March 2024 (Figures 8 and 9), a 255% increase from the 1,538 hot spots detected in February 2024.

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

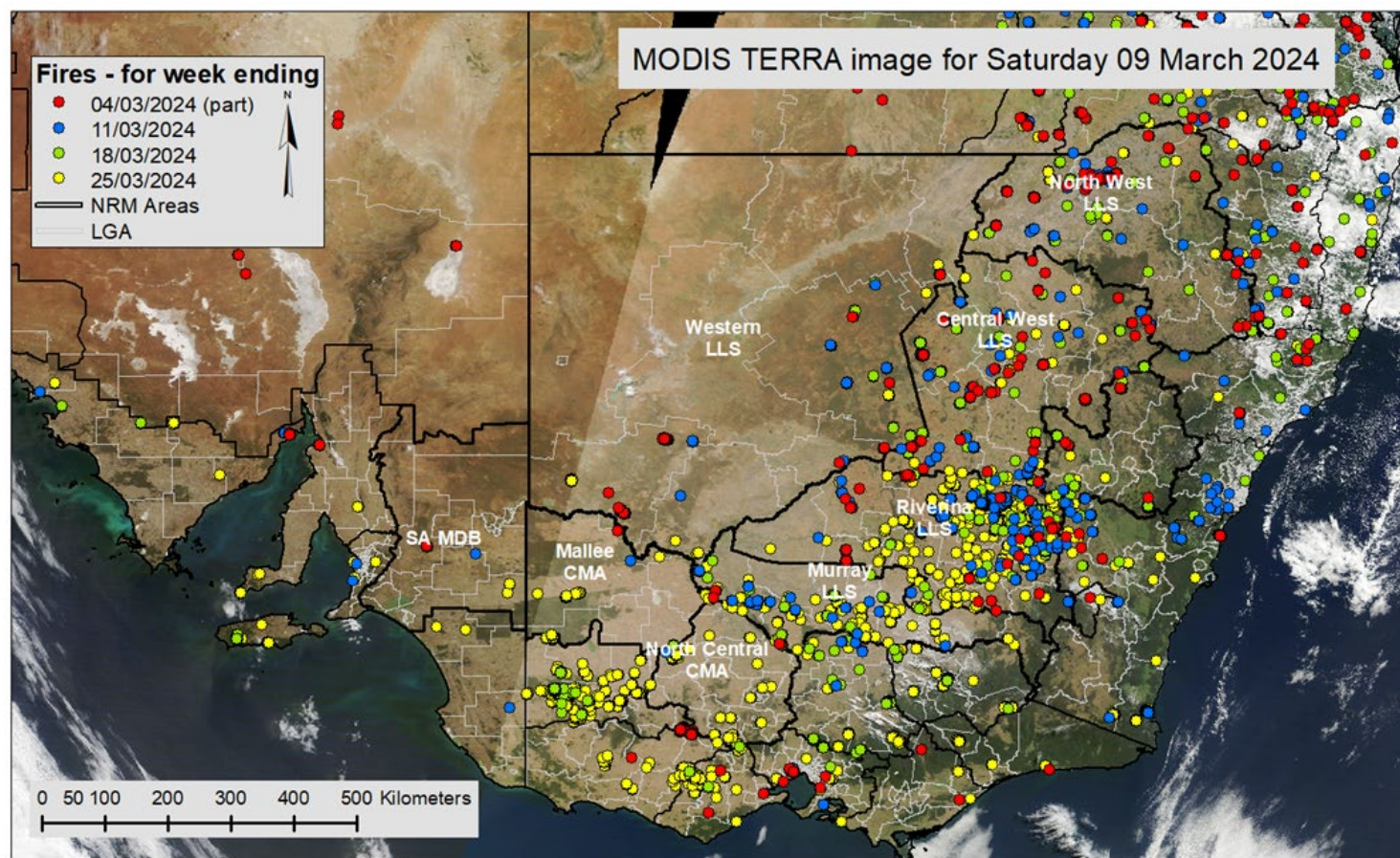


Figure 8 Pixels (375 m) with active burning fires in March 2024 as determined from VIIRS satellite

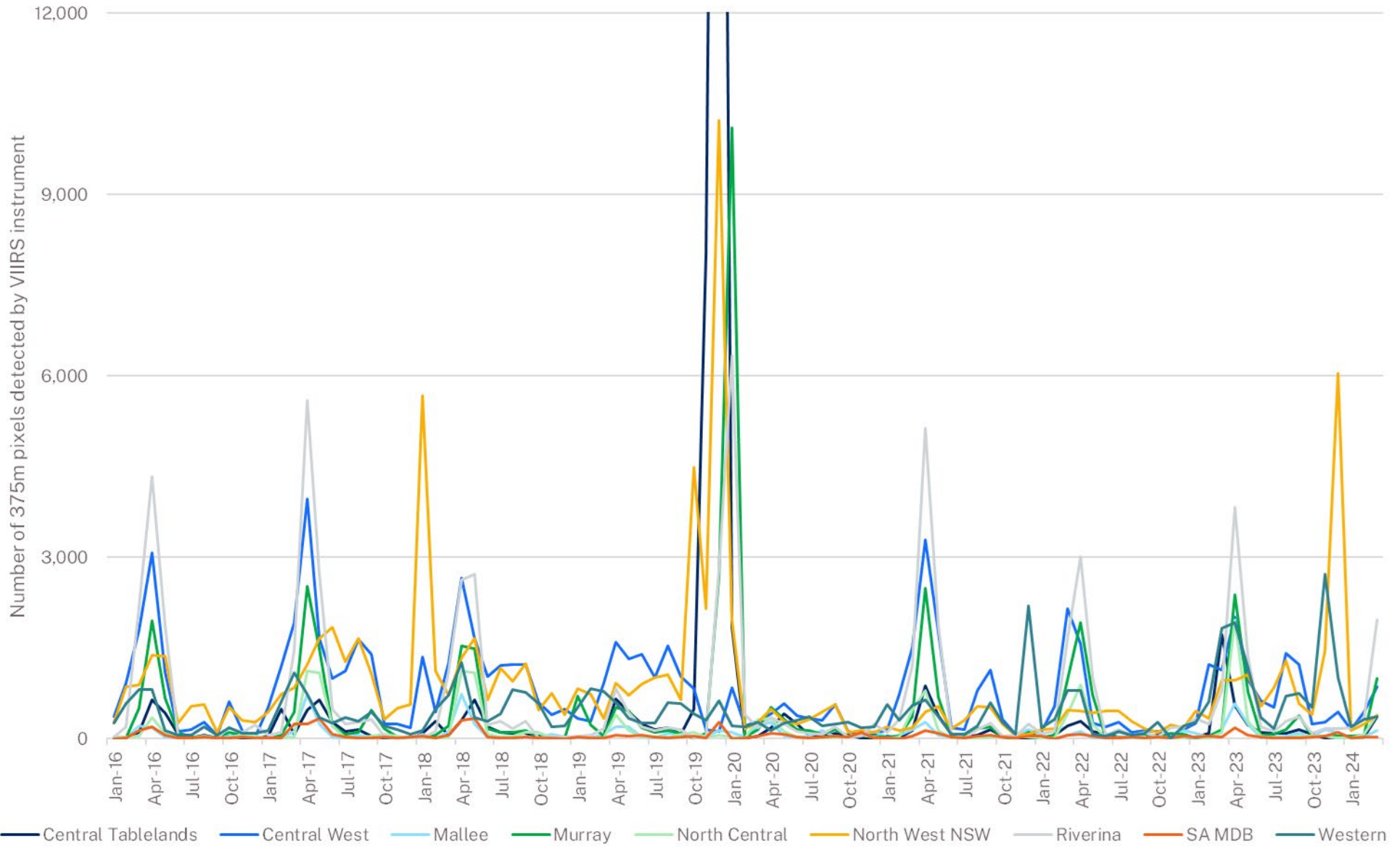


Figure 9 Number of 375 m pixels with active burning fires between January 2016 and March 2024

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