

Community-based wind erosion monitoring across Australia

Dust activity	Significant decrease in dust; above average for April
Wind strength	Decrease from March, average for April
Groundcover	Slight increase in most regions
Rainfall	Wetter than average for most of the state

Dust activity

At long-term sites, dust activity averaged 8.1 hours in April 2024. This is almost half of what was observed in March and is slightly above the average for April. Dust was most prominent through the Riverina, Murray, North Central and Mallee regions, though dust totals shown in Figure 2 were generally lower than those in March. The decrease in dust is likely due to wetter-than-average conditions for much of the state (Figure 7a), leading to a slight increase in groundcover in most regions (Table 1). Average windspeeds are unlikely to have promoted dust transport (Figure 1).

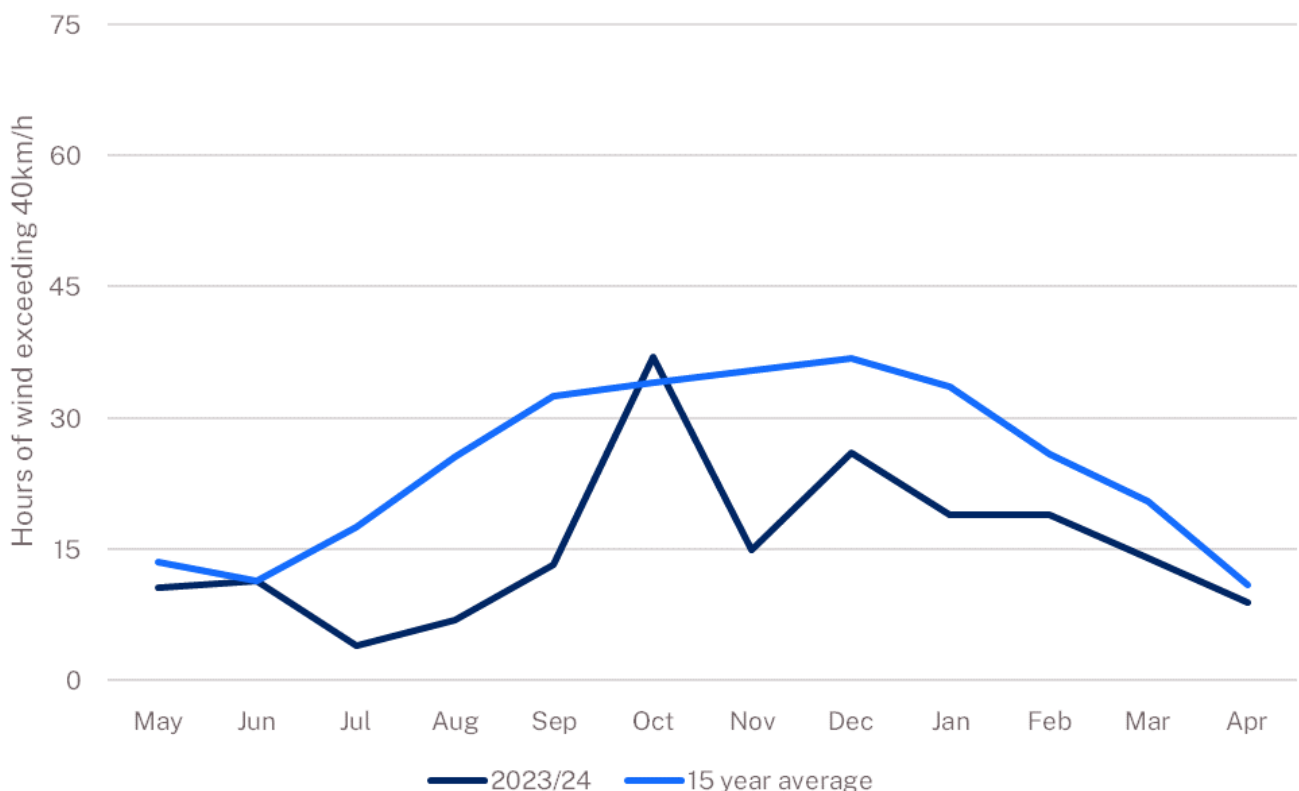


Figure 1 Hours of wind exceeding 40km/h – average across all sites

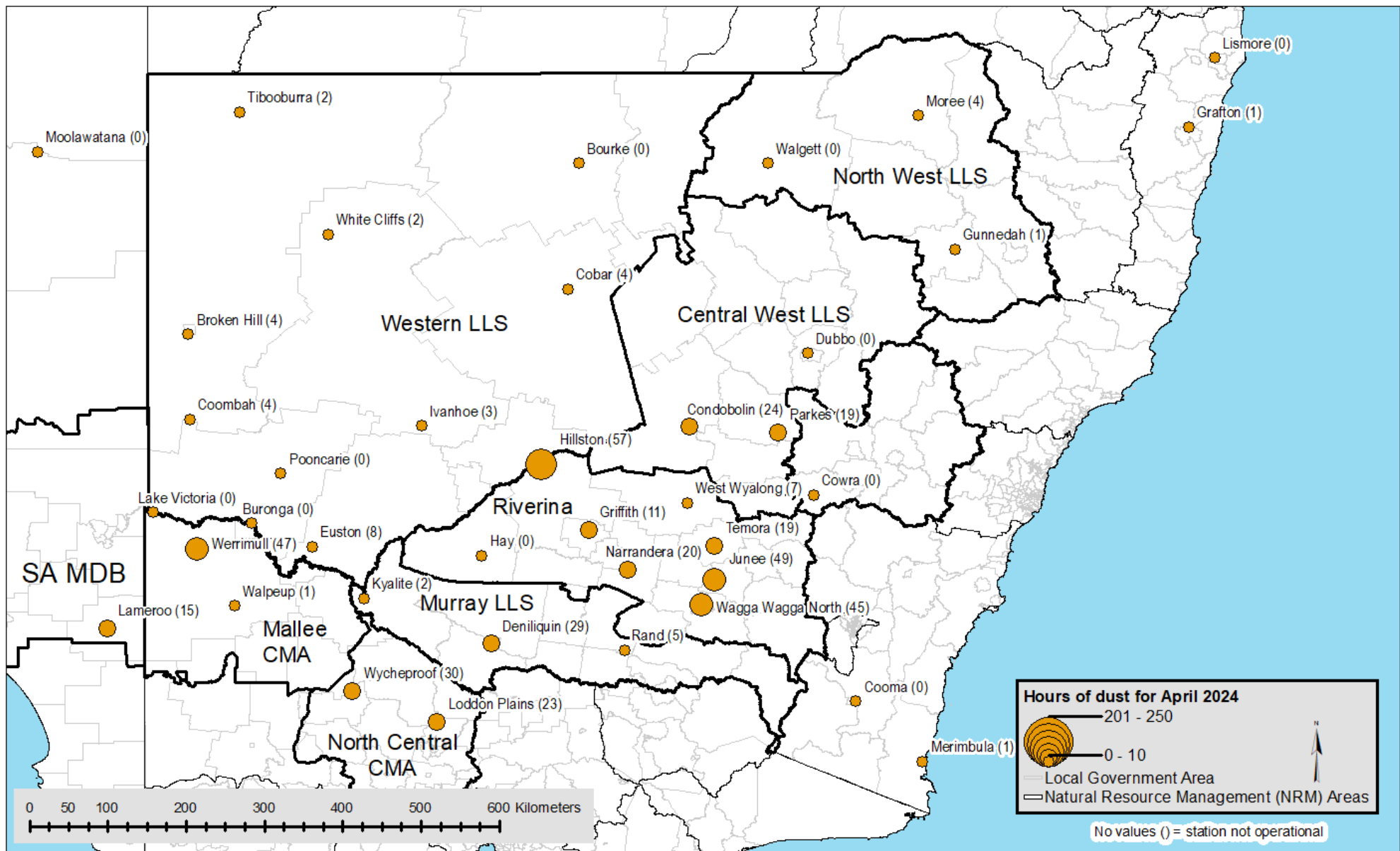


Figure 2 Hours of dust activity (number in brackets) at each DustWatch site in April 2024

Groundcover

The area with greater than 50% groundcover (green and yellow colours in Figure 3) has further increased around Tibooburra and the South Australian and Queensland rangelands. Isolated pockets of extremely low groundcover around Ivanhoe may indicate the preparation or use of ephemeral lakes for cropping (Figure 4). Groundcover in most regions was either stable or increased by 1-2%. The Murray Local Land Services region was the only region to observe a groundcover reduction (1%) in April 2024 (Table 1).

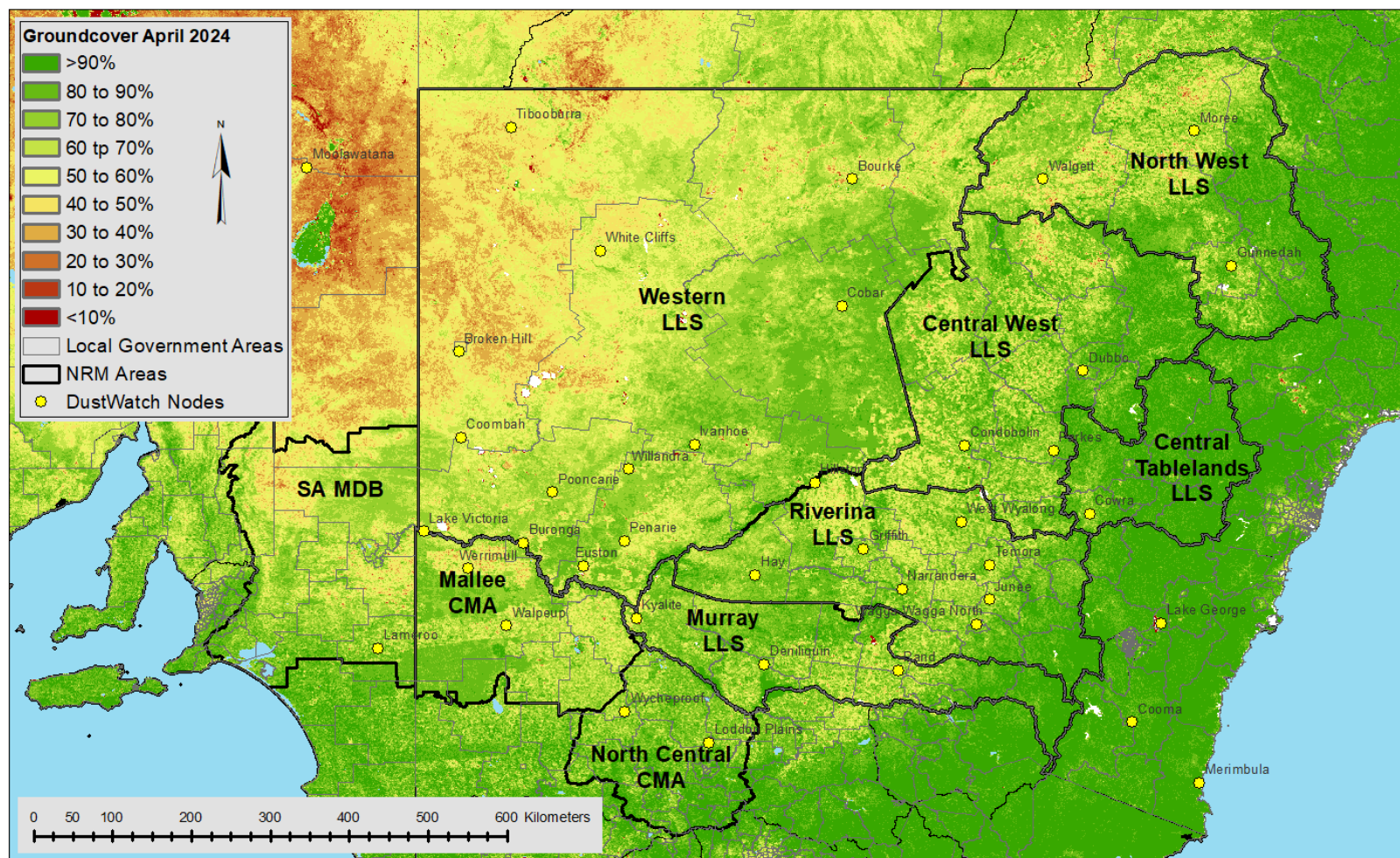


Figure 3 Groundcover for April 2024 as determined from MODIS by CSIRO

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

Date	Central West	Mallee	Murray	North Central	North West	Riverina	SA MDB	Western	Central Tablelands
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
Apr 2024	96	94	98	100	95	98	89	78	100

Groundcover change

Significant groundcover improvements (green colours in Figure 4) are visible in a band from the South Australian and Queensland rangelands to near Wilcannia in the Western Local Land Services. Improvements continue to be evident in patchy areas along the Darling River Corridor and areas of the north-west Local Land Services. These improvements are likely due to above-average rainfall in the Western Local Land Services in the 3 months to the end of April 2024, and above to very much above-average April rainfall in the north-west Local Land Services. Groundcover reductions (orange and red in Figure 4) are visible in Figure 4 in the wheat/sheep belt, particularly in the Riverina and Murray Local Land Services regions. Changes in groundcover are also shown for April 2024 in Figure 5, reflecting continued marginal improvements in groundcover for most regions.

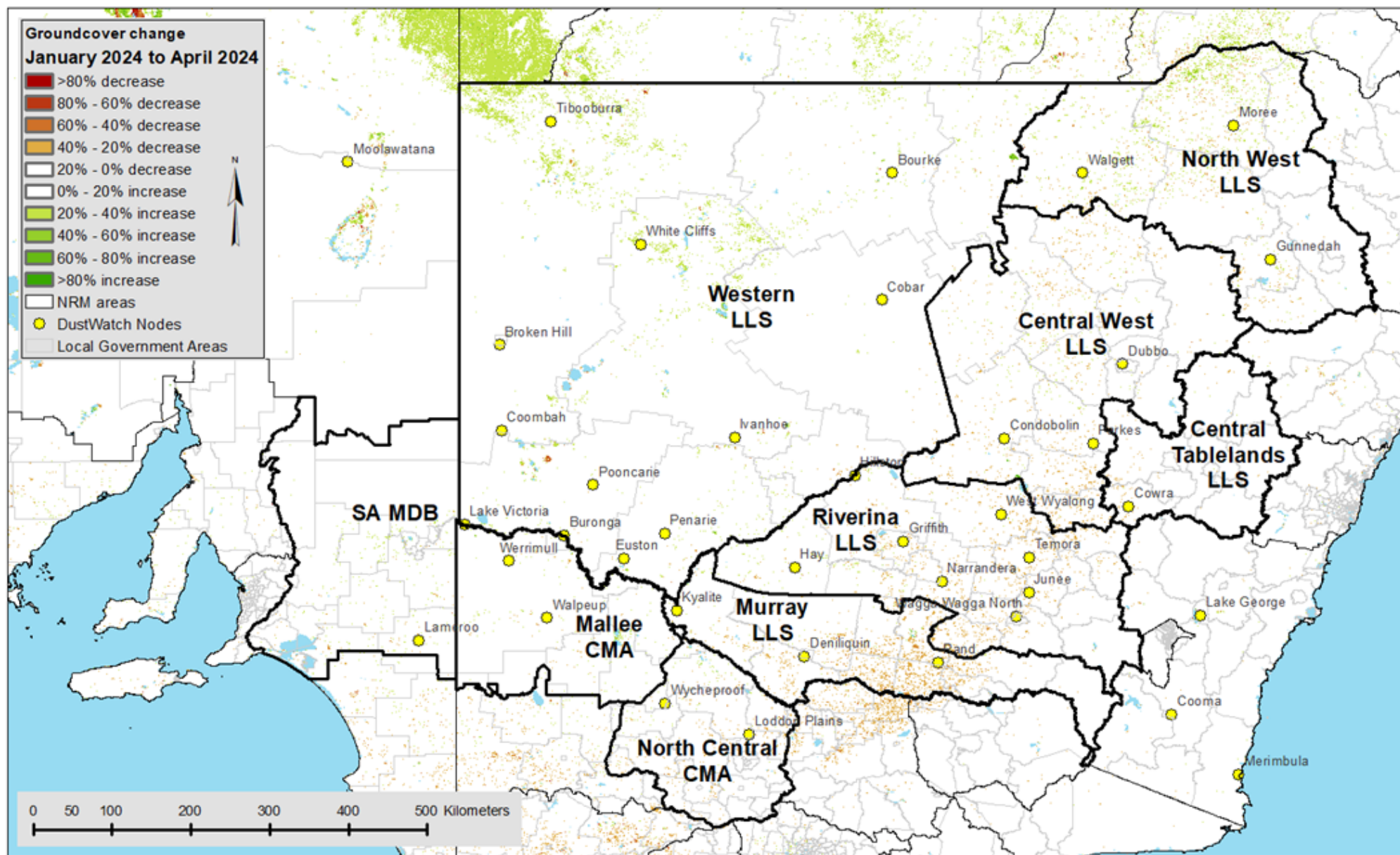


Figure 4 Groundcover difference between January 2024 and April 2024

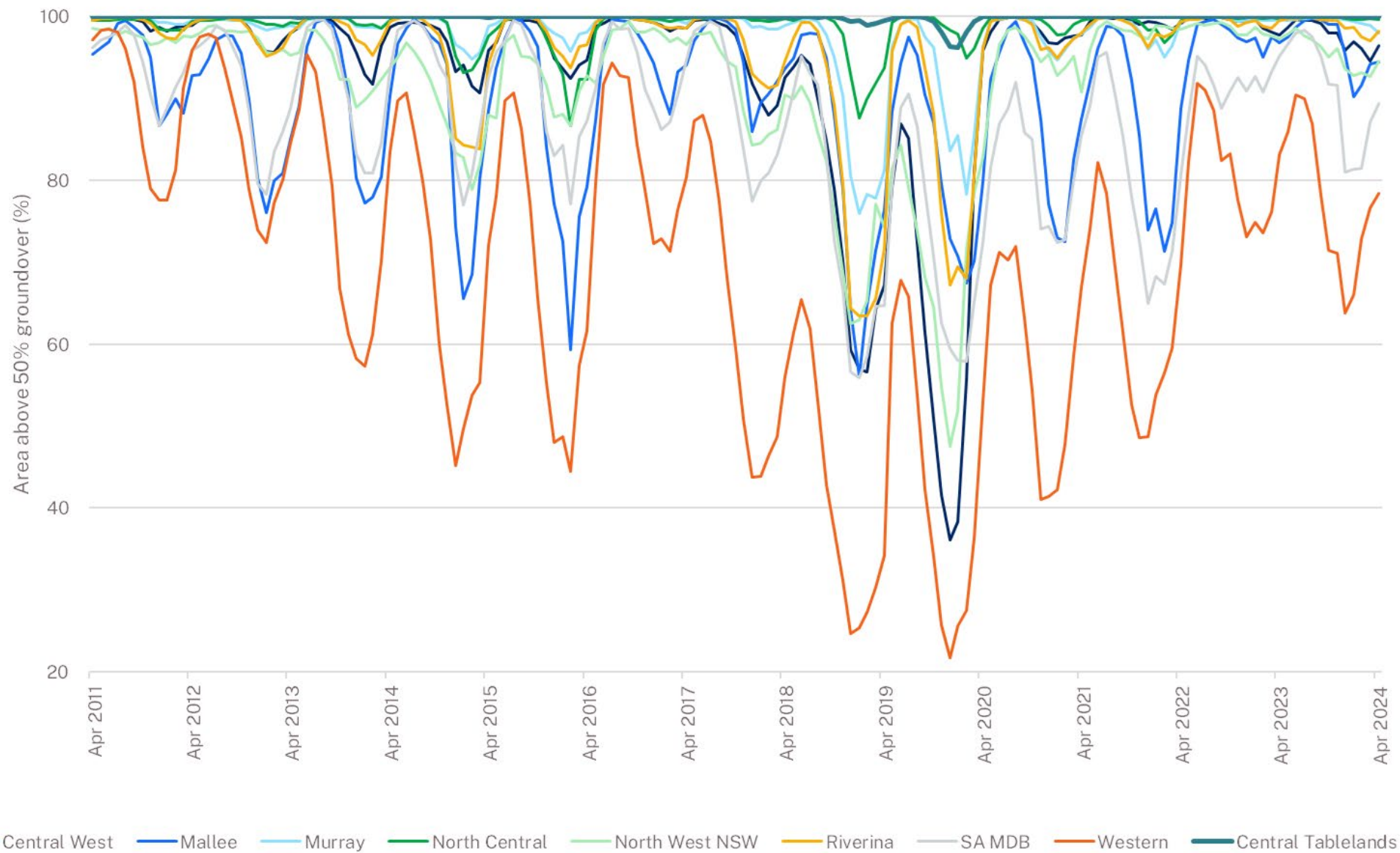


Figure 5 Area (%) of NRM with more than 50% cover since April 2011

Rainfall

Across the state, April rainfall totals generally ranged from 400 mm along the coast to less than 1 mm in Western Local Land Services areas, with higher totals compared to March 2024 in the eastern half of the state and lower in the west (Figure 6). Most of the state had above-average rainfall, especially in the east, while parts of western New South Wales had average to below-average rainfall (Figure 7a). In the 3 months to the end of April, rainfall was average for most of the state, with generally above average falls recorded in a narrow band from the Central Tablelands Local Land Services to the far north-west. Patchy areas of below average rainfall were recorded in areas adjacent to the Victorian border in the 3 months to the end of April 2024 (Figure 7b).

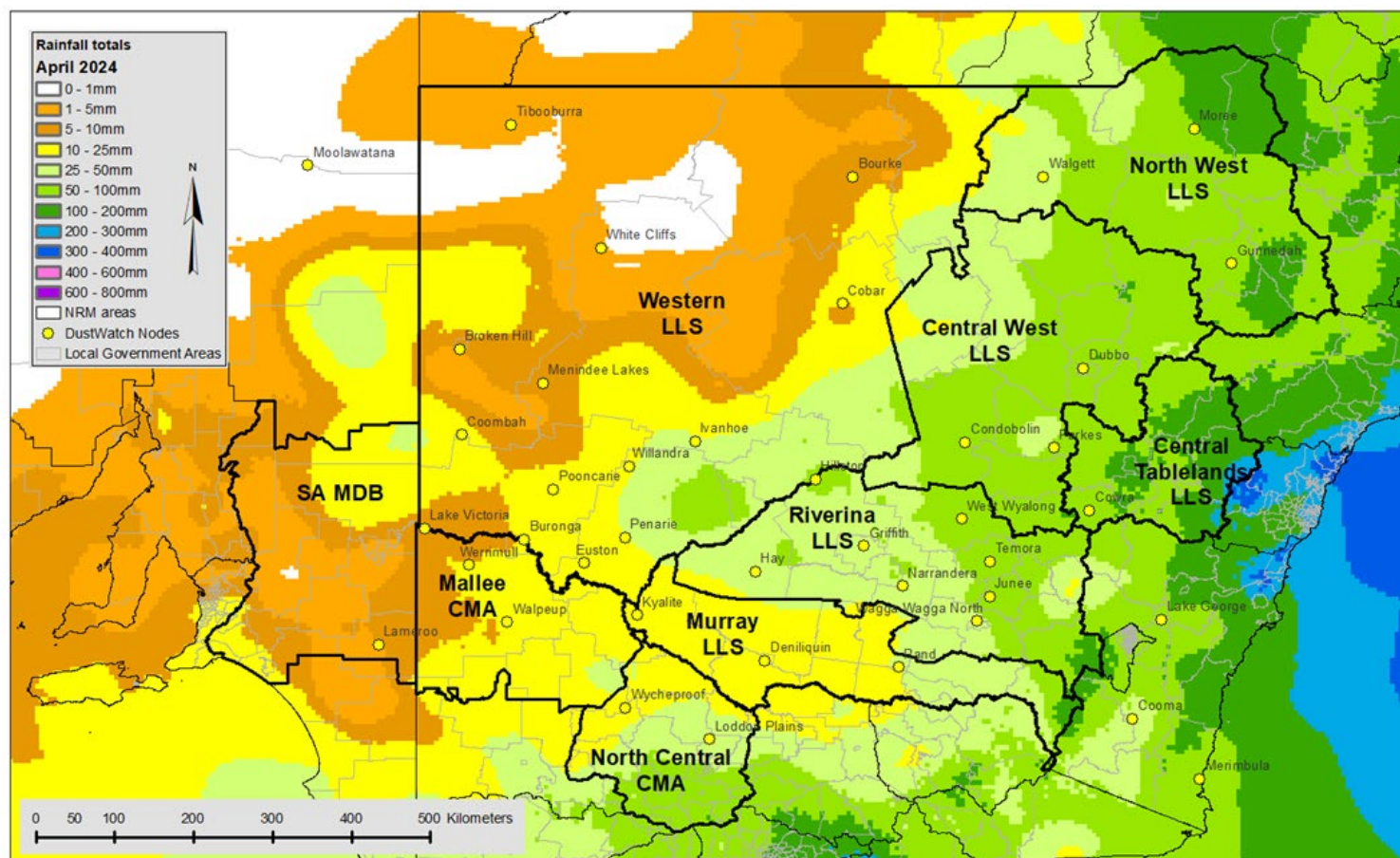


Figure 6 Rainfall totals for April 2024 (source: Bureau of Meteorology)

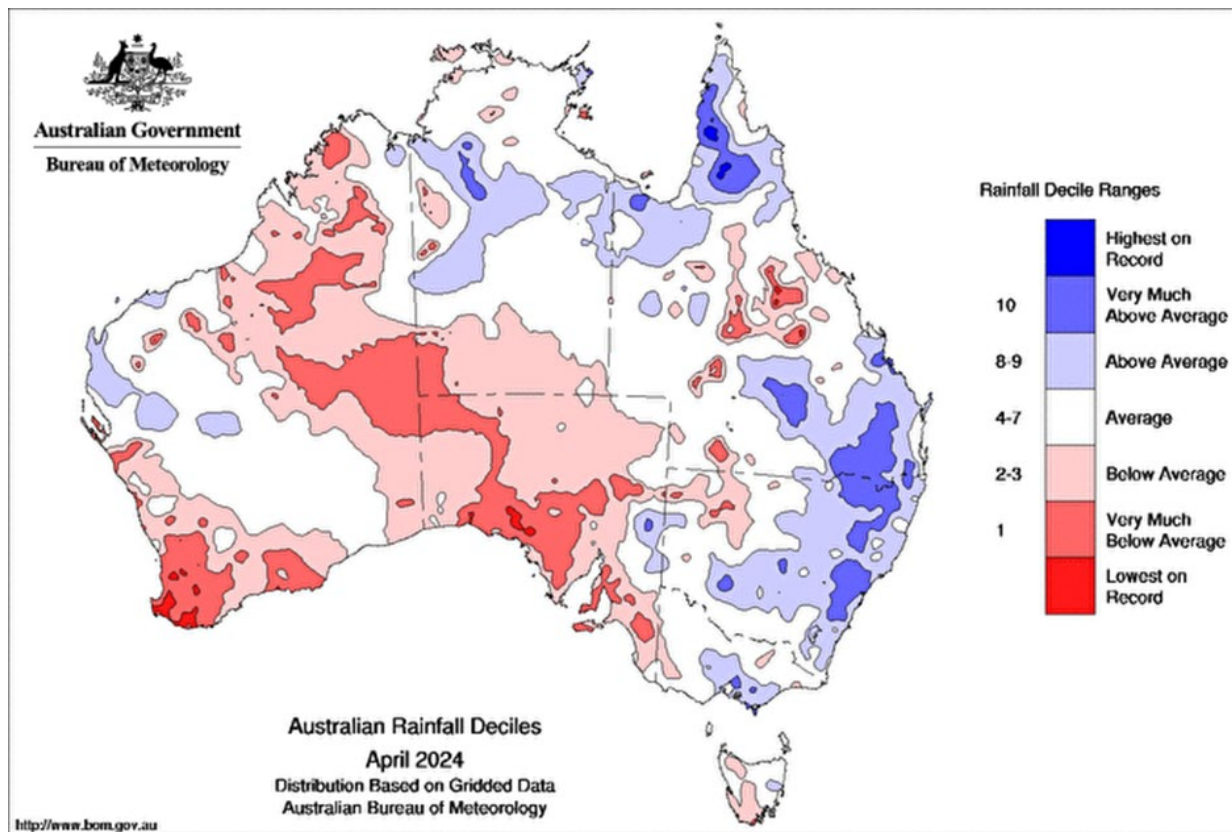


Figure 7(a) Rainfall deciles for April 2024

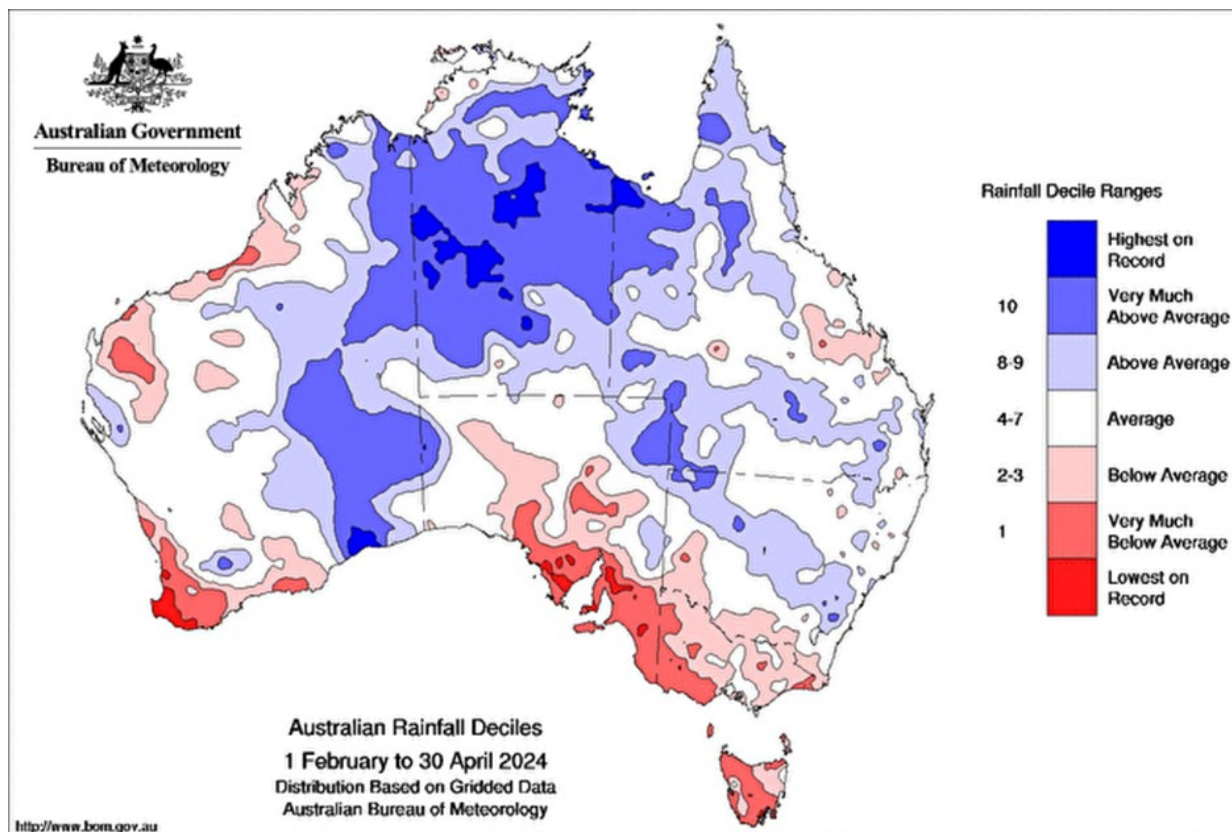


Figure 7(b) Rainfall deciles for 1 February 2024 to 30 April 2024

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 9,741 hot spots (375 m pixel with temperature anomalies) in April 2024 (Figures 8 and 9), a 78% increase from the 5,461 hot spots detected in March 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

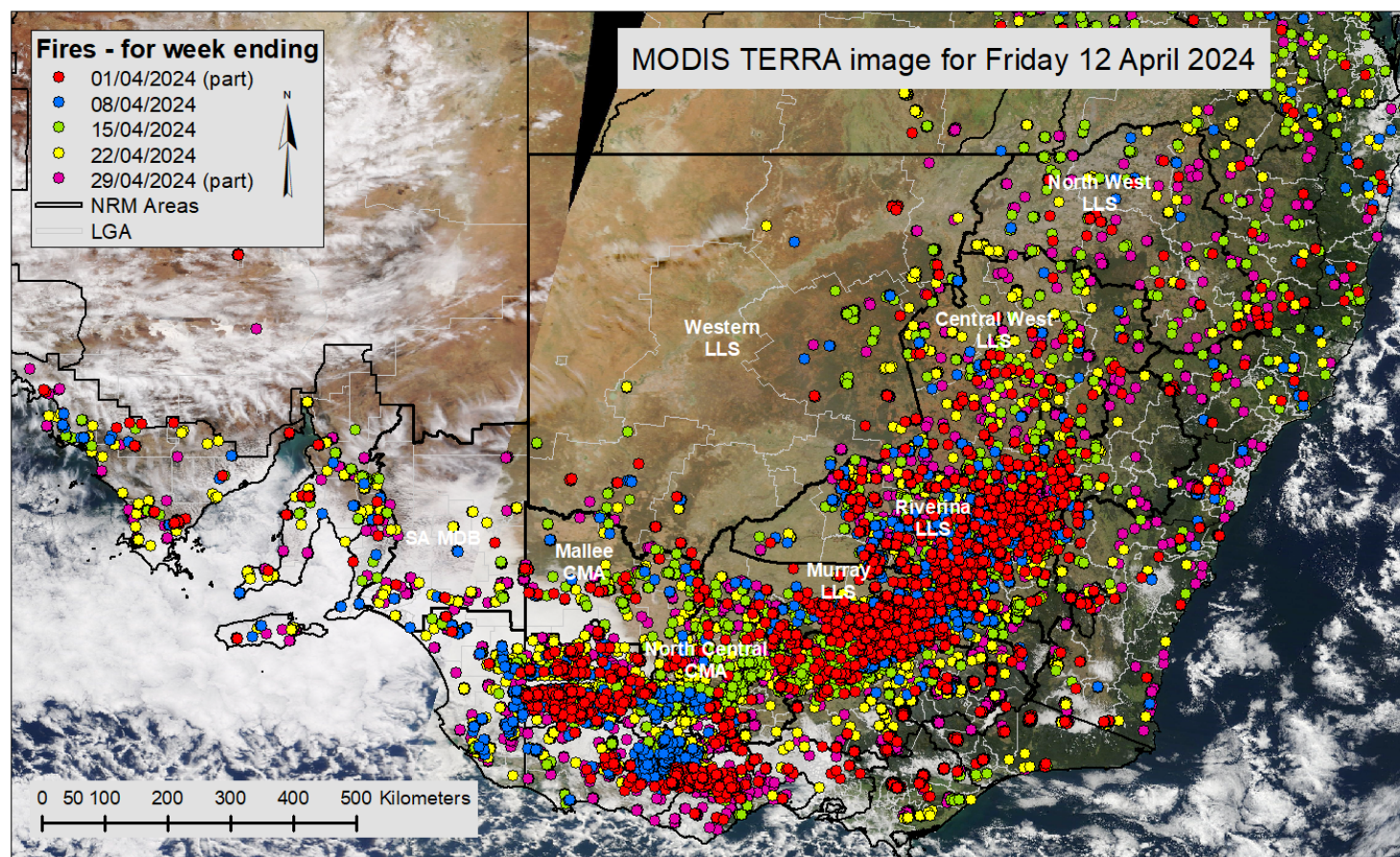


Figure 8 Pixels (375 m) with active burning fires in April 2024 as determined from VIIRS satellite

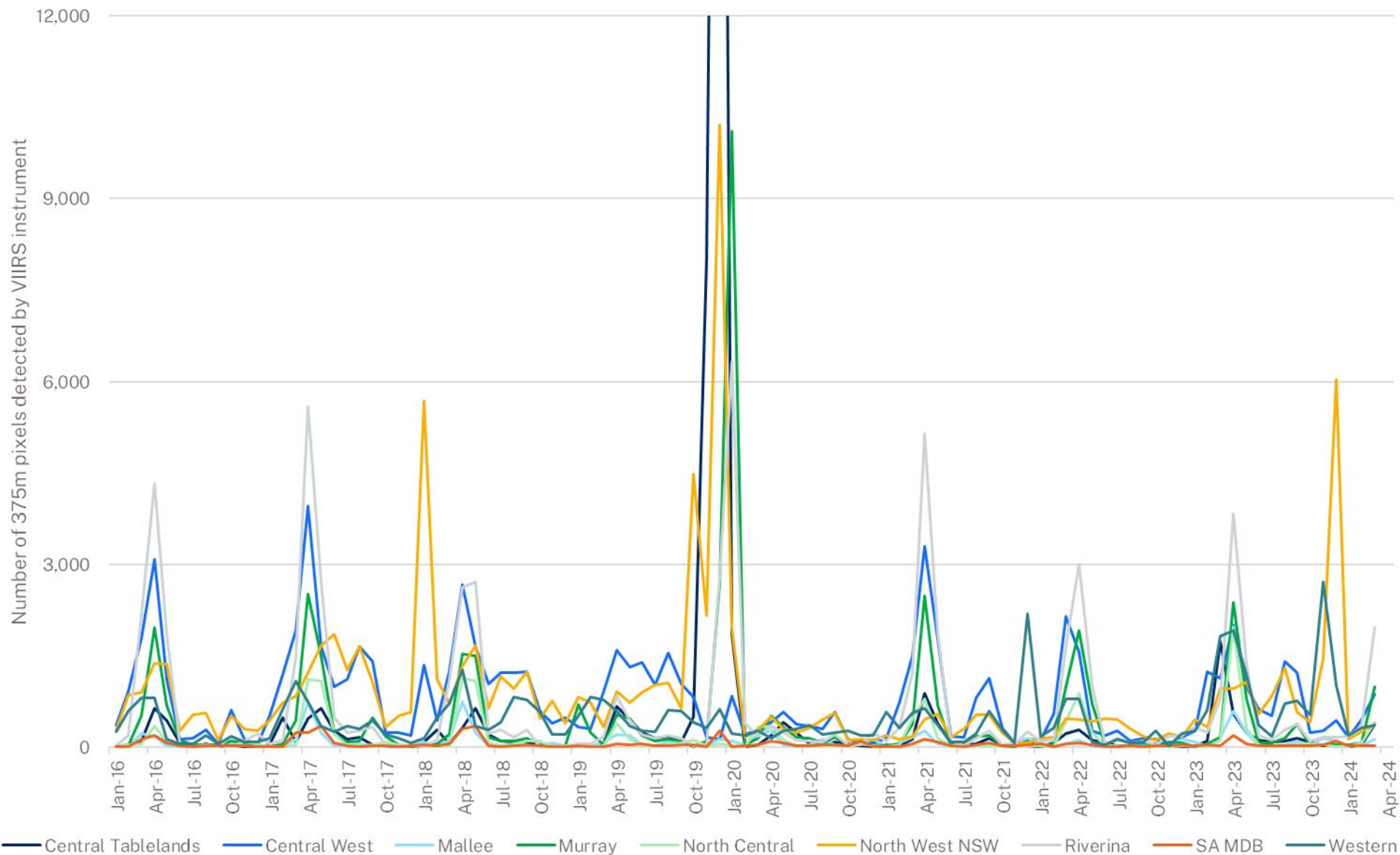


Figure 9 Number of 375 m pixels with active burning fires between January 2016 and April 2024

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Dust data is supplied by the Department of Climate Change, Energy, the Environment and Water's Rural Air Quality Monitoring 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 or in-kind contributions from: Western and Murray Local Land Services (LLS) in NSW; the Mallee and North Central catchment management authorities in Victoria and Murray Darling Basin NRM in South Australia, CSIRO and the Australian National University. We particularly thank our many DustWatch volunteers who provide observations and help maintain the instruments.

ISSN 2206-3161 EH 2024/0004 October 2024