Dust activity

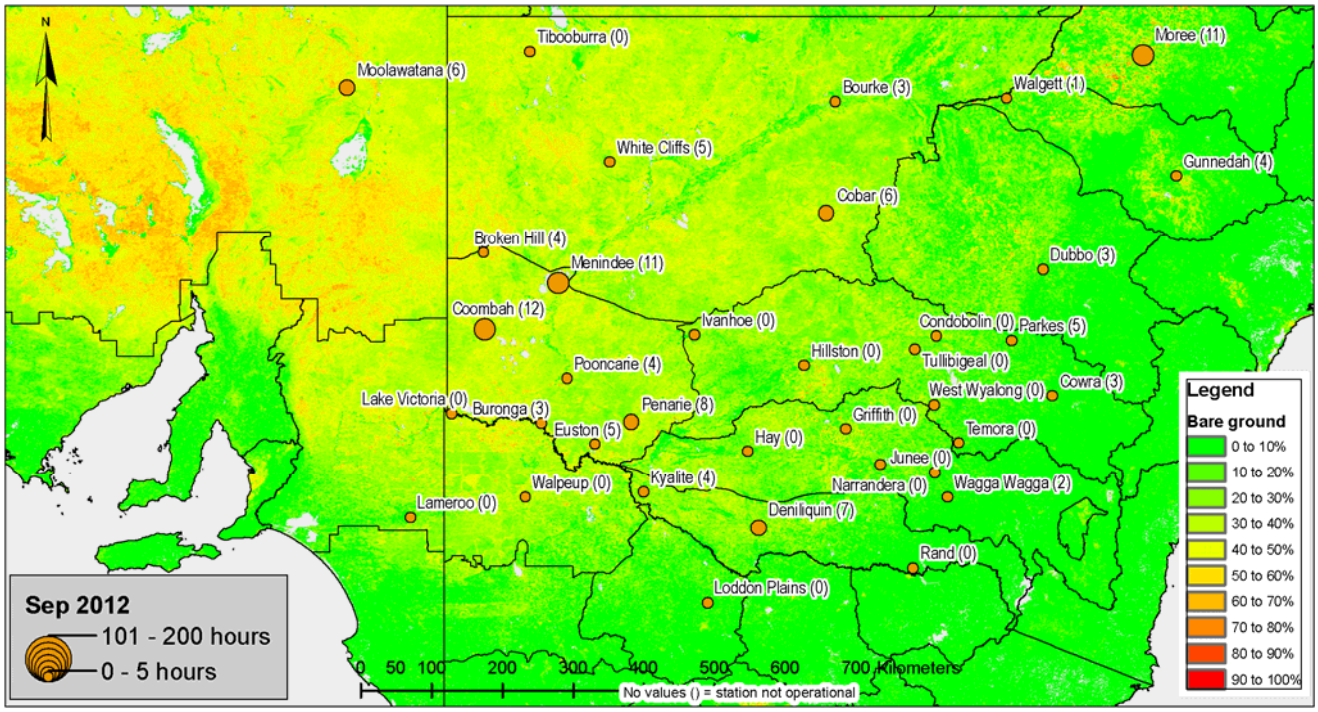
for September 2012 OEH 2012/0835

There were four dust events in September 2012 with several DustWatch Nodes (DWN) exceeding five hours of dust (Figure 1) These dust events were unexpected because there is substantial ground cover due to extensive rain in 2010 and 2011. It indicates that thresholds for ground cover are being approached in some areas.

Two of the events (5 September; overnight 27-28 September) affected most of NSW. They were driven by strong (40-50km/h) to very strong (50-60km/h) westerly and pre-frontal northerly winds. Dust levels were around the moderate haze limit (visibility 5-10km) for most DWN. A severe haze (visibility 1-5km) affected White Cliffs, Menindee, Cobar and Parkes on 5 September, and Menindee and Deniliquin on 27-28 September.

The other two events (17 September; 20 September) were more localised. They occurred when moderate northerly winds (20-30km/h) caused a moderate haze at Walgett, Moree, Bourke and Cobar.

Figure 1. Hours of dust recorded for September 2012 at each DustWatch Node and bare ground estimate from satellite data



Dust affected three areas in NSW in September 2012.

Dust from rangelands

Most of the rangelands are still in very good condition. However, some areas, particularly to the south and west of Lake Frome in South Australia (circled in Figure 2), have reached critical cover. They are emitting dust at moderate to strong wind speeds. These areas are in the driest 10 percent of BoM records for the past six months (Figure 5). Therefore, dust emissions are predominantly driven by climate, although grazing management is also contributing. They are the likely source of regional dust and the high number of hours of dust in Coombah, Broken Hill and Menindee.

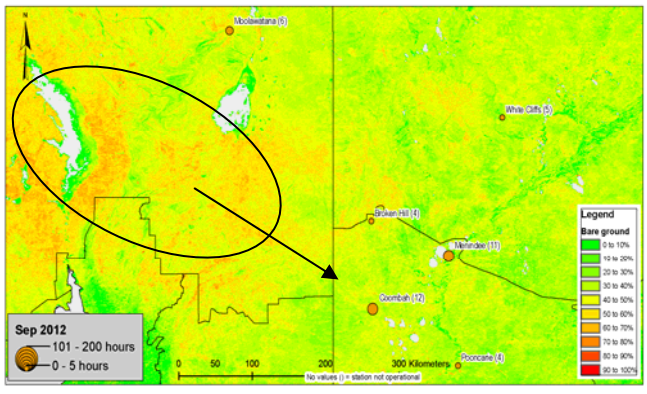


Figure 2. Areas of low cover (orange to red colour) south and west of Lake Frome for September 2012

Dust from the north eastern cropping areas

Both irrigation and dryland paddocks in the north eastern cropping areas are being prepared for summer crops (Photo 1). Rainfall in these areas has been average for the past six months (Figure 5) so dust emissions are predominantly controlled by management; that is, cultivation prior to summer planting which reduces cover.

Photo 1. Bare paddocks near Bourke – 23 October 2012. Photo S. Heidenreich, OEH

Dust from the south western cropping areas

Since April 2012, rainfall in south western NSW has been well below average with some areas in the driest 10 percent of BoM records for the period (Figure 5). Dust emissions are predominantly climate controlled; a failure of winter rains has led to poor crop establishment and growth (orange and red areas on Figure 3).

The most likely sources of dust are paddocks with failed winter crops (Photo 2).

Some of these paddocks have also been "grazed off", further reducing the ground cover and increasing erosion.

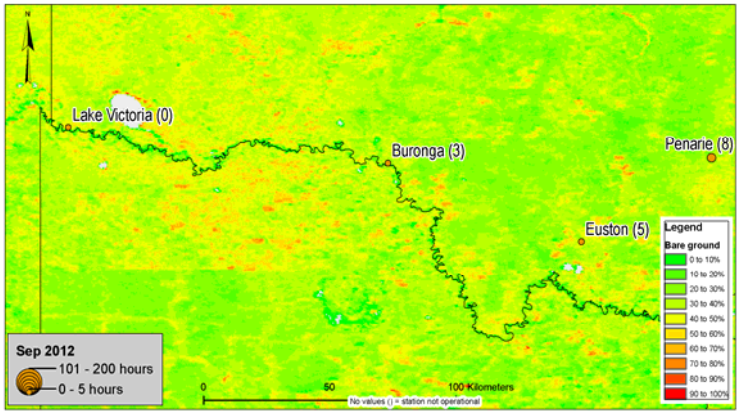


Figure 3. Areas of low cover (orange to red colour) around Buronga for September 2012

Photo 2. Failed summer crop near Wentworth – 31 October 2012. Photo M. Case, OEH

Rainfall and fires

Rainfall across most of the Murray-Darling Basin in September 2012 ranged from 25mm (in the east) to below 5mm (inland) (Figure 3).

The rainfall for the last six months has been average in the north-east and below to very much below average in southern and western NSW (Figure 5).

Figure 4. Rainfall for September 2012

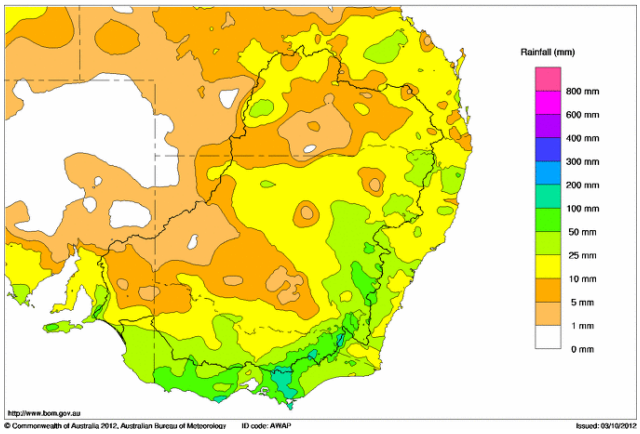
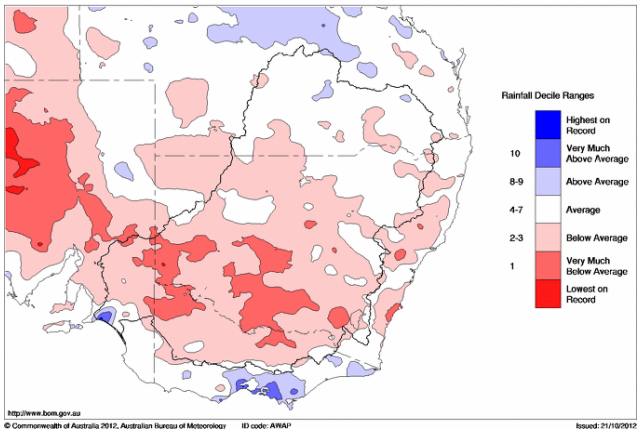


Figure 5. Rainfall deciles for 1 April to 30 September 2012



MODIS satellite image

The pattern of fire activity across NSW in September 2012 (Figure 4) was similar to that in August 2012.

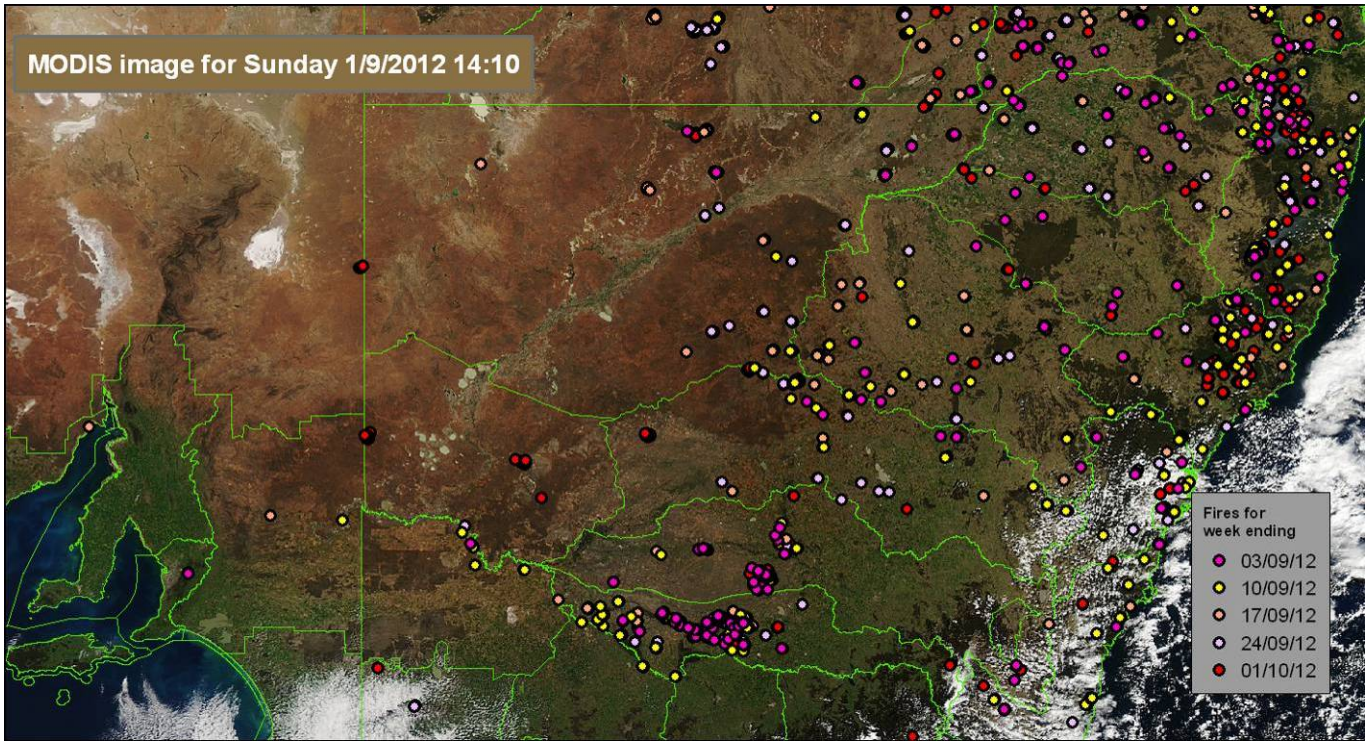


Figure 6. Fires detected by MODIS satellite during September 2012 with colour markers indicating the week of detection

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