Dust Activity

There was no significant dust activity across the DustWatch network during October 2012 (Figure 1). Menindee was the only DustWatch Node to record activity. It registered 2 hours of moderate haze (visibility 5-10km) on 6 October 2012. This localised event was driven by strong (40-50km/h) westerly winds. The rangelands in New South Wales (NSW) still have adequate ground cover and consequently are dust free. Cropping areas in the north east of NSW, that produced some dust last month, had sufficient growth to suppress any dust emissions this month (Figure 2).

There were fewer hours of strong winds (> 30km/h) than last month across the network. The hours of wind were close to the 2005 to current date average for November. Dust emissions are more likely in December and January if the extremely dry conditions and the trend in ground cover reduction across most of southern Australia continue.

Figure 1. Hours of dust with visibility less than 10 km recorded at each DustWatch Node in October 2012.
Ground cover

The level of ground cover for October 2012 as measured by the MODIS satellite is shown in Figure 2. Compared with September 2012, there has been a decrease in cover by 5 to 10% over most of the rangelands in the southern part of Australia. This is due to the exceptionally low rainfall in these areas in the last three months (Figure 3). In contrast, emerging crops in the summer cropping areas has lead to increased cover and the reduction of dust emissions.

The combination of very dry conditions and lightning strikes led to a large number of fires in the South Australian and Western Australian rangelands (Figure 5). Fire scars are clearly visible as areas of low cover on the groundcover map below (Figure 2). Fires in Queensland were followed by rain and associated pasture growth and therefore did not have any visible fire scars on the cover maps.
Rainfall totals

Rainfall totals for October 2012 for the southern part of Australia were between 0mm in central Australia and 50-100mm in the eastern parts of New South Wales (Figure 3). This is between 10mm and 50-100mm respectively less than the long term average for those areas.

This severe lack of rainfall over the southern part of Australia implies a lack of pasture growth has occurred over the 2012 spring period. Winter and spring pasture and crop growth is critical for erosion protection as it builds up cover for the following drier summer and autumn.

Figure 3. Rainfall totals for October 2012.

Rainfall deciles

The rainfall deficiency map shown below (Figure 4) displays the dry end of the deciles map normally shown here. It highlights areas of severe lack of rain by only showing areas that are in the driest 10% of records. This is particularly useful when looking at the growing conditions.

The southern and central parts of Australia are suffering severe dry conditions with most of South Australia in the driest 5% of BoM records (Figure 4) over the last three months. Large parts of New South Wales are in a similar situation but patchy rainfall is providing relief in some areas.

Figure 4. Rainfall deficiencies for 1 August to 31 October 2012.
MODIS satellite image

Fires detected by the MODIS satellite for October 2012 are shown in Figure 5. Fires throughout the New South Wales cropping areas were similar to last month but greatly reduced compared to earlier in the year. Fire number and size in the rangelands of Western Australia, South Australia and southern Queensland have increased markedly.

Figure 5. Fires detected by MODIS satellite during October 2012 with colour markers indicating the week of detection.

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