

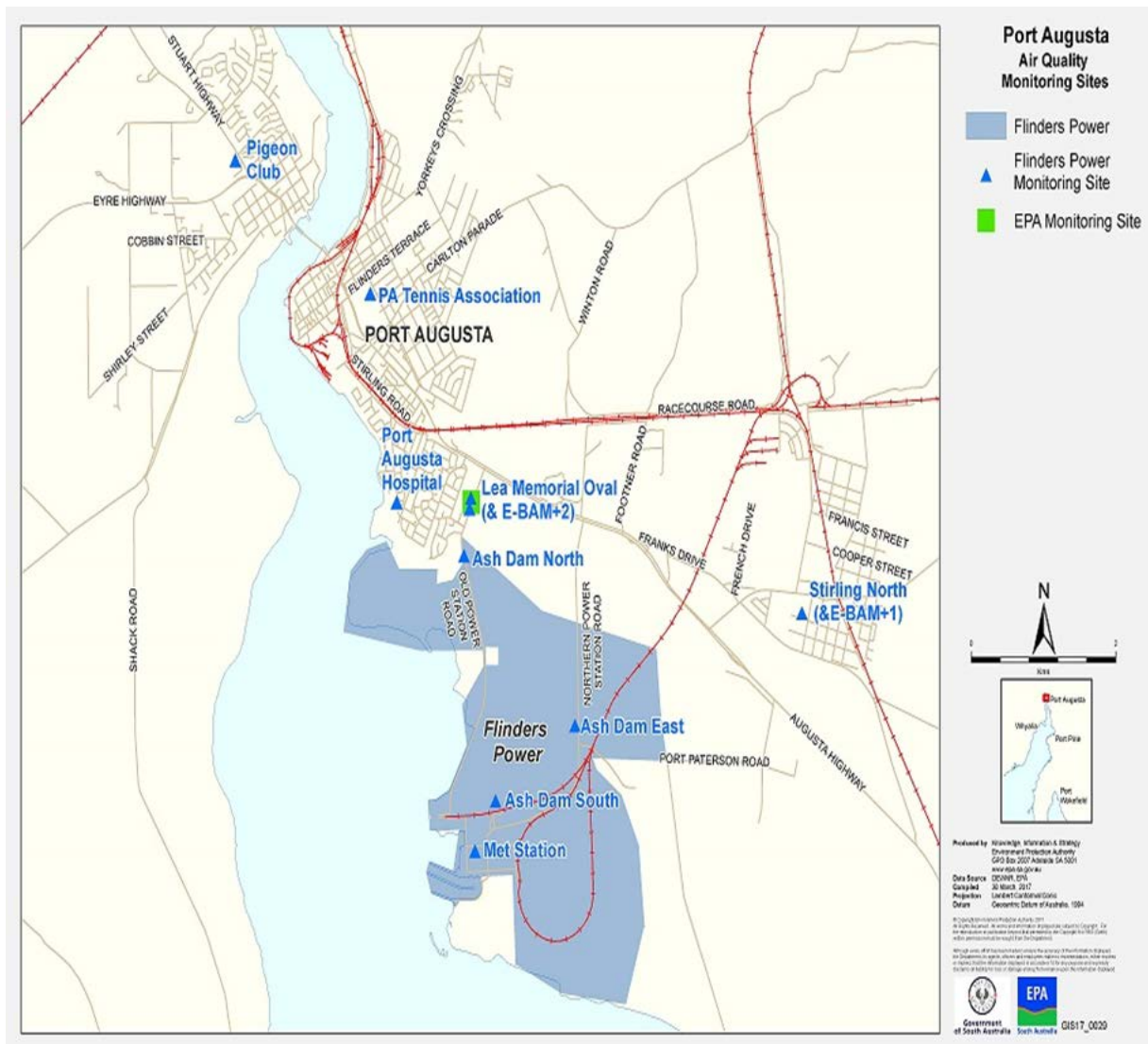
Port Augusta air quality summary report – May 2017

Issued July 2017

Introduction

One of the EPA's environmental goals is good quality air. To support this goal the EPA conducts ambient air quality monitoring at locations around the state.

This monthly air quality summary report is based on the data from the mobile station at Lea Memorial Oval, Port Augusta.



The EPA’s mobile monitoring station was installed at Lea Memorial Oval, Port Augusta on 9 March 2017. This station is equipped with continuous monitors for monitoring total suspended particulates (TSP), particles (PM₁₀ and PM_{2.5}) and meteorological conditions, as part of a short term program to evaluate local air quality.

Total suspended particulates (TSP) is a class of particles which have equivalent aerodynamic diameters less than 50 µm and includes a mixture of large and fine particles. The larger particles that have equivalent aerodynamic diameters greater than 10 µm are generally trapped in our noses and throats, so they do not reach to the lungs; however, they may cause nuisance and soiling of surfaces.

Fine particles are often a complex mixture of materials arising from many sources, and are generally grouped into two categories, called PM₁₀ and PM_{2.5}. Sources such as wind-blown dust, agricultural activities, motor vehicles and domestic activities might generate fine particles that affect the air quality from the region. Fine particles are able to enter the lungs and are known to have health effects.

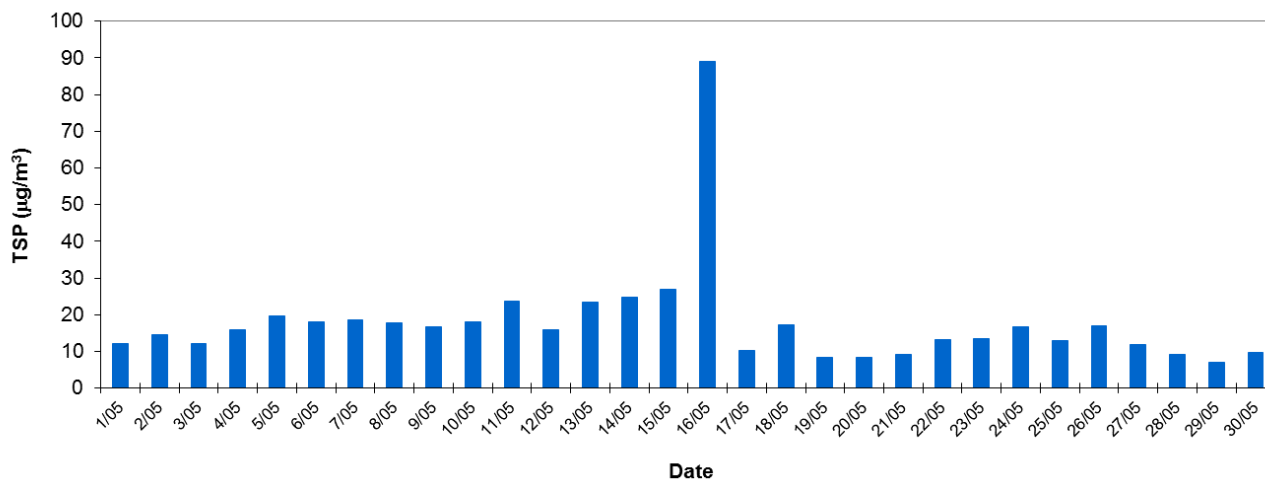
Polar plots provide a graphical method to assist in determining the sources of airborne pollutants. Polar plots use 10-minute wind direction data to plot against pollutant concentration. Where the percentage of pollutant is greater than the percentage of wind from any given direction, this indicates a higher than average amount of pollutant and a potential source in that direction. Some polar plots incorporate wind direction, wind speed and pollutant concentration to the display.

Data in this report are assessed against ground level concentration criteria for PM₁₀ and PM_{2.5}. Further information about ambient air quality is available on the EPA [website](#).

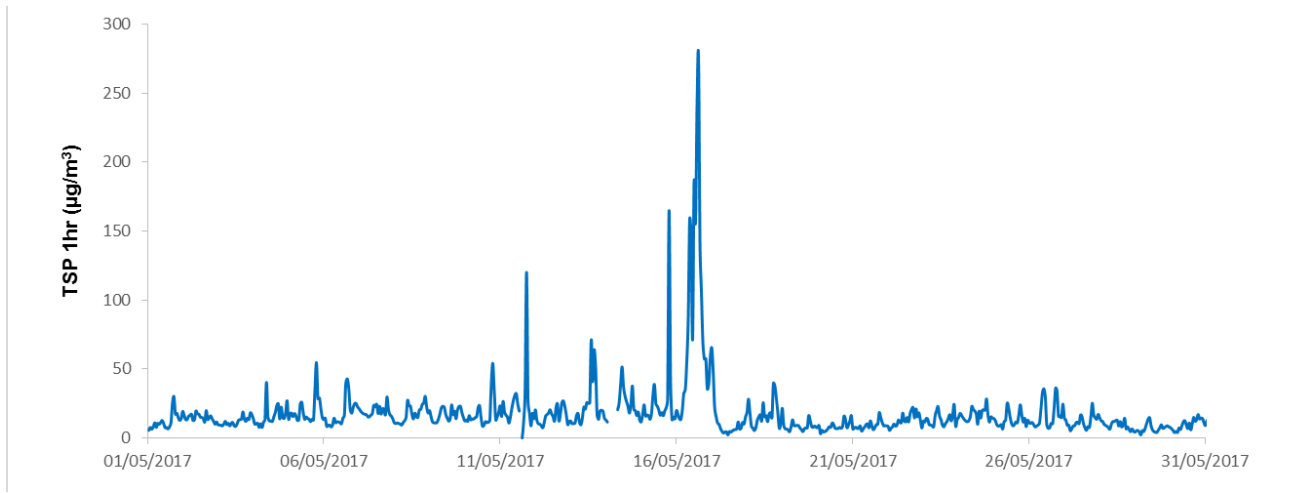
Total suspended particulates (TSP)

TSP can provide an indication of the levels of visible nuisance dust in an area. 1-hour averages of TSP levels exhibit short term elevated values at times, indicating the presence of visible dust. It is important to note that there are no health-based ground level concentration criteria for TSP, as TSP is largely a cause of environmental nuisance.

The graph below displays the 24-hour average (daily) TSP at Lea Memorial Oval in May 2017.



Port Augusta Lea Memorial Oval daily average TSP, May 2017



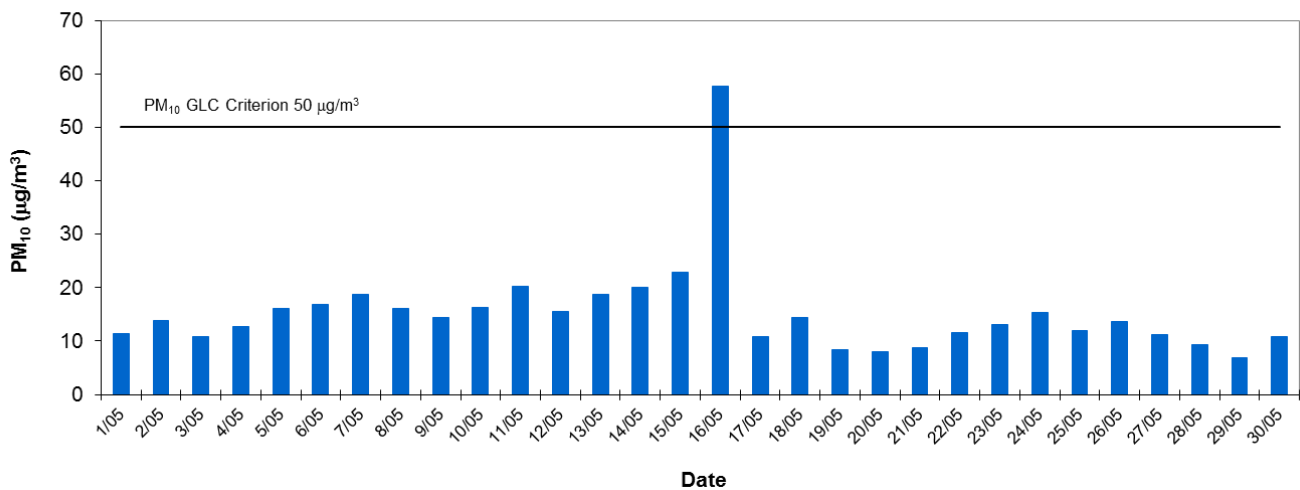
Port Augusta Lea Memorial Oval 1-hour TSP, May 2017

Following are some of the high concentration TSP events recorded in May 17:

- On 11 May at 5.30 pm concentrations reached a maximum of 183 µg/m³, with winds from east-southeast direction (106°) at an average wind speed of 1.2 m/s (ie 4.3 km/hr, 2.3 knots).
- On 15 May at 6.30 pm concentrations reached a maximum of 383 µg/m³, with winds from an east-northeast direction (73°) at an average wind speed of 1.2 m/s (ie 4.3 km/hr, 2.3 knots).
- On 16 May at 2.40 pm concentrations reached a maximum of 349 µg/m³, coincident with winds from a north direction (349°) at an average wind speed of 9.2 m/s (ie 33 km/hr, 18 knots).

Particles (PM₁₀)

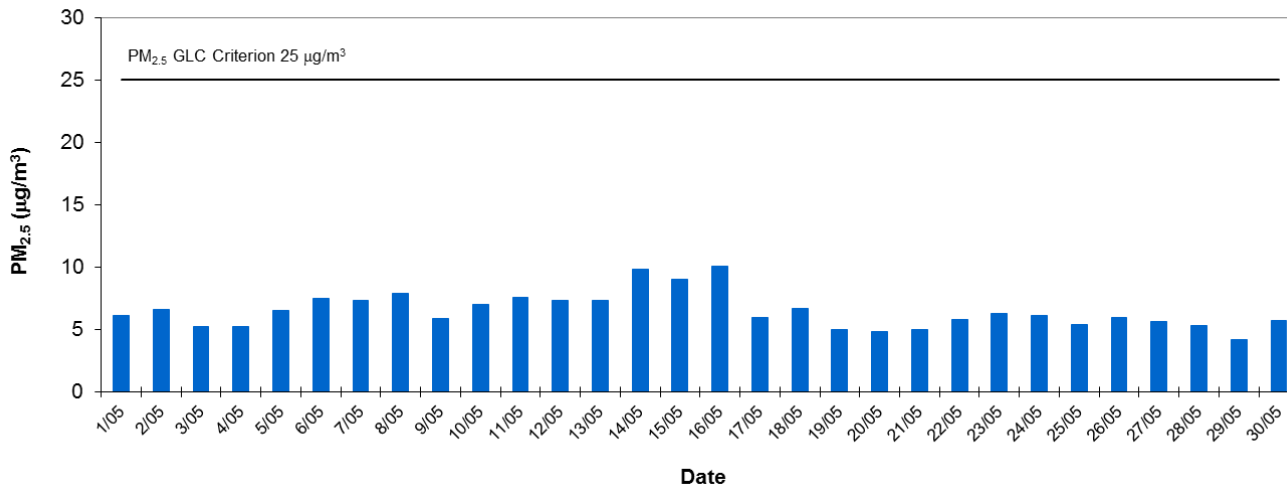
There was **1** exceedence of the health-based South Australian 24-hour ground level concentration criterion for PM₁₀ (50 µg/m³), on 16 May 2017. This was due to a windy day with wind mainly coming from north and northwest directions.



Port Augusta Lea Memorial Oval daily average PM₁₀, May 2017

Particles (PM_{2.5})

There were no exceedences of the health-based South Australian 24-hour ground level concentration criterion for PM_{2.5} (25 µg/m³), at Lea Memorial Oval in May 2017.

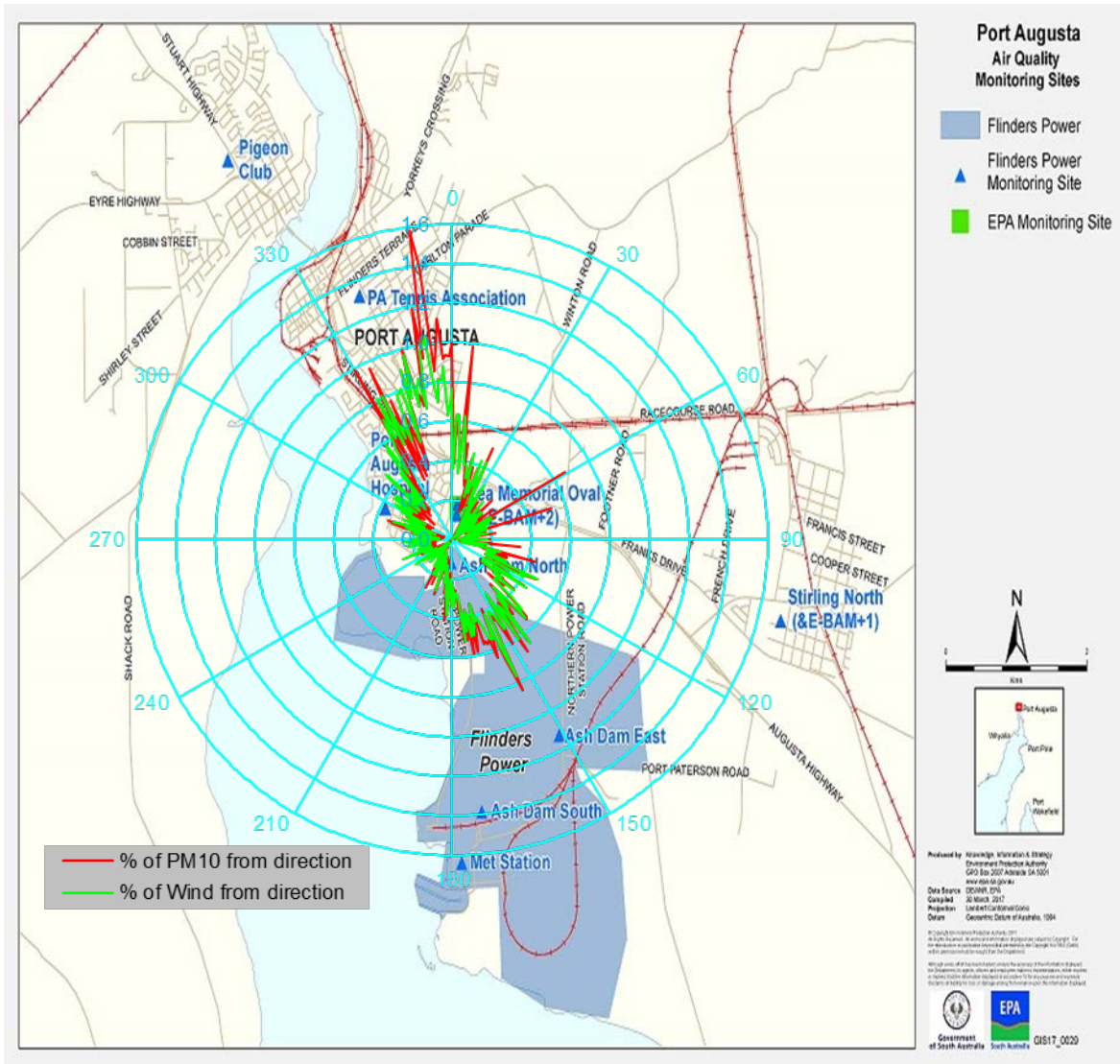


Port Augusta Lea Memorial Oval daily average PM_{2.5}, May 2017

Polar plots

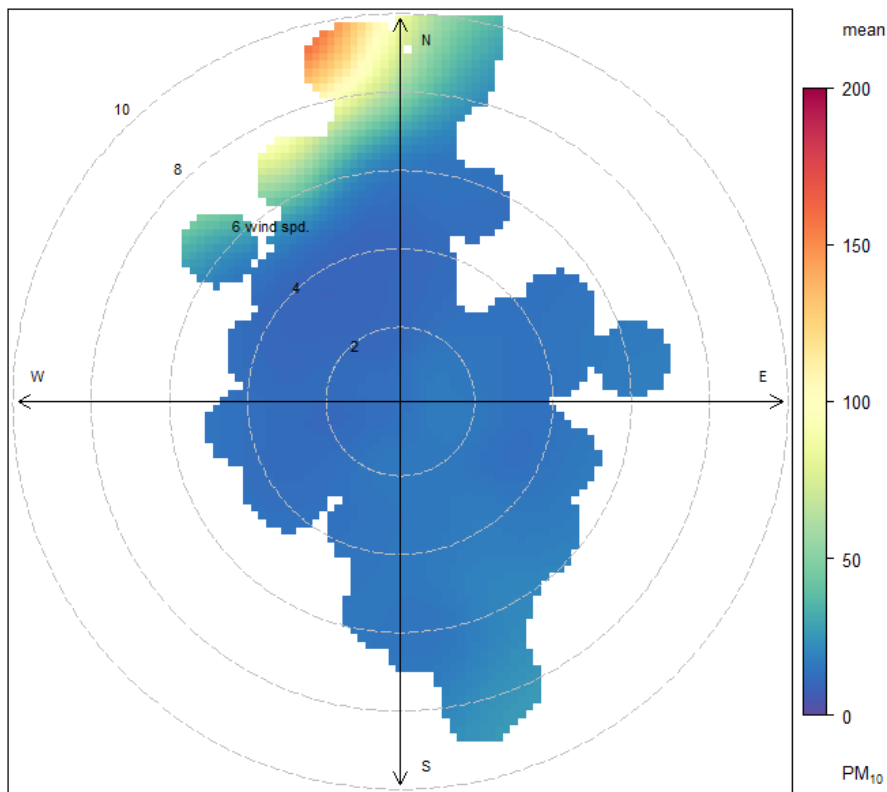
PM₁₀ polar plot

The polar plot type 1 showed predominately, the percentage of PM₁₀ and wind came from two sectors of 330° to 360° (north-northwest and north directions) and 120° to 180° (southeast and south-southeast directions). When there was a high percentage of wind from north and north-northwest directions this carried a higher than average PM₁₀ concentration. However, there were occasions when other sources of PM₁₀ particles came from east-northeast and north directions. This is likely due to local road dust and natural sources.



Polar plot type 1

Polar plot type 2 showed high concentration of PM₁₀ occurred when the wind blew from north-northwest and north directions at a wind speed above 6 m/s.



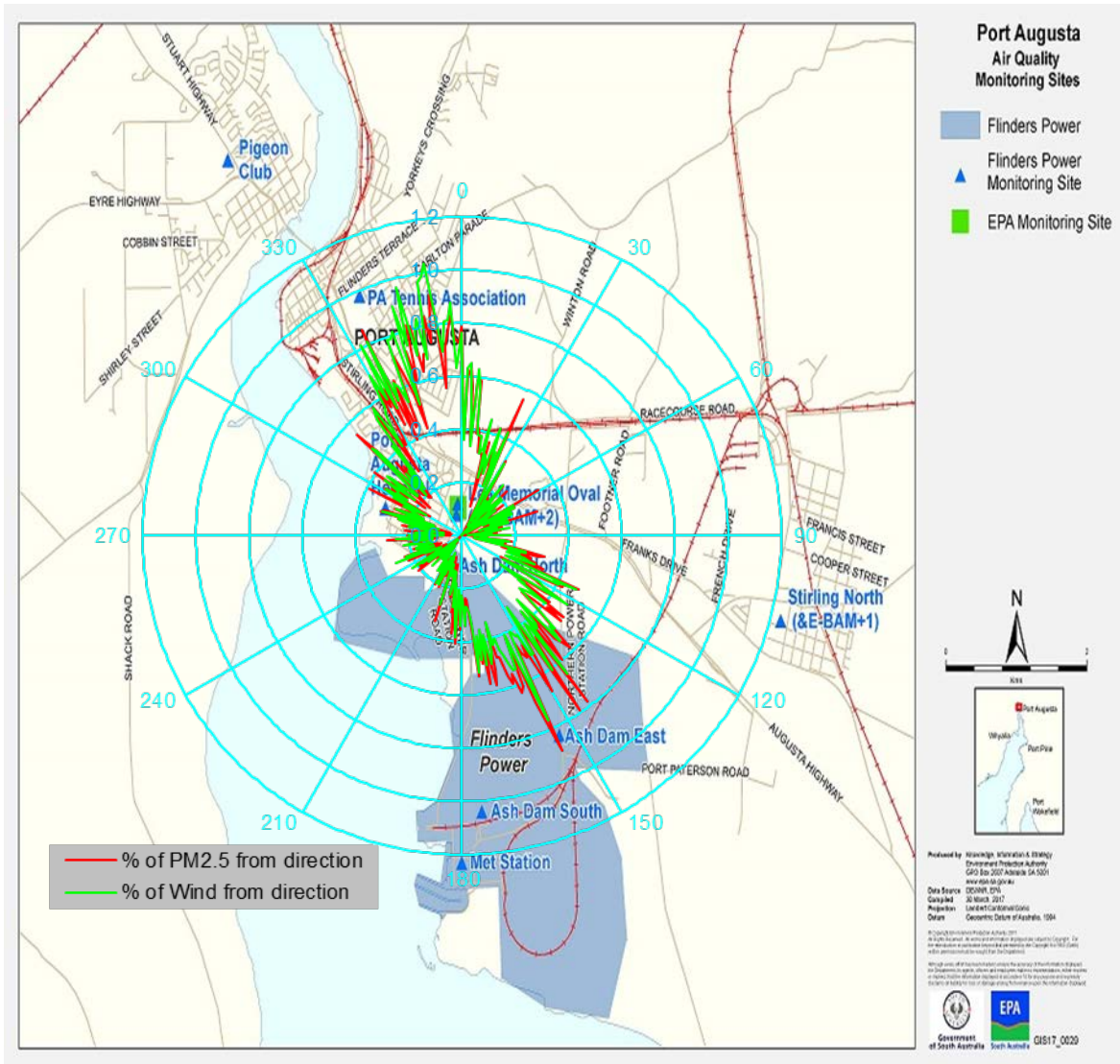
Polar plot type 2

Following are some of the short term 10 minutes high concentration PM₁₀ events recorded in May:

- On 11 May at 5.30 pm concentrations reached a maximum of 127 µg/m³, coincident with winds from an east-southeast direction (106°) at an average wind speed of 1.2 m/s (ie 4.3 km/hr, 2.3 knots).
- On 15 May at 6.40 pm concentrations reached a maximum of 317 µg/m³, with winds from an east-northeast direction (60°) at an average wind speed of 0.9 m/s (ie 3.2 km/hr, 1.7 knots).
- On 16 May at 2.30 pm concentrations reached a maximum of 242 µg/m³, coincident with winds from a north direction (350°) at an average wind speed of 9.4 m/s (ie 34 km/hr, 18 knots)

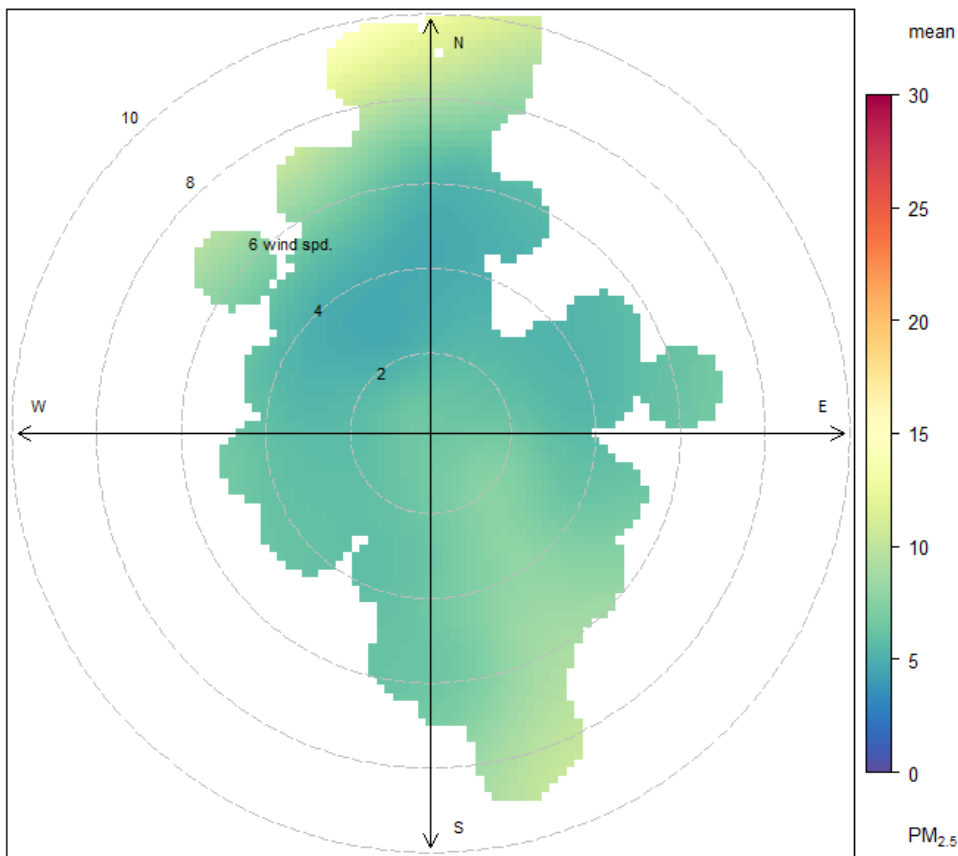
PM_{2.5} polar plot

The polar plot type 1 showed high percentage of PM_{2.5} particles came from the wind sector 120° to 180° (south-east and south-southeast directions). A small percentage of PM_{2.5} particles was also from east-northeast directions.



Polar plot type 1

Polar plot type 2 showed the small concentration of PM_{2.5} occurred when windblown was from north, north-northeast and north-northwest directions at a wind speed above 8 m/s.



Polar plot type 2

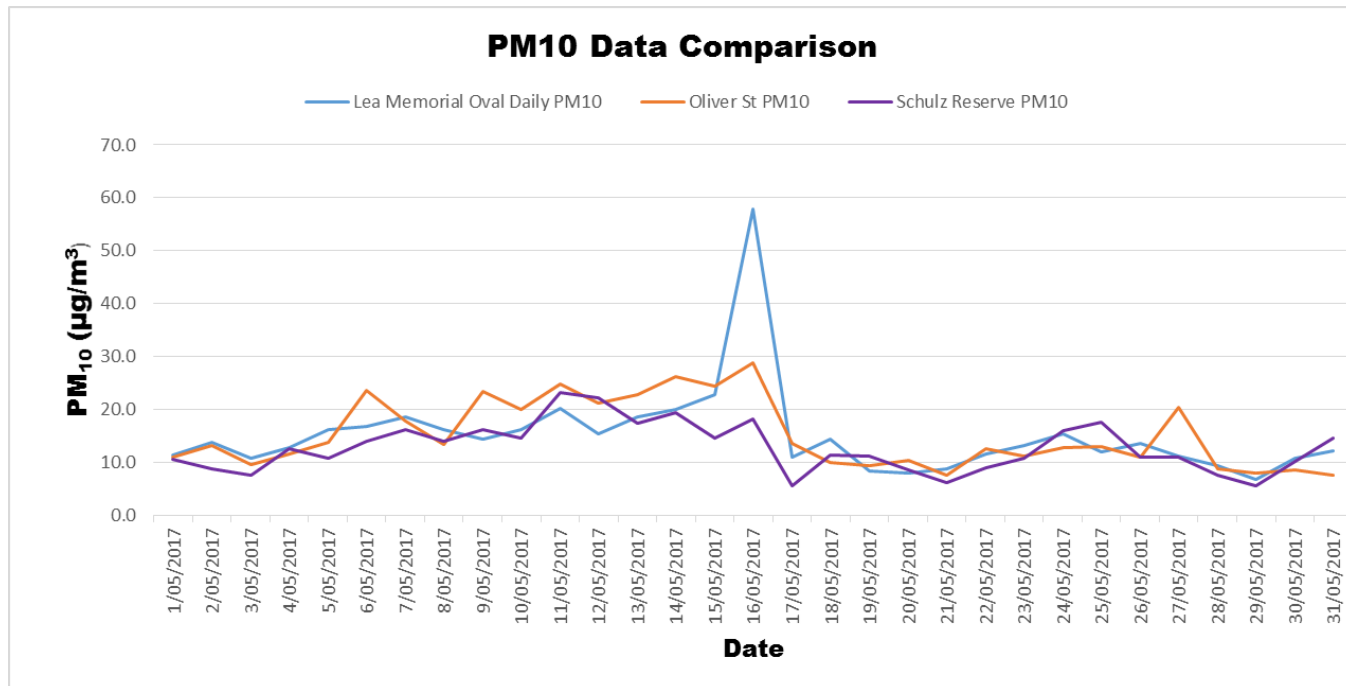
Following is one short-term 10-minutes high concentration PM_{2.5} event recorded in May:

- On 15 May at 6.40 pm concentrations reached a maximum of 32.9 µg/m³, coincident with winds from an east-northeast direction (60°) at an average wind speed of 0.9 m/s (ie 3.2 km/hr, 1.7 knots). This might have been caused by local activities.

PM₁₀ data comparison

PM₁₀ data from Lea Memorial Oval, Oliver Street Port Pirie and Schulz Reserve Whyalla stations are presented in the graph below. PM₁₀ levels at Lea Memorial Oval station have exhibited higher concentrations with similar trend to the other two stations during the monitoring period.

A spike of PM₁₀ concentration at Lea Memorial Oval on 16 May 2017 was due to wind-blown dust from north and north-northwest directions with wind speeds up to 10 m/s (ie 36 km/hr).



Further information

Legislation

[Online legislation](#) is freely available. Copies of legislation are available for purchase from:

Service SA Government Legislation Outlet
 Adelaide Service SA Centre
 108 North Terrace
 Adelaide SA 5000

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 Email: ServiceSAcustomerservice@sa.gov.au

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