

Sellicks Beach air quality summary report – May 2016

Issued June 2016

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 air quality summary is based on data from the EPA's mobile monitoring station in the Blue Water Estate on Arcadia Crescent, Sellicks Beach. This station was deployed on the 14 January 2016 to monitor 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) are particles with an equivalent aerodynamic diameter less than 50µm and consists of a mixture of large and fine particles. Large particles have an equivalent aerodynamic diameter greater than 10µm and can be a source of nuisance dust.

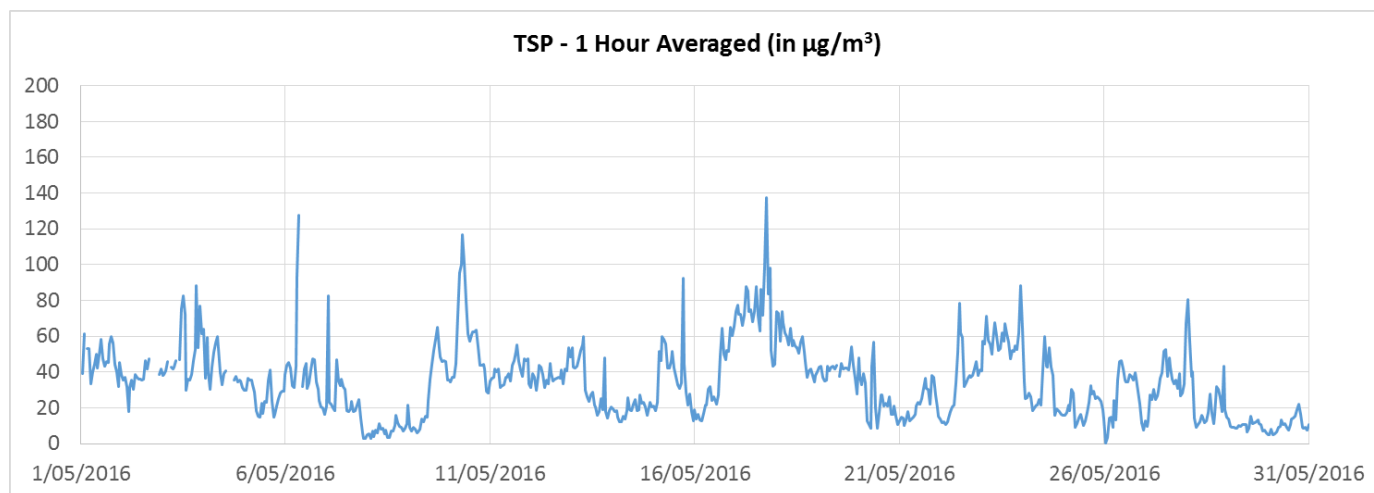
Fine particles are often a complex mixture of materials arising from many sources, and are generally grouped into two categories, called PM₁₀ and PM_{2.5}. Fine particles are able to enter the lungs and are known to have health effects.

In the Sellicks Beach area particles can originate from a variety of sources such as local activities, motor vehicles, domestic activities apart from the natural background.

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

Total suspended particles (TSP)

TSP can provide an indication of the levels of visible nuisance dust in an area. 1-hour averaged TSP levels exhibit short term elevated values indicating the presence of visible dust. Please note there are no health-based ground level concentration criteria for TSP because they are related to environmental nuisance. 1-hour TSP concentrations were lower during May in comparison with previous months.



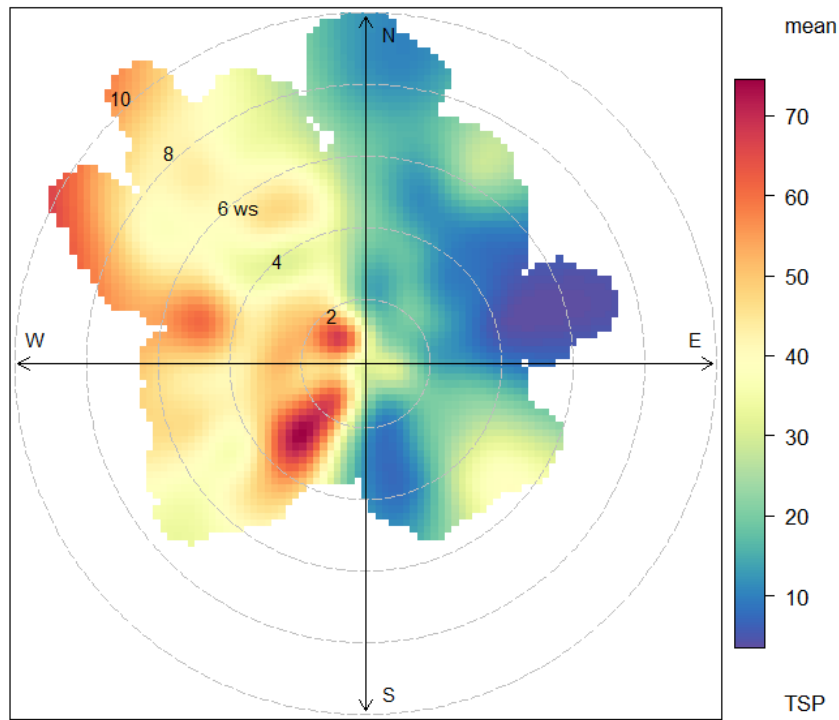
Polar Plots

The polar plot is a graph describing how short term (10-minute) concentrations of a pollutant vary by both wind speed and direction, to illustrate where pollution may be coming from at any given time during the day, and the conditions under which particular concentrations are recorded. Where 24-hour health-based standards apply, for example, in the case of PM₁₀, these short term averages do not provide any direct information on potential health impacts on communities. This is best described in the subsequent graphs of daily averages.

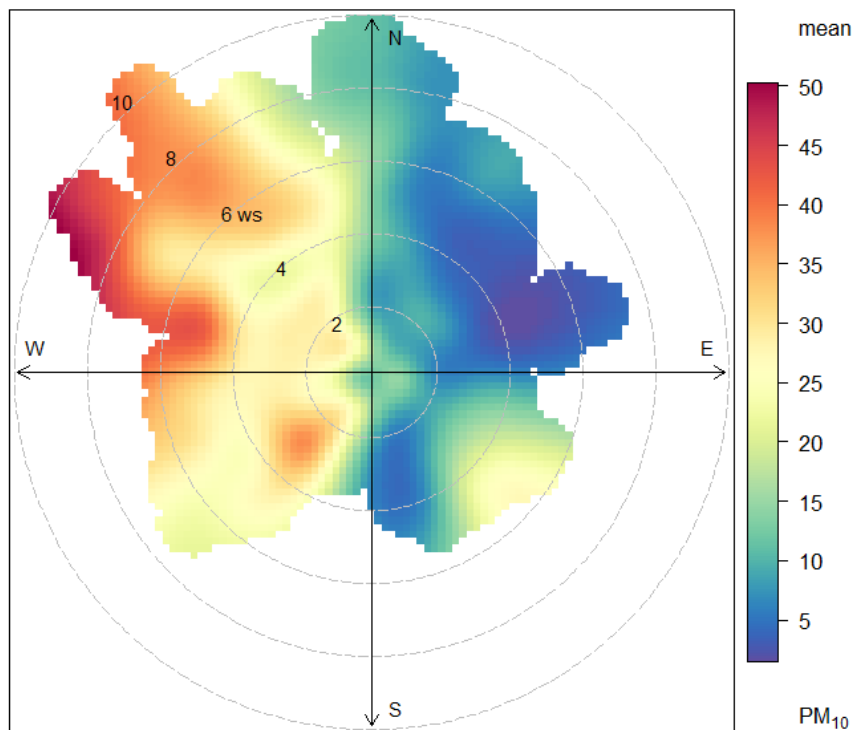
The polar plots present 10-minute average concentrations of Total Suspended Particles and PM₁₀ respectively as different colours, plotted against the direction from which the winds were blowing, centred on the monitoring station. Red blobs indicate higher average concentrations, while blue blobs show very low average concentrations. The distance of the blobs from the centre of the graph indicate how fast the wind was blowing on average, when the readings were recorded. So the centre point is 'dead calm'.

Wind speeds and directions are important variables which can assist in identifying different sources. For example, ground level plumes such as from road traffic or local dust tend to promote higher particle concentrations when wind speeds are low. In this report, 10 minute wind speed, direction, TSP and PM₁₀ data have been used to produce the polar plots (using available meteorological data from May 2016).

The polar plot for TSP indicates that the majority of measured TSP originated from the northwest with a wide range of wind speeds from 1 to 11 m/s (about 4 to 40 km per hour) and from southwest directions with lower wind speeds of 1 to 4 m/s (about 4 to 15 km per hour). The polar plot for PM₁₀ exhibits a similar trend. The EPA will continue to monitor until summer to better understand local sources.



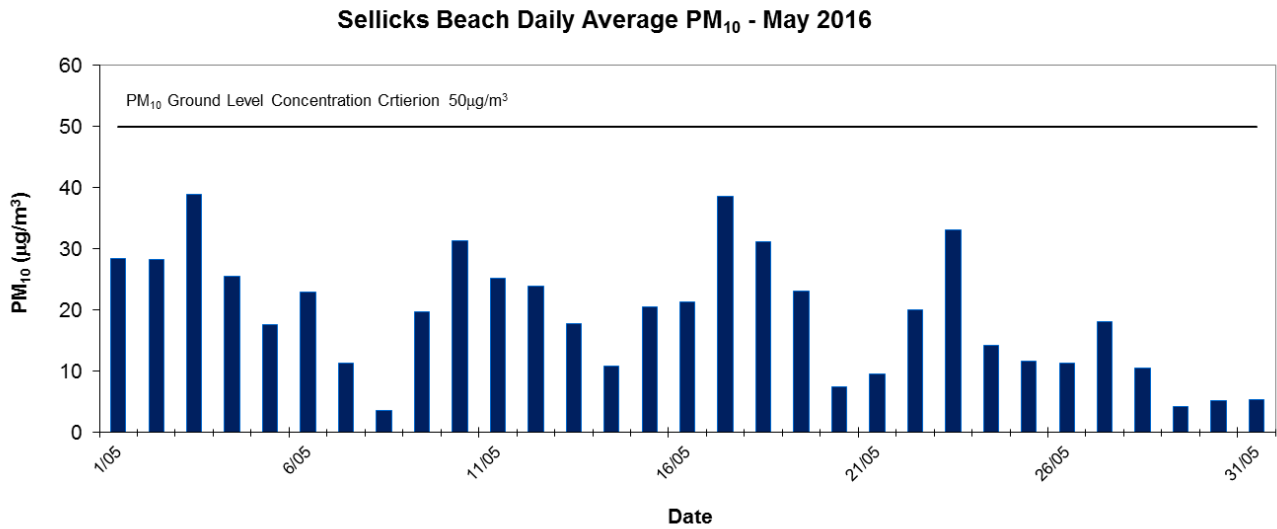
Polar Plot for TSP (10 minute averaged data in $\mu\text{g}/\text{m}^3$) (May 2016)



Polar Plot for PM₁₀ (10 minute averaged data in $\mu\text{g}/\text{m}^3$) (May 2016)

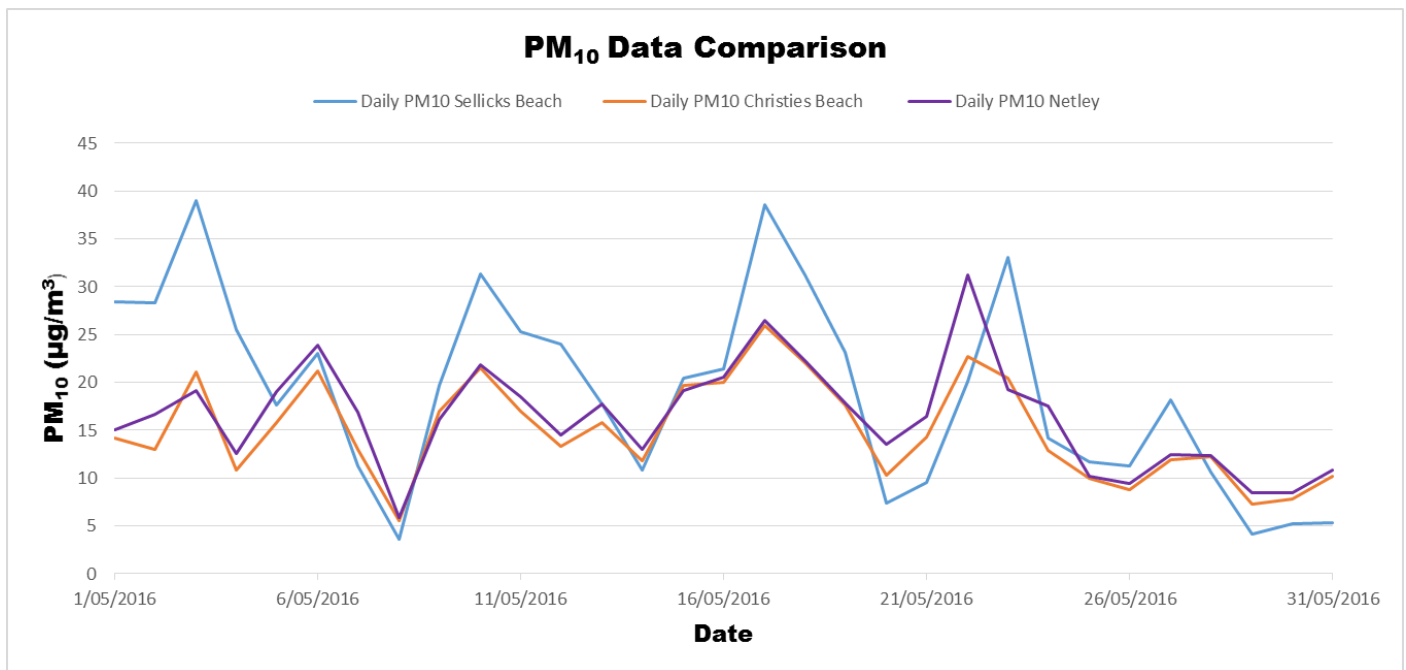
Particles (PM₁₀)

There have been no exceedences of the 24-hour ground level concentration criterion for PM₁₀ (50 µg/m³) at Sellicks Beach in May 2016.



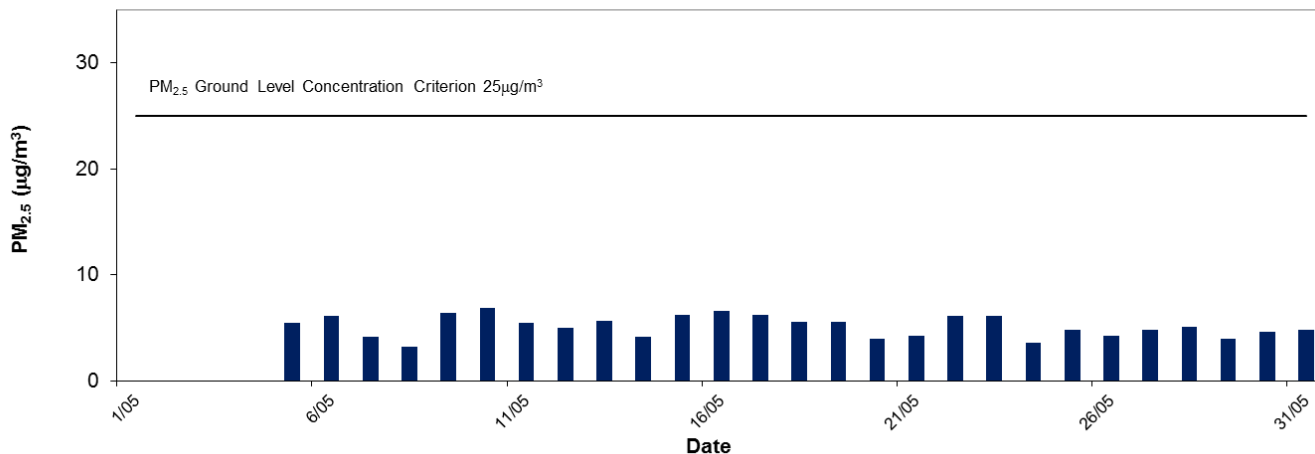
PM₁₀ Data Comparison

PM₁₀ data from Sellicks Beach, Christies Beach and Netley stations are presented in the graph below. PM₁₀ levels at all three stations have exhibited a similar trend during this monitoring period, differing on a few occasions, which may be due to local sources or activities.



Particles (PM_{2.5})

There have been no exceedences of the 24-hour ground level concentration criterion for PM_{2.5} (25 µg/m³) at Sellicks Beach in May 2016. A gap in the PM_{2.5} monitoring data at the beginning of the month was due to a monitoring instrument being replaced.

Sellicks Beach Daily Average PM_{2.5} - May 2016

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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