

Sellicks Beach air quality summary report – March 2016

Issued April 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 50 µm and consists of a mixture of large and fine particles. Large particles have an equivalent aerodynamic diameter greater than 10 µm 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](#).

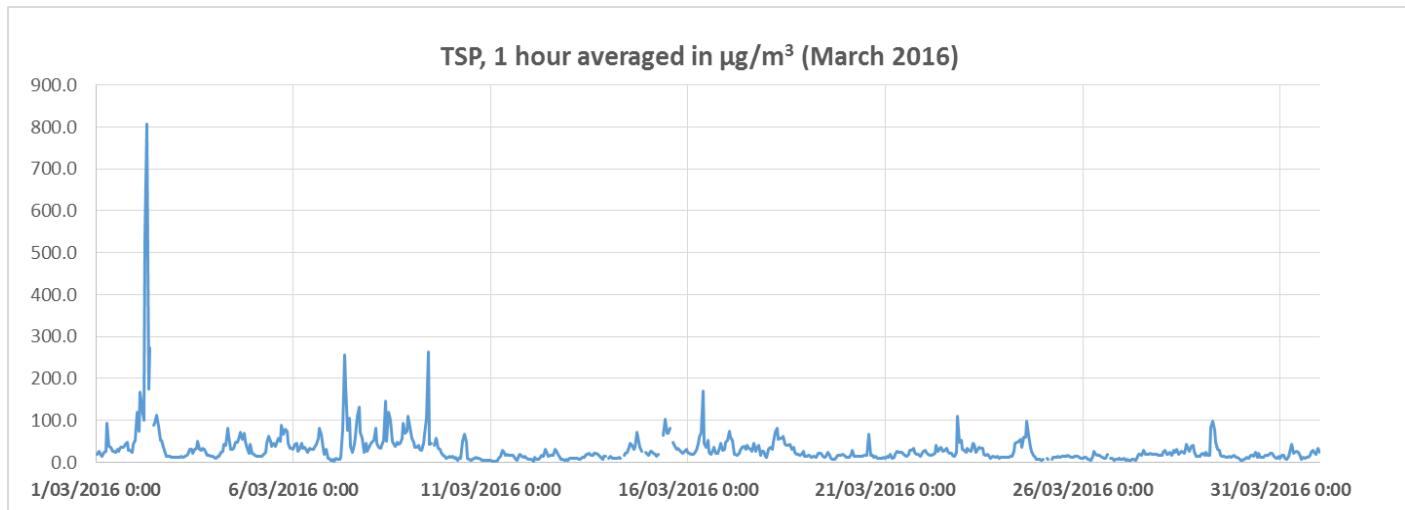
Total suspended particles (TSP)

TSP can provide an indication of the levels of visible nuisance dust in an area. The 1-hour averaged TSP levels exhibit short term elevated values indicating the presence of visible dust. Please note there are no ground level concentration criteria for TSP because they are related to environmental nuisance.

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

- High TSP concentrations were recorded on 2 March 2016 between 5 am and 8 am, with a peak concentration of 806 µg/m³. Wind speed and direction data at EPA's mobile monitoring station were not available due an unavoidable technical issue with the meteorological instrument; however based on comparisons with observations at other metropolitan monitoring sites it appears that this was likely to have been a local dust event. Please see PM₁₀ comparison graph.
- On 7 March at 7 am TSP concentrations reached a maximum of 257 µg/m³, coincident with winds from a southeast direction, with an average wind speed of about 8.4 m/s (ie 30 km/hr).
- On 9th March at 10 am TSP concentrations peaked at 263 µg/m³ when wind was coming from southeast direction with an average wind speed of about 6.5 m/s (ie 23 km/hr).
- On 16th March at 9 am TSP concentrations peaked at 169 µg/m³ when wind was coming from northeast direction with a lower wind speed of about 0.9 m/s (ie 3 km/hr)

The EPA is undertaking further work to understand local sources for these events.



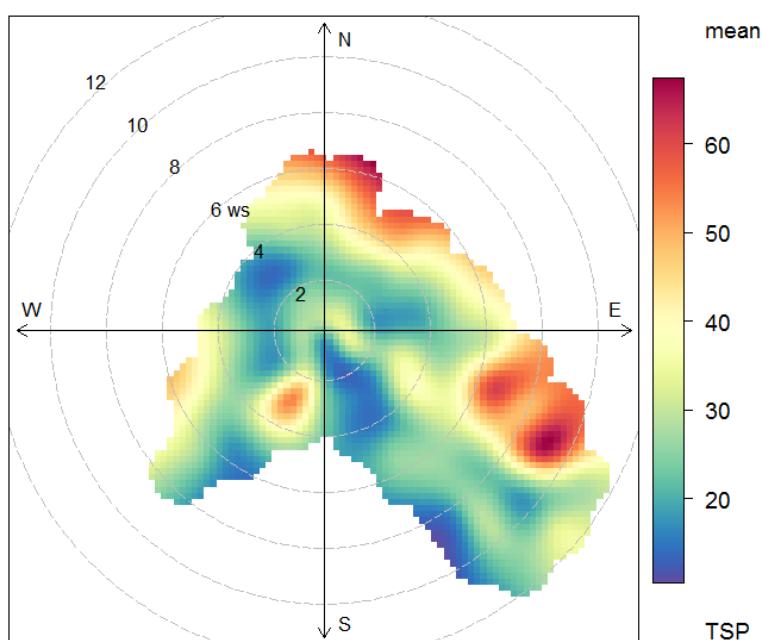
Polar plots

The polar plot is a graph describing how concentrations of a pollutant vary by both wind speed and direction. It presents average concentrations of particles as different colours, plotted against the direction from which the winds were blowing, centred on the monitoring station. Red areas indicate higher average concentrations while blue areas show very low average concentrations. The distance of the areas 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'.

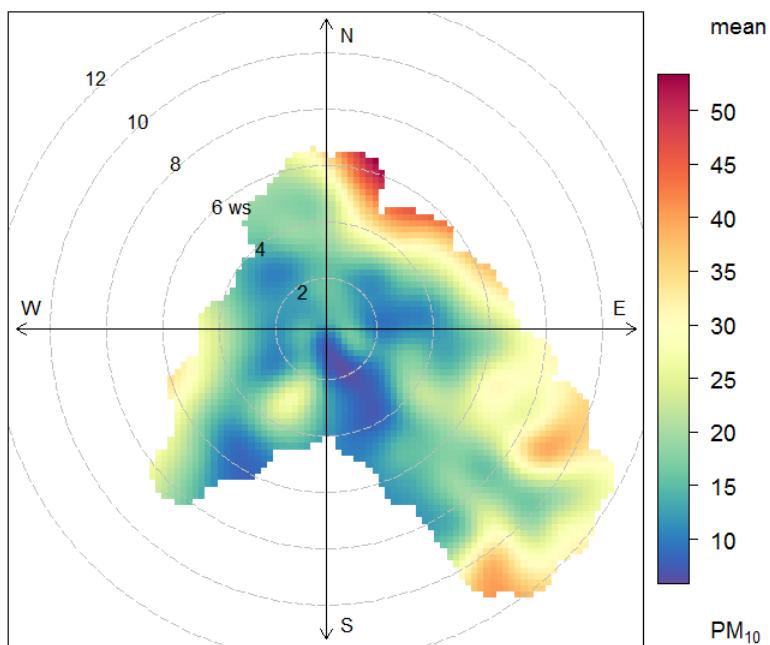
Wind speeds and directions are important variables which can assist in identifying different sources. For example, ground level plumes such as from road traffic or local dust tend to promote higher particle concentrations when wind speeds are low. In this report, 10-minute wind speed, direction, TSP and PM₁₀ data have been used to produce the polar plots (using available meteorological data from 3–31 March 2016).

The polar plot for TSP indicates that the majority of measured TSP originated from a south easterly direction with moderate wind speeds of 6 to 10 m/s (about 21 to 36 km/hr). There are some occasions when higher concentrations of TSP are likely to have originated from a north easterly direction with lower wind speeds of 4 to 6 m/s (about 14 to 21 km/hr). The polar plot for PM₁₀ exhibits a similar trend.

Polar plot for TSP (10-minute averaged in $\mu\text{g}/\text{m}^3$ data) (3–31 March 2016)



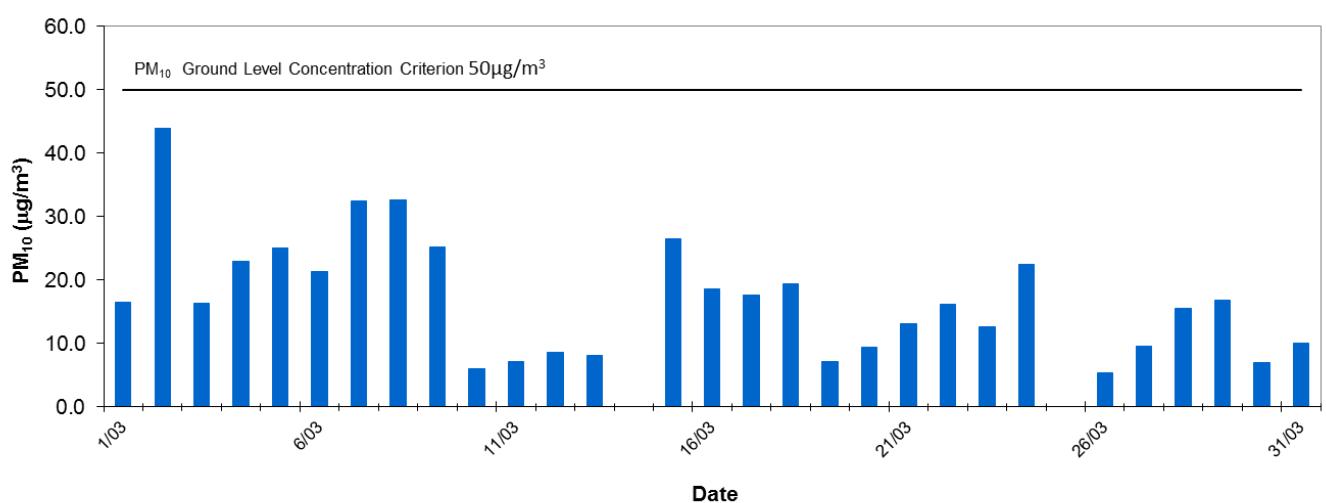
Polar plot for PM₁₀ (10-minute averaged in $\mu\text{g}/\text{m}^3$ data) (3–31 March 2016)



Particles (PM₁₀)

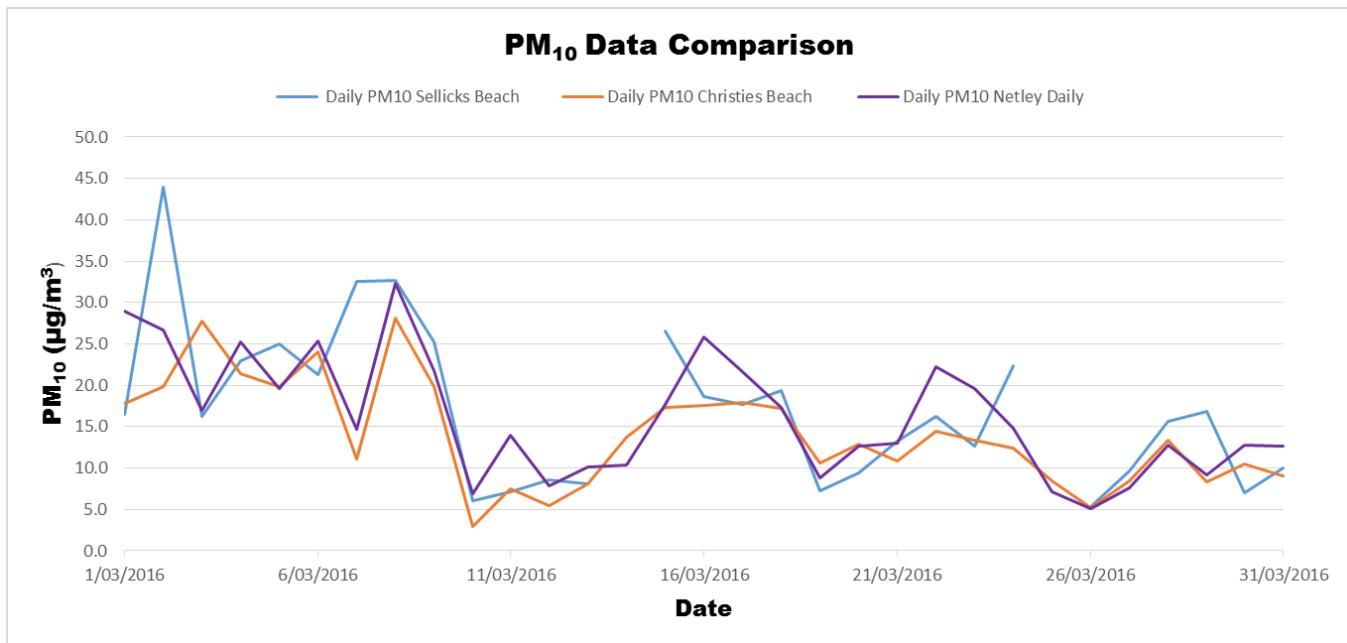
There have been no exceedences of the 24-hour ground level concentration criterion of PM₁₀ (50 $\mu\text{g}/\text{m}^3$) at Sellicks Beach in March 2016.

Sellicks Beach Daily Average PM₁₀ - March 2016



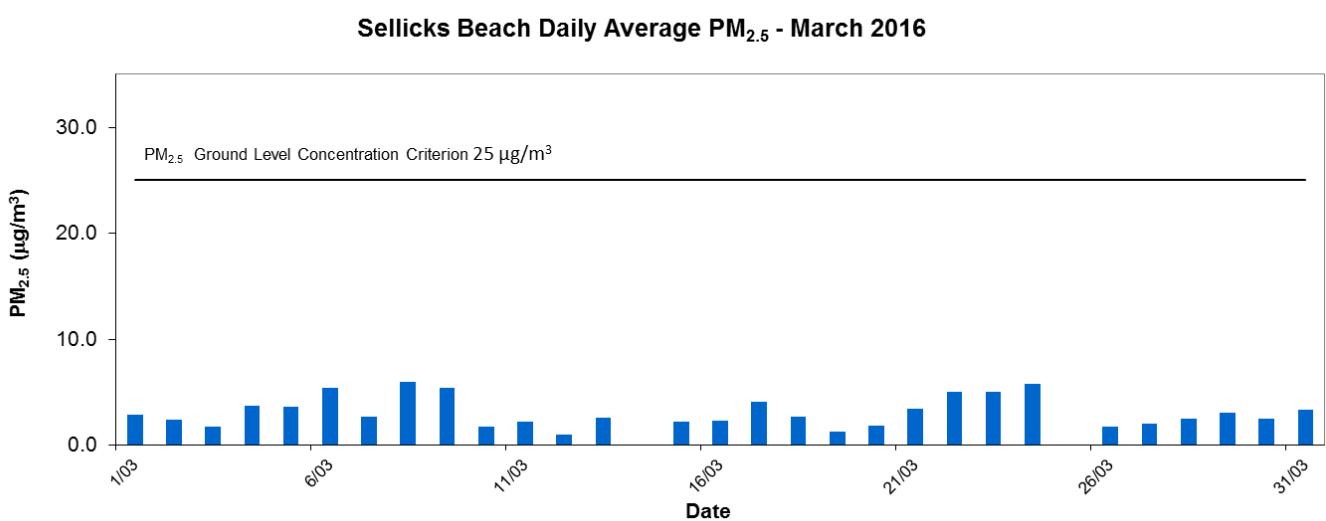
PM₁₀ data comparison

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 the monitoring period, differing only on one or two occasions, which may be due to local sources or activities. Please read TSP section for some of these local dust events. The EPA is undertaking further work to understand local sources for these events.



Particles (PM_{2.5})

There have been no exceedences of the 24-hour ground level concentration criterion of PM_{2.5} (25 µg/m³) at Sellicks Beach in March 2016.



Further information

Legislation

Legislation may be viewed on the Internet at: <www.legislation.sa.gov.au>

Copies of legislation are available for purchase from:

Service SA Government Legislation Outlet	Telephone:	13 23 24
Adelaide Service SA Centre	Facsimile:	(08) 8204 1909
108 North Terrace	Website:	< shop.service.sa.gov.au >
Adelaide SA 5000	Email:	< ServiceSACustomerservice@sa.gov.au >

For general information please contact:

Environment Protection Authority	Telephone:	(08) 8204 2004
GPO Box 2607	Facsimile:	(08) 8124 4670
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	Website:	< www.epa.sa.gov.au >
	Email:	< epainfo@epa.sa.gov.au >
