

Particles (PM_{2.5})



Liveability | Air quality

South Australia's environmental trend and condition report cards 2023



Trend
Getting better



Condition
Good



Reliability
Very good

STATE

Trend

Annual average levels of ambient PM_{2.5} particles have declined at monitoring sites across metropolitan Adelaide since 2007.

PM_{2.5} particles are solid or liquid matter smaller than 2.5 micrometres (0.0025 mm) in diameter suspended in Earth's atmosphere. This assessment is of annual average levels of PM_{2.5} particles measured at 5 air quality monitoring stations across metropolitan Adelaide (top figure). Not all stations were operating for the entire assessment period.

Since 2007, ambient levels of PM_{2.5} particles have reduced at all monitoring stations (bottom figure).

The decline in PM_{2.5} particles is linked to improvements in fuel quality, motor vehicle engine standards and product standards (e.g. wood heaters). A decline in manufacturing, and improvements in pollution control technology, have also contributed to a reduction in fine particle pollution. The occasional annual increase in PM_{2.5} averages can be linked to other contributors, such as smoke from planned burning and bushfires (bottom figure).

Condition

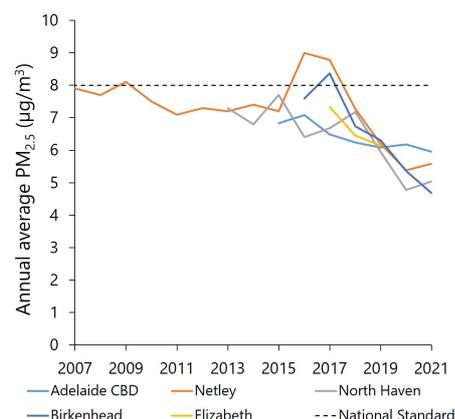
Air quality is rated as good based on measured levels of ambient PM_{2.5} particles. These levels meet the national standard.

In 2021, the long-term levels of PM_{2.5} particles were 5.6 micrograms per cubic metre (µg/m³) at Netley, 4.7 µg/m³ at Birkenhead, 5.0 µg/m³ at North Haven and 6.0 µg/m³ at the Adelaide CBD site. PM_{2.5} particle levels were not measured at the Elizabeth site in 2021.

The national standard of 8 µg/m³ was met at all locations in 2021 (bottom figure).



Annual average PM_{2.5} particle concentrations have decreased since 2007 and meet the national standard.



Why is managing PM_{2.5} particles important?

Ambient particles are the greatest air quality-related risk to human health, particularly in urban areas. PM_{2.5} particles are small enough to be inhaled into the lungs and enter the bloodstream. Both short and long-term exposure to particles can have health effects, which may include aggravation of cardiovascular and respiratory diseases, cancer, and premature death.

PM_{2.5} particle pollution can also affect ecosystems and agriculture, and reduce visibility (due to haze and smoke).

What are the pressures?

PM_{2.5} particles are mainly produced by combustion sources, such as motor vehicles, power generation, industrial boilers, wood burning, hazard reduction burns and bushfires.

Increasing population and higher-density living are placing increased pressure on our ability to manage particle emissions and reduce exposure.

Climate change is another pressure, with predictions of more frequent extreme events likely to result in further exposure to dust and smoke.

What is being done?

All levels of government are collaborating with other sectors to better understand and reduce the risks from air pollution.

The Government of South Australia maintains a network of monitoring stations to measure and track pollutant levels and conducts targeted air quality studies. Other programs include the National Clean Air Agreement, regulation of industry, vehicle fuel quality and engine emissions standards, product standards, modernising transport infrastructure, and investments in modern technology and renewable energy.

For further information see: [technical information](#)



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Government of South Australia