

| Information topic              | Details                                                                                                                                                                                                                                                                                                                                                                                              |
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| Indicator name                 | <ol style="list-style-type: none"> <li>1. Monitoring sites exceeding the 2021 WHO daily average guideline for PM<sub>2.5</sub></li> <li>2. Monitoring sites exceeding the 2021 WHO annual average guideline for PM<sub>2.5</sub></li> </ol>                                                                                                                                                          |
| Domain and topic               | Air Quality: Particulate matter                                                                                                                                                                                                                                                                                                                                                                      |
| Indicator definition and units | <p>Number of monitored sites that exceeded the 2021 WHO daily average guideline for PM<sub>2.5</sub>. Exceedances occur when daily average concentrations are greater than 15µg/m<sup>3</sup></p> <p>Average annual concentrations of PM<sub>2.5</sub> at certain air quality monitoring stations. Exceedances of the 2021 WHO recommendation occur when concentrations exceed 5µg/m<sup>3</sup></p> |
| Data source                    | Ministry for the Environment & Statistics New Zealand                                                                                                                                                                                                                                                                                                                                                |
| Numerator                      | Monitoring sites exceeding the WHO daily average guideline and WHO annual average guideline                                                                                                                                                                                                                                                                                                          |
| Time period and time scale     | Annual, from 2007 to 2023                                                                                                                                                                                                                                                                                                                                                                            |
| Spatial Coverage               | All sites nationwide where data was reported to MfE & Stats NZ and found to be valid (see 'Limitations of source')                                                                                                                                                                                                                                                                                   |
| Measures of frequency          | <ol style="list-style-type: none"> <li>1. Number of exceedances of the WHO guideline value for 24-hour average PM<sub>2.5</sub> concentrations, by station and year</li> <li>2. Annual average concentrations &amp; exceedances of WHO annual guideline value of PM<sub>2.5</sub>, by station and year</li> </ol>                                                                                    |
| Limitations of indicator       | The population coverage of the monitoring site is unknown, meaning a national representative average cannot be applied.                                                                                                                                                                                                                                                                              |
| Limitations of data source     | <ul style="list-style-type: none"> <li>- A monitoring site is required to have 75% completion rate for a given period of time for the data to be considered valid). A complete year is defined as a year in which: each season contains at least 75% of complete days. A complete day is defined as one</li> </ul>                                                                                   |

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|                      | <p>with at least 18 out of 24 hours of valid data recorded for the daily (24-hour) average. Some of the monitoring occurs at peak sites (sites expected to have high concentrations e.g. where home heating emissions accumulate, close to high-volume road traffic or near industrial activities). These sites may therefore not be representative of the surrounding area.</p> <ul style="list-style-type: none"> <li>- Different devices have been used at different sites and times, and they don't always give the same results — even side by side. Device choice depends on cost, purpose, and ease of use, and the specific purpose of monitoring, whether for regulatory compliance or investigative purposes. Additionally, councils may use different methods and standards. So, comparisons between sites should be made carefully.</li> </ul> |
| Related indicators   | <ul style="list-style-type: none"> <li>- <a href="#">Fine particulate matter (PM<sub>10</sub>)</a></li> <li>- <a href="#">Other air pollutants</a></li> <li>- <a href="#">Motor vehicles</a></li> <li>- <a href="#">Health effects of air pollution</a></li> <li>- <a href="#">Wood and coal fires</a></li> <li>- <a href="#">HAPINZ 3.0</a></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| For more information | <p><a href="#">PM<sub>2.5</sub> concentrations (air quality): Data to 2023   Stats NZ</a> (accessed July 2025).</p> <p>Ministry for the Environment and Stats NZ. Environmental reporting: Air. URL: <a href="https://environment.govt.nz/facts-and-science/air/">https://environment.govt.nz/facts-and-science/air/</a> (accessed August 2025).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| References           | <p>Stats NZ (2024). PM<sub>2.5</sub> concentrations (air quality): Data to 2023. URL: <a href="#">PM<sub>2.5</sub> concentrations (air quality): Data to 2023   Stats NZ</a></p> <p>Ministry for the Environment and Stats NZ. 2021. <i>Our air 2021</i>. Wellington: Ministry for the Environment.</p> <p>Ministry for the Environment &amp; Stats NZ (2024). New Zealand's Environmental Reporting Series: Our air 2024   Tō tātou hau takiwā. Retrieved from <a href="https://environment.govt.nz">environment.govt.nz</a></p>                                                                                                                                                                                                                                                                                                                          |