



# Environmental Health Indicators For New Zealand

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**EHI #25**

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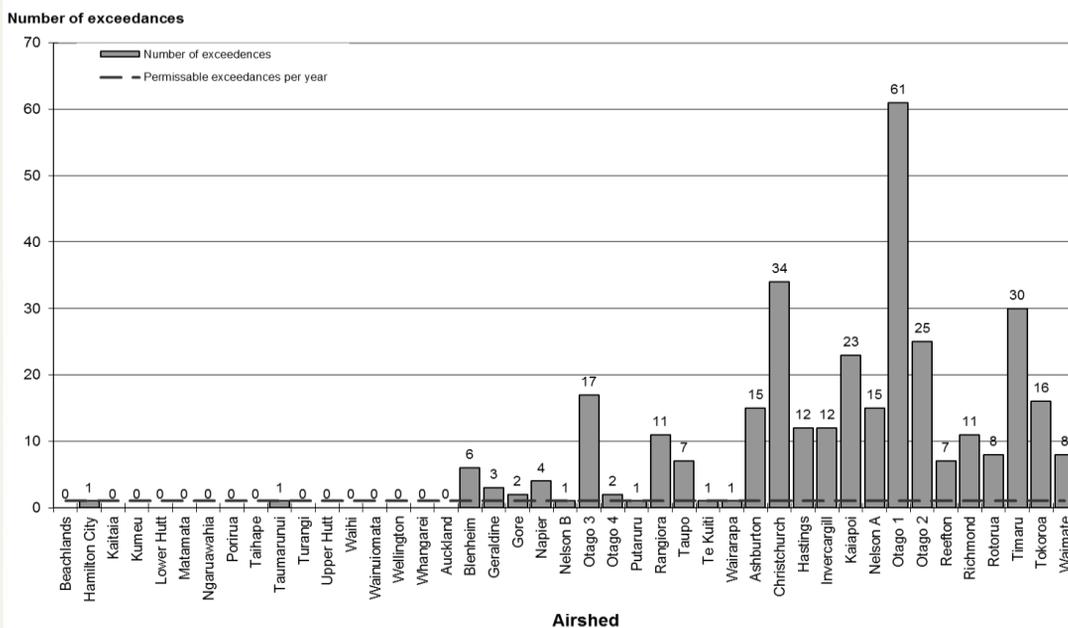
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## PARTICULATE MATTER (PM<sub>10</sub>) – EXCEEDANCES

Particulate matter with a diameter of less than 10 micrometres (PM<sub>10</sub>) can penetrate far into the human lung, and short-term and long-term exposures to PM<sub>10</sub> have predominantly been associated with the exacerbation of respiratory and cardiovascular conditions (WHO 2006a). Most poor air quality in New Zealand is caused by high winter levels of PM<sub>10</sub> from coal and wood used in home heating (Ministry for the Environment 2010a). Additionally Auckland also experiences high levels of PM<sub>10</sub> from road transport (Ministry for the Environment 2007). Particulates are also produced from atmospheric reactions of other compounds such as SO<sub>2</sub> and nitrogen oxides (Cromar et al 2004), as well as natural sources such as dust, pollen, ash, sea salt and soil particles (Fisher et al 2007).

**FIGURE 1: NUMBER OF EXCEEDANCES OF THE NATIONAL ENVIRONMENTAL STANDARDS FOR AIR QUALITY FOR PM<sub>10</sub>, by airshed, 2011**



Note: The broken line represents the maximum number of exceedance days (one day per year) allowed under the National Environmental Standards for Air Quality. Source: Ministry for the Environment (2012).

## NUMBER OF EXCEEDANCE DAYS

There were 22 airsheds that breached the PM<sub>10</sub> standard in 2011 by exceeding the PM<sub>10</sub> standard more than once in the year (Figure 1). In 2011 the Otago 1 airshed exceeded the national standard for PM<sub>10</sub> most often (61 exceedance days), fewer times than in 2010 (76 exceedance days) followed by Christchurch (34 exceedance days) and Timaru (30 exceedance days). The number of exceedances experienced in Christchurch in 2011 was much higher compared to previous years (12 exceedance days in 2010). This has been attributed to dust from the Canterbury earthquakes (Ministry for the Environment, 2012).

### References

- WHO. 2006a. *Air Quality Guidelines Global Update 2005: Particulate matter, ozone, nitrogen dioxide and sulfur dioxide*. Geneva: World Health Organization.
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- Fisher G, Kjellström T, Kingham S, et al. 2007. *Health and Air Pollution in New Zealand (HAPINZ): Main report*. Auckland: Health Research Council of New Zealand, Ministry for the Environment, Ministry of Transport.