



Environmental Health Indicators For New Zealand

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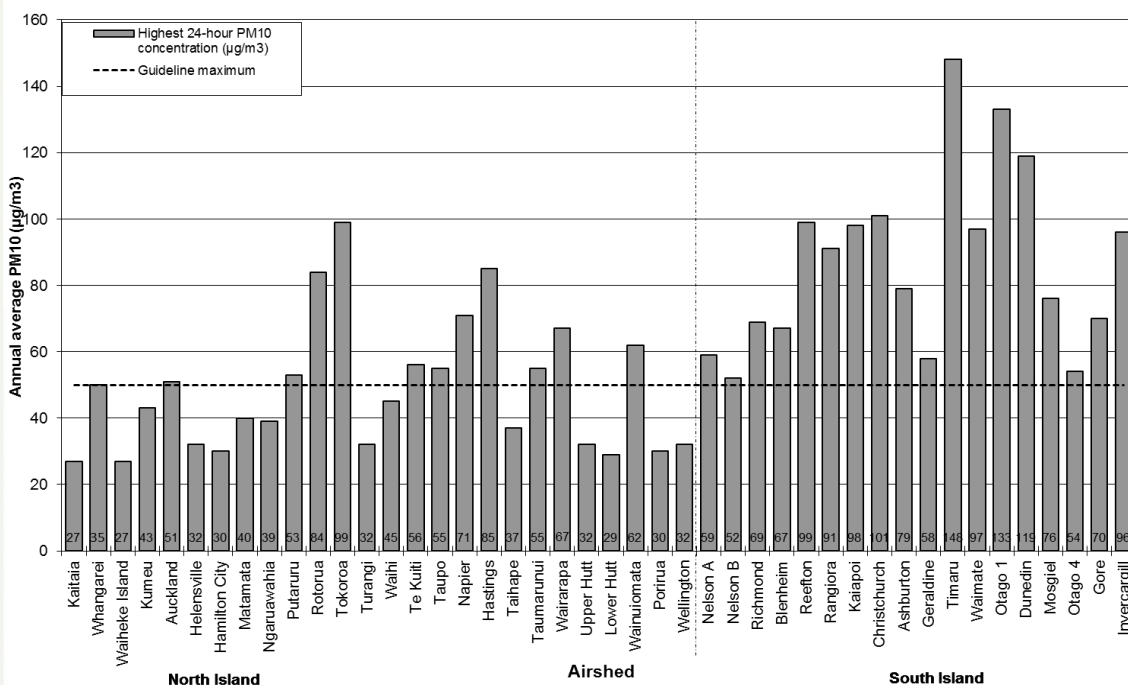
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PARTICULATE MATTER (PM₁₀) – HIGHEST 24-HOUR PM₁₀ CONCENTRATION

Particulate matter with a diameter of less than 10 micrometres (PM₁₀) can penetrate far into the human lung, and short-term and long-term exposures to PM₁₀ 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 PM₁₀ from coal and wood used in home heating (Ministry for the Environment 2010a). Additionally Auckland also experiences high levels of PM₁₀ from road transport (Ministry for the Environment 2007). Particulates are also produced from atmospheric reactions of other compounds such as SO₂ 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 : MAXIMUM PM10 LEVELS (24-HOUR CONCENTRATION) IN AIRSHEDS, 2010



Note: The broken line represents the maximum concentration of PM₁₀ permissible in a 24-hour period under the National Environmental Standards for Air Quality which is consistent with the WHO guidelines.

Source: Ministry for the Environment ; J Fyfe, Personal communication, 29th September 2011

MAXIMUM 24-HOUR CONCENTRATION

Figure 1 presents, for each of the 44 monitored airsheds, the maximum 24-hour PM₁₀ concentration in 2010. Twenty-eight of the 44 monitored airsheds recorded a maximum 24-hour PM₁₀ concentration exceeding the national environmental standard of 50 µg/m³. The highest recorded 24-hour concentration of PM₁₀ was 148 µg/m³ in the Timaru airshed, almost more than three times the national environmental standard.

References

- WHO. 2006a. *Air Quality Guidelines Global Update 2005: Particulate matter, ozone, nitrogen dioxide and sulfur dioxide*. Geneva: World Health Organization.
- Ministry for the Environment. 2010. *Environmental Report Card February 2009 – Air Quality (Particulate Matter – PM₁₀)*. Wellington: Ministry for the Environment.
- Ministry for the Environment ; J Fyfe, Personal communication, 29th September 2011
- Cromar N, Cameron S, Fallowfield H (eds). 2004. *Environmental Health in Australia and New Zealand*. Melbourne: Oxford University Press.
- 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.