



Natural sources of particulate matter, 2000–16

Title	Natural sources of particulate matter, 2000–16
Publisher	New Zealand's Environment Reporting Series: The Ministry for the Environment and Statistics New Zealand
Description	<p>Particulate matter (PM) is made up of solid and liquid particles in the air. It is grouped according to its size – PM10 is less than 10 micrometres (μm) in diameter; PM2.5 is less than 2.5 μm in diameter. Health effects from exposure to PM include lung and cardiac disease, and premature death. Natural sources of PM include sea salt, dust (airborne soil, also called crustal material), secondary sulphate, pollen, black carbon from wild fires, and volcanic ash. There is little evidence that sea salt particles themselves are harmful (World Health Organization (WHO), 2013) although whether sea salt that has interacted with urban air pollutants is harmful is not known. PM can also be produced by human activities, such as dust from construction or unsealed roads, but this is not considered natural because it comes from human activity. Natural sources of PM are important because although they cannot be managed they still contribute to ambient concentrations, which are subject to the National Environmental Standards for Air Quality (NESAQ). Exceedances of the NESAQ occur when the 24-hour average PM10 concentration exceeds 50 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$). There is no NESAQ for PM2.5 exposure, so we report on exceedances of the WHO 24-hour average PM2.5 concentration guideline (25 $\mu\text{g}/\text{m}^3$). We report on data from nine sites from 2005–16 and report only on sea salt for natural PM because other sources of natural PM, such as dust and sulphate, can be generated by humans as well. We were not able to separate the natural from human-generated contributions. Analysis of particle size, composition, and sources in New Zealand shows that sea salt made the largest contribution to natural PM. More information on this dataset and how it relates to our environmental reporting indicators and topics can be found in the attached data quality pdf.</p>
Source	GNS Science, Auckland Council, Greater Wellington Regional Council, Tasman District Council, Environment Canterbury
Rights	Creative Commons Attribution 4.0 New Zealand
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Rights	https://creativecommons.org/licenses/by/4.0/
Coverage	2000–16
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