Our air 2018

6 December, 2018

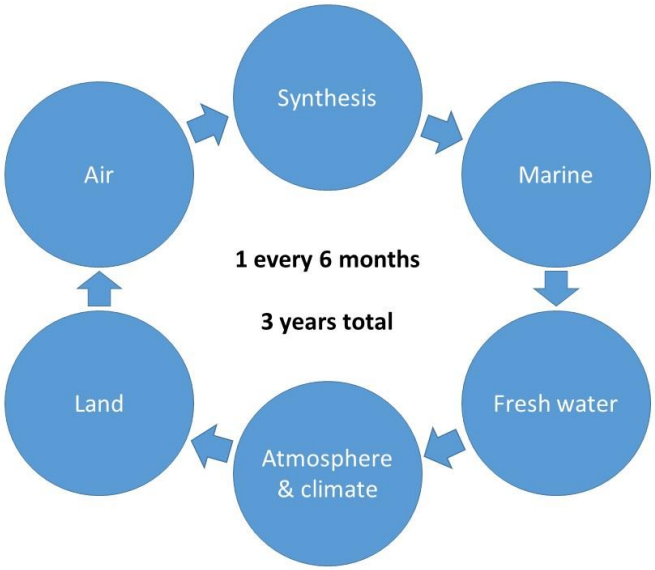
Ministry for the Environment
Manatū Mō Te Taiao
+
Stats NZ
Tatauranga Aotearoa

The Programme

To provide engaging, relevant reporting that influences positive environmental change

Our mandate

- Environmental Reporting Act 2015
- Joint programme MfE-Stats NZ
- Operate at arms length – independent from the rest of the Ministry
- PCE review and guidance



Our products

http://www.mfe.govt.nz/air/state-of-our-air/environmental-reporting

- Report
- Web pages
- Data service
- Summary / infographic
- Video

Scope of the report

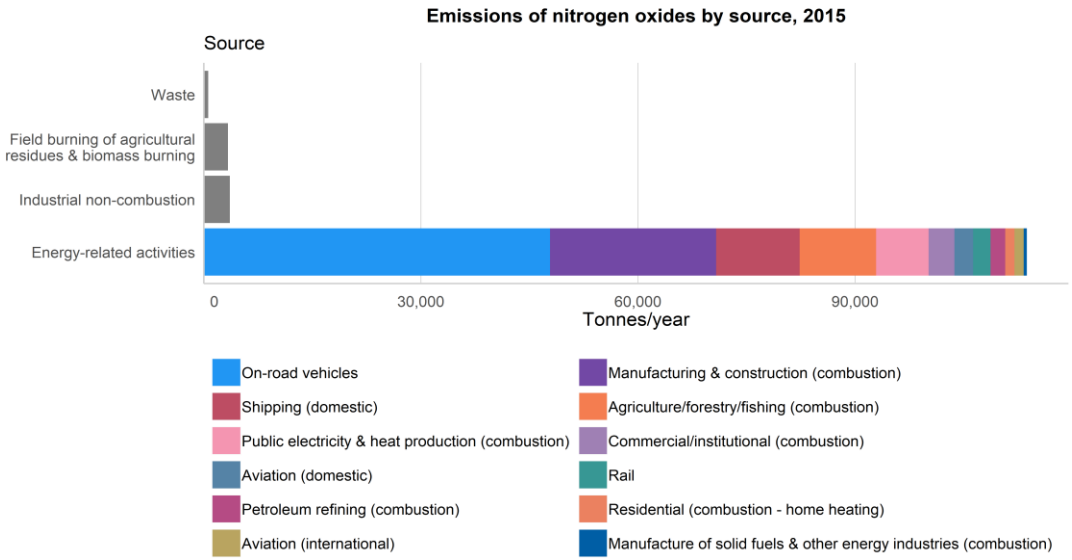
Chapters	Topics
Introduction	• Standards and guidelines • Data
Processes influencing air quality	• Geography, topography, weather
Particulate matter	• Home heating emissions
Gaseous pollutants	• Motor vehicle emissions – nitrogen dioxide • Industrial emissions – sulphur dioxide
Air pollution and the climate	• Black carbon
Other quality of life issues	• Light pollution, noise pollution, odours

Our air 2018 – Key findings

#	Air At A Glance – 6 Key Findings
1	Our air quality is good in most places and at most times of the year. However, home heating can raise particulate matter (PM) to levels above standards and guidelines during the cooler months
2	Air pollution impacts the health of New Zealanders, but the rate of estimated pre-mature deaths from PM pollution was 8% lower in 2016 than 2006
3	Vehicle emissions are a key cause of poor air quality in many urban centres
4	Most of New Zealand has low levels of light pollution, but the majority of people cannot see the Milky Way
5	There are emerging air quality issues to be aware of
6	There are gaps in the data that limit the analysis in this report

Vehicle emissions – Emissions inventory

- Exposure to NO_2 can impact our health – in 2015, the main source in NZ was vehicle emissions (39%), mainly diesels (70% of on-road vehicle NO_2 emissions)
- Manufacturing and construction was the second largest NO_2 source (19%) – includes off-road diesel vehicles
- On-road vehicles also produced 9% of $PM_{2.5}$ and 7% of PM_{10}

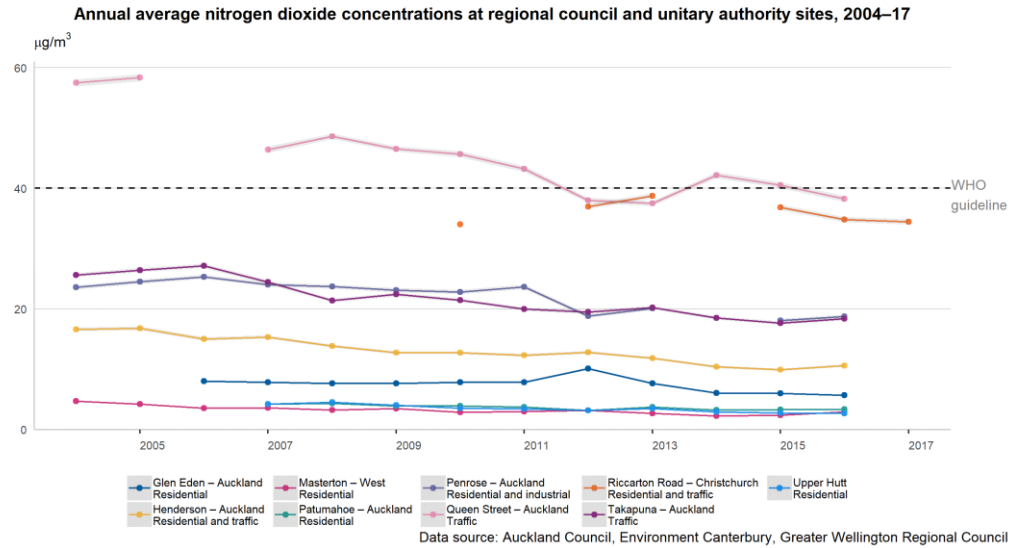


Data source: Emission Impossible Ltd

Note: Sub-sectors with less than 1% of sector emissions are excluded. Home heating emissions are assumed to be the same as the 2013 national emissions inventory (Wilton et al. 2015) because updated population data were not readily available.

Vehicle emissions – Regional Councils

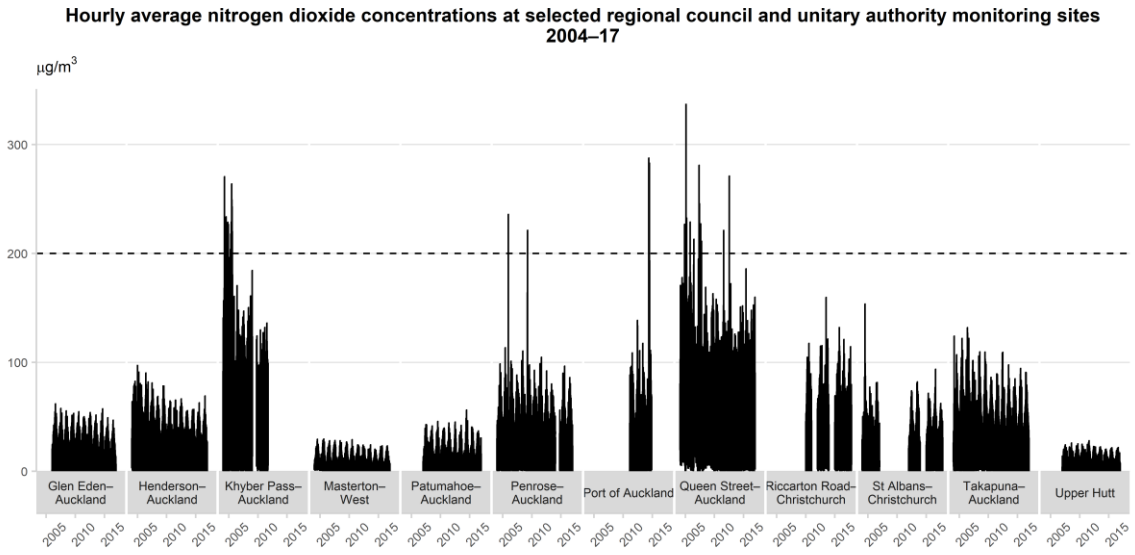
- All 8 regional council sites had a slightly decreasing trend between 2004-2016
- Sites with a traffic or industrial-focus had higher annual averages than residential-focused sites



Note: Dashed line indicates World Health Organization (WHO) long-term (annual) guideline (40µ g/m^3). Shaded area represents 95% confidence intervals.

Vehicle emissions – Regional Councils

- All sites except for Queen Street were generally well below guidelines, but four Auckland sites and one Hamilton site exceeded the standard between 2004-17
- However, there have not been any exceedances since 2012
- Queen Street NO_2 concentrations were higher than the WHO annual average guideline (40 µg/m^3), most recently in 2015.

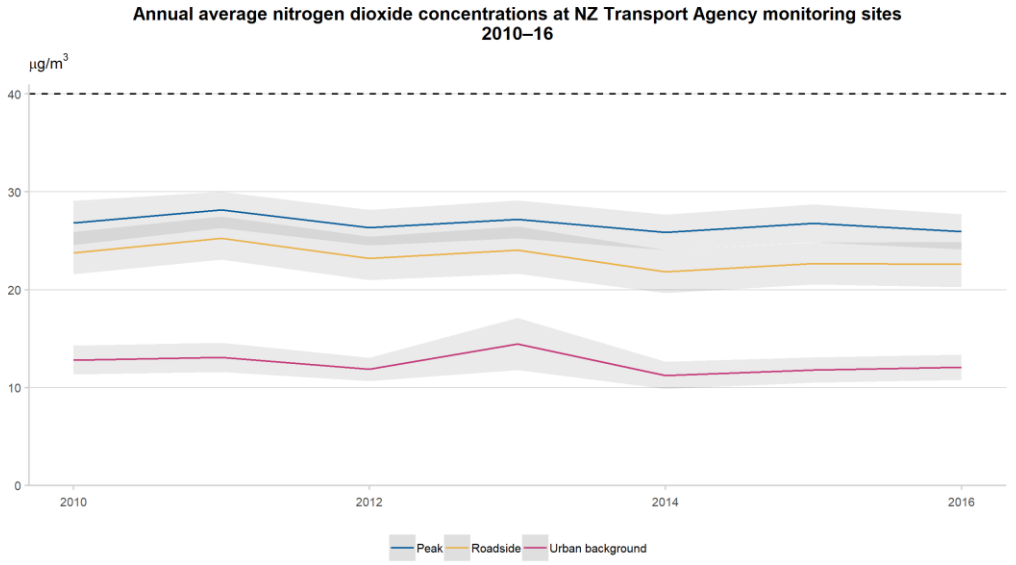


Data source: Auckland Council, Environment Canterbury, Greater Wellington Regional Council

Note: National Environmental Standards for Air Quality (NESAQ) short-term standard (200 µg/m^3) shown by horizontal broken line. An exceedance is when hourly concentrations are above 200 µg/m^3. Nine exceedances over 12 months are allowed. Only sites that met data completeness criteria are displayed.

Vehicle emissions - NZTA

- Network of passive samplers
- Unsurprisingly, urban background sites had much lower NO_2 concentrations than peak or roadside sites.
- 20 of 92 sites monitored by NZTA had decreasing trends (in Auckland, Bay of Plenty, Northland, Hamilton, and Wellington)

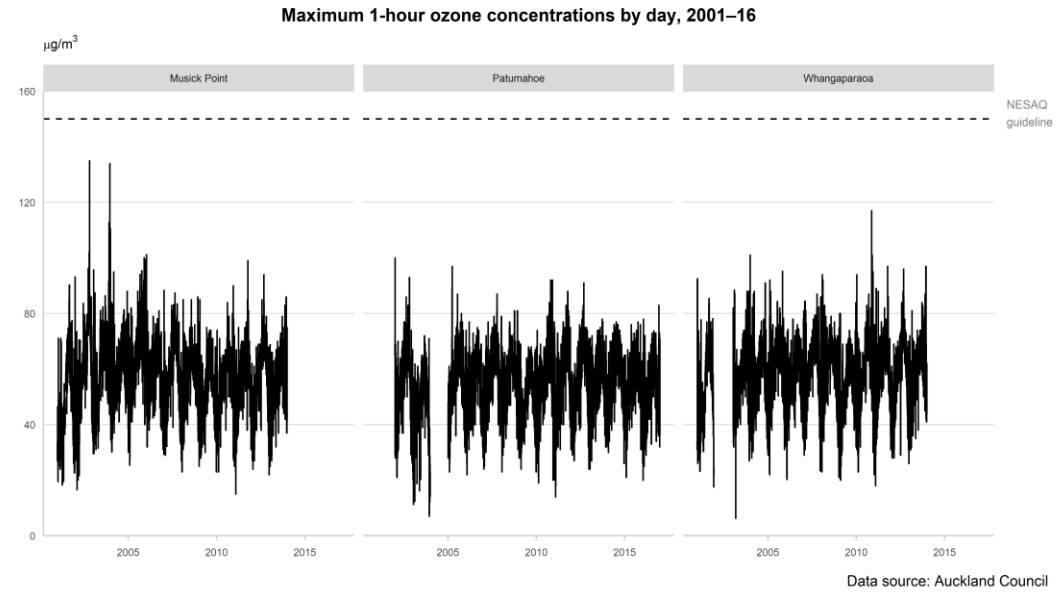


Note: Dotted line shows WHO long-term guideline; shading shows 95% confidence intervals. No exceedances are displayed due to averaging.
Only sites that met data completeness criteria are displayed.

Data source: NZ Transport Agency; National Institute for Water and Atmospheric Research

Vehicle emissions – other pollutants

- Benzene
  - Six sites in Hamilton have decreased over the past decade
- Ozone
  - Levels at three sites in Auckland were low
- Carbon monoxide
  - All 24 sites were well below the NESAQ
  - Emissions from on-road vehicles have decreased
  - Home heating is now the main source of CO (37%) in NZ, compared to on-road vehicles (28%)



Note: The dashed line shows the one-hour National Evironmental Standards for Air Quality (NESAQ) standard. Only sites that met data completeness criteria are displayed.

Dust from unsealed roads

- Mainly an issue in rural areas
- Only important source dominated by coarse particles ($PM_{10-2.5}$)
- Health and nuisance impacts

Emerging issue – shipping and port emissions

- Size of median vessel visiting NZ nearly doubled between 2007-13, and continues to grow. The number of int'l cargo vessels and cruise ships is increasing
- Most large vessels use high-sulphur content bunker fuel
- Domestic shipping was responsible for 20% of national SO_2 emissions, but international shipping not included
- Domestic shipping also contributed 10% of all NO_2 emissions

Report impact so far

- Good uptake across the media
  - Print / internet
  - Radio
  - Social media
- Strong interest from Ministers
  - Change criteria on EECA funds
  - Black carbon as climate issue
- Consultation on NES update
- MARPOL public comment
- Night skies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NEW ZEALAND / ENVIRONMENT

NZ air pollution report: Heat sources a persistent problem

12:34 pm on 18 October 2018 Share this

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People heating their homes and using their vehicles are the biggest causes of poor air quality in New Zealand, according to new statistics.

Questions?