



DEADLY AIRPORT

TOXINS

OVERVIEW OF TOXINS EMITTED BY AVIATION INDUSTRY

The aviation industry produces large amounts of toxic emissions that are a threat to human health and known to be carcinogenic including:



These minute toxic particles and fumes can easily be inhaled into the lungs and bloodstream of people and animals in the area

HEALTH RISKS OF LIVING NEXT TO AIRPORTS

CARBON MONOXIDE

- Premature death, at very high levels
- Reduction in the oxygen-carrying capacity of the blood
- Reduction in ability to respond to increased oxygen demands of exercise or exertion in people with heart disease

NITROGEN OXIDES

- Increased respiratory disease and symptoms
- Aggravation of existing heart disease, leading to increased hospital admissions and premature death

LEAD

- Reduction in the oxygen carrying capacity of the blood
- Neurological effects in children and cardiovascular effects in adults
- Damage to nervous system, kidney function, immune system, reproductive and developmental systems and the cardiovascular system

PARTICULATE MATTER

- Premature death in people with heart or lung disease
- Irregular heartbeat
- Aggravated asthma
- Decreased lung function

SULFUR OXIDE

- Increased respiratory disease and symptoms
- Aggravation of existing heart disease, leading to increased hospital admissions and premature death

VOCs

- Eye, nose, and throat irritation
- Headaches
- Damage to liver, kidney and central nervous system
- Increased respiratory disease and symptoms

DEATHS AND DISEASES ATTRIBUTED TO AIRPORT TOXINS

AIRPLANES FLYING AT A CRUISE ALTITUDE OF AROUND 35,000 FEET EMIT POLLUTANTS THAT CONTRIBUTE TO ABOUT

8,000 DEATHS PER YEAR GLOBALLY



VOCs GENERATED BY SEATAC AIRPORT HAVE BEEN LINKED TO ELEVATED RATES OF CANCER IN THE VICINITY

The general rate of incidence and fatality for glioblastoma, a brain cancer, is fatal for only one in 25,000 people

ADULTS LIVING NEAR AIRPORTS IN THE US HAVE A

3.5%
HIGHER CARDIOVASCULAR HOSPITAL ADMISSION RATE THAN THOSE LIVING FARTHER AWAY



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Science for Environment Policy

How does living with aircraft noise affect wellbeing? A study of UK airports

Airports are associated with air and noise pollution and may, therefore, reduce the quality of life of local people. This study assessed the link between aircraft noise and subjective wellbeing, using data from 17 English airports. The authors conclude that living under flight paths has a negative effect on people's overall wellbeing, equivalent to around half of the effect of being a smoker for some indicators.

most prominent previous [study](#). Based on their results, the researchers conclude that living under air-traffic flight paths may have a negative impact on subjective wellbeing. These findings support lower real-estate market demand in areas where there is aviation noise.

Living within a daytime aircraft noise path (with noise at or above 55 decibels), however, was negatively associated with all measures of subjective wellbeing: lower life satisfaction, lower sense of worthwhile, lower happiness, lower positive affect balance, and increased anxiety. The authors found consistently negative and significant results across all five variables. The researchers could also predict the effect on subjective wellbeing associated with each decibel increase in noise, which they say has potential for modelling the possible wellbeing impacts due to changes in aircraft noise.

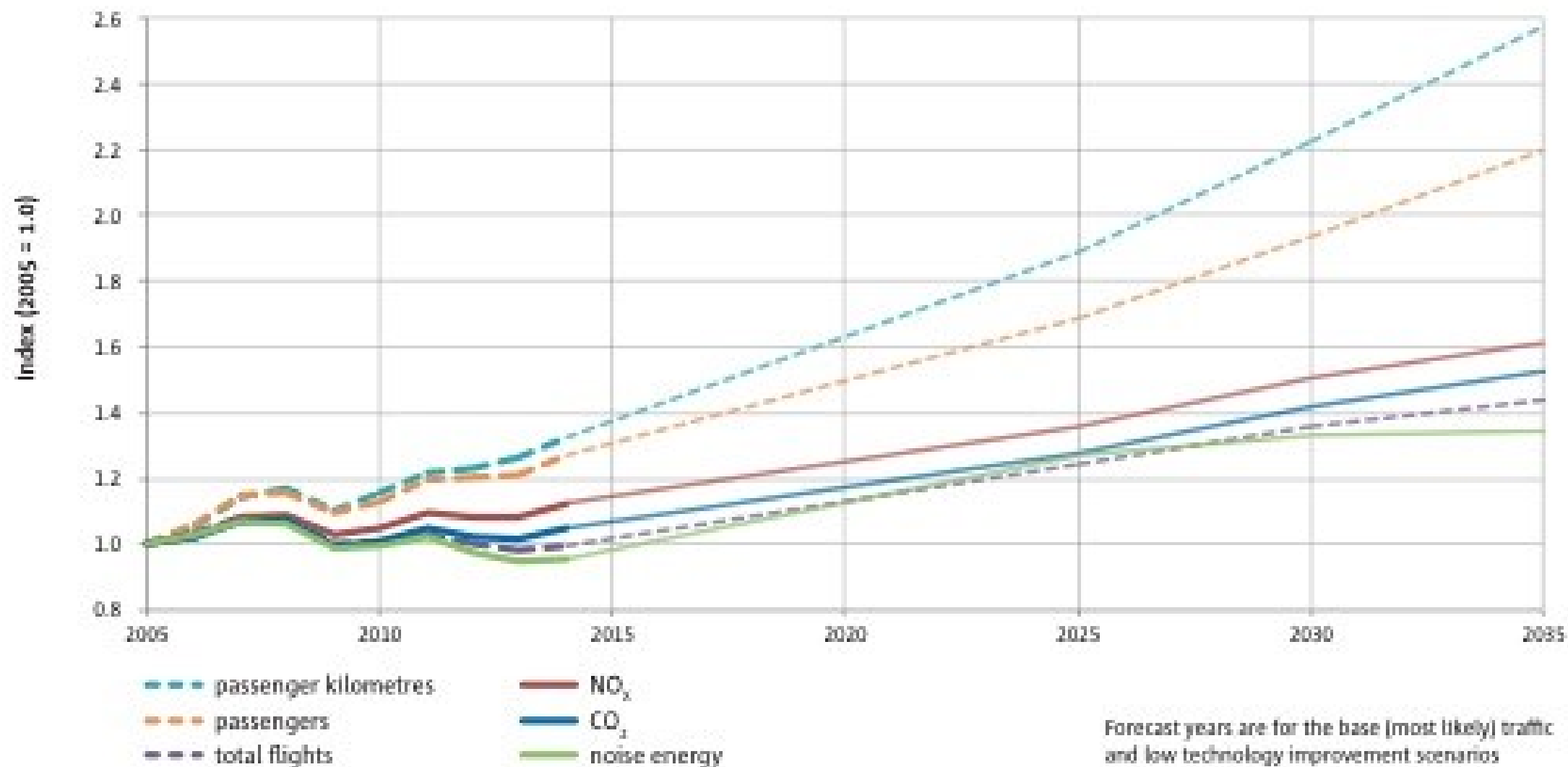
European Aviation Environmental Report 2016



The environmental challenges for the aviation sector are expected to increase, and so future growth in the European aviation sector will be inextricably linked to its environmental sustainability.

A comprehensive and effective package of measures is required to address this challenge. The foundation of such an approach requires published, reliable and objective information, accessible to all. This is the core objective of the European Aviation Environmental Report.

Figure 1.11 Noise and emissions forecast to grow slower than passenger kilometres



Aircraft and road traffic noise and children’s cognition and health: a cross-national study

S A Stansfeld, B Berglund, C Clark, I Lopez-Barrio, P Fischer, E Öhrström, M M Haines, J Head, S Hygge, I van Kamp, B F Berry, on behalf of the RANCH study team*

Summary

Lancet 2005; 365: 1942–49

See Comment page 1908

*Study team listed at end of article

Background Exposure to environmental stressors can impair children’s health and their cognitive development. The effects of air pollution, lead, and chemicals have been studied, but there has been less emphasis on the effects of noise. Our aim, therefore, was to assess the effect of exposure to aircraft and road traffic noise on cognitive performance and health in children.

Interpretation Our findings indicate that a chronic environmental stressor—aircraft noise—could impair cognitive development in children, specifically reading comprehension. Schools exposed to high levels of aircraft noise are not healthy educational environments.

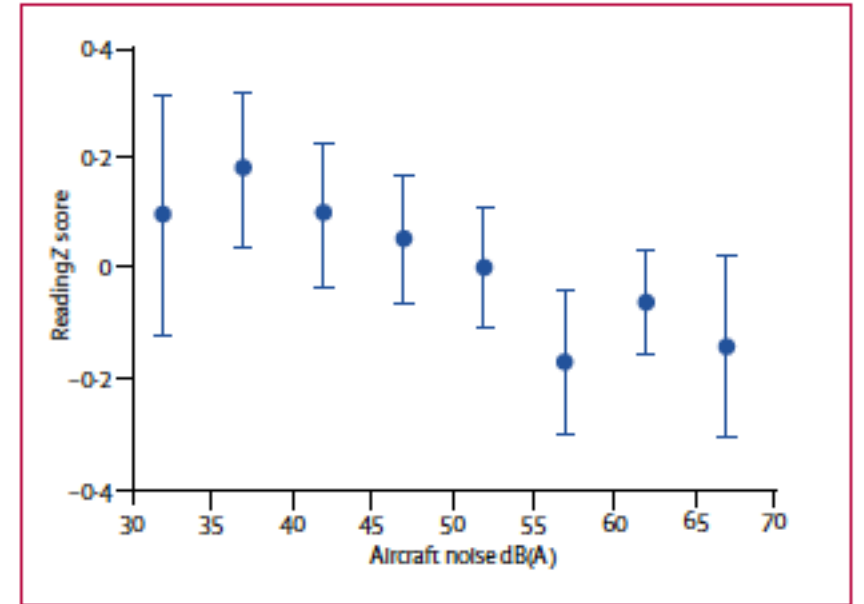


Figure 1: Adjusted mean reading Z score (95% CI) for 5 dB bands of aircraft noise (adjusted for age, sex, and country)

Airports, Air Pollution, and Contemporaneous Health

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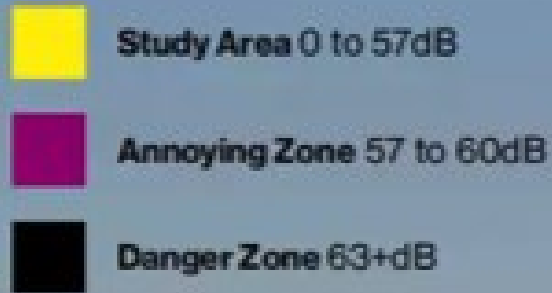
We link daily air pollution exposure to measures of contemporaneous health for communities surrounding the twelve largest airports in California. These airports are some of the largest sources of air pollution in the US, and they experience large changes in daily air pollution emissions depending on the amount of time planes spend idling on the tarmac. Excess airplane idling, measured as residual daily taxi time, is due to network delays originating in the Eastern US. This idiosyncratic variation in daily airplane taxi time significantly impacts the health of local residents, largely driven by increased levels of carbon monoxide (CO) exposure. We use this variation in daily airport congestion to estimate the population dose-response of health outcomes to daily CO exposure, examining hospitalization rates for asthma, respiratory, and heart-related emergency room admissions. A one standard deviation increase in daily pollution levels leads to an additional \$540 thousand in hospitalization costs for respiratory and heart-related admissions for the 6 million individuals living within 10 km (6.2 miles) of the airports in California. These health effects occur at levels of CO exposure far below existing Environmental Protection Agency mandates, and our results suggest there may be sizable morbidity benefits from lowering the existing CO standard.

Key words: Health effects of pollution, Airport congestion, Network delays, Instrumental variables.

JEL Codes: Q53, J1, C26

LOUD LONDON SOUND MAP

DAYTIME AIRCRAFT NOISE, DECIBELS



CAUSE AND EFFECTS

The exact role that noise exposure plays in ill-health is not well understood, but doctors suspect the main factors are ...



BLOOD PRESSURE

Acute exposure to noise leads to short-term increases in heart rate and blood pressure. Prolonged exposure could mean keep blood pressure high, increasing the risk of cardiovascular diseases

“What people don’t realise is that it’s not just the sound of the aircraft – but how you have to adapt your entire audio environment. Everything in the house has to be louder to block out the noise; while your subconscious thought patterns are continuously interrupted.

SLEEP DEPRIVATION

Disturbed sleep is known to have a number of adverse effects on health, raising stress levels and possibly blood pressure, both of which are risk factors for heart disease.

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8 October 2013