

Noise Complaints and Information Service

MONITORING AIRCRAFT NOISE

Airservices Noise and Flight Path Monitoring System (NFPMS) collects noise and flight path data at Brisbane, Cairns, Canberra, Gold Coast, Sydney, Melbourne, Essendon, Adelaide and Perth airports.

This system collects noise and flight path data 24 hours a day, seven days a week via monitors located within the local communities.

The system is the world's largest, most geographically spread system of its type. It records the identity, flight path and altitude of each aircraft operating to and from the airport, the noise levels produced by individual aircraft flying over the noise monitors, weather data, and the general background noise levels.

Purpose of noise monitoring

Noise monitoring data is used by a variety of organisations for different purposes, including the Department of Infrastructure and Regional Development, airports and airlines. Noise monitoring is not conducted to determine compliance with aircraft noise regulations - there is no maximum level allowed for aircraft noise. Rather it is undertaken to:

- determine the contribution of aircraft noise to the overall noise that a community is exposed to
- provide information to the community about aircraft noise and operations

- help local authorities make informed land use planning decisions (though decisions can only be refined through the use of monitoring data, not completely overturned)
- inform estimates of the impact of changes in air traffic control procedures - including changes designed to reduce noise impacts of aircraft
- validate noise modelling
- inform the determination of aviation policy by government
- assist the government to implement legislation, such as curfew acts and regulations.

Measurement of aircraft noise

As an aircraft flies over a monitor, the noise level rises above the background level to a peak usually within 10 seconds and then slowly returns to the background level. The duration of this event varies depending on the height, type and loudness of the aircraft but is usually around 20-40 seconds.

Airservices noise monitoring captures each event as a separate instance. An event begins when the noise level exceeds the threshold value set in the noise monitor and terminates when



the noise level drops below the threshold value. The average noise level, peak level and the noise level for each second of the event is stored. Noise monitors also measure average noise levels and track trends.

This data is then matched with Airservices radar data. Data is usually averaged over a timeframe to reduce the distortion of the extreme results that may arise from unusual weather conditions or other noise sources (eg machinery, motorcycles).

Noise monitors

A noise monitor, also referred to as an environmental monitoring unit (EMU) consists of a microphone attached to a mast and an electronics box. The microphone continuously measures the noise level within the range of 30 to 130 decibels. The noise data is downloaded to a central computer system and matches recorded noise events to aircraft flights.

Types of monitors

Airservices uses a combination of permanent, portable and temporary noise monitors. Some of the permanent monitors have been in place for over 10 years. Temporary monitors may be in place for a period as short as two weeks.

Permanent monitors are fixed installations and are required to meet international standards, including having the microphone on top of the mast, between four and six metres off the ground.

Portable monitors are semi-permanent installations and are deployed for up to 12 months. The components of a portable monitor are much the same as for a permanent monitor, except for the mast which needs to meet the individual requirements of the location.

Temporary noise monitors are used to meet short term monitoring requirements of up to four weeks. Locations are decided by Airservices but the actual sites are determined by the contracted service provider to meet the particular purpose of a noise study. Temporary monitors are also comprised of a microphone and electronics box but are powered by batteries.

Locations of noise monitors

Airservices reviews the location of all monitoring units against a range of criteria, including changes in flight paths and aircraft traffic patterns. Airservices publishes the reports on the noise monitor reviews, known as "Review of Environmental Monitoring Unit" at <http://www.airservicesaustralia.com/publications/noise-reports/noise-monitoring-network-reviews/>

Airservices also works with airport community aviation forums (eg. Community Aviation Consultation Groups) to consider short-term monitoring programs and the suitability of additional or alternative locations for monitoring units.

Most private residences are unsuitable as a location for monitoring units. There are a number of requirements that must be met for Airservices to be able to install a noise monitoring unit (permanent or portable) at a particular location.

Reporting of noise monitoring

Summaries of the noise data collected at each noise monitor are reported quarterly for each of the eight airports where monitoring is undertaken. These are available at <http://www.airservicesaustralia.com/aircraftnoise/airports/>

Historical and near real-time noise data from each noise monitor is also displayed by WebTrak, which provides information about where and how high aircraft fly over metropolitan areas for a period of up to three months. WebTrak is accessible at www.airservicesaustralia.com/aircraftnoise/webtrak/

Who is responsible for aircraft noise management?

Responsibility for aircraft noise management is shared between a number of key industry stakeholders:

- airlines and aircraft operators
- air navigation service providers (such as Airservices)
- airports
- federal government agencies
- state and local governments.

Further information

- Airservices website – www.airservicesaustralia.com/aircraftnoise/ contains information and fact sheets about airports, aircraft noise and related resources
 - WebTrak – www.airservicesaustralia.com/aircraftnoise/webtrak/
- Department of Infrastructure and Regional Development – www.infrastructure.gov.au/aviation/general/index.aspx provides information about government policy for aviation, including government strategies for safeguarding airports and surrounding communities, legislation and regulations, and noise insulation schemes.
- Aircraft Noise Ombudsman website – www.ano.gov.au includes information about the ANO's role and reports on reviews undertaken.