Brüel & Kjær B K

BEYOND MEASURE

AN EFFECTIVE PARTNER IN RUNNING A COMPREHENSIVE
NOISE ABATEMENT PROGRAM

To comply with environmental noise regulations, Newcastle International Airport Limited needed to manage and reduce environmental noise where necessary, and preserve the current noise level where it was already acceptable. NoiseDesk enabled them to do this efficiently whilst freeing staff for community engagement activities.

Newcastle International
Your Airport

CHALLENGE
To manage the airport's noise impact and compliance with regulations without tying up staff to administrate a noise monitoring system

SOLUTION
A subscription to NoiseDesk – an easy-to-use, unattended, outdoor airport noise monitoring system with a task-based interface that leads the user through what needs attention

RESULTS
NIAL runs a comprehensive noise abatement programme, enabling the airport to uphold its status as one of the quietest airports of its size. It continues to maintain positive community relations

BACKGROUND

Newcastle International Airport Limited (NIAL) is located near Woolsington in Newcastle upon Tyne in the United Kingdom.

It is the 11th busiest airport in the UK and serves a catchment area of the North East, South Scotland, Cumbria and North Yorkshire and contributes £646 million into the regional economy every year.

The airport accommodates around 4.5 million passengers a year.

THE CHALLENGE

Whilst NIAL had an existing noise monitoring system, it was 10 years old, too complex for their requirements and did not utilise newer web-based technologies.

The International Civil Aviation Organisation (ICAO) developed the 'Balanced Approach' to noise problems at an airport, stating they should be analysed using these four elements:

- Reduction at source
- Land use planning and management
- Operational noise abatement procedures
- Aircraft operating procedures

This enables airports to manage noise problems in the most cost-effective manner to meet local requirements.

Newcastle Airport applies all four elements through the use of modern aircraft, working with local authorities on land use planning and implementing strict noise abatement

> "NOISEDESK WAS THE PREFERRED OPTION BASED ON THE PRODUCT FEATURES, VALUE FOR MONEY AND SYSTEM ACCESSIBILITY."
>
> *Graeme Mason*

Graeme Mason,
Planning and Corporate Affairs Director,
Newcastle International Airport

procedures. Without a fully-featured, task-driven noise management system, planning, initiating and monitoring noise abatement procedures would be virtually impossible.

Complaint handling was also high on NIAL's list of requirements. Noise from take-offs, landings and thrust reversals is not only a blight on the community but also one of the fastest growing environmental problems.

NIAL wanted to build a programme that showed the broader community that the airport is serious about meeting its environmental obligations.

THE SOLUTION

After examining all offerings on the market, Brüel & Kjær's NoiseDesk was chosen for its flexibility and ease of use; both critical elements for an airport looking to develop a variety of noise initiatives without tying up staff in administration.

NoiseDesk collects data including flight tracks and plans, noise, weather, aircraft operators, complaints, contours and compliance rules and assembles it into a database.

The web browser user interface shows the data in easily understood lists, maps and graphic presentations. Data is reported and the output can be exported in a variety of formats including Excel spreadsheets, Word templates, noise models, importable files and Google Earth.

Because NoiseDesk is browser-based, airport staff are able to access noise and flight

Aircraft at Newcastle operate from one runway aligned south-west to north-east. The runway is designated 25 or 07 depending on the wind direction. Runway 25 is used 70% of the time.

information anywhere, at any time, to show at schools, town hall meetings and to other interested community members.

The task-driven interface means that all staff can easily utilise all features of the noise monitoring system for their daily community engagement and reporting activities without needing specialist training.

That ease of use comes from a design that walks the user through the steps of each task rather than presenting a toolkit of functions.

This means people can use the system infrequently and still efficiently get all the information they need.

NoiseDesk has the know-how to alert the user to what needs attention whilst the back-end data collection and processing is monitored and validated by Brüel & Kjær.

Noise reporting and complaint handling
When a complaint or enquiry is received about a particularly loud noise event or disturbance, NoiseDesk can identify the aircraft that may have been responsible.

Flight operations near the time of the complaint are loaded in the flight operations list from which they can be selected to show on the NoiseDesk map. NIAL staff can enter the details of the caller and the caller's concern(s) for later review.

Angel of the North, contemporary steel sculpture located near Gateshead in Tyne and Wear, England.

> "NOISEDESK HAS SIGNIFICANTLY GREATER CAPABILITIES THAN OUR PREVIOUS SYSTEM, INCLUDING THE ABILITY TO ACCESS THE SYSTEM VIA THE INTERNET AT ANY LOCATION. THIS HAS BEEN PARTICULARLY USEFUL WHEN PRESENTING NOISE INFORMATION TO LOCAL COMMUNITIES."

Helen Hughes, Environmental Adviser, Newcastle Airport

A flight operation that is deemed to have caused the complaint can be linked to the complaint record.

"The function to investigate individual noise complaints has provided clearer information to complainants and access to audible recordings of noise levels has further enhanced our community engagement capabilities," said Helen Hughes.

"The system also provides the facility to monitor airline compliance with operational procedures such as Continuous Descent Approaches and noise preferential routes," added Helen Hughes. "NIAL actively uses NoiseDesk for operations compliance monitoring and re-play of historical data."

NoiseDesk runs in an Internet browser and displays flight track monitoring and flight tracking data in a number of ways.

A summary dashboard shows items that need attention, such as flights out of corridor or unusually loud noise events. Selecting an item leads the user automatically to the appropriate presentation of that data.

Flight tracks are displayed on a map (Google maps), and can be selected, analysed and replayed using animation.

The Tyne Bridge which has been connecting Newcastle upon Tyne and Gateshead since 1928.

METAR weather conditions at the time of a flight or noise event, which may impact flight paths and noise levels, can be investigated directly from the map.

The address of any person making a complaint can be plotted on the map and the distance between an aircraft and the complainant's location can be measured.

This information can easily be exported to Microsoft Word templates to generate response letters for complaints and compliance issues.

All operations, noise events, complaints and compliance issues are displayed in sortable lists and data, including flight tracks, can be exported to Microsoft Excel, Integrated Noise Model (INM), Google Earth and text formats.

Of special interest to NIAL was reporting functionality, as the airport routinely reports information to management, its consultative committee and other stakeholders.

NoiseDesk provides a number of periodic reports covering the following:

- Operations
- Noise climate
- Complaints
- Compliance with procedures

Multiple standard reports for noise and tracks are produced in Excel, based on templates which can be adjusted by the user.

RESULTS

By subscribing to NoiseDesk, the airport has access to a system that has both high data availability and high accuracy.

The airport's noise management programme has proven to have many benefits. NIAL is considered to have a lower noise impact than many other similar sized airports.

A balanced view of the benefits of the airport and acceptance by the community equals strong regional support, which in turn means there are relatively few environmental constraints to the future development of the airport.

CONCLUSION

NoiseDesk makes it viable to run a comprehensive airport noise abatement programme without taking up a lot of staff time. The NoiseDesk infrastructure is managed by Brüel & Kjær and does not burden the airport's IT department. NoiseDesk is so easy to use that authorised staff can use the system infrequently and still easily complete any required tasks.

> "NEWCASTLE INTERNATIONAL AIRPORT AND BRÜEL & KJÆR HAVE BEEN WORKING TOGETHER FOR OVER 16 YEARS AND WE ARE PLEASED TO BE ABLE TO CONTINUE THIS LONG-STANDING RELATIONSHIP."
>
> *Graeme Mason*

Newcastle International Airport.

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