

AIRMAIL

News, views and opinion for the aviation industry

Planning for London 2012

The London 2012 Olympics will provide quite a challenge for NATS. Before, during and after the games, we can expect 700 additional commercial flights within London airspace, 3,000 additional business aviation flights, many extra helicopter movements per day, and the arrival and departure of 150 heads of state.

Government Engagement

Just like the athletes themselves, our preparations for London 2012 began well in advance. In fact, back in 2009 we started to attend meetings across Government departments, airport operators, airlines, neighbouring air navigation service providers and other aviation stakeholders. These conversations helped build a picture of the challenge ahead, the needs of our customers and partners, as well as best practices for coping with traffic surges.

It was important we balanced the need for increased capacity with the Government's airspace security provisions. After extensive consultation and simulation, NATS submitted a successful proposal for Temporary Controlled Airspace [CAS(T)] that will allow increased traffic flows without impacting with the Government's security restrictions.



Ensuring "business as usual"

We agreed that the best use of our time would be spent focusing on the specific pinch-points most likely to cause congestion. In addition to creating capacity at major airfields, our CAS(T) proposals also accommodated the extra aircraft flying into secondary airfields. More than 40 of these airfields in the South East of England require extra capacity for Olympic flights - mainly of a business aviation type.

Thanks to this extensive planning process, commercial operators can expect business as usual from NATS during the Olympic Games. They've started planning their flights months in advance, secure in the knowledge that they will have reliable air traffic services and a landing slot at the airfield of their choosing. Equally, private pilots have also been informed well ahead of time about the temporary airspace changes and how they will impact General Aviation.

Addressing capacity, safety and security

The influx of Olympics traffic into the London area will be an unprecedented test of our procedures and testament to our preparations. By working with partners across the aviation industry to understand the scope of the challenge, together we have established complimentary strategies to address capacity, safety and security demands. By taking on board the lessons learned from previous Games and global events, we're confident Olympics spectators can worry about their athletes, but not their air travel!

Welcome to the very first NATS newsletter, **Airmail**. It's designed to keep you up to date with news and latest developments from the global leader in air traffic control and airport performance.

It's called Airmail to celebrate the 100th Anniversary of the UK's scheduled aerial post service. A service that revolutionised the way mail was delivered around the world.

NATS provides answers to the critical issues faced by airports, ANSPs and the aviation industry around the world. And we don't simply address the issues in isolation: we always bear in mind the bigger picture.

If there are any topics that you would like further information on or general enquiries, please contact us at: Airmail@nats.co.uk

Rapid growth at Dublin Airport

Ten years ago, the NATS Operational Analysis Airport Capacity Team was asked to undertake a detailed review of the runway capacity at Dublin Airport.

Since then the study has continued year-on-year, and the last assessment is planned for the Summer 2012 schedule.

The airport at Dublin is home to Ireland's flag carrier Aer Lingus, Europe's largest low-fare airline Ryanair, Air France KLM owned carrier CityJet, and Ireland's regional airline Aer Arann also operating Aer Lingus Regional routes. Dublin airport has an extensive short and medium haul network that, back in 2001, had an annual passenger throughput of 14 million passengers with peak hourly movements set at 44 movements per hour.

Growing capacity

Today, 10 years on we've seen rapid growth at Dublin. Changes in wake turbulence mixes, the implementation of several enhancements and the introduction of ATC pilot and airport operator performance reviews, has seen peak hourly movements grow to 48 movements per hour with capacity being added to the key morning and lunchtime peaks.

How Dublin managed the growth

The key is stakeholder engagement and making sure that all parties - airlines, airport operator, slot coordinator and air traffic control - are working in partnership. Our team, working closely with the Dublin Airport Authority and other scheduling consultants has been able to provide the operational analysis and delay estimates to assist the increase in runway capacity.

The working partnership has:

- Implemented a new delay criteria;
- Changed the airport from an IATA Level 2 schedule facilitated to IATA Level 3 scheduled co-ordinated airport;
- Introduced dual runway operations;
- Reduced departure Standard Instrument Departure (SID) separations; and
- Changed the scheduling constraints.



By applying industry best practices, NATS has accurately measured, reported and assessed the performance of the airport operation. We used bespoke runway capacity modelling tools to release "latent" capacity while also enhancing ATC, pilot and airport operator performance.

In the future Dublin Airport Authority and NATS will continue to enjoy a strong working relationship and look forward to seeing what other improvements can be made.

Fast-Time simulation improves pavement design for Hong Kong Airport with substantial savings

Hong Kong International Airport has entered into a new phase of expansion. A new apron is being constructed to accommodate remote aircraft parking as well as maintenance and freighter movements. Atkins, the civil engineering consultant for Airport Authority Hong Kong, has been tasked with the scheme design and they appointed NATS to provide air traffic inputs.

Fast-time computer modelling

At NATS we conducted Fast-Time simulation to help visualise the proposed development scheme. Fast-Time simulation is a computer modelling service that shows proposed changes and their impact to airport ground infrastructure or airspace design. It is called 'Fast-Time' because the model runs on the computer faster than real time. To run a typical set of one-day traffic, it will take the computer 10 minutes rather than 24 hours.

This allows the design and its potential benefits to be visualised and validated and refined on the computer. Fast-Time is an inexpensive service that enables management to see benefits well in advance of the build.

Various modelling scenarios were constructed for the new apron and the results were analysed to provide a detailed breakdown of the types and level of traffic expected within the development area.

Substantial savings in the cost of construction

The information NATS provided enabled Atkins to calculate the expected pavement loading for the apron and taxiways over their design life. This in turn allowed the thickness of the pavement to be reduced and provided a substantial saving in the cost of construction.

The cost:benefit ratio for this type of project is in the order of 1:10. Invest \$1 in Fast-Time and you get \$10 back in savings because you can refine the build to reflect the demand.



Our new tool helps reduce airport emissions

NATS is the first Air Navigation Service Provider to set challenging CO₂ reduction targets for aircraft under its control. In fact we've invested considerable time and effort towards developing a strategy to achieve an average CO₂ reduction of 10% per flight by 2020.

As part of this strategy, we've developed a new monitoring tool to help our operational and environmental managers better understand flight profiles around our airports.

The Flight Profile Monitor (FPM) utilises accurate radar data to build a real-time database of flight activity. It works within approximately 50 nautical miles of airports and provides detailed analysis of all climb, descent and level flight activity from ground to cruise levels.

Data delivered in graphic or statistics formats

The data recorded includes rate of climb and descent, airspeed and heading. It can be presented graphically by individual aircraft, aircraft type, company or statistically in the form of compliance with preset criteria.

An obvious application for this data is in Continuous Descent Approach (CDA) and Continuous Climb Departure (CCD) compliance but any vertical profile can be analysed. Top of descent to stack entry level, for example, may also yield useful analysis.

Identifying improvements and eliminating inefficiencies

Whilst relatively simple in function, the FPM tool provides a powerful analytical capability that identifies inefficiencies in flight profiles. More importantly, it will assist us in identifying areas where improvements can be made to procedures, flight operations procedures and airspace and ATC interfaces.

A video playback function highlights aircraft that did and did not achieve any preset flight profiles such as CDA. This allows us to identify any regularly recurring periods of level flight or flight deviation from the ideal, and therefore to start eliminating those inefficiencies.

The tool can be linked to our existing CO₂ measuring capability to allow accurate data to be collated on individual and overall CO₂ emissions during key flight phases.

Reducing environmental impact

The FPM tool is now being used to provide vital new information and analysis on how the complex climb and descent phases within UK airspace are flown.

Internal trials and optimisation phases are showing ways we can benefit our operational and environmental ATM planning.

FPM is just the start. At NATS we will continue to develop new and innovative tools and techniques to reduce the environmental impact of aircraft operations within UK airspace.



Road mapping project management down under

Back in 2010, NATS six-year project to plan, build and deliver one of Europe's largest air traffic control centres at Prestwick went on to win 'Best Project of the Year' award and a Professional Project Management accreditation for the company.

High standards in project management are an important target for us and it's something we've put a great deal of hard work into over a number of years. Today we have an enviable reputation that brings leading corporations such as Airservices Australia (Airservices) to NATS.

Analysing and measuring the current capability

Airservices asked if we could improve their own project management capability and of course, we were happy to oblige. A team of NATS Project Management and Process experts were mobilised and after analysing and measuring the current capability, our team developed a performance 'road map' that prioritised the areas Airservices needed to focus on.

The NATS roadmap is similar in concept to the internationally practiced Capability Maturity Model Integration – an approach that provides organisations with the essential elements of effective processes, which will improve their performance.

CMMI-based process improvement includes identifying process strengths and weaknesses and making process changes to turn weaknesses into strengths.

Significant improvement in capability

After six months, NATS returned to Airservices and measured a significant improvement in their capability. To make further improvements, we also developed a customised development plan specifically designed to achieve a level 3 capability, which means they have defined standard business processes.

At the same time, the NATS team trained Airservices staff in the techniques and skills required to audit and assess projects against their road map.

