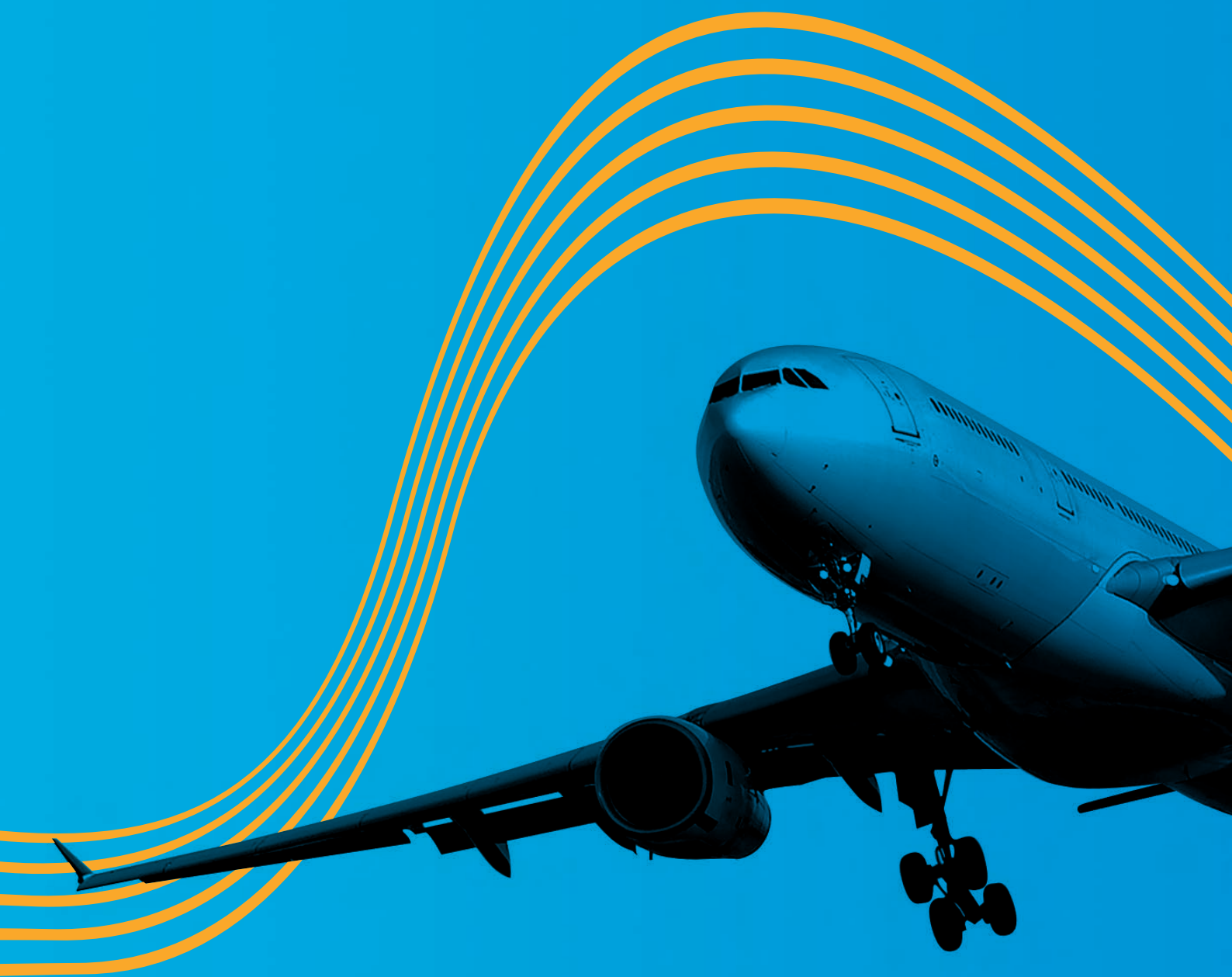


NATS



Delivering customer value
Customer report 2011/12



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1. Introduction



The last 12 months have been highly significant for NATS in which we marked the culmination of our first 10 years as a privatised business. During that time, safety has improved, NATS-attributable delay is down from almost 2 minutes per flight to just 7.1 seconds and we have consolidated our operation from four ATC centres to two centres in Swanwick and Prestwick.

Last year NATS' transformational journey was exemplified with the introduction of the new iFACTS controller support tools at Swanwick. These tools represent a major improvement to the way that we manage the London Area operation, delivering enhancements to safety, capacity, environmental performance and operational efficiency and they set the stage for the next ten years.

We set some extremely challenging service targets with the Operational Partnership Agreement (OPA) in 2011 and we out-performed the stretch target on early morning delays and enabled over 25,000 tonnes of fuel savings. Whilst we did not achieve all of the targets set with the OPA, in a year of very challenging technical transitions, NATS' delays were lower than the top 10 Eurocontrol league table of delay generating ANSPs, testament to our continued focus on service delivery.

We have introduced our award-winning flight efficiency metric, another innovative development making NATS the first ATM company in the world to be incentivised on our environmental performance.

This year, of course, we are looking forward to the London Olympics and NATS is committed to a successful Games for our customers and for the UK.

For us, this means ensuring flights pass through the UK air traffic system safely and as efficiently as possible. With this goal in mind, we are implementing new airspace, procedures and operational radar positions, together with a new ops

room for the military to manage the security airspace during the Games. We are also taking the lead in communicating to the aviation community the changes they can expect during the Games and we will run the NATS' communications cell throughout, to keep our airline and airport customers up to date on the operational situation at all times.

Day to day, we are continuing to do everything we can to help reduce customers' overall operating costs through focus on fuel savings and punctuality, and through longer-term reductions in our operating costs. We are also delivering major airspace and infrastructure projects to ensure future efficiencies.

We expect the Government to publish the next stage of consultation on its aviation framework within the coming months and we are working with industry and our customers to develop the concepts that will drive the airspace design of the future through major airspace development programmes in the north and the south of the country.

Continuing to deliver a safe and efficient service is critical but our ambitions go beyond this and we are seeking to become a global leader in innovative air traffic solutions and airport performance.

2012 promises to be an exciting and formative year for the industry and you have my continued commitment to do all we can to ensure 2012 delivers excellent value for your money.

A handwritten signature in black ink, appearing to read 'Richard Deakin', with a long horizontal line extending to the right.

Richard Deakin
CEO NATS

2. Key indicators

A large white commercial airplane is parked on a tarmac at dusk. The aircraft is viewed from a low angle, showing the front fuselage, the cockpit windows, and the wings. The sky is a deep blue, and the ground is dark with some yellow markings. The overall mood is calm and professional.

NATS-wide performance indicators (en-route and airport ATC)

		2011/12	2010/11	Change v. 10/11
Traffic	UK Flights (000s)	2,167	2,116	+2.4%
	Oceanic Flights (000s)	404	390	+3.6%
Safety	Risk Bearing Airprox (Cat A & B) NATS Attributable	0*	0	-
	Risk Bearing Airprox (Cat A & B) Any Culpability	4*	7	-
	Safety Significant Event Risk Index	323	394.9	-18%
Delays	% of Flights With No NATS Delay	99.3%	99.6%	-0.3%

Performance v. CP3 and OPA Metrics

		Target	Performance
CP3 Metrics (CY 2011)	T1 Average Delay Per Flight (secs)	11.5	7.87
	T2 Delay Impact (score)	32.5	12.69
	T3 Delay Variability (score)	1,500	11.71
	T4 3D Inefficiency (3Di) metric	From Jan 2012	
		Target (Stretch)	Performance
OPA Metrics (FY 2011/12)	Early Morning Delays >15 mins (flights)	2,350 (1,700)	1577
	Evening Delays >15 mins (flights)	700 (600)	1760
	Rest of the Day (total mins)	125,000 (105,000)	123,289
	Staff Delays (mins)	35,000 (25,000)	81,569
	Fuel Savings Enabled (tonnes)	23,000 (25,000)	25,203

Notes on Key Indicators:

* The risk category is estimated by NATS for a number of encounters in this period and is subject to assessment by the independent UK Airprox Board.

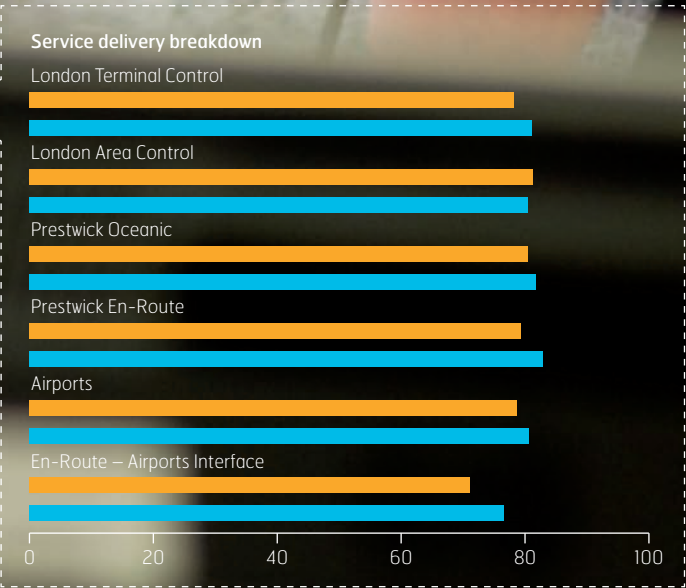
T2 delay impact score drives performance for peak periods and avoidance of long delays. T3 delay variability score ensures strong focus on technical and staffing resilience. The regulatory regime allows for agreed and limited exemption periods to be nominated for major system or airspace changes. There is also a T2 exemption for significant system failures that impact service delivery. In 2011, NATS used 18 of the 40 days it is allowed to exempt over the four years covered by CP3. With exemptions the T2 score was 12.7 and T3 was 11.

3Di Metric

The 3Di score is an average efficiency rating in terms of vertical and horizontal trajectories – how smooth a climb and descent, and how direct a route we can provide for each flight. Measurement is by comparison of a flight's actual radar data against its most direct great circle track (horizontally) and its ideal flight profile (continuous climb/descent to/from its requested flight level). Based on analysis of historic performance, our average performance has been calculated against which the CAA has set challenging 'par' values (annual moving average) for the remainder of CP3 to drive performance improvement. One unit of the 3Di metric is equivalent to around 35,000 tonnes of fuel, which means a saving to customers of £22 million for each unit below the CAA's target. NATS has received two industry awards for its pioneering work on the 3Di metric.

3. Customer priorities

“Tuned in to customers” is one of NATS’ core business values – it means that we put our customers at the heart of our decision making, understanding their needs and priorities so that we can deliver value to their businesses.



2010 (orange)
2011 (blue)

Our primary means of ensuring we understand our customers’ needs is through engagement in the Operational and Safety Partnership Agreements (OPA and SPA) where we work together towards delivering operational improvements and collaboratively agreeing priorities and ‘hotspots’ for joint action. On a strategic level we have initiated the Future Airspace Strategy Industry Implementation Group (FASIIG) jointly with CAA and IAA. The aim is to jointly agree a pan industry implementation plan for the CAA Future Airspace Strategy between now and 2020 which also represents UK and Ireland input to the SESAR deployment phase.

3.1 Customer feedback

We conduct a detailed annual performance survey with our customers. Participation in our 2011 Customer Survey was high at 65% (2010 – 65%, 2009 – 40%) and resulted in an average score of 81% (2010 – 81%, 2009 – 77%). A satisfaction index of 8 out of 10 generally signals a satisfactory level of performance with scope for improvement.

Survey summary

Positive feedback		Areas for improvement	
Communications	customer bi-lateral meetings, ATICCC and the pre-tactical brief	Project delivery	iFACTS delivery into service went well, but NATS did not deliver iFACTS and EFD to time and budget
Tactical operational support	from both en-route and airport units	Service delivery & staffing	whilst accepting the scale of iFACTS training, service delivery was severely impacted by staffing issues on two peak weekends in June 2011
OPA	refreshed terms of reference	Customer priorities	a perceived need for greater innovation by NATS in identifying and introducing beneficial change
3Di environmental metric	recognised as an innovative and industry leading development	Priority projects	slow progress with Heathrow early arrival metering
En-route / airport interface	an improvement since 2010 when this was scored lowest, but to remain a focus area for 2012	Documentation	earlier delivery of documents for multilateral meetings
FASIIG	coordination of this cross industry group	Level capping/ re-route scenarios	negatively impact flight efficiency

To maintain the focus on customer priorities throughout 2012, six OPA Hotspot projects have been agreed; delivery plans have been developed jointly with participating airlines. A separate OPA target-setting working group was established and has agreed 2012/13 targets – there continues to be a focus on early morning delays and delivering fuel saving opportunities.

3.2 Delivery against current priorities

3.2.1 Safety

Safety Partnership Agreement (SPA)

Through the SPA we work in partnership with customers and other industry stakeholders to improve safety – the focus in 2011/12 is summarised below.

Pilot-controller interfaces – continuing to address specific risks and promote industry awareness, with a particular focus on events such as failure to follow ATC procedures, excessive rates of climb/descent and callsign confusion.

Runway safety – focused on ‘runway incursions’ and ‘confusion on the ground’ as these are the most frequent events. Data collection on events has been improved through a simpler post-event survey to assist analysis, lesson learning and safety improvement. An industry seminar on runway incursions was held to share best practice risk avoidance amongst airlines and airports, and to consider how changes to procedures and deployment of technology could reduce runway incursions.

Airspace safety – with specific focus on reducing the risks of operating outside controlled airspace, including procedural changes to ATC services outside controlled airspace (ATSOCAS) and additional guidance to pilots.

Material published by the Airspace Safety Working Group to increase awareness amongst pilots includes:

- A summary of ATSOCS see www.airspacesafety.com/content/ATSOCS.asp;
- Guides to pilots and controllers on operating outside controlled airspace;
- Systematic risk assessments for operations outside controlled airspace – for use by aircraft and airfield operators;
- Articles on Airborne Holding Errors and Oceanic Operations.

NATS’ Safety actions

We continued to work hard to improve our safety performance through focusing on improvement areas that address the main risks to our operation including underlying causal factors. In particular, we have introduced technologies that support risk reduction against our key operational risks, including:

- iFACTS – fully operational in Swanwick Area Control, based on Trajectory Prediction and Medium Term Conflict Detection, iFACTS provides decision making support and facilitates the early detection of conflicts in and around a sector.
- Online GA flight planning tool – to help reduce infringements by providing GA pilots with a graphical representation of UK airspace, restricted areas and NOTAMS, and by providing warnings of controlled airspace and danger areas as a route is drawn on the electronic map. We have also extended the range of devices available to GA pilots with airspace warning and flight planning functionality.
- Barometric pressure advisory tool – extending its use to cover all approach functions in the London TMA to further enhance our ability to prevent Level Busts caused by altimeter setting errors.
- Oceanic position monitoring – we introduced an enhanced capability in the longitudinal plane, providing our controllers with greater accuracy of position reporting by aircraft using ADS-C technology and thereby increasing the safety margins in Oceanic airspace.

NATS’ Strategic Approach to Safety

In 2011 NATS published a ‘Strategic Approach to Safety’ which provides a high level view of how we intend to achieve further safety improvements. In summary:

- We plan to systematise the airspace, with major redesign projects and fundamental changes to existing practice, to help reduce conflicts and congestion;
- We will be making air traffic more predictable with less tactical intervention, identifying and resolving conflicts earlier, to allow traffic interactions to be better planned and traffic to become better moderated, with smoother flows and less spikes of intense activity;
- Integrity of aircraft behaviour will improve with increased conformance monitoring.

All of these changes will reduce vulnerability to human error because controllers, and consequently pilots, will have more time to think and plan and be less likely to face periods of peak workload or unexpected traffic activity.

3.2.2 Fuel efficiency and CO₂ emissions

We continue to make improvements across our airspace network to deliver emissions benefits in the short term.

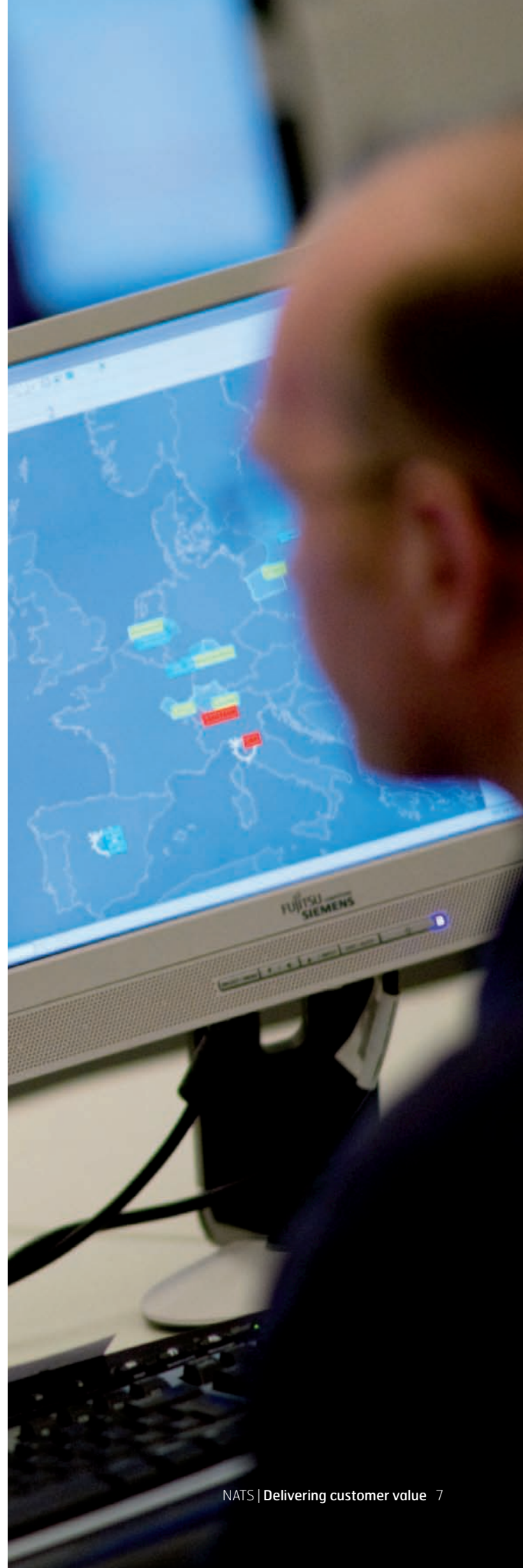
Our airspace efficiency database holds potential near-term fuel burn and CO₂ improvements suggested by airline and airport customers and NATS staff, providing a central data source for evaluating suggestions.

Since the start of the database in 2009, we have delivered more than 100 operational and procedural changes relating to air traffic flows in the Swanwick, Prestwick and Oceanic airspace regions. Most of the changes take the form of flight plannable direct routes and / or changes to procedures.

In 2011/12 alone we delivered 26 changes at Swanwick and Prestwick, enabling fuel savings of 25,200 tonnes worth over £16.5 million; the main fuel savings have come from:

- iFACTS introduction in our largest Centre, Swanwick Area Control, which has facilitated better climb and descent profiles as well as reducing distances flown (10,000 tonnes fuel savings enabled);
- Dover-Lydd airspace changes – part of a larger joint initiative with the adjacent FAB Europe Central (FABEC) – which addressed profile constraints inbound to the UK from France;
- Oceanic Reduced Longitudinal Separation in Shanwick airspace which enables mid-ocean altitude changes to allow aircraft to fly closer to their optimum profile;
- Improved flexible use of airspace in North Sea military areas.

Since 2009, estimated fuel savings of 45,000 tonnes (140,000 tonnes CO₂), worth some £30 million pa have been enabled.





3.2.3 Service delivery performance

Delays attributable to NATS remained at a low level, despite a substantial programme of training and transition activities associated with completing full operational service of iFACTS tools in Swanwick Area Control.

Our operations team focused on a number of measures to manage delay during this challenging period, notably:

- Detailed post-operational analysis of performance with the insights actively incorporated in the forward planning of sector and airspace configurations;
- Continuous fine-tuning of staffing to minimise total delay and ensure service consistency;
- Regular teleconferences throughout project transitions to keep customers fully briefed;
- Development of a snow plan, including holding snow teleconferences during periods of forecast disruption.

3.2.4 Major project transitions

iFACTS has been fully operational in Swanwick Area Control since November 2011, marking completion of this major investment delivering improvements to safety, fuel efficiency and capacity. The introduction of iFACTS marks the most significant technological change that NATS has implemented since the opening of Swanwick Centre. It introduces both paperless operations and a set of medium term conflict detection tools for the tactical controller. Delays due to iFACTS introduction were lower than forecast despite a significant and extremely complex operational conversion training programme taking place throughout the summer period.

At Prestwick, our initial transition to paperless operations (the EFD system) was introduced into operational service at Prestwick in February 2011, but due to performance limitations which required further enhancements, we returned to a paper based operation in April 2011 to minimise the impact on our customers over the summer period. An improved EFD system, new operating techniques, and enhanced training will enable paperless operations to be reintroduced in 2012 (see page 22).

As part of a joint initiative with FABEC, we implemented airspace change in Dover-Lydd airspace which has historically accounted for 10%-20% of NATS delay.

3.2.5 Functional Airspace Blocks (FABs)

UK-Ireland FAB

The UK-Ireland FAB was the first FAB to be formed in 2008. Progress has continued in 2011 through projects including:

- First steps to an integrated FAB network management function (March 2012) to address the airspace network, traffic handling and capacity hot spots as a continuum;
- Increasing the availability of existing fuel saving routes (FSRs) and embedding the FSR process as part of day-to-day operational business;
- Alignment of operational concepts for controller-pilot datalink communications (CPDLC) to ensure en-route datalink services (to be mandated in 2013) are applied in a consistent way, and joint procurement of datalink infrastructure;
- A high level sectors feasibility study towards development of 'FAB free route airspace'.

Additionally, a substantial volume of supporting work also took place in relation to enhancing safety, closer cooperation / integration, and stakeholder engagement. For instance, the CAA is consulting in the UK on a harmonised Transition Altitude across the FAB; a similar consultation is being undertaken in Ireland by the IAA.

A FAB Cost Benefit Analysis (CBA) confirmed that the costs of the UK-Ireland FAB are comparatively very low relative to the enabled customer savings. For example, the costs during 2011 were €2.0m while the enabled customer savings were €24.5m (mostly fuel cost savings). Based on the existing FAB Plan projects, the total cumulative saving to customers from 2008-2020 is estimated to amount to c. €330m, including a cumulative 1 million tonne reduction in CO₂ emissions.

European integration

We are working with adjacent ANSPs to achieve greater collaboration and integration, accelerating delivery of SES performance objectives.

A6: an alliance of ANSPs (from France, Germany, Italy, Spain, UK and NORACON covering northern Europe and Austria) whose aim is to drive the modernisation of the European ATM network within the SESAR programme for the benefits of our customers. This is achieved through the sharing, synchronising and/or converging of our activities

in the key areas of SESAR Research and Development, SESAR deployment such as planning, governance, execution and funding, as well as other key strategic areas of common interest.

FAB 4: a cooperation between the ANSPs from the only two fully established FABs – UK/Ireland and Denmark/Sweden – to extend FAB initiatives and drive progress towards greater flight efficiency, cost efficiency and operational consistency through development of areas for cooperation between the 4 ANSPs.

Borealis: a commercial alliance of 9 ANSPs (from Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Norway, Sweden and the UK) whose objectives are to deliver economic and performance benefits, strengthening political influence of members by publicly adopting common policy positions.

FAB Europe Central (FABEC – covering France, Switzerland, Germany, Belgium and the Netherlands): NATS is a cooperative partner working jointly with FABEC to ensure an efficient interface between Europe's two most critical FABs, including cooperative development of TMAs (London, Paris, Amsterdam, Frankfurt).

3.2.6 Future Airspace Strategy – deploying SESAR

The FAS Industry Implementation Group (FASIIG) is a joint undertaking between NATS, airlines, airports, CAA, IAA, MoD, business aviation and general aviation across the UK/Ireland FAB. The group is working to align investment plans around a commonly agreed scope and schedule for improvements to UK & Ireland ATM. The group will define the deployment plan for SESAR to achieve the CAA's Future Airspace Strategy; the plan is scheduled for delivery in December 2012 and will also include nearer term deliverables including enhanced Arrival Management concepts and early implementation of Performance Based Navigation (PBN).

As part of the A6, NATS is also building relationships with other ANSPs to accelerate the benefits to customers of closer ATM integration and to establish a joint approach to deploying SESAR.

NATS continues to lead a number of SESAR work packages, notably in TMA and En-Route operations.



3.2.7 Industry collaboration

May 2011 volcanic ash response

Disruption in UK airspace due to volcanic ash from the eruption of Grímsvötn in Iceland in May 2011 was greatly reduced compared with disruption in 2010.

This highlighted the benefits of cross-industry collaboration on guidelines and processes that allowed aircraft to safely operate around areas of ash contamination.

We received very positive feedback on the way we managed the process and on our communications via our Air Traffic Incident Co-ordination and Communication Cell (ATICCC). The ATICCC was seen as the authoritative source of information, its four conference calls each day (including active participation from CAA, UK Met Office, airports and airlines) ensuring that all parties were updated as the situation unfolded.

Heathrow Operational Efficiency Cell (HOEC)

The HOEC began operating in November 2011 from the Heathrow tower, bringing together the wider Heathrow community to improve the airport's resilience to potentially disruptive events, particularly bad weather.

The HOEC provides a forum for sharing information that aids forward planning and helps Heathrow continue to maintain a good flow of traffic under adverse conditions. In particular, HOEC's link into the wider airspace network (through NATS) is key to decision making in recovering to normal operations during disruptions. Throughout 2012, NATS will further develop the HOEC, working with both the airport and airlines, building upon the experiences to date.

3.3 Hotspots initiative

Each year NATS works jointly with customers (via the OPA) on a set of "Hotspot" projects focusing on specific short-term priority issues. Each project aims to deliver tangible improvements within 12 months and is jointly sponsored by NATS and airline representatives.

3.3.1 Status of 2011 Hotspots

Seven of the eight hotspots have been successfully completed:

Hotspot	Benefit delivered
CBA 1 French / Belgian military air combat training area (carried forward from 2010/11)	Revised procedures at Swanwick to reduce impact of bottleneck in SE England caused by military airspace – delay reduced by c. 80% v 2008
Heathrow enhanced operations	Live trial of “Heathrow Dashboard” to provide real-time ATM data on arrival and departure delays to aid decision making. The learning from this activity will be incorporated into Airport Collaborative Decision Making (A-CDM)
Improved service delivery in key sectors	Capacity and performance improvements in sectors which had previously generated a high level of delay: <ul style="list-style-type: none"> ■ Swanwick Area Control sectors 2, 32 and the West Local Area Group (LAG) ■ Swanwick Terminal Control Willo Sector
Continuous Climb Departures (CCD)	Developed a Flight Profile Monitoring (FPM) Tool, to help identify opportunities to deliver improvements in continuous climb and continuous descent operations. Analysis shared with airlines enabling optimised fuel uplift
Enhanced Flexible Use of Airspace (FUA)	Eurocontrol’s Local And Regional Airspace (LARA) planning tool deployed into the UK Airspace Management Cell – to enable enhanced civil/military collaborative decision making on airspace utilisation at the Pre-Tactical planning stage
Airspace Change Process (ACP)	Airspace Change Process updated to speed up delivery through: <ul style="list-style-type: none"> ■ Fast-track process for minor airspace change ■ CAA changes to major Airspace Change Process ■ Streamlined internal airspace change processes
Oceanic service delivery	New Swanwick Oceanic website (December 2011) to improve airline planning for westbound flights, both for operating in the organised tracks and on random routes
Data quality in network tools (to be delivered in 2012)	Improving traffic demand predictability in order to reduce flow regulations, by capturing airports’ departure planning information (DPI) messages directly into our Traffic Load Prediction Device (TLPD) Generation of DPI data at Scottish airports (Aberdeen, Edinburgh and Glasgow) is planned for April 2012 whilst data from major European airports (Heathrow, Paris CDG, Frankfurt, Munich and Brussels) is planned for June 2012.

3.3.2 2012 Hotspots

Five* new Hotspot projects are being progressed by the OPA, for delivery in 2012:

Hotspot	Outcome sought
Dynamic Route Availability Document (RAD) process	Investigation into the flexibility to switch RAD route restrictions on/off depending upon customer demand and operational requirements
TMA weather resilience	Improve resilience of London TMA operations to thunderstorms – including weather forecasting tools, planning procedures, supporting communications and recovery principles
RNAV route trials	New procedures that demonstrate fuel efficiency savings of RNAV routes versus current profiles
Service delivery in key sectors	Joint review (airlines and NATS) of potential opportunities, including measures to improve safety and service delivery within Shanwick Oceanic southeast airspace (Tango routes)
FUA opportunities	Improved access to routes through the North Wales Military Training Area and processes for managing the large Danger Area to the west of Scotland (D701)

* A sixth hotspot activity TC Solent Operational Improvements was closed following an initial review which indicated that no improvements would be possible until airspace structures are redesigned (see section on LAMP, page 23)

4. Performance through Innovation

‘Performance through Innovation’ sets out our journey to 2015 against a background of significant change in the aviation sector and ATM industry.

Continuing to deliver first rate safe and efficient air traffic services to our customers is critical to our business, including creating partnerships and alliances to accelerate delivery of European ATM integration.

However, we have ambition beyond this. We also plan to grow our business by providing new and innovative products and services to existing and new customers.

Working as one NATS, we will be presenting our business through a series of distinct service lines to make it easier for our customers to understand what we can offer. All service lines reflect the NATS brand and our acknowledged expertise.

This report focuses on “NATS Airspace” which is primarily the regulated side of the business and “NATS Airports” which refers to the competitive airport ATC services.

Our customer oriented service lines

NATS Airspace

Our en-route, oceanic, terminal and military (Future Military Area Radar Services – FMARS) services provided from our Centres, together with all the supporting communications, navigation and surveillance infrastructure and facilities

NATS Airports

Our ATC and associated engineering services provided to UK and international airport customers

NATS Consultancy

Our international consulting and training business

NATS Defence

Extending our relationship with the MoD to provide a range of innovative defence services in the UK and, where opportunities exist, internationally

NATS Engineering

Our range of engineering services for delivering new ATC infrastructure into operation worldwide

NATS Information

Building on our existing capabilities in aeronautical information management to provide a broad suite of integrated aviation information services



5. NATS Airspace report

5.1 About NATS Airspace

NATS Airspace represents our safe and efficient en-route services. It is a single service line meeting customer needs in three ways: meeting the regulatory targets set for the UK en-route business, driving innovation and cost efficiency through our European partnerships, and creating commercial value where opportunities exist.

NATS Airspace is the sole provider of en-route services in the UK and is economically regulated, operating under licence from the CAA.

In December 2010, the CAA confirmed the price control for the period 2011 to 2014 (CP3) in response to our business and investment plans. NATS Airspace has, in effect, a £2.2bn 4-year contract to provide services and invest in future capability, set against challenging service performance and operating cost efficiency targets.

What we do...

- Operate en-route, oceanic and terminal services from our Prestwick and Swanwick Centres, together with all supporting communications, navigation and surveillance infrastructure.
- Manage around 25% of Europe's total flights, making our airspace some of the busiest in the world, made more complex by the UK's position as Europe's transatlantic gateway.
- Operate a "joint and integrated" civil/military ATC service, with emphasis on sharing rather than segregating airspace, as a showcase model within Europe for flexible use of airspace and technology.
- Operate the UK-Ireland FAB in partnership with the Irish Aviation Authority (IAA) to improve airspace efficiency and cooperate on service provision and technology.
- Work collaboratively in the SES ATM Research (SESAR) programme and with other ANSPs towards delivery of Single European Sky objectives.

5.2 2011/12 Achievements at a glance

Deliverable	Customer Benefits
Safety	
SPA airspace safety focus	Reduced collision risk outside controlled airspace
Oceanic position monitoring	Increased safety margins in Oceanic airspace through greater accuracy of position reporting by aircraft
Systematic risk assessment for operations outside controlled airspace	Provides analysis of GA traffic density and patterns to support airline risk assessment of new routes
Development of day to day safety observations across the pilot/controller interface	Reduces risk associated with the communication between pilots and controllers
Next generation ATM capability	
iFACTS controller support tools – fully operational in Swanwick Area Control from November 2011	<p>Trajectory Prediction and Medium Term Conflict Detection provide decision making support and facilitate the early detection of conflicts in and around a sector:</p> <ul style="list-style-type: none"> ■ Reduces safety risk and increases capacity ■ Facilitates better climb and descent profiles as well as reducing distances flown <p>All electronic (paperless) environment reduces support staff required to generate operating cost savings</p>
Airspace and environment	
Development of 3Di metric	NATS is the first ATM company worldwide to be incentivised on its environmental performance
Dover-Lydd airspace projects	Increased capacity and improved profiles for flights to/from Europe via airspace in SE England
Flexible Use of Airspace (FUA)	Improved flexible use of airspace arrangements allowing greater access to conditional routes
Oceanic Reduced Longitudinal Separation (RLong)	Enables mid-ocean altitude changes in Shanwick airspace to allow aircraft to fly closer to their optimum profiles
Customer Hotspots	
7 out of 8 Hotspot projects successfully delivered	Tangible improvements against key customer priorities
Key projects	
New Training Centre August 2011 – on budget and schedule	<p>ATCO staffing resilience – improved training environment and technology improves flow of validated ATCOs at operational units</p> <p>Operating cost savings – through reductions in simulation, maintenance and support costs at new facility</p>
Radar replacement – delivered a further 4 sites to budget	<p>Increases radar processing capacity to match traffic growth and deploys Mode S SSR to enable safety benefits</p> <p>Reduces ownership costs through end of life replacement</p>



6. NATS Airports report

6.1 About NATS Airports

NATS Airports represents our innovative ATC and airport optimisation services which we offer to UK and international airport customers.

Our core business is the provision of ATC services at 15 UK airports plus Gibraltar under competitive contract. Diverse customer operations include large international hubs, regional airports, business aviation airfields and offshore helicopter operations.

In particular, in conjunction with NATS Airspace we provide the ATC service for the world's busiest city airport system – London's Heathrow, Gatwick, Stansted, Luton and City airports (as measured by annual passengers).

Through our Spanish joint venture, we secured in 2011 a significant international airport ATC contract to provide tower ATC services at 10 airports in Spain from mid/late 2012.

Our proposition is based upon helping airport customers find better solutions, working with them to drive airport efficiencies and capacity in a cost effective manner. We aim to do this by:

- Delivering high quality air traffic services at airports in terms of safety, capacity, environmental efficiency, resilience and minimising delays;
- Ensuring our costs are competitive, in particular leveraging our technology and expertise to enhance our productivity and cost efficiency;
- Working in partnership with airport customers to provide new, innovative and value adding services that support their goals.

6.2 2011/12 Achievements at a glance

Deliverable	Customer benefits
Safety	
ATC procedures to reduce runway incursions	Improved procedures for conditional clearances, runway occupancy, runway inspections and snow clearance
Technical safety barriers for protecting the runway	H24 runway stop bars agreed with airport operators – deployed at 8 airports as at March 2012 Customer seminar in November 2011 to consider automated detection and warning systems to alert pilots and controllers in the event of an incursion
Reduce airspace infringements around airports	Pilot questionnaire (to supplement controller reporting) to gain more knowledge about what caused the pilot to stray into CAS and assist in addressing causal factors
Environment	
Further deployment of Continuous Descent Approaches (CDAs) and Continuous Climb Departures (CCDs)	FPM (Flight Profile Monitoring) tool trial underway at Edinburgh. Improved fuel and CO ₂ efficiency for airline customers
Airport action plans	All airports have environmental action plans – many include targets to improve CDAs and CCDs
Airport specific	
Heathrow	Supported implementation of A-CDM – full implementation planned for Spring 2012. Operational Freedoms – Phase 1 implemented during winter 11/12. Phase 2 due to take place in Summer 12 Heathrow Operational Efficiency Cell (HOEC) established
Gatwick	Upgrade of full EFPS system with no impact to service Working in partnership with the airport customer to deliver improvements in throughput, delay and environment Supporting the airport customer in Airspace Changes and publishing PRNAV SID routes
Stansted	Replacement airport radar and tower electrical switchgear (latter necessitated ATC service to be provided from Emergency VCR for 15 hour period)
London City	Working closely with the airport to understand runway capacity and how it can be improved Introducing new procedures between London City and Heathrow Approach to improve interaction of London City traffic within the TMA
Luton	Continuing to provide air traffic service
Southampton	New low visibility procedures Initiative with GA community to reduce infringements risk in Solent Airspace
Bristol	Awarded contract for technical project management of primary radar replacement Completed supply and installation of replacement FDMS system with integral operational information display system Rationalised airspace and LARS arrangements following closure of RAF Lyneham
Farnborough	Continuing to provide air traffic service

Deliverable	Customer benefits
Cardiff	NDB replacement Continued optimisation and project management of Thales radar installation (in service December 2010)
Birmingham	ILS replacement – including rapid replacement of glidepath equipment destroyed in aircraft accident New airspace charts (with CAA) – to reduce risk of airspace infringements
Manchester	EFPS in tower and approach (one year earlier than originally planned) to improve operational efficiency and flight data sharing ahead of New Tower Project Baro VNAV approach for Runway 23L (no ILS)
Belfast International	RNAV/SBAS approach procedures – on behalf of airport as part of EU-funded Accepta project to deploy EGNOS in the aviation sector
Glasgow	Reclassification of surrounding airspace (Class E to D) to increase safety for flights to/from the airport
Edinburgh	New primary radar and data processor to avoid loss of radar picture caused by wind farm developments
Aberdeen	Operational safety management of airport runway extension project – zero aircraft safety incidents throughout project and smooth transition into service Resectorisation of Northern Offshore Sectors – improved RTF coverage for helicopters operating in the northernmost multilateration areas
Gibraltar	Agreed terms for production of aerodrome manual with MoD, the first at an RAF airfield New airport terminal completed, including construction of new apron for civil aircraft with no disruption to air traffic or air traffic procedures
Commercial	
Contract renewal	Renewed BAA Airports Group contracts (Stansted, Southampton, Aberdeen, Edinburgh and Glasgow) as five separate contracts for the 7-year period from April 2011 Two year contract extension at Gatwick (from 2013-15) TAG Farnborough contract renewed for a 6-year term to December 2017 (including 3 airshows) Extended the existing MoD contract at RAF Gibraltar to December 2012 Terms agreed on the remaining five years of the current ATS contract at London City Renewed contracts for Sumburgh Approach (for HIAL) and the East Shetland Basin (for Bristow, CHC, and Bond Offshore Helicopters)
Engineering projects at other airports	Completed projects to implement airport systems at Highlands and Islands Airports (voice switch replacements), Belfast City and Guernsey Airports (ILS replacements) and London Oxford Airport (new radar and communications system)

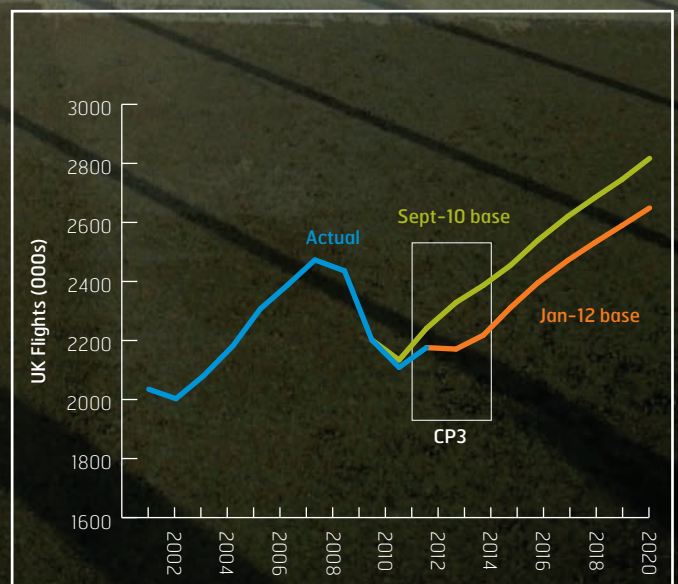
7. Plans, targets & outlook for 2012/13

7.1 Traffic forecast

Our future plans are set against continuing uncertainty in the UK and Eurozone economies making it difficult to forecast the implications for air travel and flight volumes.

Following a peak of 2.5 million annual UK flights in 2007, the subsequent economic downturn saw traffic fall to 2.1 million in 2010. We forecast a bounce-back in 2011, and through to Q3 2011 this forecast proved accurate (<0.1% difference). However, Q4 saw 2011/12 winter schedules with significantly fewer flights, resulting in overall traffic in 2011 being 2.9% below forecast.

We have therefore revised downwards our latest flights forecast (January 2012) with average annual growth of 2.3% (vs 3.6%) and with traffic returning to the previous peak of 2.5 million flights pa in 2016 (vs 2014/15).



7.2 London Olympics

London 2012 is a huge challenge for UK aviation. In the Games period there are expected to be 700 extra commercial flights, 3,000 additional business jet flights and 150 'head of state' flights. The industry therefore has to deal with heavily congested airspace and airports while providing the best possible experience for Olympics visitors. It also needs robust plans to deal with disruption to flights due to weather (thunderstorms) or security issues.

By the time the Olympics open, we will have trained around 400 air traffic controllers to operate a new temporary airspace design, created five additional radar and co-ordinator positions to help manage the additional traffic, installed a state-of-the-art air traffic control centre for the MoD operation, and played our part in educating members of the general and business aviation communities on the new procedures.

Olympics airspace preparations

A temporary airspace change for the Games period will extend controlled airspace over East Anglia and the West of England to provide NATS with extra room to safely manage and integrate the extra flights to airports in the South East of England.

This airspace configuration has been subject to full validation simulations. Furthermore, we have modelled the levels of traffic predicted during the Games period and have developed traffic management scenarios in conjunction with adjacent ANSPs and CFMU.

Engineering changes include system changes to support the airspace configuration, extra interfaces between Centres and airports, and additional VHF channels. We have also provided the RAF with a temporary operations room for their 'Atlas Control' service for aircraft operating in the Restricted Zone under the LTMA.

Controller training for the new airspace started in April. In addition we have leave restrictions in place and have made changes to roster schedules to provide operational staff to man the additional airspace.

For contingency planning, we hosted a 'diversions scenario planning workshop' with airlines and airports to identify how airspace and diversions should be managed if there was severe disruption to planned operations.

We are providing briefings to aircraft and airport operators on changes to the airspace, route structures and ATC operations to accommodate the extra traffic.

Our role during the Olympics period

Working in partnership with CFMU, ANSPs and airport operators, we will manage the increased air traffic in controlled airspace throughout the Olympics as efficiently as possible, whilst maintaining our high level of service to existing customers.

We will operate the ATICCC during the Olympics period to run regular teleconferences to share forward planning information. In particular, we will:

- Ensure that our customers and other organisations are kept up-to-date;
- Liaise with other bodies to ensure a co-ordinated approach;
- Aid recovery in the event of any disruption.

...And not forgetting that afterwards we have to transition back to normal operations and undo all the airspace, engineering and system changes.

7.3 Targets

Against the traffic forecast and taking account of the Olympics traffic impact, the service performance metrics for NATS Airspace in 2012 are shown in the table. These performance metrics are incentivised such that, depending on service quality standards, NERL can earn a financial bonus or incur a penalty, each metric including a par value "range" (rather than a single point) within which no penalty or bonus applies.

2012 Performance Metrics for NATS Airspace		
CP3 METRIC	2012 TARGETS	
	Olympics Period	Rest of 2012
T1 AVERAGE DELAY <small>Secs per flight</small>	17.25-35 ⁺	9.8 ⁺
T2 DELAY IMPACT <small>Score</small>	48.75-100 ⁺	27.6 ⁺
T3 DELAY VARIABILITY <small>Score</small>	312.5	1,187.5
T4 CO ₂ 3D INEFFICIENCY <small>12 month moving average (units)</small>	Excluded	24

⁺ These targets will be adjusted to reflect traffic modulation

A separate set of performance targets for 2012/13 that focus on specific customer priorities has been agreed with the OPA. The targets shown in the table exclude the Olympics period (19 July to 19 August), the 'Stretch' target reflecting the OPA's view of an 'excellent' service performance standard.

OPA Targets for 2012/13		
METRIC	Threshold	Stretch
OPA1 EARLY MORNING DELAYS <small>>15 mins (flights)</small>	2,200	1,600
OPA2 STAM REGULATIONS <small>(% applied ≤ 45 mins duration)</small>	94%	96%
OPA3 FUEL SAVINGS <small>(Metric Tonnes)</small>	4,250	5,500

Notes on OPA Targets:

OPA1 – Reducing early morning (1st rotation) delays greater than 15 minutes

OPA2 – Avoiding the prolonged application of short-term ATFCM measures (STAM) beyond a 'best practice' 45 minute maximum (see below)

OPA3 – Generating fuel savings through additional airspace efficiencies.

STAM: Short Term ATFCM (Air Traffic Flow and Capacity Management) Measures. NATS makes use of tactical network management tools to reduce traffic bunching and to avoid blanket flow regulations, in particular to meter the flow of aircraft from airports into airspace experiencing very high demand.

The main advantage of STAM measures is that they can be applied at short notice for relatively short period (c. 30-45 mins) to achieve the necessary management of traffic demand thus affecting relatively few aircraft, whereas a CFMU flow regulation has to be applied for much longer (typically 2 hours) to achieve the right result and can lead to greater levels of delay affecting many more flights.

7.4 Main lines of action

7.4.1 Safety improvement

SPA focus

Three working groups looking at specific issues:

- Speed – examining risks associated Speed Limitation Points (SLPs) and final approach speeds, and looking at the expectations of pilots and controllers
- Pilot-Controller Interface – already a backbone of the SPA, the group will bring an even stronger focus to managing human performance issues
- Airspace Safety – continuing its focus on ATSOAS and extending into new areas such as CPDLC and level busts.

NATS' Strategic Approach to Safety

Three main areas of action:

- The Way We Work: ongoing activities that are important to safety such as: improving our understanding of risk and causal factors; evolving our safety management system; engaging our front-line staff in safety improvement; and working with other to improve safety and in learning lessons.
- Raising Our Safety Capabilities: safety improvement projects to build our underlying capabilities that will increase the overall resilience and safety margins in our operation.
- Reducing Our Risks: safety improvement projects to focus on directly tackling the sources of our safety events, notably Infringements, Level Busts, Runway Incursions, Civil-Military Interactions, Oceanic events and those arising from Operational Interfaces (including pilot-controller interactions, interfaces with airports, adjacent sectors and other ANSPs). Working with others (airlines, pilots, ANSPs, airports regulators etc.) is central to reducing these risks.

7.4.2 NATS Airspace projects

Paperless operations at Prestwick Centre – Electronic Flight Data (EFD)

Initial Operation Winter 2010/11:

The EFD system was introduced into operational service at Prestwick in February 2011, but due to performance limitations which required further enhancements, we returned to a paper based operation in April 2011 to minimise the impact on our customers over the summer period.

EFD Enhancement Work in 2011/12:

Further development has taken place to update software in order to provide a 'step-change' in the way controllers interact with EFD, and in developing new operational techniques to exploit the improved EFD product.

Plan to Full Operation:

The plan is to transition to EFD operations between July and September 2012 and remove paper based operations by December 2012.

Benefits:

EFD at Prestwick provides safety benefits through initial conformance monitoring, is a key enabler for the deployment of air/ground datalink operations, and reduces the number of staff needed to support the operation.

En-Route datalink services

A co-ordinated UK-Ireland FAB project in line with EC Implementing Rules for 'core area' ACCs to provide CPDLC services in en-route airspace (above FL285) by Spring 2013. The main elements are:

- IAA/NATS joint procurement of services with ARINC and SITA accommodating FANS and ATN datalink standards
- Providing system capabilities and controller interfaces at Swanwick and Prestwick to support datalink messaging, including simulation, safety and training activities
- Joint consultation with airlines on procedures and roll-out.

As airline equipage increases, there are potential benefits of safety risk reduction, additional capacity and improved flight efficiency through reduced controller workload.

7.4.3 NATS Airports plans

Equipping New Control Towers

Manchester – awarded contract to provide and integrate all ATS equipment for the new control tower (scheduled to be operational in April 2013).

Edinburgh Airport Secondary Radar

Replacement of the existing SSR system with a Wide Area Multilateration (WAM) system – providing high update rate, precise surveillance up to 60nm from the airport. A more cost effective long-term surveillance solution than a new SSR.

Capacity and Environmental Improvements

Capacity and environmental improvements for both Bristol and Cardiff at EXMOR (subject to consultation).

Systemisation of Airport ATC

On-going implementation of a more systemised approach to procedures, processes, technology and equipment at all those airports where we provide ATC, leading to safer and more cost efficient solution that delivers service predictability.

7.4.4 UK-Ireland FAB projects

Previous FAB Plans have focused on ODNET (Optimisation of the Domestic, North Atlantic and European Traffic). However, with many ODNET projects now closed, awaiting State clarity or deemed as no longer necessary following traffic downturn it is no longer being pursued by the FAB as a specific global project. The FAB will be developing a Strategic Operations Plan which will assure long term alignment of Oceanic and Domestic operations.

Specific projects to be delivered in 2012/13 are:

Dublin TMA (November 2012)

Introduce a Point Merge approach system at Dublin Airport together with connectivity in UK airspace, including new early morning routes across the North Wales Military Training Area.

Benefits:

- Dublin Airport: continuous climb/descent operations, maximum airport capacity usage especially for first rotation departures
- UK connectivity: more early morning routes into the London TMA, a particular example being the creation of a new route, (U)Y124

Optimised Cross-FIR FUA (December 2012)

Re-orientates the Cardigan Bay/Irish Sea danger area (EGD201) to traverse the FIR boundary in order to utilise shared civil/military airspace more efficiently.

Scoping Work on New FAB Projects:

- Application of queue management (arrivals and departures) at FAB level
- Continuous climb/descent operations across the FAB
- FAB free route airspace as a progression from high level sectors
- Quiet hours operations – flexible
- Cross FAB service resilience and contingency.

7.5 Longer-term airspace developments

We launched major programmes in 2011 to modernise airspace surrounding London and major cities in northern England – the London Airspace Management Programme (LAMP), the Northern Terminal Control Area (NTCA) redesign and Raised Transition Altitude (TA).

These programmes are a vital opportunity to renew the airspace structures to enhance safety and fuel efficiency. Efficient trajectories in terminal airspace are especially important as the fuel savings will be significant. The programmes also form a key part of deploying SESAR.

7.5.1 London Airspace Management Programme (LAMP)

Airspace over SE England is among the most complex in the world. It has developed incrementally over the past 50 years as airports have expanded, and its current structure constrains aircraft performance and limits the environmental benefits that can be achieved through advances in technology. Additionally, the complexity of the airspace with so many airports in close proximity means that our London Terminal Control operation accounts for c. 80% of NATS' operational risk.

LAMP is the most important and complex airspace programme that NATS has ever undertaken. It addresses airline customers' key priorities of safety and fuel efficiency in LTMA airspace, and ensures that all airports continue to be supported safely and effectively. It will deliver ATM capacity to satisfy forecast traffic demand into the 2020s and forms a key step towards implementation of SESAR principles.

We are absolutely committed to the successful redesign of SE England airspace. The challenge we face is delivering the benefits of LAMP to our customers as quickly as possible.

How LAMP will deliver change

New operating concepts will remove current operational hotspots and improve the overall operation of the airspace. The operational vision to be implemented is one of:

- Exploiting aircraft capabilities to fly precise trajectories, enabling greater flexibility in airspace design through closely spaced arrival and departure routes independent of ground-based navigation aids;
- Greater built-in resilience against human error (pilot or controller), with fewer interactions between routes and a reduction in tactical clearances by controllers;
- Locating routes where they best meet the needs of airports and flight profiles, making better use of finite terminal airspace and providing greater opportunities to mitigate environmental impacts;
- Enabling continuous climb departures (CCD) and continuous descent arrivals (CDA) from cruise – enabling aircraft to climb as quickly as possible and descend as late as possible to reduce fuel burn and emissions and to decrease noise impact on the ground;
- Optimising airspace in preparation for widespread deployment of queue management tools (arrival and departure management), and integrating airspace change with new ATC technologies and procedures to maximise the benefits of tools in achieving efficient sequencing on busy runways and in eliminating holding in the airspace in normal operations.

Timescales

LAMP is due for implementation in phases in a 2015–2020 timeframe.

The programme is being flexibly constructed to deliver benefits at the earliest opportunity, given that the Government's ongoing review of the most appropriate manner in which to provide additional runway capacity in SE England will have a bearing on the airspace design solution.

The programme is in its feasibility and options stage. Currently, design concepts are being evaluated in large-scale simulations which will lead to prototype designs that can be presented later for aviation and environmental consultations.

7.5.2 Northern Terminal Control Area (NTCA)

Redesign of the Northern Terminal Control Area (NTCA) is another high priority for customers, as it will reduce unnecessary track miles flown each year into Manchester and Liverpool as well as decreasing noise and fuel burn/CO₂ emissions. Similar to the LAMP, the programme will deliver a comprehensively reworked airspace that exploits PBN to improve safety, flight efficiency and capacity.

7.5.3 Transition Altitude (TA)

In parallel, we are involved in a joint project with the CAA to raise and harmonise the Transition Altitude (TA) across the UK/Ireland FAB. A key enabler for LAMP and NTCA, the key benefits of a raised TA are:

- It would 'lift the lid' at lower levels, enabling more scope to introduce new procedures such as continuous climbs and continuous descents that can deliver greater benefits in saving fuel burn and CO₂ emissions, and reducing noise;
- It would simplify cockpit procedures for pilots at their busiest times after take-off and before landing;
- It would help improve safety by reducing the risk of controlled airspace infringements.

The CAA is currently consulting on a proposal to raise TA to 18,000ft across the London and Scottish FIRs. CAA and NATS will seek to work with the Irish Aviation Authority (IAA) with the aim of harmonising the TA across the UK/Ireland FAB.

If you would like to discuss anything in this report or any elements of our service delivery, please contact our Customer Affairs team at the contacts below:

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Acronyms

3Di	3 Dimensional Inefficiency metric
ADS-C	Automatic Dependant Surveillance-Contract
ANSP	Air Navigation Service Provider
ATICCC	Air Traffic Incident Co-ordination and Communication Cell
ATN	Aeronautical Telecommunications Network
ATSOCAS	Air Traffic Services Outside Controlled Airspace
CAA	Civil Aviation Authority
CBA	Cost Benefit Analysis
CCD	Continuous Climb Departure
CDA	Continuous Descent Arrival
CFMU	Central Flow Management Unit
CP3	Control Period 3
CPDLC	Controller-Pilot Datalink Communications
DPI	Departure Planning Information
EFD	Electronic Flight Data
EFPS	Electronic Flight Progress Strip
FAB	Functional Airspace Block
FABEC	FAB Europe Central
FANS	Future Air Navigation Systems
FAS	Future Airspace Strategy
FASIIG	Future Airspace Strategy Industry Implementation Group
FIR	Flight Information Region
FMARS	Future Military Area Radar Services
FUA	Flexible Use of Airspace
GA	General Aviation
HOEC	Heathrow Operational Efficiency Cell
IAA	Irish Aviation Authority
iFACTS	interim Future Area Control Tools Support
ILS	Instrument Landing System
LAMP	London Airspace Management Plan
LARA	Local And Regional Airspace
LTMA	London Terminal Manoeuvring Area
NDB	Non Directional Beacon
NOTAM	Notice to Airmen
NTCA	Northern Terminal Control Area
ODNET	Optimisation of the Domestic, North Atlantic and European Traffic
OPA	Operational Partnership Agreement
PBN	Performance Based Navigation
RAD	Route Availability Document
RNAV	Area Navigation
SBAS	Satellite Based Augmentation System
SES	Single European Sky
SESAR	Single European Sky ATM Research
SPA	Safety Partnership Agreement
SSE	Safety Significant Event
STAM	Short Term ATCFM (Air Traffic Flow and Capacity Management) Measures
TA	Transition Altitude
VCR	Visual Control Room

FSC



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