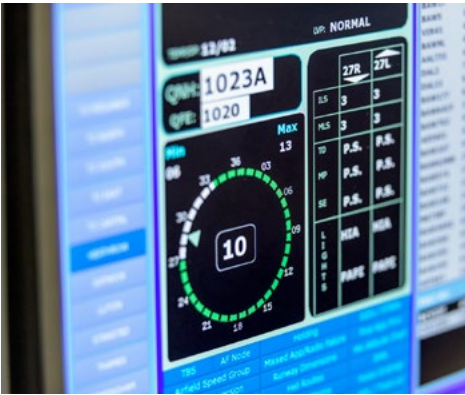


Customer
Report 2017



Contents



CEO Introduction

Martin Rolfe



Our 2017 Customer Report looks back over a year of delivering broad technical and developmental changes and a safe, reliable and punctual day to day service.

Traffic continued to grow at well above forecast levels. The 4% overall increase in 2017 means there has been almost 10% growth in just two years and while we were still able to halve the delay attributable to NATS, it brings into sharp focus the continued need to increase capacity and contain delay.

During the year we prepared for one of the most important steps to date in modernising the way we work – introducing the first phase of EXCDS, full electronic flight progress strip capability, into Terminal Control. As you know, we are working closely with you on the phased EXCDS transitions, planning them meticulously to help minimise disruption in each airspace sector in turn.

~~The complexity of the Terminal Control operation means we will always take great care to ensure that we put safety before any other consideration, but I am very pleased with how smoothly the transitions have gone so far, and the fact that we have kept delay well below the planned levels. Our new combined Ops room at Swanwick is now open to visitors and we are now in the test and build stage of the work to install the new iTEC system which is core to our transformation programme. In Prestwick Centre we have also implemented the latest version of our Oceanic Flight Data Processing System getting us ready for reduced separation standards on the North Atlantic.~~

Preparations for the London Airspace Management Programme (LAMP) made good progress last year and I will be reporting to the Secretary of State in May on our outline plan for delivery. In the meantime we have initiated, through FAS, research into public opinion on PBN as a basis for talking as an industry more positively about the benefits it can deliver for communities close to airports. We are well aware that this is one of the major risks to the airspace modernisation programme.

Modernising our airspace is of course key to delivering on capacity and delay – and with that, fuel efficiency and wider cost efficiency – which continue to be your focus as you've told us again in this year's annual survey of customer opinion. And while I'm pleased that last year we equalled our highest ever satisfaction rating in the survey, with safety the area where you are most satisfied with our performance, I'm well aware that we face more challenges ahead as we prepare for the next regulatory period, RP3 (2020-2024), which of course also straddles the UK's timetable for exiting the EU.

We will be consulting you later this year on the initial Business Plan for RP3, and priorities for the five years from 2020. And you have my word that as we face another year of growth, with a busy summer ahead, we will continue to focus our attention and energy on giving you the service you expect.

A handwritten signature in black ink, appearing to read 'M Rolfe', written in a cursive style.

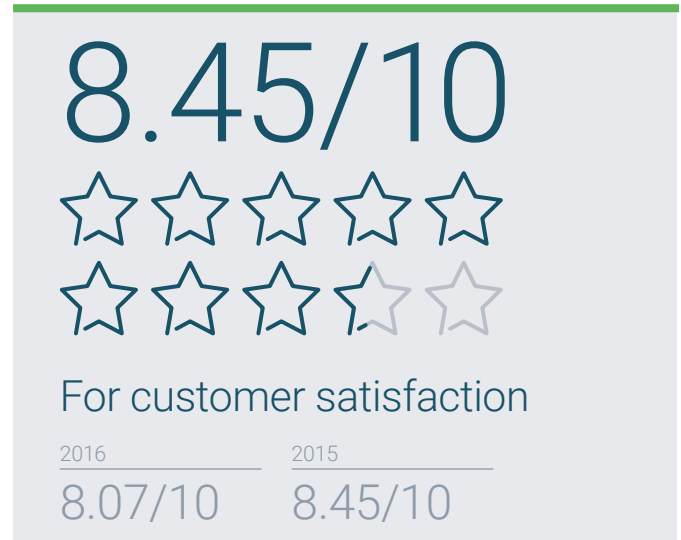
Martin Rolfe
Chief Executive Officer

What you told us

Customer survey summary

Our annual survey of NATS customers showed that in 2017 we equalled the highest ever satisfaction index which is encouraging and we are pleased that our customers recognise the improvements that we have made to our operation and the way that we engage with them.

More than 62% of NATS' customers by revenue - equalling around 60% of NATS' customers by aircraft movements - gave us an overall satisfaction score of 8.45 out of 10. This is a marked improvement on the 2016 survey score of 8.07.



Strongest scores



Proactive management of safety



Provision of timely and effective responses to safety events



Working with customers to drive safety improvements

Areas for improvement



Collaborating with industry partners to drive fuel and emissions savings (including cross-border opportunities)



The Flight Efficiency Partnership as a mechanism for identifying fuel and emissions savings



Effectiveness of Safety Partnership Agreement (SPA) meetings



Cost efficiency

What you told us

Customer survey summary

The Flight Efficiency Partnership (FEP) and the Safety Partnership Agreement (SPA) scores had both improved versus the 2016 survey, but customers said they wanted to see more from us. Customers were also more satisfied this year on NATS' cost efficiency than they were in 2016 reflecting the reduced unit rate - and in feedback comments recognised the quality of the NATS ATC service, but still want NATS to maintain a focus on cost efficiency.

In the survey we ask customers to indicate both the level of importance and how we are performing in each category. Environment and operational performance both scored well but were the principal priority areas where there was the largest gap between importance to customers' business and their score for NATS delivery.

Customers told us they wanted to see more collaboration with partners in our environmental projects, especially across borders. They also continue to place a high importance on operational performance, technical resilience and management of disruption.

There were no technical failures attributable to NATS during the whole of 2017, and there were very strong and favourable comments about the EXCDS transition planning and engagement with customers, highlighting that this was an improvement against the Prestwick ITEC transition in 2016.

The areas where we showed the biggest improvements, when compared to the 2016 survey, were:



Minimising the impact on operations during the delivery of airspace changes or airspace management tools



NATS' technical systems resilience



Customer engagement

The priority areas for our customers, according to the survey, are:



Flight Efficiency



Airspace Modernisation



Capacity/Delay



Safety



Cost



Customer Engagement



Staffing



Technical Resilience



EXCDS

This report details some of the work that has been going on during 2017 and is continuing into 2018 and beyond to develop all of these core priority areas.

We will also be providing support and follow up with all the relevant departments within NATS to ensure we continue to meet the priority needs of all of our customers and to deliver the highest levels of service.

In total 32 of our customers provided feedback for the 2017 survey and we are grateful to all of them for taking the time to tell us where we are doing well and where they would like to see us improve. It is that feedback that helps guide the service we provide to you including modernisation and flight efficiency work that we continue to do.

Operations Update



22%

Shanwick Oceanic growth in traffic over past 4 years

Traffic growth continues across the UK

In 2017 there were 2,515,746 UK FIR flight movements, which was up nearly 4% on the previous 12 months and a 14% increase on the 2013 figure. We were 15 flights short of our all-time record and daily traffic was the highest that we have ever seen in most parts of the operation. Against that backdrop we are pleased to say that delays were down by 49.2% and well within with all of the regulatory delay targets.

The strongest growth came in transatlantic flights that were passing over the UK - growing by 10.2% on the previous year.

The large growth in over-flights, despite not being the largest contributing segment to the total UK traffic, made up a large proportion of the distance flown through UK airspace with the North Atlantic tracks being predominantly North-about in 2017.

Non-transatlantic international arrivals and departures were up 3.68% with non-transatlantic international over-flights up by 9.04%.

Domestic flights fell slightly – down by 0.73% in 2017 on top of the 1.43% fall in 2016.

The majority of airports also continued to show strong growth.

Growth was seen across all NATS units. At Swanwick AC and TC showed growth of 3.96% and 2.82% respectively. Prestwick Domestic saw growth of 6.66% with Oceanic increasing by 4.93%.

This increase in flights was partly as a result of a higher number of northerly tracks across the North Atlantic and aircraft being rerouted through the UK to avoid French ATC strikes.

Oceanic Growth at more than 22% in four years

During the past four years Shanwick Oceanic has seen significant traffic growth with an increase of more than 22%. In 2017 alone there was 4.9% growth versus 2016 with 493,937 flights handled, making it a record year.

The oceanic system has a number of features, including. Which has allowed us to improve the service provided to the airlines by increasing the number of climbs offered during the En-Route phase of flight. The Go-Fli tool routinely looks for opportunities for all aircraft to climb and then alerts controllers when these are detected.

In 2017, 66% of flights received their requested flight level and a further 16% within 1,000ft of their filed level. Delays were kept to a minimum with 23,401 minutes delay attributable to NATS across the year. The majority of these delays happened during the peak summer season between June and September.



NATS delays down

Despite the growth in traffic during 2017, the number of delays attributable to NATS reduced substantially. But we did see an increase in Air Traffic Flow Management (ATFM) delays during 2017 due to weather.

The majority of flight delays were due to weather conditions at airports or en route predominantly in June, September and December, followed by ATC staffing and capacity en route and at airports. Weather, both en-route and at airports, was responsible for 61.8% of the UK total delay.

Overall, NATS attributable, en-route ATFM delay in 2017 was 262,928 minutes. This is a decrease by almost half on the 518,630 minutes recorded in 2016.

Airspace Modernisation

LAMP airspace modernisation programme gets under way

NATS and 15 South East Airports have embarked on an airspace modernisation programme designed to create a totally integrated and systemised airspace by 2024. The foundation of the London Airspace Management Programme (LAMP) airspace change is the mandated deployment of Performance Based Navigation (PBN) across Europe.

This technology will allow:

- closer spacing of separated routes - less Air Traffic Control tactical intervention
- reduced complexity and increased capacity
- improved climb and descent profiles.

By using PBN tracks we will deliver increased capacity, reduced low level noise per flight and greater fuel savings, reducing emissions. However this will require the most significant airspace change programme in NATS' history, as well as the deployment of entirely new concepts of operation and control techniques.

It is also recognised this activity needs significant government support through the Civil Aviation Authority (CAA), Department for Transport and industry-led Future Airspace Strategy (FAS) bodies.

We have commenced the LAMP project this year and the airspace deployment will be a cornerstone of our RP3 plans. Its success is also dependent on the RP3 settlement.

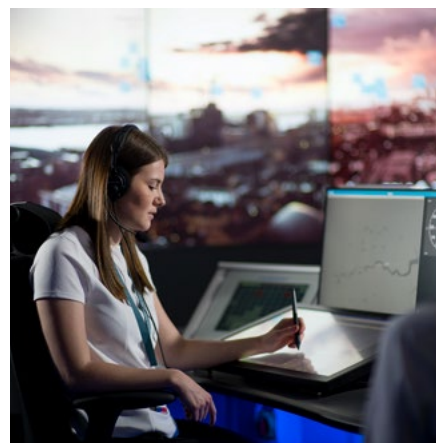
In preparation for proof of airspace concept work in early 2018, we have been collecting data from the 15 airports in the South East to ensure that our programme meets their future needs. Specifically we have been using the data to drive fast time simulations to validate the systemisation concept.

We will report to the Secretary of State on this in May 2018. It is evident through these meetings that the industry need for airspace modernisation as a whole is vital and that it should be viewed as a national infrastructure change, and we will consult airlines as part of the RP3 consultation process and share the outcome of the initial modelling during 2018.

Lead Operator group continues to provide technical insight

The Lead Operator framework has been in place since 2013, using data-driven design to enable efficient delivery of airspace change at reduced risk and turn-around times. It provides a collaborative working relationship with 15 airlines directly involved in the technical aspects of airspace design where NATS is accountable.

These airlines, alongside NATS and the CAA, have now been joined by coding houses, airframe manufacturers and Flight Management System manufacturers. The increasing depth and breadth of the Lead Operator group is providing fundamental technical insight into current and future capabilities, both air and ground, helping to build solutions to the challenges of airspace modernisation and we would like to thank the airlines involved for their support for this important work.



Airspace Modernisation

continued

Research commissioned into perceptions of PBN

The Future Airspace Strategy's (FAS) Facilitation Fund commissioned independent research into perceptions of Performance Based Navigation from independent agency ComRes. The research will, for the first time, provide a baseline for public perception of PBN.

The research, involving fieldwork and focus groups, is expected to provide a clear understanding of the community view of PBN and its use in airspace modernisation. The outcomes from the research will be published in March 2018.

Swanwick Airspace Improvement Project delivers

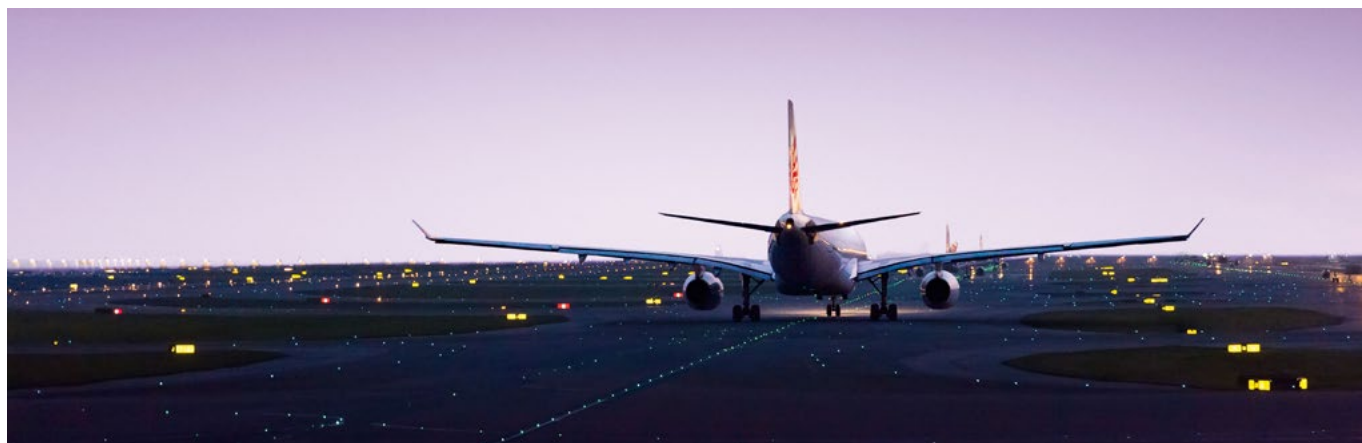
In 2017 the Swanwick Airspace Improvement Project (SAIP) delivered the first two of six modular airspace change deployments (ADs) planned within RP2.

The first module - AD1 - was the introduction of new RNAV1 ATS routes and STARs into the Hurn Sectors on the southern borders with French Airspace. These were the first Performance Based Navigation (PBN) routes and procedures in UK alongside the Prestwick Lower Airspace changes over the Isle of Man area. Using PBN, adjacent routes can be more safely spaced closer together than before.

The PBN route separation rules were developed collaboratively between NATS and the CAA using data collected by the Departure Enhancement Project. The new routes are expected to reduce the amount of tactical intervention required by controllers, reducing their workload and increasing capacity.

SAIP is also increasing the amount of Flexible Use of Airspace (FUA) with more access to military and other areas when activity permits. In 2017 AD2 marked the first use of the East Anglian Military training area for Heathrow departures to the Far East and Scandinavia. This area will be reclassified in 2018 making it more available. This will deliver fuel savings to our airline customers and improve environmental performance.

In 2017 we also saw continued development of Airspace Deployments 3, 4, 5 and 6, which are planned to become reality in 2018 and 2019. This development work has included real time simulations, fast time simulation analysis and working with stakeholders such as adjacent ANSPs to identify common solutions.



Systems and Technology



62%

Reduction in Air Traffic Flow Management delays caused by headwinds

Future controller working positions on show

The new Ops room in Swanwick has opened to visitors to demonstrate the future controller working position.

The Base platform is not yet operational but enables us to show the future services integrated and operating on our core architecture known as Springboard. It also allows us to test and build the new iTEC controller working position on our foundation services.

Indra to deliver next generation of iTEC

Following the delivery and transition of iTEC into Prestwick Upper Airspace, Indra has been awarded the contract, with a new 10-year Framework Agreement, to deliver the next generation of iTEC into full operational service at Prestwick and Swanwick.

The contract has been designed to encourage and enable close collaboration between NATS and Indra. It will also require working collaboratively with other key NATS suppliers for the development and integration of the next version of the Flight Data Processor (FDP) and Controller Working Position (CWP) systems, established within the iTEC collaboration.

iTEC provides the most advanced technology for air traffic control operations and is core to our transformation programme as we modernise our capabilities. Once in place, the new systems will reduce controller workload, increase individual flight efficiency and support greater overall traffic capacity in UK airspace.

EXCDS roll out equips controllers for handling traffic growth

In November 2017, we started transitioning controllers in our London Terminal Control Centre from a system of paper strips to a new electronic flight strips tool called EXCDS. It's vital that we prepare ourselves for the significant growth in air travel that's forecast for the years ahead and we need new tools, such as EXCDS, to help us do that.

The first phase of the transition saw the North sector of Terminal Control move to the new tool, closely followed by the next phase transitioning Luton and Stansted Approach on to the electronic platform. Delivering EXCDS into these sectors involves a huge amount of collaboration between airlines, airports and NATS over many months.

We have worked with customers to develop plans for managing the flows of traffic flying through those sectors during the initial phases of each transition in order to minimise disruption. We also had representatives from the airlines most likely to be affected by the transition at our operations centre during the first transition.

The transitions to EXCDS are going as well as we could have hoped. The next phase, which sees the Heathrow and Gatwick approach functions together with TMA South switching to the new tool, commences early April.

Enhancing airport resilience and runway capacity – an Intelligent Approach

Since it was introduced in 2015 Time Based Separation (TBS) has saved on average 115,000 minutes of airborne holding per year; and allowed us to land an average of 0.8 additional movements in all wind conditions and an additional 2.6 per hour on strong wind days. This has cut Air Traffic Flow Management delays caused by headwinds at Heathrow by 62%; saving the airport and airlines about 100,000 minutes of ATFM delay each year, adding up to a better, more resilient service for airlines and passengers.

Building on the success of TBS, NATS has been working in partnership with Leidos and Heathrow to deliver "enhanced" Time Based Separation (eTBS) in March 2018. eTBS combines RECAT EU wake vortex categories with Optimised Runway Delivery (ORD) which provides controllers with separation to runway threshold and dynamic indicators based on modelled runway occupancy time (ROT) which display when that is more limiting than wake vortex spacing. This is the world's first system based implementation of RECAT and ORD and will deliver additional capacity equivalent to an additional landing per hour in all wind conditions. The change is coincident with introducing RECAT departure separation at Heathrow which increases departure capacity. The combined benefits for Heathrow are expected to be significant, further enhancing the punctuality and resilience of the operation.

TBS and eTBS are elements of a suite of products that NATS with its technology partner Leidos have developed which we call "Intelligent Approach". Intelligent Approach can also cater for converging or dependent runway operations and mixed mode arrival and departure runways. This is without any change to ground infrastructure, runways or airport facilities. Intelligent Approach is designed to allow air traffic controllers to safely optimise arrival spacing in all conditions and for all runway configurations, benefiting airport capacity, safety and resilience and is expected to be deployed at a number of airports both in the UK and overseas.

Work is also on-going as part of SESAR 2020 looking at how wake vortex separations can be further optimised. This involves a move to pairwise separation on approach and departure, doing away with current wake categories and providing individual tailored approach separations between aircraft pairs, which will add significant additional runway capacity.



Systems and Technology

continued



11%

Growth in North Atlantic traffic

New voice comms systems rolled out

New voice communications systems at Bristol, Belfast City and Luton went into service at the end of 2017 and beginning of 2018.

Obsolete voice systems at airports are being replaced as part of an ongoing programme to address issues in some voice switches and to update transmitters and receivers. The updates are part of a national programme to implement 8.3KHZ channel spacing.

During 2018 it is expected that the voice comms systems at Glasgow, Manchester and Cardiff airports will be updated.

GBAS could aid efficiency at Stansted

A study commissioned as part of the Future Airspace Strategy (FAS) has been looking into the introduction of a Ground-Based Augmentation System (GBAS) at Stansted to aid more efficient use of a range of approach routes.

GBAS could be used in tandem with Performance-Based Navigation procedures. It provides corrections for, and integrity monitoring of, the Global Positioning Service (GPS), which is needed to support civil aviation safety critical applications such as precision approach and landing services. It can also be used instead of Wide Area Global Navigation Satellite Systems (GNSS) or conventional navigational aids.

The system has been designed to cater for future innovative operational solutions, such as variable glide path angles for noise abatement, displaced thresholds for runway efficiency and wake vortex separation, as well as full category III (low visibility) operations.

The study supported the theory that GBAS may prove beneficial to capacity constrained airports, providing a wide range of approach routes supported by a single system. It will also make it possible for airlines to reduce flying time; saving on fuel consumption and reducing noise through the use of higher approach angles. The decision whether to implement GBAS is for the airport and its customers and in the case of Stansted we will be working with them to decide on next steps.

Telstar routes due to be introduced for short haul Atlantic flights

The Telstar project - named after the first active communications satellite has started. Telstar will create new closely spaced parallel routes to replace the current single Tango 9 route which links the UK to the Iberian peninsula. The new routes are in Oceanic airspace but will be useable for aircraft not equipped with FANS Datalink.

Currently all aircraft crossing the North Atlantic are required to have FANS Datalink fitted but that is not cost effective for short haul aircraft on routes that also cross part of the ocean.

So two new routes - Tango 9 and Tango X will be created where surveillance can be conducted with VHF communications and the Aireon space-based ADS-B surveillance system.

Telstar will also support initial trials of enhanced safety services to enable reduced separation on the North Atlantic and Variable Mach where aircraft can reduce their speeds as they reduce their payload during the flight.

These projects will increase flexibility in the use of the airspace over the North Atlantic, enable more flexibility and an increase in capacity.

We will be consulting on our plans for the North Atlantic this summer as part of the preparation for RP3.



Systems and Technology

continued

STAMPER programme to introduce PBCS on the Ocean

The STAMPER programme - named after Malcolm Stamper who led the design of the Boeing 747 aircraft - is a key part of the NATS investment programme for Oceanic.

We are updating the Flight Data Processing System for the North Atlantic and introducing GAATS+ which will bring us on to the same technical platform as Nav Canada. The first phase went live in December 2017, creating a seamless link with our colleagues at Nav Canada. The new system will also enable Performance Based Communication and Surveillance (PBCS).

It does this by allowing us to reduce separation standards in Oceanic to five minutes longitudinal (currently 10 minutes) and to 30 miles lateral (currently 60 miles).

There has been more significant growth on the North Atlantic than anywhere else - 11% in some months - and traffic levels are already well above where the CAA expected we would be at the end of RP2 (2019).

This PBCS system will enable us to handle those levels of traffic by reducing separation and enabling more aircraft to get the levels and tracks that they want.

Not all airlines are currently approved for PBCS but the GAATS+ system will be implemented in Spring 2018 for those that are, paving the way for the future.

New routes and airspace as work to deploy PLAS continues

In 2017 a programme to improve existing infrastructure at Prestwick Lower Airspace Systemisation (PLAS) began. The first stage was the introduction of 3nm separation within the PC Airspace below FL280 in March 2017. This allowed controllers more tactical capability and created the foundation for closer spaced routes in the future.

In November 2017 RNAV 1 routes were introduced over the Irish Sea in response to customer and traffic forecasts, which identified capacity constraints in the Isle of Man sector. NATS and the Irish Aviation Authority (IAA), have worked together to introduce new airspace changes over the Irish Sea that will help increase capacity, reduce the risk of delays as traffic volumes grow, and pave the way for traffic growth when Dublin Airport's second runway opens.

Work is continuing on stage 3 of PLAS deployment supporting Leeds, Newcastle and Birmingham and, Doncaster to implement airspace changes by end of 2018. These changes will align with the final stage of PLAS which will focus on radical changes which impact Manchester, Liverpool and East Midlands.

Further to the four stage PLAS, a fifth area for modernisation has been identified in the Scottish TMA. This will support Glasgow and Edinburgh airfields airspace changes scheduled for deployment in February 2019.

Regular dialogue is being maintained with all of these airfields through a series of face-to-face working groups overseen by a steering group.

Consultation begins on RP3

During 2017 NATS consulted airlines, airports and trade associations on priorities for Reference Period 3 (RP3) which runs from 1st January 2020 – 31st December 2024.

That input has been taken into account when putting together the initial business plan. We will go back out to consult on that initial business plan between April and September of this year.

Thank you to all those stakeholders who took part in the initial consultation.

Transforming safety culture in UK aviation

After a 32-year career with NATS David Harrison is to step down as Safety Director this year after leading a transformation in safety culture throughout the aviation sector in the UK.

“The credit for our safety performance goes to everyone across the company,” said David. “It is all based on our strong safety culture. I’m lucky enough to see how other ANSPs deal with safety through my role as Chairman of the CANSO Safety Standing Committee. I can say without hesitation that we are more than comparable with any ANSP and are the envy of the majority.”

Alastair Muir, currently Director Prestwick Centre will take over the role of Safety Director from April 18.

Systems and Technology

continued



NATS Safety remains sound despite strong traffic growth

Safety once again remained at the forefront of the organisation this year. We have safely handled an unexpected traffic growth of nearly 12% in the first three years of RP2 while continuing to deliver our ambitious business transformation programme.

While our challenging internal safety targets have been met by NATS Airports they remain aspirational for the en-route side of the business. Importantly in most other areas of safety performance we are showing improvement and we are continuing to meet the European and UK regulatory and legislative safety requirements.

There were no NATS attributable Airprox* events classified as risk bearing A or B by the UK Airprox Board. However, the number of Airprox events has more than doubled since 2014, with drones or Remotely Piloted Airborne Systems (RPAS) making up more than 50% of all Airprox reports in 2017. In response NATS has continued to engage with the CAA to educate RPAS hobbyists (see below).

As part of our improvement activities, we have expanded the scope of our existing FAS funded activities. This will enable us to fully support the trials of ADS-B surveillance as a safety net at General Aviation (GA) airfields, including subsidising equipping GA aircraft operating from those airfields. Alongside this external engagement the safety improvement focus on Swanwick Terminal Control has resulted in a range of improvements including publication of amended procedures and progressing with airspace change.

With the development of digital towers we have witnessed one of the most exciting technological developments in the airports environment for many years. The new technology will improve safety, integration of systems and airspace design. Where new technologies were deployed in 2017 they were done so successfully with no related safety events, providing the reassurance that as we prepare our business for a new and exciting future we continuing to deliver a safe operation.

Projects in hand to tackle drone risks

During 2017, drones or RPAS accounted for 53% of all Airprox reports and 3.4% of all safety events (up from 2.4% in 2016). At NATS we have continued to work with the UK government and the regulator to address this.

We have engaged with UK government's public consultation on the safe use of drones in the UK and are now playing an active part in the implementation of the measures recommended by the government. This includes Project Chatham in which we are working with DfT to develop the UK's official map of drone 'no fly zones' that will be published by NATS and form the basis of future enforcement and safety management. We are also closely engaged with both EASA and the EC to ensure that future regulations around U-space deliver the best balance of safety and economic benefits to the UK.

'DroneAssist', a safety app for drone users and operators, was launched in 2017 and now has more than 50,000 registered users who have access to dynamic map warnings of airspace, danger areas and obstacles. We continue to develop and advance the functionality of the app that now provides real time alerts to users.

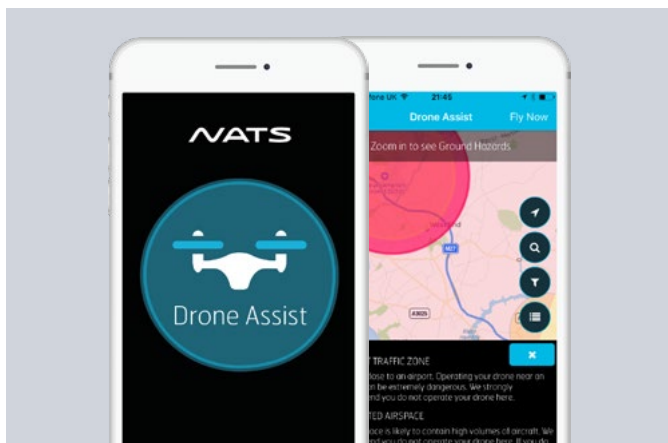
We are also partnering a world leader in commercial drone-based inspection services to give training to the growing commercial drone sector and the emergency services. These initiatives will ensure all drone pilots can engage in their activities safely while ensuring the safety of others.

Alongside these direct activities with the drone community, Future Airspace Strategy initiatives are working to improve the non-standard flight approval process to manage the increased requests from drone operators. We expect this to go live in early 2018.

NATS introduces an airspace explorer tool

The new NATS Airspace Explorer application is a flight tracking and airspace education app. It is similar in format to other flight tracking apps, but has some additional interesting features. Firstly, in addition to providing information on flights and airports, the app provides information on the airspace itself. We show Flight Information Regions, controlled airspace structures and sectors. Secondly, unlike other flight tracking apps, our app uses UK radar data for showing aircraft positions. Thirdly, we provide a 3D view of the airspace. The 3D views help to provide a sense of the relative altitudes of aircraft and the shapes and sizes of the controlled airspace structures and sectors in the UK.

* Airprox is defined as a situation in which, in the opinion of a Pilot or Controller, the distance between aircraft as well as their relative position and speed, have been such that the safety of the aircraft involved may have been compromised.



Systems and Technology

continued



Helping customers manage their environmental impact

As a responsible business, we challenge ourselves to exceed our customers' expectations on minimising the environmental impact of aviation. It's an essential KPI for monitoring the tactical delivery of our service and for decision-making on airspace modernisation.

We work very closely with our customers to identify opportunities to improve the efficiency of our network and regularly brief them on the status of our airspace modernisation programme. Customers are also formally consulted on our service and investment plan biannually, as well as being asked questions on our environmental performance in our annual customer survey.

We have a number of airspace environmental targets that focus both on reducing flight plan and tactical fuel burn for airlines. As part of our Deploying SESAR programme we also have set energy reduction targets on our ground-based equipment. Performance against these targets is actively monitored and reviewed across the business.

ISO 14001 certified environmental management system

Our work to make environmental savings in our towers was highlighted when we won the Best Environment Initiative prize at the annual Airport Operators Association Awards in November 2017. The work recognised by the award started 18 months ago when we set out to deliver an environmental management system across our UK tower operations.

This has included a drive for improvement in continuous descent rates, supporting the planning of off-shore wind farms and improving the efficiency of our buildings through new windows and extra insulation. There have also been a number of smaller changes, such as the introduction of new waste streams to maximise recycling and working with our suppliers to take away packaging after deliveries.

In 2017 we achieved ISO14001 certification of our environmental management system across the 13 airports where we provide a tower service, plus Aberporth and the Ranges. This followed on from certification of Manchester and Glasgow towers in 2016. Our unit general managers will continue to work closely with their airport and airline counterparts to link with their environmental management systems.

ATM related fuel/CO emissions

In 2008, we committed to reducing average fuel per flight by 10% by 2020. Our original RP2 investment plan would have delivered against this target but were partly dependent on delivering the LAMP modernisation of the London TMA. This was not possible during RP2 because of changes to Government policy, negative public reaction to runway expansion and aircraft noise affecting communities near airports. Instead, we have been looking at other ways to reduce fuel usage and CO₂ emissions.

In 2017 various projects helped bring our progress towards the 10% target to 5.3%. Small-scale unit-led initiatives accounted for savings of 8.7 kT. This approach to finding fuel savings will continue with airlines in 2018 through the Flight Efficiency Partnership and working bilaterally with customers.

Since 2012, CO₂ emissions from international aviation have been included in the EU emissions trading system for flights within the European Economic Area, but excluding UK domestic flights. Airlines are required to purchase carbon credits for their emissions above a certain level. An additional benefit of the changes we delivered in 2017 was €96,000 in carbon allowance savings to airlines at the full market rate (based on an average price of €5.76 per tonne CO₂).

Our RP2 Business Plan sets out a commitment to enabling airline fuel savings of up to 277 kT per annum in domestic airspace. In 2017 we met this commitment, two years early, with 286 kT enabled fuel savings.

3Di

In 2012 NATS, the CAA and airlines agreed a metric to monitor airspace efficiency, known as 3Di (3 Dimensional inefficiency), which is now part of the RP2 performance regime. 3Di improvements are crucial because they support tactical fuel savings.

Our airspace efficiency target was to reduce the 3Di score to 28.9 by the end of 2017. The 2017 average 3Di score was 29.6, which was slightly over the target, but well within the dead band set by the regulator. We are making progress in managing 3Di performance, despite traffic growth and a number of external factors beyond our control driving the score upwards.

Sustainable aviation

In 2017 we held the Chair of the Sustainable Aviation coalition in the UK. We used its influence to focus on improvements to continuous climb and descent operations, working closely with airline and airport operators around the UK. The aim of the campaign is to increase the number of CDO being delivered across the UK.

Performance in 2017 was 70% for CDO, which was an improvement of 3.7%. As well as reducing noise, these procedures also saved 9 kT of fuel in 2017.

Similarly the industry coalition focused on a number of noise related issues in 2017. It supported local liaison at a number of airports, commissioned research on noise attitudes, supported the development of an airspace design tool for stakeholder engagement (Comp-Air), responded to a number of Government consultations, and is making progress on its noise work programme.

Systems and Technology

continued

Creating efficient airspace with AFUA

Advanced Flexible Use of Airspace (AFUA) was implemented in 2017. This supports the most efficient use of the UK's airspace, moving away from traditional flight corridors put in place decades ago, while ensuring civil and military requirements are accommodated. It is also a crucial element in supporting the delivery of Free Route Airspace (FRA) in Europe.

FRA is a European partnership initiative to allow the free planning of routes. Enabled by advances in navigational techniques and telecoms technology, it will allow operators to plan the optimal route for flights, rather than sticking to traditional corridors that do not offer the most cost effective solution.

FRA will open up routes across Europe providing more planning capacity, cost savings for airlines and operators, as well as reduced environmental impact.

Similarly, AFUA will help overcome the issues caused by permanently closing areas of UK airspace for military activities. This may unnecessarily prevent use of airspace that could at other times deliver fuel efficiencies and time savings to civil airspace users.

The benefits of the AFUA strategy will be more capacity for aircraft in the air, cost savings for operators, a reduction in environmental impact, and lower fuel costs.

Sky's the Limit Campaign

The UK's airports and airlines, together with NATS launched 'The Sky's The Limit' campaign to urge the government to back an airspace modernisation programme for the UK now, before it is too late. We are working together to find solutions, reduce environmental impact of our travel and increase capacity to meet growing demand.

In November 2017 the campaign team launched 'The need to modernise', a short film explaining how UK airspace works, what modernisation involves and why it is required.

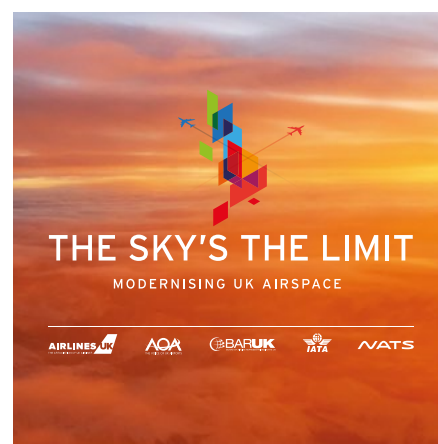
The video was launched as new analysis by 'The Sky's the Limit' showed that more than a million flights could be delayed by more than 30 mins by 2030 if the UK does not modernise its airspace. That is one in three of the flights expected to depart from UK airports in 2030.

The government responded to its consultation on UK airspace policy, outlining the future process for amending airspace to prevent these delays from occurring, meet growing demand for air travel, increase efficiency and capitalise on the environmental benefits of new aircraft technology.

This was the first step in preparing the UK's airspace for the future. Industry and the government now needs to work together to make airspace modernisation a reality. The film is being used across the country to raise awareness of airspace as the invisible but critical infrastructure of the UK and the benefits modernisation will bring.

Collaboration with MUAC

NERL continues to develop constructive bilateral relationship with other ANSPs to identify and progress opportunities to improve service delivery and customer consultation/engagement activities where appropriate. Since 2016, NERL and MUAC have established a closer working relationship to improve mutual cross-border flows and to identify how customers can be consulted on future investments in a more coordinated and efficient manner. For example, in NERL and MUAC recently held a customer update at Heathrow Airport on consecutive days to maximise the value to customers of attending such engagements. Further engagements are planned over 2018, with opportunities to consult on common aspects of RP3 are being investigated.



International and New Business

Digital Tower first for London City Airport

London City Airport is to become the first UK airport to build and operate a digital air traffic control tower, with a multi-million pound investment in the technology.

The innovative plans mark the start of a technological revolution in UK airport air traffic management.

Working closely with NATS, London City Airport has approved plans for a new tower, at the top of which will be 14 High Definition cameras and two pan-tilt-zoom cameras. The cameras will provide a full 360 degree view of the airfield in a level of detail greater than the human eye and with new viewing tools that will modernise and improve air traffic management.

The images of the airfield and data will be sent via independent and secure super-fast fibre networks to a new operations room at Swanwick.

From Swanwick, controllers will perform their operational role, using the live footage displayed on 14 HD screens that form a seamless panoramic moving image, alongside the audio feed from the airfield, and radar readings from the skies above London, to instruct aircraft and oversee movements.

Controllers will be able to use a range of viewing tools such as high definition zoom and enhanced visuals, which provide detailed views of activity on the airfield, including close-up views of aircraft movements with pan-tilt-zoom cameras that can magnify up to 30 times for close inspection.

They will also have real-time information, including operational and sensory data, to build an augmented reality live view of the airfield. For example, the ability to overlay the images with weather information, on-screen labels, radar data, aircraft call signs, or to track moving objects.

Searidge agreement for Changi digital tower

In 2017 the Civil Aviation Authority of Singapore (CAAS) awarded NATS the contract to develop a smart digital tower prototype at Changi Airport.

The 22-month project with our partners Searidge Technologies, Singapore Technologies and HungaroControl, will prove the suitability of the world's most sophisticated digital tower technology for Changi Airport and demonstrate how it enhances the ability of air traffic controllers whilst maintaining the highest levels of service and safety.

This is the first project we are undertaking with Searidge since we bought a 50% stake in the Canadian company in May 2017.

It is hoped that the work we do together will help shape how digital tower and smart airport technologies are applied to large, complex airports all over the world. Changi Airport, with its 58 million passenger movements a year, will be the largest and most complex in the world to trial the technology.

Luton ATC and engineering contract

NATS has won a new five-year contract with London Luton Airport and will grow its number of controllers in line with increasing traffic at this busy airport.

London Luton Airport is an important customer for NATS and this contract win helps us retain our presence in the South East. In addition, London Luton Airport has the option to increase the contract duration to seven years.

TAG Farnborough

NATS has won a 10-year contract to continue as TAG Farnborough Airport's air traffic and engineering services partner.

The new contract, which started in January 2018, sees us continue a relationship that dates back to 1943, with the addition of engineering services for the first time.

TAG Farnborough Airport, with its near 24,000 annual movements, is the UK's leading business aviation airport and the home of world famous Farnborough Airshow. It was NATS' proven ability to help manage the biannual show, together with the quality of the everyday service provided to TAG Farnborough Airport and the wider airport community, which helped seal the deal.

Annual business aviation meeting at Farnborough

Sharing forecasts and pre-tactical information between NATS and the business aviation sector is helping to increase network efficiency for all airspace users in peak periods.

Business aviation makes up a relatively small proportion of air traffic movements in the UK. However during events and at certain times of year there can be huge localised surges in demand.

The annual NATS and Business Aviation Forum is helping to plan for these events. The fourth event was held at Farnborough Airport in January 2018.

Contacts

Talk to us

If you'd like to find out more about any of the information in this report, please talk to us:

AIRLINES

Jonathan Astill
Director Alliances,
Airline & International Affairs

jonathan.astill@nats.co.uk

Andy Shand
General Manager,
Customer Affairs

andy.shand@nats.co.uk

AIRPORTS

Jem Dunn
Director of Operations,
Airports

jem.dunn@nats.co.uk

MIDDLE EAST & ASIA PACIFIC

Ben Kiff
Director,
Middle East & Asia Pacific

ben.kiff@nats.co.uk

Our Offices

Corporate Headquarters

4000 Parkway
Whiteley
Fareham
Hampshire
PO14 7FL
UK

Tel: +44 1489 616001

Asia Pacific Regional Headquarters

#34-01 Centennial Tower
3 Temasek Avenue
Singapore 039190

Tel: +656549 7816

Middle East Regional Headquarters

Suite 1201
Platinum Towers
JLT, Dubai
PO Box 392497
UAE

Tel: +971 455 19 480

nats.aero/me

Customer website

Our dedicated customer's website www.customer.nats.co.uk provides the latest news, operational information, meeting details, contacts and links to other resources.

Customer Forums

We have a number of forums for engaging with customers including our Operational, Safety and Flight Efficiency Partnerships, Lead Operator for Airspace Design, Business Jet Forum and Service & Investment Plan Consultation. For more information see www.customer.nats.co.uk