

## FloSys – Flight Optimisation System

### Managing real time fuel efficiency

Creating a sustainable industry is an essential part of the future of ATM and to support this goal NATS have developed a flight efficiency and environment management tool – FloSys.

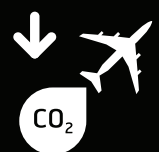
FloSys is a real-time web-based solution, which is now available to enhance any Flight Operations or ATM business around the world. The FloSys tool was developed based on our research into flight efficiency which was internationally recognised with the Janes' ATC Environment Award.

Achieving real efficiency and benefits for airspace users requires better understanding of the 3 Dimensional efficiency of each flight. To obtain that understanding, FloSys compares the actual trajectories that aircraft fly, to an optimal flight trajectory. It can then support users in planning more fuel efficient trajectories.

FloSys enables users to store and compare historical flight data. The system displays a visual comparison of a flight and compares the actual profile flown with the optimal trajectory to highlight areas for improved efficiency. Users are then able to identify steps to improve future flight profiles. Having established a record of performance efficiency, you can then utilise powerful analytics to set targets for improvement and track performance to those targets.

### Benefits

Since 2006, through monitoring and improving flight trajectories in UK airspace, NATS has enabled a reduction in CO<sub>2</sub> emissions in excess of 1 million tonnes. A fuel saving to airlines of over \$200m.



#### Environment

Reduced CO<sub>2</sub> emissions throughout the ATM network making air travel more sustainable.



#### Reduced Airline Costs

Reduced fuel cost to airline customers by provision of better, fuel saving flight profiles.



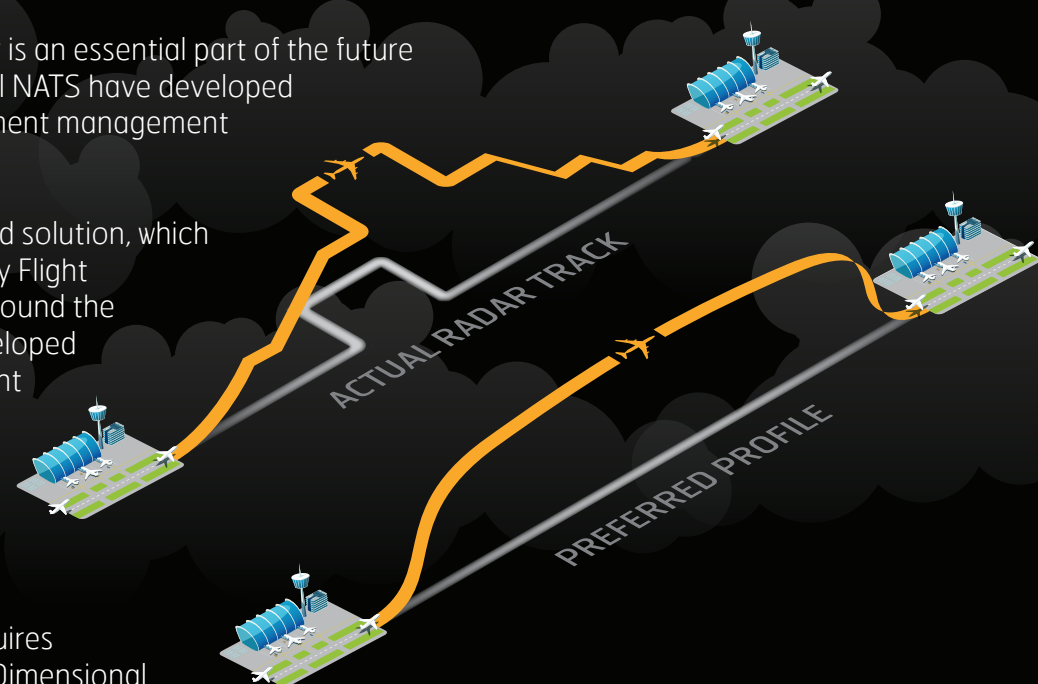
#### Operational Efficiency

Highlighting inefficiencies in airspace, procedure design, and operational practice to enable operational improvements and deliver long-term cost reductions for customers.



#### Real-time Performance

Real-time flight efficiency data delivered to the operation to allow active management of flight efficiency in all conditions.



## Product Features

FloSys is in service at NATS' Prestwick and Swanwick Centres and is enhancing customer service through improved fuel and ATC performance. Available to all staff – ATC, Supervisory, Management – it can show comparative performance by airline, aircraft, route, sector, ATC Watch and ATC user.



#### 3D Trajectories

Lateral and vertical profile of flights through your airspace with time and sectors in an easy to understand view.



#### Filtering and Sorting

Advanced filtering and sorting capability to pinpoint the flight you want.



#### Hotspots

Highlight 'hotspots' automatically on each flight profile.



#### Relative Performance

Display multiple flights at once to see relative performance.



#### Flight Performance

Compare any flight to the best real world performance.



#### Web App

FloSys is available as a web application allowing management and operations teams real time access to performance data.

## Product Roadmap

FloSys unlocks the ability to improve real-time flight performance using an intuitive, feature-rich web solution. Working with NATS' Analytics and Operations teams, FloSys continues to be developed to add new functionality to deliver further benefits in the future.



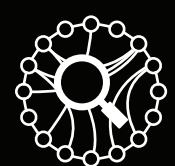
#### Tagging and Context Information

The addition of user annotations and contextual information will add a 'rich' set of data to highlight flights of interest and help understand unusual performance both good and bad for organisational learning.



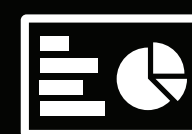
#### Network Overview

Visual heatmaps showing sector performance and areas of greatest inefficiency will further support understanding of network performance focusing investment and tactical decisions on the areas that need it most.



#### Enhanced Analytics

Incorporating more detailed evaluation of trajectory efficiencies to include en-route horizontal track extension, fuel burn and CO<sub>2</sub>. As well as Continuous Descent and Continuous Climb Operations information.



#### Real Time Dashboard

The addition to online access to real time information we will be developing a real time dashboard plugin for integration into existing management dashboards.