

Case study



Five-day forecasts of aircraft routes over the North Atlantic

Our client

National Air Traffic Services (NATS) controls aircraft flying in UK airspace and over the eastern part of the North Atlantic. It has a reputation as a first-class provider of air traffic management.

The challenge

When civil aircraft fly across the North Atlantic, they fly through vast areas of uncontrolled air space. The route the pilot chooses needs to be the most cost effective and timely, without jeopardising safety. Airlines need to maximise the benefits of tail winds, while minimising head winds.

Consequently, the routes that aircraft take across the Atlantic vary from day to day, depending on the jetstream — and so does the exact position where they re-enter controlled air space over the continents. Hence it is beneficial to NATS to be able to forecast optimum routes across the North Atlantic.

The solution

For many years the Met Office has been supplying NATS with forecasts for up to T+36 for upper winds and temperatures on a grid at a resolution of 140 km. From this, NATS has been able to calculate the optimum route for aircraft and, therefore, determine the potentially busy routes across the Atlantic over the following 24 hours.

The Met Office has now signed a contract with NATS, at its air traffic control centre at Swanick, to supply five-day forecasts of the optimum routes across the North Atlantic. The package we have developed for them provides wind and temperature forecasts at a much higher grid resolution of 60 km.

The benefits

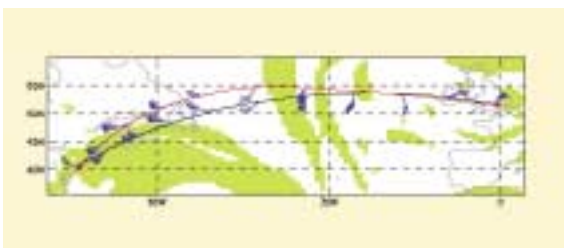
This bespoke service:

- gives an outcome that is directly useable in NATS operations and does not require them to interpret or process forecast meteorological information;
- will enable NATS to identify more precisely where North Atlantic traffic will be entering controlled airspace over the UK;
- will allow for more effective manpower planning four or five days in advance in particular UK air sectors, rather than reacting to air traffic levels on the day.

Use our experience to your benefit

The Met Office's extensive experience in providing high-quality services to the aviation industry has led to unrivalled knowledge of how weather affects air traffic management.

For further advice and information on consultancy services, please contact our aviation team at the address below.



An example of an optimum route calculation between Heathrow and JFK.

The black line shows the shortest distance route (Great circle route), the red line shows the optimum shortest time route and green areas show areas of possible clear air turbulence.

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