

STAYING ALERT



Jonathan Dutton, the Met Office's Aviation Business Manager, explains how improved accuracy and more detailed weather forecasts will help UK airports deal with winter operations.

Few people will have forgotten the heavy snow the UK experienced in December 2010, one of the most disruptive weather events we've had in recent memory. It could not have hit at a worse time, just prior to the busiest travel of time of the year – Christmas – and effectively caused one of the most significant disruptions to holiday travel throughout the UK and around the world, as flights were cancelled and airports closed for several days.

Lessons were learned however, and from the wintery tales of woe that plagued the nation has come a new approach to predicting and planning for significant weather events at UK airports. The aviation industry is subject to great pressure to keep operations running come rain or shine, which is why the Met Office works in close partnership with major UK airports up and down the UK to make sure they run as smoothly as possible through the winter months.

AVOIDING LAST MINUTE CANCELLATIONS

As we all know, poor weather can cause flights to be delayed or rescheduled, and create a range of maintenance and staffing management difficulties, with total cancellation of flights the one scenario we want to avoid. However the most impactful, and costly, of problems associated with

cancellations are in fact consequences of cancelling flights at the last minute - high volumes of passengers at the airport, costs associated with paying compensation, passenger accommodation costs and last-minute re-scheduling logistics can all hit an airport's operational budget hard. Therefore increasing the ability of airports and airlines to forward plan is crucial at this time of year, or indeed at any time that significant weather events occur.

As such, the Met Office has designed ways to support the aviation industry with managing these particular winter operational challenges before they become major problems.

For example, our team worked hard on creating a programme called ClearFlight, which provides a detailed forecast schedule that's specific to an individual airport's unique thresholds and operational requirements.

By issuing comprehensive visualisation maps and colour code alerts to show changes or improvements to weather conditions, airports can have at their fingertips the information they need to make more informed decisions, and therefore be able to anticipate closures in advance of poor weather.

The accuracy and detail of these forecasts are expected to be further improved once the plans for a £97 million supercomputer are realised over

the next three years. As our computing power increases, so too will our ability to monitor localised weather patterns such as low-lying fog or thunderstorms. Subsequently, an even more tailored approach to forecasting can be offered as we hone our understanding of the particular meteorological challenges faced by specific airports across the UK.

DELAYS: FORWARD PLANNING AND OPERATIONAL EFFICIENCY

Beside cancellations, the winter weather throws up many challenges that can easily lead to flight delays. Snow and ice cause havoc with runway clearing as well as aircraft de-icing. However, by simply providing colour coded anti-icing and de-icing alerts up to five days ahead of difficult weather, we can help aircrafts complete their planned flying programme, ensure stock and staff management is well-planned and reduce the environmental impacts of de-icing fluids by improving understanding of when treatment is not required.

Forecasting weather up to five days in advance also minimises disruptions due to runway maintenance. As we have seen, serious weather events will clearly have a very negative impact on runway operations, which is why the Met Office works in close partnership with Heathrow airport to help keep the UK's busiest airport running as



smoothly as possible even during these weather conditions.

A HUMAN TOUCH: AVIATION METEOROLOGISTS ON HAND

Providing a personal and human approach to consultancy and collaboration is key to keeping everyone calm and informed at this challenging time of year. In addition to the many reports, visual maps and colour-coded alerts airports across the UK require, the most important aspect is the 24/7 on-hand support from meteorologists based in Exeter, Aberdeen and Belfast. Our short-term meteorologists are vital for staff operational planning – snow events such as frost or fog will mean more staff will be required for defrosting activity – and in these cases our meteorologists must provide at least 48 hours' notice, followed by hourly updates to airport operations managers.

Our relationship with Heathrow has taken this consultancy approach one step further. After a snow event in 2010 the Begg

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Report found that better communications and preparedness for bad weather was required at Heathrow. The Met Office was pleased to fulfil this role and renew a partnership - as an organisation we previously worked with Heathrow when Met Office meteorologists were based at the airport in the 1980s. Since 2011, the Met Office has provided on-site meteorologists at Heathrow, and we are now an integral part of the operations team working 24/7 to keep the airport moving efficiently in all types of weather.

In order to ensure Heathrow is fully prepared for weather events, six meteorologists are based on site, housed in a newly-opened operations centre that enables collaboration with the duty managers at Heathrow and other organisations that provide information to keep the airport operating efficiently. The on-site meteorologists are giving first hand, up-to-the-minute advice, which goes on to inform NATS traffic services and the airlines

on weather that may affect the airport.

A lot of data capturing, airport tailoring and forward planning takes place at the Met Office to make sure the aviation industry does not fall victim to the wintery bad weather. By working extremely closely with airports, airlines and third-party services such as handlers and maintenance staff, we are able to collectively limit the effects of bad weather by clawing back valuable extra time to make preparations and put the right plans in place.

Accurate and detailed weather forecasting gives us space and time to advise the industry on how to minimise the logistical and financial fallout from last-minute delays, as well as avoid unnecessary cancellations and provide a service that is specific to the weather from Aberdeen, through to Belfast and even in the UK's busiest airports, London Heathrow. ^{AF}

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