

# Safety and Airspace Regulation Group UK Meteorological Authority

Distribution:

All UK Aerodrome Licence Holders All UK ATS Providers

25 November 2013

Dear Colleague,

# Letter of Consultation on Changes to the Provision of UK Aerodrome Weather Warnings

- 1. The DfT's CAA (Air Navigation) Directions require the CAA to discharge the responsibility of the Meteorological Authority, as defined by ICAO. This is "to arrange for the provision of meteorological service for international air navigation". Therefore, the CAA has an obligation to ensure that, as a minimum, certain meteorological (Met) services and products specified in (ICAO) Annex 3 to the Chicago Convention are provided. In order to meet this obligation, the Met Office is Designated² to provide ICAO-specified aeronautical Met warnings and forecasts for the UK and beyond. This enables, among others, pilots to obtain meteorological information that may assist in meeting the requirements of Article 86 of the Air Navigation Order and allow aircraft operators, air navigation service providers and airports take account of weather conditions in their planning and execution of operations.
- 2. As part of the arrangements for Met services in the UK and in accordance with the requirements of ICAO Annex 3, aerodrome weather warnings are provided. As inclement or severe weather can have impacts at all sizes of aerodromes, this service is available to a wide range of aerodromes. There are a wide variety of contingency and mitigation measures applied as a result of receipt of these warnings.
- 3. The service currently consists of a message in plain text using a pre-defined template for each phenomenon. The weather phenomena that the warnings are

<sup>&</sup>lt;sup>1</sup> Annex 3 to the Chicago Convention, Meteorological Service for International Air Navigation, Chapter 2 paragraph 2.1.4

In accordance with EC Regulation 550/2004 (Service Provision Regulation) Article 9

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issued for is included in Appendix A. Aerodrome warnings are disseminated currently by AFTN, fax or e-mail, to one point of contact on the aerodrome, which ensures that the overhead costs of maintaining address lists etc. are minimised.

- 4. The service is currently provided by the Met Office and the cost of its provision is included in the Met costs included as part of the en route air navigation service charges. Following a recent review of Met arrangements carried out by the CAA, this practice was identified as not conforming to ICAO and Eurocontrol guidance (e.g. ICAO Doc 9161, Manual on Air Navigation Service Economics, Eurocontrol principles for establishing the cost-base for en route charges) or Single European Sky legislation. In all cases, the international position is that such costs should fall to the aerodrome that receives the service.
- 5. The Met Office is designated<sup>3</sup> to provide meteorological services in the UK to comply with the requirements of ICAO Annex 3 and is required therefore to comply with the Single European Sky Performance Scheme regulation. This includes making a pro-rata contribution to the EU-wide cost efficiency target. In this regard alone, it could be argued that it would be attractive to remove the aerodrome warnings costs completely from the en route air navigation service charges cost base. However, this would ignore the significant efficiency impact that weather has on network-wide operations, but particularly maintaining aerodrome availability and its facilities as well as protection of assets during periods of inclement weather. The recent review of Met arrangements has also highlighted a strong desire for information on weather warnings to be available to pilots as part of pre-flight planning, which would be another information source to enhance pilot's situational awareness.
- 6. Previous studies have shown the high regard with which this service is held by aerodrome operations' personnel. It is also clear that there are general benefits to be reaped by a wide range of aviation users through the provision of information on inclement weather in a holistic manner i.e. a service that provides an overview of the whole region or regions affected, rather than a piecemeal approach, based on only individual aerodromes who might subscribe to a warnings service.
- 7. Another outcome from past studies of the service is the desire for a reasonable lead-time (the time between the warning being issued and the expected start of the period of inclement conditions) in the issuance of aerodrome weather warnings; a warning of something that is presently occurring generally is not regarded as useful, unless providing information on time of cessation of the unexpected phenomenon or information on accumulations likely as a result of snowfall.
- 8. As a result of the above, the CAA has developed, in conjunction with the Met Office, a proposal to revise the aerodrome weather warnings service that will continue to be provided free at the point of use. The attached document, at Appendix B, prepared by the Met Office describes the proposed new service.
- 9. In summary, the key changes that are proposed are as follows:

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<sup>&</sup>lt;sup>3</sup> EC Regulation No. 550/2004 Article 9 refers

- Aerodrome warnings to be issued via a new web-based product, supported by an optional e-mail alert
- Freely accessible at the point of use to multiple users (subject to registration)
- Warnings will be issued routinely every 6 hours, 4 times per day, for the period 6-12 hours ahead
- Integration and coherence with the Public Weather Service National Severe Weather Warning Service (NSWWS)
- Can be supplemented by a more specific (paid for) service, including continuation of the current service, for additional granularity, continuous review and more direct means of communication
- 10. You are invited to comment on the proposed revision to the service and to offer any alternative suggestions that meet the criteria of being more cost effective whilst providing a holistic and network oriented approach for the aerodrome weather warning provision.
- 11. In particular, the following questions may be useful as a guide for responding to the consultation but comments can be provided on any aspect of the proposed changes.
  - (i) Do you consider that arranging for an appropriate aerodrome weather warnings service should be left to each individual aerodrome to arrange or do you feel that there are benefits from having a UK-wide 'overview' of aerodromes that may be affected by inclement weather?
  - (ii) Do you feel that the proposed service provides an appropriate lead time (i.e. the time between the warning being issued and the expected start of the period of inclement conditions), which will be between 6¾ hours and 12¾ hours?
  - (iii) Do you feel that issuing the warnings in 6 hour time periods, supplemented by information from the national severe weather warnings service, provides appropriate information on which to plan and implement aerodrome mitigation and contingency arrangements?
  - (iv) Does the provision of the warnings via a World Wide Web interface to any user who subscribes, supported by an optional e-mail alert, offer advantages over the current method of dissemination?
- 12. The consultation period will run from 25 November 2013 to 21 February 2014. Written responses are invited by e-mail to <a href="mailto:metauthority@caa.co.uk">metauthority@caa.co.uk</a> or to the address given below.

Yours sincerely,

Awells

Andy Wells Head of Met Authority Civil Aviation Authority, 45-59 Kingsway London WC2B 6TE

# Appendix A to Letter of Consultation on Changes to the Provision of UK Aerodrome Weather Warnings

## Weather phenomena for which aerodrome weather warnings are issued

- Strong Wind
- Gale
- Frost (includes Ground Frost, Air Frost, Ground and Air Frost)
- Snow
- Fog (includes Fog, Freezing Fog)
- Thunderstorm (includes Thunderstorm, Thunderstorm & Hail, Thunderstorm & Squall, Squall, Thunderstorm & Hail & Squall)
- Hail
- Freezing Precipitation
- Temperature Inversion

# Appendix B to Letter of Consultation on Changes to the Provision of UK Aerodrome Weather Warnings

### Features of proposed revision to aerodrome warnings product

This section provides a brief description of the revised aerodrome warnings product. Annex A to this section provides indicative graphical representation of how the web interface pages might look.

#### 1. Warnings provided

The scope of warnings provided will remain as current (see Appendix A).

#### 2. Aerodromes covered

The web pages will show all UK aerodromes listed in the UK AIP (excluding Crown Dependencies and Government/military aerodromes) and other aerodromes specified by the CAA. The web site will allow users to pan and zoom around areas of interest showing the location and name of the aerodromes on the chart or charts. Filtering of the number of aerodromes shown will be carried out at the large scale to prevent clutter and enhance the user experience, whilst on the highest resolution available, all aerodrome locations and names within that area will be shown without clutter.

#### 3. Updating cycle

Warnings will be issued routinely every 6 hours, 4 times per day at the following times (UTC):

Time of update	Period of validity
0515	1200-1800
1115	1800-0000
1715	0000-0600
2315	0600-1200

### 4. Amendability

This web-based service is not amendable outside of the normal updating cycle detailed above. In recognition of the need for a holistic approach, service display will provide a clear link to the National Severe Weather Warnings Service (<a href="http://www.metoffice.gov.uk/public/weather/warnings">http://www.metoffice.gov.uk/public/weather/warnings</a>), which will provide supplementary information/guidance (e.g. on snowfall accumulations) and advance alerts other parameters of interest to airports and ensure a fully integrated warnings service for airports, as well as their surrounding areas is provided.

#### 5. Alerting

A message may be sent to an email address notified on the registration form whenever a warning affecting the user's notified aerodrome has been issued. The email will provide no detail of the warning itself, but is designed to alert the subscriber to view the warnings web page to see full details of the warning issued.

#### 6. Visualisation

- 6.1 Warnings will be presented to users via a web interface and available to users via their PC, laptop or mobile device.
- 6.2 The default view will be a map of the UK, with a warnings table listing all aerodromes and identifying warnings that have been issued.
- 6.3 The map view will be established to allow users to zoom in and out of areas of interest, and to pan around the UK. The map will be provided showing point locations for all aerodromes covered by the CAA warnings service. This map will provide an indication for each aerodrome that has a non-expired warning (i.e. a warning has been issued, that may or may not yet be in the valid period, but has not expired). For each aerodrome where a non-expired warning has been issued, the aerodrome point on the map will have a click through to a text display of that warning,
- 6.4 The tabular view will display a list of airports along with the associated warnings. Where a warning is in force the cell in the table will be highlighted, and by clicking on the cell the warning detail is displayed.
- 6.5 Users will be able to switch between map and table views of the warnings, and table and map views, as their preference dictates.

#### 7. Verification

- 7.1 The Met Office is required to demonstrate the quality and value of its aerodrome warnings service. As such, the Met Office is developing verification software to analyse the on-going accuracy of a number of parameters covered by the service, including fog, strong wind and air frost for many of the largest UK airports. These results will be scrutinised by the CAA every 3 months. Additionally, the availability of the web interface and functionality of the web pages will be monitored. In the event that the web pages are unavailable, appropriate contingency arrangements will be available. Annex C provides a list of the aerodromes that are currently covered by the aerodrome warnings service.
- 8. High level process / service requirement An example of a how typical user may utilise the service is provided at Annex B.
- 9. Administration & management of the service (registration). The service will be available through a simple self-registration process so that warnings can be viewed. The process will be straightforward and will:
  - Allow users to set e-mail alert preferences and access to the website
  - Allow users to be able to change their delivery e-mail address for the push alert at any time
  - Allow an automated user name and password reminder functionality should user need a reminder of their log in details

### 10. Enhanced service option

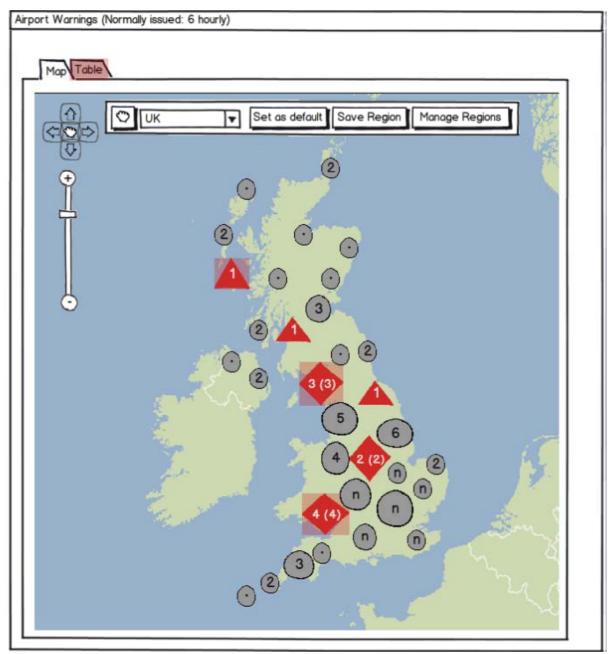
10.1 It is recognised that some airport operators may continue to have a requirement for a fully monitored and amendable warnings service. In such cases,

an optional enhanced aerodrome warnings service similar to the service defined above would continue to be available from the Met Office, but would offer the following additional benefits:

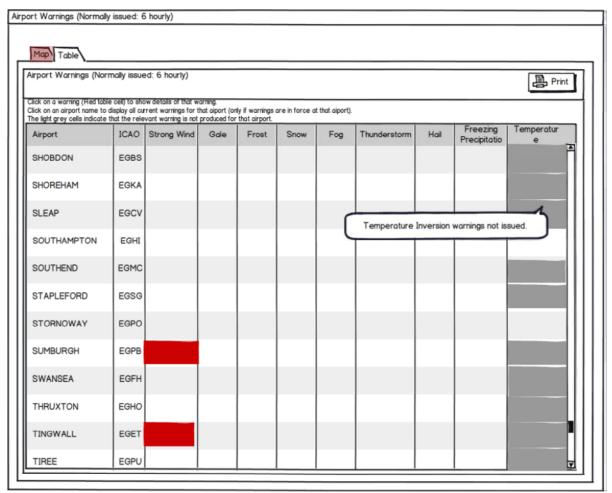
- Fully monitored 24/7 (continuous weather watch)
- Amendable
- Available by AFTN, email, SMS or fax (as well as displayed on the internet)
- Users informed when updates issued ('push' service)
- 10.2 The service cost for 'enhanced' warnings would be approximately £6000 per airport per annum. The warnings produced as part of the enhanced service for a location will also be visible by all customers to the warnings service via the web based service.
- 10.3 Other bespoke services may be available but the enhanced service option is specifically designed to meet the UK obligations under ICAO Annex 3. This service would remain part of the Met Office designation requirements, irrespective of the number of users and regulated by the CAA.

## INDICATIVE MOCK UPS OF NEW AERODROME WARNINGS SERVICE

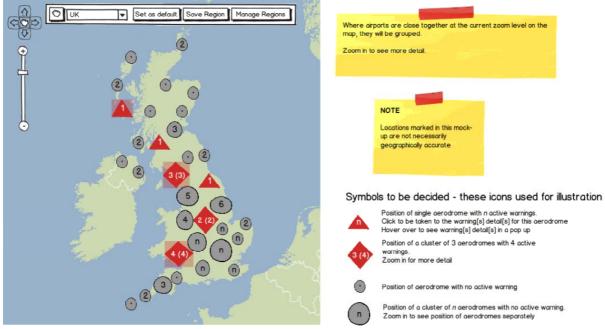
## a. Basic functionality



Warnings 'home page' - map view



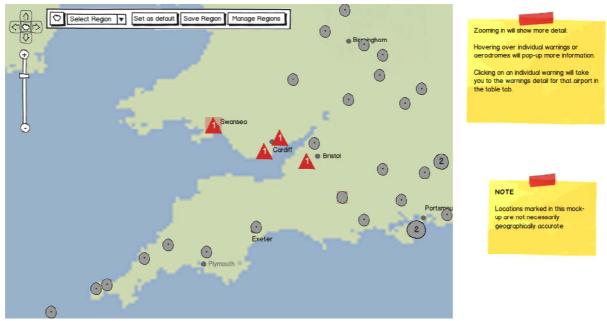
Warnings 'home page' - tabular view



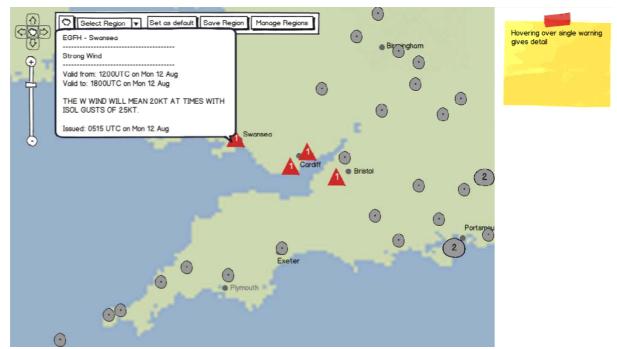
De-cluttering of warnings when panning out to cover the whole of the UK



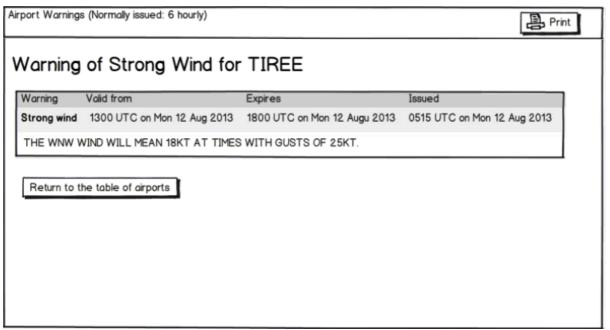
Warning summary visible from hovering over an airport



Zooming in allows more detail to be displayed

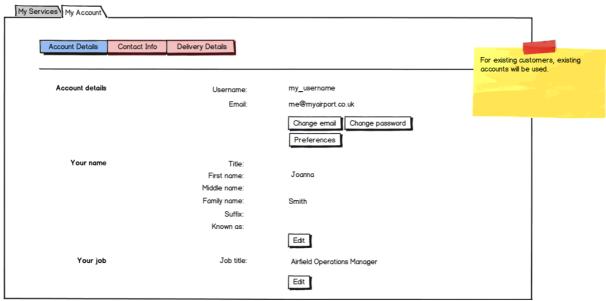


Warning summary visible from hovering over an airport (zoomed view)

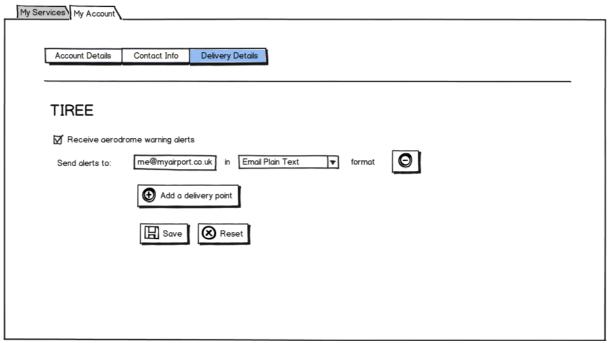


Example of warning displayed

# b. Registering



Simple registration page



Users will have the option of receiving email alerts of warnings issued affecting your nominated airport

## High Level Process / Service Requirement

- An email shall be sent to the subscriber when a warning is issued to their aerodrome.
- The email will direct the recipient to visit the web site. The email will not contain any warning detail e.g. 'A warning has been issued'.
- Warnings shall be presented to users via a web interface.
- A map shall be provided showing point locations for all 106 aerodromes covered by the CAA warnings service.
- This map shall provide an indication for each aerodrome that has a non-expired warning (i.e. a warning has been issued, may or may not yet be in the valid period, but has not expired).
- For each aerodrome where a non-expired warning has been issued, the aerodrome point shall have a click through to a text display of that warning.
- The map shall be capable of being panned and zoomed.
- The user shall be able to zoom out to the national map view
- Aerodromes shall be marked on the national and regional maps.
- Where the zoom level permits, the four letter ICAO code for all aerodromes shall be shown next to the mark for that airfield.
- An alternate view of aerodromes within current warnings areas shall be via a table showing a list of aerodromes against each of the weather phenomena for which warnings shall be issued/
- When a warning is issued, then for those aerodromes that fall within a warnings area, the appropriate cell is coloured red.
- When the user clicks on the map at a location, or on the warnings table, they shall click
  through to a warnings page at that location which shall show all the warnings that are nonexpired at that location.
- When the user clicks on the name of the aerodrome in the warnings table, the click through shall be to a warnings page at that location which shall show all the warnings that are nonexpired at that location.
- The user shall be able to switch between map and table views of the warnings, and table and map views.

# Aerodromes currently covered by aerodrome warnings service

Aerodrome	ICAO
Aberdeen	EGPD
Belfast International	EGAA
Birmingham	EGBB
Bristol	EGGD
Cardiff Wales International	EGFF
East Midlands	EGNX
Edinburgh	EGPH
Glasgow	EGPF
Leeds Bradford	EGNM
Liverpool	EGGP
London Gatwick Airport	EGKK
London Heathrow	EGLL
London Luton	EGGW
London Stansted	EGSS
Manchester International	EGCC
Newcastle	EGNT
Prestwick	EGPK
Stornoway	EGPO
Belfast City (George Best)	EGAC
Benbecula	EGPL
Biggin Hill	EGKB
Blackpool	EGNH
Bournemouth	EGHH
Cambridge Airport	EGSC
Campbeltown	EGEC
Carlisle	EGNC
City of Derry	EGAE
Coventry	EGBE

Cranfield	EGTC
Doncaster Sheffield Airport	EGCN
Dundee	EGPN
Durham Tees Valley	EGNV
Exeter	EGTE
Farnborough	EGLF
Gloucestershire	EGBJ
Hawarden	EGNR
Humberside	EGNJ
Inverness	EGPE
Islay	EGPI
Kirkwall	EGPA
London City	EGLC
Lydd	EGMD
Manston	EGMH
Newquay Cornwall	EGHQ
Norwich	EGSH
Oban	EGEO
Scatsta	EGPM
Scilly Isles (St Mary's)	EGHE
Shoreham	EGKA
Southampton	EGHI
Southend	EGMC
Sumburgh	EGPB
Tiree	EGPU
Warton	EGNO
Wick	EGPC

Andrewsfield	EGSL
Barra	EGPR
Barrow (Walney Island)	EGNL
Blackbushe	EGLK
Bodmin	EGLA
Cardiff Helipt	EGFC
Compton Abbas	EGHA
Cumbernauld	EGPG
Denham	EGLD
Dunstable Gliding	'DUNS'
Durham Tees Valley	EGNV
Duxford	EGSU
Elstree	EGTR
Fairoaks	EGTF
Gamston/Retford	EGNE
Goodwood/Chichester	EGHR
Kemble	EGBP
Lands End	EGHC
Lasham	EGHL
Lee on Solent	EGHF
Leicester	EGBG
Lippets Hill Heliport	'LIPP'
London Heliport	EGLW
Manchester Barton	EGCB
Netherthorpe	EGNF
North Denes/ Gt Yarmouth	EGSD

EGBK
EGBN
EGTH
EGTK
EGLG
EGSF
EGKR
'RING'
EGTO
EGHN
EGCF
EGCJ
EGBS
EGCV
EGSG
EGFH
EGHO
EGET
EGBT
EGBW
EGLM
EGFA
EGBO
EGCD
EGTB
'YORK'