

## Met Office User Forum

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### Met Office User Forum

**Venue**                    **Hilton Garden Inn London Heathrow T2/3**  
**Date/time**            **Thursday 9<sup>th</sup> November 2023, 1100**

#### Agenda

- 1100                    Agenda Item 1:    Welcome & Introductions
- 1115                    Agenda Item 2:    International activities:
- WAFS
  - VAAC
- 1145                    Agenda Item 3:    Finances
- 1205:                    Agenda Item 4:    National Aviation service, this year featuring:
- Update on Aviation Visualisation Services & aviation data
- 1235:                    Agenda Item 5:    SWIM services including SESAR (pre-recorded) & PCP
- 1245:                    *Lunch*
- 1330:                    Agenda item 6:    Aviation R&D:
- Current activities
  - Proposed future plans
  - Update on Supercomputer
- 1400:                    Agenda Item 7:    3 month weather outlook brief
- 1420:                    Agenda item 8:    Specific issues raised by members
- 1450:                    Agenda item 9:    Any other business
- 1455:                    Agenda Item 10:    Date of next meeting

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**Attendees**

| <b>Name</b>  | <b>Organisation</b> |
|--|---------------------|
| Mark Gibbs<br>Lauren Donohue<br>Darren Hardy<br>Piers Buchanan<br>Kayla Cooper<br>Steph Jameson<br>Talia Wells | Met Office          |
| Jo Aston<br>Terence Ngai   | CAA                 |
| Matt Wagner<br>Darren Bunce<br>Martyn Smith  | NATS                |
| Paul Swinfen   | Jet2.com            |
| Alex Lane  | British Airways     |
| Julien Duduoglu  | Virgin Atlantic     |
| Adam Pibworth  | GAMA Aviation       |

**Agenda Item 1: Welcome & Introductions**

Mark welcomed everyone to the meeting and explained the purpose of the meeting. Introductions from around the table were made.

A copy of the slides presented are available with this summary of discussions.

**Agenda item 2: International activities**

- **WAFS**

Mark provided an update on progress made over the past year on upgrades to WAFS data, as determined by ICAO. The upgrades being made to WAFS (comprising wind, temperature and hazard data) will result in data being available for a greater number of vertical levels, along with more timesteps and finer resolution data. The upgrades are scheduled to be implemented with Amendment 81 to ICAO Annex 3, currently effective from November 2024 (though the data is expected to be available from the Met Office in advance of this date).

Delivery of the data sets will be via a SADIS API, with users being able to take either global or regional datasets.

Aligned with the gridded dataset updates above, the Met Office will also introduce multi-timestep SIGWX forecasts at 3 hourly intervals (currently on a T+24 hour forecast is available). This will aid planning and avoidance of hazardous data for global air travel. These data will be available in IXWWM format, allowing end user systems to easily present and customise the data in flight planning software. This change will become fully operational in July 2024.

Future planned changes include the migration to probabilistic WAFS hazard data from November 2027 and the retirement of the legacy 'paper' SIGWX charts from November 2028.

Alex enquired whether CBs will be denoted within frontal zones. Mark would confirm but it is likely that CBs will be an implied risk within fronts.

Julien asked if similar changes were being made by WAFC Washington. Mark confirmed that this was the case, as these changes were driven by ICAO both WAFCs would be introducing the same changes. Julien also asked about the extent of engagement with flight planning companies regarding these changes. Mark confirmed that the Met Office was working closely with selected companies and that awareness campaigns are ongoing.

- **VAAC**

Mark provided an update on the progress of enhanced volcanic ash data services. Currently VA advisories and graphics are provided for ‘discernible ash’. A new product called Quantitative Volcanic Ash (QVA) will be introduced alongside Amendment 81 to ICAO Annex 3. From this date both VAACs London and Toulouse will operate this service. The QVA service will comprise of gridded dataset showing the most likely trajectory of ash based on 4 different concentration thresholds, at 0.25 degree resolution, at 5000ft vertical intervals and in 3 hourly timesteps out to T+24 hours ahead.

It is anticipated that the service will allow airlines to utilise threshold data relevant to their aircraft, to proactively route to avoid areas of risk to engines.

### **Agenda Item 3: Finances**

Mark provided a brief summary of the costs associated with the delivery of the Met Office’s regulated aviation commitments over the course of NR23, as agreed with the CAA and following Industry consultation. The Met Office’s cost submission (as presented to Industry) has been approved and details may be found in [NR23 Review: UK performance plan Decision on DfT, Met Office and CAA en route costs](#). The costs for the period of NR23 include an agreed contribution to National Capability and International Subscriptions including observations, particularly satellite based observations. The Met Office is currently utilising an underspend recognised from previous years by increasing resource in a number of areas to deliver fully the objectives set out in NR23.

### **Agenda Item 4: National Aviation services**

- **Update on Aviation Visualisation Services & aviation data**

Darren provided an update on the work of the Met Office, in partnership with a technology solutions company, on a programme of work which includes amongst its deliverables the re-platforming of the Met Office’s existing aviation briefing visualisation services, comprising the [Aviation Briefing Service \(ABS\)](#), HeliBrief, Network Weather Resilience (NWR) and Open Runway.

This activity is driven by an unavoidable programme to re-platform our web based services and regulatory obligations. In doing so, this presents an opportunity to:

- modernise existing services, including the ABS
- simplify the services and reduce cost to industry, and so we can adapt to future user needs
- maintain react to evolving briefing needs of users

The Met Office’s project board recently approved a number of decisions on these services. Most notable of these was the decision to replace all existing briefing services with a single Aviation

Service that meets the needs of the entire UK aviation industry whether that be GA, commercial aviation, airports or ATS/ATM.

The criteria the decision was based on was largely driven by extensive User Research Sessions & Surveying. These helped the Met Office to better understand the wide ranging roles of aviation stakeholders, and your needs and frustrations to understand what things work well now and where things could be improved.

The decision was also informed by Met Office needs to ensure regulatory compliance, technology feasibility & best practice, design principles & supportability, value to the aviation industry, and the impact of change for users.

During the user research we identified a number of consistent needs including:

- Improved front page customisation (so users can easily access the information that is most relevant to their needs)
- User customised TAF lists & threshold colour coding (to help users better anticipate weather threats)
- Improved weather map functionality (to improve user experience in using weather map data)
- More site specific data (to aid situational awareness)
- ‘Mobile first’ (for better experience when using smartphones and tablets)

### **What’s next**

The programme now moves into its ‘*Shape*’ phase. Initially an ‘Alpha version’ (containing a single datafeed) of the new platform will be developed. This will serve as a ‘proof of concept’, and is expected by January 2024.

This will be followed by a ‘Private Beta’ version containing a variety of aviation products, data and functionality which will be shared with a number of pre-determined stakeholders and users for review, including the CAA.

### **Measuring success of the project**

The Met Office will measure the success of the re-platformed services by:

- keeping and maintaining the strengths of current services
- ensuring user satisfaction
- using a robust and modern technology strategy
- being able to adapt with the most appropriate implementation of future service enhancements
- using industry best practices
- exiting legacy technical dependencies by end 2025.

**Timelines**

| Phase   | Date         |
|---|--------------|
| Discovery & user research   | Completed    |
| Alpha release (proof of concept)                                  | January 2024 |
| Private beta release (to selected individuals)                    | March 2024   |
| First public beta release   | Autumn 2024  |
| Live new service (initially alongside existing ABS service)       | April 2025   |
| Lifecycle enhancements & decommissioning of existing ABS service) | End 2025     |

**Get involved?**

As the Met Office and our external partner start to build the new briefing service, we invite anyone interested to become involved in reviewing iterations of the new service as it develops.

If you wish to be involved in reviewing designs and prototypes of the new service, please contact [transport@metoffice.gov.uk](mailto:transport@metoffice.gov.uk) and we'll be pleased to provide your details to our developer team.

Alex asked if the new AVS service will be 'offline friendly', i.e. available when airborne. Lauren confirmed that when there is no internet the most recent data will be stored in the cache.

Matt enquired if there were plans to visualise the QVA data via AVS. Darren advised that the precise data to be presented is still to be determined, but in principle the Met Office could provide a visualisation of the QVA API data. Lauren confirmed that a range of live weather data would be available, and presented on an improved map layer interface. In this regard, there are options to visualise other API data such as turbulence and icing. The Met Office would welcome feedback on any particular requirements.

Alex asked if the service would include global or UK weather. Darren advised that the new service is intended to be relevant to all aviation sectors, from local GA flyers to large commercial airlines, as such the service will allow customisations to focus on global or UK data, as applicable to operational need.

In response to a question delivery timelines, Darren advised that within 12 month the new service is expected to have achieved significant development and will be available for external testing.

The meeting discussed access to the new service. Lauren explained there will be the opportunity to register individually or as an Organisation (with the number of users within an Organisation

unlimited). The service is intended to be optimised whether used on large screen, laptops, tablets or smartphones.

#### **Agenda Item 5: SWIM services including SESAR (pre-recorded) & PCP**

A brief pre-recorded presentation on SWIM services was provided. Lauren then provided a summary of the of the services available via APIs from the Eurocontrol SWIM registry. Lauren also highlighted that it was incumbent upon stakeholders to advise the Met Office on other SWIM services users would like to see developed which would benefit them.

Matt reported that there was currently little interest within Europe for SWIM services, and Alex noted that these were not currently taken by British Airways. As such, whilst the potential exists for many SWIM services, there was currently a lack of appetite for them within Europe.

Matt also advised that the global exchange of data in IWXXM is part of the ICAO Global Air Navigation Plan, however very few States currently exchange data in IWXXM, so this too is a factor that restricts the need for SWIM services.

Darren Bunce commented that having, for example, 3D weather radar requires user interpretation. In general users prefer the risks to be presented to them without them having to interpret the data. It is one of the reasons why the Met Office teams embedded within NATS and at Heathrow are so valuable, as expert meteorologists are able to interpret the data and effectively present the risks to Industry. Lauren advised that it was her intention to visit more Organisations over the coming months to examine weather pain points.

#### **Agenda item 6: Aviation R&D**

- **Current activities**
- **Proposed future plans**
- **Update on Supercomputer**

Piers provided a presentation on highlights from the aviation R&D programme of work over the past year and proposed activities for the forthcoming year. A major focus is the development of probabilistic hazard data, which, as advised, will become an ICAO requirement for WAFC London by 2027. Alongside this, there is an increasing focus on how the use of machine learning techniques can improve the forecasting of upper air hazard data, particularly icing.

At a UK level, the primary focus continues to be on making improvements to the prediction of fog, convection and low level cloud. One key activity over the past year has been the WesCon project; this project was intended to help to understand the benefits of very high resolution modelling (at 333

metres) for convection, using a large amount of observation data as the verification source. The project delivered promising results. Other UK based activities included the progress of ‘first guess’ TAFs as an aid to improve the production efficiency and accuracy of UK TAFs.

An emerging area of focus is on understanding the prediction of contrail formation. Contrail avoidance for airlines is considered to be one way of contributing towards Jet Zero (though care must be taken to ensure that fuel burn used to avoid areas of contrail formation does not negate the benefits of doing so).

Piers also provide a brief update on the new Supercomputer, highlighting several key benefits anticipated from this investment at both global and UK levels.

A brief description of the differences between deterministic and ensemble modelling was provided by Piers, as the use of ensembles gains in significance over the coming years.

Alex commented that icing risk appears to be significantly over forecast presently. Piers appreciated this feedback and would engage further with users on this.

Darren advised that the Met Office has a rolling 3 years aviation R&D programme, and progress against deliverable is scrutinised by the CAA every 3 months. The MOUF presents an opportunity of Industry to feed in any emerging requirements. As such please contact the Met Office should there be any requirements not captured within existing plans.

### **Agenda Item 7: 3 month weather outlook brief**

Louise Bailey, an Operational Meteorologist based at Heathrow provided a 3 month weather outlook for the UK, and summarised the likely impacts for aviation.

Alex asked about the chance of sub-zero temperatures at Heathrow this month. Louise and Kayla advised that the potential for this is expected to increase towards the end of November as high pressure establishes.

Lauren advised that the Met Office provides similar briefings to industry routinely every 3 months. For more information on these please contact [transport@metoffice.gov.uk](mailto:transport@metoffice.gov.uk). Paul commented that these outlook forecast were proving very useful for Jet2 operations.

### **Agenda item 8: Specific issues raised by members**

A number of open comments and questions were raised by the meeting.



Mark took the opportunity to ask airlines to urge their flight planning companies to ensure their awareness of the WAFS changes.

Matt noted that Regional OPMET Centre (ROC) London sends large amounts of OPMET data to airlines, and enquired how these are being used. Julien and Alex said that extensive data was used primarily by their flight planning companies, but were unsure as to the source of this data.

The meeting considered it would be useful to hold additional briefings, particularly in advance of significant changes to services. Also, UKOMA are very willing to have the Met Office present on these changes. Alex considered that it would be useful to explore a range of ways to improve comms ahead of implementing changes. Darren suggested that the use of the CAA [Skywise](#) system could be valuable in this regard.

Paul highlighted that airlines are increasingly focussed on sustainability. The activities highlighted during this meeting will help towards this. The importance to realise the vision of a harmonised briefing visualisation capability was noted. Mark agreed, but also recognised the right of users to also have the ability to access and consume data in ways they feel valuable.

Paul recognised the work done to deliver the QVA service should also deliver benefit for airlines and airspace management. It was important to ensure harmonisation with VAAC Toulouse.

Alex highlighted that increased turbulence was expected with climate change, hence the importance to continue to improve and refine turbulence forecasts. Also several area of airspace restrictions are currently resulting in more flights routing over the poles, increasing cosmic radiation doses for aircrew.

### **Agenda item 9: Any other business**

Mark conveyed his thanks to Talia for ensuring the arrangements for this meeting went smoothly. There was no other business raised.

### **Agenda Item 10: Date of next meeting**

These meetings are held annually, and the Met Office would advertise details of the next one in due course.

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