

Met Office User Forum

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Venue **Hilton London Heathrow Airport T4**
Date/time **Wednesday 16th November 2022, 1100**

Agenda

- 1100 Agenda Item 1: Welcome & Introductions
- 1115 Agenda item 2: NR23 plans & current activities
- 1145 Agenda Item 3: Finances
- 1215: Agenda Item 4: National Aviation services
- Some key highlights
 - Performance
 - Semi-automated TAF trial
- 1245: *Lunch*
- 1330: Agenda item 5: Aviation R&D
- Current activities
 - Proposed future plans
 - Update on Supercomputer
- 1400: Agenda Item 6: 3 month weather outlook brief
- 1420: Agenda item 7: Specific issues raised by members
- Update on API integrations with operator software – GAMA Aviation
 - Forecasting & reporting of volcanic ash (ref 2021 La Palma eruption) – Jet2.com
- 1450: Agenda item 8: Any other business
- 1455: Agenda Item 9: Date of next meeting

Close

Attendees

Mark Gibbs, Met Office
Darren Hardy, Met Office
Linda Jennings, Met Office
Piers Buchanan, Met Office
Alison Flack, Met Office
Kayla Cooper, Met Office

Jo Aston, CAA
Kevin Morgan, NATS
Mick Elsegood, HIAL
Marc Beale, Jet2.com
James O'Boyle, British Airways
Alex Lane, British Airways
Paul Cremer, GAMA Aviation
Tom Everitt, GAMA Aviation

Agenda Item 1: Welcome & Introductions

Darren 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: NR23 plans & current activities

Mark provided a summary of the scope of the Met Office's regulated aviation activities as well as plans for the 5 year period, as defined in its [NR23 plan](#).

Kevin asked about the changes to WAFS data, and whether flight planning companies had been advised. Mark confirmed that all major flight planning systems should now be aware of the changes and when they will be introduced. More engagement is planned, starting approximately 1 year from the planned introduction date of November 2024. The meeting heard that British Airways were aware of the changes and that Jet2.com were engaging with their flight planning company.

In terms of planned science activities Kevin highlighted that an area of interest in particular for NATS is contrail avoidance, and asked if the Met Office had been involved in any work on identifying where contrails are likely to form. Mark confirmed that some early discussion and engagement had taken place, though it was important for the Met Office to fully understand the industry requirement. Darren noted that under the scope of its ANSP Designation the Met Office has ringfenced resource in its Aviation Application teams to undertake a range of science activities that delivery safety and efficiency benefits to aviation (this is described in more detail in Ag.5). This forum presents an opportunity to feed into these requirements. As such, the Met Office would engage with the CAA when the 3 year aviation science plan is next reviewed (this is likely to be by the end of January 2023). Piers confirmed that the Met Office does have some capability within its Ops and Science teams to examine contrails; the critical point is to determine what the requirement is, i.e. 'what does success look like'.

Darren provided a brief update on the Met Office's space weather commitments as a contributor to one of 4 ICAO designated aviation space weather centres. The Met Office remains keen to promote the space weather advisories issued and how these, alongside the information contained in [CAP 1428](#), can be used by airlines to mitigate the risks of impactful space weather events. A webinar was arranged in July 2022 to provide more details. If anyone was unable to attend the webinar and would like a copy of the recording, please contact the Met Office. Kevin reported that NATS had recently reviewed its systems and procedures for space weather events, and were in receipt of the space weather advisories. NATS would be pleased to engage with airlines on these procedures. Mark confirmed that

the Met Office would be very keen to engage with industry about understanding space weather, and particularly understand '*what would aviation do?*' in the case of the next space event. Jo provided an overview of the CAAs expectations of flight planners to ensure receipt of space weather advisories, and to promulgate them.

Paul noted that the Met Office would be working with the CAA to determine the requirements of a future airborne capability for monitoring volcanic ash in the atmosphere in the event of an eruption that impacts the VAAC London area of responsibility. Mark advised that the Met Office was likely to go to market in the second half of FY2023.

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.

Agenda Item 4: National Aviation services

- Some key highlights
- Performance
- Semi-automated TAF trial

Darren provided a summary of some key highlights from the past year, an update on performance against key performance indicators agreed with the CAA and Industry dating from the start of RP3 in 2019, and an overview of a trial to assess the benefits of increased automation in the TAF production process.

In terms of the TAF production trial, Darren invited feedback from airlines on any changes identified in the TAF content for airports covered in the trial, for example any changes to the TAF length, or nuances such as reporting SHRA vs RA in TAFs. Paul confirmed that he would be pleased to review the Farnborough TAFs and provide any relevant feedback on these.

Alex asked about how the Met Office meteorologists work with NATS. Kevin summarised how the embedded meteorologists work closely to support NATS controllers to optimise airspace management, for example sharing with controllers nowcasting predictions and CB trajectories. There were clear benefits to NATS from the meteorologists being on site in the terminal ops room as they have developed a good understanding of airspace and holds, and can tailor their advice accordingly.

With regards the LVP forecast KPI summarised by Darren, Kevin reported that the D-1 airport LVP forecasts were used to determine flow rate by a procedure, so was a really important impacts based service.

Paul welcomed the education initiatives described, to help aircrew make best use of the aviation forecasts provided and that GAMA Aviation suggested that the United Kingdom Operations Manager Association UKOMA may be interested in training for new ops controllers for example to provide a presentation on TAFs and METARS etc. Darren confirmed that the Met Office would be pleased to discuss any such needs with Paul.

Jo provided a CAA perspective on training, advising that the CAA were keen to promote educational activities. Jo advised that the CAA regarded the 2 webinars held by the Met Office on space weather and [Volcanic Ash](#) were very successful, and the CAA had helped to promote these. The CAA have been running safety initiatives with an external company on all safety topics, including MET. The CAA noted that the Met Office had created a lot of educational information and pointed everyone to the [Pilot Resource Portal](#), and also [bitesize video educational content](#).

The meeting recognised that MET training was becoming more relevant given the recently high levels of personnel turnover exacerbated by the impacts of Covid on the aviation industry. It was appreciated that apprenticeship schemes do include MET.

Agenda item 5: 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. The complement of the Aviation Applications science team is 8, and there is a good mix of skills within this team which helps the Met Office to examine and develop tools and systems that deliver safety and efficiency enhancements to both global and national aviation. More broadly other scientists in the Met Office deliver enhancements from which aviation also indirectly benefits, for example improvements to numerical weather prediction modelling.

Piers explained the work being undertaken to improve icing forecasts through the creation of icing probabilistic forecasts. A number of presentation options were under consideration including presenting mean severity or probability of severity forecasts (more details are in the accompanying slides). The Met Office would welcome any feedback from industry on which options would be of most value.

An update was also provided on activities relating to probabilistic turbulence forecasts, High Altitude Ice Crystals, improvements to high resolution UK modelling, machine learning fog prediction and activities in the RPAS sector including working in partnership with sees.ai.

Alex asked about 'physics free' convection nowcasting. Piers explained that the Met Office is examining the benefits of machine learning by 'teaching' models based on historical data (as opposed to basing forecasts on scientific atmospheric principles).

Kevin highlighted the increased use of probabilistic outputs for icing and turbulence, and commented that it would be valuable have sight of the clusters of other solutions for NAT track management. Having access to just the most likely output may not always serve NATS in the best way. It was agreed that Piers and Kevin would discuss optimal outputs for NATS in more detail.

Jo remarked that RPAS was an emerging area which will become increasingly important over coming years. The CAA are working with the Met Office in terms of what MET might be needed to service the requirements of this industry, as UAV operators will require CAA certification. The CAA also has a dedicated RPAS team.

Paul highlighted that a particular challenge for emergency service helicopter operators was fog forecasting, particularly over the more mountainous areas of Scotland

Agenda Item 6: 3 month weather outlook brief

Janek Payne, a Senior Operational Meteorologist based at Heathrow provided a 3 month weather outlook for the UK, and summarised the likely impacts for aviation.

Kevin asked whether climate change had impacted the strength and position of the jet stream. Piers reported that there was evidence suggesting that the jet stream was becoming stronger overall. Marc enquired whether ocean warming would have an effect on the climate. Piers committed to checking and to refer back with details.

Agenda item 7: Specific issues raised by members

- **Update on API integrations with operator software**

Paul reported that GAMA Aviation would derive benefits from having the ability to ingest TAFs and METARs for displaying on their Flight info display, and provided a 'use case' for this. Darren advised that the Met Office plans to develop an API capability to expose aviation

products and data that are considered most desirable by the aviation community. A so called 'OPMET' API comprising text based products such as TAFs, METARs, SIGMETs, warnings could offer a potential solution. It was important for the Met Office to engage with a wide range of UK stakeholders to examine the needs of application providers and their customers and then to define a plan of work that will address those requirements. The Met Office will be pleased to engage with GAMA Aviation during this stakeholder engagement. Paul also advised that wind shear and turbulence data are also likely to be strongly desired by application providers.

- **Forecasting & reporting of volcanic ash (ref 2021 La Palma eruption) – Jet2**

Marc advised the La Palma eruption proved to be a challenging time for airlines operating to the Canary Islands.

Whilst concentration charts are not a global requirement established by ICAO, they are nevertheless part of the North Atlantic and European VA Contingency Plan that covers VAACs London and Toulouse. This is essentially the plan that ensures that airlines have the data needed to implement their Safety Risk Assessment cases. Darren advised that VAAC Toulouse would normally issue VA concentration charts in accordance with this plan. With the advent of QVA becoming an ICAO Recommended Practice from November 2024, this is expected to improve consistency between the 9 VAACs that cover the globe.

Jo reported that the CAA had engagement with the CAA State Safety Partnership around this topic and had invited them to the Met Office VA Webinar to increase awareness and understanding MO activities and the VA process.

Agenda item 8: Any other business

Particular areas for follow up discussions include:

- Engagement between **NATS** and **airlines** on how NATS use space weather advisories.
- **Met Office** to advise when the Met Office goes to Market on potential airborne contingency solutions.
- **Airlines** to provide feedback on TAFs issued since April 2022 for airports covered by the Met Office's TAF production trial
- Engagement on potential MET education initiatives

- **Airlines** to provide feedback to the **Met Office** on options for the presentation of icing probabilistic data
- **Met Office** and **NATS** to discuss optimal outputs for probabilistic icing and turbulence data for NAT track management
- **Met Office** to summarise any climate change impacts resulting from sea temperature changes to the Gulf Stream
- **Met Office** to engage with industry on future API data requirements

There was no other business raised.

Agenda Item 9: Date of next meeting

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

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