

 Q&A

## Topic1 - World Area Forecast System (WAFS) (09:30-10:00)

08 Jul 2024, 09:00 - 12:00

### Participants



51

### Interactions\*



23

### Questions



7

7 allowed

0 dismissed

### Votes



14

5 Highest vote

### Answered questions



4

0 answer ratings

0/5 average rating

\* Interactions include the total number of questions, votes, comments and answer ratings

## 7 Questions Allowed

5

VOTES

Anonymous • 08 Jul 2024 09:52

What are actions to be taken by the MET service providers to adopt to such new changes to WAFS (e.g. equipment, procedures, training to users)?

4

VOTES

BL Choy, Hong Kong China • 08 Jul 2024 09:50

Thank you for your updates. There are a number of guidance online (e.g. "Representing WAFS SIGWX Data in BUFR"). Are the WAFCs going to update them to help people properly render the new data set?

2

VOTES

Tim Hailes (Australia, MET-IE WG Chair) • 08 Jul 2024 09:45 • ✓ ANSWERED

Should Met agencies or users generate SIGWX charts from the new IWXXM data?

2  
VOTES

Christy Leung (Hong Kong, China) • 08 Jul 2024 09:54 • ✓ ANSWERED

Thank you for the presentation, you mention the new SIGWX charts is tuned with the best verification score. May I consult which verification score(s) is/are utilized in the process?

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1  
VOTE

Tim Hailes (Australia, MET-IE WG Chair) • 08 Jul 2024 09:54 • ✓ ANSWERED

Is the implementation date of the WAFS changes aligned with an AIRAC date?

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0  
VOTES

Anonymous • 08 Jul 2024 09:46 • ✓ ANSWERED

Will the presentation be made available to participants?

**1 Comment:**

Tim Hailes (Australia, MET-IE WG Chair) • Allowed on 08 Jul 2024, 09:47 • Shown  
yes all presentations will be made available via the meeting website.

0 Upvotes | 0 Downvotes

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0  
VOTES

Tim Hailes (Australia, MET-IE WG Chair) • 08 Jul 2024 10:05

When will the new automated BUFR data be available for testing?

**1 Comment:**

BL Choy, Hong Kong China • Allowed on 08 Jul 2024, 10:49 • Shown  
I suppose you are talking about IWXXM data instead of BUFR? :)

0 Upvotes | 0 Downvotes

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 Q&A

## Topic 2 - Volcanic Hazard Information (10:00-10:30)

08 Jul 2024, 09:00 - 12:00

### Participants

 37

### Interactions\*

 18

### Questions

 5

5 allowed

0 dismissed

### Votes

 5

2 Highest vote

### Answered questions

 5

0 answer ratings

0/5 average rating

\* Interactions include the total number of questions, votes, comments and answer ratings

## 5 Questions Allowed

**2** VOTES Tim Hailes (Australia, MET-IE WG Chair) • 08 Jul 2024 10:20 • ✓ ANSWERED  
Will there be a QVA image/picture?

### 1 Comment:

Anonymous • Allowed on 08 Jul 2024, 10:36 • Shown

As mentioned, while there is no requirement for QVA imagery within the proposed SARPs, the VAACs are coordinating on a consistent approach to some QVA imagery to be provided (based on some host State requirements). The imagery is intended to be a quick check for users - they can check their display of QVA is consistent with what the VAACs provided, or alternatively the VAAC provided imagery may be a prompt for users to interrogate QVA data further, to get the information they require.

0 Upvotes | 0 Downvotes

2  
VOTES

Anonymous • 08 Jul 2024 10:22 • ✓ ANSWERED

How the concentration of ASH will be calculated in real time. Moreover, how the wind impact causing change in concentration and area of coverage will be catered?

**1 Comment:**

VAAC Tokyo, Akira NISHIJO • Allowed on 08 Jul 2024, 10:27 • Shown

We could calculate the mass of volcanic ash in air, then concentration is derived from dividing the mass by certain volume. Wind impact is included in our dispersion model.

0 Upvotes | 0 Downvotes

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1  
VOTE

Anonymous • 08 Jul 2024 10:24 • ✓ ANSWERED

what instrument or data was used to identify the QVA? and has it already been verified? for example Indonesia is one of the states that have many volcanoes,

**2 Comments:**

VAAC Tokyo, Akira NISHIJO • Allowed on 08 Jul 2024, 10:34 • Shown

We just try it now. We use the retrieval from satellite data but it is not easy way, there still be not small uncertainty in our QVA forecast.

1 Upvote | 0 Downvotes

Anonymous • Allowed on 08 Jul 2024, 10:28 • Shown

we still do not have an appropriate instrument to do verification.

0 Upvotes | 0 Downvotes

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0  
VOTES

Anonymous • 08 Jul 2024 10:25 • ✓ ANSWERED

we still do not have an appropriate instrument to do verification.

**1 Comment:**

Anonymous • Allowed on 08 Jul 2024, 10:45 • Shown

There has been work on aircraft volcanic ash detection technologies - such as <https://partner.sciencenorway.no/aircraft-forskningno-material-technology/volcanic-ash-detection-technology-tested-on-aircraft/1374547> and more recently <https://www.earth.ox.ac.uk/2016/05/volcanic-ash-detection-aided-by-and-aiding-aviation-industry/> Hopefully as QVA comes online, there will be more development in this space, to allow aircraft to more confidently operate in low concentrations of VA.

0 Upvotes | 0 Downvotes

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0  
VOTES

BL Choy, Hong Kong China • 08 Jul 2024 10:47 • ✓ ANSWERED

The draft IWXXM schema for QVACI does not include probabilistic or confidence information on concentrations. Since the draft schema is undergoing public consultation, if this is a need please raise.

### 3 Comments:

Paula Acethorp NZL • Allowed on 08 Jul 2024, 11:37 • Shown

Maybe that will be a future requirement though! :)

0 Upvotes | 0 Downvotes

Paula Acethorp NZL • Allowed on 08 Jul 2024, 11:37 • Shown

Hi Choy - the IWXXM format QVACI is deterministic, so probabilistic information is not required. It is anticipated that users will utilise the gridded probabilistic QVA data to determine confidence.

0 Upvotes | 0 Downvotes

BL Choy, Hong Kong China • Allowed on 08 Jul 2024, 11:00 • Shown

Please provide feedback and comments to [tt-avdata@groups.wmo.int](mailto:tt-avdata@groups.wmo.int) with the subject of "IWXXM 2025-2 RC1" by 14 October 2024. The draft schema is located at <https://schemas.wmo.int/iwxxm/2025-1RC1>.

0 Upvotes | 0 Downvotes

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 Q&A

## Topic 3 - Space Weather (10:30-11:30)

08 Jul 2024, 09:00 - 12:00

### Participants

 49

### Interactions\*

 30

### Questions

 8

8 allowed

0 dismissed

### Votes

 12

4 Highest vote

### Answered questions

 6

0 answer ratings

0/5 average rating

\* Interactions include the total number of questions, votes, comments and answer ratings

## 8 Questions Allowed

4  
VOTES

Anonymous • 08 Jul 2024 10:51 • ✓ ANSWERED

What are the responsibilities of the MWO's upon receipt of a Space WX Advisory?

### 1 Comment:

Anonymous • Allowed on 08 Jul 2024, 11:16 • Shown

Annex 3, 9.1.3: 9.1.3 Meteorological information supplied to operators and flight crew members shall be up to date and include the following information, as agreed between the meteorological authority and the operators concerned: .. k) space weather advisory information relevant to the whole route. ...

0 Upvotes | 0 Downvotes

2  
VOTES

Mamoru Ishii, NICT • 08 Jul 2024 10:46 • ✓ ANSWERED

In my understanding, the threshold of advisory for SATCOM is not defined and the SATCOM advisory is not issued now. Is it correct?

### 1 Comment:

Anonymous • Allowed on 08 Jul 2024, 11:07 • Shown

I believe SATCOM sits under the "GNSS" advisory type, so is based on ionospheric total electron content (TEC) and scintillation. We use models to look at the global TEC and scintillation levels, and these models measure the Sphi (phase) and S4 (amplitude) of the signals. I think the threshold that triggers an advisory may be different depending on which centre is On-Duty though

0 Upvotes | 0 Downvotes

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2  
VOTES

Anonymous • 08 Jul 2024 10:52 • ✓ ANSWERED

Can you describe the relative impact on GNSS (GPS) if a solar event similar to the carrington event of 1850s in America occurred in present day.

### 2 Comments:

Paula Acethorp NZL • Allowed on 08 Jul 2024, 11:28 • Shown

Cassie - would the radiation impact also extend beyond the polar regions, during such a large event?

0 Upvotes | 0 Downvotes

Cassie • Allowed on 08 Jul 2024, 11:13 • Shown

Great question! The Carrington event had all 3 kinds of space weather, so GNSS would be affected in many ways. I am sure satellites would have loss of communication as signals would not be able to go where they need to go; the CME would also disturb the satellite environment a great deal, satellites would experience increased drag and have orbital issues and there would be surface charging on the satellites due to the increase of electrically charged particles. The radiation event would degrade satellites and cause errors in the software, memory loss, etc. Basically satellite communication and GPS would be either very unreliable or not working at all.

0 Upvotes | 0 Downvotes

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2  
VOTES

Christy Leung (Hong Kong, China) • 08 Jul 2024 11:01 • ✓ ANSWERED

Is there any reporting mechanism for operators for observed space weather impact from ICAO perspectives?

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1  
VOTE

Paula Acethorp NZL • 08 Jul 2024 10:53 • ✓ ANSWERED

Often national space weather forecast centres (eg SWPC, ASWFC, UKMO) provide information on expected SWX conditions well before the ICAO SWX advisory is issued. (cont. in comments)

### 3 Comments:

Anonymous • Allowed on 08 Jul 2024, 10:59 • Shown

Are ICAO SWXC's subject to QMS requirements and if so, do they obtain feedback from users on timeliness of SWXA issuance?

0 Upvotes | 0 Downvotes

Jarrad Denman (VAAC Darwin Manager) • Allowed on 08 Jul 2024, 10:57 • Shown

Hi Paula, yes the METP MOG-SWX is looking at pre-event information. How this can be done, if a forecast is used, and in a way which can be done consistently between the 4 SWXCs. There is an ad hoc group working on this.

1 Upvote | 0 Downvotes

Paula Acethorp NZL • Allowed on 08 Jul 2024, 10:54 • Shown

Are the ICAO SWXC considering issuing SWXA in advance, to allow users to prepare for the SWX impacts? Even if there is no confidence in the 6hrly timing, there could be information provided in the RMK section (and all other sections remaining NOT AVBL).

0 Upvotes | 0 Downvotes

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1  
VOTE

Anonymous • 08 Jul 2024 11:10 • ✓ ANSWERED

For IATA, any concerns about how SWXA are shared by ANSP to aircraft, via the FIS? There seems to be different practices in different FIRs, as to whether SWXA are shared by voice, or pre-flight info.

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0  
VOTES

Anonymous • 08 Jul 2024 10:53

Is there potential for any of these phenomena to permanently damage satellites or avionics?

**3 Comments:**

Cassie • Allowed on 08 Jul 2024, 11:29 • Shown

Usually if satellites are inside of the magnetosphere, they are fairly well protected from space weather. Really big space weather events can cause the boundary of the magnetosphere to be pushed closer to earth, leaving satellites exposed to a lot of these particles though.

0 Upvotes | 0 Downvotes

Cassie • Allowed on 08 Jul 2024, 11:24 • Shown

Yes, the high energy protons and electrons can cause a lot of issues for satellites. They can damage them in a lot of ways - some of the impacts are called surface charging, single event upsets and total dose events. Not only can they degrade satellite performance but these particles can get into the electronics and cause memory issues, discharges, permanent damage to software and hardware, etc

0 Upvotes | 0 Downvotes

Anonymous • Allowed on 08 Jul 2024, 11:15 • Shown

Yes, depending on the magnitude of the CME or solar flare

0 Upvotes | 0 Downvotes

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0  
VOTES

Tim Hailes (Australia, MET-IE WG Chair) • 08 Jul 2024 11:11

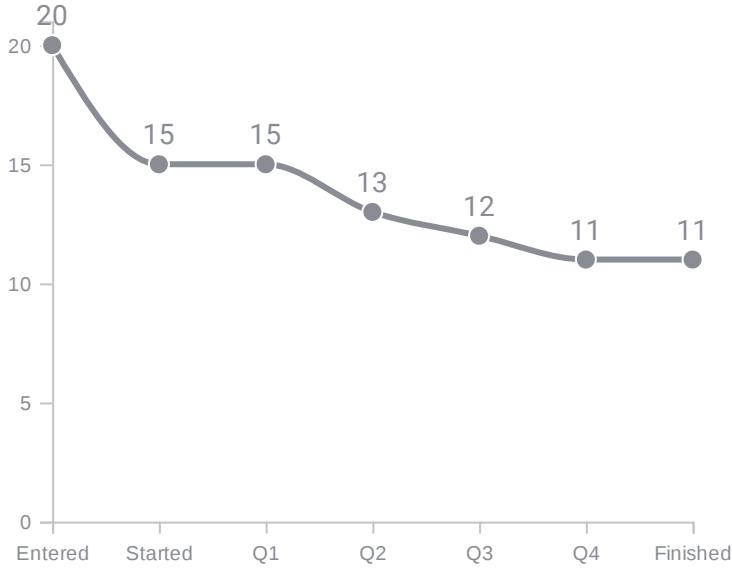
John, do operators receive a consistent Flight Information Service, related to space weather, from ANSPs?

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**Survey**

## Feedback for the Seminar

08 Jul 2024, 09:00 - 23:55



### Q1: Do you think the seminar achieved its purpose?

15 respondents

Yes	<div style="width: 93.33%; background-color: #444; height: 10px;"></div>	93.33%	14 Votes
No	<div style="width: 0.00%; background-color: #ccc; height: 10px;"></div>	0.00%	0 Votes
Partial	<div style="width: 6.67%; background-color: #444; height: 10px;"></div>	6.67%	1 Vote

## Q2: What was the most valuable part of the seminar?

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### 13 respondents

- WAFS
- All presentations were of use. Enjoyed the Q&A as well
- Understanding upcoming changes to Annex 3
- Space Weather
- Ability to hear from different aviation sectors on their views of SWX.
- World Area Forecast System (WAFS) and update on Slgwx Charts very informative for our MWO Early information is good for us to prepared for our system update TQ
- Presentations are well structured and delivers the key points. Identifies the current and future issues to be addressed which is most important
- World Area Forecast System (WAFS)
- All parts are valuable.
- The update on the coming changes and the Q&A on different topics (WAFS data service, volcanic hazard info and space weather).
- Space weather impacts and case study
- Sharing the latest information to wide participants, especially who usually do not come to ICAO meetings
- All of them

### Q3: How can we improve the seminar for next time?

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#### 12 respondents

- Having more time
- Maybe don't close the registration for the event too early. Lots of people responded last minute :)
- More input from different aviation sectors would be great.
- Continue to include information on changes to Annex 3. It was great to hear from IATA on the impacts to operators, it would be useful to hear from them in the future on other impacts due weather/VA/SW.
- All are great
- Maybe u can shared the presentation earlier to helps them participant prepare for the issued updated.
- I think this seminar is already good. But it may be necessary to add examples of actual use.
- It was great. Please allow us to have the recordings, presentation and Q & A docs so that we can review them.
- -
- advertise the seminar program earlier via the ICAO APAC website
- Uploading presentation files in advance (e.g., a week prior) would be helpful. As the presentations contain so much information, it is difficult to understand promptly during the Seminar if the information is new.
- More topic

## Q4: What topics would you like covered in future seminars?

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### 11 respondents

- global activities
- User impacts and feedback on services, changes to Annex 3.
- How to share MET information via information services (as per Amd 81 RP).
- any other future services
- Sharing of experiences and solutions
- Space weather advisory
- World Area Forecast System (WAFS)
- TAF and its verification.
- IWXXM, SWIM implementation
- Other than substantial/operational topics, procedural guidance by the Secretariat would be interest. For example, what process they have after receiving paper submissions (review, approval of responsible officer, etc., to make the audience understand and encourage them to submit their papers by deadlines), what WP should contain, difference between decision and conclusion (in what cases they should be proposed), what MET or MET-related documents are periodically updated, etc.
- In-flight significant phenomena