



International Civil Aviation Organization

MIDANPIRG/21 and RASG-MID/11

(Abu Dhabi, UAE, 4 - 6 March 2024)

Agenda Item 5.3: ANS (AIM, PBN, AGA-AOP, ATM-SAR, CNS and MET)

OUTCOME OF THE MET SG/11 MEETING

(Presented by the Secretariat)

SUMMARY

This paper presents the outcomes of the MET Sub-Group (MET SG/11) and a summary and outcomes from the Workshop on Formulating a Space Weather Exercise.

Action by the meeting is at paragraph 3.

REFERENCES

- MET SG/11 Report
- MIDANPIRG/20 Report

1. INTRODUCTION

1.1 The meeting may recall the Eleventh Meeting of MET Sub-Group (MET SG/11) was held at the ICAO MID Regional Office in Cairo, Egypt, 14 – 15 November 2023 back-to-back with the Workshop on Formulating a Space Weather Exercise, which was held at the same venue from 15 to 16 November 2023 to facilitate participation of MET experts.

1.2 The MET SG/11 was attended by a total of twenty-one (21) participants, from seven (7) States (Egypt, Jordan, Kuwait, Oman, Saudi Arabia, United Arab Emirates and the United Kingdom).

1.3 The Workshop was attended by a total of twenty-four (24) participants from seven (7) States (Egypt, Jordan, Kuwait, Oman, Saudi Arabia, UAE and USA) and one (1) Organization (IFALPA).

1.4 In accordance with the MIDANPIRG Procedural Handbook, the MET SG/11 Meeting unanimously elected Mrs. Ameera Falah Al-Azmi, Head of Meteorology Aviation, Directorate General of Civil Aviation, Kuwait, as the Chairperson of the MET Sub-Group, and Ms. Lamiaa Salim Y. Mohammed, Meteorologist, Egyptian Meteorological Authority, as the Vice-Chairperson of the MET Sub-Group.

2. DISCUSSION

WAFS

2.1 The MET SG/11 Meeting also noted the upgrades to the WAFS data sets in 2023 and the planned upgrades 2024 as well as the SADIS and WIFS data delivery systems. Upgrades to the WAFS in November 2023 (1 year earlier than the applicable date of Amendment 81 to Annex 3 and new PANS-MET) includes higher resolution (horizontal, vertical and temporal) of all WAFS data sets. Specifically, the new data includes: the provision of wind, temperature, relative humidity and geopotential height at 0.25-degree resolution; data at 1000ft flight level intervals; and data at 1-hourly intervals from 6-hours to 24-hours, three hourly intervals from 27-hours to 48-hours, and for wind and temperature data at 6-hourly intervals out to 120-hours.

2.2 Furthermore, an upgrade to the WAFS significant weather (SIGWX) forecasts in July 2024 between World Area Forecast Centres (WAFS) will be produced for 3-hourly intervals out to 2 days and better suited for the needs of short haul and ultra-long haul operations (currently only a 24-hour SIGWX forecast is produced 4 times daily). Other changes include: coverage from FL100 to FL600 in a single forecast (i.e. no separate medium level SIGWX); tropopause spot heights will be replaced by tropopause contours; icing objects will be available for the whole globe; only occasional (OCNL) and frequent (FRQ) cumulonimbus cloud will be shown – not possible to include embedded (EMBD) cloud; and turbulence objects will include both clear air and orographic turbulence (no separate in-cloud turbulence field).

2.3 The new SIGWX forecasts will be produced in IWXXM format noting that test IWXXM data sets have been made available at the following link in order for users to visualize them: <https://www.metoffice.gov.uk/services/transport/aviation/regulated/wafs-sigwx-test-data>. WAFS Washington has also made tests IWXXM data available at https://aviationweather.gov/wifs/data/IWXXM_TEST/ which SADIS users are also able to access as long as they have a WIFS account.

2.4 Lastly, the MET SG/11 meeting noted that in order to manage the significant increase in volume of data, the data delivery mechanism will be upgraded and be System Wide Information Management (SWIM)-compliant using Application Programmer Interface (API). Users will be able to choose which region to download data for as well as to specify which vertical levels and which forecast time-steps of data are required. In addition, a set of 8 fixed regions will be provided as well as global data. SADIS FTP users will be invited to test the new SADIS API components when they become available (WAFS gridded data in December 2023, OPMET data in February 2024 and SIGWX in July 2024).

2.5 Given the aforementioned, MET SG/11 agreed to the following Draft Conclusion:

DRAFT CONCLUSION 11/1: WAFS DATA

That, the SADIS users be encouraged to prepare their systems for visualizing and creating charts from the new WAFS SIGWX data sets in IWXXM format by using the test data sets available at <https://www.metoffice.gov.uk/services/transport/aviation/regulated/wafs-sigwx-test-data> & for those with WIFS accounts https://aviationweather.gov/wifs/data/IWXXM_TEST/.

2.6 For more information, States are invited to access the following link: <https://www.metoffice.gov.uk/services/transport/aviation/regulated/wafs-2023>.

ICAO MID IWXXM Implementation

2.7 The MET SG/11 Meeting recalled that provisions related to IWXXM became a requirement in Amendment 78 to Annex 3 applicable 5 November 2020. Specifically, the following MET related data shall be disseminated in IWXXM format in addition to TAC (Traditional Alphanumeric Code) format: METAR and SPECI, TAF, SIGMET and AIRMET, Tropical Cyclone Advisory, Volcanic Ash Advisory and Space Weather Advisory Information. One of the main advantages of providing MET data in IWXXM format is that IWXXM is geo-referenced specifically to aeronautical information, which is needed to move towards a SWIM environment. Another main advantage is that national extensions are easier to support in IWXXM and additional information nationally (e.g. reporting wind at various altitudes on approach) can be provided in a standard format.

2.8 The status of IWXXM implementation in the MID Region was updated with input from ROC Jeddah as provided at **Appendix A**. Notably, the following States have implemented IWXXM v3.0: Bahrain, Jordan, Saudi Arabia and the United Arab Emirates. In addition, Qatar was in the progress of testing IWXXM v3.0 with ROC Jeddah. Furthermore, Kuwait and Oman also plan to implement IWXXM in 2024.

2.9 States that have implemented IWXXM were encouraged to assist those States that have not yet done so. In addition, States that have not yet implemented IWXXM are urged to review *the Manual on the ICAO Meteorological Information Exchange Model* (ICAO Doc 10003), the *Guidelines for the Implementation of OPMET Data Exchange using IWXXM* (MID Doc 012), and Appendix H of the *EUR AMHS Manual* (EUR Doc 020) as well as the ICAO MID IWXXM Implementation Webinar material provided at the following website: <https://www.icao.int/MID/Pages/2021/>.

Review of Air Navigation Deficiencies in the MET field

2.10 The MET SG/11 Meeting recalled that MIDANPIRG/20 agreed to remove the deficiencies reported against Iraq and Oman respectively related to lack of required METAR at ORBM and implementation of QMS. The MET SG/11 Meeting noted that the total number of MET deficiencies is fourteen (14) priority 'A' deficiencies and that five (5) were related to QMS; and nine (9) related to METAR, TAF, SIGMET and WAFS.

2.11 The MET SG/11 Meeting noted that Jordan has re-established the SADIS service and therefore will be proposed to be removed from the MIDANPIRG Air Navigation Deficiency Database (MANDD) subject to MIDANPIRG/21 endorsement. In addition, an official letter from the Civil Aviation Regulatory Commission was provided to the ICAO MID office on 29 November 2023 indicating that Jordan had re-established the SADIS service.

Workshop on Formulating a Space Weather Exercise

2.12 The objective of the Workshop was to develop a SWXEX Directive in order to test aviation stakeholders' response to a SWX event; however, a broader scope of stakeholders would be needed to accomplish this objective.

2.13 The Workshop presentations and Summary of Discussion are available at <https://www.icao.int/MID/Pages/2023/MET%20SG11.aspx>.

Workshop Conclusions and Recommendations

2.14 The Workshop agreed to the following Conclusions/Recommendations:

- Continue awareness campaign on SWX through webinars/workshops;

- Regulatory authority should assure NOC distributes SWX advisories to ACC/FIC, AMO and NOF and that these advisories are included in flight documentation and briefings (depending on internal communications in how this is done);
- Liaise with other stakeholders (SWXC, ATM, COM, FIO, regulators, operators and relevant science community) on further developing a SWXEX Directive;
- Consider broader exercise to include other Regions (e.g. EUR and NAT as well as MID); and
- Keep abreast of other regional developments related to space weather exercises and contingency arrangements in line with the GANP.

2.15 While the outcomes seemed very good and the objectives of the workshop were met from the perspective of sharing information on SWX provisions and impacts to aviation, it was acknowledged that more has to be done to include all relevant stakeholders in order to plan an actual SWX exercise in the future.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the outcomes of the MET SG/11 meeting and the Workshop on Formulating a Space Weather Exercise;
- b) endorse the Draft Conclusion in paragraph 2.5; and
- c) consider another SWX Exercise Workshop with a broader scope of stakeholders in order to progress the SWX Exercise Directives used to conduct a SWX Exercise.

APPENDIX A

Table – Status of IWXXM Implementation in the MID Region

State	Expected implementation date	Comment
Bahrain	Completed	IWXXM v3.0
Egypt		In progress
Iraq		
Iran		Support planned until end of 2022
Jordan	Completed	IWXXM v3.0
Kuwait	2024	
Lebanon	End 2023	
Libya		
Oman	Q1 2024	
Qatar	Completed	IWXXM v2.1 Testing IWXXM v3.0 between MET and COM Centres Need to exchange with ROC Jeddah
Saudi Arabia	Completed	IWXXM v3.0
Sudan		
Syria		
United Arab Emirates	Completed	IWXXM v3.0
Yemen		

- END -