INTERNATIONAL CIVIL AVIATION ORGANIZATION

THE MIDDLE EAST AIR NAVIGATION PLANNING AND IMPLEMENTATION REGIONAL GROUP (MIDANPIRG)

REPORT OF THE NINTH MEETING OF MET SUB-GROUP (MET SG/9)

(Virtual Meeting, 7 - 9 December 2020)

The views expressed in this Report should be taken as those of the MIDANPIRG MET Sub-Group and not of the Organization. This Report will, however, be submitted to the MIDANPIRG and any formal action taken will be published in due course as a Supplement to the Report.

Approved by the Meeting
and published by authority of the Secretary General

TABLE OF CONTENTS

Page

PART I - HISTORY OF THE MEETING

PART II - REPORT ON AGENDA ITEMS

APPENDICES

PART I – HISTORY OF THE MEETING

1. PLACE AND DURATION

1.1 The Ninth meeting of the Meteorology Sub-Group of the Middle East Air Navigation Planning and Implementation Regional Group (MET SG/9) was held virtually from 7 to 9 December 2020, 08:00 – 10:00 UTC.

2. OPENING

2.1 The meeting was opened by Mr. Mohamed Smaoui, Acting Regional Director, ICAO Middle East Office, who welcomed the participants and wished them a Happy International Civil Aviation Day.

2.2 Mr. Smaoui recalled the outcome of the MSG/7 meeting held virtually from 1 to 3 September 2020 related to the Global Air Navigation Plan 6th Edition and the need for a revised version of the MID Region Air Navigation Strategy.

2.3 In addition, Mr. Smaoui highlighted the main outcomes of the MID ASBU Webinar , which was organized by the ICAO MID Office from 13 to 15 October 2020, prior to the meetings of the MIDANPIRG Sub-Groups, including MET SG/9, for harmonization purpose and to avoid duplication of efforts.

2.4 He reminded the MET SG/9 that the main focus of the this meeting is on the AMET Thread and Elements from Block 0 and 1 in that this meeting is expected to finalize the Table related to AMET with all required monitoring elements: applicability areas, indicators, metrics, targets and timelines.

2.5 He also emphasized the importance of implementing ASBU B0-AMET as well as IWXXM since it is a prerequisite for B1-AMET and SWIM.

2.6 In closing, Mr. Smaoui extended his best wishes to the participants for a successful and productive meeting.

3. ATTENDANCE

3.1 The meeting was attended by a total of fifty-four (54) participants, from fourteen (14) States (Austria, Bahrain, Egypt, Iran, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Sudan, UAE, UK and Yemen) and three (3) Organizations (ACAO, IFALPA and WMO). The list of participants is at **Attachment A**.

4. OFFICERS AND SECRETARIAT

4.1 The meeting was chaired by Mr. Abdulrahman Majed Alsaqabi, ANS Safety Inspector, General Authority of Civil Aviation, Saudi Arabia. The Secretary of the meeting was Mr. Christopher Keohan, Air Navigation Systems Implementation (Meteorology), Europe and North Atlantic, supported by Mr. Radhouan Aissaoui, Implementation Management, from the ICAO Middle East Office.

5. LANGUAGE

5.1 The meeting was conducted in English and documentation posted under meetings on the ICAO MID Regional Office website.

6. AGENDA

6.1 The following Agenda was adopted:

Agenda Item 1: Adoption of the Provisional Agenda and election of Chairpersons

Agenda Item 2: Follow-up on MIDANPIRG/17 and MSG/7 Conclusions/Decisions relevant to MET

Agenda Item 3: Global and Regional developments

Agenda Item 4: MET Planning and Implementation issues:

- Performance Framework for MET implementation in the MID Region
- Review of the implementation of WAFS and SADIS
- Review of requirements for OPMET data and status of implementation of Regional OPMET Centre (ROC) Jeddah and back-up ROC Bahrain as well as IWXXM implementation

Agenda Item 5: Review of air navigation deficiencies in the MET field

Agenda Item 6: Future Work Programme

Agenda Item 7: Any other business

7. CONCLUSIONS AND DECISIONS - DEFINITIONS

7.1 All MIDANPIRG Sub-Groups and Task Forces record their actions in the form of Conclusions and Decisions with the following significance:

a) **Conclusions** deal with the matters which, in accordance with the Group's terms of reference, merit directly the attention of States on which further action will be initiated by ICAO in accordance with established procedures; and

b) **Decisions** deal with matters of concern only to the MIDANPIRG and its contributory bodies.

8. LIST OF DRAFT CONCLUSIONS AND DRAFT DECISIONS

DRAFT CONCLUSION 9/1: 0.25 DEGREE WAFS HAZARD DATA

DRAFT CONCLUSION 9/2: NOVEMBER 2023 WAFS AND SADIS UPGRADES

DRAFT DECISION 9/3: MET SG TERMS OF REFERENCE

PART II: REPORT ON AGENDA ITEMS

REPORT ON AGENDA ITEM 1: ADOPTION OF THE PROVISIONAL AGENDA AND ELECTION OF CHAIRPERSONS

1.1 The subject was addressed in PPT/1, presented by the Secretariat. The meeting reviewed and adopted the Provisional Agenda as provided in the History of the Meeting.

1.2 In accordance with the MIDANPIRG Procedural Handbook, the meeting unanimously agreed that the current Chairperson of MET SG remains as Chairperson through MET SG/10. The meeting also unanimously elected the Vice Chairperson of MET SG, Mr. Marc Wehaibe, Acting Director of the Lebanese Meteorological Department, with the vision that Mr. Wehaibe may take the position of MET SG Chairperson after MET SG/10.

REPORT ON AGENDA ITEM 2: FOLLOW-UP ON MIDANPIRG/17 AND MSG/7 CONCLUSIONS AND DECISIONS RELEVANT TO MET

2.1 The subject was addressed in PPT/2 presented by the Secretariat. The meeting noted the status of the MIDANPIRG/17 and MSG/7 Conclusions and Decisions relevant to MET and the follow-up actions taken by concerned parties as at **Appendix 2A**.

REPORT ON AGENDA ITEM 3: GLOBAL AND REGIONAL DEVELOPMENTS

MET Panel

3.1 The subject was addressed in IP/3 presented by the Secretariat. The meeting was given an overview of activities currently being undertaken at the global level by the MET Panel (METP) and its working groups (specifically WG-MRI, WG-MISD, WG-MIE and WG-MOG), in particular those with foreseen implications on aeronautical meteorological service provision over the coming years. More details on the outcomes of the METP and associated working groups can be found at **Appendix 3A**.

3.2 The World Meteorological Organization (WMO) also emphasized that WG-MISD was in the process of restructuring Annex 3 in the context of developing PANS-MET and expected to be completed in 2 to 3 years. Furthermore, WG-MISD was in the process of developing quantitative volcanic ash and radioactive cloud information in order to meet operational needs.

3.3 In addition, WMO (as a METP Member) informed the meeting that the METP Working Group on Meteorology Cost Recover Guidance and Governance (WG-MCRGG) was addressing matters such as the scope of MET Authority, SWIM management and governance and cost recovery for space weather centres as well as cost recovery on a broader scale.

WMO activities of relevance to ICAO including the response to the Coronavirus (COVID-19) Pandemic

3.4 The subject was addressed in IP/3, presented by WMO. In particular, subjects including the WMO Governance Reform, WMO's contribution to global and regional aeronautical meteorology initiatives as well as WMO's response to Coronavirus (COVID-19) pandemic were discussed.

3.5 With respect to the WMO Governance Reform, the meeting noted that the Commission for Aeronautical Meteorology (CAeM) as well as all other *intergovernmental* technical commissions has been dissolved. In its place, a new *non-governmental* Standing Committee on Services for Aviation (SC-AVI) has been established under a new *intergovernmental* Commission for Weather, Climate, Water and Related Environmental Services and Applications (abbreviated to 'Services Commission' or SERCOM).

3.6 SC-AVI includes approximately 20 experts with representation from all six WMO Regions. Its primary purpose is to contribute to furthering the standardized provision of meteorological services for international air navigation and to provide assistance to Members with aeronautical meteorological services to achieve compliance with those standards. A diagram of this new WMO structure can be found in IP/3.

3.7 The meeting also noted that WMO, at the request of ICAO, continues to be responsible for the development and publication of the IWXXM schema noting the latest version 3.0 was published by WMO on 7 November 2019 and is available for operational use via the following URL: https://schemas.wmo.int/iwxxm. In addition, technical specifications pertaining to IWXXM are included in the WMO *Manual on Codes*, International Codes, Volume I.3 – *Annex II to the WMO Technical Regulations*: Part D – *Representations derived from data model*s and made available at the following URL: https://library.wmo.int/index.php?lvl=notice_display&id=19508.

3.8 With reference to the COVID-19 pandemic and the economic impact to aviation and thus reduced funding through cost recovery scheme for some States, WMO prepared a set of preliminary guidelines for Aeronautical Meteorological Service Providers (AMSPs). The preliminary guidelines were first published on 10 April 2020 and updated several times thereafter taking into

account new information. The preliminary guidelines address, *inter alia*, international obligations of Members and their AMSPs, illustrations of contingency measures implemented by some AMSPs, and access to relevant resources as they relate to quality management, risk management, business continuity and cost recovery. The preliminary guidelines are published online (English only) at URL: https://www.wmo.int/aviation/covid-19.

3.9 Other topics discussed included cost recovery of aeronautical meteorological service provision, Aircraft Meteorological Data Relay (AMDAR) observing system, Aviation Research and Development Project (AvRDP), survey on the impacts of climate change and variability on aviation as well as long-term plan for aeronautical meteorology.

3.10 With reference to cost recovery of aeronautical meteorological service provision, the meeting noted that WMO No. 904 would be reviewed in 2021 to reflect new services such as space weather advisory information and in parallel other similar regional and global services provided.

REPORT ON AGENDA ITEM 4: REVISED MID AIR NAVIGATION STRATEGY

4.1 The subject was addressed in PPT/4 presented by the Secretariat.

4.2 The meeting recalled that the MSG/7 meeting held virtually from 1 to 3 September 2020 noted that the Global Air Navigation Plan 6th Edition endorsed by 40th session of the ICAO General Assembly brought major changes, which need to be reflected in the next version of the MID Region Air Navigation Strategy. The MSG7 meeting agreed also that the MIDANPIRG Sub-Groups should conduct virtual meetings in the 4th quarter of 2020 to review the GANP 6th Edition and identify ASBU priority 1 Threads and Elements and associated monitoring elements, considering the Secretariat proposal and States' and stakeholders' inputs.

4.3 The meeting noted that the MID ASBU Webinar held on 13 – 15 October 2020, provided an opportunity to familiarize the participants with the 6th Edition of the GANP (multi-layer Structure, Performance Framework, Basic Building Block (BBB) Framework); and showcase the different ASBU Threads through online demonstration using the GANP Portal, for harmonization purpose and an increased efficiency of the MIDANPIRG Sub-Groups during the discussion of the subject.

4.4 The meeting noted also that the MID ASBU Webinar identified the ASBU Threads and elements, which would be proposed to MIDANPIRG/18 as priority 1 further to the review, agreement or amendment by the relevant MIDANPIRG Sub Groups.

4.5 The meeting reviewed the AMET Thread and agreed to the prioritization of the different elements of Block 0 and 1 as at Appendix **4A**. The meeting reviewed and updated the monitoring elements related to the priority 1 elements, including the applicability areas, indicators, metrics, targets and timelines, as at **Appendix 4B**, and agreed that the table be included in the revised version of the MID Region Air Navigation Strategy to be presented to MIDANPIRG/18 for endorsement.

4.6 The meeting was apprised of the MID ASBU Webinar discussions related to the initial list of Key Performance Indicators to be used for performance monitoring at National and Regional levels, as at **Appendix 4C**.

4.7 The Meeting was informed that ICAO MID will be conducting a survey aiming to collect data from Member States on their priorities, status of implementation of Elements/Sub-elements and share any emerging air navigation issues. The results of the survey will serve as important input into adjusting and consolidating the MID air navigation strategy, in particular the applicability areas, targets and timelines.

4.8 The meeting urged States, that have not done so, to share their Air Navigation priorities and updated National Plan, with the ICAO MID Office in response to SL: AN 1/5 – 20/178 issued on 1 October 2020 as a Follow-up action to the MSG/7 Conclusion 7/6.

SADIS

4.9 The subject was address in WP/1 presented by the SADIS Provider State. The meeting noted that SADIS moved from aging on premise servers onto cloud-based technology. In addition to migrating the current technology to maintain SADIS services, some improvements to the system were also made such as: increased resilience due to spatially distributed servers and mutual backup procedures; flexibility in scaling the system depending on demand; and download speeds in excess of

5Gbps provided the users' bandwidth permits downloads at this rate which allows WAFS gridded data sets to be downloaded in a fraction of a second.

4.10 The meeting noted that the 2020 SADIS efficacy survey is available at https://response.questback.com/metoffice/0hsdv4qtmh and that all SADIS users were encouraged to participate in this survey prior to 31 December 2020.

4.11 The meeting also noted that a catalogue of METAR and TAF data has been created from data obtained during the February 2020 monitoring period so that missing data can be more easily identified. States were encouraged to review this catalogue located on SADIS server as well as the METP WG-MOG public webpage (https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx) and if some METAR or TAF data was identified absent, States were encouraged to contact the SADIS manager (sadis.manager@metoffice.gov.uk).

4.12 The meeting noted guidance called the 'SADIS Workstation Evaluation Guide' hosted in the documentation section on SADIS as well as the ICAO METP public website. This allows SADIS users to evaluate their own systems and provide non-compliance issues to their software provider. The advantage is to save cost to the SADIS user noting the SADIS Workstation evaluations carried out by the SADIS provider is chargeable.

4.13 The meeting noted that users were encouraged to establish and regularly test backup accounts (WIFS) to be used in the rare event that SADIS is unavailable.

4.14 The meeting noted that IWXXM data that is internationally disseminated and sent to ROC London since late October 2020 will be published on SADIS. This data is provided on SADIS as sets of nested zipped files, with 1-minute, 5-minute and hourly files available (e.g. 5-minute zip file will contain up to five of the 1-minute files if there is a file for each minute). SADIS users were notified when the data is available via a SADIS administrative message.

WAFS

4.15 The subject was addressed in PPT/8 presented by World Area Forecast Centre (WAFC) London.

4.16 The meeting noted that the horizontal resolution of the World Area Forecast System (WAFS) hazard data sets for ICING, TURBULENCE and CUMULONIMBUS was increased from 1.25 degrees to 0.25 degrees. Furthermore, the new turbulence field, TURBULENCE SEVERITY, forecasts both clear air turbulence and orographic turbulence and provide their forecasts as an eddy dissipation rate (EDR). In addition, the new icing field, ICING SEVERITY, gives a categorical assessment of icing as nil, trace, slight, moderate and severe. Due to implementation delays at one of the WAFCs, between November 2020 and March 2021 the data provided will not be available until approximately 6-hours after the model data time (one hour later than required in Annex 3) and will have reduced operational resilience. Given the above, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 9/1: 0.25 DEGREE WAFS HAZARD DATA

That, the SADIS users be invited to start integrating the new 0.25 degree WAFS hazard data into their systems and software as soon as possible, but not later than 17 March 2021.

4.17 The meeting also noted planned upgrades to the WAFS in November 2023 which included a horizontal resolution of 0.25 degrees for all WAFS fields as well as a vertical resolution of 1000ft. In addition, the temporal resolution will increase significantly to better accommodate operators' needs. SIGWX forecasts between WAFCs London and Washington will be harmonized and produced with a shorter lead time. This information will be provided at 3-hourly intervals out to 2 days and better suited for the needs of short haul and ultra-long haul operations. Lastly, the meeting noted that in order to manage the significant increase in volume of data the delivery mechanism will be upgraded and be SWIM-compliant using web-coverage services and application programming interfaces. Given the aforementioned, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 9/2: NOVEMBER 2023 WAFS UPGRADES

That, the SADIS users familiarize themselves with the proposed WAFS and SADIS changes planned for November 2023, and commence preliminary discussions with their technical departments about how their organization could adapt to these technological changes.

4.18 For more information the meeting was invited to access https://www.metoffice.gov.uk/services/transport/aviation/regulated/wafs-2022.

4.19 WMO commended the SADIS Provider for the presentation and progress made toward providing meteorological information in a System Wide Information Management (SWIM) environment that requires modernizing the service delivery.

4.20 With reference to EDR that translates to turbulence severity for medium-sized aircraft in the ICAO provisions, the meeting noted that for other aircraft sizes the operator would need to provide the information on EDR as it relates to turbulence severity.

ROC and IWXXM Implementation

4.21 The subject was addressed in PPT/5 presented by the Secretariat. ROC Jeddah provided a status on implementation regarding the OPMET exchange scheme necessary for States in supporting the MID Regional OPMET exchange hub as provided at **Appendix 4D**. Currently, nine (9) States (Iraq, Lebanon, Libya, Jordan, Oman, Qatar, Saudi Arabia, Sudan and United Arab Emirates) have fully implemented the appropriate OPMET exchange scheme. Four (4) States (Bahrain, Egypt, Iran and Kuwait) have partially implemented this scheme, while two States (Syria and Yemen) have not started implementation in this regard.

4.22 The meeting recalled that the ICAO MID Regional Office coordinated with ROC Vienna on participation and support to the MET/MIDAMC (MID ATS Messaging Management Centre) Teleconference on IWXXM implementation held on 9 June 2020. ROC Vienna responded to many implementation concerns raised in the MID Region such as necessary bandwidth to exchange IWXXM data (at least 256kb, preferably 512kb for inter-regional links); testing data exchange between COM Centres Jeddah and Vienna once Jeddah has implemented extended AMHS capabilities and inter-regional link has been upgraded in Nicosia; translation services, if available, should be conducted within the MID Region for the MID States using a similar agreement to that used in the EUR Region.

4.23 The meeting raised a significant concern in that extended AMHS connections between Nicosia (gateway to MID Region from EUR) and Jeddah as well as Bahrain is expected to occur in Q4 2020 and therefore, IWXXM data could not be exchanged between EUR and MID Regions on the

applicability date of Amendment 79 to Annex 3 (5 November 2020).

4.24 The meeting noted the following progress on IWXXM implementation: Qatar – IWXXM version 2.1 – status implemented; Saudi Arabia – IWXXM version 3.0 – ready for exchange of IWXXM data; and United Arab Emirates – IWXXM version 2.1 – status implemented. Furthermore, Egypt is expected to have IWXXM implemented in 2021 and Iran in 2022.

4.25 ROC Jeddah elaborated on IWXXM implementation progress and challenges. The main challenge was coordination with the MET COM Centre and the Civil Aviation COM Centre. Exchange of OPMET data in IWXXM as per the requirements in Annex 3 was expected by the end of December 2021. Testing is expected inter-regionally with Inter-Regional OPMET Gateway Bangkok and Vienna (pending AMHS implementation at Nicosia).

4.26 WMO informed the meeting that in addition to the guidance listed in PPT/5, there are other useful links provided in IP/3 and included in Agenda Item 3 to this Report. Furthermore, an update to ICAO Doc 10003, *Manual on the ICAO Meteorological Information Exchange Model* is expected in 2021.

4.27 The meeting emphasized the need to provide OPMET data in IWXXM as well as Traditional Alphanumeric Code (TAC) in parallel in accordance to Annex 3 since 5 November 2020. Clarification was provided that the cessation of TAC was expected in 2026 (reference AN-Conf/13 Recommendation 2.3/2 and METP/4 Recommendation 5/3).

4.28 The meeting agreed that IWXXM implementation would only be achieved by 3 of the 15 States by the end of 2020 and agreed that those States could assist in providing an IWXXM implementation workshop in virtual mode in early 2021 with the assistance of ICAO and if possible, WMO. This event is reflected in the Agenda Item 6: “Future Work Programme”.

4.29 To facilitate the upcoming IWXXM implementation workshop, the meeting agreed to recirculate the IWXXM implementation survey to MET focal points and that States respond to the ICAO MID Regional Office by the end of January 2021.

REPORT ON AGENDA ITEM 5: REVIEW OF AIR NAVIGATION DEFICIENCIES IN THE MET FIELD

5.1 The subject was addressed in PPT/6 presented by the Secretariat.

5.2 The meeting recalled that MIDANPIRG/17 reviewed the contents of the MIDANPIRG Air Navigation Deficiency Database (MANDD). Of relevance to MET, the MIDANPIRG/17 noted that the total number of MET deficiencies is ten (10) priority 'A' deficiencies and that six (6) were related to QMS; and four (4) related to METAR, TAF, SIGMET and WAFS, as at **Appendix 5A**.

5.3 The meeting also noted that the majority of deficiencies listed in the MANDD still did not have any specific Corrective Action Plan (CAP). The MIDANPIRG/16 urged States to implement the provisions of MIDANPIRG Conclusion 15/35 related to eliminating Air Navigation Deficiencies, and in particular, providing a specific CAP for each deficiency.

5.4 Lebanon informed the meeting that the connection to SADIS FTP was ceased due to the lack of funding. Lebanon would attempt to secure funding and re-establish contact with the SADIS Manager, Karen Shorey (karen.shorey@metoffice.gov.uk) to reactivate SADIS FTP. With reference to QMS, Lebanon informed the meeting that the previous USOAP audit cited a systemic concern in that the regulator and service provider were not separate entities. The meeting also noted that guidelines on the implementation of QMS are available in WMO- No. 1100, *Guide to the Implementation of Quality Management Systems for National Meteorological and Hydrological Services and other Relevant Service Providers*.

5.5 The meeting noted that a survey on QMS could be considered in order to understand the common issues of States and follow-up with ICAO support.

5.6 WMO expressed concern over the long duration that most of these deficiencies listed in the MANDD have remained for several years. As noted in other Regions, States that have implemented ICAO provisions may be in a position to assist those States with deficiencies. In addition, the meeting agreed that non-compliance with IWXXM provisions should be listed in the MANDD in due time which may assist States in providing the necessary resources needed for implementation.

REPORT ON AGENDA ITEM 6: FUTURE WORK PROGRAMME

6.1 The subject was addressed in PPT/7 presented by the Secretariat. The meeting reviewed the MET SG Terms of Reference (TORs) which included a proposal to remove reference to Air Navigation Systems Implementation Group (ANSIG) since MIDANPIRG/17 agreed to dissolve the ANSIG (MIDANPIRG Decision 17/44 refers). In addition, ASBU Modules were proposed to be replaced with ASBU threads/elements in accordance to the 6th edition of the GANP endorsed by the 40th session of the general assembly (A40). Furthermore, coordination with relevant MIDANPIRG and RASG-MID Subsidiary bodies for issues with common interest was proposed to be added. Lastly, working arrangements of the MET SG was proposed to be added. Consequently, the MET SG/9 agreed to the following draft Decision:

DRAFT DECISION 9/3: MET SG TERMS OF REFERENCE

*That, the MET SG Terms of Reference be amended as at **Appendix 6A**.*

6.2 Taking into consideration, the planned ICAO MID Regional events, which are of relevance to the activity of the MET Sub-Group, in particular the MIDANPIRG/18 meeting, it was agreed that the MET SG/10 meeting be held during the first quarter of 2022 in Saudi Arabia. The meeting appreciated the kind offer from Saudi Arabia and also agreed that MET SG/10 should consider a hybrid type meeting since virtual meetings has resulted in greater participation.

6.3 Furthermore, the meeting agreed to have an IWXXM implementation and dissemination of space weather advisory information workshops virtually in Q1 and/or Q2 of 2021. Therefore, the following MID MET related events were planned through early 2022:

- Q1/Q2 2021 - Dissemination of Space Weather Advisory Information Workshop (virtual)
- Q1/Q2 2021 – IWXXM implementation Workshop (virtual)
- Q1 2022 – MET SG/10, Saudi Arabia (hybrid)

REPORT ON AGENDA ITEM 7: ANY OTHER BUSINESS

7.1 Saudi Arabia requested assistance on space weather advisory information in various aspects including an overall overview of standards and distribution of this information. An example of space weather advisory information flow from France is provided at **Appendix 7A**. In addition, a workshop on space weather advisory information may be provided in the MID Region in Q1 or Q2 2021 and reflected under the future work programme in Agenda Item 6.

APPENDICES

APPENDIX 2A

FOLLOW-UP ACTION PLAN ON MIDANPIRG/17 CONCLUSIONS AND DECISIONS

NO.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/ REMARKS
C. 17/9	**THIRD EDITION OF THE MID REGION AIR NAVIGATION REPORT (2018)** That, the Third Edition of the MID Region Air Navigation Report (2018) is endorsed and be posted by the ICAO MID Office on the website.	Monitoring and Reporting of ASBU implementation in the MID Region	MID AN Report	MIDANPIRG/17	Apr. 2019	**Completed**
C. 17/10	**MID REGION AIR NAVIGATION REPORT (2019)** That, a) States be urged to provide the ICAO MID Office, with relevant data necessary for the development of the Fourth Edition of the MID Region Air Navigation Report (2019), by **1 December 2019**; b) the MID Region Air Navigation Report (2019) be presented to the MSG/7 for endorsement.	Monitoring and Reporting of ASBU implementation in the MID Region	State Letter Data for AN Report 2017 Air Navigation Report (2019)	ICAO States MSG/7	Dec. 2019 Apr. 2020	**Completed** SL AN 1/7 – 20/008 dated 9 January 2020 (Bahrain, Egypt, Jordan, Qatar, Saudi Arabia) MSG Conclusion 7/6
C. 17/13	**AMENDMENT TO THE MID eANP VOLUME III** That, the amendment to the MID eANP Volume III at **Appendix 6.2D** is approved**.**	To amend/update the MID eANP Vol III	Amendment	MIDANPIRG/17	Apr. 2019	**Completed** Amendment was approved by MIDANPIRG/17
C. 17/14	**INTERREGIONAL WORKSHOP/SEMINAR ON AIM/SWIM** That, an Interregional Workshop/Seminar on AIM/SWIM be organized in 2020-2021.	To review the latest developments related to AIM/SWIM	Workshop/Seminar	State Letter	2020-21	**Ongoing** Planned for 2021

NO.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/ REMARKS
C. 17/41	**GUIDELINES FOR THE IMPLEMENTATION OF OPMET DATA EXCHANGE USING IWXXM** That, the Guidance for Implementation of OPMET data exchange using IWXXM at **Appendix 6.2Y** is endorsed as MID Doc 012.	To assist States in the implementation of IWXXM	Published on ICAO Website	MIDANPIRG/17	Apr. 2019	**Completed**
D. 17/42	**UPDATE THE BMG TERMS OF REFERENCE** That, the Terms of Reference (TORs) of the Bulletin Management Group (BMG) be amended as at **Appendix 6.2Z**.	To keep pace with developments	BMG TORs	MIDANPIRG/17	Apr. 2019	**Completed**
D. 17/44	**DISSOLUTION OF ANSIG** That, a) the Air Navigation Systems Implementation Group (ANSIG) is dissolved, and the Terms of Reference of the MSG be updated, accordingly; and b) the revised MIDANPIRG Organizational Structure at **Appendix 6.4A** is endorsed.	Revised ORG Structure of MIDANPIRG to increase efficiency	Dissolution of ANSIG	MIDANPIRG/17	Apr. 2019	**Completed**
D. 17/45	**CHAIRMANSHIP OF MIDANPIRG AND SUBSIDIARY BODIES** That, the MIDANPIRG Procedural Handbook be amended to reflect the following: *"In case of absence of the Chairperson for two consecutive meetings, unless otherwise determined by special circumstances, the election of Chairperson should be included in the agenda of the second meeting for the election of a new Chairperson, unless otherwise decided by the meeting."*	To ensure continuity of chairmanship in an efficient manner.	Insertion of a new paragraph in the MIDANPIRG Handbook	ICAO	Apr. 2020	**Ongoing**

NO.	CONCLUSIONS AND DECISIONS	CONCERNS/ CHALLENGES (RATIONALE)	DELIVERABLE/ TO BE INITIATED BY		TARGET DATE	STATUS/ REMARKS
D. 17/46	**NEW EDITION OF THE MIDANPIRG PROCEDURAL HANDBOOK** That, the Secretariat consolidate a new Edition of the MIDANPIRG Procedural Handbook, for review by the MSG/7 meeting before the formal endorsement by the MIDANPIRG/18 meeting.	To reflect the agreed changes in the new Edition of the Handbook	New Edition	MIDANPIRG	MIDANPIRG/18	**Ongoing** Proposal to be provided to MIDANPIRG/18 (ref. MSG D. 7/14)

APPENDIX 3A

MET Panel and associated Working Groups outcomes

Significant outcomes from the Sixth meeting of the ICAO Meteorology Panel Working Group on Meteorological Information and Service Development (METP WG-MISD/6) included:

- Accepted the proposed amendments related to Space Weather Provisions to Amendment 81 to Annex 3 (requiring SWXC within the globally co-ordinated space weather service to receive space weather information from other SWXC, removing international NOTAM offices from receipt of space weather advisory information, requiring space weather advisory information to be disseminated in IWWXM GML form in addition to the dissemination of this advisory information in abbreviated plain language, upgrading space weather effects and intensities from a recommendation to a standard, updating template and examples of space weather advisory messages (e.g. separates fields of SWX Effect and intensity of event, the later placed with the extent for GNSS, Radiation effects, HF Com effects) and consequential amendments to Annex 5 and Annex 10 for consideration by the METP/5;

- Tasked the WG-MISD Rapporteur to prepare a working paper for the second meeting of the IMP (IMP/2) requesting the IMP to confirm the requirement for supplying space weather advisory to international NOTAM offices; and, if there is no requirement, request the IMP to propose the removal of the requirement from Annex 15 and the consequential amendment in Annex 3, for applicability in 2023;

- Note that subsequent to the MISD/6 meeting, the METP/5 meeting was postponed to 2021. In addition, the applicability date of Amendment 81 to Annex 3 delayed to November 2023 to allow the draft SARPs to be reviewed and endorsed by the METP/5 meeting. The impact of the postponement of the meeting on the MISD/6 actions will be addressed by the Rapporteur of the MISD;

- Ad-hoc group established to review the options for the sequence numbering of SWX Advisories and if a preferred option is identified, assess the impact on the other Annex 3 advisory information and present initial results to the seventh meeting of the WG-MIE (MIE/7);

- Ad-hoc group established to develop appropriate changes to Doc 10100, *Manual on Space Weather Information in Support of International Air Navigation*, so it is compatible with the proposed changes to updates to Amendment 81 to Annex 3 and deliver the updates to the next meeting of the WG-MISD Space Weather Work Stream;

- Tasked the WG-MISD Rapporteur to invite Communications Panel members/advisors, with the assistance of WMO, to form a joint working group with the METP to conduct the necessary study to formulate scientifically-sound thresholds for SATCOM, especially ADS-B, ADS-C, and CPDLC, in the SWX advisory;

- Tasked the WG-MISD Rapporteur, in coordination with the WG-MOG Rapporteur to prepare an IP for the next WG-MOG meeting proposing the establishment of a space weather work stream, including the Terms of Reference; and to prepare a WP proposing the establishment of a space weather work stream under the WG-MOG, including the Terms of Reference, for consideration by the fifth meeting of the METP (METP/5);

- Tasked the WG-MISD Rapporteur to prepare a WP proposing the closure of Job Card METP.009.04 for consideration by the METP/5 meeting and to prepare a draft job card for SWX

that includes ongoing oversight and continuous improvement of the service, and issues related to SATCOM to replace Job Card METP.009.04 for consideration by the fifth meeting of the METP (METP/5);

- Established an ad-hoc group to evolve and develop the Hazardous Weather Information Service (HWIS) concept, in line with the GANP and WG-MIE MET SWIM Plan and Roadmap, and the METP White Paper. The steps to achieve this are as follows: a) finalizing the high level concept, including the principles and vision diagram, and reporting to METP/5; b) developing and refining the use cases, including updating the information to reflect the use of en-route hazardous advisory information in a data-centric SWIM environment to support decision-making in line with a) for consideration by WG-MISD/7; c) in line with a) and b), revising the ConOps for en-route hazardous meteorological information for consideration by WG-MISD/7; d) updating the roadmap to align with c) and the implementation schedule as agreed at WG-MISD/6 for review by METP/5; and e) maturing the service architecture, including the changing role of the MWOs, based on the high level principles as agreed at WG-MISD/6 and presenting a draft for review by WG-MISD/7;

- Agreed to prepare a proposal for inclusion in Amendment 81 to Annex 3 describing the expected transition to the hazardous weather information service to support decision-making in a SWIM environment, in line with the GANP and ASBU modules, to be applicable in 2026; and report to the METP/5 meeting;

- Invited WMO to determine the meteorological capabilities, including the scientific limitations as appropriate, for those performance requirements labelled as 'to be determined' in WG-MISD/6-SN/220X, and report to WG-MISD/7;

- Tasked the WG-MISD Rapporteur to further develop Job Card METP.007.03, including removal of the terms discussed and agreed upon in the meeting; and deliver the proposed revision of Job Card METP.007.03 to the METP/5 for endorsement and approval by the ICAO ANC; and

- Tasked the WG-MISD Rapporteur to utilize the METP requirements development process to develop a concept definition for high altitude jet engine icing and report to the WG-MISD/7.

Significant outcomes from the Eleventh meeting of the ICAO Meteorology Panel Working Group on Meteorological Operations Group (METP WG-MOG/11)

- Established an ad-hoc group to review the efficacy of the Volcanic Activity Report as detailed in PANS-ATM (ICAO Doc 4444), taking into account human factors considerations, and present the findings to the next MOG-IAVW meeting;

- Established an ad-hoc group to finalise the proposed inclusions to Amendment 81 to Annex 3, regarding the removal of the aviation colour code from the VAA, the elevation in the status of the VONA from a Note to a Recommended Practice. The WG-MOG Rapporteur prepare a working paper for METP/5 presenting a proposed amendment to ICAO Annex 3 detailing the rational for the removal of the aviation colour code from the VAA, the elevation in the status of the VONA from a Note to a Recommended Practice, and the proposed VONA template;

- Established an ad-hoc group to create guidance for State Volcano Observatories (SVO)s and VAACs to be included in the *Handbook on the International Airways Volcano Watch (IAVW) – Operational Procedures and Contact List* (ICAO Doc 9766) pertaining to the creation, dissemination and use of VONA;

- Tasked the WG-MOG Rapporteur to prepare a paper that will be submitted to the next Information Management Panel (IMP) meeting (through the UK IMP member) which details the proposed edits to Annex 15, PANS-AIM (Doc 10066) and *Aeronautical Information Services Manual* (Doc 8126) relating to the inclusion of guidance on handling of re-suspended volcanic ash in NOTAM for volcanic ash and ASHTAM, plus further edits that may be required for *Aeronautical Information Services and Aeronautical Meteorological Services* (Doc 9377) – additionally, the paper will detail the associated issues of information overload and potential inconsistency; and subject to this outcome, the WG-MOG Rapporteur will submit a WP to METP/5 proposing changes to the *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* (Doc 9691);

- Agreed that version 4.0 of the Roadmap of the IAVW and version 3.1 of the ConOps of the IAVW, be delivered to the METP Secretariat in order that it can be shared with other METP and associated working groups, other relevant Panels, and PIRGs as appropriate and that the WG-MOG IAVW Work Stream continue to further progress these documents as required;

- Established an ad-hoc group to pursue, in collaboration with CTBTO (Comprehensive Nuclear-Test-Ban Treaty Organization) and the ARISE (Atmospheric Dynamics Research Infra-Structure in Europe) community, the further development and testing of the volcanic information system (VIS), with the objective to establish a real-time operational system for use by all the VAACs and report the results back to the next meeting of the WG-MOG IWAVW Work Stream;

- Agreed that a small group prepare the next consolidated management report for delivery at the next meeting of the WG-MOG IAVW Work Stream, taking into account the suggestions for report inclusions made during the meeting;

- Established an ad-hoc group to further develop the KPIs that are reported in the Combined VAAC Management report;

- Agreed to complete the update of the volcanic ash encounter database and pass it to the METP Secretariat by the end of January 2020 for inclusion in Appendix F of the *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* (Doc 9691);

- Tasked the WG-MOG Rapporteur to present the proposed update to Job Card METP.003.02 addressing the IAVW to the METP/5 meeting;

- Requested the METP Secretariat to update the MOG Terms of Reference on the MOG website;

- Tasked the WG-MOG Rapporteur to update the WG-MOG membership list;

- Agreed that VAACs, when acting in a back-up capacity to another VAAC shall use the same product and location ID in the bulletin header as used by the VAAC they are backing up (with header number ii as appropriate) and shall add a comment in the remarks section of the VAA when providing back-up to notify users in the form of ‘Issued by VAAC nnnnn on behalf of VAAC nnnnn’;

- Established an ad-hoc group to review and update the current volcanic ash bulleting Table 4.3 ‘Volcanic ash advisory bulletin headers’ in the *Handbook on the International Airways Volcano Watch (IAVW) – Operational Procedures and Contact List* (Doc 9766), and liaise with the METP Secretariat to incorporate this update and determine which VAAC name should be in the VAAC

element of the back-up VAA; and

- Established an ad-hoc group to review guidance material currently available for the application of VA to be used in METAR and TAF.

Significant outcomes from the Twelfth meeting of the ICAO Meteorology Panel Working Group on Meteorological Operations Group (METP WG-MOG/12)

- Agreed on the proposed updates (Space Weather centres will be added to the MOG remit) to the Terms of Reference and the ICAO Secretariat puts the finalised Terms of Reference document onto the ICAO public website;

- Invited IATA to include the WAFCs in their investigations of whether turbulence type forecasts (initially MTW or CAT, and potentially in future CIT) are useful for aviation, bearing in mind the limitations of verifying these forecast types and report back to the next MOG/WAFS meeting;

- Invited the WG-MOG Rapporteur to submit the proposed amendment to ICAO Annex 3 regarding the depiction of the flight level of tropopause on WAFS significant weather (SIGWX) forecasts (as a dotted line with contour intervals appropriate to the chart size) as part of a consolidated package of WAFS-related Amendment 81 proposals;

- Agreed that the METP/MOG informs METP/5 on the following proposed changes pertaining to the inclusion of tropical cyclone (TC) positions on the WAFS SIGWX forecasts for Amendment 81 – 1) TC positions will be plotted on forecasts valid between 6-hour and 24-hours at 6-hour intervals – 2) the 6-hour forecast position will be used for SIGWX forecasts valid at 9-hours, the 12-hour forecast position will be used for forecasts valid at 15-hours, and the 18-hour forecast position will be used for forecasts valid at 21-hours and - 3) the SIGWX chart legend will be updated to state when TC position information is not available or time-steps three hours earlier is used;

- Invited the ICAO Secretariat to undertake a formal consultation with IATA, IFALPA, CANSO and IFATCA panel members to identify their requirements for longer range tropical cyclone advisory information as well as investigate in conjunction with WMO whether the TCACs will be in a position to provide the extra TC information and a timescale on which the new forecast information could be produced. In addition, provide guidance on what form this forecast information should be supplied in, who should propose these changes to Annex 3 and other associated documentation and report back on progress to the next MOG/WAFS meeting;

- Invited the WAFC Washington to work with RSMC/TCACs Miami and Honolulu to request that their advisories are produced using the main synoptic hours in time for Amendment 81;

- Requested the ICAO Secretariat to consult respectively with the ICAO European and North Atlantic Office and the ICAO South American Office to ascertain the status of tropical cyclone advisory centre (TCAC) designation and TCAC areas of coverage in the far eastern part of the North Atlantic and the western part of the South Atlantic and provide a report on the outcomes to the next MOG/WAFS meeting. *Note that the report should include, to the extent possible, information on the mechanisms used (or intended to be used) to enable the provision of tropical cyclone advisory information by ICAO-designated TCACs, including amendments to ICAO regional air navigation plans;*

- Agreed that the ICAO Secretariat in conjunction with the Rapporteur prepare a paper for METP/5 which highlights to the Air Navigation Commission the need for a tropical cyclone job card, given the number of issues that have been identified regarding the provision of tropical cyclone advisory information;

- Agreed that the WAFS Provider States prepare, on behalf of the WG-MOG Rapporteur, a working paper for METP/5 to inform the METP of the requirement to be able to offer WAFS data sets in other formats (in addition to GRIB) in order to meet the requirements set out in the Global Air Navigation Plan;

- Established an ad-hoc group to continue to mature the draft provisions pertaining to the WAFS for Amendment 81 and to prepare a paper for METP/5 as well as further develop the changes needed in Doc 8896 – *Manual of Aeronautical Meteorological Practice* that relate to the Annex 3 Amendment 81 proposal and ensure that the limitations and processing applied to SIGWX charts in line with Decisions 12/01 and 12/02 are properly explained. This ad-hoc group will also review the WAFS CONOPS to ensure the document reflects the changes that are being proposed for Amendment 81 and report back to the next MOG/WAFS meeting;

- Agreed to the proposed amendments to Doc 8896 considering any agreed changes during the meeting and prepare a consolidated working paper presenting all the proposed amendments to Doc 8896 that relate to Amendment 79 of Annex 3 and provide these to the ICAO Secretariat as soon as possible;

- Agreed that the WG-MOG Rapporteur present the proposed updates to Job Card 10 (tasks for Amendment 81 and a new task related to the development of probabilistic data sets included) to METP/5 for consideration;

- Invited the WAFCs to consult further with the user community (including drawing on the expertise of the WMO expert team on meteorological hazard science) and IATA to determine the best way to present enhanced verification scores such as those provided to the WAFS management report and report back to the next meeting; and

- Agreed that IATA will investigate the requirements for probabilistic forecasts with their members supported by the WAFCs who will provide examples of what is technically feasible, and report back at the next MOG/WAFS meeting.

Significant outcomes from the Thirteenth meeting of the ICAO Meteorology Panel Working Group on Meteorological Operations Group (METP WG-MOG/13)

- Agreed the SADIS and WIFS provider states in coordination with the EUR DMG be invited to continue efforts to align the OPMET content of SADIS and WIFS for scheduled OPMET information (METAR and TAF) and non-scheduled OPMET information (such as AIRMET and Special AIREP) and report on progress to the next WG-MOG meeting;

- Agreed that the AIRMET monitoring information be forwarded to the relevant regional ICAO Regional Offices as advanced information about AIRMET format issues in view of the applicability date of Amendment 79 to Annex 3 (also published as an Appendix to the METP WG-MOG/13 report);

- Agreed that the OPMET catalogue (using data from February 2020 monitoring period) is created by the end of April 2020 and that this catalogue is published on SADIS as well as https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx (replacing the previous version) and that the MOG members are notified of this publication via e-mail;

- Agreed that the Chair of the METP-WG/MOG be invited to inform the Chair of the SCRAG that the SADIS continued to meet the operational requirements during the period 2019/2020;

- Agreed that the web hosted SADIS Efficacy questionnaire be used for the 2020 survey which began on 1 July 2020 and will end on 31 December 2020. *Note that users will be notified of the survey via SADIS administrative messages, e-mail and letters from ICAO Regional Offices*;

- Agreed that the Rapporteur of the METP-WG/MOG be invited to immediately forward the updated SADIS Agreement Annex I and II inventory to the Chair of SCRAG to enable an extraordinary SCRAG in March 2020;

- Agreed that the ICAO Secretariat be invited to make available the updated Status of Implementation of SADIS document in the ICAO public website (replacing the previous copy);

- Agreed that the METP-WG/MOG meeting accepts the proposed updates to the Terms of Reference (it is expected that Space Weather will be added to remit of the working group in the short term) and that the ICAO Secretariat make available on the ICAO public website (replacing the previous copy);

- Agreed to the proposed updates to Job Card 008.03 (e.g. addition of a new task to update the SADIS and WIFS user guides in relation to Amendment 81 and the technology upgrades, addition of a new task relating to the implementation of the next generation SADIS and WIFS technology in November 2023) and that the METP-WG/MOG recommend these changes to METP/5;

- Agreed that the MOG Rapporteur will liaise with the MOG (IAVW) to ensure relevant connections are included on the connectivity diagram, and once updated, will pass it to the ICAO Secretariat for publication on the ICAO website https://portal.icao.int/METP/MOG/Pages/default.aspx; and

- Agreed that the proposed updates to the SADIS User Guide Part 1 (references to icing potential, turbulence potential and removal of reference to in-cloud turbulence, addition of information on 0.25 degree hazard data sets, addition of an alert to users on the planned retirement of medium level SIGWX products in November 2023 and addition of information on the provision of OPMET data sets in IWXXM format) and Part 2 (update of information on SADIS bandwidth provision and additional requirement to access multiple IP addresses, removal of the restriction to host on SADIS only EUR region AIRMET and GAMET files, update of GRIB folder structure to accommodate 0.25 degree data sets and addition of information on the new folder structure for IWXXM data sets provisions) are accepted and a final edit of the guide is carried out prior to publication on the ICAO website in November 2020 to ensure that the changes related to the provision of high resolution hazard data sets and IWXXM format OPMET have been accurately documented.

Significant outcomes from the Sixth meeting of the ICAO Meteorology Panel Working Group on Meteorological Information Exchange (METP WG-MIE/6)

- Agreed that, where IWXXM and TAC are defined for the same product, there shall be one IWXXM message per instance of a TAC product;

- Agreed that the IWXXM products shall contain the information as given in the TAC equivalent, but should not be restricted only to this information;

- Agreed that it would be preferable for MET Information exchange over AMHS and in a SWIM environment to occur only if security of information exchange was in place;

- Agreed that old versions of IWXXM should not be deleted and that older versions, no longer used operationally, should be deprecated. IWXXM Release Candidates (RC) can be deleted once the operational version is approved. The IWXXM Guidelines will contain information on IWXXM versions, deletion & deprecation and that IWXXM Guidelines should specify how RODBs should provide OPMET information, when the requested IWXXM data is available in different IWXXM versions;

- Agreed that there was a need to further define future data formats, but acknowledged that the current BUFR and IWXXM formats adequately covered the current style of product;

- Agreed to support the WAFCs plan to investigate producing non GRIB2 data formats, in addition to GRIB2, to support higher resolution information to meet the requirements set out in the GANP and moving into a SWIM environment;

- Agreed that the AMHS SWIM Gateway test architecture should be further tested with other interested States to look at interoperability;

- Agreed that there should be no requirement for bulletins within a SWIM environment. In view of early SWIM implementation, the retirement of bulletins is required. If a single report without delay is required before retirement of bulletins, it can be provided using SWIM protocols or web services;

- WG-MIE agreed to update the MET-SWIM Plan (SWIM Service Definition and SWIM Service Description as MET-SWIM concepts, geo-referencing information regarding image data, clarification of MET-SWIM users and providers and review of MET-SWIM standards) and MET SWIM Roadmap (separation of Block 1 (transition to IWXXM) and Block 2 (SWIM implementation), TAC Cessation timeline, transition from bulletins to single messages and evolution of system architecture from ROC/RODB/SADIS/WIFS functions to a SWIM-oriented architecture);

- Agreed that the current provisions within Annex 3 related to Quality Management are sufficient and mature;

- Agreed that the terms ‘TAF’ and ‘METAR’ need to be maintained after TAC cessation; and

- Agreed that Amendment 81 to Annex 3 will state that TAC, as a meteorological data format, shall be downgraded from a Standard to Recommended Practice, effective November 2024.

APPENDIX 4A

DRAFT MID REGION AMET THREAD BLOCK 0 AND 1 PRIORITIZATION

AMET	**B0/1**	Meteorological observations products	1	2014	MET SG		
	B0/2	Meteorological forecast and warning products	1	2014	MET SG		
	B0/3	Climatological and historical meteorological products	1	2014	MET SG		
	B0/4	Dissemination of meteorological products	1	2014	MET SG	CNS SG	
	B1/1	Meteorological observations information	2				
	B1/2	Meteorological forecast and warning information	2				
	B1/3	Climatological and historical meteorological information	2				
	B1/4	Dissemination of meteorological information	2				

MID REGION AIR NAVIGATION STRATEGY

AMET THREAD Monitoring Table (Block 0 Elements)

Element code	Title	Priority	Applicability	Performance Indicators/Supporting Metrics	Targets	Timelines
B0/1	Meteorological observations products	1	All States	***Indicator:*** Regional average implementation status of AMET B0/1 (Meteorological observations products). The indicator is calculated as per the **Table 4B.1** ***Supporting Metrics:*** Number of States that provides the following Meteorological observations products, as required: 1. Automatic Weather Observation System (AWOS) information (including real-time exchange of wind and RVR data) 2. Local reports (MET REPORT/SPECIAL) 3. Aerodrome reports (METAR/SPECI) 4. Lightning Information 5. Ground-based weather radar information 6. Meteorological satellite imagery 7. Aircraft meteorological report (ie. ADS-B, AIREP, etc.) 8. Vertical wind and temperature profiles 9. Wind shear alerts	80%	December 2021
B0/2	Meteorological forecasts and warning products	1	All States	***Indicator:*** Regional average implementation status of AMET B0/2 (Meteorological forecasts and warning products). The indicator is calculated as per the **Table 4B.2** ***Supporting Metrics:*** Number of States that provides the following Meteorological forecast and warning products, as required: 1. World Area Forecast System (WAFS) gridded products 2. Significant Weather (SIGWX) 3. Aerodrome Forecast (TAF) 4. Trend Forecast (TREND) 5. Take-off Forecast 6. SIGMET	80%	December 2021

				7. Aerodrome Warning 8. Wind Shear Warning		
B0/3	Climatological and historical meteorological products	1	All States	***Indicator:*** % of States that provide Climatological and historical meteorological products, as required. ***Supporting Metric:*** Number of States that provide Climatological and historical meteorological products, as required	60%	December 2023
B0/4	Dissemination of meteorological products	1	All States	***Indicator:*** % of States disseminating Meteorological products using a variety of formats and means (TAC, Gridded, Graphical, BUFR code, IWXXM) ***Supporting Metric:*** Number of States disseminating Meteorological products using a variety of formats and means (TAC, Gridded, Graphical, BUFR code, IWXXM)	60%	December 2022

***Notes**:*

- *The sub-element of B0/1 related to the provision of a Volcano Observatory Notice for Aviation (VONA) is not applicable in the MID Region since we do not have volcano observatories in the MID ANP.*
- *The Sub-elements of B0/2 related to Tropical Cyclone Advisory (TCA) and Volcanic Ash Advisory (VAA) are not applicable in the MID Region since both TCA and VAA are issued by centers outside the MID Region (TCA New Delhi, VAAC Toulouse) for use by MWOs in the MID Region.*

Table 4B-1

***B0/1* – Meteorological observations products**			
State	**Sub-Elements**	**% of implementation**	**B0/1 implementation Σ (1, 2,3, 4, 5,6, 7, 8 and 9)/9**
X	1. Automatic Weather Observation System (AWOS) information (including real-time exchange of wind and RVR data)	100**%**	100**%**
	2. Local reports (MET REPORT/SPECIAL)	100**%**	
	3. Aerodrome reports (METAR/SPECI)	100**%**	
	4. Lightning Information	100**%**	
	5. Ground-based weather radar information	100%	
	6. Meteorological satellite imagery	100%	
	7. Aircraft meteorological report (ie. ADS-B, AIREP, AMDAR etc.)	100%	
	8. Vertical wind and temperature profiles	100%	
	9. Wind shear alerts	100%	
Y	1. Automatic Weather Observation System (AWOS) information (including real-time exchange of wind and RVR data)	0	44**%**
	2. Local reports (MET REPORT/SPECIAL)	100%	
	3. Aerodrome reports (METAR/SPECI)	100%	
	4. Lightning Information	0	
	5. Ground-based weather radar information	0	
	6. Meteorological satellite imagery	0	
	7. Aircraft meteorological report (ie. ADS-B, AIREP, AMDAR etc.)	100%	
	8. Vertical wind and temperature profiles	100%	
	9. Wind shear alerts	0	
Regional average Implementation status of AMET B0/1 (Meteorological observations products)			**Σ (%)/number of States = 72%**

Table 4B.2

***B0/2* – Meteorological forecasts and warning products**			
State	**Sub-Elements**	**% of implementation**	**B0/1 implementation Σ (1, 2,3, 4, 5,6, 7 and 8.)/8**
X	1. World Area Forecast System (WAFS) gridded products	100**%**	100**%**
	2. Significant Weather (SIGWX)	100**%**	
	3. Area Forecast (TAF)	100**%**	
	4. Trend Forecast (TREND)	100%	
	5. Take-off Forecast	100%	
	6. SIGMET	100%	
	7. Aerodrome Warning	100%	
	8. Wind Shear Warning	100%	
Y	1. World Area Forecast System (WAFS) gridded products	100%	75**%**
	2. Significant Weather (SIGWX)	100%	
	3. Area Forecast (TAF)	100%	
	4. Trend Forecast (TREND)	0	
	5. Take-off Forecast	0	
	6. SIGMET	100%	
	7. Aerodrome Warning	100%	
	8. Wind Shear Warning	100%	
Regional average Implementation status of AMET B0/2 (Meteorological forecasts and warning products)			**Σ (%)/number of States = 87.5%**

INITIAL LIST OF MID REGION Air Navigation KPIs

KPI	Title	Definition	Measurement Units	Variants	Parameters	Objects Characterized	Data Requirement	Formula / Algorithm	Timeframe	Data Feed Providers
01	Departure punctuality	Percentage of flights departing from the gate on-time (compared to schedule).	% of scheduled flights	**Variant 2A** – % of departures within ± 15 minutes of scheduled time of departure	On-time threshold (maximum positive or negative deviation from scheduled departure time) which defines whether a flight is counted as on-time or not.	The KPI is typically computed for traffic flows, individual airports, or clusters of airports (selection/grouping based on size and/or geography).	For each departing scheduled flight: - Scheduled time of departure (STD) or Scheduled off-block time (SOBT) - Actual off-block time (AOBT)	***At the level of individual flights:*** 1. Exclude non-scheduled departures 2. Categorize each scheduled departure as on-time or not ***At aggregated level:*** 3. Compute the KPI: number of on-time departures divided by total number of scheduled departures	1 month	Schedule database(s), airports, airlines and/or ANSPs

KPI	Title	Definition	Measurement Units	Variants	Parameters	Objects Characterized	Data Requirement	Formula / Algorithm	Timeframe	Data Feed Providers
02	Taxi-out additional time	Actual taxi-out time compared to an unimpeded/reference taxi-out time.	Minutes/flight	**Variant 1** – basic (computed without departure gate and runway data)	Unimpeded/reference taxi-out time: ***Recommended approach for the basic variant of the KPI***: a single value at airport level, e.g. the 20th percentile of actual taxi times recorded at an airport, sorted from the shortest to the longest. ***Recommended approach for the advanced variant of the KPI:*** a separate value for each gate/runway combination, e.g. the average actual taxi-out time recorded during periods of non-congestion (needs to be periodically reassessed).	The KPI is typically computed for individual airports, or clusters of airports (selection/grouping based on size and/or geography).	For each departing flight: - Actual off-block time (AOBT) - Actual take-off time (ATOT) In addition, for the advanced KPI variant: - Departure gate ID - Take-off runway ID	***At the level of individual flights:*** 1. Select departing flights, exclude helicopters 2. Compute actual taxi-out duration: ATOT minus AOBT 3. Compute additional taxi-out time: actual taxi-out duration minus unimpeded taxi-out time ***At aggregated level:*** 4. Compute the KPI: sum of additional taxi-out times divided by number of IFR departures	1 month	Airports (airport operations, A-CDM), airlines (OOOI data), ADS-B data providers and/or ANSPs

KPI	Title	Definition	Measurement Units	Variants	Parameters	Objects Characterized	Data Requirement	Formula / Algorithm	Timeframe	Data Feed Providers
13	Taxi-in additional time	Actual taxi-in time compared to an unimpeded/reference taxi-in time	Minutes/flight	**Variant 1** – basic (computed without landing runway and arrival gate data)	Unimpeded/reference taxi-in time: ***Recommended approach for the basic variant of the KPI:*** a single value at airport level, e.g. the 20th percentile of actual taxi times recorded at an airport, sorted from the shortest to the longest ***Recommended approach for the advanced variant of the KPI:*** a separate value for each runway/gate combination, e.g. the average actual taxi-in time recorded during periods of non-congestion (needs to be periodically reassessed)	The KPI is typically computed for individual airports, or clusters of airports (selection/grouping based on size and/or geography).	For each arriving flight: Actual landing time (ALDT) Actual in-block time (AIBT) In addition, for the advanced KPI variant: Landing runway ID Arrival gate ID	***At the level of individual flights:*** 1. Select arriving flights, exclude helicopters 2. Compute actual taxi-in duration: AIBT minus ALDT 3. Compute additional taxi-in time: actual taxi-in duration minus unimpeded taxi-in time ***At aggregated level:*** 4. Compute the KPI: sum of additional taxi-in times divided by number of IFR arrivals	1 month	Airports (airport operations), airlines (OOOI data), ADS-B data providers and/or ANSPs

KPI	Title	Definition	Measurement Units	Variants	Parameters	Objects Characterized	Data Requirement	Formula / Algorithm	Timeframe	Data Feed Providers
14	Arrival punctuality	Percentage of flights arriving at the gate on-time (compared to schedule)	% of scheduled flights	**Variant 2A** – % of arrivals within ± 15 minutes of scheduled time of arrival	On-time threshold (maximum positive or negative deviation from scheduled arrival time) which defines whether a flight is counted as on-time or not.	The KPI is typically computed for traffic flows, individual airports, or clusters of airports (selection/grouping based on size and/or geography).	For each arriving scheduled flight: - Scheduled time of arrival (STA) or Scheduled in-block time (SIBT) - Actual in-block time (AIBT)	***At the level of individual flights:*** 1. Exclude non-scheduled arrivals 2. Categorize each scheduled arrival as on-time or not ***At aggregated level:*** 3. Compute the KPI: number of on-time arrivals divided by total number of scheduled arrivals	1 month	Schedule database(s), airports, airlines and/or ANSPs

---

APPENDIX 4D
MID ROC implementation plan

Following is a list of tasks to be fulfilled to progress on the transition.

No.	Task	Responsible	Prerequisite	Start Date	Estim. Time	Finish at
1	Implement Collective Addresses	ROC Jeddah	-	24.10.2014	1week	01.01.2015
2	Transition Bahrain	ROC Jeddah	-	27.10.2014	1 month	Part1 finished 15.1.2015, Part2, Pending
3	Transition Process with Kuwait	ROC Jeddah	-	06.01.2014	(Good progress, expected finish time 1st May 2019)	Part1, OK, 05/02/2015, Part2 Pending
4	Transition Process with Qatar	ROC Jeddah	-	06.01.2015	1month	Transition Patrt1 OK, 13/04/2015 Part2, OK, 20/04/2015
5	Transition Process with Oman	ROC Jeddah	-	06.01.2015	1 months	Part1, OK, 22/02/2015, Part2, OK, 01/05/2015
6	Transition Process with UAE	ROC Jeddah	-	06.01.2015	1 month	Part1, OK, 25.2.2015, Part2, OK, 15/05/2015
7	Send Saudi Arabian Compilations to BROC Bahrain (OBZZMMID)	Meteorological Communications Centre (MCC) Jeddah	Task No. 1 has to be finished	02.11.2014	1 day	01/03/2015
8	Continue and Finish Transition Sudan	ROC Jeddah	-	01.09.2014	11 months	Part1 and Part2, OK,01/08/2015
9	Develop Backup Procedure	ROC Jeddah & BROC Bahrain		23.10.2016	Expected finish date, Thursday 25th July 2019	Final draft in process

No.	Task	Responsible	Prerequisite	Start Date	Estim. Time	Finish at
10	Develop Regional HB on OPMET Data Exchange	ROC Jeddah & BROC Bahrain		24.03.2015		In Process
11	Develop first ideas for Training for operators	ROC Vienna		27.10.2014	2 weeks	Done
12	Finalize Training for operators	ROC Jeddah & BROC Bahrain & ROC Vienna		10.11.2014	April 2016	Training Done, 16-27 October 2016, through ROC Vienna
13	Route GULF reports to ROC Jeddah	ROC Jeddah		27.10.2014	1 month	01/02/2015
14	Transition Process for Iran	ROC Jeddah		16.02.2015	2 months	Part1,OK, 25/11/2015 Part2, pending
15	Transition Process for Jordan	ROC Jeddah				Jordan, transition part1 OK, 19/04/2015, transition Part2 OK, 20/05/2015
16	Transition Process for Egypt	ROC Jeddah				Egypt, transition part1 OK, 17/05/2015, transition part2 Pending
17	Transition Process Iraq	ROC Jeddah		16.04.2015	2 months	Iraq, transition part1 OK (last update 28/8/2015), transition Part2 OK 2/10/2016

No.	Task	Responsible	Prerequisite	Start Date	Estim. Time	Finish at
18	Transition Process Syria	ROC Jeddah				Syria (no contact information yet)
19	Transition Process Lebanon	ROC Jeddah				Transition part1&2 ,OK, 13/12/2015
20	Transition Process Libya	ROC Jeddah				Transition part1 OK, 25/03/2015, Transition part2 OK, 17/05/2015
21	Transition Process Yemen	ROC Jeddah				No contact

Comments:

1- **Finish column in this attachment is filled based on what filled by states in the transition form, however, we noticed some discrepancies between some Mid- States transition forms and routing table provided by ROC Vienna.**
2- **Some Mid-States still received OPMET data from outside ROC Jeddah, however, ROC Jeddah still working hard to contact OPMET data source to stop sending data to Mid-state directly with coordination with Mid-state.**

APPENDIX 5A

Deficiencies in the MET Field

BAHRAIN

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

EGYPT

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

IRAN

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

IRAQ

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	-	O	Corrective Action Plan has not been formally provided by the State	Iraq	Dec ~~2019~~ 2021	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

JORDAN

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

KUWAIT

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

LEBANON

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	(USOAP – CMA finding)	O	Corrective Action Plan has not been formally provided by the State	Lebanon	Dec ~~2019~~ 2021	A
2	Annex 3; Para 9.1.4, 9.3.1, 9.4.1 and Appendix 2, 2.1.1	WAFS forecasts required for briefing and flight documentation	SADIS FTP not available	May 2016	-	O	Corrective Action Plan has not been formally provided by the State	Lebanon	Dec ~~2019~~ 2021	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

LIBYA

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	(USOAP – CMA finding)	O	Corrective Action Plan has not been formally provided by the State	Libya	Dec ~~2019~~ 2021	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

OMAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	(USOAP-CMA finding)	O	Corrective Action Plan has not been formally provided by the State	Oman	Dec ~~2019~~ 2021	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

QATAR

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

SAUDI ARABIA

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

SUDAN

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

SYRIA

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	MID eANP VOL II, MET Table II-2	OSAP METAR and 24-hour TAF	OSAP METAR and 24-hour TAF not available internationally	Nov 2013	-	O	Corrective Action Plan has not been formally provided by the State	Syria	Dec ~~2019~~ 2021	A
2	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	(USOAP – CMA finding)	O	Corrective Action Plan has not been formally provided by the State	Syria	Dec ~~2019~~ 2021	A
3	Annex 3; Para 7.1	SIGMET Implementation	Non-Issuance of SIGMET information	Nov 2017	(USOAP – CMA finding)	O	Corrective Action Plan has not been formally provided by the State	Syria	Dec ~~2019~~ 2021	A

[1] Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

UAE

Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination	Description	Executing Body	Date of Completion	Priority for Action

No Deficiencies Reported

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Deficiencies in the MET Field

YEMEN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	Annex 3; Para 2.2	QMS Implementation	Lack of Implementation of QMS	Sep 2014	-	O	Corrective Action Plan has not been formally provided by the State	Yemen	Dec ~~2019~~ 2021	A
2	Annex 3; Para 7.1	SIGMET Implementation	Non-issuance of SIGMET information	Nov 2017	-	O	Corrective Action Plan has not been formally provided by the State	Yemen	Dec ~~2019~~ 2021	A

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

Note:* Priority for action to remedy a deficiency is based on the following safety assessments:

'U' priority = Urgent requirements having a direct impact on safety and requiring immediate corrective actions.

Urgent requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is urgently required for air navigation safety.

'A' priority = Top priority requirements necessary for air navigation safety.

Top priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation safety.

'B' priority = Intermediate requirements necessary for air navigation regularity and efficiency.

Intermediate priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation regularity and efficiency.

Definition:

A deficiency is a situation where a facility, service or procedure does not comply with a regional air navigation plan approved by the Council, or with related ICAO Standards and Recommended Practices, and which situation has a negative impact on the safety, regularity and/or efficiency of international civil aviation.

- END -

(1) Rationale for non-elimination: "F"= Financial "H"= Human Resources "S"= State (Military/political) "O"= Other unknown causes

APPENDIX 6A

TERMS OF REFERENCE (TOR) OF METEOROLOGY SUB-GROUP (MET SG)

1. Terms of Reference

1.1 The terms of reference of the MET Sub-Group are:

a) ensure that the implementation of MET in the MID Region is coherent and compatible with developments in adjacent regions, and is in line with the Global Air Navigation Plan (GANP), the Aviation System Block Upgrades (ASBU) methodology and the MID Region Air Navigation Strategy;

b) monitor the status of implementation of the MID Region MET-related ASBU ~~Modules~~ threads/elements included in the MID Region Air Navigation Strategy as well as other required MET facilities and services, identify the associated difficulties and deficiencies and provide progress reports, as required;

c) keep under review the MID Region MET performance objectives/priorities, develop action plans to achieve the agreed performance targets and propose changes to the MID Region MET plans/priorities, ~~through the ANSIG~~ as appropriate;

d) seek to achieve common understanding and support from all stakeholders involved in or affected by the MET developments/activities in the MID Region;

e) provide a platform for harmonization of developments and deployments in the MET domain;

f) monitor and review the latest MET developments that support Air Navigation and provide expert inputs for the implementation of the Air Navigation Systems related to MET based on ATM operational requirements;

g) provide regular progress reports to ~~the ANSIG and~~ MIDANPIRG concerning its work programme; and

h) review periodically its Terms of Reference and propose amendments, as necessary.

1.2 In order to meet the Terms of Reference, the MET Sub Group shall:

a) monitor the status of implementation of the required MET facilities and services in the MID Region;

b) provide necessary assistance and guidance to States to ensure harmonization and interoperability in line with the GANP, the MID ANP and ASBU methodology;

c) provide necessary inputs to the MID Air Navigation Strategy through the monitoring of the agreed Key Performance Indicators related to MET;

d) identify and review those specific deficiencies and problems that constitute major obstacles to the provision of efficient MET services, and recommend necessary remedial actions;

e) keep under review the adequacy of ICAO SARPs requirements in the area of MET, taking into account, inter alia, changes in user requirements, the evolution of operational requirements and technological developments;

f) develop proposals for the updating of relevant ICAO documentation related to MET, including the amendment of relevant parts of the MID ANP, as deemed necessary;

g) monitor and review technical and operating developments in the area of MET and foster their implementation in the MID Region in a harmonized manner;

h) foster the integrated improvement of MET services through proper training and qualification of the MET personnel; ~~and~~

i) coordinate with relevant MIDANPIRG and RASG-MID Subsidiary bodies for issues with common interests; and

j) liaise with other States providing services and/or serve as inter-regional exchange of meteorological information for international civil aviation (e.g. SADIS (U.K.), VAAC Toulouse (France), TCAC New Delhi (India), Regional OPMET Centre Vienna (Austria)).

2. COMPOSITION

2.1 The Sub-Group is composed of:

a) MIDANPIRG Member States;

b) World Meteorological Organization (WMO) and other concerned International and Regional Organizations as observers; and

c) other representatives from provider States and Industry may be invited on ad hoc basis, as observers, when required.

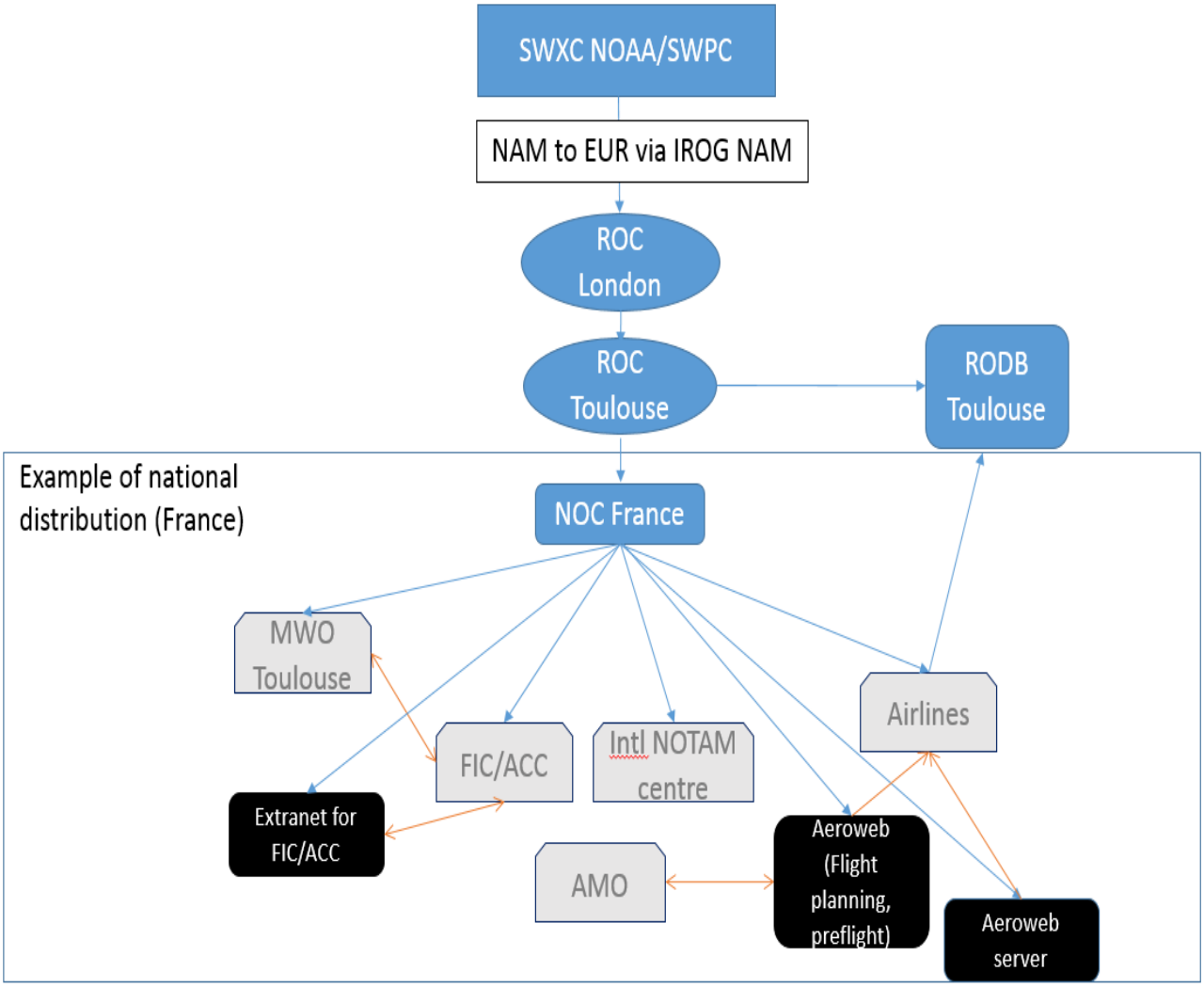
3. WORKING ARRANGEMENTS

3.1 The Chairperson, in close co-operation with the Secretary, shall make all necessary arrangements for the most efficient working of the Subgroup. The Subgroup shall at all times conduct its activities in the most efficient manner possible with a minimum of formality and paper work (paperless meetings). Permanent contact shall be maintained between the Chairperson, Secretary and Members of the Subgroup to advance the work. Best advantage should be taken of modern communications facilities, particularly video-conferencing (Virtual Meetings) and e-mails.

3.2 Face-to-face meetings will be conducted when it is necessary to do so.

APPENDIX 7A

Example of national distribution of Space Weather Advisory Information



ATTACHMENT

ICAO MID

ATTACHMENT A

MET SG/9 VIRTUAL MEETING

(7 – 9 December 2020 from 08:00 to 10:00 UTC)

List of Participants

State/Orgs	Contact	Title
Austria	Mr. Michael Pichler	Representative IROG Vienna (Interregional OPMET Gateway)
Bahrain	Mr. Basem Salman Alasfoor	Director of Meteorology
	Mr. Khalid Hussein Yassen	Chief of Operation
	Mr. Nader Ahmed Abdulla	Chief of Climate
Egypt	Mr. Ahmed Abdealsatar Alkholy	Director of Cairo Airport Forecast Center
	Mr. Yasser Abdelgwad El Sayed	Deputy Director of Cairo Airport Forecast Center
	Mr. Samer Hussein Emam	Airspace Affairs and AIS G.D.
	Mr. Ahmed Saied Abdelmonsef	Air Navigation Inspector
	Mr. Ahmed Mohamed Zoulfakar	
Iran	Mr. Jafar Omidy	Head of Telecommunication Dept
	Mr. Mohammad Enayat	Expert of Telecommunication Dept
	Mr. Mohammad Bagher Iraji	MET Office Expert of telecommunication department
	Mr. Majid Rahimi	Robex
	Mr. Ali Akbar Al Salehi	AFTN/AMHX Com Center
Jordan	Mr. Mahmoud Hatem M.Ibrahem	Chief of Communication & Navigation
	Mr. Mohammed Ali Y. Almomani	Chief of Safety and Standard ATM
Kuwait	Mr. Ali Mousa Albloshy	Head of MET Comm.
	Mrs. Amerah Alazmi	First Weather Forecaster
Lebanon	Mr. Marc Wehaibe	Acting Director of Lebanese Meteorological Dept
	Mr. Mohamad Kanj	Head of Surface Forecasting Division
	Mrs. Jocelyne Aboufares	Head of Upper Level Forecasting Division
Oman	Mr. Malik Said Al Huseini	Chief of Aviation Weather Forecasting
Qatar	Mr. Abdulla Mohammed Almannai	Director of Meteorology Department
	Mr. Mohammad A Kubaisi	Head of Wather Forecasting & analysis Section
	Mr. Jaber Al Harami,	Supervisor of Aeronautical Meteorological Service
	Dr. Ahmad Abu Obeid	Meteorological Consultant
Saudi Arabia	Mr. Abdulrahman Majed Alssaqabi	ANS Safety Inspector
	Mr. Tariq Abbas Alsulaimani	Computer Engineer

State/Orgs	Contact	Title
	Mr. Khalid Alhazmi	Communication Engineer
	Mr. Mohammad A. Mahnashi	System Specialist
	Mr. Alaa Madani Sanussi	Weather Forecast
	Mr. Loay Abdullah Beshawri	Automation/Surveillance Engineering Manager
	Eng. Ridha Dridi	Technical and Safety Advisor
	Mr. Saad Mohammed Almajnooni	Information and Regional Centers, GD
	Mr. Majed Khalid Majhoub	Traffic Officer
Sudan	Mrs. Eman Hassan Sultan	Meteorologist
	Mr. Hussein Babiker Gadalla	QMS Head Meteorolgist
UAE	Mr. Hamad Nasser M. Al Harthi	Head of Aviation Meteorology
	Mr. Abdulhamid Ali R. Al Raeesi	Senior Forecaster and Aviation Safety & Standards Officer
	Mr. Philip Rogers	Senior Advisor/Manager Dubai
	Mr. Mohamed Abdullah S. Alebri	Head of Meteorology
UK	Miss Karen Shorey	WACAF London and SADIS Manager
Yemen	Mr_Ahmed K.Taleb Elnaif	Directorate of MET Station
	Mr. Olaib Rashed Munsser	Director of Training and Rehabilitation Dept – Aden MET
	Mr_Ali Gamal A. Mohammed	Forecasting Manager – Aden MET
ACAO	Mr. Mohamed Rejeb	Air Navigation and Air Safety Expert
IFALPA	Capt. Souhaiel Dallel	EVP AFI/MID
WMO	Mr. Greg Brock	Head – Services for Aviation
ICAO	Mr. Mohamed Smaoui	Acting Regional Director
	Mr. Christopher Keohan	RO/MET
	Mr. Muna Alnadaf	RO/CNS
	Mr. Radhouan Aissaoui	RO/IM
	Mr. Ahmed Amireh	RO/ATM/SAR
	Mr. Ahmad Kavehfirouz	RO/ATM/SAR
	Mrs. Manal Wissa	Programme Analysis Associate

- END -