



*International Civil Aviation Organization*

**Middle East Air Navigation Planning and  
Implementation Regional Group (MIDANPIRG)**

**Fourteenth Meeting**  
*(Jeddah, Saudi Arabia, 15-19 December 2013)*

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**Agenda Item 4: Performance Framework for Regional Air Navigation Planning and  
Implementation:  
4.7 MET**

**MET IMPLEMENTATION IN THE MID REGION**

*(Presented by the Secretariat)*

**SUMMARY**

This paper presents the outcome of the fourth meeting of the MET Sub-Group of the MIDANPIRG (MET SG/4) related to implementation of WAFS, IAVW, SIGMET and aerodrome warnings, OPMET data requirements and endorsement of associated Draft Conclusions and Decisions.

Action by the meeting is at paragraph 3.

**REFERENCES**

- BMG/3 Report
- ICAO Annex 3 – *Meteorological Service for International Air Navigation*
- MID Air Navigation Plan (Doc 9708) Volume II (FASID) Part VI (MET)
- MIDANPIRG/13 Report
- MIDANPIRG MET SG/4 Report
- State Letters: AN 10/12 – 13/244, AN 10/11 – 10/183, AN 10/11 – 12/205, AN 10/5A – 12/130, AN 10/22 – 13/183, AN 10/23 – 13/182, AN 10/11 – 13/184.

**1. INTRODUCTION**

1.1 The fourth meeting of the Meteorology Sub-Group of the Middle East Planning and Implementation Regional Group (MET SG/4) was held at the ICAO Middle East (MID) Regional Office, Cairo, Egypt, from 25-27 June 2013. The meeting was attended by a total of sixteen (16) participants, from seven (7) States (Bahrain, Egypt, Kuwait, Oman, Qatar, Saudi Arabia and the United Kingdom). The meeting agreed on two (2) Draft Decisions and four (4) Draft Conclusions for consideration by the MIDANPIRG/14 meeting.

1.2 The meeting unanimously elected Mr. Ali Almotawa, Chief of MET Aviation, Meteorology Department of Kuwait as the Chairperson of the MET Sub-Group. Mr. Fahad Awad Al-Malki, Manager of Planning and Analysis, CNS/ATM Department, General Authority of Civil Aviation (GACA) of Saudi Arabia, was unanimously elected as the Vice-Chairperson of the Sub-Group.

1.3 The meeting reviewed the implementation of meteorological provisions for international civil aviation that includes: World Area Forecast System (WAFS) and SADIS; International Airways Volcano Watch (IAVW); SIGMET and AIRMET information, and other warnings; requirements for OPMET data and the status of OPMET data exchange in the MID Region. In addition, the meeting reviewed the MET provisions in the MID Basic ANP and FASID, MET deficiencies, quality management system, and key performance indicators.

## 2. DISCUSSION

### **World Area Forecast System**

2.1 The meeting reviewed a summary of World Area Forecast System (WAFS) developments that included outcomes of the seventeenth meeting of the SADIS Operations Group (SADISOPSG/17, Cairo from 29 to 31 May 2012) and the eighteenth meeting of the SADIS Operations Group (SADISOPSG/18, Dakar from 28 to 30 May 2013) as well as the seventh meeting of the World Area Forecast System Operations Group (WAFSOPSG/7, Lima from 17 to 21 September 2012). The full reports of each meeting can be viewed at the following websites: <http://www2.icao.int/en/anb/met/sadisopsg/Lists/Meetings/AllItems.aspx> and <http://www2.icao.int/en/anb/met/wafsopsg/Lists/Meetings/AllItems.aspx>.

2.2 The meeting recalled MIDANPIRG Conclusion 12/68 that called for training of new WAFS forecasts in 2011 and 2012 for the MID Region on the use of the new gridded WAFS forecasts for convective clouds, icing and turbulence. The World Area Forecast Centre (W AFC) Provider States proceeded with the development of computer-based (including voice over) initial training material for WAFS gridded global forecasts for CB clouds, icing and turbulence and, in coordination with the Secretary, would be available on the WAFSOPSG website in order to support implementation under Amendment 76 to Annex 3 (WAFSOPSG/7 Conclusion 7/13 refers). The SADIS Provider was expected to issue a SADIS administrative message (NOUK11 EGRR). In addition, the meeting noted that the training material was expected to be made available in five languages (WAFSOPSG 7/13 (b) refers).

2.3 This training material, *training module regarding gridded forecasts for CB, icing and turbulence* (in English only to date), became available on the ICAO website on 22 October 2013 and can be located at <http://www.icao.int/safety/meteorology/WAFSOPSG/Pages/GuidanceMaterial.aspx>.

2.4 The meeting also noted that W AFC Provider States updated guidance material on the harmonized WAFS grids for cumulonimbus clouds, icing and turbulence forecasts that was available on the WAFSOSG website since 14 September 2012.

2.5 The meeting also noted that with reference to providing WAFS forecasts for flight briefings, the authorized source is SADIS in the MID Region as per the MID Regional Air Navigation Plan.

### **International Airways Volcano Watch**

2.6 The meeting reviewed developments related to the IAVWOPSG/6 (19 to 23 September 2011, Dakar) and IAVWOPSG/7 (18 to 22 March 2013, Bangkok) meetings which

produced actions agreed of interest to the Region (<http://www.icao.int/safety/meteorology/iavwopsg/Pages/default.aspx>). In particular, the IAVWOPSG/7 endorsed the definitions of visible ash and discernible ash for operational use. That is, visible ash be defined as “volcanic ash observed by the human eye” and not be defined quantitatively by the observer and discernible ash be defined as “volcanic ash detected by defined impacts on/in aircraft or by agreed in-situ and/or remote-sensing techniques”. The IAVWOPSG/7 also agreed to continue work on expressing confidence at the time of observation of an ash cloud in the volcanic ash advisory/volcanic ash advisory in graphical format and evaluate forecast confidence to meet the needs of volcanic ash related safety risk assessment.

2.7 With reference to IAVW, the meeting recalled the Global Database of Area Control Centre (ACC) AFTN 8-Letter Addresses for the Notification by VAAC London Concerning the Release of Radioactive Material into the Atmosphere noting entries were missing from Iraq (Baghdad and Basrah ACCs), Iran (Tehran ACC, FIC, FIR), Lebanon (Beirut ACC), Yemen (Sana’a ACC), and Syria (Damascus ACC). These States were encouraged to provide their ACC AFTN addresses to receive notification on the release of radioactive material into the atmosphere. Saudi Arabia provided the address for the Sanaa ACC (OYHQYAYX). Confirmation of this address by Yemen would be desired before forwarding this information to the IAVWOPSG Secretariat.

2.8 The meeting noted that this notification of a release of radioactive material into the atmosphere was for the ACC where the event was occurring as well as the adjacent ACCs. This information would also be available on SADIS. For flight planning, the meeting noted that SIGMET and NOTAM would be used and that information would be derived from the information available, and in particular, from the relevant Regional Specialized Meteorological Centre.

### ***SIGMET***

2.9 The meeting recalled MIDANPIRG/13 Conclusion 13/52 that invited States’ MID SIGMET Test focal points to participate in the bi-annual SIGMET tests conducted by the EUR Region and report any deficiencies at each MET SG meeting. ROC Vienna provided the meeting with a list of participants from the EUR SIGMET test in September 2012, the Asia/Pacific SIGMET test on tropical cyclone in November 2012 and the EUR SIGMET test in February 2013. The EUR DMG did not register WC SIGMET tests from the MID Region. However, they reported that 8 States (Bahrain, Egypt, Iraq, Iran, Jordan, Kuwait, Saudi Arabia, and Oman) participated in the WS SIGMET test in February 2013, which is a significant improvement in participation. The EUR DMG will update their databases to accept the SIGMET from the MID Region. The meeting noted that only one State (Egypt) participated in the volcanic ash SIGMET test in February 2013. States are commended for participation in the WS SIGMET test and encouraged to participate in the WV and WC SIGMET tests each year as these test may be used as a measurement of implementation in the future regional air navigation plan.

2.10 The meeting noted that WS SIGMET test occurs on the first Wednesday of February and September and WV SIGMET test occurs on the first Thursday of February and September and that WC SIGMET test occurs in November of each year and the date was determined in the APAC Region which was conveyed to the appropriate MID States on 18 September 2013 (SL AN 10/12 – 13/244).

2.11 The meeting recalled MIDANPIRG/13 Conclusion 13/53 that invited States with meteorological watch office responsibilities, and that have not already done so, to provide by 1 July 2012, the World Meteorological Organization Abbreviated Header Lines used for the issuance of SIGMET for flight information regions (FIRs) under their area of responsibility for inclusion in the MID Regional SIGMET Guide. The meeting noted that entries for Iraq, Lebanon, and Syria still needed to be verified (Bahrain verified their addresses in the meeting). Furthermore, the meeting agreed that more SIGMET examples for phenomenon such as heavy dust storm (HVY DS) and heavy

sand storm (HVY SS) should be included in the MID Regional SIGMET Guide and that proposals be available by States by the BMG/4 meeting (16 December 2013, Jeddah). The meeting also noted that SIGMET applied to all flight levels (the surface being the lowest boundary). Lastly, the meeting noted that the DRAFT watermark should be removed from the MID Regional SIGMET Guide posted on the ICAO MID website, which had since been done.

### **OPMET Exchange**

2.12 The meeting recalled MIDANPIRG/13 Conclusion 13/55 to correct the addressing to Regional OPMET Centre (ROC) Vienna, eliminate multiple bulletins received at ROC Vienna and non-receipt of OPMET (SA, FC, FT) requests during monitoring. The meeting noted that the ICAO MID Regional Office issued State letter reference AN 10/11 – 10/183 dated 18 June 2012 that requested States to remedy these shortcomings. As noted in part b) of this Conclusion, States that were non-compliant with TAF requirements would be included in the ICAO MID Deficiency list. However, as the OPMET list of shortcomings has shortened significantly as noted by the third meeting of the Bulletin Management Group (23 June 2013, Cairo), the meeting agreed that the shortcomings in OPMET availability, format and exchange summarized in **Appendix A** be provided to the relevant States for action before the MIDANPIRG/14 meeting and persistent shortcomings identified in future monitoring be considered for inclusion in the MID Air Navigation Deficiencies Database (MANDD). Given the aforementioned, the MIDANPIRG may wish to consider endorsing MET SG Draft Conclusion 4/1 part b) as a) has been completed noting part b) will be determined at the BMG/4 meeting (flimsy to be developed at BMG/4 meeting):

<b>Why</b>	To improve the efficiency of regional and inter-regional OPMET exchange
<b>What</b>	State Letter / possible inclusion in list of air navigation deficiencies
<b>Who</b>	ICAO MID Office
<b>When</b>	31 January 2014

#### ***DRAFT CONCLUSION 4/1: OPMET SHORTCOMINGS IN THE MID REGION***

*That,*

- a) States be urged to remedy the OPMET shortcomings as described in **Appendix A**; and*
- b) Persistent shortcomings be considered by MIDANPIRG/14 for possible inclusion in the list of air navigation deficiencies.*

2.13 With regards to part (a) of Draft Conclusion 4/1, SL AN 10/11 – 13/184 dated 9 July 2013 was sent and some States (Bahrain, Kuwait) have replied stating double bulletins and/or incorrect bulletin formats have been remedied.

2.14 The meeting recalled MIDANPIRG/13 Conclusion 13/54 that called for the MID BMG to 1) determine requirements associated with the establishment of Regional OPMET Centres (ROC) in the MID Region and 2) to carry out a survey based on requirements developed in 1) to determine States' capabilities for establishing ROCs. To that end, there were three replies to the survey (SL AN 10/11 – 12/205 dated July 2012): Iran, Saudi Arabia, and the United Arab Emirates.

The survey results as provided at **Appendix B** were reviewed by the meeting, which concluded that Saudi Arabia was capable of meeting ROC requirements as detailed at **Appendix C**. The meeting made this recommendation based on current capabilities, communications and regular attendance to ICAO MET meetings. The meeting also noted that another State could be selected for a backup ROC and would be considered at the BMG/4 meeting that will be held on 16 December 2013 in Jeddah. The meeting emphasized the importance for all States in the MID Region to cooperate with the selected ROC (pending endorsement of MIDANPIRG/14). Given the above, the MIDANPIRG may wish to consider endorsing MET SG Draft Conclusion 4/2 as follows (noting any information provided by the BMG/4 that impacts part b) of the below draft Conclusion would be provided in a flimsy):

<b>Why</b>	To improve the efficiency and coordination of the inter-regional exchange of OPMET data
<b>What</b>	Establishment of MID Regional OPMET Centre
<b>Who</b>	Saudi Arabia in coordination with ICAO MID Regional Office
<b>When</b>	First half of 2015

***DRAFT CONCLUSION 4/2: ESTABLISHMENT OF MID REGIONAL OPMET CENTRE***

*That,*

- a) Saudi Arabia in coordination with ICAO establish a MID Regional OPMET Centre (ROC) by the first half of 2015 to improve the regional and inter-regional OPMET efficiency;*
- b) MID States interested in serving as a backup ROC in the MID Region provide their capabilities to the BMG/4 meeting for consideration; and*
- c) MID States be encouraged to continue cooperation in the exchange of OPMET data in the MID Region.*

2.15 The meeting questioned the method of cost recovery related to services provided by a ROC. Since the MET SG/4 meeting, the *ICAO Manual on Air Navigation Services Economics* (Doc 9161) has been updated with guidance on the provision and cost recovery of MET services at a regional or sub-regional level (paragraph 3.41 of Doc 9691 refers).

2.16 The meeting reviewed the terms of reference of the MID OPMET Bulletin Management Group and agreed to add efforts associated with developing the capability of exchanging OPMET in digital form as well as creating and keeping under review an OPMET key performance indicator as provided in **Appendix D**. Given the above, the MIDANPIRG may wish to consider endorsing MET SG Draft Decision 4/3 as follows:

<b>Why</b>	To reflect the future exchange of OPMET data in digital form and keep under review OPMET key performance indicator
<b>What</b>	Approve to update the BMG ToRs
<b>Who</b>	MIDANPIRG
<b>When</b>	December 2013

**DRAFT DECISION 4/3: UPDATE TO BULLETIN MANAGEMENT GROUP  
TERMS OF REFERENCE**

*That, the terms of reference and future work programme of the Bulletin Management Group of the MET Sub-Group updated as at **Appendix D**.*

**Regional Air Navigation Plan**

2.17 The meeting recalled MET SG/3 draft Conclusion 3/7 that proposed an amendment to Part VI (MET) of the MID Air Navigation Plan Volume I and Volume II (Doc 9708), which was acted on with amendment proposals to the MID Basic ANP and FASID in May 2011 (SL AN 10/5A-12/130 dated 15 May 2012).

2.18 The meeting also recalled MID Basic ANP 12/04 – AOP (approved 18 October 2012) which called for the removal of HEAZ (Cairo/Almaza Intl) in Egypt and the addition of HEAL (Alamain/Alamain Intl) and HESG (SOHAG/Sohag Intl) in Egypt and ORBM (Mosul/Mosul Intl) in Iraq and OTHH (Doha/Hamad Intl – 2013) and OMAD (Abu Dhabi/Al Bateen) and OMDW (Dubai/Dubai World Central – Al Maktoum Intl) which will become operational by the end of 2013. In addition, proposed changes were made by the Secretariat in order to align the Basic ANP and FASID Table MET 5 in accordance to the World Area Forecast System Operations Group (WAFSOPSG/7) Conclusion 7/2 regarding WAFS-related procedures that were updated to clarify WAFS services and update the respective Internet address. These changes were reflected in **Appendix E**. In addition, the meeting noted that references to ISCS should be removed before an amendment proposal was processed.

2.19 The meeting was also asked whether the FASID Table MET 2C, “Exchange of Operational Meteorological Information during the Pilgrimage Season”, was still necessary in light of the fact that the development of the electronic Air Navigation Plan attempts to harmonize the regional plans as much as possible. Saudi Arabia would investigate whether FASID Table MET 2C was still applicable to the MID Region.

2.20 Given the aforementioned, the MIDANPIRG may wish to consider endorsing MET SG Draft Conclusion 4/4 as follows:

<b>Why</b>	Reflect current services and facilities related to MET
<b>What</b>	Part VI (MET) of the MID Air Navigation Plan Volume I and Volume II (Doc 9708)
<b>Who</b>	ICAO MID Office
<b>When</b>	March 2014

**DRAFT CONCLUSION 4/4: PROPOSAL FOR AMENDMENT TO PART VI  
(MET) OF THE MID AIR NAVIGATION PLAN  
VOLUME I AND VOLUME II (DOC 9708)**

*That, taking into consideration comments provided by States included in **Appendix E**, a proposal for amendments to Part VI (MET) of the MID Air Navigation Plan Volume I and II be processed in accordance with established procedures.*

### **MET Deficiencies**

2.21 The meeting reviewed the MIDANPIRG Air Navigation Deficiency Database (MANDD) on the ICAO MID website (<http://www.icao.int/MID/Pages/meetings.aspx>) and noted that there were no MET deficiencies reported after the removal of those listed for Iran, Iraq and Syria at the MIDANPIRG/13 meeting. Deficiencies in the MET field to be included in the MANDD at MIDANPIRG/14 would depend on persistent issues identified by ROC Vienna to be discussed at the BMG/4 meeting.

### **Quality Management System**

2.22 The meeting recalled that Annex 3, paragraph 2.2.3 requires States to ensure that the designated meteorological authority establish and implement a properly organized quality system comprising procedures, processes and resources necessary to provide for the quality management of the meteorological information to be supplied to the users listed in Annex 3, paragraph 2.1.2.

2.23 The meeting agreed that implementation of Quality Management System (QMS) should be a key performance indicator expressed in percentage of States in the MID Region that meet QMS provisions in Annex 3. The associated key performance indicator is described in Agenda Item 9.

2.24 The meeting agreed that a progress report on the status of QMS implementation by MID States be presented to MIDANPIRG/14, for review and appropriate action. By mid-November 2013, four States have replied to State letter AN 10/22 – 13/183 dated 9 July 2013 concerning The Quality Management System. Bahrain (8 December 2011 – latest certificate), Egypt (23 May 2012), Kuwait (23 August 2013) and Qatar (December 2011) have received ISO 9001 certificates meeting QMS provisions in Annex 3.

### **Key Performance Indicators**

2.25 The meeting reviewed the Report on Agenda Items 3 and 4 of the third meeting of the MIDANPIRG Steering Group (MSG/3) that was held in Cairo, Egypt from 17-19 June 2013. In particular, progress on the new ANP template that partitions the ANP into three volumes. More specifically Volume I would be stable and contains information such as designation of service centres (e.g. WAFCS, VAACs, Tropical Cyclone Advisory Centres (TCAC)s) and Volume II would be more dynamic and regionally governed (e.g. OPMET requirements, meteorological watch offices) and Volume III would measure implementation of requirements. This global effort was ongoing and expected to be completed by May 2014.

2.26 The meeting noted that Volume III of the new ANP being developed was linked to developing Key Performance Indicators (KPI)s that measure implementation that may assist in focusing resources in implementation efforts. The new implementation methodology called Aviation System Block Upgrades includes MET: B0-AMET – Meteorology information supporting enhanced operational efficiency and safety. This module includes forecasts provided by WAFCS, VAAC and TCAC as well as aerodrome warnings, SIGMETs, and OPMET information.

2.27 Given the above information, the meeting agreed to develop a draft set of regional key performance indicators in MET as provided in **Appendix F**. In total, four KPIs were developed: States' implementation of SADIS, OPMET implementation, SIGMET implementation (noting one State is exempt – Qatar, for which SIGMET is issued by Bahrain as the Bahrain FIR overlays Qatar), and QMS implementation.

2.28 The meeting agreed that States' should have time to review the draft KPIs in MET and that the State letter requesting input on the draft regional KPIs in MET make reference to how the implementation statistics would be calculated (e.g. the SADIS Status of Implementation on the

SADISOPSG website would be used to count the number of States that have access to SADIS 2G or Secure SADIS FTP). States’ were requested to provide input to the draft regional KPIs in MET by 15 August 2013. Two States (Bahrain and Egypt) replied to State letter AN 10/23 – 13/182 dated 9 July 2013. Bahrain noted that the Meteorological Directorate already applied KPI for the TAF since February 2009 and yields a yearly TAF average accuracy of 89%. Though this statistic is valuable information, OPMET KPIs would be more simplistic such as the availability of TAF for those aerodromes listed in FASID Table MET 1A. State practices were provided by Egypt; however, the MID BMG may wish to provide more regional specific goals to attain (e.g. % availability of METAR and TAF per requirements listed in FASID Table MET 1A). The BMG/4 meeting is expected to provide this information for MIDANPIRG/14 consideration. Given the aforementioned, the MIDANPIRG may wish to consider rewording the below MET SG Draft Conclusion 4/5 to agree on the proposed Key Performance Indicators related to MET at **Appendix F** that would be updated at the BMG/4 meeting (flimsy to be developed at BMG/4 meeting):

<b>Why</b>	Measure implementation of B0-AMET – <i>Meteorology information supporting enhanced operational efficiency and safety</i>
<b>What</b>	MID Region Key Performance Indicators - MET
<b>Who</b>	ICAO MID Regional Office and States
<b>When</b>	MIDANPIRG/14

***DRAFT CONCLUSION 4/5: MID REGION KEY PERFORMANCE INDICATORS - MET***

*That, States provide input to the proposed Key Performance Indicators related to MET at **Appendix F** by 15 August 2013 for consideration by MIDANPIRG/14.*

**Future work programme of MET SG**

2.29 The meeting reviewed the terms of reference (ToR)s of the MET Sub-Group of the MIDANPIRG, however, since the MET SG/4 meeting, the MET SG ToRs were redrafted to align with changes provided for other sub-groups to support the ASBU implementation methodology. The new draft ToRs will be reviewed by the BMG/4 meeting before being included in the draft MIDANPIRG Handbook that will be considered by the MIDANPIRG/14 meeting (flimsy to be developed at the BMG/4 meeting). Therefore, Draft Decision MET SG 4/6 has been withdrawn.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the contents of this paper; and
- b) agree to MET SG/4 Draft Conclusions 4/1, 4/2, 4/4, and 4/5 and Draft Decision 4/3.

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## APPENDIX A

Table – OPMET issues by State – and corrective action in blue via State Letter

Issue\State	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Oman	Qatar	Saudi	Syria	UAE	Yemen
Incorrect addressing MID-EUR Use : LOZZMMID				SL – FTIQ01ORBI FTIQ01 ORSU SAIQ01 ORBI SPIQ01 ORBI be sent to LOZZMMID (not LOWWYMYX)						SL – FTAR20 OEJD and SASD31 OEJD be sent to LOZZMMID (not LOWWYBYX)	SL – FTSY31 OSDI SASY31 OSDI be sent to LOZZMMID (not LOWMYBYX)  SISY20 OSDI SMSY01 OSDI Discontinue AFTN transmission to LOWMYBYX	SL – WSAE10 OMAA be sent to LOZZMMID (not LOWWYMYX)  USER10 OMAA UKER10 OMAA ULER10 OMAA UEER10 OMAA Discontinue AFTN transmission to LOWWYMYX	
OPMET sent to Denmark should cease											SL – discontinue sending OPMET data to Denmark (EKCHYMYX or EKZMOMO)		
Double bulletins	SL- send OBBIYPYX only				SL- SMJD01 discontinue AFTN transmission		SL- OLLL (Beirut – Main Communication Centre) discontinue all duplications in App B			SL- OEJD discontinue sending FTSY31 FTYE21 SAME31			
Double	e.g. METAR for one location in more than one bulletin or TAF for one location in more than one bulletin – should be addressed by ROC when selected (can work with ICAO												

APPENDIX A

Issue\State	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Oman	Qatar	Saudi	Syria	UAE	Yemen
reports	and ROC Vienna)												
Incorrect bulletin format	SL – WMO AHL for TAF RTD - time to be corrected												
Requirements – FASID Table MET 2A		Egypt to inform ICAO to discontinue OPMET requirements for HEOW (HEAZ is already proposed to be removed from FASID Table MET 1A)		SL – ORSU OPMET data required						Saudi Arabia to inform ICAO to discontinue OPMET requirements for OEJB	SL – OSAP OPMET data required		

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## APPENDIX B

## MID ROC Survey Summary

Received from Iran, Saudi Arabia, United Arab Emirates

Question	Answer		
	Iran	Saudi Arabia	United Arab Emirates
Can a facility in your State be capable of collecting, validating and disseminating OPMET data from NOCs in the Area of Responsibility (AoR) as well as from the national NOC?	Yes, I.R. of Iran Meteorology Organization (IRIMO) has the Capacity to do so	Yes	The answer is currently No
Can a facility in your State be capable of collecting OPMET data from other ROCs in the Region?	Yes	Yes	Currently no, could be done as long as the data is being distributed via AFTN or GTS this would be easily achievable, but if there was to be some other data source the complexity and costs would be currently unknown.
Can a facility in your State be capable of disseminating bulletins received from: 1) ICAO Regions; 2) Other ROCs; and 3) NOCs in their AoR in -other ROCs according to predefined distribution lists; -MID Regional OPMET Data Banks (RODBs); and -other NOCs in their AoR?	Yes	Yes to all	Currently no, could be done as long as the data is being distributed via AFTN or GTS this would be easily achievable, but if there was to be some other data source the complexity and costs would be currently unknown.

Can a facility in your State be capable of minimizing the duplication of OPMET data from within their AoR?	Yes	Yes	Quality control would be as per specifications in the document and included in IBL Comms. A manual backup would be put in place with the technicians.
Does your State use AFTN in the exchange of OPMET data?	Yes	Yes	Yes (reference first response attachment 1)
Would your State be capable of hosting a facility that has AFS relay capable of handling efficiently the volume of traffic anticipated ( <i>Note that the EUR Data Management Group attempted to provide more details with reference to manpower and equipment, however, this group determined that it depended on how a State managed their communications and human resources and therefore could not prescribe a general requirement of manpower and equipment necessary to host a ROC</i> )?	The subject will be considered with more detail with regard to its technical specifications, but for the time being I would like to add that it will be available in the future.	Yes	Most of the workload would be on the software – but a human backup technician would be required to fully man the operation 24/7.
Is a facility in your State capable of handling all OPMET data types as described in the <b>Appendix A</b> ?	Yes	Yes	Currently no, could be done with the addition of an enhanced IBL. Comms.
Would a facility in your State be capable of developing and maintaining detailed OPMET distribution arrangements based on FASID Table MET 2A (SADIS User Guide Annex 1) and notified addressing by other regions?	Yes	Yes	Currently no, with the addition of an enhanced IBL. Comms the answer could be yes. Also a manager would be required to manage the agreements put in place.

Does your State have a facility that would be capable of splitting OPMET bulletins received by GTS that is longer than 1800 characters for further distribution via AFTN links <i>(Note that the CCCC of the header is changed into the indicator of the recompiling ROC)?</i>	Yes	Yes	Currently no, could be yes with the addition of an enhanced IBL Comms only.
Does your State have a facility to distribute SIGMET messages, tropical cyclone and volcanic ash advisories to other ICAO Regions, VAACs and TCACs as appropriate, and SADIS and ISCS Gateways <i>(Note that by providing the data to IROG Vienna the further distribution to ROC/SADIS Gateway London is guaranteed. In this case, no extra routing is necessary as this would only lead to double transmission)?</i>	Yes	Yes	Currently no, could be yes with the addition of an enhanced IBL Comms.
Does your State accept the responsibility of exchanging OPMET data intra- and inter-regionally at no cost?	Yes	No (comment CFK: need to explain that the work necessary to provide services of a ROC is cost recoverable)	Yes
Would a facility in your State be capable of:			
-collecting the required OPMET data from another ICAO region or Regions?	Yes, IRIMO	Yes	Currently no, could be yes with new IBL Comms, probable AFTN and support staff

-disseminating the collected data to other ROCs and NOCs in the AoR with transit times that satisfy Annex 3, Appendix 10, 1.1?	Yes	Yes	Currently no, could be yes with new IBL Comms, probable AFTN and support staff
-sending required OPMET data from the ICAO MID-Region to other ICAO Region(s)?	Yes	Yes	Currently no, could be yes with new IBL Comms, probable AFTN and support staff
Would your State have a facility capable of collecting OPMET data from the ROCs as required in the respective FASID tables and store in a database for use internally within the Region?	Yes	Yes	Currently no, could be yes with new IBL Comms, probable AFTN and support staff
And maximize amount of available OPMET data?	Please elaborate more on the maximization of OPMET data.	Yes	Currently no, could be yes with new IBL Comms, probable AFTN and support staff
And provide request/response facilities for authorized users to obtain non-regular or occasional information?	Yes	Yes	Currently no, could be yes with new IBL Comms, probable AFTN and support staff
And provide regular monitoring to check the availability and timeliness of OPMET data and the possible misuse or abuse of the OPMET databanks (for reporting to the ICAO Office the results, where necessary)?	Yes	Yes	Currently no, could be yes with new IBL Comms, probable AFTN and support staff
And make tropical cyclone and volcanic ash advisory messages available on request?	Not answered	Yes	Currently no, could be yes with IBL Comms, probable AFTN and support staff
Not required, but desirable: would your State incur travel costs of an expert from another ROC in another	I have no clear response on this issue, but it will be considered by top management of IRIMO and Civil	No	Not answered

Region in the development of a ROC (estimate of 2 trips from Vienna on week at a time)?	Aviation Organization and for the time being, most probably the cost can be shared.		
Other comments	<p>In email...dated 18 Aug 2012 IR of IRIMO is in the process of being accepted as a Global Information System Center – GISC in the WMO Information System – WIS in the region and it is a programme of IRIMO with priority to develop its capacities in order to be endorsed as a GISC in the next auditing by WMO</p> <p>GISC's primary role is to collect and disseminate data and information used in the use of the provision of weather, climate and water services and research regionally and globally as quickly and efficiently as possible. GISC centers collect data and information from WIS contributing centres in their area of responsibility and pass information to centres in their area and to send information meant for global distribution to other GISCs. GISCs also ensure information from other regions is distributed or at least, available to, centres within the GISCs area of responsibility.</p>		<p>With reference to a facility in State capable of providing quality control of bulletins in the AoR 24 hours / 7 days a week – (maybe from a legacy question in the BMG/2 meeting) – UAE response: Currently no, could be done with the purchase of an enhanced IBL Comms, addition of 5 technicians and probable new AFTN servers then this could be accomplished.</p> <p>In email dated 26 aug 2012: We apologize for not being able to host the OPMET ROC.</p>

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	Considering similarity of responsibilities and works for the anticipated OPMET Office and a GISC, and IRIMO's steps in this regard, IRIMO will have the required capacities in implementing and developing of an OPMET Centre in the region.		
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APPENDIX C

ROC Requirements (30 May 2013)

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\*ROC; \*\*IROG; \*\*\*RODB

*(note that acronym list is provided on third page)*

\*Collect, validate and disseminate OPMET data from NOCs in the Area of Responsibility (AoR) as well as from the national NOC. The national NOC and the ROC will usually be the same centre.

\*Collect OPMET data from other ROCs in the region.

\*Disseminate bulletins received from NOCs in the AoR to

- other ROCs according to predefined distribution lists;
- MID RODBs; and
- other NOCs in their AoR as agreed between the ROC and NOC and the States' authorities concerned

\*Disseminate bulletins received from the other ROCs to

- NOCs in their AoR as agreed between the ROC and NOC and the States' authorities concerned

\*Quality control of the bulletins in their AoR 24 hours / 7 days a week.

\*Minimize the duplication of OPMET data from within their AoR.

\*Handle efficiently the volume of traffic anticipated (*Note that the EUR Data Management Group attempted to provide more details with reference to manpower and equipment, however, this group determined that it depended on how a State managed their communications and human resources and therefore could not prescribe a general requirement of manpower and equipment necessary to host a ROC*) (AFS relay centres).

\*Handle efficiently all OPMET data types as described in the **Attachment 1**.

\*Develop and maintain detailed OPMET distribution arrangements based on FASID Table MET 2A (SADIS User Guide Annex 1) and the notified addressing by the other regions.

\*Split OPMET bulletin received by GTS if longer than 1800 characters for further distribution via AFTN links (*Note that the CCCC of the header is changed into the indicator of the recompiling ROC*).

\*Distribute SIGMET messages, tropical cyclone and volcanic ash advisories to other ICAO Regions, VAACs and TCACs as appropriate, and SADIS and ISCS Gateways. *Note that by providing the data to IROG Vienna the further distribution to ROC/SADIS Gateway London is guaranteed. In this case, no extra routing is necessary as this would only lead to double transmission.*

\*Disseminate OPMET information at no cost (desired)

\*\*Collect the required OPMET data from the ICAO Region(s) it is responsible for

\*\*Utilize ground segment of the AFS (AFTN) for Inter-Regional OPMET exchange.

\*\*As the IROG will usually host the ROC functionality it should disseminate the collected data to the other ROCs in the region (to be determined) and to the NOCs in the AoR with transit times that satisfy Annex 3, Appendix 10, 1.1.

\*\*Send required OPMET data from the ICAO MID-Region to the ICAO Regions it is responsible for.

\*\*\*Collect OPMET data from the ROCs as required in the respective FASID tables and store in database for use internally within the Region.

\*\*\*Maximize amount of available OPMET data.

\*\*\*Provide request/response facilities for authorized users to obtain non-regular or occasional information.

\*\*\*Regularly monitor OPMET data in accordance to **Attachment 2** to check availability and timeliness of OPMET data and the possible misuse or abuse of the OPMET databanks; and report to the ICAO Office the results, where necessary.

\*\*\*Make tropical cyclone and volcanic ash advisory messages available on request.

Any designation of ROCs/RODBs in the MID Region will also be expected to develop the ability to exchange METAR and SPECI, TAF and SIGMET (and eventually all MET data) in digital form (XML/GML) to support the ICAO Meteorological Exchange Model (IWXXM). The EUR DMG is developing a concept of operations on IWXXM with the support from WMO and Eurocontrol under the auspices of ICAO Meteorological Aeronautical Requirements and Information Exchange Project Team (MARIE-PT). This document was expected to address issues such as the source of data and storage, traceability including whether a transformation (XML to TAC or TAC to XML) took place and where it was transformed, who should make the transformations, how to treat non-standard data and conversions, compression, inter-regional exchange and many other issues identified by WMO, Eurocontrol and ICAO.

AFS – Aeronautical Fixed Service  
AFTN – Aeronautical Fixed Telecommunication Network  
AoR – Area of Responsibility  
GTS – Global Telecommunication Network  
IROG – Inter-regional OPMET Gateway  
NOC – National OPMET Centre  
ROC – Regional OPMET Centre  
RODB – Regional OPMET Data Bank  
TCAC – Tropical Cyclone Advisory Centre  
VAAC – Volcanic Ash Advisory Centre

**Attachment 1**

<b>Data type</b>	<b>Abbreviated name</b>	<b>WMO data type designator</b>
Routine, also Scheduled OPMET data		
Aerodrome reports	METAR SPECI	SA SP
Aerodrome forecasts	TAF: up to 30-hours less than 12-hours	FT FC
Non-Routine, also Non-Scheduled OPMET data		
SIGMET information	SIGMET SIGMET for TC SIGMET for VA	WS WC WV
AIRMET information	AIRMET	WA
GAMET information	GAMET	FA
Volcanic ash and tropical cyclone advisories	VAA TCA	FV FK
Air-reports	AIREP	UA
Administrative	ADMIN	NO

# OPMET Data Monitoring Tool Specification

22 March 2012

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## 1 Introduction

This specification is organised into three sections. Each section builds upon the previous section in terms of what data is to be monitored from WMO format bulletins. The sections correspond to the monitoring of only the WMO bulletin, the monitoring of the transmission network envelope and real-time monitoring.

A monitoring application shall, as a minimum, fully implement the requirements in section 1 – WMO Monitoring. Optionally, applications may fully implement the requirements in sections 2 and/or 3. For existing, unmodified, applications it will be acceptable to fully implement the requirements in section 1 and partially implement the requirements in sections 2 and/or 3.

Tables 1 and 2 show the WMO message types that shall be monitored.

Type	Bulletin
FC	9 Hour TAF Short Term Forecast report
FT	24/30 TAF Hour Long Term Forecast report
SA	METAR observation
SP	SPECI, special METAR observation

Table 1: Routine Data Types

Type	Bulletin
FA	GAMET
FK	Tropical Cyclone Advisory
FV	Volcanic Ash SIGMET
NO	System administration message
WA	AIRMET
WC	Tropical Cyclone SIGMET
WS	SIGMET
WT	Tropical Cyclone (Typhoon/Hurricane)
WV	Volcanic Ash SIGMET
UA	Special AIREP

Table 2: Non-Routine Data Types

## 2 WMO Monitoring

### 2.1 General Requirements

The application shall operate in an offline mode using ASCII text files as the data source.

The application shall be able to read AFTN, GTS and SADIS media. The definitions of these media are found in references 1, 2 and 3. Any message decomposition shall be undertaken in accordance with these documents.

All times shall be in UTC.

Bulletin boundaries shall be determined using one of the following criteria. The ability to select the criteria used at runtime may also be implemented.

For AFTN formats:

*SOH* -> *ETX* control characters.

For SADIS/GTS formats:

*NNN* -> (*NNN* -2 chars) character sequences; or

*STX* -> *ETX* control characters

## 2.2 Data Monitoring Requirements

Generally, data fields that can be retrieved but are not defined in references (0 or (0 shall be ignored (e.g. AFTN envelope fields).

Only routine and non-routine data types (specified in tables 1 and 2) shall be monitored.

For both types the WMO AHL shall be decomposed into the following fields. Each field shall be recorded in the corresponding field of the output file(s).

TT: Type of record;

AAii: Bulletin identifier;

CCCC: Compiling station;

YYGGgg: AHL date/time group;

BBB: Optional remark group.

A NIL bulletin (i.e. a bulletin that contains the single word 'NIL') shall be recorded with one entry with the word 'NIL' in the NIL output field and the characters ' ' (four blanks) recorded in the station/FIR field.

## 2.3 AFTN Data Requirements

The WMO AHL shall be defined as the line containing the STX control character.

The word 'AFTN' followed by 4 spaces ('AFTN ') shall be recorded in the NetworkType field.

## 2.4 GTS/SADIS Data Requirements

The WMO AHL shall be defined as the first non-blank line following the sequence number (NNN).

The word of 8 characters 'SADIS ' or 'GTS ' shall be recorded in the NetworkType output field.

## 2.5 Routine Data Requirements

Routine OPMET bulletins (TT as defined in Table 1) shall be broken down into their constituent reports and registered at the station level.

Individual reports shall be separated by '=' or '==' followed by zero (or more) spaces, one (or more) CR and LF.

Each report shall be decomposed into the following fields. Each field shall be recorded in the corresponding field of the output file(s).

ReportBBB: If present any three letter BBB type identifier, e.g. COR or AMD. (*OPTIONAL*).

CCCC: The ICAO location identifier;  
The report date/time group.

For TAF reports only (TT = 'FC' or 'FT') the report validity period shall also be recorded.

A NIL report (i.e. where the word 'NIL' appears after the station identifier) shall have the word 'NIL' recorded in the NIL field in addition to the other fields.

## 2.6 Non-routine Data Requirements

The FIR/UIR shall be obtained from non-routine OPMET bulletins (TT as defined in Table 2) where applicable. The FIR/UIR shall be recorded in the station field of the output file. If the FIR/UIR cannot be determined ' ' (four blanks) shall be recorded.

If the word 'TEST' is found within the body of the bulletin then the word 'TST' shall be recorded in the NIL field of the output file.

## 2.7 Validation Requirements

Limited validation shall be performed upon the AHL:

- TT shall be two alphabetical characters;
- AAii shall be two alphabetical characters, excluding 'ZC', followed by 0, 1 or 2 digits and filled out with a blank character for every omitted digit;
- CCCC shall be four alphabetical characters excluding 'ZCZC' or 'NNNN';
- YYGGgg shall be six digits;
- BBB if present shall be three alphabetical characters. The first character shall be either 'A', 'C', 'P' or 'R'.

Individual routine reports shall be validated against the following:



- Station identifiers shall be four alphabetical characters excluding 'ZCZC' or 'NNNN';
- Report time shall be six digits optionally followed by 'Z';
- TAF Validity period shall be four, or six, or eight digits.

Bulletins that fail AHL validation shall be ignored.

Individual reports that fail validation shall be recorded with the erroneous fields filled with 'X' characters.

## 2.8 Output Format

The output from the application shall be a single ASCII file with an extension appropriate to the field delimitation.

Each field shall be delimited with one of the following characters.

- ',': comma for use with a '.csv' extension; or
- ';': semicolon for use with a '.txt' extension.

The first line of the output file shall contain the field identifiers correctly delimited.

The output file shall contain one line per routine report, or one line per non-routine bulletin.

Every field shall have a fixed length and be named as indicated below.

Reports for which information fields cannot be determined, or not gathered, shall not be recorded. The missing field shall be padded with the correct number of spaces to preserve the correct field lengths. In the case of the ReportTime and ValidityPeriod fields it shall be assumed that four-digit groups are missing date information and shall be prefixed with two space characters.

The output file shall contain the following fields in the following order (but recorded left to right). The <reserved> fields are placeholders for information that is gathered by applications implementing the additional data gathering requirements of section 2. They shall be included, but left blank, to ensure a common output file format for all applications.

The NIL field shall contain either three space characters, 'NIL', or 'TST' as appropriate.

Field	Name	Length	Comment
TT	TT	2	
AAii	AAii	4	
CCCC	CCCC	4	
YYGGgg	YYGGgg	6	
BBB	BBB	3	
Report "BBB"	ReportBBB	3	OPTIONAL. Pad with 3 spaces if not implemented
Report Station /FIR	Locind	4	Pad with spaces for bulletins that do not contain this information
Report Time	ReportTime	6	Only for routine types
TAF Validity Period	ValidityPeriod	8	Only required for FT and FC bulletins
NIL or TEST	NIL	3	Either ' ', 'NIL' or 'TST'
Transmission Network	NetworkType	8	Either 'AFTN', 'SADIS' or 'GTS'
<reserved>		6	
<reserved>		3	
<reserved>		4	
<reserved>		2	
<reserved>		6	
<reserved>		8	
<reserved>		6	

Table 3: WMO Output Fields

### **3 Transmission network monitoring**

#### 3.1 General Requirements

All requirements for this level are in addition to those specified for WMO Monitoring unless stated otherwise.

#### 3.2 Data Monitoring Requirements

If available the received time of the bulletin may be recorded.

##### 3.2.1 AFTN Data Requirements

The following fields shall be obtained and recorded from the AFTN envelope:

- Channel ID;
- Sequence number;
- Priority;
- Destination addresses;
- Filing time.

In addition to the above, the originator address shall be obtained and recorded in the Network Type field in place of the word 'AFTN'.

The sequence number shall be padded with leading zeros to create a five digit number.

##### 3.2.2 GTS/SADIS Data Requirements

The GTS/SADIS sequence number shall be retrieved and recorded. The number shall be padded with leading zeros to expand to 5 digits.

The Network Type field shall be completed as described in requirement 2.4.

##### 3.2.3 Validation Requirements

AHL and report validation shall be as for WMO Monitoring.

Fields obtained from the AFTN envelope shall be validated against the following:

- Channel ID shall be three characters;
- Priority shall be two characters;
- Each Destination Addresses shall be eight characters. There shall be a maximum of twenty one addresses.
- Filing time shall be six digits.

The sequence number for both AFTN and SADIS/GTS shall be either three, four or five digits.

### 3.3 Output Format

Every field shall have a fixed length and be named as indicated below. The Destination Address field is the last field does not have a fixed length.

Fields where the information cannot be determined, or not gathered, shall be left blank and delimited as per the file type.

The output file shall contain the following fields in the following order (but recorded left to right).

Data where the length is less than the field length shall be padded with ' ' (blank spaces) to the correct length. The Destination Address field may optionally be padded to the maximum length (188 characters).

If implemented, the RxTime field shall be six characters in length. The field shall be in the format HHMMSS

Field	Name	Length	Comment
TT	TT	2	
AAii	AAii	4	
CCCC	CCCC	4	
YYGGgg	YYGGgg	6	
BBB	BBB	3	
Report "BBB"	ReportBBB	3	OPTIONAL. Pad with 3 spaces if not implemented
Report Station /FIR	Locind	4	Pad with spaces for bulletins that do not contain this information
Report Time	ReportTime	6	Only for routine types
TAF Validity Period	ValidityPeriod	8	Only required for FT and FC bulletins
NIL or TEST	NIL	3	Either ' ', 'NIL' or 'TST'
Transmission Network	NetworkType	8	Either AFTN origin address, 'SADIS' or 'GTS'
Channel ID	ChannelId	3	AFTN only
Sequence Number	SeqNo	5	Pad with leading zeros to 5 digits
Priority	Priority	2	AFTN only
Filing Time	FileTime	6	AFTN only
<i>Received Time</i>	<i>RxTime</i>	<i>6</i>	<i>Only if logging software produces time as messages are logged. Use HHMMSS format</i>

Destination Addresses	DestAddr	(188)	AFTN only. No fixed length
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Table 4: WMO and Channel Output Fields

## 4 Real Time Monitoring

### 4.1 General Requirements

All requirements for this level are in addition to those specified for WMO monitoring (and Transmission monitoring if implemented) unless stated otherwise.

The application shall monitor and analyse OPMET data in real-time. Offline analysis facilities may be provided. This requirement is in place of requirement 0.

### 4.2 Data Monitoring Requirements

#### 4.2.1 AFTN Data Requirements

There are no additional requirements to gather extra AFTN information.

#### 4.2.2 GTS/SADIS Data Requirements

There are no additional requirements to gather extra GTS/SADIS information.

#### 4.2.3 Routine Data Requirements

The following statistical information shall be gathered and recorded for each bulletin in a separate statistical result file:

- Bulletin length: The bulletin length, in bytes, including the start and end of message characters.
- Format error counts: The number of fatal errors (defined below) and the number of non-fatal errors (defined below).
- Bulletin type counters: The total number of received bulletins by type (TT).
- Timeliness: For a specific set of stations the timeliness of each received observation can be calculated and recorded. The definitions of timeliness can be found in ref 0.

#### 4.2.4 Non-routine Data Requirements

The following statistical information may be gathered and recorded for each bulletin in a separate statistical result file:

- Bulletin length.
- Bulletin type counters.

### 4.3 Validation Requirements

The AHL shall be validated in the same manner as for levels one and two.

Fatal errors shall be defined as validation errors or missing data within the following fields in the AHL:

- AAii.
- CCCC.
- YYGgg

Non-fatal errors shall be defined as validation errors, or missing data within the BBB field of the AHL and the following report fields:

- Station location indicator.
- Report date/time.
- TAF validity period.

### 4.4 Output Format

The result files shall be generated in periods of twelve or twenty four hours.

The result files shall contain only validated data. Separate files may be used to log data that fails validation.

Statistical data shall be logged in a separate results file. The file will be delimited in same manner as for the results files.

A separate results file per data type may be used. In this case the TT field may be omitted.

Fields where the information cannot be determined, or not gathered, shall be left blank and delimited as per the file type.

The results output file shall contain the same fields as for WMO and network monitoring. The statistical output file shall contain the fields from the following table.

Field	Name	Comment
TTAAii CCCC	Header	
Bulletin Length	BullLen	The length in bytes
Type Counter	TypeCnt	The cumulative bulletin count for the current bulletin type.
Format Error	FormErr	The cumulative number of format errors when this bulletin was received.
Timeliness	Timeliness	Yes or no field whether this bulletin is timely.

Table 5: Real Time Monitoring Output Fields

#### 4.5 Real Time Display

The application shall display, in real time, at least the following:

- A count of the number of bulletins received by type since midnight;
- The last received header for each type.

### 5 References

International Standards, Recommended Practices and Procedures for Air Navigation Services; Annex 10, Volume II, Chapter 4.

Manual of the Global Telecommunication System; WMO – No. 386.

Manual on Codes, Volume I.1 – Part A; WMO – No. 306.

OPMET Data Monitoring (OPMET.doc); Belgocontrol.

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**APPENDIX D****Terms of Reference of the MID OPMET Bulletin Management Group****(OPMET BMG)****1. Terms of Reference**

- a. Review the OPMET exchange schemes to the MID Region and develop proposals for their optimization taking into account the current trends in the global OPMET exchange;
- b. Develop monitoring and management procedures related to the ROBEX exchange and other exchanges of OPMET information;
- c. Keep up-to-date the regional guidance material related to OPMET exchange;
- d. Develop capabilities to support the ICAO Meteorological Exchange Model (IWXXM)
- e. Develop key performance index for OPMET and keep under review
- f. Liaise with similar groups in the adjacent ICAO Regions in order to ensure harmonized and seamless OPMET exchange; and
- g. The group will report to the MET Sub-Group of MIDANPIRG.

**2. Work Programme**

The work to be addressed by the MID OPMET BMG includes:

- a. Examine the existing requirements and any new requirements for the OPMET exchange in MID region and to assess the feasibility of satisfying these requirements, taking into account the availability of the data;
- b. Review the ROBEX scheme and other OPMET exchange schemes and prepare proposal for updating and optimizing of the schemes;
- c. Review and update the procedures for interregional exchange and for transmission of the regional OPMET data to SADIS;
- d. Review and amend the regional guidance materials on the OPMET exchange and include procedures for the exchange of all required OPMET message types: SA, SP, FC, FT WS, WC, WV, FK, FV, UA;
- e. Develop procedures for monitoring and management of the OPMET information, based on similar procedures used in the EUR and APAC Regions; and



- f. Support MARIE-PT or any subsequent governance group appointed by ICAO in Regional implementation of IWXXM within MID. The initial implementation emphasis will be placed on States hosting ROCs/RODBs. Progress report to be provided to MID MET SG.
- g. Use results from monitoring to measure OPMET (METAR and TAF) availability in MID Region against the required data listed in FASID Table MET 1A to support key performance index for OPMET component of BO-MET of the new implementation methodology called Aviation System Block Upgrade (ASBU) and keep under review;
- h. Provide regular progress reports to MET SG meetings.

### 3. Composition

- a. The OPMET/BMG is composed by experts from Egypt, Kuwait and Oman (Rapporteur). Bahrain, Saudi Arabia and UAE are also expected to participate in the activity of the Group; and
- b. Experts from the EUR BMG, the VAAC Toulouse, APAC OPMET/M Task force and IATA are invited to participate in the work of the MID OPMET BMG.

### 4. Working Arrangements

It is expected that most of the work of the group will be conducted via correspondence by fax, e-mail or telephone. The group should establish a network of OPMET focal points at all MID COM/MET centres dealing with OPMET data. When necessary, the Rapporteur, in coordination with the Regional Office, Cairo, will call teleconferences or meetings to discuss important issues.

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**Attachment 1**

**MID ANP VOLUME I (BASIC ANP) PART VI (MET)**

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**Part VI**

**METEOROLOGY (MET)**

**INTRODUCTION**

1. This part of the Middle East (MID) Basic Air Navigation Plan contains elements of the existing planning system and introduces the basic planning principles, operational requirements and planning criteria related to aeronautical meteorology (MET) as developed for the MID Region.
2. As a complement to the Statement of Basic Operational Requirements and Planning Criteria (BORPC) set out in Part I, Part VI constitutes the stable guidance material considered to be the minimum necessary for effective planning of MET facilities and services in the MID Region. A detailed description/list of the facilities and/or services to be provided by States in order to fulfill the requirements of the Basic ANP is contained in the MID Facilities and Services Implementation Document (FASID).
3. The Standards, Recommended Practices and Procedures to be applied are contained in the following ICAO documents:
  - a) Annex 3 — Meteorological Service for International Air Navigation;
  - b) Regional Supplementary Procedures (Doc 7030), Part 3 - Meteorology.
4. Background information of importance in the understanding and effective application of the Plan is contained in the Reports of the Limited Middle East (COM/MET/RAC) Regional Air Navigation Meeting (Doc 9672, LIM MID (COM/MET/RAC)(1996)) and of the Third Middle East Regional Air Navigation Meeting (Doc 9434, MID/3 (1984)), supplemented by information appropriate to the MID Region which is contained in the Reports of the other Regional Air Navigation Meetings.
5. RAN Meeting recommendations or conclusions, Middle East Air Navigation Planning and Implementation Regional Group (MIDANPIRG) conclusions and ICAO operations groups conclusions shown in brackets below a heading indicate the origin of all paragraphs following that heading; where these conclusions are shown in brackets below a paragraph they indicate the origin of that particular paragraph.

**METEOROLOGICAL SERVICE AT AERODROMES AND REQUIREMENTS FOR  
METEOROLOGICAL WATCH OFFICES**  
(FASID Tables MET 1A and MET 1B)

6. The service to be provided at the international aerodromes listed in MID Basic ANP Table AOP1 is set out in FASID Table MET 1A.  
[LIM MID (COM/MET/RAC), Rec.4/10]
7. The service to be provided for flight information regions (FIR), upper flight information regions (UIR), control areas (CTA) and search and rescue regions (SRR) is set out in FASID Table MET 1B.  
[LIM MID (COM/MET/RAC), Rec. 4/10]
8. Routine observations should be made at all aeronautical stations at hourly intervals and

## Attachment 1

reports issued as local routine reports and METAR, complemented by special observations issued as local special reports and SPECI.

[MID/3, Rec. 3.1/12]

9. TAF should be issued at intervals of six hours, with the period of validity beginning at one of the main synoptic hours (00, 06, 12, 18 UTC). The period of validity should be 24 or 30 hours, to meet the requirements indicated in FASID Table MET 1A. The filing time of the forecasts should be one hour before the start of the period of validity.

[MIDANPIRG/11 Report]

10. The forecast maximum temperatures should be included in aerodrome forecasts for certain stations as agreed between the meteorological authorities and the operators concerned.

[LIM MID (COM/MET/RAC) Rec. 4/10]

11. Trend forecasts should be provided at the aerodromes as indicated in FASID Table MET 1A.

[LIM MID (COM/MET/RAC), Rec. 4/10]

12. Meteorological service should be provided on a 24 hour basis, except as otherwise agreed between the meteorological authority, the air traffic services authority and the operators concerned.

[MID/3, Rec.3.1/12]

13. At aerodromes with limited hours of operation, the issuance of METAR should be issued at least one hour prior to the aerodrome resuming operations to meet pre-flight and in-flight planning requirements for flights due to arrive at the aerodrome concerned as soon as it is opened for use. Furthermore, TAF should be issued with adequate periods of validity so that they cover the entire period during which the aerodrome is open for use.

[MID/3, Rec. 3.1/12]

14. When an MWO is temporarily not functioning or is not able to meet all its obligations, its responsibilities should be transferred to another MWO and a NOTAM should be issued to indicate such a transfer and the period during which the office is unable to fulfil all its obligations.

[MID/3, Rec. 3.1/12]

15. Details of the service provided should be indicated in Aeronautical Information Publications, in accordance with the provisions of Annex 15.

[MID/3, Rec. 3.1/12]

16. As far as possible, English should be among the languages used in meteorological briefing and consultation.

[MID/3, Rec. 3.1/12]

17. FASID Tables MET 1A and 1B should be implemented as soon as possible.

### AIRCRAFT OBSERVATIONS AND REPORTS

18. The meteorological authority should adopt the approved list of ATS/MET reporting points, as it relates to points located within and on the boundaries of the FIR for which the State is responsible. Those ATS/MET reporting points should be published in the AIP of the State concerned.

[LIM MID (COM/MET/RAC), Rec.4/19]

*Note.— The approved list of ATS/MET reporting points is published and kept up to date by the ICAO Regional Office concerned, on the basis of consultations with ATS and MET authorities in each State and the provisions of Annex 3 in this respect.*

19. The meteorological watch offices (MWO) designated as the collecting centres for air-reports

## Attachment 1

received by voice communications within the FIR/UIR for which they are responsible, are shown in FASID Table MET 1B.

### AIRMET INFORMATION

20. AIRMET messages are not required to be issued by MWOs.

[LIM MID (COM/MET/RAC), Rec. 4/10]

### TROPICAL CYCLONE ADVISORIES AND VOLCANIC ASH ADVISORIES

(FASID Tables MET 3A, 3B and 3C; FASID Charts MET1 and MET2)

21. Tropical cyclone advisory centre (TCAC) New Delhi has been designated to prepare advisory information. FASID Table MET 3A sets out the area of responsibility, the period of operation of the TCAC and the MWOs to which the advisory information should be sent.

[IAVWOPSG Conclusion 3/2]

22. Volcanic ash advisory centre (VAAC) Toulouse has been designated to prepare advisory information. FASID Table MET 3B sets out the area of responsibility of the VAACs, and the MWOs and ACCs/FICs to which the advisory information should be sent.

[IAVWOPSG Conclusion 3/2]

23. In order for the VAAC to initiate the monitoring of volcanic ash from satellite data and the forecast of volcanic ash trajectories, MWOs should notify the VAAC immediately on receipt of information that a volcanic eruption has occurred or volcanic ash has been observed in the FIR for which they are responsible. In particular, any special air-reports of pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud, received by MWOs should be transmitted without delay to the VAAC Toulouse. Selected State volcano observatories have been designated for direct notification of significant pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash in the atmosphere to their corresponding ACC/FIC, MWO and VAAC. FASID Table MET 3C sets out the selected State volcano observatories and the VAACs, MWOs and ACCs/FICs to which the notification should be sent by the observatories.

[IAVWOPSG Conclusion 3/2]

### EXCHANGE OF OPERATIONAL METEOROLOGICAL INFORMATION

(FASID Tables MET 2A, 2B, 2C, 4A and 4B)

24. FASID Table MET 2A sets out the requirements for operational meteorological (OPMET) information, which should be made available to States and users through the AFS satellite broadcasts (SADIS ~~and ISCS~~). FASID Table MET 2B contains the exchange requirements to the EUR Region for SIGMET- and AIRMET-messages, volcanic ash and tropical cyclone advisories and special air reports, originated by States in the MID Region, to satisfy international flight operations for uplink to SADIS.

*Note: Volcanic ash advisories and tropical cyclone advisories are not originated by States in the MID Region.*

25. FASID Table MET 2C sets out the operational meteorological information which should be available in Saudi Arabia for the pilgrimage flights. For its implementation, ICAO should notify, in accordance with AFI/6, Recommendation 6/24, as approved by Council, meteorological offices concerned well in advance of the exact dates of the beginning and the end of the Pilgrimage Season (cf also Doc 7474, Table MET 2C).

[LIM MID (COM/MET/RAC), Rec. 5/3]

26. FASID Tables MET 4A and MET 4B set out the Regional OPMET Bulletin Exchange (ROBEX) Scheme for the collection of METAR and air reports (AIREP), and TAF, respectively. When the designated ROBEX centres are not operational for any reason, the exchanges required

## Attachment 1

under the ROBEX Scheme should be carried out by direct address messages.  
[LIM MID (COM/MET/RAC), Rec. 5/5]

*Note.— Details of the ROBEX procedures including the exchange of OPMET information required under the scheme are given in the ROBEX Handbook prepared by the ICAO Asia and Pacific Office, Bangkok, Thailand.*

27. Each MWO should arrange for the transmission to all aerodrome meteorological offices within its associated FIR of its own SIGMET messages and relevant SIGMET messages for other FIR, as required for briefing and, where appropriate, for flight documentation.  
[MID/3, Rec. 3.1/12]

28. Each MWO should arrange for the transmission to its associated ACC/FIC of SIGMET messages and special air-reports received from other MWOs.

29. Each MWO should arrange for the transmission of routine air-reports received by voice communications to all meteorological offices within its associated FIR.

30. Operational meteorological information required in MID States from the EUR Region should be requested from the inter-regional OPMET Gateway (IROG), Vienna. OPMET information from the AFI Region should be requested from Jeddah (OEJNYM). OPMET information from ASIA/PAC Region should be requested from IROG Bangkok.

### **WORLD AREA FORECAST SYSTEM (WAFS)**

(FASID Table MET 5)

31. FASID Table MET 5 sets out the MID Region requirements for WAFS forecasts to be provided by WAFC London.  
[WAFSOPSG Conclusion 1/2]

32. For back-up purposes, each WAFC should have the capability to produce WAFS forecasts for all required areas of coverage.  
[WAFSOPSG Conclusion 5/2]

33. WAFS forecasts should be made available by WAFC London using the satellite distribution system for information relating to air navigation (SADIS), including the Secure SADIS FTP Service or using the satellite and Internet service.  
[WAFSOPSG Conclusion ~~6/2~~ 7/2]

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*Editorial note. – Insert “or using the SADIS service” in the corresponding CNS procedure contained in Part IV of the ANP*

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34. Each State should make the necessary arrangements to receive and make full use of operational WAFS forecasts made available by WAFC London. The lists of the authorized users of the SADIS services in the MID Region and the locations of the operational VSATs and/or Internet-based services are available from the following website:

[www.icao.int/safety/meteorology/sadisopsg](http://www.icao.int/safety/meteorology/sadisopsg) (click: “Operational Information” and then “Status of implementation of SADIS”) for SADIS.

[WAFSOPSG Conclusion ~~6/2~~ 7/2]

– END –

**MID ANP VOLUME II (FASID) PART VI (MET)**

-----  
**METEOROLOGY (MET)**

**1. Introduction**

1.1 The Standards, Recommended Practices and Procedures to be applied are as listed in paragraph 1.2, Part VI - MET of the MID Basic ANP. The material in this part complements that contained in Part I – Statement of Basic Operational Requirements and Planning Criteria (BORPC) of the MID Basic ANP and should be taken into consideration in the overall planning processes for the MID Region.

1.2 This Part contains a detailed description/list of the facilities and/or services to be provided to fulfil the basic requirements of the Plan and are as agreed between the provider and user States concerned. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified. This element of the FASID, in conjunction with the MID Basic ANP, is kept under constant review by the MIDANPIRG in accordance with its schedule of management, in consultation with user and provider States and with the assistance of the ICAO Middle East Office, Cairo.

**2. Meteorological Service Required at Aerodromes and Requirements for Meteorological Watch Offices**  
(FASID Tables MET 1A and 1B)

2.1 The meteorological service to be provided at aerodromes to satisfy international flight operations is outlined in FASID Table MET 1A.

2.2 The requirements for meteorological watch offices (MWO) together with the service to be provided to flight information regions (FIR), upper flight information regions (UIR) and search and rescue regions (SRR) are listed in FASID Table MET 1B.

**3. Exchange of Operational Meteorological Information**  
(FASID Tables MET 2A, 2B, 2C, 4A and 4B)

3.1 The requirements for availability of OPMET information (METAR, SPECI and TAF) on a global basis through the AFS satellite distribution system (the SADIS ~~and ISCS~~) are provided in FASID Table MET 2A. This table contains the aerodromes included in the AOP Table of the Basic ANP and those non-AOP aerodromes for which the States concerned have agreed to make available the OPMET information via the satellite distribution system on a regular basis. FASID Table MET 2B contains the exchange requirements to the EUR Region for SIGMET- and AIRMET-messages, volcanic ash and tropical cyclone advisories and special air reports, originated by States in the MID Region, to satisfy international flight operations for uplink to SADIS.

*Note: Volcanic ash advisories and tropical cyclone advisories are not originated by States in the MID Region.*

3.2 FASID Table MET 2C contains the operational meteorological information which should be available in Saudi Arabia for the pilgrimage flights.

3.3 FASID Tables MET 4A and 4B set out the Regional OPMET Bulletin Exchange (ROBEX) Scheme for the exchange of METAR, SPECI, air reports (AIREP) and TAF.

## **Attachment A**

*Note. - Details of the ROBEX procedures including the exchange of OPMET information required under the Scheme are given in the ROBEX Handbook published by the ICAO Asia and Pacific Office, Bangkok in co-ordination with the ICAO MID Office, Cairo. The ROBEX handbook is available via the 'MET' section of: <http://www.bangkok.icao.int/edocs/index.html>.*

## Attachment A

### **4. Tropical Cyclone Warning System and International Airways Volcano Watch** (FASID Tables MET 3A, MET 3B, and MET 3C and FASID Charts MET 1 and 2)

4.1 The area of responsibility and the periods of operation of the designated Tropical Cyclone Advisory Centre (TCAC) New Delhi and the MWOs to which the advisory information should be sent by the TCAC are contained in FASID Table MET 3A. The areas of responsibility of the designated TCACs in all regions are shown on FASID Chart MET 1.

4.2 The area of responsibility of the designated Volcanic Ash Advisory Centre (VAAC) Toulouse, and the MWOs and ACCs/FICs to which the advisory information should be sent by the VAAC are contained in FASID Table MET 3B. The areas of responsibility of the designated VAACs in all regions are shown on FASID Chart MET 2.

4.3 FASID Table MET 3C sets out the selected State volcano observatories in the MID Region designated for direct notification of significant pre-eruption volcanic activity and/or volcanic ash in the atmosphere and the VAACs, MWOs and ACCs/FICs to which the notification should be sent by the observatories.

*Note 1. - Operational procedures to be used for the dissemination of information on volcanic eruptions and associated ash clouds in areas which could affect routes used by international flights, and necessary pre-eruption arrangements as well as the list of operational contact points are provided in the document titled Handbook on the International Airways Volcano Watch (IAVW) - Operational Procedures and Contact List (Doc 9766). Additional guidance material regarding the IAVW is contained in the Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (Doc 9691).*

### **5. World Area Forecast System (WAFS)** (FASID Table MET 5)

5.1 FASID Table MET 5 sets out the MID Region requirements for WAFS forecasts to be provided by WAFC London.

– END –



MID ANP VOLUME II (FASID) PART VI (MET)

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TABLE MET 1A - METEOROLOGICAL SERVICE AT AERODROMES

*EXPLANATION OF THE TABLE*

*Column*

1. Name of the aerodrome.
2. ICAO location indicator of the aerodrome.
3. Designation of aerodrome:  
RG - international general aviation, regular use  
RS - international scheduled air transport, regular use  
RNS - international non-scheduled air transport, regular use  
AS - international scheduled air transport, alternate use  
ANS - international non-scheduled air transport, alternate use
4. Name of the meteorological office responsible for the provision of meteorological service at the aerodrome indicated in column 1.
5. ICAO location indicator of the responsible meteorological office.
6. Requirement for trend forecasts.
7. Requirement for aerodrome forecasts in TAF code  
T – Requirement for 24-hour validity aerodrome forecasts in TAF code (24H)  
X - Requirement for 30-hour validity aerodrome forecasts in TAF code (30H)
8. Availability of OPMET information  
F - Full : OPMET data as listed issued for the aerodrome all through the 24-hour period  
P - Partial : OPMET data as listed not issued for the aerodrome for the entire 24-hour period  
N - None : No OPMET data issued for the time being

## Attachment B

Aerodrome where service is to be provided			Responsible MET office		Forecasts to be provided		Availability of OPMET
Name 1	ICAO Location Indicator 2	Use 3	Name 4	ICAO Location Indicator 5	TR 6	TAF 7	
<b>BAHRAIN</b>							
BAHRAIN INTERNATIONAL	OBBI	RS	BAHRAIN INTERNATIONAL	OBBI	Y	X	F
<b>EGYPT</b>							
AL ALAMAIN/ INTL	HEAL	AS	CAIRO/INTL	HECA		*	P
ALEXANDRIA / INTL	HEAX	RS	CAIRO/INTL	HECA	Y	X	F
ALMAZA AFB / MILITARY	HEAZ	RNS	CAIRO/INTL	HECA		X	F
ASWAN / INTL	HESN	RS	CAIRO/INTL	HECA	Y	X	F
ASYUT / INTL	HEAT	AS	CAIRO/INTL	HECA		X	F
CAIRO/INTL	HECA	RS	CAIRO/INTL	HECA	Y	X	F
HURGHADA / INTL	HEGN	RS	CAIRO/INTL	HECA	Y	X	F
LUXOR / INTL	HELX	RS	CAIRO/INTL	HECA	Y	X	F
MARSA ALAM / INTL	HEMA	RS	CAIRO/INTL	HECA		X	F
SHARK EL OWEINAT / INTL	HEOW	AS	CAIRO/INTL	HECA		X	F
SHARM EL SHEIKH / INTL	HESH	RS	CAIRO/INTL	HECA		X	F
SOHAG INTERNATIONAL AIRPORT	HESG	AS	CAIRO/INTL	HECA		*	P
ST.CATHERINE / INTL	HESC	AS	CAIRO/INTL	HECA		X	F
TABA / INTL	HETB	RS	CAIRO/INTL	HECA		X	F
<b>IRAN (ISLAMIC REPUBLIC OF)</b>							
BANDAR ABBASS/INTL	OIKB	RS	TEHRAN/MEHRABAD INTL	OIII		T	F
ESFAHAN / SHAHID BEHESHTI INTL	OIFM	RS	TEHRAN/MEHRABAD INTL	OIII		X	F
MASHHAD/SHAHID HASHEMI NEJAD INTL	OIMM	RS	TEHRAN/MEHRABAD INTL	OIII		T	F
SHIRAZ/SHAHID DASTGHAIB INTL	OISS	RS	SHIRAZ/SHAHID DASTGHAIB INTL	OISS	Y	X	F
TABRIZ/INTL	OITT	RNS	TABRIZ/INTL	OITT		X	F
TEHRAN/IMAM KHOMAINI INTL	OIIE	RS	TEHRAN/MEHRABAD INTL	OIII	Y	X	F
TEHRAN/MEHRABAD INTL	OIII	RS	TEHRAN/MEHRABAD INTL	OIII	Y	T	F
ZAHEDAN/INTL	OIZH	RS	TEHRAN/MEHRABAD INTL	OIII		T	F
<b>IRAQ</b>							
AL NAJAF	ORNI	RNS				T	F
BAGHDAD INTERNATIONAL AIRPORT	ORBI	RS	BAGHDAD INTERNATIONAL AIRPORT	ORBI	Y	T	F
BASRAH INTL AIRPORT	ORMM	RS	BAGHDAD INTERNATIONAL AIRPORT	ORBI	Y	T	F
ERBIL INTL AIRPORT	ORER	RS				T	F
MOSUL INTERNATIONAL AIRPORT	ORBM	RS	BAGHDAD INTERNATIONAL AIRPORT	ORBI	Y	T	F
SULAYMANIYAH INTERNATIONAL AIRPORT	ORSU	RS				T	F
<b>JORDAN</b>							
AMMAN/MARKA	OJAM	AS	AMMAN/MARKA	OJAM	Y	T	F
AMMAN/QUEEN ALIA	OJAI	RS	AMMAN/MARKA	OJAM	Y	X	F
AQABA/KING HUSSEIN	OJAQ	RNS	AMMAN/MARKA	OJAM			F
JERUSALEM/JERUSALEM	OJJR	RS	AMMAN/MARKA	OJAM			N
<b>KUWAIT</b>							
KUWAIT/INTL AIRPORT	OKBK	RS	KUWAIT/INTL AIRPORT	OKBK	Y	X	F
<b>LEBANON</b>							
BEIRUT/BEIRUT INTL	OLBA	RS	BEIRUT/BEIRUT INTL	OLBA	Y	X	F

Attachment B

Aerodrome where service is to be provided			Responsible MET office		Forecasts to be provided		Availability of OPMET	
Name 1	ICAO Location Indicator 2	Use 3	Name 4	ICAO Location Indicator 5	TR 6	TAF 7		8
<b>OMAN</b>								
MUSCAT/MUSCAT INTL	OOMS	RS	MUSCAT/MUSCAT INTL	OOMS	Y	X	F	
SALALAH	OOSA	AS	SALALAH	OOSA		X	F	
<b>QATAR</b>								
DOHA INTERNATIONAL	OTBD	RS	DOHA INTERNATIONAL	OTBD	Y	X	F	
NEW DOHA INTERNATIONAL AIRPORT (NDIA)	OTHH	RS	DOHA INTERNATIONAL	OTBD	Y	X	F	
<b>SAUDI ARABIA</b>								
DAMMAM/KING FAHD INTERNATIONAL	OEDF	RS				X	F	
JEDDAH/KING ABDULAZIZ INTERNATIONAL	OEJN	RS	JEDDAH/KING ABDULAZIZ INTERNATIONAL	OEJN	Y	X	F	
MADINAH/PRINCE MOHAMMAD BIN ABDULAZIZ INTERNATIONAL	OEMA	RS	JEDDAH/KING ABDULAZIZ INTERNATIONAL	OEJN	Y	T	F	
RIYADH/KING KHALED INTERNATIONAL	OERK	RS	JEDDAH/KING ABDULAZIZ INTERNATIONAL	OEJN	Y	X	F	
<b>SYRIAN ARAB REPUBLIC</b>								
ALEPPO/INTL	OSAP	RS	DAMASCUS/INTL	OSDI		T	F	
BASSEL AL-ASSAD/INTL. LATTAKIA	OSLK	RS	DAMASCUS/INTL	OSDI		T	F	
DAMASCUS/INTL	OSDI	RS	DAMASCUS/INTL	OSDI	Y	X	F	
<b>UNITED ARAB EMIRATES</b>								
ABU DHABI INTERNATIONAL	OMAA	RS	ABU DHABI INTERNATIONAL	OMAA	Y	X	F	
ABU DHABI / AL BATEEN EXECUTIVE AIRPORT	OMAD	<del>RG</del> RNS	ABU DHABI INTERNATIONAL	OMAA		X	F	
AL AIN INTERNATIONAL	OMAL	RS	ABU DHABI INTERNATIONAL	OMAA		X	F	
DUBAI INTERNATIONAL	OMDB	RS	DUBAI INTERNATIONAL	OMDB	Y	X	F	
DUBAI/AL MAKTOUM INTERNATIONAL	OMDW	RS	DUBAI INTERNATIONAL	OMDB	Y	X	F	
FUJAIRAH INTERNATIONAL	OMFJ	RS	DUBAI INTERNATIONAL	OMDB		X	F	
RAS AL KHAIMAH INTERNATIONAL	OMRK	RS	DUBAI INTERNATIONAL	OMDB		X	F	
SHARJAH INTERNATIONAL	OMSJ	RS	DUBAI INTERNATIONAL	OMDB		X	F	
<b>YEMEN</b>								
ADEN/INTL	OYAA	RS	SANAA/INTL	OYSN	Y	X	F	
HODEIDAH/INTL	OYHD	RS	SANAA/INTL	OYSN		T	F	
MUKALLA/INTL	OYRN	RS	SANAA/INTL	OYSN		T	F	
SANAA/INTL	OYSN	RS	SANAA/INTL	OYSN		T	F	
TAIZ/INTL	OYZZ	RS	SANAA/INTL	OYSN		T	F	

\*TAF available upon request

## Attachment C

### FASID TABLE MET 1B - METEOROLOGICAL WATCH OFFICES

#### *EXPLANATION OF THE TABLE*

##### *Column*

- 1 Name of State with Meteorological Watch Office (MWO) responsibility.
- 2 Location name of the MWO
- 3 ICAO location indicator assigned to the MWO.
- 4 Name of FIR, the UIR and/or the search and rescue region (SRR) served by the MWO.
- 5 ICAO location indicator assigned to the ATS unit serving the FIR, UIR and/or SRR.
- 6 Requirement for issuance of SIGMET, *excluding* volcanic ash SIGMET and tropical cyclone SIGMET
- 7 Requirement for issuance of volcanic ash SIGMET
- 8 Requirement for issuance of tropical cyclone SIGMET
- 9 Remarks

*Note.— Unless otherwise stated in column 9, the MWO listed in column 2 is the designated collecting centre for the air reports received within the corresponding FIR/UIR listed in column 4.*

**Attachment C**

State	MWO location		Area served		SIGMET			Remarks
	Name	ICAO loc. ind.	Name	ICAO loc. ind.	WS	WV	WC	
1	2	3	4	5	6	7	8	9
<b>BAHRAIN</b>								
	BAHRAIN INTERNATIONAL	OBBI	BAHRAIN FIR	OBBB	Y	Y	Y	
<b>EGYPT</b>								
	CAIRO/INTL	HECA	CAIRO ACC	HECC	Y	Y		Asian part thereof
<b>IRAN (ISLAMIC REPUBLIC OF)</b>								
	TEHRAN/MEHRABAD INTL	OIII	TEHRAN (ACC/FIC/FIR)	OIIX	Y	Y	Y	
<b>IRAQ</b>								
	BAGHDAD INTERNATIONAL AIRPORT	ORBI	BAGHDAD FIR and SRR	ORBS	Y	Y		
<b>JORDAN</b>								
	AMMAN/QUEEN ALIA	OJAI	AMMAN (ACC/FIC)	OJAC	Y	Y		
<b>KUWAIT</b>								
	KUWAIT/INTL AIRPORT	OKBK	ACC/AERODROME CONTROL TOWER	OKAC	Y	Y	Y	
<b>LEBANON</b>								
	BEIRUT/BEIRUT INTL	OLBA	BEIRUT/BEIRUT INTL	OLBA	Y	Y		
<b>OMAN</b>								
	MUSCAT/MUSCAT INTL	OOMS	MUSCAT FIR	OOMM	Y	Y	Y	
<b>SAUDI ARABIA</b>								
	JEDDAH/KING ABDULAZIZ INTERNATIONAL	OEJN	JEDDAH FIR	OEJD	Y	Y	Y	
<b>SYRIAN ARAB REPUBLIC</b>								
	DAMASCUS/INTL	OSDI	DAMASCUS/INTL	OSDI	Y	Y		
<b>UNITED ARAB EMIRATES</b>								
	ABU DHABI INTERNATIONAL	OMAA	EMIRATES FIR	OMAE	Y	Y	Y	
<b>YEMEN</b>								
	SANAA/INTL	OYSN	SANAA/INTL	OYSN	Y	Y	Y	

## Attachment D

### FASID TABLE MET 3A - TROPICAL CYCLONE ADVISORY CENTRE FOR THE MID REGION

#### EXPLANATION OF THE TABLE

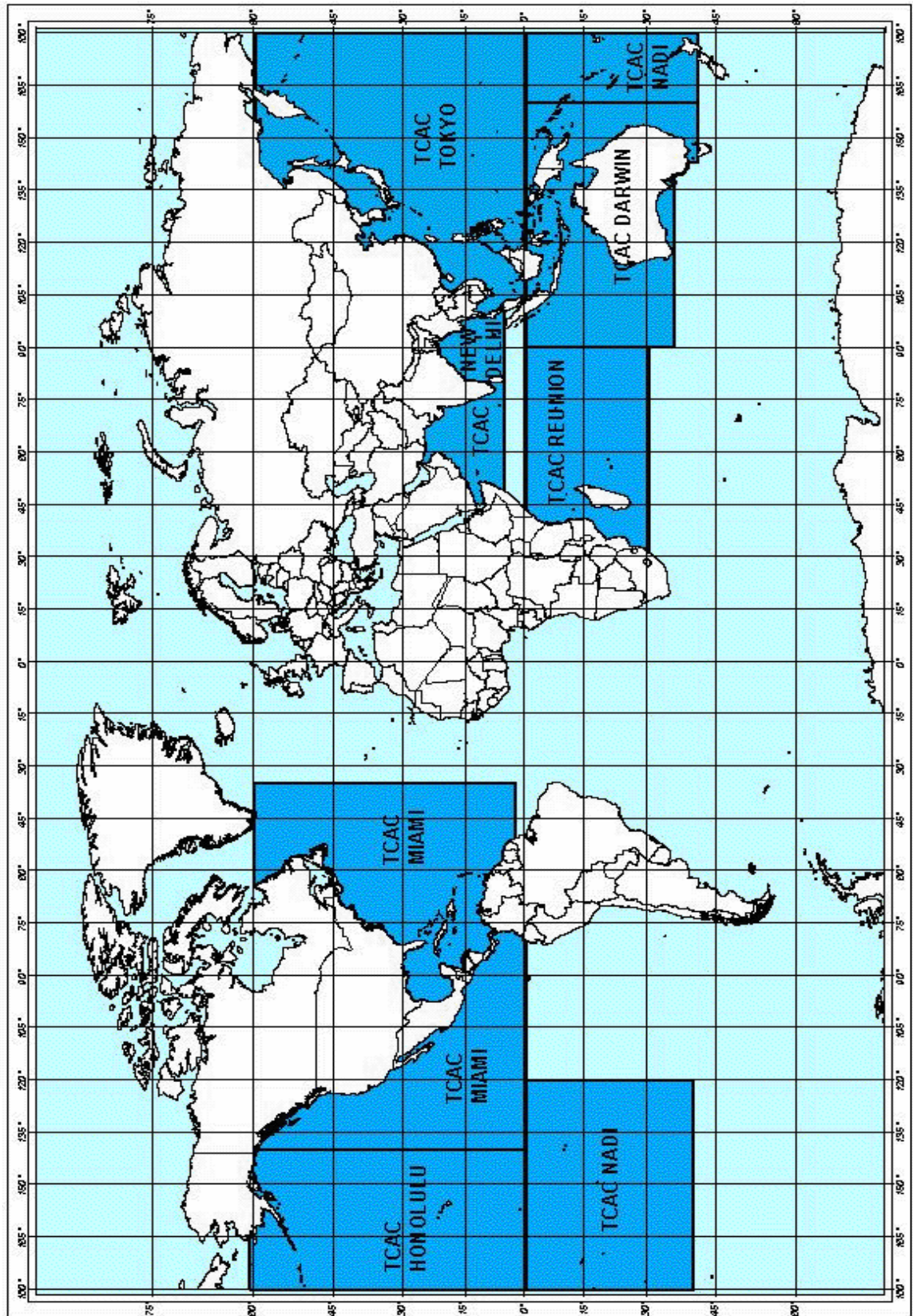
#### Column

- 1 Location of the Tropical Cyclone Advisory Centre (TCAC)
- 2 ICAO location indicator of the TCAC (for use in the WMO heading of advisory bulletin)
- 3 Area of responsibility for the preparation of advisory information on tropical cyclones by the TCAC in Column 1
- 4 Period(s) of operation of the TCAC
- 5 Meteorological Watch Office (MWO) to which the advisory information on tropical cyclones should be sent
- 6 ICAO location indicator of the MWO in Column 5

Tropical Cyclone Advisory Centre		Area of Responsibility	Period(s) of operation	MWO to which advisory information is to be sent	
Name	ICAO Loc. Ind.			Name	ICAO Loc. Ind.
1	2	3	4	5	6
<b>New Delhi (India)</b>	VIDP	Arabian Sea including Gulf of Oman and Gulf of Aden N: Coastline S: 5°N W: Coastline E: 65°E	April – June October – December	Abu Dhabi International Bahrain International Jeddah/King Abdulaziz International Kuwait/Intl Airport Muscat/Muscat Intl Sanaa/Intl Tehran/Mehrabad Intl	OMAA OBBI OEJN OKBK OOMS OYSN OIII

FASID CHART MET 1 - AREAS OF RESPONSIBILITY OF THE TCACs

CURRENT STATUS OF ICAO TROPICAL CYCLONE ADVISORY CENTRES (TCACs) - AREAS OF RESPONSIBILITY  
SITUATION ACTUELLE DES CENTRES D'AVIS DE CYCLONES TROPICAUX (TCAC) OACI - ZONES DE RESPONSABILITÉ  
SITUACIÓN ACTUAL DE LOS CENTROS DE AVISOS DE CICLONES TROPICALES, OACI (TCAC) - ZONAS DE RESPONSABILIDAD



**Attachment F**

**FASID TABLE MET 3B — VOLCANIC ASH ADVISORY CENTRES**

*EXPLANATION OF THE TABLE*

*Column*

- 1 Name of the Volcanic Ash Advisory Centre (VAAC).
- 2 ICAO location indicator of VAAC (for use in the WMO header of advisory bulletin).
- 3 Area of responsibility for the preparation of advisory information on volcanic ash by the VAAC in Column 1.
- 4 State where the MWOs and ACCs/FICs are located.
- 5 ICAO Region where the MWOs and ACCs/FICs are located.
- 6 MWOs to which the advisory information on volcanic ash should be sent.
- 7 ICAO location indicator of the MWOs in Column 6.
- 8 ACCs/FICs to which the advisory information on volcanic ash should be sent.
- 9 ICAO location indicator of the ACCs/FICs in Column 8.

Volcanic Ash Advisory Centre			State	ICAO Region	MWO to which advisory information is to be sent		ACC/FIC to which advisory information is to be sent	
Name	ICAO Loc. Ind.	Area of responsibility			Name	ICAO Loc. Ind.	Name	ICAO Loc. Ind.
1	2	3	4	5	6	7	8	9
Toulouse (France)	LFPW	Santa Maria Oceanic FIR, AFI Region north of <del>S60</del> <del>S6000</del> , EUR Region (except for London, Scottish and Shannon FIRs) west of <del>E90</del> <del>E09000</del> and south of <del>N74</del> <del>N7100</del> , MID Region, and ASIA Region, west of <del>E90</del>	Bahrain	MID	Bahrain International	OBBI	Bahrain FIR	OBBI
			Egypt	MID	Cairo/Intl	HECA	Cairo ACC	HECC
			Iran (Islamic Republic of)	MID	Tehran/Mehra bad	OIII	Tehran (ACC/FIC/FIR)	OIII
			Iraq	MID	Baghdad International Airport	ORBI	Baghdad	ORBS*
			Jordan	MID	Amman/Queen Alia	OJAI	Amman (ACC/FIC)	OJAC
			Kuwait	MID	Kuwait/Intl Airport	OKBK	ACC/Aerodrome Control Tower	OKAC
			Lebanon	MID	Beirut/Beirut Intl	OLBA	Beirut/Beirut Intl	OLBA

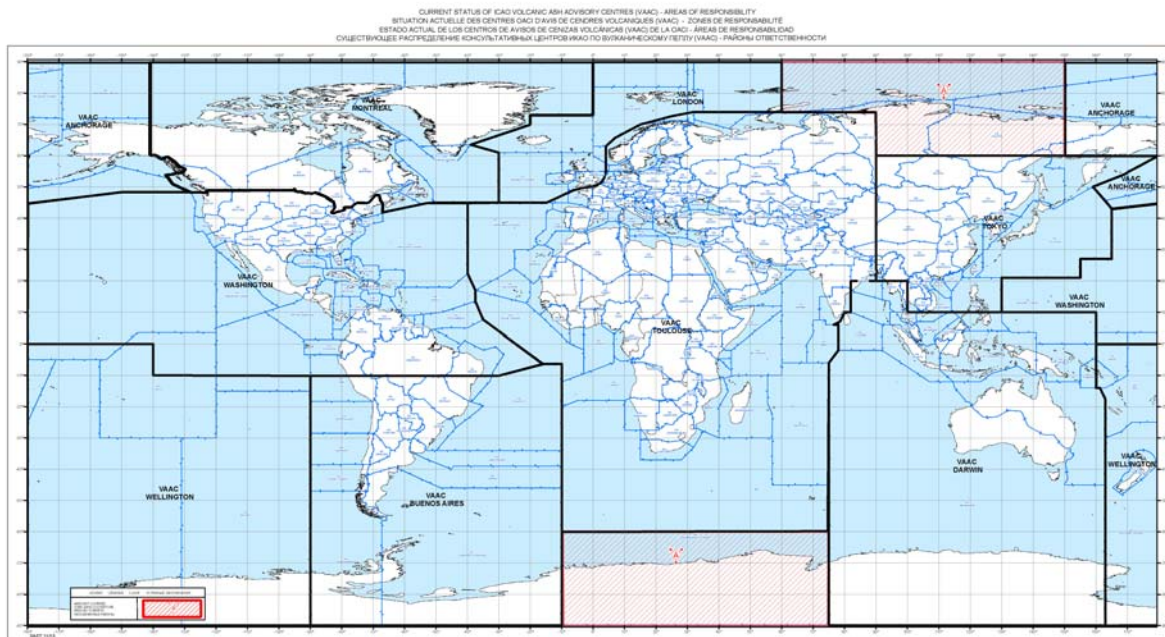


**Attachment F**

		E09000 north of <del>N20</del> N2000 (plus Mumbai, Chennai (west of <del>82E</del> E08200) and Male FIRs)	Oman	MID	Muscat/Muscat Intl	OOMS	Muscat FIR	OOMM
			Saudi Arabia	MID	Jeddah/King Abdulaziz International	OEJN	Jeddah FIR	OEJD
			Syrian Arab Republic	MID	Damascus/Intl	OSDI	Damascus/Intl	OSDI
			United Arab Emirates	MID	Abu Dhabi International	OMAA	Emirates FIR	OMAE
			Yemen	MID	Sanaa/Intl	OYSN	Sanaa/Intl	OYSN

\*not listed in Doc 7910

### VOLCANIC ASH ADVISORY CENTRES (VAAC) AREAS OF COVERAGE



**Attachment H**

**FASID Table MET 3C**

**SELECTED STATE VOLCANO OBSERVATORIES**

EXPLANATION OF THE TABLE

*Column*

- 1 Provider State of the volcano observatory designated for direct notification of volcanic activity.
- 2 Name of the volcano observatory.
- 3 VAAC to which the information related to pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash cloud should be sent.
- 4 ACC/FIC to which the information related to pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash cloud should be sent.
- 5 ICAO location indicator of the ACC/FIC listed in Column 4.
- 6 MWO to which information related to pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash cloud should be sent.
- 7 ICAO location indicator of the MWO listed in Column 6

<i>Provider State of volcano observatory</i>	<i>Volcano observatory</i>	<i>VAAC to which the information is to be sent</i>	<i>ACC/FIC to which the information is to be sent</i>		<i>MWO to which information is to be sent</i>	
			<i>Name</i>	<i>ICAO Loc Ind.</i>	<i>Name</i>	<i>ICAO Loc Ind.</i>
1	2	3	4	5	6	7
...	...	VAAC Toulouse	...	...	...	...

*Note:— AFTN is not available at all selected volcano observatories; therefore, it is the responsibility of each State to make appropriate communication arrangements.*

*Note:—The FASID Table MET 3C to be completed when information is provided by the States concerned*

## FASID Table MET 4A

REGIONAL OPMET BULLETIN EXCHANGE (ROBEX) SCHEME –  
COLLECTION AREAS FOR AERODROME FORECASTS

## EXPLANATION OF THE TABLE

## Column

- 1 Location of the TAF collection centre
- 2 Aerodromes for which aerodrome forecasts in the TAF code form are collected

TAF Collection Centre	Collection Area
BAHRAIN	ABU DHABI ABU DHABI / AL BATEEN EXECUTIVE AL AIN AL MAKTOUM BAHRAIN DAMMAM DOHA DUBAI FUJAIRAH KUWAIT MUSCAT RAS AL KHAIMAH SALALAH SHARJAH
BEIRUT	AMMAN BAGHDAD BASRAH BEIRUT DAMASCUS
JEDDAH	ADEN DHAHRAN/DAMMAM JEDDAH MADINAH RIYADH SANA'A
TEHRAN	AHWAZ BANDAR ABBASS ESFAHAN KERMAN MASHHAD SHIRAZ TABRIZ TEHRAN ZAHEDAN

## FASID Table MET 4B

**REGIONAL OPMET BULLETIN EXCHANGE (ROBEX) SCHEME –  
COLLECTION AREAS FOR AERODROME METEOROLOGICAL REPORTS AND AIR-  
REPORTS**

*EXPLANATION OF THE TABLE*

## Column

- 1 Location of the METAR/SPECI and AIREP collection centre
- 2 Meteorological offices for which aerodrome meteorological reports in the METAR/SPECI code form and AIREP are collected

METAR/SPECI and AIREP Collection Centre	Collection Area
BAGHDAD	BAGHDAD BASRAH
BAHRAIN	ABU DHABI ABU DHABI / AL BATEEN EXECUTIVE AL AIN AL MAKTOUM BAHRAIN DAMMAM DOHA DUBAI FUJAIRAH KUWAIT MUSCAT RAS AL KHAIMAH SHARJAH
BEIRUT	AMMAN BEIRUT DAMASCUS
JEDDAH	DHAHRAN JEDDAH MADINAH RIYADH SANA'A
TEHRAN	AHWAZ BANDAR ABBASS ESFAHAN KABUL KANDAHAR KERMAN MASHHAD SHIRAZ TABRIZ TEHRAN ZAHEDAN

**Attachment K**

**FASID TABLE MET 5 - REQUIREMENTS FOR WAFS FORECASTS**

*EXPLANATION OF THE TABLE*

*Column*

- 1 WAFS forecasts required by the MID States, to be provided by WAFC London.
- 2 Area of coverage required for the WAFS forecasts to be provided by WAFC London.

FORECASTS REQUIRED	AREAS REQUIRED
1	2
SWH forecasts (FL250-630) in the BUFR code form	GLOBAL
SWM forecasts (FL100-250) in the BUFR code form	EUR, MID
Forecasts of upper-air wind, temperature and humidity, cumulonimbus clouds, icing, and clear-air and in-cloud turbulence, and of geopotential altitude of flight levels in GRIB code form	GLOBAL

*Note 1.— SWM forecasts are provided for limited geographical areas as determined by regional air navigation agreement. Areas “EUR” and “MID” provided by WAFC London.*

*Note 2. — WAFCs will continue to issue forecasts of SIGWX in PNG chart form for back-up purposes for fixed areas of coverage as specified in Annex 3.*

*Note 3. — Forecasts of cumulonimbus clouds, icing, and clear-air and in-cloud turbulence are labelled as “trial forecasts” and are currently distributed through the Internet-based services.*

## APPENDIX F

**Key Performance Indicators** supporting B0-MET – Meteorological information supporting enhanced operational efficiency and safety

**Applicability:** States

<b>Metrics</b>	<b>Key Performance</b>	<b>Targets</b>	<b>Action</b>	<b>Remarks</b>
1- WAFS	Number of States providing forecasts from WAFC London to users as per Annex 3	xx% implementation	Inform States of deficiency and assist in acquiring access to SADIS	
2 – OPMET at aerodromes	Number of aerodromes providing OPMET as per requirements in MID FASID Table MET 1A	METAR and TAF as per requirements in MID FASID Table MET 1A available from xx% of aerodromes in Region	ROC monitor -> corrective action by States -> monitor and report	Consider global requirement against FASID Table MET 2A from SADIS monitoring
3 – Meteorological Watch Office	Number of MWOs providing SIGMET as per requirements in MID FASID Table MET 1B	SIGMET from MWOs listed in MID FASID Table MET 1B provided by xx% of MWOs  SIGMET test participation by MWOs listed in MID FASID Table MET 1B provided by xx% of MWOs	ROC monitor -> corrective action by States -> monitor and report	
4- QMS	Number of States that have implemented QMS	QMS (MET) is implemented in xx% of States in Region	Reported by States -> implementation plan -> solicit update by States and report	

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## APPENDIX G

## METEOROLOGY SUB-GROUP (MET SG)

## 1. Terms of Reference

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

- a) Ensure the continuous and coherent development of the MET Part of the MID Air Navigation Plan (Basic ANP and FASID, Doc 9708) taking into account the evolving operational requirements in the MID Region and the need for harmonization with the adjacent regions in compliance with the Global Air Navigation Plan.
- b) Monitor and coordinate implementation of the relevant ICAO SARPs and regional procedures, facilities and services on aeronautical meteorology by the MID States and pursue harmonization.
- c) Identify any deficiencies in the provision of meteorological service for air navigation in the MID Region and ensure the development and implementation of relevant action plans by the States to resolve them.
- d) Foster implementation by facilitating the exchange of know-how and transfer of knowledge and experience between the MID States.
- e) Provide input to the work of appropriate ICAO bodies in the field of aeronautical meteorology, according to the established procedures.

## 1.2 In order to meet the Terms of Reference, the MET SG shall:

- a) Monitor implementation of WAFS and SADIS by the MID States and provide guidance for timely implementation of changes to the systems that affect end users
- b) Foster implementation of IAVW:
  - Liaise with VAAC Toulouse
  - Organise VA SIGMET tests
  - Work towards enhancing the awareness of all IAVW stakeholders
  - Support regional volcanic ash contingency plan activities (e.g. adapting plan, volcanic ash exercises, workshops)
- c) Foster implementation of TC advisories and warnings:
  - Liaise with TCAC New Delhi
  - Organize TC SIGMET Tests
- d) Enhance the availability and quality of SIGMET.
  - ~~Organize WS SIGMET Tests~~
- e) Monitor the OPMET exchange and improve the availability and reliability of OPMET information from the MID Region:
  - Ensure establishment of proper Regional OPMET Data Bank
  - Conduct regular monitoring of OPMET data
  - Provide feed-back to States on observed deficiencies



- Conduct feasibility study on the establishment of Regional OPMET Centres
  - Foster implementation of ICAO Meteorological Exchange Model (IWXXM) within MID. The initial implementation emphasis will be placed on States hosting ROCs/RODBs.
- f) Maintain the MET Parts of the MID ANP.
- ~~Ensure that FASID Tables are up to date~~
- g) Develop regional guidance on the provision of SIGWX forecasts for Low-level flights
- h) Facilitate the implementation of QMS for MET in the MID States.
- ~~Organize a QMS Seminar/Workshop~~

## 2. Composition

2.1 The Sub-Group is composed of:

- a) MIDANPIRG Member States;
- b) concerned International/Regional Organizations as observers. (IATA, IFALPA, WMO); and
- c) Provider States of specific MET services to the MID Region, WAFC London, VAAC Toulouse, TCAC New Delhi, Vienna OPMET Databank, should be invited to attend meetings on a regular basis.

- END -