



International Civil Aviation Organization

**MIDANPIRG Meteorology Sub-Group
Third Meeting (MET SG/3)**

(Cairo, 19 to 21 December 2011)

Agenda Items 2-8

SECRETARIAT PAPER OF MID MET SG/3

(Presented by the Secretariat)

SUMMARY

A status of Annex 3 implementation issues for the MID Region in relation to the agenda of the MID MET SG/3 meeting is provided in this paper. The status takes into account MIDANPIRG/12 Conclusions and Decisions related to the MET field and their follow-up actions taken, and where necessary, proposes new initiatives for the MET SG/3 meeting to consider.

REFERENCES

- *MID MET SG/2 Report*
- *MIDANPIRG/12 Report*

1. INTRODUCTION

1.1 The Sub-Group will recall that the second meeting of the Meteorology Sub-Group of the MIDANPIRG (MET SG/2), held 15 to 17 December 2009, formulated 13 Draft Conclusions and 1 Draft Decision. The MET SG/2 report was reviewed by the MIDANPIRG/12 meeting held 17 to 21 October 2010 in Amman, Jordan where these initiatives were considered. These MET SG/2 initiatives and their progress are provided in **Appendix A** to this working paper. Considering the status of the MET SG/2 initiatives, new initiatives are provided by the Secretariat for consideration by the MET SG/3 meeting.

2. DISCUSSIONS

World Area Forecast System (Agenda Item 4.1)

2.1 MET SG/2 draft Conclusion 2/1 – training for new WAFS forecasts in 2011 or 2012 for the MID Region on the use of the new gridded WAFS forecasts for convective clouds, icing and turbulence is expected to mature at the WAFSOPSG/7 meeting in September 2012. The development of guidance on the interpretation of the forecasts and a review of training requirements based on guidance developed was expected at the WAFSOPSG/7 meeting (WAFSOPSG/6 Conclusions 6/12 & 6/13 refer). Since the MET SG/2 draft Conclusion 2/1 includes the possibility of training in 2012 as noted in the Inter Office Memorandum Ref: AN 10/3 – 10/421 to WAFSOPSG Secretariat dated 14 December 2010, there is no need to redraft this Conclusion since the deliverable (training) is expected by the end of 2012.

2.2 A summary of WAFS developments that include outcomes of the sixteenth meeting of the SADIS Operations Group (SADISOPSG/16, Paris from 23 to 25 May 2011) and the sixth meeting of the World Area Forecast System Operations Group (WAFSOPSG/6, Dakar from 21 to 25 March 2011) was developed at other regional MET sub-group meetings (APAC CNS/MET SG/15 of APANPIRG, Bangkok from 25 to 29 July 2011; EUR METG/21 of EANPG, Paris from 6 to 9 September 2011) and adapted with WP/3 and WP/4 as provided in **Appendix B** to this working paper. The full reports of each meeting can be viewed at the following websites:

<http://www2.icao.int/en/anb/met/sadisopsg/Lists/Meetings1/AllItems.aspx>

<http://www2.icao.int/en/anb/met/wafsopsg/Lists/Meetings/AllItems.aspx>

The MET SG/3 meeting is invited to review and discuss the WAFS material presented.

Implementation of International Airways Volcano Watch (Agenda Item 4.2 a)

2.3 With reference to the implementation of the International Airways Volcano Watch (IAVW), the MET SG/3 meeting is invited to note that MIDANPIRG Decision 12/72 invited the ATM/SAR/AIS Sub-group and MET Sub-group of the MIDANPIRG to develop a draft Volcanic Ash Contingency Plan for the MID Region for consideration at MIDANPIRG/13.

2.4 The MET SG/3 meeting may wish to consider the International Volcanic Ash Task Force (IVATF) TF-ATM02 which is a task for the ATM working group of the IVATF to develop a standardized regional contingency plan for consideration at the IVATF/4 meeting in June 2012. The MET SG/3 meeting may consider adapting this proposed volcanic ash contingency template for the MID Region (draft is provided in Appendix A to working paper – regional volcanic ash contingency plan) and report to MIDANPIRG the expected contributions by the MET SG. The MET SG/3 meeting may wish to propose a small ad-hoc group to the MIDANPIRG to address this initiative between the MET SG/3 and MET SG/4 meetings. The MIDANPIRG ATM/SAR/AIS SG/12 meeting also endorsed this proposal. Given the above, the meeting may consider the following draft Decision.

DRAFT DECISION 3/XX — MET CONSIDERATIONS TO ADAPTING REGIONAL VOLCANIC ASH PLAN

That, an ad-hoc group consisting of State1, State2, State3..., and ICAO MID Regional Office be established to assist in the adaptation of a regional volcanic ash plan for consideration at the MET SG/4 meeting.

Note: The ICAO MID RO will monitor the developments of IVATF and communicate to the ad-hoc group when an adaptation to the volcanic ash template can be performed.

2.5 More information on global developments associated with volcanic ash information for international aviation is provided in a separate information paper. That information paper describes volcanic ash issues being developed by the International Volcanic Ash Task Force (IVATF) with an emphasis placed on critical issues whose oversight by the Volcanic Ash Challenge Team (VACT) is designed to produce deliverables related to the most critical issues in a timely manner. These critical issues include but are not limited to developing criteria for night/IMC operations to avoid volcanic ash with coordinated efforts by manufacturers and airlines and to improve volcano monitoring and communication links to the aviation community noting approximately 200 active volcanoes are not properly monitored and pose a hazard to aviation.

2.6 IAVWOPSG Conclusion 5/24 called for an ad-hoc working group to develop guidance (e.g. atmospheric transport and dispersion modelling) to assist Meteorological Watch Offices (MWO) in the issuance of SIGMET on radioactive cloud. Guidance would have to take into account that personnel at MWOs were not versed in dealing with radioactive clouds. In addition, radiation and health impacts would have to be considered by appropriate international organizations (e.g. threshold exposure rate considered unsafe could be used in the development of products). The IAVWOPSG/6 meeting determined further work would have to be undertaken in the development of guidance and products related to radioactive cloud (Conclusion 6/29 refers) and alternative provisions for radioactive cloud information such as regional or global centres should be considered (Conclusion 6/30 refers) which is an option that addresses issues such as the lack of SIGMET implementation in many regions, inconsistencies of SIGMET associated with FIR boundaries, and the lack of expertise on radioactive cloud at MWOs. Progress with these initiatives would be reported at the IAVWOPSG/7 meeting (March 2013).

Implementation of SIGMET, aerodrome warnings (Agenda Item 4.2 c)

SIGMET tests

2.7 Another initiative developed by the MET SG/2 meeting was to finalize SIGMET test procedures and conducting of regular SIGMET tests in the MID Region (MET SG Draft Conclusion 2/3 and MIDANPIRG Conclusion 12/65 refer). Part a) of this conclusion that the MID SIGMET Test Procedures be adapted and forwarded to States for implementation has been completed (SL dated 14 December 2010). Parts b) and c) of this conclusion are ongoing in that MID States were expected to participate in conducting regular WS- and WV- SIGMET tests in 2011 and reporting to each MET Sub-Group meeting, with feedback provided on any identified deficiencies provided to States concerned in order to formulate corrective actions. MIDANPIRG Conclusion 12/65 could be reformulated if the meeting wishes to ascertain States continue their efforts in participating in SIGMET tests as well as continue improvements in the format and dissemination of SIGMET where deficiencies are identified (e.g. consider a SL inviting MID States to participate in the EUR SIGMET tests as well as copying the SL to the SIGMET test focal points). Given the aforementioned, the MET SG/3 meeting may consider formulating the following draft Conclusion.

DRAFT CONCLUSION 3/XX — SIGMET TEST PARTICIPATION

That, the ICAO Regional Director, Middle East, undertake the necessary action to invite States in participating in the bi-annual SIGMET tests conducted by the EUR Region and report any deficiencies at each MET SG meeting.

Note: a copy of the State letter will be sent to the MID SIGMET Test focal points.

2.8 The meeting may noted that one State in the MID Region participated in the Asia and Pacific (APAC) SIGMET test on tropical cyclone on 10 November 2010 and 8 November 2011 (State letter reference AN 10/12 – 11/221, dated 24 August 2011, sent to MID States on the Arabian Gulf and/or Arabian Sea), which was associated MET SG/2 draft Conclusion 2/4 – to coordinate with Tropical Cyclone Advisory Centre (TCAC) – New Delhi. The intent was to improve the tropical cyclone advisories and warnings for aviation (MET SG draft Conclusion 2/5 refers). The meeting may wish to note that coordination between the APAC and EUR/NAT Office on including the MID States in the invitation for the APAC WC SIGMET test has become routine, which would not necessitate another draft Conclusion. States are strongly encouraged to participate in the annual APAC SIGMET test on tropical cyclone.

MID SIGMET Guide (Agenda Item 4.2 c)

2.9 Another ongoing initiative developed by the MET SG/2 meeting pertains to finalizing the MID SIGMET Guide (MET SG/2 draft Conclusion 2/6 refers). The meeting may recall that the working draft was circulated to States in January 2010 and finalized in December 2010 through MIDANPIRG Conclusion 12/66. Since that time, the WMO Abbreviated Header Line for SIGMET for Saudi Arabia was received and included in the draft MID SIGMET Guide as provided in **Appendix C** to this working paper. The meeting may note that only two entries have been completed and States strongly encouraged to provide this information. Given the above, the MET SG/3 meeting may wish to consider the following draft Decision.

**DRAFT DECISION 3/XX — UPDATE TO THE MID REGIONAL
SIGMET GUIDE**

That, the Secretariat update the MID Regional SIGMET Guide with
State inputs (e.g. WMO AHL).

OPMET data (Agenda Item 4.3)

2.10 The MET SG/2 initiative to improve the quality, availability, timeliness and regularity of OPMET data in the MID region is ongoing (draft Conclusions 2/7 and 2/8 refer; MIDANPIRG Conclusions 12/67 and 12/68 refer) noting that State letters have been issued on 14 December 2010 to improve the quality and availability of OPMET data in the MID Region by

- implementing ICAO Annex 3 provisions relating to OPMET data, including TAF; and
- investigating the reasons for the absence of SIGMET messages and reconsider their procedures for SIGMET generation and transmission; and
- considering the need for establishing local quality control and format verification procedures for OPMET data; and
- undertaking all efforts to reduce the errors in OPMET data significantly, the aim of which should be less than 5% of all issued OPMET data being incorrect.

The meeting may wish to reformulate a draft Conclusion that is based on results of OPMET monitoring (e.g. from EUR Data Management Group (DMG) and/or IATA). The meeting may consider any progress provided on implementation of 30-hour TAF requirements for 3 aerodromes in Iran (OIFM, OISS, OITT), 1 aerodrome in Jordan (OJAI) (not listed in list of deficiencies), and 1 aerodrome in Syria (OSDI) as well as implementation of 24-hour TAF for 2 aerodromes in Syria (OSAP and OSLK). The meeting may also consider progress related to one TAF valid at any aerodrome at any time (Amendment 74 to Annex 3) for Jordan and Syria (2 TAF were observed to be issued at some aerodromes) and Saudi Arabia (short or long TAF were issued depending on the time of day). Furthermore, in order to improve the timeliness and regularity of OPMET data (METAR and TAF) for AOP aerodromes in the MID Region, the ICAO MID Regional Office developed guidance material related to the issuance of OPMET data as attached to State letter (Ref.: AN 10/11-10-426) issued on 14 December 2010. If the MID MET SG/3 meeting determines that further guidance is needed, the meeting may wish to formulate a Draft Conclusion using an excerpt from the APAC ROBEX Handbook modified further based on recent discussions between the SADIS Gateway and Inter-Regional OPMET Gateway (IROG) Singapore. Given the above issues relating to OPMET data, the meeting may wish to formulate the following Draft Conclusion.

DRAFT CONCLUSION 3/XX — OPMET DATA IMPROVEMENTS

That, the ICAO Regional Director, Middle East, undertake the necessary action to notify States of

- a) AOP aerodromes whose OPMET data are missing, untimely, or contain format errors; and
- b) procedures in the issuance of OPMET data as per **Appendix D** to this working paper.

2.11 The MET SG/3 meeting is invited to review the terms of reference of the MID OPMET Bulletin Management Group (BMG) as provided in **Appendix E** to this working paper.

Regional Air Navigation Plan (Agenda Item 5)

2.12 With reference to the MET SG/2 initiative that proposed an amendment to Part VI (MET) of the MID Air Navigation Plan Volume I and Volume II (MID Doc 9708), the meeting will recall amendment proposals to the MID Basic ANP and FASID in April 2010 associated with MET SG/2 draft Conclusions 2/9 and 2/10 a) which aligned regional procedures with the International Airways Volcano Watch (IAVW) and World Area Forecast System (WAFS) with global provisions as well as amended Table MET 1A of Part VI (MET) of the MID ANP Volume II (FASID) to reflect regional requirements for 24- and 30-hour Aerodrome Forecasts (TAF) in the MID Region.

2.13 Furthermore, the meeting will recall the MET SG/2 initiative to review Part VI (MET) of the MID Air Navigation Plan Volume II (FASID) in time for the MET SG/3 meeting noting that FASID Tables MET 2A, 2C, 4A and 4B related to OPMET exchange in coordination with the MID OPMET Bulletin Management Group (MET SG/2 draft Decision 2/10 & MIDANPIRG Conclusion 12/73 refer). This initiative is expected to be considered at the first meeting of the MID OPMET Bulletin Management Group (MID OPMET BMG/1) to be held on 18 December 2011 (MET SG/2 draft Conclusion 2/14 & MIDANPIRG Conclusion 12/69 refer). The MET SG/3 meeting is invited to consider including proposed changes to FASID Tables MET 2A, 2C, 4A and 4B as per the outcomes of the MID OPMET BMG/1 meeting in the consolidated proposed amendment in the below Draft Conclusion.

2.14 The meeting may recall the use of the Regional Air Navigation Plan and the importance of a routine review since the requirements are evolving, information in the FASID tables can be used as the basis of 1) cost recovery, 2) measuring implementation of requirements (e.g. OPMET monitoring) that assists in identifying where improvements need to be made, and 3) regional planning by some stakeholders. Changes in requirements provided by global initiatives (WAFSOPSG/6 and IAVWOPSG/6; official notification of the later expected in December 2011) warrants another amendment proposal. In addition, the MET SG/3 meeting is invited to provide changes to reflect current operations. Therefore, the meeting may consider formulating a draft Conclusion to account for updated requirements and initiatives provided by WAFSOPSG/6, IAVWOPSG/6 and the MID OPMET BMG/1.

**DRAFT CONCLUSION 3/XX — PROPOSAL FOR AMENDMENT TO
PART VI (MET) OF THE MID AIR
NAVIGATION PLAN VOLUME I
AND VOLUME II (MID DOC 9708)**

That, the ICAO Regional Director, Middle East, undertake the necessary action to process the proposed amendment to

- a) Part VI (MET) of the MID Air Navigation Plan Volume I as per **Appendix F** to this working paper that includes changes provided by WAFSOPSG/6 and IAVWOPSG/6, and
- b) Part VI (MET) of the MID Air Navigation Plan Volume II as per **Appendix G** to this working paper that includes changes provided by States, IATA, WAFSOPSG/6, IAVWOPSG/6, and MID OPMET BMG/1 (if applicable).

Note: Changes to the RANP associated with IAVWOPSG/6 are expected upon receipt of official notification

Deficiencies (Agenda Item 6)

2.15 The MET SG/3 meeting will recall the MIDANPIRG Air Navigation Deficiency Database which contains a list of deficiencies that includes MET. The MIDANPIRG/12 meeting added deficiencies in the MET field for the reception of OPMET data at Regional OPMET Centre (ROC) Vienna from Iraq noting AFTN was not yet available (however, RODB Singapore would be able to forward OPMET from Iraq to Vienna if the OPMET were sent by email to RODB Singapore); implementation of 30-hour TAF as per the RANP for Iran (OIFM, OISS and OITT) and 24- or 30-hour TAF for Syria (OSAP-24 hour, OSDI-30 hour, and OSLK-24 hour). Any progress with reference to these or other deficiencies in the MET field could be considered by the MET SG/3 meeting in formulating a draft Conclusion to remove or add deficiencies to the MIDANPIRG Air Navigation Deficiency Database as provided in **Appendix H** to this working paper.

DRAFT CONCLUSION 3/XX — MET AIR NAVIGATION DEFICIENCIES IN THE MID REGION

That, the ICAO Regional Director, Middle East, undertake the necessary action to

- a) remove the deficiencies from the MIDANPIRG Air Navigation Deficiency Database, and
- b) add the deficiencies to the MIDANPIRG Air Navigation Deficiency Database.

MET Services and Facilities (Agenda Item 7)

2.16 The MET SG/3 meeting will recall the initiative by the MET SG/2 meeting to conduct a regional survey on the implementation of MET services and facilities to be used to assess the level of implementation of MET services and facilities in the MID Region. This initiative has been completed with one return from Egypt. The meeting is invited to review the results of this survey and decide if it is necessary to conduct a survey every 18 months as called for in MET SG/2 draft Conclusion 2/11 (MIDANPIRG Conclusion 12/70). If so, the meeting may consider formulating a draft Conclusion to reissue the regional survey on the implementation of MET services and facilities (or just reference this Conclusion). Based on typical response rates from States in the MID Region, the Secretariat does not see the need to go through this exercise every year and would rather focus on improving implementation of OPMET and SIGMET. Furthermore, implementation issues are provided by IATA, EUR DMG and APAC RODBs through monitoring of OPMET reception implementation issues are provided and a survey would thus not be necessary (utilizing OPMET data banks as the eyes for implementation of OPMET and SIGMET).

Quality Management System (Agenda Item 7)

2.17 The MET SG/2 meeting initiative to take necessary action to expedite the implementation of Quality Management System in accordance with Annex 3 provisions taking into consideration the key recommendation in Appendix 7B to the MET SG/2 meeting report has been completed. The MET SG/3 meeting is invited to provide progress on the implementation of QMS in light of the fact that QMS for MET Services becomes a standard in November 2012.

Terms of Reference and Future Work Programme (Agenda Item 8)

2.18 The MET SG/3 meeting is invited to review the terms of reference and future work programme of the MET Sub-group of the MIDANPIRG as provided in **Appendix I** to this working paper. Lastly, the MET SG/3 meeting is invited to determine the dates and location of the MET SG/4 meeting noting that it should occur 3-4 months before the MIDANPIRG/14 meeting (which is expected to take place in October 2013).

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the status of the follow-up action on Conclusions and Decisions of MET SG/3 and MIDANPIRG/12 as shown at **Appendix A** to this working paper; and
- b) consider and adapt initiatives (Draft Decisions/Conclusions) provided by the Secretariat.

APPENDIX A

CONCLUSIONS/DECISIONS FORMULATED BY THE MET SG/2 MEETING OF THE MIDANPIRG

[illegible]

<i>Conclusion/Decision</i>	<i>Addressed to</i>	<i>ICAO follow-up</i>		<i>Progress</i>
Draft Conclusion 2/2 - SADIS STRATEGIC ASSESSMENT TABLES That, the MID SADIS Strategic Assessment Tables, at Appendix 4.1B to the Report on Agenda Item 4, be adopted and forwarded to the SADISOPSG for planning the future SADIS bandwidth requirements by 31 March 2010.	SADISOPSG	HQ	Update the tables for SADISOPSG/15	COMPLETE IOM ME 3/56.14-10/029, dated 31 Jan 2010 to SADISOPSG Secretary

Conclusion/Decision	Addressed to	ICAO follow-up		Progress
<p>Draft Conclusion 2/3 - FINALIZED SIGMET TEST PROCEDURES AND CONDUCTING OF REGULAR SIGMET TESTS IN THE MID REGION</p> <p>That,</p> <p>a) the MID SIGMET Test Procedures, at Appendix 4.2A to the Report on Agenda Item 4, be adopted and forwarded to States for implementation;</p> <p>b) MID States be urged to participate in the conducting of regular WS- and WV- SIGMET tests in 2010 onwards and nominate SIGMET Focal Points if they have not already done so; and</p> <p>c) the results of the SIGMET tests be reported to each MET Sub-Group meeting, with feedback provided on any identified deficiencies provided to States concerned with proposed corrective actions.</p>	RO, MID States, MID OPMET BMG and METSG	RO	<p>State Letter to MID States.</p> <p>Facilitate conducting of SIGMET tests.</p> <p>Working paper (results of SIGMET tests) for METSG/3</p>	<p>COMPLETE</p> <p>SL Ref: ME 3/56.14-10/030 dated 31 Jan 2010</p> <p>MIDANPIRG C12/65 SL Ref: AN 10/12-10/422 dated 14 Dec 2010</p> <p>However, Need to continue campaign of participation</p> <p>History: Conclusion 12/65 replaced and superseded MIDANPIRG Decision 11/78 and Conclusion 11/79</p>
<p>Draft Conclusion 2/4 - INITIATING TROPICAL CYCLONE SIGMET TESTS IN THE MID REGION</p> <p>That, with a view to initiating tropical cyclone SIGMET tests in the MID Region, the ICAO MID Regional Office carry out the necessary coordination with Tropical Cyclone Advisory Centre New Delhi, India, to secure their cooperation in the regular MID SIGMET tests (expected from September 2010 onwards).</p>	RO in coordination with TCAC New Delhi	RO	State Letter to TCAC New Delhi (with cc to APAC Regional Office)	<p>COMPLETE</p> <p>Coordination conducted in April 2010 TCAC issued WC advisory for MID Region on 10 Nov 2010 at 0800 UTC</p>

<i>Conclusion/Decision</i>	<i>Addressed to</i>	<i>ICAO follow-up</i>		<i>Progress</i>
Draft Conclusion 2/5 - IMPROVING THE TROPICAL CYCLONE ADVISORIES AND WARNINGS FOR AVIATION That, in order to improve the quality and timeliness of the Tropical Cyclone Advisories and SIGMETs, MID States having the capability to forecast tropical cyclones tracks in the Arabian Sea and related hazardous aviation weather, be encouraged to establish close collaboration with the Tropical Cyclone Advisory Centre (TCAC) New Delhi, India, and provide feedback to the TCAC in case of identified forecast errors or other operational problems.	MID States	RO	State Letter to MID States concerned	COMPLETE
Draft Conclusion 2/6 - SIGMET GUIDE FOR THE MID REGION That, the ICAO MID Regional Office, circulate the working draft of the MID SIGMET Guide, as presented at Appendix 4.2C to the Report on Agenda Item 4, to MID States in order to: a) obtain the necessary WS-, WV- and WC-SIGMET headers for Appendix B of the document; and b) finalize the document in time for the MET SG/3 meeting.	MID States	RO	State Letter to MID States. Finalize the MID SIGMET Guide. Working paper for METSG/3.	ONGOING SL Ref: ME 3/56.14 – 10/31 dated 31 Jan 2010 MIDANPIRG C12/66 – SL Ref: AN 12/3-10/424 dated 14 Dec 2010 a) WMO headers – <u>is this part needs to be completed</u> b) Finalize document To request WMO Headers at MID MET SG/3 for completeness

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<i>Conclusion/Decision</i>	<i>Addressed to</i>	<i>ICAO follow-up</i>		<i>Progress</i>
Draft Conclusion 2/7 - IMPROVING OPMET DATA IN THE MID REGION That, in order to improve the quality and availability of OPMET data in the MID Region, MID States be urged, if they have not already done so, to: <ul style="list-style-type: none"> a) fully implement ICAO Annex 3 provisions relating to OPMET data, including TAF; b) investigate the reasons for the absence of SIGMET messages and reconsider their procedures for SIGMET generation and transmission; c) consider the need for establishing local quality control and format verification procedures for OPMET data; and d) undertake all efforts to reduce the errors in OPMET data significantly, the aim of which should be that less than 5% of all issued OPMET data being incorrect. 	MID States	RO	State Letter to MID States	<p style="text-align: center;">COMPLETE</p> <p>MIDANPIRG C12/67: SL Ref: AN 10/11-10/425 dated 14 Dec 2010</p>
Draft Conclusion 2/8 - HARMONIZATION OF PROCEDURES FOR OPMET DATA ISSUANCE That, in order to improve the timeliness and regularity of OPMET data (METAR and TAF) for AOP aerodromes in the MID Region: <ul style="list-style-type: none"> a) the ICAO MID Regional Office develop guidance material related to the issuance of OPMET data; and b) MID States be urged to implement common procedures in accordance with this guidance. 	RO and MID States	RO	Develop regional guidance and State Letter to MID States	<p style="text-align: center;">COMPLETE</p> <p>MIDANPIRG C12/68: SL Ref: AN 10/11-10-426 dated 14 Dec 2010</p>

<i>Conclusion/Decision</i>	<i>Addressed to</i>	<i>ICAO follow-up</i>		<i>Progress</i>
<p>Draft Conclusion 2/9 - PROPOSAL FOR AMENDMENT TO PART VI (MET) OF THE MID AIR NAVIGATION PLAN VOLUME I AND VOLUME II</p> <p>That, the ICAO MID Regional Office, undertake the necessary action to:</p> <p>a) Amend Part VI (MET) of the MID ANP Volume I (Basic ANP) and Volume II (FASID) as given in Appendix 5A and Appendix 5B to the Report on Agenda Item 5 respectively, to align regional procedures for the International Airways Volcano Watch (IAVW) and World Area Forecast System (WAFS) with global provisions; and Amend Table MET 1A of Part VI (MET) of the MID ANP Volume II (FASID) as given in Appendix 5C to the Report on Agenda Item 5 to reflect regional requirements for 24- or 30-hour Aerodrome Forecasts (TAF) for aerodromes within the MID Region.</p>	RO	RO	State Letter containing a proposal for amendment to MID States	<p>COMPLETE</p> <p>MIDANPIRG action not necessary</p> <p>SL Ref: AN 10/5A-10-154 dated 26 Apr 2010 (Serial No.: MID FASID 10/04 – MET)</p> <p>SL Ref: AN 10/5A – 10/143 dated 21 Apr 2010 (Serial No.: MID Basic ANP 10/03 – MET)</p> <p>Approved August 2010</p>
<p>Draft Decision 2/10 - REVIEW OF PART VI (MET) OF THE MID AIR NAVIGATION PLAN VOLUME II (FASID)</p> <p>That, in time for MET SG/3, the ICAO MID Regional Office in coordination with the MID OPMET Bulletin Management Group (BMG), is invited to review and propose amendments, as necessary to FASID Tables MET 2A, 2C, 4A and 4B related to OPMET exchange.</p> <p>Text reflects updates from MIDANPIRG/12</p>	RO in coordination with MID OPMET BMG	RO	Review FASID MET Tables. Prepare proposal(s) for amendment	<p>ONGOING</p> <p>MIDANPIRG 12/73</p> <p>Outcomes of BMG/1 should assist in progressing with this Conclusion</p> <p>History: Conclusion 12/73 replaced and superseded MIDANPIRG Decision 11/75</p>

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<i>Conclusion/Decision</i>	<i>Addressed to</i>	<i>ICAO follow-up</i>		<i>Progress</i>
Draft Conclusion 2/11 - REGIONAL SURVEY ON THE IMPLEMENTATION OF MET SERVICES AND FACILITIES That, the ICAO MID Regional Office utilise the questionnaire presented at Appendix 7A to the Report on Agenda Item 7 as the basis of a regional survey on the implementation of MET services and facilities in the MID Region in 2010, and at least every 18 months thereafter.	RO	RO	State Letter to MID States	<p style="text-align: center;">COMPLETE</p> <p>MIDANPIRG 12/70 – SL Ref: AN 10/22-10/428 dated 14 Dec 2010</p> <p>History: Conclusion 12/70 replaced and superseded MIDANPIRG Conclusion 11/83</p>
Draft Conclusion 2/12 - FACILITATING THE IMPLEMENTATION OF QMS FOR MET IN THE MID REGION That, MID States that have not yet implemented a Quality Management System (QMS) for meteorological service to international air navigation, be invited to take necessary action to expedite the implementation of QMS in accordance with Annex 3 provisions, taking into consideration the key recommendations at Appendix 7B to the Report on Agenda Item 7.	MID States	RO	State Letter to MID States	<p style="text-align: center;">COMPLETE</p> <p>MIDANPIRG 12/71 – SL Ref: AN 3/2.8-10/429 dated 14 Dec 2010</p> <p>History: replace and supersede MIDANPIRG/11 Conclusion 11/84 part a)</p>
Draft Decision 2/13 - UPDATE TO THE TERMS OF REFERENCE AND WORK PROGRAMME OF THE MET SUB-GROUP OF THE MIDANPIRG That, the updated Terms of Reference and Work Programme of the Meteorology Sub-Group (MET SG) of the MIDANPIRG, at Appendix 8A to the Report on Agenda Item 8, be adopted and forwarded to MIDANPIRG/12 for endorsement and inclusion in the MIDANPIRG Procedural Handbook.	MIDANPIRG	RO	Working paper for MIDANPIRG/12	<p style="text-align: center;">COMPLETE</p>

<i>Conclusion/Decision</i>	<i>Addressed to</i>	<i>ICAO follow-up</i>		<i>Progress</i>
Draft Conclusion 2/14 - ACTIVATION AND PROPOSED MEETING OF THE MID OPMET BULLETIN MANAGEMENT GROUP That, a) the MID OPMET Bulletin Management Group (BMG) be activated with the Terms of Reference at Appendix 9A to the Report on Agenda Item 9; b) the MID States participating in the OPMET BMG are urged to nominate appropriate experts on the group and inform the ICAO MID Regional Office accordingly; and c) the Rapporteur of the OPMET BMG, in coordination with the ICAO MID Regional Office, organize a meeting of the group immediately prior to, or concurrent with, MIDANPIRG/12.	MID OPMET BMG in coordination with RO	RO	Assist the undertakings of the MID OPMET BMG	<p style="text-align: center;">ONGOING</p> <p>MIDANPIRG 12/69 – SL ref: AN 10/11-10/427 dated 14 Dec 2010</p> <p>will be activated with BMG/1 meeting planned for 18 Dec 2011</p> <p>History: Conclusion 12/69 replaced and superseded MIDANPIRG Decision 11/82</p>

RO = Regional Office in Cairo

APPENDIX B

WAFS DEVELOPMENTS

- WAFCs made GRIB2 data (forecast data from T+6 to T+36 at 3-hourly time intervals and additional information at flight levels FL270, FL320, and FL360) available.
 - on Internet based service - SADIS FTP/Secure SADIS FTP (implemented 17 November 2010 and will run in parallel with SADIS FTP until November 2012) and WIFS on 2 March 2010.

Note that WAFS Washington GRIB2 upper-air forecasts were hosted on the Secure SADIS FTP Services since 1200 UTC 22 June 2011.

Note that gridded forecasts of CB, icing and turbulence were provided on Internet based service and labelled as 'TRIAL_FORECASTS' in GRIB 2 form while GRIB 1 form withdrawn in November 2010.

Note that training on gridded forecasts of CB, icing and turbulence would be considered after visualization standards and requirements for the provision of probabilistic forecasts expressed in terms of indices on these products were developed by IATA in coordination with WMO (WAFSOPSG/6 C6/16) and that subsequent guidance on interpretation of these products (WAFSOPSG/6 C6/12) would allow the WAFCs Provider States to review training requirements.

- on Satellite based service – SADIS 2G and ISCS G2 in November 2010.

Note that WAFS upper-air forecasts in GRIB1 code form planned for cessation in November 2013.

Note that prioritization of GRIB2 WAFS Aviation Forecasts against the GRIB1 WAFS Aviation Forecasts will be tentatively implemented at 1200 UTC data time on 5 July 2012.

Note that additional information for FL410 was expected in 2013 (Amendment 76 to Annex 3).

Note that users should contact the suppliers of their visualization systems in order to confirm that their systems can visualize GRIB2 data from both WAFCs.

Note that SADIS FTP users should contact their workstation suppliers to determine the status of availability of Secure SADIS FTP compatible visualization software. Those users who have not already done so should arrange to obtain Secure SADIS FTP log on credentials from the SADIS Manager.

- Use of maximum icing for use in extended range operations by twin-engined aeroplanes (ETOPS) flight planning endorsed as operationally acceptable (WAFSOPSG/6 D6/14).
- Changes to WAFS forecasts in draft Amendment 76 to Annex 3 as endorsed by WAFSOPSG/6 C6/3 includes:
 - Enabling the provision of concatenated route-specific wind/temperature forecasts
 - Introduce additional wind and temperature forecasts for FL 410 (175 hPa)

- Introduce additional geopotential altitude forecasts for FL 270 (350 hPa) and FL 410 (175 hPa) prepared by the WAFCs
 - Render operational the WAFS gridded significant weather (SIGWX) forecasts for CB clouds, icing and turbulence
 - Noting that successful harmonization of the WAFS gridded forecasts for CB, icing and turbulence, verification of forecasts and provision of updated guidance material on these forecasts were needed.
 - WAFS Quality Management System Certification
 - WAFS London independently audited ISO9001 certification
 - WAFS Washington is implementing an ISO9001 QMS process
 - WAFS SIGWX forecasts in current formats (BUFR code and PNG chart forms) will continue until such time that suitable alternative is available (WAFSOPSG/6 D6/17) given the WAFS SIGWX forecasts were not the same as the WAFS upper-air gridded forecasts (human versus computer produced).
 - WAFS text administrative messages for SIGWX corrections were implemented on 31 December 2010.
 - Further clarification to be provided for users in how to use these messages expected for WAFSOPSG/7
 - WAFS SIGWX backup tests were performed quarterly have been successful and transparent for a large majority of users.
 - For more information, go to the following URLs:

http://www2.icao.int/en/anb/met/wafsopsg/Reference%20Documents/Operational%20Information/Recent%20and%20Forthcoming%20Chronology%20of%20WAFS%20Backup%20Tests%2022%20Jul%2011_.pdf
- WAFS backup procedures:
- <http://www2.icao.int/en/anb/met/wafsopsg/Reference%20Documents/Operational%20Information/WAFS%20Backup%20Procedures.pdf>
- Introduction of OCNL CB in high-level SIGWX forecasts on 15 June 2011 to comply with Annex 3 requirements
 - Update to Annex 3, Appendix 8, Figures A8-1, A8-2 and A8-3 to reflect operational WAFS SIGWX charts was expected and harmonization of fixed area between WAFS London and Washington was also expected.
 - Differences between dimensions/orientation of SIGWX forecasts in PNG format between WAFS London and Washington removed with the WAFS London implementation of its new SIGWX production platform on 11th October 2011 – therefore, user will no longer witness differences during WAFS Backup events (test or real)

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- Enhanced WAFS performance indicators were implemented. Also the feasibility of additional performance indicators was expected for WAFSOPSG/7.
- Nuclear Emergency Messages (WMO AHL NNXX01 EGRR) were made available via SADIS (both satellite and Internet based services) on 18 November 2010.
- Routing of tropical cyclone advisories in graphical form via SADIS (both satellite and Internet based services) were implemented on 18 November 2010 noting La Reunion advised intent of such graphics and WMO AHLs to be used (other TCACs received a State letter inquiring what WMO AHL to use).
 - The METG/21 Meeting was informed that TCAC Tokyo had implemented tropical cyclone advisories in graphical form and TCAC Darwin and Nadi were in the process of implementation noting official responses to regional State letters were expected in due time.
- Progress on SADIS data losses reported by some users were mostly due to local reception/equipment issues, but investigation continues noting delayed progress due to difficulties in establishing a Comparator at the UK Met Office.
- Ongoing harmonization work between SADIS and ISCS/WIFS continued in order to meet requirements of SADIS User Guide Annex 1.
- SCRAG/11, WAFSOPSG/6 and SADISOPSG/16 concurred with an access policy for Internet based services (SADIS FTP, Secure SADIS FTP and WIFS) for delivering WAFS data. Where the primary service was obtained by Internet, the selection of provider States would be based on the Regional Air Navigation Plans which was derived from current satellite footprints. Users would be permitted to obtain accounts for accessing the alternative providers Internet based services for backup/contingency purposes only.
 - The METG/21 Meeting was informed that this access policy was needed for administrative purposes and would allow the two WAFCs to manage accounts and resource allocations.
- Future requirements of a SADIS satellite broadcast beyond 2015 would be examined further by an ad-hoc team and recommendations were provided to the SADISOPSG/17 Meeting noting that 23 of 32 respondents identified a need for the continuation of the SADIS satellite broadcast, some States noted that their current legal position prohibited the use of aeronautical MET data disseminated by the Internet.
 - The Netherlands strongly endorsed the cessation of the satellite broadcast by 2015 in order to save costs to the users, the fact that the information of WAFC Washington would only be available via the Internet (WIFS), and that Internet issues in the AFI Region could possibly be resolved sooner than 2015
- Fourth round of SADIS Workstation Evaluations would be carried out in between end-2011 and mid-2013 in light of the introduction of GRIB2, Secure SADIS FTP and Amendment 75 to Annex 3.

APPENDIX C

INTERNATIONAL CIVIL AVIATION ORGANIZATION



Working Draft of the
MID SIGMET GUIDE

FIRST EDITION
October 2010

The designations and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of ICAO concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

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PART 1. INTRODUCTION

1.1 The main purpose of this document is to provide guidance for standardization and harmonization of the procedures and formats related to the occurrence or expected occurrence of specified hazardous en-route weather conditions which may affect the safety of aircraft and low-level aircraft operations, known as SIGMET information. The guidance is complementary to the Annex 3 standards and recommended practices (SARPS) regarding SIGMET, and to the SIGMET related provisions of the MID ANP/FASID (ICAO Doc 9708).

1.2 In respect of SIGMET messages, this document includes guidance concerning SIGMET messages for significant en-route weather phenomena, volcanic ash and tropical cyclone SIGMET messages.

1.3 ICAO provisions concerning the issuance and dissemination of SIGMET information are contained in:

- Annex 3 - *Meteorological Service for International Air Navigation*, Part I, Chapter 3, paragraphs 3.4 – 3.7, Chapter 7, paragraphs 7.1 – 7.2, and Part II, Appendix 6.
- MID Basic ANP, Part VI and FASID Table MET 1B, MET 2B, MET 3A and MET 3B.
- Annex 11 - *Air Traffic Services*, Chapter 4, paragraph 4.2.1 and Chapter 7, paragraph 7.1.
- PANS – *Air Traffic Management*, Doc 4444, Chapter 9, paragraph 9.1.3.2.

Additional guidance on the SIGMET procedures is contained in the *Manual of Aeronautical Meteorological Practice*, Doc 8896, and *Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services*, Doc 9377.

1.4 The SIGMET Guide is intended mainly to assist the meteorological watch offices (MWOs) in the MID Region in preparing and disseminating SIGMET information. It provides detailed information on the format of SIGMET messages as specified by Annex 3. The explanations of the format are accompanied by a number of examples based on region-specific meteorological phenomena. The guide also provides information regarding the necessary coordination between the MWOs, the ATS units and the pilots, and their respective responsibilities.

1.5 This document is prepared by the ICAO MID Regional Office. It should be reviewed and updated regularly in order to be kept in line with the ICAO SARPs and regional procedures. This first edition of the MID SIGMET Guide takes into account changes to SIGMET provisions resulting from the applicability of Amendment 75 to Annex 3 on 18 November 2010.

PART 2. RESPONSIBILITIES AND COORDINATION

2.1 General

2.1.1 SIGMET is warning information; hence it is of highest priority among other types of OPMET information provided to aviation users. The primary purpose of SIGMET is for in-flight service, which requires timely transmission of the SIGMET messages to pilots by the ATS units and/or through VOLMET and D-VOLMET.

2.1.2 Airlines are the main users of the SIGMET information. Pilots contribute to the effectiveness of the SIGMET service through issuance of special air-reports to the ATS units. Special air-reports are among the most valuable sources of information for the Meteorological Watch Offices (MWO) in the preparation of SIGMET. The ATS units receiving special air-reports should forward them to the associated MWOs without delay.

2.1.3 As seen from the above, the SIGMET service involves MET, ATS and pilots. In order for the SIGMET service to be effective, close coordination between these parties, as well as mutual understanding of the needs and responsibilities, should be maintained.

2.1.4 For the special case of SIGMET for volcanic ash, the MWOs are provided with advisories from the volcanic ash advisory centres (VAAC) designated in the Regional ANP.

2.1.5 SIGMET is also used for the flight planning. This requires global dissemination of SIGMET through the international OPMET data banks and the satellite broadcasts: ISCS and SADIS. SIGMET should also be distributed to the World Area Forecast Centres (WAFS) London and Washington for use in the preparation of the significant weather (SIGWX) forecasts.

2.1.6 In the next paragraphs, the main responsibilities and coordination links between MET, ATS and pilots are described.

2.2 Meteorological Watch Office – responsibilities and procedures related to SIGMET

2.2.1 SIGMET information is issued by the MWO in order to provide timely warning for the occurrence or expected occurrence of specified en-route weather phenomena, affecting the safety of the flight operations in the MWO's area of responsibility (AOR). SIGMET provides information concerning the location, extent, intensity and expected evolution of the specified phenomena.

2.2.2 Information about the provision of SIGMET service, including details on the designated MWO(s), should be included in the State's Aeronautical Information Publication (AIP) as specified in Annex 15, Aeronautical Information Service, Appendix 1, GEN 3.5.8.

2.2.3 All designated MWOs in the MID Region are listed in the FASID Table MET 1B of the MID FASID.

2.2.4 If, for some reason, a MWO is not able to meet its obligations, including the provision of SIGMET, arrangements have to be made by the meteorological authority concerned, that another MWO takes over these responsibilities for a certain period of time. Such delegation of responsibilities has to be notified by a NOTAM and a letter to the ICAO Regional Office.

2.2.5 Since the MWO is normally not a separate administrative unit, but part of the functions of an aerodrome meteorological office or another meteorological office, the meteorological authority concerned should ensure that the MWO obligations and responsibilities are clearly defined and assigned to the unit designated to serve as MWO. The corresponding operational procedures have to be established and the meteorological staff should be trained accordingly.

2.2.6 In preparing SIGMET information, the MWOs have to strictly follow the format determined in Annex 3 (detailed format description is provided in Appendix 6, Table A6-1 of Annex 3). SIGMET should be issued only for those weather phenomena listed in Annex 3 and only when specified criteria for intensity and spatial extent are met.

2.2.7 The MWOs should be adequately equipped in order to identify, analyse and forecast (to the extent required) those phenomena for which SIGMET is required. The MWO should make use of all available sources of information, such as special air-reports, information from meteorological satellites and weather radars, numerical predictions, etc.

2.2.8 On receipt of a special air-report from the associated ACC or FIC, the MWO should :

- a) issue the corresponding SIGMET information; or
- b) send the special air-report for on-ward transmission in case that the issuance of SIGMET information is not warranted (e.g., the phenomenon reported is of transient nature).

2.2.9 Appropriate telecommunication means have to be available at the MWO in order to ensure timely dissemination of SIGMETs according to a dissemination scheme, which includes transmission to:

- local ATS users;
- aeronautical MET offices within the AOR;
- other MWOs concerned (it should be ensured that SIGMET is sent to all MWOs whose AORs are, at least partly, within the 925 km (500 NM) range from the reported phenomenon);
- centres designated for transmission of VOLMET or D-VOLMET where SIGMET is required for transmission;
- the responsible Regional OPMET Centres (ROC) and international OPMET data banks (it should be arranged through the EUR RODEX scheme, that SIGMETs are sent to the designated OPMET data banks in other ICAO Regions, to the WAFCs and to the uplink stations of SADIS and ISCS);
- responsible TCAC or VAAC (if applicable) according to FASID Table MET 3A and MET 3B respectively; and

2.2.10 In issuing SIGMET for volcanic ash or tropical cyclone, the MWOs should take into consideration the advisory information received from the responsible VAAC or TCAC. In addition to the information received from the VAAC or TCAC, the MWOs may use available complementary information from other reliable sources. In such a case the responsibility for this additional information would lie completely on the MWO concerned.

2.3 *Responsibilities of ATS units*

2.3.1 Close coordination should be established between the MWO and the corresponding ATS unit (ACC or FIC), including arrangements in order to ensure:

- receipt without delay and display at the relevant ATS units of SIGMETs issued by the associated MWO;
- receipt and display at the ATS unit of SIGMETs issued by MWOs responsible for the neighbouring FIRs /ACCs if these SIGMETs are required according to paragraph 2.3.4 below ; and
- transmission without delay of special air-reports received through voice communication to the associated MWO.

2.3.2 SIGMET information should be transmitted to aircraft with the least possible delay on the initiative of the responsible ATS unit, by the preferred method of direct transmission followed by acknowledgement or by a general call when the number of aircraft would render the preferred method impracticable.

2.3.3 SIGMET information passed to aircraft should cover a portion of the route up to a flying time of two hours ahead of the aircraft.

2.3.4 Air traffic controllers should ascertain whether any of the currently valid SIGMETs may affect any of the aircraft they are controlling, either within or outside their AOR up to a flying time of two hours ahead of the current position of the aircraft. If this is the case, the controllers should transmit the SIGMET promptly to the aircraft-in-flight likely to be affected.

2.3.5 The ATS units have to transmit to the concerned aircraft-in-flight the special air reports received, for which SIGMET has not been issued. Once a SIGMET for the weather phenomenon reported in the special air report is made available, this obligation of the ATS unit expires.

2.4 *Responsibilities of pilots*

2.4.1 Timely issuance of SIGMET information is largely dependent on the prompt receipt by MWOs of special air reports. That is why, it is essential that pilots prepare and transmit such reports to the ATS units whenever any of the specified en-route conditions are encountered or observed.

2.4.2 It should be emphasized that, even when automatic dependent surveillance (ADS) is being used for routine air reports, pilots should continue to make special air reports.

2.5 *Coordination between MWOs and the VAACs and TCACs*

2.5.1 Amongst the phenomena for which SIGMET information is required, the volcanic ash clouds and tropical cyclones are of particular importance for the planning of long-haul flights.

2.5.2 Since the identification, analysis and forecasting of volcanic ash and tropical cyclones requires considerable technical and human resource, normally not available at each MWO, the Volcanic Ash Advisory Centres (VAAC) and Tropical Cyclone Advisory Centres (TCAC) have been designated to provide VA and TC advisories to the users and assist the MWOs in the preparation of the forecast part of the SIGMETs for those phenomena. Close coordination should be established between the MWO and its responsible TCAC and/or VAAC.

2.5.3 Information regarding the VAACs and TCACs serving the MID Region with their corresponding areas of responsibility and lists of MWOs to which advisories are to be sent is provided in the MET FASID Tables MET 3A and MET 3B.

2.5.4 TC and VA advisories are required for global exchange through the satellite distribution systems, SADIS and ISCS. They are used by the operators during the pre-flight planning. Nevertheless, it should be emphasized that SIGMET information is still of higher operational status and is required especially for in-flight re-planning. SIGMETs should be transmitted to aircraft-in-flight through voice communication or VOLMET or D-VOLMET thus providing vital information for making in-flight decisions regarding large-scale route deviations due to volcanic ash clouds or tropical cyclones.

PART 3. RULES FOR PREPARATION OF SIGMET INFORMATION

3.1 General

3.1.1 SIGMET information is prepared in abbreviated plain language using approved ICAO abbreviations, a limited number of non-abbreviated words, geographical names and numerical values of self-explanatory nature. All abbreviations and words to be used in SIGMET are given in **Appendix A**.

3.1.2 The increasing use of automated systems for handling MET information by the MET offices and the aviation users makes it essential that all types of OPMET information, including SIGMET, are prepared and transmitted in the prescribed standardized formats. Therefore, the structure and format of the SIGMET message, as specified in Annex 3, Part II, Appendix 6, should be followed strictly by the MWOs. Appendix 6 provides detailed information regarding the content and order of elements in the SIGMET message.

3.1.3 SIGMET is intended for transmission to aircraft in flight either by ATC or by VOLMET or D-VOLMET. Therefore, SIGMET messages should be kept short and clear, without additional descriptive text other than that prescribed in Annex 3.

3.1.4 After issuing a SIGMET, the MWO maintain watch over the evolution of the phenomenon for which the SIGMET has been issued and issue a new updated SIGMET when necessary. VA SIGMETs have to be updated at least every 6 hours.

3.1.5 SIGMETs should be promptly cancelled when the phenomenon is no longer occurring or no longer expected to occur in the MWO's area of responsibility. The SIGMET is understood to cancel itself automatically at the end of its validity period. If the phenomenon persists a new SIGMET message for a further period of validity has to be issued.

3.2 Types of SIGMET

3.2.1 Although Annex 3 provides one general SIGMET format, which encompasses all weather phenomena, it is convenient when describing the structure and format of the messages to distinguish between three types of SIGMET, as follows:

- SIGMET for en-route weather phenomena other than volcanic ash or tropical cyclones (this includes: TS, TURB, ICE, MTW, DS and SS); this SIGMET will be referred as WS SIGMET;
- SIGMET for volcanic ash (VA SIGMET) (to be referred also as WV SIGMET)
- SIGMET for tropical cyclones (TC SIGMET (to be referred also as WC SIGMET)).

3.2.2 The three types of SIGMET can be identified through the data type designator included in the WMO abbreviated heading of the SIGMET message, as explained in the following paragraphs.

3.3 Structure of the SIGMET message

3.3.1 A SIGMET message consists of:

- *WMO heading* – all SIGMETs are preceded by an appropriate WMO heading;
- *First line*, containing location indicators of the relevant ATS unit and MWO, sequential number and period of validity;
- *Meteorological part*, containing meteorological information concerning the phenomenon for which the SIGMET is issued;

3.3.2 The first two parts of the SIGMET message are common for all types of SIGMETs. The content and format of the meteorological part is different depending on the type of SIGMET. Therefore, in the following paragraphs, the meteorological part of the WS, WV and WC types of SIGMET is described separately.

3.4 Format of SIGMET

Note: In the following text, square brackets - [] - are used to indicate an optional or conditional element, and angled brackets - < > - for symbolic representation of a variable element, which in the real SIGMETs accepts concrete numerical values.

3.4.1 WMO Header

T₁T₂A₁A₂ii CCCC YYGGgg

3.4.1.1 The group **T₁T₂A₁A₂ii** is the bulletin identification for the SIGMET message. It is constructed in the following way:

T₁T₂	Data type designator	WS – for SIGMET WV – for SIGMET for volcanic ash WC – for SIGMET for tropical cyclone
A₁A₂	Country or territory designators	Assigned according to Table C1, Part II of Manual on the Global Telecommunication System, Vol I – Global Aspects (WMO - No. 386)
ii	Bulletin number	Assigned on national level according to paragraph 2.3.2.2, Part II of Manual on the Global Telecommunication System, Vol I – Global Aspects (WMO - No. 386)

3.4.1.2 **CCCC** is the ICAO location indicator of the communication centre disseminating the message (could be the same as the MWO).

3.4.1.3 **YYGGgg** is the date/time group, where YY is the date and GGgg is the time in hours and minutes UTC, of the transmission of the SIGMET (normally this is the time assigned by the AFTN centre which disseminates the message).

3.4.1.4 It is recommended to assign a unique WMO header for each SIGMET bulletin per FIR, CTA or UIR. The distinction between different SIGMET bulletins issued by the State's MWOs should be through the respective data type designator (T₁T₂) and bulletin number (ii).

Examples (fictitious AHL):

WSOM50 OOMS 231100
WVOM50 OOMS 011400
WCOM50 OOMS 161700

Note: A table with WMO SIGMET headers used by the MID Meteorological Watch Offices is included in Appendix B

3.4.2 First line of SIGMET

CCCC SIGMET [nn]n VALID YYGGgg/YYGGgg CCCC-

3.4.2.1 The meaning of the groups in the first line of the SIGMET is as follows:

CCCC	ICAO location indicator of the ATS unit serving the FIR or CTA to which the SIGMET refers
SIGMET	Message identifier
[nn]n	Daily sequence number (see paragraph 3.4.2.2)
VALID	Period of validity indicator
YYGGgg/YYGGgg	Validity period of the SIGMET given by date/time group of the beginning and date/time group of the end of the period (see paragraph 3.4.2.3)
CCCC-	ICAO location indicator of the MWO originating the message and – (hyphen, without space, to separate the preamble from the text)

3.4.2.2 The numbering of SIGMETs should start every day at 0001 UTC. The sequence number should consist of up to three symbols and may be a combination of letters and numbers, such as:

- 1, 2, ...
- 01, 02, ...
- A01, A02, ...

Examples:

**OOMM SIGMET 1 VALID 121100/121500 OOMS-
OEJD SIGMET 01 VALID 231300/231700 OEJD-**

Note 1: No other combinations should be used, like “CHARLIE 05” or “NR7”.

Note 2: Correct numbering of SIGMET is very important since the number is used for reference in the communication between ATC and pilots and in VOLMET and D-VOLMET.

3.4.2.3 The following has to be considered when determining the validity period:

- the period of validity of WS SIGMET should not exceed 4 hours;
- the period of validity of WV and WC SIGMET should be up to 6 hours;
- in case of a SIGMET for an observed phenomenon the filing time (date/time group in the WMO heading) should be same or close to the date/time group indicating the start of the SIGMET validity period;
- when the SIGMET is issued for an expected (forecast) phenomenon:
 - o the beginning of validity period should be the time of expected commencement (occurrence) of the phenomenon;
 - o the lead time (the time of issuance of the SIGMET) should be not more than 4 hours before the start of validity period (i.e., expected time of occurrence of the phenomenon); for VA and TC SIGMETs the lead time may be up to 12 hours.

3.4.2.4 The period of validity is the period during which the SIGMET is valid for transmission to aircraft in flight.

Examples:

1. SIGMET for an observed phenomenon:

**WSSD20 OEJD 231300
OEJD SIGMET 01 VALID 231300/231700 OEJD-**

2. SIGMET for a forecast phenomenon (expected time of occurrence 1530)

WSSD20 OEJD 231300

OEJD SIGMET 01 VALID 231530/231930 OEJD-

3.4.3 Format of the meteorological part of SIGMET messages for weather phenomena other than VA and TC

3.4.3.1 The meteorological part of a SIGMET consists of eight elements as shown in the table below.

Start of the second line of the message

1	2	3	4	5	6
Location indicator of the FIR/UIR or CTA	Name of the FIR or UIR or FIR/UIR or CTA	Description of the phenomenon	Observed or forecast	Location	Level
<CCCC>	<name> FIR [UIR, FIR/UIR, CTA]	<Phenomenon>	OBS [AT <GGggZ>] or FCST [AT <GGggZ>]	Geographical location of the phenomenon given by coordinates, or geographical objects, or location indicators	FL<nnn/nnn> or [SFC/]FL<nnn> or [SFC/]<nnnn>M or [SFC/]<nnnn>FT or TOP FL<nnn> or [TOP] ABV FL<nnn>

7	8
Movement or expected movement	Changes in intensity
MOV <direction, speed> KMH[KT], or STNR	INTSF or WKN or NC

3.4.3.1.1 Location indicator and name of the FIR, UIR, FIR/UIR or CTA

location indicator <name> FIR
or
location indicator <name> UIR
or
location indicator <name> FIR/UIR
or
location indicator <name> CTA

Example:

OOMM MUSCAT FIR

3.4.3.1.2 Phenomenon

The description of the phenomenon consists of a qualifier and a phenomenon abbreviation. SIGMET shall be issued only for the following phenomena (with only one phenomenon in each SIGMET):

at cruising levels (irrespective of altitude):

- thunderstorms – if they are OBSC, EMBD, FRQ or SQL with or without hail;
- turbulence – only SEV
- icing – only SEV with or without FZRA
- mountain waves – only SEV
- dust storm – only HVY
- sand storm – only HVY
- radioactive cloud – RDOACT CLD

The appropriate abbreviations and combinations thereof, and their meaning are given in **Appendix C**.

3.4.3.1.3 Indication if the phenomenon is observed or forecast

OBS [AT <GGggZ>]

or

FCST [AT <GGggZ>]

The indication whether the information is observed or forecast is given by the abbreviations OBS and FCST. OBS and FCST are optionally followed by a time group in the form AT GGggZ, where GGgg is the time of the observation or forecast in hours and minutes UTC. If the exact time of the observation or forecast is not known the time is not included.

Examples:

OBS AT 0140Z

FCST AT 0200Z

3.4.3.1.4 Location of the phenomenon

The location of the phenomenon is given with reference to geographical coordinates (latitude and longitude) or with reference to geographical features well known internationally. The MWOs should try to be as specific as possible in reporting the location of the phenomenon and, at the same time, to avoid overwhelming geographical information, which may be difficult to process or perceive.

The following are the most common ways to describe the location of the phenomenon:

- Indication of a part of the FIR with reference to latitude:
N OF or S OF <Nnn[nn]> or <Snn[nn]>
- indication of a part of the FIR with reference to a longitude:
E OF or W OF <Ennn[nn]> or <Wnnn[nn]>
- indication of a part of the FIR with reference to a latitude and longitude:
any combination of the above two cases;
- with reference to a location with ICAO location indicator CCCC (normally, this should be the case in a SIGMET based on a special air-report in which the reported phenomenon is given with reference to an airport or another object with an ICAO location indicator CCCC), or
- with reference to geographical features well known internationally.

More details on reporting of the location of the phenomenon are given in Appendix 6 to Annex 3 and in **Appendix D** to this Guide.

3.4.3.1.5 Flight level or altitude and extent

**[SFC]/FL<nnn>
or FL<nnn/nnn>
or [SFC]/<nnnn>M
or [SFC]/<nnnn>FT
or TOP FL<nnn>
or [TOP] ABV FL<nnn>**

The location or extent of the phenomenon in the vertical is given by one or more of the above abbreviations, as follows:

- reporting of single level – **FL<nnn>**;
- reporting of a layer – **SFC/FL<nnn>**, **SFC/<nnnn>M**, or **SFC/<nnnn>FT**, where the lower level is the surface and the upper level is a flight level, an altitude in metres or an altitude in feet respectively;
- reporting a layer using flight levels – **FL<nnn/nnn>**, where the lower flight level is reported first; this is used particularly in reporting turbulence and icing;
- reporting the top of a phenomenon with reference to one flight level – **TOP FL<nnn>**;
- reporting a phenomenon with reference to one flight level and the abbreviation ABV – **ABV FL<nnn>**;
- reporting the top of a phenomenon with reference to one flight level and the abbreviation ABV – **TOP ABV FL<nnn>**;

Examples:

**EMBD TS ... TOP ABV FL340
SEV TURB ... FL180/210
SEV ICE ... SFC/FL150
SEV MTW ... FL090**

3.4.3.1.6 Movement

**MOV <direction> <speed> KMH[KT]
or
STNR**

Direction of movement is given with reference to one of the sixteen points of compass. Speed of movement is given in KMH or KT. The abbreviation STNR is used if no significant movement is expected.

Examples:

**MOV NW 30KMH
MOV NNW 30KMH
MOV E 25KT**

3.4.3.1.7 Expected changes in intensity

The expected evolution of the phenomenon's intensity is indicated by one of the following abbreviations:

**INTSF – intensifying
WKN – weakening
NC – no change**

3.4.4 Structure of the meteorological part of VA SIGMET

3.4.4.1 The general structure of the meteorological part of the SIGMET message is given in the table below:

Start of the second line of the message

1	2	3		4
Location indicator of the FIR/UIR or CTA	Name of the FIR or UIR or FIR/UIR or CTA	Volcano		Volcanic ash cloud
		Name	Location	
<CCCC>	<name> FIR [UIR, FIR/UIR, CTA]	[VA ERUPTION] [MT <name>]	[PSN <position>]	VA CLD OBS [AT <GGggZ>] or VA CLD FCST [AT GGggZ]

5			6
Extent of the cloud			Expected movement
Location	Vertical	Horizontal	
Location (referring to latitude and longitude (in degrees and minutes) or locations or geographic features well known internationally)	FL<nnn/nnn>	[APRX <nnn>KM BY <nnn>KM] or [APRX <nnn>NM BY <nnn>NM]	MOV <direction> <speed>

7	
Volcanic ash cloud forecast at the end of the period of validity	
FCST time	Position
FCST <GGggZ>	VA CLD APRX <lat,lon> - <lat,lon> - ...

3.4.4.2 Name and location of the volcano and/or indicator for VA cloud

[VA ERUPTION] [MT <name>] [PSN <lat,lon>] VA CLD
or
VA CLD

3.4.4.2.1 The description of the volcano injecting volcanic ash consists of the following elements:

- the term **VA ERUPTION** is used when the SIGMET is issued for a known volcanic eruption;
- geographical/location information:
 - i. if the name of the volcano is known, it is given by the abbreviation **MT** – mountain, followed by the name, e.g. **MT RABAU**
 - ii. the position of the volcano is given by the abbreviation **PSN**, followed by the latitude and longitude in degrees and minutes, e.g. **PSN N3520 E09040**
- this section of the message ends with the abbreviation **VA CLD** – volcanic ash cloud.

3.4.4.2.2 If the FIR is affected by a VA cloud with no information about the volcanic eruption which generated the cloud, only the abbreviation **VA CLD** shall be included in the SIGMET.

3.4.4.3 Time of VA CLD observation or forecast

VA CLD OBS [AT <GGgg>Z]
or
VA CLD FCST [AT <GGgg>Z]

The time of observation is taken from the source of the observation – satellite image, special air- report, report from a ground volcano logical station, etc. If the VA cloud is not yet observed over the FIR but the volcanic ash advisory received from the responsible VAAC indicates that the cloud is affecting the FIR after certain time, SIGMET shall be issued, and the abbreviation VA CLD FCST [AT <GGgg>Z] shall be used.

Examples:

VA CLD OBS AT 0100Z

VA CLD FCST AT 1200Z

3.4.4.4 Level and extent of the volcanic ash cloud

<P1(lat,lon) - P2(lat,lon) - ... > FL<nnn/nnn> [APRX <nnn>KM BY <nnn>KM] or
<P1(lat,lon) - P2(lat,lon) - ... > FL<nnn/nnn> [APRX <nnn>NM BY <nnn>NM]

<P1(lat,lon) – P2(lat,lon) - ... >	Approximate description of the VA cloud by a number of points given with their geographical coordinates ¹ ; the points shall be separated by hyphen
FL<nnn/nnn>	The layer of the atmosphere where the VA cloud is situated, given by two flight levels from the lower to the upper boundary of the cloud
[APRX <nnn>KM BY <nnn>KM] or [APRX <nnn>NM BY <nnn>NM]	Approximate horizontal extent of the VA cloud in KM or NM

If the VA cloud spreads over more than one FIR, separate SIGMETs shall be issued by all MWOs whose FIRs are affected. In such a case, the description of the volcanic ash cloud by each MWO should encompass the part of the cloud, which lies over the MWO's area of responsibility. The MWOs should try to keep the description of the volcanic ash clouds consistent by checking the SIGMET messages received from the neighbouring MWOs.

Examples:

N0100 E09530 – N1215 E11045 FL100/180 APRX 10KM BY 50KM

S0530 E09300 – N0100 E09530 – N1215 E11045 FL 150/210

3.4.4.5 Movement or expected movement of the VA cloud

MOV <direction> <speed>

The direction of movement is given by the abbreviation **MOV** – moving, followed by one of the sixteen points of compass: N, NNE, NE, ENE, E, ESE, SE, SSE, S, SSW, SW, WSW, W, WNW, NW, NNW. The speed of movement is given in KMH or KT.

Examples:

MOV E 35 KMH

MOV SSW 20 KT

STNR

¹ The format of geographical coordinates reporting in SIGMET is given in **Appendix D**.

3.4.4.6 Forecast position of the VA cloud at the end of the validity period of the SIGMET message

FCST <GGggZ> VA CLD APRX <P1(lat,lon) - P2(lat,lon) - ... >

3.4.4.6.1 The **GGggZ** group should indicate the end of the validity period given in the first line of the SIGMET message. The description of the expected position of the volcanic ash cloud is given by a number of points forming a simplified geometrical approximation of the cloud.

3.4.4.6.2 In describing the VA cloud, up to four different layers can be used, indicated by flight levels in the form FL<nnn/nnn>. The use of more than one level is necessary when the wind direction changes with height which causes the VA cloud to spread into different directions at different heights.

3.4.5 Structure of the meteorological part of TC SIGMET

3.4.5.1 The general structure of the meteorological part of the TC SIGMET is given in the table below:

Start of the second line of the message

1	2	3	4		5
Location indicator of the FIR/UIR or CTA	Name of the FIR or UIR or FIR/UIR or CTA	TC name	Observed or forecast		Extent
			Time	Location of TC centre	
<CCCC>	<name> FIR [UIR, FIR/UIR, CTA]	TC <name> or TC NN	OBS [AT <GGgg>Z] or FCST [AT <GGgg>Z]	<lat,lon>	CB TOP [ABV or BLW] FL<nnn> WI <nnn> KM[NM] OF CENTRE

6	7	8
Expected movement	Intensity change	Forecast of the centre position at the end of the validity period
MOV <direction> <speed> KMH[KT] or STNR	INTSF or WKN or NC	FCST <GGgg>Z TC CENTRE <lat,lon>

3.4.5.2 Name of the tropical cyclone

**TC <name>
TC NN**

Note: NN used for unnamed tropical cyclones.

The description of the tropical cyclone consists of the abbreviation TC followed by the international name of the tropical cyclone given by the corresponding WMO RSMC. If the TC has not yet been given a name, the abbreviation NN shall be used.

Examples:

**TC GLORIA
TC 04B
TC NN**

3.4.5.3 Time of observation or indication of forecast

OBS [AT <GGgg>Z]

or

FCST [AT <GGgg>Z]

The time in UTC is given in hours and minutes, followed by the indicator Z. Normally, time is taken from own observations or from a TC advisory received from the responsible TCAC. If the TC is not yet observed in the FIR but the tropical cyclone advisory received from the responsible TCAC, or any other TC forecast used by the MWO, indicates that the TC is going to affect the FIR within the next 12 hrs, SIGMET should be issued and the abbreviation FCST should be used.

Examples:

OBS AT 2330Z

FCST AT 1400Z

3.4.5.4 Location of the TC centre

<location>

The location of the TC centre is given by its lat, lon coordinates in degrees and minutes.

Examples:

N1535 E14230

3.4.5.5 Vertical and horizontal extent of the CB cloud formation around TC centre

CB TOP [ABV or BLW] <FLnnn> WI <nnnKM or nnnNM> OF CENTRE

Examples:

CB TOP ABV FL450 WI 200NM OF CENTRE

CB TOP FL500 WI 250KM OF CENTRE

3.4.5.6 Movement or expected movement

MOV <direction> <speed>KMH[KT]

or

STNR

Direction of movement is given with reference to one of the sixteen points of compass. Speed is given in KMH or KT. The abbreviation STNR is used if no significant movement is expected.

Examples:

MOV NW 30KMH

MOV NNW 30KMH

MOV E 25KT

3.4.5.7 Intensity change

The expected change of the intensity of the tropical cyclone is indicated by one of the following abbreviations:

INTSF – intensifying

WKN – weakening

NC – no change

3.4.5.8 Forecast location of the TC centre at the end of the validity period of the SIGMET Message**FCST <GGgg>Z TC CENTRE <location>**

Normally, the time given by GGggZ should be the same as the end of validity period indicated in the first line of the SIGMET message. Since the period of validity is up to 6 hours (normally, 6 hours), this is a 6-hour forecast of the position of the TC centre.

The location of the TC centre is given by its lat, lon coordinates following the general rules of reporting lat, lon information provided in **Appendix D** to this Guide.

Examples:

FCST 1200Z TC CENTRE N1430 E12800

3.4.6 **Cancellation of SIGMET**

3.4.6.1 If, during the validity period of a SIGMET, the phenomenon for which the SIGMET had been issued is no longer occurring or no longer expected, this SIGMET should be cancelled by the issuing MWO. The cancellation is done by issuing the same type of SIGMET with the following structure:

- WMO heading with the same data type designator;
- first line, including the next sequence number followed by a new validity period, and
- second line, which contains the location indicator and name of the FIR or CTA, the combination CNL SIGMET, followed by the sequential number of the original SIGMET and its validity period.

Examples:

1. Cancellation of a WS or WC SIGMET with the following first line

**WSXY31 YUSO 101200
YUDD SIGMET 5 VALID 101200/101600 YUSO-
YUDD SHANLON FIR ...**

Cancellation SIGMET:

**WSXY31 YUSO 101430
YUDD SIGMET 6 VALID 101430/101600 YUSO-
YUDD SHANLON FIR CNL SIGMET 5 101200/101600=**

2. Cancellation of a VA SIGMET

**WVXY31 YUSO 131518
YUDD SIGMET 03 VALID 131515/132115 YUSO-
YUDD SHANLON FIR ...**

Cancellation SIGMET:

**WVXY31 YUSO 132000
YUDD SIGMET 04 VALID 132000/132115 YUSO-
YUDD SHANLON FIR CNL SIGMET 03 13151500/132115 VA MOV TO YUDO FIR=**

APPENDIX A

List of the abbreviations and decode used in SIGMET

Abbreviation	Decode
ABV	Above
AND*	And
APRX	Approximate or approximately
AT	At <i>(followed by time)</i>
BLW	Below
BY*	By
CB	Cumulonimbus
CENTRE*	Centre <i>(used to indicate tropical cyclone centre)</i>
CLD	Cloud
CNL	Cancel or cancelled
CTA	Control area
DS	Duststorm
E	East or eastern longitude
EMBD	Embedded in layer <i>(to indicate CB embedded in layers of other clouds)</i>
ENE	East-Northeast
ERUPTION*	Eruption <i>(used to indicate volcanic eruption)</i>
ESE	East-Southeast
FCST	Forecast
FIR	Flight information region
FL	Flight level
FRQ	Frequent
FZRA	Freezing rain
GR	Hail
HVY	Heavy <i>(used to indicate intensity of weather phenomena)</i>
ICE	Icing
INTSF	Intensify or intensifying
ISOL	Isolated
KM	Kilometres
KMH	Kilometres per hour
KT	Knots
LINE	Line
MOD	Moderate <i>(used to indicate intensity of weather phenomena)</i>
MOV	Move or moving or movement
MPS	Metres per second
MT	Mountain
MTW	Mountain waves
N	North or northern latitude
NC	No change
NE	North-east
NM	Nautical miles
NNE	North-Northeast
NNW	North-Northwest
NW	North-west
OBS	Observe or observed or observation
OBSC	Obscure or obscured or obscuring
OCNL	Occasional or occasionally
OF*	Of ... <i>(place)</i>
PSN	Position
RA	Rain
RDOACT*	Radioactive

Abbreviation	Decode
S	South <i>or</i> southern latitude
SE	South-east
SEV	Severe (<i>used e.g. to qualify icing and turbulence reports</i>)
SIGMET	Information concerning en-route weather phenomena which may affect the safety of aircraft operations
SQL	Squall line
SS	Sandstorm
SSE	South-Southeast
SSW	South-Southwest
STNR	Stationary
SW	South-west
TC	Tropical cyclone
TO	To ... (<i>place</i>)
TOP	Cloud top
TS	Thunderstorm
TURB	Turbulence
UIR	Upper flight information region
VA	Volcanic ash
VALID*	Valid
W	West <i>or</i> western longitude
WI	Within
WID	Width
WNW	West-Northwest
WSW	West-Southwest
Z	Coordinated Universal Time (<i>used in meteorological messages</i>)

* not in the ICAO Doc 8400, ICAO Abbreviations and Codes

APPENDIX B

List of MID SIGMET (WS, WV and WC) headers

State	MWO name (Doc 7910)	MWO Loc. Ind.	WS AHL	WV AHL	WC AHL	FIR Name (Doc 7910)	FIR Loc. Ind.	ATSU serving the FIR
BAHRAIN	BAHRAIN INTERNATIONAL	OBBI	WS[AAii] [CCCC]	WV[AAii] [CCCC]	WC[AAii] [CCCC]	BAHRAIN	OBBI	OBBI
EGYPT	CAIRO/INTL	HECA	WS[AAii] [CCCC]	WV[AAii] [CCCC]	N/A	CAIRO	HECC	HECC
IRAN (ISLAMIC REPUBLIC OF)	TEHRAN/MEHRABAD INTL	OIII	WS[AAii] [CCCC]	WV[AAii] [CCCC]	WC[AAii] [CCCC]	TEHRAN	OIIX	OIIX
IRAQ	BAGHDAD INTERNATIONAL AIRPORT	ORBI	WS[AAii] [CCCC]	WV[AAii] [CCCC]	N/A	BAGHDAD	ORBB	ORBS
ISRAEL	TEL AVIV/BEN CURION AIRPORT	LLBG	WS[AAii] [CCCC]	WV[AAii] [CCCC]	N/A	TEL AVIV	LLLL	LLAD
JORDAN	AMMAN/QUEEN ALIA	OJAI	WS[AAii] [CCCC]	WV[AAii] [CCCC]	N/A	AMMAN	OJAC	OJAC
KUWAIT	KUWAIT/INTL AIRPORT	OKBK	WSKW10 OKBK	WVKW10 OKBK	WCKW10 OKBK	KUWAIT	OKAC	OKAC
LEBANON	BEIRUT/BEIRUT INTL	OLBA	WS[AAii] [CCCC]	WV[AAii] [CCCC]	N/A	BEIRUT	OLBB	OLBA
OMAN	MUSCAT/SEEB INTL	OOMS	WS[AAii] [CCCC]	WV[AAii] [CCCC]	WC[AAii] [CCCC]	MUSCAT	OOMM	OOMM
SAUDI ARABIA	JEDDAH/KING ABDULAZIZ INTL	OEJN	WSSD20 OEJD	WVSD20 OEJD	WCSD20 OEJD	JEDDAH	OEJD	OEJD
SYRIAN ARAB REPUBLIC	DAMASCUS/INTL	OSDI	WS[AAii] [CCCC]	WV[AAii] [CCCC]	N/A	DAMASCUS	OSTT	OSDI
UNITED ARAB EMIRATES	ABU DHABI INTERNATIONAL	OMAA	WS[AAii] [CCCC]	WV[AAii] [CCCC]	WC[AAii] [CCCC]	EMIRATES	OMAE	OMAE
YEMEN	SANAA/INTL	OYSN	WS[AAii] [CCCC]	WV[AAii] [CCCC]	WC[AAii] [CCCC]	SANAA	OYSC	OYSN

Note 1: Qatar is not indicated in the above table, since it has no FIR area of responsibility.

Note 2: The AHL for each of the WS, WV and WC SIGMETs (highlighted above) is to be completed based on information provided by the State(s) concerned following consultation.

APPENDIX C

Meteorological phenomena to be reported by SIGMET

Phenomenon	Description	Meaning
Thunderstorm (TS)	OBSC ² TS EMBD ³ TS FRQ ⁴ TS SQL ⁵ TS OBSC TSGR EMBD TSGR FRQ TSGR SQL TSGR	Obscured thunderstorm(s) Embedded thunderstorm(s) Frequent thunderstorm(s) Squall line thunderstorm(s) Obscured thunderstorm(s) with hail Embedded thunderstorm(s) with hail Frequent thunderstorm(s) with hail Squall line thunderstorm(s) with hail
Tropical cyclone (TC)	TC (+ TC name)	Tropical cyclone (+ TC name)
Turbulence (TURB)	SEV TURB ⁶	Severe turbulence
Icing (ICE)	SEV ICE SEV ICE (FZRA)	Severe icing Severe icing due to freezing rain
Mountain wave (MTW)	SEV MTW ⁷	Severe mountain wave
Duststorm (DS)	HVY DS	Heavy duststorm
Sandstorm (SS)	HVY SS	Heavy sandstorm
Volcanic ash cloud (VA)	VA (+ volcano name, if known)	Volcanic ash (+ volcano name)
Radioactive cloud	RDOACT CLD	Radioactive cloud

Notes:

1. Only one of the weather phenomena listed should be selected and included in each SIGMET
2. Obscured (**OBSC**) indicates that the thunderstorm is obscured by haze or smoke or cannot be readily seen due to darkness
3. Embedded (**EMBD**) – indicates that the thunderstorm is embedded within cloud layers and cannot be readily recognized
4. Frequent (**FRQ**) indicates an area of thunderstorms within which there is little or no separation between adjacent thunderstorms with a maximum spatial coverage greater than 75% of the area affected, or forecasts to be affected, by the phenomenon (at a fixed time or during the period of validity)
5. Squall line (**SQL**) indicates thunderstorms along a line with little or no space between individual clouds
6. Severe (**SEV**) turbulence (**TURB**) refers only to:
 - low-level turbulence associated with strong surface winds;
 - rotor streaming;
 - turbulence whether in cloud or not in cloud (CAT) near to jet streams.
 - Turbulence is considered severe whenever the peak value of the cube root of the eddy dissipation rate (EDR) exceeds 0.7.
7. A mountain wave (**MTW**) is considered:
 - severe – whenever an accompanying downdraft of 3.0 m/s (600 ft/min) or more and/or severe turbulence is observed or forecasted..

APPENDIX D***Guidelines for reporting geographical coordinates in SIGMET***

When reporting geographical coordinates of points in SIGMET the following should apply:

1. Each point is represented by latitude/longitude coordinates in whole degrees or degrees and minutes in the form:

N(S)nn[nn] W(E)nnn[nn]

Note: There is a space between the latitude and longitude value.

Examples:

N3623 W04515

S1530 E12500

N42 E023

2. In describing lines or polygons, the latitude, longitude coordinates of the respective points are separated by the combination space-hyphen-space, as in the following examples:

S0530 E09300 – N0100 E09530 – N1215 E11045 – S0820 E10330

S05 E093 – N01 E095 – N12 E110 – S08 E103

Note1: It is not necessary to repeat the first point when describing a polygon.

Note 2: In the case of the same phenomenon covering more than one area within the FIR, these elements may be repeated, as necessary.

3. When describing a volcanic ash cloud approximate form and position, a limited number of points, which form a simplified geometric figure (a line, or a triangle, or quadrangle, etc.) should be used in order to allow for a straightforward interpretation by the user.

APPENDIX D

7.5 Summary of OPMET data issuance

7.5.1 In response to APANPIRG/20 Conclusion 20/62, a summary of correct methods of issuing OPMET data are provided in the following two tables (adapted further with input provided by Regional OPMET Data Bank Singapore – highlighted in yellow)

METAR observation, compiling and filing

Function	Responsible Entity	Explanation of Time	Time of task (min)
METAR Observation	Originating stations (AMS, AMO, forecast office, MWO, TCAC, VAAC)	State determines how often and when (emphasis on consistency, i.e. 50 minutes past the hour every hour every day) Examples : HH+00, HH+30, HH+10, HH+50 Note that the observation time is used in the METAR report	0
Send METAR observation to NOC	Orig station		<5
Send METAR observations to ROBEX Centre	NOC		
Bulletin compiling and filing	ROBEX Bulletin Compiling Centre	Up to 5 minutes after actual time of observation (ref.: Annex 3, App. 10, 2.1.2) Note that the observation time of the METAR is used in the DTG – YYGGgg of the bulletin header Note that the filing time is used in the AFTN header and should be up to 5 minutes after the observation time given in the bulletin header also referred to as the WMO Abbreviated Heading in the ROBEX HB	
Send METAR bulletin to: ROBEX Centres (predefined distribution list) RODBs NOCs Other MET offices	ROBEX Centre <i>via AFTN</i>	Up to 5 minutes (10 minutes for distances greater than 900 km) (ref.: Annex 3, App. 10, 1.1)	<5 (<10 for distances > 900 km)
Acceptable time from observation at originating stations to reception by user			<10 (<15 mins for distances > 900 km)

TAF issuance, compiling and filing

Function	Responsible Entity	Explanation of Time	Time of task (min)
TAF Issuance	AMO or NOC	<p>State determines time of 4 scheduled TAFs (emphasis on consistency, i.e. 00, 06, 12, 18Z every day)</p> <p>Note that issuance time of TAF (which is one hour before the start period of validity of the TAF) is used in the date/time group (DTG) (YYGGggZ) of TAF messages</p> <p>TAF is sent to ROBEX Centre before the cutoff time of accepting TAF for filing one hour before the start period of validity time (typically 15 minutes before filing)</p>	<p>(allow enough time to reach ROBEX Centre before cutoff time – typically 15 minutes before the filing time or one-hour and 15 minutes before the start period of validity)</p> <p>Ex: TAF to be valid at 0600 is sent to ROBEX Centre by 0445</p>
Bulletin compiling and filing	ROBEX Centre	<p>Bulletins are compiled during the 15 minutes before filing</p> <p>Note that the TAF issuance time (official filing time) is used in the DTG – YYGGgg of the bulletin header</p> <p>Note that the <u>actual</u> filing time is used in the AFTN header and should be after the time given in the bulletin header also referred to as the WMO Abbreviated Heading in the ROBEX HB</p> <p>TAF should be filed for transmission at least one hour before the commencement of their period of validity, unless otherwise determined by regional air navigation agreement.</p> <p>(ref.: Annex 3, App. 10, 2.1.2)</p>	<p><15</p> <p>Ex: TAF bulletin compiled between 0445 and 0500 and filed for transmission</p>
Send TAF bulletin to: ROBEX Centres (predefined distribution list) RODBs NOCs Other MET offices	ROBEX Centre <i>via AFTN</i>	<p>Up to 5 minutes (10 minutes for distances greater than 900 km)</p> <p>(ref.: Annex 3, App. 10, 1.1)</p>	<p><5 (<10 for distances > 900 km)</p>
Acceptable time for ROBEX BCC compiling and filing to reception by user			<p><20 (<25 for distances > 900 km)</p>

APPENDIX E**TERMS OF REFERENCE OF THE MID OPMET BULLETIN MANAGEMENT GROUP
(MID OPMET BMG)****1. Terms of Reference**

- a) Review the OPMET exchange schemes in 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) Liaise with similar groups in the adjacent ICAO Regions in order to ensure harmonized and seamless OPMET exchange; and
- e) 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) provide regular progress reports to MET SG meetings.

3. Composition

- a) The OPMET/BMG is composed by experts from Egypt, Iran, 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 OPMET Data Management Group (DMG), 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.

APPENDIX F

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

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 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 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, the MWOs and ACCs 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, MWO and VAAC. FASID Table MET 3C sets out the selected State volcano observatories and the VAACs, MWOs and ACCs to which the notification should be sent by the observatories.
[IAVWOPSG Conclusion 3/2]

EXCHANGE OF OPERATIONAL METEOROLOGICAL INFORMATION (FASID Tables MET 2A, 2B, 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).

25. FASID Table MET 2B 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 2B).
[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 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 ~~disseminated~~ made available by WAFC London using the satellite distribution system for information relating to air navigation (SADIS) ~~covering the reception area shown in FASID Chart COM-7~~ or using the SADIS FTP service.
[WAFSOPSG Conclusion ~~4/2~~ 6/2]

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

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

www/icao.int/anb/sadisopsg (click: “Status of implementation”) for SADIS
[WAFSOPSG Conclusion ~~5/2~~ 6/2]

APPENDIX G

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 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. ~~experimental forecasts which are expected to become available by the end of 2009.~~

Search :.....

MID MET DEFICIENCIES

Total Number of Deficiencies is: 3

Deficiencies in the MET field									
IRAN									
Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 3 Chapter 6 Para 6.2.6. MID ANP Doc 9706 Volume I (Basic ANP) Part VI (MET) Para 9.	Provision of 30-hour aerodrome forecasts (TAF)	No international exchange requirement for 18-hour validity long-TAF in the MID Region. Only 30-hour validity long-TAF should be available internationally for OIFM, OISS and OITT.	Dec 2009	Follow-up of MIDANPIRG METSG/2 report. State Letter ME 3/56.14-10/091 issued 15 March 2010.	F H O Only 30-hour validity long-TAF should be available internationally for OIFM, OISS and OITT. Availability of 18-hour long-TAF for these aerodromes should cease.	Iran	Dec 2010	A

MID MET DEFICIENCIES

Deficiencies in the MET field										
IRAQ										
Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination		Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 3, App. 3, 3.1 and App. 5, 1.6	Provision of OPMET data (METAR and TAF) to international OPMET data banks	OPMET data not available at Vienna RODB	Jun 2008	-	F H O	-	Iraq	Dec 2011	A

MID MET DEFICIENCIES

Deficiencies in the MET field									
SYRIA									
Item No	Identification		Deficiencies			Corrective Action			
	Requirement	Facilities/ Services	Description	Date first reported	Remarks/ Rationale for non-elimination	Facilities/ Services	Executing body	Date of completion	Priority for action
1	Annex 3 Chapter 6 Para 6.2.6. MID ANP Doc 9706 Volume I (Basic ANP) Part VI (MET) Para 9.	Provision of 24- or 30-hour aerodrome forecasts (TAF)	No international exchange requirement for 9-hour validity short-TAF or 18-hour long-TAF. Only 24- or 30-hour validity long-TAF should be exchanged internationally.	Dec 2009	Follow-up of MIDANPIRG METSG/2 report. State Letter ME 3/56.14-10/093 issued 15 March 2010.	F H O Only 24- or 30-hour long-TAF should be available internationally for OSAP, OSDI and OSLK. Availability of 9-hour short-TAF or 18-hour long-TAF for these aerodromes should cease.	Syria	Dec 2010	A

APPENDIX I

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
- 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
- f) Maintain the MET part 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-