INTERNATIONAL CIVIL AVIATION ORGANIZATION

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

REPORT OF THE FIRST MEETING OF MET SUB-GROUP

(Cairo, Egypt, 23 – 25 June 2008)

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

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

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PART I: HISTORY OF THE MEETING

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1. PLACE AND DURATION

1.1 The first meeting of MET Sub-Group was held at the conference hall of the ICAO MID Regional Office in Cairo, Egypt 23 – 25 June 2008.

2. OPENING

2.1 The ICAO Regional Director, Mr. Mohamed R. M. Khonji welcomed all participants. He expressed special gratitude to participants representing Service Provider States from outside the MID Region, Austria, France and the United Kingdom, and the representative of IFALPA.

2.2 In his opening address, Mr. Khonji recalled that this was the first meeting of the MET Sub-Group which was formed with the establishment of the new organizational structure of the MIDANPIRG. The new structure was aimed at increasing efficiency and aligning the work programme of the MIDANPIRG and its contributory bodies with the new regional planning methodologies precipitated by the Global Air Navigation Plan and ICAO Business Planning requirements.

2.3 He pointed out that the MET SG will not start from scratch but will continue the work conducted by the CNS/MET SG for a number of years. It was expected that MET Sub-Group as a separate meeting of MIDANPIRG would attract more MET experts from the MID Sates to attend its meetings which will result in a more efficient and productive work.

2.4 Mr. Khonji outlined the main issues to be addressed according to the agenda of the meeting. He emphasized, in particular, that the meeting should accord high priority on the identification and reporting of deficiencies in the MET field.

3. ATTENDANCE

3.1 The meeting was attended by a total of thirty one (31) participants, including experts from eleven (11) States (Austria, Bahrain, Egypt, France, Jordan, Kuwait, Oman, Saudi Arabia, Sudan, United Arab Emirates and United Kingdom) and (1) one Organization (IFALPA). The list of participants is at the **Attachment A** to the Report.

4. OFFICERS AND SECRETARIAT

4.1 The meeting elected Mr. Ahmed Hamood Al Harthi, Director Operations and Technical Services, DGMAN, from Oman as the chairperson, and Mr. Mohamed Saad Mohamed Ismail, Forecaster Director Meteorology Office, EMA, from Egypt as Vice-Chairman.

4.2 The Secretary of the meeting was Mr. Dimitar Ivanov, Regional Officer ANS Implementation (MET), ICAO EU/NAT Office, assisted by Mr. Mohamed Smaoui, Regional Officer Aeronautical Information & Charts/Meteorology, ICAO MID Office.

5. LANGUAGE

5.1 Discussions were conducted in English and documentation was issued in English.

6. AGENDA

6.1 The following Agenda was adopted:

Agenda Item 1: Adoption of Provisional Agenda and Election of Chairpersons

Agenda Item 2: Follow-up on MIDANPIRG/10 Conclusions and Decisions relevant to the MET field

Agenda Item 3: Review implementation of the WAFS in the MID Region

Agenda Item 4: Review of the SADIS distribution of meteorological information in the MID Region

Agenda Item 5: Review implementation of the International Airways Volcano Watch (IAVW) and the tropical cyclones warnings system in the MID Region

Agenda Item 6: Review of the procedures and requirements for OPMET data exchange

Agenda Item 7: Review of the MET provisions in the MID BANP/FASID

Agenda Item 8: Identification, assessment and reporting of MET deficiencies

Agenda Item 9: Institutional matters related to MET

Agenda Item 10: Future work programme

Agenda Item 11: Any other business

7. CONCLUSIONS AND DECISIONS – DEFINITION

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

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

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

8. LIST OF DRAFT CONCLUSIONS AND DRAFT DECISIONS

DRAFT CONCLUSION 1/1: *PROVIDING MID STATES WITH INFORMATION ON RECENT AND FORTHCOMING DEVELOPMENTS TO WAFS AND SADIS*

DRAFT CONCLUSION 1/2: *SADIS STRATEGIC ASSESSMENT TABLES*

DRAFT DECISION 1/3:	*FINALIZING THE MID SIGMET TEST PROCEDURES*
DRAFT CONCLUSION 1/4:	*CONDUCTING REGULAR SIGMET TESTS IN THE MID REGION*
DRAFT CONCLUSION 1/5:	*IMPROVING THE PROCEDURES FOR SENDING OPMET DATA TO IROG VIENNA*
DRAFT DECISION 1/6:	*ACTIVATION OF MID OPMET BULLETIN MANAGEMENT GROUP (BMG)*
DRAFT CONCLUSION 1/7:	*PROPOSAL FOR AMENDMENT OF THE MET PART OF THE MID BASIC ANP (DOC 9708)*
DRAFT DECISION 1/8:	*REVIEW AND AMENDMENT OF THE FASID MET TABLES*
DRAFT CONCLUSION 1/9:	*FOSTERING THE IMPLEMENTATION OF QMS FOR THE PROVISION OF METEOROLOGICAL SERVICE FOR INTERNATIONAL AIR NAVIGATION*
DRAFT CONCLUSION 1/10:	*REGIONAL SURVEY ON THE IMPLEMENTATION OF THE MET SERVICES AND FACILITIES*
DRAFT DECISION 1/11:	*REVISED TERMS OF REFERENCE OF THE MET SUB-GROUP*

PART II: REPORT ON AGENDA ITEMS

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

1.1 The meeting unanimously elected Mr. Ahmed Hamood Al Harthi, Director Operations and Technical Services, DGMAN, Oman as Chairman and Mr. Mohamed Saad Mohamed Ismail, Forecaster Director Meteorology Office, EMA, Egypt as Vice-Chairman for the MET Sub-Group.

1.2 The meeting was presented with the Provisional Agenda and was informed that it was established in support of the ICAO Strategic Objectives 2005-2010. The Provisional Agenda focuses on the harmonized implementation of the meteorological services in the MID Region, identification and reporting of deficiencies and increasing the efficiency of the group in fulfilling its tasks determined by MIDANPIRG.

1.3 After review the meeting adopted the Agenda as shown in paragraph 6 of the History of the Meeting.

REPORT ON AGENDA ITEM 2: FOLLOW-UP ON MIDANPIRG CONCLUSIONS AND DECISIONS RELEVANT TO MET FIELD

2.1 The meeting recalled that MIDANPIRG/10 meeting, held in Doha, Qatar, from 15 to 19 April 2007, adopted six Conclusions and one Decision related to the work of the MET Sub-Group.

2.2 The meeting reviewed the follow-up action taken on the Conclusions and Decisions and noted that the action on three of the Conclusions and one Decision has been completed. The meeting agreed to address the three outstanding Conclusions under agenda items 5, 6, 8 and 10.

2.3 The status of the follow-up action on the MET related Conclusions and Decisions of MIDANPIRG/10, as updated by the meeting, is presented at **Appendix 2A** to the Report on Agenda Item 2.

MET SG/1
Appendix 2A to the Report on Agenda Item 2

FOLLOW-UP ACTION ON RELEVANT MIDANPIRG/10 CONCLUSIONS AND DECISIONS

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
DEC. 10/69: DISSOLVING THE CNS/MET SUB-GROUP AND ESTABLISHMENT OF A CNS SUB-GROUP AND A MET SUB-GROUP That, a) the CNS/MET Sub-Group is dissolved; and b) a separate CNS Sub-Group and a separate MET Sub-Group are established.	Conduct CNS SG/1 and MET SG/1 meetings and follow up work programmes	ICAO States	- CNS SG/1 Report - MET SG/1 Report	Sept 2007 July 2008	Completed
CONC. 10/71: INTERNATIONAL SADIS SEMINAR That, the SADIS Provider State be invited to consider arranging, in coordination with ICAO, an international SADIS seminar in the MID Region to support the transition to the SADIS Second Generation (2G) service	Coordination with SADIS Provider State	ICAO HQ	- SADIS Seminar	TBD	Presentation on SADIS was made during the MET SG/1 meeting Completed
CONC. 10/72: MID REGION VOLCANIC ASH TEST That, a) the MID Regional Office issue a State letter to review the MET and ATS procedures to raise the awareness of the volcanic ash problem; b) the Volcanic Ash Advisory Centre (VAAC) Toulouse is invited to carry out a test once a year on the issuance of volcanic ash SIGMETs; and c) the MET Sub-Group monitor the results of the test and take the appropriate action.	Implement the conclusion	ICAO VAAC Toulouse MET SG	- State letter - Test on issuance of volcanic ash carried out	Jun. 2008	Superseded by MET SG Draft Dec. 1/3 and Draft Conc. 1/4

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/73: FUTURE OF THE FASID TABLES MET 2A AND MET 2B That, a) in view of the similarity of the requirements contained in FASID Table MET 2A and Annex 1 to the SUG, and in the interest of ensuring the currency of the requirements for OPMET exchange at all times, the content of the MID FASID Table MET 2A be limited to the appropriate URL-address of the SADISOPSG website: (i.e. www.icao.int/anb/sadisopsg); and b) the FASID Table MET 2B be deleted from the MID FASID. Note. ─ It is important to retain the provisions related to SIGMET in the BORPC and MET provisions of the ANP.	Process amendment proposal to the MID FASID	ICAO	- Amendment proposal	Jun. 2007	PFA of the MET part of the MID FASID circulated and approved. Completed
CONC 10/74: FUTURE OF THE FASID TABLE MET 1A That, the content of the MID FASID Table MET 1A: a) be simplified by deleting Column 6 ("area of coverage of charts") and Column 7 ("AFTN routing areas of destination"); and b) be available only through the global database "Forecasts (TAF and TREND) to be issued at international aerodromes" to which a URL address is provided under the heading of the FASID Table MET 1A.	Process amendment proposal to the MID FASID	ICAO	- Amendment proposal	Jun. 2007	PFA of the MET part of the MID FASID circulated and approved. Completed
CONC. 10/76: ENHANCEMENT OF MID REGION'S AIR NAVIGATION DEFICIENCY DATABASE That, ICAO MID Regional Office provide searching feature for the MID Air Navigation Deficiency database on the website.	Implement the conclusion	ICAO MID Office	- Searching feature for MID AN Def. Database is provided	TBD	- Ongoing; - ANS SG/1 tentatively scheduled for November 2008

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
CONC. 10/77: ELIMINATION OF AIR NAVIGATION DEFICIENCIES IN THE MID REGION That, a) MID States review their respective lists of identified deficiencies, define their root causes and forward an action plan for rectification of outstanding deficiencies to the ICAO MID Regional Office; b) MID States increase their efforts to overcome the delay in mitigating air navigation deficiencies identified by MIDANPIRG and explore ways and means to eliminate deficiencies; c) MID States experiencing difficulties in financing the elimination of safety-related deficiencies may wish to take advantage of the funding opportunity offered by the International Financial Facility for Aviation Safety (IFFAS); d) users of air navigation facilities and services in the MID Region report to the ICAO MID Regional Office when the remedial action on a deficiency has been taken, and e) ICAO continues to provide assistance to States for the purpose of rectifying deficiencies; and when required, States request ICAO assistance through Technical Co-operation Programme and/or Special Implementation Projects (SIP).	Follow-up implementation of the conclusion	States ICAO Users IFFAS	- Concerned States eliminate their air navigation deficiencies	Nov. 2008	Ongoing

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REPORT ON AGENDA ITEM 3: REVIEW IMPLEMENTATION OF THE WAFS IN THE MID REGION

3.1 The meeting reviewed developments of the World Area Forecast System (WAFS) that took place after the CNS/MET SG/7 meeting.

Outcome of the Fourth Meeting of WAFSOPSG

3.2 The meeting was informed of the outcome of the WAFSOPSG/4 meeting held in Cairo from 26 to 28 February 2008. The proposed changes to the WAFS related provisions in the Regional Air Navigation Plan (Basic ANP and FASID), which include addition of new WAFS forecasts of the cumulonimbus clouds, icing, and clear-air and in-cloud turbulence in GRIB code form, were reviewed. The meeting noted that these new forecasts were expected to become available by the end of 2009.

3.3 The meeting agreed that the amendment proposal to the Basic ANP and FASID, as presented in **Appendix 3A** to the Report on Agenda Item 3, should be processed by the Regional Office according to the established procedure.

3.4 The meeting also noted that WAFSOPSG/4 adopted a WAFS Long-term Plan for the period 2008 – 2012 at as **Appendix 3B** to the Report on Agenda Item 3. The plan provides States with advanced information on changes to the WAFS that would require updates of their WAFS processing systems (hardware and software). The meeting agreed that the Long-term Plan was a useful tool which will help the States to keep their WAFS processing systems compatible with the planned WAFS developments.

3.5 While reviewing the Long-term Plan, some participants noted with concern the planned elimination of the requirement for inclusion of sand-and dust-storms in SIGWX forecasts as of November 2010. The concerns were related to the high importance of these weather phenomena for the MID Region. In addition, the participant from IFALPA pointed out that heavy rain should be considered for inclusion in SIGWX forecasts due to the fact that heavy rain had caused flame-out of aircraft engines in several occasions.

3.6 In reply to the above concerns, the Secretariat recalled that the WAFS SIGWX forecasts were issued for high-level (FL 250 – 630) and medium level (FL 100 – 250). The sand-and dust storms, and probably heavy rain, were weather phenomena normally occurring below these flight levels, therefore, their forecasting should be pursued with means outside the WAFS. Moreover, information from the WAFCs indicated that the sand and dust storms, being low-level phenomena, were never used on the SIGWX forecasts so far.

3.7 With the understanding that sand- and dust storms and heavy rain were important for the flight safety in the MID Region, the meeting agreed that the low-level forecasting should be included in the future work programme of the group.

Summary of the Recent and Forthcoming Developments to the WAFS and SADIS

3.8 The participant from the WAFC London presented a detailed information on the developments to the WAFS and SADIS since the 7th meeting of the MID CNS/MET Sub-Group in late 2006. The information contained suggested actions on those developments that may have direct impact on the end users.

3.9 The meeting noted with appreciation the comprehensive information presented by WAFC London. In view of the importance of the information on the WAFS and SADIS developments, the meeting agreed that it should be reproduced in full as **Appendix 3C** to the Report on Agenda Item 3. The meeting also requested the Regional Office to circulate this information under a State letter to all States in the MID Region and formulated the following Draft Conclusion:

DRAFT CONCLUSION 1/1: PROVIDING MID STATES WITH INFORMATION ON RECENT AND FORTHCOMING DEVELOPMENTS TO WAFS AND SADIS

*That, in order to allow the users to maintain their WAFS processing systems compatible with the planned developments, the information on Recent and Forthcoming developments to WAFS and SADIS, at **Appendix 3C** to the Report on Agenda Item 3, be circulated to the States in the MID Region, in order to be used as guidance material.*

MET SG/1
Appendix 3A to the Report on Agenda Item 3

DRAFT REGIONAL PROVISIONS IN THE BANP/FASID

BASIC ANP

World area forecast system (WAFS)
(FASID Tables MET 5, MET 6 and MET 7)

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

33. FASID Table MET 6 sets out the responsibilities of WAFCs London and Washington for the production of WAFS forecasts. For back-up purposes, each WAFC should have the capability to produce WAFS forecasts for all the required areas of coverage. [WAFSOPSG Conclusion 1/2]

34. WAFS ~~products~~ forecasts should be disseminated 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. [WAFSOPSG Conclusion ~~2/2~~ 4/2]

35. Each State should make the necessary arrangements to receive and make full operational use of WAFS ~~products~~ forecasts disseminated by WAFC London. FASID Table MET 7 lists the authorized users of the SADIS satellite broadcast in the MID Region and location of the operational VSATs. [WAFSOPSG Conclusion ~~1/2~~ 4/2]

FASID

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FASID TABLE MET 5 — REQUIREMENTS FOR WAFS ~~PRODUCTS~~ FORECASTS

EXPLANATION OF THE TABLE

Column

1. WAFS ~~products~~ 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.

FORECAST REQUIRED	AREAS REQUIRED
1	2
SWH forecasts (FL 250-630) in the BUFR code form	GLOBAL
SWM forecasts (FL 100-250) in the BUFR code form	[NIL *or* ASIA SOUTH, EUR, MID, NAT]
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 the GRIB code form	GLOBAL

Note 1. — SWM forecasts are provided for limited geographical areas as determined by regional air navigation agreement.

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

FASID TABLE MET 6 — RESPONSIBILITIES OF THE WORLD AREA FORECAST CENTRES

EXPLANATION OF THE TABLE

Column

1 Name of the world area forecast centre (WAFC).

2 Area of coverage of significant weather (SIGWX) forecasts in the BUFR code form prepared or relayed by the WAFC in Column 1.

3 Area of coverage of forecasts of upper-air wind, temperature, cumulonimbus clouds, icing, clear-air and in-cloud turbulence~~, and humidity, and of~~ altitude of flight levels ~~and humidity forecasts~~ in the GRIB code form issued by the WAFC in Column 1.

WAFC	Areas of coverage of	
	SIGWX forecasts	Forecasts of upper-air wind, temperature, cumulonimbus clouds, icing, and clear-air and in-cloud turbulence, humidity, and of altitude of flight levels
	In the BUFR code form	In the GRIB code form
1	2	3
London	SWH (FL 250 - 630): global SWM (FL 100 - 250):ASIA SOUTH, EUR and MID	Global
Washington	SWH (FL 250 - 630): global SWM (FL 100- 250): NAT	Global

~~*Note.*~~ *Note 1. — WAFCs 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 2. — Forecasts of cumulonimbus clouds, icing, and clear-air and in-cloud turbulence are experimental products which are expected to become available by the end of 2009.

MET SG/1
Appendix 3B to the Report on Agenda Item 3

WAFS LONG-TERM PLAN FOR THE YEARS 2008-2012

WAFS MILESTONES	WAFSOPSG MEETING SCHEDULE	ICAO Annex 3 Amendment Cycle
February 2008: • WAFCs implement the earlier issuance times of WAFS SIGWX forecasts on 06 February 2008 at 1900 UTC (for products valid at 1200 UTC on 07 February 2008.	WAFSOPSG/4	
April 2008 to September 2009: • WAFCs develop and test WAFS forecasts in the GRIB 2 code form, encompassing higher-resolution data, as well as gridded cumulonimbus cloud, icing and turbulence forecasts.		
April 2008 to December 2009: • WAFCs develop and test web-based distribution of WAFS forecasts, providing objective forecasts of gridded cumulonimbus cloud, icing and turbulence, derived from the GRIB 2 data. WAFCs undertake a verification study of these web-based objective forecasts.		
September 2009: • GRIB 2 available on ISCS and SADIS FTP services, in parallel with GRIB 1. • Workshop on the new gridded forecasts of cumulonimbus clouds, icing and turbulence.	WAFSOPSG/5	
September 2009 to November 2011: • WAFS workstation vendors develop GRIB 2 decoders and software to enable the visualization of WAFS upper-air forecasts (including higher-resolution fields and gridded cumulonimbus cloud, icing and turbulence forecasts).		
December 2009: • WAFCs make available web-based WAFS forecasts, providing objective forecasts of the gridded cumulonimbus clouds, icing and turbulence.		
January 2010 to November 2010: • Regional training seminars on the gridded WAFS forecasts of cumulonimbus clouds, icing and turbulence, with particular focus on the web-based distribution of WAFS forecasts.		

WAFS MILESTONES	WAFSOPSG MEETING SCHEDULE	ICAO Annex 3 Amendment Cycle
November 2010: • Enabling clauses in Annex 3 for the use of gridded WAFS forecasts for cumulonimbus clouds, icing and turbulence; • Elimination of the requirement to include radioactive clouds, and sand- and dust storms in SIGWX forecasts.		Amendment 75
February 2011: • Confirm date for the cessation of satellite broadcast of forecasts in the GRIB1 code form. and WAFS SIGWX forecasts in the BUFR code form and PNG chart form.	WAFSOPSG/6	
March 2011 to May 2012: • Study of the planned Initial Operating Capability (IOC) of Network Centric Operations for potential WAFS applications.		
November 2011 to November 2013: • WAFS end-user workstations upgraded to accept GRIB 2 code form.		
September 2012: • Consideration of the results of the study of the planned IOC of Network Centric Operations for potential WAFS applications (to be referred to the conjoint ICAO/WMO MET Divisional Meeting) • Consideration of any other proposals related to the future of WAFS to be tabled for the conjoint ICAO/WMO MET Divisional Meeting.	WAFSOPSG/7	
Milestone beyond the 5-year period		
November 2013: • Cessation of WAFS forecasts in the GRIB 1 code form, WAFS SIGWX forecasts in the BUFR code form and PNG chart form)		(Amendment 76)

MET SG/1
Appendix 3C to the Report on Agenda Item 3

RECENT AND FORTHCOMING DEVELOPMENTS TO THE WAFS AND SADIS

(Information provided by the SADIS and WAFC London Provider State)

1. RECENT DEVELOPMENTS

1.1 Adoption of Standards and Recommended Practices of Amendment 74 to ICAO Annex 3

Amendment 74 to ICAO Annex 3 – *Meteorological Service for International Air Navigation*, was adopted on 07 November 2007. Accordingly, a small number of changes pertinent to the WAFS have been implemented by the WAFC Provider States. Of note, the WAFCs are:

i) no longer required to issue amendments to WAFS SIGWX forecasts; and

ii) no longer required to depict surface fronts, well-defined convergence zones (ITCZ) and non-CB cloud amount and type on WAFS SIGWX forecasts.

Suggested action: *Note this information only.*

Concerning tropical cyclones (TC), Amendment 74 to Annex 3 added the identification of an unnamed TC (by using the term 'NIL') in the name block of the TC advisory message template, issued by a designated TC Advisory Centre (TCAC). The new provisions were designed to cater for those developing systems which were expected to reach tropical storm intensity (with a maximum wind of 63 km/h (34 kt) or more) during the period covered by the advisory, but had not yet been given a name. However, using the term 'NIL' in the WAFS SIGWX forecasts could lead to ambiguity amongst users which may be misled to consider that the TC identified with 'NIL' was expected to dissipate by the validity time. The WAFSOPSG/4 meeting (February 2008) agreed that the abbreviation 'TC' with no name/qualification should be used for *an unnamed TC which is forecast to reach tropical storm intensity by the SIGWX forecast validity time* (WAFSOPSG Decision 4/7 refers). Once the TC has been given a name by the TCAC concerned, the WAFCs will use that name on subsequent WAFS SIGWX forecasts.

Suggested action: *Note this information only.*

1.2 Earlier issuance time of WAFS SIGWX

On 06 February 2008, in accordance with WAFSOPSG Conclusion 3/14, the WAFC Provider States advanced the lead time of issuance of WAFS SIGWX forecasts in the BUFR code form to 17 hours for high-levels (SWH) and 16 hours for medium-levels (SWM). For WAFS SWH and SWM forecasts in portable network graphics (PNG) chart format, a lead time of issuance of 16 hours applies.

Users are to note that when the WAFCs are operating in backup mode, SWH BUFR will continue to be issued with a lead time of 17 hours. However, SWM BUFR, and all PNG charts (SWH and SWM) will be issued with a lead time of 15 hours.

Accordingly, new issuance times for the T+24 WAFS SIGWX forecasts are:

i) 0100 UTC, 0700 UTC, 1300 UTC and 1900 UTC for routine and back-up mode SWH BUFR;

ii) 0200 UTC, 0800 UTC, 1400 UTC and 2000 UTC for routine SWM BUFR, SWH PNG and SWM PNG; and

iii) 0300 UTC, 0900 UTC, 1500 UTC and 2100 UTC for back-up mode SWM BUFR, SWH PNG and SWM PNG.

Suggested action: *Users may require a workstation software update to accommodate the new SIGWX issue times. Users are urged to contact their workstation provider where necessary.*

1.3 Cessation of WAFS T4 formatted significant weather charts.

On 01 December 2006, the WAFS significant weather (SIGWX) charts in T4 format were removed from the WAFS broadcasts (SADIS and ISCS) – in line with WAFSOPSG Conclusion 3/9. Users were informed well in advance of this action and encouraged to utilise the BUFR encoded SIGWX and portable network graphics (PNG) equivalent products.

Suggested action: *Note this information only.*

1.4 Provision of PNG formatted SIGWX charts

To minimise the impacts for end users of the cessation of T4 formatted SIGWX charts, outlined above, and BUFR migration issues, the WAFS Provider States have provisioned PNG formatted SIGWX charts on the WAFS broadcasts since mid-late 2005. PNG formatted SIGWX charts are expected to be available at least until 2010, as a backup to BUFR encoded SIGWX forecasts.

On the SADIS 1G and 2G satellite broadcasts, these products are available as bulletinsed PNGs (i.e. enclosed by a WMO telecommunications wrapper). The 'envelope' is necessary to enable these charts to be transmitted via satellite. For a product recipient to be able to display these charts, the 'envelope' needs to be removed by a client workstation system.

On SADIS FTP, these products are available as unbulletinsed PNGs (i.e. with their WMO telecommunications wrapper removed). This enables SADIS FTP users to display the products via commercial off-the-shelf (COTS) applications, including internet web browsers. High-level and medium-level SIGWX forecasts in PNG format are available for standard ICAO regions.

Suggested action: *All approved SADIS workstation vendors have software that can visualise the PNG formatted SIGWX charts. Users who cannot view these products are encouraged to contact their workstation/software vendor with a view to obtaining a software upgrade which includes PNG viewing capabilities.*

1.5 BUFR encoded WAFS SIGWX forecasts and BUFR guideline documentation.

Since July 2005, the WAFS Provider States have produced BUFR encoded SIGWX forecasts for dissemination over the WAFS broadcasts (SADIS and ISCS). Global high-level (SWH) and regional medium-level (SWM) SIGWX forecasts in BUFR format are available for approved users. A SADIS workstation and/or software visualisation suite is required to visualise the BUFR encoded products. It is recommended that SADIS users unable to visualise the BUFR data contact their workstation/software vendor with a view to obtaining a software upgrade. *Consideration needs to be given to the financing and implementation of subsequent software upgrades that may be required should the BUFR standards change in future.*

To assist users and workstation vendors intending to utilise BUFR encoded WAFS SIGWX forecasts, the WAFC Provider States has compiled a BUFR guideline document, that is reviewed on a regular basis and updated as required. The document, titled "*Representing WAFS significant weather (SIGWX) data in BUFR*" is available as a link from the WAFSOPSG website via URL: www.icao.int/anb/wafsopsg/. The most recent copy, version 4.1, was published in December 2007.

Suggested action: *All approved SADIS workstation vendors have software that can visualise the BUFR encoded SIGWX data. Users who cannot decode and view this data are encouraged to contact their workstation/software vendor with a view to obtaining a software upgrade which includes BUFR decoding and viewing capabilities.*

1.6 SADIS FTP Service developments and documentation

The SADIS FTP service has been in operation since mid-2005. It offers approved SADIS users with an alternative, high-quality internet based solution for receiving WAFS and OPMET data. The SADIS FTP service is an ICAO-approved distribution system and an integral part of the SADIS service, complementing, and providing backup for, the SADIS 1G and 2G satellite services. To assist users intending to access this service, the SADIS Provider State has produced a SADIS FTP user guide. The document, titled "*SADIS FTP Service*" is available as a link from the SADISOPSG website via URL: www.icao.int/anb/sadisopsg. The document is reviewed on a regular basis and updated as required to take account of any modifications to the service. The most recent copy, version 4.1, was published in December 2007.

Suggested action: *Approved SADIS users who have internet capabilities, but do not have an active SADIS FTP account, are invited to contact the SADIS Provider State seeking access to the service. Details can be found in the SADIS FTP Service document (outlined above) or through their State Met Authority.*

Since October 2006, new GRIB 1 encoded WAFS forecast data for icing, turbulence and cumulonimbus clouds have been made available on the SADIS FTP service. These products are available to users of the SADIS FTP service broadcast on a *trial and evaluation* basis only at the present time. Further development of these products is continuing. In order to foster the future implementation and correct use of these gridded WAFS forecasts, users who have the ability to decode and visualise the trial and evaluation products are kindly requested to forward comments and suggestions to the WAFC Provider States – details provided in the SADIS FTP Service document outlined above.

Suggested action: *Note this information and forward any feedback to the WAFCs as appropriate.*

1.7 Trust Fund in support of LDC members to access WAFS products

A Trust Fund has been established to support the Commission for Aeronautical Meteorology (CAeM) in its efforts to assist Least Developed Country (LDC) Members to ensure that their NMHS has sustainable access to WAFS products by the most appropriate means. The Trust Fund will be used to assist LDC Members to meet the target date of 31 December 2008 for the replacement of first generation SADIS installations, where all other reasonable means have been demonstrably exhausted, and thereby to ensure sustainable access to WAFS products by the most appropriate means, in conformance with ICAO provisions.

The Commission has reviewed and endorsed the Terms of Reference of the Trust Fund, and requested that the Secretary-General of WMO manage and administer the Fund in accordance with WMO Financial Regulations.

Suggested action: *LDC Member States seeking more information about the Trust Fund, including Terms of Reference, should contact the WMO Secretary-General for further information.*

1.8 Enhancements to the provision of SADIS Administrative Messages

In November 2007, the SADIS Provider (UK Met Office) initiated a complementary service for provision of SADIS Administrative Messages (NOUK10 EGRR) via email. Dissemination of admin messages via email is *in addition to*, and *not instead of*, the standard ICAO AFS dissemination method (SADIS broadcasts) and the Met Office SADIS webpage. Any approved SADIS user who feels that their organisation would benefit from email notification of the administrative messages (in addition to the standard dissemination methods described above), are invited to contact the SADIS Manager at their convenience via email: greg.brock@metoffice.gov.uk or aviation@metoffice.gov.uk. Please mark your enquiry "For attention of the SADIS Manager".

Users are kindly requested to note that the email address (or addresses) to which they would like messages to be sent must be fully functioning and preferably generic - i.e. avoid the use of personal email accounts such as myname@provider.com. An ideal approach is for the user to define an email address associated with a technical expert or technical area within their organisation, such as opsadmin@mycompany.org. This will ensure that messages can be dealt with by the appropriate authority during their hours of operation. A maximum of two email addresses will be permissible per user site.

Suggested action: *Users are invited to contact the SADIS Manager, as detailed above, if, in addition to the standard dissemination methods, they would like to receive SADIS Admin Messages via email.*

2. FUTURE DEVELOPMENTS

2.1 Migration from GRIB 1 to GRIB 2 WAFS upper-air forecasts

The WAFSOPSG/4 meeting (February 2008) endorsed a detailed implementation plan for migration from GRIB1 to GRIB2 code-form WAFS upper-air forecasts, based on IATA requirements. The WAFC Provider States are expected to develop and test WAFS forecasts in the GRIB2 code-form, encompassing higher-resolution data (temporal and spatial), as well as gridded icing, turbulence and cumulonimbus (CB) cloud forecasts, by the end of 2009. Subject to further endorsement at WAFSOPSG/5, WAFS workstation vendors, flight planning companies

and users will be afforded at least 3 years of parallel GRIB1-GRIB2 broadcasting to facilitate migration of end-user systems to accept the new format, before the GRIB1 code-form forecasts are withdrawn.

The higher-resolution element of the GRIB2 code-form data will encapsulate 3-hourly time-step intervals T+6 to T+36 (presently 6-hourly) and a 1.25 degree latitude and longitude regular (*unthinned*) grid (presently 1.25 degree *thinned*). Due to the considerable increase in data volume by moving to higher temporal and spatial resolutions, the GRIB 2 WAFS data will be compressed on the SADIS (and ISCS) broadcasts.

Suggested action: *The sub-group is advised to monitor development of the GRIB2 code form WAFS upper-air forecasts, encompassing higher-resolution data and icing, turbulence and CB forecasts, through the WAFSOPSG.*

2.2 Improved WAFS forecasts for icing, turbulence and cumulonimbus clouds in the GRIB 2 code form

As expressed in 2.6 above, trial and evaluation versions of gridded icing, turbulence and cumulonimbus (CB) cloud forecasts in GRIB1 code-form have been available for download on SADIS FTP since October 2006. These products will eventually form part of the remit for GRIB2 WAFS upper-air forecasts as outlined in 3.3 above. The WAFSOPSG/4 meeting endorsed the further development of these automated SIGWX products, including the creation of high 'at a glance' products, algorithm alignment and systematic comparison of the WAFC London and WAFC Washington output, verification assessment, and generation of guidance for the (future) use of these products.

To facilitate the implementation of these new gridded WAFS forecasts, and in particular their visualisation, a workshop involving the WAFC Provider States, WAFS user States and users is tentatively planned for September 2009. A series of regional training seminars (one in each of the ICAO regions) based on these new WAFS forecasts are tentatively scheduled for 2010 or 2011.

Suggested action: *The sub-group is advised to monitor development of the automated icing, turbulence and CB forecasts through the WAFSOPSG, and participate, where possible, in the regional training seminars.*

2.3 Establishment of a web-based distribution of WAFS forecasts

The WAFSOPSG/4 meeting endorsed a proposal of the WAFC Provider States to develop a web-based interface (one from each WAFC) for the provision of a minimum set of WAFS charts – based on the automated gridded SIGWX forecasts for icing, turbulence and CB cloud and derived from the GRIB 2 code-form data, for intended use in flight documentation. The WAFC Provider States intend to make this new service available by the end of 2009. The service will be designed to be easily accessible, user friendly, and allow users the freedom to visualise a selection of products within the T+6 to T+36 time frames at 3-hourly intervals. The service will be targeted primarily at the least developed countries which may not be in a position to convert the GRIB and/or BUFR coded SIGWX forecasts into chart form.

Suggested action: *The sub-group is advised to monitor development of the web-based distribution of WAFS forecasts through the WAFSOPSG.*

2.4 Use of concatenated WAFS forecasts for long-haul flights

An ad-hoc group of the WAFSOPSG has been studying the feasibility of joining together (i.e. 'concatenating') wind/temperate and SIGWX charts containing up to 3 validity periods – to cater for the needs of long-haul flight operations. Whilst initial findings and feedback from a small number of users has been generally positive, the group noted some concerns regarding missing point data where two wind/temperature charts were joined, and observed discontinuities when SIGWX charts of differing validity were joined. With such discontinuities, users may not be able to get a clear understanding of the meteorological situation from the concatenated SIGWX chart.

A follow-up study is to be conducted by the ad-hoc group to determine the applicability of the use of concatenated visualisation as far as the new gridded forecasts for icing, turbulence and CB clouds are concerned. The findings are expected to be published at the WAFSOPSG/5 meeting. ICAO, in co-ordination with WMO, is also expected to develop Annex 3 enabling clauses for the provision of concatenated route-specific wind/temperature forecast – generated preferably from interpolating data from consecutive forecast times – for review by the WAFSOPSG/6 meeting.

Suggested action: *The sub-group is advised to monitor the progress of developing concatenated WAFS forecasts through the WAFSOPSG.*

2.5 Further development of WAFC Performance Indicators

The WAFC Provider States have been invited by the WAFSOPSG/4 meeting to assess the possibility of further developing the WAFC Performance Indicators – that are publicly available via URLs: http://www.metoffice.gov.uk/icao/index.html and http://www.emc.ncep.noaa.gov/gmb/icao/ncep_scores.html

The recommendations for improvements include wind and temperature performance indicators for a) the WMO defined verification area covering Australia and New Zealand; b) all standard levels; and c) in digital and chart format. The assessment of these proposals will be presented to the WAFSOPSG/5 meeting.

Suggested action: *The sub-group is advised to monitor the further development of the WAFC performance indicators through the WAFSOPSG.*

2.6 Corrections to WAFS SIGWX forecasts

As expressed in paragraph 2.1 above, Amendment 74 to ICAO Annex 3 eliminated the requirement for the WAFCs to issue *amendments* to the meteorological content of WAFS SIGWX forecasts. The WAFSOPSG/3 meeting however, called on the WAFC Provider States to undertake a study to assess the implications on WAFS users of a proposal to introduce WMO standards for issuance of *corrections* to SIGWX forecasts (BUFR and PNG chart form). The study, presented at WAFSOPSG/4, determined that substantial changes would be necessary at both provider and receiver (end-user) locations, with associated cost implications, if the proposals were adopted for implementation.

Given these remarks and the infrequent occurrence when SIGWX corrections would be required, the group concurred that a practical and minimal procedure to handle errors within SIGWX should be introduced. This procedure, to be implemented by WAFSOPSG/5, will be for the WAFCs to issue an administrative message/bulletin drawing attention to the error identified. The BUFR data and PNG charts themselves, which contain erroneous data, will not be re-issued due

to the downstream implications detailed in the WAFSOPSG/4 report. User notification of the administrative message header(s) to be used for will be made through the WAFSOPSG Change Notice Board, at URL:

http://www.icao.int/anb/wafsopsg/WAFS%20change%20notice%20board.pdf

Suggested action: *Users are advised to monitor the WAFSOPSG website for details of the implementation of corrections to SIGWX forecasts by WAFC London and WAFC Washington. A minor software update may be required to accommodate reception and handling of the administrative message(s).*

2.7 Cessation of SADIS 1G satellite broadcast system

The SADIS first generation satellite broadcast system (SADIS 1G) has been in operation since the mid-1990's. Since the implementation of the SADIS second generation satellite broadcast system (SADIS 2G) in 2004, all existing SADIS 1G users have been advised to consider upgrading their SADIS VSAT receiving equipment to accept SADIS 2G, and all prospective new satellite broadcast users have been advise to procure a SADIS 2G receiving system. The SADISOPSG/13 meeting (27-29 May 2008) is expected to endorse the cessation of the SADIS 1G service at the end of 2008, in view of the implementation of SADIS 2G. Any SADIS 1G users who have not migrated to SADIS 2G by that time are to consider utilisation of the SADIS FTP service as an interim measure until they have procured their SADIS 2G VSAT receiving system.

Suggested action: *Users of the legacy SADIS 1G service are strongly advised to consider procurement of a SADIS 2G receiver system upgrade, ahead of the planned cessation of SADIS 1G at the end of 2008. Any SADIS 1G users who have not migrated to SADIS 2G by that time are to consider utilisation of the SADIS FTP service as an interim measure until they have procured their SADIS 2G VSAT receiving system.*

2.8 Enhancements to the SADIS FTP service

The SADIS Provider (UK Met Office) has tabled a number of enhancements to the SADIS FTP service to improve service resilience and security. The SADISOPSG/13 meeting is expected to endorse a revised implementation plan for SADIS FTP enhancements, which will include dual server capability, and development of a SADIS FTP Secure service.

Subject to endorsement, enhanced capability of the SADIS FTP service to include dual server resilience is expected to be available by the SADISOPSG/14 meeting. In addition, a SADIS FTP Secure service will, subject to endorsement, be developed with a view to becoming operational towards the end of 2010. Initially, the SADIS FTP Secure service will be provided in parallel with the pre-existing service. However, SADIS FTP Secure will eventually become the sole service after an overlapping period (yet to be determined). This will mean SADIS FTP end-users may require a workstation update to accommodate the enhanced security features of SADIS FTP Secure. Further details of the impact of these changes will be presented through the SADISOPSG.

Suggested action: *New and existing SADIS FTP users are invited to note the discussions of SADISOPSG in relation to SADIS FTP enhancements, with a view to determining the impact (if any) on their workstation arrangements.*

REPORT ON AGENDA ITEM 4: REVIEW OF THE SADIS DISTIBUTION OF METEOROLOGICAL INFORMATION IN THE MID REGION

SADIS Strategic Assessment Tables

4.1 The meeting reviewed the draft SADIS Strategic Assessment Tables for the MID Region for the period 2008-2012, prepared by the SADIS Provider State. The meeting noted that the projected data volumes for the next 5 years (2008 to 2012 inclusive), as presented at **Appendix 4A** to the Report on Agenda Item 4, were based on the current figures for 2008 taking into account the observed trends for the previous 2 to 3 years.

4.2 It was noted that some changes to the projected figures for TAF may occur in view of the implementation of the Amendment 74 to Annex 3 in November 2008. However, such changes to the relatively low volumes of the OPMET data on SADIS were not expected to have adverse impact on the planning for SADIS bandwidth capacity.

4.3 In accordance with the procedures established by MIDANPIRG/5 Decision 5/15, the meeting endorsed the tables to be forwarded to the SADISOPSG and formulated the following Draft Conclusion:

DRAFT CONCLUSION 1/2: SADIS STRATEGIC ASSESSMENT TABLES

*That, the MID SADIS Strategic Assessment Tables 2008 - 2012 at **Appendix 4A** to the Report on Agenda Item 4, be adopted and forwarded to the SADISOPSG for planning the future SADIS bandwidth requirements.*

4.4 The meeting noted the executive summary of the thirteenth meeting of the SADIS Operations Group (SADISOPSG/13, Dakar, Senegal, 27 – 29 May 2008).

SADIS 2G Service Overview and Status of Implementation in the MID Region

4.5 The meeting recalled that MIDANPIRG Conclusion 10/71 invited the SADIS Provider State to arrange, in coordination with ICAO, an international SADIS seminar in the MID Region to support the transition to the SADIS Second Generation (2G) service.

4.6 The consultations held between the SADIS Provider State and the MID Regional Office in 2007 on the follow-up action on the above conclusion, indicated that the transition to SADIS 2G in the MID Region was already in an advanced stage. Therefore, the envisaged seminar, which was mainly aimed at assisting States in the procurement of the new 2G systems, was considered not necessary. It was agreed that a presentation on SADIS 2G to the MET SG/1 meeting would suffice as follow-up on the above MIDANPIRG Conclusion.

4.7 The meeting appreciated the very informative presentation by the Expert from the UK which is provided at **Appendix 4B** to the Report on Agenda Item 4. The meeting noted in particular the information on the implementation of the SADIS 2G by the MID States.

4.8 The meeting felt that a regional survey on the status of implementation of the WAFS and SADIS would be useful, but this survey should not duplicate the annual SADIS efficacy survey. It was agreed that a questionnaire will be prepared by the Secretariat, including questions on WAFS and SADIS in order to present the next meeting of the group with a complete picture on the status of implementation of the most important MET facilities and services by the MID States. This matter is discussed further under Agenda Item 10, Future Work Programme.

4.9 Concerns were expressed by UAE on the problems with the low quality of the SADIS signal experienced by at least two SADIS VSATs in the UAE. The meeting considered this as an isolated problem since there were no similar problems reported by other States. Therefore, the resolution of the problem would be pursued by the UAE in coordination with the SADIS Provider State and the manufacturers of the equipment.

MET SG/1
Appendix 4A to the Report on Agenda Item 4

SUMMARY OF THE STRATEGIC ASSESSMENT TABLES: CURRENT AND PROJECTED DATA VOLUMES 2009-2012

Table 1. OPMET data volumes per day (in K bytes)

Region	***Current 2008***	*Projected 2009*	*Projected 2010*	*Projected 2011*	*Projected 2012*
MID	**323**	344	361	378	395

Table 2. BUFR data volumes per day (in K bytes)

Region	***Current 2008***	*Projected 2009*	*Projected 2010*	*Projected 2011*	*Projected 2012*
MID	**0**	0	0	0	0

Table 3. AIS data volumes per day (in K bytes)

Region	***Current 2008***	*Projected 2009*	*Projected 2010*	*Projected 2011*	*Projected 2012*
MID	**0**	10	10	10	10

SADIS STRATEGIC ASSESSMENT TABLES CURRENT AND PROJECTED DATA VOLUMES 2009-2012

Note.— 1 octet = 1 byte = 1 character.

Table 1. MID— OPMET data volumes

OPMET data	***Current 2008***	*Projected 2009*	*Projected 2010*	*Projected 2011*	*Projected 2012*
ALPHANUMERIC DATA					
Number of **FC bulletins** issued per day	**28**	30	35	40	45
Number of **FT bulletins** issued per day	**125**	135	145	155	165
Number of **SA bulletins** issued per day	**642**	675	700	725	750
Number of **SP bulletins** issued per day	**5**	10	13	15	18
Number of **SIGMET** bulletins issued per day	**8**	10	10	10	10
BINARY DATA					
Number of other bulletins issued per day	**0**	0	0	0	0
TOTALS					
Total number of OPMET bulletins per day	**808**	860	903	945	988
Average size of OPMET bulletin (bytes)	**400**	400	400	400	400
Total estimated OPMET data volume per day (K bytes)	**323**	344	361	378	395

Note 1.— Changes to the number of FC/FT bulletins may occur in late-2008 as a result of elimination of overlapping FC and FT messages.

Note 2.— No provision is being made for the distribution of BUFR-coded OPMET data. Capacity for this data may need to be included in future depending on the issuance of this data in the region.

Table 2. MID — BUFR data volumes

Graphical information in the BUFR code form	***Current 2008***	*Projected 2009*	*Projected 2010*	*Projected 2011*	*Projected 2012*
TOTALS					
Total number of BUFR messages per day	**0**	0	0	0	0
Average size of messages (bytes)	**0**	0	0	0	0
Total estimated volume of BUFR messages per day (in K bytes)	**0**	0	0	0	0

Note. — No potential future distribution of BUFR-encoded VAG expected as no VAAC are located in the MID Region.

Table 3. MID — AIS data volumes

AIS data	***Current 2008***	*Projected 2009*	*Projected 2010*	*Projected 2011*	*Projected 2012*
ALPHANUMERIC AIS DATA (NOTAM related to volcanic ash, ASHTAM)					
Number of ASHTAM bulletins issued per day	**0**	1	1	1	1
Number of NOTAM bulletins issued per day	**0**	1	1	1	1
TOTALS					
Total number of AIS bulletins per day	**0**	2	2	2	2
Average size of AIS bulletin (byte)	**0**	5000	5000	5000	5000
Total estimated volume of AIS data per day (in K bytes)	**0**	10	10	10	10

Note. — Modest provision is made for the distribution of ASHTAM and NOTAM related to volcanic ash.

SADIS 2G

Service overview and status of implementation in the MID region

Greg Brock, SADIS Provider State. 23-25 JUN 08, ICAO Regional Office Cairo.

Contents

This presentation covers the following areas

- Overview of the SADIS 2G service
- Sourcing SADIS 2G hardware
- Status of implementation of SADIS 2G in the MID region
- Useful contact information and links
- Questions and answers

Overview of the SADIS 2G service

SADIS 2G implementation

- SADIS second-generation (SADIS 2G) service started in September 2004
- SADIS 2G currently provided in parallel with existing SADIS first-generation (SADIS 1G) service
- SADIS 1G service to be terminated on or soon after 31st December 2008
- All existing SADIS 1G users are encouraged to consider upgrading their SADIS receiving systems to accept SADIS 2G **before** the end of 2008

SADIS 2G vs. SADIS 1G

- Product sets are identical, namely:
  - WAFS upper-air forecasts in GRIB-code form bulletins;
  - OPMET information in alphanumeric format;
  - WAFS significant weather (SIGWX) forecasts in BUFR-code form bulletins and PNG chart format; and
  - Graphical Volcanic Ash Advisories in PNG chart format
- Both services are 'point to multi-point' dissemination on a 24 hours basis via Intelsat 904 satellite – located at 60ºE over the Indian Ocean
  - Two-way communication between the client end system and the host does NOT occur.

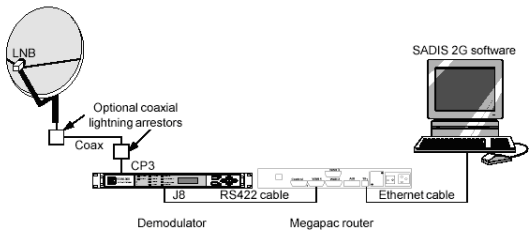
SADIS 2G vs. SADIS 1G

- SADIS 2G delivers the data to the end user either as:
  - the 'open' industry standard X.25 PVC format (as per SADIS 1G); or
  - the **Internet Protocol (UDP multicast or TCP WMO sockets)**
- Since two-way communication between the client and the host does not occur (i.e. one-way VSAT only), data is presented as 'spoofed' X.25 or 'spoofed' IP
- IP advantage is the fundamental difference of SADIS 2G over its predecessor, and was developed and implemented based on the user requirement for IP capability
  - allows users the freedom to process the data in whatever manner is convenient

SADIS 2G hardware components

- The hardware component of SADIS 2G of greatest interest to users is the one-way very small aperture terminal (VSAT)
- The terminal is simple and consists of:
  - a 1.8m or 2.4m diameter receiving antenna;
  - a low-noise block (LNB);
  - low-loss cabling; and
  - a receiver unit mounted indoors – incorporating DRO (digital receive only) and MegaPAC
- A processing/display unit, designed to meet the individual users requirements and/or communications system may be linked to the output port of the VSAT

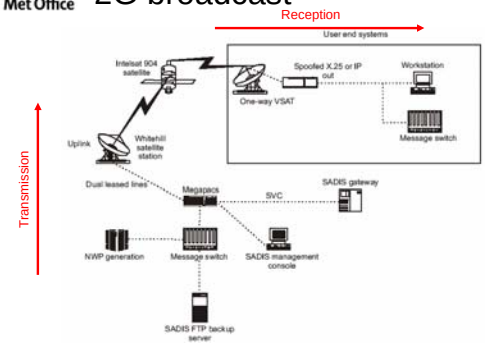
SADIS 2G hardware components (receiver side)



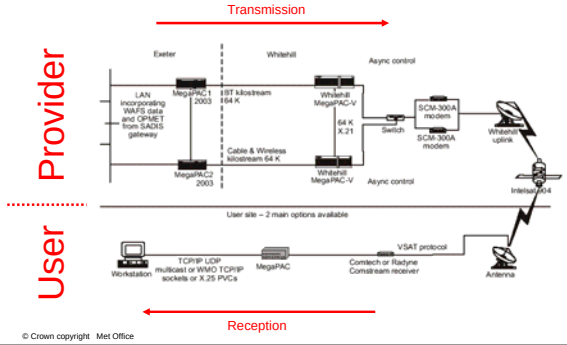
Existing users upgrading to SADIS 2G

- Most users who have a pre-existing SADIS 1G system will find that some of their receiving equipment will operate under SADIS 2G – i.e. receiving antenna and LNB
- A new SADIS 2G compatible receiver (DRO) and VADOS Systems MegaPAC (VadEDGE) will, however, be required

Components of the SADIS 2G broadcast



End-to-end topology of the SADIS 2G service



Sourcing SADIS 2G hardware

Sourcing SADIS 2G hardware

- There are two approved SADIS 2G integrator companies, based in the UK, from whom compatible receiving components can be sourced, namely:
  - L-Teq; and
  - Paradigm Communications
- Both companies can provide a 'one-box' solution for the SADIS 2G receiver and MegaPAC (VadEDGE) which incorporates the two components inside one physical unit
- VADOS Systems, suppliers of the MegaPAC (VadEDGE) technology, offer a direct purchase scheme for the routers if required
  - Since mid-2006, VADOS Systems has supplied the VadEDGE 4200-series router in place of the MegaPAC 2003 range

Sourcing SADIS 2G hardware

- Alternatively, users may wish to consider purchasing their SADIS 2G hardware through their established software vendor
- There are a number of commercial companies who have had their workstation software approved to visualize SADIS data, including (in no particular order):
  - Telvent-Almos
  - Corobor
  - 3SI/GST
  - IBL Software Engineering
  - Info-Electronics (IES)
  - Institute of Radar and Meteorology (IRAM)
  - MapMakers Group Ltd
  - Meteo-France International
  - NetSys International Pty
- Note that the SADIS Provider State does not recommend one vendor or their software over another

Advantages of SADIS 2G (in summary)

- Primarily engineered around the IT at the client side, but compatibility with legacy X.25 workstations if required
- User hardware most cost effective and readily available from a selection of companies
- Resolves the problem of obsolescence in SADIS 1G hardware
- SADIS 2G operates at 64kbps – less communication overheads

Status of implementation of SADIS 2G in the MID region

Status of SADIS 2G implementation in the MID region

	No. of SADIS 1G user sites	No. of SADIS 2G user sites	Comment
Afghanistan	1	0	
Bahrain	1	0	
Cyprus	0	1	
Egypt	0	2	
Iran, Islamic Republic of	0	0	Non-operational user State
Iraq			Non-approved State
Israel			Non-approved State
Jordan	1	0	
Kuwait	0	1	
Lebanon	1	0	
Libyan Arab Jamahiriya	0	1	
Oman	0	2	
Pakistan	0	2	
Qatar	1	0	
Saudi Arabia	1	2	
Sudan			Non-approved State
Syrian Arab Republic	0	2	
United Arab Emirates	1	4	
Yemen	1	0	

Details correct at 08 May 08

Status of SADIS 2G implementation in the MID region

Summary:

- 56% of approved States in the MID region have implemented SADIS 2G
  - This compares with EUR 63%; AFI 29%; and ASIA 43%
- 68% of approved users in the MID region have implemented SADIS 2G
- States yet to migrate to SADIS 2G in the MID region include:
  - Afghanistan, Bahrain, Jordan, Lebanon, Qatar, and Yemen

Details correct at 08 May 08

Useful contact information and weblinks

SADIS Provider

- UK Met Office SADIS Homepage: http://www.metoffice.gov.uk/sadis/index.html
- UK Met Office SADIS Manager: greg.brock@metoffice.gov.uk

  Or, aviation@metoffice.gov.uk
- SADIS Customer Manager, International Services, UK Met Office, FitzRoy Road, Exeter, Devon EX1 3PB, United Kingdom
- Telephone: +44 (0)1392 88 4892
- Fax: +44 (0)1392 88 5681

SADIS Customer Support

- For SADIS service issues, please contact the UK Met Office Service Desk – available 24 hours a day, 365 days a year:
- Telephone: +44 (0)1392 88 6666
- Email: servicedesk@metoffice.gov.uk
- For technical issues relating to your VSAT receiver or data processing system, please contact your supplier directly.

SADIS 2G hardware and software suppliers

- Full list of approved manufacturers and suppliers:

  http://www.metoffice.gov.uk/sadis/about/manufacturers.html
- SADIS 2G integrators:

  http://www.metoffice.gov.uk/sadis/hardware/suppliers/index.html
- Data processing and display suppliers:

  http://www.metoffice.gov.uk/sadis/about/manufacturers_full.html

ICAO SADIS Operations Group

- ICAO SADISOPSG homepage: http://www.icao.int/anb/sadisopsg/
- SADIS User Guide (including Annexes 1 to 4): http://www.icao.int/anb/sadisopsg/sug/

Questions & answers

REPORT ON AGENDA ITEM 5: REVIEW IMPLEMENTATION OF THE INTERNATIONAL AIRWAYS VOLCANO WATCH (IAVW) AND THE TROPICAL CYCLONES WARNINGS SYSTEM IN THE MID REGION

Implementation of IAVW and SIGMET tests

5.1 The meeting noted that the eruption of the Teyr-Djebel volcano in Yemen on 30 September 2007, that created a Volcanic Ash (VA) plume up to FL400 (according to press reports), showed clearly that VA occurrences in the MID Region were possible and might affect air traffic. Moreover, VA clouds can drift over long distances, therefore, the MID Region could be affected by VA cloud coming from other regions.

5.2 In view of the above, the meeting agreed that the implementation of the procedures prescribed by the IAVW should be promoted. This involves raising the awareness of the MET and ATS service providers in the MID States on the procedures for the issuance and exchange of the required information in case of volcanic eruptions or volcanic ash clouds, such as, volcanic ash advisories (VAA), SIGMET for volcanic ash, and NOTAM/ASHTAM.

5.3 It was recalled that MIDANPIRG Conclusion 10/72 called for organizing regular tests for VA SIGMET issuance in coordination with VAAC Toulouse. In order to facilitate such tests, VAAC Toulouse presented to the meeting proposed VA SIGMET tests procedures. The meeting was informed that the same procedures will be presented for endorsement by the IAVWOPSG/4 meeting in September 2008, with the view to harmonize the VA SIGMET tests in all ICAO Regions.

5.4 The meeting reviewed also draft *Regional SIGMET Test Procedures – MID Region* developed by the secretariat based on similar regional procedures in EUR and ASIA/PAC Regions. The draft procedures encompassed the three types of SIGMET, VA SIGMET (WV), tropical cyclones (TC) SIGMET (WC), and SIGMET for other phenomena (WS).

5.5 IROG Vienna informed the meeting about the SIGMET monitoring that has been conducted in the EUR Region for almost 10 year period. The monitoring proved to be very instrumental in resolving communication and formatting problems. Therefore, it was strongly recommended to conduct similar monitoring in the MID Region.

5.6 In order to ensure the necessary coordination of the regional SIGMET tests, the meeting nominated Mr. Mohamed Saad Mohamed Ismail from Egypt as Rapporteur on SIGMET tests. The Rapporteur will work closely with the Secretariat on arranging the programme of SIGMET tests in the MID Region.

5.7 The meeting agreed on the need for establishing regional procedures for regular SIGMET tests and monitoring. Since there were several proposed draft procedures, the meeting decided to establish an ad-hoc working group tasked to finalize the procedures.

DRAFT DECISION 1/3: FINALIZING THE MID SIGMET TEST PROCEDURES

That, an ad-hoc working group composed by experts from IROG Vienna (Austria), VAAC Toulouse (France) and the MET Sub-Group Rapporteur on SIGMET Tests, assisted by the Secretariat, is tasked to finalize the MID SIGMET Test Procedures, based on the proposals presented at MET SG//1 meeting.

Note:- Upon completion of the task, the MID SIGMET Tests procedures will be circulated to the MID States by the MID Regional Office.

5.8 The meeting agreed to designate a Rapporteur on SIGMET Tests and to invite all States to nominate SIGMET focal points in order to facilitate the coordination of the tests.

5.9 In summarizing the discussion on the SIGMET tests and the presented proposals aimed at improving the issuance and dissemination of all types of SIGMET (WV, WC and WS), the meeting formulated the following Draft Conclusion:

DRAFT CONCLUSION 1/4: CONDUCTING REGULAR SIGMET TESTS IN THE MID REGION

That,

a) the final MID SIGMET Test Procedures be adopted and forwarded to the MID States for implementation;
b) MID States be urged to participate in the regular SIGMET test;
c) in order to facilitate the conduct of the SIGMET tests, MID States are invited to designate SIGMET focal points; and
d) the results of the SIGMET tests be reported to the MET Sub-Group and feed-back on the identified deficiencies be provided to the MID States concerned.

5.10 With regard to the further development of the VA tests by including realistic volcanic ash scenarios, the meeting felt that a step-by-step approach should be adopted in view of the complexity of the coordination with all stakeholders i.e. ACCs, MWOs, VAAC, NOTAM offices, flow management units and airlines beginning with tests checking all communication aspects such as AFTN addresses and VA SIGMET headers. The only region where such simulation exercises have been initiated was Europe, but it took 3 to 4 years to reach the stage when such complex exercise was possible.

5.11 In view of the above, the meeting agreed that, at this stage, it would be necessary to raise the awareness of the ATM community on VA issues. It was proposed in this regard, that a working paper should be prepared by the secretariat for the next ATM/SAR/AIS Sub-Group meeting with emphasis on the need to establish ATM contingency plans for VA clouds avoidance and subsequent organization of regional VA exercises with ATM involvement.

Implementation of Tropical Cyclones Advisories and Warnings

5.9 The meeting was informed that Oman has established a modern meteorological Centre with latest state of the art equipment. Considering the geographical location, the experience of monitoring, tracking and forecasting tropical cyclones and issuing timely warnings and advisories, supported by modern equipments which includes meteorological satellite receivers and NWP, the meeting was informed that Oman had the potential to issue tropical cyclone advisories for the Area west of 65 degrees East.

5.10 The meeting noted similar information from Saudi Arabia where numerical model is used for forecasting the TC tracks.

5.11 The group was advised by the Secretariat that, at this stage, it was not feasible to make any changes to the existing ICAO/WMO system of Tropical Cyclone Advisory Centres (TCAC). There were various reasons for that, e.g., the Regional ANP in the Basic Operational Requirements and Planning Criteria (BORPC) clearly stated that the TCAC are designated among the existing WMO Regional Specialized Meteorological Centres (RSMC) for tropical cyclones. Besides, there were no official reports for non-satisfactory TC advisory service by the TCAC New Delhi.

5.12 In view of the foregoing, it was recommended that Centres having the capability to forecast tropical cyclones should establish closer collaboration with TCAC New Delhi and provide feed-back in case of observed forecast errors or any other operational problems.

5.13 In order to improve the coordination between the MWOs required to issue TC SIGMET according to FASID Table MET 3A and the TCAC New Delhi, the meeting agreed that the future SIGMET tests would encompass tests for TC SIGMET.

REPORT ON AGENDA ITEM 6: REVIEW OF THE PROCEDURES AND REQUIREMENTS FOR OPMET DATA EXCHANGE

OPMET data monitoring by IROG Vienna

6.1 The meeting was presented with the results of an OPMET data monitoring performed in February 2008 as at **Appendix 6A** to the Report on Agenda Item 6. The results outlined a number of errors and inconsistencies with the procedures and formats of the MID OPMET data and bulletins, which needed to be addressed.

6.2 The monitoring results indicated total lack of OPMET data provided via AFTN from Afghanistan and Iraq. Accordingly the meeting agreed to reflect this as a deficiency.

6.3 The meeting expressed appreciation to IROG Vienna for conducting the monitoring and providing important feed-back that would help in resolving the observed errors. Some participants reported that action is already being taken by their OPMET Centres to resolve the inconsistencies and errors reported by the IROG.

6.4 The attention of the participants was brought to the need of using the AFTN address **LOZZMMID** as a single address for sending the OPMET data from the MID Region to the EUR Region. It was noted also that three States in the Region have not yet implemented the correct METAR and TAF format requiring inclusion of the code words "METAR" and "TAF" in the beginning of the message. In order to resolve these errors as soon as possible, the meeting formulated the following Draft Conclusion:

DRAFT CONCLUSION 1/5: IMPROVING THE PROCEDURES FOR SENDING MID OPMET DATA TO EUR REGION

That, MID States

*a) be advised to use **LOZZMMID** as a single AFTN address for sending OPMET data to the EUR Region; and*

b) that have not yet implemented the correct METAR and TAF format are urged to do so as soon as possible.

Activating the MID OPMET Bulletin Management Group (MID OPMET BMG)

6.5 The group reviewed the proposal by Oman to activate the MID OPMET BMG which has been established by MIDANPIRG/8 in 2003 through Conclusion 8/48 but has not been activated since then. This group should, among other tasks, review the need for establishment of a Regional OPMET Data Bank for the MID Region and the most appropriate location for such a Data Bank.

6.6 The meeting supported the activation of the OPMET BMG and formulated the following Draft Decision:

DRAFT DECISION 1/6: ACTIVATION OF MID OPMET BULLETIN MANAGEMENT GROUP (BMG)

That, the MID OPMET BMG is re-established with Terms of Reference and Work Programme as at ***Appendix 6B*** *to the Report on Agenda Item 6.*

Implementation of the new provisions for TAF in Amendment 74 to Annex 3

6.7 The meeting reviewed the changes to the TAF provisions introduced by the Amendment 74 to Annex 3. It was reminded that these new provisions should be implemented on 5 November 2008. The main changes were related to the period of validity (previously – up to 24 hours; now extended up to 30 hours) and to the requirement for having only one TAF valid at any given time for each aerodrome. In addition, there were TAF code changes mainly related to the date/time groups used in the message.

6.8 The meeting further reviewed the requirements provided by IATA for the TAF period of validity for the MID Region. It was identified that these requirements were for 24 hour TAF for all aerodromes listed in FASID Tables MET 1A and MET 2A. In view of this, it was proposed to amend paragraph 9 of the Basic ANP by deleting the option for 18 hour TAF. An analysis of the current ROBEX bulletin, carried out by Oman, indicated that only one State in the Region would be affected by such amendment i.e. should have to switch from 18 hour to 24 hour TAF.

6.9 An additional amendment to the same paragraph of the Basic ANP was agreed in order to reduce the filing time for 24-hour TAF from two hours to one hour.

6.10 Some participants shared views that there might be still requirements for 9-hour TAF, or for 30 hour TAF coming through the consultation with the operators. It was explained that if such requirements existed, there would be no problem since Annex 3 allowed for period of validity from 6 to 30 hours. In case that such requirements were identified, the State concerned may propose another amendment to the Regional ANP accordingly.

6.11 The agreed changes to the Basic ANP and FASID related to the Amendment 74 to Annex 3 are further discussed under Agenda Item 7.

Other OPMET issues

6.12 The meeting noted the concerns of IFALPA in regard to insufficient OPMET information in the VOLMET broadcasts (no TAF reported). IFAPLA expressed strong support to expanding the implementation of D-ATIS and D-VOLMET in the MID Region since the weather information provided through these data link services was easy to obtain and richer in content.

6.13 The meeting agreed that the provision of OPMET information through VOLMET should be added to the tasks of the OPMET BMG.

MET SG/1
Appendix 6A to the Report on Agenda Item 6

RESULTS OF OPMET DATA MONITORING CONDUCTED BY IROG VIENNA

1. Afghanistan

1.1 Presently there are no bulletins received via AFTN. Vienna is receiving the following the following bulletins via the WMO-GTS (Global Telecommunication System):

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
SA	AH39	OAHR	~GTS	RTH Vienna	RTH Offenbach
SA	AH10	ETGT	~GTS	RTH Vienna	RTH Offenbach
FC	AH10	ETGT	~GTS	RTH Vienna	RTH Offenbach
FT	AH10	ETGT	~GTS	RTH Vienna	RTH Offenbach

1.2 Due to the special situation in Afghanistan it is not expected that in the near future OPMET-data will be received via AFTN.

1.3 The data received in those bulletins is METAR for OAHR (in SAAH39 OAHR) and METAR and TAF-messages for OAKB (in **AH10 ETGT).

1.4 Furthermore we receive METAR for OAKN and OAKB in the bulletin SAIR32 OIII. But those reports are NIL most of the time.

1.5 According to the EUR MET-requirements we would need to receive not only METAR data for OAKN on a regular basis but also FC and FT reports which is presently not the case.

2. Bahrain

2.1 The following bulletins have been received via AFTN:

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
SA	BN31	OBBI	GG	LOZZMMID	OBBIYPYX
SA	BN32	OBBI	GG	LOZZMMID	OBBIYPYX
FT	BN31	OBBI	GG	LOZZMMID	OBBIYPYX
FT	BN32	OBBI	GG	LOZZMMID	OBBIYPYX

2.2 As can be seen from the table above SA and FT bulletins are received. According to the EUR MET-requirements we would need to receive also FC-reports for OBBI (if those are presently produced).

3. Egypt

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
WS	EG31	HECA	GG	LOWMYBYX	HECAYMYX
WA	EG31	HECA	GG	LOWMYBYX	HECAYMYX
SA	EG31	HECA	GG	LOZZMMID LOWMYMYX LOWMYBYX	HECAYMYX
FC	EG31	HECA	GG	LOWMYBYX	HECAYMYX
FT	EG31	HECA	GG	LOWMYBYX	HECAYMYX

3.1 Most of the data in the EUR-requirements are received. Only SA and FT for HEKB is missing.

3.2 Egypt is asked to use AFTN-address **LOZZMMID** only. As can be seen from the table above different AFTN-addresses are used. SAEG31 HECA is sent to all three addresses at the same time.

3.3 Vienna is presently doing a recompilation of FTEG31. The reason for this is that there are too much reports included in the original bulletin (14). As there is a maximum of 1.800 characters per bulletin send via AFTN the risk of split message is high. In case of receiving such a split message (which can not be routed further on) Vienna is saving the reports to the OPMET-DB. With the recompilation of the content of the original message the risk can be minimized that reports are not disseminated throughout the EUR-region. The headers FTEG31 LOWM and FTEG32 LOWM are used for that. The best solution would be that Egypt is sending out two (or more) bulletins which then can be just passed on by Vienna.

3.4 For the upcoming TAF-changes due to AMD 74 in November 2008 the BMG is recommending a maximum of 4 TAFs in a FT-bulletin due to the longer validity periods of up to 30 hours.

4. Islamic Republic of Iran

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
SA	IR31	OIII	GG	LOZZMMID	OLLLYPYX
SA	IR32	OIII	GG + ~GTS	LOZZMMID	OLLLYPYX
FT	IR31	OIII	GG	LOWMYZYX	UTTTYMYX
FT	IR32	OIII	~GTS	RTH Vienna	RTH Offenbach

4.1 As can be seen from the table the METAR-data seems to be collected by Lebanon. From there it is further transmitted onto Vienna.

4.2 The bulletin SAIR32 OIII is also received via GTS from Germany. The FTIR32 bulletin only via that communication line. Germany itself gets the SA and FT bulletin from OEJD. Only the SA-bulletin is also received via LFPW and OKPR.

4.3 The FTIR31 OIII and FTIR32 OIII are not received regularly. In case of the FTIR31 OIII it has been observed that it is coming from Uzbekistan. Following is an example of such a message.

AMA5695 110403
GG LOWMYZYX
110354 **UTTTYMYX**
FTIR31 OIII 092200
OIKK 091930Z 100018 25005MPS 8000 FEW030 SCT080 TEMPO 0015
23007G13MPS 4000 SA FEW030CB FEW035 BKN100 PROB30 TSRA=
FTIR31 OIII 092200
OIMM 091930Z 100018 15005MPS 7000 FEW035 SCT100 TEMPO 0015
20007G14MPS 4000 SA FEW030CB SCT035 BKN100 PROB40 TS/SHRA=

Additionally to the strange originator there are two FTIR31 OIII bulletins transmitted in one message.

4.4 According to EUR-requirements the following data is requested but not received by now:

FC:
OIAA, OIEE, OIII, OIKB, OIMM, OISS

FT:
OIAA

5. Iraq

5.1 Presently there is not OPMET-data received in an y official OPMET-bulletin. Airlines. Like Austrian, who fly to Iraq (ORER) are receiving actual data via E-mail or other lines they organized. In the near future it is not expected that OPMET-data will be received via AFTN.

5.2 According to EUR-requirements the following data is requested but not received by now:

SA:
ORBI, ORMM

FT:
ORBI, ORMM

6. Israel

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
SA	IS31	LLBG	FF	LOWMMMXX	LLBGYMYX
FC	IS31	LLBG	FF	LOWMMMXX	LLBGYMYX
FT	IS31	LLBG	GG	LOWMMMXX	LLBGYMYX

6.1 What should be changed is the priority for the SA- and FC-bulletin to GG instead of FF which should be used for flight safety messages according to ICAO ANNEX 10, Vol. II, e.g. SIGMET-messages.

6.2 Furthermore it is asked to send the data to **LOZZMMID** instead of LOWMMMXX.

6.3 According to EUR-requirements the following data is requested but not received by now:

SA:
LLBS, LLJR

FC:
LLBS, LLSD

FT:
LLSD

7. Jordan

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
SA	JD31	OJAI	GG	LOWMYBYX	OJAMYMYX
FT	JD31	OJAI	GG	LOWMYBYX	OJAMYMYX
FC	JD31	OJAI	GG	LOWMYBYX	OJAMYMYX
SM	JD01	OJAM	GG	LOWMYBYX	OJAMYMYX
SM	JD20	OJAM	GG	LOWMYBYX	OJAMYMYX
SI	JD20	OJAM	GG	LOWMYBYX	OJAMYMYX

7.1 From Jordan all OPMET data is sent to LOWMYBYX which should as well be changed to **LOZZMMID**.

7.2 According to EUR-requirements the following data is requested but not received by now:

SA:
OJJR

FT:
OJJR

7.3 As can be seen from the table above synoptic data is also received via AFTN. This kind of data should be sent via the WMO-GTS network only. The responsible RTH is Offenbach (Germany) already informed that the synoptic data is already received via that line. As Vienna is getting all synoptic data from Offenbach the direct supply can be cancelled.

8. Kuwait

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
FT	KW21	OKBK	GG	LOZZMMID	OLLLYPYX
SA	KW35	OKBK	GG	LOZZMMID	OLLLYPYX

8.1 As can be seen from the table the data seems to be collected by Lebanon. From there it is further transmitted onto Vienna.

8.2 According to EUR-requirements the following data is requested but not received by now:

FC:
OKBK

9. Lebanon

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
SA	LB31	OLBA	GG	LOWMYMYX	OLBAYMYX
SA	ME31	OLBA	GG	LOZZMMID	OLBAYZYX
FT	LB31	OLBA	GG	LOWMYBYX	OLBAYMYX
FT	ME31	OLBA	GG	LOWMYBYX	OLBAYZYX
SA	ME31	OEJD	GG	LOWMYMYX	OEJDYMYX
FT	ME31	OEJD	GG	LOWMYMYX	OEJDYMYX

9.1 From Lebanon all OPMET data is sent to LOWMYBYX or LOWMYMYX which should as well be changed to **LOZZMMID**.

9.2 One thing that was found after analysing the monitoring is that Saudi Arabia is disseminating the same bulletins (SAME31 & FTME31) with the same content but, compared to the one from Lebanon, often late (sometimes more than 3 hours later) and with a lot NIL-reports included. As the content is the same there is no need to compile it twice.

10. Oman

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
SA	OM20	OOMS	GG	LOZZMMID	OLLLYPYX

10.1 As can be seen from the table the data seems to be collected by Lebanon. From there it is further transmitted onto Vienna.

10.2 FT-reports for Oman are received in a compilation FTAR20 OEJD and received from OLLYPYX.

10.3 According to EUR-requirements the following data is requested but not received by now:

SA:
OOMA

FC:
OOMS

FT:
OOMA (included in FTAR20 OEJD but most of the time NIL)

11. Pakistan

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
SA	PK31	OPKC	GG	LOWMMMXX	EGGYYBYA
SA	PK31	OPLA	GG	LOWMMMXX	EGGYYBYA
SA	PK31	OPPS	GG	LOWMMMXX	EGGYYBYA
SA	PK31	OPRN	GG	LOWMYBYX	OPRNYMYX
SA	PK31	OPSK	GG	LOWMYBYX	OPSKYMYX
FT	PK31	OPFA	GG	LOWMMMXX	EGGYYBYA
FT	PK31	OPKC	GG	LOWMMMXX	EGGYYBYA
FT	PK31	OPLA	GG	LOWMYBYX	OLLLYPYX
FT	PK31	OPRN	FF	LOWMYBYX	OPRNYMYX
FC	PK31	OPKC	GG	LOWMMMXX	EGGYYBYA
FC	PK31	OPLA	GG	LOWMMMXX	EGGYYBYA

11.1 Bulletins from Pakistan are received from different originators (see table above). It would be advantageous if OPMET-data could be collected by one centre in Pakistan, compiled there and sent to Vienna to the address **LOZZMMID**.

11.2 According to EUR-requirements the following data is requested but not received by now:

SA:
OPFA, OPGD, OPMT, OPPI, OPQT

FC:
OPRN

FT:
OPMT, OPPI, OPQT

12. Qatar

12.1 There are no bulletins compiled directly in Qatar. The reports for OTBD are included in following bulletins:

SABN31 OBBI
FTBN31 OBBI
FTAR20 OEJD (Most of the time only NIL-reports)

13. Saudi Arabia

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
SA	SD20	OEJD	GG	LOZZMMID	OLLLYPYX
SA	SD31	OEJD	GG	LOZZMMID LOWMYMYX LOWMYBYX	OEJDYMYX
SA	SD32	OEJD	GG	LOZZMMID	OLLLYPYX
FT	SD22	OEJD	GG	LOWMYMYX	OEJDYMYX
FT	SD31	OEJD	GG	LOWMYMYX	OEJDYMYX
FT	SD32	OEJD	GG	LOWMYMYX	OEJDYMYX
FT	SD40	OEJD	GG	LOWMYPYX	OEJDYMYX
WS	SD20	OEJD	GG	LOWMYBYX	OEJDYMYX

13.1 All reports are coming within bulletins compiled in Saudi Arabia. But we also receive a recompilation from Lebanon including some reports. In some cases the AFTN-address for Vienna should be changed to LOZZMMID. SASD31 OEJD is sometimes sent to all three listed addresses, sometimes only to LOZZMMID.

13.2 According to EUR-requirements the following data is requested but not received by now:

SA:
OEJB

14. Syrian Arab Republic

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
SA	SY31	OSDI	GG	LOWMYBYX	OSDIYMYX
FC	SY31	OSDI	GG	LOWMYBYX	OSDIYMYX
FT	SY31	OSDI	GG	LOWMYBYX	OSDIYMYX
SM	SY01	OSDI	GG	LOWMYBYX	OSDIYMYX
SI	SY20	OSDI	GG	LOWMYBYX	OSDIYMYX

14.1 From the Syrian Arab Republic all OPMET data is sent to LOWMYBYX which should as well be changed to **LOZZMMID**.

14.2 According to EUR-requirements the following data is requested but not received by now:

FT:
OSLK

14.3 As can be seen from the table above synoptic data is also received via AFTN. This kind of data should be sent via the WMO-GTS network instead. The responsible RTH is Sofia (Bulgaria).

15. United Arab Emirates

15.1 There are no bulletins compiled directly in the United Arab Emirates. The reports are included in:

SABN31 OBBI
FTBN31 OBBI
FTAR20 OEJD (Most of the time only NIL-reports)

15.2 According to EUR-requirements the following data is requested but not received by now:

FC:
OMDB

16. Yemen

TT	AAii	CCCC	AFTN-Prio	Addressee	Originator
SA	YE20	OYAA	GG	LOWMMMXX	EDZWYMYX
FT	YE21	OYSN	GG	LOZZMMID	OYSNYMYX

16.1 As can be seen in the table above the METAR-bulletin is received from Offenbach whereas the FT-bulletin is coming directly from Yemen. Offenbach informed that the SAYE20 bulletin is received from OEJD. Best solution would be if the bulletin could be received by Vienna directly from OYSN.

Format errors in bulletins from the MID-region

1.1 Vienna, as the responsible IROG for the MID-region, has to perform a quality control of the OPMET-data received out of the area of responsibility. During a 2 days period all received OPMET-data from the MID region which got rejected due to a formal error have been collected and analysed. Most of them can be found below but not all as some of them are recurring. The problematic parts have been marked red or been described after the message itself.

Rejects 13.05.2008

SAMP31 HLLT 130800
METAR HLLT 130750Z
30006KT 260V330 7000 BKN020 21/15 Q1012
(missing "=" at the end of report)

SAYE20 OYAA 131200
METAR OYAA 131200Z 12013KT 9999 FEW020TCU FEW035CB SCT200 32/24 Q1006
NOSIG= **MAX 33.8 MIN 28.1=**
METAR OYAG 131200Z NIL=
METAR OYIB 131200Z NIL=
METAR OYSQ 131200Z 19026KT 9999 FEW020 34/26 Q1006=

SAIR31 OIII 131400
METAR OIII 131350Z 33012KT 9999 FEW035 SCT048 26/M03 Q1012 A2991
878.0=
METAR @IFM 131350Z 32008KT 9999 FEW040 27/M03 Q1015 A2998=
METAR OISS 131350Z 27010KT CAVOK 29/03 Q1014 A2996=
METAR OIZH 131350Z 33006KT 9999 SCT040 33/M01 Q1011 A2988=
METAR OIKB 131350Z 17010KT 6000 FEW030 34/23 Q1002 A2959=
METAR OIMM 131350Z 12012KT 9999 FEW040 BKN190 29/09 Q1010 A2984=
METAR OIAW 131350Z 33010KT CAVOK 37/04 Q1006 A2973=
METAR OITT 131350Z 32018KT 7000 SCT035TCU SCT040CB BKN180
16/05 Q1013 A2992=
METAR OIKK 131350Z 33036KT 9999 FEW035CB SCT040 29/M02 Q1116 A3001
822.3 NOSIG=

SAIR31 OIII 131500
METAR OIII 131450Z 33008KT 9999 FEW035CB@SCT040 25/M02 Q1012 A2991
878.0=
METAR OIFM 133450Z 31008KT 9999 SCT035 27/M03 Q1015 A2998=
METAR OISS 131450Z 26010KT CAVOK 27/03 Q1014 A2@97=
METAR OIZH 131450Z 36008KT 8000 SCT040 32/M01 Q1012 A2990=
METAR OIKB 1334=0Z 19008KT 6000 NSC 33/23 Q1002 A2960=
METAR OIMM 131450Z 11014KT 9999 FEW025**\CU** BKN190 26/06 Q1011 A2987=
METAR OIAW 131450Z 31008KT CAVOK 36/07 Q1006 A2973=
METAR OITT 131450Z 01014KT 8000 SCT035 FEW040CB BKN180 14/06
Q1013 A2993=
METAR OIKK 131450Z 33008KT 9999 FEW040 28/M02 Q1016 A3000 822.1
NOSIG=

FTBN32 OBBI 131500
TAF OMAA 131405Z 131818 14004KT CAVOK BECMG 0709 32012KT PROB40 0810

32015G25KT 3000 BLDU SKC BECMG 1416 30007KT=
TAF OMAL 131405Z 131818 05005KT CAVOK BECMG 2022 VRB03KT TEMPO 0205
13007KT BECMG 0709 33012KT BECMG 1416 30008KT=
TAF OMDB 131419Z 131818 26010KT CAVOK BECMG 1820 20005KT BECMG 0709
30014KT=
TAF OMFJ 131419Z 131818 29013KT 8000 SKC TEMPO 0509 07008KT=
TAF OMRK 131419Z 131818 27010KT CAVOK BECMG 1820 21003KT BECMG 0709
30014KT=
TAF OMSJ 131419Z 131818 27010KT CAVOK BECMG 1820 21004KT BECMG 0709
30014KT=
TAF **00**MS 131500Z 131818 NIL=
TAF OOSA 131500Z 131818 NIL=

SASD20 OEJD 131800
METAR OEAB 131800Z 17005KT 9999 FEW020 FEW025CB 22/12 Q1025 NOSIG=
METAR OEAH 131800Z 06002KT CAVOK 31/09 Q1009=
METAR OEBA 131800Z 33003KT 9999 SCT030 26/12 Q1020 NOSIG=
METAR OEBH 131800Z 21004KT 9999 SCT030 32/15 Q1016 NOSIG=
METAR OEDF 131800Z 31005KT CAVOK 30/07 Q1008 NOSIG=
METAR OEDM 131800Z NIL=
METAR OEDR 131800Z VRB03KT CAVOK 30/11 Q1007 NOSIG=
METAR OEGN 131800Z 32005KT CAVOK 32/24 Q1009 NOSIG=
METAR OEGS 131800Z 06006KT CAVOK 33/09 Q1010=
METAR OEGT 131800Z 32016KT CAVOK 25/06 Q1012=
METAR OEHL 131800Z 31010KT CAVOK 31/03 Q1014=
METAR OEJN**?**
C??IPP?Z 34004KT CAVOK 29/20 Q1007 NOSIG=
METAR OEKB 131800Z NIL=
METAR OEKJ 131800Z NIL=
METAR OEKK 131800Z 14006KT CAVOK 32/08 Q1010=
METAR OEKM 131800Z 30005KT 9999 SCT025 FEW030CB 22/16 Q1025 NOSIG=
METAR OEMA 131800Z 27006KT CAVOK 37/05 Q1009 NOSIG=
METAR OEMH 131800Z NIL=
METAR OEMK 131800Z 20002KT CAVOK 34/10 Q1008=
METAR OENG 131800Z 00000KT CAVOK 30/02 Q1016 NOSIG=
METAR OEPA 131800Z 11006KT CAVOK 34/05 Q1008=
METAR OERF 131800Z 00000KT CAVOK 29/02 Q1008=
METAR OERK 131800Z 12006KT CAVOK 33/02 Q1011 NOSIG=
METAR OERR 131800Z 33013KT CAVOK 31/03 Q1009=
METAR OERY 131800Z 12006KT CAVOK 34/04 Q1012 NOSIG=
METAR OESH 131800Z 09006KT CAVOK 36/13 Q1010 NOSIG=
METAR OESK 131800Z 34008KT CAVOK 31/02 Q1011=
METAR OETB 131800Z 33010KT CAVOK 29/M02 Q1014 NOSIG=
METAR OETF 131800Z 26010KT CAVOK 27/11 Q1018 NOSIG=
METAR OETR 131800Z 28012KT CAVOK 24/03 Q1013=
METAR OEWD 131800Z 17002KT CAVOK 35/10 Q1009=
METAR OEWJ 131800Z 32006KT CAVOK 30/16 Q1007=
METAR OEYN 131800Z 24008KT CAVOK 31/16 Q1005 NOSIG=

SAIR31 OIII 132000
METAR OIII 131950Z 00000KT 9999 SCT040 21/00 Q1013 A2993 878.7=
METAR OIFM 131950Z 28012KT 9999 FEW040 19/01 Q1017 A3006=
METAR@OISS 131950Z 31004KT CAVOK 21/02 Q1016 A3001=
METAR OIZH 131950Z 22008KT@CAVOK 21/M03 Q1013 A2994=
METAR OIKB 131950Z 10004KT 5000 HZ SKC 28/24 Q1003 A2964=
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MMTAR OAKB 132300Z NIL=

Rejects 14.05.2008

SMSY01 OSDI 140000
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40001 32970 03607 10140 21062 40112 58003=
40007 32960 03102 10171 20081 40132 53002=
40025 32965 00401 10142 20108 40139 53008=
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Q1017 A3003=
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SASY31 OSDI 140700 **AA**
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OSDZ 140700Z 35008KT CAVOK 26/02 Q1016=
OSKL 140700Z 36013KT CAVOK 24/M06 Q1014=
(Happened for each amended bulletin)

WSEG31 HECA 140845
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CAIRO FIR MOD SS FCST OVER HECA STNR NC=
(There should be no blanks in the validity period. The second line should start with the FIR-indicator, in this case HECC)

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1719 18005KT=
TAMMFJ 141405Z 141818 30014KT 8000 SKC TEMPO 1804 29015G25KT 5000
DU BECMG 0507 09010KT=
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1719 VRB05KT=
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1719 18005KT=

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0608 09010KT 7000 FEW080 FEW120 TEMPO 5000 -RA=**Y**
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FM0800 32010KT 9999 SCT030 =
(Same as above)

MET SG/1
Appendix 6B to the Report on Agenda Item 6

TERMS OF REFERENCE OF THE MID OPMET BULLETIN MANAGEMENT GROUP

(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, Kuwait and Oman (Rapporteur). Bahrain, Saudi Arabia and UAE are also expected to participate in the activity of the Group; and

(b) Experts from the EUR BMG, the VAAC Toulouse, APAC OPMET/M Task force and IATA are invited to participate in the work of the MID OPMET BMG.

4. Working arrangements

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

REPORT ON AGENDA ITEM 7: REVIEW OF THE MET PROVISIONS IN THE MID BANP/FASID

7.1 The meeting was informed that, as a follow-up action to MIDANPIRG Conclusions 10/7, 10/73 and 10/74, two amendment proposals, one for the MET part of the Basic ANP and one for the FASID, have been approved in April 2008. With this, the MET part of the MID Air Navigation Plan (Basic ANP and FASID, Doc 9708) was considerably updated.

7.2 The meeting discussed the need for further amendments to the ANP, as follows:

Basic ANP

7.2.1 Based on the outcome of the discussion of the new TAF provisions introduced with Amendment 74 to Annex 3 under Agenda Item 6, the meeting agreed on the following proposal:

- to delete the requirement for TAF with period of validity of 18 hours; and
- to change the requirement for the filing time of the TAF from "approximately two hours before the start of the period of validity" to "one hour before the period of validity".

7.2.2 Based on the above, the meeting formulated the following Draft Conclusion:

DRAFT CONCLUSION 1/7: PROPOSAL FOR AMENDMENT OF THE MET PART OF THE MID BASIC ANP (DOC 9708)

That, the MET Part of the MID Basic ANP be amended as shown in ***Appendix 7A*** *to the Report on Agenda Item 7.*

FASID

7.2.3 The meeting agreed that:

- FASID Table MET 1A should be amended to reflect the deletion of the requirement for 18-hour TAF and the introduction of the new 30-hour TAF;
- FASID Table MET 2C, containing requirements for making available additional OPMET data to Saudi Arabia during the pilgrimage period, should be reviewed and deleted, if found obsolete (since FASID Table MET 2A contains all required OPMET data and the dataset in FASID Table MET 2C is already available via SADIS or RODBs);
- FASID Tables 4A and 4B on the OPMET exchange under the ROBEX scheme should be revised and updated.

7.2.4 It was agreed that the above tasks, related to the amendment of the FASID Tables should be included in the work programme of the MID OPMET BMG. The meeting formulated the following Draft Decision in this regard:

DRAFT DECISION 1/8: REVIEW AND AMENDMENT OF THE FASID MET TABLES

That, the OPMET BMG, assisted by the Secretariat, is tasked to review the FASID Tables related to the OPMET exchange (FASID Tables MET 1A, 2C, 4A and 4B), and propose amendments, as necessary.

MET SG/1
Appendix 7A to the Report on Agenda Item 7

Part VI

METEOROLOGY (MET)

…

FORECASTS

19. TAF should normally 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 ~~of 18 or of~~ 24 hours ~~duration~~, to meet the requirements indicated in FASID Table MET 1A. The filing time of the forecasts should be ~~approximately two~~one hour~~s~~ before the start of the period of validity.
[~~LIM MID (COM/MET/RAC), Rec. 4/10~~MIDANPIRG Conclusion 11/XX]

…

REPORT ON AGENDA ITEM 8: IDENTIFICATION, ASSESSMENT AND REPORTING OF MET DEFICIENCIES

8.1 The meeting noted that the identification and reporting of deficiencies in the MET field was one of the main tasks in its terms of references. The meeting also noted the concern expressed by MIDANPIRG/10 with regard to the lack of reporting of MET deficiencies in the Region.

8.2 The meeting was informed that the activities on the identification, reporting and elimination of the air navigation deficiencies were carried out in all ICAO Regions under the Guidance of the Uniform Methodology adopted by the ICAO Council on 30 November 2001. According to the Uniform Methodology, deficiency is defined as a case of non-compliance by a State or a group of States with ICAO SARPs or with a regional procedure/facility specified in the Regional ANP.

8.3 The meeting agreed that the MET Sub-group should endeavour to identify the deficiencies in the MET field to be reported for inclusion in the MID Regional Office Deficiencies Database and follow the guidance provided by MIDANPIRG Conclusion 10/77 on the elimination of air navigation deficiencies in the MID region.

8.4 The meeting was advised by the secretariat that, based on the experience of other ICAO Regions, the MET deficiencies are most likely to be related to:

- non-compliance with requirements for the provision of OPMET information – METAR and TAF;
- non-compliance with the SIGMET provisions i.e. SIGMET not issued when required; SIGMET issued but not disseminated properly; incorrect format of SIGMET bulletins which prevents users of receiving the information;
- non-compliance with requirements for aerodrome observations and reports i.e. sitting of instruments (or lack of instruments); incorrect data processing which may give the users misleading values, etc.;
- non-provision of aerodrome warnings, where required;
- lack of facilities for receiving and processing WAFS data, in connection with the requirements for the provision of flight documentation, briefing and consultation;
- institutional problems related to the organization of the required meteorological services, lack of national regulations; and
- any other non-compliance with Annex 3 or regional procedures that may affect safety, efficiency or regularity.

8.5 The meeting noted that the collection of information about deficiencies was a complex process. The coordination and collaboration with the user's organizations, IATA and IFALPA, was very important in this process. The group expressed concern that IATA was not attending the meeting and agreed that IATA is to be requested to participate in its future meetings.

8.6 The meeting was advised that IFALPA was providing information on deficiencies reported by its members on a regular basis. An IFALPA document called Annex 19 containing information on identified problems for airports and air navigation services was issued and submitted to ICAO Regional Offices. Problems related to MET services and facilities at airports could be found in this document and used in identifying MET deficiencies.

8.7 The meeting expressed appreciation to IFALPA for the important feed-back on MET deficiencies and requested the Secretariat to present at the next meeting of the Sub-Group information on the MET problems identified in the IFALPA Annex 19 related to the MID Region, if any.

8.8 Based on the discussions under Agenda Item 6 regarding the results of the OPMET monitoring conducted by IROG Vienna, the group agreed that the identified lack of OPMET data disseminated via the ICAO AFS from Afghanistan and Iraq qualifies as deficiency. The meeting requested the Secretariat to update the MIDANPIRG Deficiency Data Base, accordingly.

REPORT ON AGENDA ITEM 9: INSTITUTIONAL MATTERS RELATED TO MET

9.1 Under this agenda item the meeting discussed issues related to the organization of the meteorological services for international air navigation in the MID States.

Designation of meteorological authorities and provision of meteorological services

9.2 The meeting noted that in the past it was a common practice for the national meteorological services (NMS) to be the designated meteorological authority (MA) and, at the same time, the meteorological service providers (MSP). In some States, the MA and MSP were separate entities (i.e. the States' CAA is the designated MA and the NMS is the MSP). The current trend was towards separating the regulatory functions from the service provision.

9.3 The designation of the meteorological authority should be done through adequate regulatory act, which may differ from State to State. As a minimum, the information about the designated MET authority and the MET service provider(s) should be made available in the State's Aeronautical Information Publication (AIP).

9.4 Having a clear picture regarding the States' MAs and MSPs was considered absolutely necessary for maintaining efficient communication between the MID Regional Office and the MID States on MET matters. For instance, the SADIS Provider State having difficulties in handling requests for access to SADIS if the information on the MET authority of the State concerned was missing or out of date.

9.5 In view of the above, the meeting agreed that the planned regional survey by the Regional Office on the status of implementation of the MET services in the MID Region should include questions on the designation of the MAs and MSPs, including current contact information.

Quality assurance

9.6 It was recalled that the quality assurance requirements related to the provision of meteorological services were set up in Annex 3, 2.2 as a recommended practice. In order to assist States in implementing the QA requirements, in particular, the establishment of a Quality Management System (QMS) by the MAs and MSPs, ICAO and the WMO have conducted regional seminars/workshops and also published a joined *Manual on Quality Management System for the Provision of Meteorological Service to International Air Navigation,* (Doc 9873, first edition – 2007).

9.7 The meeting was advised that in relation to the ICAO requirements for the establishment of Safety Management Systems (SMS), the establishment of QMS for the provision of MET services had become even more important. Therefore, it is planned that Amendment 75 to Annex 3, which will become applicable in November 2010, will include an "upgrade" of the current QA and QMS provisions for MET from recommended practice to standard.

9.8 The meeting noted with concern that the majority of the MID States have not yet started the process of establishment of QMS for MET. This would lead to a situation that a deficiency would have to be filed for many States after 2010 due to non-compliance with the expected new Annex 3 standard. The meeting recognized the need for raising the awareness of the MAs and MSPs in the MID States on the quality assurance and formulated the following Draft Conclusion:

DRAFT CONCLUSION 1/9: ***FOSTERING THE IMPLEMENTATION OF QMS FOR THE PROVISION OF METEOROLOGICAL SERVICE FOR INTERNATIONAL AIR NAVIGATION***

That,

a) MID States are urged to establish Quality Management System (QMS) for the provision of meteorological service for international air navigation, if they have not already done so; and

b) ICAO, in coordination with the WMO, is invited to organize a training event on the QMS for MET in the MID Region in 2009.

Cost recovery for the provision of meteorological services

9.9 The meeting discussed briefly issues related to the cost recovery for the provision of meteorological service by the States. The participants were aware that these issues were very complex and may require non-technical expertise (i.e. the cost-recovery within the ICAO Secretariat structure is dealt with by the Air Transport Bureau (ATB)). Nevertheless, such issues could be raised at MET Sub-Group meetings if they were considered of importance for the quality and sustainability of the provision of meteorological service for air navigation.

9.10 During the discussion, it was identified that the majority of the MID States were lacking a clearly established mechanism/methodology for determining the MET component of the air navigation service charges which rendered the cost recovery for the MET services impossible at present. The participants were strongly encouraged to work closely with the respective State's authorities on this issue and share experience at the next Sub-Group's meetings.

REPORT ON AGENDA ITEM 10: FUTURE WORK PROGRAMME

Regional survey on the status of implementation

10.1 The meeting identified the need for obtaining up-to-date information from the States on the status of implementation of the meteorological services and facilities. Therefore, it was proposed that the Secretariat will conduct a regional survey in order to collect such information to be used as benchmark for measuring the success of the activities conducted by the Sub-Group in accordance with the work programme. It was expected that such a survey would help also in identifying MET deficiencies. The meeting formulated the following Draft Conclusion in this regard:

DRAFT CONCLUSION 1/10: REGIONAL SURVEY ON THE IMPLEMENTATION OF THE MET SERVICES AND FACILITIES

That,

a) the MID Regional Office conduct a regional survey on the status of implementation of the MET services and facilities in the MID Region through a comprehensive questionnaire encompassing the main implementation MET areas; and.

b) the results of the survey be reported to MET Sub-Group/2 meeting.

Update of the Terms of Reference (TOR) and the Work Programme

10.2 The meeting reviewed the TORs and the Work Programme of the meeting and agreed on the updates as at **Appendix 10A** to the Report on Agenda Item 10. Accordingly, the meeting agreed on the following Draft Decision:

DRAFT DECISION 1/11: REVISED TERMS OF REFERENCE OF THE MET SUB-GROUP

*That, the revised Terms of Reference and Work Programme of the MET Sub-Group at **Appendix 10A** to the Report on Agenda Item 10, be adopted.*

Date and place of MET SG/2 Meeting

10.3 The meeting agreed that the second meeting of the MET Sub-Group be held at the MID Regional Office, Cairo in the second quarter of 2009. The exact dates will be coordinated with the Chairman of the Sub-Group.

Follow-up Action Plan

10.4 In accordance with the ICAO Business plan and the requirements for performance monitoring, the meeting developed a follow-up action plan as at **Appendix 10B** to the Report on Agenda Item 10.

MET SG/1
Appendix 10A to the Report on Agenda Item 10

METEOROLOGY SUB-GROUP OF MIDANPIRG (MET SG)

1. Terms of Reference

1.1 The Meteorology Sub-group (MET SG) is established by MIDANPIRG to pursue the tasks of the Group in the field of aeronautical meteorology in support to the relevant ICAO Strategic Objectives (Safety and Efficiency, and to certain extent, Environment and Continuity) with the following Terms of Reference:

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.

2. Work Programme

2.1 To ensure that the objectives of MET SG are met in accordance with the TORs, the group shall conduct its work according to a Work Programme endorsed by MIDANPIRG. The following are the main principles to be followed in setting up the Work Programme of MET SG:

a) The work programme shall be composed of tasks and projects with clearly identified deliverables, target dates and responsibilities;

b) The tasks/projects should cover the main implementation domains[1] in MET which are subject to regional planning and implementation;

c) The progress on the tasks/projects should be reviewed regularly by MET SG and reported to MIDANPIRG to ensure that the target dates are met and the deliverables are of required quality.

d) To facilitate the execution of its work programme, MET SG may set up working groups and project teams, if and when required, charge them with specific tasks and define target dates for their completion. After completion of their task(s), the working groups/project team(s) will be dissolved.

[1] The main implementation MET domains for the MID Region at present are: Implementation of the WAFS, including SADIS; Implementation of advisory and warning services (IAVW, Tropical Cyclones advisories and warnings, SIGMET); Exchange of OPMET information; Quality Assurance in MET.

2.2 **Tasks**

Ref	Tasks	Priority	Target Completion Date
1	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	A	(1)
2	Foster implementation of IAVW: • Liaise with VAAC Toulouse • Organise VA SIGMET tests • Work towards enhancing the awarenes of all IAVW stakeholders	A	(1)
3	Foster implementation of TC advisories and warnings • Liaise with TCAC New Delhi • Organize TC SIGMET Tests	A	(1)
4	Enahance the availability and quality of SIGMET • Organize WS SIGMET Tests	A	(1)
5	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	A	2010
6	Maintain the MET part of the MID ANP • Ensure that FASID Tables are up-to-date	A	2009
7	Develop regional guidance on the provision of SIGWX forecasts for Low-level flights	A	2010
8	Facilitate the implemenation of QMS for MET in the MID States • Organize a QMS Seminar/workshop	A	2011 2009/2010

3. Composition of the MET SG

MIDANPIRG Provider States + IATA + IFALPA + WMO

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(1) Continuous Task
(1) Continuous Task

MET SG/1
Appendix 10B to the Report on Agenda Item 10

MET SUB-GROUP
DRAFT FOLLOW-UP ACTION PLAN

DRAFT CONC/DEC NO. --- STRATEGIC OBJECTIVE	TITLE OF CONCLUSION/ DECISION	TEXT OF CONCLUSION/DECISION	FOLLOW-UP ACTION	TO BE INITIATED BY	DELIVERABLE	TARGET DATE
Draft Conc. 1/1	Providing MID States with Information on Recent and Forthcoming Developments to WAFS and SADIS	That, in order to allow the users to maintain their WAFS processing systems compatible with the planned developments, the information on Recent and Forthcoming developments to WAFS and SADIS, at Appendix 3C to the Report Agenda Item 3, be circulated to the States in the MID Region in order to be used as guidance material.	Circulate Appendix 3C in order to be used as guidance material	ICAO	State letter	Jul. 2008
Draft Conc. 1/2	SADIS Strategic Assessment Tables	That, the MID SADIS Strategic Assessment Tables 2008 - 2012 at Appendix 4A to the Report on Agenda Item 4, be adopted and forwarded to the SADISOPSG for planning the future SADIS bandwidth requirements.	Forward the MID SADIS Strategic Assessment Tables to the Secretary of SADIOSPSG	ICAO	IOM to HQ	Jul. 2008
Draft Dec. 1/3	Finalizing the MID SIGMET Test Procedures	That, an ad-hoc working group composed by experts from IROG Vienna (Austria), VAAC Toulouse (France) and the MET SG Rapporteur on SIGMET Tests assisted by the Secretariat, is tasked to finalize the MID SIGMET Test Procedures, based on the proposals presented at MET SG/1 meeting. *Note:- Upon completion of the task, the MID SIGMET Tests procedures will be circulated to the MID States by the MID Regional Office.*	Finalize the MID SIGMET tests procedures Distribute to States	Ad-hoc WG ICAO	MID SIGMET Tests Procedures State letter	Sep. 2008 Sep. 2008

DRAFT CONC/DEC NO. --- STRATEGIC OBJECTIVE	TITLE OF CONCLUSION/ DECISION	TEXT OF CONCLUSION/DECISION	FOLLOW-UP ACTION	TO BE INITIATED BY	DELIVERABLE	TARGET DATE
Draft Conc. 1/4	Conducting regular SIGMET tests in the MID Region	That, a) the final MID SIGMET Test Procedures be adopted and forwarded to the MID States for implementation; b) MID States be urged to participate in the regular SIGMET tests; c) in order to facilitate the conduct of the SIGMET tests, MID States are invited to designate SIGMET focal points; and d) the results of the SIGMET tests be reported to the MET Sub-Group and feed-back on the identified deficiencies be provided to the MID States concerned.	a) adopt SIGMET tests procedures b) Urge State to participate c) Designation of Focal Points d) Report results of the tests to MET SG	MIDANPIRG ICAO States Rapporteur	MIDANPIRG Conclusion State letter FPs designated WP for MET SG	Feb. 2009 Oct. 2008 Oct. 2008 Jun. 2009
Draft Conc. 1/5	Improving the Procedures for Sending MID OPMET Data to EUR Region	That, MID States a) be advised to use **LOZZMMID** as a single AFTN address for sending OPMET data to the EUR Region; and b) that have not yet implemented the correct METAR and TAF format be urged to do so as soon as possible.	Advise/urge States to implement the conclusion	ICAO States	State letter Procedures implemented	Jul. 2008 Dec. 2008
Draft Dec. 1/6	Activation of MID OPMET Bulletin Management Group (BMG)	That, the MID OPMET BMG is re-established with Terms of Reference and Work Programme as at Appendix 6B to Report on Agenda Item 6.	Establish BMG	MET SG UAE, Bahrain and Saudi Arabia to confirm participation	TORs and work programme	Completed 15 July 2008

DRAFT CONC/DEC NO. --- STRATEGIC OBJECTIVE	TITLE OF CONCLUSION/ DECISION	TEXT OF CONCLUSION/DECISION	FOLLOW-UP ACTION	TO BE INITIATED BY	DELIVERABLE	TARGET DATE
Draft Conc. 1/7	Proposal for amendment of the MET part of the MID Basic ANP (DOC 9708)	That, the MET Part of the MID Basic ANP be amended as shown in Appendix 7A to the Report on Agenda Item 7.	Amend BANP	ICAO	PFA	Sep. 2008
Draft Dec. 1/8	Review and amendment of the FASID MET Tables	That, the OPMET BMG, assisted by the Secretariat, is tasked to review the FASID Tables related to the OPMET exchange (FASID Tables MET 1A, 2C, 4A and 4B), and propose amendments, as necessary.	Review FASID Tables	OPMET BMG	Draft PFA	Oct. 2008
Draft Conc. 1/9	Fostering the implementation of QMS for the provision of meteorological service for international air navigation	That, a) MID States are urged to establish Quality Management System (QMS) for the provision of meteorological service for international air navigation, if they have not already done so; and b) ICAO, in coordination with the WMO, is invited to organize a training event on the QMS for MET in the MID Region in 2009.	States to implement QMS Organize training event	ICAO States ICAO and WMO	State letter Implementation plan Seminar/workshop	Dec. 2008 2009 2009
Draft Conc. 1/10	Regional Survey on the Implementation of the MET Services and Facilities	That, a) the MID Regional Office conduct a regional survey on the status of implementation of the MET services and facilities in the MID Region through a comprehensive questionnaire encompassing the main implementation MET areas; and b) the results of the survey be reported to the MET SG/2 meeting.	Conduct survey Report results	ICAO States ICAO	Survey carried out Response to survey Summary report (WP)	Oct. 2008 Dec. 2008 Jun. 2009

DRAFT CONC/DEC NO. --- STRATEGIC OBJECTIVE	TITLE OF CONCLUSION/ DECISION	TEXT OF CONCLUSION/DECISION	FOLLOW-UP ACTION	TO BE INITIATED BY	DELIVERABLE	TARGET DATE
Draft Dec. 1/11	Revised Terms of Reference of the MET Sub-Group	That, the revised Terms of Reference and work programme of the MET Sub-group at Appendix 10A to the Report on Agenda Item 10, be adopted.	Approve TORs	MIDANPIRG	Approved TORs	Feb. 2009

REPORT ON AGENDA ITEM 11: ANY OTHER BUSINESS

11.1 Nothing was discussed under this Agenda Item.

ATTACHMENT A

MET SG/1
Attachment A to the Report

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