International Civil Aviation Organization

MID OPMET Bulletin Management Group

Sixth Meeting (MID OPMET BMG/6)
(Kuwait, 14 February 2017)

Agenda Items from 3 to 10

OPMET ISSUES FOR BMG/6 MEETING

(*Presented by the Secretariat)*

SUMMARY

This paper presents OPMET issues for consideration by the BMG/6 that includes review of: the status of regional and inter-regional OPMET exchange and implementation of Regional OPMET Centre (ROC) Jeddah and back-up ROC Bahrain; Regional OPMET bulletin exchange procedures and associated guidance; SIGMET tests and future special air-report tests; SIGMET guidance in light of Amendment 77 to Annex 3; air navigation deficiencies related to MET; implementation of ICAO Meteorological Information Exchange Model (IWXXM); proposed modifications to the MID Air Navigation Plan; and future work programme via BMG ToRs.

Action by the meeting is at paragraph 3.

REFERENCES

- MID MET SG/6 Meeting, MID BMG/5 Meeting, MSG/5 Meeting and ANSIG/2 Meeting (HTTP://WWW.ICAO.INT/MID/PAGES/MEETINGS.ASPX)

1. INTRODUCTION

1.1 The meeting is invited to address the agenda of the Sixth Meeting of the MID Bulletin Management Group (MID BMG/6) that includes a review of: the status of regional and inter-regional OPMET exchange and implementation of Regional OPMET Centre (ROC) Jeddah and back-up ROC Bahrain; Regional OPMET bulletin exchange procedures and associated guidance; SIGMET tests and future special air-report tests; SIGMET guidance in light of Amendment 77 to Annex 3; air navigation deficiencies related to MET; implementation of ICAO Meteorological Information Exchange Model (IWXXM); proposed modifications to the MID Air Navigation Plan; and future work programme via BMG ToRs.

2. DISCUSSION

Status of regional and inter-regional OPMET exchange and implementation of Regional OPMET Centre (ROC) Jeddah and back-up ROC Bahrain

2.1 The meeting may wish to recall that the MIDANPIRG/14, through Conclusion 14/30, agreed that Saudi Arabia in coordination with ICAO establish a MID Regional OPMET Centre (ROC) by the first half of 2015 to improve the regional and inter-regional OPMET efficiency and also agreed Bahrain in coordination with ICAO establish a back-up Regional OPMET Centre (ROC) and that MID States be encouraged to continue cooperation in the exchange of OPMET data in the MID Region.

2.2 The meeting may wish also to recall that the MIDANPIRG/15, through Conclusion 15/33, urged States to update their OPMET exchange scheme in coordination with ROC Jeddah and back-up ROC Bahrain in order to complete MID ROC implementation by 30 September 2015. Progress on implementation was provided by ROC Jeddah as provided at **Appendix A** which revealed that nine States (Iraq, Lebanon, Libya, Jordan, Oman, Qatar, Saudi Arabia, Sudan and United Arab Emirates) have fully implemented the appropriate OPMET exchange scheme. Four States (Bahrain, Egypt, Iran and Kuwait) have partially implemented this scheme, while two States (Syria and Yemen) have not started implementation in this regard. An update to the partially implemented OPMET exchange schemes is expected at the BMG/6 meeting.

2.3 Progress related to back-up ROC Bahrain included developing routing tables for Lebanon, Jordan, Kuwait, Oman, Qatar and United Arab Emirates. In addition, OPMET data was routed from Bahrain to Vienna for Iran, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia and Yemen.

Implementation reporting/monitoring

2.4 MIDANPIRG MET Sub-Group is the main Regional monitoring body to report progress on the implementation of ROC Jeddah and back-up ROC Bahrain.

2.5 At the national level, MET Focal Points are responsible for following-up actions supporting the implementation of ROC Jeddah and back-up ROC Bahrain.

Data collection mechanism

2.6 ROC Jeddah and back-up ROC Bahrain provide an update on States progress to support the implementation of these ROCs. Furthermore, ROC Vienna has assisted in monitoring required OPMET data in the MID Region exchanged with the EUR Region and has identified issues such as duplicate bulletins and OPMET information in multiple bulletins. ROC Jeddah in return contacted States, when necessary, to remedy these issues.

Implementation challenges

2.7 Implementation challenges in most cases include human resources and coordination needed in determining what OPMET data is needed from ROC Jeddah to meet the users' needs. This requires knowledge of international flight destinations as well as alternate aerodromes along the routes for those operators operating within the States.

2.8 Implementation challenges in some States include the need for supporting the implementation of ROC Jeddah and back-up ROC Bahrain by the responsible institution.

2.9 Basic ROC functions are a prerequisite for the implementation of ICAO Meteorological Information Exchange Model (IWXXM). ROC Jeddah could serve as a future translation centre for States not in a position to provide OPMET data in IWXXM. Using basic principles in translating Traditional Alphanumeric Code (TAC) to IWXXM developed by the Meteorology Panel (METP) Working Group on Meteorological Information Exchange (METP WG-MIE) would be one component to enable the use of System Wide Information Management (SWIM).

2.10 To support the future implementation of IWXXM at ROC Jeddah and back-up ROC Bahrain, ROC Jeddah has participated in the *Workshop on Implementing the ICAO Meteorological Information Exchange Model (IWXXM) for the exchange of OPMET data* (Paris, 31 May to 02 June 2016) and expected to participate in future workshops such as the *Interregional APAC/EUR/MID Seminar on "service improvement through integration of AIM, MET and ATM information"* from 2 to 5 October 2017 in Brussels.

What is expected by this meeting

2.11 The meeting is expected to provide updates related to the implementation of OPMET exchange schemes that support the implementation of ROC Jeddah and back-up ROC Bahrain, and in particular, those States (Bahrain, Egypt, Iran and Kuwait) that have partially implemented this scheme should provide implementation dates for completion. The progress on implementation of ROC Jeddah and back-up ROC Bahrain as provided at **Appendix A** should be updated and presented as part of the BMG/6 flimsy for MIDANPIRG/16.

Regional OPMET bulletins exchange procedures and associated guidance

What is expected by this meeting

2.12 Update the progress on the development of guidance material related to Regional OPMET bulletins exchange procedures and associated guidance as provided at **Appendix A** which will be presented as part of BMG/6 flimsy for MIDANPIRG/16.

SIGMET test and future special air-report tests – MID States

2.13 The meeting may note the results of APAC SIGMET tests that occurred in November 2016. Regarding SIGMET test on tropical cyclone (WC SIGMET) conducted on 2 November 2016, the following MID States SIGMET test messages were received at ROC Vienna via ROC Jeddah: Kuwait (priority FF should be used and WC instead of WS should have been in the message) and United Arab Emirates.

2.14 Regarding SIGMET test on volcanic ash (WV SIGMET) conducted on 9 November 2016, the following MID States SIGMET test messages were received at ROC Vienna via ROC Jeddah: Kuwait (priority FF should be used), Oman (priority FF should be used) and United Arab Emirates

2.15 Regarding SIGMET test for other phenomenon (WS SIGMET) conducted on 16 November 2016, the following MID States SIGMET test messages were received at ROC Vienna via ROC Jeddah: Kuwait (priority FF should be used), Oman (priority FF should be used) and United Arab Emirates

2.16 The meeting may recall that the MID MET SG/6 Meeting formulated Draft Conclusion 6/2 related to special air-report tests. The ANSIG/2 meeting noted that the implementation of distributing special air-reports to ROC Jeddah will be assisted by a special air-report test expected for other phenomenon on 6 September 2017 and for volcanic ash on 7 September 2017 (ANSIG/2 Draft Conclusion 5/2 refers – to be considered by MIDANPIRG/16). These tests will assist the Meteorological Watch Offices (MWO) to practice sending these reports to ROC Jeddah using ICAO and WMO provisions. Details will be provided in the invitation letter which will be issued at least one month prior to the test. It was highlighted that guidance on the format and dissemination of special air-reports will be adapted for the MID Region and provided as an attachment to the invitation. The end goal of the test is to have these special air-reports available to operators who could use this information in their safety risk assessments.

What is expected by the meeting

2.17 The meeting may review and comment on the draft invitation letter as provided at **Appendix B**.

SIGMET guidance in light of Amendment 77 to Annex 3

2.18 The meeting may wish to note the results of the Second Meeting of the Meteorology Panel (Montréal, 17 to 21 October 2016) endorsed the update to the Regional SIGMET Guide Template (METP/2 Decision 6/1 refers). The update includes changes to the SIGMET (and AIRMET) templates related to changes to Amendment 77 to ICAO Annex 3.

What is expected by the meeting

2.19 Therefore, the proposed update to the MID Regional SIGMET Guide as provided at **Appendix C** should be reviewed by the meeting. States may also provide updates to MID specific items: Appendix D, *SIGMET WMO headers – MID*, Appendix E, *Special air-report WMO headers – MID*, and Appendix F, *SIGMET examples –MID*.

2.20 Flimsy for the BMG/6 should request MIDANPIRG/16 endorsement of the updated MID Regional SIGMET Guide.

Review and update the list of air navigation deficiencies related to MET

2.21 The meeting may recall MIDANPIRG Conclusion 15/35 that urged States to use the MID Air Navigation Deficiency Database (MANDD) for the submission of requests for addition, update and elimination of Air Navigation Deficiencies, including the submission of a specific Corrective Action Plan (CAP) for each deficiency; and requested States to submit a Formal Letter to the ICAO MID Regional Office containing the evidence(s) that mitigation measures have been implemented for the elimination of deficiency(ies) when requesting the elimination of deficiency(ies) from the MANDD.

What is expected by the meeting

2.22 The meeting may review and update the list of air navigation deficiencies related to MET in the MID Air Navigation Deficiencies Database (MANDD) as provided at **Appendix D**.

2.23 Any changes provided would have to be reflected as a flimsy to MIDANPIRG/16, WP/28, *Review of Air Navigation Deficiencies*.

Implementation of ICAO Meteorological Information Exchange Model (IWXXM)

2.24 The meeting may note that the Second Meeting of the Meteorology Panel (Montréal, 17 to 21 October 2016) formulated Recommendation 5/5 which states the METP/2 endorsed and recommended the guidance document "*Guidelines for the Implementation of OPMET data exchange using IWXXM*" as recommended guidance for Planning and Implementation Regional Groups (PIRGs). This recommendation is subject to ICAO ANC approval.

What is expected by the meeting

2.25 The BMG/6 is invited to note that the MET SG will take action to consider this guidance material to assist in IWXXM implementation in the MID Region.

2.26 In the meantime, the meeting is invited to provide information in the first draft IWXXM implementation plan for the MID Region as provided at **Appendix E**.

2.27 Updated IWXXM implementation plan to be provided in BMG/6 flimsy to MIDANPIRG/16.

Proposed modifications to the eANP

2.28 The meeting may recall MIDANPIRG Conclusion 15/11 which endorsed the new MID ANP Volume I, II and III and that the ICAO MID Regional Office process the necessary Proposals for Amendment, in accordance with the procedure for amendment approved by the Council, for formal approval by the end of 2015. The meeting may note that this Conclusion has been fulfilled and that the current MID Air Navigation Plan Volumes I, II and III may be accessed at the following website: www2010icao.icao.int/MID/Pages/MIDeANP.aspx.

2.29 The meeting may recall that the cessation of SADIS 2G satellite service and consequently the acronym change of SADIS from *Satellite Distribution System for Information Relating to Air Navigation* to *Secure Aviation Data Information Service*. In addition, that in the MID Region, World Area Forecast Centre (WAFC) London has been designated as the centre for the operation of the aeronautical fixed service. As result, the appropriate proposals have been made to the MID ANP Volume I, Part V (MET), paragraphs 2.1 and 2.2 as well as the MID ANP Volume II, Part III (CNS), paragraph 2.1 b) as provided at **Appendix F**.

2.30 Furthermore, the meeting may wish to note that the implementation of Regional OPMET Centre (ROC) Jeddah and back-up ROC Bahrain and associated OPMET exchange scheme that designates the ROCs for further dissemination of OPMET data to SADIS, other international databanks and to the WIFS Provider State. As a result of this implementation, the appropriate proposed changes to the MID ANP, Volume II, Part V (MET), paragraph 2.8 are provided at **Appendix F**.

2.31 The meeting may also recall MSG Conclusion 5/12 that called for States to provide the ICAO MID Regional Office with proposed changes to the MET Part of Volume II related to the criteria used for determining which AOP aerodromes should issue half-hourly METAR, by 30 June 2016. Proposed changes to the MID ANP, Volume II, Part V (MET), paragraph 2.2 are provided at **Appendix F** which takes into account criteria such as number of operations at an aerodrome, frequency of weather change and use of METAR in VOLMET.

2.32 Lastly, the meeting may recall MSG Conclusion 5/13 that called for the amendment of the MID eANP Volume III – B0-AMET, which would include the implementation of SIGMET. A draft *Table B0-AMET 3-5, SIGMET availability* will be provided to the MID MET SG/7 meeting for review and possible endorsement by MIDANPIRG/17.

What is expected by the meeting

2.33 The meeting is invited to review the proposed changes to the MID ANP, Volumes I and II as provided at **Appendix F** that reflects the changes related to SADIS, ROC functions, and requirement criteria in determining when to issue half-hourly METAR.

2.34 The outcomes will be included in the BMG/6 flimsy to MIDANPIRG/16.

Future work programme

2.35 The meeting will recall that the Terms of Reference (ToRs) of the BMG should be reviewed at each BMG meeting to keep up-to-date duties related to the exchange of OPMET data and changes related to the global groups' structure and implementation of ASBU A-MET Blocks. In this regard, proposed changes as provided at **Appendix G** include the role of ROCs, implementation of IWXXM, and updates to documentation references.

What is expected by the meeting

2.36 The meeting is invited to review the Terms of Reference (ToRs) of the BMG as provided at **Appendix G**.

2.37 Updated ToRs of the BMG to be provided in BMG/6 flimsy for MIDANPIRG/16 consideration.

2.38 The meeting may consider the time and place of the MID OPMET BMG/7 meeting.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information in this paper;

b) provide updates to the progress on implementation of ROC Jeddah and back-up ROC Bahrain (**Appendix A**), and in particular, to those States that have partially implemented the regional OPMET data exchange scheme (Bahrain, Egypt, Iran and Kuwait) and the development of guidance material related to Regional OPMET Bulletin Exchange procedures;

c) review and comment on the draft invitation instructions on special air-report tests (**Appendix B**);

d) review and provide comments to the proposed updates to the MID Regional SIGMET Guide (**Appendix C**), and in particular, to Appendices D to F of the this Guide;

e) review and update, where necessary, the list of air navigation deficiencies related to MET (**Appendix D**);

f) note that the recommended guidance document "*Guidelines for the Implementation of OPMET data exchange using IWXXM*" if approved by ICAO ANC (reference METP/2 Recommendation 5/5) will be considered by the MID MET SG;

g) provide updates to the draft IWXXM implementation plan for the MID Region (**Appendix E**);

h) review and update, where necessary, the MID Air Navigation Plan proposed changes (**Appendix F**); and

i) review and comment on the proposed updates to the BMG Terms of Reference (**Appendix G**).

APPENDIX A

MID ROC implementation plan

Following is a list of tasks to be fulfilled to progress on the transition, last update November 10, 2016

No.	Task	Responsible	Prerequisite	Start Date	Estim. Time (According to plan)	Finish at
1	Implement Collective Addresses	ROC Jeddah	-	24.10.2014	1week	01.01.2015
2	Transition Bahrain	ROC Jeddah	-	27.10.2014	1 month	Part1 finished 15.1.2015, Part2, Pending
3	Transition Process with Kuwait	ROC Jeddah	-	06.01.2014	1 month	Part1, OK, 05/02/2015, Part2 Pending
4	Transition Process with Qatar	ROC Jeddah	-	06.01.2015	1month	Transition Patrt1 OK, 13/04/2015 Part2, OK, 20/04/2015
5	Transition Process with Oman	ROC Jeddah	-	06.01.2015	1 months	Part1, OK, 22/02/2015, Part2, OK, 01/05/2015
6	Transition Process with UAE	ROC Jeddah	-	06.01.2015	1 month	Part1, OK, 25.2.2015, Part2, OK, 15/05/2015
7	Send Saudi Arabian Compilations to BROC Bahrain (OBZZMMID)	Meteorological Communications Centre (MCC) Jeddah	Task No. 1 has to be finished	02.11.2014	1 day	01/03/2015
8	Continue and Finish Transition Sudan	ROC Jeddah	-	01.09.2014	11 months	Part1 and Part2, OK,01/08/2015
9	Develop Backup Procedure	ROC Jeddah & BROC Bahrain (inform MID-BMG)		23.10.2014	4 months	Draft procedure has been discussed during ROC Jeddah Training

						(October 16-27, 2016) and to be agreed with B-ROC Bahrain
10	Develop Regional HB on OPMET Data Exchange	ROC Jeddah & BROC Bahrain (inform MID-BMG)		24.03.2015	2 months	started (October 30, 2016) see note 3 below
11	Develop first ideas for Training for operators	ROC Vienna		27.10.2014	2 weeks	Submitted to PME
12	Finalize Training for operators	ROC Jeddah & BROC Bahrain & ROC Vienna		10.11.2014	April 2016	Training done (October 16-27, 2016)
13	Route GULF reports to ROC Jeddah	ROC Jeddah		27.10.2014	1 month	01/02/2015
14	Transition Process for Iran	ROC Jeddah		16.02.2015	2 months	Part1,OK, 25/11/2015 Part2, pending
15	Transition Process for Jordan	ROC Jeddah				Transition part1 OK, 19/04/2015, transition Part2 OK, 20/05/2015
16	Transition Process for Egypt	ROC Jeddah				Egypt, transition part1 OK, 17/05/2015, transition part2 Pending
17	Transition Process Iraq	ROC Jeddah		16.04.2015	2 months	Iraq, transition part1 OK (last update 28/8/2015), transition Part2 OK 2/10/2016
18	Transition Process Syria	ROC Jeddah				Syria (no contact information yet)

19	Transition Process Lebanon	ROC Jeddah				Transition part1&2 ,OK, 13/12/2015
20	Transition Process Libya	ROC Jeddah				Transition part1 OK, 25/03/2015, Transition part2 OK, 17/05/2015
21	Transition Process Yemen	ROC Jeddah				No Reply

Comments:

1- **Finish column in this attachment is filled based on what information States provided in the transition form, however we noticed some discrepancies between some MID States transition forms and routing table provided by ROC Vienna.**
2- **Some Mid-States still received OPMET data from outside ROC Jeddah; however, ROC Jeddah is still working hard to contact OPMET data source to stop sending data to Mid-state directly with coordination with that Mid-state.**
3- **Regional Handbook on OPMET Data Exchange expected to be finished within 2-3 months.**

APPENDIX B

Informational Letter SIGMET& SPECIAL AIREP Monitoring

Format for SIGMET & SPECIAL AIREP Test Message Transmission in EUR and MID

1. Introduction

1.1. Regular SIGMET and SPECIAL AIREP Monitoring Exercises are used to check the routing of those messages within the ICAO EUR and MID Regions. Based on the results, the routings are updated to ensure the dissemination to all centres within the EUR and MID Regions.

1.2. The SIGMET and SPECIAL AIREP Monitoring Exercise is always carried out during the Data Management Group (DMG) OPMET Monitoring period from **1 to 14 September each year.**

1.3. The **WS-SIGMET** and **SPECIAL AIREP** (ii=60-69) monitoring test is conducted on the **first Wednesday** of the period.

1.4. The **WV-SIGMET** and **(VA) SPECIAL AIREP** (ii=70-79) monitoring is conducted on the **day immediately after** the WS-SIGMET monitoring exercise.

1.5. The exact date is promulgated by the Warning Monitoring Focal Point 2 weeks in advance to all participants via e-mail. Note that in the MID Region, a State letter will be issued to MID States (cc'd to SIGMET focal points) at least 1 month in advance of the tests. The monitoring starts both days at 0800 UTC and ends at 1200 UTC.

1.6. For the WS-SIGMET and SPECIAL AIREP (ii=60-69) monitoring, the Meteorological Watch Offices (MWOs) are requested to send their test SPECIAL AIREP bulletin at 1000 UTC immediately followed by (a) WS-SIGMET bulletin(s). One SIGMET should be issued for each FIR under MWO area of responsibility. The format of the WS-test messages is explained under paragraph 3, the format for SPECIAL AIREP test messages under paragraph 24.

1.7. For the WV-SIGMET and SPECIAL AIREP (ii=70-79) monitoring, Volcanic Ash Advisory Centres (VAAC) Toulouse and London are requested to send a test Volcanic Ash Advisory (FV-bulletin) and test Volcanic Ash Graphic (PF-bulletin) at 1000 UTC. An example of the FV-test message is shown under paragraph 4.

1.8. The MWOs are requested to send their test SPECIAL AIREP bulletin at 1000 UTC immediately followed by WV-SIGMET bulletin straight afterwards, independent of the reception of any test Volcanic Ash Advisory (FV-bulletin) or test Volcanic Ash Graphic (PF-bulletin) sent from Volcanic Ash Advisory Centres (VAAC) Toulouse or London. One SIGMET should be issued for each FIR under the MWO area of responsibility. The format of the WV-test message is explained under paragraph 3, the one for the SPECIAL AIREP message under paragraph 2.

1.9. The format to be used by monitoring centres to send the monitoring results to the Focal Point can be found under paragraph 5.

2. Format of the SPECIAL AIREP Test message

2.1. There are a few rules that a SPECIAL AIREP message should adhere to.

- Only one test SPECIAL AIREP should be issued per monitoring day;
- The correct ii should be used:
  - ii=60-69 on Wednesday for UAs regarding non-volcanic ash reports
  - ii=70-79 on Thursday for UAs regarding volcanic ash reports
- The correct test format should be used;
- It should be send at 1000 UTC;

Examples of special air-report for non-volcanic ash reports:

UADN61 EKCH 0631000
ARS
TEST SPECIAL AIREP PLEASE DISREGARD=

Or

UAKW61 OKBK 061000
ARS
TEST SPECIAL AIREP PLEASE DISREGARD=

Examples of special air-report for volcanic ash reports

UADN71 EKCH 0731000
ARS
TEST SPECIAL **VA-**AIREP PLEASE DISREGARD=

Or

UAKW71 OKBK 071000
ARS
TEST SPECIAL **VA**-AIREP PLEASE DISREGARD=

3. Format of WS/WV-SIGMET Test Messages

3.1. There are a few rules that test WS/WV-SIGMET messages should adhere to.

- One test SIGMET should be issued for each Flight Information Region (FIR) under the area of responsibility of the MWO;
- The **correct test format** should be used;
- It should be send at **1000 UTC** immediately **after** the UA-test message; and
- The validity period should be from **1100 to 1105** in order to not lose delayed test messages.

3.2. Some examples on how test WS-SIGMET messages should be composed follow:

3.2.1. If no current or previously valid SIGMET has been issued for the FIR concerned

If there is no current or previously valid SIGMET for the FIR concerned (i.e. if no SIGMET has been issued prior to the test commencing), then a test WS-SIGMET shall be transmitted with sequence number (n)= **1** or **01** or **N1**. Please take also care of including **FIR-Indicator and FIR name** in the third line as this is the correct format for SIGMET messages according to ICAO Annex 3 – *Meteorological Service for International Air Navigation*.

Example:

*WSOS31 LOWW ~~13~~06*1000
*LOVV SIGMET **1** VALID ~~13~~06*1100/*~~13~~06*1105 *LOWW-*
***LOVV WIEN FIR** TEST SIGMET PLEASE DISREGARD=*

WSOM31 OOMS 061000
OOMM SIGMET 1 VALID 061100/061105 OOMS=
OOMM MUSCAT FIR TEST SIGMET PLEASE DISREGARD=

3.2.2. If a currently valid SIGMET is in force for the FIR concerned

If there is a currently valid WS-SIGMET in force for the FIR concerned, the test WS-SIGMET has to be issued with the next consecutive sequence number. There is no more need to send out another SIGMET with the next consecutive number to reissue SIGMET number 2 as, according to ICAO Annex 3, it is possible to have more than one valid SIGMET available at the same time.

Example valid WS-SIGMET:

*WSUK31 EGRR ~~13~~06*0800
*EGTT SIGMET **2** VALID ~~13~~06*0800/~~13~~06*1200 EGRR-*
EGTT LONDON FIR text=

Example TEST WS-SIGMET:

*WSUK31 EGRR ~~13~~06*1000
*EGTT SIGMET **3** VALID ~~13~~06*1100/~~13~~06*1105 EGRR-*
EGTT LONDON FIR TEST SIGMET PLEASE DISREGARD=

Example valid WS-SIGMET

WSBN31 OBBI 060800
OBBB SIGMET 2 VALID 060800/061200 OBBB=
OBBB BAHRAIN FIR text=

Example TEST WS-SIGMET

WSBN31 OBBI 061000
OBBB SIGMET 3 VALID 061100/061105 OBBB=
OBBB BAHRAIN FIR TEST SIGMET PLEASE DISREGARD=

4. Format of Volcanic Ash Advisory Test Message

4.1. On the monitoring day, the VAAC~~s~~ Toulouse and VAAC London will send out test FV- messages. These can be expected around 1000 UTC. The message itself will look like the following example. **Note that the ii used for those messages can vary between 01 and 05**.

4.2. ***Example:***

FVXX*01* LFPW 071020
VA ADVISORY
DTG:201~~6~~7~~02~~09*07*/1020
VAAC: TOULOUSE
VOLCANO: UNKNOWN
PSN: UNKNOWN
AREA: EUR and MID REGIONS
SUMMIT ELEV: UNKNOWN
ADVISORY NR: 20~~08~~17/00
INFO SOURCE: TEST EUR DMG and MID BMG
AVIATION COLOUR CODE: UNKNOWN
ERUPTION DETAILS: TEST EUR DMG and MID BMG
OBS VA DTG: 07/1020Z
OBS VA CLD: NO VA EXP
FCST VA CLD +6 HR: 07/1620Z NO VA EXP
FCST VA CLD +12 HR: 07/2220Z NO VA EXP
FCST VA CLD +18 HR: 08/0420Z NO VA EXP
RMK: REGULAR DMG VA TEST
TEST TESTTESTTESTTESTTESTTESTTESTTESTTESTTESTTEST
NEXT ADVISORY: NO FURTHER ADVISORY=

5. Format for SIGMET test message monitoring results

5.1. Until 2015 simple EXCEL-sheets have been used to provide the results to the Warning Monitoring Focal Point. As this is far from an efficient state of the art way to do the monitoring (a lot of centres have to fill in that form by hand), this has been changed.

Centres, participating at the monitoring exercise, are asked to provide their results by sending the information about the monitored data in a dedicated *.csv formatted file per monitoring day:

- One file for the first Warning-Monitoring-Day, with all monitored WS- and UA-messages
- One file for the second Warning Monitoring-Day, with all monitored FV-, WV and UA-messages

The file naming rules can be found in section 5.8.

5.2. Directives on compiling the monitoring results

Each field of the *.csv.file shall be delimited by quotes (“) and separated by a semicolon (;).

The first line shall hold the field description as defined in the first column of the table in section 5.3.

Example:

“TT”;”AAii”;”CCCC”;”YYGGgg”;”BBB”;”ReceptionTime”;”Source”;”Test”;”ATSU”;”MWO”;”FIRIndicator”;”FIRName”;”RecvdFrom”

The actual monitoring details start from the second line.
Per monitored message (WS, WV, UA or FV), a separate line with the following information shall be provided:

Field	Length	(M)andatory/ (O)ptional	Remark
TT	2	M	
AAii	4	M	
CCCC	4	M	
YYGGgg	6	M	
BBB	3	M	Content of field per default BBB
ReceptionTime	6	M	Format: HHMMss
Source	1	M	A=AFTN, S=SADIS, G=GTS, O=Other
Test	1	M	Y=Test-message N=Actual-message
ATSU	4	O	Air Traffic Services Unit, Indicator at beginning of first line after the header
MWO	4	O	MWO-Indicator at the end of the first line after the header, just before the hyphen (-)
FIRIndicator	4	O	FIR Indicator at beginning of second line after the header
FIRName	50	O	As received in the SIGMET

RecvdFrom	8	O	AFTN-Address of the Originator or CCCC of the GTS-Centre the message has been received from. In case of GTS-Centre, the last 4 digits shall be filled with ****

Example:

"WS";"NO34";"ENMI";"021000";"BBB";"100123";"A";"Y";"ENBD";"ENVV";"ENOR";"NORWAY FIR";"EGGYYBYA"

*"WS";"RS31";"RUSP";"021139";"CCA";"114154";"G";"N";"ULLL";"ULLI";"ULLL";"SAINT-PETERSBURG FIR";"OKPR****"*

"WS";"KW10";"OKBK";"061000";"BBB";"061001";"A";"Y";"OKBK";"OKBK";"OKAC";"KUWAIT";"OEJDYMYX"

5.3. In the past, it was asked to only report the first reception of a certain SIGMET. Now one SIGMET shall be as often in the results as it has been received e.g. also from other sources. There are no more restrictions.

5.4. Furthermore, there are no more restrictions to just monitor EUR-messages. All warning messages received during the monitoring period can be reported. Filtering is up to the Warning Monitoring FP.

5.5. File Naming

The .csv file holding the results for the WS-monitoring day **shall be** named as follows:

WS-Monitoring-YYYYMMDD-CCCC.csv (e.g. WS-Monitoring-20176090926-EDZW.csv) (e.g. WS-Monitoring-20170906-OKBK.csv)

Similarly the results for the WV-monitoring shall be named as follows:

WV-Monitoring-YYYYMMDD-CCCC.csv

It is **essential** to use this format as only this will support the automated handling:

5.6. (Non-)Required Warning-messages

As some centres may not have a need for all available warning messages from the EUR- and MID Regions, the Warning Monitoring Focal Point will provide a list per State identifying the requirements, based on the past monitoring exercises. States will be asked to check this list and report back any incorrect or missing entries. ~~Such list will NOT be provided for Non-EUR warning messages.~~

5.7. Using EXCEL to provide monitoring results

As all centres are not able to use automated tools for providing the monitored data, there is the possibility to use an EXCEL-file. But this should only be an interim solution and not be continued for all time as this solution puts more unduly workload on the Monitoring Focal Point. The template is available from the DMG-homepage and looks as follows, with some examples for explanation:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	TTAAiiCCCC	YYGGgg	BBB	ReceptionTime	Source	Test	ATSU	MWO	FIRIndicator	FIRName	RecvdFrom		Mandatory Fields	Optional Fields
2	WSNO34ENMI	021000	BBB	100123	A	Y	ENBD	ENVV	ENOR	NORWAY FIR	EGGYYBYA			
3	WSIL31BICC	021004	BBB	101612	A	N								
4	WSRS31RUSP	021129	CCA	113154	G	N	ULLL	ULLI	ULLL	SAINT-PETERSBURG FIR	OKPR****			
5	UAIE61EIDB	021133	BBB	113727	A	N					EGGYYBYA			
6														
7														
8														
9														
10														
11														
12														

5.8. **No additional fields** must be added as this might cause problems for the automated analysing. If there is a need for additional information, please provide this as text in the mail when sending the results.

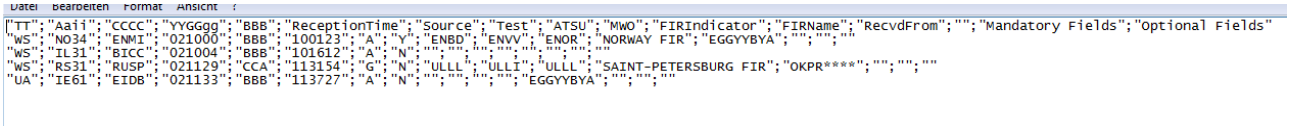
5.9. In case of multiple reception of a bulletin via different sources, one line per reception should be used. **Only one single character** (A/S/G) in the "Source" field like it has been done in the old EXCEL-file.

5.10. In case of reception via SADIS, it is not necessary to have an entry in the "RecvdFrom" field. It can be left blank.

5.11. The EXCEL-file is provided with a macro. There might be a warning, asking you to activate macros in order to use it.

5.12. By pressing "CTRL+SHIFT+W" the macro is automatically started and the "*Save as…*" window will open. Just choose the folder where you want to save the results in csv, give it the correct filename (see section 5.6) and save it.

5.13. This file can now be sent to the Warning Monitoring Focal Point via email. As an example, the above EXCEL-file has been converted. The result can be seen in the following screenshot.



5.14. In case of interdiction to run the macro due to company security regulations, you may also send the EXCEL-file itself. In such case, the filename should be strictly conform to the requirement expressed in section 5.6.

5.15. It would be very much appreciated if respondents could send the monitoring results as soon as possible to the SIGMET monitoring focal point, and in any case **NO LATER THAN ONE MONTH AFTER THE MONITORING DATE**.

5.16. For any further information, you can contact the Warning Monitoring Focal Point Mr. Michael Pichler (ROC/IROG Vienna) or Mr. Christopher Keohan (ICAO Regional Officer, MET).

Telephone: +43 5 1703 4050
Fax: +43 5 1703 4006
Email: Michael.Pichler@austrocontrol.at

Telephone: **+33 1 46 41 85 85**
Email: ckeohan@paris.icao.int
icaoeurnat@paris.icao.int

Thank you for helping us to improve the distribution of Warning messages.

The Focal Point

APPENDIX C

INTERNATIONAL CIVIL AVIATION ORGANIZATION

MID REGIONAL SIGMET GUIDE

EDITION No. 2— FEB 2017

(71 pages)

RECORD OF AMENDMENTS AND CORRIGENDA

Amendments			
No.	Date of issue	Date entered	Entered by

Corrigenda			
No.	Date of issue	Date entered	Entered by

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1. INTRODUCTION

1.1. General

1.1.1. The main purpose of this regional SIGMET guide is to provide guidance for standardization and harmonization of the procedures and formats related to the preparation and issuance of aeronautical meteorological information pertaining to specified en-route hazardous weather, and other phenomena in the atmosphere, which may affect safety of aircraft operations, known as SIGMET. The guidance is complementary to Annex 3 to the Convention on International Civil Aviation – *Meteorological Services for International Air Navigation*, the Standards and Recommended Practices (SARPs) contained therein regarding SIGMET, and to the SIGMET-related provisions in ICAO Regional Air Navigation Plans (ANPs).

1.1.2. The guidance is specifically provided for the provision of SIGMET in traditional alphanumeric code (TAC) form. As the provision and use of SIGMET data in digital form (IWXXM XML/GML) is used increasingly across ICAO communications networks it is expected that the conventions of the digital form will result in more compliant and less ambiguous SIGMET messages. During the period of transition, where it is likely that originating MWOs will issue both TAC and digital forms of SIGMET and until TAC SIGMET is formally retired, it is considered necessary to make available a guidance document of this form.

1.1.3. ICAO provisions concerning the preparation and issuance of SIGMET information are primarily contained in:

- Annex 3 - *Meteorological Service for International Air Navigation*, Part I, Chapters 3 and 7 and Part II, Appendix 6;
- Annex 11 - *Air Traffic Services*, Chapter 4, 4.2.1 and Chapter 7, 7.1;
- Regional Air Navigation Plans, Basic ANP, Part VI - Meteorology (MET);
- Regional Air Navigation Plans, Volume II, FASID, Part VI – Meteorology (MET) FASID, Tables MET 1B, MET 3A and MET 3B;
- *Procedures for Air Navigation Services – Air Traffic Management (PANS-MET*, Doc 4444*)*, Chapter 9, 9.1.3.2;
- Regional Supplementary Procedures (Doc 7030), Chapter 6, 6.13.2;
- *ICAO Abbreviations and Codes* (Doc 8400);
- *Handbook on the International Airways Volcano Watch (IAVW) – Operational Procedures and Contact List* (Doc 9766);
- *Manual of Aeronautical Meteorological Practice* (Doc 8896), Chapters 1 and 4;
- *Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services* (Doc 9377).

1.1.4. This regional SIGMET guide is primarily intended to assist meteorological watch offices (MWOs) in preparing and disseminating SIGMET information in conformance with the format prescribed in Annex 3. The explanations of the format to be used are accompanied by examples. The regional SIGMET guide also provides information regarding the necessary coordination between the MWOs, air traffic services (ATS), volcanic ash advisory centres (VAACs), tropical cyclone advisory centres (TCACs) and pilots, and their respective responsibilities.

1.1.5. To support regional management of SIGMET issuance and dissemination, Appendix C of the regional SIGMET guide contains guidance on the purpose, scope and procedures for conducting regional SIGMET tests.

2. RESPONSIBILITIES AND COORDINATION

2.1. General

2.1.1. SIGMET messages provide information on hazardous meteorological and other phenomena which may affect safety of aircraft operations; hence they are considered a high priority among other types of meteorological information provided to the aviation users. The primary purpose of SIGMET is for in-flight service, which requires timely transmission of the SIGMET messages to pilots by the ATS units and/or through VOLMET and D-VOLMET. Further information on the responsibilities of each party involved in the SIGMET process can be found in the *Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services* (Doc 9377).

2.1.2. Airlines are the main users of the SIGMET information. They contribute to the effectiveness of the SIGMET service through issuance of special air-reports reported by pilots to the ATS units. Special air-reports are among the most valuable sources of information for the MWOs in the preparation of SIGMET. The ATS units receiving special air-reports should forward them to their associated MWOs without delay.

2.1.3. In view of the foregoing, it should be well understood that the effectiveness of the SIGMET service depends strongly on the level of collaboration between the MWOs, ATS units, pilots, TCACs, VAACs and State volcano observatories. That is why, close coordination between these parties, as well as mutual understanding of their needs and responsibilities are essential for the successful implementation of the SIGMET service.

2.1.4. For the special cases of SIGMET for volcanic ash and tropical cyclones, the MWOs are provided with advisories from VAACs and TCACs respectively, as designated in the regional ANPs.

2.1.5. SIGMET is also used for flight planning. This requires global dissemination of SIGMET through the regional OPMET data banks (RODBs), the Internet-based SADIS FTP service and the WAFS Internet File Service (WIFS). SIGMET should also be distributed to the World Area Forecast Centres (WAFCs) London and Washington for use in the preparation of the significant weather (SIGWX) forecasts.

2.2. Meteorological watch office (MWO) responsibilities

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

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

2.2.3. If a State is temporarily unable to meet its obligations for establishing MWO(s) and for provision of SIGMET, arrangements have to be made for another State to assume this responsibility. Such delegation of responsibilities is to be agreed by the meteorological authority of each State concerned and should be notified by a NOTAM, within the State's AIP and in a letter to the ICAO Regional Office concerned.

2.2.4. The meteorological authority concerned should ensure that the MWO obligations and responsibilities are clearly defined and assigned to the unit designated to serve the MWO. Corresponding operational procedures should be established and the meteorological staff should be trained accordingly.

2.2.5. In preparing SIGMET information MWOs should follow the format prescribed in Annex 3, Appendix 6, Table A6-1A. Whilst Table A6-1A is the authoritative source, Appendix A of this regional SIGMET guide, includes an enhanced SIGMET specific guidance based on Table A6-1A and provides more specific instructions on how SIGMET should be compiled. The aim is to ensure that SIGMET is produced reliably and consistently worldwide.

2.2.6. SIGMET must be issued only for those phenomena listed in Annex 3, Appendix 6, 1.1.4 and only when specified criteria for their intensity and spatial extent are met.

2.2.7. The MWOs should be adequately equipped in order to be able to identify, analyze and forecast those phenomena for which SIGMET is required. The MWO should make use of all available sources of information including:

- special air-reports passed to the MWO from ATS (voice communication);
- special air-reports received from automated downlink;
- numerical Weather Prediction (NWP) data, especially high resolution models where available;
- meteorological observations, including those from automatic weather stations and human observers;
- upper wind information;
- information from meteorological satellites;
- weather radar (including Doppler radar);
- State volcano observatories;
- International Atomic Energy Agency (IAEA) through the relevant World Meteorological Organization (WMO) Regional Specializes Meteorological Centre (RSMC) for radioactive cloud;
- local knowledge;
- volcanic ash or tropical cyclone advisory messages.

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

a) issue SIGMET information based on the special-air report; or

b) send the special air-report for onward transmission to MWOs, WAFCs and other meteorological offices in accordance with regional air navigation agreement in the case that the issuance of SIGMET information is not warranted (e.g., the phenomenon concerned is of transient nature).

2.2.9. Appropriate telecommunication means should be available at the MWO in order to ensure timely dissemination of SIGMET according to a dissemination scheme, which should include transmission to:

- local ATS users;
- aerodrome MET offices within its area of responsibility, where SIGMET is required for briefing and/or flight documentation;
- other MWOs in accordance with regional air navigation plans;
- Centres designated for transmission of VOLMET or D-VOLMET where SIGMET is required for those transmissions;
- responsible ROBEX centres and regional OPMET data bank (RODB). It should be arranged that, through the ROBEX scheme, SIGMETs are sent to

the designated RODB in the other ICAO regions, to the WAFCs and to the SADIS and WIFS providers;

2.2.10. In issuing SIGMET for tropical cyclones or volcanic ash, the MWOs should include as appropriate the advisory information received from the responsible TCAC or VAAC. In addition to the information received from the TCAC and VAAC, the MWOs may use the available complementary information from other reliable sources.

2.3. Air traffic service (ATS) unit responsibilities

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

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

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

2.3.3. SIGMET information transmitted to aircraft-in-flight should cover a portion of the route up to two hours flying time ahead of the aircraft. SIGMET should be transmitted only during the time corresponding to their period of validity.

2.3.4. Air traffic controllers should ascertain whether any of the currently valid SIGMETs may affect any of the aircraft they are controlling, either within or outside the FIR/CTA boundary, up to two hours flying time ahead of the current position of the aircraft. If this is the case, the controllers should at their own initiative transmit the SIGMET promptly to the aircraft-in-flight likely to be affected. If necessary, the controller should pass to the aircraft available SIGMETs issued for the adjacent FIR/CTA, which the aircraft will be entering, if relevant to the expected flight route.

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

2.4. Pilot responsibilities

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

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

2.4.3. Pilots should compile special air-reports and disseminate to ATS by air-ground data link as per Annex 3, Appendix 4, 1.2 and *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444), 4.12.3.2, or by voice communication as per Annex 3, Appendix 4, 1.3 and PANS-ATM (Doc 4444), 4.12.3.3.

Note. — The MWO will compile special air-reports for uplink as per Annex 3, Appendix 6, and as reported using the instructions given PANS-ATM, Appendix 1.

2.5. Coordination between MWOs and ATS units

2.5.1. To achieve the best service to aviation and as part of the collaborative decision-making process, close coordination between the MWO and the ATS units is required. This is of particular importance for the avoidance of hazardous weather.

2.5.2. A Letter of Agreement between the ATS authority and the meteorological authority is also recommended (as per Annex 3, 4.2) to outline the responsibilities and coordination processes between the MWOs and ATS units.

2.6. Coordination between MWOs, VAACs, TCACs and State volcano observatories

2.6.1. Amongst the phenomena for which SIGMET information is required, volcanic ash and tropical cyclones are of particular importance.

2.6.2. Since the identification, analysis and forecasting of volcanic ash and tropical cyclones requires considerable scientific and technical resources, normally not available at each MWO, VAACs and TCACs have been designated to provide volcanic ash advisories and tropical cyclone advisories respectively to the users and assist the MWOs in the preparation of SIGMETs for those phenomena. Close coordination should be established between the MWO and its responsible VAAC and/or TCAC.

2.6.3. Information regarding the VAACs and TCACs areas of responsibility and lists of MWOs and ACC/FICs to which advisories are to be sent is provided in the regional ANPs FASID Tables MET 3A and MET 3B. Volcanic ash advisories and tropical cyclone advisories are required for global exchange through SADIS and WIFS as they are used by the operators during the pre-flight planning. Nevertheless, it should be emphasized that SIGMET information is still required especially for in-flight re-planning. SIGMETs should be transmitted to aircraft-in-flight through voice communication, VOLMET or D-VOLMET, thus providing vital information for making in-flight decisions regarding large-scale route deviations due to volcanic ash clouds or tropical cyclones.

2.6.4. Information from State volcano observatories is an important part of the process for issuance of volcanic ash advisories and SIGMETs. Information from a State volcano observatory should be in the form of a Volcano Observatory Notification for Aviation (VONA) and include information on significant pre-eruption volcanic activity, volcanic eruptions or the presence of volcanic ash clouds. Guidance including responsibilities for the issuance of the VONA is given in the *Handbook on the International Airways Volcano Watch (IAVW) – Operational Procedures and Contact List* (Doc 9766); the format of the VONA is given in Appendix E of the Doc 9766.

3. PROCEDURES FOR PREPARATION OF SIGMET INFORMATION

3.1. General

3.1.1. SIGMET is intended for transmission to aircraft in flight either by ATC or by VOLMET or D-VOLMET, and therefore, SIGMET messages should be kept concise. To this end, SIGMET information is prepared using approved ICAO abbreviations, a limited number of non-abbreviated words and, numerical values of a self-explanatory nature.

3.1.2. The increasing use of automated systems for handling the aeronautical meteorological information by the users makes it essential that all types of OPMET information, including SIGMET messages, are prepared and issued in the prescribed standardized format. Therefore, the format of the SIGMET message, as specified in Annex 3, Appendix 6, should be strictly followed by the MWOs.

3.1.3. The MWO should maintain watch over the evolution of the phenomenon for which a SIGMET has been issued. If the phenomenon persists or is expected to persist beyond the period of validity of the SIGMET, another SIGMET message for a further period of validity should be issued with updated information. SIGMETs for volcanic ash and tropical cyclone should be updated at least every 6 hours, while SIGMET for all other phenomena should be updated at least every 4 hours.

3.1.4. SIGMET should be promptly cancelled when the phenomenon is no longer occurring or no longer expected to occur in the MWO's area of responsibility.

3.1.5. Some SIGMET are generated using information from special air-reports (received by voice communications or data link (downlink)). The reporting of turbulence and icing used in special air-reports includes both moderate and severe categories (as per Doc 4444, Appendix 1).

Note. — Although the categories for the reporting, by pilots, of moderate and severe turbulence in special air-reports is provided in PANS-ATM (Doc 4444), some pilots report turbulence as "moderate to severe". A MWO is then faced with determining which category to use in a special air-report (uplink) or in a SIGMET message for severe turbulence. Some States elect to treat such "moderate to severe" observations as 'severe' in the context of using the report to prompt the issuance of a special air-report (uplink) or a SIGMET message.

3.2. SIGMET phenomena

3.2.1. SIGMET shall only be issued for the phenomena listed in Table 1 below and only using the abbreviations as indicated.

Phenomena Abbreviation	Description
OBSC TS	Thunderstorms that are obscured by haze or smoke or cannot be readily seen due to darkness.
EMBD TS	Thunderstorms that are embedded within cloud layers and cannot be readily recognized by the pilot in command
FRQ TS	Frequent thunderstorms where, within the area of thunderstorms, there is little no separation between adjacent thunderstorms with a maximum spatial coverage greater than 75%.
SQL TS	A squall line indicating that a line of thunderstorms with little or no space between individual cumulonimbus clouds (CB).
OBSC TSGR	Thunderstorms with hail that are obscured by haze or smoke or cannot be readily seen due to darkness.
EMBD TSGR	Thunderstorms with hail that are embedded within cloud layers

Phenomena Abbreviation	Description
	and cannot be readily recognized.
FRQ TSGR	Frequent thunderstorms with hail, within the area of thunderstorms, there is little or no separation between adjacent thunderstorms with a maximum spatial coverage greater than 75%.
SQL TSGR	A squall line indicating that a line of thunderstorms with hail with little or no space between cumulonimbus clouds (CB).
TC	A tropical cyclone with a 10 minute mean surface wind speed of 17m/s (34 kt) or more.
SEV TURB	Severe turbulence referring to: • low-level turbulence associated with strong surface winds; • rotor streaming; or • clear air turbulence, whether in cloud or not in cloud. *Note. — Turbulence should not be used in connection with convective clouds. Severe turbulence shall be considered whenever the peak value of the cube root of EDR exceeds 0.7.*
SEV ICE	Severe icing not associated with convective cloud.
SEV ICE (FZRA)	Severe icing caused by freezing rain and not associated with convective cloud.
SEV MTW	Severe mountain wave the accompanying downdraft is 3 m/s (600 ft/min) or more or when severe turbulence is observed or forecast.
HVY DS	Heavy duststorm where the visibility is below 200 m and the sky is obscured.
HVY SS	Heavy sandstorm where the visibility is below 200 m and the sky is obscured.
VA	Volcanic ash
RDOACT CLD	Radioactive cloud

Table 1: SIGMET phenomena abbreviations and descriptions

3.3. Allowable abbreviations

3.3.1. Abbreviations that can be used in the meteorological section of SIGMET are given in Table 1 above and in Table 2 below.

Abbreviation	Meaning		Abbreviation	Meaning
ABV	Above		NE	North-east
APRX	Approximate or approximately		NNE	North-north-east
AT	At (followed by time)		NNW	North-north-west
BLW	Below		NM	Nautical miles
BTN	Between		NO	No
CB	Cumulonimbus cloud		NW	North-west
CLD	Cloud		OBS	Observe or observed or observation
CNL	Cancel or cancelled		PSN	Position
E	East or eastern longitude		S	South or southern latitude
ENE	East-north-east		SE	South-east
ESE	East-south-east		SFC	Surface
EXP	Expect or expected or expecting		SSE	South-south-east

Abbreviation	Meaning	Abbreviation	Meaning
FCST	Forecast	SSW	South-south-west
FIR	Flight information region	STNR	Stationary
FL	Flight level	SW	South-west
FT	Feet	TO	To
INTSF	Intensify or intensifying	TOP	Cumulonimbus cloud top (height)
KM	Kilometres	W	West or western longitude
KT	Knots	WI	Within (area)
LCA	Location	WID	Width or wide
M	Metres	WKN	Weaken or weakening
MOV	Move or moving or movement	WNW	West-north-west
MT	Mountain	WSW	West-south-west
N	North or northern latitude	Z	Coordinated Universal Time
NC	No change		

Table 2: SIGMET phenomena abbreviations and descriptions.

3.4. SIGMET structure

3.4.1. A SIGMET message consists of:

- ***WMO Abbreviated Heading Line (WMO AHL)*** – all SIGMETs are preceded by an appropriate WMO AHL;
- ***First line***, containing location indicators of the respective ATS unit and MWO, sequential number and period of validity;
- ***SIGMET main body***, containing information concerning the observed or forecast phenomenon for which the SIGMET is issued together with its expected evolution within the period of validity;

3.5. SIGMET format

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

3.5.1. WMO header

$T_1T_2A_1A_2$ii CCCC YYGGgg [BBB]

3.5.1.1. The group **$T_1T_2A_1A_2$ii** is the bulletin identification (WMO AHL) for the SIGMET message. It is constructed in the following way:

T_1T_2	Data type designator	**WS** – for SIGMET for phenomena other than volcanic ash cloud or tropical cyclone **WC** – for SIGMET for tropical cyclone **WV** – for SIGMET for volcanic ash
A_1A_2	Country or territory designators	Assigned according to Table C1, Part II of *Manual on the Global Telecommunication System*, Volume I – *Global Aspects* (WMO Publication No. 386)
ii	Bulletin number	Assigned on national level according to p 2.3.2.2, Part II of *Manual on the Global Telecommunication System*, Volume I – *Global Aspects* (WMO Publication No. 386)

Table 3: Specification of the WMO Abbreviated Header Line for SIGMET

Note .1 — Tropical cyclone and volcanic ash cloud SIGMETs will be referred to hereafter as WC SIGMET (due to the T_1T_2 section of the WMO AHL being set to WC) and WV SIGMET (due to the T_1T_2 section of the WMO AHL being set to WV) respectively. All other SIGMET types will be referred to by WS (due to the T_1T_2 section of the WMO AHL being set to WS).

Note 2. — WMO AHLs for SIGMET bulletins used by [INSERT REGION NAME] MWOs are listed in Appendix D to this SIGMET Guide.

3.5.1.2. **CCCC** is the ICAO location indicator of the communication centre disseminating the message (this may be the same as the MWO location indicator).

3.5.1.3. **YYGGgg** is the date/time group; where **YY** is the day of the month and **GGgg** is the time of transmission of the SIGMET in hours and minutes UTC (normally this time is assigned by the disseminating (AFTN) centre).

Examples:

WSTH31 VTBS 121200

WVJP31 RJTD 010230

WCNG21 AYPY 100600

3.5.2. First line of SIGMET

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

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

CCCC	ICAO location indicator of the ATS unit serving the FIR or CTA to

	which the SIGMET refers
SIGMET	Message identifier
[n][n]n	Daily sequence number (see 3.5.2.2)
VALID	Period of validity indicator
YYGGgg/YYGGgg	Validity period of the SIGMET given by date/time group of the beginning and date/time group of the end of the period (see 3.5.2.3)
CCCC	ICAO location indicator of the issuing MWO
-	Mandatory **hyphen** to separate the preamble from the text

Table 4: Elements making up the first line of SIGMET

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

- **1**, **2**, …
- **01**, **02**, …
- **A01**, **A02**, …

Examples:

RPMM SIGMET 3 VALID 121100/121700 RPLL-
WSJC SIGMET A04 VALID 202230/210430 WSSS-

*Note 1. — No other combinations should be used, like "***CHARLIE 05***" or "***NR7***".*

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

Note 3. — In accordance with Annex 5 – Units of Measurement to be Used in Air and Ground Operations*, when the validity period begins or ends at midnight, YY should be set for the following day and GGgg should be '0000'. i.e. SIGMET validity ending at midnight on the 23rd day of the month should be expressed as '240000'.*

3.5.2.3. The following regulations apply when determining the validity period:

- The period of validity of a **WS** SIGMET should not be more than 4 hours;
- The period of validity of a **WC** or **WV** SIGMET should not be more than 6 hours;
- In case of a SIGMET for an observed phenomenon, the filing time (date/time group in the WMO header) should be the same or very close to the time in the date/time group indicating the start of the SIGMET validity period;
- When the SIGMET is issued for a forecast phenomenon:
  - the beginning of validity period should be the time of the expected commencement (occurrence) of the phenomenon in the MWO area of responsibility;
  - the time of issuance of a **WS** SIGMET should not be more than 4 hours before the start of validity period (i.e., expected time of occurrence of the phenomenon); and for **WC** (tropical cyclone) and **WV** (volcanic ash) SIGMET the lead time should not be more than 12 hours.

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

Examples:

1) First two lines of a SIGMET for an observed phenomenon:

```
WSTH31 VTBS 241120
VTBB SIGMET 3 VALID 241120/241500 VTBS–
```

2) First two lines of a SIGMET for a forecast phenomenon (expected time of occurrence 1530)

```
WSSR20 WSSS 311130
WSJC SIGMET 1 VALID 311530/311930 WSSS-
```

3.5.3. Structure of the meteorological part of SIGMET

3.5.3.1. The meteorological part of a SIGMET for the phenomena consists of elements as shown in the table below.

Start of the second line of the message

1	2	3	4	5	6	7	8	9
Name of the FIR/UIR or CTA (M)	Phenomenon (M)	Observed or forecast phenomenon (M)	Location (C)	Level (C)	Movement *or* expected movement (C)	Changes in intensity (C)	Forecast time (C)	Forecast position (C)
See 3.5.3.2	See 3.5.3.3	See 3.5.3.4	See 3.5.3.5	See 3.5.3.6	See 3.5.3.7	See 3.5.3.8	See 3.5.3.9	See 3.5.3.10

Table 5: Elements making up the meteorological part of SIGMET.
Note 1) Item 6, 'Movement or expected movement' should not be used if the 'forecast time' and 'forecast position' elements are used.
Note 2) M = inclusion mandatory, part of every message. C = inclusion conditional, include whenever applicable.

3.5.3.2. Name of the FIR/UIR or CTA

CCCC <name> FIR[/UIR]

or

CCCC <name> CTA

The ICAO location indicator and the name of the FIR/CTA are given followed by the appropriate abbreviation: FIR, FIR/UIR or CTA. The name may consist of up to 10 characters.

Examples:
VTBB BANGKOK FIR

3.5.3.3. Phenomenon

The phenomenon description consists of a qualifier and a phenomenon abbreviation. SIGMET should be issued only for the following phenomena observed and forecast to persist for more than a transitory period.:

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

For volcanic ash SIGMET (WV) only, the following conventions should be used

In the case when the eruption is from a previously unknown or un-named volcano.

VA ERUPTION PSN Nnn[nn] or Snn[nn] Ennn[nn] or Wnnn[nn] VA CLD

In the case when the eruption is from a known and named volcano. The name may be up to 10 alphanumeric characters.

VA ERUPTION MT nnnnnnnnnn PSN Nnn[nn] or Snn[nn] Ennn[nn] or Wnnn[nn] VA CLD

In the case when a region of volcanic ash cloud is known to exist, but the precise origin of its source is unknown (the ash cloud may be of large horizontal extent, and obscuring the precise vent from which it emanates, and is otherwise in an area sparse of observation to identify the source).

VA CLD

For tropical cyclone SIGMET (WC) only, the following conventions should be used

In the case when the tropical cyclone is known and named. The name may be up to 10 alphanumeric characters.

TC nnnnnnnnnn PSN Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] CB

In the case when the tropical cyclone is not yet named.

TC NN PSN Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] CB

The appropriate abbreviations and combinations, and their meaning are given in Table 1.

3.5.3.4. Indication whether the phenomenon is observed or forecast

OBS

or

OBS AT GGggZ

or

FCST

or

FCST AT GGggZ

The indication whether the phenomenon is observed or forecast is given by using the abbreviations **OBS** or **FCST**. **OBS AT** and **FCST AT** may be used, in which case they are followed by a time group in the form **GGggZ**. If the phenomenon is observed, **GGggZ** is the time of the observation in hours and minutes UTC. If the exact time of the observation is not known the time is not included. When the phenomenon is based on a forecast without a reported observation, the time given for **GGggZ** represents the time of commencement of the validity period**.**

Examples:

OBS

OBS AT 0140Z

FCST

FCST AT 0200Z

3.5.3.5. Location of the phenomenon

The location of the phenomenon is given with reference to geographical coordinates (latitude and longitude). Latitude and longitude may be reported in degrees, or in degrees and minutes. When

reporting in degrees the format will be **Nnn** or **Snn** for latitude, and **Ennn** or **Wnnn** for longitude. When reporting in degrees and minutes the format will be **Nnnnn** or **Snnnn** for latitude, and **Ennnnn** or **Wnnnnn** for longitude. The MWOs should try to be as specific as possible in reporting the location of the phenomenon and, at the same time, to avoid overwhelming the SIGMET with too many coordinates, which may be difficult to process or follow when transmitted by voice radio.

The following are the possible ways to describe the location of the phenomenon:

1) An area of the FIR defined by a polygon. Minimum 4 coordinates[1], and not normally more than 7 coordinates. This is the format preferred operationally by users.

   Symbolically, this is indicated as:

   ```
   WI <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]> -
   <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]> -
   <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]> -
   <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]> -
   <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]> -
   <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]> -
   <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>
   ```

   For example:

   WI N6030 E02550 – N6055 E02500 – N6050 E02630 – N6030 E02550

   WI N60 E025 – N62 E027 - N58 E030 - N59 E026 - N60 E025

Note. — The points of a polygon should be provided in a clockwise order, and the end point should be a repeat of the start point.

Use of polygons with complex FIR boundaries.

*Annex 3 (19th Edition, July 2016) specifies that the points of a polygon '... should be kept to a minimum and should not normally exceed seven'. However, some FIR boundaries are complex, and it would be unrealistic to expect that a polygon would be defined that followed such boundaries exactly. As such, some States have determined that the polygon points be chosen in relation to the complex boundary such that the FIR boundary approximates, but is wholly encompassed by, the polygon, and that any additional area beyond the FIR boundary be the minimum that can be reasonably and practically described. Caution should however be exercised in those instances where international aerodromes are located in close proximity to such a complex FIR boundary. **Appendix B** provides examples and advice with regard to describing such areas.*

2a) In a sector of the FIR defined relative to a specified line, or single series of up to three connected lines, with start and end points on the FIR boundary (or so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at that point).

[1] Including the last point as a repeat of the first point to explicitly close the polygon

Symbolically this is indicated as:

```
<N OF> or <NE OF> or <E OF> or <SE OF> or <S OF> or
<SW OF> or <W OF> or <NW OF> LINE <Nnn[nn]> or
<Snn[nn]> <Wnnn[nn]> or <Ennn[nn]> - <Nnn[nn]> or
<Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>
```

For example:

NE OF LINE N2500 W08700 – N2000 W08300

W OF LINE N20 E042 – N35 E045

2b) In a sector of the FIR defined as being **between** two specified lines, or **between** two series of up to three connected lines, each with start and endpoints on the FIR boundary (or start and endpoints so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at those points).

```
<N OF> or <NE OF> or <E OF> or <SE OF> or <S OF> or
<SW OF> or <W OF> or <NW OF> LINE <Nnn[nn]> or
<Snn[nn]> <Wnnn[nn]> or <Ennn[nn]> - <Nnn[nn]> or
<Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>[ - <Nnn[nn]> or
<Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>][ - <Nnn[nn]> or
<Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>] AND <N OF> or <NE
OF> or <E OF> or <SE OF> or <S OF> or <SW OF> or <W
OF> or <NW OF> LINE <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]>
or <Ennn[nn]> - <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or
<Ennn[nn]> [ - <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or
<Ennn[nn]>][ - <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or
<Ennn[nn]>]
```

For example:

NE OF LINE N2500 W08700 – N2000 W08300 AND SW OF LINE N2800 W08500 – N2200 W08200

W OF LINE N20 E042 – N35 E045 AND E OF LINE N20 E039 – N35 E043

2c) In a sector of the FIR defined relative to a line of latitude and a line of longitude (effectively a quadrant);

Symbolically this is indicated as:

```
<N OF> or <S OF> <Nnn[nn]> or <Snn[nn]> AND
<E OF> or <W OF> <Wnnn[nn]> or <Ennn[nn]>
```

For example:

N OF N1200 AND E OF W02530

S OF N60 AND W OF E120

2d) In a sector of the FIR defined relative to a line of latitude or longitude (effectively a segment), where a coordinate of latitude (or longitude) defines a line, and the preceding descriptor defines on which side of the line the phenomena is expected

Symbolically, this is indicated as:

<N OF> or <S OF> <Nnn[nn]> or <Snn[nn]> or
<E OF> or <W OF> <Wnnn[nn]> or <Ennn[nn]>

For example:

N OF S2230

W OF E080

3) Defined by a 'corridor' of specified width, centred upon a line, of up to three connected segments, described by;

APRX nnKM WID LINE BTN <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]> - <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>[- <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>][- <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>]

or

APRX nnNM WID LINE BTN <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]> - <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>[- <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>][- <Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>]

4) At a specific point within the FIR, indicated by a single coordinate of latitude and longitude.

Symbolically, this is indicated as:

<Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>

For example:

N5530 W02230

S23 E107

5) Within a specified radius of the centre of a tropical cyclone.

Symbolically, this is indicated as:

```
WI nnnKM OF TC CENTRE
WI nnnNM OF TC CENTRE
```

6) A reference to the whole FIR, FIR/UIR, or CTA .

Symbolically, this is indicated as:

```
ENTIRE FIR[/UIR]

ENTIRE CTA
```

More detail on reporting the location of the phenomenon is given in the examples provided in **Appendix B** to this guide.

3.5.3.6. Flight level

Symbolically, the options permitted are:

FLnnn

or

nnnnM

or

[n]nnnnFT

or

SFC/FLnnn

or

SFC/nnnnM

or

SFC/[n]nnnnFT

or

FLnnn/nnn

or

TOP FLnnn

or

ABV FLnnn

or

TOP ABV FLnnn

or

TOP BLW FLnnn (only to be used for tropical cyclone)

or

nnnn/nnnnM

or

[n]nnnn/[n]nnnnFT

or

nnnnM/FLnnn

or

[n]nnnnFT/FLnnn

In more detail, the location or extent of the phenomenon in the vertical is given by one or more of the above methods, as follows:

1) reporting at a single flight level

For example: **FL320**

2) reporting at a single geometric level, in metres or feet

For example: **4500M or 8250FT or 12000FT**

3) reporting a layer extending from the surface to a given height in meters,feet or flight level

For example: **SFC/3000M or SFC/9900FT or SFC/11000FT or SFC/FL350**

4) reporting a layer extending from a given FL to a higher flight level

For example: **FL250/290**

5) reporting a layer where the base is unknown, but the top is given:

For example: **TOP FL350**

6) reporting phenomenon above a specified flight level, but where the upper limit is unknown:

For example: **ABV FL350**

7) reporting phenomenon that has an unknown lower limit, but has an upper limit that is known to extend above a known flight level:

For example: **TOP ABV FL350**

8) reporting phenomenon expected between a lower and upper geometric level expressed in metres or feet:

For example: **3500/9000M or 8000/12000FT or 11000/14000FT**

9) reporting phenomenon expected between a lower geometric level expressed in metres or feet and a higher flight level:

For example: **4000M/FL220 or 6000FT/FL140 or 11000FT/FL190**

10 reporting the CB upper limit for tropical cyclone SIGMET

For example: **TOP BLW FL450**

Additional examples:

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

3.5.3.7. Movement

Note. — Footnote 24 to Table A6-1A of ICAO Annex 3 states that "The elements 'Forecast Time' and 'Forecast Position' are not to be used in conjunction with the element 'Movement or Expected Movement'".

Rate of movement is indicated in the following way:

MOV <direction> <speed>KMH[KT]

or

STNR

Direction of movement is given with reference to one of the sixteen points of compass (**N**, **NNE**, **NE**, **ENE**, **E**, **ESE**, **SE**, **SSE**, **S**, **SSW**, **SW**, **WSW**, **W**, **WNW**, **NW**, **NNW**). Speed is given in **KMH** or **KT**. The abbreviation **STNR** is used if no significant movement is expected.

Examples:

MOV NNW 30KMH

MOV E 25KT

STNR

Note – Movement information should not be provided when a forecast position is explicitly given

3.5.3.8. Expected changes in intensity

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

INTSF

or

WKN

or

NC

3.5.3.9. Forecast time

This section is used, with 'Forecast position' to explicitly provide a forecast of the position of the phenomena at the time specified. The format is fixed, and is of the form

FCST AT nnnnZ

for example

FCST AT 1600Z

where the forecast time is the same as the SIGMET validity end time.

Note. — In accordance with Annex 5 – Units of Measurement to be Used in Air and Ground Operations*, when the validity period ends at midnight, YY should be set for the following day and GGgg should be '0000'. i.e. SIGMET validity ending at midnight on the 23rd day of the month should be expressed as '240000'.*

3.5.3.10. Forecast position of the hazardous phenomenon at the end of the validity period of the SIGMET message

The available methods of describing the forecast position of the phenomenon in the 'Forecast position' section is exactly as detailed in section 3.5.3.5 with the addition of:

a) The forecast centre position of a tropical cyclone is given by:

TC CENTRE PSN Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]

TC CENTRE PSN N2740 W07345

b) For volcanic ash which is not expected to be present within the FIR at the end of the validity of the SIGMET, the following is permitted:

NO VA EXP

Note. — Currently, there is no provision for indicating changes to the levels affected by phenomena between the initial position and the forecast position. As such, and as per footnote 28 to Table A6-1A of Annex 3 (19th Edition, July 2016), it should be assumed that the levels affected remain the same for both initial and forecast positions. If levels differ significantly then separate SIGMET should be issued.

3.5.3.11. Repetition of elements (volcanic ash and tropical cyclone SIGMET only)

Inclusion of instances of volcanic ash phenomenon and tropical cyclone phenomenon in the same SIGMET is permitted for volcanic ash and tropical cyclone only.

With regard to the portrayal of complex volcanic ash events (which implies areas of volcanic ash at different levels) guidance in this regard is provided in Appendix B.

With regard to the portrayal of two tropical cyclones, guidance is provided in Appendix B.

3.5.4. Cancellation of SIGMET

3.5.4.1. Annex 3, 7.1.2 requires that "*SIGMET information shall be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area*".

3.5.4.2. As such, it is mandatory for an MWO to cancel any SIGMET that is currently valid but for which the specified phenomena no longer exists or is expected to exist.

3.5.4.3. The cancellation is done by issuing the same type of SIGMET (i.e. WS, WV or WC) with the following structure:

- WMO heading with the same data type designator;
- First line that contains as period of validity the remaining time of the original period of validity;
- Second line, which contains the name of the FIR or CTA, the combination CNL SIGMET, followed by the sequence number of the original SIGMET and its original validity period.

3.5.4.4. A cancellation SIGMET should have a unique sequence number, and should follow the format below.

For a SIGMET that is cancelled during its period of validity, the cancellation SIGMET will be of the form:

As an example, an original SIGMET of:

```
YMMM SIGMET A01 VALID 260300/260700 YPRF-
YMMM MELBOURNE FIR EMBD TS FCST WI S4000 E12000 – S3830 E12200
– S4200 E12100 – S4000 E12000 TOP FL450 MOV SW 05KT INTSF=
```

If it were to be cancelled early (i.e. prior to 0700 UTC), then the following would be appropriate:

```
YMMM SIGMET A02 VALID 260600/260700 YPRF-
YMMM MELBOURNE FIR CNL SIGMET A01 260300/260700=
```

Where:

- the sequence number will be the next incrementing, unique sequence number.
- the validity time will be the time remaining between issuance and the end time of the original SIGMET.
- the sequence number of the original (and to be cancelled) SIGMET shall follow '`CNL SIGMET `'.
- the original validity time of the original (and to be cancelled) SIGMET shall be included in the message after the reference to the original SIGMET's sequence number.

For SIGMET for volcanic ash only, the following is permitted:

```
WSAU21 ADRM 202155
YBBB SIGMET E03 VALID 202155/210000 YPDM-
YBBB BRISBANE FIR CNL SIGMET E01 202000/210000 VA MOV TO WXYX
FIR=
```

Where the FIR (`WXYZ` in the example) into which the volcanic ash has moved is indicated.

3.5.5. Amendment/correction of SIGMET

3.5.5.1. If it is known that an existing SIGMET no longer accurately describes the existing or expected future evolution of the phenomena a new SIGMET, correctly describing the hazard should be issued, followed immediately by a cancellation of the original, erroneous SIGMET. The new SIGMET should be issued before the cancellation in order to ensure there is always a SIGMET in force and that the cancellation is not mistakenly understood to mean that the hazard has completely dissipated.

Originally issued SIGMET, later determined to no longer be accurate (bold text identifies points that will be changed):

```
WSAU21 ADRM 201855
YBBB SIGMET E01 VALID 202000/210000 YPDM-
YBBB BRISBANE FIR SEV TURB FCST WI S1530 E13700 - S1900 E13730
– S2000 E13130 - S1600 E13500 - S1530 E13700 SFC/FL120 MOV SE
12KT WKN=
```

Updated SIGMET (bold text identifies points that have been changed):

```
WSAU21 ADRM 202155
YBBB SIGMET E02 VALID 202200/210000 YPDM-
YBBB BRISBANE FIR SEV TURB FCST WI S1530 E13700 - S2000 E13750
– S2045 E13245 - S1600 E13500 - S1530 E13700 SFC/FL120 MOV SE
12KT WKN=
```

Cancellation SIGMET (this cancels the original SIGMET):

```
WSAU21 ADRM 202156
YBBB SIGMET E03 VALID 202155/210000 YPDM-
YBBB BRISBANE FIR CNL SIGMET E01 202000/210000=
```

Note, it is essential that the times of issuance of the updated (correct) SIGMET and the cancellation are separated by at least one minute to prevent inadvertent suppression by message switches. However, it is also important that the minimum delay between issuance of the updated and the cancellation messages.

3.6. Dissemination of SIGMET

3.6.1. SIGMET is part of operational meteorological (OPMET) information. According to Annex 3, the telecommunication facilities used for the exchange of the operational meteorological information should be the aeronautical fixed service (AFS).

3.6.2. The AFS consists of a terrestrial segment, AFTN or ATN (AMHS), as well as the Internet-based SADIS FTP and WIFS services provided by WAFC London and WAFC Washington respectively. Note that SIGMET priority indicator is **FF** for flight safety messages (Annex 10, Volume II, 4.4.1.1.3 refers).

3.6.3. Currently, AFTN links should be used by the MWOs to send the SIGMET, as follows:

- to the adjacent MWOs and ACCs[2] using direct AFTN addressing;

[2] For this dissemination it is required that SIGMET is available at the ACCs for transmission to aircraft in flight for the route ahead up to a distance corresponding to two hours flying time.

- when required for VOLMET or D-VOLMET, SIGMET should be sent to the relevant centre providing the VOLMET service;

- SIGMET should be sent to all regional OPMET Data Banks (RODB);

- it should be arranged that SIGMET is relayed to the SADIS and WIFS providers for satellite/public internet dissemination, as well as to the WAFCs London and Washington, either through the ROBEX scheme, or directly by the issuing MWO;

- SIGMET for volcanic ash should be disseminated to the responsible VAAC.

3.6.4. Through SADIS and WIFS, SIGMET is disseminated to all authorised users. In this way, SIGMET is available on a global basis, meeting the aeronautical requirements.

— — — — — — — —

APPENDIX A

ENHANCED SIGMET GUIDANCE TABLE DEVELOPED FROM ANNEX 3 TABLE A6-1A

Note. — The table below seeks to provide more detailed guidance than that given in Table A6-1A of Annex 3 (19th Edition, July 2016). It does this by removing all references to the AIRMET message. Table A6-1A. The table below simplifies the available options and provides more specific expansion of the symbolic structure of SIGMET messages, with guidance sub-titles where appropriate. It should be noted that Annex 3, Appendix 6, Table A6-1A remains the authoritative reference.

Ref No.	Element as specified in Chapter 5 and Appendix 6	Detailed Content	Expanded symbolic - These 'expanded' symbolic representations of the various SIGMET code elements represent the interpretation of Table A6-1A of Annex 3. MWOs are encouraged to align their SIGMETs with the guidelines below.	Examples. These examples of various SIGMET code elements represent the interpretation A6-1A of Annex 3. MWOs are encouraged to align their SIGMETs with the examples below.
1.1	Location indicator of FIR/CTA (M)[1]	ICAO location indicator of the ATS unit serving the FIR or CTA to which the SIGMET refers	nnnn	YUCC[2] YUDD[2]
1.2	Identification (M)	Message identification and sequence number[3]	SIGMET n SIGMET nn SIGMET nnn	SIGMET 1 SIGMET 01 SIGMET A01
1.3	Validity period (M)	Day-time groups indicating the period of validity in UTC	VALID nnnnnn/nnnnnn	VALID 010000/010400 VALID 221215/221600 VALID 101520/101800 VALID 251600/252200 VALID 152000/160000 VALID 192300/200300 VALID 122200/130400 (6 hour validity applicable to TC or VA only)
1.4	Location indicator of MWO (M)	Location indicator of MWO originating the message with a separating hyphen	nnnn-	YUDO–[2] YUSO–[2]
1.5	Name of the FIR/CTA	Location indicator and name of the FIR/CTA[4] for which the SIGMET is issued	nnnn nnnnnnnnnn FIR nnnn nnnnnnnnnn FIR/UIR nnnn nnnnnnnnnn CTA	YUCC AMSWELL FIR[2] YUDD SHANLON FIR/UIR[2] YUDD SHANLON FIR[2] YUCC AMSWELL CTA[2]
2.1	Phenomenon (M)[5]	Description of phenomenon causing the	OBSC[6] TS OBSC[6] TSGR[7]	OBSC TS OBSC TSGR

Ref No.	Element as specified in Chapter 5 and Appendix 6	Detailed Content	Expanded symbolic - These 'expanded' symbolic representations of the various SIGMET code elements represent the interpretation of Table A6-1A of Annex 3. MWOs are encouraged to align their SIGMETs with the guidelines below.	Examples. These examples of various SIGMET code elements represent the interpretation A6-1A of Annex 3. MWOs are encouraged to align their SIGMETs with the examples below.
		issuance of SIGMET	EMBD[8] TS EMBD[8] TSGR[7] FRQ[9] TS FRQ[9] TSGR[7] SQL[10] TS SQL[10] TSGR[7] TC nnnnnnnnnn PSN Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] CB TC NN[11] PSN Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] CB SEV TURB[12] SEV ICE[13] SEV ICE (FZRA)[13] SEV MTW[14] HVY DS HVY SS VA ERUPTION PSN Nnn[nn] *or* Snn[nn] Ennn[nn] *or* Wnnn[nn] VA CLD VA ERUPTION MT nnnnnnnnnn PSN Nnn[nn] *or* Snn[nn] Ennn[nn] *or* Wnnn[nn] VA CLD VA CLD RDOACT CLD	EMBD TS EMBD TSGR FRQ TS FRQ TSGR SQL TS SQL TSGR TC GLORIA PSN N2215 W07500 CB TC NN PSN S26 E150 CB SEV TURB SEV ICE SEV ICE (FZRA) SEV MTW HVY DS HVY SS VA ERUPTION PSN N27 W017 VA CLD VA ERUPTION PSN S1200 E01730 VA CLD VA ERUPTION MT ASHVAL[2] PSN S15 E073 VA CLD VA ERUPTION MT VALASH[2] PSN N2030 E02015 VA CLD VA CLD RDOACT CLD
2.2	Observed or forecast phenomenon (M)	Indication whether the information is observed and expected to continue, *or* forecast	OBS OBS AT nnnnZ FCST FCST AT nnnnZ	OBS OBS AT 1210Z FCST FCST AT 1815Z

Ref No.	Element as specified in Chapter 5 and Appendix 6	Detailed Content	Expanded symbolic - These 'expanded' symbolic representations of the various SIGMET code elements represent the interpretation of Table A6-1A of Annex 3. MWOs are encouraged to align their SIGMETs with the guidelines below.	Examples. These examples of various SIGMET code elements represent the interpretation A6-1A of Annex 3. MWOs are encouraged to align their SIGMETs with the examples below.
2.3	Location (C)[19]	Location (referring to latitude and longitude (in degrees and minutes))	1) An area of the FIR defined by a polygon. The end point shall be a repeat of the start point. Minimum 4 coordinates (including the last point as a repeat of the first), and not normally more than 7 coordinates. WI[20, 21] Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [– Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]][- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] *or* 2a) In a sector of the FIR defined relative to a specified line, or single series of up to three connected lines, with start and endpoints on the FIR boundary (or so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at those points). [N][NE][E][SE][S][SW][W][NW] OF LINE[20] Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] *or* 2b) In a sector of the FIR defined as being between two specified lines, or between two series of upt to three connected lines, each with start and endpoints on the FIR boundary (or start and endpoints so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at those points). [N][NE][E][SE][S][SW][W][NW] OF LINE[20] Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] AND [N][NE][E][SE][S][SW][W][NW] OF LINE Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] 2c) In a sector of the FIR defined relative to a line of latitude and a line of longitude (effectively a quadrant);	1) An area of the FIR defined by a polygon. The end point shall be a repeat of the start point. Minimum 4 coordinates (including the last point as a repeat of the first), and not normally more than 7 coordinates. WI N6030 E02550 – N6055 E02500 – N6050 E02630 - N6030 E02550 WI N30 W067 – N32 W070 – N35 W068 - N30 W067 *or* 2a) In a sector of the FIR defined relative to a specified line, or single series of up to three connected lines, with start and endpoints on the FIR boundary (or so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at those points). NE OF LINE N2515 W08700 – N2000 W08330 S OF LINE S14 E150 – S14 E155 *or* 2b) In a sector of the FIR defined as being between two specified lines, or between two series of upt to three connected lines, each with start and endpoints on the FIR boundary (or start and endpoints so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at those points). SW OF LINE N50 W020 – N45 E010 AND NE OF LINE N45 W020 – N40 E010 2c) In a sector of the FIR defined relative to a line of latitude and a line of

			N OF Nnn[nn] AND W OF Wnnn[nn] *or* N OF Nnn[nn] AND E OF Wnnn[nn] *or* S OF Nnn[nn] AND W OF Wnnn[nn] *or* S OF Nnn[nn] AND E OF Wnnn[nn] *or* N OF Snn[nn] AND W OF Ennn[nn] *or* N OF Snn[nn] AND E OF Ennn[nn] *or* S OF Snn[nn] AND W OF Ennn[nn] *or* S OF Snn[nn] AND E OF Ennn[nn] *or* *or* 2d) In a sector of the FIR defined relative to a line of latitude or longitude (effectively a segment); N OF Nnn[nn] *or* S OF Nnn[nn] *or* N OF Snn[nn] *or* S OF Snn[nn] *or* W OF Wnnn[nn] *or* E OF Wnnn[nn] *or* W OF Ennn[nn] *or* E OF Ennn[nn] *or* 3) Defined by a 'corridor' of specified width, centred upon a line, of up to three connected segments, described by; APRX nnKM WID LINE[20] BTN Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [– Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [– Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] APRX nnNM WID LINE[20] BTN Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [– Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [– Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] *or* 4) At a specific point within the FIR;	longitude (effectively a quadrant); S OF N3200 AND E OF E02000 S OF S3215 AND W OF E10130 S OF N12 AND W OF E040 N OF N35 AND E OF E078 *or* 2d) In a sector of the FIR defined relative to a line of latitude or longitude (effectively a segment); N OF S2230 S OF S43 E OF E01700 E OF W005 *or* 3) Defined by a 'corridor' of specified width, centred upon a line, of up to three connected segments, described by; APRX 50KM WID LINE BTN N64 W017 – N60 W010 – N57 E010 – N60 E015 APRX 50NM WID LINE BTN S1530 W09500 – S1815 W10130 – S2000 W10300 *or* 4) At a specific point within the FIR;

			Nnn[nn] Wnnn[nn] *or* Nnn[nn] Ennn[nn] *or* Snn[nn] Wnnn[nn] *or* Snn[nn] Ennn[nn] *or* 5 tropical cyclone; *or* 6) A reference to the whole FIR, FIR/UIR, or CTA ENTIRE FIR ENTIRE FIR/UIR ENTIRE CTA	N5530 W02230 S12 E177 *or* 5 tropical cyclone; *or* 6) A reference to the whole FIR, FIR/UIR, or CTA ENTIRE FIR[18] ENTIRE FIR/UIR ENTIRE CTA[18]
2.4	Level (C)[19]	Flight level or altitude[23]	1) Generic height/range descriptors to be used when 'Location' descriptors above are used. FLnnn nnnnFT nnnnnFT nnnnM SFC/FLnnn SFC/nnnnM SFC/nnnnFT SFC/nnnnnFT FLnnn/nnn TOP FLnnn ABV FLnnn TOP ABV FLnnn nnnn/nnnnM [n]nnnn/[n]nnnnFT nnnnM/FLnnn [n]nnnnFT/FLnnn *or*[22] TOP BLW FLnnn	1) Generic height/range descriptors to be used when 'Location' descriptors above are used. FL180 7000FT 10000FT 600M 1200M SFC/FL070 SFC/9000FT SFC/10000FT SFC/2500M FL050/080 FL310/450 TOP FL390 ABV FL280 TOP ABV FL100 3000M 2000/3000M 8000FT 6000/12000FT 11000/14000FT 2000M/FL150 8000FT/FL190 10000FT/FL250 *or*[22] TOP BLW FL450

			or[22] TOP ABV FLnnn	*or*[22] TOP ABV FL360
2.5	Movement *or* expected movement (C)[19, 24]	Movement *or* expected movement (direction and speed) with reference to one of the sixteen points of compass, *or* stationary	MOV[N][NNE][NE][ENE][E][ESE][SE][SSE][S][SSW][SW][WSW][W][WNW][NW][NNW] nnKMH *or* MOV[N][NNE][NE][ENE][E][ESE][SE][SSE][S][SSW][SW][WSW][W][WNW][NW][NNW] nnKT *or* STNR	MOV E 40KMH MOV E 20KT MOV SE STNR
2.6	Changes in intensity [19]	Expected changes in intensity (C)	INTSF *or* WKN *or* NC	WKN INTSF NC
2.7	Forecast time (C)[24]	Indication of the forecast time of the phenomena	FCST AT nnnnZ	FCST AT 2200Z FCST AT 0000Z
2.7	Forecast position (C)[19, 24, 25]	Forecast position of volcanic ash cloud *or* the centre of the TC *or* other hazardous phenomena[25] at the end of the validity period of the SIGMET message (C)	1) An area of the FIR defined by a polygon. The end point shall be a repeat of the start point. Minimum 4 coordinates (including the last point as a repeat of the first), and not normally more than 7 coordinates. WI[20, 21] Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [– Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]][- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] *or* 2a) In a sector of the FIR defined relative to a specified line, or single series of up to three connected lines, with start and endpoints on the FIR boundary (or so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at those points). [N][NE][E][SE][S][SW][W][NW] OF LINE[20] Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]]	1) An area of the FIR defined by a polygon. The end point shall be a repeat of the start point. Minimum 4 coordinates (including the last point as a repeat of the first), and not normally more than 7 coordinates. WI N6030 E02550 – N6055 E02500 – N6050 E02630 - N6030 E02550 WI N30 W067 – N32 W070 – N35 W068 - N30 W067 *or* 2a) In a sector of the FIR defined relative to a specified line, or single series of up to three connected lines, with start and endpoints on the FIR boundary (or so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at those points). NE OF LINE N2515 W08700 – N2000 W08330 S OF LINE S14 E150 – S14 E155

			or 2b) In a sector of the FIR defined as being between two specified lines, or between two series of upt to three connected lines, each with start and endpoints on the FIR boundary (or start and endpoints so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at those points). [N][NE][E][SE][S][SW][W][NW] OF LINE[20] Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] AND [N][NE][E][SE][S][SW][W][NW] OF LINE Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [- Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] 2c) In a sector of the FIR defined relative to a line of latitude and a line of longitude (effectively a quadrant); N OF Nnn[nn] AND W OF Wnnn[nn] *or* N OF Nnn[nn] AND E OF Wnnn[nn] *or* S OF Nnn[nn] AND W OF Wnnn[nn] *or* S OF Nnn[nn] AND E OF Wnnn[nn] *or* N OF Snn[nn] AND W OF Ennn[nn] *or* N OF Snn[nn] AND E OF Ennn[nn] *or* S OF Snn[nn] AND W OF Ennn[nn] *or* S OF Snn[nn] AND E OF Ennn[nn] *or* *or* 2d) In a sector of the FIR defined relative to a line of latitude or longitude (effectively a segment); N OF Nnn[nn] *or* S OF Nnn[nn] *or* N OF Snn[nn] *or* S OF Snn[nn] *or* W OF Wnnn[nn] *or* E OF Wnnn[nn] *or* W OF Ennn[nn] *or* E OF Ennn[nn] *or*	*or* 2b) In a sector of the FIR defined as being between two specified lines, or between two series of upt to three connected lines, each with start and endpoints on the FIR boundary (or start and endpoints so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at those points). SW OF LINE N50 W020 – N45 E010 AND NE OF LINE N45 W020 – N40 E010 2c) In a sector of the FIR defined relative to a line of latitude and a line of longitude (effectively a quadrant); S OF N3200 AND E OF E02000 S OF S3215 AND W OF E10130 S OF N12 AND W OF E040 N OF N35 AND E OF E078 *or* 2d) In a sector of the FIR defined relative to a line of latitude or longitude (effectively a segment); N OF S2230 S OF S43 E OF E01700 E OF W005 *or*

			3) Defined by a 'corridor' of specified width, centred upon a line, of up to three connected segments, described by; APRX nnKM WID LINE[20] BTN Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [– Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [– Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] APRX nnNM WID LINE[20] BTN Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] [– Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] [– Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]] *or* 4) At a specific point within the FIR; Nnn[nn] Wnnn[nn] *or* Nnn[nn] Ennn[nn] *or* Snn[nn] Wnnn[nn] *or* Snn[nn] Ennn[nn] *or* 5 tropical cyclone; TC CENTRE PSN Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] *or* 6) A reference to the whole FIR, FIR/UIR, or CTA ENTIRE FIR ENTIRE FIR/UIR ENTIRE CTA *or* 7) No volcanic ash expected[26] NO VA EXP	3) Defined by a 'corridor' of specified width, centred upon the line described; APRX 50KM WID LINE BTN N64 W017 – N60 W010 – N57 E010 – N60 E015 APRX 50NM WID LINE BTN S1530 W09500 – S1815 W10130 – S2000 W10300 *or* 4) At a specific point within the FIR; N5530 W02230 S12 E177 *or* 5 tropical cyclone; TC CENTRE PSN N1230 W04530 *or* 6) A reference to the whole FIR, FIR/UIR, or CTA ENTIRE FIR[18] ENTIRE FIR/UIR ENTIRE CTA[18] 7) No volcanic ash expected NO VA EXP

	Repetition of elements (C)[27]	Repetition of elements included in a SIGMET message for volcanic ash cloud or tropical cyclone	[AND] [27]	AND
	Cancellation of SIGMET (C)[28]	Cancellation of SIGMET referring to its identification	CNL SIGMET n nnnnnn/nnnnnn CNL SIGMET nn nnnnnn/nnnnnn CNL SIGMET nnn nnnnnn/nnnnnn *or* CNL SIGMET n nnnnnn/nnnnnn VA MOV TO nnnn FIR[18] CNL SIGMET nn nnnnnn/nnnnnn VA MOV TO nnnn FIR[18] CNL SIGMET nnn 251030/251430 VA MOV TO YUDO FIR	CNL SIGMET 2 102000/110000 CNL SIGMET 12 101200/101600 CNL SIGMET A12 031600/032000 CNL SIGMET 3 251030/251630 VA MOV TO YUDO FIR CNL SIGMET 06 191200/191800 VA MOV TO YUDO FIR CNL SIGMET B10 030600/031200 VA MOV TO YUDO FIR

Table A-1: Expanded SIGMET template

Footnotes to table: (note, in order to ensure consistency between this document and ICAO Annex 3, Table 6-1A, any footnote in Table 6-1A that refers to AIRMET only is identified as such below.

1. See 4.1. "**Recommendation.—** *In cases where the airspace is divided into a flight information region (FIR) and an upper flight information region (UIR), the SIGMET should be identified by the location indicator of the air traffic services unit serving the FIR. Note.— The SIGMET message applies to the whole airspace within the lateral limits of the FIR, i.e. to the FIR and to the UIR. The particular areas and/or flight levels affected by the meteorological phenomena causing the issuance of the SIGMET are given in the text of the message.*"
2. Fictitious location.
3. In accordance with 1.1.3 "The sequence number referred to in the template in Table A6-1A shall correspond with the number of SIGMET messages issued for the flight information region since 0001 UTC on the day concerned. The meteorological watch offices whose area of responsibility encompasses more than one FIR and/or control area (CTA) shall issue separate SIGMET messages for each FIR and/or CTA within their area of responsibility."
4. AIRMET only – not SIGMET
5. As per 1.1.4 "In accordance with the template in Table A6-1A, only one of the following phenomena shall be included in a SIGMET message, using the abbreviations as indicated below [list of SIGMET phenomena follows in section 1.1.4 – see section]"
6. In accordance with 4.2.1 a) "*obscured (OBSC) if it is obscured by haze or smoke or cannot be readily seen due to darkness*".
7. In accordance with 4.2.4 "*Hail (GR) should be used as a further description of the thunderstorm, as necessary*"
8. accordance with 4.2.1 b) "*embedded (EMBD) if it is embedded within cloud layers and cannot be readily recognized*"
9. In accordance with 4.2.2 "**Recommendation.—** An area of thunderstorms should be considered frequent (FRQ) if within that area there is little or no separation between adjacent thunderstorms with a maximum spatial coverage greater than 75 per cent of the area affected, or forecast to be affected, by the phenomenon (at a fixed time or during the period of validity)"
10. In accordance with 4.2.3 "**Recommendation.—** Squall line (SQL) should indicate a thunderstorm along a line with little or no space between individual clouds."
11. Used for unnamed tropical cyclones.
12. In accordance with 4.2.5 and 4.2.6 "**Recommendation.—** Severe turbulence (TURB) should refer only to: low-level turbulence associated with strong surface winds; rotor streaming; or turbulence whether in cloud or not in cloud (CAT). Turbulence should not be used in connection with convective clouds." and "Turbulence shall be considered: a) severe whenever the peak value of the cube root of EDR exceeds 0.7"
13. In accordance with 4.2.7 "**Recommendation.—** Severe icing (ICE) should refer to icing in other than convective clouds. Freezing rain (FZRA) should refer to severe icing conditions caused by freezing rain".
14. In accordance with 4.2.8 "**Recommendation.—** A mountain wave (MTW) should be considered: a) severe whenever an accompanying downdraft of 3.0 m/s (600 ft/min) or more and/or severe turbulence is observed or forecast; and *b) moderate whenever an accompanying downdraft of 1.75–3.0 m/s (350–600 ft/min) and/or moderate turbulence is observed or forecast.*"
15. AIRMET only – not SIGMET
16. AIRMET only – not SIGMET

17. AIRMET only – not SIGMET
18. AIRMET only – not SIGMET
19. In the case of the same phenomenon covering more than one area within the FIR, these elements can be repeated, as necessary.
20. A straight line is to be used between two points drawn on a map in the Mercator projection or between two points which crosses lines of longitude at a constant angle.
21. The number of coordinates should be kept to a minimum and should not normally exceed seven.
22. Only for SIGMET messages for tropical cyclones.
23. Only for SIGMET messages for volcanic ash cloud and tropical cyclones.
24. The elements “forecast time” and “forecast position” are not to be used in conjunction with the element “movement or expected movement”.
25. The levels of the phenomena remain fixed throughout the forecast period.
26. Only for SIGMET messages for volcanic ash.
27. To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
28. End of the message (as the SIGMET message is being cancelled).

Additional notes (not specifically identified in footnotes to Table 6-1A:

In accordance with 4.2.9 “Sandstorm/duststorm should be considered: a) heavy whenever the visibility is below 200 m and the sky is obscured; and b) moderate whenever the visibility is: 1) below 200 m and the sky is not obscured; or 2) between 200 m and 600 m.” (no footnote in Annex 3, but this is applicable reference)

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APPENDIX B

SIGMET EXAMPLES

*Note. — The figures used in this appendix are intended simply to clarify the intent of the SIGMET message in abbreviated plain language, and therefore how each SIGMET should be **constructed** by MWOs and also **interpreted** by users. The figures used are <u>not</u> intended to give guidance on how a SIGMET in graphical format should be produced.*

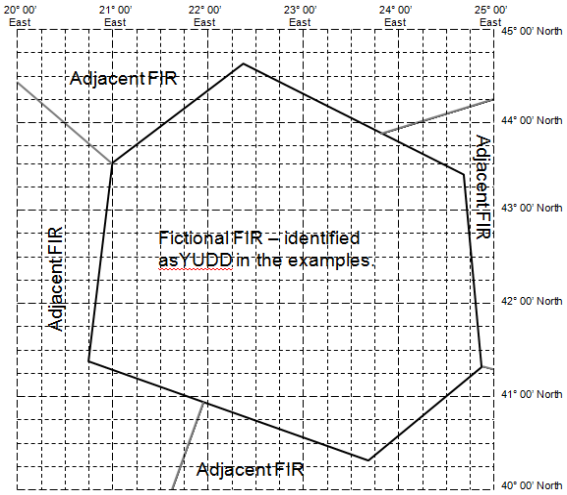
Examples of '**WS**' SIGMET. See the sections for SIGMET for volcanic ash only (WV) and SIGMET for tropical cyclone only (WC) for examples specific to those phenomena.

Contents

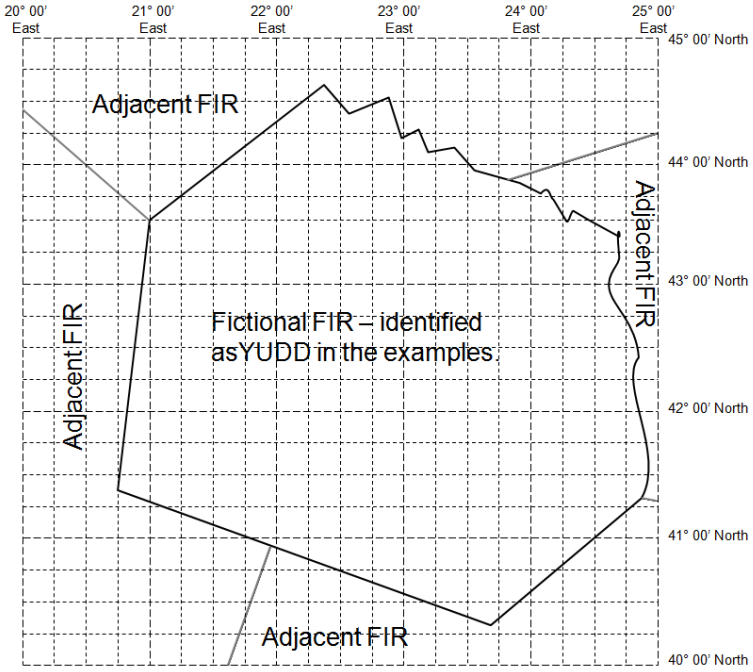
General

Explanation of fictional FIR.

In each of the examples below, a fictional FIR area is indicated, with portions of adjacent fictional FIRs also indicated. The FIR areas are overlaid on a coordinate grid, in order that the example plain language SIGMETs can be explicitly related to the intended meaning.



For some cases, examples are given where the FIR has boundaries that are complex (country borders for example, especially when defined by rivers)



Fictional FIR 'Shanlon = YUDD' is used for the examples.

Repetition of start point as last coordinate.

> In accordance with practices and procedures laid down for other aeronautical bulletins (i.e. NOTAM), it is recommended that the last point of a polygon is a repeat of the first point of the polygon. This will ensure that the polygon has been closed, and that no points have been accidentally omitted.

'Direction' of encoding of the points of a polygon

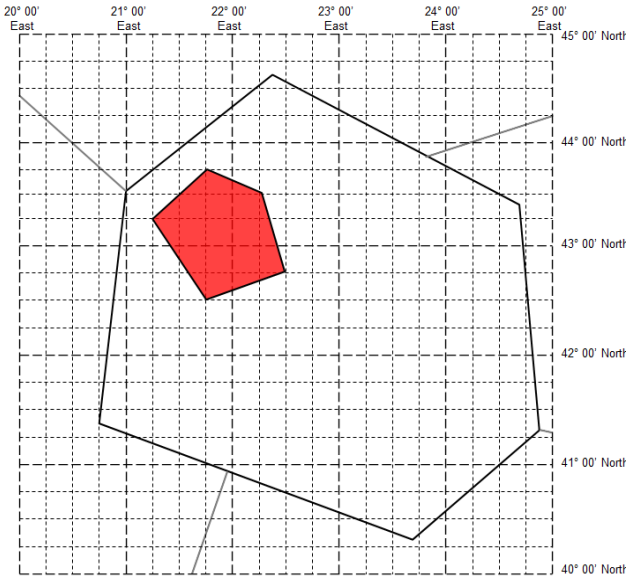
> In accordance with practices and procedures laid down for other aeronautical bulletins and international practice (e.g. BUFR encoding of WAFS significant weather (SIGWX) forecasts), it is recommended that the points of a polygon are provided in a 'clockwise' sense. This assists automated systems in determining the 'inside' of polygons.

Use of ‘Expected Movement’ and ‘Forecast Position’/’Forecast Time’.

With applicability of Amendment 77, the ‘Expected Movement’ element of SIGMET should not be used if the ‘Forecast Position’/’Forecast Time’ element is being used, and vice versa. This is to prevent duplication at best and inconsistencies at worst.

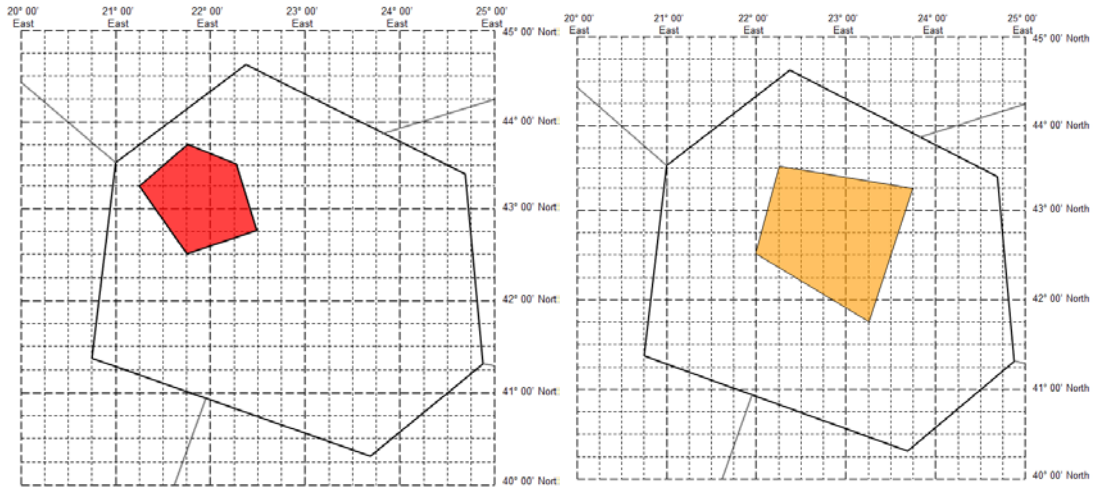
1) An area of the FIR defined by a polygon. The end point should be a repeat of the start point.

When the SIGMET does not include a 'forecast position' section.



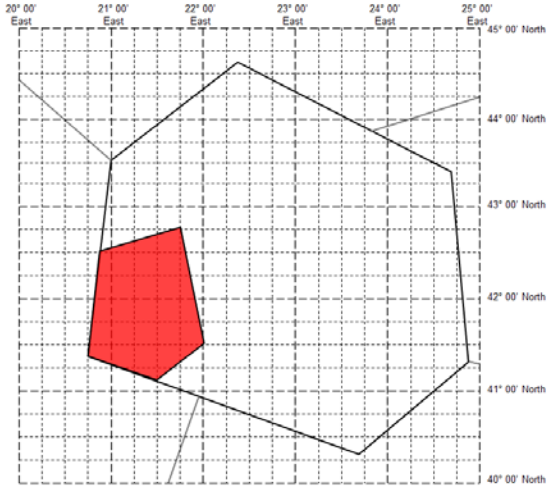

```
YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST WI N4230 E02145 – N4315 E02115 –
N4345 E02145 – N4330 E02215 – N4245 E02230 - N4230 E02145 FL250/370
MOV ESE 20KT INTSF=
```

With an explicit forecast position:



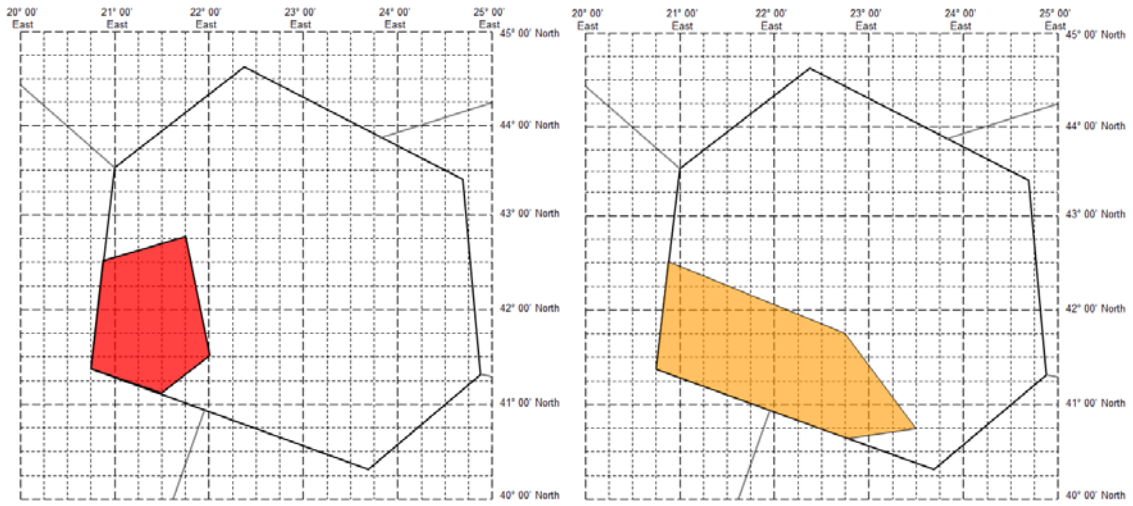

```
YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST WI N4230 E02145 – N4315 E02115 –
N4345 E02145 – N4330 E02215 – N4245 E02230 - N4230 E02145 FL250/370
INTSF FCST AT 1600Z WI N4145 E02315 – N4230 E02200 – N4330 E02215 –
N4315 E02345 - N4145 E02315=
```

When the SIGMET does not include a 'forecast position' section.



YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST WI N4230 E02052 – N4245 E02145 – N4130 E02200 – N4107 E02130 – N4123 E02045 - N4230 E02052 FL250/370 MOV SE 30KT WKN=

With an explicit forecast position:



YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST WI N4230 E02052 – N4245 E02145 – N4130 E02200 – N4107 E02130 – N4123 E02045- N4230 E02052 FL250/370 WKN FCST AT 1600Z WI N4230 E02052 – N4145 E02245 – N4045 E02330 – N4040 E02248 – N4123 E02045- N4230 E02052 =

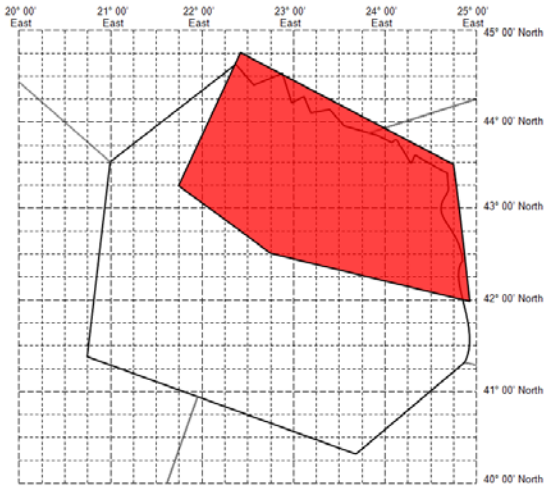
Use of polygons with complex FIR boundaries.

Annex 3 (19th Edition, July 2016) specifies that the points of a polygon '... should be kept to a minimum and should not normally exceed seven'. However, some FIR boundaries are complex, and it would be unrealistic to expect that a polygon would be defined that followed such boundaries precisely. As such, some States have determined that the polygon points be chosen in relation to the complex boundary such that the FIR boundary approximates, but is wholly encompassed by, the polygon, and that any additional area beyond the FIR boundary be the minimum that can be reasonably

and practically described. Caution should however be exercised in those instances where international aerodromes are located in close proximity to such a complex FIR boundary.

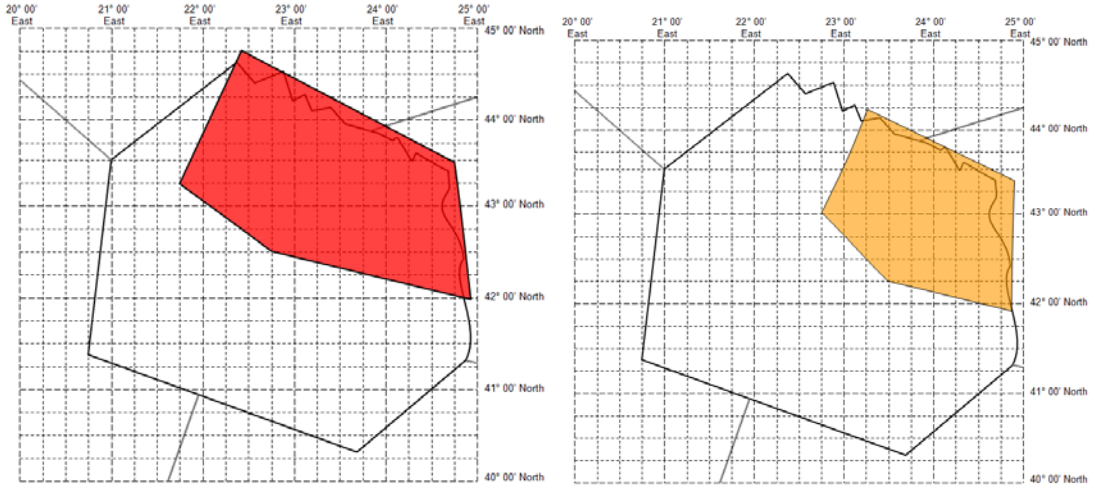
In the examples below, it would not be practical to follow the northeastern boundary of the FIR exactly. The point close to N4330 E02245 is obviously a 'major' turning point along the FIR boundary, but the other, numerous and complex turning points can only be approximated when constrained to seven points.

When the SIGMET does not include a 'forecast position' section.



YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST WI N4315 E02145 – N4445 E02245 – N4330 E02445 – N4200 E02455 – N4230 E02245- N4315 E02145 FL250/370 MOV SE 20KT WKN=

With an explicit forecast position:

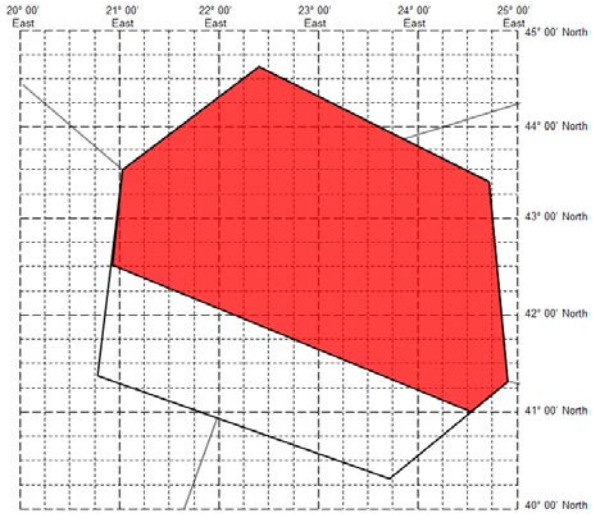


YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST WI N4315 E02145 – N4445 E02245 – N4330 E02445 – N4200 E02455 – N4230 E02245- N4315 E02145 FL250/370 WKN FCST AT 1600Z WI N4300 E02245 – N4415 E02315 – N4322 E02452 – N4155 E02445 – N4215 E02330- N4300 E02245=

2a) In a sector of the FIR defined relative to a specified line, or single series of up to three connected lines, with start and end points on the FIR boundary (or so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at that point).

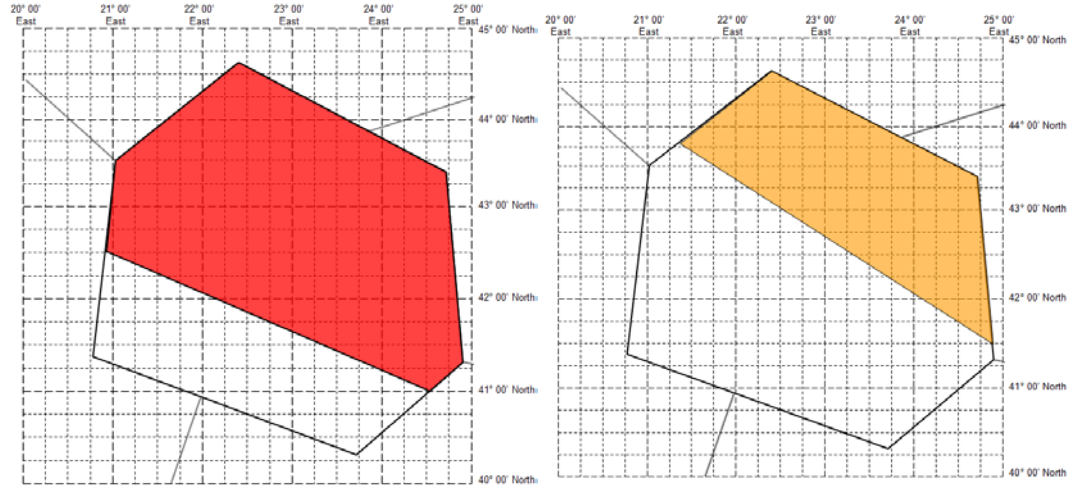
The specified points shall be on the FIR boundary (or so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at that point)

When the SIGMET does not include a 'forecast position' section.



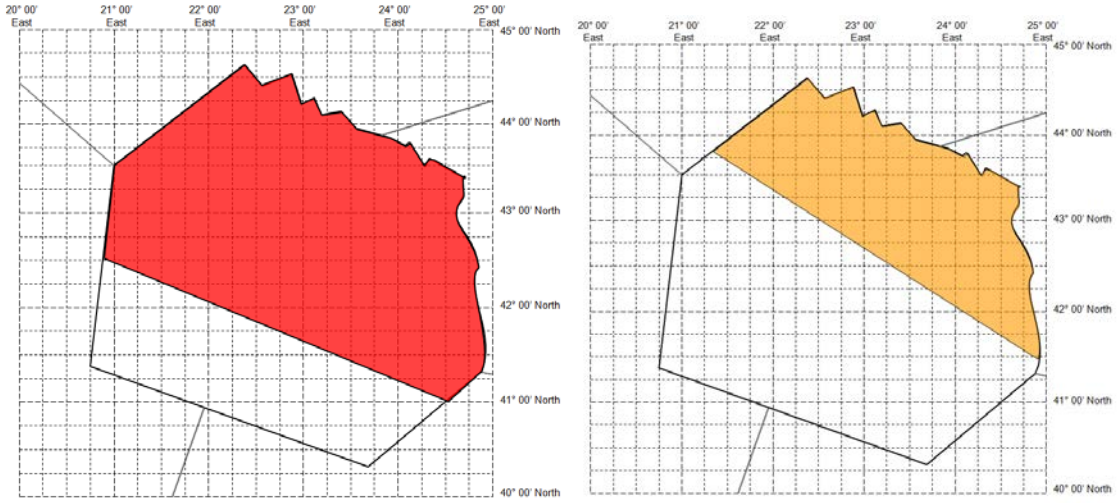
YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR SEV TURB FCST NE OF LINE N4230 E02052 – N4100 E02430 FL250/370 MOV NE 15KT WKN=

With an explicit forecast position:



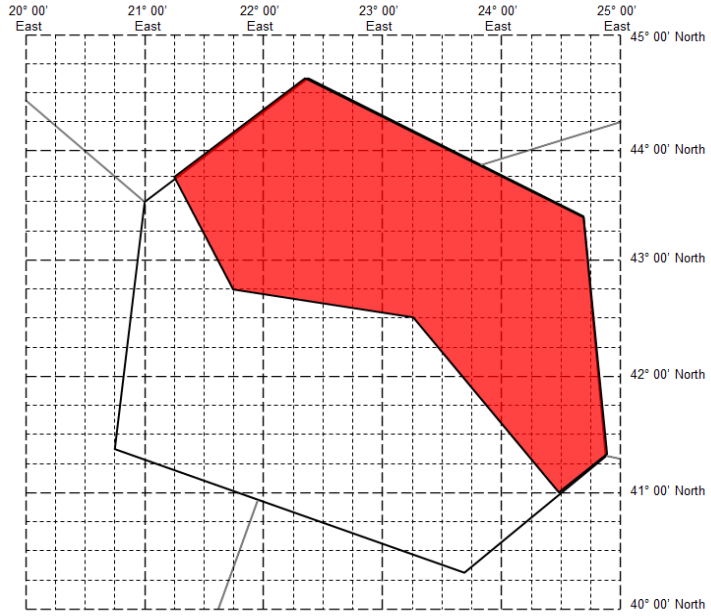
YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR SEV TURB FCST NE OF LINE N4230 E02052 – N4100 E02430 FL250/370 WKN FCST AT 1600Z NE OF LINE N4346 E02122 – N4130 E02452=

A separate example is provided below illustrating a case where the northeastern boundary is complex.



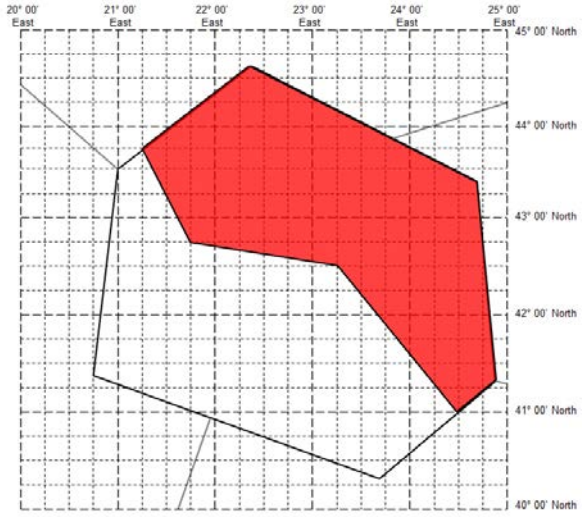
YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR SEV TURB FCST NE OF LINE N4230 E02052 – N4100 E02430
FL250/370 WKN FCST AT 1600Z NE OF LINE N4346 E02122 – N4130 E02457=

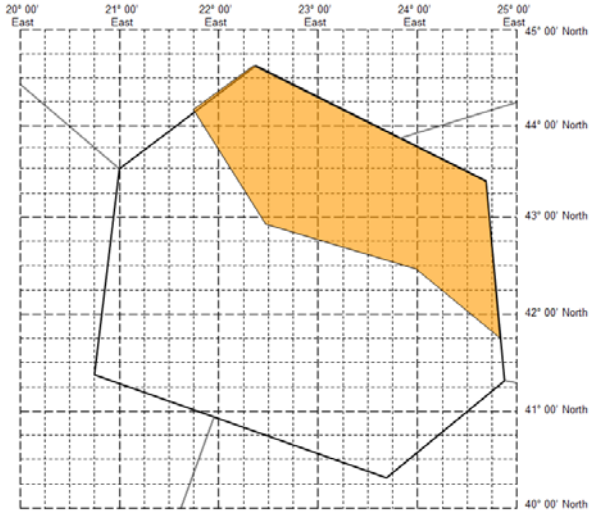
For a series of connected lines when the SIGMET does not include a ‘forecast position’ section.



YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR SEV TURB FCST NE OF LINE N4345 E02115 – N4245 E02145
- N4230 E2315 – N4100 E2430 FL250/370 WKN MOV NE 20KT=

With an explicit forecast position:



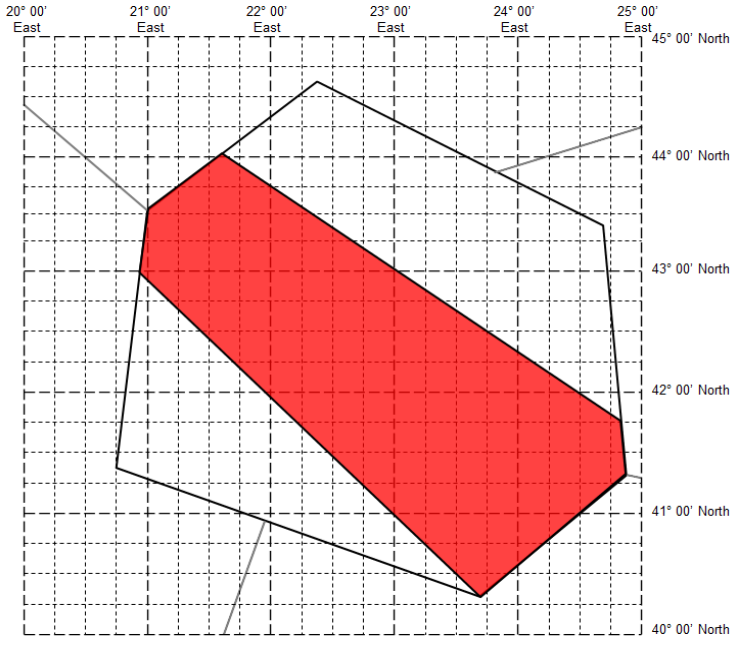


YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR SEV TURB FCST NE OF LINE N4345 E02115 – N4245 E02145 - N4230 E2315 – N4100 E2430 FL250/370 WKN FCST AT 1600Z NE OF LINE N4411 E02145 – N4255 E02228 - N4228 E2400 – N4130 E2450=

2b) In a sector of the FIR defined as being *between* two specified lines, or *between* two series of up to three connected lines, each with start and endpoints on the FIR boundary (or start and endpoints so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at those points).

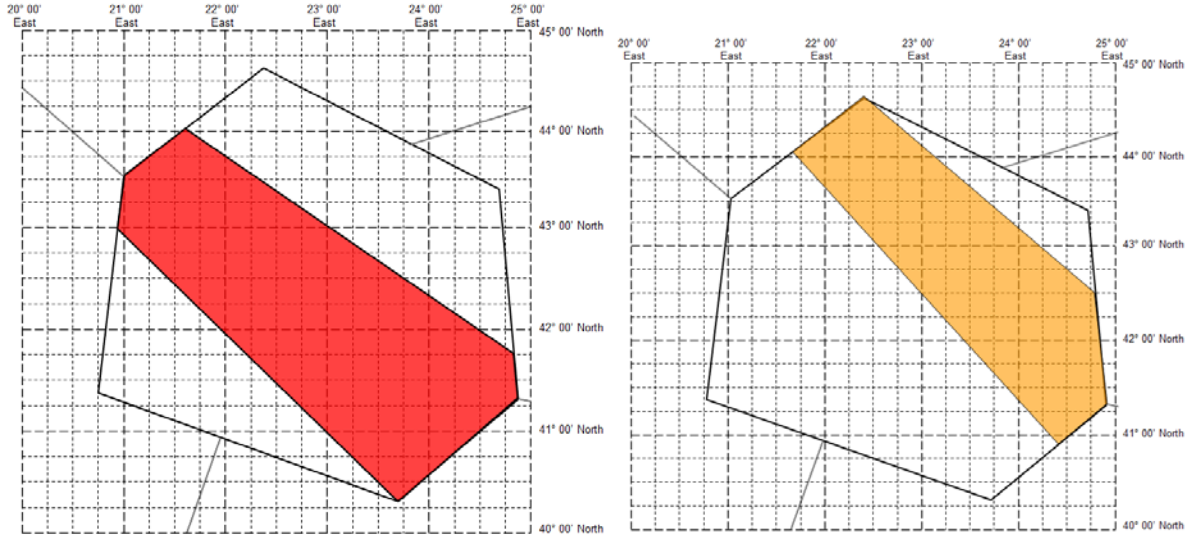
The specified points shall be on the FIR boundary (or so close to the FIR boundary so as to leave no doubt that the intent is for the line to connect to the FIR boundary at that point)

When the SIGMET does not include a 'forecast position' section.



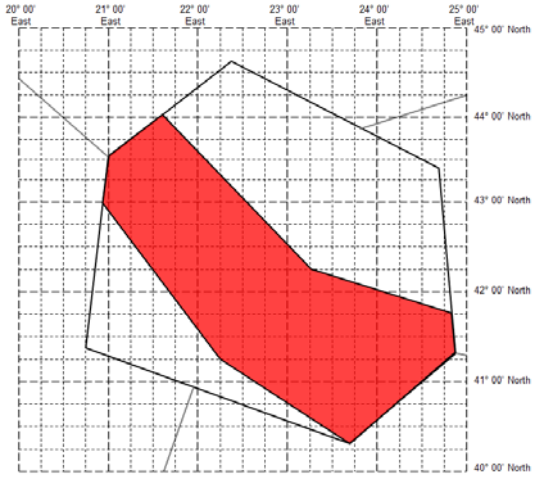
YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR SEV TURB FCST NE OF LINE N4300 E02057 – N4020 E02340 AND SW OF LINE N4402 E02142 – N4145 E02450 FL250/370 WKN MOV NE 20KT=

With an explicit forecast position:



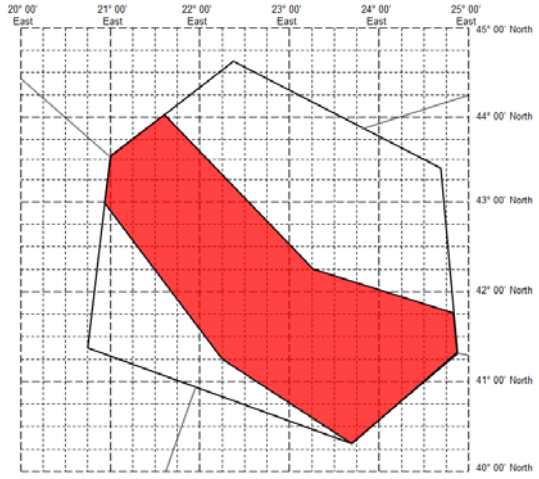
YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR SEV TURB FCST NE OF LINE N4300 E02057 – N4020 E02340 AND SW OF LINE N4402 E02142 – N4145 E02450 FL250/370 WKN FCST AT 1600Z NE OF LINE N4403 E02140 – N4055 E02422 AND SW OF LINE N4437 E02222 – N4230 E02447=

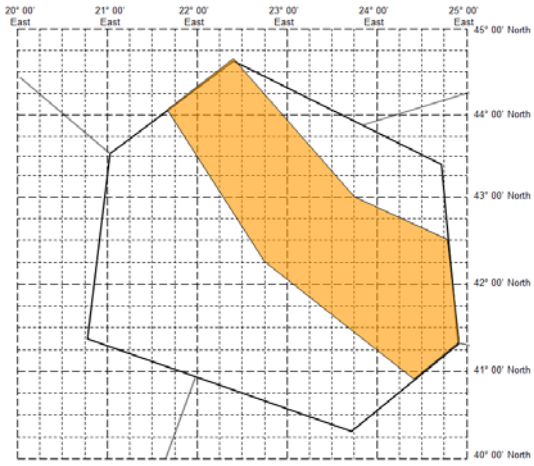
For a series of connected lines when the SIGMET does not include a ‘forecast position’ section.



YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR SEV TURB FCST NE OF LINE N4300 E02057 – N4115 E02215 – N4020 E02340 AND SW OF LINE N4402 E02142 – N4215 E02315 - N4145 E02450 FL250/370 WKN MOV NE 20KT=

With an explicit forecast position:

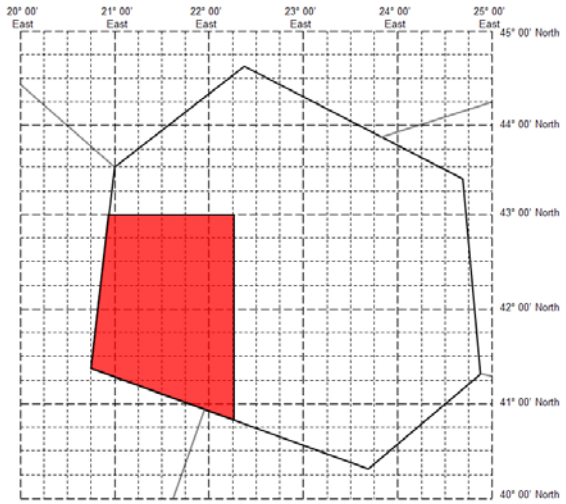




YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR SEV TURB FCST NE OF LINE N4300 E02057 – N4115 E02215 – N4020 E02340 AND SW OF LINE N4402 E02142 – N4215 E02315 - N4145 E02450 FL250/370 WKN FCST AT 1600Z NE OF LINE N4403 E02140 N4215 E02245 – N4055 E02422 AND SW OF LINE N4437 E02222 – N4300 E02345– N4230 E02447=

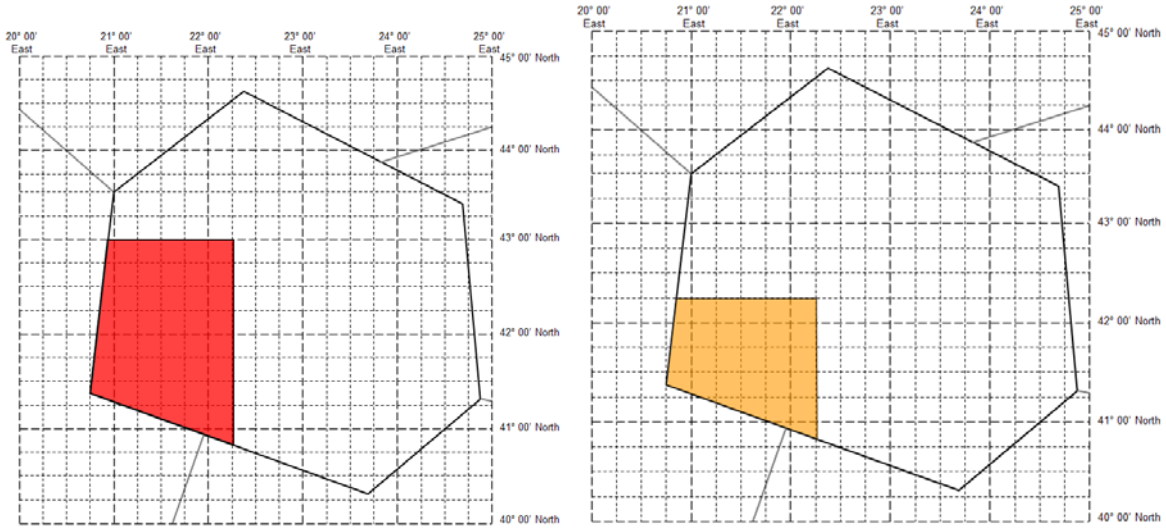
2c) In a sector of the FIR defined relative to a line of latitude and a line of longitude (effectively a quadrant)

When the SIGMET does not include a 'forecast position' section.



YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST S OF N4300 AND W OF E02215 FL250/370 MOV S 12KT WKN=

When the SIGMET does include a ‘forecast position'.

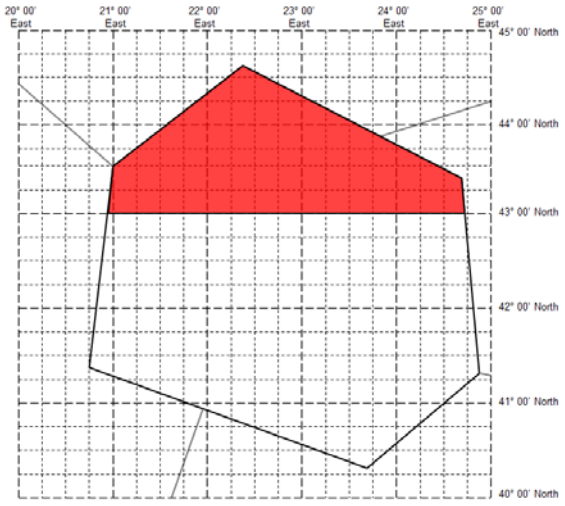


With an explicit forecast position:

```
YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST S OF N4300 AND W OF E02215
FL250/370 WKN FCST AT 1600Z S OF N4215 AND W OF E02215=
```

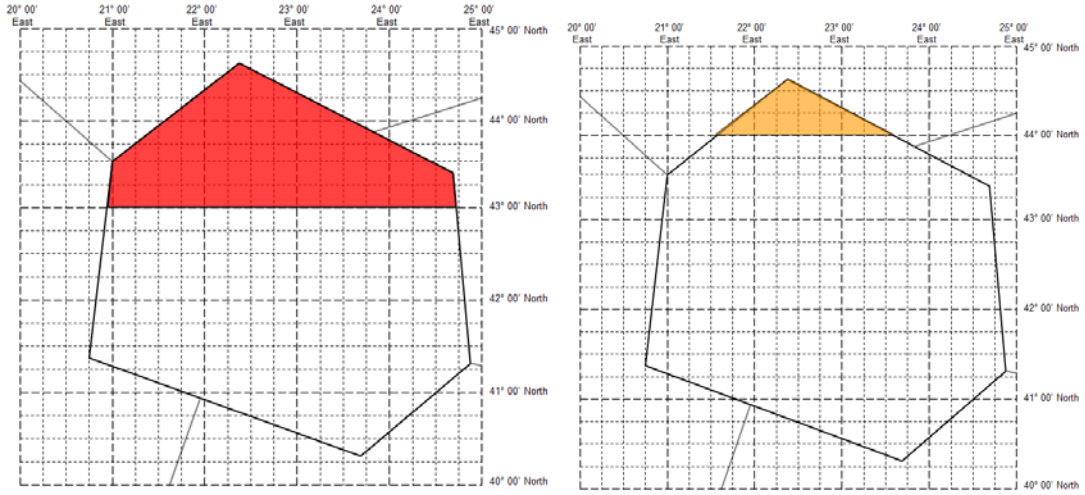
2d) In a sector of the FIR defined relative to a line of latitude or longitude (effectively a segment)

When the SIGMET does not include a ‘forecast position’ section.

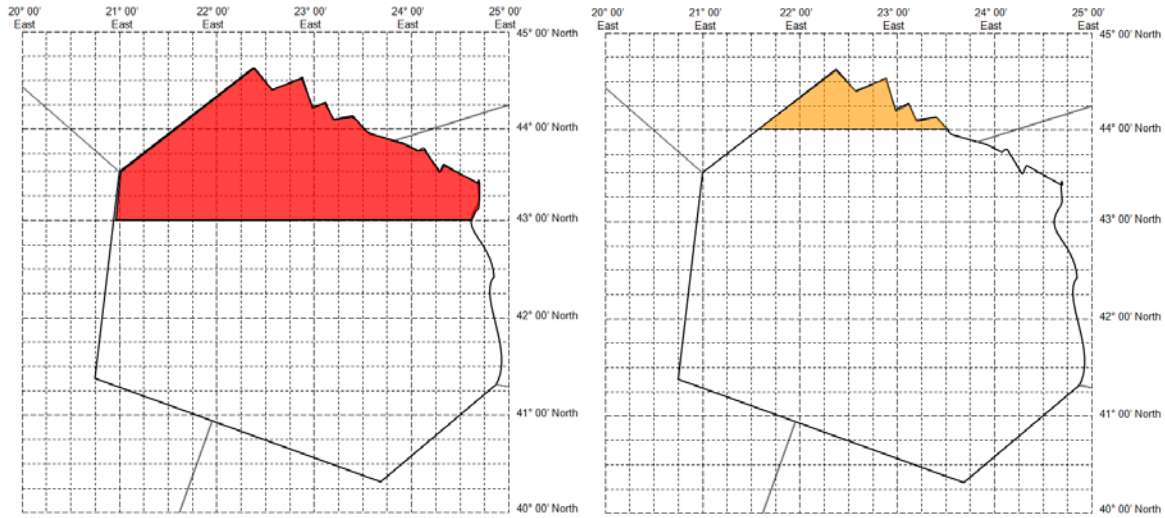



```
YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST N OF N43 FL250/370 MOV N 15KT WKN=
```

When the SIGMET does include a ‘forecast position’ section.



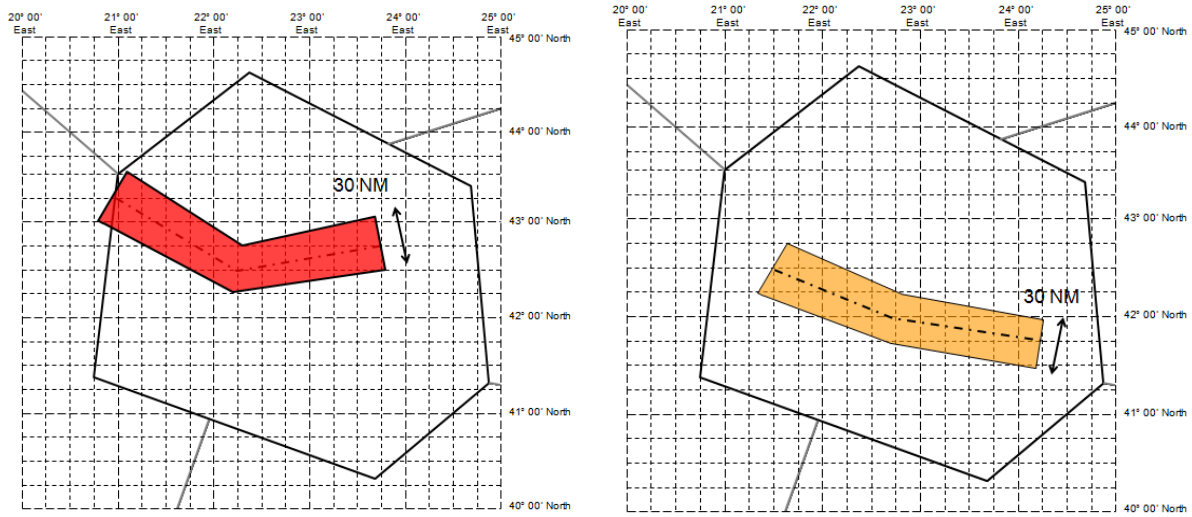
YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST N OF N43[3] FL250/370 WKN FCST AT 1600Z N OF N44=



YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST N OF N43[4] FL250/370 WKN FCST AT 1600Z N OF N44=

[3] It would be equally valid to use 'N4300'.
[4] It would be equally valid to use 'N4300'.

3) Defined by a ‘corridor’ of specified width, centred upon the line described;

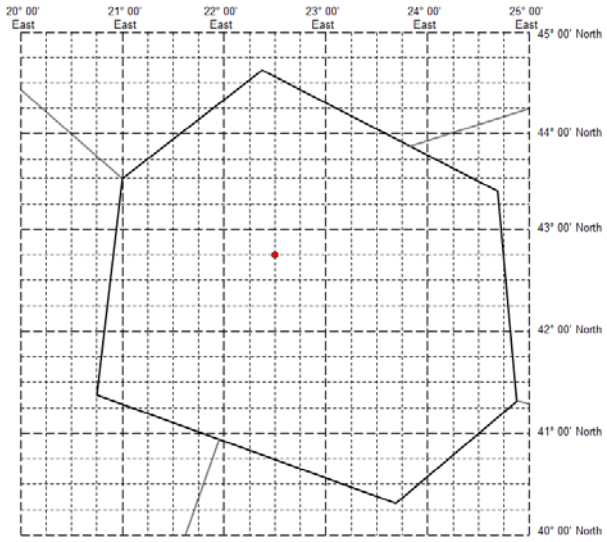


YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB FCST APRX 30NM WID LINE BTN N4315 E02100 – N4230 E02215 – N4245 E02345 FL250/370 WKN FCST AT 1600Z APRX 30NM WID LINE BTN N4230 E02130 – N4200 E02245 – N4145 E02415=

Note: The nature of this option means that, as at N4315 E02100, it is inferred that there is some encroachment into the neighbouring FIR.

4) At a specific point within the FIR;

When the SIGMET does not include a ‘forecast position’ section.

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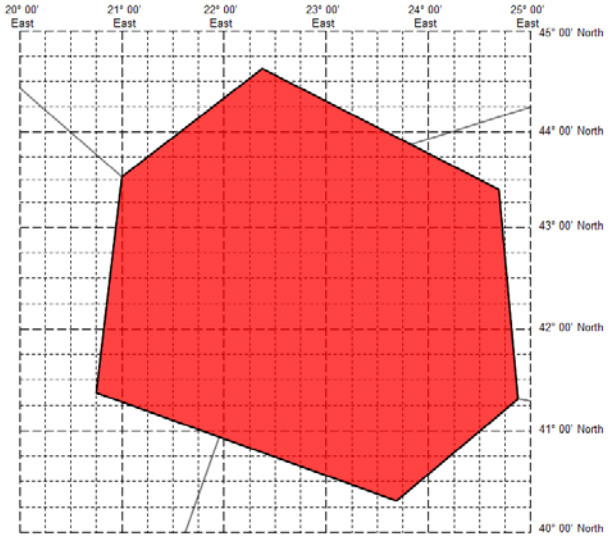
YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR/UIR SEV TURB OBS N4245 E02230 FL250/370 STNR WKN=
```

5) Covering entire FIR.

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YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR VA CLD FCST AT 1200Z ENTIRE FIR FL250/370 STNR
WKN=
```
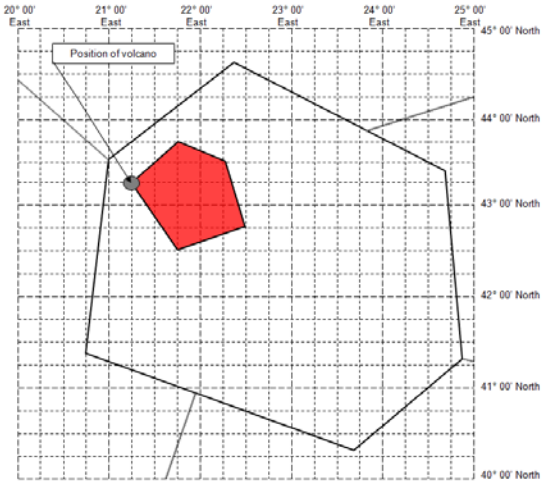

6) Additional examples using volcanic ash references applicable to volcanic ash SIGMET only

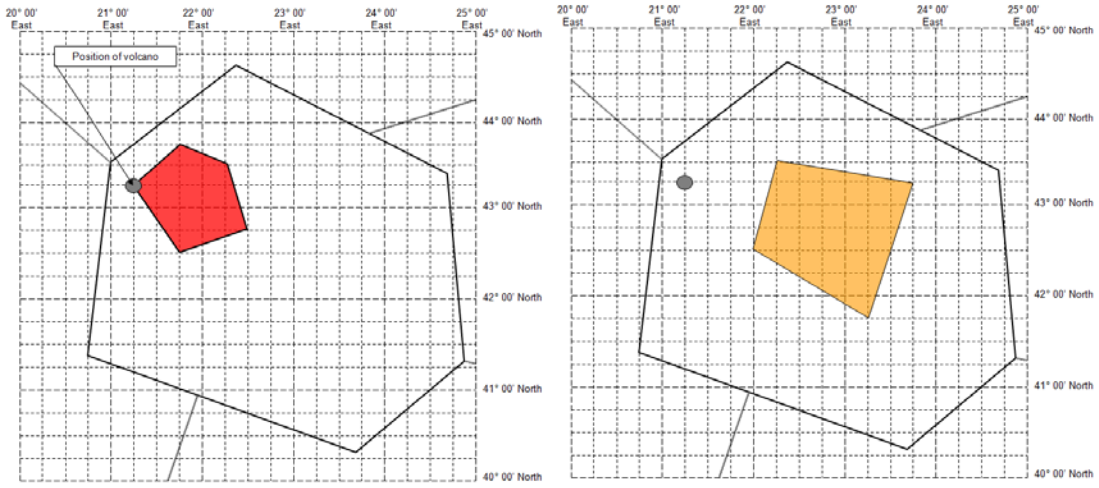
When the VA SIGMET does not include a ‘forecast position’ section.



YUDD SIGMET 2 VALID 101200/101600 YUSO–
YUDD SHANLON FIR VA ERUPTION MT ASHVAL PSN N4315 E02115 VA CLD OBS AT 1200Z WI N4315 E02115 – N4345 E02145 - N4330 E02215 – N4245 E02230 – N4230 E02145 - N4315 E02115 FL250/370 MOV ESE 20KT NC=

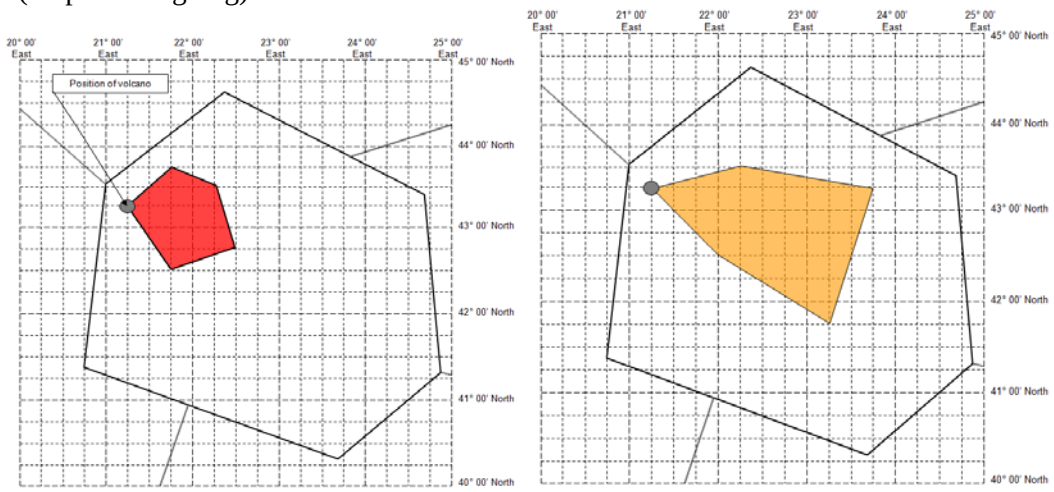
When the SIGMET does include a ‘forecast position’ section (no rate of movement).

For VA (eruption ceased, ash cloud persists downwind):



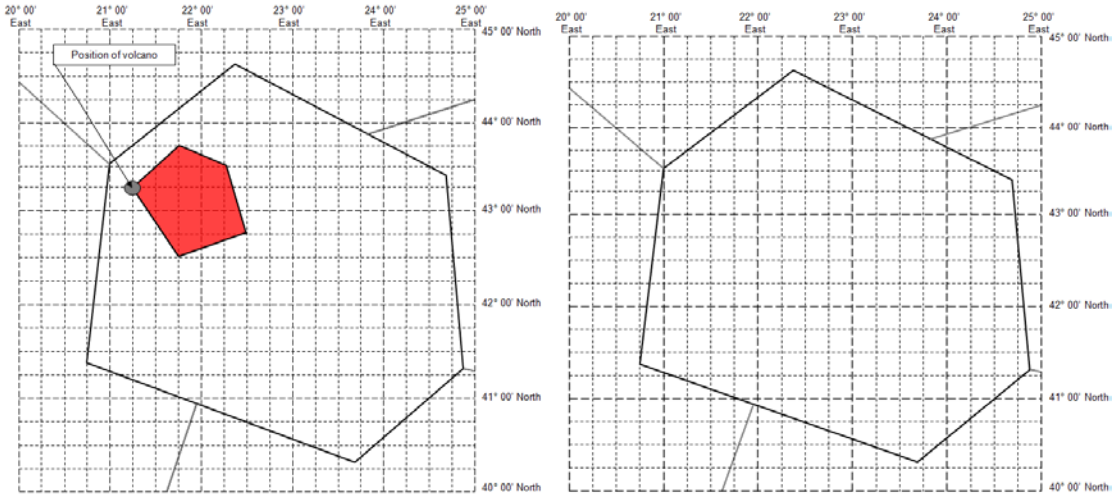
YUDD SIGMET 2 VALID 101200/101800 YUSO–
YUDD SHANLON FIR/UIR VA ERUPTION MT ASHVAL PSN N4315 E02115 VA CLD OBS AT 1200Z WI N4315 E02115 – N4345 E02145 N4330 E02215 – N4245 E02230 – N4230 E02145 - N4315 E02115 FL250/370 NC FCST AT 1800Z WI N4330 E02215 – N4315 E02345 – N4145 E02315 – N4230 E02200 - N4330 E02215=

For VA (eruption on-going):



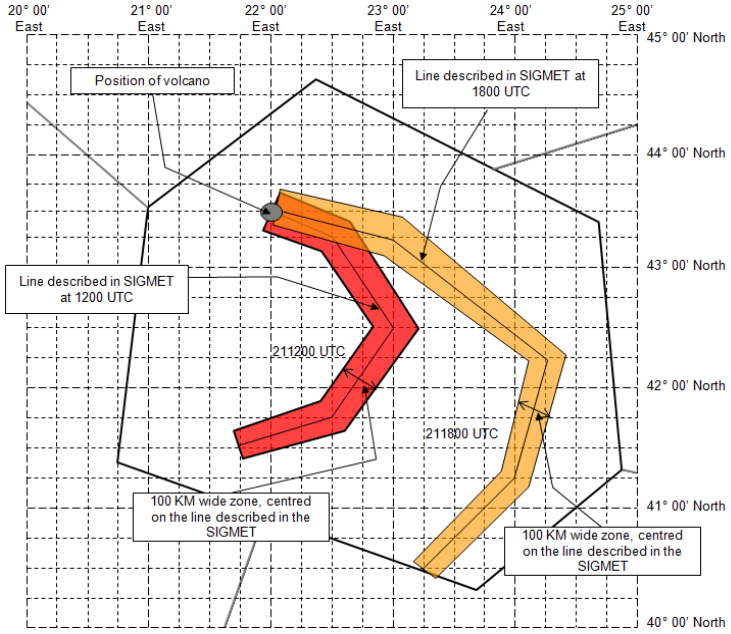
YUDD SIGMET 2 VALID 101200/101800 YUSO –
YUDD SHANLON FIR VA ERUPTION MT ASHVAL PSN N4315 E02115 VA CLD OBS AT 1200Z WI N4315 E02115 - N4345 E02145 – N4330 E02215 – N4245 E02230 – N4230 E02145 – N4315 E2115 FL250/370 NC FCST AT 1800Z WI N4315 E02115 - N4330 E02215 – N4315 E02345 – N4145 E02315 – N4230 E02200 – N4315 E02115=

For VA (eruption ceasing, ash dispersing):



YUDD SIGMET 2 VALID 101200/101800 YUSO–
YUDD SHANLON FIR VA ERUPTION MT ASHVAL PSN N4315 E02115 VA CLD OBS AT 1200Z WI N4315 E02115 - N4345 E02145 – N4330 E02215 – N4245 E02230 - N4230 E02145 - N4315 E02115 FL250/370 WKN FCST AT 1800Z NO VA EXP=

For VA (eruption on-going), defining the area affected as a corridor of specified width;

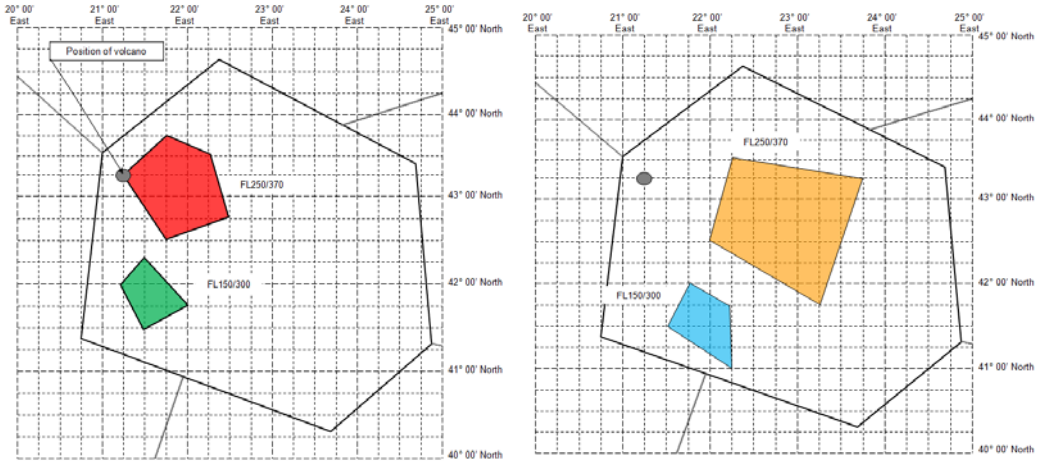


YUDD SIGMET 2 VALID 211200/211800 YUSO –
YUDD SHANLON FIR/UIR VA ERUPTION MT ASHVAL PSN N4330 E02200 VA CLD FCST AT 1200Z APRX 100KM WID LINE BTN N4330 E02200 – N4315 E02230 – N4230 E02300 – N4145 E02230 – N4130 E02145 FL310/450 NC FCST AT 1800Z APRX 100KM WID LINE BTN N4330 E02200 – N4315 E02300 – N4215 E02415 – N4115 E02400 – N4030 E02315=

7) Additional examples using volcanic ash references applicable to multiple areas in SIGMET for volcanic ash.

The only way to include a second instance of a volcanic ash cloud in a SIGMET message is to use the 'AND' option after the 'Forecast position' section.

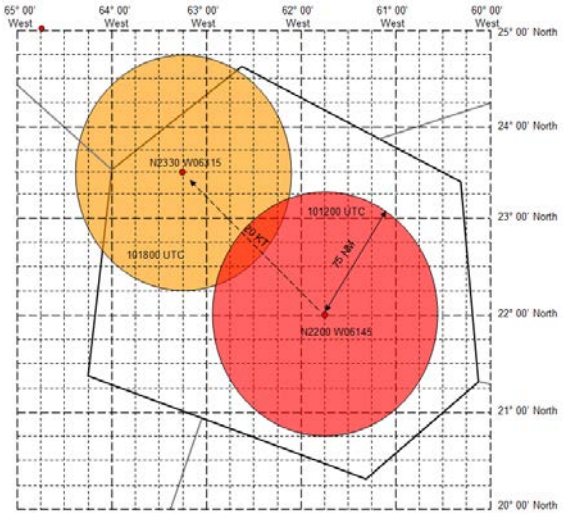
In the example below, two areas of volcanic ash cloud (at different levels) are forecast to move as described. The normal courier font refers to the northernmost areas of ash, and the italicised font refers to the southernmost areas of ash during the period. 'AND' is highlighted in **bold** to identify the separation of the two features.



YUDD SIGMET 2 VALID 101200/101800 YUSO –
YUDD SHANLON FIR VA ERUPTION MT ASHVAL PSN N4315 E02115 VA CLD OBS AT 1200Z WI N4315 E02115 – N4345 E02145 N4330 E02215 – N4245 E02230 – N4230 E02145 - N4315 E02115 FL250/370 NC FCST AT 1800Z WI N4330 E02215 – N4315 E02345 – N4145 E02315 – N4230 E02200 - N4330 E02215 **AND** *N4200 E02115 – N4217 E02130 – N4145 E02200 – N4130 E02130 – N4200 E02100 FL150/300 NC FCST AT 1800Z WI N4200 E02145 – N4145 E02215 – N4100 E02215 - N4130 E02130 - N4200 E02145=*

The above only works if there are two instances of ash at the start and end of the period. If the number of ash areas is different at the start and end, it is recommended that separate SIGMETs be issued as necessary.

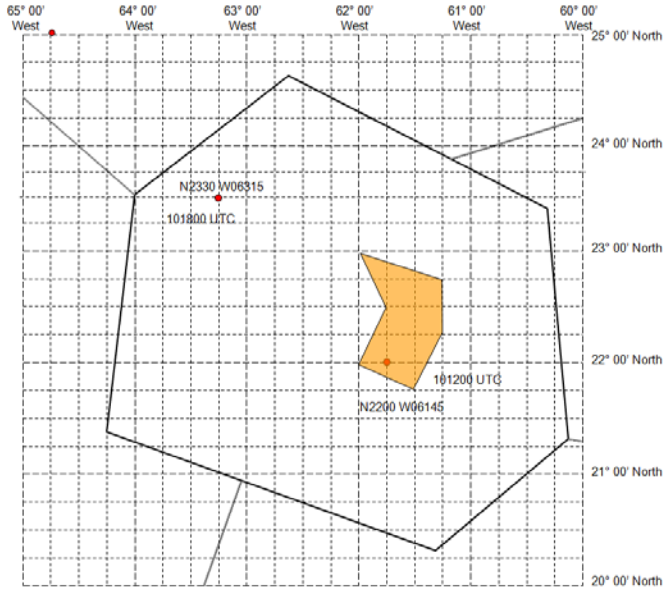
8) Additional example using volcanic illustrating use of "WI nnnKM (or nnnNM) OF TC CENTRE " Tropical Cyclone SIGMET Only



YUDD SIGMET 2 VALID 101200/101800 YUSO–
YUDD SHANLON FIR TC GLORIA PSN N2200 W06145 CB OBS AT 1200Z WI 75NM OF TC CENTRE TOP BLW FL500 MOV NW 20KT WKN=

YUDD SIGMET 2 VALID 101200/101800 YUSO–
YUDD SHANLON FIR TC GLORIA PSN N2200 W06145 CB OBS AT 1200Z WI 75NM OF TC CENTRE TOP BLW FL500 WKN FCST AT 1800Z TC CENTRE PSN N2330 W06315=

It is acceptable to use the other 'Location' options to describe the area affected by the CB of a Tropical Cyclone:

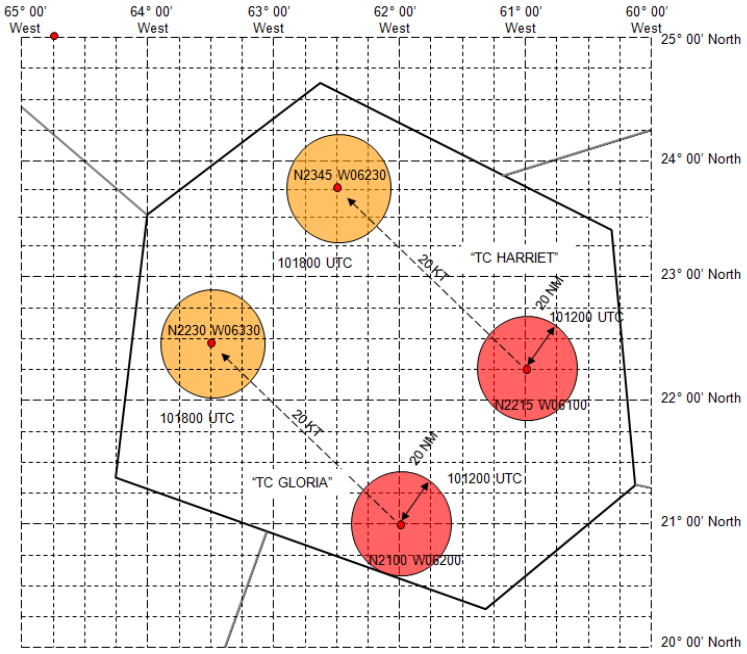


YUDD SIGMET 2 VALID 101200/101800 YUSO–
YUDD SHANLON FIR TC GLORIA PSN N2200 W06145 CB OBS AT 1200Z WI N2200 W06200 – N2230 W06215 – N2300 W06200 - N2245 W06245 – N2215 W06245 – N2145 W06230 –N2200 W06200 TOP BLW FL500 WKN FCST AT 1800Z TC CENTRE PSN N2330 W06315=

9) Additional example using volcanic ash references applicable to multiple areas in SIGMET for tropical cyclone.

The only way to include a second instance of a tropical cyclone in a SIGMET is to use the 'AND' option following the 'Forecast position' section.

The example below demonstrates how two separate TCs, and the CB within a specified radius of those TCs, can be described. The normal courier font refers to TC Gloria, and the italicised font refers to TC Harriet. 'AND' is highlighted in **bold** to identify the separation between information for the two features.



YUDD SIGMET 2 VALID 101200/101800 YUSO–
YUDD SHANLON FIR TC GLORIA PSN N2100 W06200 CB OBS AT 1200Z WI 20NM OF TC CENTRE TOP FL500 MOV NW 20KT WKN FCST AT 1800Z TC CENTRE N2230 W06330 **AND** *TC HARRIET FCST AT 1200Z N2215 W06100 CB TOP FL400 WI 20NM OF CENTRE MOV NW 20KT WKN FCST AT 1800Z TC CENTRE N2345 W06230*=

— — — — — — — —

APPENDIX C

SIGMET TEST PROCEDURES

CHAPTER 1 — REGIONAL SIGMET TEST PROCEDURES

1. Introduction

1.1. The Meteorology Divisional Meeting (2002) formulated Recommendation 1/12 b), *Implementation of SIGMET requirements,* which called, *inter alia,* for the relevant planning and implementation regional groups (PIRGs) to conduct periodic tests of the issuance and reception of SIGMET messages, especially those for volcanic ash.

1.2. This document describes the procedures for conducting regional SIGMET tests. The test procedures encompass all the three types of SIGMET, as follows:

- SIGMET for volcanic ash (WV SIGMET);
- SIGMET for tropical cyclone (WC SIGMET); and
- SIGMET for other weather phenomena (WS SIGMET).

1.3. The requirements for dissemination of SIGMET are specified in Annex 3, Appendix 6, 1.2 and in this guide on pages 3-17 and 3-18.

1.4. Tropical cyclone and volcanic ash cloud SIGMETs will be referred to hereafter as **WC** SIGMET (due to the $\mathbf{T_1T_2}$ section of the WMO AHL being set to **WC**) and **WV** SIGMET (due to the $\mathbf{T_1T_2}$ section of the WMO AHL being set to **WV**) respectively. All other SIGMET types will be referred to by **WS** (due to the $\mathbf{T_1T_2}$ section of the WMO AHL being set to **WS**).

2. Purpose and scope of regional SIGMET tests

2.1. The purpose of the regional SIGMET tests is to check the awareness of participating MWOs of the ICAO requirements for the issuance of SIGMET and the compliance of the States' procedures for preparation and dissemination of SIGMET bulletins with the relevant ICAO Standards and Recommended Practices (SARPs) and regional procedures.

2.2. Note, an MWO is at liberty to issue SIGMET test messages for local reasons (i.e. testing of local systems/routing etc.). Whilst such tests may not involve other MWOs or agencies directly, it is recommended that the general principles of this guide be followed with regard to local, ad hoc testing.

2.3. Hereafter, references to 'SIGMET tests' or 'tests' should be understood to refer to regional SIGMET tests.

2.4. The scope of the tests is to check also the interaction (where appropriate, depending on regional requirements) between the tropical cyclone advisory centres (TCAC) and volcanic ash advisory centres (VAAC), and the MWOs in their areas of responsibility. Therefore, where the issuance of **WC** and **WV** SIGMET is being tested, the TEST SIGMET messages initiated by the MWO should normally be triggered by a test advisory issued by the respective TCAC or VAAC.

2.5. The regional OPMET data banks (RODB) will monitor the dissemination by filing all TEST SIGMETs and advisories and the corresponding reception times. The monitoring results for **WC**, **WV** and **WS** SIGMET will be provided in the form of summaries to the SIGMET test focal points given in section 3.4.1.3 with a copy to the Regional Office concerned

2.6. A consolidated summary report will be prepared by both the SIGMET test focal points and submitted to the ICAO regional office concerned. The report will include recommendations for improvement of the SIGMET exchange and availability. The results of the tests should be reported to the appropriate regional OPMET bulletin exchange/data management group and MET Sub-group meetings.

2.7. Participating States, for which discrepancies of the procedures or other findings are identified by the tests, will be advised by the ICAO Regional Office and requested to take necessary corrective action.

3. SIGMET test procedures

3.1. Procedures for WC and WV SIGMET tests

3.1.1. Participating units

3.1.1.1. **Tropical Cyclone Advisory Centres (TCAC):**
New Delhi

3.1.1.2. **Volcanic Ash Advisory Centres (VAAC):**
Toulouse

3.1.1.3. **Regional OPMET Data Banks (RODB):**
ROC Jeddah and back-up ROC Bahrain

3.1.1.4. **Meteorological Watch Offices (MWO):**
Reference MID eANP Volume II, Table MET II-1

3.1.1.5 **World Area Forecast Centres (WAFCs):**
London
Washington

3.1.2. WV/WC SIGMET test messages

3.1.2.1. On the specified date for the test <<Time (UTC) to be agreed appropriate to Region>> the participating VAAC and TCAC should issue a TEST VA or TC advisory. The structure of the TEST advisories should follow the standard format given in Annex 3 with indication that it is a test message as shown on page C-6.

3.1.2.2. MWOs, upon receipt of the TEST VA or TC advisory, should issue a TEST SIGMET for volcanic ash (**WV**) or tropical cyclone (**WC**), respectively, and send it to all participating RODBs. The WMO AHL, the first line of the SIGMET, and the FIR reference in the second line of the SIGMET should be valid entries. The remainder of the body of the message should contain only the specified text informing recipients in plain language that the message is a test. TEST SIGMETs should normally have short validity periods (10 minutes), but where appropriate TEST SIGMET may be issued with validity periods up to the maximum allowed (4 hours for **WS**, 6 hours for **WC** and **WV**').

3.1.2.3. If the MWO does not receive the TEST VA or TCA advisory within 30 minutes of the commencement time of the test then they should still issue a TEST SIGMET indicating that the VAA or TCA was not received. See C-7 for an example of the test message.

3.1.2.4. To avoid over-writing of a valid SIGMET, a TEST SIGMET for VA or TC should not be sent in the case where there is a valid SIGMET of the same type for the MWO's area of responsibility. However, in this case the responsible MWO should notify the WV/WC SIGMET test focal point as given in 3.4.1.3 so that they can be excluded from the analysis.

3.2. Procedures for WS SIGMET tests

Note. — The WS SIGMET is initiated by the MWO at the designated time in 3.2.2. It is not initiated by an advisory as in the WC and WV SIGMET tests.

3.2.1. Participating units

Each Regional Office should develop its own list of participating units, using the template below:

3.2.1.1. **Regional OPMET Data Banks (RODB):**
ROC Jeddah and back-up ROC Bahrain

3.2.1.2. **Meteorological Watch Offices (MWO):**
Reference MID eANP Volume II, Table MET II-1

3.2.2. WS SIGMET Test Message

3.2.2.1. The MWOs should issue a TEST SIGMET during the 10-minute period between <<Time (UTC) to be agreed appropriate to Region>>.

3.2.2.2. The WMO AHL, the first line of the SIGMET, and the FIR reference in the second line of the SIGMET should be valid. The remainder of the body of the message should contain only the specified text informing recipients in plain language that the message is a test. TEST SIGMETs should normally have short validity periods (10 minutes), but where appropriate TEST SIGMET may be issued with validity periods up to the maximum allowed (4 hours for **WS**, 6 hours for **WC** and **WV**'.

3.3. Common procedures

3.3.1. Special procedure to avoid overwriting of a valid WV/WC/WS SIGMET

3.3.1.1. It is vital to ensure that TEST SIGMET is unique so that it is not confused with operational SIGMET and avoid overwriting a valid operational SIGMET in an automated system. In order to prevent this it is suggested that the test SIGMET sequence number should be Z99.

For example, a SIGMET test is scheduled for 0200 UTC on the 29th. The TEST SIGMET is issued as follows:

WSAU01 YBRF 290200
YBBB SIGMET Z99 VALID 290200/290210 YBRF-

YBBB BRISBANE FIR TEST SIGMET PLEASE DISREGARD=

3.3.2. The test date and time

3.3.2.1. ICAO Regional Office will set a date and time for each SIGMET test after consultation with the participating VAACs, TCACs and RODBs. The information about the agreed date and time will be sent to all States concerned by a State letter and copied to the States' SIGMET Tests Focal Points.

3.3.2.2. Tests for different types of SIGMET should preferably be conducted on separate dates.

3.3.2.3. SIGMET tests for **WC**, **WV** and **WS** should be conducted at least yearly.

3.3.3. Dissemination of test SIGMETs and advisories

3.3.3.1. All TEST TC/VA advisories should be sent by the TCACs and VAACs to the participating units, as specified in the Regional Air Navigation Plan. The relevant AFTN addresses should be identified as part of the Region specific documentation.

3.3.3.2. All TEST SIGMETs should be sent by the MWOs to the participating units, as specified in the Regional Air Navigation Plan identified by each Regional Office. The relevant AFTN addresses should be identified as part of the Region specific documentation.

3.3.3.3. RODBs that are nominated as IROGs will relay the test bulletins to their corresponding IROG.

3.3.3.4. SIGMET tests should be terminated within 2 hours of the test start time. Exceptionally, where the test requires SIGMETs to be valid for up to 4 hours, then tests may be extended to a maximum of 4 hours for WS SIGMET and 6 hours for WC and WV SIGMET.

3.3.4. Coordination with the ATS units

3.3.4.1. MWOs should inform the associated ATS units of the forthcoming SIGMET tests by a suitable advanced notice.

3.4. Processing of the test messages and results

3.4.1. The RODBs should file all incoming TEST advisories and SIGMETs and perform an analysis of the availability, timeliness of arrival and the correctness of the WMO bulletin headings. A SIGMET TEST Summary Table, as shown on pages C-8 and C-9 of this guide, should be prepared by each RODB and sent to the regional SIGMET test focal point given in section 3.4.3, with a copy to the ICAO Regional Office.

3.4.2. The SIGMET test focal points should prepare the final report of the test and present to the ICAO Regional Office. A summary report should be submitted to the next regional OPMET bulletin exchange/data management group and MET Sub-group meetings.

3.4.3. The current SIGMET test focal points for the MID Region are as follows:

MID Region

State	Contact	Numbers	e-mail
Bahrain	Anwar Yusuf Al-Mulla Operation Supervisor Meteorological Directorate Civil Aviation Affairs Ministry of Transportation P.O. Box 586	+973 17 321109 (tel) +973 17 320630 (fax)	aalmulla@caa.gov.bh
	Basim Salman Al Asfoor Head of Research and Information Meteorological Directorate Civil Aviation Affairs Ministry of Transportation P.O. Box 586	+973 17 329043 (tel) +973 17 320630 (fax)	balasfoor@caa.gov.bh
Egypt			
Iran, Isalamic Republic of	Ahad Vazifeh Director of Forecasting Center in Meteorological Organization	+98 21 66070023(tel) +98 21 66070007(fax) +98 91 23851049 (mb)	vazife@gmail.com
Iraq	Sallam S. Nadhim Iraqi Meteorological Organization & Seismology Dept. : Weather Forecasting		Sallam_omery@yahoo.com (for backup use – info@meteoseism.gov.iq)
Jordan	Eng. Sahim AL-Shraideh		Sahim_Faisal@yahoo.com
Kuwait			
Lebanon			
Libya	Mr. Mokhtar R. ALGhaiag Senior Forecaster National Meteorological Centre/Forecasting Department	+218-92-6009697 mob +218-215-621772 fax	alghaiag@yahoo.com
Oman			
Qatar			
Saudi Arabia			
Sudan			
Syrian Arab Republic			
United Arab Emirates	Ahmed Al Obeidli Sr. Air Navigation Inspector – CNS –AIRS General Civil Aviation Authority P.O. Box: 6558 Abu Dhabi United Arab Emirates	00971 240 54410 (tel)	aobaidli@gcaa.gov.ae
Yemen			

SIGMET TEST PROCEDURES

Format of TEST Advisories and SIGMETs

1. Format of TEST Volcanic Ash Advisory

```
VA ADVISORY
DTG:            YYYYMMDD/1000Z
VAAC:           TOULOUSE
VOLCANO:        TEST
PSN:            UNKNOWN
AREA:           TOULOUSE VAAC AREA
SUMMIT ELEV:    UNKNOWN
ADVISORY NR:    YYYY/nn
INFO SOURCE:    NIL
AVIATION COLOUR CODE: NIL
ERUPTION DETAILS:     NIL
OBS VA DTG:     DD/GGggZ
OBS VA CLD:     ASH NOT IDENTIFIABLE FROM SATELLITE DATA
FCST VA CLD +6 HR:    DD/0800Z SFC/FL600 NO ASH EXP
FCST VA CLD +12 HR:   DD/1400Z SFC/FL600 NO ASH EXP
FCST VA CLD +18 HR:   DD/2000Z SFC/FL600 NO ASH EXP
RMK: THIS IS A TEST VA ADVISORY. MWO SHOULD NOW ISSUE A TEST
SIGMET FOR VA,. PLEASE REFER TO THE LETTER FROM MID REGIONAL
OFFICE DATED xxxxxxxxxx.
NXT ADVISORY: NO FURTHER ADVISORIES=
```

2. Format of TEST Tropical Cyclone Advisory

```
TC ADVISORY
DTG:            YYYYMMDD/0800Z
TCAC:           NEW DELHI
TC:             TEST
NR:             nn (actual number)
PSN:            NIL
MOV:            NIL
C:              NIL
MAX WIND:       NIL
FCST PSN +06HR: NIL
FCST MAX WIND +06HR:  NIL
FCST PSN +12HR: NIL
FCST MAX WIND +12HR:  NIL
FCST PSN +18HR: NIL
FCST MAX WIND +18HR:  NIL
FCST PSN +24HR: NIL
FCST MAX WIND +24HR:  NIL
```

```
RMK: THIS IS A TEST TC ADVISORY. MWO SHOULD NOW ISSUE A TEST
SIGMET FOR TC. PLEASE REFER TO THE LETTER FROM MID REGIONAL
OFFICE DATED xxxxxxxxxx.
NXT MSG: NIL=
```

3. Format of TEST SIGMET for Volcanic Ash

```
WVXXii CCCC YYGGgg
CCCC SIGMET Z99 VALID YYGGgg/YYGGgg CCCC-
CCCC <<NAME>> FIR THIS IS A TEST SIGMET, PLEASE DISREGARD.
TEST VA ADVISORY NUMBER xx RECEIVED FM TOULOUSE VAAC AT YYGGggZ=
```

or

```
WVXXii CCCC YYGGgg
CCCC SIGMET Z99 VALID YYGGgg/YYGGgg CCCC-
CCCC <<NAME>> FIR THIS IS A TEST SIGMET, PLEASE DISREGARD.
TEST VA ADVISORY NOT RECIEVED FM TOULOUSE VAAC=
```

Example:

```
WVJP31 RJTD 170205
RJJJ SIGMET Z99 VALID 170205/170215 RJTD-
RJJJ FUKUOKA FIR THIS IS A TEST SIGMET, PLEASE DISREGARD.
TEST VA ADVISORY NUMBER 1 RECEIVED FM TOKYO VAAC AT 170200Z=

WVJP31 RJTD 170235
RJJJ SIGMET Z99 VALID 170205/170215 RJTD-
RJJJ FUKUOKA FIR THIS IS A TEST SIGMET, PLEASE DISREGARD.
TEST VA ADVISORY NOT RECEIVED FM TOKYO VAAC=
```

4. Format of TEST SIGMET for Tropical Cyclone

```
WCXXii CCCC YYGGgg
CCCC SIGMET Z99 VALID YYGGgg/YYGGgg CCCC-
CCCC <<NAME>> FIR THIS IS A TEST SIGMET, PLEASE DISREGARD.
TEST TC ADVISORY NUMBER xx RECEIVED FM NEW DELHI TCAC AT YYGGggZ=
```

```
WCXXii CCCC YYGGgg
CCCC SIGMET Z99 VALID YYGGgg/YYGGgg CCCC-
CCCC <<NAME>> FIR THIS IS A TEST SIGMET, PLEASE DISREGARD.
TEST TC ADVISORY NOT RECEIVED FM NEW DELHI TCAC=
```

Example:

```
WCJP31 RJTD 100205
RJJJ SIGMET Z99 VALID 100205/100215 RJTD-
```

```
RJJJ FUKUOKA FIR THIS IS A TEST SIGMET, PLEASE DISREGARD.
TEST TC ADVISORY NUMBER 1 RECEIVER FM TOKYO TCAC AT 180200Z=

WCJP31 RJTD 100235
RJJJ SIGMET Z99 VALID 100205/100215 RJTD-
RJJJ FUKUOKA FIR THIS IS A TEST SIGMET, PLEASE DISREGARD.
TEST TC ADVISORY NOT RECEVED FM TOKYO TCAC =
```

5. Format of TEST SIGMET for other weather phenomena

```
WSXXii CCCC YYGGgg
CCCC SIGMET Z99 VALID YYGGgg/YYGGgg CCCC-
CCCC <<NAME>> FIR THIS IS A TEST SIGMET, PLEASE DISREGARD=
```

Example:

```
WSJP31 RJTD 240205
RJJJ SIGMET Z99 VALID 240205/240215 RJTD-
RJJJ FUKUOKA FIR THIS IS A TEST SIGMET, PLEASE DISREGARD=
```

CHAPTER 2 — SAMPLE TABLE TO USED BY REGIONAL OPMET DATA BANKS

Name of RODB Tokyo
Date of Test 2011/11/17
Target (VA or TC) VA

VA Advisories (FV)

TTAAii	*CCCC*	*YYGGgg*	*Received Time(UTC)*	*Comments/Remarks*
FVAK23	PAWU	170159	01:59:29	
FVAU01	ADRM	170201	02:01:53	
FVFE01	RJTD	170200	02:00:09	
FVPS01	NZKL	170207	02:08:27	
FVXX02	LFPW	170202	02:02:41	
FVXX25	KNES	170200	02:02:01	

VA SIGMET (WV)

TTAAii	*CCCC*	*YYGGgg*	*MWO*	*FIR*	*Received Time(UTC)*	*Comments/Remarks*
WVAK01	PAWU	170200	PAWU	PAZA	02:00:11	
WVAU01	ADRM	170201	YDRM	YBBB	02:02:04	
WVCI31	RCTP	170205	RCTP	RCAA	02:04:58	
WVCI33	ZBAA	170205	ZBAA	ZBPE	02:05:26	
WVCI34	ZSSS	170205	ZSSS	ZSHA	02:02:34	
WVCI35	ZJHK	170201	ZJHK	ZJSA	02:03:34	
WVCI36	ZUUU	170205	ZUUU	ZPKM	02:11:04	
WVCI37	ZLXY	170205	ZLXY	ZLHW	02:07:44	
WVCI38	ZYTX	170205	ZYTX	ZYSH	02:01:50	
WVCI39	ZWWW	170202	ZWWW	ZWUQ	02:02:40	

WVCI45	ZHHH	170204	ZHHH	ZHWH	02:08:52
WVFJ01	NFFN	170000	NFFN	NFFF	02:15:46
WVIN31	VOMM	170201	VOMM	VOMF	02:09:57
WVJP31	RJTD	170205	RJTD	RJJJ	02:06:24
WVKP31	ZUUU	170206	ZUUU	VDPP	02:12:23
WVLA31	VLVT	170200	VLVT	VLVT	02:01:03
WVMS31	WMKK	170205	WMKK	WBFC	02:04:28
WVPA01	PHFO	170201	PHFO	KZAK	02:02:09
WVPH31	RPLL	170210	RPLL	RPHI	02:08:43
WVPN01	KKCI	170200	KKCI	KZAK	02:00:11
WVRA31	RUCH	170205	RUCH	UIAA	02:08:01
WVRA31	RUHB	170206	RUHB	UHHH	02:07:57
WVRA31	RUMG	170205	RUMG	UHMM	02:08:59
WVRA31	RUPV	170200	RUPV	UHMP	02:09:13
WVRA31	RUSH	170205	RUSH	UHSS	02:04:22
WVRA31	RUVV	170202	RUVV	UHWW	02:03:13
WVRA32	RUPV	170200	RUPV	UHMA	02:06:01
WVRA32	RUYK	170207	RUYK	UELL	02:07:28
WVRA33	RUHB	170202	RUHB	UHBB	02:02:49
WVSR20	WSSS	170205	WSSS	WSJC	02:05:38
WVSS20	VHHH	170202	VHHH	VHHK	02:03:05
WVTH31	VTBS	170211	VTBS	VTBB	02:13:53
WVVS31	VVGL	170200	VVGL	VVNB	02:05:06
WVVS31	VVGL	170208	VVGL	VVTS	02:14:38

— END —

APPENDIX D

SIGMET WMO HEADERS - MID

State	MWO name (Doc 7910)	MWO Loc. Ind.	WS AHL	WV AHL	WC AHL	FIR Name (Doc 7910)	FIR Loc. Ind.	ATSU serving the FIR
BAHRAIN	BAHRAIN INTERNATIONAL	OBBI	WSBN31 OBBI	WVBN31 OBBI	WCBN31 OBBI	BAHRAIN	OBBB	OBBB
EGYPT	CAIRO/INTL	HECA	WSEG31 HECA	WVEG31 HECA	N/A	CAIRO	HECC	HECC
IRAN	TEHRAN/MEHRABAD INTL	OIII	WSIR31 OIII	WVIR31 OIII	WCIR31 OIII	TEHRAN	OIIX	OIIX
IRAQ	BAGHDAD INTERNATIONAL AIRPORT	ORBI	WSIQ31 ORBI	WVIQ31 ORBI	N/A	BAGHDAD	ORBB	ORBS
JORDAN	AMMAN/QUEEN ALIA	OJAI	WSJD01 OJAM	WVJD01 OJAM	N/A	AMMAN	OJAC	OJAC
KUWAIT	KUWAIT/INTL AIRPORT	OKBK	WSKW10 OKBK	WVKW10 OKBK	WCKW10 OKBK	KUWAIT	OKAC	OKAC
LEBANON	BEIRUT/BEIRUT INTL	OLBA	WSLB31 OLBA	WVLB31 OLBA	N/A	BEIRUT	OLBB	OLBA
LYBIA	Libya MWO	HLMC*	WSLY31 HLMC	WVLY31 HLMC	N/A	TRIPOLI	HLMC	HLMC
OMAN	MUSCAT/MUSCAT INTL	OOMS	WSOM31 OOMS	WVOM31 OOMS	WCOM31 OOMS	MUSCAT	OOMM	OOMM
SAUDI ARABIA	JEDDAH/KING ABDULAZIZ INTL	OEJN	WSSD20 OEJD	WVSD20 OEJD	WCSD20 OEJD	JEDDAH	OEJD	OEJD
SUDAN	KHARTOUM	HSSS	WSSU31 HSSS	WVSU31 HSSS	N/A	KHARTOUM	HSSS	HSSS
SYRIA	DAMASCUS/INTL	OSDI	WSSY31 OSDI	WVSY31 OSDI	N/A	DAMASCUS	OSTT	OSDI
UNITED ARAB EMIRATES	ABU DHABI INTERNATIONAL	OMAA	WSER31 OMAA	WVER31 OMAA	WCER31 OMAA	EMIRATES	OMAE	OMAE
YEMEN	SANAA/INTL	OYSN	WSYE31 OYSN	WVYE31 OYSN	WCYE31 OYSN	SANAA	OYSC	OYSN

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

b) *Note 2: The AHL for each of the WS, WV and WC SIGMETs (highlighted above) is to be confirmed by the relevant State.*

**not defined in ICAO Doc 7910*

APPENDIX E

SPECIAL AIR-REPORT WMO HEADERS - MID

Under Construction – yellow highlight not confirmed

State	Special Air-Report	Special Air-Report on Volcanic Ash
Bahrain	UABN61 OBBI	UABN71 OBBI
Egypt	UAEG61 HECA	UAEG71 HECA
Iran, Islamic Republic of	UAIR61 OIII	UAIR71 OIII
Iraq	UAIQ61 ORBI	UAIQ71 ORBI
Jordan	UAJD61 OJAM	UAJD71 OJAM
Kuwait	UAKW61 OKBK	UAKW71 OKBK
Lebanon	UALB61 OLBA	UALB71 OLBA
Libya	UALY61 HLMC	UALY71 HLMC
Oman	UAOM61 OOMS	UAOM71 OOMS
Saudi Arabia	UASD61 OEJD	UASD71 OEJD
Sudan	UASU61 HSSS	UASU71 HSSS
Syrian Arab Republic	UASY61 OSDI	UASY71 OSDI
United Arab Emirates	UAER61 OMAA	UAER71 OMAA
Yemen	UAYE61 OYSN	UAYE71 OYSN

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

APPENDIX F

SIGMET EXAMPLES - MID

ISOL EMBD TS
WSKW31 OKBK 030900
OKBK SIGMET 1 VALID 030900/031300 OKBK-
OKAC KUWAIT FIR EMBD TS OBS AT 0850Z N OF N30 TOP FL3000 MOV E 15KT NC=

CANCELLATION SIGMET
WSKW31 OKBK 031030
OKBK SIGMET 2 VALID 031030/031300 OKBK-
OKAC KUWAIT FIR CNL SIGMET 1 030900/031300 NC=

SEV TURB
WSKW31 OKBK 030800
OKBK SIGMET 1 VALID 030900/031300 OKBK-
OKAC KUWAIT FIR SEV TURB FCST AT 0850Z N OF N30 FL300/340 MOV E 15KT NC=

HVY DS
WSKW31 OKBK 030900
OKBK SIGMET 1 VALID 030900/031300 OKBK-
OKAC KUWAIT FIR HVY DS OBS AT 0850Z N OF N30 MOV SE 30KT NC=

CANCELLATION SIGMET
WSKW31 OKBK 031030
OKBK SIGMET 2 VALID 031030/031300 OKBK-
OKAC KUWAIT FIR CNL SIGMET 1 030900/031300 NC=

HVY SS
WSKW31 OKBK 030800
OKBK SIGMET 1 VALID 030900/031300 OKBK-
OKAC KUWAIT FIR HVY SS FCST AT 0900Z N OF N30 MOV SE 30KT NC=

CANCELLATION SIGMET
WSKW31 OKBK 031030
OKBK SIGMET 2 VALID 031030/031300 OKBK-
OKAC KUWAIT FIR CNL SIGMET 1 030900/031300 NC=

APPENDIX D

Deficiencies in the MET Field

BAHRAIN

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

No Deficiencies Reported

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

Deficiencies in the MET Field

EGYPT

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
~~1~~	~~MID FASID Table MET 1A~~	~~HEOW METAR and 30-hour TAF~~	~~HEOW METAR and 30-hour TAF not available internationally~~	~~Nov, 2013~~	~~-~~	~~O~~	~~No corrective action plan submitted by the State~~	~~Egypt~~	~~Dec, 2014~~	~~A~~

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

Deficiencies in the MET Field

IRAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
~~1~~	~~QMS – MET~~ ~~Para 2.2 of Annex 3~~	~~Meteorological information to be supplied to users listed in 2.1.2 of Annex 3~~	~~Confirmation of QMS for MET not yet received~~	~~Sep, 2014~~	~~(USOAP – CMA finding)~~	~~O~~	~~No corrective action plan submitted by the State~~ Iran provided date of ISO 9001 certification as Oct 2015	~~Iran~~	~~Dec, 2015~~ Oct 2015	~~A~~

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

Deficiencies in the MET Field

IRAQ

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	QMS - MET para 2.2 of Annex 3	Meteorological information to be supplied to users listed in 2.1.2 of Annex 3	confirmation of QMS for MET not yet received	Sep, 2014	-	O	no corrective action plan submitted by the State	Iraq	Dec, ~~2015~~ 2017	A

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

Deficiencies in the MET Field

JORDAN

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

No Deficiencies Reported

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

Deficiencies in the MET Field

KUWAIT

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

No Deficiencies Reported

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

Deficiencies in the MET Field

LEBANON

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	QMS - MET para 2.2 of Annex 3	Meteorological information to be supplied to users listed in 2.1.2 of Annex 3	confirmation of QMS for MET not yet received	Sep, 2014	(USOAP - CMA finding)	O	no corrective action plan submitted by the State	Lebanon	Dec, ~~2015~~ 2017	A
2	WAFS forecasts Annex 3, 9.1.4, 9.3.1, 9.4.1 and Appendix 2, 2.1.1	WAFS forecasts needed for briefing and flight documentation	SADIS FTP not accessed	5 Sep 2016	Status of implementation of SADIS	O	No corrective action plan submitted by the State	Lebanon	Dec 2017	A

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

Deficiencies in the MET Field

LIBYA

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	QMS - MET para 2.2 of Annex 3	Meteorological information to be supplied to users listed in 2.1.2 of Annex 3	confirmation of QMS for MET not yet received	Sep, 2014	(USOAP - CMA finding)	O	no corrective action plan submitted by the State	Libya	Dec, ~~2015~~ 2017	A

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

Deficiencies in the MET Field

OMAN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	QMS - MET para 2.2 of Annex 3	Meteorological information to be supplied to users listed in 2.1.2 of Annex 3	confirmation of QMS for MET not yet received	Sep, 2014	(USOAP-CMA finding)	O	no corrective action plan submitted by the State	Oman	Dec, ~~2015~~ 2017	A

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

Deficiencies in the MET Field

QATAR

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

No Deficiencies Reported

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

Deficiencies in the MET Field

SAUDI ARABIA

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

No Deficiencies Reported

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

Deficiencies in the MET Field

SUDAN

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

No Deficiencies Reported

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

Deficiencies in the MET Field

SYRIA

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	~~MID FASID Table MET 1A~~ MID eANP VOL II, MET Table II-2	OSAP METAR and 24-hour TAF	OSAP METAR and 24-hour TAF not available internationally	Nov, 2013	-	O	no corrective action plan submitted by the State	Syria	Dec, ~~2014~~ 2017	A
2	QMS - MET para 2.2 of Annex 3	Meteorological information to be supplied to users listed in 2.1.2 of Annex 3	confirmation of QMS for MET not yet received	Sep, 2014	(USOAP - CMA finding)	O	no corrective action plan submitted by the State	Syria	Dec, ~~2015~~ 2017	A

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

Deficiencies in the MET Field

UAE

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

No Deficiencies Reported

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

Deficiencies in the MET Field

YEMEN

Item No	Identification		Deficiencies				Corrective Action			
	Requirement	Facilities/ Services	Description	Date First Reported	Remarks/ Rationale for Non-elimination		Description	Executing Body	Date of Completion	Priority for Action
1	QMS - MET para 2.2 of Annex 3	Meteorological information to be supplied to users listed in 2.1.2 of Annex 3	confirmation of QMS for MET not yet received	Sep, 2014	-	O	no corrective action plan submitted by the State	Yemen	Dec, ~~2015~~ 2017	A

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

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

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

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

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

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

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

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

Definition:

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

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

APPENDIX E

IWXXM & AMHS implementation

- When will AMHS be available at ROC Jeddah and back-up ROC Bahrain?
    - Will ROCs be able to translate from TAC to IWXXM?
        - If so when?
- When will National OPMET Centres (NOC) implement AMHS and IWXXM (fill out table below)?

State	Expected date AMHS implemented at NOC	Expected date of IWXXM implementation
Bahrain		
Egypt		
Iran		
Iraq		
Jordan		
Kuwait		
Lebanon		
Libya		
Oman		
Qatar		
Saudi Arabia		
Sudan		
Syria		
United Arab Emirates		
Yemen		

APPENDIX F

eANP proposed changes related to SADIS:

- update paragraph 2.1 of Volume I, Part V (MET) of eANP:
  - In the MID Region, WAFC London has been designated as the centre for the operation of the aeronautical fixed service ~~satellite distribution system / WAFS Internet File Service (SADIS and/or WIFS) and the Internet-based Secure SADIS FTP service~~ Secure Aviation Data Information Service (SADIS). The status of implementation of SADIS~~/WIFS~~ by States in the MID Region is detailed in Volume III.

- update paragraph 2.2 of Volume I, Part V (MET) of eANP:
  - In the MID Region, WAFS products in digital form should be disseminated by WAFC London using the ~~SADIS 2G satellite broadcast and the Secure SADIS FTP service and/or WIFS~~ Secure Aviation Data Information Service (SADIS).

- update paragraph 2.1 b) of Volume II, Part III (CNS) of eANP:
  - meteorological operational circuits, networks and broadcast systems, including World Area Forecast System – Internet File Service (WIFS) and/or ~~Satellite Distribution System for Information Relating to Air Navigation~~ Secure Aviation Data Information Service (SADIS);

eANP proposed changes related to ROC:

- update paragraph 2.8 of Volume II, Part V (MET) of eANP:
  - Operational meteorological information prepared as METAR, SPECI and TAF for aerodromes indicated in **Table MET II-2**, and SIGMET messages prepared for flight information regions or control areas indicated in **Table MET II-1**, should be disseminated to the ~~international OPMET databanks~~ Regional OPMET Centres (ROC) designated for the MID Region (namely Jeddah and Bahrain (backup) Regional OPMET Centres). ~~and~~ The ROCs will take care of the further dissemination to the centre designated for the operation of the aeronautical fixed service ~~satellite distribution system (SADIS) and the Internet-based service (Secure SADIS FTP)~~ Secure Aviation Data Information Service (SADIS) ~~and/or WIFS~~ in the MID Region. The data will be forwarded to other international databanks and to the WIFS Provider State in accordance with regional OPMET data exchange schemes.

eANP proposed changes related to half-hourly METAR requirements:

- update paragraph 2.2 of Volume II, Part V (MET) of eANP (reference **MSG Conclusion 5/12** which was derived and adapted from **MET SG Draft Conclusion 6/4**):
    - In the MID Region, routine observations, issued as a METAR as indicated in Table MET II-2, should be made throughout the 24 hours of each day at intervals of one hour or, ~~for RS and AS designated aerodromes[1],~~ at intervals of one half-hour where warranted using criteria such as number of operations at an aerodrome, frequency of weather change and use of METAR in VOLMET ~~at aerodromes as indicated in Table MET II-2~~. For aerodromes included on the VHF VOLMET broadcast as indicated in Table MET II-3, routine observations, issued as METAR, should be made throughout the 24 hours of each day.

APPENDIX G

Terms of Reference of the MID OPMET Bulletin Management Group

(OPMET BMG)

1. Terms of Reference

a. Support Regional OPMET Centre (ROC) Jeddah and back-up ROC Bahrain in the exchange of routine and non-routine OPMET data; OPMET bulletin updates; monitoring and management procedures; and implementation of IWXXM.

~~b. Review the OPMET exchange schemes to the MID Region and develop proposals for their optimization taking into account the current trends in the global OPMET exchange;~~

~~c. Develop monitoring and management procedures related to the ROBEX exchange and other exchanges of OPMET information;~~

d. Keep up-to-date the regional guidance material related to OPMET exchange;

e. Develop capabilities to support the ICAO Meteorological Exchange Model (IWXXM);

f. Develop key performance indicators for OPMET and keep under review;

g. Liaise with similar groups in the adjacent ICAO Regions in order to ensure harmonized and seamless OPMET exchange; and

h. 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. Supporting ROC Jeddah and back-up ROC Bahrain by:

i. Providing ROC Jeddah and back-up ROC Bahrain required routine OPMET data as per eANP, Volume II, Table MET II-2 for transmission to other Regions and to SADIS;

ii. Providing ROC Jeddah and back-up ROC Bahrain non-routine OPMET data: SIGMET as per eANP, Volume II, Table MET II-1 as well as special air-reports for transmission to other Regions and to SADIS;

iii. Requesting ROC Jeddah and back-up ROC Bahrain of necessary OPMET data from other Regions in order to support flight operations;

iv. Providing ROC Jeddah and back-up ROC Bahrain OPMET bulletin changes, when necessary, for implementation on AIRAC cycle;

v. Supporting ROC Jeddah and back-up ROC Bahrain on the development of monitoring and management procedures related to ROBEX exchange; and

vi. Coordinating with ROC Jeddah and back-up ROC Bahrain on the exchange of OPMET data using ICAO Meteorological Information Exchange Model (IWXXM)

b. 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;

~~c. Review the ROBEX scheme and other OPMET exchange schemes and prepare proposal for updating and optimizing of the schemes;~~

~~d. Review and update the procedures for interregional exchange and for transmission of the regional OPMET data to SADIS;~~

e. 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, WA (IWXXM: LA, LP, LC, LT, LS, LY, LV, LK, LV, *special air-reports not defined yet*, LW);

f. Develop procedures for monitoring and management of the OPMET information, based on similar procedures used in the EUR and APAC Regions; and

g. Support ~~MARIE PT or any subsequent governance group appointed by ICAO~~ the Information Management Panel and MET Panel Working Group on Meteorological Information Exchange (WG-MIE) in Regional implementation of IWXXM within MID. The initial implementation emphasis will be placed on States hosting ROCs/RODBs. Progress report to be provided to MID MET SG;

h. Use results from monitoring to measure OPMET (METAR and TAF) availability in MID Region against the required data listed in ~~FASID Table MET 1A~~ Table MET II-2, *Aerodrome Meteorological Offices*, of the MID Air Navigation Plan to support key performance index for OPMET component of ~~BO-MET~~ B0-AMET of the ~~new~~ implementation methodology called Aviation System Block Upgrade (ASBU) and keep under review; and

i. Provide regular progress reports to MET SG meetings.

3. Composition

a. The OPMET/BMG is composed of Bahrain (Back-up ROC), Egypt, Iran, Kuwait (co-rapporteur), Libya, Oman, Qatar, Saudi Arabia (co-rapporteur, ROC) and United Arab Emirates; and

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

4. Working Arrangements

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

- END -