INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF THE FIFTH MEETING OF THE MID OPMET BULLETIN MANAGEMENT GROUP

(BMG/5)

(Bahrain, 9 June 2015)

The views expressed in this Report should be taken as those of the MID OPMET Bulletin Management Group (BMG/5) Group and not of the Organization. This Report will, however, be submitted to the MET Sub-Group and any formal action taken will be published in due course as a Supplement to the Report.

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

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PART I – HISTORY OF THE MEETING

1. PLACE AND DURATION

1.1 The fifth meeting of the MID OPMET Bulletin Management Group (BMG/5) of the Meteorology Sub-Group (MET SG) was held in Bahrain, on 9 June 2015.

2. OPENING

2.1 Mr. Adel Daham, Director of Meteorology, Ministry of Transportation and Telecommunication, Bahrain opened the meeting and welcomed participants. Mr. Daham requested the meeting to elect co-rapporteurs for the meeting. Saudi Arabia nominated Mr. Adel Daham as co-rapporteur and Bahrain nominated Dr. Saad Mohammed Almajnooni, Director Main Communication Centre, Presidency for Meteorology and Environment (PME) of Saudi Arabia as co-rapporteur.

3. ATTENDANCE

3.1 The meeting was attended by a total of fourteen (14) participants, from five (5) States (Bahrain, Qatar, Saudi Arabia, Sudan and the United Arab Emirates). The list of participants is at **Attachment A**.

4. OFFICERS AND SECRETARIAT

4.1 The meeting was chaired by Mr. Adel Daham, Director of Meteorology, Ministry of Transportation and Telecommunication, Bahrain. The Secretary of the meeting was Mr. Christopher Keohan, Air Navigation Systems Implementation (Meteorology), ICAO EUR/NAT Regional Office.

5. LANGUAGE

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

6. AGENDA

6.1 The following Agenda was adopted after election of co-rapporteurs:

Agenda Item 1:	Adoption of the provisional Agenda
Agenda Item 2:	Review Terms of Reference and working arrangements
Agenda Item 3:	Status of regional and inter-regional OPMET exchange and implementation of Regional OPMET Centre (ROC) Jeddah and back-up ROC Bahrain
Agenda Item 4:	Regional OPMET bulletin exchange procedures and associated guidance
Agenda Item 5:	SIGMET tests – MID States

Agenda Item 6: Future Work Programme

Agenda Item 7: Any other Business

7. CONCLUSIONS AND DECISIONS - DEFINITIONS

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

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

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

PART II: REPORT ON AGENDA ITEMS

REPORT ON AGENDA ITEM 1: ADOPTION OF THE PROVISIONAL AGENDA

1.1 The meeting reviewed and adopted the Provisional Agenda as at Para. 6 of the History of the Meeting.

REPORT ON AGENDA ITEM 2: TERMS OF REFERENCE AND WORKING ARRANGEMENTS

2.1 The meeting reviewed the terms of reference as provided in **Appendix 2A** and the proposed changes would be considered by the MET SG/6 meeting during the first quarter of 2016.

REPORT ON AGENDA ITEM 3: STATUS OF REGIONAL AND INTER-REGIONAL OPMET EXCHANGE AND IMPLEMENTATION OF REGIONAL OPMET CENTRE (ROC) JEDDAH AND BACK-UP ROC BAHRAIN

3.1 The meeting noted the status of relevant MIDANPIRG/14 Conclusions and Decisions related to the MET field and the follow up actions taken by States, the secretariat and other parties concerned as at **Appendix 3A**. The meeting noted the relevant MIDANPIRG Conclusions and Decisions had been completed or would be addressed and completed at the MIDANPIRG/15 meeting.

3.2 With reference to the current status of OPMET related deficiencies listed in the MID Air Navigation Deficiencies Database (MANDD), the meeting recalled that required METAR and 30-hour TAF for HEOW (Egypt) and required METAR and 24-hour TAF for OSAP (Syria) were not available internationally. The meeting noted that HEOW would be removed from the electronic Air Navigation Plan (eANP) – MET Table II-2, and subsequently removed from the MANDD. In addition, the meeting was informed that the EUR Data Management Group (DMG) observed required METAR for HSKA and HSPN (Sudan) were not available internationally. Sudan agreed to send METAR for HSKA and HSPN to Regional OPMET Centre (ROC) Jeddah at AFTN address OEJDMMID.

3.3 The meeting noted that Quality Management System (QMS) was not implemented in Iran, Iraq, Lebanon, Libya, Oman, Syria and Yemen and therefore listed in the MANDD. No updates were provided in this regard since those States were not present at the meeting. On a related matter, the meeting was informed that Competency Assessment System (CAS) for aeronautical meteorological forecasters and aeronautical meteorological observers was implemented in Bahrain, Kuwait, Qatar, Saudi Arabia and the United Arab Emirates.

3.4 The meeting recalled MIDANPIRG Conclusion 14/30 that called for the establishment of MID Regional OPMET Centre and in particular, 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 that Bahrain in coordination with ICAO establish a back-up ROC.

3.5 Full implementation in this regard was noted for Jordan, Libya, Oman, Qatar and the United Arab Emirates. Partial implementation was noted for Bahrain, Egypt, Iraq and Kuwait and no implementation was noted for Iran, Lebanon, Syria, Sudan and Yemen. States that did not complete an implementation plan were provided with a State letter (reference AN 10/11 – 15/100 dated 31 March 2015) to remind them of their obligation to fulfil MIDANPIRG Conclusion 14/30, which includes sending required OPMET data to ROC Jeddah and back-up ROC Bahrain. The meeting developed actions for States related to an OPMET exchange scheme to support the implementation of ROC Jeddah and back-up ROC Bahrain as provided at **Appendix 3B**. A status on the implementation of ROC Jeddah and back-up Bahrain is provided at **Appendix 3C**.

3.6 The meeting noted that ROC Jeddah has also begun implementing an efficient exchange of OPMET data with other Inter-Regional OPMET Gateways (IROG) such as Bangkok, Dakar, Pretoria, Vienna and Washington. Improving OPMET exchange with IROG Brasilia was still needed. This coordination was necessary in order to supply MID States a suite of OPMET data based on operators' needs in each MID State.

3.7 The above efforts on the implementation of ROC Jeddah and back-up ROC Bahrain were commended by the meeting. Despite these efforts, the meeting noted many issues were still pending and urged States to address the outstanding issues. Given the above, the meeting agreed to the following draft Conclusion for MIDANPIRG consideration:

CONCLUSION 15/XX: OPMET EXCHANGE SCHEME

*That States be urged 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**.*

3.8 The meeting was also apprised of other elements associated with the implementation of a ROC such as training that was being considered by PME.

REPORT ON AGENDA ITEM 4: REGIONAL OPMET BULLETIN EXCHANGE PROCEDURES AND ASSOCIATED GUIDANCE

4.1 The meeting noted that Regional OPMET Bulleting Exchange Procedures and associated guidance was addressed in the ROC implementation plan in Agenda Item 3. Guidance material using other Regions' Handbook (i.e. EUR OPMET Data Management Handbook (http://www.icao.int/EURNAT/Pages/EUR-and-NAT-Document.aspx) or the APAC ROBEX Handbook (http://www.icao.int/APAC/Pages/edocs.aspx)) would be considered by ICAO and ROC Jeddah.

4.2 The meeting reviewed the MID Regional SIGMET Guide at **Appendix 4A**. The World Meteorological Organization (WMO) Abbreviated Header Line (AHL) for Iraq, Lebanon and Syria were still needed to complete Appendix D to the MID Regional SIGMET Guide. With reference to WMO AHL used to promulgate special air-reports, the meeting noted that seven (7) States (Bahrain, Iran, Iraq, Jordan, Lebanon, Syria, and Yemen) in the MID Region needed to provide this information. To assist in implementation in this regard, the meeting provided guidance on the format and promulgation of special air-reports that included various responsibilities from the pilot, ACC and Meteorological Watch Office (MWO) as provided at **Appendix 4B**.

4.3 With reference to MET SG Draft Conclusion 5/2 that called for MID SIGMET Contact Points, **Appendix 4C** contains the contacts provided. Contact points were still needed for Egypt, Kuwait, Lebanon, Oman, Sudan, Syria and Yemen.

4.4 The meeting recalled that a draft set of MET Performance Indicators that measure implementation of regional requirements developed at the MET SG/5 to support the new ICAO implementation methodology called Aviation System Block Upgrades (ASBU) were reviewed by the MID MSG/4. Two elements were adopted by the MID MSG/4 which includes SADIS 2G and Secure SADIS FTP and QMS (MSG Conclusion 4/3 refers) as provided at **Appendix 4D**.

REPORT ON AGENDA ITEM 5: SIGMET TESTS – MID STATES

5.1 The meeting noted that ROC Vienna received WC SIGMET tests (5 November 2014, 0800 UTC) from Bahrain, Kuwait and the United Arab Emirates. These messages were received from ROC Jeddah.

5.2 The meeting also noted that ACC AFTN addresses for Iraq (ORBB), Iran (OIIX), Lebanon (OLBB) and Syria (OSTT) were still needed for inclusion in the global database for notification by VAAC London of a release of radioactive material into the atmosphere.

REPORT ON AGENDA ITEM 6: FUTURE WORK PROGRAMME

6.1 The meeting noted that the United Arab Emirates may host the MID MET SG/6 meeting during the first quarter of 2016, possibly in conjunction with the Arab League meeting.

REPORT ON AGENDA ITEM 7: ANY OTHER BUSINESS

7.1 The meeting agreed that the Secretariat report on global progress related to requirements associated with Regional Hazardous Weather Advisory Centres (RHWAC) at the MID MET SG/6 meeting.

7.2 The meeting did not have any other additional business.

APPENDICES

APPENDIX 2A

Terms of Reference of the MID OPMET Bulletin Management Group

(OPMET BMG)

1. Terms of Reference

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

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

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

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

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

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

g. The group will report to the MET Sub-Group of MIDANPIRG, and to MIDANPIRG when held as a side meeting to MIDANPIRG.

2. Work Programme

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

a. Examine the existing requirements and any new requirements for the OPMET exchange in MID region and to assess the feasibility of satisfying these requirements, taking into account the availability of the data;

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

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

d. Review and amend the regional guidance materials on the OPMET exchange and include procedures for the exchange of all required OPMET message types: SA, SP, FC, FT WS, WC, WV, FK, FV, UA;

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

f. Support MARIE-PT or any subsequent governance group appointed by ICAO in Regional implementation of IWXXM within MID. The initial implementation emphasis will be placed on States hosting ROCs/RODBs. Progress report to be provided to MID MET SG;

g. Use results from monitoring to measure OPMET (METAR and TAF) availability in MID Region against the required data listed in FASID Table MET 1A to support key performance index for OPMET component of BO-MET of the new implementation methodology called Aviation System Block Upgrade (ASBU) and keep under review; and

h. Provide regular progress reports to MET SG meetings.

3. Composition

a. The OPMET/BMG is composed of Bahrain (co-rapporteur), Egypt, Iran, Kuwait ~~(co-rapporteur)~~, Libya, Oman, Qatar, Saudi Arabia (co-rapporteur) 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.

APPENDIX 3A

FOLLOW-UP ACTION PLAN ON MIDANPIRG/14, MET SG/5, CNS SG/6, MSG/4, ANP WG/2, ANSIG/1, MID AMC STG/2 CONCLUSIONS AND DECISIONS

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
MIDANPIRG DEC. 14/2: UPDATE OF THE MIDANPIRG PROCEDURAL HANDBOOK That, the Seventh Edition of the MIDANPIRG Procedural Handbook be endorsed as at **Appendix 4.1B** to the Report on Agenda Item 4.1.	Implement the Decision	ICAO MID	Post updated MIDANPIRG Procedural Handbook	2014	**COMPLETE**
MIDANPIRG CONC.14/5: MID REGION AIR NAVIGATION PRIORITIES That, a) the ASBU Block 0 Modules prioritization Table at **Appendices 4.1E** to the Report on Agenda Item 4.1 be endorsed as the initial version of the MID ASBU Implementation Plan; and b) the ASBU Block 0 Modules prioritization Table be reviewed on regular basis and be extended to cover Block 1 Modules, as appropriate.	Implement the Conclusion	MIDANPIRG/14	Adopt ASBU Block 0 Modules prioritization Table	Dec 2013	**COMPLETE**
MSG CONC.4/3: MID REGION AIR NAVIGATION STRATEGY That, a) the MID Air Navigation Strategy at Appendix 4B is endorsed as the framework identifying the regional air navigation priorities, performance indicators and targets; and b) MID States be urged to: i. develop their National Air Navigation Performance Framework, ensuring the alignment with and support to the	Implement the Conclusion	MSG/4 and MID States	Adopt MID Air Navigation Strategy	Nov 2014	**COMPLETE** **(note: ANSIG/1 para. 4.37 – status of implementation of the different elements of the ASBU Module B0-AMET included in the MID Air**

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
MID Region Air Navigation Strategy; and ii. provide the ICAO MID Regional Office, on annual basis (by end of November), with relevant data necessary for regional air navigation planning and monitoring.					**Navigation Strategy)**
MIDANPIRG CONC.14/15: MID REGION ATM CONTINGENCY PLAN That, the MID Region ATM Contingency Plan be endorsed as at **Appendix 4.3B** to the Report on Agenda Item 4.3.	Implement the Conclusion	MIDANPIRG/14	Adopt MID Region ATM Contingency Plan	Dec 2013	**COMPLETE**
MSG CONC. 4/2: MID REGION ATM CONTINGENCY PLAN That, the MID Region ATM Contingency Plan (Edition November 2014) is endorsed as a Regional Document to be available on the ICAO MID website.	Implement the Conclusion	MSG/4 and ICAO MID	Adopt MID Regional ATM Contingency Plan and post on ICAO MID website	Nov 2014	**COMPLETE**
MIDANPIRG DEC. 14/24: DEVELOPMENT AND ENDORSEMENT OF THE MID EANP That, in support to the ICAO efforts to align the Regional Air Navigation Plans (ANP) with the Fourth Edition of the Global Air Navigation Plan (GANP) (Doc 9750): a) the development of the MID eANP based on the Council-approved ANP Template, be included in the work programme of the different MIDANPIRG subsidiary bodies; and b) the relevant Parts of the MID eANP be presented, as soon as available, to MSG/4 and/or MIDANPIRG/15 for endorsement.	Implement the Decision	ICAO MID	Update work programme of MET SG Present MET Part of the MID eANP to MET SG/5	2014 June 2015	**COMPLETE (a)** **COMPLETE (superseded by MSG C4/4 & ANP WG C2/1)**

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
MET SG DRAFT CONC. 5/4: MID eANP – MET PARTS That, a) the Secretariat populate the MID eANP – MET Volumes I and II by **30 September 2014**; b) distribute a) to States for comments/inputs to the ICAO MID Regional Office by **31 October 2014**; and c) the relevant Parts of the MID eANP be presented to MSG/4 for review and consideration. *Note: Volume III will be addressed in due time, but it is expected that developments be presented to the MSG/4 meeting and be further addressed by the ANP WG/2 meeting (Cairo, 16-18 December 2014).*	Implement the draft Conclusion	ICAO MID	Populate and include State inputs to MID eANP – MET VOL I and II and present to MSG/4	November 2014	**COMPLETE**
MSG CONC. 4/4: DEVELOPMENT OF THE MID eANP That, a) the ANP WG/2 finalize the MID eANP for endorsement by MIDANPIRG/15; and b) States be urged to review the MID eANP Volumes I, II and III available on the ICAO MID website, and provide updates/inputs to ANP WG/2 meeting.	Implement the Conclusion	ANP WG MID States	Finalize MID eANP	December 2014	**COMPLETE (superseded by ANP WG C2/1)**
ANP WG CONC. 2/1: INPUTS TO THE MID eANP TABLES That, States be urged to: a) assign a focal point to facilitate the coordination of all issues related to the MID eANP; and b) provide the ICAO MID Regional Office with their	Implement the Conclusion	MID States	Assign focal point for MID eANP and provide inputs to tables of MID eANP VOL I, II and III	March 2015	**COMPLETE**

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
inputs/updates related to the Tables of the MID eANP Volumes I, II and III, available on the ICAO MID website, before **15 March 2015**.					
MIDANPIRG CONC. 14/30: ESTABLISHMENT OF MID REGIONAL OPMET CENTRE That, a) Saudi Arabia in coordination with ICAO establish a MID Regional OPMET Centre (ROC) by the first half of 2015 to improve the regional and inter-regional OPMET efficiency; b) Bahrain in coordination with ICAO establish a back-up Regional OPMET Centre (ROC); and c) MID States be encouraged to continue cooperation in the exchange of OPMET data in the MID Region.	Implement the Conclusion	ICAO, Saudi Arabia, Bahrain as well as all MID States	Establishment of ROCs	Mid-2015	**ONGOING** Implementation related events: -Regional OPMET Centre (ROC) Workshop – Jeddah, Saudi Arabia 31 Aug – 1 Sep 2014 -Inter-Regional OPMET Data Exchange Workshop – Vienna, Austria 23-24 October 2014 SL AN10/11-15/100 dated 31 March 2015 requested coordination from Egypt, Iran, Lebanon, Qatar, Sudan, Syria and Yemen

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
MIDANPIRG DEC. 14/31: UPDATE TO BULLETIN MANAGEMENT GROUP TERMS OF REFERENCE That, the Terms of Reference and future work programme of the Bulletin Management Group of the MET Sub-Group be updated as at **Appendix 4.7A** to the Report on Agenda Item 4.7.	Implement the Decision	MIDANPIRG/14	Update ToRs of BMG of MET SG	December 2013	**COMPLETE**
MIDANPIRG CONC. 14/32: ELIMINATION OF AIR NAVIGATION DEFICIENCIES IN THE MID REGION That, States be urged to: a) use the MID Air Navigation Deficiency Database (MANDD) for the submission of requests for addition, update, and elimination of Air Navigation Deficiencies; and b) 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.	Implement the Conclusion	ICAO MID States	Update MANDD State Letter	2014	**ONGOING** -QMS, 7 States in the MID Region (Iran, Iraq, Lebanon, Libya, Oman, Syrian Arab Republic, and Yemen) have not yet met the relevant requirements in Annex 3, paragraph 2.2.3. -30h TAF not provided internationally at HEOW (Egypt) -24h TAF and METAR not provided internationally at OSAP (Syria)

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
MSG CONC. 4/20: MID SCRAG NOMINATION (MET SG DRAFT CONC. 5/1) That, Mr. Ahmed Alobadli from the United Arab Emirates is nominated as the MIDANPIRG member of the SADIS Cost Recovery Administrative Group.	Implement the Conclusion	ICAO	State Letter	31 Aug 2012	**COMPLETE**
MET SG DRAFT CONC. 5/2: MID SIGMET CONTACT POINTS That, States be urged to update their SIGMET points of contact by 1 December 2014 in order to continue to increase SIGMET test participation.	Implement the Conclusion	MIDANPIRG	Updated TOR and Procedural Handbook	April 2012	**COMPLETE (six States responded: Bahrain, Iran, Iraq, Jordan, Libya and UAE)**
MET SG DRAFT CONC. 5/3: AMHS ROUTING FROM MID TO EUR REGIONS That, the MIDANPIRG CNS Sub-Group be invited to consider developing a plan to implement AMHS communication paths between Jeddah, Bahrain and Vienna to enable the exchange of OPMET data in digital form between MID and EUR Regions. Note: Coordination between the MIDANPIRG CNS Sub-Group and the EANPG AFSG should be performed as deemed necessary.	Implement the draft Conclusion	ICAO MID	Invite CNS SG to consider implementation plan for AMHS communication paths Jeddah-Vienna and Bahrain-Vienna	Sep 2014	**COMPLETE (superseded by CNS SG draft Conclusion 6/4)**
CNS SG DRAFT CONC. 6/4: AMHS ROUTING FROM MID TO EUR REGIONS That, the MID-AMC develop a plan to implement AMHS communication paths between Jeddah-Vienna, and Bahrain-Vienna before 31 March 2015, to enable the exchange of OPMET data in digital form between the MID and EUR Regions	Implement the draft Conclusion	ICAO MID	Task MID-AMC to develop plan to implement AMHS communication paths Jeddah-Vienna, and Bahrain-Vienna	Mar 2015	**COMPLETE (superseded by MID AMC STG draft Conclusion 2/3)**

CONCLUSIONS AND DECISIONS	FOLLOW-UP	TO BE INITIATED BY	DELIVERABLE	TARGET DATE	REMARKS
MID AMC STG DRAFT CONC. 2/3: AMHS PATH BETWEEN MID AND EUR REGIONS					
That, in order to facilitate the establishment of AMHS path between MID and EUR Region and implement the AFS requirements for the ROC centers in the MID Region:	Implement the draft Conclusion	ICAO MID Bahrain and Lebanon	Communicate implementation plan of AMHS paths between MID and EUR Regions	Apr 2015	**COMPLETE (a)**
a) ICAO MID Regional office communication the plan in **Appendix 4E** to concerned by 15 April 2015; and					
b) Bahrain and Lebanon be urged to expedite AMHS implementation by Dec 2015.			Bahrain and Lebanon expedite AMHS implementation	Dec 2015	**ONGOING**

APPENDIX 3B

OPMET Exchange Scheme Actions

- Implementation completed
  - Jordan
  - Libya
    - ICAO to inquire about the frequent NIL reports
  - Oman
    - ROC Jeddah to verify all necessary OPMET from outside Oman is provided to Oman
  - Qatar
    - Qatar to verify OPMET from OTBD and OTHH should be available and include METAR requirement for OTHH in the eANP – MET Table Volume II-2
  - UAE

- Partial implementation
  - Bahrain
    - Bahrain to develop list of incoming OPMET data from outside Bahrain and associated addresses (where the data comes from)
    - ROC Jeddah and back-up ROC Bahrain to review back-up procedures on 10 June 2015
  - Egypt
    - ICAO and ROC Jeddah to request again the OPMET data required outside of Egypt and associated addresses
  - Iraq
    - Some OPMET data are not coming from Baghdad and being sent separately (e.g. ORSU)
    - ICAO and ROC Jeddah to remind Baghdad Meteorological Watch Office to provide all required OPMET data from Iraq to ROC Jeddah
  - Kuwait
    - ROC Jeddah to contact Kuwait to provide required data outside of Kuwait and associated addresses

- Not implemented
  - Iran
    - ICAO to ask for appropriate contact
  - Lebanon
    - ROC Jeddah provided Lebanon text associated with MIDANPIRG/14 Conclusion 14/30 relating to the establishment of ROC Jeddah and back-up ROC Bahrain in order to begin implementation
  - Syria
  - Sudan
    - Sudan to provide METAR for HSOB, HSSS, HSNN and HSPN to ROC Jeddah at AFTN address OEJDMMID
    - To provide 30-hour TAF for HSSS and HSPN to ROC Jeddah at AFTN address OEJDMMID
    - To provide non-routine OPMET data (e.g. SIGMET) to ROC Jeddah at AFTN address OEJDMMID
  - Yemen

APPENDIX 3C

MID ROC Implementation Plan

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

The focal point to take care of below action list and keep track of actions is **Dr. Saad Almajnooni**

No.	Task	Responsible	Prerequisite	Start Date	Estim. Time	Finish at
1	Implement Collective Addresses	ROC Jeddah	-	24.10.2014	1week	01.01.2015
2	Transition Bahrain	ROC Jeddah	-	27.10.2014	1 month	Part1 finished 15.1.2015, Part2, Pending
3	Transition Process with Kuwait	ROC Jeddah	-	06.01.2014	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	1 months	No Reply
9	Prepare State Letter to MID-states to facilitate transition	ICAO Regional Officer	After finishing Tasks 2-7	01.12.2014	4 days	State letter reference AN 10/11 – 15/100 dated 31 March 2015 to States who have not

						replied (Egypt, Iran, Qatar, Syria, Sudan and Yemen)
10	Contact COM Centre Nicosia to coordinate AMHS implementation	ROC Jeddah		27.10.2014	1 month	AMHS will be implemented by the end of 2015 (based on coordination between GACA and Nicosia)
11	Develop Backup Procedure	ROC Jeddah & BROC Bahrain (inform MID-BMG)		23.10.2014	4 months	In process up to now
12	Develop Regional HB on OPMET Data Exchange	ROC Jeddah & BROC Bahrain (inform MID-BMG)		24.03.2015	3 months	Not started yet
13	Develop first ideas for Training for operators	ROC Vienna		27.10.2014	2 weeks	Submitted to PME (still under consideration by PME)
14	Finalize Training for operators	ROC Jeddah & BROC Bahrain & ROC Vienna	Finish Task 13	10.11.2014	April 2015	Still under consideration by PME
15	Route GULF reports to ROC Jeddah	ROC Jeddah & BROC Bahrain		27.10.2014	1 month	01/02/2015
16	Transition Process for Iran	ROC Jeddah & BROC Bahrain		16.02.2015	2 months	No reply
17	Transition Process for Jordan					Jordan, transition part1 OK, 19/04/2015, transition Part2 OK, 20/05/2015
18	Transition Process for Egypt	ROC Jeddah & BROC Bahrain				Egypt, transition part1 OK, 17/05/2015, transition part 2

						Pending
19	Transition Process Iraq	ROC Jeddah & BROC Bahrain		16.04.2015	2 months	Iraq, transition part1 OK, 15/05/2015, transition Part2 Pending
20	Transition Process Syria	ROC Jeddah & BROC Bahrain				Syria (no contact information yet)
21	Transition Process Lebanon	ROC Jeddah & BROC Bahrain				Transition part1&2 Pending
22	Transition Process Libya	ROC Jeddah				Transition part1 OK, 25/03/2015, Transition part2 OK, 17/05/2015
23	Transition Process Yemen	ROC Jeddah				No Reply

Comments:

1- **Finish column in this attachment is based on what 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 in coordination with Mid-State.**

APPENDIX 4A

INTERNATIONAL CIVIL AVIATION ORGANIZATION

MID REGIONAL SIGMET GUIDE

EDITION NO.1 EDITION — MAY 2015

(68 pages)

RECORD OF AMENDMENTS AND CORRIGENDA

Amendments			
No.	Date of issue	Date entered	Entered by
1	12may2015	12may2015	Cfk-airep confirm Egypt, Kuwait, Oman, and Saudi Arabia

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 phenomena, 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. 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), Part 1, 11.2;
- *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).

1.1.3. 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.

2. RESPONSIBILITIES AND COORDINATION

2.1. General

2.1.1. SIGMET messages provide information on hazardous meteorological phenomena; 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 aeronautical fixed service (AFS) satellite distribution system (SADIS 2G), the Internet-based Secure 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 phenomena 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 A6-1. Whilst Table A6-1 is the authoritative source, this regional SIGMET guide 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 weather 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 should:

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

b) send the special air-report for onward transmission 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 meteorological 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. The format of the VONA is given in the *Handbook on the International Airways Volcano Watch (IAVW) – Operational Procedures and Contact List* (Doc 9766), Appendix E.

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.
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 clouds.
OBSC TSGR	Thunderstorms with hail that are obscured by haze or smoke or cannot be readily seen due to darkness.
EMBD TSGR	Thunderstorms that are embedded within cloud layers and cannot

Phenomena Abbreviation	Description
	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 clouds.
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 include 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 weather phenomenon for which the SIGMET is issued together with its expected evolution within the period of validity;

3.4.2. The first two parts of the SIGMET message are common for all types of SIGMET. The format and content of the third part is different; that is why, in the following paragraphs the meteorological part of the SIGMET message is described separately for the three types of SIGMET.

3.4.3. Inclusion of more than one instance of a phenomenon in a SIGMET.

Footnote 21 to Table A6-1 permits the inclusion of more than one instance of a phenomenon within a single SIGMET, but footnote 26 to Table A6-1 restricts the use of the conjunction 'AND' to volcanic ash and tropical cyclone SIGMETs only. In both these cases only two 'instances' are permitted. As such, some States have determined that multiple instances of the same phenomena for SIGMET other than for volcanic ash and tropical cyclones should not be used.

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 meteorological 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

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).

3.5.2. First line of SIGMET

CCCC SIGMET [nn]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
[nn]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 symbols 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 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 be not 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 be not 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 be not 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 for weather phenomena other than for volcanic ash and tropical cyclone

3.5.3.1. The meteorological part of a SIGMET for weather 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
Name of the FIR/UIR or CTA	Description of the phenomenon	Observed or forecast	Location	Level	Movement or expected movement	Changes in intensity	Forecast position
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

Table 5: Elements making up the meteorological part of SIGMET

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 or forecast at cruising levels (irrespective of altitude):

- 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**

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 phenomena is observed, **GGgg** 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

phenomena is based on a forecast without a reported observation, the time given for **GGggZ** represents the time of commencement of the phenomenon**.**

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 E27 - N58 E030 - N59 E26 - 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.

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

Use of polygons with complex FIR boundaries.

Annex 3 (18th Edition, July 2013) 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 joining two points on the FIR boundary[2].

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 relative to a line of latitude and a line of longitude (effectively a quadrant);

Symbolically this is indicated as:

```
<N OF> or <S OF> or <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 W OF E120

2c) 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]>
```

[2] 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 (this is to allow for some small margin of error when judging the coordinates where the specified line would intersect the FIR boundary.

For example:

N OF S2230

W OF E080

3) 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]> -
<Nnn[nn]> or <Snn[nn]> <Wnnn[nn]> or <Ennn[nn]>
```

For example:

N5530 W02230

S23 E107

More detail on reporting the location of the phenomena 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
SFC/FLnnn
or
SFC/nnnnM
or
SFC/nnnnFT
or
FLnnn/nnn
or
TOP FLnnn
or
ABV FLnnn
or
TOP ABV 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 a layer extending from the surface to a given height in meters or feet

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

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

For example: **FL250/FL290**

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

For example: **TOP FL350**

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

For example: **ABV FL350**

Additional examples:

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

3.5.3.7. 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. — When also including a forecast position, care should be taken to ensure that the rate of movement and forecast position are consistent.

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 position of the hazardous phenomena at the end of the validity period of the SIGMET message

Note. — Annex 3 (18th Edition, July 2013) enables SIGMET to contain explicit forecast position information relating to hazardous phenomena other than volcanic ash or tropical cyclone.

FCST <GGgg>Z

FCST is mandatory for this section. The **GGggZ** group should indicate the end of validity period as given in the first line of the SIGMET message.

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'.*

The forecast position 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 via voice radio.

The following are the possible ways to describe the forecast position of the phenomenon:

1) An area of the FIR defined by a polygon. Minimum 4[3] coordinates, 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 E27 - N58 E030 - N59 E26 - 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.

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

2a) In a sector of the FIR defined relative to specified line joining two points on the FIR boundary[4].
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 relative to a line of latitude and a line of longitude (effectively a quadrant);

Symbolically this is indicated as:

<N OF> or <S OF> or <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 W OF E120

2b) 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) At a specific point within the FIR, indicated by a single coordinate of latitude and longitude.

Symbolically this is indicated as:

[4] 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 (this is to allow for some small margin of error when judging the coordinates where the specified line would intersect the FIR boundary.

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

For example:

N5530 W02230

S23 E107

More details on reporting the location of the phenomenon are given in the examples in **Appendix B** to this guide.

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 31 to Table A6-1 of Annex 3 (18th Edition, July 2013), it should be assumed that the levels affected remain the same for both initial and forecast positions.

3.5.4. Structure of the meteorological part of SIGMET for volcanic ash

3.5.4.1. The general structure of the meteorological part of the SIGMET message for volcanic ash is given in the table below.

1	2	3	4	5	6	7	8
Name of the FIR/UIR or CTA	Name and location of the volcano and/or indicator for VA cloud	Time of observation or forecast	Location	Level and extent of the volcanic ash cloud	Movement or expected movement	Changes in intensity	Forecast position
See 3.5.4.2	See 3.5.4.3	See 3.5.4.4	See 3.5.4.5	See 3.5.4.6	See 3.5.4.7	See 3.5.4.8	See 3.5.4.9

Table 6: Elements making up the meteorological part of VA SIGMET

3.5.4.2. 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

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

There are three combinations that may be used in this section.

1) If the location of the eruption is known but is un-named then the following format is appropriate:

VA ERUPTION PSN <lat,lon> VA CLD

Where 'VA ERUPTION' is mandatory. 'PSN' is an abbreviation for 'position', followed by the latitude and longitude, followed by the mandatory 'VA CLD'.

2) If the erupting volcano is known and named then the following format is appropriate:

VA ERUPTION MT ASHVAL PSN <lat,lon> VA CLD

Where 'VA ERUPTION' is mandatory. 'MT' is an abbreviation for 'mountain' to be followed by the volcano's name. 'PSN' is an abbreviation for 'position', followed by the latitude and longitude, followed by the mandatory 'VA CLD'.

3) If the source of the volcanic ash is uncertain, then the following format is appropriate:

VA CLD

The location (latitude and longitude) of the volcano, when known and reported, 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.

For example:

VA ERUPTION PSN N27 W017 VA CLD

VA ERUPTION MT ASHVAL PSN S1530 E07315 VA CLD

3.5.4.4. Time of observation or forecast

OBS AT <GGgg>Z

or

FCST AT <GGgg>Z

The time of observation is taken from the source of the observation – satellite image, special air-report, report from a volcano observing station, etc. If the VA cloud is not yet observed over the FIR but the volcanic ash advisory received from the responsible VAAC indicates that the cloud is going to affect the FIR within the next 12 hrs, SIGMET should be issued according as above and the abbreviation **FCST AT <GGgg>Z** should be used.

Examples:

OBS AT 0100Z

FCST AT 1200Z

3.5.4.5. 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 communication.

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

1) An area of the FIR defined by a polygon. Minimum 4 coordinates[5], 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 E27 - N58 E030 - N59 E26 - 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 (18th Edition, July 2013) 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.*

2) Covering the entire FIR or CTA (this is only permitted for volcanic ash)

ENTIRE FIR

or

ENTIRE CTA

For describing an area of volcanic ash by reference to a zone defined by line of specified width, see the 'Level and extent' section that follows.

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

3.5.4.6. Level and extent of the volcanic ash cloud

When the Location of volcanic ash is described using the available descriptors in the 'Location section', the Level of the volcanic ash may be described using descriptors used for other phenomena, i.e.

FLnnn

or

SFC/FLnnn

or

SFC/nnnnM

or

SFC/nnnnFT

or

FLnnn/nnn

or

TOP FLnnn

or

ABV FLnnn

or

TOP ABV 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 a layer extending from the surface to a given height in meters or feet

For example:

SFC/3000M

SFC/9900FT

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

For example:

FL250/FL290

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

For example:

TOP FL350

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

For example:

ABV FL350

Where it is preferred to describe the area affected by volcanic ash by describing a zone defined by a line of specified width (rather than a polygon), the following level/extent combination should be used:

FL<nnn/nnn> <nnn>KM WID LINE BTN [<(lat,lon)^{P1} - (lat,lon)^{P2} - … >]

or

FL<nnn/nnn> <nnn>NM WID LINE BTN [<(lat,lon)^{P1} - (lat,lon)^{P2} - … >]

Example:

FL150/210 50KM WID LINE BTN S0530 E09300 – N0100 E09530 – N1215 E11045 – N1530 E01330

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

3.5.4.7. Movement or expected movement of the VA cloud

MOV <direction> <speed>KMH[KT]

or

STNR

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

Examples:

MOV E 35KMH

MOV SSW 20KT

STNR

Note. — When also including a forecast position, care should be taken to ensure that the rate of movement and forecast position are consistent

3.5.4.8. 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

3.5.4.9. Forecast position of the Volcanic Ash cloud at the end of the validity period of the SIGMET message

The area affected by a volcanic ash cloud at the end of the validity period can be described in the following ways.

As a polygon, using the following format:

FCST <GGgg>Z VA CLD APRX <(lat,lon)^{P1} - (lat,lon)^{P2} - … >

Example:

FCST 1800Z VA CLD APRX N6300 W02000 – N6030 W01700 – N5815 W02230 – N6100 W02400 – N6300 W02000...

or, as a line of ash (of specified width in KM) defined by a sequence of coordinates

FCST <GGgg>Z VA CLD APRX nnKM WID LINE BTN <(lat,lon)^{P1} - (lat,lon)^{P2} - … >

Example:

FCST 1800Z VA CLD APRX 90KM WID LINE BTN S4000 W09000 – S4300 W08500 – S3800 W07500 - S4500 W06000...

or, as a line of ash (of specified width in NM) defined by a sequence of coordinates

FCST <GGgg>Z VA CLD APRX nnNM WID LINE BTN <(lat,lon)^{P1} - (lat,lon)^{P2} - … >

Example:

FCST 1800Z VA CLD APRX 55NM WID LINE BTN S4000 W09000 – S4300 W08500 – S3800 W07500 - S4500 W06000...

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

Note. — Currently, there is no provision for indicating changes to the levels affected by volcanic ash between the initial position and the forecast position. As such, as per footnote 31 to Table A6-1 of Annex 3 (18th Edition, July 2013), it should be assumed that the levels affected remain the same for both initial and forecast positions.

Inclusion of multiple instances of volcanic ash phenomena.

Footnote 26 of Table A6-1 permits the word 'AND' in the 'Forecast position' section "*To be used for [describing] two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned*".

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

3.5.5. Structure of the meteorological part of SIGMET for tropical cyclone

3.5.5.1. The general structure of the meteorological part of the SIGMET messages for tropical cyclone is given in the table below.

1	2	3	4	5	6	7	8
Name of the FIR/UIR or CTA	Name of the tropical cyclone	Time of observation or forecast	Location of the TC centre	Vertical and horizontal extent of the CB cloud formation around TC centre	Movement or expected movement	Changes in intensity	Forecast position
See 3.5.5.2	See 3.5.5.3	See 3.5.5.4	See 3.5.5.55	See 3.5.5.6	See 3.5.5.7	See 3.5.5.8	See 3.5.5.9

Table 7: Elements making up the meteorological part of TC SIGMET

3.5.5.2. 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.

Example:

VTBB BANGKOK FIR

3.5.5.3. Name of the tropical cyclone

TC <name> (up to 10 characters, or 'NN' if not named)

The description of the tropical cyclone consists of the abbreviation **TC** followed by the international name of the tropical cyclone given by the corresponding WMO RSMC. If disturbance is expected to become a TC, but is not named at the time the forecast is issued, 'NN' is used for the TC name. .

Examples:

TC GLORIA

TC 04B

TC NN

3.5.5.4. Time of observation or forecast

OBS AT <GGgg>Z

or

FCST AT <GGgg>Z

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

Examples:

OBS AT 2330Z

FCST AT 0900Z

3.5.5.5. Location of the TC centre

<location>

The location of the TC centre is given by its lat/long coordinates in degrees or degrees and minutes.

Example:

N1535 E14230

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

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

Examples:

CB TOP ABV FL450 WI 200NM OF CENTRE

CB TOP FL500 WI 250KM OF CENTRE

CB TOP BLW FL550 WI 250NM OF CENTRE

3.5.5.7. Movement or expected movement

MOV <direction> <speed>KMH[KT]

or

STNR

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

Examples:

MOV NNW 30KMH

MOV E 25KT

3.5.5.8. Intensity change

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

INTSF

or

WKN

or

NC

3.5.5.9. Forecast Position of the TC centre at the end of the validity period of the SIGMET message

FCST <GGgg>Z TC CENTRE <location>

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

The forecast position of the TC centre is given by its lat/long coordinates following the general rules of reporting lat/long information provided in the examples in **Appendix B** to this Guide.

Example:

FCST 1200Z TC CENTRE N1430 E12800

Inclusion of multiple instances of Tropical Cyclone phenomena.

Footnote 26 of Table A6-1 permits the word 'AND' in the 'Forecast position' section "*To be used for [describing] two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned*".

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

3.5.6. Cancellation of SIGMET

3.5.6.1. 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*".

3.5.6.2. 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.

3.5.6.3. 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.

3.5.6.4. 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 120NM OF S1542 E9530 TOP
FL450 MOV SW 5KT 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.

3.5.7. Amendment of SIGMET

3.5.7.1. 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 202155
YBBB SIGMET E03 VALID 202155/210000 YPDM-
YBBB BRISBANE FIR CNL SIGMET E01 202000/210000=
```

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), and a satellite segment which comprises the SADIS provided by WAFC London, as well as the Internet-based Secure 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[6] using direct AFTN addressing;
- 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.

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[6] 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.

APPENDIX A

SIGMET GUIDANCE TABLE: SIMPLIFIED FROM ANNEX 3 TABLE A6-1

Note. — The table below seeks to provide more explicit guidance than that given in Table A6-1 of Annex 3 (18th Edition, July 2013). It does this by removing all references to the AIRMET message and special air-report message elements contained in Table A6-1. 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 A6-1 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 A6-1 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 A6-1 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 (M)	Nnnn	YUCC[2] YUDD[2]
1.2	Identification	Message identification and sequence number (M)[3]	n nn nnn	SIGMET 5 SIGMET A3 SIGMET B10
1.3	Validity period	Day-time groups indicating the period of validity in UTC (M)	VALID nnnnnn/nnnnnn	VALID 221215/221600 VALID 101520/101800 VALID 252000/260000 VALID 122000/130400 (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 (M)	nnnn-	YUDO-[2] YUSO-[2]
1.5	Name of the FIR/CTA *or* aircraft identification (M)	Location indicator and name of the FIR/CTA for which the SIGMET is issued (M)	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
2.1	Phenomenon (M)4	Description of phenomenon causing the issuance of SIGMET	OBSC[5] TS OBSC[5] TSGR[6] EMBD[7] TS	OBSC TS OBSC TSGR EMBD TS EMBD 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 A6-1 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 A6-1 of Annex 3. MWOs are encouraged to align their SIGMETs with the examples below.
		(C)	EMBD[7] TSGR[6] FRQ[8] TS FRQ[8] TSGR[6] SQL[9] TS SQL[9] TSGR[6] TC nnnnnnnnnn TC NN[10] SEV TURB[11] SEV ICE[12] SEV ICE (FZRA)[12] SEV MTW[12] 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	FRQ TS FRQ TSGR SQL TS SQL TSGR TC GLORIA TC NN 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 PSN S15 E073 VA CLD VA ERUPTION MT VALASH 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 (M)	OBS OBS AT nnnnZ FCST FCST AT nnnnZ	OBS AT 1210Z OBS FCST AT 1815Z FCST

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 A6-1 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 A6-1 of Annex 3. MWOs are encouraged to align their SIGMETs with the examples below.
2.3	Location (C)[18]	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 and not normally more than 7 coordinates. WI[24] 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 joining two 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). [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] *or* 2b) 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 Nnn[nn] AND W OF Ennn[nn] *or* N OF Nnn[nn] AND E OF Ennn[nn] *or* S OF Nnn[nn] AND W OF Ennn[nn] *or* S OF Nnn[nn] AND E OF Ennn[nn] *or* *or* 2c) 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*	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 joining two 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). NE OF LINE N2515 W08700 – N2000 W08330 S OF LINE S14 E150 – S14 E155 *or* 2b) 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* 2c) In a sector of the FIR defined relative to a line of latitude or longitude (effectively a segment); N OF S2230 S OF S43

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 A6-1 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 A6-1 of Annex 3. MWOs are encouraged to align their SIGMETs with the examples below.
			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) 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* 4) A reference to the whole FIR/CTA ENTIRE FIR[21] ENTIRE CTA[21]	E OF E01700 E OF W005 *or* 3) At a specific point within the FIR; N5530 W02230 S12 E177 *or* 4) A reference to the whole FIR/CTA ENTIRE FIR ENTIRE CTA
2.4	Level (C)[18]	Flight level or altitude and extent (C)[19]	1) Generic height/range descriptors to be used when 'Location' descriptors above are used. FLnnn SFC/FLnnn SFC/nnnnM SFC/nnnnFT FLnnn/nnn TOP FLnnn ABV FLnnn TOP ABV FLnnn *or*[20] 2) Radius from TC centre from which CB related to Tropical Cyclone ONLY may be expected. CB TOP FLnnn WI nnn{KM/NM} OF CENTRE CB TOP ABV FLnnn WI nnn{KM/NM} OF CENTRE	1) Generic height/range descriptors. FL180 SFC/FL070 SFC/9000FT FL050/080 FL310/450 TOP FL390 ABV FL280 TOP ABV FL100 *or*[20] 2) Radius from TC centre from which CB related to Tropical Cyclone ONLY may be expected. CB TOP FL500 WI 270KM OF CENTRE CB TOP FL500 WI 150NM OF CENTRE

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 A6-1 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 A6-1 of Annex 3. MWOs are encouraged to align their SIGMETs with the examples below.
			CB TOP BLW FLnnn WI nnn{KM/NM} OF CENTRE *or*[21] 3) Zone defined by a line of specified width within which volcanic ash is expected. FLnnn/nnn nnKM WID LINE[22] 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* FLnnn/nnn nnNM WID LINE[22] 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]]	CB TOP ABV FL450 WI 250KM OF CENTRE CB TOP BLW FL530 WI 150NM OF CENTRE *or*[21] 3c) Zone defined by a line of specified width within which volcanic ash is expected. FL310/450 100KM WID LIN BTN S4330 E02200 – N4315 E02230 – N4230 E02300 – N4145 E02230 – N4130 E02145 *or* FL310/450 60NM WID LIN BTN S4330 E02200 – N4315 E02230 – N4230 E02300 – N4145 E02230 – N4130 E02145
2.5	Movement *or* expected movement (C)[18]	Movement *or* expected movement (direction and speed) with reference to one of the sixteen points of compass, *or* stationary (C)	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 (C)[18]	Expected changes in intensity (C)	INTSF *or* WKN *or* NC	WKN INTSF NC

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 A6-1 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 A6-1 of Annex 3. MWOs are encouraged to align their SIGMETs with the examples below.
2.7	Forecast position (C)[18, 19, 28]	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)	1a) Specific to Tropical Cyclone only. FCST nnnnZ TC CENTRE Nnnnn or Snnnn Ennnnn or Wnnnnn FCST nnnnZ TC CENTRE Nnn or Snn Ennn or Wnnn [AND][23] *or* 2a) Specific to Volcanic Ash only: A polygon defining an ash cloud. The end point shall be a repeat of the start point. Minimum 4 coordinates and not normally more than 7 coordinates. FCST nnnnZ VA CLD APRX 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) Specific to VA only: A zone, defined by a line of specified width, defining an ash cloud. FCST nnnnZ VA CLD APRX nnKM (nnNM) WID LINE[22] 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]] [AND][23] *or* 2c) affecting entire FIR or CTA FCST nnnnZ ENTIRE FIR[21] *or* FCST nnnnZ ENTIRE CTA[21]	1a) Specific to Tropical Cyclone only. FCST 2200Z TC CENTRE N2740 W07345 FCST 1600Z TC CENTRE S15 W110 *or* 2a) Specific to Volcanic Ash only: A polygon defining an ash cloud. The end point shall be a repeat of the start point. Minimum 4 coordinates and not normally more than 7 coordinates. FCST 1700Z VA CLD APRX S15 E075 – S15 E081 – S17 E083 – S18 E079 – S15 E075 *or* 2b) Specific to VA only: A zone defined by a line of specified width, defining an ash cloud. FCST 1700Z VA CLD APRX 180KM WID LINE BTN S15 E075 – S15 E081 – S17 E083 – S18 E079 FCST 1700Z VA CLD APRX 90NM WID LINE BTN S15 E075 – S15 E081 – S17 E083 – S18 E079 *or* 2c) affecting entire FIR or CTA FCST 1400Z ENTIRE FIR[21] *or* FCST 0300Z ENTIRE CTA[21] *or*

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 A6-1 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 A6-1 of Annex 3. MWOs are encouraged to align their SIGMETs with the examples below.
			or 3a) Specific to hazards other than TC or VA, an area of the FIR defined by a polygon. The end point shall be a repeat of the start point. Minimum 4 (including the last point being a repeat of the first point) coordinates, and not normally more than 7 coordinates. FCST nnnnZ WI[24] 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* 3b) Specific to hazards other than TC or VA, in a sector of the FIR defined relative to specified line joining two 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). FCST nnnnZ [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] *or* 3c) Specific to hazards other than TC or VA, in a sector of the FIR defined relative to a line of latitude and a line of longitude (effectively a quadrant); FCST nnnnZ N OF Nnn[nn] AND W OF Wnnn[nn] *or* FCST nnnnZ N OF Nnn[nn] AND E OF Wnnn[nn] *or* FCST nnnnZ S OF Nnn[nn] AND W OF Wnnn[nn] *or* FCST nnnnZ S OF Nnn[nn] AND E OF Wnnn[nn] *or* FCST nnnnZ N OF Nnn[nn] AND W OF Ennn[nn] *or* FCST nnnnZ N OF Nnn[nn] AND E OF Ennn[nn] *or* FCST nnnnZ S OF Nnn[nn] AND W OF Ennn[nn] *or* FCST nnnnZ S OF Nnn[nn] AND E OF Ennn[nn] *or*	3a) Specific to hazards other than TC or VA, 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 being a repeat of the first point), and not normally more than 7 coordinates. FCST 1600Z WI N6030 E02550 – N6055 E02500 – N6050 E02630 - N6030 E02550 FCST 0800Z WI N30 W067 – N32 W070 – N35 W068 - N30 W067 *or* 3b) Specific to hazards other than TC or VA, in a sector of the FIR defined relative to specified line joining two 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). FCST 2100Z NE OF N2500 W08700 – N2000 W08300 FCST 1200Z NE OF LINE N2500 W08700 – N2000 W08300 FCST 1600Z S OF S14 E150 – S14 E155 FCST 2000Z S OF LINE S14 E150 – S14 E155 *or* 3c) Specific to hazards other than TC or VA, in a sector of the FIR defined relative to a line of latitude and a line of longitude (effectively a quadrant); FCST 1600Z S OF N3200 AND E OF E02000 FCST 0600Z S OF S3215 AND W OF E10130 FCST 1230Z S OF N12 AND W OF E040 FCST 0300Z N OF N35 AND E OF E078

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 A6-1 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 A6-1 of Annex 3. MWOs are encouraged to align their SIGMETs with the examples below.
			or 3d) Specific to hazards other than TC or VA, in a sector of the FIR defined relative to a line of latitude or longitude (effectively a segment); FCST nnnnZ N OF Nnn[nn] *or* FCST nnnnZ S OF Nnn[nn] *or* FCST nnnnZ N OF Snn[nn] *or* FCST nnnnZ S OF Snn[nn] *or* FCST nnnnZ W OF Wnnn[nn] *or* FCST nnnnZ E OF Wnnn[nn] *or* FCST nnnnZ W OF Ennn[nn] *or* FCST nnnnZ E OF Ennn[nn] *or* 3e) Specific to hazards other than TC or VA, at a point: FCST nnnnZ Nnn[nn] Wnnn[nn] or FCST nnnnZ Nnn[nn] Ennn[nn] or FCST nnnnZ Snn[nn] Wnnn[nn] or FCST nnnnZ Snn[nn] Ennn[nn]	*or* 3d) Specific to hazards other than TC or VA, in a sector of the FIR defined relative to a line of latitude or longitude (effectively a segment); FCST 1600Z N OF S2230 FCST 1130Z S OF S43 FCST 0800Z E OF E01700 FCST 1200Z E OF W005 *or* 3e) Specific to hazards other than TC or VA, at a point: FCST 0800Z N5530 W02230 FCST 1500Z S12 E177
	Cancellation of SIGMET (C)[27]	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[21]	CNL SIGMET 2 102000/110000[27] CNL SIGMET 12 101200/101600[27] CNL SIGMET A12 031600/032000[27] CNL SIGMET 3 251030/251630 VA MOV TO YUDO FIR[27]

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 A6-1 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 A6-1 of Annex 3. MWOs are encouraged to align their SIGMETs with the examples below.
			CNL SIGMET nn nnnnnn/nnnnnn VA MOV TO nnnn FIR[21] CNL SIGMET nnn 251030/251430 VA MOV TO YUDO FIR[27]	CNL SIGMET 06 191200/191800 VA MOV TO YUDO FIR[27] CNL SIGMET B10 030600/031200 VA MOV TO YUDO FIR[27]

Table A-1: Expanded SIGMET template

Footnotes to table: (note, the number in brackets at the end of each footnote refers to the footnote reference in Table A6-1 of Annex 3 (18th Edition, July 2013).

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)
2. Fictitious location. (3)
3. In accordance with 1.1.3 "The sequence number referred to in the template in Table A6-1 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 CTA shall issue separate SIGMET messages for each FIR and/or CTA within their area of responsibility." (4)
4. As per 1.1.4 "In accordance with the template in Table A6-1, only one of the following phenomena shall be included in a SIGMET message, using the abbreviations as indicated below [list of SIGMET phenomena follows]" (7)
5. 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*". (8)
6. In accordance with 4.2.4 "*Hail (GR) should be used as a further description of the thunderstorm, as necessary*" (9)
7. accordance with 4.2.1 b) "*embedded (EMBD) if it is embedded within cloud layers and cannot be readily recognized*" (10)
8. In accordance with 4.2.2 "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)" (11)
9. In accordance with 4.2.3 "Squall line (SQL) should indicate a thunderstorm along a line with little or no space between individual clouds." (12)
10. Used for unnamed tropical cyclones. (13)
11. In accordance with 4.2.5 and 4.2.6 "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" (14)
12. In accordance with 4.2.7 "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". (15)
13. In accordance with 4.2.8 "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.*" (16)
14. In accordance with 2.1.4. (17)
15. In accordance with 4.2.1 c). (18)
16. In accordance with 4.2.1 d). (19)

17. The use of cumulonimbus, CB, and towering cumulus, TCU, is restricted to AIRMETs in accordance with 2.1.4. (20).
18. In the case of the same phenomenon covering more than one area within the FIR, these elements can be repeated, as necessary. (21)
19. Only for SIGMET messages for volcanic ash cloud and tropical cyclones. (22)
20. Only for SIGMET messages for tropical cyclones. (23)
21. Only for SIGMET messages for volcanic ash. (24)
22. A straight line between two points drawn on a map in the Mercator projection or a straight line between two points which crosses lines of longitude at a constant angle. (25)
23. To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned. (26)
24. The number of coordinates should be kept to a minimum and should not normally exceed seven. (27)
25. Optionally can be used in addition to Movement or Expected Movement. (28)
26. To be used for hazardous phenomena other than volcanic ash cloud and tropical cyclones. (29)
27. End of the message (as the SIGMET/AIRMET message is being cancelled). (30)
28. The levels of the phenomena remain fixed throughout the forecast period. (31)
29. During any SIGMET test message, no other information should be included after the specified text. (N/A)

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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 not intended to give guidance on how a SIGMET in graphical format should be produced.

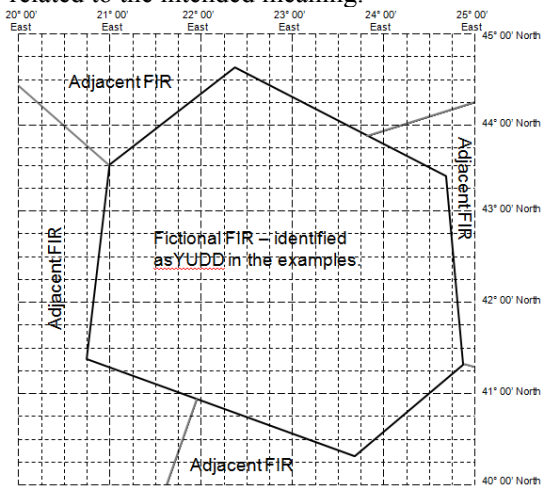
Examples of '**WS**' SIGMET. See the sections for SIGMET for volcanic ash only (WV) and SIGMET for tropical cyclone only (WC) for examples specific to those phenomena.

Contents

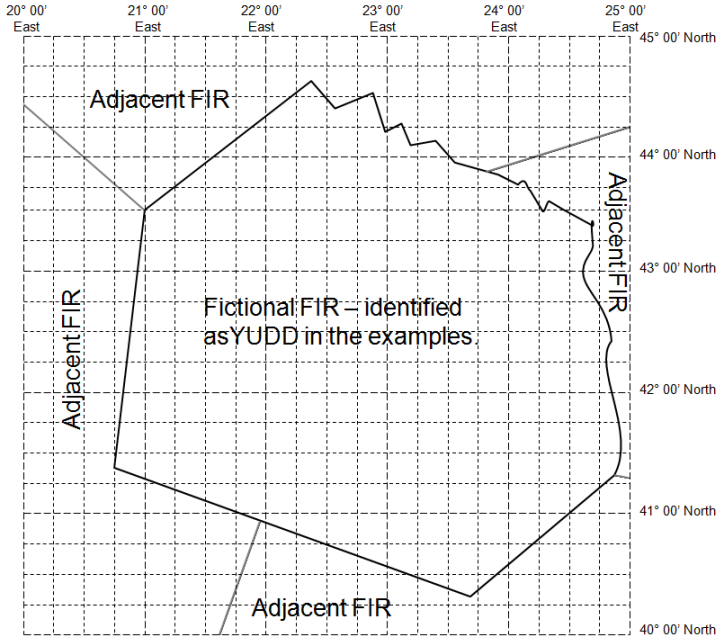
General

Explanation of fictional FIR.

In each of the examples below, a fictional FIR area is indicated, with portions of adjacent 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 is used for the examples.

Repetition of start point as last coordinate.

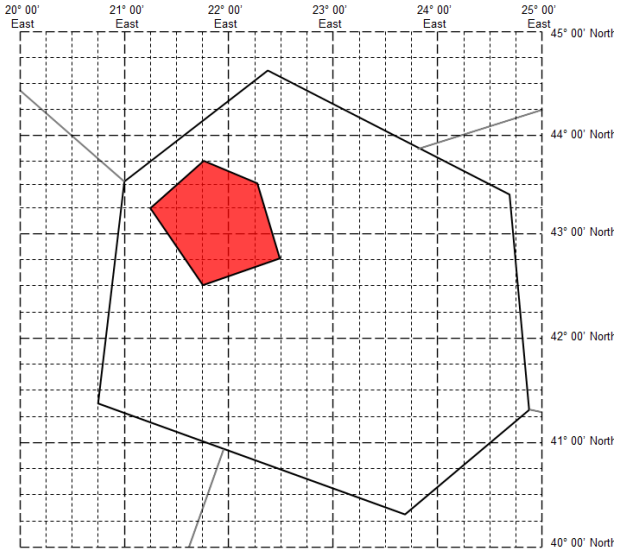
> In accordance with practices and procedures laid down for other aeronautical bulletins (i.e. NOTAM), it is recommended that the last point of a polygon is a repeat of the first point of the polygon. This will ensure that the polygon has been closed, and that no points have been omitted.

'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.

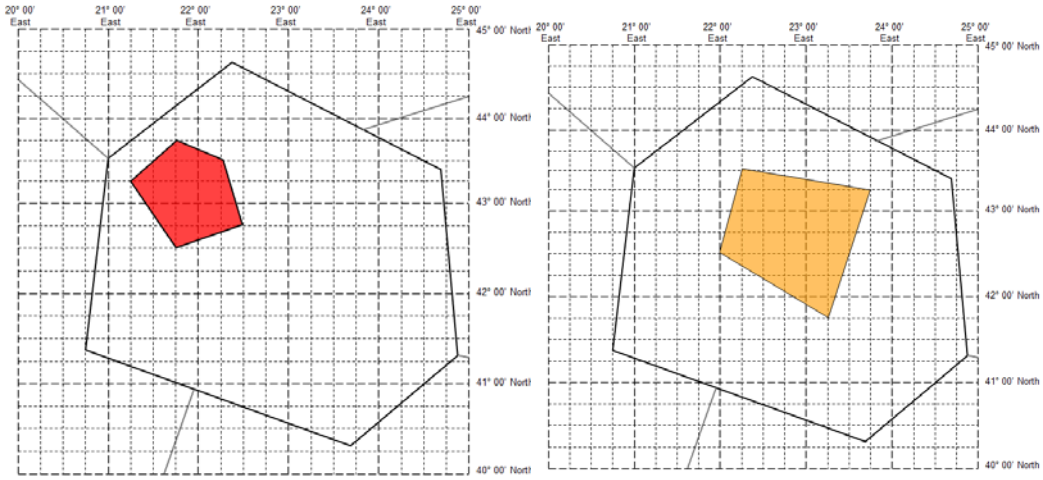
1) An area of the FIR defined by a polygon. The end point should be a repeat of the start point.

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



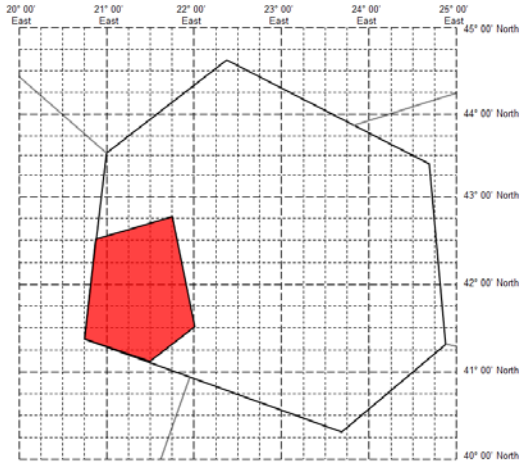
YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR SEV TURB FCST WI N4230 E02145 – N4315 E02115 – N4345 E02145 – N4330 E02215 – N4245 E02230 - N4230 E02145 FL250/370 MOV ESE 20KT INTSF=

With an explicit forecast position:



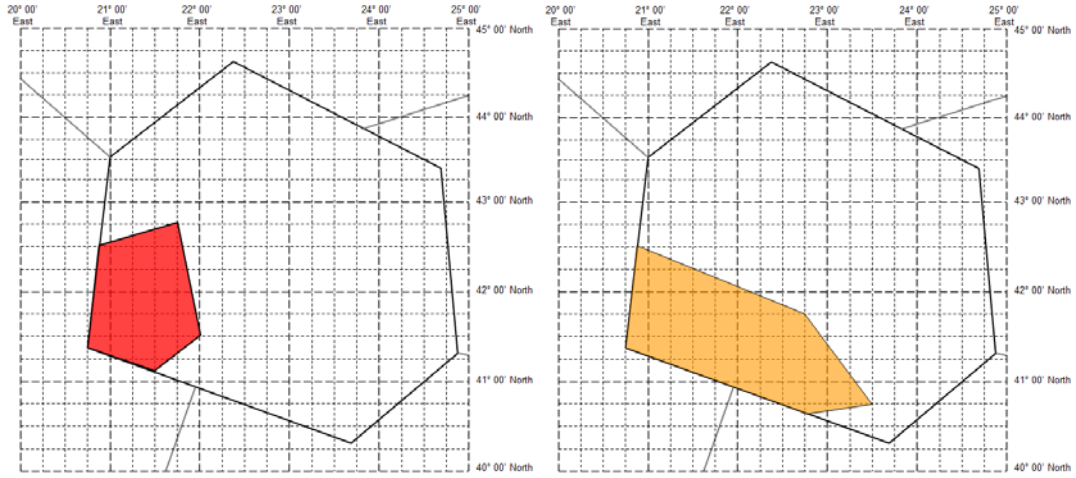
YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR SEV TURB FCST WI N4230 E02145 – N4315 E02115 – N4345 E02145 – N4330 E02215 – N4245 E02230 - N4230 E02145 FL250/370 MOV ESE 20KT INTSF FCST 1600Z WI N4145 E02315 – N4230 E02200 – N4330 E02215 – N4315 E02345 - N4145 E02315=

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 E2045 - 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 MOV SE 30KT WKN FCST 1600Z WI N4230 E02052 – N4145 E02245 – N4045 E02330 – N4040 E02248 – N4123 E02045- N4230 E02052 =

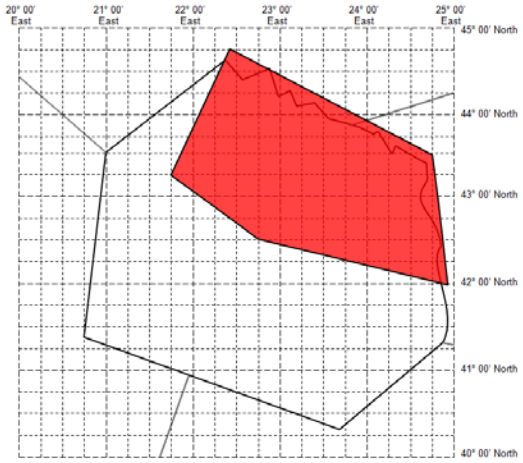
Use of polygons with complex FIR boundaries.

Annex 3 (18th Edition, July 2013) 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.

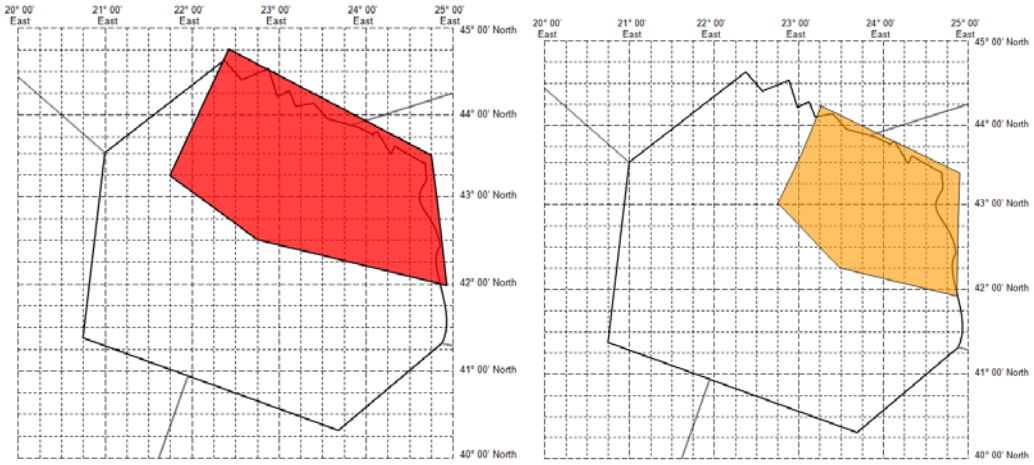
In the examples below, it would not be practical to follow the NE boundaries exactly. The point close to N4330 E02245 is obviously a 'major' turning point along the FIR boundary, but the other, numerous and complex turning points can only be approximated when constrained to seven points.

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=

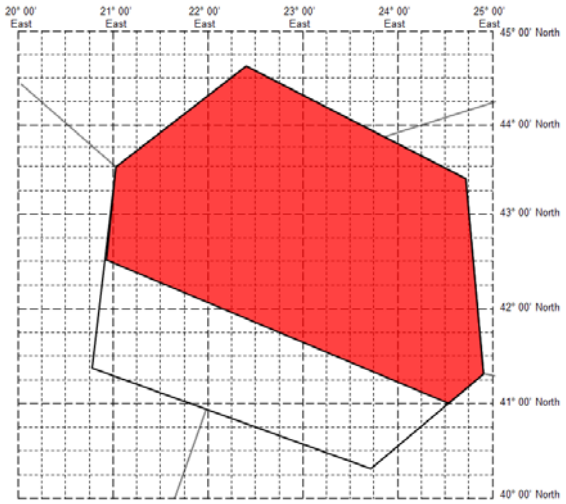
With an explicit forecast position:



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 MOV SE 20KT WKN FCST 1600Z WI N4300 E02245 – N4415 E02315 – N4322 E02452 – N4155 E02445 – N4215 E02330- N4300 E02245=

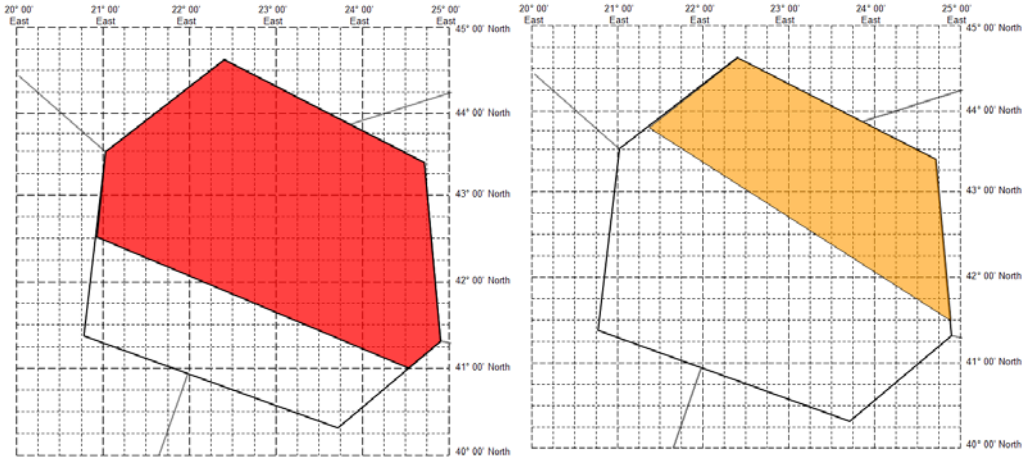
2a) In a sector of the FIR defined relative to specified line joining two points on the FIR boundary.

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

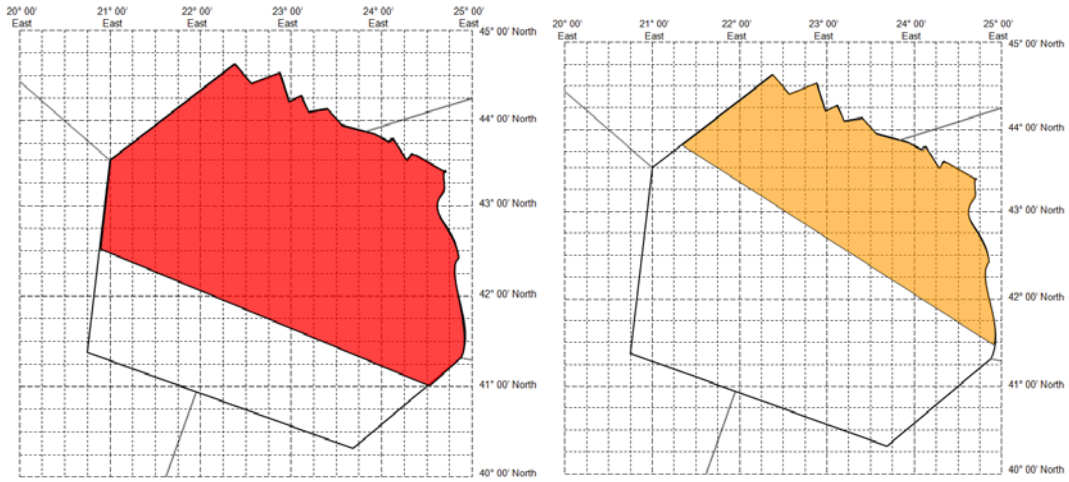


YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR SEV TURB FCST NE OF LINE N4230 E02052 – N4100 E02430 FL250/370 MOV NE 15KT WKN=

With an explicit forecast position:



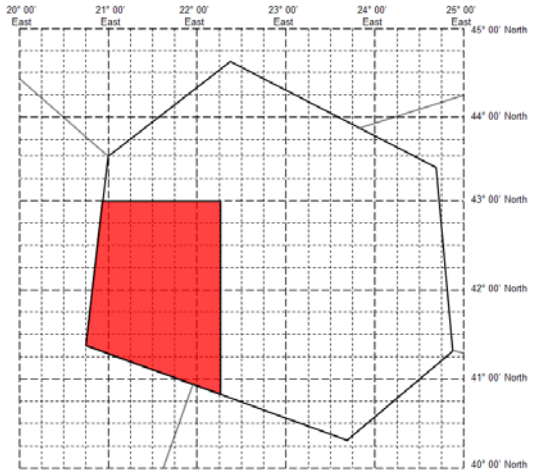
YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR SEV TURB FCST NE OF LINE N4230 E02052 – N4100 E02430 FL250/370 MOV NE 15KT WKN FCST 1600Z NE OF LINE N4346 E02122 – N4130 E02452=



YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR SEV TURB FCST NE OF LINE N4230 E02052 – N4100 E02430 FL250/370 MOV NE 15KT WKN FCST 1600Z NE OF LINE N4346 E02122 – N4130 E02457=

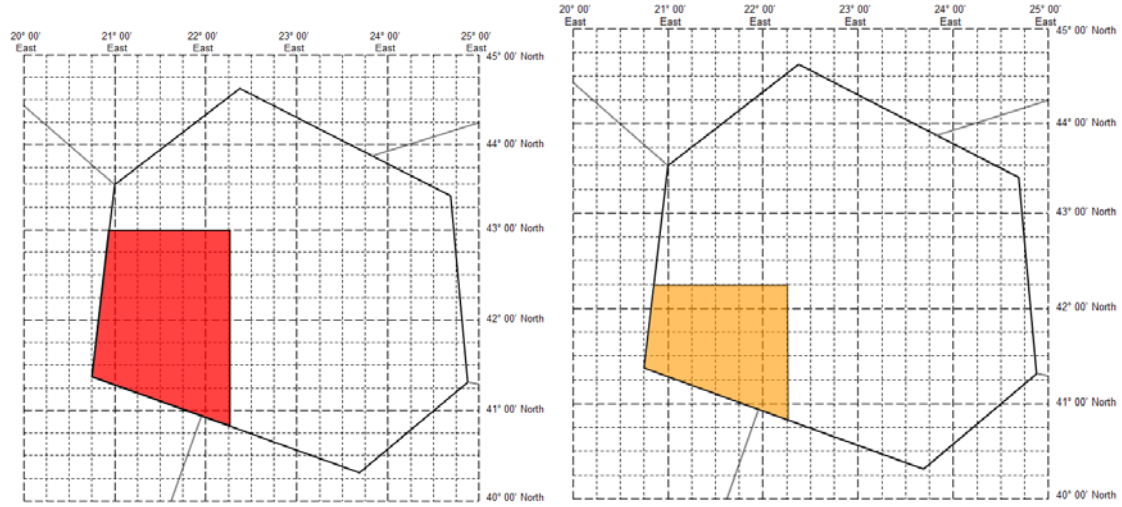
2b) In a sector of the FIR defined relative to a line of latitude and a line of longitude (effectively a quadrant)

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'.

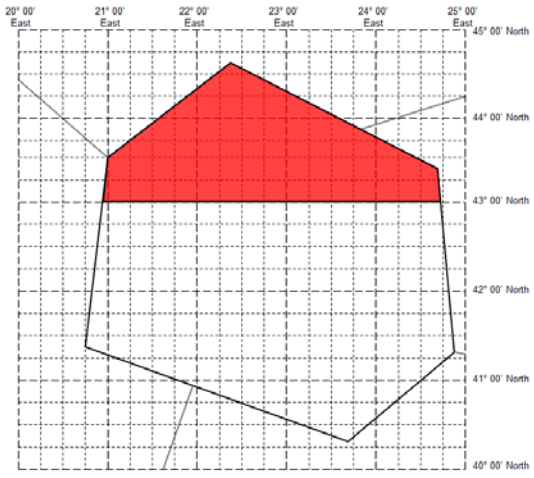


With an explicit forecast position:

```
YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR SEV TURB FCST S OF N4300 AND W OF E02215
FL250/370 MOV S 12KT WKN FCST 1600Z S OF 4215 AND W OF E02215=
```

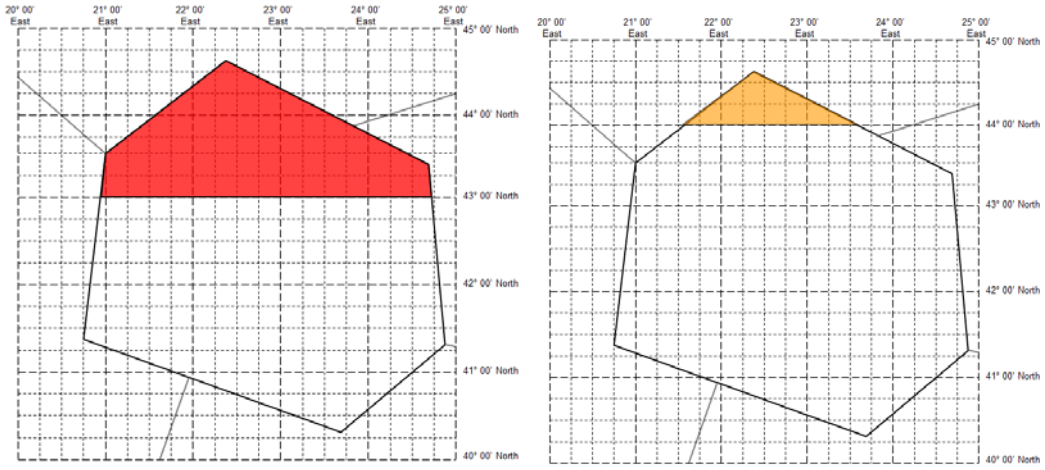
2d) In a sector of the FIR defined relative to a line of latitude or longitude (effectively a segment)

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

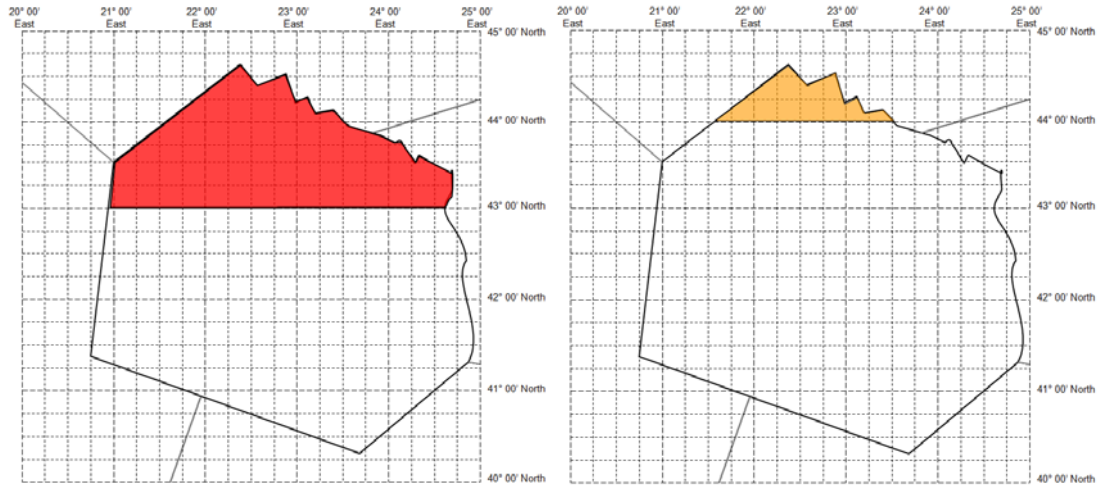



```
YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR SEV TURB FCST N OF N43 FL250/370 MOV N 15KT WKN=
```

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[7] FL250/370 MOV N 15KT WKN FCST 1600Z N OF N44=

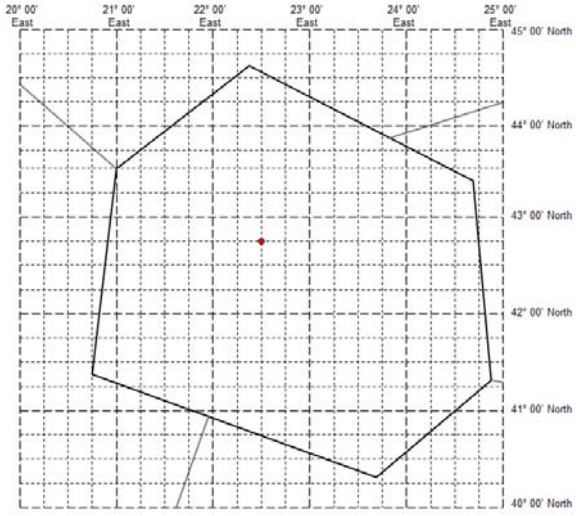


YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR SEV TURB FCST N OF N43[8] FL250/370 MOV N 15KT WKN FCST 1600Z N OF N44=

[7] It would be equally valid to use 'N4300'.
[8] It would be equally valid to use 'N4300'.

3) At a specific point within the FIR;

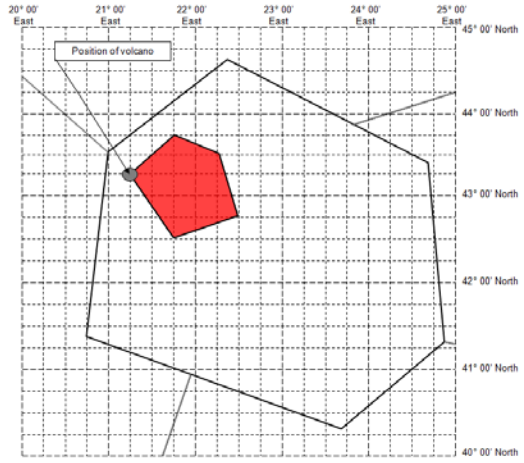
When the SIGMET does not include a 'forecast position' section.




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

4) Volcanic Ash SIGMET Only

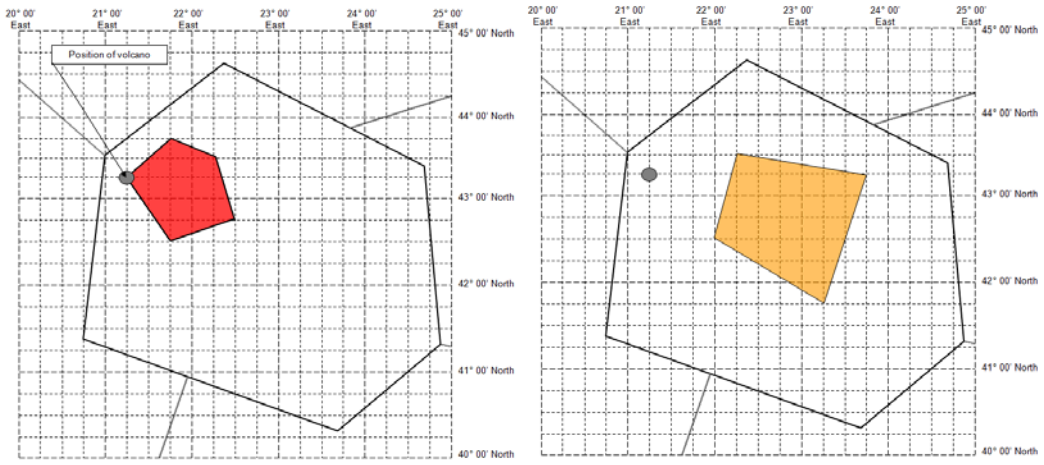
When the VA SIGMET does not include a 'forecast position' section.




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

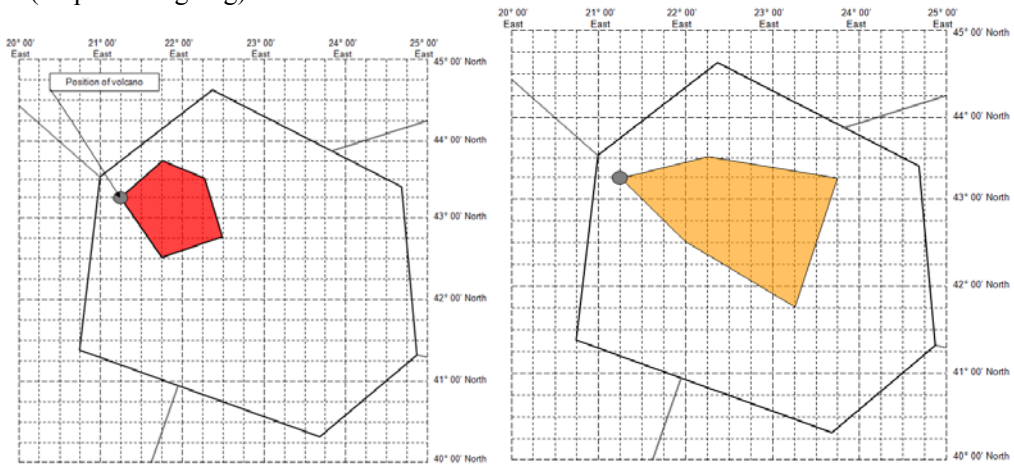
When the SIGMET does include a 'forecast position' section (no rate of movement).

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



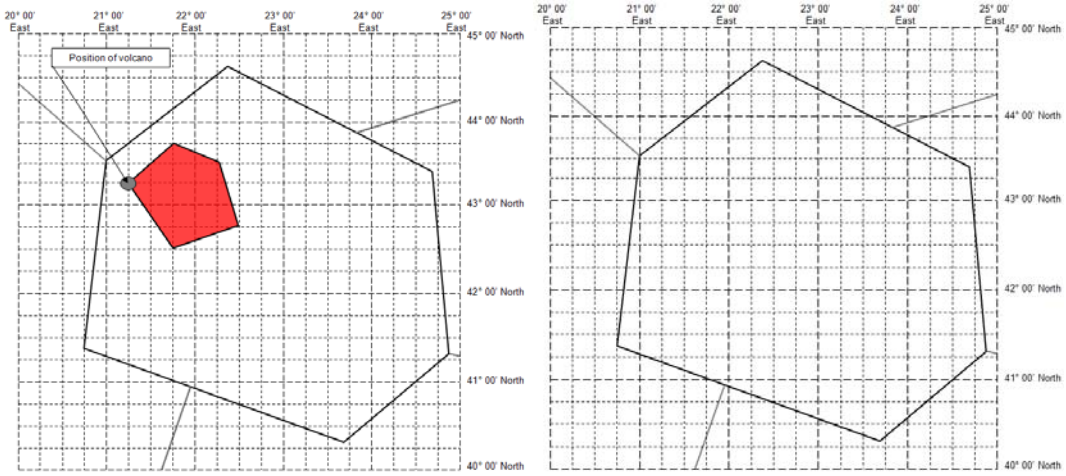
YUDD SIGMET 2 VALID 101200/101800 YUSO –
YUDD SHANLON FIR/UIR VA ERUPTION MT ASHVAL PSN N4315 E02115 VA CLD OBS AT 1200Z WI N4315 E02115 – N4345 E02145 N4330 E02215 – N4245 E02230 – N4230 E02145 - N4315 E02115 FL250/370 MOV ESE 20KT NC FCST 1800Z VA CLD APRX N4330 E02215 – N4315 E02345 – N4145 E02315 – N4230 E02200 - N4330 E02215=

For VA (eruption on-going):



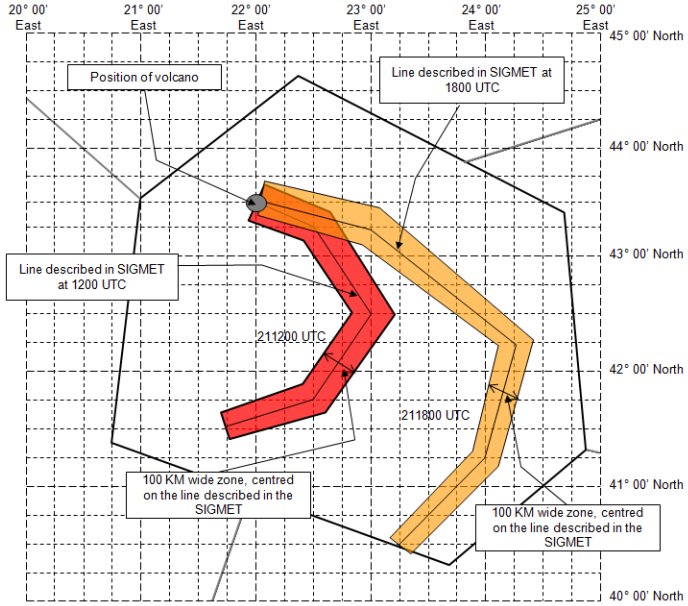
YUDD SIGMET 2 VALID 101200/101800 YUSO –
YUDD SHANLON FIR/UIR VA ERUPTION MT ASHVAL PSN N4315 E02115 VA CLD OBS AT 1200Z WI N4315 E02115 - N4245 E02145 – N4330 E02215 -- N4245 E02230 – N4230 E02145 – N4315 E2115 FL250/370 MOV ESE 20KT NC FCST 1800Z VA CLD APRX N4315 E02115 - N4330 E02215 – N4315 E02345 – N4145 E02315 – N4230 E02200 – N4315 E02115=

For VA (eruption ceasing, ash dispersing):



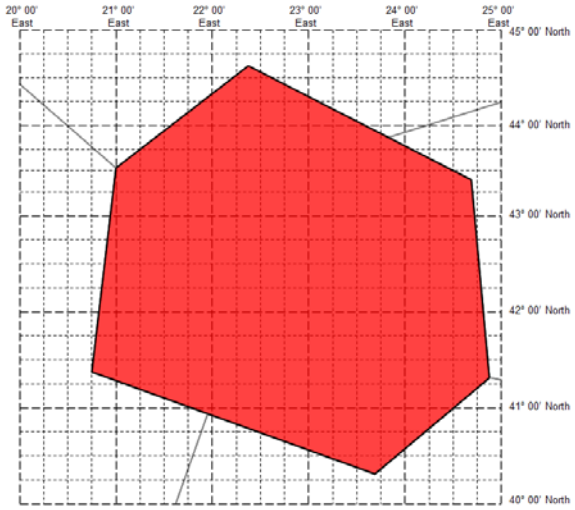
YUDD SIGMET 2 VALID 101200/101800 YUSO –
YUDD SHANLON FIR/UIR VA ERUPTION MT ASHVAL PSN N4315 E02115 VA CLD OBS AT 1200Z WI N4315 E02115 - N4345 E02145 – N4330 E02215 – N4245 E02130 - N4230 E02145 N4315 E02115 FL250/370 MOV ESE 20KT WKN FCST 1800Z NO VA EXP=

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



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

5) Covering entire FIR (volcanic ash only).

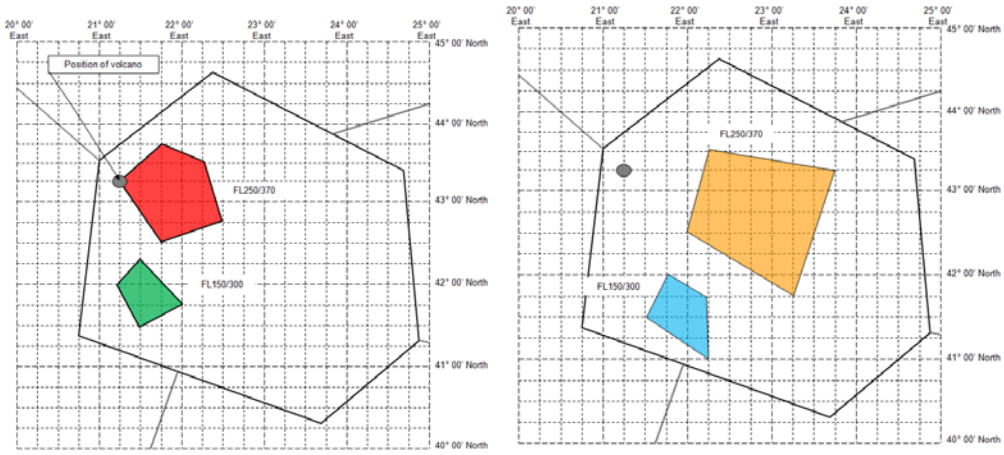


YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR SEV TURB FCST ENTIRE FIR FL250/370 STNR WKN=

Multiple areas in SIGMET for volcanic ash.

Strictly, the only way to include a second instance of a volcanic ash cloud in a SIGMET message is to use the 'AND' option in 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.

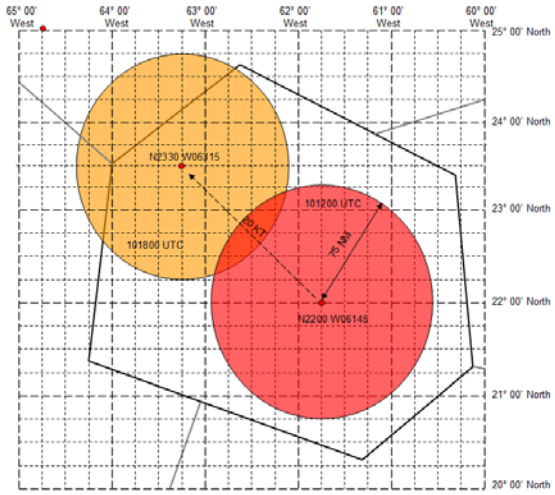


YUDD SIGMET 2 VALID 101200/101800 YUSO –
YUDD SHANLON FIR/UIR VA ERUPTION MT ASHVAL PSN N4315 E02115 VA CLD OBS AT 1200Z WI N4315 E02115 – N4345 E02145 N4330 E02215 – N4245 E02230 – N4230 E02145 - N4315 E02115 FL250/370 MOV ESE 20KT NC FCST 1800Z VA CLD APRX N4330 E02215 – N4315 E02345 – N4145 E02315 – N4230 E02200 - N4330 E02215 **AND** *N4200 E02115 – N4217 E02130 – N4145 E02200 – N4130 E02130 – N4200 E02100 FL150/300 MOV ESE 20KT NC FCST 1800Z VA*

CLD APRX 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.

6) Tropical Cyclone SIGMET Only

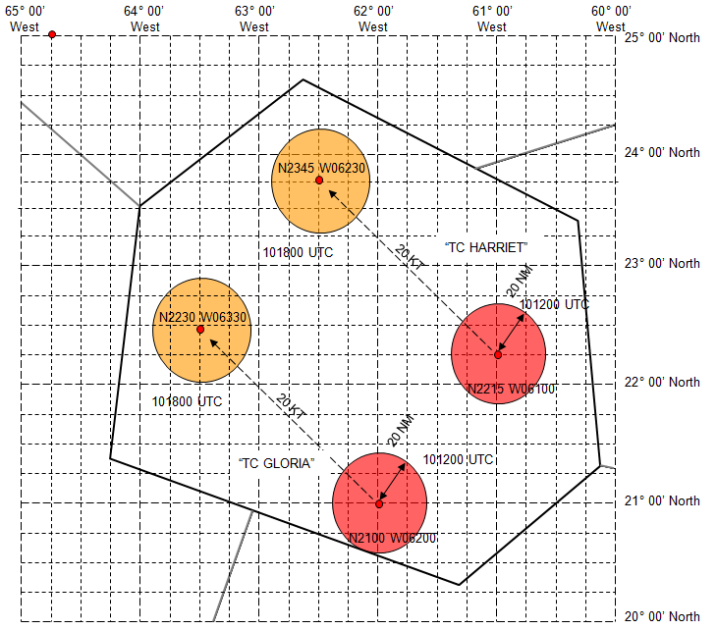


YUDD SIGMET 2 VALID 101200/101800 YUSO –
YUDD SHANLON FIR/UIR TC GLORIA FCST AT 1200Z N2200 W06145 CB TOP FL500 WI 75NM OF CENTRE MOV NW 20KT WKN FCST 1800Z TC CENTRE N2330 W06315=

Multiple areas in SIGMET for tropical cyclone.

Strictly, the only way to include a second instance of a tropical cyclone in a SIGMET is to use the 'AND' option in 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/UIR TC GLORIA FCST AT 1200Z N2100 W06200 CB TOP FL500 WI 20NM OF CENTRE MOV NW 20KT WKN FCST 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 1800Z TC CENTRE N2345 W06230=*

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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 as described in this document. 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 <<Insert page reference>>.

1.4. 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**).

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):**
<<Insert TCACs as necessary>>

3.1.1.2. **Volcanic Ash Advisory Centres (VAAC):**
<<Insert VAACs as necessary>>

3.1.1.3. **Regional OPMET Data Banks (RODB):**
<<Insert RODBs as necessary>>

3.1.1.4. **Meteorological Watch Offices (MWO):**
<<Insert MWOs as necessary>>

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 pages <<XX-5>>.

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 <<XX-6>> 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):**
<<Insert RODBs as necessary>>

3.2.1.2. **Meteorological Watch Offices (MWO):**
<<Insert MWOs as necessary>>

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:

3.3.1.2. Test SIGMETs will use the next normally available sequence number for test SIGMET messages or the first available sequence number of any pre-defined letter assigned to test SIGMETs for those States identifying SIGMETs using an alphanumerical sequence number (ex: T1 or 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**

3.4.1.1. 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 page <<XX-7>> 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.

3.4.1.2. 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.

3.4.1.3. The current SIGMET test focal points for the <<Insert region>> Region are as follows:

<<Insert region>> Region
<<To be completed as necessary>>

SIGMET TEST PROCEDURES

Format of TEST Advisories and SIGMETs

1. Format of TEST Volcanic Ash Advisory

```
VA ADVISORY
DTG:            YYYYMMDD/0200Z
VAAC:           <<NAME OF VAAC>>
VOLCANO:        TEST
PSN:            UNKNOWN
AREA:           <<NAME OF VAAC>> 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 <<REGION>>
REGIONAL OFFICE DATED xxxxxxxxxx.
```

```
NXT ADVISORY: NO FURTHER ADVISORIES=
```

2. Format of TEST Tropical Cyclone Advisory

```
TC ADVISORY
DTG:            YYYYMMDD/0200Z
TCAC:           <<NAME OF TCAC>>
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 <<REGION>>
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 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=
```

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 AT 170200Z=

WVJP31 RJTD 170205
RJJJ SIGMET Z99 VALID 170205/170215 RJTD-
RJJJ FUKUOKA FIR THIS IS A TEST SIGMET, PLEASE DISREGARD.
```

```
TEST VA ADVISORY NOT RECEIVED=
```

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 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=
```

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 AT 180200Z=
```

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

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 4B

Example – Special air-report on volcanic ash

(to be updated using example in MID Region)

- **pilot to ACC Bahrain**

    - Note that in a typical situaton, the pilot may provide a special air-report on volcanic ash via voice communications to ACC. Referencing PANS-ATM Appendix 1, Part 1 – Reporting instructions sections 1-4 and 9, the following example is provided.

      ‘**AIREP SPECIAL UNITED AIRLINES TREE TOO TOO POSITION TOO FIFE ZERO ZERO NORTH FIFE ZERO TREE ZERO EAST FLIGHT LEVEL TREE ZERO ZERO CLIMBING TO FLIGHT LEVEL TREE FIFE ZERO VOLCANIC ASH CLOUD**‘

- **ACC Bahrain to MWO Bahrain**

    - The format used for forwarding of meteorological information received by voice communications to the associated meteorological watch office (MWO) is provided in subtitle 3 of Appendix 1 of PANS-ATM. An example is provided based on the information given by the pilot or dispatch.

    - **ARS UAL322 2500N05030E 0105 F300 ASC F350 VA CLD=**

- **MWO Bahrain to VAAC Toulouse, Regional OPMET Centre-ROC Jeddah, SADIS, WIFS**

    - The format used for forwarding of a special air-report from the MWO to VAAC, ROC, SADIS and WIFS is in accordance to Annex 3, Appendix 6, Table A6-1 (**uplink**). An example is provided based on the informaton given by the ACC.

      ARS UA322 VA CLD FL300/350 OBS AT 0105Z N2500 E05030 FL300=

    - The MWO should send this information using the World Meteorological Organization Abbreviated Header Line (WMO AHL) of **UABN71 OBBI** to:

        - Appropriate VAAC – in this case, VAAC Toulouse (fax: +33 (5) 61 07 82 54; email vaac@meteo.fr; AFTN address **LFPWYMYX**)
        - Appropriate ROC – in this case, ROC Jeddah at AFTN address **OEJDMMID**
        - SADIS at AFTN address **EGZZWPXX**
        - WIFS at AFTN address **KWBCYMYX**

There is currently no provision for NO VA CLD, however, the following example is provided.
ARS UA322 NO VA CLD FL040/330 OBS AT 2315Z N2500 E05030=

APPENDIX 4C

MID SIGMET focal points (10 June 2015)

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. AL-Ghaiag Senior Forecaster National Meteorological Centre/Forecasting Department	+218-92-6009697 mob +218-215-621772 fax	alghaiag@yahoo.com
Oman			
Qatar			
Saudi Arabia	Mr. Mohammed Babidhan Presidency of Meteorology and Environ-	+966(0)120536057 tel +966(0)126530197fax +966(0)507703136 m	babidhan@gmail.com mbabidhan@pme.gov.sa

	ment (PME) P.O. Box 1358 Jeddah 21431 Saudi Arabia		
Sudan			
Syrian Arab Republic			
United Arab Emirates	Mohamed Alabri Head of Aviation Meteorology National Center of Meteorology & Seismology P.O. Box 966655 Abu Dhabi UAE Ahmed Al Obeidli Sr. Air Navigation Inspector – CNS –AIRS General Civil Aviation Authority P.O. Box: 6558 Abu Dhabi United Arab Emirates	+97122227132 fax 00971 240 54410 (tel)	malabri@ncms.ae aobaidli@gcaa.gov.ae
Yemen			

APPENDIX 4D

Key Performance Indicators MET

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

Applicability*: States*

B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety			
Elements	***Applicability***	***Performance Indicators/Supporting Metrics***	***Targets***
SADIS 2G and Secure SADIS FTP	***All*** *States*	Indicator: % of States having implemented SADIS 2G satellite broadcast or Secure SADIS FTP service Supporting metric: number of States having implemented SADIS 2G satellite broadcast or Secure SADIS FTP service	90% by Dec. 2015 100% by Dec. 2017
QMS	***All*** *States*	Indicator: % of States having implemented QMS for MET Supporting metric: number of States having implemented QMS for MET	60% by Dec. 2015 80% by Dec. 2017

ATTACHMENT

LIST OF PARTICIPANTS

NAME	TITLE & ADDRESS
STATES **BAHRAIN** Mr. Adel Daham	 Director of Meteorology Ministry of Transportation and Telecommunication KINGDOM OF BAHRAIN
Mr. Mohamed Ali Saleh	Chief Aeronautical Telecommunication Civil Aviation Affairs KINGDOM OF BAHRAIN
Mr. Anwar Yusuf Al-Mulla	Supervisor MET Operation Ministry of Transportation and Telecommunication KINGDOM OF BAHRAIN
Mr. Dheya Ali Alalawi	Chief of MET Operation Ministry of Transportation and Telecommunication KINGDOM OF BAHRAIN
Mr. Khalid Hussain Yaseen	Supervisor MET Operations Ministry of Transportation and Telecommunication KINGDOM OF BAHRAIN
Mr. Basem Salman Al-Asfoor	Head of Research and Information Ministry of Transportation and Telecommunication KINGDOM OF BAHRAIN
QATAR Mr. Mohammed Ali Alkubaisi	 Senior Weather Forecast Civil Aviation Authority Doha – QATAR
SAUDI ARABIA Mr. Saad Mohammed Almajnooni	 Director, Main Communication Center (MCC) Presidency for Meteorology and Environment (PME) KINGDOM OF SAUDI ARABIA
Mr. Saad Abdullah Alzahrani	CNS/ATM Manager General Authority of Civil Aviation Manager CNS/ATM Department KINGDOM OF SAUDI ARABIA

NAME	TITLE & ADDRESS
Mr. Abubakr Ahmed Baqazi	Supervisor of weather forecasting department Presidency for Meteorology and Environment (PME) KINGDOM OF SAUDI ARABIA
Mr. Majed Khalid Mahjoub	Operator Presidency for Meteorology and Environment (PME) KINGDOM OF SAUDI ARABIA
SUDAN Mr. Hayder Mohamed Abdalla	AIM Director Sudan Civil Aviation Authority Air Navigation Service Khartoum - SUDAN
UNITED ARAB EMIRATES Mr. Hamad Nasser Al Harthi	Manager Aviation MET Services National Center of Meteorology & Seismology Dubai UNITED ARAB EMIRATES
Mr. Mohamed Abdulla Al Abri	Head of Aviation Meteorology National Center of Meteorology & Seismology Abu Dhabi UNITED ARAB EMIRATES

- END -