



MEMORANDUM CIRCULAR NO.: 005-17

TO : ALL CONCERNED

FROM : THE DIRECTOR GENERAL

SUBJECT : AMENDMENT TO PHILIPPINE CIVIL AVIATION REGULATIONS – AIR NAVIGATION SERVICES PART 3 INCORPORATING AMENDMENT 77A and 77B TO ANNEX 3

REFERENCE:

1. Philippine Civil Aviation Regulations- Aerodromes
2. Philippine Manual of Standards - Aerodromes
3. ICAO Annex 3
4. ICAO Annex 3; Amendment 77
5. Regulations Amendment Procedures
6. Board Resolution No. 2012-054 dated 28 September 2012

Pursuant to the powers vested in me under the Republic Act 9497, otherwise known as the Civil Aviation Authority Act of 2008 and in accordance with the Board Resolution No.: 2012-054 dated 28 September 2012, I hereby approve the incorporation of ICAO Annex 3 Amendment No. 77A and 77B to the Philippine Civil Aviation Regulations-Air Navigation Services (CAR-ANS) Part 3.

ORIGINAL REGULATIONS:

CAR-ANS Part 3

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CHAPTER 3.1. DEFINITIONS

...
3.1.1 Definitions

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Automatic dependent surveillance (ADS). A surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position-fixing systems, including aircraft identification, four-dimensional position and additional data as appropriate.

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SIGMET information. Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

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World area forecast centre (WAFc). A meteorological centre designated to prepare and issue significant weather forecasts and upper-air forecasts in digital form on a global basis direct to States by appropriate means as part of the aeronautical fixed service.

CHAPTER 3.2. GENERAL PROVISIONS

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3.2.1 Objective, determination and provision of meteorological service

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3.2.1.3 The Civil Aviation Authority of the Philippines (CAAP) shall determine the meteorological service which it will provide to meet the needs of international air navigation. This determination shall be made in accordance with the provisions of this Civil Aviation Regulations-Air Navigation Services (CAR-ANS) Part 3 and with due regard to regional air navigation agreements; it shall include the determination of the meteorological service to be provided for international air navigation over international waters and other areas which lie outside the territory of the State concerned.

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3.2.2 Supply, use, quality management and interpretation of meteorological information

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3.2.2.6 Demonstration of compliance of the quality system applied shall be by audit. If non-conformity of the system is identified, action shall be initiated to determine and correct the cause. All audit observations shall be evidenced and properly documented.

3.2.2.7 The meteorological information supplied to the users listed in 3.2.1.2 shall be consistent with Human Factors principles and shall be in forms which require a minimum of interpretation by these users, as specified in the following chapters.

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3.2.3 Notifications required from operators

3.2.3.1 An operator requiring meteorological service or changes in existing meteorological service shall notify, sufficiently in advance, the meteorological authority or the aerodrome meteorological office concerned. The minimum amount of advance notice required shall be as agreed between the meteorological authority or aerodrome meteorological office and the operator.

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3.2.3.4 The notification to the aerodrome meteorological office of individual flights shall contain the following information except that, in the case of scheduled flights, the requirement for some or all of this information may be waived as agreed between the aerodrome meteorological office and the operator:

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CHAPTER 3.3. WORLD AREA FORECAST SYSTEM AND METEOROLOGICAL OFFICES

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3.3.4 Meteorological watch offices

3.3.4.1 The CAAP, having accepted the responsibility for providing air traffic services within a flight information region or a control area, shall arrange with PAGASA for the establishment and/or operation of one or more meteorological watch offices.

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3.3.4.2 A meteorological watch office shall:

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Note.— The information is provided by WMO regional specialized meteorological centres (RSMC) for the provision of transport model products for radiological environmental emergency response, at the request of the delegated authority of the State in which the radioactive material was released into the atmosphere, or the International Atomic Energy Agency (IAEA). The information is sent by the RSMC to a single contact point of the national meteorological service in each State. This contact point has the responsibility of redistributing the RSMC products within the State concerned. Furthermore, the information is provided by IAEA to RSMC co-located with VAAC London (designated as the focal point) which in turn notifies the ACCs concerned about the release.

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3.3.5 Volcanic ash advisory centres

3.3.5.1 The Philippines, having accepted, by regional air navigation agreement, the responsibility for providing volcanic ash advisory from associated VAAC within the framework of the international airways volcano watch.

The Philippines shall respond to a notification that a volcano has erupted, or is expected to erupt or volcanic ash is reported in its area of responsibility, and shall:

- a) Monitor the extent of volcanic ash in the atmosphere in the area concerned;
- b) Issue advisory information regarding the extent and forecast movement of the volcanic ash cloud.
- ...
- c) Issue updated advisory information to the meteorological watch offices, area control centers, flight information centers and VAACs as necessary, but at least every six hours until such time as the volcanic ash "cloud" is no longer identifiable from satellite data, no further reports of volcanic ash are received from the area, and no further eruptions of the volcano are reported.

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3.3.6 Philippine volcano observatories

The Philippines with active or potentially active volcanoes shall maintain volcano observatories through PHIVOLCS to monitor these volcanoes and when observing:

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shall send this information as quickly as practicable to their associated ACC, MWO and VAAC.

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3.3.7 Tropical cyclone advisory centres

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3.3.7.3 The meteorological authority of the Philippines shall issue advisory information, through SIGMET, concerning the position of the cyclone center, its direction and speed of movement, central pressure and maximum surface wind near the center in abbreviated plain language to:

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- 3) world area forecast centres, international OPMET databanks, and centres designated by regional air navigation agreement for the operation of aeronautical fixed service satellite distribution systems.

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CHAPTER 3.4 METEOROLOGICAL OBSERVATIONS AND REPORTS

Note.— Technical specifications and detailed criteria related to this chapter are given in Appendix 3.3.

3.4.1 Aeronautical meteorological stations and observations

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3.4.3 Routine observations and reports

3.4.3.1 At aerodromes, routine observations shall be made throughout the 24 hours each day, except as otherwise agreed between the meteorological authority, the appropriate ATS authority and the operator concerned. Such observations shall be made at intervals of one hour or, if so determined by regional air navigation agreement, at intervals of one half-hour. At other aeronautical meteorological stations, such observations shall be made as determined by the meteorological authority taking into account the requirements of air traffic services units and aircraft operations.

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3.4.5 Contents of reports

3.4.5.1 Local routine and special reports and METAR and SPECI shall contain the following elements in the order indicated:

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3.4.5.2 Optional elements included under supplementary information shall be included in METAR and SPECI in accordance with regional air navigation agreement.

3.4.6 Observing and reporting meteorological elements

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3.4.6.6 Air temperature and dew-point temperature

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3.4.6.6.2 Observations of air temperature and dew-point temperature for local routine and special reports METAR and SPECI shall be representative of the whole runway complex.

CHAPTER 3.5. AIRCRAFT OBSERVATIONS AND REPORTS

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3.5.3 Routine aircraft observations — designation

3.5.3.1 When air-ground data link is used and automatic dependent surveillance (ADS) or secondary surveillance radar (SSR) Mode S is being applied, automated routine observations shall be made every 15 minutes during the en-route phase and every 30 seconds during the climb-out phase for the first 10 minutes of the flight.

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3.5.3.3 In the case of air routes with high-density air traffic (e.g. organized tracks), an aircraft from among the aircraft operating at each flight level shall be designated, at approximately hourly intervals, to make routine observations in accordance with 3.5.3.1 or 3.5.3.2 as appropriate. The designation procedures shall be subject to regional air navigation agreement.

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3.5.8 Relay of air-reports by air traffic services units

The meteorological authority concerned shall make arrangements with the appropriate ATS authority to ensure that, on receipt by the air traffic services units of:

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b) routine and special air-reports by data link communications, the ATS units relay them without delay to their associated meteorological watch office and WAFCS.

CHAPTER 3.6. FORECASTS

Note.— Related technical specifications and detailed criteria are given in Appendix 3.5.

3.6.1 Interpretation and use of forecasts

3.6.1 Owing to the variability of meteorological elements in space and time, to limitations of forecasting techniques and to limitations caused by the definitions of some of the elements, the specific value of any of the elements given in a forecast shall be understood by the recipient to be the most probable value which the element is likely to assume during the period of the forecast. Similarly, when the time of occurrence or change of an element is given in a forecast, this time shall be understood to be the most probable time.

3.6.1.2 The issue of a new forecast by an aerodrome meteorological office, such as a routine aerodrome forecast, shall be understood to cancel automatically any forecast of the same type previously issued for the same place and for the same period of validity or part thereof.

3.6.2 Aerodrome forecasts

3.6.2.1 An aerodrome forecast shall be prepared, on the basis of regional air navigation agreement, by the aerodrome meteorological office designated by the meteorological authority concerned.

3.6.3 Landing forecasts

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3.6.3.3 A trend forecast shall consist of a concise statement of the expected significant changes in the meteorological conditions at that aerodrome to be appended to a local routine or local special report, or a METAR or SPECI. The period of validity of a trend forecast shall be 2 hours from the time of the report which forms part of the landing forecast.

3.6.4 Forecasts for take-off

3.6.4.1 A forecast for take-off shall be prepared by the aerodrome meteorological office designated by the meteorological authority concerned if required by agreement between the meteorological authority and operators concerned.

3.6.5 Area forecasts for low-level flights

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3.6.5.2 When the density of traffic operating below flight level 100 warrants the issuance of AIRMET information in accordance with 7.2.1, area forecasts for such operations shall be prepared in a format agreed upon between the meteorological authorities concerned. When abbreviated plain language is used, the forecast shall be prepared as a GAMET area forecast, employing approved ICAO abbreviations and numerical values; when chart form is used, the forecast shall be prepared as a combination of forecasts of upper wind and upper-air temperature, and of SIGWX phenomena. The area forecasts shall be issued to cover the layer between the

ground and flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) and shall contain information on en-route weather phenomena hazardous to low-level flights, in support of the issuance of AIRMET information, and additional information required by low-level flights.

CHAPTER 3.7. SIGMET AND AIRMET INFORMATION, AERODROME WARNINGS AND WIND SHEAR WARNINGS AND ALERTS

Note.— Related technical specifications and detailed criteria are given in Appendix 3.6.

3.7.1 SIGMET information

3.7.1.1 SIGMET information shall be issued by a meteorological watch office and shall give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather phenomena, which may affect the safety of aircraft operations, and of the development of those phenomena in time and space.

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CHAPTER 8. AERONAUTICAL CLIMATOLOGICAL INFORMATION

Note.— Related technical specifications and detailed criteria are given in Appendix 3.7.

3.8.1 General provisions

Note.— In cases where it is impracticable to meet the requirements for aeronautical climatological information on a national basis, the collection, processing and storage of observational data may be effected through computer facilities available for international use, and the responsibility for the preparation of the required aeronautical climatological information may be delegated by agreement between the meteorological authorities concerned.

3.8.1.1 Aeronautical climatological information required for the planning of flight operations shall be prepared in the form of aerodrome climatological tables and aerodrome climatological summaries. Such information shall be supplied to aeronautical users as agreed between the meteorological authority and those users.

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3.8.2 Aerodrome climatological tables

The Philippines shall make arrangements for collecting and retaining the necessary observational data and have the capability:

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b) to make available such climatological tables to an aeronautical user within a time period as agreed between the meteorological authority and that user.

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CHAPTER 3.9. SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS

Note.— Related technical specifications and detailed criteria are given in Appendix 3.8.

3.9.1 General provisions

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3.9.1.3 Meteorological information supplied to operators and flight crew members shall be up to date and include the following information, as established by the meteorological authority of the Philippines in consultation with operators concerned:

- a) forecasts of
 - 1) upper wind and upper-air temperature;
 - 2) upper-air humidity;
 - 3) geopotential altitude of flight levels;
 - 4) flight level and temperature of tropopause;
 - 5) direction, speed and flight level of maximum wind; and
 - 6) SIGWX phenomena

Forecasts of upper-air humidity and geopotential altitude of flight levels are used only in automatic flight planning and need not be displayed

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g) subject to regional air navigation agreement, GAMET area forecast and/or area forecasts for low-level flights in chart form prepared in support of the issuance of AIRMET information, and AIRMET information for low-level flights relevant to the whole route;

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3.9.1.10 Meteorological information shall be supplied to operators and flight crew members at the location to be determined by the meteorological authority, after consultation with the operators and at the time to be agreed upon between the aerodrome meteorological office and the operator concerned. The service for pre-flight planning shall be confined to flights originating within the territory of the State concerned. At an aerodrome without an aerodrome meteorological office at the aerodrome, arrangements for the supply of meteorological information shall be as agreed upon between the meteorological authority and the operator concerned.

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3.9.2 Briefing, consultation and display

Note.— The requirements for the use of automated pre-flight information systems in providing briefing, consultation and display are given in 3.9.4.

3.9.2.1 Briefing and/or consultation shall be provided, on request, to flight crew members and/or other flight operations personnel. Its purpose shall be to supply the latest available information on existing and expected meteorological conditions along the route to be flown, at the aerodrome of intended landing, alternate aerodromes and other aerodromes as relevant, either to explain and amplify the information contained in the flight documentation or, if so as agreed between the meteorological authority of the Philippines and the operator, in lieu of flight documentation.

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3.9.2.5 The flight crew member or other flight operations personnel for whom briefing, consultation and/or flight documentation has been requested shall visit the aerodrome meteorological office at the time agreed upon between the aerodrome meteorological office and the operator concerned. Where local circumstances at an aerodrome make personal briefing or consultation impracticable, the aerodrome meteorological office shall provide those services by telephone or other suitable telecommunications facilities.

3.9.3 Flight documentation

Note.— The requirements for the use of automated pre-flight information systems in providing flight documentation are given in 3.9.4.

3.9.3.1 Flight documentation to be made available shall comprise information listed under 3.9.1.3 a) 1) and 6), b), c), e), f) and, if appropriate, g). However, when agreed between the meteorological authority of the Philippines and operator concerned, flight documentation for flights of two hours' duration or less, after a short stop or turnaround, shall be limited to the information operationally needed, but in all cases the flight documentation shall at least comprise information on 3.9.1.3 b), c), e), f) and, if appropriate, g).

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3.9.4 Automated pre-flight information systems for briefing, consultation, flight planning and flight documentation

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3.9.4.2 Automated pre-flight information systems providing for a harmonized, common point of access to meteorological information and aeronautical information services information by operators, flight crew members and other aeronautical personnel concerned shall be established by an agreement as agreed between the meteorological authority of the Philippines and the relevant civil aviation authority or the agency to which the authority to provide service has been delegated.

Note: The meteorological and AIS information concerned is specified in 3.9.1 to 3.9.3 respectively.

CHAPTER 3.11. REQUIREMENTS FOR AND USE OF COMMUNICATIONS

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3.11.1 Requirements for communications

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3.11.1.7 Meteorological authority and operators, shall establish suitable telecommunications facilities for obtaining meteorological information from aerodrome meteorological offices or other appropriate sources.

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3.11.1.9 The telecommunications facilities used for the exchange of operational meteorological information shall be the aeronautical fixed service or, for the exchange of non-time critical operational meteorological information, the public Internet, subject to availability, satisfactory operation and bilateral/multilateral and/or regional air navigation agreements.

Note 1.— Three aeronautical fixed service satellite distribution systems providing for global coverage are used to support the global exchanges of operational meteorological information. Provisions relating to the satellite distribution systems are given in CAR-ANS Part 7, 7.10.1 and 7.10.2.

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PART II APPENDICES AND ATTACHMENTS

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APPENDIX 3.2. TECHNICAL SPECIFICATIONS RELATED TO WORLD AREA FORECAST SYSTEM AND METEOROLOGICAL OFFICES

(See CAR-ANS 3.3.)

1. WORLD AREA FORECAST SYSTEM

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1.2 Upper-air gridded forecasts

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1.2.2 The grid point forecasts prepared by a WAFC shall comprise:

a) wind and temperature data for flight levels 50 (850 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 240 (400 hPa), 270 (350 hPa), 300 (300 hPa), 320 (275 hPa), 340 (250 hPa), 360 (225 hPa), 390 (200 hPa), 410 (175 hPa), 450 (150 hPa), and 530 (100 hPa);

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d) humidity data for flight levels 50 (850 hPa), 100 (700 hPa), 140 (600 hPa) and 180 (500 hPa);

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i) geopotential altitude data for flight levels 50 (850 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 240 (400 hPa), 270 (350 hPa), 300 (300 hPa), 320 (275 hPa), 340 (250 hPa), 360 (225 hPa), 390 (200 hPa), 410 (175 hPa), 450 (150 hPa), and 530 (100 hPa).

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3. VOLCANIC ASH ADVISORY CENTRES (VAAC)

3.1 Volcanic ash advisory information

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3.1.2 The volcanic ash advisory information listed in Table A2-1, when prepared in graphical format, shall be as specified in Appendix 3.1 and issued using:

a) the portable network graphics (PNG) format; or

b) the BUFR code form, when exchanged in binary format.

Note.— The BUFR code form is contained in WMO Publication No. 306, Manual on Codes, Volume I.2, Part B — Binary Codes.

4. STATE VOLCANO OBSERVATORIES

4.1 Information from State volcano observatories

The information required to be sent by PHIVOLCS to their associated ACCs, MWO and VAAC shall comprise:

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Note 2.— The Philippines volcano observatories may use the Volcano Observatory Notice for Aviation (VONA) format to send information to its associated ACCs, MWO and VAAC. The VONA format is included in the Handbook on the International Airways Volcano Watch (IAVW) (Doc 9766) which is available on the ICAO IAVWOPSG website.

5. TROPICAL CYCLONE ADVISORY CENTRES (TCAC)

5.1 Tropical cyclone advisory information

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5.1.3 The tropical cyclone advisory information listed in Table A2-2, when prepared in graphical format, shall be as specified in Appendix 3.1 and issued using:

a) the portable network graphics (PNG) format; or

b) the BUFR code form, when exchanged in binary format.

Note.— The BUFR code form is contained in WMO Publication No. 306, Manual on Codes, Volume I.2, Part B — Binary Codes.

APPENDIX 3.3. TECHNICAL SPECIFICATIONS RELATED TO METEOROLOGICAL OBSERVATIONS AND REPORTS

(see CAR-ANS 3.4)

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2. GENERAL CRITERIA RELATED TO METEOROLOGICAL REPORTS

2.1 Format of meteorological reports

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2.1.3 METAR and SPECI shall be disseminated, under bilateral agreements between States in a position to do so in digital form, in addition to the dissemination of the METAR and SPECI in accordance with 3.2.1.2.

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2.3 Criteria for issuance of local special reports and SPECI

2.3.1 The list of criteria for the issuance of local special reports shall include the following:

...

e) from 13 November 2014, when noise abatement procedures are applied in accordance with 7.2.7 of the PANS-ATM (Doc 4444) and the variation from the mean surface wind speed (gusts) has changed by 2.5 m/s (5 kt) or more from that at the time of the latest report, the mean speed before and/or after the change being 7.5 m/s (15 kt) or more; and

...

2.3.3 Where required in accordance with Chapter 3.4, 3.4.4.2 b), SPECI shall be issued whenever changes in accordance with the following criteria occur:

...

f) when the height of base of the lowest cloud layer of BKN or OVC extent is lifting and changes to or passes through one or more of the following values, or when the height of base of the lowest cloud layer of BKN or OVC extent is lowering and passes through one or more of the following values:

1) 30, 60, 150 or 300 m (100, 200, 500 or 1 000 ft); and

2) 450 m (1 500 ft), in cases where significant numbers of flights are operated in accordance with the visual flight rules;

...

b) any other criteria based on local aerodrome operating minima, as agreed between the meteorological authority and the operators.

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3. DISSEMINATION OF METEOROLOGICAL REPORTS

3.1 METAR and SPECI

3.1.1 METAR and SPECI shall be disseminated to international OPMET databanks and the centres designated by regional air navigation agreement for the operation of aeronautical fixed service satellite distribution systems, in accordance with regional air navigation agreement.

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3.2 Local routine and special reports

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3.2.2 Local special reports shall be transmitted to local air traffic services units as soon as the specified conditions occur. However, by agreement between the meteorological authority and the appropriate ATS authority, they need not be issued in respect of:

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4. OBSERVING AND REPORTING OF METEOROLOGICAL ELEMENTS

4.1 Surface wind

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4.1.3 Averaging

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4.1.3.2 The averaging period for measuring variations from the mean wind speed (gusts) reported in accordance with 4.1.5.2 c) shall be 3 seconds for local routine and special reports and for METAR and SPECI and for wind displays used for depicting variations from the mean wind speed (gusts) in air traffic services units.

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4.1.5 Reporting

4.1.5.1 In local routine and special reports and in METAR and SPECI, the surface wind direction and speed shall be reported in steps of 10 degrees true and 1 metre per second (or 1 knot), respectively. Any observed value that does not fit the reporting scale in use shall be rounded to the nearest step in the scale.

4.1.5.2 In local routine reports, and local special reports, and in METAR and SPECI:

...

c) variations from the mean wind speed (gusts) during the past 10 minutes shall be reported when the maximum wind speed exceeds the mean speed by:

1) from 13 November 2014, 2.5 m/s (5 kt) or more in local routine and special reports when noise abatement procedures are applied in accordance with paragraph 7.2.7 of the PANS-ATM (Doc 4444); or

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4.2 Visibility

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4.2.4 Reporting

4.2.4.1 In local routine and special reports and in METAR and SPECI, the visibility shall be reported in steps of 50 m when the visibility is less than 800 m; in steps of 100 m, when it is 800 m or more but less than 5 km; in kilometre steps, when the visibility is 5 km or more but less than 10 km; and it shall be given as 10 km when the visibility is 10 km or more, except when the

conditions for the use of CAVOK apply. Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

4.3 Runway visual range

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4.3.5 Runway light intensity

When instrumented systems are used for the assessment of runway visual range, computations shall be made separately for each available runway. Runway visual range shall not be computed for a light intensity of 3 per cent or less of the maximum light intensity available on a runway. For local routine and special reports, the light intensity to be used for the computation shall be:

a) for a runway with the lights switched on, the light intensity actually in use on that runway; and

b) for a runway with lights switched off (or at the lowest setting pending the resumption of operations), the optimum light intensity that would be appropriate for operational use in the prevailing conditions.

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4.3.6 Reporting

4.3.6.1 In local routine reports, local special reports, METAR and SPECI, the runway visual range shall be reported in steps of 25 m when the runway visual range is less than 400 m; in steps of 50 m when it is between 400 m and 800 m; and in steps of 100 m when the runway visual range is more than 800 m. Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

4.3.6.2 Fifty metres shall be considered the lower limit and 2 000 metres the upper limit for runway visual range. Outside of these limits, local routine and special reports and METAR and SPECI shall merely indicate that the runway visual range is less than 50 m or more than 2 000 m.

4.3.6.3 In local routine and special reports and in METAR and SPECI:

4.4 Present weather

4.4.1 Siting

When instrumented systems are used for observing present weather phenomena listed under 4.4.2.3, 4.4.2.5 and 4.4.2.6 representative information shall be obtained by the use of sensors appropriately sited.

4.4.2 Reporting

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4.4.2.3 In local routine and special reports and in METAR and SPECI, the following types of present weather phenomena shall be reported, using their respective abbreviations and relevant criteria, as appropriate:

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4.4.2.4 In automated local routine and special reports and METAR and SPECI, in addition to the precipitation types listed under 4.4.2.3 a), the abbreviation UP shall be used for unidentified

precipitation when the type of precipitation cannot be identified by the automatic observing system.

4.4.2.5 In local routine and special reports and in METAR and SPECI, the following characteristics of present weather phenomena, as necessary, shall be reported, using their respective abbreviations and relevant criteria, as appropriate:

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4.4.2.6 In local routine and special reports and in METAR and SPECI, the following characteristics of present weather phenomena, as necessary, shall be reported, using their respective abbreviations and relevant criteria, as appropriate:

4.4.2.7 In local routine and special reports and in METAR and SPECI, the relevant intensity or, as appropriate, the proximity to the aerodrome of the reported present weather phenomena shall be indicated as follows:

...

4.4.2.8 In local routine and special reports and in METAR and SPECI:

a) one or more, up to a maximum of three, of the present weather abbreviations given in 4.4.2.3, 4.4.2.5 and 4.4.2.6 shall be used, as necessary, together with an indication, where appropriate, of the characteristics and intensity or proximity to the aerodrome, so as to convey a complete description of the present weather of significance to flight operations;

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4.4.2.10 In automated local routine and special reports and in METAR and SPECI, the present weather shall be replaced by “//” when the present weather cannot be observed by the automatic observing system due to a temporary failure of the system/sensor.

4.5 Clouds

4.5.1 Siting

When instrumented systems are used for the measurement of the cloud amount and the height of cloud base, representative observations shall be obtained by the use of sensors appropriately sited. For local routine and special reports, in the case of aerodromes with precision approach runways, sensors for cloud amount and height of cloud base shall be sited to give the best practicable indications of the height of cloud base and cloud amount at the middle marker site of the instrument landing system or, at aerodromes where a middle marker beacon is not used, at a distance of 900 to 1 200 m (3 000 to 4 000 ft) from the landing threshold at the approach end of the runway.

Note.— Specifications concerning the middle marker site of an instrument landing system are given in CAR-ANS Part 6, 6.3 and at Attachment C, Table C-5 of CAR-ANS Part 6.

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4.5.4 Reporting

4.5.4.1 In local routine and special reports and in METAR and SPECI, the height of cloud base shall be reported in steps of 30 m (100 ft) up to 3 000 m (10 000 ft). Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

4.5.4.2 At aerodromes where low-visibility procedures are established for approach and landing, as agreed between the meteorological authority and the appropriate ATS authority, in local routine and special reports the height of cloud base shall be reported in steps of 15 m (50 ft) up to and including 90 m (300 ft) and in steps of 30 m (100 ft) between 90 m (300 ft) and 3 000 m (10 000 ft), and the vertical visibility in steps of 15 m (50 ft) up to and including 90 m (300 ft) and in steps of 30 m (100 ft) between 90 m (300 ft) and 600 m (2 000 ft). Any observed value which does not fit the reporting scale shall be rounded down to the nearest lower step in the scale.

4.5.4.3 In local routine and special reports and in METAR and SPECI:

4.5.4.4 In local routine and special reports:

- a) the units of measurement used for the height of cloud base and vertical visibility shall be indicated; and
- b) when there is more than one runway in use and the heights of cloud bases are observed by instruments for these runways, the available heights of cloud bases for each runway shall be reported and the runways to which the values refer shall be indicated.

4.5.4.5 In automated local routine and special reports and in METAR and SPECI:

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4.6 Air temperature and dew-point temperature

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4.6.2 Reporting

4.6.2.1 In local routine and special reports and in METAR and SPECI, the air temperature and the dew-point temperature shall be reported in steps of whole degrees Celsius. Any observed value which does not fit the reporting scale in use shall be rounded to the nearest whole degree Celsius, with observed values involving 0.5° rounded up to the next higher whole degree Celsius.

4.6.2.2 In local routine and special reports and in METAR and SPECI, a temperature below 0°C shall be identified.

4.7 Atmospheric pressure

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4.7.3 Reporting

4.7.3.1 For local routine and special reports and in METAR and SPECI, QNH and QFE shall be computed in tenths of hectopascals and reported therein in steps of whole hectopascals, using four digits. Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower whole hectopascal.

4.7.3.2 In local routine and special reports:

...

b) QFE shall be included if required by users or, if so agreed locally between the meteorological and air traffic services authorities and operators concerned, on a regular basis;

...

4.8 Supplementary information

4.8.1 Reporting

4.8.1.1 In local routine and special reports and in METAR and SPECI, the following recent weather phenomena, i.e. weather phenomena observed at the aerodrome during the period since the last issued routine report or last hour, whichever is the shorter, but not at the time of observation, shall be reported, up to a maximum of three groups, in accordance with the templates shown in Tables A3.3-1 and A3.3-2, in the supplementary information:

...

4.8.1.3 In automated local routine and special reports and METAR and SPECI, in addition to the recent weather phenomena listed under 4.8.1.1, recent unknown precipitation shall be reported in accordance with the template shown in Table A3-2 when the type of precipitation cannot be identified by the automatic observing system.

...

Table A3.3-1. Template for the local routine (MET REPORT) and local special (SPECIAL) reports

Key: M = inclusion mandatory, part of every message;

C = inclusion conditional, dependent on meteorological conditions;

O = inclusion optional.

Note 1.— The ranges and resolutions for the numerical elements included in the local routine and special reports are shown in Table A3.3-4 of this appendix.

Note 2.— The explanations for the abbreviations can be found in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, ICAO Doc 8400).

<i>Element as Specified In Chapter 4</i>	<i>Detailed content</i>	<i>Template(s)</i>		<i>Examples</i>
...				
Present weather (C) ^{9,10}	Intensity of present weather (C) ⁹	FBL or MOD or HVY	-	
	Characteristics and type of present weather (C) ^{9,11}	DZ or RA or SN or SG or PL or DS or SS or FZDZ or FZUP ¹² or FC ¹³ or FZRA or SHGR or SHGS or SHRA or SHSN or SHUP ¹² or TSGR or TSGS or TSRA or TSSN or TSUP ¹² or UP ¹²	FG or BR or SA or DU or HZ or FU or VA or SQ or PO or FC or TS or BCFG or BLDU or BLSA or BLSN or DRDU or DRSA or DRSN or FZFG or MFG or PRFG or // ¹²	MOD RA HVY TSRA HVY DZ FBL SN HZ FG VA MFG HVY TSRASN FBL SNRA FBL DZ FG HVY SHGN BLSN HVY TSUP //

...

Table A3.3-2. Template for METAR and SPECI

Key: M = inclusion mandatory, part of every message;

C = inclusion conditional, dependent on meteorological conditions or method of observation;

O = inclusion optional.

Note 1.— The ranges and resolutions for the numerical elements included in METAR and SPECI are shown in Table A3.3-5 of this appendix.

Note 2.— The explanations for the abbreviations can be found in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, ICAO Doc 8400).

Element as specified in Chapter 4	Detailed content	Template(s)				Examples
...						
Surface wind (M)	Wind direction (M)	nnn		VRB		
	Wind speed (M)	[P]nn[n]			24004MPS (24008KT) 19006MPS (19012KT) 00000MPS (00000KT) 140P149MPS (140P99KT)	VRB01MPS (RB02KT)
	Significant speed variations (C) ³	G[P]nn[n]			12003G09MPS (12006G18KT) 24008G14MPS (24016G28KT)	
	Units of measurement (M)	MPS (or KT)			02005MPS 350V070 (02010KT 350V070)	
	Significant directional variations (C) ⁴	nnnVnnn		-		
...						
Cloud (M) ¹⁴	Cloud amount and height of cloud base or vertical visibility (M)	FEWnnn or SCTnnn or BKNnnn or OVCnnn or FEW/// ¹² or SCT/// ¹² or BKN/// ¹² or OVC/// ¹² or ///nnn ¹² or ///// ¹²	VVnnn or VV/// ¹²	NSC or NCD ¹²		FEW015 OVC030 SCT010 OVC020 BKN/// ///015 BKN009TCU NCD SCT008 BKN025CB BKN025/// ///CB
	Cloud type (C) ²	CB or TCU or /// ¹²	-			
...						

...

Table A3.3-4. Ranges and resolutions for the numerical elements included in local reports

...

Under circumstances as specified in 4.5.4.3; otherwise a resolution of 30 m (100 ft) is to be used.

APPENDIX 3.4. TECHNICAL SPECIFICATIONS RELATED TO AIRCRAFT OBSERVATIONS AND REPORTS

(See CAR-ANS 3.5.)

1. CONTENTS OF AIR-REPORTS

1.1 Routine air-reports by air-ground data link

1.1.1 When air-ground data link is used and automatic dependent surveillance (ADS) or SSR Mode S is being applied, the elements contained in routine air-reports shall be:

...

Note.— When ADS or SSR Mode S is being applied, the requirements of routine air-reports may be met by the combination of the basic ADS /SSR Mode S data block (data block 1) and the meteorological information data block (data block 2), available from ADS or SSR Mode S reports. The ADS message format is specified in the PANS-ATM (Doc 4444), 4.11.4 and Chapter 13 and the SSR Mode S message format is specified in CAR-ANS Part 7 – Standards for Digital Data Communication Systems, 7.5.

1.1.2 When air-ground data link is used while ADS and SSR Mode S are not being applied, the elements contained in routine reports shall be:

...

Note.— When air-ground data link is used while ADS and SSR Mode S are not being applied, the requirements of routine air-reports may be met by the controller-pilot data link communication (CPDLC) application entitled "Position report". The details of this data link application are specified in the Manual of Air Traffic Services Data Link Applications (ICAO Doc 9694) and in CAR-ANS Part 7.

...

3. EXCHANGE OF AIR-REPORTS

3.1 Responsibilities of the meteorological watch offices

3.1.1 The meteorological watch office shall transmit without delay the special air-reports received by voice communications to WAFCs.

...

3.1.3 When a special air-report is received at the meteorological watch office but the forecaster considers that the phenomenon causing the report is not expected to persist and, therefore, does not warrant issuance of a SIGMET, the special air-report shall be disseminated in the same way that SIGMET messages are disseminated in accordance with Appendix 3.6, 1.2.1, i.e. to meteorological watch offices, WAFCs, and other meteorological offices in accordance with regional air navigation agreement.

Note.— The template used for special air-reports which are uplinked to aircraft in flight is in Appendix 3.6, Table A6-1.

...

3.3 Supplementary dissemination of air-reports

Where supplementary dissemination of air-reports is required to satisfy special aeronautical or meteorological requirements, such dissemination shall be arranged between the meteorological authorities concerned.

...

APPENDIX 3.5. TECHNICAL SPECIFICATIONS RELATED TO FORECASTS

(See CAR-ANS 3.6.)

1. CRITERIA RELATED TO TAF

1.1 TAF format

...

1.1.2 TAF shall be disseminated, under bilateral agreements between States in a position to do so, in digital form, in addition to the dissemination of the TAF in accordance with 1.1.1.

...

1.2 Inclusion of meteorological elements in TAF

...

1.2.3 Weather phenomena

One or more, up to a maximum of three, of the following weather phenomena or combinations thereof, together with their characteristics and, where appropriate, intensity, shall be forecast if they are expected to occur at the aerodrome:

...

— other weather phenomena given in Appendix 3.3, 4.4.2.3, as agreed by the meteorological authority with the ATS authority and operators concerned.

...

1.3 Use of change groups

...

1.3.2 The criteria used for the inclusion of change groups in TAF or for the amendment of TAF shall be based on the following:

...

Table A3.5-1. Template for TAF

Key: M = inclusion mandatory, part of every message;

C = inclusion conditional, dependent on meteorological conditions or method of observation;

O = inclusion optional.

Note 1.— The ranges and resolutions for the numerical elements included in TAF are shown in Table A3.5-4 of this appendix.

Note 2.— The explanations for the abbreviations can be found in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, ICAO Doc 8400).

Element as specified in Chapter 6	Detailed content	Template(s)	Template(s)
...			
Days and period of validity of forecast (M)	Days and period of the validity of the forecast in UTC (M)	nnnr/nnnn	1606/1624 0812/0918
...			

...

Table A3.5-3. Template for GAMET

Key: M = inclusion mandatory, part of every message;

C = inclusion conditional, dependent on meteorological conditions;

O = inclusion optional;

= = a double line indicates that the text following it shall be placed on the subsequent line.

Element	Detailed content	Template(s)	Examples
Location indicator of FIR/CTA (M)	ICAO location indicator of the ATS unit serving the FIR or CTA to which the GAMET refers (M)	nnnn	YUCC ¹
Identification (M) Validity period (M)	Message identification (M) Day-time groups indicating the period of validity in UTC (M)	GAMET VALID nnnnr/nnnnnn	GAMET VALID 220600/221200
Location indicator of aerodrome meteorological office or meteorological watch office (M)	Location indicator of aerodrome meteorological office or meteorological watch office originating the message with a separating hyphen (M)	nnnn-	YUDO ⁻¹
Name of the FIR/CTA or part thereof (M)	Location indicator and name of the FIR/CTA, or part thereof for which the GAMET is issued (M)	nnnn nnnnnnnnnn FIR[/n] [BLW FLnnn] or nnnn nnnnnnnnnn CTA[/n] [BLW FLnnn]	YUCC AMSWELL FIR/2 BLW FL120 YUCC AMSWELL FIR

Elem	Detailed content	Templat			Exempl
		Identifier and time	Location	Content	
Significant weather (C)	Significant weather conditions encompassing thunderstorms, heavy sandstorm and duststorm	SIGWX: [nn/nn]		ISOL TS or OCNL TS or FRQ TS or OBSC TS or EMBD TS or HVY DS or HVY SS or SQL TS or ISOL TSGR or OCNL TSGR or FRQ TSGR or OBSC TSGR or EMBD TSGR or SQL TSGR or VA	SIGWX: 11/12 ISOL TS SIGWX: 12/14 SS S OF N35
Mountain obscuration (C)	Mountain obscuration	MT OBSC: [nn/nn]		nnnnnnnnn ²	MT OBSC: MT PASSES S OF N48
Cloud (C)	Widespread areas of broken or overcast cloud with height of base less than 300 m (1 000 ft) above ground level (AGL) or above mean sea level (AMSL) and/or any occurrence of cumulonimbus (CB) or towering cumulus (TCU) clouds	SIG CLD: [nn/nn]		BKN or OVC nnn[n]nnn[n]M(or nnn[n]nnn[n]FT) AGL or AMSL ISQL or OCNL or FRQ or OBSC or EMBD CB ³ or TCU ³ nnn[n]nnn[n]M (or nnn[n]nnn[n]FT AGL or AMSL	SIG CLD: 06/09 OVC 800/1100 FT AGL N OF N51 10/12 ISOL TCU 1200/8000 FT AGL
Icing (C)	Icing (except for that occurring in convective clouds and for severe icing for which a SIGMET message has already been issued)	ICE [nn/nn]		MOD FLnnn/nnn or MOD ABV FLnnn or SEV FLnnn/nnn or SEV ABV FLnnn	ICE: MOD FL050/080
Turbulence (C)	Turbulence (except for that occurring in convective clouds and for severe turbulence for which a SIGMET message has already been issued)	TURB: [nn/nn]		MOD FLnnn/nnn or MOD ABV FLnnn or SEV FLnnn/nnn or SEV ABV FLnnn	TURB: MOD ABV FL090
Mountain wave (C)	Mountain wave (except for severe mountain wave for which a SIGMET message has already been issued)	MTW: [nn/nn]		MOD FLnnn/nnn or MOD ABV FLnnn or SEV FLnnn/nnn or SEV ABV FLnnn	MTW: MOD ABV FL080 N OF N63
SIGMET (C)	SIGMET messages applicable to the FIR/CTA concerned or a sub-area thereof, for which the area forecast is valid	SIGMET APPLICABLE		n[n][n]	SIGMET APPLICABLE: 3
or HAZARDOUS WX NIL (C) ⁵		HAZARDOUS WX NIL			HAZARDOUS WX NIL

<i>E</i> Indicator for the beginning of Section	<i>Detailed content</i> Indicator to identify the beginning of Section II	<i>Template(s)</i>			<i>Examples</i> SECN II
		<i>Identifier and time</i>	<i>Location</i> SECN II	<i>Content</i>	
Pressure centres and fronts (M)	Pressure centres and fronts and their expected movements and developments	PSYS: [nn]	Nnnnn or Snnnn Wnnnnn or Ennnnn or Nnnnn or Snnnn Wnnnnn or Ennnnn TO Nnnnn or Snnnn Wnnnnn or Ennnnn —	L [n]nnnHPA or H [n]nnnHPA or FRONT or NIL MOV N or NE or E or SE or S or SW or W or NW nnKMH (nnKT) WKN or NC or INTSF	PSYS: 06 L 1004HPA N5130 E01000 MOV NE 25KT WKN
Upper winds and temperatures (M)	Upper winds and upper-air temperatures for at least the following altitudes: 600, 1 500 and 3 000 m (2 000, 5 000 and 10 000 ft)	WIND/T:	Nnnnn or Snnnn Wnnnnn or Ennnnn or	[n]nnnM (or [n]nnnFT) nnn/[n]nnMPS (or nnn/[n]nnKT) PSnn or MSnn	WIND/T: 2000FT N5500 W01000 270/18MPS PS03 5000FT N5500 W01000 250/20MPS MS02 10000FT N5500 W01000 240/22MPS MS11
Cloud (M)	Cloud information not included in Section I giving type, height of base and top above ground level (AGL) or above mean sea level (AMSL)	CLD: [nr/nn]	[N of Nnn or Snn] or [S of Nnn or Snn] or [W of Nnn or Ennn] or [E of Nnn or Ennn] or [nnnnnnnnn] ²	FEW or SCT or BKN or OVC ST or SC or CU or AS or AC or NS [n]nnn/[n]nnnM (or [n]nnn/[n]nnnFT) AGL or AMSL or NIL	CLD: BKN SC 2500/8000 FT AGL
Freezing level (M)	Height indication of 0°C level(s) above ground level (AGL) or above mean sea level (AMSL), if lower than the top of the airspace for which the forecast is supplied	FZLVL		[ABV] nnnnFT AGL or AMSL	FZLVL: 3000 FT AGL
Forecast QNH (M)	Forecast lowest QNH during the period of validity	MNM QNH:		[n]nnn HPA	MNM QNH: 1004 HPA
Sea-surface temperature and state of the sea (O)	Sea-surface temperature and state of the sea if required by regional air navigation agreement	SEA:		Tnn HGT [n]n M	SEA: T15 HGT 5 M
Volcanic eruptions (M)	Name of volcano	VA:		nnnnnnnnn or NIL	VA: ETNA

Notes.—

1. Fictitious location.
2. Free text describing well-known geographical locations should be kept to a minimum.
3. The location of the CB and/or TCU should be specified in addition to any widespread areas of broken or overcast cloud as given in the example.
4. When no elements are included in Section I.

...

Example A5-1. TAF

TAF for YUDO (Donlon/International):*

TAF YUDO 160000151800Z 1606/1624 13005MPS 9000 BKN020 BECMG
1606/1608 SCT015CB BKN020 TEMPO 1608/1612 17006G12MPS 1000 TSRA
SCT010CB BKN020 FM161230 15004MPS 9999 BKN020

Meaning of the forecast:

TAF for Donlon/International* issued on the th of the month at 0000 UTC valid from 0600 UTC to 2400 UTC on the 16th of the month; surface wind direction 130 degrees; wind speed 5 metres per second; visibility 9 kilometres, broken cloud at 600 metres; becoming between 0600 UTC and 0800 UTC on the 16th of the month, scattered cumulonimbus cloud at 450 metres and broken cloud at 600 metres; temporarily between 0800 UTC and 1200 UTC on the 16th of the month surface wind direction 170 degrees; wind speed 6 metres per second gusting to 12 metres per second; visibility 1 000 metres in a thunderstorm with moderate rain, scattered cumulonimbus cloud at 300 metres and broken cloud at 600 metres; from 1230 UTC on the 16th of the month surface wind direction 150 degrees; wind speed 4 metres per second; visibility 10 kilometres or more; and broken cloud at 600 metres.

* Fictitious location

Note.— In this example, the primary units “metre per second” and “metre” were used for wind speed and height of cloud base, respectively. However, in accordance with Annex 5, the corresponding non-SI alternative units “knot” and “foot” may be used instead.

Example A5-2. Cancellation of TAF

Cancellation of TAF for YUDO (Donlon/International):*

TAF AMD YUDO 161500Z 16060/162418 CNL

Meaning of the forecast:

Amended TAF for Donlon/International* issued on the 16th of the month at 1500 UTC cancelling the previously issued TAF valid from 06000 UTC to 241800 UTC on the 16th of the month.

* Fictitious location

Example A5-3. GAMET area forecast

YUCC GAMET VALID 220600/221200 YUDO –
YUCC AMSWELL FIR/2 BLW FL120
SECN I
SFC WSPD: 10/12 16 MPS
SFC VIS: 06/08 3000 M BR N OF N51
SIGWX: 11/12 ISOL TS
SIG CLD: 06/09 OVC 800/1100 FT AGL N OF N51 10/12 ISOL TCU
1200/8000 FT AGL
ICE: MOD FL050/080
TURB: MOD ABV FL090
SIGMETS APPLICABLE: 3, 5
SECN II
PSYS: 06 L 1004 HPAN5130E01000 MOV NE 25 KT WKN
WIND/T: 2000 FT 270/18 MPS PS03 5000FT 250/20 MPS MS02 10000 FT 240/22 MPS MS11
CLD: BKN SC 2500/8000 FT AGL
FZLVL: 3000 FT AGL
MNM QNH: 1004 HPA
SEA: T15 HGT 5M
VA: NIL

Meaning: An area forecast for low-level flights (GAMET) issued for sub-area two of the Amswell* flight information region (identified by YUCC Amswell area control centre) for below flight level 120 by the Donlon/International* aerodrome meteorological office (YUDO); the message is valid from 0600 UTC to 1200 UTC on the 22nd of the month.

Section I:

surface wind speed: between 1000 UTC and 1200 UTC 16 metres per second;
surface visibility: between 0600 UTC and 0800 UTC 3 000 metres north of 51 degrees north (due to mist);
significant weather phenomena: between 1100 UTC and 1200 UTC isolated thunderstorms without hail;
significant clouds: between 0600 UTC and 0900 UTC overcast base 800, top 1 100 feet above ground level north of 51 degrees north; between 1000 UTC and 1200 UTC isolated towering cumulus base 1 200, top 8 000 feet above ground level;
icing: moderate between flight level 050 and 080;
turbulence: moderate above flight level 090 (at least up to flight level 120);
SIGMET messages: 3 and 5 applicable to the validity period and sub-area concerned.

Section II:

pressure systems: at 0600 UTC low pressure of 1 004 hectopascals at 51.5 degrees north 10.0 degrees east, expected to move north-eastwards at 25 knots and to weaken;
winds and temperatures: at 2 000 feet above ground level wind direction 270 degrees; wind speed 18 metres per second, temperature plus 3 degrees Celsius; at 5 000 feet above ground level wind direction 250 degrees; wind speed 20 metres per second, temperature minus 2 degrees Celsius; at 10 000 feet above ground level wind direction 240 degrees; wind speed 22 metres per second, temperature minus 11 degrees Celsius;
clouds: broken stratocumulus, base 2 500 feet, top 8 000 feet above ground level;
freezing level: 3 000 feet above ground level;
minimum QNH: 1 004 hectopascals;
sea: surface temperature 15 degrees Celsius; and state of the sea 5 metres;
volcanic ash: nil.

* Fictitious location

APPENDIX 3.6. TECHNICAL SPECIFICATIONS RELATED TO SIGMET AND AIRMET INFORMATION, AERODROME WARNINGS AND WIND SHEAR WARNINGS AND ALERTS

(See CAR-ANS 3.7.)

Note.— Data type designators to be used in abbreviated headings for SIGMET, AIRMET, tropical cyclone and volcanic ash advisory messages are given in WMO Publication No. 386, Manual on the Global Telecommunication System.

1. SPECIFICATIONS RELATED TO SIGMET INFORMATION

1.1 Format of SIGMET messages

1.1.1 The content and order of elements in a SIGMET message shall be in accordance with the template shown in Table A6-1.

...

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.

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:

...

1.1.6 Meteorological watch offices in a position to do so should issue SIGMET information in digital form, in addition to the issuance of this SIGMET information in abbreviated plain language in accordance with 1.1.1.

...

1.1.9 SIGMET, when issued in graphical format, shall be as specified in Appendix 1.

...

1.2 Dissemination of SIGMET messages

...

1.2.2 SIGMET messages shall be disseminated to international OPMET databanks and the centres designated by regional air navigation agreement for the operation of aeronautical fixed service satellite distribution systems, in accordance with regional air navigation agreement.

...

2. SPECIFICATIONS RELATED TO AIRMET INFORMATION

2.1 Format of AIRMET messages

2.1.1 The content and order of elements in an AIRMET message shall be in accordance with the template shown in Table A6-1.

2.1.2 The sequence number referred to in the template in Table A6-1 shall correspond with the number of AIRMET messages issued for the flight information region concerned. The meteorological watch offices whose area of responsibility encompasses more than one FIR and/or CTA shall issue separate AIRMET messages for each FIR and/or CTA within its area of responsibility.

...

2.1.4 In accordance with the template in Table A3.6-1, only one of the following phenomena shall be included in an AIRMET message, using the abbreviations as indicated below:

At cruising levels below flight level 100 (or below flight level 150 in mountainous areas, or higher, where necessary):

— surface wind speed

- | | |
|---|--------------------------------------|
| - widespread mean surface
wind speed above 15 m/s (30kt) | SFC WSPD
(+ wind speed and units) |
|---|--------------------------------------|

— surface visibility

- | | |
|--|--|
| - widespread areas affected
by reduction of visibility to less than
5 000 m, including the weather
combinations phenomenon causing the
reduction of visibility | SFC VIS
(+ visibility)
(+ one of the following weather phenomena or
thereof : BR, DS, DU, DZ, FC, FG, FU, GR,
GS, HZ, IC, PL, PO, RA, SA, SG, SN, SQ, SS or
VA) |
|--|--|

2.1.6 Meteorological offices shall issue AIRMET information in digital form, in addition to the issuance of this AIRMET information in abbreviated plain language in accordance with 2.1.1.

2.1.7 AIRMET if disseminated in digital form shall be formatted in accordance with a globally interoperable information exchange model and shall use extensible markup language (XML)/geography markup language (GML).

Note.— Guidance on the information exchange model, XML/GML and the metadata profile is provided in the Manual on the Digital Exchange of Aeronautical Meteorological Information (ICAO Doc 10003).

...

2.2 Dissemination of AIRMET messages

...

2.2.2 AIRMET messages shall be transmitted to international operational meteorological databanks and the centres designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services, in accordance with regional air navigation agreement.

...

5. SPECIFICATIONS RELATED TO AERODROME WARNINGS

5.1 Format and dissemination of aerodrome warnings

...

5.1.3 Recommendation.— *In accordance with the template in Table A6-2, aerodrome warnings should relate to the occurrence or expected occurrence of one or more of the following phenomena:*

...

— *tsunami*

...

5.2 Quantitative criteria for aerodrome warnings

When quantitative criteria are necessary for the issue of aerodrome warnings covering, for example, the expected maximum wind speed or the expected total snowfall, the criteria shall be established by agreement between the aerodrome meteorological office and the users of the warnings.

...

6. SPECIFICATIONS RELATED TO WIND SHEAR WARNINGS

...

6.2 Format and dissemination of wind shear warnings and alerts

Note.— *Information on wind shear is also to be included as supplementary information in local routine and special reports and METAR and SPECI in accordance with the templates in Appendix 3.3, Tables A3.3-1 and A3.3-2.*

...

Table A3.6-1.

Template for SIGMET and AIRMET messages

Key: M = inclusion mandatory, part of every message;

C = inclusion conditional, included whenever applicable;

= = a double line indicates that the text following it shall be placed on the subsequent line.

Note.— *The ranges and resolutions for the numerical elements included in SIGMET and AIRMET messages and in special air-reports are shown in Table A3.6-4 of this appendix.*

Element as specified in Chapter 5 and Appendix 6	Detailed content	SIGMET template	AIRMET template	SPECIAL AIR-REPORT ¹	examples
Location indicator of FIR/CTA (M) ¹	ICAO location indicator of the ATS unit serving the FIR or CTA to which the SIGMET/AIRMET refers (M)	nnnn		—	YUCC ³ YUDD ³

Identification (M)	Message identification and sequence number ³	SIGMET [n]n	AIRMET [n]n	ARS	SIGMET 5 SIGMET A3 AIRMET 2 ARS
Validity period (M)	Day-time groups indicating the period of validity in UTC (M)	VALID nnnnnn/nnnnnn		— ⁵	VALID 221215/221600 VALID 101520/101800 VALID 251600/252200
Location indicator of MWO (M)	Location indicator of MWO originating the message with a separating hyphen (M)	nnnn-			YUDO- ³ YUSO- ³
Name of the FIR/CTA (M)	Location indicator and name of the FIR/CTA ⁶ for which the SIGMET/AIRMET is issued or aircraft radiotelephony call sign (M)	nnnn nnnnnnnnnn FIR/[UIR] or nnnn nnnnnnnnnn CTA	nnnn nnnnnnnnnn FIR/[n]	nnnnnn	YUCC AMSWELL FIR ³ YUDD SHANLON FIR/UIR ³ YUCC AMSWELL FIR/ ²³ YUDD SHANLON FIR ³ VA812
IF THE SIGMET OR AIRMET MESSAGE IS TO BE CANCELLED, SEE DETAILS AT THE END OF THE TEMPLATE.					
Phenomenon (M) ⁷	Description of phenomenon causing the issuance of SIGMET/AIRMET (C)	OBSC ⁹ TS[GR] ⁹ EMBD ¹⁰ TS[GR] FRQ ¹¹ TS[GR] SQL ¹² TS[GR] TC nnnnnnnnnn or NN ¹³ SEV TURB ¹⁴ SEV ICE ¹⁵ SEV ICE (FZRA) ¹⁵ SEV MTW ¹⁶ HVV DS HVV SS [VA ERUPTION] [MT] [nnnnnnnnnn] [PSN Nnn[nn] or Snn[nn] Ennn[nn] or Wnnn[nn]] VA CLD RDOACT CLD	SFC WSPD nn[n]MPS (or SFC WSPD nn[n]KT) SFC VIS nnnnM (nn) ¹⁷ ISOL ¹⁸ TS[GR] ⁹ OCNL ¹⁹ TS[GR] MT OBSC BKN CLD nnn/[ABV]nnnnM (or BKN CLD nnn/[ABV]nnnnFT) OVC CLD nnn/[ABV]nnnnM (or OVC CLD nnn/[ABV]nnnnFT) ISOL ¹⁸ CB ²⁰ OCNL ¹⁹ CB FRQ ¹¹ CB ISOL ¹⁸ TCU ²⁰ OCNL ¹⁹ TCU ²⁰ FRQ ¹¹ TCU MOD TURB ¹⁴ MOD ICE ¹⁵ MOD MTW ¹⁶	TS TSGR SEV TURB SEV ICE SEV MTW HVV SS VA CLD [FL nnn/nnn] VA [MT nnnnnnnnnn] MOD TURB MOD ICE	SEV TURB FRQ TS OBSC TSGR EMBD TSGR TC GLORIA TC NN VA ERUPTION MT ASHVAL PSN S15 E073 VA CLD MOD TURB MOD MTW ISOL CB BKN CLD 120/900M (BKN CLD 400/3000FT) OVC CLD 270/ABV3000M (OVC CLD 900/ABV10000FT) SEV ICE RDOACT CLD

Observed or forecast phenomenon (M)	Indication whether the information is observed and expected to continue, or forecast (M)	OBS [AT nnnnZ] FCST [AT nnnnZ]	OBS AT nnnnZ	OBS AT 1210Z OBS FCST AT 1815Z
Location (C) ²¹	Location (referring to latitude and longitude (in degrees and minutes))	Nnn[nn] Wnnn[nn] or Nnn[nn] Ennn[nn] or Snn[nn] Wnnn[nn] or Snn[nn] Ennn[nn] or N OF Nnn[nn] or S OF Nnn[nn] or N OF Snn[nn] or S OF Snn[nn] or [AND] W OF Wnnn[nn] or E OF Wnnn[nn] or W OF Ennn[nn] or E OF Ennn[nn] or [N OF, NE OF, E OF, SE OF, S OF, SW OF, W OF, NW OF] [LINE] Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] or WI ²⁷ 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 ENTIRE FIR ²⁴ or ENTIRE CTA ²⁴	NnnnnWnnnnn or NnnnnEnnnnn or SnnnnWnnnnn or SnnnnEnnnnn	S OF N54 N OF N50 N2020 W07005 N2706 W07306 N48 E010 N OF N1515 AND W OF E13530 W OF E1554 N OF LINE S2520 W11510 – S2520 W12010 WI N6030 E02550 – N6055 E02500 – N6050 E02630 ENTIRE FIR ENTIRE CTA

Element	Detailed content	SIGMET template	AIRMET template	SIGMET message examples	AIRMET message
Level (C) ¹⁹	Flight level or altitude and extent (C) ²²	{SFC/}FLnnn or {SFC/}nnnnM (or {SFC/}nnnnFT) or FLnnn/nnn or TOP FLnnn or [TOP] ABV FLnnn or ²³ CB TOP [ABV] FLnnn WI nnnKM OF CENTRE (or CB TOP [ABV] FLnnn WI nnnNM OF CENTRE) or CB TOP [BLW] FLnnn WI nnnKM OF CENTRE (or CB TOP [BLW] FLnnn WI nnnNM OF CENTRE) or ²⁴ FLnnn/nnn [APRX nnnKM BY nnnKM] [nnKM WID LINE25 BTN (nnNM WID LINE BTN)] [Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] (or FLnnn/nnn [APRX nnnNM BY nnnNM] [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]]])		FLnnn or nnnnM (or nnnnFT)	FL180 FL050/080 TOP FL390 SFC/FL070 TOP ABV FL100 FL310/450 CB TOP FL500 WI 270KM OF CENTRE (CB TOP FL500 WI 150NM OF CENTRE) FL310/350 APRX 220KM BY 35KM FL390

Movement or expected movement (C) ²¹	Movement or expected movement (direction and speed) with reference to one of the sixteen points of compass, or stationary (C)	MOV N [nnKMH] or MOV NNE [nnKMH] or MOV NE [nnKMH] or MOV ENE [nnKMH] or MOV E [nnKMH] or MOV ESE [nnKMH] or MOV SE [nnKMH] or MOV SSE [nnKMH] or MOV S [nnKMH] or MOV SSW [nnKMH] or MOV SW [nnKMH] or MOV WSW [nnKMH] or MOV W [nnKMH] or MOV WNW [nnKMH] or MOV NW [nnKMH] or MOV NNW [nnKMH] (or MOV N [nnKT] or MOV NNE [nnKT] or MOV NE [nnKT] or MOV ENE [nnKT] or MOV E [nnKT] or MOV ESE [nnKT] or MOV SE [nnKT] or MOV SSE [nnKT] or MOV S [nnKT] or MOV SSW [nnKT] or MOV SW [nnKT] or MOV WSW [nnKT] or MOV W [nnKT] or MOV WNW [nnKT] or MOV NW [nnKT] or MOV NNW [nnKT]) or STNR	—	MOV E 40KMH (MOV E 20KT) MOV SE STNR	
Changes in intensity (C) ²¹	Expected changes in intensity (C)	INTSF or WKN or NC	—	WKN	
Forecast position (C) ^{21, 22, 31}	Forecast position of volcanic ash cloud or the centre of the TC or other hazardous phenomena ²⁹ at the end of the validity period of the SIGMET message (C)		—	FCST AT 2200Z	—

Forecast position (C) ²¹ . 22.31	Forecast position of volcanic ash cloud or the centre of the TC or other hazardous phenomena ²⁹ at the end of the validity period of the SIGMET message (C)	FCST nnnnZ TC CENTRE Nnn[nn] or Snn[nn] Wnnn[nn] Wnnn[nn] or Ennn[nn] or FCST nnnnZ VA CLD APRX [nnKM WID LINE ²⁵ BTN (nnNM WID LINE BTN)] Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] - Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] [- Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] [- Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] [AND] ²⁵ or FCST nnnnZ ENTIRE FIR ²⁴ or FCST nnnnZ ENTIRE CTA ²⁴ or FCST nnnnZ NO VA EXP or ²⁹ [FCST nnnnZ Nnn[nn] Wnnn[nn] or Nnn[nn] Ennn[nn] or Snn[nn] Wnnn[nn] or Snn[nn] Ennn[nn] or N OF Nnn[nn] or S OF Nnn[nn] or N OF Snn[nn] or S OF Snn[nn] [AND] W OF Wnnn[nn] or E OF Wnnn[nn] or W OF Ennn[nn] or E OF Ennn[nn] or [N OF, NE OF, E OF, SE OF, S OF, SW OF, W OF, NW OF] [LINE] Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] - N[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] or W ²⁷ 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]]	-	-	FCST 2200Z TC CENTRE N2740 W07345 FCST 1700Z VA CLD APRX S15 E075 - S15 E081 - S17 E083 - S18 E079 - S15 E075 FCST 0500Z ENTIRE FIR FCST 0500Z ENTIRE CTA FCST 0500Z NO VA EXP
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OR

Cancellation of SIGMET/ AIRMET (C) ³⁰	Cancellation of SIGMET/AIRMET referring to its identification	CNL SIGMET [nn]n nnnnnn/nnnnnn or CNL SIGMET [nn]n nnnnnn/nnnnnn [VA MOV TO nnnn FIR] ²⁴	CNL AIRMET [n][n]n nnnnnn/nnnnnn	CNL SIGMET 2 101200/101600 ³⁰ CNL SIGMET 3 251030/251430 VA MOV TO YUDO FIR ³⁰ CNL AIRMET 151520/151800 ³⁰	CNL AIRMET 05 151520/151800
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...

Notes.—

1. No wind and temperature to be uplinked to other aircraft in flight in accordance with 3.2.
2. See 4.1.
3. Fictitious location.
4. In accordance with 1.1.3 and 2.1.2.
5. See 3.1.
6. See 2.1.3.
7. In accordance with 1.1.4 and 2.1.4.
8. In accordance with 4.2.1 a).
9. In accordance with 4.2.4.
10. In accordance with 4.2.1 b).
11. In accordance with 4.2.2.
12. In accordance with 4.2.3.
13. Used for unnamed tropical cyclones.
14. In accordance with 4.2.5 and 4.2.6.
15. In accordance with 4.2.7.
16. In accordance with 4.2.8.
17. In accordance with 2.1.4.
18. In accordance with 4.2.1 c).
19. In accordance with 4.2.1 d).
20. The use of cumulonimbus, CB, (CB) and towering cumulus, TCU, (TCU) is restricted to AIRMETs in accordance with 2.1.4.
21. In the case of the same phenomenon volcanic ash cloud or tropical cyclone covering more than one area within the FIR, these elements can be repeated, as necessary.
22. Only for SIGMET messages for volcanic ash cloud and tropical cyclones.
23. Only for SIGMET messages for tropical cyclones.
- 24.22. Only for SIGMET messages for volcanic ash.
25. A straight line is to be used 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.
26. To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
27. The number of coordinates should be kept to a minimum and should not normally exceed seven.
28. Optionally can be used in addition to Movement or Expected Movement.
29. To be used for hazardous phenomena other than volcanic ash cloud and tropical cyclones.
30. End of the message (as the SIGMET/AIRMET message is being cancelled).
31. The levels of the phenomena remain fixed throughout the forecast period.

Note. — In accordance with 3.1.1.5 and 3.2.1.5, severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones should not be included.

Table A3.6-1. Template for—SIGMET and AIRMET messages and special air-reports (uplink)

Key: M = inclusion mandatory, part of every message;
C = inclusion conditional, included whenever applicable;
== a double line indicates that the text following it shall be placed on the subsequent line.

Note.— The ranges and resolutions for the numerical elements included in in special air-reports are shown in Table A6-4 of this appendix.

Element	Detailed content	Template(s)	Example
Location indicator of the aerodrome (M)	Location indicator of the aerodrome	nnnn	YUCC ¹
Identification of the type of message (M)	Type of message and sequence number	WS WRNG [n]n	WS WRNG 1
Time of origin and validity period (M)	Day and time of issue and, where applicable, validity period in UTC	nnnnn [VALID TL nnnnnn] or [VALID nnnnnnnnnn]	211230 VALID TL 211330 221200 VALID 221215/221315
IF THE WIND SHEAR WARNING IS TO BE CANCELLED, SEE DETAILS AT THE END OF THE TEMPLATE.			
Phenomenon (M)	Identification of the phenomenon and its location	[MOD] or [SEV] WS IN APCH or [MOD] or [SEV] WS (APCH) RWYnnn or [MOD] or [SEV] WS IN CLIMB-OUT or [MOD] or [SEV] WS CLIMB-OUT RWYnnn or MBST IN APCH or MBST (APCH) RWYnnn or MBST IN CLIMB-OUT or MBST CLIMB-OUT RWYnnn	WS APCH RWY12 MOD WS RWY34 WS IN CLIMB-OUT MBST APCH RWY26 MBST IN CLIMB-OUT
Observed, reported or forecast phenomenon (M)	Identification whether the phenomenon is observed or reported and expected to continue or forecast	REP AT nnnn nnnnnnnn or OBS [AT nnnn] or FCST	REP AT 1510 B747 OBS AT 1205 FCST
Details of the phenomenon (C) ²	Description of phenomenon causing the issuance of the wind shear warning	SFC WIND: nnn/nnMPS (or nnn/nnKT) nnnM (nnnFT)-WIND: nnn/nnMPS (or nnn/nnKT) or nnnM/H (or nnKT) LOSS nnnM (or nnNM) FNA RWYnn or nnnM/H (or nnKT) GAIN nnnM (or nnNM) FNA RWYnn	SFC WIND: 320/5MPS 60M-WIND: 360/13MPS (SFC WIND: 320/10KT 200FT-WIND: 360/26KT) 60M/H LOSS 4KM FNA RWY13 (30KT LOSS 2NM FNA RWY13)
OR			
Cancellation of wind shear warning ³	Cancellation of wind shear warning referring to its identification	CNL WS WRNG [n]n nnnnnn/nnnnn	CNL WS WRNG 1 211230/211330 ⁴

Notes.—

1. No wind and temperature to be uplinked to other aircraft in flight in accordance with 3.2.
2. See 4.1
3. Fictitious location.
4. In accordance with 1.1.3 and 2.1.2.
5. See 3.1.
6. See 2.1.3.
7. In accordance with 1.1.4 and 2.1.4.
8. In accordance with 4.2.1 a).
9. In accordance with 4.2.4.
10. In accordance with 4.2.1 b).
11. In accordance with 4.2.2.
12. In accordance with 4.2.3.
13. Used for unnamed tropical cyclones.
14. In accordance with 4.2.5 and 4.2.6.
15. In accordance with 4.2.7.
16. In accordance with 4.2.8.
17. In accordance with 2.1.4.
18. In accordance with 4.2.1 c).

- 19 In accordance with 4.2.1 d).
20. The use of cumulonimbus, CB, and towering cumulus, TCU, is restricted to AIRMETs in accordance with 2.1.4.
21. In the case of the same phenomenon covering more than one area within the FIR, these elements can be repeated, as necessary.
22. Only for SIGMET messages for volcanic ash cloud and tropical cyclones.
23. Only for SIGMET messages for tropical cyclones.
24. Only for SIGMET messages for volcanic ash.
25. 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.
26. To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned..
27. The number of coordinates should be kept to a minimum and should not normally exceed seven.
28. Optionally can be used in addition to Movement or Expected Movement.
29. To be used for hazardous phenomena other than volcanic ash cloud and tropical cyclones.
30. End of the message (as the SIGMET/AIRMET message is being cancelled).
31. The levels of the phenomena remain fixed throughout the forecast period.

Note.— In accordance with 1.1.5 and 2.1.5, severe or moderate turbulence (SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones should not be included.

...

**Example A6-1.
SIGMET and AIRMET message
and the corresponding cancellations**

SIGMET

YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR OBSC TS FCST
S OF N54 AND E OF W012 TOP FL390 MOV E WKN FCST 1600Z S OF N54 AND E OF
W010

AIRMET

YUDD AIRMET 1 VALID 151520/151800 YUSO –
YUDD SHANLON FIR ISOL TS OBS
N OF S50 TOP ABV FL100 STNR WKN

Cancellation of SIGMET

YUDD SIGMET 3 VALID 101345/101600 YUSO –
YUDD SHANLON FIR/UIR CNL SIGMET 2 101200/101600

Cancellation of AIRMET

YUDD AIRMET 2 VALID 151650/151800 YUSO –
YUDD SHANLON FIR CNL AIRMET 1 151520/151800

Example A6-2. SIGMET message for tropical cyclone

YUCC SIGMET 3 VALID 251600/252200 YUDO –
YUCC AMSWELL FIR TC GLORIA OBS AT 1600Z N2706 W07306 CB TOP FL500 WI
150NM OF CENTRE MOV NW 10KT NC FCST 2200Z TC CENTRE N2740 W07345

Meaning:

The third SIGMET message issued for the AMSWELL* flight information region (identified by YUCC Amswell area control centre) by the Donlon/International* meteorological watch office (YUDO) since 0001 UTC; the message is valid from 1600 UTC to 2200 UTC on the 25th of the month; tropical cyclone Gloria was observed at 1600 UTC at 27 degrees 6 minutes north and 73 degrees 6 minutes west with cumulonimbus top at flight level 500 within 150 nautical miles of the centre; the tropical cyclone is expected to move northwestwards at 10 knots and not to undergo any changes in intensity; the forecast position of the centre of the tropical cyclone at 2200 UTC is forecast to be at 27 degrees 40 minutes north and 73 degrees 45 minutes west.

* Fictitious location

Example A6-3. SIGMET message for volcanic ash

YUDD SIGMET 2 VALID 211100/211700 YUSO –
YUDD SHANLON FIR/UIR VA ERUPTION MT ASHVAL PSN S1500 E07348 VA CLD
OBS AT 1100Z APRX 220KM BY 35KM S1500 E07348 – S1530 E07642 FL310/450 MOV
SE 65KMH INTSF FCST 1700Z VA CLD APRX S1506 E07500 – S1518 E08112 – S1712
E08330 – S1824 E07836

Meaning:

The second SIGMET message issued for the SHANLON* flight information region (identified by YUDD Shanlon area control centre/upper flight information region) by the Shanlon/International* meteorological watch office (YUSO) since 0001 UTC; the message is valid from 1100 UTC to 1700 UTC on the 21st of the month; volcanic ash eruption of Mount Ashval* located at 15 degrees south and 73 degrees 48 minutes east; volcanic ash cloud observed at 1100 UTC in an approximate area of 220 km by 35 km between 15 degrees south and 73 degrees 48 minutes east, and 15 degrees 30 minutes south and 76 degrees 42 minutes east; between flight levels 310 and 450, the volcanic ash cloud is expected to move southeastwards at 65 kilometres per hour; at 1700 UTC the volcanic ash cloud is forecast to be located approximately in an area bounded by the following points: 15 degrees 6 minutes south and 75 degrees east, 15 degrees 18 minutes south and 81 degrees 12 minutes east, 17 degrees 12 minutes south and 83 degrees 30 minutes east, and 18 degrees 24 minutes south and 78 degrees 36 minutes east.

* Fictitious location

Example A6-4. SIGMET message for radioactive cloud

YUCC SIGMET 2 VALID 201200/201600 YUDO –
YUCC AMSWELL FIR RDOACT CLD OBS AT 1155Z WI S5000 W14000 – S5000
W13800 – S5200 W13800 – S5200 W14000 – S5000 W14000 SFC/FL100 STNR WKN

Meaning:

The second SIGMET message issued for the AMSWELL* flight information region (identified by YUCC Amswell area control centre) by the Donlon/International* meteorological watch office (YUDO) since 0001 UTC; the message is valid from 1200 UTC to 1600 UTC on the 20th of the month; radioactive cloud was observed at 1155 UTC within an area bounded by 50 degrees 0 minutes south 140 degrees 0 minutes west to 50 degrees 0 minutes south 138 degrees 0 minutes west to 52 degrees 0 minutes south 138 degrees 0 minutes west to 52 degrees 0 minutes south 140 degrees 0 minutes west to 50 degrees 0 minutes south 140 degrees 0 minutes west and between the surface and flight level 100; the radioactive cloud is expected to remain stationary and to weaken in intensity;

* Fictitious location

Example A6-5. SIGMET message for severe turbulence

YUCC SIGMET 5 VALID 221215/221600 YUDO –
YUCC AMSWELL FIR SEV TURB OBS AT 1210Z N2020 W07005 FL250 MOV E
40KMH WKN FCST 1600Z S OF N2020 E OF W06950

Meaning:

The fifth SIGMET message issued for the AMSWELL* flight information region (identified by YUCC Amswell area control centre) by the Donlon/International* meteorological watch office (YUDO) since 0001 UTC; the message is valid from 1215 UTC to 1600 UTC on the 22nd of the month; severe turbulence was observed at 1210 UTC 20 degrees 20 minutes north and 70 degrees 5 minutes west at flight level 250; the turbulence is expected to move eastwards at 40 kilometres per hour and to weaken in intensity; forecast position at 1600 UTC south of 20 degrees 20 minutes north and east of 69 degrees 50 minutes west.

* Fictitious location

APPENDIX 8. TECHNICAL SPECIFICATIONS RELATED TO SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS

...

1. MEANS OF SUPPLY AND FORMAT OF METEOROLOGICAL INFORMATION

1.1 Meteorological information shall be supplied to operators and flight crew members by one or more of the following, as agreed between the meteorological authority and operator concerned, and with the order shown below not implying priorities:

...

4. SPECIFICATIONS RELATED TO FLIGHT DOCUMENTATION

4.1 Presentation of information

...

4.1.2 The flight documentation related to concatenated route-specific upper wind and upper-air temperature forecasts shall be provided when agreed between the meteorological authority and operator concerned.

...

4.2 Charts in flight documentation

4.2.1 Characteristics of charts

4.2.1.1 Charts included in flight documentation shall have a high standard of clarity and legibility and shall have the following physical characteristics:

a) for convenience, the largest size of charts shall be about 42 × 30 cm (standard size A3) and the smallest size shall be about 21 × 30 cm (standard size A4). The choice between these sizes shall depend on the route lengths and the amount of detail that needs to be given in the charts as agreed between meteorological authorities and users;

...

5. SPECIFICATIONS RELATED TO AUTOMATED PRE-FLIGHT INFORMATION SYSTEMS FOR BRIEFING, CONSULTATION, FLIGHT PLANNING AND FLIGHT DOCUMENTATION

5.1 Access to the systems

...

5.2 Detailed specifications of the systems

Automated pre-flight information systems for the supply of meteorological information for self-briefing, pre-flight planning and flight documentation shall:

...

c) use access and interrogation procedures based on abbreviated plain language and, as appropriate, ICAO location indicators, and aeronautical meteorological code data-type designators prescribed by the WMO, or based on a menu-driven user interface, or other appropriate mechanisms as agreed between the meteorological authority and operators concerned; and

...

APPENDIX 3.9. TECHNICAL SPECIFICATIONS RELATED TO INFORMATION FOR AIR TRAFFIC SERVICES, SEARCH AND RESCUE SERVICES AND AERONAUTICAL INFORMATION SERVICES

1. INFORMATION TO BE PROVIDED FOR AIR TRAFFIC SERVICES UNITS

1.1 List of information for the aerodrome control tower

...

- a) local routine and special reports, METAR and SPECI, TAF and trend forecasts and amendments thereto, for the aerodrome concerned;

...

1.5 Format of information

...

1.5.1 Local routine and special reports, METAR and SPECI, TAF and trend forecasts, SIGMET and AIRMET information, upper wind and upper-air temperature forecasts and amendments thereto shall be supplied to air traffic services units in the form in which they are prepared, disseminated to other aerodrome meteorological offices or meteorological watch offices, or received from other aerodrome meteorological offices or meteorological watch offices, unless otherwise agreed locally.

1.5.2 When computer-processed upper-air data for grid points are made available to air traffic services units in digital form for use by air traffic services computers, the contents, format and transmission arrangements shall be as agreed between the meteorological authority and the appropriate ATS authority. The data shall normally be supplied as soon as is practicable after the processing of the forecasts has been completed.

...

APPENDIX 3.10. TECHNICAL SPECIFICATIONS RELATED TO REQUIREMENTS FOR AND USE OF COMMUNICATIONS

(See CAR-ANS 3.11.)

1. SPECIFIC REQUIREMENTS FOR COMMUNICATIONS

1.1 Required transit times of meteorological information

Recommendation.— Unless otherwise determined by regional air navigation agreement AFTN messages and bulletins containing operational meteorological information should achieve transit times of less than the following:

SIGMET and AIRMET messages, volcanic ash and tropical cyclone advisory information and special air-reports 5 minutes

Abbreviated plain-language amendments to significant weather and upper-air forecasts 5 minutes

Amended TAF and corrections to TAF 5 minutes

METAR	}	0–900 km	
Trend Forecast		(500 NM)	5
TAF		minutes	
	}	more than 900 km	
SPECI		(500 NM)	10
		minutes	

1.2 Grid point data for ATS and operators

1.2.1 When upper-air data for grid points in digital form are made available for use by air traffic services computers, the transmission arrangements shall be as agreed between the meteorological authority and the appropriate ATS authority.

1.2.2 When upper-air data for grid points in digital form are made available to operators for flight planning by computer, the transmission arrangements shall be as agreed among the world area forecast centre concerned, the meteorological authority and the operators.

...

ATTACHMENT 3.A. OPERATIONALLY DESIRABLE ACCURACY OF MEASUREMENT OR OBSERVATION

Note.— The guidance contained in this table relates to Chapter 3.4 — Meteorological observations and reports.

ATTACHMENT 3.B. OPERATIONALLY DESIRABLE ACCURACY OF FORECASTS

Note 1.— The guidance contained in this table relates to Chapter 3.6 — Forecasts.

ATTACHMENT 3.C. SELECTED CRITERIA APPLICABLE TO AERODROME REPORTS

(The guidance in this table relates to Chapter 4 and Appendix 3.)

	<i>Surface wind</i>			
Specifications	Directional variations ³ ≥ 60° and < 180°		≥ 180°	Speed variations ³
	Mean speed			Exceeding the mean speed by ≥ 5 m/s (10 kt)
	< 1.5 m/s (3 kt)	≥ 1.5 m/s (3 kt)		
Local routine and special report	2/10 min VRB + 2 extreme directions ⁵	2/10 min mean + 2 extreme directions ⁵	2 min VRB (no extremes) ⁶	10 min Minimum and maximum speed
METAR/ SPECI	10 min VRB (no extremes)	10 min mean + 2 extreme directions	10 min VRB (no extremes)	10 min Maximum speed ⁵
Relevant reporting scales for all messages	Direction in three figures rounded off to the nearest 10 degrees (degrees 1 – 4 down, degrees 5 – 9 up)			Speed in 1 m/s or 1 kt Speed < 0.5 m/s (1 kt) indicated as CALM

— END —

...

CHAPTER 3.5. AIRCRAFT OBSERVATIONS AND REPORTS

...

3.5.5 Special aircraft observations

Special

Special observations shall be made by all aircraft whenever the following conditions are encountered or observed:

...

h) pre-eruption volcanic activity or a volcanic eruption

...

4. OBSERVING AND REPORTING OF METEOROLOGICAL ELEMENTS

...

4.8 Supplementary information

...

4.8.1.5 In METAR and SPECI, the following information shall be included in the supplementary information, in accordance with regional air navigation agreement:

a) information on sea-surface temperature, and the state of the sea or the significant wave height, from aeronautical meteorological stations established on offshore structures in support of helicopter operations;

b) information on the state of the runway provided by the appropriate airport authority.

Note 1.— The state of the sea is specified in WMO Publication No. 306, the Manual on Codes Volume I.1, Part A — Alphanumeric Codes, Code Table 3700.

Note 2.— The state of the runway is specified in WMO Publication No. 306, Manual on Codes, Volume I.1, Part A — Alphanumeric Codes, Code Tables 0366, 0519, 0919 and 1079.

...

Table A3-2. Template for METAR and SPECI

Key: M = inclusion mandatory, part of every message;

C = inclusion conditional, dependent on meteorological conditions or method of observation;

O = inclusion optional.

Note 1.— The ranges and resolutions for the numerical elements included in METAR and SPECI are shown in Table A3-5 of this appendix.

Note 2.— The explanations for the abbreviations can be found in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400)

Table A3-2. Template for METAR and SPECI

<i>Element as specified in Chapter 4</i>	<i>Detailed content</i>	<i>Template(s)</i>		<i>Examples</i>
...				
Supplementary information (C)	Recent weather (C) ^{2, 9}	REFZDZ or REFZRA or REDZ or RE[SH]RA or RERASN or RE[SH]SN or RESG or RESHGR or RESHGS or REBLN or RESS or REDS or RETSRA or RETSSN or RETSGR or RETSGS or RETS or REFC or REVA or REPL or REUP ¹² or REFZUP ¹² or RETSUP ¹² or RESHUP ¹²		REFZRA RETSRA
	Wind shear (C) ²	WS Rnn[L] or WS Rnn[C] or WS Rnn[R] or WS ALL RWY		WS R03 WS ALL RWY WS R18C
	Sea-surface temperature and state of the sea or significant wave height (C) ¹⁵	W[M]nn/Sn or W[M]nn/Hn[n][n]		W15/S2 W12/H75
	State of the runway (C) ¹⁶	Runway designator (M)	Rnn[L]/ or Rnn[C]/ or Rnn[R]/	
Runway deposits (M)		n or /	CLRDW	
Extent of runway contamination (M)		n or /		
Depth of deposit (M)		nn or //		
Friction coefficient or braking action (M)		nn or //		
Trend forecast (O) ¹⁶	Change indicator (M) ¹⁷	NOSIG	BECMG or TEMPO	NOSIG BECMG FEW020
...				

Notes.—

...

15. To be included in accordance with 4.8.1.5 a).

16. To be included in accordance with 4.8.1.5 b).

17. To be included in accordance with Chapter 6, 6.3.2.

18. Number of change indicators to be kept to a minimum in accordance with Appendix 5, 2.2.1, normally not exceeding three groups.

...

Table A3-5. Ranges and resolutions for the numerical elements included in METAR and SPECI

<i>Element as specified in Chapter 4</i>		<i>Range</i>	<i>Resolution</i>
State of the runway	Runway designator: (no units)	01 36,88,99	1
	Runway deposits: (no units)	0 9	1
	Extent of runway contamination: (no units)	1, 2, 5, 9	-
	Depth of deposit: (no units)	00 90,92 99	1
	Friction coefficient/braking action: (no units)	00 95; 99	1

— END —

AMENDED REGULATIONS:

...

CAR-ANS Part 3

AMENDMENT 77A

...

CHAPTER 3.1. DEFINITIONS

...

3.1.1 Definitions

...

Automatic dependent surveillance — contract (ADS-C). A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.

Note.— The abbreviated term “ADS contract” is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.

...

Meteorological watch office. An office designated to provide information concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations within its specified area of responsibility.

...

SIGMET information. Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations.

...

State volcano observatory. A volcano observatory, designated by regional air navigation agreement, to monitor active or potentially active volcanoes within a State and to provide information on volcanic activity to its associated area control centre/flight information centre, meteorological watch office and volcanic ash advisory centre.

...

World area forecast centre (WAFc). A meteorological centre designated to prepare and issue significant weather forecasts and upper-air forecasts in digital form on a global basis direct to States using the aeronautical fixed service Internet-based services.

CHAPTER 3.2. GENERAL PROVISIONS

...

3.2.1 Objective, determination and provision of meteorological service

...

3.2.1.3 The Civil Aviation Authority of the Philippines (CAAP) shall determine the meteorological service which it will provide to meet the needs of international air navigation. This determination shall be made in accordance with the provisions of this Civil Aviation Regulations-Air Navigation Services (CAR-ANS) Part 3 and in accordance with regional air navigation agreements; it shall include the determination of the meteorological service to be provided for

international air navigation over international waters and other areas which lie outside the territory of the State concerned.

...

3.2.2 Supply, use, quality management and interpretation of meteorological information

...

3.2.2.6 Demonstration of compliance of the quality system applied shall be by audit. If non-conformity of the system is identified, action shall be initiated to determine and correct the cause. All audit observations shall be evidence-based and properly documented.

3.2.2.7 Owing to the variability of meteorological elements in space and time, to limitations of observing techniques and to limitations caused by the definitions of some of the elements, the specific value of any of the elements given in a report shall be understood by the recipient to be the best approximation to the actual conditions at the time of observation.

Note.— Guidance on the operationally desirable accuracy of measurement or observation is given in Attachment A.

3.2.2.8 Owing to the variability of meteorological elements in space and time, to limitations of forecasting techniques and to limitations caused by the definitions of some of the elements, the specific value of any of the elements given in a forecast shall be understood by the recipient to be the most probable value which the element is likely to assume during the period of the forecast. Similarly, when the time of occurrence or change of an element is given in a forecast, this time shall be understood to be the most probable time.

Note.— Guidance on the operationally desirable accuracy of forecasts is given in Attachment B.

3.2.2.9 The meteorological information supplied to the users listed in 3.2.1.2 shall be consistent with Human Factors principles and shall be forms which require a minimum of interpretation by these users, as specified in the following chapters.

...

3.2.3 Notifications required from operators

3.2.3.1 An operator requiring meteorological service or changes in existing meteorological service shall notify, sufficiently in advance, the meteorological authority or the aerodrome meteorological office concerned. The minimum amount of advance notice required shall be as agreed between the meteorological authority or aerodrome meteorological office and the operator concerned.

...

3.2.3.4 The notification to the aerodrome meteorological office of individual flights shall contain the following information except that, in the case of scheduled flights, the requirement for some or all of this information may be waived as agreed between the aerodrome meteorological office and the operator concerned:

...

CHAPTER 3.3. WORLD AREA FORECAST SYSTEM AND METEOROLOGICAL OFFICES

...

3.3.4 Meteorological watch offices

3.3.4.1 The CAAP, having accepted the responsibility for providing air traffic services within a flight information region or a control area, shall arrange with PAGASA for the establishment and/or operation of one or more meteorological watch offices.

...

3.3.4.2 A meteorological watch office shall:

...

Note.— The information is provided by WMO regional specialized meteorological centres (RSMC) for the provision of transport model products for radiological environmental emergency response, at the request of the delegated authority of the State in which the radioactive material was released into the atmosphere, or the International Atomic Energy Agency (IAEA). The information is sent by the RSMC to a single contact point of the national meteorological service in each State. This contact point has the responsibility of redistributing the RSMC products within the State concerned. Furthermore, the information is provided by IAEA to RSMC co-located with VAAC London (designated as the focal point) which in turn notifies the ACCS/FICs concerned about the release.

...

3.3.5 Volcanic ash advisory centres

3.3.5.1 The Philippines, having accepted, by regional air navigation agreement, the responsibility for providing volcanic ash advisory from associated VAAC within the framework of the international airways volcano watch.

The Philippines shall respond to a notification that a volcano has erupted, or is expected to erupt or volcanic ash is reported in its area of responsibility, and shall:

a) monitor relevant geostationary and polar-orbiting satellite data and, where available, relevant ground-based and airborne data, to detect the existence and extent of volcanic ash in the atmosphere in the area concerned;

Note.— Relevant ground-based and airborne data includes data derived from Doppler weather radar, ceilometers, lidar and passive infrared sensors.

...

b) issue advisory information regarding the extent and forecast movement of the volcanic ash “cloud” to:

...

c) world area forecast centres, international OPMET databanks, international NOTAM offices, and centres designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services; and

...

d) issue updated advisory information to the meteorological watch offices, area control centres, flight information centres and VAACs referred to in c), as necessary, but at least every six hours until such time as:

1) the volcanic ash “cloud” is no longer identifiable from satellite data and, where available, ground-based and airborne data;

2) no further reports of volcanic ash are received from the area; and

3) no further eruptions of the volcano are reported.

...

3.3.6 Philippine volcano observatories

The Philippines with active or potentially active volcanoes shall maintain volcano observatories through PHIVOLCS to monitor these volcanoes and when observing:

...

shall send this information as quickly as practicable to their associated ACC/ FIC, MWO and VAAC.

...

3.3.7 Tropical cyclone advisory centres

...

3.3.7.3 PAGASA shall issue advisory information concerning the position of the cyclone centre, its direction and speed of movement, central pressure and maximum surface wind near the centre, in abbreviated plain language to:

...

3) world area forecast centres, international OPMET databanks, and centres designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services.

...

CHAPTER 3.4 METEOROLOGICAL OBSERVATIONS AND REPORTS

Note.— Technical specifications and detailed criteria related to this chapter are given in Appendix 3.3.

3.4.1 Aeronautical meteorological stations and observations

...

3.4.3 Routine observations and reports

3.4.3.1 At aerodromes, routine observations shall be made throughout the 24 hours of each day, unless otherwise agreed between the meteorological authority, the appropriate ATS authority and the operator concerned. Such observations shall be made at intervals of one hour or, if so determined by regional air navigation agreement, at intervals of one half-hour. At other aeronautical meteorological stations, such observations shall be made as determined by the meteorological authority taking into account the requirements of air traffic services units and aircraft operations.

...

3.4.5 Contents of reports

3.4.5.1 Local routine reports, local special reports, and METAR and SPECI shall contain the following elements in the order indicated:

...

3.4.5.2 In addition to elements listed under 3.4.5.1 a) to k), local routine reports, local special reports, METAR and SPECI shall contain supplementary information to be placed after element k).

3.4.6 Observing and reporting meteorological elements

...

3.4.6.6 Air temperature and dew-point temperature

...

3.4.6.6.2 Observations of air temperature and dew-point temperature for local routine reports, local special reports, METAR and SPECI shall be representative of the whole runway complex.

CHAPTER 3.5. AIRCRAFT OBSERVATIONS AND REPORTS

...

3.5.3 Routine aircraft observations — designation

3.5.3.1 When air-ground data link is used and automatic dependent surveillance — contract (ADS-C) or secondary surveillance radar (SSR) Mode S is being applied, automated routine observations shall be made every 15 minutes during the en-route phase and every 30 seconds during the climb-out phase for the first 10 minutes of the flight.

...

3.5.3.3 In the case of air routes with high-density air traffic (e.g. organized tracks), an aircraft from among the aircraft operating at each flight level shall be designated, at approximately hourly intervals, to make routine observations in accordance with 3.5.3.1 or 3.5.3.2 as appropriate. The designation procedures shall be in accordance with regional air navigation agreement.

3.5.8 Relay of air-reports by air traffic services units

The meteorological authority concerned shall make arrangements with the appropriate ATS authority to ensure that, on receipt by the air traffic services units of:

...

b) routine and special air-reports by data link communications, the ATS units relay them without delay to their associated meteorological watch office, the WAFCs, and the centres designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services.

CHAPTER 3.6. FORECASTS

Note.— Technical specifications and detailed criteria related to this chapter are given in Appendix 3.5.

3.6.1 Use of forecasts

3.6.1.1 The issue of a new forecast by an aerodrome meteorological office, such as a routine aerodrome forecast, shall be understood to cancel automatically any forecast of the same type previously issued for the same place and for the same period of validity or part thereof.

3.6.2 Aerodrome forecasts

3.6.2.1 An aerodrome forecast shall be prepared, in accordance with regional air navigation agreement, by the aerodrome meteorological office designated by the meteorological authority concerned.

3.6.3 Landing forecasts

...

3.6.3.3 A trend forecast shall consist of a concise statement of the expected significant changes in the meteorological conditions at that aerodrome to be appended to a local routine report, a local special report, METAR or SPECI. The period of validity of a trend forecast shall be 2 hours from the time of the report which forms part of the landing forecast.

3.6.4 Forecasts for take-off

3.6.4.1 A forecast for take-off shall be prepared by the aerodrome meteorological office designated by the meteorological authority concerned as agreed between the meteorological authority and operators concerned.

3.6.5 Area forecasts for low-level flights

...

3.6.5.2 When the density of traffic operating below flight level 100 warrants the issuance of AIRMET information in accordance with 7.2.1, area forecasts for such operations shall be prepared in a format as agreed between the meteorological authorities in the States concerned. When abbreviated plain language is used, the forecast shall be prepared as a GAMET area forecast, employing approved ICAO abbreviations and numerical values; when chart form is used, the forecast shall be prepared as a combination of forecasts of upper wind and upper-air temperature, and of SIGWX phenomena. The area forecasts shall be issued to cover the layer between the ground and flight level 100 (or up to flight level 150 in mountainous areas, or higher, where necessary) and shall contain information on en-route weather phenomena hazardous to low-level flights, in support of the issuance of AIRMET information, and additional information required by low-level flights.

CHAPTER 3.7. SIGMET AND AIRMET INFORMATION, AERODROME WARNINGS AND WIND SHEAR WARNINGS AND ALERTS

Note.— Technical specifications and detailed criteria related to this chapter are given in Appendix 3.6.

3.7.1 SIGMET information

3.7.1.1 SIGMET information shall be issued by a meteorological watch office and shall give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations, and of the development of those phenomena in time and space.

...

CHAPTER 3.8. AERONAUTICAL CLIMATOLOGICAL INFORMATION

Note.— Technical specifications and detailed criteria related to this chapter are given in Appendix 3.7.

3.8.1 General provisions

Note.— In cases where it is impracticable to meet the requirements for aeronautical climatological information on a national basis, the collection, processing and storage of observational data may be effected through computer facilities available for international use, and the responsibility for the preparation of the required aeronautical climatological information may be as agreed between the meteorological authorities concerned.

3.8.1.1 Aeronautical climatological information required for the planning of flight operations shall be prepared in the form of aerodrome climatological tables and aerodrome climatological summaries. Such information shall be supplied to aeronautical users as agreed between the meteorological authority and the users concerned.

...

3.8.2 Aerodrome climatological tables

The Philippines shall make arrangements for collecting and retaining the necessary observational data and have the capability:

...

b) to make available such climatological tables to an aeronautical user within a time period as agreed between the meteorological authority and the user concerned.

...

CHAPTER 3.9. SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS

Note.— Technical specifications and detailed criteria related to this chapter are given in Appendix 3.8.

3.9.1 General provisions

...

3.9.1.3 Meteorological information supplied to operators and flight crew members shall be up to date and include the following information, as agreed between the meteorological authority and the operators concerned:

a) forecasts of

- 1) upper wind and upper-air temperature;
- 2) upper-air humidity;
- 3) geopotential altitude of flight levels;
- 4) flight level and temperature of tropopause;
- 5) direction, speed and flight level of maximum wind; and
- 6) SIGWX phenomena; and
- 7) cumulonimbus clouds and turbulence.

Note 1.— Forecasts of upper-air humidity and geopotential altitude of flight levels are used only in automatic flight planning and need not be displayed.

Note 2.— Forecasts of cumulonimbus cloud and turbulence are intended to be processed and, if necessary, visualized according to the specific thresholds relevant to user operations.

...

g) as determined by regional air navigation agreement, GAMET area forecast and/or area forecasts for low-level flights in chart form prepared in support of the issuance of AIRMET information, and AIRMET information for low-level flights relevant to the whole route;

...

3.9.1.10 Meteorological information shall be supplied to operators and flight crew members at the

location to be determined by the meteorological authority, after consultation with the operators concerned and at the time agreed between the aerodrome meteorological office and the operator concerned. The service for pre-flight planning shall be confined to flights originating within the territory of the State concerned. At an aerodrome without an aerodrome meteorological office at the aerodrome, arrangements for the supply of meteorological information shall be as agreed between the meteorological authority and the operator concerned.

...

3.9.2 Briefing, consultation and display

Note.— The requirements for the use of automated pre-flight information systems in providing briefing, consultation and display are given in 3.9.4.

3.9.2.1 Briefing and/or consultation shall be provided, on request, to flight crew members and/or other flight operations personnel. Its purpose shall be to supply the latest available information on existing and expected meteorological conditions along the route to be flown, at the aerodrome of intended landing, alternate aerodromes and other aerodromes as relevant, either to explain and amplify the information contained in the flight documentation or, as agreed between the meteorological authority and the operator concerned, in lieu of flight documentation.

3.9.2.5 The flight crew member or other flight operations personnel for whom briefing, consultation and/or flight documentation has been requested shall visit the aerodrome meteorological office at the time agreed between the aerodrome meteorological office and the operator concerned. Where local circumstances at an aerodrome make personal briefing or consultation impracticable, the aerodrome meteorological office shall provide those services by telephone or other suitable telecommunications facilities.

3.9.3 Flight documentation

Note.— The requirements for the use of automated pre-flight information systems in providing flight documentation are given in 3.9.4.

3.9.3.1 Flight documentation to be made available shall comprise information listed under 3.9.1.3 a) 1) and 6), b), c), e), f) and, if appropriate, g). However, flight documentation for flights of two hours' duration or less, after a short stop or turnaround, shall be limited to the information operationally needed, as agreed between the meteorological authority and operator concerned, but in all cases the flight documentation shall at least comprise information on 3.9.1.3 b), c), e), f) and, if appropriate, g).

...

3.9.4 Automated pre-flight information systems for briefing, consultation, flight planning and flight documentation

...

3.9.4.2 Automated pre-flight information systems providing for a harmonized, common point of access to meteorological information and aeronautical information services information by operators, flight crew members and other aeronautical personnel concerned shall be as agreed between the meteorological authority and the relevant civil aviation authority or the agency to which the authority to provide service has been delegated.

Note: The meteorological and AIS information concerned is specified in 3.9.1 to 3.9.3 respectively.

CHAPTER 3.11. REQUIREMENTS FOR AND USE OF COMMUNICATIONS

...

3.11.1 Requirements for communications

...

3.11.1.7 As agreed between the meteorological authority and the operators concerned, provision shall be made to enable operators to establish suitable telecommunications facilities for obtaining meteorological information from aerodrome meteorological offices or other appropriate sources.

...

3.11.1.9 The telecommunications facilities used for the exchange of operational meteorological information shall be the aeronautical fixed service or, for the exchange of non-time critical operational meteorological information, the public Internet, subject to availability, satisfactory operation and bilateral/multilateral and/or regional air navigation agreements.

Note 1.— Aeronautical fixed service Internet-based services, operated by the World Area Forecast Centres, providing for global coverage are used to support the global exchanges of operational meteorological information.

...

PART II APPENDICES AND ATTACHMENTS

...

APPENDIX 3.2. TECHNICAL SPECIFICATIONS RELATED TO WORLD AREA FORECAST SYSTEM AND METEOROLOGICAL OFFICES

(See CAR-ANS 3.3.)

1. WORLD AREA FORECAST SYSTEM

...

1.2 Upper-air gridded forecasts

...

1.2.2 The grid point forecasts prepared by a WAFC shall comprise:

a) wind and temperature data for flight levels 50 (850 hPa), 80 (750 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 210 (450 hPa), 240 (400 hPa), 270 (350 hPa), 300 (300 hPa), 320 (275 hPa), 340 (250 hPa), 360 (225 hPa), 390 (200 hPa), 410 (175 hPa), 450 (150 hPa), 480 (125 hPa) and 530 (100 hPa);

...

d) humidity data for flight levels 50 (850 hPa), 80 (750 hPa), 100 (700 hPa), 140 (600 hPa) and 180 (500 hPa);

...

i) geopotential altitude data for flight levels 50 (850 hPa), 80 (750 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 210 (450 hPa), 240 (400 hPa), 270 (350 hPa), 300 (300 hPa), 320 (275 hPa), 340 (250 hPa), 360 (225 hPa), 390 (200 hPa), 410 (175 hPa), 450 (150 hPa), 480 (125 hPa) and 530 (100 hPa).

...

3. VOLCANIC ASH ADVISORY CENTRES (VAAC)

3.1 Volcanic ash advisory information

3.1.2 Volcanic ash advisory centres shall issue volcanic ash advisory information in digital form in addition to the issuance of this advisory information in abbreviated plain language in accordance with 3.1.1.

3.1.3 Volcanic ash advisory information, if disseminated in digital form shall be formatted in accordance with a globally interoperable information exchange model and shall use extensible markup language (XML)/geography markup language (GML).

3.1.4 Volcanic ash advisory information if disseminated in digital form shall be accompanied by the appropriate metadata.

Note.— *Guidance on the information exchange model, XML/GML and the metadata profile is provided in the Manual on the Digital Exchange of Aeronautical Meteorological Information (ICAO Doc 10003).*

3.1.4 The volcanic ash advisory information listed in Table A2-1, when prepared in graphical format, shall be as specified in Appendix 1 and issued using the portable network graphics (PNG) format.

4. STATE VOLCANO OBSERVATORIES

4.1 Information from State volcano observatories

The information required to be sent by PHIVOLCS to their associated ACCs/FICs, MWO and VAAC shall comprise:

...

Note 2.— *PHIVOLCS may use the Volcano Observatory Notice for Aviation (VONA) format to send information their associated ACCs/FICs, MWO and VAAC. The VONA format is included in the Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List (ICAO Doc 9766) which is available on the ICAO IAVWOPSG website.*

5. TROPICAL CYCLONE ADVISORY CENTRES (TCAC)

5.1 Tropical cyclone advisory information

...

5.1.3 Tropical cyclone advisory centres shall issue tropical cyclone advisory information in digital form in addition to the issuance of this advisory information in abbreviated plain language in accordance with 5.1.2.

5.1.4 Tropical cyclone advisory information, if disseminated in digital form shall be formatted in accordance with a globally interoperable information exchange model and shall use extensible markup language (XML)/geography markup language (GML).

5.1.5 Tropical cyclone advisory information if disseminated in digital form shall be accompanied by the appropriate metadata.

Note.— *Guidance on the information exchange model, XML/GML and the metadata profile is provided in the Manual on the Digital Exchange of Aeronautical Meteorological Information (ICAO Doc 10003).*

5.1.6 The tropical cyclone advisory information listed in Table A3.2-2, when prepared in graphical format, shall be as specified in Appendix 1 and issued using the portable network graphics (PNG) format.

APPENDIX 3.3. TECHNICAL SPECIFICATIONS RELATED TO METEOROLOGICAL OBSERVATIONS AND REPORTS

(see CAR-ANS 3.4)

...

2. GENERAL CRITERIA RELATED TO METEOROLOGICAL REPORTS

2.1 Format of meteorological reports

...

2.1.3 METAR and SPECI shall be disseminated, in digital form, in addition to the dissemination of the METAR and SPECI in accordance with 3.2.1.2.

...

2.3 Criteria for issuance of local special reports and SPECI

2.3.1 The list of criteria for the issuance of local special reports shall include the following:

...

e) when noise abatement procedures are applied in accordance with the PANS-ATM (Doc 4444) and the variation from the mean surface wind speed (gusts) has changed by 2.5 m/s (5 kt) or more from that at the time of the latest report, the mean speed before and/or after the change being 7.5 m/s (15 kt) or more; and

...

2.3.3 Where required in accordance with Chapter 3.4, 3.4.4.2 b), SPECI shall be issued whenever changes in accordance with the following criteria occur:

...

f) when the height of base of the lowest cloud layer of BKN or OVC extent is lifting and changes to or passes through one or more of the following values, or when the height of base of the lowest cloud layer of BKN or OVC extent is lowering and passes through one or more of the following values:

1) 30, 60, 150 or 300 m (100, 200, 500 or 1 000 ft); and

2) 450 m (1 500 ft), in cases where significant numbers of flights are operated in accordance with the visual flight rules;

...

b) any other criteria based on local aerodrome operating minima, as agreed between the meteorological authority and the operators concerned.

...

3. DISSEMINATION OF METEOROLOGICAL REPORTS

3.1 METAR and SPECI

3.1.1 METAR and SPECI shall be disseminated to international OPMET databanks and the centres designated by regional air navigation agreement for the operation of aeronautical fixed

service, in accordance with regional air navigation agreement.

...

3.2 Local routine and special reports

...

3.2.2 Local special reports shall be transmitted to local air traffic services units as soon as the specified conditions occur. However, as agreed between the meteorological authority and the appropriate ATS authority concerned, they need not be issued in respect of:

...

4. OBSERVING AND REPORTING OF METEOROLOGICAL ELEMENTS

4.1 Surface wind

...

4.1.3 Averaging

...

4.1.3.2 The averaging period for measuring variations from the mean wind speed (gusts) reported in accordance with 4.1.5.2 c) shall be 3 seconds for local routine reports, local special reports, METAR, SPECI and for wind displays used for depicting variations from the mean wind speed (gusts) in air traffic services units.

...

4.1.5 Reporting

4.1.5.1 In local routine reports, local special reports, METAR and SPECI, the surface wind direction and speed shall be reported in steps of 10 degrees true and 1 metre per second (or 1 knot), respectively. Any observed value that does not fit the reporting scale in use shall be rounded to the nearest step in the scale.

4.1.5.2 In local routine reports, and local special reports, and in METAR and SPECI:

...

c) variations from the mean wind speed (gusts) during the past 10 minutes shall be reported when the maximum wind speed exceeds the mean speed by:

1) 2.5 m/s (5 kt) or more in local routine and special reports when noise abatement procedures are applied in accordance with paragraph 7.2.7 of the PANS-ATM (ICAO Doc 4444); or

...

4.2 Visibility

...

4.2.4 Reporting

4.2.4.1 In local routine reports, local special reports, METAR and SPECI, the visibility shall be reported in steps of 50 m when the visibility is less than 800 m; in steps of 100 m, when it is 800 m or more but less than 5 km; in kilometre steps, when the visibility is 5 km or more but less than 10 km; and it shall be given as 10 km when the visibility is 10 km or more, except when the conditions for the use of CAVOK apply. Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

4.3 Runway visual range

...

4.3.5 Runway light intensity

When instrumented systems are used for the assessment of runway visual range, computations shall be made separately for each available runway. Runway visual range shall not be computed for a light intensity of 3 per cent or less of the maximum light intensity available on a runway. For local routine and special reports, the light intensity to be used for the computation shall be:

- a) for a runway with the lights switched on and the light intensity of more than 3 per cent of the maximum light intensity available, the light intensity actually in use on that runway; and
- b) for a runway with the lights switched on and the light intensity of 3 per cent or less of the maximum light intensity available, the optimum light intensity that would be appropriate for operational use in the prevailing conditions; and
- c) for a runway with lights switched off (or at the lowest setting pending the resumption of operations), the optimum light intensity that would be appropriate for operational use in the prevailing conditions.

...

4.3.6 Reporting

4.3.6.1 In local routine reports, local special reports, METAR and SPECI, the runway visual range shall be reported in steps of 25 m when the runway visual range is less than 400 m; in steps of 50 m when it is between 400 m and 800 m; and in steps of 100 m when the runway visual range is more than 800 m. Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

4.3.6.2 Fifty metres shall be considered the lower limit and 2 000 metres the upper limit for runway visual range. Outside of these limits, local routine reports, local special reports, METAR and SPECI shall merely indicate that the runway visual range is less than 50 m or more than 2 000 m.

4.3.6.3 In local routine reports, local special reports, METAR and SPECI:

4.4 Present weather

4.4.1 Siting

When instrumented systems are used for observing present weather phenomena listed under 4.4.2.3 and 4.4.2.4 representative information shall be obtained by the use of sensors appropriately sited.

4.4.2 Reporting

...

4.4.2.3 In local routine reports, local special reports, METAR and SPECI, the following types of present weather phenomena shall be reported, using their respective abbreviations and relevant criteria, as appropriate:

...

4.4.2.4 In automated local routine reports, local special reports, METAR and SPECI, in addition to the precipitation types listed under 4.4.2.3 a), the abbreviation UP shall be used for unidentified

precipitation when the type of precipitation cannot be identified by the automatic observing system.

4.4.2.5 In local routine reports, local special reports, METAR and SPECI, the following characteristics of present weather phenomena, as necessary, shall be reported, using their respective abbreviations and relevant criteria, as appropriate:

...

4.4.2.6 In local routine reports, local special reports, METAR and SPECI, the following characteristics of present weather phenomena, as necessary, shall be reported, using their respective abbreviations and relevant criteria, as appropriate:

...

4.4.2.7 In automated local routine reports, local special reports, METAR and SPECI when showers (SH) referred to in 4.4.2.6 cannot be determined based upon a method that takes account of the presence of convective cloud, the precipitation shall not be characterized by SH.

4.4.2.8 In local routine reports, local special reports, METAR and SPECI, the relevant intensity or, as appropriate, the proximity to the aerodrome of the reported present weather phenomena shall be indicated as follows:

...

4.4.2.9 In local routine reports, local special reports, METAR and SPECI:

a) one or more, up to a maximum of three, of the present weather abbreviations given in 4.4.2.3, and 4.4.2.4 shall be used, as necessary, together with an indication, where appropriate, of the characteristics given in 4.4.2.5 and 4.4.2.6 and intensity or proximity to the aerodrome given in 4.4.2.8, so as to convey a complete description of the present weather of significance to flight operations;

...

4.4.2.10 In automated local routine reports, local special reports, METAR and SPECI, the present weather shall be replaced by “//” when the present weather cannot be observed by the automatic observing system due to a temporary failure of the system/sensor.

4.5 Clouds

4.5.1 Siting

When instrumented systems are used for the measurement of the cloud amount and the height of cloud base, representative observations shall be obtained by the use of sensors appropriately sited. For local routine and special reports, in the case of aerodromes with precision approach runways, sensors for cloud amount and height of cloud base shall be sited to give the best practicable indications of the cloud amount and height of cloud base threshold of the runway in use. For that purpose, a sensor shall be installed at a distance of less than 1 200 m (000 ft) before the landing threshold.

...

4.5.4 Reporting

4.5.4.1 In local routine reports, local special reports, METAR and SPECI, the height of cloud base shall be reported in steps of 30 m (100 ft) up to 3 000 m (10 000 ft).

4.5.4.2 At aerodromes where low-visibility procedures are established for approach and landing, as agreed between the meteorological authority and the appropriate ATS authority concerned, in local routine and special reports the height of cloud base shall be reported in steps of 15 m (50 ft) up to and including 90 m (300 ft) and in steps of 30 m (100 ft) between 90 m (300 ft) and 3 000 m (10 000 ft), and the vertical visibility in steps of 15 m (50 ft) up to and including 90 m (300 ft) and in steps of 30 m (100 ft) between 90 m (300 ft) and 600 m (2 000 ft).

4.5.4.3 In local routine reports, local special reports, METAR and SPECI:

...

4.5.4.4 Any observed value in 4.5.4.1, 4.5.4.2 and 4.5.4.3 c) which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

4.5.4.5 In local routine and special reports:

a) the units of measurement used for the height of cloud base and vertical visibility shall be indicated; and

b) when there is more than one runway in use and the heights of cloud bases are observed by instruments for these runways, the available heights of cloud bases for each runway shall be reported and the runways to which the values refer shall be indicated.

4.5.4.6 In automated local routine reports, local special reports, METAR and SPECI:

...

4.6 Air temperature and dew-point temperature

...

4.6.2 Reporting

4.6.2.1 In local routine reports, local special reports, METAR and SPECI, the air temperature and the dew-point temperature shall be reported in steps of whole degrees Celsius. Any observed value which does not fit the reporting scale in use shall be rounded to the nearest whole degree Celsius, with observed values involving 0.5° rounded up to the next higher whole degree Celsius.

4.6.2.2 In local routine reports, local special reports, METAR and SPECI, a temperature below 0°C shall be identified.

4.7 Atmospheric pressure

...

4.7.3 Reporting

4.7.3.1 For local routine reports, local special reports, METAR and SPECI, QNH and QFE shall be computed in tenths of hectopascals and reported therein in steps of whole hectopascals, using four digits. Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower whole hectopascal.

4.7.3.2 In local routine and special reports:

...

b) QFE shall be included if required by users or, as agreed between the meteorological authority, and the ATS authorities and the operators concerned, on a regular basis;

...

4.8 Supplementary information

4.8.1 Reporting

4.8.1.1 In local routine reports, local special reports, METAR and SPECI, the following recent weather phenomena, i.e. weather phenomena observed at the aerodrome during the period since the last issued routine report or last hour, whichever is the shorter, but not at the time of observation, shall be reported, up to a maximum of three groups, in accordance with the templates shown in Tables A3.3-1 and A3.3-2, in the supplementary information:

...

4.8.1.3 In automated local routine reports, local special reports, and METAR and SPECI, in addition to the recent weather phenomena listed under 4.8.1.1, recent unknown precipitation shall be reported in accordance with the template shown in Table A3.3-2 when the type of precipitation cannot be identified by the automatic observing system.

...

Table A3.3-1. Template for the local routine (MET REPORT) and local special (SPECIAL) reports

Key: M = inclusion mandatory, part of every message;

C = inclusion conditional, dependent on meteorological conditions;

O = inclusion optional.

Note 1.— The ranges and resolutions for the numerical elements included in the local routine and special reports are shown in Table A3.3-4 of this appendix.

Note 2.— The explanations for the abbreviations can be found in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, ICAO Doc 8400).

<i>Element as Specified In Chapter 4</i>	<i>Detailed content</i>	<i>Template(s)</i>		<i>Examples</i>
...				
Present weather (C) ^{9,10}	Intensity of present weather (C) ⁹	FBL or MOD or HVY	-	
	Characteristics and type of present weather (C) ^{9,11}	DZ or RA or SN or SG or PL or DS or SS or FZDZ or FZUP ¹² or FC ¹³ or FZRA or	FG or BR or SA or DU or HZ or FU or VA or SQ or PO or TS or BCFG or BLDU or	MOD RA HVY TSRA HVY DZ FBL SN HZ FG VA MFG

		SHGR or SHGS or SHRA or SHSN or SHUP ¹² or TSGR or TSGS or TSRA or TSSN or TSUP ¹² or UP ¹²	BLSA or BLSN or DRDU or DRSA or DRSN or FZFG or MFG or PRFG or // ¹²		HVY TSRASN FBL SNRA FBL DZ FG HVY SHGN BLSN HVY TSUP //

...

Table A3.3-2. Template for METAR and SPECI

Key: M = inclusion mandatory, part of every message;

C = inclusion conditional, dependent on meteorological conditions or method of observation;

O = inclusion optional.

Note 1.— The ranges and resolutions for the numerical elements included in METAR and SPECI are shown in Table A3.3-5 of this appendix.

Note 2.— The explanations for the abbreviations can be found in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, ICAO Doc 8400).

Element as specified in Chapter 4	Detailed content	Template(s)		Examples
...				
Surface wind (M)	Wind direction (M)	nnn	VRB	
	Wind speed (M)	[P]nn[n]		24004MPS (24008KT) VRB01MPS (VRB0 2KT) 19006MPS (19012K T) 00000M PS (00000K T) 140P149 MPS (140P99 KT) 12003G09 MPS (12006G1 8KT) 24008G14 MPS (24016G2
	Significant speed variations (C) ³	G[P]nn[n]		
	Units of measurement (M)	MPS (or KT)		
	Significant directional variations (C) ⁴	nnnVnnn	-	

						8KT) 02005MPS 350V070 (02010KT 350V070)
...						
Cloud (M) ¹⁴	Cloud amount and height of cloud base or vertical visibility (M)	FEWnnn or SCTnnn or BKNnnn or OVCnnn or FEW/// ¹² or SCT/// ¹² or BKN/// ¹² or OVC/// ¹² or ///nnn ¹² or ////// ¹²	VVnnn or VV/// ¹²	NSC or NCD ¹²		FEW015 VV005 OVC030 V/// NSC BKN// ///015 BKN009TCU NCD SCT008 BKN025CB BKN 025/// //////CB
	Cloud type (C) ²	CB or TCU or /// ¹²	-			
...						

...

Table A3.3-4. Ranges and resolutions for the numerical elements included in local reports

...

Under circumstances as specified in 4.5.4.3; otherwise a resolution of 30 m (100 ft) is to be used.

APPENDIX 3.4. TECHNICAL SPECIFICATIONS RELATED TO AIRCRAFT OBSERVATIONS AND REPORTS

(See CAR-ANS 3.5.)

1. CONTENTS OF AIR-REPORTS

1.1 Routine air-reports by air-ground data link

1.1.1 When air-ground data link is used and automatic dependent surveillance — contract (ADS-C) or SSR Mode S is being applied, the elements contained in routine air-reports shall be:

...

Note.— When ADS-C or SSR Mode S is being applied, the requirements of routine air-reports may be met by the combination of the basic ADS-C/SSR Mode S data block (data block 1) and the meteorological information data block (data block 2), available from ADS-C or SSR Mode S

reports. The ADS-C message format is specified in the PANS-ATM (Doc 4444), 4.11.4 and Chapter 13 and the SSR Mode S message format is specified in CAR-ANS Part 7 – Standards for Digital Data Communication Systems, 7.5.

1.1.2 When air-ground data link is used while ADS-C and SSR Mode S are not being applied, the elements contained in routine reports shall be:

...

Note.— When air-ground data link is used while ADS-C and SSR Mode S are not being applied, the requirements of routine air-reports may be met by the controller-pilot data link communication (CPDLC) application entitled “Position report”. The details of this data link application are specified in the Manual of Air Traffic Services Data Link Applications (ICAO Doc 9694) and in CAR-ANS Part 7.

...

3. EXCHANGE OF AIR-REPORTS

3.1 Responsibilities of the meteorological watch offices

3.1.1 The meteorological watch office shall transmit without delay the special air-reports received by voice communications to the WAFCs and the centres designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services.

...

3.1.3 When a special air-report is received at the meteorological watch office but the forecaster considers that the phenomenon causing the report is not expected to persist and, therefore, does not warrant issuance of a SIGMET, the special air-report shall be disseminated in the same way that SIGMET messages are disseminated in accordance with Appendix 3.6, 1.2.1, i.e. to meteorological watch offices, WAFCs, and other meteorological offices in accordance with regional air navigation agreement.

Note.— The template used for special air-reports which are uplinked to aircraft in flight is in Appendix 3.6, Table A3.6-1.

...

3.3 Supplementary dissemination of air-reports

Where supplementary dissemination of air-reports is required to satisfy special aeronautical or meteorological requirements, such dissemination shall be arranged and agreed between the meteorological authorities concerned.

...

APPENDIX 3.5. TECHNICAL SPECIFICATIONS RELATED TO FORECASTS

(See CAR-ANS 3.6.)

1. CRITERIA RELATED TO TAF

1.1 TAF format

...

1.1.2 TAF shall be disseminated, in digital form, in addition to the dissemination of the TAF in accordance with 1.1.1.

...

1.2 Inclusion of meteorological elements in TAF

...

1.2.3 Weather phenomena

One or more, up to a maximum of three, of the following weather phenomena or combinations thereof, together with their characteristics and, where appropriate, intensity, shall be forecast if they are expected to occur at the aerodrome:

...

— other weather phenomena given in Appendix 3.3, 4.4.2.3, as agreed between the meteorological authority, the appropriate ATS authority and operators concerned.

...

1.3 Use of change groups

...

1.3.2 The criteria used for the inclusion of change groups in TAF or for the amendment of TAF shall be based on the following:

...

Table A3.5-1. Template for TAF

Key: M = inclusion mandatory, part of every message;

C = inclusion conditional, dependent on meteorological conditions or method of observation;

O = inclusion optional.

Note 1.— The ranges and resolutions for the numerical elements included in TAF are shown in Table A3.5-4 of this appendix.

Note 2.— The explanations for the abbreviations can be found in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, ICAO Doc 8400).

<i>Element as specified in Chapter 6</i>	<i>Detailed content</i>	<i>Template(s)</i>	<i>Examples</i>
...			
Days and period of validity of forecast (M)	Days and period of the validity of the forecast in UTC (M)	nnnn/nnnn	0812/0918
...			

...

Table A3.5-3. Template for GAMET

Key: M = inclusion mandatory, part of every message;
 C = inclusion conditional, dependent on meteorological conditions;
 O = inclusion optional;

= = a double line indicates that the text following it shall be placed on the subsequent line.

Element	Detailed content	Template(s)	Examples
Location indicator of FIR/CTA (M)	ICAO location indicator of the ATS unit serving the FIR or CTA to which the GAMET refers (M)	nnnn	YUCC
Identification (M)	Message identification (M)	GAMET	GAMET
Validity period (M)	Day-time groups indicating the period of validity in UTC (M)	VALID nnnnnnnnnnn	VALID 220600/221200
Location indicator of aerodrome meteorological office or meteorological watch office (M)	Location indicator of aerodrome meteorological office or meteorological watch office originating the message with a separating hyphen (M)	nnnn-	YUCC-
Name of the FIR/CTA or part thereof (M)	Location indicator and name of the FIR/CTA, or part thereof for which the GAMET is issued (M)	nnnn nnnnnnnnn FIR(in) [BLW FLnnn] or nnnn nnnnnnnnn CTA(in) [BLW FLnnn]	YUCC AMSWELL FIR/2 BLW FL120 YUCC AMSWELL FIR

Element	Detailed content	Template(s)			
		Identifier and time	Location	Content	
Indicator for the beginning of Section I	Indicator to identify the beginning of Section I (M)	SECN I			SECN I
Surface wind (C)	Widespread surface wind exceeding 15 m/s (30 kt)	SFC WIND: [nn/nn]	[N OF Nnn or Snn] or [S OF Nnn or Snn]	nnn/[n]nnMPS (or nnn/[n]nnKT)	SFC WIND: 10/12 310/16MPS SFC WIND: 5 OF W110
Surface visibility (C)	Widespread surface visibility below 5 000 m including the weather phenomena causing the reduction in visibility	SFC VIS: [nn/nn]	[W OF Wnnn or Ennn] or [E OF Wnnn or Ennn] or [nnnnnnnnn] ²	nnnnM FG or BR or SA or DU or HZ or FU or VA or PO or DS or SS or DZ or RA or SN or SG or FC or GR or GS or PL or SQ	SFC VIS: 06/08 N OF N51 3000M BR

Element	Detailed content	Template			Examples
		Identifier and time	Location	Content	
Significant weather (C)	Significant weather conditions encompassing thunderstorms, heavy sandstorm and duststorm, and volcanic ash	SIGWX: [nn/nn]		ISOL TS or OCNL TS or FRQ TS or OBSC TS or EMBD TS or HVY DS or HVY SS or SQL TS or ISOL TSGR or OCNL TSGR or FRQ TSGR or OBSC TSGR or EMBD TSGR or SQL TSGR or VA	SIGWX: 11/12 ISOL TS SIGWX: 12/14 S OF N35 HVY SS
Mountain obscuration (C)	Mountain obscuration	MT OBSC: [nn/nn]		nnnnnnnnn ²	MT OBSC: S OF N48 MT PASSES
Cloud (C)	Widespread areas of broken or overcast cloud with height of base less than 300 m (1 000 ft) above ground level (AGL) or above mean sea level (AMSL) and/or any occurrence of cumulonimbus (CB) or towering cumulus (TCU) clouds	SIG CLD: [nn/nn]		BKN or OVC [n]nnn/[n]nnnM (or [n]nnn/[n]nnnFT AGL or AMSL ISQL or OCNL or FRQ or OBSC or EMBD CB ³ or TCU ³ [n]nnn/[n]nnnM (or [n]nnn/[n]nnnFT AGL or AMSL	SIG CLD: 06/09 N OF N51 OVC 800/1100 FT AGL 10/12 ISOL TCU 1200/8000 FT AGL
Icing (C)	Icing (except for that occurring in convective clouds and for severe icing for which a SIGMET message has already been issued)	ICE [nn/nn]		MOD FLnnn/nnn or MOD ABV FLnnn or SEV FLnnn/nnn or SEV ABV FLnnn	ICE: MOD FL050/080
Turbulence (C)	Turbulence (except for that occurring in convective clouds and for severe turbulence for which a SIGMET message has already been issued)	TURB: [nn/nn]		MOD FLnnn/nnn or MOD ABV FLnnn or SEV FLnnn/nnn or SEV ABV FLnnn	TURB: MOD ABV FL090
Mountain wave (C)	Mountain wave (except for severe mountain wave for which a SIGMET message has already been issued)	MTW: [nn/nn]		MOD FLnnn/nnn or MOD ABV FLnnn or SEV FLnnn/nnn or SEV ABV FLnnn	MTW: N OF N63 MOD ABV FL080
SIGMET (C)	SIGMET messages applicable to the FIR/CTA concerned or a sub-area thereof, for which the area forecast is valid	SIGMET APPLICABLE		[n][n] ⁴	SIGMET APPLICABLE: 3, A5, B06
or HAZARDOUS WX NIL (C) ⁵				HAZARDOUS WX NIL	HAZARDOUS WX NIL

Element	Detailed content	Template(s)			Examples
		Identifier and time	Location SECN II	Content	
Indicator for the beginning of Section II (M)	Indicator to identify the beginning of Section II				SECN II
Pressure centres and fronts (M)	Pressure centres and fronts and their expected movements and developments	PSYS: [nn]	Nnnnn or Snnnn Wnnnnn or Ennnnn or Nnnnn or Snnnn Wnnnnn or Ennnnn TO Nnnnn or Snnnn Wnnnnn or Ennnnn —	L [n]nnnHPA or H [n]nnnHPA or FRONT or NIL MOV N or MOV NE or MOV E or MOV SE or MOV S or MOV SW or MOV W or MOV NW nnKMH (or nnKT) WKN or NC or INTSF	PSYS: 06 N5130 E01000 L 1004HPA MOV NE 25KT WKN
Upper winds and temperatures (M)	Upper winds and upper-air temperatures for at least the following altitudes: 600, 1 500 and 3 000 m (2 000, 5 000 and 10 000 ft)	WIND/T:	Nnnnn or Snnnn Wnnnnn or Ennnnn or	[n]nnnM (or [n]nnnFT) nnn/[n]nnMPS (or nnn/[n]nnKT) PSnn or MSnn	WIND/T: 2000FT N5500 W01000 270/18MPS PS03 5000FT N5500 W01000 250/20MPS MS02 10000FT N5500 W01000 240/22MPS MS11
Cloud (M)	Cloud information not included in Section I giving type, height of base and top above ground level (AGL) or above mean sea level (AMSL)	CLD: [nr/nn]	[N OF Nnn or Snn] or [S OF Nnn or Snn] or [W OF Nnn or Ennn] or [E OF Nnn or Ennn] or [nnnnnnnnn]?	FEW or SCT or BKN or OVC ST or SC or CU or AS or AC or NS [n]nnn/[n]nnnM (or [n]nnn/[n]nnnFT) AGL or AMSL or NIL	CLD: BKN SC 2500/8000FT AGL CLD: NIL
Freezing level (M)	Height indication of 0°C level(s) above ground level (AGL) or above mean sea level (AMSL), if lower than the top of the airspace for which the forecast is supplied	FZLVL		[ABV] [n]nnnFT AGL or AMSL	FZLVL: 3000FT AGL
Forecast QNH (M)	Forecast lowest QNH during the period of validity	MNM QNH:		[n]nnnHPA	MNM QNH: 1004HPA
Sea-surface temperature and state of the sea (O)	Sea-surface temperature and state of the sea if required by regional air navigation agreement	SEA:		Tnn HGT [n]nM	SEA: T15 HGT 5M
Volcanic eruptions (M)	Name of volcano	VA:		nnnnnnnnn or NIL	VA: ETNA VA: NIL

Notes.—

1. Fictitious location.
2. Free text describing well-known geographical locations should be kept to a minimum.
3. The location of the CB and/or TCU should be specified in addition to any widespread areas of broken or overcast cloud as given in the example.
4. Repeat as necessary, with comma separating.
5. When no elements are included in Section I.

...

Example A3.5-1. TAF

TAF for YUDO (Donlon/International):*

TAF YUDO 00Z 1600/1618 13005MPS 9000 BKN020 BECMG 1606/1608 SCT015CB
BKN020 TEMPO 1608/1612 17006G12MPS 1000 TSRA SCT010CB BKN020
FM161230 15004MPS 9999 BKN020

Meaning of the forecast:

TAF for Donlon/International* issued on the 15th of the month at 1800 UTC valid from 0000 UTC to 1800 UTC on the 16th of the month; surface wind direction 130 degrees; wind speed 5 metres per second; visibility 9 kilometres, broken cloud at 600 metres; becoming between 0600 UTC and 0800 UTC on the 16th of the month, scattered cumulonimbus cloud at 450 metres and broken cloud at 600 metres; temporarily between 0800 UTC and 1200 UTC on the 16th of the month surface wind direction 170 degrees; wind speed 6 metres per second gusting to 12 metres per second; visibility 1 000 metres in a thunderstorm with moderate rain, scattered cumulonimbus cloud at 300 metres and broken cloud at 600 metres; from 1230 UTC on the 16th of the month surface wind direction 150 degrees; wind speed 4 metres per second; visibility 10 kilometres or more; and broken cloud at 600 metres.

* Fictitious location

Note.— In this example, the primary units “metre per second” and “metre” were used for wind speed and height of cloud base, respectively. However, in accordance with CAR-ANS Part 5, the corresponding non-SI alternative units “knot” and “foot” may be used instead.

Example A3.5-2. Cancellation of TAF

Cancellation of TAF for YUDO (Donlon/International):*

TAF AMD YUDO 161500Z 16060/162418 CNL

Meaning of the forecast:

Amended TAF for Donlon/International* issued on the 16th of the month at 1500 UTC cancelling the previously issued TAF valid from 06000 UTC to 241800 UTC on the 16th of the month.

* Fictitious location

Example A3.5-3. GAMET area forecast

YUCC GAMET VALID 220600/221200 YUDO -
 YUCC AMSWELL FIR/2 BLW FL120
 SECN I
 SFC WIND: 10 12 310 16MPS
 SFC VIS: 06 08 06 08 N OF N51 3000M BR
 SIGWX: 11 12 ISOL TS
 SIG CLD: 06 09 N OF N51 OVC 800/1100FT AGL 10 12 ISOL TCU
 1200 8000FT AGL
 ICE: MOD FL050 080
 TURB: MOD ABV FL090
 SIGMETS APPLICABLE: 3, 5
 SECN II
 PSYS: 06 N5130 E01000 L 1004HPA MOV NE 25 KT WKN
 WIND T: 2000FT N5500 W01000 270/18MPS PS03 5000FT N5500 W01000 250/20MPS MS02 10000FT
 N5500 W01000 240/22MPS MS11
 CLD: BKN SC 2500 8000FT AGL
 FZLVL: 3000FT AGL
 MNM QNH: 1004HPA
 SEA: T15 HGT 5M
 VA: NIL

Meaning: An area forecast for low-level flights (GAMET) issued for sub-area two of the Amwell* flight information region (identified by YUCC Amwell area control centre) for below flight level 120 by the Donlon International* aerodrome meteorological office (YUDO); the message is valid from 0600 UTC to 1200 UTC on the 22nd of the month.

Section I:

surface wind speed and direction: between 1000 UTC and 1200 UTC surface wind direction 310 degrees; wind speed 16 metres per second;
 surface visibility: between 0600 UTC and 0800 UTC north of 51 degrees north 3 000 metres (due to mist);
 significant weather phenomena: between 1100 UTC and 1200 UTC isolated thunderstorms without hail.
 significant clouds: between 0600 UTC and 0900 UTC north of 51 degrees north overcast base 800, top 1 100 feet above ground level; between 1000 UTC and 1200 UTC isolated towering cumulus base 1 200, top 8 000 feet above ground level;
 icing: moderate between flight level 050 and 080.
 turbulence: moderate above flight level 090 (at least up to flight level 120);
 SIGMET messages: 3 and 5 applicable to the validity period and sub-area concerned.

Section II:

pressure systems: at 0600 UTC low pressure of 1 004 hectopascals at 51.5 degrees north 10.0 degrees east, expected to move north-eastwards at 25 knots and to weaken;
 winds and temperatures: at 2 000 feet above ground level at 55 degrees north 10 degrees west wind direction 270 degrees; wind speed 18 metres per second, temperature plus 3 degrees Celsius; at 5 000 feet above ground level at 55 degrees north 10 degrees west wind direction 250 degrees; wind speed 20 metres per second, temperature minus 2 degrees Celsius; at 10 000 feet above ground level at 55 degrees north 10 degrees west wind direction 240 degrees; wind speed 22 metres per second, temperature minus 11 degrees Celsius;
 clouds: broken stratocumulus, base 2 500 feet, top 8 000 feet above ground level;
 freezing level: 3 000 feet above ground level;
 minimum QNH: 1 004 hectopascals;
 sea: surface temperature 15 degrees Celsius; and state of the sea 5 metres;
 volcanic ash: nil

* Fictitious location

APPENDIX 3.6. TECHNICAL SPECIFICATIONS RELATED TO SIGMET AND AIRMET INFORMATION, AERODROME WARNINGS AND WIND SHEAR WARNINGS AND ALERTS

(See CAR-ANS 3.7.)

Note.— Data type designators to be used in abbreviated headings for SIGMET, AIRMET, tropical cyclone and volcanic ash advisory messages are given in WMO Publication No. 386, Manual on the Global Telecommunication System.

1. SPECIFICATIONS RELATED TO SIGMET INFORMATION

1.1 Format of SIGMET messages

1.1.1 The content and order of elements in a SIGMET message shall be in accordance with the template shown in Table A3.6-1.

...

1.1.3 The sequence number referred to in the template in Table A3.6-1 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.

1.1.4 In accordance with the template in Table A3.6-1, only one of the following phenomena shall be included in a SIGMET message, using the abbreviations as indicated below:

...

1.1.6 Meteorological watch offices shall issue SIGMET information in digital form, in addition to the issuance of this SIGMET information in abbreviated plain language in accordance with 1.1.1.

...

1.1.9 SIGMET, when issued in graphical format, shall be as specified in Appendix 3.1, including the use of applicable symbols and/or abbreviations.

...

1.2 Dissemination of SIGMET messages

...

1.2.2 SIGMET messages shall be disseminated to international OPMET databanks and the centres designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services, in accordance with regional air navigation agreement.

...

2. SPECIFICATIONS RELATED TO AIRMET INFORMATION

2.1 Format of AIRMET messages

2.1.1 The content and order of elements in an AIRMET message shall be in accordance with the template shown in Table A3.6-1.

2.1.2 The sequence number referred to in the template in Table A3.6-1 shall correspond with the number of AIRMET messages issued for the flight information region concerned. The meteorological watch offices whose area of responsibility encompasses more than one FIR and/or CTA shall issue separate AIRMET messages for each FIR and/or CTA within its area of responsibility.

...

2.1.4 In accordance with the template in Table A3.6-1, only one of the following phenomena shall be included in an AIRMET message, using the abbreviations as indicated below:

At cruising levels below flight level 100 (or below flight level 150 in mountainous areas, or higher, where necessary):

- surface wind speed
 - widespread mean surface wind speed above 15 m/s (30 kt) SFC WSPD (+ wind speed, direction and units)

- surface visibility
 - widespread areas affected by reduction of visibility to less than 5 000 m, including the weather phenomenon causing the reduction of visibility SFC VIS (+ visibility) (+ one of the following weather phenomenon or combinations thereof: BR, DS, DU, DZ, FC, FG, FU, GR, GS, HZ, PL, PO, RA, SA, SN, SQ, SS or VA)

...

2.1.6 Meteorological offices shall issue AIRMET information in digital form, in addition to the issuance of this AIRMET information in abbreviated plain language in accordance with 2.1.1.

2.1.7 AIRMET if disseminated in digital form shall be formatted in accordance with a globally interoperable information exchange model and shall use extensible markup language (XML)/geography markup language (GML).

2.1.8 AIRMET if disseminated in digital form shall be accompanied by the appropriate metadata.

Note.— Guidance on the information exchange model, XML/GML and the metadata profile is provided in the Manual on the Digital Exchange of Aeronautical Meteorological Information (ICAO Doc 10003).

...

2.2 Dissemination of AIRMET messages

...

2.2.2 AIRMET messages shall be transmitted to international operational meteorological databanks and the centres designated by regional air navigation agreement for the operation of aeronautical fixed service satellite distribution systems, in accordance with regional air navigation agreement.

...

5. SPECIFICATIONS RELATED TO AERODROME WARNINGS

5.1 Format and dissemination of aerodrome warnings

...

5.1.3 In accordance with the template in Table A3.6-2, aerodrome warnings shall relate to the occurrence or expected occurrence of one or more of the following phenomena:

...

— *tsunami*

...

Note.— Aerodrome warnings related to the occurrence or expected occurrence of tsunami are not required where a national public safety plan for tsunami is integrated with the “at risk” aerodrome concerned.

...

5.2 Quantitative criteria for aerodrome warnings

When quantitative criteria are necessary for the issue of aerodrome warnings covering, for example, the expected maximum wind speed or the expected total snowfall, the criteria used shall be as agreed between the aerodrome meteorological office and the users concerned.

...

6. SPECIFICATIONS RELATED TO WIND SHEAR WARNINGS

...

6.2 Format and dissemination of wind shear warnings and alerts

Note.— Information on wind shear is also to be included as supplementary information in local routine reports, local special reports, METAR and SPECI in accordance with the templates in Appendix 3.3, Tables A3.3-1 and A3.3-2.

...

**Table A3.6-1.
Template for SIGMET and AIRMET messages**

Key: M = inclusion mandatory, part of every message;
C = inclusion conditional, included whenever applicable;
= = a double line indicates that the text following it shall be placed on the subsequent line.

Note 1.— The ranges and resolutions for the numerical elements included in SIGMET and AIRMET messages are shown in Table A3.6-4 of this appendix.

Note 2.— In accordance with 1.1.5 and 2.1.5, severe or moderate turbulence (SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones should not be included.

Element	Detailed content	SIGMET template	AIRMET template	SIGMET message examples	AIRMET message examples
Location indicator of FIR/CTA (M) ¹	ICAO location indicator of the ATS unit serving the FIR or CTA to which the SIGMET/AIRMET refers	nnnn		YUCC ² YUDD ²	
Identification (M)	Message identification and sequence number ³	SIGMET [n][n]n	AIRMET [n][n]n	SIGMET 1 SIGMET 01 SIGMET A01	AIRMET 9 AIRMET 19 AIRMET B19

Validity period (M)	Day-time groups indicating the period of validity in UTC	VALID nnnnnn/hnnnnn		VALID 010000/010400 VALID 221215/221600 VALID 101520/101800 VALID 251600/252200 VALID 152000/160000 VALID 192300/200300	
Location indicator of MWO (M)	Location indicator of MWO originating the message with a separating hyphen	nnnn-		YUDO ² YUSO ²	
Name of the FIR/CTA (M)	Location indicator and name of the FIR/CTA ⁴ for which the SIGMET/AIRMET is issued	nnnn nnnnnnnnnn FIR/UIR]	nnnn nnnnnnnnnn FIR/[n]	YUCC AMSWELL FIR ² YUDD SHANLON FIR/UIR ² YUDD SHANLON CTA ²	YUCC AMSWELL FIR ² YUDD SHANLON FIR ²
IF THE SIGMET OR AIRMET MESSAGE IS TO BE CANCELLED, SEE DETAILS AT THE END OF THE TEMPLATE.					
Phenomenon (M) ⁵	Description of phenomenon causing the issuance of SIGMET/AIRMET	OBSC ⁶ TS[GR ⁷] EMBD ⁸ TS[GR ⁷] FRQ ⁹ TS[GR ⁷] SQL ¹⁰ TS[GR ⁷] TC nnnnnnnnnn PSN Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] CB or TC NN ¹¹ PSN Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] CB SEV TURB ¹² SEV ICE ¹³ SEV ICE (FZRA) ¹³ SEV MTW ¹⁴ HVY DS HVY SS [VA ERUPTION] [MT nnnnnnnnnn] [PSN Nnn[nn] or Snn[nn] Ennn[nn] or Wnnn[nn]] VA CLD RDOACT CLD	SFC WIND nnn/nn[n]MPS (or SFC WIND nnn/nn[n]KT) SFC VIS nnnnM (nn) ¹⁵ ISOL ¹⁶ TS[GR ⁷] OCNL ¹⁷ TS[GR ⁷] MT OBSC BKN CLD nnn/[ABV]nnnnM (or BKN CLD nnn/[ABV][n]nnnnFT) or BKN CLD SFC/[ABV]nnnnM (or BKN CLD SFC/[ABV][n]nnnnFT) OVC CLD nnn/[ABV]nnnnM (or OVC CLD nnn/[ABV][n]nnnnFT) or OVC CLD SFC/[ABV]nnnnM (or OVC CLD SFC/[ABV][n]nnnnFT) ISOL ¹⁶ CB ¹⁸ OCNL ¹⁷ CB ¹⁸ FRQ ⁹ CB ¹⁸ ISOL ¹⁶ TCU ¹⁸ OCNL ¹⁷ TCU ¹⁸ FRQ ⁹ TCU ¹⁸ MOD TURB ¹² MOD ICE ¹³ MOD MTW ¹⁴	OBSC TS OBSC TSGR EMBD TS EMBD TSGR FRQ TS FRQ TSGR SQL TS SQL TSGR TC GLORIA PSN N10 W060 CB TC NN PSN S2030 E06030 CB SEV TURB SEV ICE SEV ICE (FZRA) SEV MTW HVY DS HVY SS VA ERUPTION MT ASHVAL ² PSN S15 E073 VA CLD RDOACT CLD	SFC WIND 040/40MPS SFC WIND 310/20KT SFC VIS 1500M (BR) ISOL TS ISOL TSGR OCNL TS OCNL TSGR MT OBSC BKN CLD 120/900M (BKN CLD 400/3000FT) BKN CLD SFC/3000M BKN CLD SFC/ABV10000FT OVC CLD 270/ABV3000M (OVC CLD 900/ABV10000FT OVC CLD SFC/3000M OVC CLD SFC/ABV10000FT ISOL CB OCNL CB FRQ CB ISOL TCU OCNL TCU FRQ TCU MOD TURB MOD ICE MOD MTW

Observed or forecast phenomenon (M)	Indication whether the information is observed and expected to continue, or forecast	OBS [AT nnnnZ] or FCST [AT nnnnZ]	OBS OBS AT 1210Z FCST FCST AT 1815Z
Location (C) ¹⁹	Location (referring to latitude and longitude (in degrees and minutes))	<p>Nnn[nn] Wnnn[nn] or Nnn[nn] Ennn[nn] or Snn[nn] Wnnn[nn] or Snn[nn] Ennn[nn]</p> <p>or</p> <p>N OF Nnn[nn] or S OF Nnn[nn] or N OF Snn[nn] or S OF Snn[nn] or [AND] W OF Wnnn[nn] or E OF Wnnn[nn] or W OF Ennn[nn] or E OF Ennn[nn]</p> <p>or</p> <p>N OF Nnn[nn] or N OF Snn[nn] AND S OF Nnn[nn] or S OF Snn[nn]</p> <p>or</p> <p>W OF Wnnn[nn] or W OF Ennn[nn] AND E OF Wnnn[nn] or E OF Ennn[nn]</p> <p>or</p> <p>N OF LINE²³ or NE OF LINE²³ or E OF LINE²³ or SE OF LINE²³ or S OF LINE²³ or SW OF LINE²³ or W OF LINE²³ or NW OF LINE²³ Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] [AND N OF LINE²³ or NE OF LINE²³ or E OF LINE²³ or SE OF LINE²³ or S OF LINE²³ or SW OF LINE²³ or W OF LINE²³ or NW OF LINE²³ 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]]]</p> <p>or</p> <p>WI^{23, 25} 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]]</p> <p>or</p> <p>APRX nnKM WID LINE²³ BTN (or nnNM WID LINE²³ 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]]</p> <p>or</p> <p>ENTIRE FIR/[UIR]</p> <p>or</p> <p>ENTIRE CTA</p> <p>or²¹</p> <p>WI nnnKM (or nnnNM) OF TC CENTRE</p>	<p>N48 E010 N2020 W07005 S60 W160 S0530 E16530</p> <p>N OF N50 S OF N5430 N OF S10 S OF S4530 W OF W155 W OF E15540 E OF W45 E OF E09015</p> <p>N OF N1515 AND W OF E13530 S OF N45 AND N OF N40</p> <p>N OF LINE S2520 W11510 – S2520 W12010 SW OF LINE N50 W005 – N60 W020 SW OF LINE N50 W020 – N45 E010 AND NE OF LINE N45 W020 – N40 E010</p> <p>WI N6030 E02550 – N6055 E02500 – N6050 E02630 – N6030 E02550</p> <p>APRX 50KM WID LINE BTN N64 W017 – N60 W010 – N57 E010</p> <p>ENTIRE FIR</p> <p>ENTIRE FIR/UIR</p> <p>ENTIRE CTA</p> <p>WI 400KM OF TC CENTRE WI 250NM OF TC CENTRE</p>

Element	Detailed content	SIGMET template	AIRMET template	SIGMET message examples	AIRMET message examples
Level (C) ¹⁹	Flight level or altitude	[SFC]/FLnnn or [SFC]/nnnnM (or [SFC]/[n]nnnnFT) or FLnnn/nnn or TOP FLnnn or [TOP] ABV FLnnn or [nnnn]/nnnnM (or [[n]nnnn]/[n]nnnnFT) or [nnnnM]/FLnnn (or [[n]nnnnFT]/FLnnn) r ²¹ TOP [ABV or BLW] FLnnn		FL180 SFC/FL070 SFC/3000M SFC/10000FT FL050/080 TOP FL390 ABV FL250 TOP ABV FL100 3000M 2000/3000M 8000FT 6000/12000FT 2000M/FL150 10000FT/FL250 TOP FL500 TOP ABV FL500 TOP BLW FL450	
Movement or expected movement (C) ^{19, 26}	Movement or expected movement (direction and speed) with reference to one of the sixteen points of compass, or stationary	MOV N [nnKMH] or MOV NNE [nnKMH] or MOV NE [nnKMH] or MOV ENE [nnKMH] or MOV E [nnKMH] or MOV ESE [nnKMH] or MOV SE [nnKMH] or MOV SSE [nnKMH] or MOV S [nnKMH] or MOV SSW [nnKMH] or MOV SW [nnKMH] or MOV WSW [nnKMH] or MOV W [nnKMH] or MOV WNW [nnKMH] or MOV NW [nnKMH] or MOV NNW [nnKMH] (or MOV N [nnKT] or MOV NNE [nnKT] or MOV NE [nnKT] or MOV ENE [nnKT] or MOV E [nnKT] or MOV ESE [nnKT] or MOV SE [nnKT] or MOV SSE [nnKT] or MOV S [nnKT] or MOV SSW [nnKT] or MOV SW [nnKT] or MOV WSW [nnKT] or MOV W [nnKT] or MOV WNW [nnKT] or MOV NW [nnKT] or MOV NNW [nnKT]) or STNR		MOV SE MOV NNW MOV E 40KMH MOV E 20KT MOV WSW 20KT STNR	
Changes in intensity (C) ¹⁹	Expected changes in intensity	INTSF or WKN or NC		INTSF WKN NC	
Forecast time (C) ²⁶	Indication of the forecast time of phenomenon	FCST AT nnnnZ	—	FCST AT 2200Z	—
Forecast position (C) ^{19, 26, 28}	Forecast position of phenomenon at the end of the validity period of the SIGMET message	Nnn[nn] Wnnn[nn] or Nnn[nn] Ennn[nn] or Snn[nn] Wnnn[nn] or Snn[nn] Ennn[nn] or N OF Nnn[nn] or S OF Nnn[nn] or N OF Snn[nn] or S OF Snn[nn] [AND] W OF Wnnn[nn] or E OF Wnnn[nn] or W OF Ennn[nn] or E OF Ennn[nn] or N OF Nnn[nn] or N OF Snn[nn] AND S OF Nnn[nn] or S OF Snn[nn] or W OF Wnnn[nn] or W OF Ennn[nn] AND E OF Wnnn[nn] or E OF Ennn[nn]	—	N30 W170 N OF N30 S OF S50 AND W OF E170 S OF N46 AND N OF N39 NE OF LINE N35 W020 – N45 W040 SW OF LINE N48 W020 – N43 E010 AND NE OF LINE N43 W020 – N38 E010 W1 N20 W090 – N05 W090 – N10 W100 – N20 W100 – N20 W090 APRX 50KM WID LINE BTN N64 W017 – N57 W005 – N55 E010 – N55 E030 ENTIRE FIR	—

		<p>or N OF LINE²³ or NE OF LINE²³ or E OF LINE²³ or SE OF LINE²³ or S OF LINE²³ or SW OF LINE²³ or W OF LINE²³ or NW OF LINE²³ 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]]</p> <p>[AND N OF LINE²³ or NE OF LINE²³ or E OF LINE²³ or SE OF LINE²³ or S OF LINE²³ or SW OF LINE²³ or W OF LINE²³ or NW OF LINE²³ 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]]</p> <p>or W[^{23, 25}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]]</p> <p>or APRX nnKM WID LINE²³ BTN (nnNM WID LINE²³ 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]]</p> <p>or ENTIRE FIR/UIR]</p> <p>or ENTIRE CTA</p> <p>or²¹ TC CENTRE PSN Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]</p> <p>or²² NO VA EXP</p>		<p>ENTIRE FIR/UIR</p> <p>ENTIRE CTA</p> <p>TC CENTRE PSN N2740 W07345</p> <p>NO VA EXP</p>	
Repetition of elements (C) ²⁴	Repetition of elements included in a SIGMET message for volcanic ash cloud or tropical cyclone	[AND] ²⁴	—	AND	—

OR

Cancellation of SIGMET/ AIRMET (C) ³⁰	Cancellation of SIGMET/AIRMET referring to its identification	CNL SIGMET [nn]n nnnnn/nnnnn or CNL SIGMET [nn]n nnnnn/nnnnn [VA MOV TO nnnn FIR] ²⁴	CNL AIRMET [n][n]n nnnnn/nnnnn	CNL SIGMET 2 101200/101600 ³⁰ CNL SIGMET 3 251030/251430 VA MOV TO YUDO FIR ³⁰	CNL AIRMET 05 151520/151800
---	---	--	-----------------------------------	--	--------------------------------

...

Notes.—

1. See 4.1.
2. Fictitious location.
3. In accordance with 1.1.3 and 2.1.2. See 3.1.
4. See 2.1.3.
5. In accordance with 1.1.4 and 2.1.4.
6. In accordance with 4.2.1 a).
7. In accordance with 4.2.4.
8. In accordance with 4.2.1 b).
9. In accordance with 4.2.2.
10. In accordance with 4.2.3.
11. Used for unnamed tropical cyclones.
12. In accordance with 4.2.5 and 4.2.6.
13. In accordance with 4.2.7.
14. In accordance with 4.2.8.
15. In accordance with 2.1.4.
16. In accordance with 4.2.1 c).
17. In accordance with 4.2.1 d).
18. The use of cumulonimbus, CB, (CB) and towering cumulus, TCU, (TCU) is restricted to AIRMETs in accordance with 2.1.4.
19. In the case of the same phenomenon volcanic ash cloud or tropical cyclone covering more than one area within the FIR, these elements can be repeated, as necessary.
20. Only for SIGMET messages for volcanic ash cloud and tropical cyclones.
21. Only for SIGMET messages for tropical cyclones.
22. Only for SIGMET messages for volcanic ash.
23. A straight line is to be used 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.
24. To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
25. The number of coordinates should be kept to a minimum and should not normally exceed seven.
26. The elements 'Forecast Time' and 'Forecast Position' are not to be used in conjunction with the element 'Movement or Expected Movement'.
27. End of the message (as the SIGMET/AIRMET message is being cancelled).
28. The levels of the phenomena remain fixed throughout the forecast period.

...

Table A3.6-1. Template for special air-reports (uplink)

Key: M = inclusion mandatory, part of every message;
C = inclusion conditional, included whenever applicable;
= = a double line indicates that the text following it shall be placed on the subsequent line.

Note.— The ranges and resolutions for the numerical elements included in in special air-reports are shown in Table A6-4 of this appendix.

Table A6-1B. Template for special air-reports (uplink)

<i>Element</i>	<i>Detailed content</i>	<i>Template^{1,2}</i>	<i>Examples</i>
Identification (M)	Message identification and sequence number ⁴ (M)	ARS	ARS
Aircraft identification (M)	Aircraft radiotelephony call sign	nnnnnn	VA812 ³
Observed phenomenon (M) ⁷	Description of observed phenomenon causing the issuance of the special air-report ⁴	TS TSGR SEV TURB SEV ICE SEV MTW HVV SS VA CLD VA [MT nnnnnnnnn] MOD TURB MOD ICE	TS TSGR SEV TURB SEV ICE SEV MTW HVV SS VA CLD VA VA MT ASHVAL ⁵ MOD TURB MOD ICE
Observation time (M)	Time of observation of observed phenomenon	OBS AT nnnnZ	OBS AT 1210Z
Location (C) ¹	Location (referring to latitude and longitude (in degrees and minutes)) of observed phenomenon	NnnnnWnnnnn or NnnnnEnnnnn or SnnnnWnnnnn or SnnnnEnnnnn	N2020W07005 S4812E01036
Level (C) ¹	Flight level or altitude of observed phenomenon	FLnnn or FLnnn/nnn or nnnnM (or [n]nnnnFT)	FL390 FL180/210 3000M 12000FT

Notes.—

1. No wind and temperature to be uplinked to other aircraft in flight in accordance with 3.2.
2. See 3.1.
3. Fictitious call sign.
4. In the case of special air-report for volcanic ash cloud, the vertical extent (if observed) and name of the volcano (if known) can be used.
5. Fictitious location.

Note.— In accordance with 1.1.5 and 2.1.5, severe or moderate turbulence (SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones should not be included.

...

Example A3.6-1.

SIGMET and AIRMET message and the corresponding cancellations

SIGMET

YUDD SIGMET 2 VALID 101200/101600 YUSO –
YUDD SHANLON FIR/UIR OBSC TS FCST
S OF N54 AND E OF W012 TOP FL390 MOV E 20KT WKN

AIRMET

YUDD AIRMET 1 VALID 151520/151800 YUSO –
YUDD SHANLON FIR ISOL TS OBS
N OF S50 TOP ABV FL100 STNR WKN

Cancellation of SIGMET

YUDD SIGMET 3 VALID 101345/101600 YUSO –
YUDD SHANLON FIR/UIR CNL SIGMET 2 101200/101600

Cancellation of AIRMET

YUDD AIRMET 2 VALID 151650/151800 YUSO –
YUDD SHANLON FIR CNL AIRMET 1 151520/151800

Example A3.6-2. SIGMET message for tropical cyclone

YUCC SIGMET 3 VALID 251600/252200 YUDO –
YUCC AMSWELL FIR TC GLORIA PSN N2706 W07306 CB OBS WI 250NM OF TC
CENTRE TOP FL500 NC FCST AT 2200Z TC CENTRE PSN N2740 W07345

Meaning:

The third SIGMET message issued for the AMSWELL* flight information region (identified by YUCC Amwell area control centre) by the Donlon/International* meteorological watch office (YUDO) since 0001 UTC; the message is valid from 1600 UTC to 2200 UTC on the 25th of the month; tropical cyclone Gloria at 27 degrees 6 minutes north and 73 degrees 6 minutes west; cumulonimbus was observed at 1600 UTC within 250 nautical miles of the centre of the tropical cyclone with top at flight level 500; no changes in intensity are expected; at 2200 UTC of the centre of the tropical cyclone is expected forecast to be located at 27 degrees 40 minutes north and 73 degrees 45 minutes west.

* Fictitious location

Example A3.6-3. SIGMET message for volcanic ash

YUDD SIGMET 2 VALID 211100/211700 YUSO –
YUDD SHANLON FIR/UIR VA ERUPTION MT ASHVAL PSN S1500 E07348 VA CLD
OBS AT 1100Z APRX 50KM WID LINE BTN S1500 E07348 – S1530 E07642 FL310/450
INTSF FCST AT 1700Z APRX 50KM WID LINE BTN S1506 E07500 – S1518 E08112 –
S1712 E08330

Meaning:

The second SIGMET message issued for the SHANLON* flight information region (identified by YUDD Shanlon area control centre/upper flight information region) by the Shanlon/International* meteorological watch office (YUSO) since 0001 UTC; the message is valid from 1100 UTC to 1700 UTC on the 21st of the month; volcanic ash eruption of Mount Ashval* located at 15 degrees south and 73 degrees 48 minutes east; volcanic ash cloud observed at 1100 UTC in an approximately 50km wide line between 15 degrees south and 73 degrees 48 minutes east, and 15 degrees 30 minutes south and 76 degrees 42 minutes east; between flight levels 310 and 450, intensifying at 1700 UTC the volcanic ash cloud is forecast to be in an approximately 50km wide line between 15 degrees 6 minutes south and 75 degrees east, 15 degrees 18 minutes south and 81 degrees 12 minutes east, and 17 degrees 12 minutes south and 83 degrees 30 minutes east

* Fictitious location

Example A3.6-4. SIGMET message for radioactive cloud

YUCC SIGMET 2 VALID 201200/201600 YUDO –
YUCC AMSWELL FIR RDOACT CLD OBS AT 1155Z WI S5000 W14000 – S5000
W13800 – S5200 W13800 – S5200 W14000 – S5000 W14000 SFC/FL100 WKN FCST AT
1600Z WI S5200 W14000 – S5200 W13800 – S5300 W13800 – S5300 W14000 – S5200
W14000

Meaning:

The second SIGMET message issued for the AMSWELL* flight information region (identified by YUCC Amswell area control centre) by the Donlon/International* meteorological watch office (YUDO) since 0001 UTC; the message is valid from 1200 UTC to 1600 UTC on the 20th of the month; radioactive cloud was observed at 1155 UTC within an area bounded by 50 degrees 0 minutes south 140 degrees 0 minutes west to 50 degrees 0 minutes south 138 degrees 0 minutes west to 52 degrees 0 minutes south 138 degrees 0 minutes west to 52 degrees 0 minutes south 140 degrees 0 minutes west to 50 degrees 0 minutes south 140 degrees 0 minutes west and between the surface and flight level 100; the radioactive cloud to weaken in intensity; at 1600 UTC the radioactive cloud is forecast to be located within an area bounded by 52 degrees 0 minutes south 140 degrees 0 minutes west to 52 degrees 0 minutes south 138 degrees 0 minutes west to 53 degrees 0 minutes south 138

degrees 0 minutes west to 53 degrees 0 minutes south 140 degrees 0 minutes west to 52 degrees 0 minutes south 140 degrees 0 minutes west.

* Fictitious location

Example A3.6-5. SIGMET message for severe turbulence

YUCC SIGMET 5 VALID 221215/221600 YUDO –
YUCC AMSWELL FIR SEV TURB OBS AT 1210Z N2020 W07005 FL250 INTSF FCST
AT 1600Z S OF N2020 AND E OF W06950

Meaning:

The fifth SIGMET message issued for the AMSWELL* flight information region (identified by YUCC Amswell area control centre) by the Donlon/International* meteorological watch office (YUDO) since 0001 UTC; the message is valid from 1215 UTC to 1600 UTC on the 22nd of the month; severe turbulence was observed at 1210 UTC 20 degrees 20 minutes north and 70 degrees 5 minutes west at flight level 250; the turbulence is expected to strengthen in intensity; at 1600 UTC the severe turbulence is forecast to be located south of 20 degrees 20 minutes north and east of 69 degrees 50 minutes west.

* Fictitious location

...

APPENDIX 8. TECHNICAL SPECIFICATIONS RELATED TO SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS (See CAR-ANS 3.9)

...

1. MEANS OF SUPPLY AND FORMAT OF METEOROLOGICAL INFORMATION

1.1 Meteorological information shall be supplied to operators and flight crew members by one or more of the following, as agreed between the meteorological authority and the operator concerned, and with the order shown below not implying priorities:

...

4. SPECIFICATIONS RELATED TO FLIGHT DOCUMENTATION

4.1 Presentation of information

...

4.1.2 The flight documentation related to concatenated route-specific upper wind and upper-air temperature forecasts shall be provided as agreed between the meteorological authority and the operator concerned.

...

4.2 Charts in flight documentation

4.2.1 Characteristics of charts

4.2.1.1 Charts included in flight documentation shall have a high standard of clarity and legibility and shall have the following physical characteristics:

a) for convenience, the largest size of charts shall be about 42 × 30 cm (standard size A3) and the smallest size shall be about 21 × 30 cm (standard size A4). The choice between these sizes shall depend on the route lengths and the amount of detail that needs to be given in the charts as agreed between the meteorological authorities and the users concerned;

...

5. SPECIFICATIONS RELATED TO AUTOMATED PRE-FLIGHT INFORMATION SYSTEMS FOR BRIEFING, CONSULTATION, FLIGHT PLANNING AND FLIGHT DOCUMENTATION

5.1 Access to the systems

...

5.2 Detailed specifications of the systems

Automated pre-flight information systems for the supply of meteorological information for self-briefing, pre-flight planning and flight documentation shall:

...

c) use access and interrogation procedures based on abbreviated plain language and, as appropriate, ICAO location indicators, and aeronautical meteorological code data-type designators prescribed by the WMO, or based on a menu-driven user interface, or other appropriate mechanisms as agreed between the meteorological authority and the operators concerned; and

...

APPENDIX 3.9. TECHNICAL SPECIFICATIONS RELATED TO INFORMATION FOR AIR TRAFFIC SERVICES, SEARCH AND RESCUE SERVICES AND AERONAUTICAL INFORMATION SERVICES

1. INFORMATION TO BE PROVIDED FOR AIR TRAFFIC SERVICES UNITS

1.1 List of information for the aerodrome control tower

...

a) local routine reports, local special reports, METAR, SPECI, TAF, trend forecasts and amendments thereto, for the aerodrome concerned;

...

1.5 Format of information

...

1.5.1 Local routine reports, local special reports, METAR, SPECI, TAF, trend forecasts, SIGMET and AIRMET information, upper wind and upper-air temperature forecasts and amendments thereto shall be supplied to air traffic services units in the form in which they are prepared, disseminated to other aerodrome meteorological offices or meteorological watch offices, or received from other aerodrome meteorological offices or meteorological watch offices, unless otherwise agreed locally.

1.5.2 When computer-processed upper-air data for grid points are made available to air traffic services units in digital form for use by air traffic services computers, the contents, format and

transmission arrangements shall be as agreed between the meteorological authority and the appropriate ATS authority concerned. The data shall normally be supplied as soon as is practicable after the processing of the forecasts has been completed.

...

APPENDIX 3.10. TECHNICAL SPECIFICATIONS RELATED TO REQUIREMENTS FOR AND USE OF COMMUNICATIONS

(See CAR-ANS 3.11.)

1. SPECIFIC REQUIREMENTS FOR COMMUNICATIONS

1.1 Required transit times of meteorological information

AFTN messages and bulletins containing operational meteorological information shall achieve transit times of less than 5 minutes, unless otherwise determined to be lower by regional air navigation agreement.

1.2 Grid point data for ATS and operators

1.2.1 When upper-air data for grid points in digital form are made available for use by air traffic services computers, the transmission arrangements shall be as agreed between the meteorological authority and the appropriate ATS authority concerned.

1.2.2 When upper-air data for grid points in digital form are made available to operators for flight planning by computer, the transmission arrangements shall be as agreed between the WAFC concerned, the meteorological authority and the operators concerned.

...

ATTACHMENT 3.A. OPERATIONALLY DESIRABLE ACCURACY OF MEASUREMENT OR OBSERVATION

Note.— The guidance contained in this table relates to 3.4 of this CAR-ANS — Supply, use, quality management and interpretation of meteorological information, in particular to 3.4.1.9. Chapter 3.4 — Meteorological observations and reports.

...

ATTACHMENT 3.B. OPERATIONALLY DESIRABLE ACCURACY OF FORECASTS

Note 1.— The guidance contained in this table relates to 3.6 of this CAR-ANS — Supply, use, quality management and interpretation of meteorological information, in particular to 3.6.1.1, and Chapter 3.6 — Forecasts.

...

ATTACHMENT 3.C. SELECTED CRITERIA APPLICABLE TO AERODROME REPORTS

(The guidance in this table relates to Chapter 4 and Appendix 3.)

	<i>Surface wind</i>				...
Specifications	Directional variations ³			Speed variations ³	
	≥ 60° and < 180°				
	Mean speed			Exceeding the mean speed by ≥ 5 m/s (10 kt)	
< 1.5 m/s (3 kt)	≥ 180°		≥ 1.5 m/s (3 kt)		
Local routine and special report	2/10 min ⁷	2/10 min ⁷	2 min	10 min ⁸	
	VRB + 2 extreme directions	mean + 2 extreme directions	VRB (no extremes)	Minimum and maximum speed	
METAR/SPECI	10 min	10 min	10 min	10 min ⁸	
	VRB (no extremes)	mean + 2 extreme directions	VRB (no extremes)	Maximum speed	
Relevant reporting scales for all messages	Direction in three figures rounded off to the nearest 10 degrees (degrees 1 – 4 down, degrees 5 – 9 up)			Speed in 1 m/s or 1 kt Speed < 0.5 m/s (1 kt) indicated as CALM	

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...

CHAPTER 3.5. AIRCRAFT OBSERVATIONS AND REPORTS

...

3.5.5 Special aircraft observations

Special

Special observations shall be made by all aircraft whenever the following conditions are encountered or observed:

...

- h) pre-eruption volcanic activity or a volcanic eruption; or
- i) runway braking action encountered is not as good as reported.

...

4. OBSERVING AND REPORTING OF METEOROLOGICAL ELEMENTS

...

4.8 Supplementary information

...

4.8.1.5 In METAR and SPECI, information on sea-surface temperature, and the state of the sea or the significant wave height, from aeronautical meteorological stations established on offshore structures in support of helicopter operations shall be included in the supplementary information, in accordance with regional air navigation agreement.

Note.— *The state of the sea is specified the Manual on Codes (WMO No. 306), Volume I.1, Part A — Alphanumeric Codes, Code Table 3700.*

...

Table A3.3-2. Template for METAR and SPECI

Key: M = inclusion mandatory, part of every message;
 C = inclusion conditional, dependent on meteorological conditions or method of observation;
 O = inclusion optional.

Note 1.— *The ranges and resolutions for the numerical elements included in METAR and SPECI are shown in Table A3-5 of this appendix.*

Note 2.— *The explanations for the abbreviations can be found in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400)*

Element as specified in Chapter 4	Detailed content	Template(s)		Examples
...				
Supplementary information (C)	Recent weather (C) ^{2, 9}	REFZDZ or REFZRA or REDZ or RE[SH]RA or RERASN or RE[SH]SN or RESG or RESHGR or RESHGS or REBLN or RESS or REDS or RETSRA or RETSSN or RETSGR or RETSGS or RETS or REFC or REVA or REPL or REUP ¹² or REFZUP ¹² or RETSUP ¹² or RESHUP ¹²		REFZRA RETSRA
	Wind shear (C) ²	WS Rnn[L] or WS Rnn[C] or WS Rnn[R] or WS ALL RWY		WS R03 WS ALL RWY WS R18C
	Sea-surface temperature and state of the sea or significant wave height (C) ¹⁵	W[M]nn/Sn or W[M]nn/Hn[n][n]		W15/S2 W12/H75
Trend forecast (O) ¹⁶	Change indicator (M) ¹⁷	NOSIG	BECMG or TEMPO	NOSIG BECMG FEW020
...				

Notes.—

...

15. To be included in accordance with 4.8.1.5

16. To be included in accordance with CAR-ANS 3.6, 3.6.3.2.

17. Number of change indicators to be kept to a minimum in accordance with Appendix 3.5, 2.2.1, normally not exceeding three groups.

...

Table A3.3-5. Ranges and resolutions for the numerical elements included in METAR and SPECI

<i>Element as specified in Chapter 4</i>		<i>Range</i>	<i>Resolution</i>
Runway:	(no units)	01 – 36	1
Wind direction:	°true	000 – 360	10
Wind speed:	MPS	00 – 99*	1
	KT	00 – 199*	1
Visibility:	M	0000 – 0750	50
	M	0800 – 4 900	100
	M	5 000 – 9 000	1 000
	M	10 000 –	0 (fixed value: 9 999)
RVR:	M	0000 – 0375	25
	M	0400 – 0750	50
	M	0800 – 2 000	100
Vertical visibility:	30's M (100's FT)	000 – 020	1
Clouds: height of cloud base:	30's M (100's FT)	000 – 100	1
Air temperature;			
Dew-point temperature:	°C	-80 – +60	1
QNH:	hPa	0850 – 1 100	1
Sea-surface temperature:	°C	-10 – +40	1
State of the sea:	(no units)	0 – 9	1

* There is no aeronautical requirement to report surface wind speeds of 50 m/s (100 kt) or more; however, provision has been made for reporting wind speeds up to 99 m/s (199 kt) for non-aeronautical purposes, as necessary.

— END —

EFFECTIVITY CLAUSE:

Fifteen (15) days after publication in a requisite single newspaper of general circulation or the Official Gazette and a copy filed with the U.P. Law Center - Office of the National Administrative Register, this Memorandum Circular shall take effect and supersede any orders and/or memoranda in conflict herewith.

So ordered. Signed this 05 day of APR 2017, CAAP, Pasay City.


CAPT. JIM C. SYDIONGCO