International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Tenth Meeting of the GREPECAS Aeronautical Meteorology Subgroup (AERMETSG/10)
Buenos Aires, Argentina, 19 to 23 October 2009

Agenda Item 11: Any other business

ANNEX 3 – METEOROLOGICAL SERVICE FOR INTERNATIONAL AIR NAVIGATION

STATUS OF IMPLEMENTATION OF AMENDMENT 74 TO ANNEX 3

(Presented by the Secretariat)

SUMMARY

This working paper presents information on the lack of implementation of Annex 3, Sixteenth Edition, July 2007, and on proposal for amendment 75 to Annex 3.

References:

- State Letter from ICAO's Secretary General, Ref.: AN 10/1.1-07/11 dated 30 March 2007.
- Annex 3 – *Meteorological service for International air navigation*

1. Introduction

1.1 The ICAO Council at the third meeting of its 180th Session, held on 21 February 2007, adopted Amendment 74 to the *International standards and recommended practices, Meteorological Service for International Air Navigation* (Annex 3 to the Convention on International Civil Aviation).

1.2 The Air Navigation Commission, in its 177th Session, fourth and ninth meetings; 178th Session, third and seventh sessions; and 179th Session, fifth and sixth meetings, held on 5 February 2008, 13 May 2008, 12 June 2008, 30 October 2008 and 4 November 2008, respectively, carried out, among other things, a preliminary review to Annex 3 – *Meteorological Service for International Air Navigation*, and authorized that it be sent to contracting States and International Organizations, for comments.

2. Discussion

2.1 The Meeting may recall that the Council set 16 July 2007 as the date that Amendment 74 to Annex 3 would become effective, and resolved that Amendment 74, to the extent it becomes effective, be applicable as of 7 November 2007, except for the provisions regarding the use of world area forecast system (WAFS) forecasts, the application of the aerodrome forecasts validity period and other amendments related to aeronautical meteorological codes, all to become applicable as of 5 November 2008.

2.2 Eleven months have passes since the new TAF format became effective and there are States of the Region that have not yet applied the changes to TAF. In this respect, and in view of continue communications received from IATA in this regard, the Meeting could agree to formulated the following draft conclusion:

DRAFT
CONCLUSION 10/XX - IMPLEMENTATION OF THE NEW TAF FORMAT

That, as a matter of urgency, States that have not yet done so, make all efforts to implement the new TAF format with applicability date 5 November 2008, in accordance with Amendment 74 to Annex 3.

b) Proposal for amendment to Annex 3 - Meteorological Service for International Air Navigation

2.3 **Appendix A** to this working paper presents a copy of letter AN 10/1-09/1 dated 23 January 2009 – Proposal for amendment to Annexes 3, 5, and subsequent amendments to Annexes 11 and 15, PANS-ABC and PANS-ATM, related to aeronautical information services, requesting States to submit comments no later than 24 April 2009.

2.4 Also, the referred letter informs States that the date foreseen for the application of proposal for amendment 75 to Annex 3 is 18 November 2010

2.5 In order that States take pertinent and timely actions, the Meeting could agree to formulate the following draft conclusion:

DRAFT
CONCLUSION 10/XX - AMENDMENT 75 TO ANNEX 3

That the States plan an update course on Amendment 75 to Annex 3 for MET and ATS personnel, once they receive from ICAO the approval of the referred amendment.

3. **Action required**

3.1 The meeting is invited to:

a) take note of the information contained in this working paper;

b) adopt draft conclusions of paragraphs 2.2 and 2.5; and

c) agree on other actions as necessary.

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Ref.: AN 10/1-09/1

23 January 2009

Subject: Proposals for amendments to Annexes 3 and 5 and consequential amendments to Annexes 11 and 15, PANS-ABC and PANS-ATM relating to aeronautical information services

Action required: Comments on the proposal to reach Montréal by 24 April 2009

Sir/Madam,

1. I have the honour to inform you that, the Air Navigation Commission, at the fourth and ninth meetings of its 177th Session, third and seventh meetings of the 178th Session, and the fifth and sixth meetings of its 179th Session held on 5 February 2008, 13 March 2008, 13 May 2008, 12 June 2008, 30 October and 4 November 2008, respectively, carried out preliminary reviews for the amendment of Annex 3 — *Meteorological Service for International Air Navigation*, Annex 5 — *Units of Measurement to be Used in Air and Ground Operations*, Annex 11 — *Air Traffic Services*, Annex 15 — *Aeronautical Information Services*, *Procedures for Air Navigation Services — ICAO Abbreviations and Codes* (PANS-ABC, Doc 8400), *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) and authorized their transmittal to Contracting States and interested international organizations for comment. The proposed amendment to Annex 3 is in Attachment A, and to Annex 5 in Attachment F. The consequential amendments to Annexes 11 and 15, PANS-ABC and PANS-ATM are in Attachments G, E, B and D, respectively.

2. The amendment proposal to Annex 3 involves provisions related to the following issues:

a) meteorological warnings and quality management systems;

b) world area forecast system (WAFS);

c) use of data-link and tropical cyclones advisories;

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d) volcanic ash and hazardous material; and

e) observing and forecasting.

3. The proposal related to meteorological warnings and quality management systems was developed by the Secretariat with the assistance of the Meteorological Warnings Study Group (METWSG) and is mostly related to the safety of international air navigation. The following are specific elements of the amendment proposal:

f) clarification of SIGMET and AIRMET provisions;

g) inclusion of "headwind gain" and "headwind loss" in the template for wind shear warnings; and

h) improvement on the proposals regarding quality management systems.

The proposal regarding "headwind loss" and "headwind gain" necessitated a consequential amendment to PANS-ABC as presented in Attachment B. The proposal to delete paragraph 3.4.4 is based on the fact that paragraph 3.4.2 already calls for "watch over meteorological conditions affecting flight operations" and that, as such, paragraph 3.4.4 would be redundant.

4. With regard to the proposal regarding quality management systems (paragraph 2.2.2 refers), in order to have a better understanding of where States are in the implementation process, the Air Navigation Commission, during its preliminary review, requested that States be asked the following:

a) have quality management systems (QMS) been implemented in your State? If not, please evaluate the time required to have them in place?

b) do you foresee significant cost and efforts to implement Standard 2.2.2 in your State? (Only consider costs related to meteorological service for international air navigation); and

c) do you envisage changes to the level of charging for your meteorological services to international air navigation as a result of the implementation of QMS?

In order to facilitate your response, a form has been provided in Attachment C to be duly completed and returned to ICAO.

5. The amendment proposal related to the development of the WAFS was developed by the Secretariat with the assistance of the World Area Forecast System Operations Group (WAFSOPSG) and is mostly related to efficiency of international air navigation. The proposal improves the provisions of meteorological information within the WAFS and contributes to the efficiency of international air navigation by improving the timeliness, availability and accuracy of operational meteorological (OPMET) information at the flight planning stage, and cost-effectiveness by paving the way for the future reduction of human intervention at the world area forecast centres. It comprises the following specific elements:

a) deletion of the requirement to identify, subject to regional air navigation agreement, the areas for which flight documentation is to be made available at international aerodromes;

b) introduction of WAFS forecasts for cumulonimbus clouds, icing and turbulence in the GRIB code form;

c) improvement to the spatial and temporal resolution of WAFS forecasts in the GRIB code form;

d) introduction of an increase of the lead time for issuance of significant weather (SIGWX) forecasts; and

e) deletion of amendments to WAFS forecasts.

6. The proposal regarding changes to air-reporting including the elimination of routine voice reports and the inclusion of a reference to topical cyclone advisories in graphical format has been developed by the Secretariat with the assistance of the Meteorological Information Data Link Study Group (METLINKSG). The proposal comprises the following specific elements related to safety:

a) improvement to the content of graphical tropical cyclone advisories and SIGMET for tropical cyclones;

b) deletion of the requirement for routine voice reports;

c) improvement of the requirements for special air reports to include “moderate icing” and “moderate turbulence”;

d) introduction of a provision to allow the uplink of meteorological information to the cockpit; and

e) improvement of the requirements for aerodrome warnings.

The proposal regarding the elimination of routine voice reports necessitates a consequential amendment to PANS-ATM as presented in Attachment D.

7. The amendment proposal related to the development of the international airways volcano watch (IAVW) was developed by the Secretariat with the assistance of the International Airways Volcano Watch Operations Group (IAVWOPSG) and is mostly related to safety of international air navigation. The proposal improves the timely provision of meteorological information within the IAVW and comprises the following specific elements:

a) use of portable network graphic (PNG) charts for graphical volcanic ash advisories;

b) update of the template for volcanic ash advisory messages;

c) designation of the focal point for the notification to area control centres regarding the release of the radioactive material into the atmosphere;

d) requirement for the issuance of volcanic ash advisories both in alphanumerical and graphical format; and

e) possibility of issuing volcanic ash advisories without the forecast part in the first advisory.

In addition, the group endorsed consequential amendments to Annex 15, PANS-ABC and PANS-ATM regarding the reporting of volcanic ash deposition as presented in Attachments E, B and D, respectively.

8. The amendment proposal related to observing and forecasting was developed by the Secretariat with the assistance of the Aerodrome Meteorological Observation and Forecast Study Group (AMOFSG) and is mostly related to efficiency of international air navigation. The proposal comprises the following specific elements:

a) revision of meteorological observation in light of developments in automatic observing systems;

b) expansion of the use of automatic systems to encompass local reports;

c) upgrade of the provisions relating to SPECI to a Standard;

d) revision of the requirements for the indication of the direction of minimum visibility;

e) refinement of reporting increments of height of cloud base in local reports; and

f) editorial amendments.

The proposal also comprises an amendment to Annex 5, which would replace "km/h" by "m/s" as the unit of measurement for wind speed. This proposal reflects the fact that no State is known to the Secretariat to use "km/h" for the wind speed, and several States currently file differences to Annex 3 as they operationally use "m/s". It is therefore considered warranted to include this proposal as presented in Attachment F to States for comments. It should be noted that States using knots would not be affected and that a conversion factor of 1 m/s being equivalent to 2 kt would be used in all ICAO Annexes (which is a far closer approximation that the conversion currently used between "km/h" and knots). All ICAO documents would have to be amended subsequently as a consequence of the proposed Annex 5 amendment.

9. In addition, the group endorsed consequential amendments to Annex 11 and PANS-ABC as presented in Attachments G and B, respectively.

10. In examining the proposed amendments, you should not feel obliged to comment on editorial aspects as such matters will be addressed by the Air Navigation Commission during its final review of the draft amendment.

11. May I request that any comments you may wish to make on the proposed amendment to Annexes 3, 5, 11, 15, PANS-ABC and PANS-ATM be dispatched to reach me not later than 24 April 2009. The Air Navigation Commission has asked me to specifically indicate that comments received after the due date may not be considered by the Commission and the Council. In this connection, should you anticipate a delay in the receipt of your reply, please let me know in advance of the due date.

12. For your information, the proposed amendment to Annexes 3, 5, 15 and PANS-ABC are envisaged for applicability on 18 November 2010. The proposed amendments to Annex 11 and PANS-ATM are envisaged for applicability on 15 November 2012. Any comments you may have thereon would be appreciated.

13. The subsequent work of the Air Navigation Commission and the Council would be greatly facilitated by specific statements on the acceptability or otherwise of the amendment proposal. Please note that, for the review of your comments by the Air Navigation Commission and the Council, replies are normally classified as "agreement with or without comments", "disagreement with or without comments", or "no indication of position". If in your reply the expressions "no objections" or "no comments" are used, they will be taken to mean "agreement without comment" and "no indication of position", respectively. In order to facilitate proper classification of your response, a form has been included in Attachment H which may be completed and returned together with your comments, if any, on the proposal in Attachments A, B, D, E, F and G.

Accept, Sir/Madam, the assurances of my highest consideration.

Taïeb Chérif
Secretary General

Enclosures:

A — Proposed amendment to Annex 3
B — Proposed amendment to PANS-ABC
C — Response form to individual questions
D — Proposed amendment to PANS-ATM
E — Proposed amendment to Annex 15
F — Proposed amendment to Annex 5
G — Proposed amendment to Annex 11
H — Response form to the proposed amendments

ATTACHMENT A to State letter AN 10/1-09/1

NOTES ON THE PRESENTATION OF THE PROPOSED AMENDMENTS

1. The text of the proposed amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading as shown below:

~~text to be deleted is shown with a line through it~~	text to be deleted
new text to be inserted is highlighted with grey shading	new text to be inserted
~~text to be deleted is shown with a line through it~~ followed by the new text which is highlighted with grey shading	new text to replace existing text

2. The sources of the proposed amendments have been indicated as follows:

Source	Annotation
Aerodrome Meteorological Observation and Forecast Study Group (AMOFSG)	AMOFSG
International Airways Volcano Watch Operations Group (IAVWOPSG)	IAVWOPSG
Meteorological Information Data Link Study Group (METLINKSG)	METLINKSG
Meteorological Warnings Study Group (METWSG)	METWSG
World Area Forecast System Operations Group (WAFSOPSG)	WAFSOPSG

PROPOSED AMENDMENT TO

**INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES**

**METEOROLOGICAL SERVICE
FOR INTERNATIONAL AIR NAVIGATION**

**ANNEX 3
TO THE CONVENTION OF INTERNATIONAL CIVIL AVIATION**

SIXTEENTH EDITION — JULY 2007

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METWSG

CHAPTER 2. GENERAL PROVISIONS

. . .

2.2 Supply, use and quality ~~assurance and use~~ management of meteorological information

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2.2.2 **Recommendation.—** ~~In order to meet the objective of meteorological service for international air navigation, the~~ Each Contracting State ~~should~~ shall ensure that the designated meteorological authority referred to in 2.1.4 establishes and implements a properly organized quality system comprising procedures, processes and resources necessary to provide for the quality management of the meteorological information to be supplied to the users listed in 2.1.2.

2.2.3 **Recommendation.—** *The quality system established in accordance with 2.2.2 should be in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards and should be certified by an approved organization.*

Note.— The International Organization for Standardization (ISO) 9000 series of quality assurance standards provide a basic framework for the development of a quality assurance programme. The details of a successful programme are to be formulated by each State and in most cases are unique to the State organization. Guidance on the establishment and implementation of a quality system is given in the Manual on the Quality Management System for the Provision of Meteorological Service to International Air Navigation (*Doc 9873)*.

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CHAPTER 3. WORLD AREA FORECAST SYSTEM AND METEOROLOGICAL OFFICES

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WAFSOPSG

3.2 World area forecast centres

3.2.1 A Contracting State, having accepted the responsibility for providing a WAFC within the framework of the world area forecast system, shall arrange for that centre:

a) to prepare ~~for grid points for all required levels~~ gridded global forecasts of:

1) upper wind;

2) upper-air temperature and humidity;

3) geopotential altitude of flight levels;

4) flight level and temperature of tropopause; ~~and~~

5) direction, speed and flight level of maximum wind;

6) cumulonimbus clouds;

7) icing; and

8) turbulence;

b) to prepare global forecasts of significant weather (SIGWX) phenomena;

. . .

3.3 Meteorological offices

. . .

3.3.2 An aerodrome meteorological office shall carry out all or some of the following functions as necessary to meet the needs of flight operations at the aerodrome:

. . .

d) provide briefing, consultation and flight documentation to flight crew members and/or other flight operations personnel;

. . .

~~3.3.3 The aerodrome meteorological offices at which flight documentation is required, as well as the areas to be covered, shall be determined by regional air navigation agreement.~~

Editorial Note.— Renumber the subsequent paragraphs accordingly.

METWSG

3.4 Meteorological watch offices

3.4.1 A Contracting State, having accepted the responsibility for providing air traffic services within a flight information region or a control area, shall establish, by regional air navigation agreement, one or more meteorological watch offices, or arrange for another Contracting State to do so.

3.4.2 A meteorological watch office shall:

a) maintain continuous watch over meteorological conditions affecting flight operations within its area of responsibility;

. . .

IAVWOPSG

Note.— The information is provided, at the request of the delegated authority in a State or the International Atomic Energy Agency (IAEA), by WMO regional specialized meteorological centres (RSMC) for the provision of transport model products for radiological environmental emergency response. 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.

METWSG

3.4.3 **Recommendation.—** *The boundaries of the area over which meteorological watch is to be maintained by a meteorological watch office should~~, in so far as is practicable~~, be coincident with the boundaries of a flight information region or a control area or a combination of flight information regions and/or control areas.*

~~3.4.4 **Recommendation.** — *Meteorological watch should be maintained continuously; however, in areas with a low density of traffic, the watch may be restricted to the period relevant to expected flight operations.*~~

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AMOFSG

CHAPTER 4. METEOROLOGICAL OBSERVATIONS AND REPORTS

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4.1 Aeronautical meteorological stations and observations

. . .

4.1.4 ~~**Recommendation.** —~~ Each Contracting State ~~should~~ shall arrange for its aeronautical meteorological stations to be inspected at sufficiently frequent intervals to ensure that a high standard of observation is maintained, that instruments and all their indicators are functioning correctly, and that the exposure of the instruments has not changed significantly.

Note. — Guidance on the inspection of aeronautical meteorological stations including the frequency of inspections is given in the Manual on Automatic Meteorological Observing Systems at Aerodromes *(Doc 9837).*

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4.7 Reporting meteorological information from automatic observing systems

4.7.1 **Recommendation.**— *Local routine and special reports and METAR and SPECI from automatic observing systems should be used by States in a position to do so during non-operational hours of the aerodrome, and during operational hours of the aerodrome as determined by the meteorological authority in consultation with users based on the availability and efficient use of personnel.*

Note.— Guidance on the use of automatic meteorological observing systems is given in the Manual on Automatic Meteorological Observing Systems at Aerodromes *(Doc 9837)* .

4.7.2 Local routine and special reports and METAR and SPECI from automatic observing systems shall be identified with the word “AUTO”.

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METLINKSG

CHAPTER 5. AIRCRAFT OBSERVATIONS AND REPORTS

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5.3 Routine aircraft observations — designation

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~~5.3.2 When voice communications are used, routine observations shall be made during the en-route phase in relation to those air traffic services reporting points or intervals:~~

~~a) at which the applicable air traffic services procedures require routine position reports; and~~

~~b) which are those separated by distances corresponding most closely to intervals of one hour of flying time.~~

Editorial Note.— Renumber 5.3.3 as 5.3.2

5.3.43 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 5.3.1~~ or 5.3.2, as appropriate~~. The designation procedures shall be subject to regional air navigation agreement.

Editorial Note.— Renumber 5.3.5 as 5.3.4

5.4 Routine aircraft observations — exemptions

Aircraft not equipped with air-ground data link shall be exempted from making routine aircraft observations.

Editorial Note.— Delete paragraphs 5.4.1 and 5.4.2

5.5 Special aircraft observations

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

a) moderate or severe turbulence; or

b) moderate or severe icing; or

. . .

5.7 Reporting of aircraft observations during flight

5.7.1 Aircraft observations shall be reported by air-ground data link. Where air-ground data link is not available or appropriate, special and other non-routine aircraft observations during flight shall be reported by voice communications.

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5.8 Relay of air-reports by ATS units

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

a) ~~routine and~~ special air-reports by voice communications, the ATS units relay them without delay to their associated meteorological watch office;

. . .

AMOFSG

CHAPTER 6. FORECASTS

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6.2 Aerodrome forecasts

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

Note. — The aerodromes for which aerodrome forecasts are to be prepared and the period of validity of these forecasts are listed in the FASID concerned.

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WAFSOPSG

CHAPTER 9. SERVICE FOR OPERATORS AND FLIGHT CREW MEMBERS

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9.1 General provisions

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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 meteorological authority in consultation with operators concerned:

. . .

f) volcanic ash and tropical cyclone advisory information;

Editorial Note.— Renumber the subsequent sub-paragraphs accordingly.

. . .

9.3 Flight documentation

Note.— The requirements for the use of automated pre-flight information systems in providing flight documentation are given in 9.4.

9.3.1 Flight documentation to be made available shall comprise information listed under 9.1.3 a) 1) and 6), b), c), e), f) and, if appropriate, ~~f~~g). However, when agreed between the meteorological authority 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 9.1.3 b), c), e) f) and, if appropriate, ~~f~~g).

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PART II. APPENDICES AND ATTACHMENTS

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APPENDIX 2. TECHNICAL SPECIFICATIONS RELATED TO WORLD AREA FORECAST SYSTEM AND METEOROLOGICAL OFFICES

(See Chapter 3 of this Annex.)

1. WORLD AREA FORECAST SYSTEM

1.1 Formats and codes

WAFCs shall adopt uniform formats and codes for the supply of forecasts ~~and amendments~~.

1.2 Upper-air gridded forecasts

1.2.1 The forecasts of upper wind; upper-air temperature; and humidity; direction, speed and flight level of maximum wind; flight level and temperature of tropopause, areas of cumulonimbus clouds, icing, clear-air and in-cloud turbulence, and geopotential altitude of flight levels shall be prepared four times a day by a WAFC and shall be valid for fixed valid times at 6, 9, 12, 15, 18, 21, 24, 27, 30, 33 and 36 hours after the time (0000, 0600, 1200 and 1800 UTC) of the synoptic data on which the forecasts were based. The dissemination of each forecast shall be in the above order and shall be completed as soon as technically feasible but not later than 6 hours after standard time of observation.

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), 300 (300 hPa), 320 (275 hPa), 340 (250 hPa), 360 (225 hPa), 390 (200 hPa), 450 (150 hPa), and 530 (100 hPa);

b) flight level and temperature of tropopause;

c) direction, speed and flight level of maximum wind;

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

e) horizontal extent and flight levels of base and top of cumulonimbus clouds;

f) icing for layers centered at flight levels 50 (850 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 240 (400 hPa), 300 (300 hPa);

g) clear-air turbulence for layers centered at flight levels 240 (400 hPa), 300 (300 hPa), 340 (250 hPa), 390 (200 hPa) and 450 (150 hPa);

h) in-cloud turbulence for layers centered at flight levels 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 240 (400 hPa), 300 (300 hPa); and

Note. — Layers centred at a flight level referred to in f), g) and h) above have a depth of 100 hPa for levels at or below 400 hPa and a depth of 50 hPa for levels at or above 300 hPa.

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

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1.2.4 The foregoing grid point forecasts shall be prepared by a WAFC in a ~~fixed~~ regular grid with a horizontal resolution of ~~140 km~~ 1.25° of latitude and longitude.

~~*Note. — 140 km represents a distance of about 1.25° of latitude.*~~

1.3 Significant weather (SIGWX) forecasts

1.3.1 General provisions

1.3.1.1 Forecasts of significant en-route weather phenomena shall be prepared as SIGWX forecasts four times a day by a WAFC and shall be valid for fixed valid times at 24 hours after the time (0000, 0600, 1200 and 1800 UTC) of the synoptic data on which the forecasts were based. The dissemination of each forecast shall be completed as soon as technically feasible but not later than ~~11~~ 9 hours after standard time of observation.

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1.3.2 Types of SIGWX forecasts

SIGWX forecasts shall be issued as~~: a)~~ high-level SIGWX forecasts for flight levels between 250 and 630~~; and~~.

Note. — ~~b) m~~Medium-level SIGWX forecasts for flight levels between 100 and 250 for limited geographical areas~~, as determined by regional air navigation agreement~~ will continue to be issued until the year 2013.

1.3.3 Items included in SIGWX forecasts

~~High-level and medium-level~~ SIGWX forecasts shall include the following items:

. . .

Note. 1 — Medium-level SIGWX forecasts include all the items above, as necessary.

~~*Note.*~~*Note. 2 — Items to be included in low-level SIGWX forecasts (i.e. flight levels below 100) are included in Appendix 5.*

1.3.4 Criteria for including items in SIGWX forecasts

The following criteria shall be applied for ~~high-level and medium-level~~ SIGWX forecasts:

. . .

d) where a volcanic eruption or an accidental release of radioactive materials into the atmosphere warrants the inclusion of the volcanic activity symbol or the radioactivity symbol in SIGWX forecasts, the symbols shall be included on ~~high-level and medium-level~~ SIGWX forecasts irrespective of the height to which the ash column or radioactive material is reported or expected to reach; and

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2. METEOROLOGICAL OFFICES

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2.2 Notification of WAFC concerning significant discrepancies

Meteorological offices using WAFS BUFR data shall notify the WAFC concerned immediately if significant discrepancies ~~in accordance with the following criteria~~ are detected or reported in respect of WAFS SIGWX forecasts~~:~~ concerning:

a) icing, turbulence, ~~thunderstorms~~ cumulonimbus clouds that are obscured, frequent, embedded or occurring at a squall line, and sandstorms/duststorms~~:~~; and

~~— newly expected occurrence or non-occurrence; or~~

b) volcanic eruptions or an accidental release of radioactive materials into the atmosphere, of significance to aircraft operations~~:~~.

~~— inclusion or removal of volcanic activity symbol or radiation symbol.~~

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3. VOLCANIC ASH ADVISORIES CENTRES (VAAC)

3.1 Volcanic ash advisory information

3.1.1 ~~**Recommendation.**~~ The advisory information on volcanic ash issued in abbreviated plain language, using approved ICAO abbreviations and numerical values of self-explanatory nature, ~~should~~ shall be in accordance with the template shown in Table A2-1. When no approved ICAO abbreviations are available, English plain language text, to be kept to a minimum, ~~should~~ shall be used.

3.1.2 ~~**Recommendation.**~~ The volcanic ash advisory information listed in Table A2-1, when issued in graphical format, ~~should~~ shall be as specified in Appendix 1 using the portable network graphics (PNG) format. When issued in binary format, the BUFR code form ~~should~~ shall be used.

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METLINKSG

5. TROPICAL CYCLONE ADVISORY CENTRES (TCAC)

5.1 Tropical cyclone advisory information

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5.1.3 **Recommendation.**— *~~When the~~The tropical cyclone advisory information listed in Table A2-2, when~~is~~ issued in graphical format, should be as specified in Appendix 1. When issued in binary format, the BUFR code form should be used.*

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IAVWOPSG

Table A2-1. Template for advisory message for volcanic ash

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	Element	*Detailed content*	*Template(s)*		*Examples*	
	. . .					
5	Location of volcano (M)	Location of volcano in degrees and minutes	PSN:	Nnnnn *or* Snnnn Wnnnnn *or* Ennnnn *or* UNKNOWN ~~*or*~~ ~~UNNAMED~~	PSN: PSN:	N4230 E14048 UNKNOWN
	. . .					
13	Observed *or* estimated ash cloud (M)	Horizontal (in degrees and minutes) and vertical extent at the time of observation of the observed *or* estimated ash cloud *or*, if the base is unknown, the top of the observed *or* estimated ash cloud; movement of the observed *or* estimated ash cloud	OBS VA CLD *or* EST VA CLD:	TOP FLnnn *or* SFC/FLnnn *or* FLnnn/nnn [nnKM WID LINE[2] 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] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]][3] *or* TOP FLnnn *or* SFC/FLnnn *or* FLnnn/nnn MOV N nnKMH (*or* KT) *or* MOV NE nnKMH (*or* KT) *or* MOV E nnKMH (*or* KT) *or* MOV SE nnKMH (*or* KT) *or* MOV S nnKMH (*or* KT) *or* MOV SW nnKMH (*or* KT) *or* MOV W nnKMH (*or* KT) *or* MOV NW nnKMH (*or* KT)[4] *or* VA NOT IDENTIFIABLE ~~FROM~~FM SATELLITE DATA WIND~~S~~ FLnnn/nnn nnn/nn[n]KMH(KT)[4] *or* WIND FLnnn/nnn VRBnnKMH(KT) *or* WIND SFC/FLnnn nnn/nn[n]KMH(KT) *or* WIND SFC/FLnnn VRBnnKMH(KT)	OBS VA CLD:	FL150/350 N4230 E14048 – N4300 E14130 – N4246 E14230 – N4232 E14150 – N4230 E14048 SFC/FL150 MOV NE 25KT FL150/350 MOV E 30KT TOP FL240 MOV W 40KMH VA NOT IDENTIFIABLE FM SATELLITE DATA WIND FL050/070 180/50KMH

Element		*Detailed content*	*Template(s)*		*Examples*	
14	Forecast height and position of the ash clouds (+6 HR) (M)	Day and time (in UTC) (6 hours from the "Time of observation of ash" given in Item 12); Forecast height and position (in degrees and minutes) for each cloud mass for that fixed valid time	FCST VA CLD +6 HR:	nn/nnnnZ SFC *or* FLnnn/[FL]nnn [nnKM WID LINE[2] 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] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]][3] *or* NO VA EXP *or* NOT AVBL *or* NOT PROVIDED	FCST VA CLD +6 HR:	02/1245Z SFC/FL200 N4230 E14048 – N4232 E14150 – N4238 E14300 – N4246 E14230 FL200/350 N4230 E14048 – N4232 E14150 – N4238 E14300 – N4246 E14230 FL350/600 NO VA EXP NOT AVBL NOT PROVIDED
15	Forecast height and position of the ash clouds (+12 HR) (M)	Day and time (in UTC) (12 hours from the "Time of observation of ash" given in Item 12); Forecast height and position (in degrees and minutes) for each cloud mass for that fixed valid time	FCST VA CLD +12 HR:	nn/nnnnZ SFC *or* FLnnn/[FL]nnn [nnKM WID LINE[2] 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] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]][3] *or* NO VA EXP *or* NOT AVBL *or* NOT PROVIDED	FCST VA CLD +12 HR:	02/1845Z SFC/FL300 N4230 E14048 – N4232 E14150 – N4238 E14300 – N4246 E14230 FL300/600 NO VA EXP NOT AVBL NOT PROVIDED
16	Forecast height and position of the ash clouds (+18 HR) (M)	Day and time (in UTC) (18 hours from the "Time of observation of ash" given in Item 12); Forecast height and position (in degrees and minutes) for each cloud mass for that fixed valid time	FCST VA CLD +18 HR:	nn/nnnnZ SFC *or* FLnnn/[FL]nnn [nnKM WID LINE[2] 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] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]][3] *or* NO VA EXP *or* NOT AVBL *or* NOT PROVIDED	FCST VA CLD +18 HR:	03/0045Z SFC/FL600 NO VA EXP NOT AVBL NOT PROVIDED

Element	*Detailed content*	*Template(s)*	*Examples*
. . .			

. . .

Editorial Note.— Replace Example A2-1. Advisory message for volcanic ash by the following new example:

FVFE01 RJTD 230130
VA ADVISORY

DTG:	20080923/0130Z
VAAC:	TOKYO
VOLCANO:	KARYMSKY 1000-13
PSN:	N5403 E15927
AREA:	RUSSIA
SUMMIT ELEV:	1536M
ADVISORY NR:	2008/4
INFO SOURCE:	MTSAT-1R KVERT KEMSD
AVIATION COLOUR CODE:	RED
ERUPTION DETAILS:	ERUPTION AT 20080923/0000Z FL300 REPORTED
OBS VA DTG:	23/0100Z
OBS VA CLD:	FL250/300 N5400 E15930 – N5400 E16100 – N5300 E15945 MOV SE 20KT SFC/FL200 N5130 E16130 – N5130 E16230 – N5230 E16230 – N5230 E16130 MOV SE 15KT
FCST VA CLD +6 HR:	23/0700Z FL250/350 N5130 E16030 – N5130 E16230 – N5330 E16230 – N5330 E16030 SFC/FL180 N4830 E16330 – N4830 E16630 – N5130 E16630 – N5130 E16330
FCST VA CLD +12 HR:	23/1300Z SFC/FL270 N4830 E16130 – N4830 E16600 – N5300 E16600 – N5300 E16130
FCST VA CLD +18 HR:	23/1900Z NO VA EXP
RMK:	LATEST REP FM KVERT (0120Z) INDICATES ERUPTION HAS CEASED. TWO DISPERSING VA CLD ARE EVIDENT ON SATELLITE IMAGERY
NXT ADVISORY:	20080923/0730Z

. . .

AMOFSG

APPENDIX 3. TECHNICAL SPECIFICATIONS RELATED TO METEOROLOGICAL OBSERVATIONS AND REPORTS

(See Chapter 4 of this Annex.)

. . .

2. GENERAL CRITERIA RELATED TO METEOROLOGICAL REPORTS

. . .

2.2 Use of CAVOK

When the following conditions occur simultaneously at the time of observation:

a) visibility, 10 km or more, and the lowest visibility is not reported;

Note 1.— In local routine and special reports, visibility refers to the value(s) to be reported in accordance with 4.2.4.2 and 4.2.4.3; in METAR and SPECI, visibility refers to the value(s) to be reported in accordance with 4.2.4.4~~.~~; and

Note 2. ─ The lowest visibility is reported in accordance with Appendix 3, 4.2.4.4 a).

. . .

2.3 Criteria for issuance of local special reports and SPECI

. . .

2.3.2 Where required in accordance with 4.4.2 b), SPECI shall be issued whenever changes in accordance with the following criteria occur:

a) when the mean surface wind direction has changed by 60° or more from that given in the latest report, the mean speed before and/or after the change being 20 km/h (10 kt) or more;

b) when the mean surface wind speed has changed by 20 km/h (10 kt) or more from that given in the latest report;

c) when the variation from the mean surface wind speed (gusts) has increased by 20 km/h (10 kt) or more from that at the time of the latest report, the mean speed before and/or after the change being 30 km/h (15 kt) or more;

d) when the onset, cessation or change in intensity of any of the following weather phenomena or combinations thereof occurs:

— freezing precipitation
— moderate or heavy precipitation (including showers thereof)
— thunderstorm (with precipitation);

e) when the onset or cessation of any of the following weather phenomena or combinations thereof occurs:

— freezing fog
— thunderstorm (without precipitation);

f) when the amount of a cloud layer below 450 m (1 500 ft) changes:

1) from SCT or less to BKN or OVC; or

2) from BKN or OVC to SCT or less.

2.3.~~2 —~~3 **Recommendation.—** *Where required in accordance with 4.4.2 b), SPECI should be issued whenever changes in accordance with the following criteria occur:*

~~*a) when the mean surface wind direction has changed by 60° or more from that given in the latest report, the mean speed before and/or after the change being 20 km/h (10 kt) or more;*~~

~~*b) when the mean surface wind speed has changed by 20 km/h (10 kt) or more from that given in the latest report;*~~

~~*c) when the variation from the mean surface wind speed (gusts) has increased by 20 km/h (10 kt) or more from that given in the latest report, the mean speed before and/or after the change being 30 km/h (15 kt) or more;*~~

~~*d*~~*a) when the wind changes through values of operational significance. The threshold values should be established by the meteorological authority in consultation with the appropriate ATS authority and operators concerned, taking into account changes in the wind which would:*

1) require a change in runway(s) in use; and

2) indicate that the runway tailwind and crosswind components have changed through values representing the main operating limits for typical aircraft operating at the aerodrome;

~~*e*~~b) *when the visibility is improving and changes to or passes through one or more of the following values, or when the visibility is deteriorating and passes through one or more of the following values:*

1) 800, 1 500 or 3 000 m; and

2) 5 000 m, in cases where significant numbers of flights are operated in accordance with the visual flight rules;

Note 1.— In local special reports, visibility refers to the value(s) to be reported in accordance with 4.2.4.2 and 4.2.4.3; in SPECI, visibility refers to the value(s) to be reported in accordance with 4.2.4.4.

Note 2 — Visibility refers to "prevailing visibility" except in the case where only the lowest visibility is reported in accordance with Appendix 3, 4.2.4.4 b).

~~f~~c) when the runway visual range is improving and changes to or passes through one or more of the following values, or when the runway visual range is deteriorating and passes through one or more of the following values: 150, 350, 600 or 800 m;

~~g~~d) when the onset, cessation or change in intensity of any of the following weather phenomena or combinations thereof occurs:

— ~~freezing precipitation~~
— ~~moderate or heavy precipitation (including showers thereof)~~
— ~~thunderstorm (with precipitation)~~
— duststorm
— sandstorm;

h~~e~~) when the onset or cessation of any of the following weather phenomena or combinations thereof occurs:
— ice crystals
— ~~freezing fog~~
— low drifting dust, sand or snow
— blowing dust, sand or snow
— ~~thunderstorm (without precipitation)~~
— squall
— funnel cloud (tornado or waterspout);

~~i~~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;

~~j) when the amount of a cloud layer below 450 m (1 500 ft) changes:~~

~~1) from SCT or less to BKN or OVC; or~~

~~2) from BKN or OVC to SCT or less;~~

Editorial Note.— Renumber the subsequent sub-paragraphs and paragraph accordingly.

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3. DISSEMINATION OF METEOROLOGICAL REPORTS

3.1 METAR and SPECI

. . .

3.1.3 **~~Recommendation.~~** — SPECI representing a deterioration in conditions ~~should~~ shall be disseminated immediately after the observation. ~~A SPECI representing an improvement in conditions should be disseminated only after the improvement has been maintained for 10 minutes; it should be amended before dissemination, if necessary, to indicate the conditions prevailing at the end of that 10-minute period.~~ A SPECI representing a deterioration of one weather element and an improvement in another element ~~should~~ shall be disseminated immediately after the observation.

3.1.4 **Recommendation.—** *A SPECI representing an improvement in conditions should be disseminated only after the improvement has been maintained for 10 minutes; it should be amended before dissemination, if necessary, to indicate the conditions prevailing at the end of that 10-minute period.*

. . .

4. OBSERVING AND REPORTING OF METEOROLOGICAL ELEMENTS

. . .

4.1 Surface wind

4.1.1 Siting

4.1.1.1 **Recommendation.**— *Surface wind should be observed at a height of ~~approximately 10 m (30 ft)~~ 10 ± 1 m (30 ± 3 ft) above the ~~runway(s)~~ground.*

. . .

4.2 Visibility

. . .

4.2.4 Reporting

. . .

4.2.4.4 **Recommendation.**— *In METAR and SPECI, visibility should be reported as prevailing visibility, as defined in Chapter 1. When the visibility is not the same in different directions and*

a) when the lowest visibility is different from the prevailing visibility, and 1) less than 1 500 m or 2) less than 50 per cent of the prevailing visibility and less than 5 000 m; the lowest visibility observed should also be reported and, when possible, its general direction in relation to the aerodrome indicated by reference to one of the eight points of the compass. If the lowest visibility is observed in more than one direction, then the most operationally significant direction should be reported; and

b) when the visibility is fluctuating rapidly, and the prevailing visibility cannot be determined, only the lowest visibility should be reported, with no indication of direction.

~~4.2.4.5 **Recommendation**. — *In automated METAR and SPECI, when visibility sensors are sited in such a manner that no directional variations can be given, the visibility value reported should be followed by the abbreviation "NDV".*~~

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4.4 Present weather

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4.4.2 Reporting

. . .

4.4.2.4 **Recommendation.—** *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 should 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:

Thunderstorm — Used to report a thunderstorm with precipitation in accordance with the templates shown in Tables A3-1 and A3-2. When thunder is heard or lightning is detected at the aerodrome during the 10-minute period preceding the time of observation but no precipitation is observed at the aerodrome, the abbreviation "TS" shall be used without qualification.	TS
Freezing — Supercooled water droplets or precipitation, used with types of present weather phenomena in accordance with the templates shown in Tables A3-1 and A3-2.	FZ

4.4.2.~~5~~ 6 **Recommendation.—** *In local routine and special reports and in METAR and SPECI, the following characteristics of present weather phenomena, as necessary, should be reported, using their respective abbreviations and relevant criteria, as appropriate:*

~~*Thunderstorm*~~ ~~*— Used to report a thunderstorm with precipitation in accordance with the templates shown in Tables A3-1 and A3-2. When thunder is heard or lightning is detected at the aerodrome during the 10-minute period preceding the time of observation but no precipitation is observed at the aerodrome, the abbreviation "TS" should be used without qualification.*~~	~~*TS*~~

Shower *SH*

— *Used to report showers in accordance with the templates shown in Tables A3-1 and A3-2. Showers observed in the vicinity of the aerodrome (see 4.4.2.6) should be reported as "VCSH" without qualification regarding type or intensity of precipitation.*

~~*Freezing*~~ ~~*FZ*~~

~~— *Supercooled water droplets or precipitation, used with types of present weather phenomena in accordance with the templates shown in Tables A3-1 and A3-2.*~~

Blowing *BL*

— *Used in accordance with the templates shown in Tables A3-1 and A3-2 with types of present weather phenomena raised by the wind to a height of 2 m (6 ft) or more above the ground.*

. . .

Editorial Note.— Renumber 4.4.2.6 as 4.4.2.7

4.4.2.~~7~~ 8 **~~Recommendation.~~** — 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 and 4.4.2.5 ~~should~~ 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;

b) the indication of intensity or proximity, as appropriate, ~~should~~ shall be reported first followed respectively by the characteristics and the type of weather phenomena; and

c) where two different types of weather are observed, they ~~should~~ shall be reported in two separate groups, where the intensity or proximity indicator refers to the weather phenomenon which follows the indicator. However, different types of precipitation occurring at the time of observation ~~should~~ shall be reported as one single group with the dominant type of precipitation reported first and preceded by only one intensity qualifier which refers to the intensity of the total precipitation.

4.5 Clouds

. . .

4.5.3 Reference level

~~Recommendation.~~ —The height of cloud base ~~should normally~~ shall be reported above aerodrome elevation. When a precision approach runway is in use which has a threshold elevation 15 m (50 ft) or more below the aerodrome elevation, local arrangements ~~should~~ shall be made in order that the height of cloud bases reported to arriving aircraft ~~should~~ shall refer to the threshold elevation. In the case of reports from offshore structures, the height of cloud base ~~should~~ shall be given above mean sea level.

4.5.4 Reporting

. . .

4.5.4.2 In the special case of aerodromes where the low-visibility procedures are established for approach and landing, 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). Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

Editorial Note.— Renumber existing 4.5.4.2 and 4.5.4.3 as 4.5.4.3 and 4.5.4.4

. . .

4.5.4.45 **Recommendation.—** *In automated local routine and special reports and METAR and SPECI:*

a) when the cloud type cannot be observed by the automatic observing system, the cloud type in each cloud group should be replaced by "///";

b) when no clouds are detected by the automatic observing system, it should be indicated by using the abbreviation "NCD"; and

c) when cumulonimbus clouds or towering cumulus clouds are detected by the automatic observing system and the cloud amount and the height of cloud base cannot be observed, the cloud amount and the height of cloud base should be replaced by "//////".

. . .

4.8 Supplementary information

4.8.1 Reporting

. . .

4.8.1.3 **Recommendation.—** *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 should 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 A3-1. Template for the local routine (MET REPORT) and local special (SPECIAL) reports

. . .

Element as specified in Chapter 4	*Detailed content*	*Template(s)*			*Examples*	
Identification of the type of report (M)	Type of report	MET REPORT *or* SPECIAL			MET REPORT SPECIAL	
Location indicator (M)	ICAO location indicator (M)	Nnnn			YUDO[1]	
Time of the observation (M)	Day and actual time of the observation in UTC	nnnnnnZ			221630Z	
Identification of an automated report (C)	Automated report identifier (C)	AUTO			AUTO	
. . .						
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* FZRA *or* FZUP[12] *or* FC[13] *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]	IC *or* 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* MIFG *or* PRFG	MOD RA HVY TSRA HVY DZ FBL SN HVY TSRASN FBL SNRA FBL DZ FG HVY SHSN BLSN HVY TSUP	HZ FG VA MIFG
Cloud (M) ~~[12]~~[14]	Name of the element (M)	CLD				
	Runway (O)[2]	RWY nn[L] *or* RWY nn[C] *or* RWY nn[R]			CLD NSC	
	Cloud amount (M) *or* vertical visibility (O)[9]	FEW *or* SCT *or* BKN *or* OVC *or* //////[12]	OBSC	NSC *or* NCD[12]	CLD SCT 300M OVC 600M (CLD SCT 1000FT OVC 2000FT) CLD OBSC VER VIS 150M (CLD OBSC VER VIS 500FT)	
	Cloud type (C)[9]	CB *or* TCU *or* ///[12]	—		CLD BKN TCU 270M (CLD BKN TCU 900FT)	

Element as specified in Chapter 4	*Detailed content*	*Template(s)*				*Examples*
	Height of cloud base *or* the value of vertical visibility (C)[9]	nn[n][n]M (*or* nnn[n]FT)	[VER VIS nn[n]M (*or* VER VIS nnn[n]FT)]			CLD RWY 08R BKN 60M RWY 26 BKN 90M (CLD RWY 08R BKN 200FT RWY 26 BKN 300FT)
. . .						
Supplementary information (C)[9]	Significant meteorological phenomena (C)[9]	CB *or* TS *or* MOD TURB *or* SEV TURB *or* WS *or* GR *or* SEV SQL *or* MOD ICE *or* SEV ICE *or* FZDZ *or* FZRA *or* SEV MTW *or* SS *or* DS *or* BLSN *or* FC[~~13~~15]				FC IN APCH WS IN APCH 60M-WIND: 360/50KMH WS RWY 12
	Location of the phenomenon (C)[9]	IN APCH [nnnM-WIND nnn/nnKMH] *or* IN CLIMB-OUT [nnnM-WIND nnn/nnKMH] (IN APCH [nnnFT-WIND nnn/nnKT] *or* IN CLIMBOUT [nnnFT-WIND nnn/nnKT]) *or* RWY nn[n]				
	Recent weather (C)[9, 10]	REFZDZ *or* REFZRA *or* REDZ *or* RE[SH]RA *or* RERASN *or* RE[SH]SN *or* RESG *or* RESHGR *or* RESHGS *or* REBLSN *or* RESS *or* REDS *or* RETSRA *or* RETSSN *or* RETSGR *or* RETSGS *or* REFC *or* REPL *or* REUP[12] *or* REFZUP[12] *or* RETSUP[12] *or* RESHUP[12] *or* REVA *or* RETS				REFZRA CB IN CLIMB-OUT RETSRA
Trend forecast (O)[~~14~~16]	Name of the element (M)	TREND				
	Change indicator (M)[~~15~~17]	NOSIG	BECMG *or* TEMPO			TREND NOSIG TREND BECMG FEW 600M (TREND BECMG FEW 2000FT)
	Weather phenomenon: characteristics and type (C)[9, 10, ~~12~~11]		DZ *or* RA *or* SN *or* SG *or* PL *or* DS *or* SS *or* FZDZ *or* FZRA *or* SHGR *or* SHGS *or* SHRA *or* SHSN *or* TSGR *or* TSGS *or* TSRA *or* TSSN	IC *or* 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* MIFG *or* PRFG		TREND TEMPO FM0300 TL0430 MOD FZRA TREND BECMG FM1900 VIS 500M HVY SNRA TREND BECMG FM1100 MOD SN TEMPO FM1130 BLSN
. . .						

. . .

12. For automated reports only.
13. Heavy used to indicate tornado or waterspout, no qualifier to indicate funnel cloud not reaching the ground.

Editorial Note.— Renumber the subsequent footnotes accordingly.

Table A3-2. Template for METAR and SPECI

. . .

Element as specified in Chapter 4	*Detailed content*	*Template(s)*				*Examples*		
Identification of the type of report (M)	Type of report (M)	METAR, METAR COR, SPECI *or* SPECI COR				METAR METAR COR SPECI		
. . .								
Visibility (M)	Prevailing *or* minimum visibility (M)[5]	Nnnn			C A V O K	0350 7000~~NDV~~ 9999	CAVOK	
	~~Unidirectional visibility (C)[6]~~	~~NDV~~				0800		
	Minimum visibility ~~(C)[7]~~ and ~~D~~direction of the minimum visibility (C)[7]	nnnn[N] *or* nnnn[NE] *or* nnnn[E] *or* nnnn[SE] *or* nnnn[S] *or* nnnn[SW] *or* nnnn[W] *or* nnnn[NW] ~~N *or* NE *or* E *or* SE *or* S *or* SW *or* W *or* NW~~				2000 1200NW 6000 2800E		
. . .								
Present weather (C)[2, 11]	Intensity *or* proximity of present weather (C)[12]	– *or* +	—	VC				
	Characteristics and type of present weather (M)[13]	DZ *or* RA *or* SN *or* SG *or* PL *or* DS *or* SS *or* FZDZ *or* FZRA *or* FZUP[6] *or* FC[14] *or* SHGR *or* SHGS *or* SHRA *or* SHSN *or* SHUP[6] *or* TSGR *or* TSGS *or* TSRA *or* TSSN *or* TSUP[6] *or* UP[6]	IC *or* 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* MIFG *or* PRFG	FG *or* PO *or* FC *or* DS *or* SS *or* TS *or* SH *or* BLSN *or* BLSA *or* BLDU *or* VA		RA +TSRA +DZ –SN +TSRASN –SNRA DZ FG +SHSN BLSN UP FZUP TSUP FZUP	HZ FG VA MIFG	VCFG VCSH VCTS VCBLSA
. . .								
Supplementary information (C)	Recent weather (C)[2, 11]	REFZDZ *or* REFZRA *or* REDZ *or* RE[SH]RA *or* RERASN *or* RE[SH]SN *or* RESG *or* RESHGR *or* RESHGS *or* REBLSN *or* RESS *or* REDS *or* RETSRA *or* RETSSN *or* RETSGR *or* RETSGS *or* RETS *or* REFC *or* REVA *or* REPL *or* REUP[6] *or* REFZUP[6] *or* RETSUP[6] *or* RESHUP[6]				REFZRA RETSRA		
	Wind shear (C)[2]	WS Rnn[L] *or* WS Rnn[C] *or* WS Rnn[R] *or* WS ALL RWY				WS ~~RWY03~~ R03 WS ALL RWY		

. . .

14. Heavy used to indicate tornado or waterspout, no qualifier to indicate funnel cloud not reaching the ground.

Editorial Note.— Renumber the subsequent footnotes accordingly.

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

Element as specified in Chapter 4		*Range*	*Resolution*
. . .			
Wind speed:	~~KMH~~MS KT	1 – ~~399~~99* 1 – 199*	1 1
Visibility:	M M KM	0 – ~~800~~799 800 – ~~5 000~~4 999 5 – 10	50 100 1
. . .			
Vertical visibility~~:~~	M FT	0 – 600 0 – 2 000	30 100
Clouds: height of cloud base:	M M FT FT	0 – 90 ~~0~~ 90 – 3 000 0 – 300 ~~0~~ 300 – 10 000	15 30 50 100
. . .			

a) * There is no aeronautical requirement to report surface wind speeds of ~~200~~ 50 ~~km/h~~m/s (100 kt) or more; however, provision has been made for reporting wind speeds up to ~~399~~ ~~km/h~~m/s (199 kt) for non-aeronautical purposes, as necessary.

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

Element as specified in Chapter 4		*Range*	*Resolution*
. . .			
Wind speed:	~~KMH~~MS KT	00 – ~~399~~99* 00 – 199*	1 1
Visibility	M M M M	0000 – ~~0800~~0799 0800 – ~~5 000~~4 999 5 000 – ~~9 000~~8 999 9 000 – 9 999	50 100 1 000 999

Element as specified in Chapter 4		*Range*	*Resolution*
. . .			
b) * There is no aeronautical requirement to report surface wind speeds of ~~200~~ 50 ~~km/h~~m/s (100 kt) or more; however, provision has been made for reporting wind speeds up to ~~3~~99 ~~km/h~~m/s (199 kt) for non-aeronautical purposes, as necessary.			

. . .

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APPENDIX 4. TECHNICAL SPECIFICATIONS RELATED TO AIRCRAFT OBSERVATIONS AND REPORTS

(See Chapter 5 of this Annex.)

1. CONTENTS OF AIR-REPORTS

Editorial Note.— Amend "temperature" to read "air temperature" all through Appendix 4.

. . .

Editorial Note.— Delete Section 1.3

~~1.4~~ 1.3 Special air-reports by voice communications

When voice communications are used, the elements contained in special air-reports shall be:

Message type designator

Section 1 (Position information)
Aircraft identification
Position or latitude and longitude
Time
~~Flight l~~Level or ~~altitude~~range of levels

Section 3 (Meteorological information)
Condition prompting the issuance of a special air-report, to be selected from the list presented in Table A4-2.

. . .

3. EXCHANGE OF AIR-REPORTS

3.1 Responsibilities of the meteorological watch offices

~~3.1.1 The meteorological watch offices shall assemble the routine air-reports received by voice communications and shall disseminate them to WAFCs and other meteorological offices in accordance with regional air navigation agreement.~~

~~*Note.— The exchange of collectives on an hourly basis may be found desirable when reports are numerous.*~~

Editorial Note.— Renumber subsequent paragraphs accordingly.

. . .

3.~~1.4~~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 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 6, Table A6-1.

. . .

3.4 Format of air-reports

Air-reports shall be exchanged in the format in which they are received~~, except that when voice communications are used, if the position is given by reference to an ATS reporting point, it shall be converted, by the meteorological watch office, into the corresponding latitude and longitude.~~

. . .

Table A4-2. Template for the special air-report (downlink)

. . .

Element as specified in Chapter 5	*Detailed content*	*Template(s)*	*Examples*
. . .			
Level (M)	Flight level (M)	FLnnn or FLnnn to FLnnn	FL330 FL280 to FL310
. . .			

. . .

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APPENDIX 5. TECHNICAL SPECIFICATIONS RELATED TO FORECASTS

(See Chapter 6 of this Annex.)

1. CRITERIA RELATED TO TAF

. . .

1.2 Inclusion of meteorological elements in TAF

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

1.2.1 Surface wind

~~**Recommendation.**~~ — In forecasting surface wind, the expected prevailing direction ~~should~~ shall be given. When it is not possible to forecast a prevailing surface wind direction due to its expected variability, for example, during light wind conditions (less than 6 km/h (3 kt)) or thunderstorms, the forecast wind direction ~~should~~ shall be indicated as variable using "VRB". When the wind is forecast to be less than 2 km/h (1 kt), the forecast wind speed ~~should~~ shall be indicated as calm. When the forecast maximum speed (gust) exceeds the forecast mean wind speed by 20 km/h (10 kt) or more, the forecast maximum wind speed ~~should~~ shall be indicated. When a wind speed of 200 km/h (100 kt) or more is forecast, it ~~should~~ shall be indicated to be more than 199 km/h (99 kt).

. . .

1.2.3 Weather phenomena

~~**Recommendation.**~~ — 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, ~~should~~ shall be forecast if they are expected to occur at the aerodrome:

— freezing precipitation
— freezing fog
— moderate or heavy precipitation (including showers thereof)
— low drifting dust, sand or snow
— blowing dust, sand or snow
— duststorm
— sandstorm
— thunderstorm (with or without precipitation)
— squall
— funnel cloud (tornado or waterspout)

— other weather phenomena given in Appendix 3, 4.4.2.3, ~~only if they are expected to cause a significant change in visibility~~as agreed by the meteorological authority with the ATS authority and operators concerned.

The expected end of occurrence of those phenomena ~~should~~ shall be indicated by the abbreviation "NSW".

1.2.4 Cloud

Recommendation.— *Cloud amount should be forecast using the abbreviations "FEW", "SCT", "BKN" or "OVC" as necessary. When it is expected that the sky will remain or become obscured and clouds cannot be forecast and information on vertical visibility is available at the aerodrome, the vertical visibility should be forecast in the form "VV" followed by the forecast value of the vertical visibility. When several layers or masses of cloud are forecast, their amount and height of base should be included in the following order:*

a) the lowest layer or mass regardless of amount, to be forecast as FEW, SCT, BKN or OVC as appropriate;

b) the next layer or mass covering more than 2/8, to be forecast as SCT, BKN or OVC as appropriate;

c) the next higher layer or mass covering more than 4/8, to be forecast as BKN or OVC as appropriate; and

d) cumulonimbus clouds and/or towering cumulus clouds, whenever forecast and not already included under a) to c).

Cloud information should be limited to cloud of operational significance; when no cloud of operational significance is forecast, and "CAVOK" is not appropriate, the abbreviation "NSC" should be used.

. . .

1.3 Use of change groups

Note. — Guidance on the use of change and time indicators in TAF is given in Table A5-2.

1.3.1 The criteria used for the inclusion of change groups in TAF or for the amendment of TAF shall be based on any of the following weather phenomena or combinations thereof being forecast to begin or end or change in intensity:

— freezing precipitation
— moderate or heavy precipitation (including showers thereof)
— thunderstorm (with precipitation)
— duststorm
— sandstorm;

~~1.3.1~~1.3.2 **Recommendation.**— *The criteria used for the inclusion of change groups in TAF or for the amendment of TAF should be based on the following:*

. . .

~~*f) when any of the following weather phenomena or combinations thereof are forecast to begin or end or change in intensity:*~~

~~*freezing precipitation*~~
~~*moderate or heavy precipitation (including showers thereof)*~~
~~*thunderstorm (with precipitation)*~~
~~*duststorm*~~
~~*sandstorm;*~~

Editorial Note.— Renumber subsequent paragraphs and sub-paragraphs accordingly.

. . .

2. CRITERIA RELATED TO TREND FORECASTS

. . .

2.2 Inclusion of meteorological elements in trend forecasts

. . .

2.2.4 Weather phenomena

2.2.4.1 The trend forecast shall indicate the expected onset, cessation or change in intensity of one or more of the following weather phenomena or combinations thereof:

— freezing precipitation
— moderate or heavy precipitation (including showers thereof)
— thunderstorm (with precipitation)
— duststorm
— sandstorm
— other weather phenomena given in Appendix 3, 4.4.2.3, ~~only if they are expected to cause a significant change in visibility~~as agreed by the meteorological authority with the ATS authority and operators concerned.

. . .

Table A5-3. Ranges and resolutions for the numerical elements included in TAF

Element as specified in Chapter 6		*Range*	*Resolution*
Wind direction:	° true	000 – 360	10
Wind speed:	~~KMH~~MS KT	00 – ~~399~~99* 00 – 199*	1 1
Visibility:	M M M M	0000 – ~~0800~~0799 0800 – ~~5 000~~4 999 5 000 – ~~9 000~~8 999 9 000 – 9 999	50 100 1 000 999
. . .			

* There is no aeronautical requirement to report surface wind speeds of ~~200~~ 50 ~~km/h~~m/s (100 kt) or more; however, provision has been made for reporting wind speeds up to ~~3~~99 ~~km/h~~m/s (199 kt) for non-aeronautical purposes, as necessary.

. . .

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APPENDIX 6. TECHNICAL SPECIFICATIONS RELATED TO SIGMET AND AIRMET INFORMATION, AERODROME WARNINGS AND WIND SHEAR WARNINGS AND ALERTS

(See Chapter 7 of this Annex.)

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

. . .

1.1.3 SIGMET messages shall be identified with a letter followed by a sequence number. A separate letter and a separate series of sequence numbers shall be used for each phenomenon in the flight information region occurring since, or expected to occur after, ~~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 its area of responsibility.

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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:*

. . .

— *volcanic ash*
— *tsunami*
— *volcanic ash deposition*
— *toxic chemicals*
— *other phenomena as agreed locally.*

. . .

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Table A6-1. Template for SIGMET and AIRMET messages and special air-reports (uplink)

. . .

Element as specified in Chapter 5 and Appendix 6	*Detailed content*	*Template(s)*			*Examples*
		SIGMET	*AIRMET*	*SPECIAL AIR-REPORT*[1]	
. . .					
Identification (M)	Message identification and sequence number[4] (M)	~~SIGMET [nn]n~~ SIGMET n[n]n	~~AIRMET [nn]n~~ AIRMET n[n]n	ARS	SIGMET B5 SIGMET A3 AIRMET C2 ARS
. . .					
IF THE SIGMET 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[8] TS[GR[9]] EMBD[10] TS[GR] FRQ[11] TS[GR] SQL[12] TS[GR] TC nnnnnnnnnn *or* NIL[25] SEV TURB[13] SEV ICE[14] SEV ICE (FZRA)[14] SEV MTW[15] HVY DS HVY SS [VA ERUPTION] [MT] [nnnnnnnnnn] [~~LOC~~PSN Nnn[nn] *or* Snn[nn] Ennn[nn] *or* Wnnn[nn]] VA CLD RDOACT CLD	SFC WSPD nn[n]KMH *(or* SFC WSPD nn[n]KT) SFC VIS nnnnM (nn)[16] ISOL[17] TS[GR][9] OCNL[18] 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[17] CB[19] OCNL[18] CB FRQ[11] CB ISOL[17] TCU[19] OCNL[18] TCU[19] FRQ[11] TCU MOD TURB[13] MOD ICE[14] MOD MTW[15]	TS TSGR SEV TURB SEV ICE SEV MTW HVY SS VA CLD [FL nnn/nnn] VA [MT nnnnnnnnnn]	SEV TURB FRQ TS OBSC TSGR EMBD TSGR TC GLORIA VA ERUPTION MT ASHVAL ~~LOC~~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 [nnnnZ]		OBS AT nnnnZ	OBS AT 1210Z OBS
Location (C)[26]	Location (referring to latitude and longitude (in degrees and minutes) *or* locations *or* geographic features	Nnn[nn] Wnnn[nn] *or* Nnn[nn] Ennn[nn] *or* Snn[nn] Wnnn[nn] *or* Snn[nn] Ennn[nn] *or*		NnnnnWnnnnn *or* NnnnnWnnnnn *or* SnnnnWnnnnn *or* SnnnnEnnnnn	S OF N54 N OF N50 N2020 W07005 AT YUSB[3] N2706 W07306

Element as specified in Chapter 5 and Appendix 6	*Detailed content*	*Template(s)*			*Examples*
		SIGMET	*AIRMET*	*SPECIAL AIR-REPORT*[1]	
	well known internationally)	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* [N OF, NE OF, E OF, SE OF, S OF, SW OF, W OF, NW OF, AT] nnnnnnnnnnnn *or* WI Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – [Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] – Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn]]			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
Level (C)[26]	Flight level and extent[20](C)	FLnnn *or* SFC/FLnnn *or* FLnnn/nnn *or* TOP FLnnn *or* [TOP] ABV FLnnn *or* [TOP] ~~BLW FLnnn *or* BLW nnnnM (*or* BLW nnnnFT)~~ *or* [21] 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* [22] FLnnn/nnn [APRX nnnKM BY nnnKM] [nnKM WID LINE[23] 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]]])		FLnnn	FL180 FL050/080 TOP FL390 ~~BLW FL200~~ SFC/FL078 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)[26]	Movement *or* expected movement (direction and speed) with reference to one of the ~~eight~~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 [KMH] *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*		—	MOV E 40KMH (MOV E 20KT) MOV SE STNR

Element as specified in Chapter 5 and Appendix 6	*Detailed content*	*Template(s)*			*Examples*
		SIGMET	*AIRMET*	*SPECIAL AIR-REPORT*[1]	
		STNR			
Changes in intensity (C)[26]	Expected changes in intensity (C)	INTSF *or* WKN *or* NC		—	WKN
Forecast position (C)[20,26]	Forecast position of volcanic ash cloud *or* the centre of the TC at the end of the validity period of the SIGMET message (C)	FCST nnnnZ TC CENTRE Nnn[nn] *or* Snn[nn] Wnnn[nn] *or* Ennn[nn] *or* FCST nnnnZ VA CLD APRX [nnKM WID LINE[23] 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]	—	—	FCST 2200Z TC CENTRE N2740 W07345 FCST 1700Z VA CLD APRX S15 E075 – S15 E081 – S17 E083 – S18 E079 – S15 E075
. . .					

. . .

24. End of the message (as the SIGMET/AIRMET message is being cancelled).
25. Used for unnamed tropical cyclones.
26. In the case of the same phenomenon covering more than one area within the FIR, these elements can be repeated, as necessary.

. . .

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Table A6-2. Template for aerodrome warnings

. . .

Element	*Detailed content*	*Template*	*Example*
. . .			
IF THE AERODROME WARNING IS TO BE CANCELLED, SEE DETAILS AT THE END OF THE TEMPLATE.			
Phenomenon (M)[2]	Description of phenomenon causing the issuance of the aerodrome warning	TC[3] nnnnnnnnnn *or* [HVY] TS *or* GR *or* [HVY] SN [nnCM][3] *or* [HVY] FZRA *or* [HVY] FZDZ *or* RIME[4] *or* [HVY] SS *or*	TC ANDREW HVY SN 25CM SFC WSPD 80KMH MAX 120 VA TSUNAMI

		[HVY] DS *or* SA *or* DU *or* SFC WSPD nn[n]KMH MAX nn[n] (SFC WSPD nn[n]KT MAX nn[n]) *or* SFC WIND nnn/nn[n]KMH MAX nn[n] (SFC WIND nnn/nn[n]KT MAX nn[n]) *or* SQ *or* FROST *or* TSUNAMI *or* VA[DEPO] *or* TOX CHEM *or* *Free text up to 32 characters* [5]	
. . .			

. . .

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Table A6-3. Template for wind shear warnings

. . .

Element	*Detailed content*	*Template*	*Example*
. . .			
Details of the phenomenon (C)[2]	Description of phenomenon causing the issuance of the wind shear warning	SFC WIND: nnn/nnKMH (*or* nnn/nnKT) nnnM (nnnFT)-WIND: nnn/nnKMH (*or* nnn/nnKT) *or* nnKMH (*or* nnKT) ~~ASPEEDL~~LOSS nnKM (*or* nnNM) FNA RWYnn *or* nnKMH (*or* nnKT) ~~ASPEEDG~~GAIN nnKM (*or* nnNM) FNA RWYnn	SFC WIND: 320/20KMH 60M-WIND: 360/50KMH (SFC WIND: 320/10KT 200FT-WIND: 360/25KT) 60KMH ~~ASPEEDL~~LOSS 4KM FNA RWY13 (30KT ~~ASPEEDL~~LOSS 2NM FNA RWY13)

. . .

. . .

Example A6-4. SIGMET message for severe turbulence

YUCC SIGMET 5 VALID 221215/221600 YUDO –
YUCC AMSWELL FIR SEV TURB OBS AT 1210Z AT YUSB FL250 MOV E 40KMH WKN

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 over Siby/Bistock* aerodrome (YUSB) at flight level 250; the turbulence is expected to move eastwards at 40 kilometres per hour and to weaken in intensity.

* Fictitious locations

. . .

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

(See Chapter 9 of this Annex.)

. . .

2. SPECIFICATIONS RELATED TO INFORMATION FOR PRE-FLIGHT PLANNING AND IN-FLIGHT RE-PLANNING

2.1 Format of upper-air gridded information

Upper-air gridded information supplied by WAFCs for pre-flight and in-flight re-planning shall be in the GRIB code form.

. . .

4. SPECIFICATIONS RELATED TO FLIGHT DOCUMENTATION

4.1 Presentation of information

. . .

4.1.2 METAR and SPECI (including trend forecasts as issued in accordance with regional air navigation agreement), TAF, GAMET, SIGMET ~~and~~, AIRMET and volcanic ash and tropical cyclone advisory information shall be presented in accordance with the templates in Appendices 2, 3, 5 and 6, respectively. ~~METAR, SPECI, TAF, GAMET, SIGMET and AIRMET~~ Such meteorological information received from other meteorological offices shall be included in flight documentation without change.

. . .

6. SPECIFICATIONS RELATED TO INFORMATION FOR AIRCRAFT IN FLIGHT

. . .

6.2 Information for in-flight planning by the operator

Recommendation.— *Meteorological information for planning by the operator for aircraft in flight should be supplied during the period of the flight and should normally consist of any or all of the following:*

. . .

c) SIGMET and AIRMET information and special air-reports relevant to the flight, unless the latter have been the subject of a SIGMET message; ~~*and*~~

d) upper wind and upper-air temperature information~~*.*~~*;*

e) volcanic ash and tropical cyclone advisory information; and

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f) *other meteorological information in alpha-numeric or graphical form as agreed between the meteorological authority and the operator concerned.*

Note.— Guidance on the display of graphical information in the cockpit is provided in the Manual of Aeronautical Meteorological Practice *(Doc 8896)*.

— — — — — — — —

ATTACHMENT B to State letter AN 10/1-09/1

PROPOSED AMENDMENT TO THE PROCEDURES FOR AIR NAVIGATION SERVICES

ICAO ABBREVIATIONS AND CODES (DOC 8400)

SEVENTH EDITION — 2007

ABBREVIATIONS

DECODE

. . .

METWSG

A

. . .

~~ASPEEDG~~GAIN Airspeed or headwind gain
~~ASPEEDL~~LOSS Airspeed or headwind loss

. . .

AMOFSG

B

. . .

BUFR Binary universal form for the representation of meteorological data.

. . .

IAVWOPSG

C

. . .

CHEM Chemical

B-2

. . .

D

. . .

DEPO Deposition

. . .

AMOFSG

O

. . .

~~OTLK Outlook (*used in SIGMET messages for volcanic ash and tropical cyclones)*~~

. . .

R

. . .

~~ROFOR Route forecast (*in meteorological code*)~~

. . .

S

. . .

~~SKC Sky clear~~

. . .

IAVWOPSG

T

. . .

TOX Toxic

. . .

AMOFSG

W

. . .

~~WINTEM Forecast upper wind and temperature for aviation.~~

. . .

Editorial Note.— Amend the encode section accordingly.

— — — — — — — — —

ATTACHMENT C to State letter AN 10/1-09/1

RESPONSE FORM CONCERNING PROPOSED AMENDMENT TO ANNEX 3 RELATED TO QUALITY MANAGEMENT SYSTEMS
(Ref. paragraph 4 of the State letter)

TO BE COMPLETED AND RETURNED TO ICAO

To: The Secretary General
International Civil Aviation Organization
999 University Street
Montreal, Quebec
Canada H3C 5H7

(State) _____

Please encircle

Have quality management systems (QMS) been implemented in your State? Y N
If not, please evaluate the time required to have them in place?

Remarks:

_____
_____
_____
_____

Do you foresee significant cost and efforts to implement the Standard 2.2.2 in your State? Y N
(Only consider costs related to meteorological service for international air navigation)

Remarks

_____
_____
_____
_____

Do you envisage changes to the level of charging for your meteorological services
to international air navigation as a result of the implementation of QMS? Y N

Remarks:

_____
_____
_____
_____

Signature _____ **Date** _____

— — — — — — — —

ATTACHMENT D to State letter AN 10/1-09/1

**PROPOSED AMENDMENT TO THE
PROCEDURES FOR AIR NAVIGATION SERVICES**

AIR TRAFFIC MANAGEMENT (PANS-ATM, Doc 4444)

FIFTEENTH EDITION — 2007

. . .

Chapter 4

GENERAL PROVISIONS FOR AIR TRAFFIC SERVICES

. . .

4.12 REPORTING OF OPERATIONAL AND METEOROLOGICAL INFORMATION

4.12.1 General

METLINKSG

4.12.1.1 When operational and/or routine meteorological information is to be reported, using data link, by an aircraft en route at ~~points or~~ times where position reports are required in accordance with 4.11.1.1 and 4.11.1.2, the position report shall be given in accordance with 4.11.5.2 (requirements concerning transmission of meteorological information from ADS-C equipped aircraft), or in the form of a routine air-report. Special aircraft observations shall be reported as special air-reports. All air-reports shall be reported as soon as is practicable.

~~4.12.1.2 When ADS-C is being applied, routine air-reports shall be made in accordance with 4.11.5.2.~~

4.12.2 Contents of routine air-reports

4.12.2.1 Routine air-reports transmitted by ~~voice or~~ data link, when ADS-C is not being applied, shall give information relating to such of the following elements as are necessary for compliance with 4.12.2.2:

. . .

Section 3.— Meteorological information:

9) ~~air temperature~~wind direction
10) wind ~~direction~~speed

11) wind ~~speed~~quality flag
12) ~~turbulence~~air temperature
13) ~~aircraft icing~~turbulence (if available)
14) humidity (if available).

4.12.2.2 Section 1 of the air-report is obligatory, except that elements 5) and 6) thereof may be omitted when so prescribed on the basis of regional air navigation agreements. Section 2 of the air-report, or a portion thereof, shall only be transmitted when so requested by the operator or a designated representative, or when deemed necessary by the pilot-in-command. Section 3 of the air-report shall be transmitted in accordance with Annex 3, ~~5.3.2~~ Chapter 5.

. . .

4.12.3 Contents of special air-reports

4.12.3.1 Special air-reports shall be made by all aircraft whenever the following conditions are encountered or observed:

a) moderate or severe turbulence; or

b) moderate or severe icing; or

c) severe mountain wave; or

. . .

4.12.3.2 When air-ground data link is used, special air-reports shall contain the following elements:

message type designator
aircraft identification

. . .

Data block 2:

wind direction
wind speed
wind quality flag
air temperature
turbulence (if available)
humidity (if available)

. . .

4.12.4 Compilation and transmission of air-reports by voice communications

4.12.4.1 Forms based on the model ~~AIREP/~~AIREP SPECIAL form at Appendix 1 shall be provided for the use of flight crews in compiling the reports. The detailed instructions for reporting, as given at Appendix 1, shall be complied with.

. . .

4.12.6 Forwarding of meteorological information

. . .

4.12.6.3 When receiving special air-reports by voice communications, air traffic services units shall forward them without delay to their associated meteorological watch offices~~. In the case of routine air-reports which contain a Section 3, the air traffic services unit shall forward Section 1, sub-items 1 to 3 and Section 3.~~

. . .

Chapter 8

ATS SURVEILLANCE SERVICES

. . .

8.6 GENERAL PROCEDURES

. . .

8.6.4 Position information

. . .

8.6.4.4 When so informed, the pilot may omit position reports at compulsory reporting points or report only over those reporting points specified by the air traffic services unit concerned~~, including points at which air-reports are required for meteorological purposes~~. Unless automated position reporting is in effect (e.g. ADS-C), pilots shall resume voice or CPDLC position reporting:

. . .

Chapter 11

AIR TRAFFIC SERVICES MESSAGES

. . .

11.4.2 Movement and control messages

. . .

11.4.2.6 CONTROL MESSAGES

. . .

11.4.2.6.4 *POSITION-REPORT AND AIR-REPORT MESSAGES*

Note.— Provisions governing position reporting are set forth in Annex 2, 3.6.3 and 5.3.3, and in Chapter 4, Sections 4.11 and 4.12 of this document.

11.4.2.6.4.1 The format and data conventions to be used in position-report and special air-report messages are those specified on the model ~~AIREP~~/AIREP SPECIAL form at Appendix 1, using:

a) for position-report messages: Section 1;

b) for special air-report messages: Section 1 followed by Sections 2 and/or 3 as relevant.

. . .

Appendix 1

INSTRUCTIONS FOR AIR-REPORTING BY VOICE COMMUNICATIONS

. . .

1. Reporting instructions

MODEL ~~AIREP~~/AIREP SPECIAL

ITEM	PARAMETER	TRANSMIT IN TELEPHONY as appropriate
—	Message-type designator: • ~~routine air-report~~ • special air-report	~~[AIREP]~~ [AIREP] SPECIAL

Section 1	1	Aircraft identification	*(aircraft identification)*
	2	Position	POSITION *(latitude and longitude)* OVER *(significant point)* ABEAM *(significant point)*

			(significant point) (bearing) (distance)	
	3	Time	*(time)*	
	4	~~Flight level or altitude~~Level	FLIGHT LEVEL *(number)* or *(number)* METRES *or* FEET CLIMBING TO FLIGHT LEVEL *(number)* or *(number)* METRES *or* FEET DESCENDING TO FLIGHT LEVEL *(number)* or *(number)* METRES *or* FEET	
	5	Next position and estimated time over	*(position) (time)*	
	6	Ensuing significant point	*(position)* NEXT	
Section 2	7	Estimated time of arrival	*(aerodrome) (time)*	
	8	Endurance	ENDURANCE *(hours and minutes)*	
Section 3	~~9~~	~~Air temperature~~	~~TEMPERATURE PLUS *(degrees Celsius)*~~ ~~TEMPERATURE MINUS *(degrees Celsius)*~~	
	~~10~~	~~Wind direction~~	~~WIND *(number)* DEGREES~~	~~*or* CALM~~
	~~11~~	~~Wind speed~~	~~*(number)* KILOMETRES PER HOUR *or* KNOTS~~	
	~~12~~	~~Turbulence~~	~~TURBULENCE LIGHT~~ ~~TURBULENCE MODERATE~~ ~~TURBULENCE SEVERE~~	
	~~13~~	~~Aircraft icing~~	~~ICING LIGHT~~ ~~ICING MODERATE~~ ~~ICING SEVERE~~	
	~~14~~	~~Humidity (if available)~~	~~HUMIDITY *(per cent)*~~	
	~~15~~9	Phenomenon encountered or observed, prompting a special air-report: Moderate turbulence • Severe turbulence Moderate icing • Severe icing • Severe mountainwave • Thunderstorms without hail • Thunderstorms with hail • Heavy dust/sandstorm • Volcanic ash cloud • Pre-eruption volcanic activity or volcanic eruption	TURBULENCE MODERATE TURBULENCE SEVERE ICING MODERATE ICING SEVERE MOUNTAINWAVE SEVERE THUNDERSTORMS THUNDERSTORMS WITH HAIL DUSTSTORM *or* SANDSTORM HEAVY VOLCANIC ASH CLOUD PRE-ERUPTION VOLCANIC ACTIVITY *or* VOLCANIC ERUPTION	

1. ~~Routine air-reports~~Position reports and special air-reports

1.1 Section 1 is obligatory for position reports and special air-reports, although Items 5 and 6 thereof may be omitted when prescribed in *Regional Supplementary Procedures*; Section 2 shall be added, in whole or in part, only when so requested by the operator or its designated representative, or when deemed necessary by the pilot-in-command; Section 3 shall be added in accordance with Annex 3 and the *Regional Supplementary Procedures,* Part 3 — *Meteorology*.

~~1.2 Section 3 shall include all Items 9 to 13 and Item 14, if available.~~

D-6

~~2. Special air-reports~~

Editorial Note.— Renumber subsequent paragraphs accordingly.

. . .

~~3.~~ **2. Detailed reporting instructions**

~~3.1~~2.1 Items of an air-report shall be reported in the order in which they are listed in the model ~~AIREP/~~ AIREP SPECIAL form.

— MESSAGE TYPE DESIGNATOR. Report "SPECIAL" for a special air-report.

. . .

Section 3

Editorial Note.— Delete Items 9 to 14

Item ~~15~~9 — PHENOMENON PROMPTING A SPECIAL AIR-REPORT. Report one of the following phenomena encountered or observed:

- moderate turbulence as "TURBULENCE MODERATE"
  severe turbulence as "TURBULENCE SEVERE"
  ~~Specifications under Item 12 apply~~The following specifications apply:

  Moderate — Conditions in which moderate changes in aircraft attitude and/or altitude may occur but the aircraft remains in positive control at all times. Usually, small variations in airspeed. Changes in accelerometer readings of 0.5 g to 1.0 g at the aircraft's centre of gravity. Difficulty in walking. Occupants feel strain against seat belts. Loose objects move about.

  Severe — Conditions in which abrupt changes in aircraft attitude and/or altitude occur; aircraft may be out of control for short periods. Usually, large variations in airspeed. Changes in accelerometer readings greater than 1.0 g at the aircraft's centre of gravity. Occupants are forced violently against seat belts. Loose objects are tossed about.

- moderate icing as "ICING MODERATE"
  severe icing as "ICING SEVERE"

~~Specifications under Item 13 apply.~~ The following specifications apply:

Moderate — Conditions in which change of heading and/or altitude may be considered desirable.

Severe — Conditions in which immediate change of heading and/or altitude is considered essential.

•

severe mountainwave as “MOUNTAINWAVE SEVERE”

The following specification applies:

severe — conditions in which the accompanying downdraft is 3.0 m/s (600 ft/min) or more and/or severe turbulence is encountered.

. . .

~~4.~~3. Forwarding of meteorological information received by voice communications

When receiving ~~routine or~~ special air-reports, air traffic services units shall forward these air-reports without delay to the associated meteorological watch office (MWO). In order to ensure assimilation of air-reports in ground-based automated systems, the elements of such reports shall be transmitted using the data conventions specified below and in the order prescribed.

— ADDRESSEE. Record station called and, when necessary, relay required.

. . .

Section 3

Editorial Note.— Delete Items 8 to 13

Item ~~14~~ 9 PHENOMENON PROMPTING A SPECIAL AIR-REPORT. Record the phenomenon reported as follows:

- moderate turbulence as “TURB MOD”
  severe turbulence as “TURB SEV”
- moderate icing as “ICE MOD”
  severe icing as “ICE SEV”
- severe mountainwave as “MTW SEV”
- thunderstorm without hail as “TS”

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IAVWOPSG

2. Special air-report of volcanic activity form (Model VAR)

MODEL VAR: to be used for post-flight reporting

D-8

VOLCANIC ACTIVITY REPORT

Air-reports are critically important in assessing the hazards which volcanic ash cloud presents to aircraft operations.

OPERATOR:			A/C IDENTIFICATION: (as indicated on flight plan)		
PILOT-IN-COMMAND:					
DEP FROM:	DATE:	TIME; UTC:	ARR AT:	DATE:	TIME; UTC:
ADDRESSEE			AIREP SPECIAL		
Items 1–8 are to be reported immediately to the ATS unit that you are in contact with.					
1) AIRCRAFT IDENTIFICATION			2) POSITION		
3) TIME			4) FLIGHT LEVEL OR ALTITUDE		
5) VOLCANIC ACTIVITY OBSERVED AT (position or bearing, estimated level of ash cloud and distance from aircraft)					
6) AIR TEMPERATURE			7) SPOT WIND		
8) SUPPLEMENTARY INFORMATION c) SO_2 detected Yes ☐ No ☐ d) Ash encountered Yes ☐ No ☐ (Brief description of activity especially vertical and lateral extent of ash cloud and, where possible, horizontal movement, rate of growth, etc.)			_____ _____ _____		
After landing complete items 9–16 then fax form to:					
9) DENSITY OF ASH CLOUD	☐ (a) Wispy		☐ (b) Moderate dense		☐ (c) Very dense
10) COLOUR OF ASH CLOUD	☐ (a) White ☐ (d) Black		☐ (b) Light grey ☐ (e) Other _____		☐ (c) Dark grey
11) ERUPTION	☐ (a) Continuous		☐ (b) Intermittent		☐ (c) Not visible
12) POSITION OF ACTIVITY	☐ (a) Summit ☐ (d) Multiple		☐ (b) Side ☐ (e) Not observed		☐ (c) Single
13) OTHER OBSERVED FEATURES OF ERUPTION	☐ (a) Lightning ☐ (d) Ash fallout		☐ (b) Glow ☐ (e) Mushroom cloud		☐ (c) Large rocks ☐ (f) All
14) EFFECT ON AIRCRAFT	☐ (a) Communication ☐ (d) Pitot static ~~☐ (g) All~~		☐ (b) Navigation systems ☐ (e) Windscreen		☐ (c) Engines ☐ (f) Windows
15) OTHER EFFECTS	☐ (a) Turbulence ~~☐ (d) Ash deposits~~		☐ (b) St. Elmo's Fire		☐ (c) Other fumes
16) OTHER INFORMATION (Any information considered useful.)					

METLINKSG

3. Examples

AS SPOKEN IN RADIOTELEPHONY	**AS RECORDED BY THE AIR TRAFFIC SERVICES UNIT AND FORWARDED TO THE METEOROLOGICAL OFFICE CONCERNED**
Editorial Note.— Delete Examples I and II	
II.-[31] AIREP SPECIAL CLIPPER WUN ZERO WUN POSITION FIFE ZERO FOWer FIFE NORTH ZERO TOO ZERO WUN FIFE WEST WUN FIFE TREE SIX FLIGHT LEVEL TREE WUN ZERO CLIMBING TO FLIGHT LEVEL TREE FIFE ZERO THUNDERSTORMS WITH HAIL	II.- ARS PAA101 5045N02015W 1536 F310 ASC F350 TSGR
III.-[42] SPECIAL NIUGINI TOO SEVen TREE OVER MADANG ZERO AIT FOWer SIX WUN NINer TOUSAND FEET TURBULENCE SEVERE	III.- ARS ANG273 MD 0846 19000FT TURB SEV
Editorial Note.— Delete footnotes 1 and 2.	

3 1. A special air-report which is required because of the occurrence of widespread thunderstorms with hail.

4 2 A special air-report which is required because of severe turbulence. The aircraft is on QNH altimeter setting.

— — — — — — — —

ATTACHMENT E to State letter AN 10/1-09/1

PROPOSED AMENDMENT TO
INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES

AERONAUTICAL INFORMATION SERVICES

ANNEX 15
TO THE CONVENTION OF INTERNATIONAL CIVIL AVIATION

TWELFTH EDITION — JULY 2004

. . .

CHAPTER 5. NOTAM

5.1 Origination

IAVWOPSG

5.1.1.1 A NOTAM shall be originated and issued concerning the following information:

a) establishment, closure or significant changes in operation of aerodrome(s)/heliport(s) or runways;

. . .

r) presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice, volcanic ash deposition or water on the movement area;

. . .

— — — — — — — —

ATTACHMENT F to State letter AN 10/1-09/1

PROPOSED AMENDMENT TO

**INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES**

UNITS OF MEASUREMENT TO BE USED IN AIR AND GROUND OPERATIONS

**ANNEX 5
TO THE CONVENTION OF INTERNATIONAL CIVIL AVIATION**

FOURTH EDITION — JULY 1979

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CHAPTER 3. STANDARD APPLICATION OF UNITS OF MEASUREMENT

. . .

3.3 Application of specific units

. . .

Table 3-4. Standard application of specific units of measurement

Ref. No.	*Quantity*	*Primary unit (symbol)*	*Non-SI alternative unit (symbol)*

. . .

4. ***Mechanics***

. . .

4.16	wind speed [e)]	~~km/h~~m/s	kt

. . .

e) A conversion of 1 kt = 0.5 m/s is used in ICAO Annexes for the representation of wind speed.

~~e)~~ f) The decibel (dB) is a ratio which may be used as a unit for expressing sound pressure level and sound power level. When used, the reference level must be specified.

Editorial Note.— All ICAO documents affected by this change will be updated in due course, with the understanding that all wind speed criteria expressed in knots would have to remain unchanged and that a conversion factor of 1 m/s = 2 knots be used all through ICAO provisions, to ensure that States and users using the unit "knot" would not be affected by this change.

. . .

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ATTACHMENT G to State letter AN 10/1-09/1

PROPOSED AMENDMENT TO

**INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES**

AIR TRAFFIC SERVICES

**ANNEX 11
TO THE CONVENTION OF INTERNATIONAL CIVIL AVIATION**

THIRTEENTH EDITION — JULY 2001

CHAPTER 4. FLIGHT INFORMATION SERVICE

. . .

4.3 Operational flight information service broadcasts

AMOFSG

4.3.7 ATIS for arriving and departing aircraft

ATIS messages containing both arrival and departure information shall contain the following elements of information in the order listed:

. . .

l) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

*m) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

. . .

4.3.8 ATIS for arriving aircraft

ATIS messages containing arrival information only shall contain the following elements of information in the order listed:

G-2

. . .

l) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

*m) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

. . .

4.3.9 ATIS for departing aircraft

ATIS messages containing departure information only shall contain the following elements of information in the order listed:

. . .

k) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

*l) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

. . .

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*These elements are replaced by the term “CAVOK”, whenever the conditions as specified in the PANS-ATM (Doc 4444), Chapter 11 prevail.

— — — — — — — —

ATTACHMENT H to State letter AN 10/1-09/1

RESPONSE FORM
TO BE COMPLETED AND RETURNED TO ICAO
TOGETHER WITH ANY COMMENTS YOU MAY
HAVE ON THE PROPOSED AMENDMENTS

To: The Secretary General
International Civil Aviation Organization
999 University Street
Montreal, Quebec
Canada, H3C 5H7

(**State**) _____

Please make a checkmark (√) against one option for each amendment. If you choose options "agreement with comments" or "disagreement with comments", **please provide your comments on separate sheets**.

	Agreement without comments	*Agreement with comments**	*Disagreement without comments*	*Disagreement with comments*	*No position*
Amendment to **Annex 3** (Attachment A refers)					
Amendment to the *Procedures for Air Navigation Services — ICAO Abbreviations and Codes* (**PANS-ABC**, Doc 8400) (Attachment B refers)					
Amendment to the *Procedures for Air Navigation Services — Air Traffic Managements* (**PANS-ATM**, Doc 4444) (Attachment D refers)					
Amendment to **Annex 15** (Attachment E refers)					
Amendment to **Annex 5** (Attachment F refers)					
Amendment to **Annex 11** (Attachment G refers)					

* "Agreement with comments" indicates that your State or organization agrees with the intent and overall thrust of the amendment proposal; the comments themselves may include, as necessary, your reservations concerning certain parts of the proposal and/or offer an alternative proposal in this regard.

Signature _____ Date _____

— END —