APPENDIX C – PROPOSAL FOR ANNEX 3 PART I PROVISIONS FOR RHWAC

DRAFT AMENDMENT TO ANNEX 3 — METEOROLOGICAL SERVICE FOR INTERNATIONAL AIR NAVIGATION

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PART I
CORE SARPs

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CHAPTER 1. DEFINITIONS

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1.1 Definitions

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Regional hazardous weather advisory centre (RHWAC). A meteorological centre designated by regional air navigation agreement to provide advisory information to meteorological watch offices, world area forecast centres and international OPMET databanks regarding the lateral and vertical extent, forecast location, extent, movement and changes to intensity of significant weather other than tropical cyclone, volcanic ash and space weather which may affect the safety of aircraft operations.

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CHAPTER 3. WORLD AREA FORECAST SYSTEM AND METEOROLOGICAL OFFICES

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3.2 World area forecast centres

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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:

. . .

e) to establish and maintain contact with VAACs, TCACs and RHWACs for the exchange of information on volcanic activity, tropical cyclones, thunderstorms, icing, turbulence, mountain waves and sand/duststorms, in order to coordinate the inclusion of this information ~~on volcanic eruptions~~ in SIGWX forecasts.

. . .

f) supply information received on pre-eruption volcanic activity, a volcanic eruption and volcanic ash cloud for which a SIGMET has not already been issued, to its associated ACC/FIC, as agreed between the meteorological and ATS authorities concerned, and to its associated VAAC as determined by regional air navigation agreement; ~~and~~

g) supply information received concerning the release of radioactive materials into the atmosphere, in the area for which it maintains watch or adjacent areas, to its associated ACC/FIC, as agreed between the meteorological and ATS authorities concerned, and to aeronautical information service units, as agreed between the meteorological and appropriate civil aviation authorities concerned. The information shall comprise location, date and time of the release, and forecast trajectories of the radioactive materials; and

h) supply information received concerning the occurrence and/or expected occurrence of specified en-route weather phenomena for which a SIGMET has not already been issued, to its associated air traffic services units, as agreed between the meteorological and ATS authorities concerned, and information received concerning the occurrence of specified en-route weather phenomena to its associated RHWAC.

3.8 Regional hazardous weather advisory centres

3.8.1 A Contracting State, having accepted the responsibility for providing a RHWAC, shall arrange for that centre to:

a) monitor the development of significant weather including convection, icing, turbulence, mountain waves and sand/duststorms in its area of responsibility, using the available in situ and remote sensing meteorological information as well as numerical predication model(s);

b) issue advisory information regarding the lateral and vertical extent, forecast location and extent, movement and changes to intensity of significant weather referred to in a) to:

1) meteorological watch offices in its area of responsibility which may be affected;

2) other RHWACs whose areas of responsibility may be affected; and

3) meteorological watch offices, world area forecast centres, international OPMET databanks, and centres designated by regional air navigation agreement for the operation of aeronautical fixed service.

3.8.2 Regional hazardous weather advisory centres shall maintain a 24-hour watch.

3.8.3 Close coordination shall be maintained between the RHWAC and the meteorological watch office within its area of responsibility.

3.8.4 In case of interruption of the operation of a RHWAC, its functions shall be carried out by another RHWAC or another meteorological centre, as designated by the RHWAC Provider State concerned.

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CHAPTER 7. SIGMET AND AIRMET INFORMATION, AERODROME WARNINGS AND

WIND SHEAR WARNINGS AND ALERTS

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7.1 SIGMET information

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7.1.4 **Recommendation.—** *SIGMET messages concerning volcanic ash cloud, ~~and~~ tropical cyclones and for thunderstorms, icing, turbulence, mountain waves and sand/duststorms should be based on advisory information provided by VAACs, ~~and~~ TCACs and RHWACs, respectively, designated by regional air navigation agreement.*

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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 agreed between the meteorological authority and the operators concerned:

. . .

f) volcanic ash, ~~and~~ tropical cyclone and hazardous weather advisory information relevant to the whole route;

. . .

PART II
APPENDICES AND ATTACHMENTS

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APPENDIX 1. FLIGHT DOCUMENTATION – MODEL CHARTS AND FORMS

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MODEL TCG	Tropical cyclone advisory information in graphical format
MODEL VAG	Volcanic ash advisory information in graphical format
MODEL XXG	Hazardous weather advisory information in graphical format
MODEL STC	SIGMET for tropical cyclone in graphical format

. . .

HAZARDOUS WEATHER ADVISORY INFORMATION IN GRAPHICAL FORMAT MODEL XXG

<insert graphic here>

. . .

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

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1. WORLD AREA FORECAST SYSTEM

. . .

1.3 Significant weather (SIGWX) forecasts

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1.3.3 Items included in SIGWX forecasts

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h) jet streams;

i) information on the location of volcanic eruptions that are producing ash clouds of significance to aircraft operations, comprising: volcanic eruption symbol at the location of the volcano and, in a separate text box on the chart, the volcanic eruption symbol, the name of the volcano (if known) and the latitude/longitude of the eruption. In addition, the legend of SIGWX charts should indicate "CHECK SIGMET, ADVISORIES ~~FOR TC AND VA,~~ AND ASHTAM AND NOTAM FOR VA".

6. REGIONAL HAZARDOUS WEATHER ADVISORY CENTRES (RHWAC)

6.1 Regional SIGMET advisory information

6.1.1 The advisory information for thunderstorms, icing, turbulence, mountain waves and sand/duststorms, issued in abbreviated plain language, using approved ICAO abbreviations and numerical values of self-explanatory nature, shall be in accordance with the template shown in Table A2-3. When no approved ICAO abbreviations are available, English plain language text, to be kept to a minimum, shall be used.

6.1.2 **Recommendation.—** *Regional hazardous weather advisory centres should issue advisory information in digital form in addition to the issuance of this advisory information in abbreviated plain language in accordance with 6.1.1.*

6.1.3 Advisory information for thunderstorms, icing, turbulence, mountain waves and sand/duststorms, if disseminated in digital form shall be formatted in accordance with a globally interoperable information exchange model and shall use extensible markup language (XML)/geography markup language (GML).

6.1.4 Advisory information for thunderstorms, icing, turbulence, mountain waves and sand/duststorms, if disseminated in digital form shall be accompanied by the appropriate metadata.

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

6.1.5 The advisory information for thunderstorms, icing, turbulence, mountain waves and sand/duststorms listed in Table A2-3, when prepared in graphical format, shall be as specified in Appendix 1 and issued using the portable network graphics (PNG) format.

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Table A2-3. Template for advisory message for thunderstorms, icing, turbulence, mountain waves and sand/duststorms

Key: M = inclusion mandatory, part of every message;
O = inclusion optional;
= = a double line indicates that the text following it should be placed on the subsequent line.

Note 1.— The ranges and resolutions for the numerical elements included in advisory messages for thunderstorms, icing, turbulence, mountain waves and sand/duststorms are shown in Appendix 6, Table A6-4.

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

Note 3.— Inclusion of a "colon" after each element heading is mandatory.

Note 4.— The numbers 1 to xx are included only for clarity and they are not part of the advisory message, as shown in the example.

<insert template here>

Example A2-3. Advisory message for thunderstorms, icing, turbulence,

mountain waves and sand/duststorms

<insert example here>

. . .

APPENDIX 4. TECHNICAL SPECIFICATIONS RELATED TO AIRCRAFT OBSERVATIONS AND REPORTS

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3.1 Responsibilities of the meteorological watch offices

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3.1.2 The meteorological watch office shall transmit without delay special air-reports of pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud received to the associated VAACs.

3.1.3 The meteorological watch office shall transmit without delay special air-reports of thunderstorms, icing, turbulence, mountain waves and sand/duststorms to the associated RHWAC.

3.1.3~~4~~ 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.

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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.

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Table A6-4. Ranges and resolutions for the numerical elements included in ~~volcanic ash and tropical cyclone~~ advisory messages, SIGMET/AIRMET messages and aerodrome and wind shear warnings

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Advisory number:	for VA (index)* for TC (index)* for xx (index)*	000 – 2 000 00 – 99 00 - xxxx	1 1 1

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

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4.1 Presentation of information

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4.1.3 METAR and SPECI (including trend forecasts as issued in accordance with regional air navigation agreement), TAF, GAMET, SIGMET, AIRMET and ~~volcanic ash and tropical cyclone~~ advisory information shall be presented in accordance with the templates in Appendices 1, 2, 3, 5 and 6, respectively. Such meteorological information received from other meteorological offices shall be included in flight documentation without change.

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6.2 Information for in-flight planning by the operator

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a) ~~volcanic ash and tropical cyclone~~ advisory information relevant to the flight; and

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APPENDIX 9. TECHNICAL SPECIFICATIONS RELATED TO INFORMATION FOR AIR TRAFFIC SERVICES, SEARCH AND RESCUE SERVICES AND AERONAUTICAL INFORMATION SERVICES

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1.3 List of information for the area control centre and flight information centre

. . .

f) tropical cyclone advisory information issued by a TCAC in its area of responsibility;

g) volcanic ash advisory information issued by a VAAC in its area of responsibility; ~~and~~

h) thunderstorm, icing, turbulence, mountain wave and sand/duststorm advisory information issued by a RHWAC in its area of responsibility; and

i) information received on pre-eruption volcanic activity and/or a volcanic eruption as agreed between the meteorological and ATS authorities concerned.

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APPENDIX 10. TECHNICAL SPECIFICATIONS RELATED TO REQUIREMENTS FOR AND USE OF COMMUNICATIONS

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1.1 Required transit times of meteorological information

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