



**INTERNATIONAL
CIVIL AVIATION
ORGANIZATION**



**WORLD
METEOROLOGICAL
ORGANIZATION**

MET/14-Flimsy No. 1
CAeM-15/Flimsy No. 1
14/7/14
English only

Meteorology (MET) Divisional Meeting
(2014)

Commission for Aeronautical Meteorology
Fifteenth Session

Montréal, 7 to 18 July 2014

Agenda Item 5: Standards, Recommended Practices and Procedures

5.1: Amendment 77 to Annex 3/Technical Regulations [C.3.1]

**CHANGE TO DRAFT AMENDMENT TO ANNEX 3
AND THE CONSEQUENTIAL AMENDMENT TO THE PANS-ABC**

(Presented jointly by the ICAO and WMO Secretariat)

FLIMSY NO. 1

1. INTRODUCTION

1.1 During the discussions under Agenda Item 2.2, the Committee agreed to not include the draft initial provisions related to space weather in draft Amendment 77 to Annex 3 — *Meteorological Service for International Air Navigation* (MET/14-WP/11|CAeM-15/Doc. 11 refers) in view of the need for the further development of service requirements and capabilities and any additional related guidance material.

2. ACTION BY THE MEETING

2.1 The meeting is invited to agree not to include the provisions related to space weather in draft Amendment 77 to Annex 3, as contained in Appendix A to this Flimsy, and the consequential amendment to the *Procedures for Air Navigation Services — Abbreviations and Codes* (PANS-ABC, Doc 8400), as contained in Appendix B to this Flimsy.

APPENDIX A
ANNEX 3
TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION
EIGHTEENTH EDITION — JULY 2013

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CHAPTER 1. DEFINITIONS

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1.1 Definitions

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Space weather centre (SWXC). A centre designated by regional air navigation agreement to provide information on space weather affecting the earth's surface or atmosphere that is expected to affect communications and navigation systems and may pose a radiation risk to flight crew members and passengers.

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**CHAPTER 3. WORLD AREA FORECAST SYSTEM
AND METEOROLOGICAL OFFICES**

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3.8 Space weather centres

3.8.1 A Contracting State, having accepted, by regional air navigation agreement, the responsibility for providing a space weather centre (SWXC), shall arrange for that centre to provide information on space weather affecting the earth's surface or atmosphere expected to affect communications and navigation systems and which may pose a radiation risk to flight crew members and passengers by arranging for that centre to:

- a) monitor relevant ground-based, airborne, and space-based observations to detect the existence and extent of the following in the area concerned:
 - 1) geomagnetic storms;
 - 2) solar radiation storms;
 - 3) solar flares that result in radio blackout; and
 - 4) ionosphere activity.
- b) provide space weather information regarding the type, intensity and extent of the space weather referred to in a);
- c) supply space weather information referred to in b) to:
 - 1) area control centres and flight information centres serving flight information regions in its area of responsibility which may be affected;

- 2) other SWXCs; and
- 3) international OPMET databanks, international NOTAM offices, and centres designated by regional air navigation agreement for the operation of aeronautical fixed service satellite distribution system and internet-based services

3.8.2 SWXCs shall maintain a 24-hour watch.

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

Note.— Guidance on the provision of space weather information is provided in the Manual on the Effects of Space Weather on International Air Navigation (Doc #####).

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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 ...

- j) ...; and
- k) space weather information relevant to the intended route including aerodrome of departure, intended landing and alternate destination.

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

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6. SPACE WEATHER CENTRES (SWXC)

6.1 Space weather information

6.1.1 **Recommendation.**— *Information on space weather should be issued in abbreviated plain language, using approved ICAO abbreviations and numerical values of a self-explanatory nature, and should 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, should be used.*

Note.— The effects of space weather may be hemispheric or global in nature and may not be specific to traditional aeronautical boundaries such as flight information regions.

6.1.2 **Recommendation.**— *Space weather information should be made available in digital form.*

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

6.1.4 Space weather information if disseminated in digital form shall be accompanied by the appropriate metadata.

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

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Table A2-3. Template for notice message for space weather information

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.

	<i>Element</i>	<i>Detailed content</i>	<i>Template(s)</i>	<i>Examples</i>
1	Identification of the type of message (M)	Type of message	SWNA	SWNA
2	Time of origin (M)	Year, month, day, time in UTC	DTG: nnnnnnnn/hnnnZ	DTG: 20121108/0113Z
3	Space weather type	Type of space weather event (geomagnetic storms, solar radiation storms, radio blackout)	SPACE WEATHER TYPE: GEOMAGNETIC STORM <i>or</i> SOLAR RADIATION STORM <i>or</i> SOLAR RADIO BLACKOUT	SPACE WEATHER TYPE: GEOMAGNETIC STORM
3	Name of SWXC (M)	Name of SWXC	SWXC: nnnnnnnnnn	SWXC: BOULDER
4	AREA (M)	Area of the globe affected	AREA: nnnnnnnnnn	AREA: NP-60N SP-70S NP-80N SP-80S
5	Notice number (M)	Number with year in full and unique message number	NOTICE NR: nnnn/[n][n][n]n	2013/1
7	Space weather details (M)	Concise statement that describes the activity	SPACE WEATHER DETAILS: Free text up to 256 characters	SPACE WEATHER DETAILS:
8	Onset of event (O)	If known, specify time of onset. Year, month, day, time in UTC	ONSET OF EVENT: nnnnnnnn/hnnnZ	ONSET OF EVENT: 20121108/0100Z
9	Duration of event (O)	If known, specify the expected duration of effects. Year, month, day, time in UTC	DURATION OF EVENT: nnnnnnnn/hnnnZ	DURATION OF EVENT: 20121108/1200Z
10	Remarks (O)	Brief comments on related topics (monitoring data, recent history of solar eruptions, etc.)	RMK: Free text up to 256 characters	RMK:
11	Contact (O)	Names, phone numbers (voice/fax), email addresses	CONTACT: Free text up to 256 characters	CONTACT:
12	Next notice (M)	Year, month, day, time in UTC	NXT NOTICE: nnnnnnnn/hnnnZ <i>or</i> Free text up to 256 characters <i>or</i> NO FURTHER NOTICE	NXT NOTICE: 20121108/0600Z NXT NOTICE: WILL BE ISSUED WHEN SPACE WEATHER CONDITIONS WARRANT CHANGING THE AVIATION COLOUR CODE OR WHEN A SIGNIFICANT SPACE WEATHER EVENT OCCURS WITHIN THE CURRENT COLOUR CODE. NXT NOTICE: NO FURTHER NOTICE

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

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4. SPECIFICATIONS RELATED TO FLIGHT DOCUMENTATION

4.1 Presentation of information

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4.1.6 Space weather information shall be presented in accordance with local arrangements made by the meteorological authority and the operator.

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APPENDIX B

**PROCEDURES FOR AIR NAVIGATION SERVICES
ABBREVIATIONS AND CODES**

(PANS-ABC, Doc 8400)

EIGHTH EDITION — 2010

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SWXC Space weather centre

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