



(Lima, Peru, from 18 to 22 September 2017)

Agenda Item 5: Feasibility studies of new MET Projects as a result of the necessary implementations within the framework of Proposal for Amendment 78 to Annex 3 and the conclusions of the work of the MET Panel

Proposal for Amendment to Annex 3

(Presented by the Secretariat)

SUMMARY	
This working paper presents the proposal for amendment circulated to States in April 2017. The main items and the reasons for the proposal are emphasized.	
References: <ul style="list-style-type: none">• State Letter AN 10/1-17/41• Doc 9750 – Global Air Navigation Plan• Doc 10045 - Report of MET/Divisional Meeting (2014)• Doc 9854 – ATM Operational Concept	
ICAO strategic objectives:	<i>A - Safety</i> <i>B – Air navigation capacity and efficiency</i> <i>E – Environmental protection</i>

1. Introduction

1.1 Doc 9750 – Global Air Navigation Plan, in its fourth edition, presents the ASBU methodology, which, under improvement area 2, presents the interoperability between data and systems.

1.2 During the Meteorology Divisional Meeting (2014) (MET/14), several issues of ASBU modules in which MET information is important, were discussed. Also, topics related to space weather, SWIM and MET data exchange standard models were pointed out.

1.3 ICAO Doc 9854, regarding operational concept components, highlights that the provision of meteorological information represents an integrated function of the ATM system, and the information to satisfy ATM requirements should consider both the contents and the format and its opportunity.

2. Analysis

ATM Operational Concept and Meteorological Information

2.1 In accordance with the ATM operational concept, the main benefits of meteorological information for the ATM system are related with the following:

- a) availability of more precise and timely meteorological information will allow to optimize the planning and forecasting of the flight path, which will improve ATM system safety and efficiency;

- b) a greater availability of meteorological information shared aboard the aircraft will allow to define in real time the preferred path;
- c) a better identification, forecasting and presentation of adverse meteorological conditions will allow to confront the effects more efficiently, which will improve safety and flexibility; i.e., precise and timely information on the need to make a deviation or a re-routing will be available;
- d) the improvement of aerodrome reports and forecasts will facilitate the optimum utilization of the capacity available at aerodromes;
- e) a greater availability of meteorological information (air-reports), originated from the meteorological sensors aboard, will contribute to improve the information of meteorological forecasts and the display of these information in real time; and
- f) meteorological information will contribute to reduce to the minimum the effect of air traffic in the environment.

Aviation System Block Upgrades (ASBU)

2.2 Meteorological information is an integral component of the information management environment of all the future system, together with the aeronautical information, flight and flow information and other information sources. While the meteorological information transits from the current formats, mostly gridded, binary, alphanumeric and graphic, to the future non-registered and interoperable codes (as XML/GML) using new aeronautical information exchange models (WXXM), there is a great potential to improve safety and efficiency of the global air traffic management (ATM) system through a greater availability and use of meteorological information.

2.3 It is expected that the proposal or the dynamic integration of ATM and meteorological information (MET) provide timely meteorological information to allow the identification in real time, a greater possibility of forecasting and the integration of ATM solutions operationally efficient to adjust to changing conditions, as well as to facilitate the tactical avoidance of hazard meteorological conditions.

MET Divisional Meeting 2014 - MET/DIV/14

2.4 The MET/DIV/14, in Agenda Item 3, reviewed the integration of the developments regarding meteorological information exchange in the future system wide information management environment. In this regard, the adjustment of the SARPs for the necessary implementations was considered, and also recommended the creation of groups of experts for the specific preparation of provisions related to aeronautical meteorology information exchange as a component of SWIM, mainly meteorological information that should be included in subsequent IWXXM versions.

2.5 The MET/DIV/14 also formulated Recommendation 2/7 requesting the preparation of provisions related to information on space weather conditions.

2.6 Regarding personnel competencies, Recommendations 4/5 and 4/6 were formulated requesting to assist WMO in a major development of a competency framework for aeronautical meteorological personnel and also to prepare guides on the required English level for aeronautical personnel.

Proposal for amendment to Annex 3

2.7 The MET Panel followed up the recommendations formulated by MET/DIV/14. In this sense, the Air Navigation Commission considered the proposals formulated in the Second Meeting of the Meteorology Panel (METP/2) regarding amendments to standards and recommended practices (SARPS) of Annex 3 – *Meteorological Service for international air navigation* and consequent amendments to Annex 15 – *Aeronautical information services*, of the *Procedures for Air Navigation Services – ICAO Abbreviations and Codes* (PANS-ABC, Doc 8400) and of the *Air Navigation Services Procedures – Air Traffic Management* (PANS-ATM, Doc 4444), and authorize the distribution to Member States and Organizations to gather their comments.

2.8 The proposal for amendment was circulated to States on 21 April, with target date for submission of comments for 7 July, and the main items of the proposal for amendment are presented in **Appendix A** to this working paper, with the corresponding origins and rationales.

3. **Conclusions**

3.1 The Meeting should consider the most important and remarkable issues of the proposal for amendment to Annex 3 and study the technical feasibilities of their implementation. The development of update workshops in the new requirements.

3.2 States should outline roadmaps and contact other areas involved for IWXXM, space weather and Personnel Competency related implementation.

3.3 The civil aviation authorities, taking into account the effective dates, should plan the update of the corresponding regulations to include the new requirements of Annex 3.

3.4 The Meeting could consider work projects to be submitted to GREPECAS Programmes and Projects Review Committee (PPRC) in order to work in a regional basis on the implementation of the new requirements incorporated by this proposal for amendment. In this regard, the Secretariat considers that the introduction of space weather and IWXXM are two aspects on which work projects could be developed for their regional implementation. The other items considered in the proposal for amendment could be incorporated as new activities within the existing projects.

3.5 The Meeting could consider that both regions could work together since the work in both aspects is still emerging. The formation of capacities in the States should be considered as a starting point to face these implementations.

4. **Suggested action**

4.1 The Meeting is invited to:

- a) take note of the information provided in this working paper;
- b) review and analyze Appendix A;
- c) agree other actions as necessary, regarding the proposal of paragraph 3.4; and
- d) consider other actions that may deem appropriate.

APPENDIX A

Table 1 – Items considered for the Proposal for Amendment		
Purpose of Amendment	Origin	Rationale
INTRODUCTION OF SPACE WEATHER ADVISORY INFORMATION SERVICE	METP/2	This amendment has been introduced to support the initial implementation of the provision of space weather advisory information to enhance the safety and efficiency of international air navigation consistent with the Global Air Navigation Plan. Due to the pressing need to implement the service, the global service is introduced as a matter of priority with subsequent consideration of the introduction of regionally-based models of integrated service delivery. The provision of this information would include advisories for space weather events affecting, or expected to affect, communications, GNSS-based navigation and surveillance systems, and which could pose a radiation risk to flight crew members and passengers within the next 24 hours.
IMPROVEMENT OF THE PROVISION OF SIGMET INFORMATION BY METEOROLOGICAL WATCH OFFICES (MWOS)	METP/2	The introduction of this proposal for a Note is needed to point to additional guidance material to be developed to support bilateral and multilateral cooperation and coordination of the issuance of SIGMET information before the introduction of the regional advisory system for select en-route hazardous meteorological conditions.
INFORMATION ON THE RELEASE OF RADIOACTIVE MATERIAL INTO THE ATMOSPHERE	METP/2	This proposed amendment has been introduced to support the standardization of the description of airspace affected by a release of radioactive material into the atmosphere by allowing the production of SIGMETs and AIRMETs in a vertical cylinder and when detailed information on the release is not available by allowing the use of a 30 km radius consistent with recommendations from the International Atomic Energy Agency.
SIGMET AND AIRMET INFORMATION	METP/2	This proposed amendment has been introduced to support the inclusion of a clear data line in volcanic ash and tropical cyclone advisories and related SIGMETs to denote those that are issued as part of tests or exercises. This change is necessary to clarify for both users and producers when volcanic ash and tropical cyclone advisories are for test or exercise purposes
INTRODUCTION OF IWXXM	METP/2	This proposed amendment has been introduced to support the exchange of aeronautical meteorological information using the ICAO Meteorological Information Exchange Model (IWXXM). This amendment supports the GANP and will encourage all ICAO States to ensure that they are ready to implement IWXXM for the international exchange of aeronautical meteorological information by November 2020.
GREATER CLARITY IN THE PRESENTATION OF INFORMATION ABOUT TROPICAL CYCLONES (TC) (ANNEX 3)	METP/2	This proposed amendment has been introduced to improve the clarity of the information on tropical cyclones (TC) provided by Annex 3, Table A2-2 Template for advisory message for tropical cyclones, with respect to the advisory number, observation time, centre position, and observed CB cloud. These proposed provisions are reflected in proposals for related changes to SIGMET and AIRMET message.
AERONAUTICAL METEOROLOGICAL PERSONNEL	METP/2	This proposed amendment has been introduced to update Annex 3 with regard to the qualifications, competency, education and training of meteorological personnel to be

QUALIFICATION AND COMPETENCY, EDUCATION AND TRAINING		consistent with the relevant World Meteorological Organization Technical Regulations. This amendment is similar to the provisions already provided in Annex 15, 3.7.4.
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