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**Agenda Item 5: Implementation of air traffic flow management (ATFM) in the SAM Region**

**AIR TRAFFIC FLOW MANAGEMENT MESSAGING**

(Presented by the Secretariat)

Summary	
<p>This working paper proposes the meeting to consider the implementation of ATM messages for coordination and notification between FMU/FMP units, and for users, with a view to the timely dissemination of air traffic flow management initiatives resulting from demand/capacity incompatibility prediction.</p>	
<p><b>Objective</b></p> <p>Meet the strategic objectives, apply the principles and take the steps defined in the initial development strategy of the ATFM Roadmap for the SAM Region.</p>	
<p><b>References</b></p> <ul style="list-style-type: none"><li>• Air Traffic Flow Management Roadmap for the SAM Region</li><li>• ICAO Doc 9426, Air Traffic Services Planning Manual, Part II, Section 1, Chapter 1, Air traffic flow management and flow control</li><li>• Doc 4444/ATM501</li></ul>	
<b>ICAO Strategic Objectives:</b>	<i>A – Safety; and C – Environmental protection and sustainable development of air transport</i>

**1 Background**

1.1 In order to have a common situational awareness during air traffic flow management processes, it has been deemed necessary to implement mechanisms for the dissemination of demand and capacity forecasts, and of ATFM initiatives to be applied during certain operating periods.

1.2 As it may be recalled, the SAM/IG/6 meeting analysed this subject and agreed that the study on the inclusion of ATFM message exchange in the ATFM Manual had to be conducted after the ATFM and CDM course, which was held in Brazil in November 2010, and requested the Secretariat to review the study at the SAM/IG/7 meeting.

## 2 Discussion

2.1 In order to achieve high levels of operational efficiency through an optimum management of both, airspace and airport capacity and air traffic flow, ATFM units should develop ongoing procedures for coordination and the exchange of operational information, using special messages in the basic formats recommended by ICAO in Doc 9426. This information would help to improve the common vision required for attaining pre-operational or tactical planning process efficiency.

### ATFM MESSAGES

2.2 ICAO Doc 9426 suggests the following in item 1.2.4.15:

*“Well before the application of flow control restrictions, predictions of the expected demand should be used to inform operators and pilots of anticipated delays. This advice should be widely disseminated, either by aeronautical fixed telecommunication network (AFTN) or voice circuits, alerting the aircraft/aerodrome operators to such delays, as well as to any diversions that may be required. Such notices can often reduce or even postpone the need for flow control restrictions”.*

2.3 Appendix B to Section 1, Chapter 1 of Doc 9426 outlines examples of typical messages for the control of air traffic flow, as shown below:

### TYPICAL MESSAGES FOR THE CONTROL OF AIR TRAFFIC FLOW

#### GENERAL

2.4 Timely advice on restrictions to the flow of air traffic is essential whenever flow control measures are contemplated. The following messages might be used in circumstances where it is necessary to impose restrictions on the flow of air traffic:

- a) flow delay advice message;
- b) flow control restriction message; and
- c) flow control cancellation message.

#### FLOW DELAY MESSAGE

2.5 When it becomes apparent to an ATC unit that aircraft arriving at or departing from a specific location within a pre-determined period of time will experience significant delays, *i.e.*, for a period of an hour or more, pilots and aircraft/aerodrome operators concerned should be advised of the expected delays or restrictions that will affect them. Such advice is dispatched by means of a flow delay advice message disseminated either by AFTN or voice circuits.

2.6 If possible, the initial flow delay advice message should be sent at least three hours prior to the time the delay is expected to occur. Subsequently, the traffic situation should be reviewed periodically and a revised flow delay advice message sent as soon as significant changes to the situation occur or are expected to occur.

2.7 The flow delay advice message should contain:

- a) the designation of the ATC unit imposing the delay;
- b) the location where the delays are expected or where restrictions are likely to be applied;
- c) information on the traffic concerned (route, destination, etc.);
- d) the flight level(s) concerned;
- e) the off-load route available (designation, condition); and
- f) the anticipated length of delays and the nature and duration of the restrictions, if any.

#### **FLOW CONTROL RESTRICTION MESSAGE**

2.8 When an ATC unit finds it necessary to impose restrictions on the flow of air traffic into a given area, it should transmit a flow control restriction message to the ATC units concerned, specifying the reason in sufficient detail to provide adjacent ATC units with an appreciation of the situation. The flow control restriction message should contain:

- a) the designation of the ATC unit imposing the flow control restriction;
- b) the location where flow control is being applied;
- c) information on the traffic concerned (route, destination, etc.);
- d) the flight level(s) concerned;
- e) the off-load route available (designation, conditions);
- f) the nature of the flow restriction applied;
- g) the expected duration of the flow restriction; and
- h) remarks.

#### **FLOW CONTROL CANCELLATION MESSAGE**

2.9 When a flow delay advice message has been issued or a restriction has been imposed, the ATC unit that imposed the delay or restriction should transmit a flow control cancellation message when the delay or restriction can subsequently be reduced or cancelled. The flow control cancellation message should contain:

- a) reference to the previous message that is being cancelled; and
- b) a statement of what portion, if not all of the previously sent delay or restriction message, is cancelled.

## ATFM MESSAGE FORMAT

2.10 The format and conventional representation of data for automatic exchange of flow control messages have not yet been developed or established by ICAO. However, some authorities that provide ATFM services have developed some formats as described below:

## ATFM INFORMATION AND NOTIFICATION MESSAGES

2.11 ATFM units will be able to keep the information on air traffic management initiatives both planned and underway, permanently updated through the messages described below, using the aeronautical fixed telecommunication network for their dissemination.

**AIM. ATFM Information Message.** Information message sent by an ATFM unit providing ATFM information, advice and instructions to air operators in keeping with the capacity foreseen in the ATFM strategic planning phase (**Appendix A**)

**ANM. ATFM Notification Message.** A message that reports on the regulations planned by an ATFM unit in the ATFM pre/tactical and tactical phases, and which can be updated regularly (**Appendix B**)

2.12 In order to standardise some TMI codes, those listed in the TMI Code table (**Appendix C**) may be used.

## 3 Conclusion

3.1 The ATFM service requires an efficient exchange of operational information, as permitted by the current ICAO recommendations on ATS coordination.

3.2 Furthermore, ATFM units may adopt models to achieve a high level of situational awareness in the Region using ATFM messaging.

## 4 Suggested action

4.1 The meeting is invited to consider:

- a) **Appendices A, B and C** to this working paper, and make the necessary adjustments in order to set the foundations to enable international ATFM coordination for an effective ATFM implementation in the CAR/SAM Regions; and
- b) The inclusion of this ATFM message exchange proposal in the ATFM manual being developed by the SAMIG.

**APPENDIX A****AIM MESSAGE  
CODE, DESCRIPTION, ATFM INITIATIVE****FROM: 06/05/2009 00:00 UNTIL: / / : RELEASED: 06 - 11:58****DESCRIPTION: REPAVEMENT OF RUNWAY 13L****MESSAGE DETAILS: -----****SUBJECT: WORK ON RUNWAY 13L****REF: NOTAMS C1067/97 AND A1088/97****-****REPAVEMENT OF RUNWAY 13L WILL START ON 24 JUNE 2009 AND WILL BE COMPLETED ON 10 OCTOBER 2009.****-****SCHEDULE: 0600-2000 UTC****-****SCOPE: ARRIVALS AND DEPARTURES TO/FROM ELDORADO AIRPORT****-****FORESEEN CAPACITY      AAR 25 ADR 30****CODE DESCRIPTION****FROM/UNTIL:** Start/end date and time of message.**RELEASED:** Date and time of issuance of the AIM message.**DESCRIPTION:** Summarised description of the AIM message.**DETAIL:** Message details.



**APPENDIX B****ANM MESSAGE  
CODE, DESCRIPTION, ATFM INITIATIVE****ANM VALID: 04/06/2007 NUM: 001 RELEASE: 041026****AREA CONCERNED \_\_\_\_\_ FL \_\_\_\_\_ FROM/TO \_\_\_\_\_****SKBO NEW****DEST SKBO****ALL****0600 0800****REGULATION****20 OPS/H****REASON: G****RMK: NOTAM C1345/07****CODE DESCRIPTION:****ANM:** Type of message (ATFM notification message).**VALID:** Message effective date.**NUM:** Day sequence number.**RELEASE:** Day and time of issuance.**AIRPORT/SECTOR CONCERNED:** (SKBO) and regulatory status (NEW, CANCEL, CHANGE).**AREA CONCERNED:** Traffic to which the regulation applies (*e.g.*: DEST SKBO).**FL:** Flight levels affected (*e.g.*: ALL).**FROM/TO:** Schedule in which the restriction applies.**REGULATION:** Operations/time.**REASON:** TMI REASON. **TMI Code (Appendix B)****RMK:** Remarks.





**APPENDIX C**  
**TMI CODES**

REASON FOR THE REGULATION	CODE	LOCATION OF THE REGULATION	EXAMPLE
ATC capacity	C	T	<i>Demand exceeds capacity</i>
		E	
		L	
Actions by ATC	I	T	<i>Strike or stoppage by controllers</i>
		E	
		L	
ATC routings	I	E	<i>Application of new procedures</i>
ATC equipment	T	T	<i>Radar failure / Frequency failure</i>
		E	
		L	
Accident Incident	A	T	<i>Runway 13L closed due to accident</i>
		L	
Airport capacity	G	T	<i>Lack of parking positions, closed taxiways, the demand exceeds the declared capacity of the airport</i>
		L	
Navigation aids	E	T	<i>Failure of the runway lighting system, LLZ or GP failure</i>
		L	
Airport services	N	T	<i>Strike by fire-fighters</i>
		L	
Military activities	M	T	<i>OP operations</i>
		E	
		L	
Special events	P	T	<i>Visits by illustrious personalities</i>
		L	
Meteorology	W	T	<i>Storms, low visibility, wind</i>
		E	
		L	
Environmental problems	V	T	<i>Noise, birds</i>
		L	
Other	O	T	<i>Hijacking, bombs</i>
		E	
		L	

- Scope T Take-off / E En-route/ L Landing