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North American, Central American and Caribbean Office

Second Meeting of North American, Central American and Caribbean Directors of Civil Aviation (NACC/DCA/2)

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Agenda Item 3: Air Navigation Services
3.1 CNS/ATM

NAM/CAR INTRA AND INTERREGIONAL AIR TRAFFIC FLOW MANAGEMENT (ATFM) SYSTEM

(Presented by the Secretariat)

SUMMARY

This Working paper presents a joint strategy for the implementation of a NAM/CAR intra and interregional ATFM system.

References:

- Annex 11 - *Air Traffic Services*.
- Doc 9854 - *Global Air Traffic Management Operational Concept*.
- Report of the Air Traffic Flow Management (ATFM) Coordination Meeting for the NAM/CAR Regions (ATFM/1) (Mexico City, Mexico, 8 to 10 August 2005).
- Report of the Fourth Meeting of the ATM Committee of the ATM/CNS Subgroup of GREPECAS (Mexico City, Mexico, 15 to 19 August 2005).

1. Introduction

1.1 In accordance with Annex 11, ATFM shall be implemented for airspace where air traffic demand at time exceeds, or is expected to exceed, the declared capacity of the air traffic control services concerned. The ATFM should be implemented on the basis of regional air navigation agreements or through multilateral agreements.

1.2 The ATM Operational Concept, supported by the AN-Conf/11, contains guidelines for balancing demand and capacity of the required service for air operations. The global ATM Operational Concept, published as ICAO Doc 9854, together with the Global Air Navigation Plan for CNS/ATM Systems, provide to the States guidelines on the suitable planning of the harmonized implementation of the required elements in a global ATM system.

1.3 In recent ICAO visits to several States of the NAM and CAR Regions, it was detected that presently, there are saturation periods at several airports and traffic flows in the Santo Domingo, Bahamas, Mexico and Miami FIRs, and it was recommended that States involved begin studies to establish balancing measures between ATS demand and capacity.

1.4 Taking into account the increase of air operations, several States have implemented ATFM units, holding bilateral and/or multilateral agreements with other ATS providers to establish balancing measures between demand and capacity.

1.5 In the NAM Region, Canada and United States have each developed their own Centralized ATFM Centre, which means that presently there are two centralized ATFM units. There is no limitation for establishing more than one centralized ATFM unit per Region; however, the ideal situation is to have the least centralized ATFM units per region.

1.6 Mexico has implemented strategic measures on Air Traffic Flow Management for the Mexico City International Airport and the San Jose del Cabo Airport, using an interface with the United States ETMS (Enhanced traffic management system). These measures have allowed a significant reduction in the holding patterns, holding time, air traffic congestion in the vicinity and aircraft fuel consumption, causing great benefits to users and ATS providers.

1.7 COCESNA has started an ATFM implementation project in the short term, taking into account the horizon established in the GREPECAS approved CAR/SAM ATM Evolution Tables. To that end, COCESNA and FAA have established an agreement to share operational information through the use of the ETMS to monitor traffic flows to/from the NAM, CAR and SAM Regions.

2. Analysis

2.1 Considering the need for coordinating balancing measures between ATS demand and capacity, the Air Traffic Flow Management (ATFM) Coordination Meeting for the NAM and CAR Regions, was held in Mexico City, Mexico, from 8 to 10 August 2005, where the current air traffic flows and different ATFM scenarios, and the 7% increase of the operations volume between the NAM/CAR Regions were analyzed.

2.2 During its discussions, the ATFM/1 Meeting also reviewed the traffic flows of the NAM Region to/from the Eastern Caribbean and of the Caribbean to/from Europe, and it was observed that these have kept sustained annual increases. COCESNA identified an additional flow of continental-oceanic traffic of medium intensity between Central America and Miami. With these results, the ATFM/1 meeting concluded that the CAR Region, including México, Central America, the Central Caribbean and the Eastern Caribbean are characterized as an homogeneous area with similar operational features and needs, and therefore, as a potential scenario for ATFM implementation.

2.3 The ATFM meeting also agreed on the need for States/Territories/International Organizations of the NAM and CAR Regions to take ATFM measures between these regions for balancing ATS demand and capacity, in accordance with the ATM implementation chart of the Global Air Navigation Plan for CNS/ATM Systems. The agreements reached in this meeting are presented in **Appendix A** to this Working Paper. The proposed joint strategy for the development of an interregional NAM/CAR ATFM system is included in **Appendix B** to this Working Paper.

2.4 During the implementation period, it is necessary to develop harmonized procedures among ATFM units to avoid safety risks; the challenge is working together on a regional, inter-regional and global harmonization of the ATM system. Among the related necessary activities for a NAM/CAR interregional ATFM system, to be initiated as soon as possible, are the following:

- define the technical and operational requirements for the ATFM system, the human resources specialized in developing ATFM duties; review required automation processes for information exchange in real time between providers and ATS users.
- schedule the training aspects. It is necessary to develop a common ATFM training programme allowing the development of ATFM human resources.
- establish operational agreements for a regional and interregional ATFM system. Operational agreements between ATS units must be established in the short term; other agreements that might be necessary should be reviewed in the mid-term.
- establish an ATM contingency plan as a tool that enables to take contingency measures to ensure continuity in international air traffic movement. Different contingency plans being developed in the NAM/CAR Regions were noted.

2.5 Likewise, the ATM Committee of the ATM/CNS Subgroup of GREPECAS, in compliance with the tasks assigned by GREPECAS, has initiated the planning work for the implementation of a CAR/SAM interregional ATFM system, considering the ATM evolutionary tables of the CAR/SAM Air Navigation Plan FASID.

3. Conclusion

3.1 The air traffic flow management successfully implemented in the NAM Region and the progressive increase of air operations have required that other States of the CAR Region establish balancing measures between ATS demand and capacity, which in the short term will impact all the adjacent FIRs.

3.2 United States, based on its experience and considering the great benefits offered by ATFM to users and ATS service providers has offered to support and decidedly cooperate through bilateral and multilateral agreements with CAR/SAM States/Territories and International Organizations planning ATFM implementation. To this end, agreements with COCESNA, Dominican Republic and other civil aviation administrations have been initiated.

3.3 The air traffic flow management successfully implemented in the NAM Region and the progressive increase of air operations have required that other States of the CAR Region establish balancing measures between ATS demand and capacity, which in the short term will impact all the adjacent FIRs, and it is therefore necessary that the States, Territories and international Organizations of the CAR Region take action to implement balancing studies between ATS demand and capacity.

3.4 Taking into consideration this work for balancing demand and capacity, the Civil Aviation Authorities of the States/Territories/International Organizations of the NAM and CAR Regions should support the development of a joint strategy for a NAM/CAR ATFM system.

4 Suggested action

4.1 The Meeting is invited to:

- a) note the information provided in this Working Paper;
- b) apply the NAM/CAR joint strategy for ATFM development to support
 - i) the establishment of a CAR regional ATFM system;
 - ii) the harmonized establishment of a NAM/CAR ATFM interregional system; and
- c) recommend other actions as deemed appropriate.

APPENDIX A

CONCLUSIONS AND DECISIONS OF THE ATFM/1 MEETING

CONCLUSION ATFM1/1 IMPLEMENTATION OF ATFM SYSTEM IN THE NAM/CAR REGIONS

That States/Territories/International Organizations initiate the corresponding activities to develop a strategy for the implementation of a NAM/CAR intra-regional ATFM system in accordance with the implementation program established in the Roadmap of the Global Air Navigation Plan for CNS/ATM Systems included in **Appendix A** to this part of the report and present it to the Second North American Central American and Caribbean Directors of Civil Aviation Meeting for its approval.

DECISION ATFM1/2 PARTICIPATION IN THE THIRD GLOBAL AIR TRAFFIC FLOW MANAGEMENT (ATFM) CONFERENCE

That ICAO NACC Regional Office encourages States/Territories/International Organizations to participate in Third Global Air Traffic Flow Management (ATFM) Conference to be held in Ottawa, Canada, from 20-22 September 2005.

CONCLUSION ATFM1/3 DEVELOPMENT OF ATFM PROCEDURES

That States/Territories/International Organizations develop an ATFM handbook to serve as a basis for the provision of ATFM service in the different FIRs of the NAM/CAR Regions, based on the information presented in the **Appendix** to this part of the report.

CONCLUSION ATFM1/4 ATFM OPERATIONAL AGREEMENTS

That the States/Territories/International Organizations, establish operational agreements among ATS units for the provision of ATFM service in the NAM/CAR Regions, and present their advances in the corresponding Working Group Meeting of NAM and CAR Regions to be held in 2006.

CONCLUSION ATFM1/5 PERSONNEL INVOLVED IN ATFM ACTIVITIES

That the States/Territories/International Organizations support the development of the personnel involved in ATFM and their participation in the different ATFM activities to be developed and coordinated by the ICAO NACC Office during the year 2006.

CONCLUSION ATFM1/6 NAM/CAR ATM MEETING IN 2006

That the States/Territories/International Organizations, in order to harmonize their ATM implementation efforts in the NAM/CAR Regions in accordance with ICAO guidelines, support the assistance of the ATM officers to an ATM meeting to be held in Dominican Republic in the first quarter of 2006.

APPENDIX B

STATEMENT ON A JOINT STRATEGY FOR EXPANDING AIR TRAFFIC FLOW MANAGEMENT (ATFM) SYSTEM

North American, Central American and Caribbean, (NACC) Civil Aviation Authorities (CAA) and Air Navigation Service Providers (ANSPs)

The North American, Central American and Caribbean (NACC) Directors General of Civil Aviation (DCAs) and Air Navigation Service Providers (ANSPs) recognize the need to expand air traffic flow management capability within and between NAM and CAR Regions, as a means to improving airspace capacity, traffic flow, and efficiency of air operations in response to growing demand by aircraft operators and service providers.

The Directors General of Civil Aviation (DCAs) and Air Navigation Service Providers (ANSPs) acknowledge that forecast traffic growth between of NAM and CAR Regions (7% per year) warrants near-term action to maintain efficient air operations between both regions.

The Second Meeting of North American, Central American and Caribbean, Directors General of Civil Aviation (NACC/DCA/2) agree that increased ATFM capability must be based on a collaborative decision making (CDM) process in order to have a significant and positive impact on coordinated air traffic flow management. The benefits resulting from inter and intra-regional ATFM based on the CDM model, include:

- A focus on ensuring system performance by supporting the facilities and offering alternatives;
- Implementation of balancing ATS demand capacity initiatives on wide regional and interregional ATFM system;
- A total picture approach on how restrictions affect customers or adjacent facilities;
- Minimized delays and reduced costs for the customers through improved ATFM within and between regions;
- Avoid additional flight time resulting from congestion, weather or short staffing situations;
- Common Situational Awareness for ATM community;
- Collaborative Decision Making (CDM) between ATM Community to ensure the most efficient use of airspace resources; provide equitable access for all airspace users; accommodate user preferred routes; and ensure that service demand will not exceed its capacity;
- Management of contingency situations;
- Focal point for sharing of ATFM information (one stop shopping) for customers, ATS units, operational managers and other service providers;
- Enhanced ATM safety management and performance assessment;
- Structure to support procedures for in flight contingency and operations;
- Assist the operators and users in making the best flight planning decisions;
- Ability to report the actual situation, system wide and in real time; and
- Enhanced communication, planning and coordination between Air Traffic Services Providers and customers will lead to better decision making.

The North American, Central American and Caribbean Directors General of Civil Aviation recognize that implementation of a regional and interregional ATFM capability will follow a progressive and phased process based on various factors including the traffic flow and coordination requirements with adjacent

Regions. This strategy will ensure that a logical and economical approach to establishing a regional and interregional ATFM capability is undertaken. ATS Providers will need to assess their ATFM requirements in coordination with ATS Providers of adjacent FIRs to determine the optimum ATFM capability, based on:

- A common understanding of ATFM options;
- A prioritized approach that considers costs/benefit analysis;
- A systems approach, developed with the customers;
- A commitment to support and participate in the joint strategy to develop ATFM system.

In developing an AFTM capability, the North American, Central American and Caribbean Directors General of Civil Aviation agree that the ATFM system should strive for:

- A common understanding of ATFM philosophies with users;
- A common application of air traffic flow management initiatives across FIRs;
- Compatible automation systems;
- Common ATFM terms and procedures;
- Develop common training programs;
- Use of compatible operational situation displays;
- Develop an orchestrated implementation plan;
- Sharing new ideas and concepts;
- Encourage collaborative decision making between ATS providers and users.

The North American, Central American and Caribbean, Directors General of Civil Aviation support the implementation of regional and interregional Air Traffic Flow Management capability by taking coordinated action on strategic issues. Initial areas for coordination in the near term include: training, technical assistance, air traffic control inter-facility data exchanges; best practices; and operational agreements for coordination of air traffic flow management in adjacent airspace.

The North American, Central American and Caribbean, Directors General of Civil Aviation support a strategy for ATFM capability system based on the collaborative decision making model and a progressive development process that recognizes traffic levels and coordination requirements; agree that this strategy provides a realistic and economical approach to establishing ATFM capability, benefiting the ATS Providers and customers and leading to more efficient and cost-effective air operations.

The North American, Central American and Caribbean, Directors General of Civil Aviation therefore plan to pursue this harmonized and coordinated implementation strategy for expanding air traffic flow management capability in the near term in order to obtain the capacity and efficiency necessary to accommodate the forecast traffic growth in and between the North American (NAM) and Caribbean (CAR) Regions.