International Civil Aviation Organization
NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN OFFICE
Twenty-Ninth Eastern Caribbean Working Group Meeting (29 E/CAR WG)
Saint Vincent and the Grenadines, 9 to 13 May 2005

Agenda Item 3 Specific Air Navigation Activities and Developments
3.5 Air Traffic Management (ATM)

IMPLEMENTATION OF THE AIR TRAFFIC FLOW MANAGEMENT (ATFM) IN THE E/CAR

(Presented by the Secretariat)

SUMMARY

This working presents information for the implementation of Air Traffic Flow Management (ATFM) in the E/CAR.

References:

- Report of the ICAO Eleventh Air Navigation Conference, Montreal, September 2003
- ICAO Annex 11, Air Traffic Services
- ICAO PANS/ATM Doc. 4444, Air Traffic Management
- ICAO Doc. 9426, Air Traffic Services Planning Manual
- CAR/SAM Air Navigation Plan (ANP)
- CAR/SAM Regional Plan for the Implementation of CNS/ATM Systems

1. Introduction

1.1 The ICAO 11th Air Navigation Conference (AN-Conf/11) concluded (Recommendation 1/1 – Endorsement of the global ATM operational concept) that ICAO, the States and the regional planning and implementation groups (PIRGs) consider the global ATM operational concept as the common global framework to guide planning for implementation of ATM systems and to focus all ATM development work; use this global ATM operational concept as high-level guidance for development of ICAO CNS/ATM related provisions and develop transition strategies for implementation of ATM systems based on the global ATM operational concept.

1.2 The AN-Conf/11 agreed that the operational concept provided a vision that would allow States and Regions to align their planning processes, allow system solution engineering to be directed toward a harmonized and interoperable outcome, allow airspace users and service providers to share data and information to best mutual outcome, and enhance levels of safety, economy and efficiency, for benefits to the ATM community.

1.3 Likewise, the Conference unanimously agreed that the harmonized implementation of air navigation systems would increase airspace capacity while producing additional benefits, such as more efficient flight profiles and higher safety levels. Therefore, it was agreed that States should implement the regional air navigation plans, recognizing the longer-term vision of the operational concept and the global plan, in order to ensure convergence towards a uniform "gate-to-gate" ATM system, and that any implementation plans should fully consider the needs of airspace users.

1.4 In the last few years the States/Territories/International Organizations of CAR/SAM Regions have developed an intense programme of activities for the implementation of CNS/ATM systems in accordance with the GREPECAS guidelines looking for an ATM regional and global system. The recommendations formulated by the Eleventh Air Navigation Conference are the framework for future activities of GREPECAS.

1.5 Currently there are airspace sectors in the CAR/SAM Regions that are already having traffic congestion on peak periods basically due to the different capacities of the ATC units, lack of operation planning in some airports and/or airport infrastructure limitations. In view of the foreseen air traffic growth in the Eastern Caribbean, it is necessary to take the appropriate measures in short term to provide ATS.

2. Analysis

2.1 National traffic Flow Management Units (FMU) and Centralised Regional ATFM

2.1.1 The amendment to the CAR/SAM CNS/ATM Regional Plan, approved by GREPECAS/12, will, in turn, permit an amendment to the CAR/SAM Air Navigation Plan (ANP) (Basic Vol. and FASID), which foresees the implementation of national traffic Flow Management Units (FMUs).

2.1.2 The implementation of national FMUs would ensure an optimum air traffic flow in periods when the demand might exceed the available capacity of the ATC system, thus reducing both in-flight and ground delays and avoiding ATS system saturation. The ATFM implementation will guarantee an effective use of the capacity of airspace and airports without applying unnecessary restrictions to air operations.

2.1.3 National FMUs will coordinate and supply all available and required information so that the Centralized Regional ATFM may fulfil its functions and provide the ATFM services in the CAR/SAM Regions to supplement the ATC service provided by the respective ATS authorities/providers in both Regions. Appendix A to this working paper shows functions for an ATFMU based on the experience of other regions.

2.2 Aspects to consider for ATFM implementation

2.2.1 In order to start the ATFM planning and implementation process, the ATFM Task Force (ATFM/TF) of the ATM Committee of the GREPECAS ATM/CNS Subgroup will develop an ATFM Work Programme considering this aspect for the ATFM implementation shown in Appendix A to this working paper. E/CAR States and Territories should also consider this information for their national FMU implementation.

2.2.2 In order to harmonise national plans with the CAR/SAM Regional Plan, it is also necessary that civil aviation administrations take the necessary measures to analyze and develop an ATFM Implementation Programme that define the requirements, impact, and establish the related coordination with NACC Office so as to permit an integrated, harmonious and timely implementation in the E/CAR.

3. Suggested action

3.1 The Meeting is invited to take note of the information provided in this working paper and approve the following draft conclusion:

DRAFT
CONCLUSION 29/X ATFM IMPLEMENTATION IN THE E/CAR

That the E/CAR ATM Committee :

a) develop an ATFM implementation programme for the Eastern Caribbean, in coordination with the NACC Regional Office, in order to achieve an integrated harmonious and timely implementation in the CAR/SAM Administrations; and

b) present the ATFM implementation programme at the 31st E/CAR WG Meeting.

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APPENDIX A

PROPOSED FUNCTIONS OF AN ATFM UNIT

- Provide Air Traffic Flow Management (ATFM) services;
- Collect and compare data on air navigation infrastructure, air traffic control (ATC) capacity in the airspace and at aerodromes used by international air operations;
- Collect and analyze forecast data of air traffic (controlled flights) in the Eastern Caribbean;
- Establish a consistent table of foreseen traffic demand, including traffic forecasts, a comparison with the available capacity, and the identification of the areas and duration of foreseen critical traffic overloads;
- Coordinate with air traffic service (ATS) authorities/providers and other national traffic flow management units (FMU) in order to increase the ATC capacity, when necessary; and
- When the available ATC capacity cannot be increased, determine and apply, in a timely manner, the appropriate tactical measures in coordination with other national traffic flow management units (FMU), air traffic service (ATS) providers, users and operators, and aerodrome authorities, as required.

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APPENDIX B

PLANNING ASPECTS FOR ATFM IMPLEMENTATION

1. Identification of the operational requirement

- Traffic congestion during “peak” hours;
- Aircraft not operating at their optimum flight levels;
- Fuel burn.

2. Impact on airspace

- Optimization of RANDOM and current structure of the ATS Routes Network (as necessary);
- Flexible utilization of the airspace (prohibited, restricted and special-use airspaces) and civil/military coordination;
- Mixed operations (aircraft with different performances) in the same airspace;
- Availability of optimum flight levels;
- Need for improvements of airspace sectorization.

3. Impact on Air Traffic Services

- ATS standard and contingency procedures;
- ATS automation level, including the integration level and interoperability;
- Appropriate amendment to the CAR/SAM Regional Supplementary Procedures;
- Training for the ATC personnel;
- ATC workload;
- Surveillance and communication coverage.

4. Impact on operations and airport services

- Delays in apron before starting the towing/taxing for departure;
- Delays during taxiing and take off;
- Delays during taxiing after landing to the apron allocation.

5. Cost/Benefit analysis.

- Air traffic forecast;
- Traffic congestion reduction;
- Reduction in delays;
- Reduction of ATC workload;
- Increment of air operations safety;
- Greater availability of optimum flight levels;
- Fuel and time of flight savings;
- Financial feasibility.

6. Impact on Civil Aviation Administrations

- Implementation planning;
- Establishment method for safety assessment;
- Operational implementation.

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