

**INTERNATIONAL CIVIL AVIATION ORGANIZATION
NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN OFFICE**

**TWENTY-SIXTH EASTERN CARIBBEAN INFORMAL WORKING GROUP MEETING
(26TH E/CAR IWG)**

(Barbados, 3 to 7 June 2002)

Agenda Item 3 AIS Developments

3.1 AIS/MAP Automation and Quality Assurance System Implementation Programmes
3.1.3 Establishment of a Regional AIS Data Bank

AIS /MAP AUTOMATION AND ESTABLISHMENT OF A REGIONAL AIS DATA BANK

(Working Paper presented by Trinidad and Tobago)

SUMMARY	
The aim of this Working Paper is to inform the meeting about the progress made towards the adoption of an AIS Automation Plan and for the Establishment of a Regional AIS Data Bank for the Eastern Caribbean States and Territories.	
REFERENCES	
• The third CAR/SAM/RAN 3 Meeting held in Buenos Aires 5th – 15th October 1999. • Report of 24th Informal Eastern Caribbean Working Group Meeting, San Juan, Puerto Rico 22nd – 26th May 2000 • Report of the ninth Meeting of GREPECAS held in Rio De Janeiro, Brazil, 7th - 12th August 2000 • Report of the Tenth Meeting of GREPECAS held in Las Palmas, Canary Islands, 23rd - 27th October 2001.	

1 Introduction

1.1 The ICAO Manual, Aeronautical Information services, Document 8126-AN/872, Chapter 8, Organization of an Automated System of the Aeronautical Information Services, and the Appendix C, AIS Automation, provides automation basic principles and description of an Integrated Automated AIS System at the regional level.

1.2 The RAN CAR/SAM/3 incorporated in Part VIII of the CAR/SAM Air Navigation Plan a new “Concept of a CAR/SAM Integrated Automated AIS System”. The CAR/SAM AIS Automation Task Force made reference to all these documents as guidance in the development of this plan and orientation to establish and operate the National Data Banks (NASC).

1.3 The 24th ECWG Meeting Conclusion 24/26 Established an AIS Committee with work programme to “take necessary action and assist in the implementation of an E/CAR AIS Automation Plan”.

1.4 The Ninth Meeting of GREPECAS adopted the Second Edition (Provisional) 2000:-

- a). Coordinated Plan for the implementation of the National data bank in the CAR/SAM Region and;
- b). Common Operational Procedures Manual for an Integrated Automated AIS System in the CAR/SAM Region (COMP CAR/SAM).

1.5 The Tenth Meeting of GREPECAS noted that many states in CAR/SAM have made progress in the implementation of NOTAM data bank and formulated Conclusion 10/53.

- a). CAR/SAM States that have not done so, take measures towards the implementation of the NOTAM databases that are part of the CAR/SAM AIS Integrated Automated System, and comply with this requirement no later than 30 March 2002; and
- b). ICAO encourage all activities (seminars, workshops, special implementation projects (SIPs) and technical missions) that supports States in the effective implementation of the NOTAM databanks.

2. Discussions

2.1 PRESENT E/CAR NOTAM DATABASE

2.1.1 Trinidad and Tobago has an automated NOTAM database that provides on behalf of the E/CAR states NOTAM and CHECKLIST information to the users of the Eastern Caribbean Region. The database is a sub-system of the Port of Spain AFTN Switch which is subject to replacement within two years and therefore will be replaced.

2.1.2 The E/CAR stations were updated with PC-Type terminals, satisfying GREPECAS conclusion 10/20 “Replacement of Teleprinter based AFTN stations with PC-Type terminals.

2.1.3 The technical and operational requirements for a NASC is being developed, using the guidance material provided in the coordinated plan for the implementation of the National Databank in the CAR/SAM region (2nd Edition 2000).

In addition some technical specification for the automated system are detailed at Annex 1 .

2.1.4 A basic configuration of an automated AIS system for the Eastern Caribbean states showing information exchange is shown at Annex 2, A and B.

3. Development of a NASC

3.1 GENERAL CONCEPTS

3.1.1 The NASC is an automated AIS system that acquires information not only from national sources but also from any other State it serves. The main role of a NASC shall be to provide aeronautical information to users within a given State, not only in keeping with predefined arrangements but also through computer requests. The information provided shall conform to the needs of the various user categories. A NASC may provide service to users from another participating State that does not have an automated AIS system.

3.2 IMPLICATIONS FOR THE IMPLEMENTATION OF A NASC

- a) To implement a NASC, a State initially needs an adequate level of expertise, with full knowledge of automated services, and the economic resources to cover all the expenses involved in the development of the project.
- b) The level of responsibility assumed by a NASC is that of an organization charged with storing, processing and distributing the information required for air navigation in the States of the area served.
- c) The NASC shall be capable of maintaining its equipment in optimum working conditions, with the necessary redundancy to achieve the highest level of safety.
- d) It shall have a permanent training program and sufficient human resources in all the areas required for the operation of the automated system, mainly system analysts, AIS specialists, programmers, digital equipment operators, specialized technicians to maintain and repair the computers, and other support personnel. The costs of the human resources shall depend on the economic conditions of each State.

3.3 NASC ADMINISTRATIVE REQUIREMENTS

- a) State Civil Aviation Authorities must formally advise ICAO that they are in a position to assume the responsibilities and function inherent to a NASC. The official path and the appropriate mechanism to formalize this offering shall be established by the ICAO NACC and SAM Regional Offices.
- b) The State Civil Aviation Authorities should establish a specific organization to manage the activities related to the implementation, operation and maintenance of the system, in order to ensure full compliance with the standards recognized by ICAO .

4. AIS Databanks

4.1 The future development of these systems are based on the following guidelines:

a) Concept:

The future development of the system will be based on a single on-line reference database for Aeronautical Information.

b) Users:

The Principal users would be States AIS, Major Airlines and Handling Agents, ATS Units and other recognized users

c) Data:

The AIS databank would contain

- Appropriate data from the AIP
- AIP Supplement
- AIC
- NOTAM and Checklist
- Preflight information bulletins
- Meteorological Reports to support pre-flight bulletins (OPMET)
- Airport Information such as WGS84 Coordinates and Flight Check States on NAV Aids
- Statistical data on processed information.

d) Query Procedures:

The Common Operation Procedures Manual for a Integrated Automated AIS System in CAR/SAM Region (COPM CAR/SAM 2ND EDITION PROVISIONAL 2000) will be adopted.

e) Service:

This service will be on-line on a 24 hours basis.

f) Communications:

The system will support existing and new communications interface and be modular and flexible. The AFTN will be the primary means of communication.

5. Development of a Plan

5.1 The implementation of the Automated AIS plan for the E/CAR region requires the approval of the Aeronautical Authorities of the states for mutual cooperation between states as well as full compliance with the described programme.

- a) Adoption of the coordinated plan for the implementation of the NASC and databank at Piarco NOF for the E/CAR region.

Completion date: Last quarter 2002

- b) Adoption of all guidance materials required for the implementation of this plan
- i) Common operational procedures manual for the Integrated Automated AIS System in the CAR/SAM region (COPM CAR/SAM)
Completion date: Last quarter 2002
 - ii) Guide on resources and requirements for the implementation of a NASC.
Completion date: Last quarter 2002
 - iii) If needed, letters of Agreement between states for supplying and receiving NASC services.
Completion date: 2nd quarter 2003
 - iv) Purchase of the equipment and training of the necessary human resources, provision of the programmes and computer software and installation of the equipment for the full operation of the NASC
Completion date: 1st quarter 2004
 - v) Beginning of joint operations of NASC in the CAR/SAM region.
Commencement date: 1st quarter 2004

6. Suggested Actions

6.1 That the E/CAR states adopt and implement at each Aerodrome AIS the common operational procedures manual to the CAR/SAM Integrated Automated AIS System (COPM CAR/SAM) 2ND Edition Provision 2000.

6.2 That the meeting approves the implementation of a NASC at the Piarco NOF

6.3 That Trinidad and Tobago takes measures towards the upgrade of the NOTAM database and implement a NASC, which is part of the CAR/SAM AIS Integrated Automated System and comply with this requirement as soon as possible

ANNEX 1

TECHNICAL SPECIFICATION FOR AIS AUTOMATED SYSTEM

The equipment to support an AIS automated system should consist of :-

1) SERVER

- a) Two (2) 64 bit RISC architecture computers. Identically configured and interconnected by dual local area networks for redundancy.
- b) The server architecture should lend itself to future expansion through upgrading of memory configuration.
- c) The system should be configured in a dual system architecture with one system functioning as a primary computer and the other in hot standby.
- d) Each server should have:-
 - 512 MB RAM
 - 22 GB of disc space
 - 600 MB CD-ROM drive
 - 8 GB Digital Audio Tape
 - 500 MHz CPU clock speed
 - 2 Mb cache
 - 1.44 MB diskette
 - Supporting operator workstations with printers.

2) COMMUNICATIONS

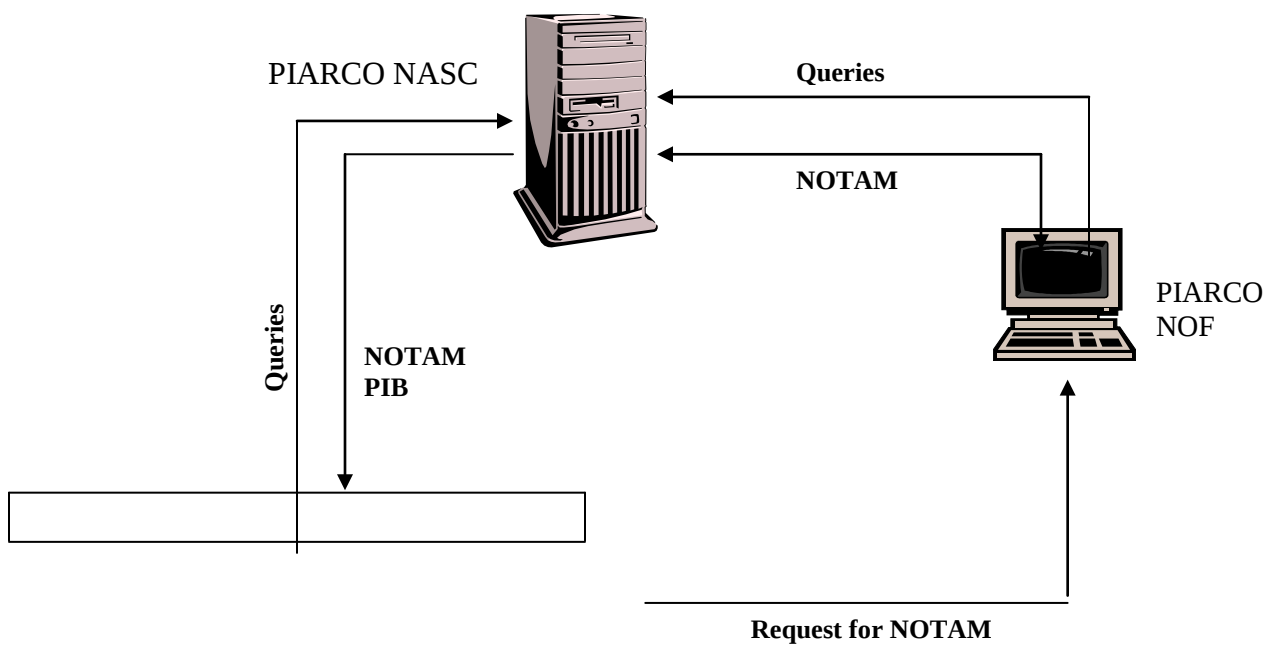
The system should be modular and flexible to provide for existing and new communication interfaces

3) SOFTWARE

The software for the AIS system should support the receipt, management and distribution of NOTAM and Meteorological information for the preparation of Preflight Information Bulletins.

ANNEX 2 A

**BASIC CONFIGURATION OF AN AUTOMATED AIS SYSTEM
EASTERN CARIBBEAN STATES
INFORMATION EXCHANGE THROUGH NOTAM**



AIS OFFICES IN EASTERN CARIBBEAN



ANNEX 2 B
BASIC CONFIGURATION OF AN AUTOMATED AIS SYSTEM
EASTERN CARIBBEAN STATES
INFORMATION EXCHANGE THROUGH NOTAM WITH OTHER NASC

