



Agenda Item 3: Air Navigation Matters
3.3 Specific Developments in Air Navigation
• CNS

AIDC IMPLEMENTATION IN THE CAR REGION

(Presented by the Secretariat)

SUMMARY	
This paper presents the current progress and operational benefits of the implementation of ATS Inter-facility Data Communications (AIDC) in the Central Caribbean and Central American Regions, for the E/CAR Region evaluation and similar implementation	
REFERENCES	
• Report of the 13th GREPECAS Meeting Report, (Santiago, Chile, 14 – 18 November 2005) • Report of the 15th GREPECAS Meeting Report, (Rio de Janeiro, Brazil, 13 – 17 October 2008) • Report of Seventh Central American Air Navigation Experts Working Group - (CA/ANE/WG/7), Ninth Central Caribbean Working Group (C/CAR/WG/9) (ICAO NACC Regional Office, Mexico City, Mexico, 5 to 9 March 2012) • NAM/CAR Regional Air Navigation Implementation Plan (NAM/CAR RPBANIP) ver 2.0	
ICAO strategic objectives:	<i>This paper is related to Strategic Objective A and C</i>

1. Introduction

1.1 Automated data exchange between ATC systems support timely dissemination of relevant flight data, particularly in regard to coordination and transfer of flights between ATS units. ATS interfacility Data Communication (AIDC) application exchanges information between ATS units in support of critical ATC functions, including notification of flights approaching a flight information region (FIR) boundary, coordination of boundary-crossing conditions, and transfer of control.

1.2 Under GREPECAS Conclusion 13/79 – Development of national plans to prioritize the AMHS and AIDC implementation and obtain the benefits of ATM System Automation, States and Territories were urged to develop their national plans on these implementations.

1.3 Under GREPECAS Conclusion 15/36 *Measures to Reduce Operational Errors in the ATC Coordination loop between Adjacent ACCs*, urge CAR/SAM States/Territories/International Organizations to apply, on an urgent basis among other measures, the programme for the prevention of errors in the coordination loop between adjacent ACCs in order to reduce LHDs caused by errors in traffic coordination messages between ATC units to achieve an acceptable target level of safety, which suggested as part of the solution that CAR/SAM States/Territories/International Organizations gradually implement the AIDC for data exchange among ATC units, enhancing the safety of the airspace and the reduction of category “M” errors. This conclusion also requested ICAO to coordinate, provides assistance, and conduct follow-up on the implementation of these corrective measures.

1.4 The current Regional Planning for AIDC implementation is on CAR/SAM Air Navigation Plan Table CNS 1BB – *ATN ground-ground Applications Plan*, which is available at ICAO NACC Regional Webpage: <http://mexico.icao.int/fasid/FASIDTableCNS1Bbrev29-08-08.pdf>.

2. Discussion

2.1 In line to facilitate the implementation of the AIDC and its benefits, under the CAR/SAM Regional Guidelines for Strategy Operational Integration of the ATM Automated Systems of the CAR/SAM Regions, the gradual implementation of AIDC in line with the automation of ATC Systems is expected under the stage III of the evolution of ATM Automation:

Stage	Function
Stage I	- Flight plan processing (FDPS/Flight Data Processing System)
Stage II	- Radar data processing and ATS surveillance (RDPS/Radar Data Processing System, ADS and exchange of radar information); - Monoradar ; - Multiradar ; - Radar data sharing .
Stage III	- Automated digital communications (radar control transfer/automated traffic hand off, AIDC/CPDLC, etc.).
Stage IV	- Implementation of CDM (Collaborative Decision Making) for other ATM requirements (AOM [Airspace Organization and Management], CM [conflict management], DCB [Demand/Capacity Balancing], AO [Aerodrome Operation], TS [Traffic Synchronization], AUO [Airspace User Operation], ASDM [ATM Service Demand Management], AIS, Meteorology, Statistics, etc.);

2.2 The NAM/CAR/SAM regions adopted an Interface control document (ICD) based on the experience gained by the NAM States. This document is available at: <http://www.mexico.icao.int/CNS.html>

2.3 Similarly the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (NAMCAR RPBANIP) includes in its Regional Performance Objective (RPO) 3. Improve ATM Situational Awareness, the planning to implement applications such as: ADS, CPDLC, AIDC, as required and in the time frame of 2008 to 2014. Also under its RPO 9 *Optimization and Modernization of Communication Infrastructure*, as part of the applications for the Aeronautical Telecommunication Network (ATN), the evaluation of the current telecommunication network infrastructure is in place as reflected in the E/CAR CNS Committee action Plan: ACT PLAN COM: 11. Technical evaluation of communications and interfaces for AIDC implementation over the AFTN.

2.4 As a result of the discussions of the *Workshop on ATM Situational Awareness Improvements for the NAM/CAR Regions*, held in the ICAO NACC Regional Office in Mexico City, Mexico from 8 to 10 July 2010, the workshop developed the following recommendations, which are to be addressed by CAR Region States/Territories/International Organizations and ICAO, as appropriate:

- a) consider the availability and capacity of the existing regional telecommunication networks in the CAR region for the implementation of situational awareness improvements, mainly for the purpose of sharing surveillance data and for the provision of AIDC;
- b) based on the operational requirements, States/Territories/International Organizations, should review the AIDC messages defined in the PANS-ATM and the ICD document, complete and finalize the OLDI/AIDC implementation activities, including carrying out an interface and technical interconnection analysis for the identified AIDC/OLDI implementation between ATS Units;

2.5 In the Seventh Central American Air Navigation Experts Working Group (C/CAR/WG) - Ninth Central Caribbean Working Group (CA/ANE/WG) Meeting held in the ICAO NACC Regional Office in Mexico City, Mexico from 5 to 9 March 2012, the meeting was informed of the experience and benefits with the implementation of Current Flight Plan (CPL) messages between COCESNA and Mexico, the automatic exchange of flight plans (CPL) between the ATC Control Center in Miami and the ACC in La Havana, exchange between the ACC in La Havana, Cuba and the ACC in Merida, Mexico and the experience in AIDC between Canada, United States and Mexico, emphasizing the testing process for AIDC between Cuba and United States.

2.6 The C/CAR/WG/9 Meeting recognized the benefits and improvements achieved with the use of AIDC as means for the exchange of notification, coordination, transfer and related data between automated ATS systems. The AIDC infrastructure significantly has reduced the need for verbal coordination between Air Traffic Service Units and that AIDC can provide the means by which automated data exchange can be harmonized between ATS Units providing air traffic service in the Caribbean region. The automation gains of AIDC implementation had provided significant safety and efficiency benefits as:

- a) Reduced workload for controllers
- b) Reduction of readback/hearback errors during coordination
- c) Reduced “controller to controller” coordination errors; and language barrier issues
- d) Increased in support for performance based navigation initiatives and emerging technologies with automation

2.7 Also, the C/CAR/WG identified that the AIDC implementation (using CPL messages) requires considerable effort and planning involved during development, testing, and implementation of the automation interface. These tasks included airspace and system parameter adaptation, ATC procedure coordination, Letter of Agreement tailoring, communications interoperability and protocol testing and troubleshooting, and controller training. Both non-operational and operational testing was extensively conducted. The telecommunication infrastructure for automated data exchange interfaces consists of NADIN, MEVA II, and other interconnections which support the automated data exchange as well as AFTN messaging.

2.7 The C/CAR/WG recommended that as ATS providers develop their automation systems, consideration should be given to meeting the capabilities identified within an interface specification such as the CAR/SAM ICD. United States described the implementation of the AIDC with Canada and Mexico, Class I messages (CPL-LAM)/ Class II messages and the personalization of the messages to satisfy the operational requirements included in their NAM ICD.

2.8 Other CAR States also expressed their interest in implementing the AIDC initially with the CPL – LAM messages like Curaçao, Dominican Republic and Jamaica. Similarly in Central America the AIDC is being implemented through the OLDI functionality.

2.9 Considering the benefits presented with the implementation of CPL-LAM messages and due to the high level of automation in the CAR Region ATC Systems, the C/CAR/WG and the CA/ANE/WG agreed in the following Conclusion:

CONCLUSION 1 ACTION PLAN FOR AIDC IMPLEMENTATION; USING CPL - LAM MESSAGES

That, considering the importance and benefits of AIDC implementation, States/ Territories of the Central Caribbean and Central America:

- a) inform the ICAO NACC Regional Office about the capacity of their ATC Systems to process CPL - LAM messages no later than **21 September 2012**;*
- b) review the NAM ICD and CAR/SAM ICD as a basis to implement AIDC, recommending changes to the CAR/SAM ICD for its update no later than **26 October 2012**;*
- c) prepare together with ICAO an action plan to harmonize the AIDC implementation for the use of CPL – LAM messages; and*
- d) present this Action plan to the next Working Group meetings for its implementation.*

2.10 With the New Flight plan Format upgrades, several systems are being updates by all States and many of them have the AIDC processing capabilities like PIARCO ATC System and other.

3. Suggested action

3.1 The Meeting is invited to:

- a) take note of the information contained in this paper;
- b) revise the progress and benefits being obtained by the Central Caribbean and Central American States with the AIDC implementation and their conclusion 1 (paragraph 2.9);
- c) based on the current status and needs of the E/CAR Region, adopt a similar conclusion to paragraph 2.9; and
- d) analyse other considerations that it may deem necessary in relation to this matter.