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North American, Central American and Caribbean Office

WORKING PAPER

ANI/WG/2 — WP/25
27/05/15

Second NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/2)
Puntarenas, Costa Rica, 1 to 4 June 2015

Agenda Item 4 **Follow-up on the NAM/CAR Regional Performance Based Air Navigation Implementation Plan (NAM/CAR RPBANIP)**
4.1 Progress reports of the Task Forces and the ANI/WG

REPORT OF E/CAR/CATG

(Presented by Chairperson of the E/CAR/CATG)

EXECUTIVE SUMMARY	
This working paper details the activities of the AIM, ATM and CNS Committees of the ECARCATG since ANI/WG/1and E/CAR/CATG/1.	
Action:	The Meeting is invited to note the information contained in this paper.
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Environmental Protection
References:	• First Eastern Caribbean Civil Aviation Technical Group Meeting (E/CARCATG/1), Martinique, French Antilles, France, 19 to 21 June 2013

1. Introduction

1.1 The E/CAR/CATG last met in Martinique in 2013. The next scheduled meeting will be convened in Miami, Florida 15 - 17 July 2015. In the interim the E/CARCATG committees advanced their work programmes mostly by way of teleconferences. In addition, the AIM Committee successfully coordinated an AIM Workshop hosted by Trinidad and Tobago 30 September to 02 October, 2015 and a sub-group from ATM Committee met in San Juan, Puerto Rico to resolve issues surrounding co-ordination between St. Maarten Princess Juliana APP., V.C Bird APP., Antigua and Barbuda, Puerto Rico, San Juan ACC and Trinidad and Tobago, PIARCO APP. Since the ANI/WG/2 precedes E/CAR/CATG/2, this facilitates the alignment of the work programmes, as it relates to Air Navigation, of these two groups.

2. Discussion

AIM Familiarization Programme

2.1 Since June 2012 at the 33rdE/CAR/WG, it had been recommended that Trinidad and Tobago host an AIM familiarization programme for AIM specialists from ECAR states. This event was convened 30 September to 2 October 2014. The response was excellent with participants from eleven (11) ECAR States, ICAO, FAA, ECCAA and several Industry Representatives. Matters discussed included the PIARCO Declaration, the Roadmap for the Transition from AIS to AIM, Flight Planning issues, Digital NOTAM, Electronic Terrain and Obstacle Data and QMS in AIM. The full Summary of Discussions is available at http://www.icao.int/nacc/Pages/meeting-2014-ecaraim.aspx.

Flight Planning and Related Issues

2.2 The Eastern Caribbean is represented in the Flight Plan Ad hoc group of the ANI/WG and has participated in two exercises related to data gathering on erroneous/missing /duplicate flight plans as follows:

- First exercise: 21 July to 22 August 2015. The ANI/WG FPL Ad Hoc group prepared a list of recommendations to be immediately implemented. Recommendations were distributed by State Letter from NACC office dated 19 December 2014. Some recommendations were implemented but others were not possible due to E/CAR states limited resources of personnel. The Ad Hoc group members met in Mexico 24 Feb to 26 Feb 2015 where the results of the first exercise were discussed and plans made for a follow-up data collection.
- Second exercise: 15 March to 10 April, 2015. Analysis of the results revealed no significant improvement to the number of erroneous FPLs. A teleconference was held on 15 May 2015. It was suggested that errors should be treated individually where the duplicated FPLs would be looked at first.

Centralized Flight Planning System (CFPS)

2.3 Following extensive investigations in 2008 and 2009 into the problem of missing and duplicate flight plans carried out by the ECAR AIS Committee, a centralized flight planning system was identified as a possible solution. The CFPS has recently been installed in Trinidad and Tobago.

1. The system was tested during Feb- March 2015. Results were submitted to the software provider for analysis.
2. The system is scheduled to be implemented by end of 3rd quarter 2015. Trinidad and Tobago will issue an AIC to inform all of changes of procedure whereby:
   - ✓ A single AFTN address would be used to address all FPLs within the PIARCO FIR.
   - ✓ The CFPS would analyse the FPL and automatically address same to the appropriate states within the PIARCO FIR **only** .

Quality Management System (QMS)

2.4 Trinidad and Tobago is at an advance stage in the development of a QMS that meets the standards established by ICAO for a QMS in Aeronautical Information Management. The documentation phase is substantially complete (approx. 90 %) and the deployment and implementation phases (including training and assessment) are ongoing. It is estimated that the QMS will be fully implemented by August 2015 and receipt of ISO 9001:2008 Certificate by March 2016. Thereafter it expected that Trinidad and Tobago will use the knowledge and experience gained to assist other ECAR in with this process.

Electronic Terrain and Obstacle Data (eTOD)

2.5 There has been little progress in this area, due largely to a lack of expertise in this field in the ECAR. Consequently, following a mission to the ECAR in November 2012, the Regional Officer, Aeronautical Information Management from the ICAO NACC Office, suggested that this is an area where a technical assistance programme could be developed. Additionally, the ICAO NACC is proposing to host a seminar on the implementation of *eTOD*, during the second half of 2015, in the Regional Office in Mexico City.

2.6 In 2014, the TTCAA acquired an Electronic Terrain and Obstacle Data (eTOD) suite. The Site acceptance Test was completed in September 2014 and training of six Aeronautical Information Services Staff members took place from 2nd to 13th March 2015.
It is expected that the eTOD suite will enable the following:

1) Satisfaction the ICAO requirement for eTOD datasets for the State of Trinidad and Tobago in Areas 1, 2 and 3 in the AIXM format.

2) The ability to evaluate potential obstacles, with respect to the Obstacle Limitation Surfaces, assisting the section of the TTCAA involved in assessment of existing and potential obstacles around the aerodrome.

3) The ability to evaluate obstacles with respect to the Annex 15 surfaces (Areas2 to 4) for publishing in the AIP. This requires that we receive the obstacle information in a specified format as well as the Runway centreline, threshold, clearway and stop way information along with runway dimensions. In addition, the terrain information of the state is necessary.

4) The global mapper application on the eTOD workstation can be used to obtain the relevant Digital Terrain Model as well as to generate the coordinate reference system needed to begin the process

5) The ability to produce accurate ICAO Type A or Type B Aerodrome Obstacle Charts for Trinidad and Tobago.

NOTAM Contingency Plan

2.7 Trinidad and Tobago and Curacao signed a Letter of Intent to develop a NOTAM contingency plan for the Eastern Caribbean States and Curacao. The Plan will be achieved using the services of IDS North America. IDS North America has a NOTAM software package in both States called SPATIA. Technical discussions are taking place at this time with the service provider. The Directorate of the TTCAA is committed to achieving this goal. This project is expected to be completed by the First Quarter 2016. *(A copy of the Letter of Intent is attached to this report as **Appendix A**).*

Implementation of the Air Traffic Services Message Handling System (AMHS) in the PIARCO FIR

2.8 Testing of the AMHS in the Eastern Caribbean are currently taking place at this time. Testing is taking place using the ECAR node in Tobago. After this testing is successfully completed deployment in the rest of the ECAR states will be effected. No interruption in service is expected. Training will be very minimal as the Graphic User Interface (GUI) will be very much like the GUI of the AFTN. This training will be done remotely. The expected cutover for the ECAR states is expected to take place in the month of July 2015. A detailing listing for each state's cutover plan will be sent out in June 2015.

2.9 Under **Appendix B** a summary of the progress and work of the ATM and CNS Committees is presented.

3. Suggested Action

3.1 The Meeting is invited to:

a) take note of the information contained in this paper;

b) recommend any other action as deemed necessary.

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APPENDIX A
LETTER OF INTENT (LOI)

LETTER OF INTENT

This Letter of Intent (LOI) is between the:

Trinidad and Tobago Civil Aviation Authority ("TTCAA") located at Caroni North Bank Road, Piarco, Republic of Trinidad and Tobago represented by Mr. Ramesh Lutchmedial, Director General of Civil Aviation

And

Dutch Caribbean Air Navigation Service Provider ("DC-ANSP") located at Seru Mahuma z/n, Willemstad, Curaçao represented by Mrs. Micilia Albertus-Verboom, Director General

(both hereinafter also referred to collectively as "the Parties")

1. This LOI summarizes the mutual interest of the Parties in using the IDS SPATIA system(s) that are installed at each of the Parties site(s) to implement:

   1.1 an Aeronautical Data Sharing agreement;

   1.2 a Failover/Disaster Recovery environment, and

   to create further collaboration between the States in the Caribbean region ("the Works").

2. This LOI is strictly preliminary and is intended primarily to establish a basis for future definitive discussions and a more definite collaboration between the Parties and is non-binding on either Party.

3. BUSINESS PURPOSE

3.1 TTCAA is responsible for the management, dissemination, and distribution of Aeronautical Infromation Services ("AIS") on behalf of the E/CAR states (Anguilla, Antigua and Barbuda, Barbados, British Virgin Islands, Dominica, Martinique, Guadeloupe, Grenada, Montserrat, Saint Kitts and Nevis, Saint Vincent and the Grenadines) and Trinidad and Tobago and DC-ANSP is responsible for the management, dissemination, and distribution of AIS on behalf of Aruba (excluding AIP management), Bonaire, Saba, Saint Eustatius, St. Martin, and Curaçao).

3.2 The Parties have invested resources to provide services to each State within these areas and have taken the responsibility to ensure that these services are provided on a 24x7x365 basis with minimal interruption and data loss.

3.3 The Parties are considering enhancing their services and ensuring no service interruption through this cooperative and collaborative agreement to share aeronautical data and provide disaster recovery capabilities to each of the Parties in case of failure or interruption of service at either TTCAA or DC-ANSP.

4. STRUCTURE AND CONTRIBUTION:

4.1 In order to define the Scope of Works the Parties agree that the Supplier of the SPATIA system IDS Tech Inc. ("IDST") located at 155 Terence Matthews Cres., Ottawa, Ontario, Canada represented by Mr. Dario Rossilli, Chief Operating Officer will present a Feasibility Study ("the Study") to analyze the Technical and Economic requirements for the implementation of the Works as well as present the roles and responsibilities of each of the Parties. Upon review of the Study the Parties will decide on whether to implement the Works.

5. CONTRIBUTION/ROLE OF EACH PARTY

5.1 The costs and specific roles will be proposed and agreed by the Parties after consideration of the Study. If the Parties agree to implement the Works, a formal agreement will be signed in due course.

6. AUTHORIZATION TO PROCEED WITH THE STUDY

6.1 By signing this LOI, TTCAA and DC-ANSP authorize IDST to begin the Study which shall be presented to the Parties no later than 30 June 2014. The intent of this study is to create a business case for implementing the Works. Neither Party is obligated to move forward in this proposed relationship beyond the Study.

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APPENDIX B
SUMMARY OF THE PROGRESS AND WORK OF THE ATM AND CNS COMMITTEES

ATM Committee Activities

ATS Coordination Improvements between V. C. Bird APP, Princess Juliana APP, San Juan ACC and PIARCO ACC

1. An ATM Sub-Committee comprising of Antigua & Barbuda, United States (Puerto Rico), St Maarten and Trinidad and Tobago was formed to address this matter. The activities of this ad-hoc group resulted in the production of an agreed coordination process presented in the form of a flowchart. The Sub-Committee drafted a Multilateral MOU (Friday, 20 February, 2015) for signing at a Multilateral Meeting held in San Juan, Puerto Rico (19-20 March, 2015). On the 19-20 March 2015, Puerto Rico hosted the Multilateral ATC Coordination and Radar Data Sharing Meeting in San Juan. This Meeting ended with the signing of the Multilateral MOU which will take effect 04 May 2015 (Updated 02 April 2015).

E/CAR PBN Implementation Plan

2. E/CAR/CATG ATM Rapporteur is still awaiting an update concerning the development of the National PBN Implementation Plan from Netherlands' POC on this issue. St Maarten stated that while there was no definite timeline for their Roadmap, PBN training has been scheduled to be conducted during the 3rd or 4th quarter of 2015 (Updated 10 March 2015). ECCAA's POC is also to provide an update on this issue. St Lucia stated that they attended an ICAO PBN Workshop in Mexico (17 – 28 November, 2014) and they are in the process of preparing to begin developing their National PBN Implementation Plan. The CNS RO made suggestions to assist in focusing on a way forward and to align this with the PBN Framework.

3. The E/CAR/CATG ATM Rapporteur once again reminded States that Trinidad and Tobago is willing to share its expertise to those E/CAR State/Territories who desire assistance in understanding the PBN Airspace Concept. St Lucia stated an interest in acquiring assistance from Trinidad and Tobago.

4 Trinidad and Tobago produced their final draft of the "PIARCO FIR PBN Airspace Redesign Concept" which was disseminated to the E/CAR States/Territories for consideration. It is the intent of the Trinidad and Tobago PBN Core Team to continue the CDM process with all other Stakeholders concerning the implementation of strategies stated within the document (Updated 01 April 2015).

Operational Use of CPDLC and ADS-C in the E/CAR

5 Trinidad and Tobago has done extensive research and has sensitised its ATM Staff regarding the use and purpose of CPDLC and ADS-C within the PIARCO FIR. A Task force was also formed and live trials were performed regarding the use of CPDLC. These trials went reasonably well and current efforts are aimed at upgrading/tweaking the automated system and preparing to perform more live trials.

CNS Committee Activities

6 This section of this paper shows the status update since the E/CAR/CATG/01 meeting of the CNS Committee activities, highlighting:

- **Barbados:**
  - A contract was awarded to Selex ES for five (5) MLAT sensors for the airport and seven (7) Wide Area Multilateration (WMLAT) sensors to improve the NW sector of Barbados Terminal Control Area (TMA)). MLAT data may be eventually shared with the E/CAR surveillance data pool. The project has a target date of 4th quarter 2015.
- **ECCAA:**
  - Feasibility studies are underway in the OECS States toward the implementation of ADS-B;
- **Trinidad and Tobago:**
  - Trials are underway for FANS1/A (ADS-C and CPDLC) services from ARINC.
  - A project was undertaken with the E/CAR/AFS network service provider to improve the resiliency of the network and eliminate single point of failure. To mitigate against failure of the Mausica exchange, a redundant path was created from the TTCAA premises to the St. Augustine exchange. In the event of failure of the Mausica exchange, the E/CAR/AFS Network will transfer automatically to the St. Augustine exchange. The failover time from the Mausica exchange to the St. Augustine exchange measured at the Acceptance Tests was thirty (30) seconds. The design allows for the path to automatically revert when the Mausica exchange is normalized. The transfer from St. Augustine back to Mausica is instantaneous and seamless.
  - The International Private Leased Circuits (IPLC) which transports the French radar and the IPLC between PIARCO and San Juan will not switch from the Mausica exchange to the St. Augustine exchange. The characteristics of IPLCs do not permit multiple mapping as compared to the Metro-e circuits. In the short term, the integrated French radar (Dacota) was also installed on the E/CAR/AFS Network in Martinique but requires a manual intervention at PIARCO to connect it to the ATM system. Connectivity and services to San Juan will continue through the E/CAR/AFS Network via the redundant circuit between Antigua and San Juan.
  - SACCSA (SISTEMA DE AUMENTACIÓN PARA EL CARIBE, CENTRO Y SUDAMÉRICA- Augmentation System for the Caribbean, Central and South America) Project RLA/03/902 to analyze the technical, institutional and financial viability of implementing Satellite Based Augmentation Systems (SBAS)/Global Navigation Satellite Systems (GNSS) system in the CCAR/SAM regions has come to a close. The research has shown positive results. The next stage would be the implementation of the system.
  - The AMSS-TT system is currently functioning in AFTN mode. Cutover of the CADAS-ATS in the Eastern Caribbean States to AMHS has been revised to be completed by the third quarter of 2015.
  - The Technical Letter of Agreement for the Interconnection of AMHS Systems with the FAA has been completed. Testing with the FAA began in February 2014. Cutover date has been revised to the third quarter of 2015. The transition to AMHS will be seamless to the network. The work that is required involves only configuration changes to the AMHS equipment.

- **Anguilla:**
  - Catastrophic failure of the E/CAR/AFS node in Anguilla on 14/10/2014 following the passage of a storm considering that one of the Cisco routers for the E/CAR/AFS Network failed in January 2013. The damage to the equipment was as a result of adverse environmental conditions and would not be covered under the maintenance agreement in effect with Cisco for the routers. Aeronautical Message Handling System (AMHS) services in Anguilla are currently provided via the Internet (SPATIA) as the agreed fail safe for the E/CAR/AFS Network. Anguilla has since then deposited the amount for the replacement equipment. Service through the E/CAR/AFS network is expected to be available by end of June 2015.
- **Saint Kitts and Nevis**
- **:**
  - Failure of one of the routers in Saint Kitts also as a result of environmental damage. Saint Kitts is presently pursuing government approval for the funds.

- **MEVA-E/CAR Interconnection:**
  - The new dedicated MEVA circuit required for the radar exchange between San Juan and Sint Maarten, and the voice circuits to Anguilla, Antigua and St. Kitts is already installed. Sint Maarten has agreed to cover the full cost of the MEVA voice circuits and the data circuit for radar data from San Juan to Sint Maarten and the radar data from Sint Maarten to San Juan through the MEVA node in San Juan. Technical discussions are on-going with the E/CAR/AFS and MEVA service providers to implement the voice circuit interconnection;
  - The interconnectivity would allow Sint Maarten to share their radar with Trinidad and Tobago as part of the radar feeds that will support the Radar Data Server project to be implemented for the E/CAR States/Territories in addition to the exchange of radar between Sint Maarten and San Juan.

- **Radar Sharing with E/CAR:**
  - Further to the review of the operational requirements by the ECCAA for providing situational awareness and the information exchange on operational experiences on situational awareness conducted between France, Saint Lucia and ECCAA, several members of the Radar Data Sharing Group expressed their commitment to move on with the implementation of the IRMA computers donated by France, considering their geographical situation within the French radar coverage of the Dakota radar data;
  - In this regard, the installations of the IRMA computers have been completed for St. Vincent (January 27, 2015), Antigua (March 19, 2015), Grenada (April 17, 2015) and Montserrat (May 18, 2015). Dominica is scheduled for May 2015. Barbados, St. Kitts, Nevis and Trinidad are scheduled for June 2015. Anguilla will be scheduled after the routers are replaced (June 2015).

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