International Civil Aviation Organization
North American, Central American and Caribbean Office (NACC)
First NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/1)
Mexico City, Mexico, 29 July to 1 August 2013

Agenda Item 4:   **Air Navigation Matters**
   4.2   Follow-up on the Implementation of the NAM/CAR Regional Performance Based Air Navigation Plan (RPBANIP):
   • Progress reports of the former Sub-regional Working Groups on AIM, ATM and CNS areas.

COMMUNICATION AND SURVEILLANCE IMPROVEMENTS IN THE PIARCO FIR – EASTERN CARIBBEAN

(Presented by Trinidad and Tobago)

SUMMARY
This Information Paper presents information on the progress and improvements of the Eastern Caribbean Aeronautical Fixed Services Network and the ATN application AMHS/AISS and Radar Sharing Project

Strategic Objectives	*This information paper is related to Strategic Objectives:* *A. Safety – Enhance global civil aviation safety* *C. Environmental Protection and Sustainable Development of Air Transport*

1.   Introduction

1.1   The Eastern Caribbean Aeronautical Fixed Services (E/CAR AFS) Network was replaced in 2011-2012, in order to support new and evolving voice and data communications protocols and services requirements necessary for the Aeronautical Telecommunications Network (ATN) using the Internet Protocol Suite (IPS). The new network is based on CISCO routers capable of supporting ATN and its applications in an IP environment and takes advantage of modern IP network elements and protocols thereby providing one platform for both voice and data services. The network is fully redundant with a simplified design that provides redundancy and scalability via the use of Metro Ethernet Links, Multiprotocol Label Switching (MPLS) and dedicated International Private Leased Circuits (IPLC).

1.2   The E/CAR AFS network **(Appendix A)** connects the following States for voice (ground-ground) and data (Aeronautical Message Switching Systems and Radar sharing) services specific to civil aviation air navigation services:

- Anguilla
- Antigua
- Barbados
- Dominica
- Grenada

- France (Guadeloupe and Martinique)
- Montserrat
- Saint Kitts and Nevis
- Saint Lucia
- Sint Maarten

- Saint Vincent and the Grenadines
- Trinidad and Tobago
- United States (San Juan)

1.3   The network is administered by Trinidad and Tobago with Telecommunication Services of Trinidad and Tobago (TSTT) as the service provider. The network is supported by a password protected on-line web-based fault reporting and resolution application which allows users the ability to log faults and view subsequent feedback and resolution information for their State/Territory. The application also provides statistics and reports.

1.4   The Eastern Caribbean Network Technical Group (E/CAR/NTG) which was established in accordance with E/CAR/WG/31 Meeting, Conclusion 31/7 and approved by the E/CAR/DCA/22 Meeting, is composed of members States with the objective to analyse and monitor the performance of the network in addition to examining the evolving requirements of the ATN applications and facilitating commensurate improvements. To date there have been four meetings held annually. The Reports and Papers   are   available   on   the   ICAO   website   at   the   following   link: http://www.mexico.icao.int/Meetings.html

2.   **E/CAR AMHS/AISS Implementation**

2.1   In keeping with ICAO Global Plan Initiative 18 (GPI-18) Aeronautical Information: To make available in real-time quality assured electronic information (aeronautical, terrain and obstacle), GPI-22 Communication Infrastructure: To evolve the aeronautical mobile and fixed communication infrastructure, supporting both voice and data communications, accommodating new functions, as well as providing the adequate capacity and quality of service to support ATM requirements and the ICAO Flight Plan 2012 requirement, Trinidad and Tobago replaced its Aeronautical Fixed Telecommunication Network (AFTN)/Aeronautical Information Services System (AISS) with a new Air Traffic Services Message Handling System (AMHS)/AISS in 2012. Similarly, the AFTN terminals on the E/CAR were replaced with AMHS User Agents and AIM workstations in the first quarter of 2013.

2.2   The AISS is provided by IDS Ingegneria Dei Sistemi S.p.A and is realized on the Spatia™ Aeronautical Information Management (AIM) application which is used for NOTAM and Flight Plan (FPL) messages collection and distribution, Briefing functionality, Creation of Briefing Reports, Meteorological and IDS AeroDB Suite (IAS) for Management of aeronautical static data (FIRs, Aerodromes, Waypoints, NAVAIDs, Geo Designators, Aircraft Types), Charting, Procedure Design and Electronic AIP. The centralized Aeronautical Information Database (AeroDB) is built on the AIXM 5.1 model. Flight Plans, NOTAM and Meteorological data received by the Switching Centre are copied to the AISS for storage which can be accessed using Standard ICAO request proposal over the AFTN/AMHS or by any AISS Workstations.

2.3   The AMHS is provided by COMSOFT's message handling system Aeronautical Integrated Data Agent – Next Generation (AIDA-NG) which offers a highly versatile communication gateway integrating AFTN, as well as the latest AMHS technology on one single platform. CADAS-ATS (COMSOFT Aeronautical Data Access System) is a client/server system providing full ATS end user services (flight plan management) and supports the operation of AMHS User Agent client terminals.

2.4   Spatia™ AIM and CADAS-ATS use the E/CAR AFS Network (MPLS) as the primary communications medium with the commercial internet as the secondary communications medium.

3.   **E/CAR Radar Sharing Project**

3.1   The Eastern Caribbean (E/CAR) Directors of Civil Aviation looking into the operational benefits and the regional cooperation among the E/CAR States and Territories, formulated during the Piarco Policy Group Meeting the Conclusion 1/2 E/CAR Radar Data Server for Trinidad and Tobago to provide and host the radar data server for the sharing and exchange of radar data in the Eastern Caribbean. This action together with the capabilities of the E/CAR AFS Network and the ATM System in Trinidad and Tobago facilitates the implementation of radar sharing in the region.

3.2   To date, there have been five on-line teleconferences facilitated by the ICAO North American, Central American and Caribbean Office (NACC) Regional Office. The last Radar Sharing Meeting (E/CAR/RD/2) which was held in Martinique on 17 June 2013 considered and discussed the implementation of radar sharing within the Eastern Caribbean with the radar data server in Trinidad and Tobago. Information was shared on ways to accomplish this task in addition to the development of draft technical specifications and an implementation schedule.

3.3   France currently exports radar from Martinique to Saint Lucia where it is displayed on IRMA2000 traffic displays that were supplied by France. In addition, France exports the radar from Martinique and Guadeloupe to Trinidad and Tobago where it is integrated into the Piarco Multi Radar Tracker (MRT) and made available to the Air Traffic Controllers at Piarco. The Barbados radar is also exported to Trinidad and Tobago and trials are underway prior to integration into the Piarco MRT.

3.4   With the assistance of ICAO, Trinidad and Tobago have started discussions with Venezuela to share radar information. The **Appendix B** shows the expected radar coverages with the addition of radar inputs.

4.   **Interconnectivity between E/CAR AFS and MEVA**

4.1   Decision E/CAR/NTG 2/10 - Planning for the implementation of a Common Request for Information (RFI) document for the CAR Region telecommunication networks was formulated further to shared information between the E/CAR/NTG and the MEVA Technical MEVA Group (TMG) on the separate planned renewal of the E/CAR AFS and the MEVA Networks. In consideration of the operational benefits of network interconnection Conclusion TMG 22/9 – *Regional Interconnection/Integration with the E/CAR Network,* and Decision E/CAR/NTG 3/2 – *Regional Interconnection of the MEVA III and the E/CAR Networks* were formulated.

4.2   In support of the interconnection/integration initiative of the MEVA and E/CAR, the E/CAR NTG Rapporteur was selected to participate in the MEVA Task Force. In the formulation of the telecommunications requirements for the E/CAR/NTG with respect to the MEVA III RFI process four teleconferences were carried out between Trinidad and Tobago and the MEVA TMG representatives, St. Maarten and United States, with the assistance of ICAO. The list of telecommunication requirements for the MEVA II – E/CAR Network agreed from the teleconferences has been included in the MEVA III tender document.

4.3   It was agreed that San Juan (Puerto Rico) would be the point of interconnection for both networks since San Juan has both a MEVA node and an E/CAR AFS Network node. The interconnectivity would allow Sint. Maarten to share their radar with Trinidad and Tobago as part of the Radar Sharing project within the E/CAR States/Territories, in addition to the exchange of radar between Sint. Maarten and San Juan. The interconnection will also improve the availability of the speech circuits between Sint Maarten and Anguilla and specific points of the E/CAR.

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APPENDIX A

ECAR AFS NETWORK
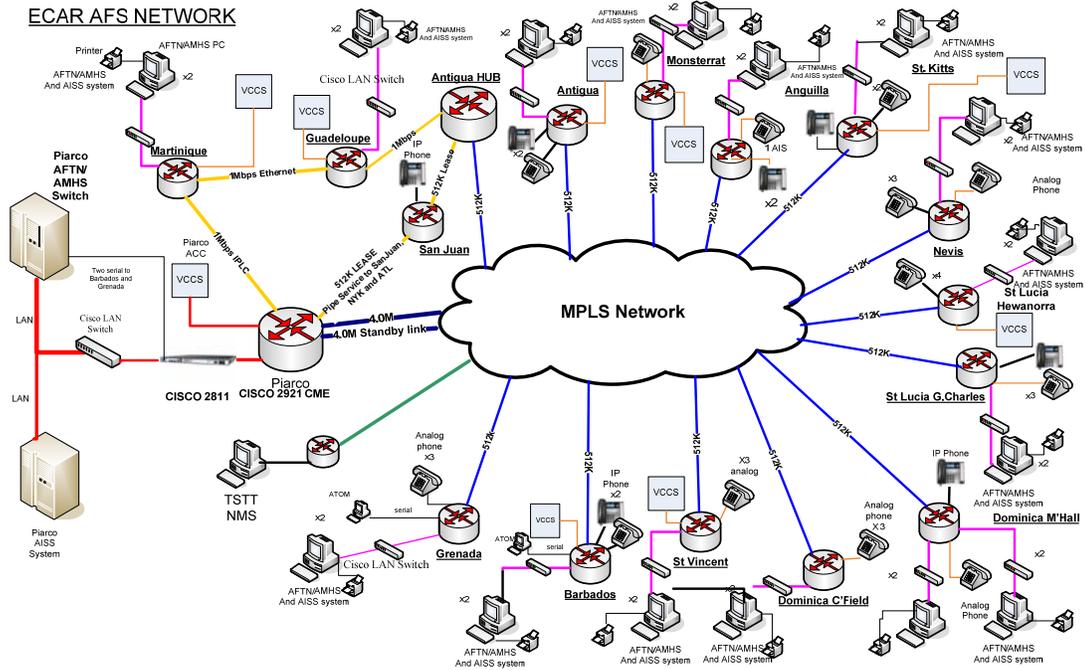
APPENDIX B
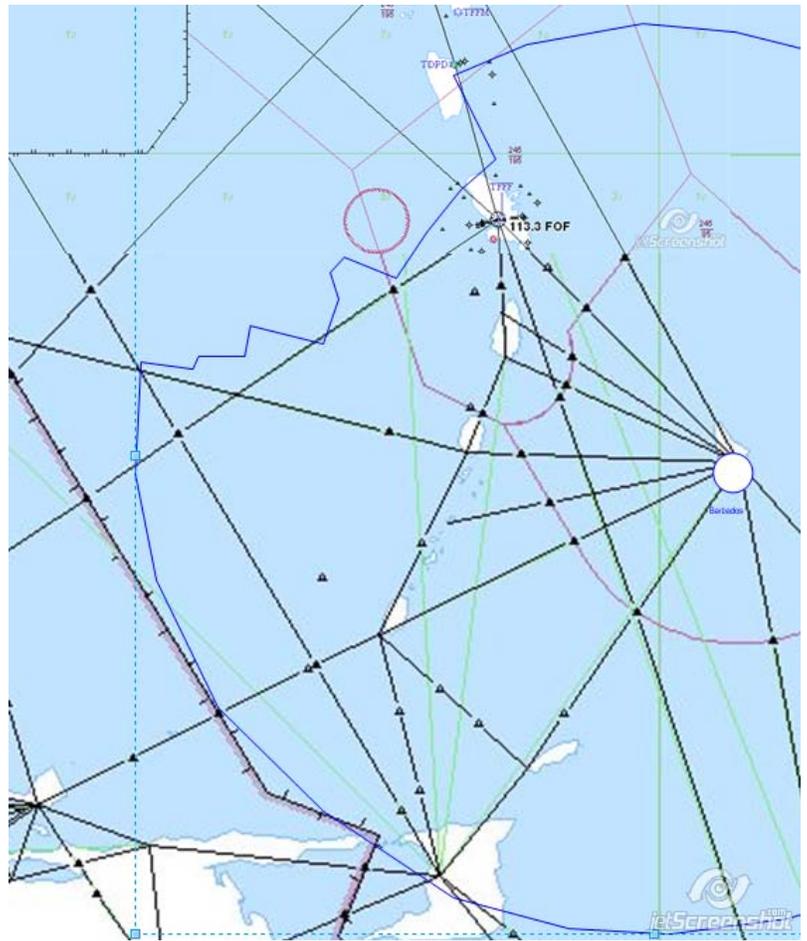**Radar Coverage in the E/CAR Region**

DAKOTA RADAR: FL 200 (MRT Data)
Coverage up to St Lucia/Barbados and Sint Maarten,
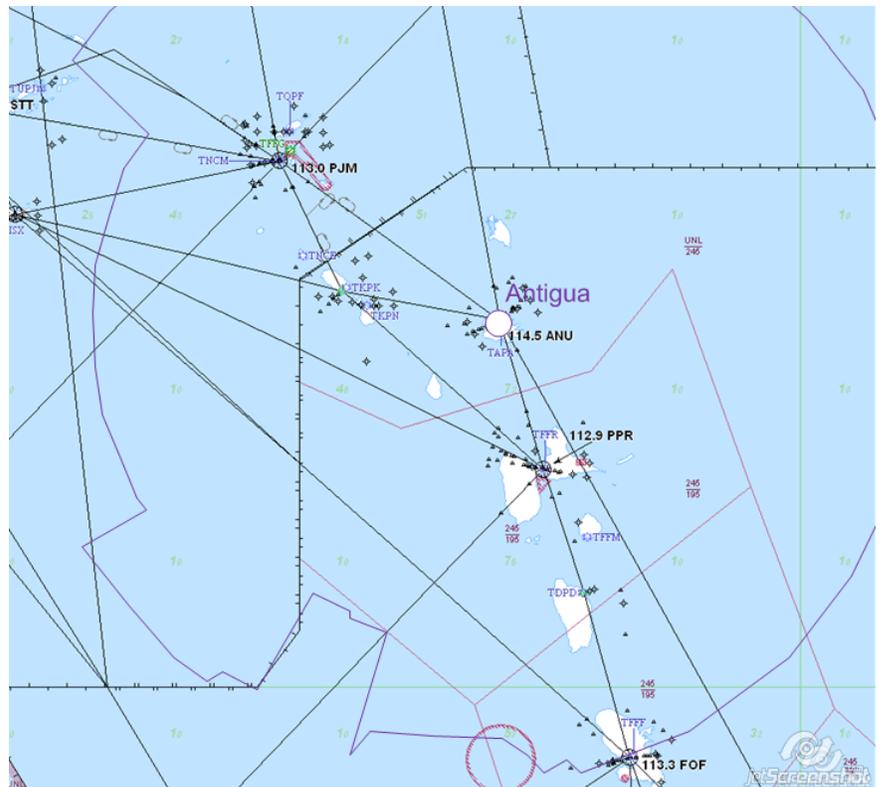*covering St. Kitts, Antigua and Dominica.*
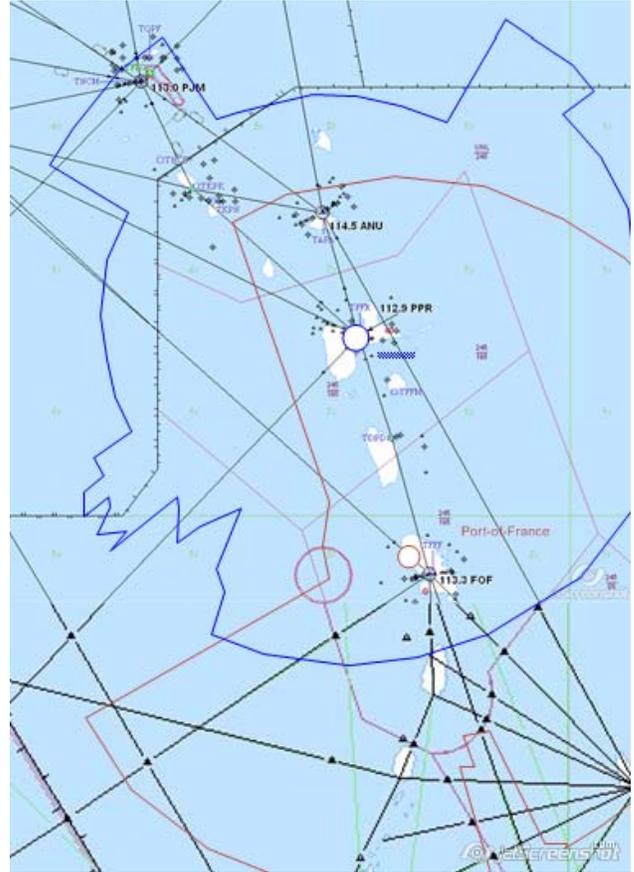
PIARCO RADAR: FL 100 and 200
Coverage up to St Lucia and Barbados,
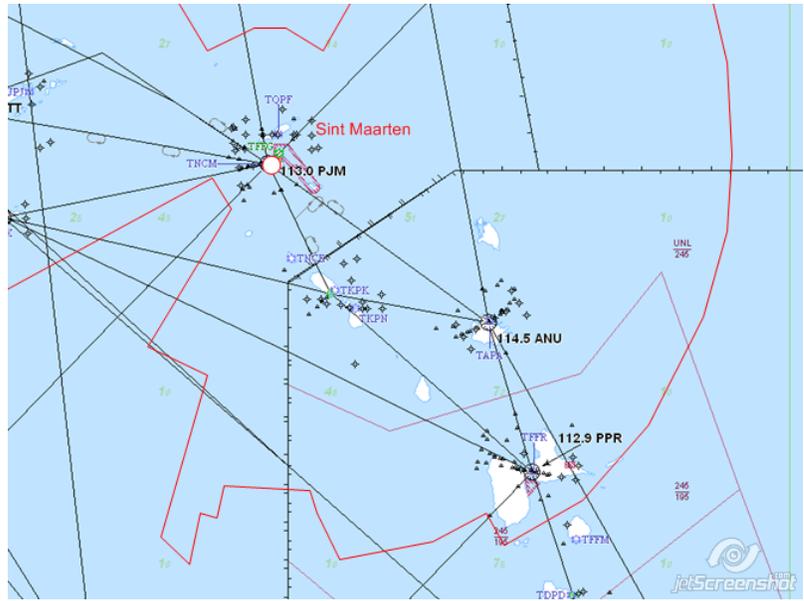*covering Grenada and Saint Vincent*
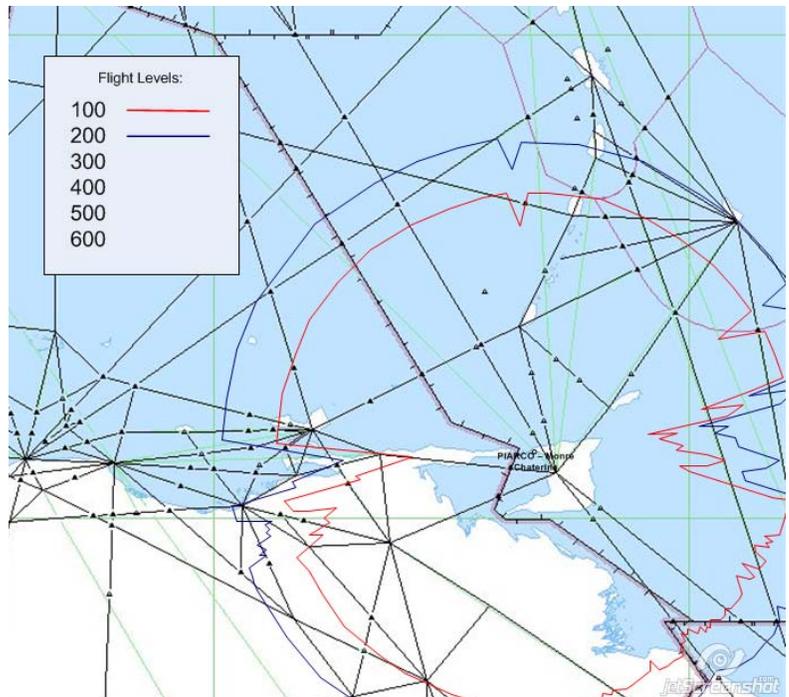
Barbados RADAR: FL 200
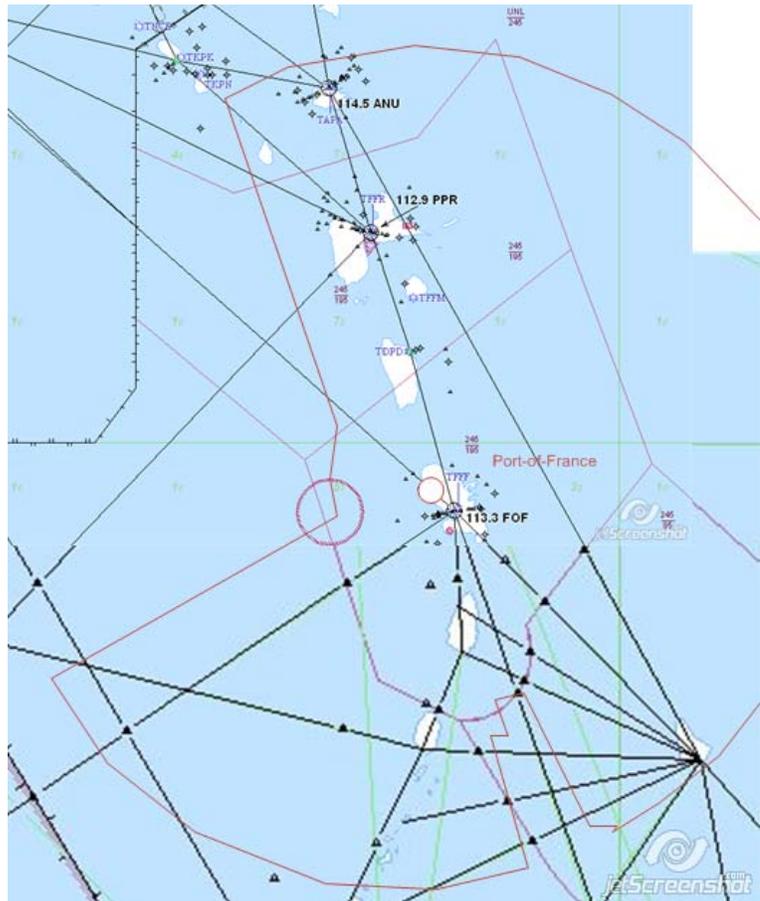*Coverage up to Martinique, covering St. Vincent and, Grenada*

ANTIGUA RADAR: FL 200
Coverage up to Martinique, covering Guadeloupe, St. Kitts, Dominica and Anguilla

Sint Maarten RADAR: FL 200
*Coverage up to Guadeloupe,
covering St. Kitts, Antigua and
Anguilla*

Martinique RADAR: FL 200
*Coverage up to Antigua, covering
Dominica, Saint Lucia and Barbados*

Guadeloupe RADAR: FL 200
*Coverage up to Sint Maarten,
covering St. Kitts, Antigua and
Dominica*

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