Organización de Aviación Civil Internacional
Oficina para Norteamérica, Centroamérica y Caribe

NOTA DE ESTUDIO

Séptima Reunión del Grupo de Trabajo de Norteamérica, Centroamérica y Caribe (NACC/WG/7)
Oficina Regional NACC de la OACI, Ciudad de México, 29 de agosto al 1 de septiembre 2022

Cuestión 3 del
Orden del Día: **Seguimiento a las actividades de los Grupos de Tarea del NACC/WG**

3.1   Informes de las Mejoras al Enlace de Voz del ATS (MEVA) y la nueva red de comunicaciones CANSNET, Grupo Técnico de Aviación Civil del Caribe Oriental (E/CAR/CATG), y del Grupo Técnico de Redes Servicio Fijo Aeronáutico del Caribe Oriental (E/CAR AFS NTG)

INFORME DE LAS REUNIONES DE LOS GRUPOS AD-HOC E/CAR/NTG/11 - E/CAR/RD/9

(Presentada por la Relatora del E/CAR/NTG)

RESUMEN EJECUTIVO	
Este documento presenta el informe de las reuniones E/CAR/NTG/11 e E/CAR/RD/9	
Acción:	Las acciones sugeridas se presentan en la Sección 3.
Objetivos Estratégicos:	• Seguridad Operacional • Capacidad y eficiencia de la navegación aérea
Referencias:	• • E/CAR/NTG/11 - E/CAR/RD/9 Meetings, 30 June 2022.

1.   Introducción

1.1   La Onceava reunión del Grupo Técnico de la Red del Caribe Oriental (E/CAR/NTG/11) y Novena reunión del Grupo Ad hoc de Intercambio de Datos Radar del Caribe Oriental (E/CAR/RD/9) se llevaron a cabo en línea el 30 de junio de 2022. A las reuniones asistieron trece (13) Estados/Territorios y una (1) Organización Internacional con una participación total de veinticinco (25) delegados.

2.   Discusión

2.1   Las reuniones revisaron las conclusiones de las reuniones E/CAR/NTG/10-E/CAR/RD/8 y proporcionaron actualizaciones sobre la actualización de la red E/CAR/AFS. De las nueve (9) conclusiones revisadas, cinco (5) están finalizadas y cuatro (4) siguen vigentes con actividades en curso. El informe de las reuniones se presenta en el **Apéndice** de esta NE (únicamente en inglés).

3.   **Acciones sugeridas**

3.1   Se invita a la Reunión a:

a) tomar nota de las actividades y avances de los grupos E/CAR/NTG e E/CAR/RD; y
b) acordar cualquier otra acción que sea conveniente.

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Eleventh Eastern Caribbean Network Technical Group (E/CAR/NTG/11) and Ninth Eastern Caribbean Radar Data Sharing Ad hoc Group (E/CAR/RD/9) Meetings

Draft Report

Online, 30 June 2022

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HISTORICAL

ii.1   **Place and Date of the Meeting**

The Eleventh Eastern Caribbean Network Technical Group (E/CAR/NTG/11) and Ninth Eastern Caribbean Radar Data Sharing Ad hoc Group (E/CAR/RD/9) meetings were held online on 30 June 2022.

ii.2   **Officers of the Meeting**

The E/CAR/NTG/11 and E/CAR/RD/9 meetings were chaired as plenary by Ms. Veronica Ramdath as the E/CAR/NTG Rapporteur.

ii.3   **Working Languages**

The working language of the meetings was English.

ii.4   **Agenda**

1.0   Review of Valid Conclusions from E/CAR/NTG/10 & E/CAR/RD8 Meetings.
2.0   Operation and Performance of the E/CAR Aeronautical Fixed Services (AFS) Network.
3.0   Next Meetings.

ii.5   **Attendance**

The Meetings were attended by thirteen (13) States/Territories and one (1) International Organization with total participation of twenty five (25) delegates as indicated in the list of participants.

ii.6   **Status of ECARNTG10–ECARRD8 Reviewed Conclusions**

Number	Status
ECARNTG10–ECARRD8/01	Valid
ECARNTG10–ECARRD8/02	Completed
ECARNTG10–ECARRD8/03	Valid
ECARNTG10–ECARRD8/04	Valid
ECARNTG10–ECARRD8/05	Valid
ECARNTG10–ECARRD8/06	Completed
ECARNTG10–ECARRD8/07	Completed
ECARNTG10–ECARRD8/08	Completed
ECARNTG10–ECARRD8/09	Completed

LIST OF PARTICIPANTS

ANGUILLA

1. Sheila Hodge

ANTIGUA AND BARBUDA

2. Lorraine Audrey Davis
3. Shenneth Phillips
4. Louana Issac

BARBADOS

5. Richard Prempeh

DOMINICA

6. Kershton Pascal

ECCAA

7. Trevor Davis

FRANCE

8. Michel Humbert
9. Jean-Jacques Deschamps

GRENADA

10. Desmond Baptiste
11. Dennis Philbert

MONTSERRAT

12. Joseph Irish

ST. KITTS AND NEVIS

13. Kurt Louard

SAINT LUCIA

14. Amy Charles
15. Lynden Leonce
16. Kendell Peter

SAINT VINCENT AND THE GRENADINES

17. Dillet Davis

TRINIDAD AND TOBAGO

18. Veronica Ramdath
19. Ian Gomez
20. Steve Saroop
21. Richard Halliday

UNITED STATES

22. Jorge Chades
23. Will Turner
24. Vincent McMenamy
25. Nigel Simmons

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1.0   Discussions

1.1   The Meeting reviewed the valid Conclusions from E/CAR/NTG/10 & E/CAR/RD8 Meetings accordingly.

1.1.1 **Conclusion**
       ECARNTG10–ECARRD8/01   *REVIEW OF THE CAR/SAM REGIONAL AIR NAVIGATION PLAN (ANP) TO ENSURE UPDATED INFORMATION ON INFRASTRUCTURE*

That, in order to review and update the electronic Air Navigation Plan Volumes I and II, Eastern Caribbean States/Territories, in coordination with the ICAO NACC Regional Office, review the eANP CAR/SAM Volume I and Volume II to ensure updated information on CNS infrastructure and services indicated in these documents by 15 March 2022.

1.1.1.1   After discussions, the following updates were provided:

Conclusion	States	Progress/Update
ECARNTG10–ECARRD8/01	Anguilla	Work in progress
	Antigua and Barbuda	Work in progress
	Barbados	Work in progress
	Dominica	Work in progress
	Grenada	Work in progress
	France (FWI)	Work in progress
	Montserrat	Work in progress
	St. Kitts and Nevis	Work in progress
	St. Lucia	To be advised
	St. Vincent	Work in progress
	Trinidad and Tobago	Work in progress
	United States	Work in progress

1.1.1.2   To assist States in completing this activity, the Meeting agreed that NTG Rapporteur would send to all states the eANP CAR/SAM Vol I and II, in addition to the ICAO link to these documents.

1.1.2 **Conclusion**
       ECARNTG10–ECARRD8/02   *EVALUATION OF NEEDS FOR BACKUP COMMUNICATION FOR EASTERN CARIBBEAN STATES*

That, taking into account the process of developing the technical specifications of the MEVA regional communications network is under development and within the document all the technical requirements and communications needs of the Caribbean States will be specified, and since the communications network of the Eastern Caribbean States has interconnections with the MEVA network, E/CAR States:
       a)   evaluate their back-up communication needs by December 2021.

b) *share the technical and operational information with the MEVA/TMG and coordinate their needs to be integrate in the new MEVA phase by December 2021.*

1.1.2.1

Conclusion	States	Progress/Update
ECARNTG10–ECARRD8/02	E/CAR/AFS Members	Completed

1.1.2.2 The interconnection of the ECAR/AFS and MEVA in San Juan facilitates communication with Anguilla, Antigua, St Kitts and Sint Maarten. The technical details of this interconnection have been shared with the MEVA/TMG. No additional communication circuits or backup communication paths were identified as operational requirements.

1.1.2.3 The Meeting recalled that the Federal Aviation Administration (FAA) maintains a connection between the Atlanta Network Enterprise Management Centre (NEMC) and the E/CAR AFS network via a point of presence located in San Juan, Puerto Rico. Further to the connection to the South American Digital Network (REDDIG) from the FAA's NEMC located in Atlanta and Salt Lake City which was implemented in 2020, Trinidad and Tobago and the United States are working on a secondary path for AMHS between Atlanta and Piarco using the REDDIG. This additional path is expected to increase the availability of the AMHS service between Atlanta and Piarco. It is anticipated to be completed within calendar year 2022.

1.1.3 **Conclusion**

      ECARNTG10–ECARRD8/03   *REGIONAL AVIATION CAPACITY AND INFRASTRUCTURE INTEGRATION*

That, in order to promote the aviation development of the Eastern Caribbean States and to integrate the regional aviation capacity and infrastructure, the E/CAR States and Territories update:
a) *the CNS capacity of their air aviation system; and*
b) *their air navigation plan in accordance with the new requirements of the Global Air Navigation Plan (GANP) by 15 March 2022.*

1.1.3.1

Conclusion	States	Progress/Update
ECARNTG10–ECARRD8/03	Anguilla	No update
	Antigua and Barbuda	A new Control Tower with new communication equipment; and a DVOR were installed in 2019.
	Barbados	The Leonardo ADS-B project is completed but the ADS-B is not yet operationalized for live traffic separation. The Barbados Civil Aviation is currently developing the relevant ATS procedures and contingency procedures. The ADS-B data is presently utilized for situational awareness.

Conclusion	States	Progress/Update
	Dominica	No update
	Grenada	• A new ATM System (by GECI) inclusive of ADS-B for situational awareness is expected to be available by August 2022. The ATM System is similar to that ordered for Antigua. • The VHF system in Carriacou was upgraded.
	France (FWI)	• Test of ADS-B on the both islands. • Radar Mode S will be installed in 2024 and 2025 in Martinique and Guadeloupe • A new remote VHF antenna in Macouba, Martinique is expected to be operational in Q4 2022 / Q1 2023.
	Montserrat	• A new control tower is under construction. Completion is expected by September 2022. • New radios and VCCS will be installed in the tower. • An ATM System was not included in the list of deliverable equipment.
	St. Kitts and Nevis	• No CNS updates in St Kitts. • New CNS equipment was installed in Nevis in 2018
	St. Lucia	Update to be advised
	St. Vincent	• A meeting is planned in July 2022 to discuss a Caribbean Development Bank project earmarked for Canouan airport inclusive of new runways. • The project may include new VHF radios and provision for situational awareness /ATM System. • The DVOR installed at the Argyle airport is not yet commissioned due to issues with the approaches. Work to correct the identified issues is in progress.

Conclusion	States	Progress/Update
	Trinidad and Tobago	Update of ANP in accordance with the Global Air Navigation Plan (GANP) is under discussion.
	United States	No updates at this time

1.1.4 **Conclusion**

ECARNTG10–ECARRD8/04 *SUPPORT TO DOMINICA, SAINT KITTS AND NEVIS AND SAINT VINCENT AND THE GRENADINES IN THEIR SURVEILLANCE INFRASTRUCTURE*

That, Dominica, Saint Kitts and Nevis, and Saint Vincent and the Grenadines within their procurement processes to define ATM surveillance user and technical requirements to further the procurement and implementation of situational awareness by 31 January 2023.

1.1.4.1

Conclusion	States	Progress/Update
ECARNTG10–ECARRD8/04	Anguilla	• The Approach is handled by St. Maartin. Talks are underway with St. Maartin for the provision of situational awareness in the approach only. • Like Montserrat, Anguilla is also regulated by ASSI. • A new control tower inclusive of new radios and VCCS was commissioned in October 2019. • IRMA was not installed in 2015 due to incomplete request process, tower issues and ASSI not approving the IRMA display in the Tower.
	Dominica	No information on plans for a new ATM System or Situational Awareness.
	Grenada	A new ATM System (by GECI) inclusive of ADS-B for situational awareness is expected to be available by August 2022.
	Montserrat	It is not a requirement to have the radar for the purpose of situational awareness. IRMA is used to monitor if an aircraft has an encounter behind the Centre hill area. There is fluctuation in communication in that area when aircraft fly at low levels behind the hill. A solution for the

Conclusion	States	Progress/Update
		communication may be the installation of a mast and a building with backup power, to house the radios on the Centre hill mountain which will give good line of sight communication.
	St. Kitts and Nevis	No information on plans for a new ATM System or Situational Awareness.
	St. Lucia	The SLASPA in January 2021 signed a contract with ADACEL for the provision of an AURORA ATM System for both the George FL Charles Airport and the Hewanorra International Airport. • Installation of ATM System: To be advised • Operational Date: To be advised
	St. Vincent	• The Thales questionnaire was completed and submitted to Thales. Funding for the procurement may be through the Permanent Secretary in the Ministry of Tourism. Projects of this magnitude are usually tendered if funded by the Central Government and a payment is made directly to the supplier. There may not be a need for a tender if the project is regional in nature and the funds are paid as part of a combined costing. • No information on plans for a new ATM System or Situational Awareness.

1.1.4.2   The Meeting agreed that the NTG Rapporteur would reach out to vendors who would have made presentations at previous NTG meeting to obtain updated budgetary estimates for the procurement of situational awareness (hardware/software) for Dominica, Saint Kitts and Nevis, and Saint Vincent.

1.1.5   **Conclusion**
         ECARNTG10–ECARRD8/05   *REVISION OF E/CAR ATFM LETTER OF AGREEMENT FOR RADAR DATA SHARING*

         That, in order to formalize the radar data sharing activities and foster the regional E/CAR ATFM initiative, Barbados review its existing LOAs by 31 January 2022 to include the authorization to Trinidad and Tobago to exchange the Multi Radar Tracker (MRT), including any surveillance type

feeds with Eastern Caribbean and Caribbean States under the intent of the E/CAR/RD project with the FAA as part of the ATFM initiative.

1.1.5.1

Conclusion	States	Progress/Update
ECARNTG10–ECARRD8/05	Barbados	Amendments to LOA to be completed by 30 June 2022. After which it will submitted to the regulatory section for review.
	Trinidad and Tobago	Ratification of revised LOA upon receipt.

1.1.6 **Conclusion**
ECARNTG10–ECARRD8/06 *ANTIGUA PLANNING FOR RADAR DATA*

That, in order to ensure the appropriate planning and coordination for testing and integrating the radar data from the Antigua Radar into the E/CAR MRT data, that Antigua and Barbuda share the planning details (timelines and actions), technical information (radar data format, circuit speed, etc.) for the new radar in Antigua by 30 June 2022.

1.1.6.1   Antigua and ECCAA advised that the Factory Acceptance Tests (FAT) for the VC Bird ATM and Surveillance Systems was conducted on 14-18 March 2022. Towards the surveillance sharing project, the ICD document from GECI Espanola S.A was shared with Trinidad and Tobago as a precursor to integrating the Antigua surveillance into the Piarco Multi Radar Tracker. Antigua anticipates that the system will be deployed in the first Quarter of 2023 and operational by the second Quarter 2023.

1.1.7 **Conclusion**
ECARNTG10–ECARRD8/07 *SURVEILLANCE DATA REQUIREMENTS FOR ANGUILLA AND MONTSERRAT*

That,

a)   *ICAO send a reminder letter by 31 December 2021, to the authorities in Anguilla and Montserrat regarding their surveillance requirements in terms of situational awareness and their plans to move forward with this implementation before 2023; and*

b)   *ECCAA provide the NTG Rapporteur by 31 December 2021, the contact details of the local persons in Anguilla and Montserrat to engage discussions on the situational awareness.*

1.1.7.1

Conclusion	States	Progress/Update

Conclusion	States	Progress/Update
ECARNTG10–ECARRD8/07	ICAO	State letters requesting information were sent to Anguilla and Montserrat.
	Anguilla	• Anguilla PoC: SATCO Roshima Roberts <Roshima.Roberts@aaspa.ai>
	Montserrat	• Montserrat PoC: Airport Manager Joseph Irish Irishjl@gov.ms

1.1.7.2   Montserrat informed the meeting that it is not a requirement to have the radar for situational awareness. Anguilla advised that talks are underway with St. Maarten for the provision of situational awareness in the approach only. In this regard, this conclusion is considered closed.

1.1.8   **Conclusion**
ECARNTG10–ECARRD8/08   *INCREASE THE RELIABILITY OF THE E/CAR NETWORK AND ITS NODES*

That, due to the increased number of cyberattacks on aeronautical systems like the E/CAR Network, and in order to increase the reliability of the E/CAR network and its nodes, Eastern Caribbean States/ Territories:

a)   *join the activities and action plan led by the ICAO NACC Regional Office on cybersecurity assessment in the E/CAR States; and*

b)   *designate a point of contact to coordinate the different State activities for this action Plan by 31 December 2021.*

1.1.8.1

Conclusion	States	Progress/Update
ECARNTG10–ECARRD8/08	Barbados	Richard Odle <rodle@gaiainc.bb>
	ECCAA on behalf of Anguilla, Antigua, Dominica, Grenada, Montserrat, St. Kitts & Nevis, St. Lucia and St. Vincent	Trevor Davis <tdavis@eccaa.aero>
	France (FWI)	Jean Jacques Deschamps <jean-jacques.deschamps@aviation-civile.gouv.fr>
	Trinidad and Tobago	Veronica Ramdath <vramdath@caa.gov.tt>
	United States	Al O'Neill <al.o'neill@faa.gov>

1.1.9   **Conclusion**
ECARNTG10–ECARRD8/09   *CYBER SECURITY VULNERABILITY ASSESSMENT*

That, due to the increased number of cyberattacks on systems, in order to increase the reliability of the nodes and the network, ECCAA, Barbados, France, Trinidad and Tobago and the United

States conduct a cybersecurity vulnerability assessment on the E/CAR AFS Network by the E/CAR/NTG/11 Meeting.

1.1.9.1   The following are some of the documents referenced in developing the cybersecurity measures:

1) Doc 9985 - AN/492 Air Traffic Management Security Manual
2) ICAO Cybersecurity Action Plan
3) CANSO Standard of Excellence in Cybersecurity - It measures performance using a maturity model of 13 elements based on six functions that organizations with effective approaches to cybersecurity would be expected to have.
4) ATM Cybersecurity Policy Template
5) Annex 19 - Safety Management
6) Annex 17 - Security
7) Doc 8973 – Aviation Security Manual

1.1.9.2   Under consideration are the following minimum security baselines:

• Application security
• Firewall security
• Linux security
• Router security
• Switch security
• Third party data sharing and vendor access
• Web application firewall security

1.1.9.3   The following vulnerability and threat assessment were conducted:

Dependency	Vulnerability	Cyber Threat Possibility	Mitigation Measures
Terrestrial E/CAR/AFS Network	Portable and non-portable electronic devices (desktop and laptop computers)	No	Closed network Password access
Internet access for fall-back applications	Internet access, portable and non-portable electronic devices (desktop and laptop computers)	Yes	IT Firewall safeguards Password access

1.1.9.4   To date there have been no system intrusion, tampering, virus or malicious code attack, loss of data, loss of portable media, hacking incident, extortion attempts, data theft or similar

occurences. Controls implemented consist of firewalls, access control, passwords, network segregation, and routing control.

1.1.9.5   The E/CAR/AFS Network has not been externally assessed for cyber threats, cyber-attacks or penetration tested. There are no installed network intrusion detection systems. Physical entry to equipment locations are access controlled and secured. Remote and local access are managed by a layered approach that limits the number of individuals with administrative rights and authentication systems verification (password protection). Critical data is segregated in an isolated environment but data is not backed up by an external data centre off premises.

1.1.9.6   The Meeting agreed to implement a procedure to periodically reset the password access to the applications.

2.0   Operation and Performance of the E/CAR Aeronautical Fixed Services (AFS) Network

2.1   The Meeting did not formally review the statistics on the network performance normally provided by the Service Provider, TSTT. The NTG Rapporteur undertook to obtain the statistics from TSTT and to share them with the members of the Network when received. The statistics below on the availability of the network routers were subsequently provided by TSTT and are included below in this report:

No.	State	Availability
		July 2021 – July 2022
1.	Anguilla	97.67
2.	Antigua and Barbuda	98.83
3.	Barbados	99.27
4.	Dominica - Canefield	Site destroyed by tropical storm in August 2016
5.	Dominica-Douglas Charles	95.48
6.	Grenada	96.90
7.	Guadeloupe	99.93
8.	Martinique	99.93
9.	Montserrat	99.02
10.	Nevis	99.26
11.	St. Kitts	98.82
12.	St. Lucia - George F. L. Charles	99.45
13.	St. Lucia - Hewanorra	87.56
14.	St. Vincent	99.46
15.	Tobago	92.52
16.	Trinidad	99.99
17.	United States (San Juan)	98.70

2.2   France (FWI) informed at the E/CAR/NTG/9-E/CAR/RD/7 meetings that their AFTN CAGOU switch was replaced by MANGO, a Frequentis-COMSOFT AMHS system comprising of AIDA and CADAS-ATS. France provided the update that the Martinique (TFFF) COM Centre was fully cutover to AMHS operation on the scheduled AIRAC date of 02 December 2021. Cutover to the new AMHS at the Guadeloupe (TFFR) COM Centre was successfully achieved on 27 January 2022. Apart from local traffic, the TFFF-TFFR connection is used as a back-up connection.

- In normal conditions:
  - The operational outgoing traffic from TFFF (apart from TFFR) goes via TTPP, and vice-versa;

- o the operational outgoing traffic from TFFR (apart from TFFF) goes via TTPP, and vice-versa;
- o the local operational traffic between TFFF and TFFR goes over the direct link between both COM Centres.
- In contingency conditions, depending on the failure link:
  - o the operational traffic between TFFF and TTPP may go through TFFR;
  - o the operational traffic between TFFR and TTPP may go through TFFF;
  - o the operational traffic between TFFF and TFFR may go through TTPP.

2.3   The AMHS service on the direct link Antigua-Guadeloupe was unserviceable for the period 08 March 2022 – 14 April 2022 due to an issue of the tunnel being down following a configuration change which was made on the switch in Antigua after migration of the circuit due to a card failure.

2.4   The upgrade of the Network as a result of the obsolescence of the routers, was awarded to TSTT in 2018. Due to delays arising from the Covid-19 pandemic health safety measures, the project has faced significant delays. The router equipment which was ordered from the manufacturer, have been received and configured by TSTT and is ready to ship to the installation sites. TSTT is in the process of conducting pre-installation site visits using local on-site support.

2.5   The Meeting recalled that new 2MBps MPLS IP circuits would be implemented for the new Network (excluding San Juan and FWI). The circuits to San Juan, Martinique and Guadeloupe were upgraded a few years ago. Trinidad and Tobago informed the Meeting that the deployment of the new circuits was delayed due to the Covid-19 pandemic and delays in delivery of the circuit hardware from the foreign manufacturer based in China.

2.6   All efforts are being made to push through with the implementation since failures of the Cisco 2921 routers are being reported. Notwithstanding the setbacks, the new network is expected to be completed within calendar year 2022.

3.0   **Next Meetings**

3.1   The Meeting did not formally review the terms of reference. The Meeting agreed that the activities for the E/CAR/AFS Network and the regional surveillance, can be progressed and monitored through the use of online meetings, with a face-to-face meeting perhaps next year (2023). Mindful that in the past, the E/CAR/NTG-E/CAR/RD and the E/CAR/CATG meetings were held consecutively within the same week, the NTG Rapporteur undertook to write to the members for a volunteer host for the possible 2023 meeting.