



International Civil Aviation Organization
North American, Central American and Caribbean Office (NACC)
Fourth Eastern Caribbean Network Technical Group and Second Eastern Caribbean Radar Data Sharing Adhoc Group Meetings
(E/CAR/NTG/4- E/CAR/RD/2)
Martinique, French Antilles, France, 17 to 18 June 2013

Agenda Item 3: Radar Data Sharing Activities

3.3 Radar Display Trial Results

ANALYSIS OF RADAR COVERAGE IN GRENADA AND SAINT VINCENT

(Presented by Trinidad and Tobago)

SUMMARY	
This paper presents an analysis of the operational trials conducted with Grenada and Saint Vincent utilizing the composite radars of Guadeloupe, Martinique and Trinidad and Tobago	
References:	
<ul style="list-style-type: none"> • Twenty-fourth Meeting of Directors of Civil Aviation of the Eastern Caribbean (E/CAR/DCA/24) (Martinique, France, 2-5 October 2012), Working Paper 20 • Third Meeting of the Eastern Caribbean Network Technical Group (E/CAR/NTG/3), (Christ Church, Barbados, 5 to 6 June, 2012) 	
<i>Strategic Objectives</i>	<i>This working paper is related to Strategic Objectives: A. Safety – Enhance global civil aviation safety C. Environmental Protection and Sustainable Development of Air Transport</i>

1. Introduction

1.1 Conclusion PIARCO/FIR/PG/1/3 states that Trinidad and Tobago, has accepted the responsibility of hosting the radar data server for radar data sharing and remoting in the Eastern Caribbean.

1.2 Radar data sharing will bring to the air traffic environment benefits such as increased surveillance coverage, which directly impacts on airspace utilization and efficiency by permitting a reduction in aircraft separation and improve safety of operations. It will provide redundancy within areas where nearby Radar systems overlap, cost benefits to airline operators due to improved service and optimum flight performance. It will also reduce traffic congestion in busy ATC environments and ensure homogeneity in ATC operations between neighbouring states.

1.3 One of the first tasks identified by Trinidad and Tobago is to determine that the composite radar coverage of the Guadeloupe, Martinique, Barbados and Trinidad and Tobago radars is usable for all States within the E/CAR Region.

2. Discussion

2.1 Composite radar data from the Guadeloupe, Martinique and Trinidad and Tobago radars has been observed for both the TMAs of St Vincent and Grenada. The results of these observations have been tabulated (**Appendix A** shows an extract of the data) and a report (see **Appendix B**) was created. It is expected that, as soon as the Barbados radar feed is integrated into the Piarco ATM System, this analysis will be conducted again, and the report will be adjusted to reflect the findings.

2.2 Over the next three months, Trinidad and Tobago intends to continue its analysis of the usability of the composite radar data for all of the States within the E/CAR Region.

3. Suggested action

3.1 The meeting is invited to:

- a) take note of the information presented in this paper; and
- b) agree to any other actions that the meeting considers appropriate to move forward with radar data sharing in the Eastern Caribbean.

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APPENDIX A

Extract of actual observations of composite radar data from the Guadeloupe, Martinique and Trinidad and Tobago radars in the St Vincent and Grenada TMAs

STATE	DISTANCE FROM AND DIRECTION TO AIRPORT (NM)	FLIGHT LEVEL OF AIRCRAFT	ARRIVAL DEPARTURE OVERFLIGHT	REMARKS
Saint Vincent	11.7 SSW	2800ft	Arriving aircraft	Target disappeared from radar at this point
Grenada	28.6 NE	1500ft	Arriving aircraft	Target appeared on radar proceeding southwest-bound
Grenada	0.4	500ft	Departing aircraft	Target appeared on radar for first time
Grenada	1.8 W	500ft	Arriving aircraft	Target disappeared from radar at this point
Saint Vincent	16.7 SE	2700ft	Arriving aircraft	Target crossed BDY FL70 then disappears from radar at this point
Saint Vincent	8.3 SW	2200ft	Arriving aircraft	Target disappears from radar at this point
Grenada	1.1 SE	1000ft	Departing aircraft	Target appeared on radar for first time
Saint Vincent	2.8 NW	2000ft	Departing aircraft	Target appeared on radar for first time
Canouan	11.9 E	2000ft	Arriving aircraft	Target crossed BDY FL70 then disappears from radar at this point
Saint Vincent	30 N	4600ft	Arriving aircraft	Target appeared on radar for first time
Saint Vincent	7.3 NE	2300ft	Arriving aircraft	Target disappeared from radar at this point- Same traffic as above
Grenada	1.0 W	500ft	Arriving aircraft	Target disappeared from radar at this point- cross W/BDY at FL55
Saint Vincent	5.5 N NE	3000ft	Departing aircraft	Target appeared on radar for first time – proceeding Eastbound
Saint Vincent	6.0 SW	2800ft	Departing aircraft	Target appeared on radar for first time – proceeding Southbound
Grenada	0.8 E	1000ft	Departing aircraft	Target appeared on radar for first time
Canouan	11.2 N	3300ft	Departing aircraft	Target appeared on radar for first time – proceeding Northbound
Grenada	1.8 W	600ft	Arriving aircraft	Target disappears from radar at this point.
Grenada	0.6 E	300ft	Departing aircraft	Target appeared on radar for first time
Grenada	1.6 W		Arriving aircraft	Target disappears from radar at this point

APPENDIX B

ATS report on observed RADAR coverage of St. Vincent and Grenada TMAs

This report is generated based on actual observation of RADAR targets both within the lateral limits of the Grenada and St. Vincent TMAs, and up to 30 NM outside of the lateral limits.

The study was conducted with the TTPP, TFFF and TFFR RADAR sources available.

Findings

1. TVSV

1.1 Analysis of the data basically showed that for approximately 7-10 NM around the SV, there is no radar coverage below 2000 feet. The area of no coverage below two thousand feet is more pronounced to the south of the SV.

1.2 There is an area approximately 20 NM around the SV, where the radar coverage between 1000 feet and 2500 feet is variable. (Targets were observed to be dropping and reappearing).

1.3 There is another area stretching from about 10 NM SE of SV to the SE of Canouan, where there is no RADAR coverage below 3000 feet

1.4 Throughout the rest of the St. Vincent TMA (with the exception of the areas identified above), there is reliable RADAR coverage above 1500 feet.

2. TGPY

2.1 The RADAR coverage observed around Grenada is significantly better than that around St. Vincent. The data showed that targets of arriving traffic were reliable up to approximately 500 feet within 0.5 NM of the GND. Departure targets were usually observed between 500 feet and 1000 feet within one (1) mile of the GND.

2.2 The area extending from within the St. Vincent TMA to the SE of Canouan also affects the Grenada TMA.

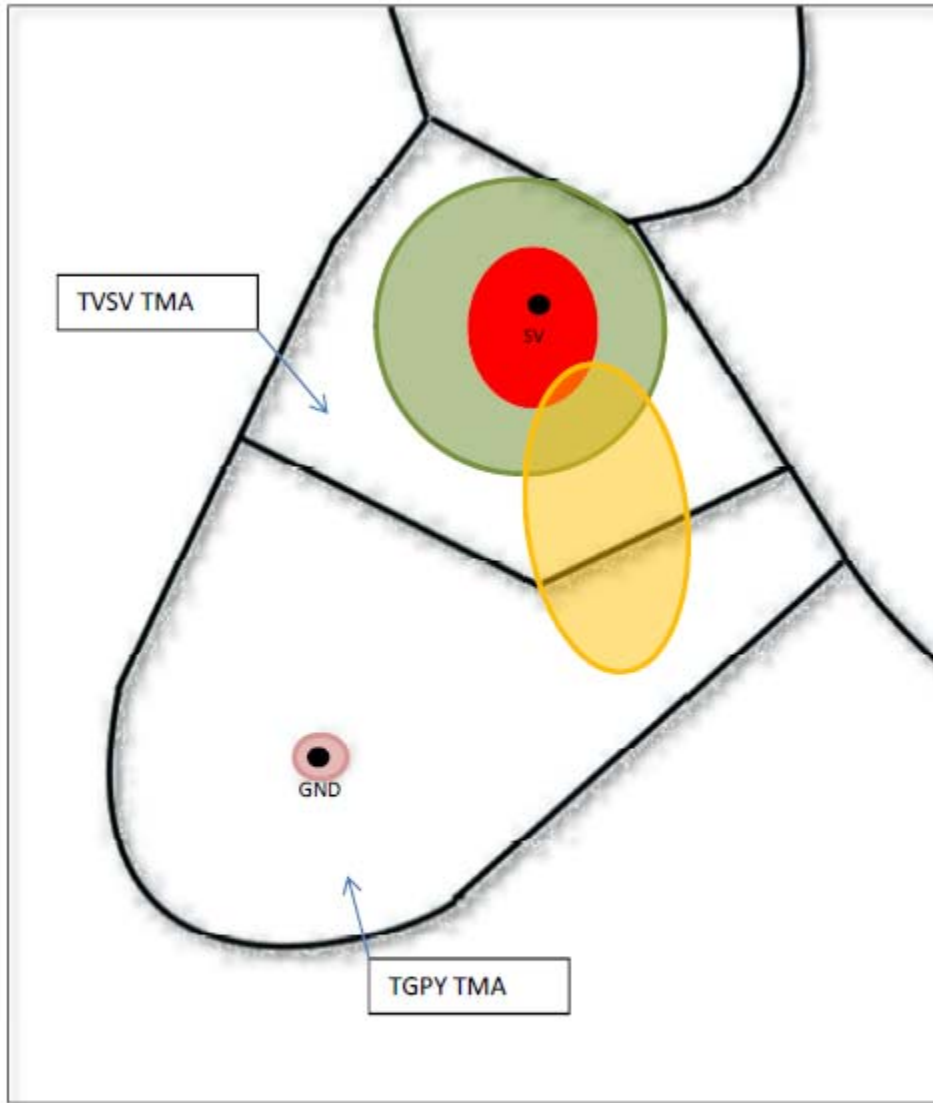
2.3 Apart from the two areas mentioned around the aerodrome, the RADAR coverage in the Grenada TMA appears to be reliable above 1000 feet.





3. 30 NM outside of the two TMAs

3.1 There is reliable RADAR coverage above 2000 feet both south and west of the Grenada TMA. To the EAST, in the TBPB TMA, the coverage is reliable above 3000 feet.

3.2 There is reliable RADAR coverage above 2000 feet both north and west of the St. Vincent TMA. To the east, in the TBPB TMA, the coverage is reliable above 3000 feet.

The diagram below gives a visual representation of the observed data.



	2000 feet and below – No coverage
	3000 feet and below – No coverage
	1000 feet – 2500 feet – Variable coverage
	500 feet and below – No coverage