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Agenda Item 6: NAM/CAR Regional Safety/Air Navigation Implementation
6.3 Air Navigation Implementation Matters

OVERVIEW OF THE FAA'S OPERATIONAL EVALUATION OF SPACE-BASED ADS-B IN THE CARIBBEAN

(Presented by the United States)

EXECUTIVE SUMMARY	
This paper presents an overview of the Federal Aviation Administration (FAA) planned Operational Evaluation of space-based Automatic Dependent Surveillance-Broadcast (SBA) in the Caribbean. The Operational Evaluation will occur over a one (1) year period beginning in March 2020 in order to assess impact to Air Traffic operations, SBA technical system performance, and operational benefits from use of SBA within the target airspace.	
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency

1. Introduction

1.1 Enhancing surveillance in oceanic airspace can provide improvements to air navigation services by reducing separation minima for optimum routing, depending on the communications and navigation services available in the airspace.

1.2 The FAA believes that space-based ADS-B (SBA) holds promise as an enhanced surveillance capability. To date, the FAA has supported the development and maturation of the technology by developing proposed service performance requirements and by modifying oceanic automation to accept SBA data.

1.3 The FAA is now implementing a phased approach that will address technical, operational and safety issues related to a potential long-term investment in SBA.

2. Discussion

2.1 In the near term, the FAA will conduct an Operational Assessment of SBA that will allow the Agency to assess system performance in an operational environment. Such an assessment will allow the FAA to better forecast the long-term applications of SBA across a broader range of operational environments.

2.2 The FAA has identified Miami ARTCC (ZMA) oceanic airspace as the initial evaluation site for the provision of en route surveillance and separation services using En Route Automation Modernization (ERAM). ZMA offshore oceanic air traffic is monitored and controlled using instantaneous push-to-talk voice VHF/UHF communication and radar surveillance feeding ERAM.

2.3 ADS-B surveillance coverage in ZMA is limited to airspace that can be covered by ground stations located on the Florida peninsula and Puerto Rico. There is a broad expanse of airspace in the corridor between these areas where existing ADS-B terrestrial coverage is unavailable and where existing surveillance sources have reliability/resilience issues.

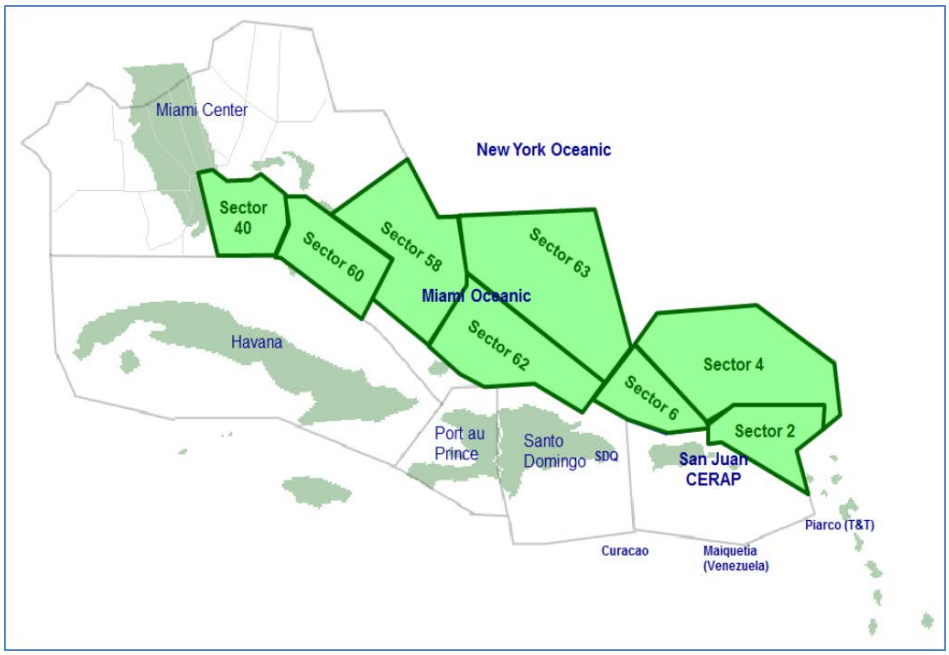

Figure 1: Caribbean Airspace Sectors

2.4 The radar site at Grand Turk, British West Indies (GDT) is a single point of failure which can impact Sectors 62 and 63 due to the lack of terrestrial ADS-B surveillance coverage. Figure 2 below illustrates the surveillance gap created by an outage at GDT.

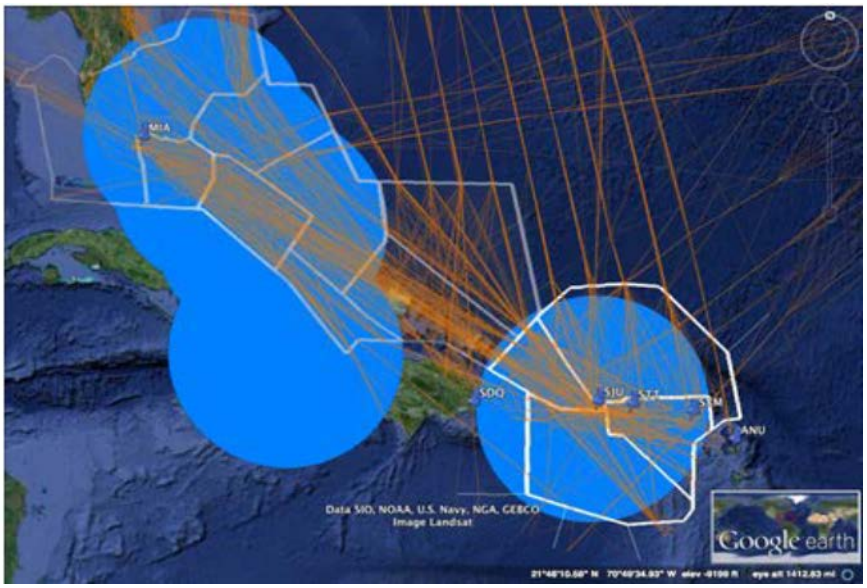

Figure 2: Grand Turk Surveillance Gap

2.5 The FAA will use the Operational Evaluation to evaluate SBA performance in mitigating impacts of GDT radar outages; augmenting existing terrestrial ADS-B coverage; and enabling potential route structure optimization. The Operational Evaluation period will occur over a one (1) year period beginning in March 2020.

2.6 Areas to be assessed during the Operational Evaluation include impact to Air Traffic operations, SBA technical system performance, and operational benefits.

2.7 The findings from this Operational Evaluation will be used to identify potential ATC automation changes, as well as opportunities for continued use of SBA in the Caribbean and/or SBA expansion to other geographic areas.

3. Conclusion

3.1 Please note the information contained in this paper.

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