International Civil Aviation Organization
South American Regional Office
Twenty Second Workshop/Meeting of the SAM Implementation Group (SAM/IG/22) - Regional Project RLA/06/901
(Lima, Peru, 19 to 23 November 2018)

SAM/IG/22-IP/21
12/11/2018

Agenda Item 2: Optimization of the SAM airspace

POST-IMPLEMENTATION ANALYSIS OF THE SAM ROUTE NETWORK WITHIN THE GEORGETOWN FIR – UP549

(Presented by Guyana)

SUMMARY	
This Information paper presents an update on the benefits of PBN RNAV 5 Route optimisation within the Georgetown FIR.	
References: • ATS/RO meetings reports • SAM/IG meetings reports • SAM PBN CONOPS period 2018-2020	
ICAO strategic objectives:	A - Safety D - Economic development of air transport E - Environmental protection

1. Introduction

1.1. The objective of the Bogota Declaration signed in December 2013, includes specific goals concerning PBN implementation. In this sense, the goals of the aforementioned Declaration are aimed at the establishment of a more efficient RNAV routes network, with more direct and better aligned flight paths, as well as the adequate connection to procedures and standardized departure/arrival routes in the TMAs.

1.2. Under the auspices of Regional Project RLA/06/901, a study was prepared for the optimisation of the SAM ATS route network, Version 4. Conclusions of the ATSRO 9 meeting resulted in the implementation of 23 improvements as of 11 October 2018, based on route realignments, flight distance reductions, and extension of RNAV-5 route segments. The optimization also includes 6 new RNAV-5 routes for the SAM Region and the deletion of 7 conventional routes, after improving flows with more efficient RNAV-5 routes.

1.3. Guyana benefited from three of these RNAV 5 route segments which were implemented accordingly (UL322 TIM – USADO; UP535 MOMSO – SIDAM; UP549 Panama-Georgetown).

2. Discussion

2.1 Cost-benefit analysis for Previous Route optimisation within the Georgetown FIR consistent with decisions taken by the first and second ICAO/IATA/CANSO performance-based navigation (PBN) harmonization, modernization and implementation meeting for the NAM/CAR/SAM Regions, demonstrated significant increases in efficiency within the Georgetown FIR.

2.2 The UP549 for example, is predominantly used by Copa Airlines for inbound flights. A cost-benefit analysis associated with the implementation of this route revealed the following savings per annum:

- 4 flights per week (MPTO – SYCJ)
- Traditional Route (via UG443) results in 1317 track miles
- New RNAV 5 Route (via UP549) results in 1280 track miles
- Savings per flight 37 track miles (approx. 5 min)
- Annual Savings (208 flights per year) - 7,696nm /1,040 min /11,583 us gal/$26,061USD And reduced CO_2 emissions totalling 138,112kg

Routing MPTO - SYCJ via UP549 vs UG443

SAVINGS

Dep/DEST	ROUTE	ROUTE DIST via UG443 (NM)	ROUTE DIST via UP549 (NM)	SAVINGS		ANNUAL ACF MOVTS. (COPA)	ANNUAL SAVINGS				
				NM	TIME IN MINUTES		NM	FLIGHT TIME (MINUTES)	Fuel in US Gallons (kg)	US$	REDUCED CO2 EMISSIONS (kg)
MPTO/SYCJ	UP549 vs UG443	1317	1280	37	5	208	7,696	1,040	11,583 (43,845)	$26,061.75	138,112

Fuel burns; Approx. 2,530 kg/h
CO_2 emissions Approx. 3.15kg/per kg of jet fuel
Fuel cost; $2.25USD/gal

3. Conclusion

3.1 Guyana has successfully optimised a number of ATS route segments traversing the Georgetown FIR through the implemented of RNAV 5 in keeping with the Regional ANP. These initiatives continue to realise significant benefits in increase airspace capacity, improved efficiency, significant cost benefits for airlines and environmental benefits through significant reductions in the carbon foot-print.

4. Suggested Action

4.1 This Meeting is invited to note the contents and conclusions of this information

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