

# OPTIMIZATION OF ROUTES IN THE UPPER AIRSPACE

COCESNA



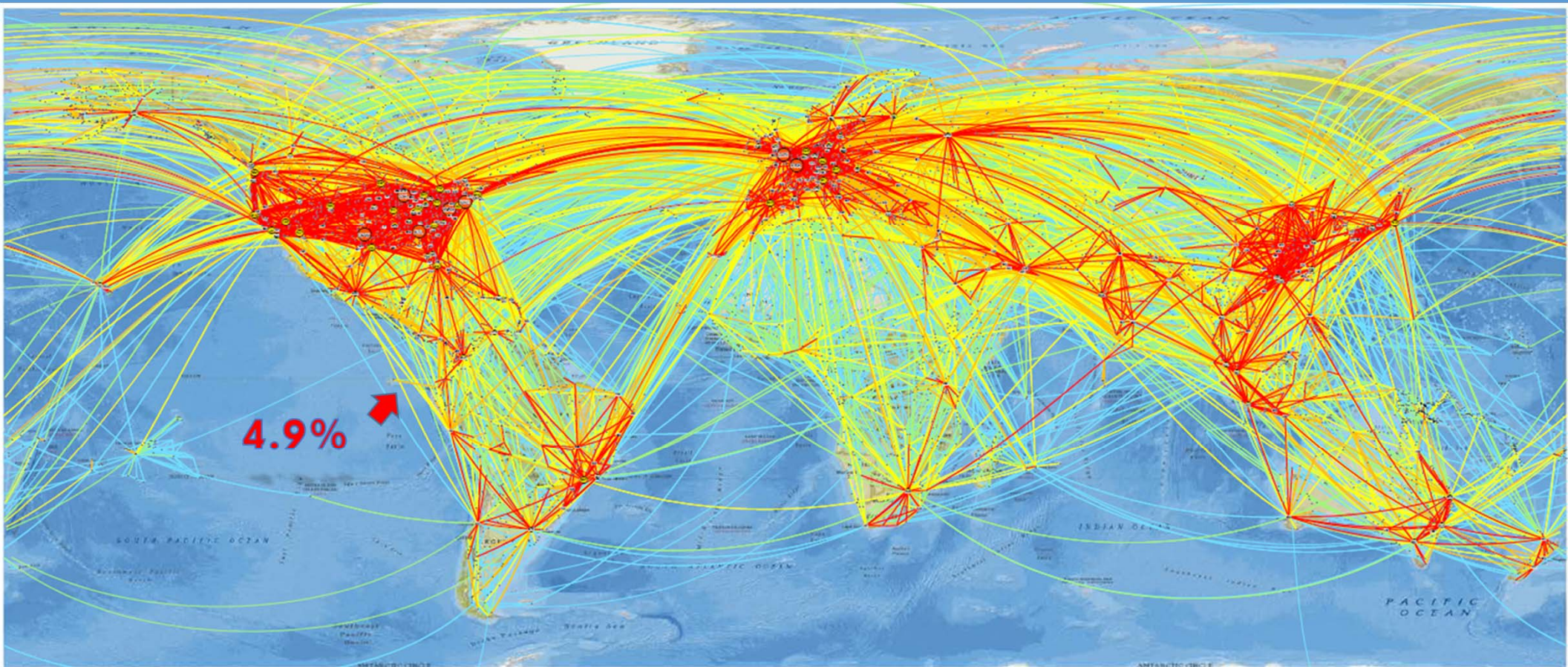
# OPTIMIZATION OF ROUTES IN THE UPPER AIRSPACE

## OBJECTIVE

1. Increase the efficiency of air traffic flows entering or departing the CENAMER airspace, while maintaining safety levels and existing air traffic services .
2. Reduce the carbon footprint of COCESNA in the provision of air navigation services in order to promote environmental management and social corporate responsibility.



# WORLD TRAFFIC FLOWS 2014



# EXPECTED WORLD TRAFFIC FLOWS 2034



# TRAFFIC FLOW CENAMER ACC

**CENAMER Saturday 12, 1600 UTC/  
1900UTC**

- Based on the traffic flows found in the FIR, we decided to reroute the most congested ones to have a more optimal airspace as follows:

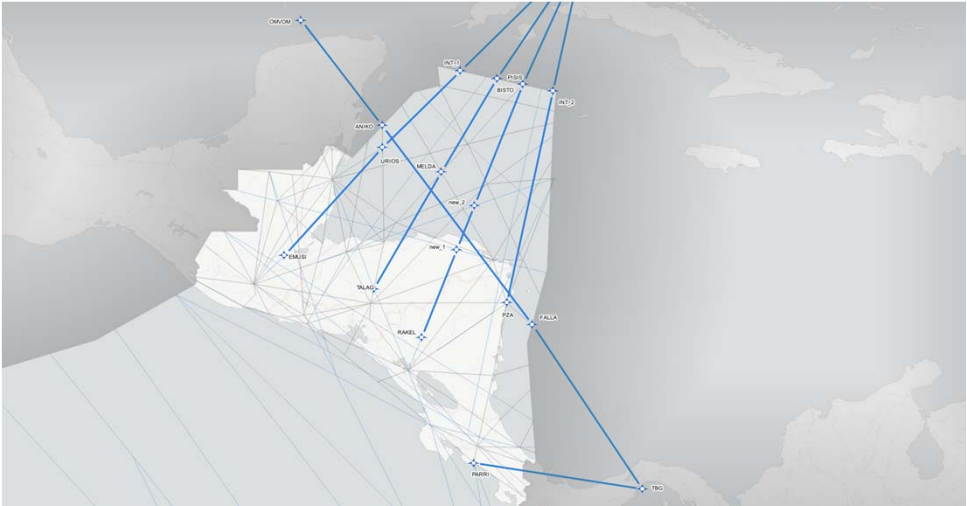


# OPTIMIZATION OF ROUTES IN THE UPPER AIRSPACE

## REROUTING PROPOSAL

ORDER	DESIGNATED ROUTE	FIX	FIX	REDUCTION (NM)
27	UZ637	EMUSI	TADPO	9.1
28	UZ514	TALAG	TADPO	73.1
29	UM328	RAKEL	TADPO	1.7
30	UZ751	PZA	TADPO	1.2
31	UXXXX	MPTO (TBG)	MROC (PARRI)	1.6
32	UR630	BZE	URIOS	0
33	UXXXX	OMVOM	TBG	14.1

## MAP



# OPTIMIZATION OF ROUTES IN THE UPPER AIRSPACE

To calculate fuel consumption and Gas Emissions for the rerouting proposals the "Emissions Calculator" developed by EUROCONTROL was used.

The calculator requires the following information:

1. Distance (NM).
2. Aircraft type

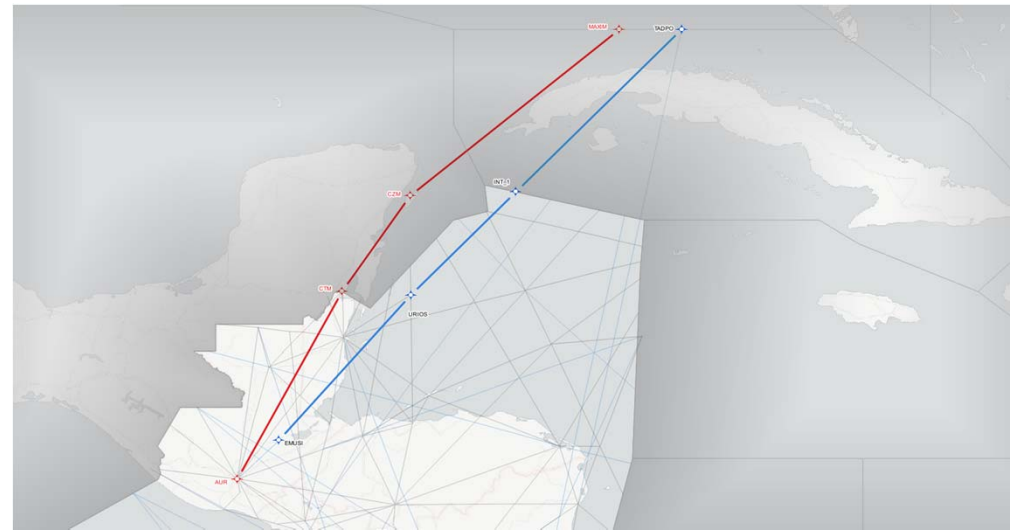
Input parameters		Computed values		
ICAO Aircraft Type Designator	Distance (Nm)	Estimated Fuel (Kg)	Estimated CO2 (Kg)	Calculator Message
B738	9	805	2,536	Ok
A320	73	1,386	4,366	Ok
B752	73	1,766	5,563	Ok
B763	9	1,455	4,583	Ok
E190	5	824	2,596	Ok

# REROUTE UZ637

**Current Path :** MNATE<sub>2</sub> MNATE MTH FIS  
UG765 MAXIM UG765 CZM UG765 CTM AUR.  
(918.0NM)

**Proposed Path:** MNATE MNATE<sub>2</sub> MTH  
TADPO UZ637 URIOS EMUSI AUR. (908.9NM)

Aircraft type	Reduction NM	Fuel Reduction (kg)	CO2 Reduction (kg)
B738	9.1	805	2,536
B763	9.1	1,455	4,583
CVLT	9.1	234	737
B752	9.1	1,280	4,302



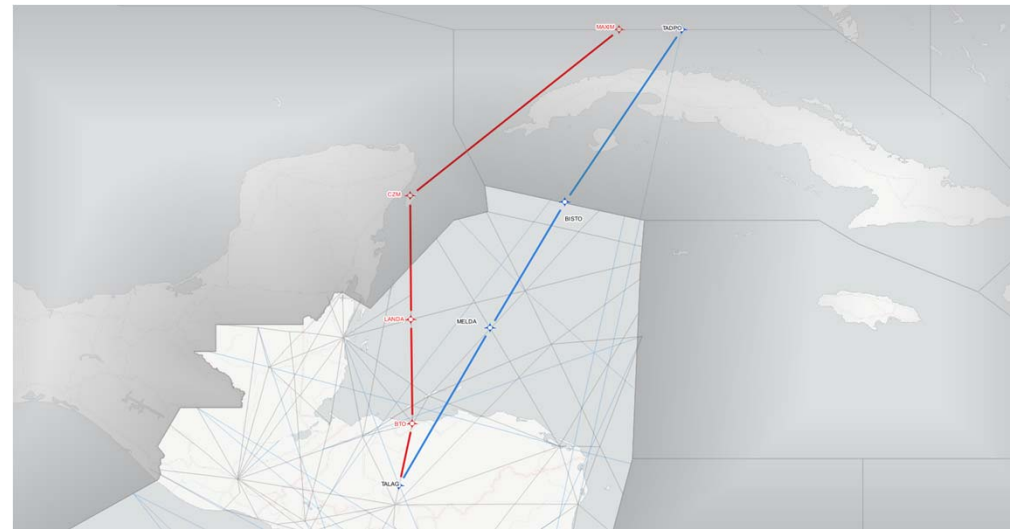


# REROUTE UZ514

**Current Path :** MNATE<sub>2</sub> MNATE MTH FIS  
UG765 MAXIM UG765 CZM UB881 LANDA  
UB881 BTO UA754 TNT. (897.2 NM)

**Proposed Path:** TNT TALAG MELDA BISTO  
TADPO MTH CURSO<sub>4</sub> (824.1 NM)

Aircraft type	Reduced NM	Fuel Reduction (kg)	CO2 Reduction (kg)
A319	73.1	1,274	4,013
B752	73.1	1,767	5,566
C25B	73.1	334	1,052
GLF4	73.1	996	3,137

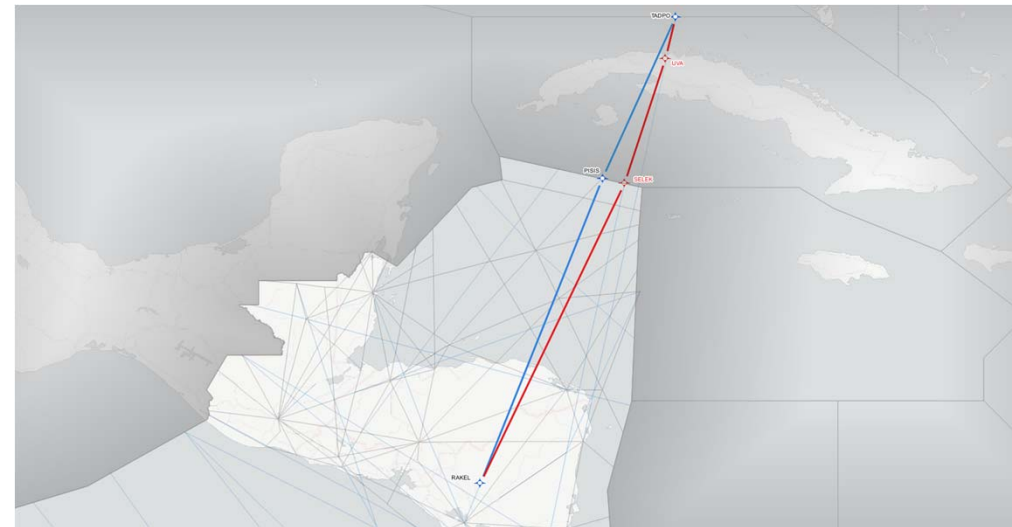


# REROUTE UM328

**Current Path :** MNATE<sub>2</sub> MNATE MTH UG<sub>448</sub>  
TADPO UG<sub>448</sub> UVA UL<sub>345</sub> SELEK UM<sub>328</sub>  
RAKEL MGA (902.6NM)

**Proposed Path:** MNATE<sub>2</sub> MNATE MTH  
TADPO PISIS RAKEL MGA (900.9NM)

Aircraft type	Reduced NM	Fuel Reduction (kg)	CO2 Reduction (kg)
A320	1.7	986	3,106
B738	1.7	762	2,400
B752	1.7	1,224	3,856
B763	1.7	1,374	4,328

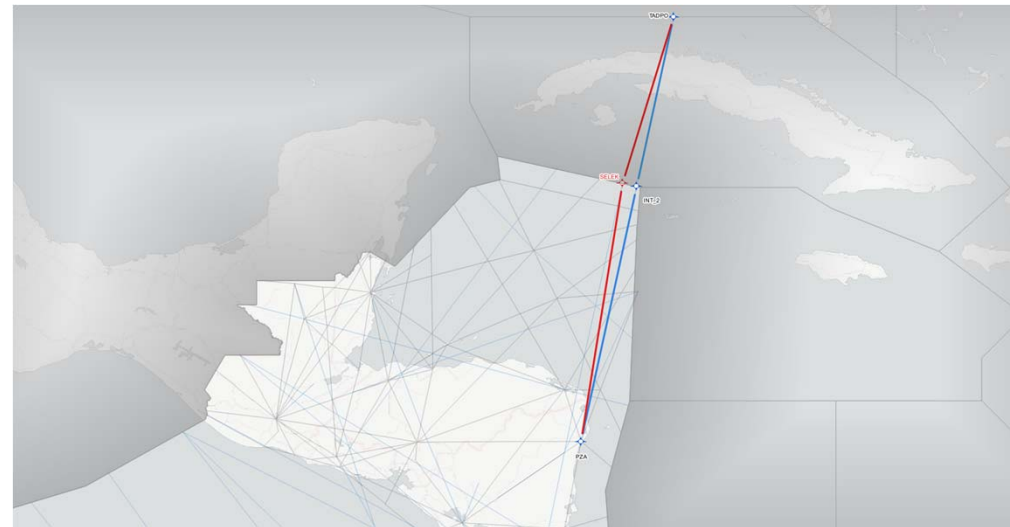


# REROUTE UZ751

**Current Path** :POAS<sub>4</sub> BARVA RADON  
UB767 PZA UZ751 SELEK UL345UVA  
UG448 TADPO MTH CURSO<sub>4</sub> (990.7NM)

**Proposed Path**: MNATE<sub>2</sub> MNATE MTH  
TADPO PISIS RAKEL MGA (989.5NM)

Aircraft type	Reduced NM	Fuel Reduction (kg)	CO2 Reduction (kg)
A320	1.2	983	3,096
B738	1.2	759	2,391
B752	1.2	1,220	3,843
B763	1.2	1,369	4,312

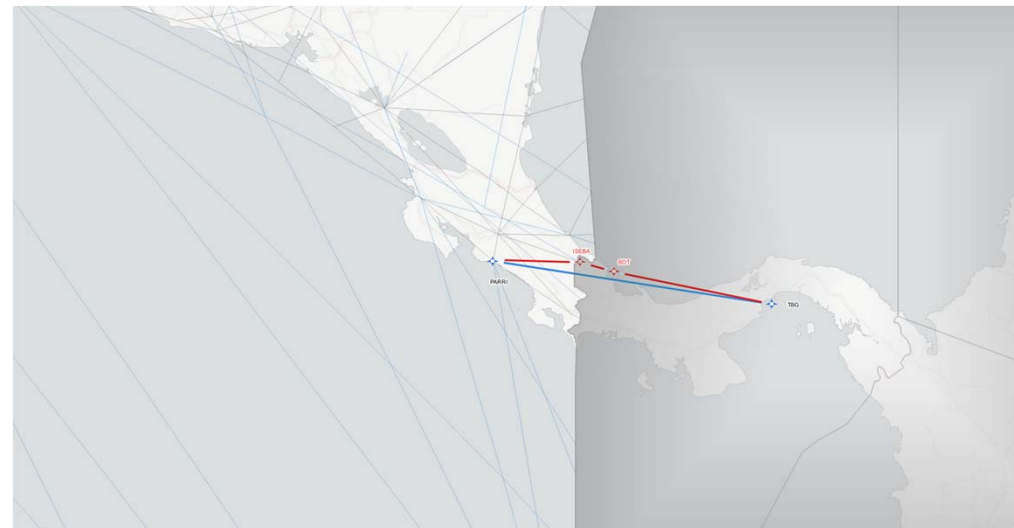


# NEW ROUTE UZXXX

**Current Path** :TBG UG440 PUDOS BDT  
ISEBA PARRI (287.3NM)

**Proposed Path**: TBG PARRI (285.7NM)

Aircraft type	Reduced NM	Fuel Reduction (kg)	CO2 Reduction (kg)
E190	1.6	809	2,548
B738	1.6	761	2,397
B737	1.6	752	2,369
A320	1.6	985	3,103

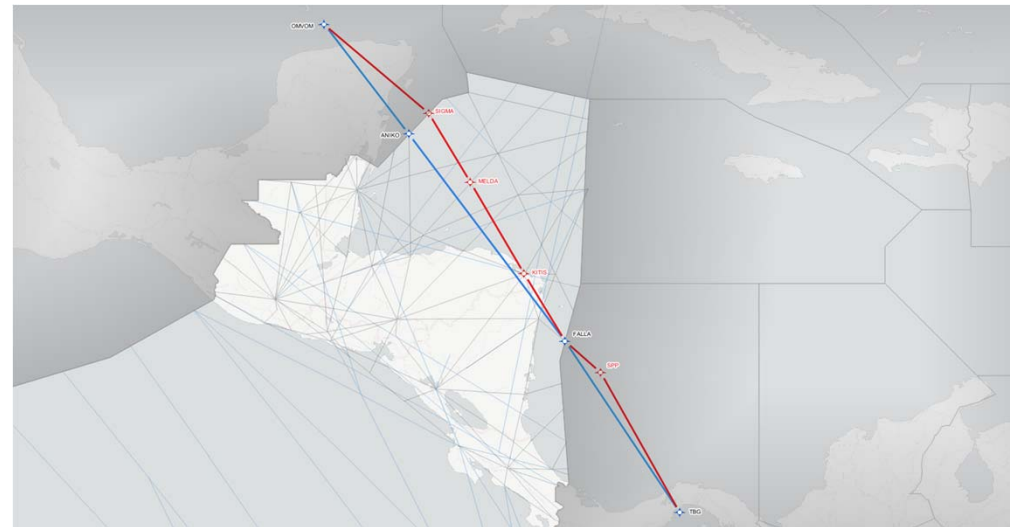


# NEW ROUTE UZXXX

**Current Path** :TBG SPP FALLA PZA KITIS  
MELDA A766 SIGMA OMVOM (981.5 NM)

**Proposed Path**: TBG FALLA ANIKO  
OMVOM (967.4 NM)

Aircraft type	Reduced NM	Fuel Reduction (kg)	CO2 Reduction (kg)
E190	14.1	866	2,728
B738	14.1	834	2,627
B737	14.1	815	2,567
A320	14.1	1,056	3,326



...THANKS