



Air Traffic Management - Measurement Task Force

First Meeting (ATMM TF/1)

Cairo - Egypt, 8 - 9 Sep. 2013



**Air Traffic Management - Measurement Task Force
First Meeting (ATMM TF/1)
Cairo - Egypt, 8 - 9 Sep. 2013**

Appendix A

IFSET SEMI-ANNUAL REPORT

By

NANSC – EGYPT

Jan – June 2013

BY

Dr. Mohamed M El Mahdy

**Director of Environmental Directorate
SATCO & ATC Training PhD**

Mahmoud Mabrouk Mousa

**Director of Airports ATC Quality
ATCO & M.A in Airports Accounting**



1. Introduction:

This report comes as a response to the MIDANPIRG/13 meeting (Abu Dhabi - April, 2012) recommendation to start reporting to ICAO every six months the environmental benefits by States/ANSPs as they plan or implement any type of operational improvements, using IFSET tool.



(Continue) Introduction:

As a result of series of meetings between National Air Navigation Services Company NANSC officials and the Military officials for the object of enhancing the Air space capacity and efficiency within Cairo FIR, this report comes to focus on one of the most important objectives of these meetings outcomes.

Where enhancing the route capacity and efficiency is resulting directly on fuel saving, this report is a semi-annual report declaring the fuel saving achieved as a result of the implementation of the ICAO Fuel Saving Estimation Tool IFSET before and after the improvements carried out by NANSC on the operational procedures.

2. Objective:

The report is aimed at addressing the results derived from the application of ICAO Fuel Saving Estimation Tool IFSET to capture the difference in flight trajectory performance in terms of fuel consumption before and after the implementation of the operational improvements in Cairo FIR.

3. Scope:

- A. The application of IFSET is limited to the air traffic landing, taking off within the Egyptian Airports and overflying Cairo FIR.**
- B. As this is the first report, covering a 6 months period of Jan-June 2013, the procedures to be evaluated are that which developed during this period and earlier.**
- C. Traffic analysis is limited to the level flights, while analysis of Climbing, Descending and Taxing of air traffic was postponed to the next report as it still under assessment.**
- D. Actual traffic flow in terms of number of movements, types and flight levels for each route or portion of it is not available (N.A).**

4. Methodology:

a. Traffic mix:

To define the traffic mix for the IFSET application, a statistical analysis of the traffic database has been done to sort out and classify the aircraft types and numbers during the period of the scope to statistically calculate a **base line ONE DAY traffic mix** or a **Control day** during this very period.

4. Methodology:

b. Virtual Flight level:

As the traffic sample is a mix of flights using different flight levels, it is assumed - for the purpose of IFSET application - ***a virtual flight level FL 245*** as a division level between Cairo upper FIR and lower FIR is assigned.

4. Methodology:

c. Traffic categories:

The type of aircraft where its traffic frequency is less than 50 movements during a week was deleted from calculation. Then, traffic was sorted and classified into categories according to aircraft categories mentioned in the IFSET database. The following table shows the results of the traffic classification during a control day during the period of the scope:

4. Methodology:

C. Traffic categories:

	Traffic Category	Number of traffic during a control day
1	Single Aisle Jet	654
2	Twin Aisle Jet	99
3	Large Twin Aisle Jet	59
4	Three Plus Engine Twin Aisle Jet	34
5	Turboprop	26
6	Large Single Aisle Jet	20
7	Regional Jet	14
	Total	906

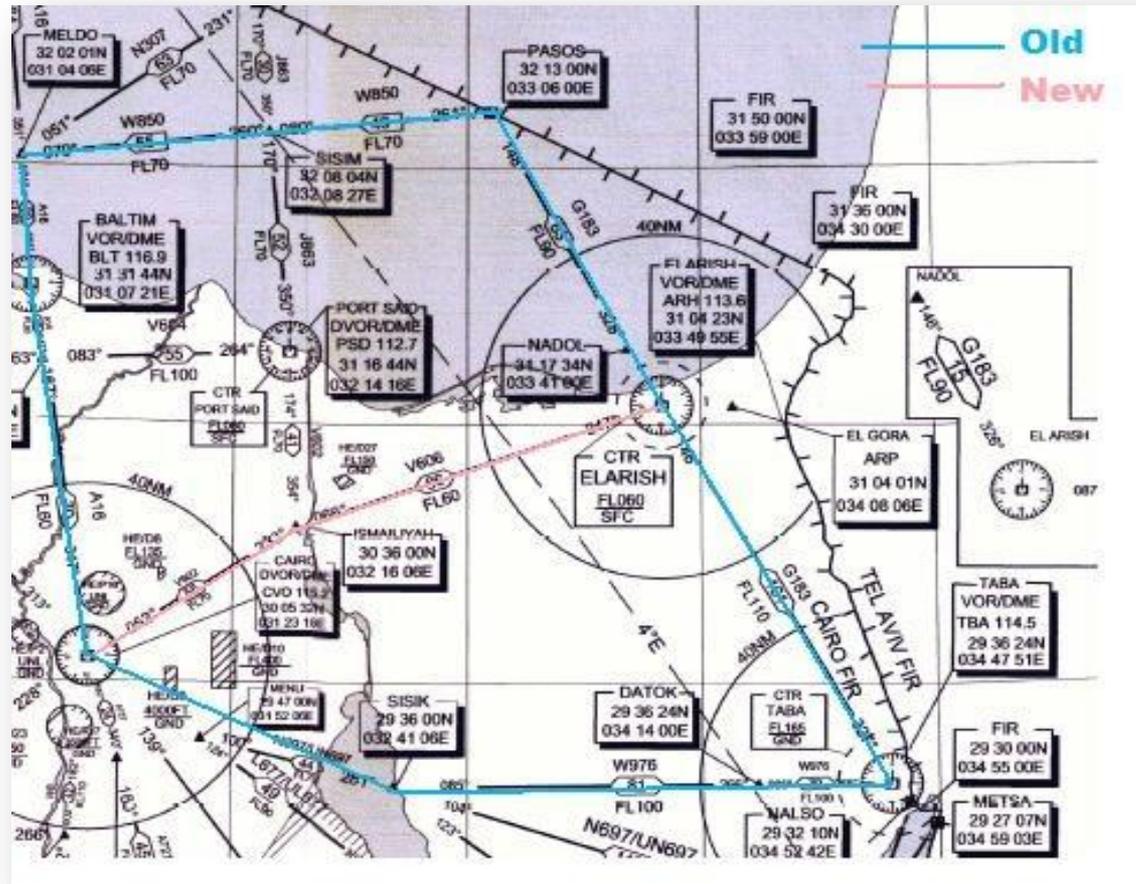
5. Cases :

Case	Old procedures	Distance in NM	New procedures	Distance in NM	Distance saved in NM
1	CVO-BLT-MELDO-PASOS-ARH	284	CVO-ISM-ARH	141	143
2	DBA-NANVO-BRN	137	DBA-BRN	129	8
3	FYM-ALPID-CVO	90	FYM-CVO	67	23
4	CVO-SEMRU-HGD	234	CVO-HGD	196	38
5	NABED-AST-KATAB	245	NABED-KATAB	212	33
6	TBA-NWB-METSA	62	TBA-NWB-KITOT	41	21
7	SALUN-BRN-KATAB-FYM	439	SALUN-DBA-FYM	304	135

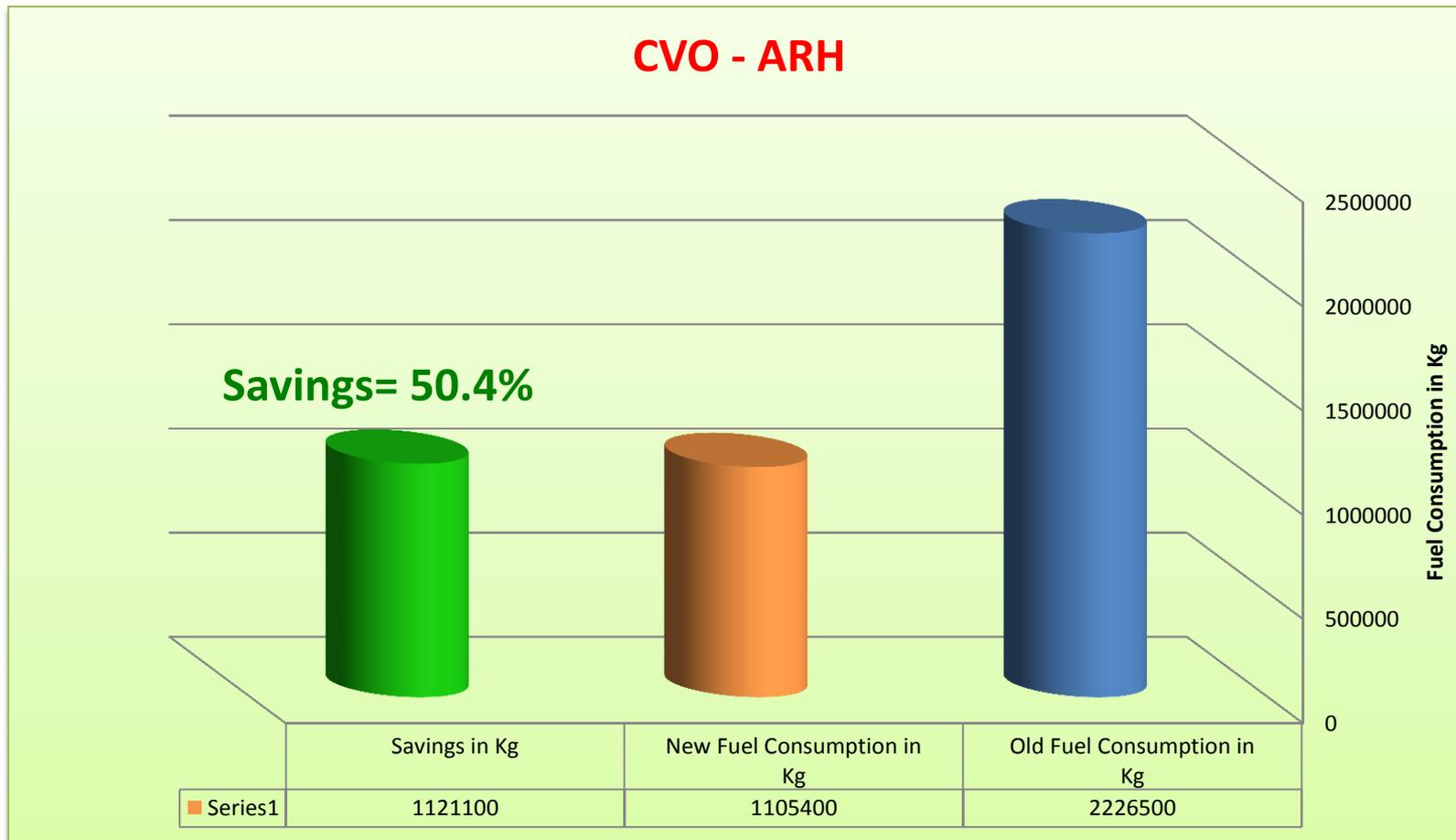
Case 1

Traffic from Cairo CVO/VOR to Arish ARH/VOR

- Old route: CVO-BLT-MELDO-PASOS-ARH = 284 NM
- New route: CVO-ISM-ARH = 141 NM
- Saved distance: 143 NM



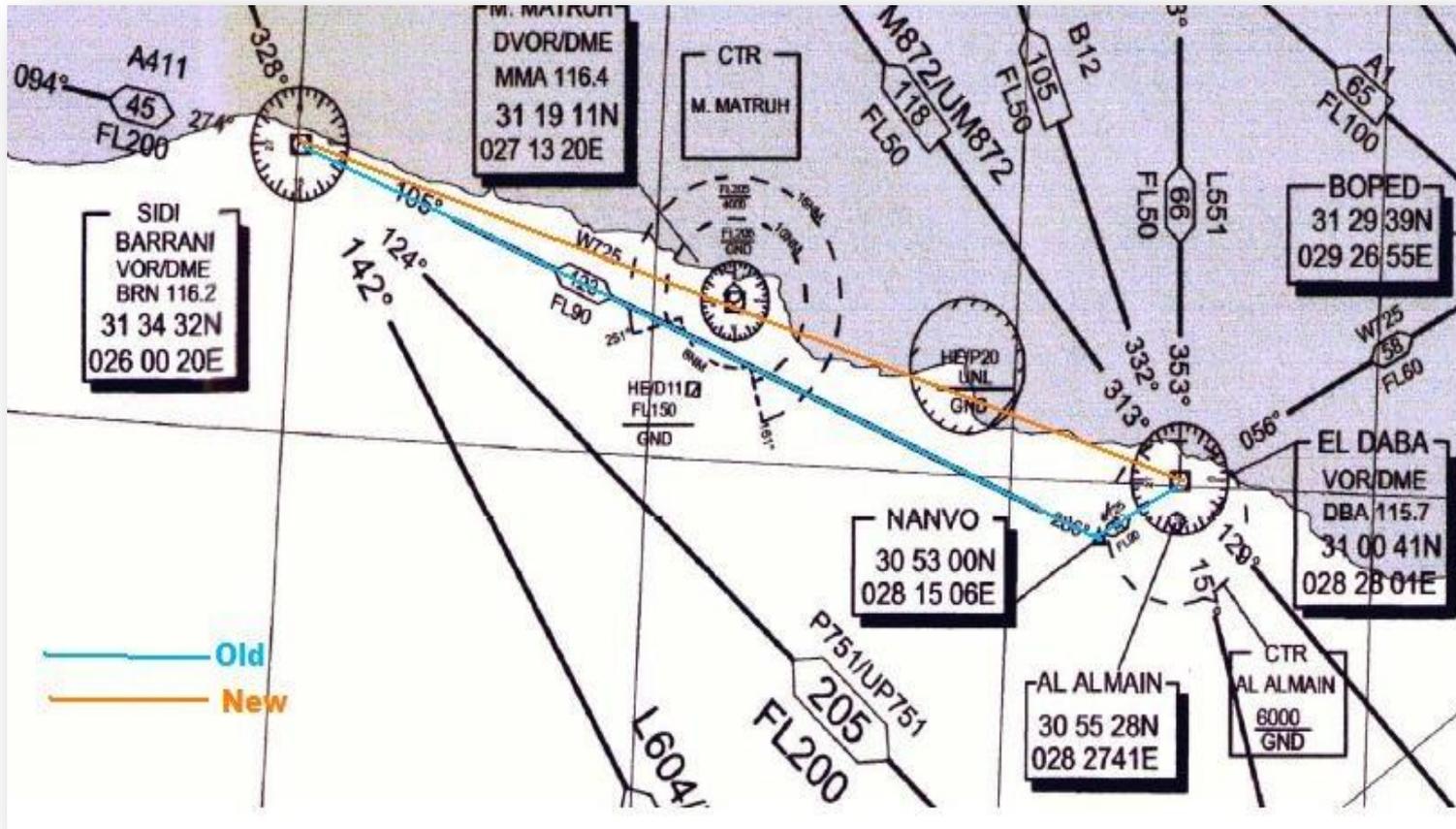
Case 1



Case 2

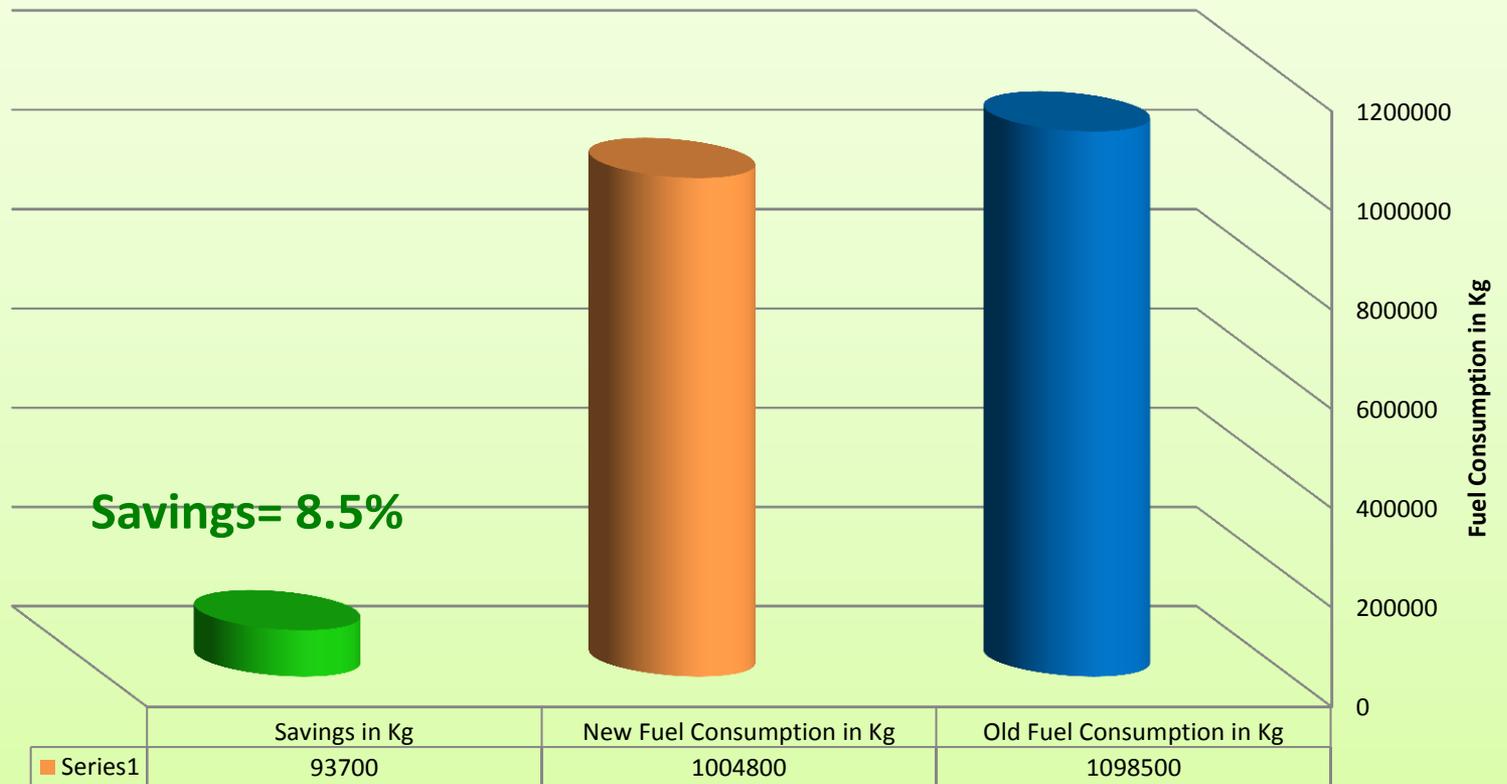
Traffic from DBA/VOR to Sidi Barrani BRN/VOR

- Old route: DBA – NANVO - BRN = 137 NM
- New route: DBA - BRN = 129 NM
- Saved distance: 8 NM



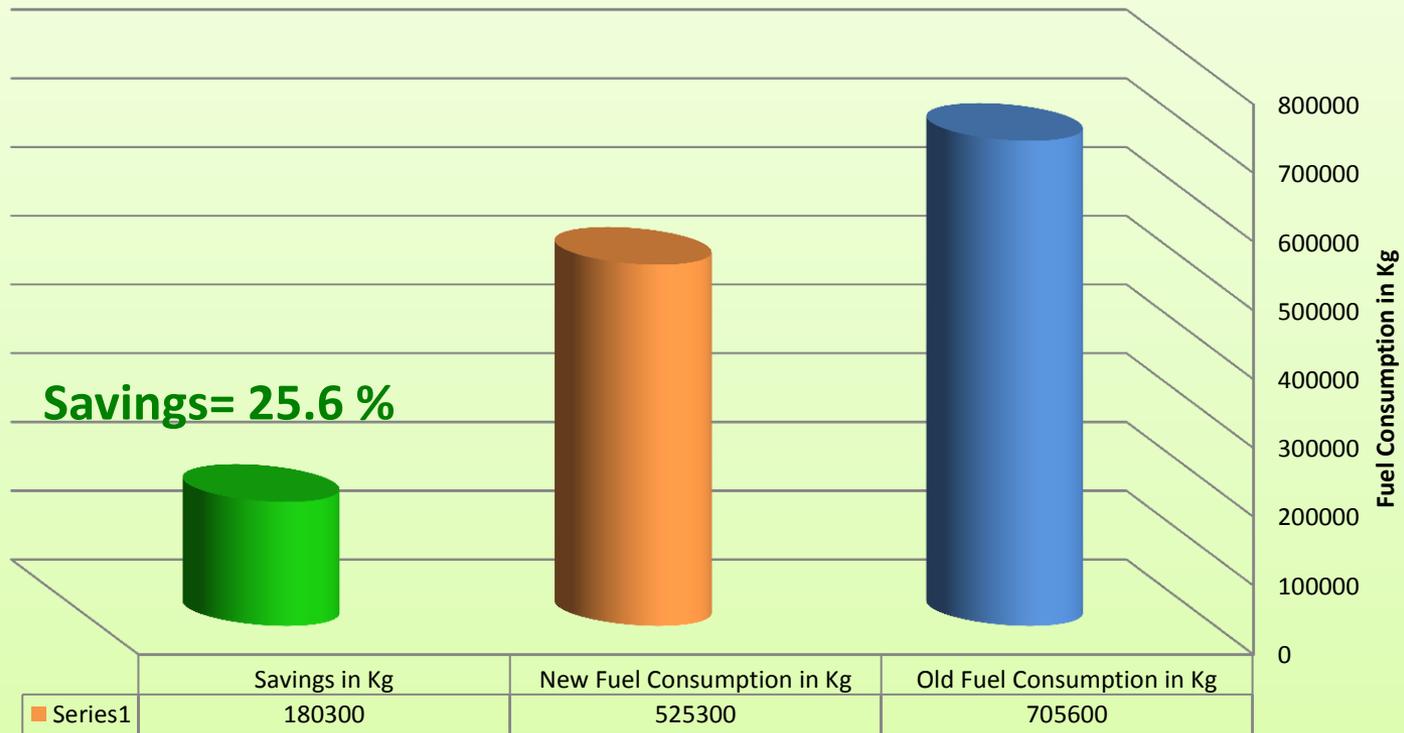
Case 2

DBA - BRN



Case 3

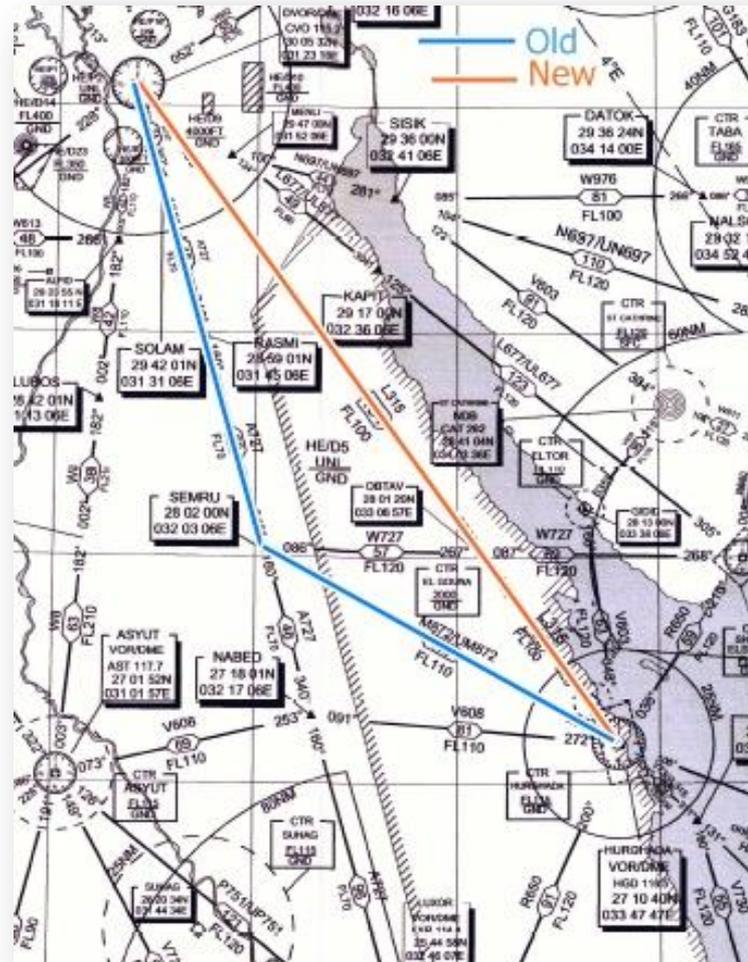
FYM - CVO



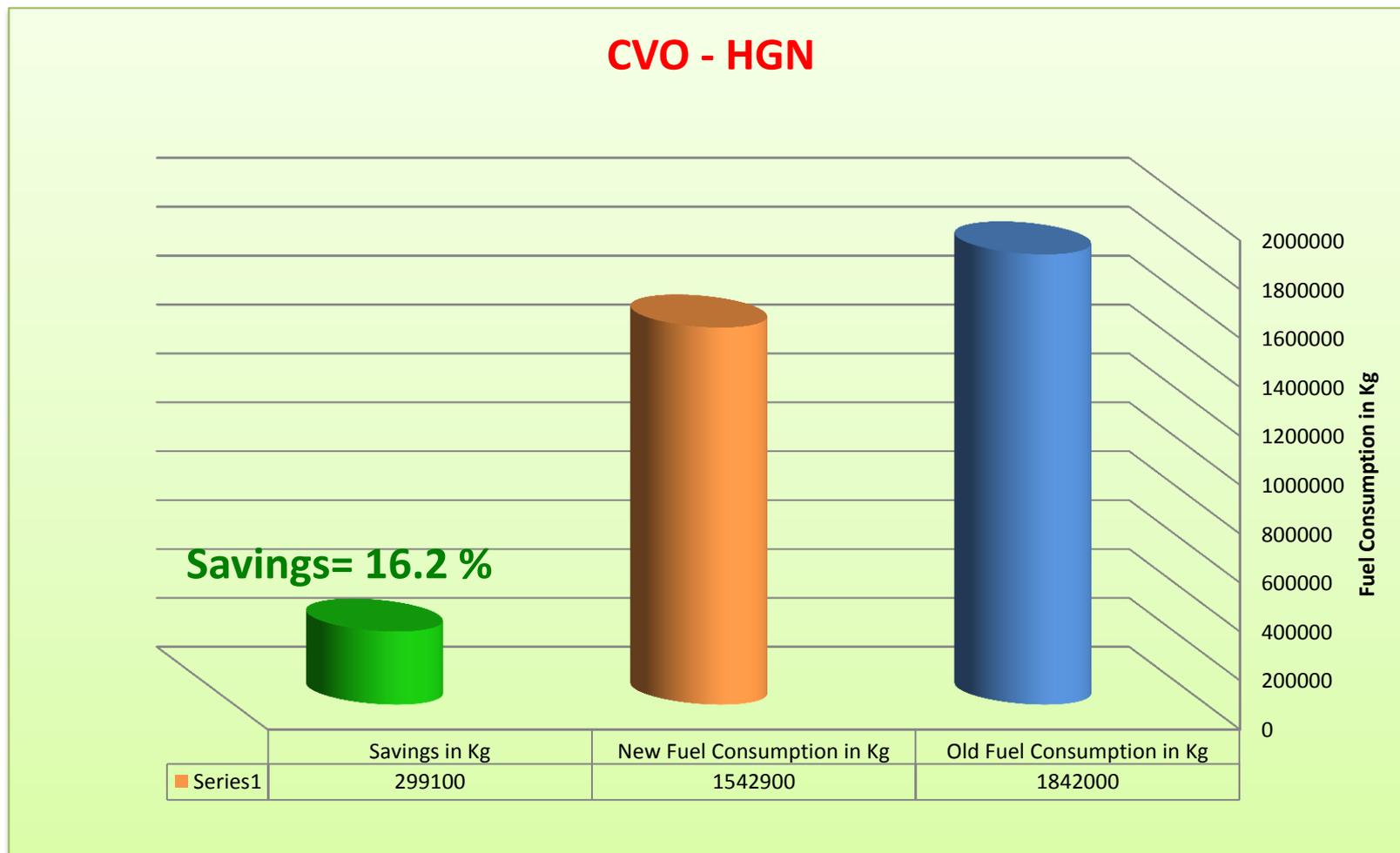
Case 4

Traffic from FYM/VOR to Cairo CVO/VOR

- Old route: CVO – SEMRU - HGD = 234 NM
- New route: CVO - HGD = 196 NM
- Saved distance: 38 NM



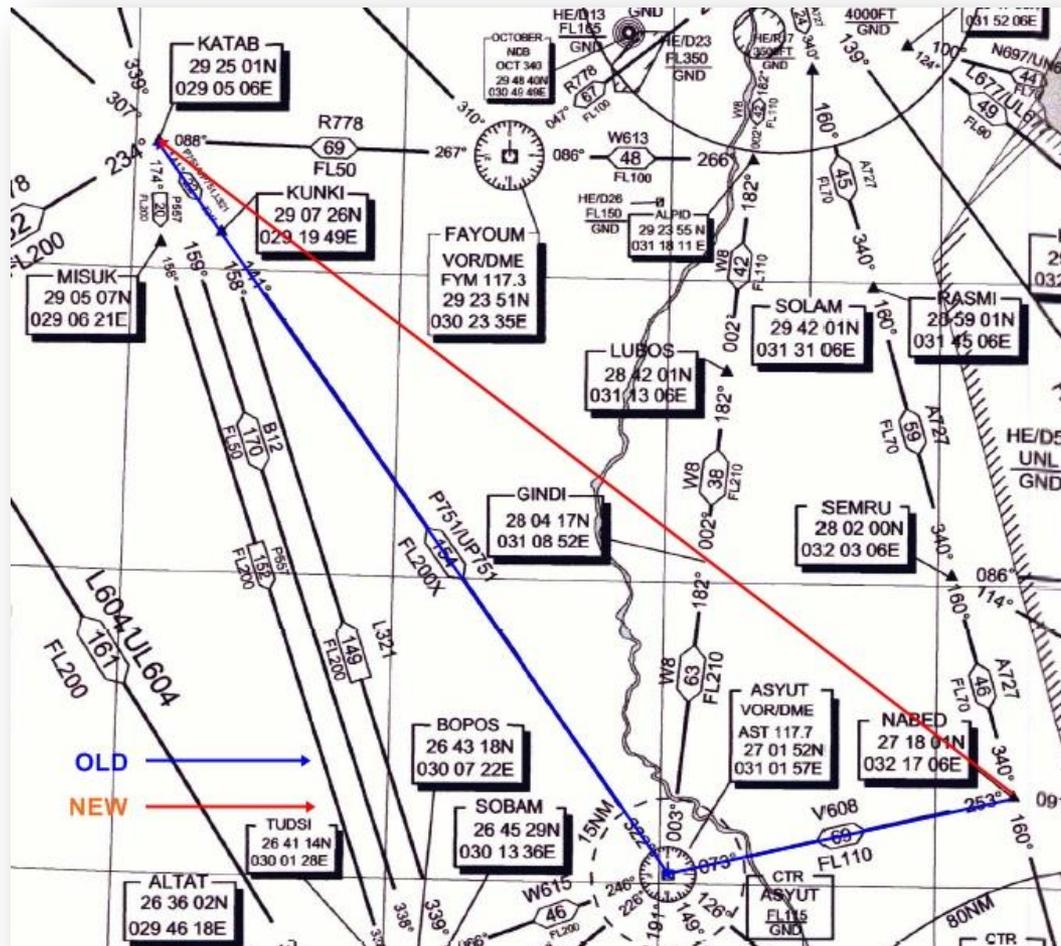
Case 4



Case 5

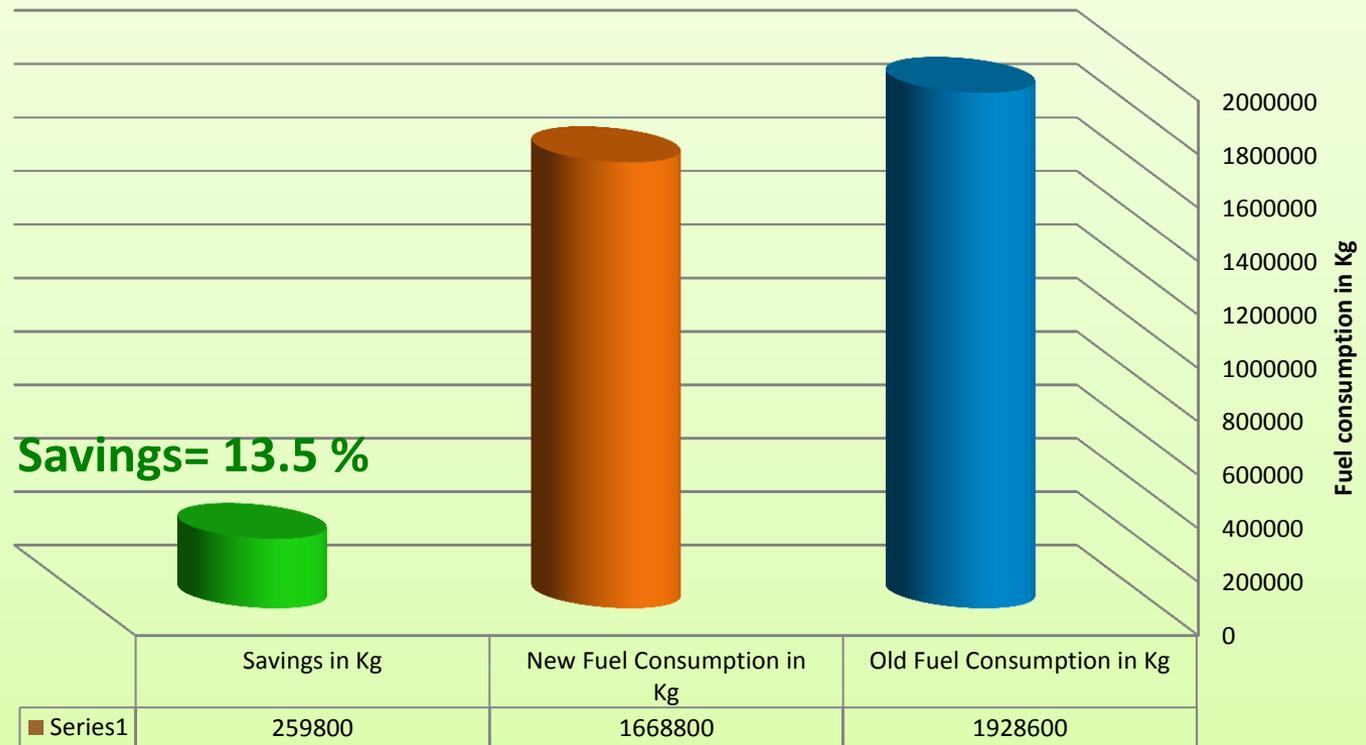
Traffic from NABED to KATAB

- Old route: NABED – AST - KATAB = 245 NM
- New route: NABED - KATAB = 212 NM
- Saved distance: 33 NM



Case 5

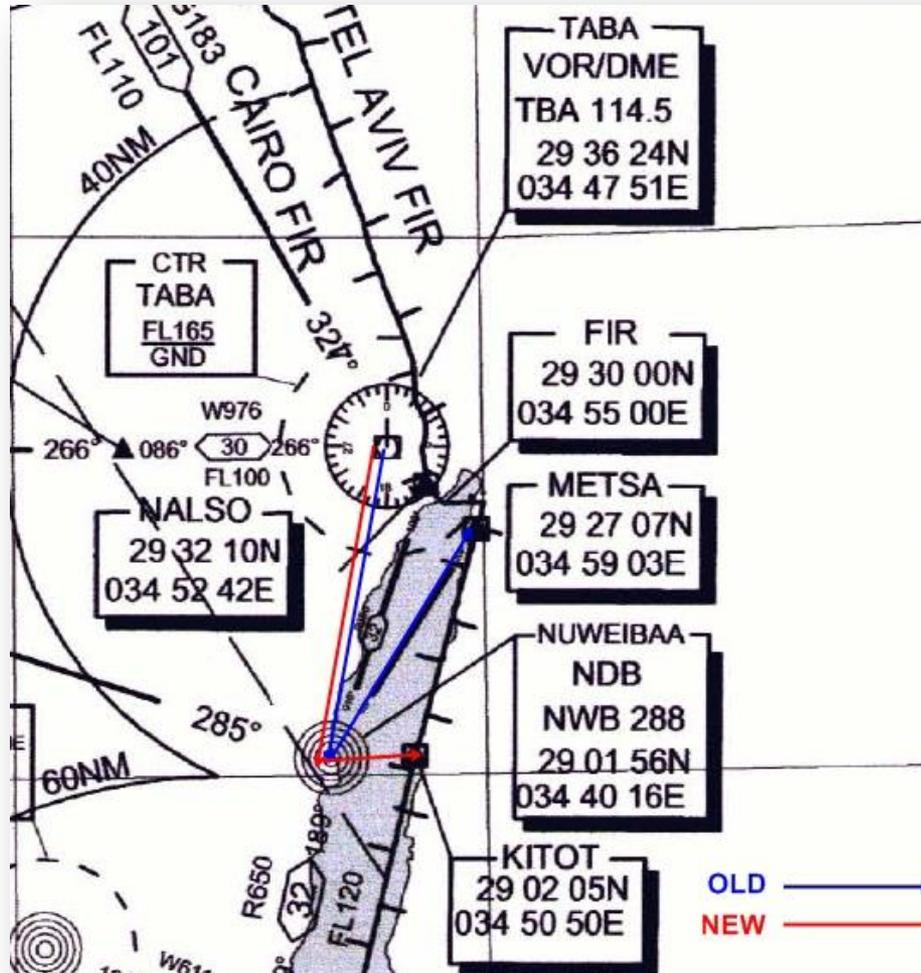
NABED - KATAB



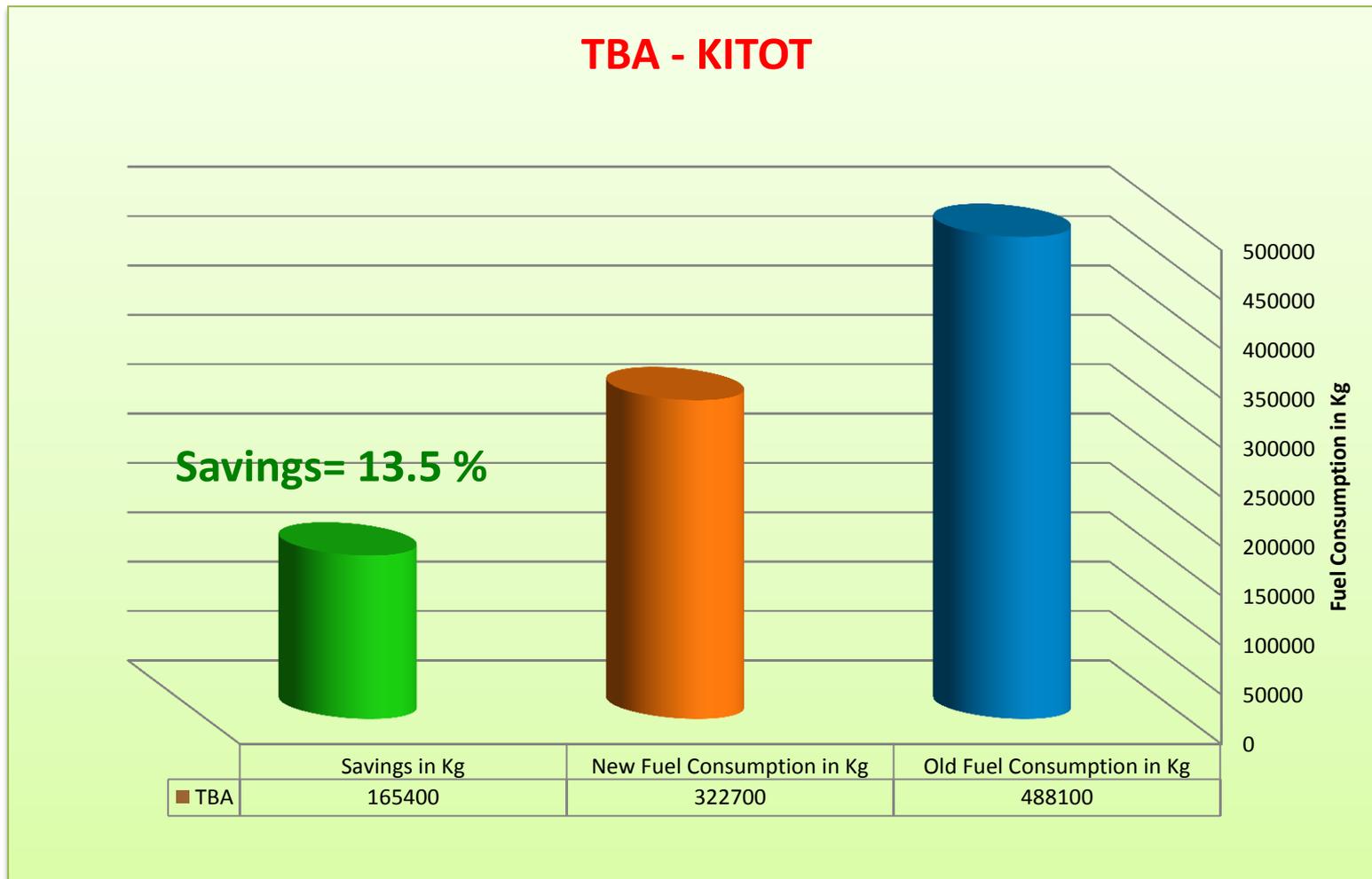
Case 6

Traffic from Taba TBA/VOR to NWB/NDB

- Old route: TABA – NWB - METSA = 62 NM
- New route: TABA – NWB - KITOT = 41 NM
- Saved distance: 21 NM



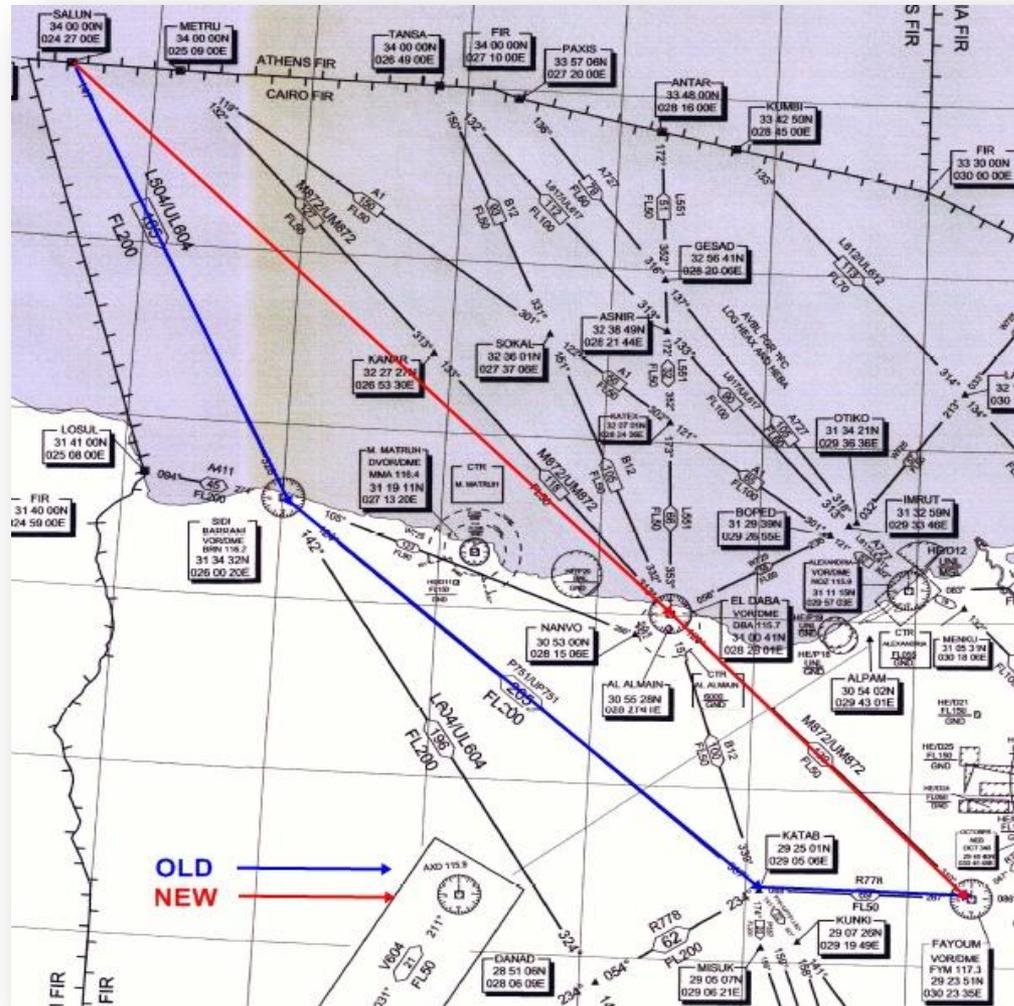
Case 6



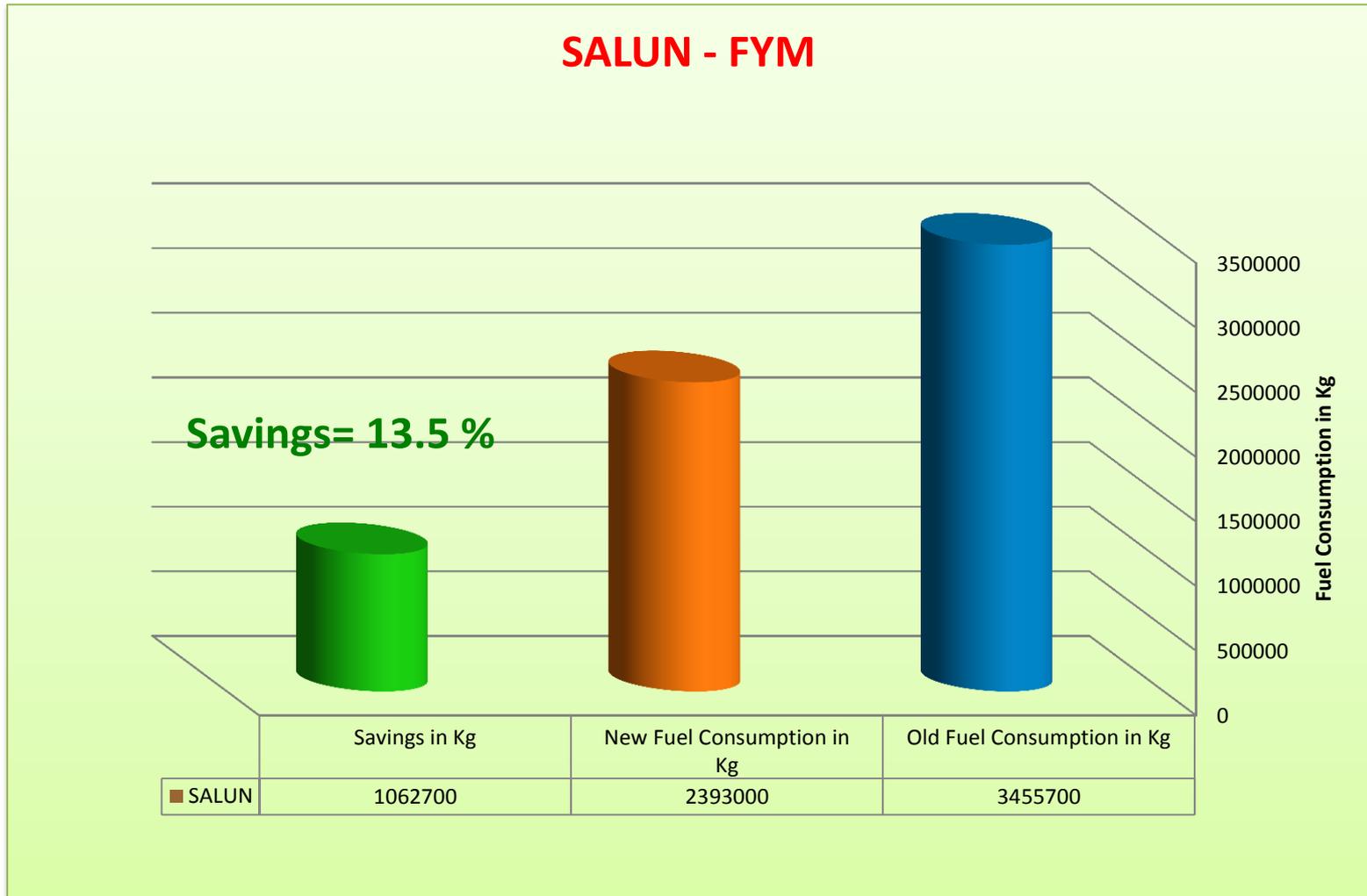
Case 7

Traffic from SALUN to FYM/VOR

- Old route: SALUN – BRN -KATAB - FYM = 439 NM
- New route: SALUN – DBA - FYM = 304 NM
- Saved distance: 135 NM



Case 7



6. Conclusions:

Case	Old procedures	Distance in NM	New procedures	Distance in NM	Distance saved in NM	Old Fuel Consumption in Kg	New Fuel Consumption in Kg	Savings in Kg	Savings (%)
1	CVO-BLT-MELDO-PASOS-ARH	284	CVO-ISM-ARH	141	143	2226500	1105400	1121100	50.4%
2	DBA-NANVO-BRN	137	DBA-BRN	129	8	1098500	1004800	93700	8.5%
3	FYM-ALPID-CVO	90	FYM-CVO	67	23	705600	525300	180300	25.6%
4	CVO-SEMRU-HGD	234	CVO-HGD	196	38	1842000	1542900	299100	16.2%
5	NABED-AST-KATAB	245	NABED-KATAB	212	33	1928600	1668800	259800	13.5%
6	TBA-NWB-METSA	62	TBA-NWB-KITOT	41	21	488100	322700	165400	33.9%
7	SALUN-BRN-KATAB-FYM	439	SALUN-DBA-FYM	304	135	3455700	2393000	1062700	30.8%
		1491		1090	392				8.5 % up to 50.4%

6. Conclusions:

1. It is shown from the previous table that a total of 1491 NM of air routes has reduced to 1090 NM.
2. This reduces 392 NM distance.
3. The fuel saving in Kg is not the actual figure; it only reflects the calculation of the fuel consumed by the *traffic mix* flown between the points of each case on the *virtual flight level* during the *control day*.
4. The fuel saving ratio varies according to the saved distance.
5. The fuel saving varies between **8.5%** up to **50.4%** of the fuel consumption between the points of the new procedures in each case.

Thank You