



Transforming Global ATM Performance

Airspace Concept Redesign and Operational Approval Workshop

NOVEMBER 25 - 29, 2013

Outline

- CANSO Mission & Vision
- KPA
- ASSEMBLY RESOLUTION
- OPERATIONAL IMPROVEMENTS
- IFSET
- SUMMARY
- Q & A

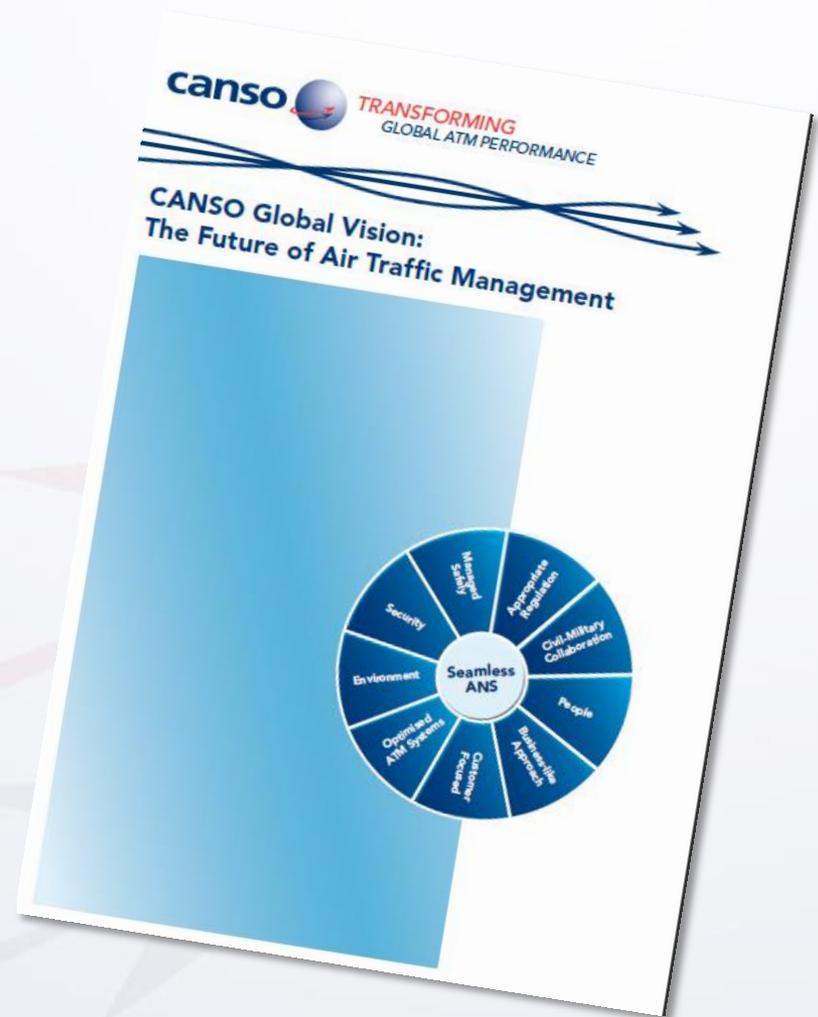
Mission: 'Transform Global ATM Performance'



... a globally harmonized and interoperable air navigation system that provides seamless & cost-effective service

CANSO Vision

CANSO's Global Vision identifies the **areas of change** needed within the **regulatory** and **operational domains**, as well as the issues we must address if we are to achieve a truly global ATM system



Expectations

- Access and Equity
- Capacity
- Cost-effectiveness
- Efficiency
- Environment
- Flexibility
- Global interoperability
- Participation by the ATM community
- Predictability
- Safety
- Security

OPERATIONAL IMPROVEMENTS

- **PBN**
- **CDO/CCO**
- **RVSM**
- **FUA**
- **ETC.**

Getting there....

ICAO – STRATEGIC OBJECTIVE

Safety – Enhance global civil aviation safety

Security – Enhance global civil aviation security

Environmental Protection and Sustainable Development of Air

Transport - Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment

- Assembly resolutions
- Action Plans
- GATMOC/GANP

Mission Statement



A37-19: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change

j) implement an emphasis on increasing fuel efficiency in all aspects of the ICAO's

9. Encourages States to submit their action plans outlining their respective policies and actions, and annual reporting on international aviation CO₂ emissions to ICAO;

10. Invites those States that choose to prepare their action plans to submit them to ICAO as soon as possible preferably by the end of June 2012 in order that ICAO can compile the information in relation to achieving the global aspirational goals, and the action plans should include information on the basket of measures considered by States, reflecting their respective national capacities and circumstances, and information on any specific assistance needs;

l) request States to continue to support the efforts of ICAO on enhancing the reliability of measuring/estimating global GHG emissions from international aviation;

IFSET

➤ ICAO FUEL SAVINGS ESTIMATION TOOL

- Simple to use and scientific defensible
- States will begin reporting on fuel savings from operational improvements in 2012.
- Not all States have the ability to quantify these savings.

IFSET – WHAT IT DOES

- Allows those States without modelling and/or measurement capabilities to estimate fuel savings from operational improvements.
- Consistent with CAEP-approved GHG models.
- Consistent with Global Air Navigation Plan.
- Easy-to-use / minimal data requirements.

IFSET – WHAT IT DOES (Cont.)

- The tool can estimate:
 - Effects of shortening / eliminating level segments on departure and arrival.
 - Effects of shorter routes (either in time or distance).
 - Effects of cruising at different altitudes.
 - Effects of reduced taxi times.

IFSET – WHAT IT DOES NOT

- **The tool does not replace detailed modelling or measurement of fuel consumption already available in a State.**

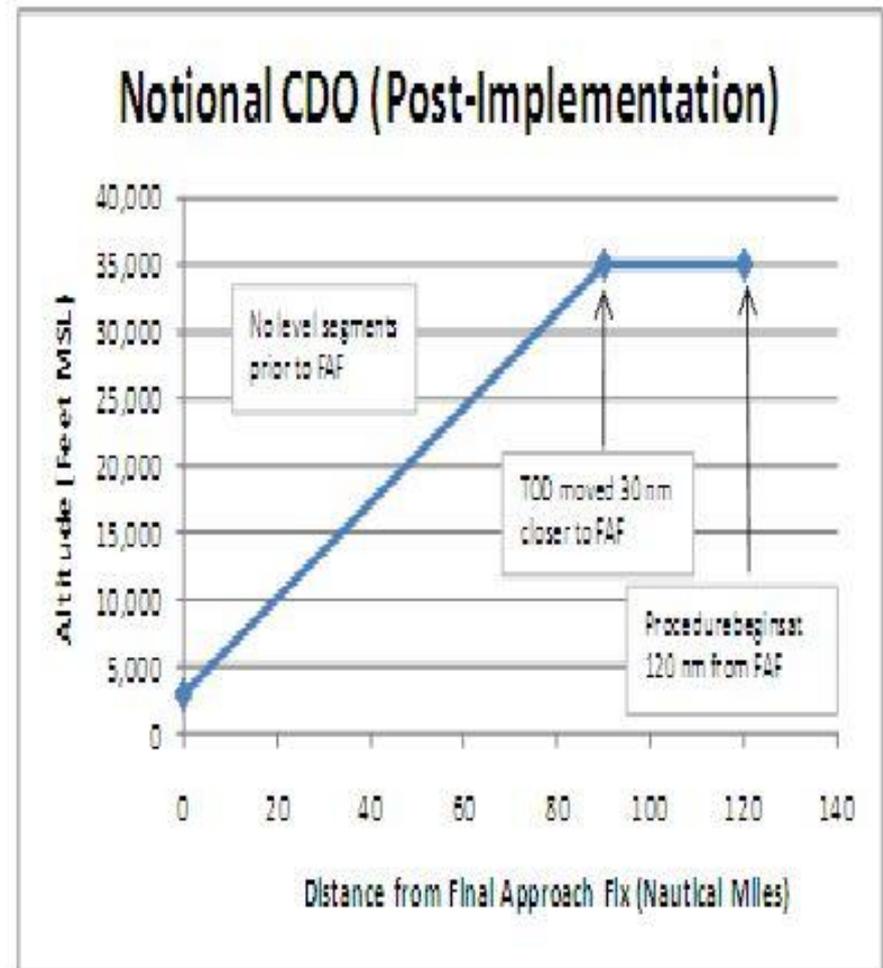
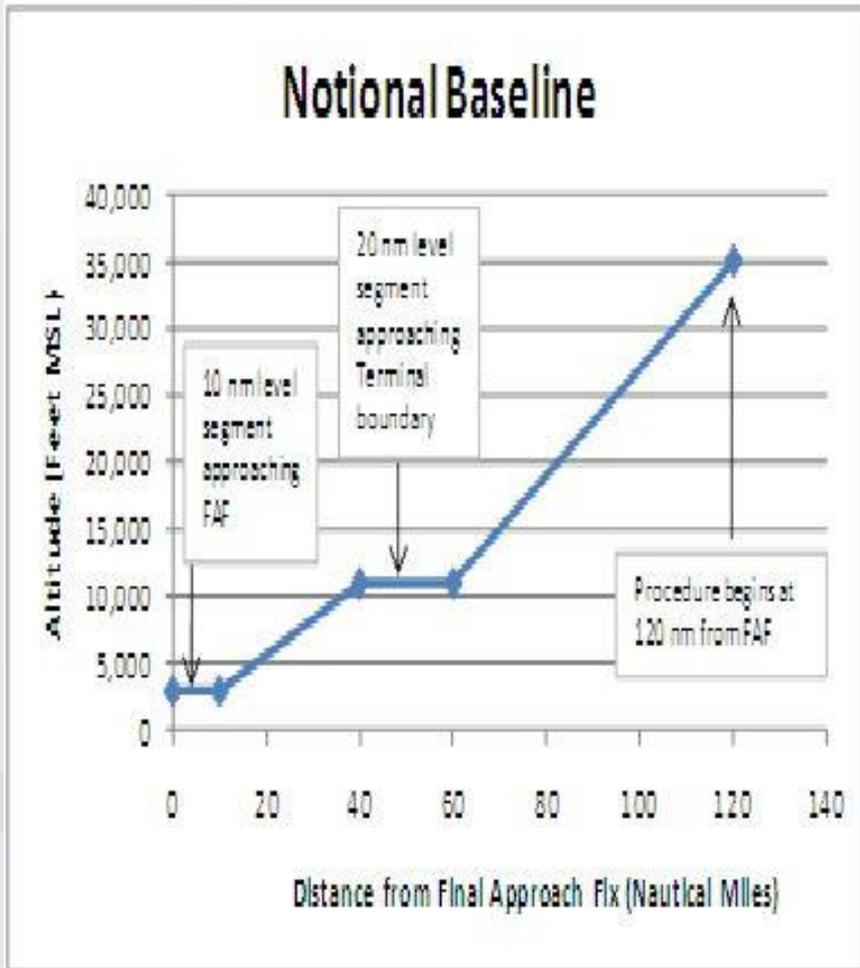
IFSET – HOW IT WORKS

- Pre-compute aircraft performance
 - Level, climb and descent fuel consumption
 - By group of aircraft type
 - In 1000 foot intervals

IFSET – HOW IT WORKS – USER INPUT

- Fleet mix defined for baseline and post-implementation scenario
 - Aircraft type group
 - “Remaining flight distance”(as a surrogate for weight)
- User selects “elements” to define the baseline and “new” procedure
- Tool estimates the change in total fuel consumption between the 2 scenarios

IFSET – example



Action Plan- an example

ABOUT US - NAV CANADA and the Environment

NAV CANADA's Environmental Policy

NAV CANADA recognizes the importance of environmental management of its activities. As part of our corporate vision to be the world's most respected Air Navigation Service we are committed to complying with all relevant environmental laws, regulations, by-laws, guidelines and standards, achieving levels of environmental protection and environmental performance beyond that required by law whenever reasonably achievable.

To implement this policy, NAV CANADA will:

- Demonstrate leadership in environmental matters affecting Air Navigation Services;
- Contribute to pollution prevention programs in the aviation industry;
- Assess the potential environmental impacts of all projects and activities and prevent or mitigate adverse effects on the environment;
- Reduce the environmental risk related to the management of ANS systems and equipment;
- Maintain, monitor and continually improve environmental performance and environmental awareness through implementation of an EMS;
- Educate and train staff in environmental risk management;
- Communicate our environmental procedures and requirements to suppliers and customers.

John W. Crichton
President and Chief Executive Officer
March 2005

Foreword from the President and CEO

This Status Update is a follow-up to our comprehensive CREE Collaborative (Customer, Regulator, Employee) Progress Report published in 2009. It is the first of a series of regular updates on our efforts to deliver key efficiency gains across the Air Navigation System.

NAV CANADA, our focus is on finding new and innovative ways to enhance safety and service, creating a level of performance in all areas of our business that ranks us among the best ANS providers in the world. In the original CREE Progress Report, we explained what this means for our customers - and the environment.

We noted in the last report that the cumulative effect of NAV CANADA initiatives since the Company's inception in 1996 has been significant, both in terms of customer cost savings and reductions in greenhouse gas (GHG) emissions. Since then, we have continued to see improvements. The benefits of our efforts and initiatives are clearly reflected throughout the figures presented in this Status Update. We forecast that by 2016, reductions in GHG emissions will equal about 13.4 million metric tons along with anticipated customer fuel savings of \$4.2 billion.

This is not the end of the story. We are working with customers on many new and exciting areas that will pave the way to future efficiency gains. The effort will be added savings in flight times and fuel costs that will contribute to a stronger and greener industry - a top priority for everyone in aviation.

The initiatives outlined in this report are the result of a company wide commitment to innovative thinking, global leadership, and the highest possible level of customer service.

This past year, NAV CANADA's deployment of Automatic Dependent Surveillance Broadcast (ADS-B) technology over Hudson Bay was named as the winner of the Environment Award at the 2010 AIC Global Exhibition and Conference.

Then in June 2010, NAV CANADA and its employees were recognized internationally for our efforts when the International Air Transport Association (IATA) presented this company with the Eagle Award - the second such honour in a decade.

These awards are a testament to our efforts to improve safety, efficiency and cost-effectiveness across our operations and everywhere in Controller-controlled airspace. Now, with the continued support and collaboration of our customers, we intend to take these achievements to the next level.

John W. Crichton
John Crichton
President and CEO
NAV CANADA

NAV CANADA

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ABOUT US NEWSROOM SERVICES NAVCANatm TECHNOLOGY PUBLICATIONS

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ABOUT US - NAV CANADA and the Environment

It is estimated that between 1997 and 2009, newly deployed technologies and procedures by NAV CANADA have helped our customers to reduce their GHG emissions by about 5.4 million metric tons, and save about \$1.4-billion in fuel costs.

By 2016 - our Company's 20th anniversary - we forecast additional reductions in GHG emissions of some 8 million metric tons and further fuel savings of about \$2.9-billion as new initiatives go operational.

NAV CANADA is committed to working with industry partners to develop initiatives to reduce fuel burn and concurrent greenhouse gas emissions, while maintaining our safety priority.

We are also dedicated, through internal programs, to improve our own environmental practices across the Company by encouraging resource conservation at work, at home and in the community.

The Company recently emphasized its environmental commitment with the addition of a new overarching corporate objective in June 2011:

Identifying and, where feasible, introducing measurable benefits which contribute to the reduction of the environmental footprint of the aviation industry.

To learn how we're making strides in achieving this objective through greater efficiency in the delivery of air navigation services, read the [CIFER Status Update 2011](#).

[NAV CANADA's Environmental Policy](#)

15th Anniversary
Our ANS Heritage
Who We Are
What We Do
Industry Associations
Careers
Summer Student Employment Program
Investor Relations
NAV CANADA and the Environment
CIFER
ENGAGE Corridor Project
World Environment Day
NAV CANADA's Environmental Policy
Additional Environmental Information

A photograph of an airport tarmac with several Canadian Air (CA) aircraft parked. The aircraft have red maple leaf logos on their tails. In the background, there are airport buildings and a clear sky. The image is used as a background for the infographic.

\$2.9B

projected fuel savings
2010–2016

8.0M

metric tons of greenhouse
gas emissions reductions
forecasted 2010–2016

13.4M

metric tons of greenhouse
gas emissions reductions
forecasted over 20 years

\$4.3B

projected total fuel savings 1997–2016.
Enough to fly a Boeing 777-300ER around
the world more than 10,000 times

IFSET – example

➤ IFSET

IFSET_Ver 1.0

Archivo License

 **ICAO Fuel Savings Estimation Tool**
Version 1.0
© ICAO 2011

Interface to the ICAO Fuel Savings Estimation Tool
End User License Agreement

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The interface to the ICAO Fuel Savings Estimation Tool, which is comprised of a Microsoft Access database file and Visual Basic SQL codes (collectively the "Software"), is provided for the limited purposes described below.

- 1. Permitted Use** - The Software is provided for the sole purpose of estimating the potential fuel savings from adoption of operational measures to the extent the capabilities of the ICAO Fuel Savings Estimation Tool allow. *The tool is not intended to replace the use of detailed measurement or modelling of fuel savings, where those capabilities exist. Rather, it is provided to assist those States without such facilities to estimate the benefits from operational improvements.*
- 2. Restrictions on Use** - Licensee may not: copy, in whole or in part, Software or any related documentation; modify the Software; reverse compile, reverse engineer, disassemble or reverse assemble all or any portion of the Software; and rent, lease, license, sublicense, distribute, transfer or sell the Software. Licensee may not create derivative works from the Software. Licensee may not redistribute the Software or provide it to others. Commercial use of the Software is expressly prohibited. Licensee obtains no rights in the Software except those given in this limited license.
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I Accept the Terms of this Agreement

Registro: 1 de 1 Sin filtro Buscar

Vista Formulario Funciona con Microsoft Access

Windows taskbar: 12:59 p.m. 07/09/2012



Scroll up
and down
to read this
legal
agreement





IFSET_Ver 1.0

Archivo

ICAO Fuel Savings Estimation Tool - (Version 1.0)



ICAO Fuel Savings Estimation Tool

- Operations Definition
- Old Procedure Definition
- New Procedure Definition
- View Fuel Savings Report
- View Chart (Distance/Altitude)
- Email Fuel Savings Reports
- Quit



IFSET

© ICAO 2011

Vista Formulario

Funciona con Microsoft Access



ES 01:00 p.m. 07/09/2012



STEP 1 - OPERATIONS DEFINITION

© ICAO 2011

Scenario Name

Approach Mexico City

New

Delete

Return

Find

Aircraft	Base Flights	New Flights	Continuing Old Flights	Remaining Trip (nm)
Single Aisle Jet	14866	6709	8157	2120

Save

Delete

Help

Registro: 1 de 1 Sin filtro Buscar



IFSET_Ver 1.0

Archivo

STEP 2 - OLD PROCEDURE DEFINITION

© ICAO 2011

Scenario Name:

Action	From Alt(ft)	To Alt(ft)	Distance(nm)	Time(sec)
Descend	36000	14000	40	
Descend	14000	11000	40	
Descend	11000	8800	12	

Registro: 1 de 1 Sin filtro Buscar

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ES 01:04 p.m.
07/09/2012

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Archivo

STEP 3 - NEW PROCEDURE DEFINITION

© ICAO 2011

Scenario Name: **Approach Mexico City**

Find **Return**

Action	From Alt(ft)	To Alt(ft)	Distance(nm)	Time(sec)
Descend	36000	12000	102	

Save **Delete** **Help**

Registro: 1 de 1 Sin filtro Buscar

Vista Formulario

Funciona con Microsoft Access

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Fuel Savings Report

Estimated Fuel Savings Report

© ICAO 2011

Scenario	Old Fuel Consumption (Kg)	New Fuel Consumption (Kg)	Savings (Kg)	Savings (%)
oach Mexicc	2207200	2109600	-97600	-4.4

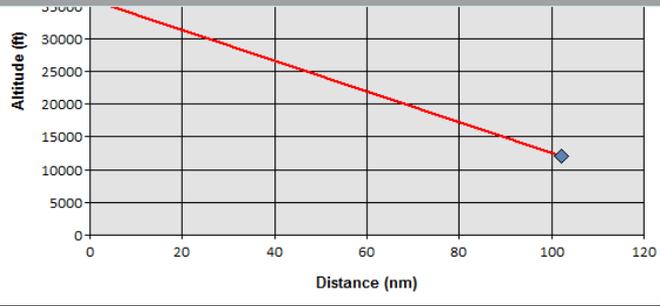
[Export to Excel](#) [Detailed Fuel Savings Report](#)

viernes, 07 de septiembre de 2012 Page 1 of 1

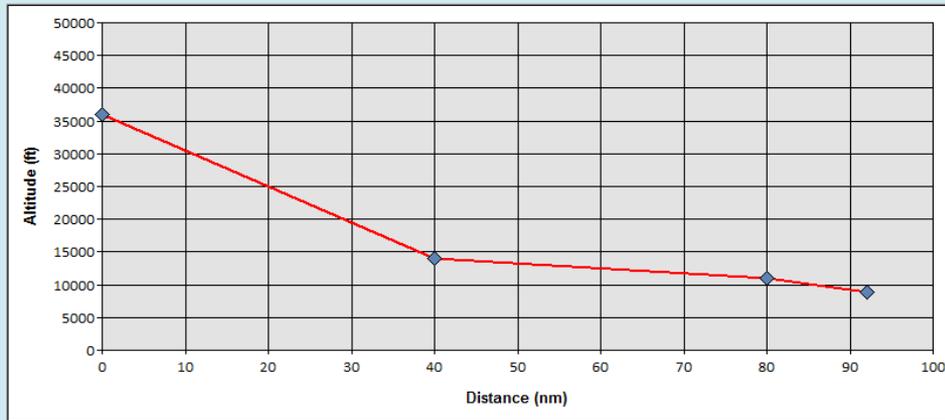
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07/09/2012

GRAPHICAL VIEW OF SCENARIOS



Old Procedure



Registro: 1 de 1 Sin filtro Buscar



IFSET_Ver 1.0

Archivo

GRAPHICAL VIEW OF SCENARIOS

Scenario **Approach Mexico City**

New Procedure

Altitude (ft)

Distance (nm)

Distance (nm)	Altitude (ft)
0	35000
100	12000

Old Procedure

Altitude (ft)

Distance (nm)

Distance (nm)	Altitude (ft)
0	35000
100	12000

Registro: 1 de 1 Sin filtro Buscar

Vista Formulario

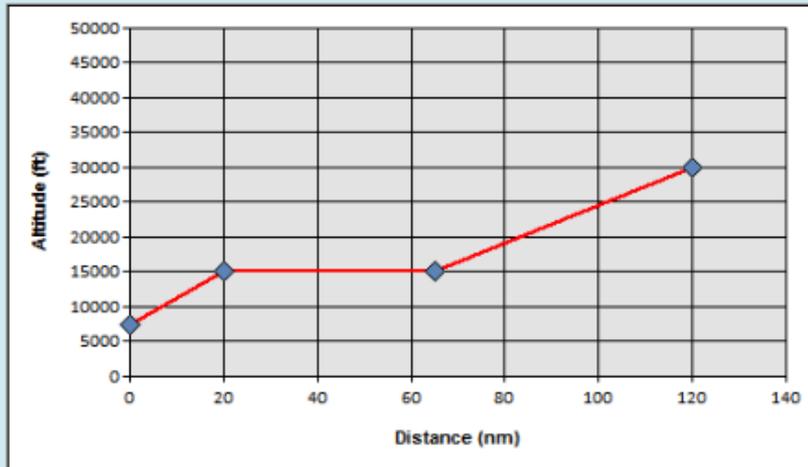
Funciona con Microsoft Access

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DESPEGUE

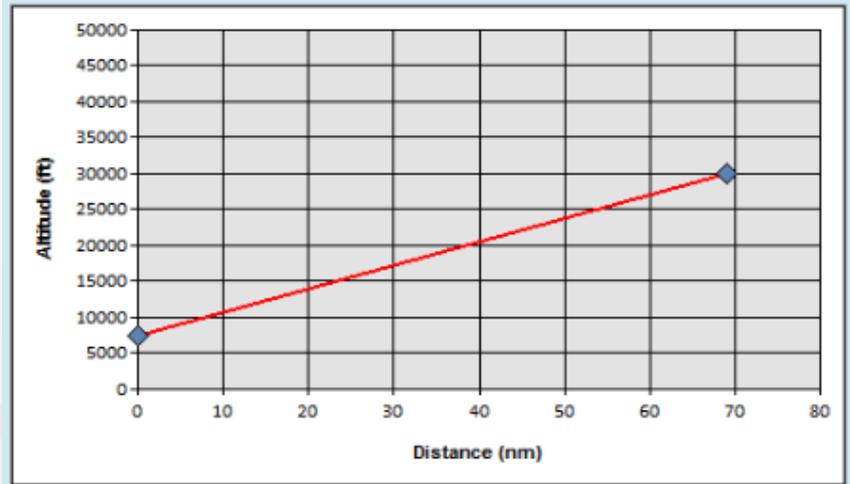
2007

Old Procedure



2009

New Procedure

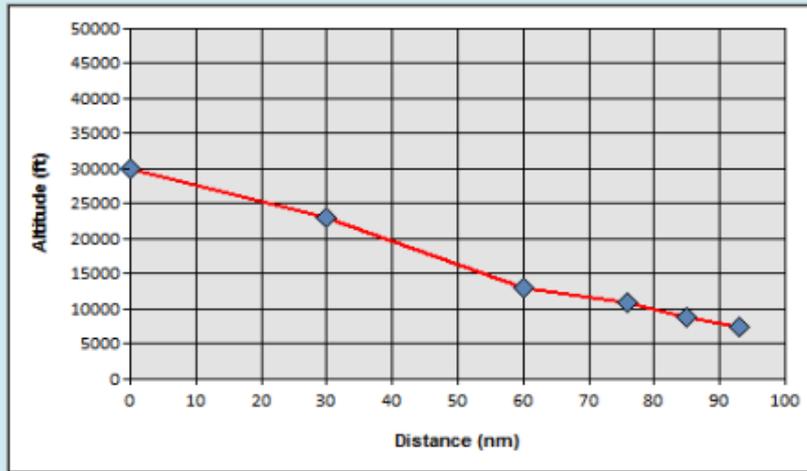


APROXIMACION

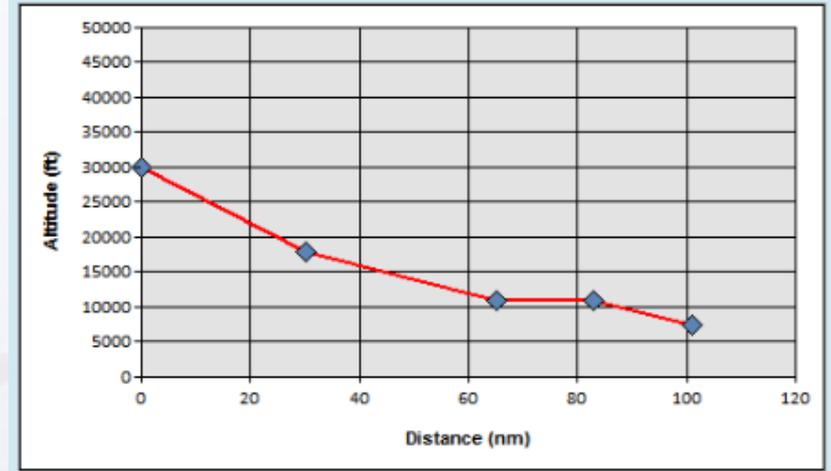
2007

2009

New Procedure



Old Procedure



SALIDAS AICM 2007 vs 2009

**AHORRO EN
COMBUSTIBLE
37,072,300.00 Kg**

398,050,600.00

360,978,300.00

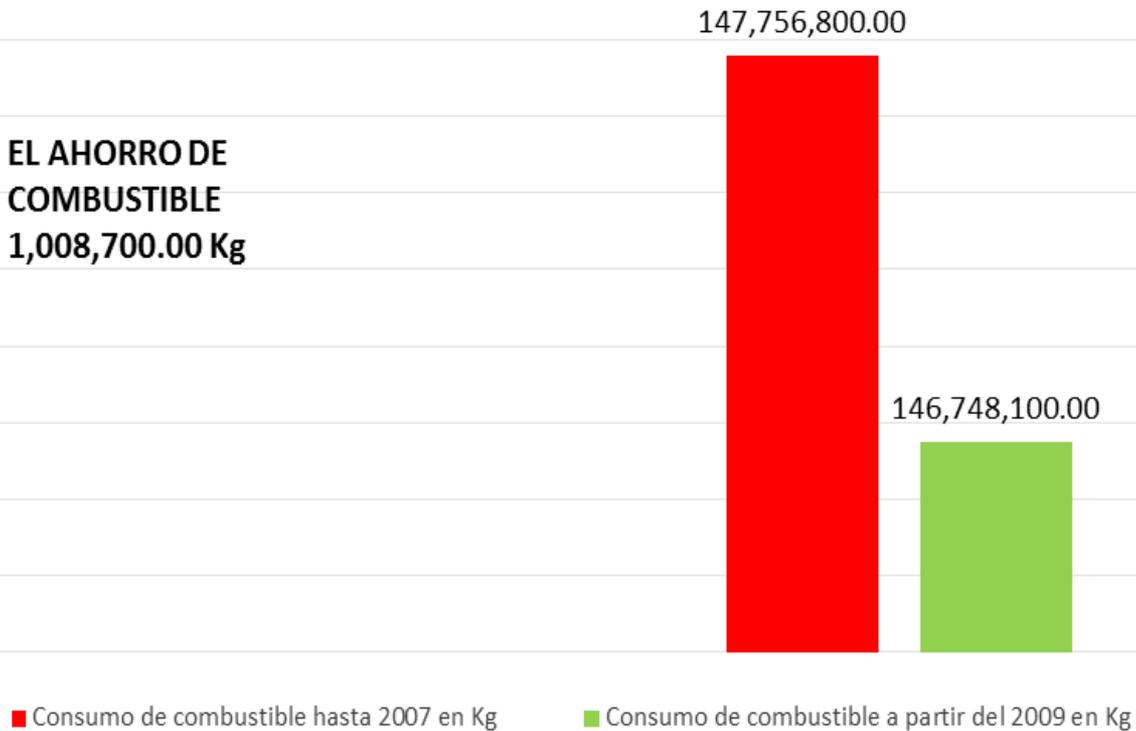
■ Consumo de combustible hasta 2007 en Kg

■ Consumo de combustible a partir del 2009 en Kg

****9.31% ahorro en combustible***

LLEGADAS AICM 2007 vs 2009

EL AHORRO DE
COMBUSTIBLE
1,008,700.00 Kg



****0.68% ahorro en combustible***

More information

- <http://www.icao.int/environmental-protection/Pages/Tools.aspx>E-mail

Questions?





canso

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Transforming Global ATM Performance

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