Airline Fuel Conservation Equals Reduced Emissions

NASA Environmental Compatibility Research Workshop
March 17, 1998

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Summary

- Fuel Consumption & Emissions
- Fuel Conservation Initiatives
- CNS/ATM
Fuel Consumption & Emissions

Each Pound of Fuel Burned Results in:

- \( \sim 3.19 \text{ lb} \) \( \text{CO}_2 \)
- \( \sim 1.70 \text{ lb} \) \( \text{H}_2\text{O} \)
- \( \sim 0.015 \text{ lb} \) \( \text{NO}_x \)
- \( \sim 0.002 \text{ lb} \) \( \text{HC} \)
Fuel Conservation Initiatives

Fuel is an Airline’s 2nd Largest Expense

Delta Statistics:

- 12.7% of Total Expenses
- FY’97: $1.723 Billion
- 7.12 Million Gallons per Day, or
- 47.70 Million Pounds per Day
Fuel Conservation Initiatives

Annual Savings, millions lbs:

- Single Engine Taxi 65.5
- Payload Estimation 19.6
- APU Usage 7.5
- 70 Deg. Pushback 7.6
- Acceleration Altitude 6.9
- GSE at MIA 5.2
- Fueling Procedures 10.3
- Many More.....
Steadily Increasing Fuel Efficiency
Passenger Miles per Gallon of Fuel

Source: Dept of Transportation Form 41 Data
Fuel Conservation Initiatives

A Continuing Process

- Safety
- Customer Service
- Efficiency
CNS/ATM

The Center for Advanced Aviation Systems Development of The MITRE Corp. August 1997 Report

Estimates that Enhanced CNS/ATM Has Potential to Save Emissions:

- 17% North America
- 12% Worldwide
What is CNS/ATM - FreeFlight?
A Worldwide State-of-the-Art Improvement in Infrastructure

- ATC Tools
- Airplane Improvements
- New Procedures
CNS/ATM

ATC Tools

- **URET - User Response Evaluation Tool**
- **TATCA - Terminal ATC Automation**
  - **CTAS - Center Terminal Radar Approach Control Automation System**
  - **CRDA - Converging Runway Decision Aid**
- **CPDLC - Controller/Pilot DataLink Communication**
CNS/ATM

Airplane Improvements

• GPS Navigation - Global Positioning System
• RVSM - Reduced Vertical Separation Minima
• CDTI - Cockpit Display of Traffic Information
CNS/ATM

New Procedures

- NRP - National Route Program
- Cruise Climb
**CNS/ATM**

**Benefits Summary - North America & Oceanic Airspace**

Savings, Millions of Pounds per Year

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Summary

- Fuel Conservation Has Large Business Leverage
- Fuel Conservation Equals Emissions Savings