Integrated Air Navigation Planning

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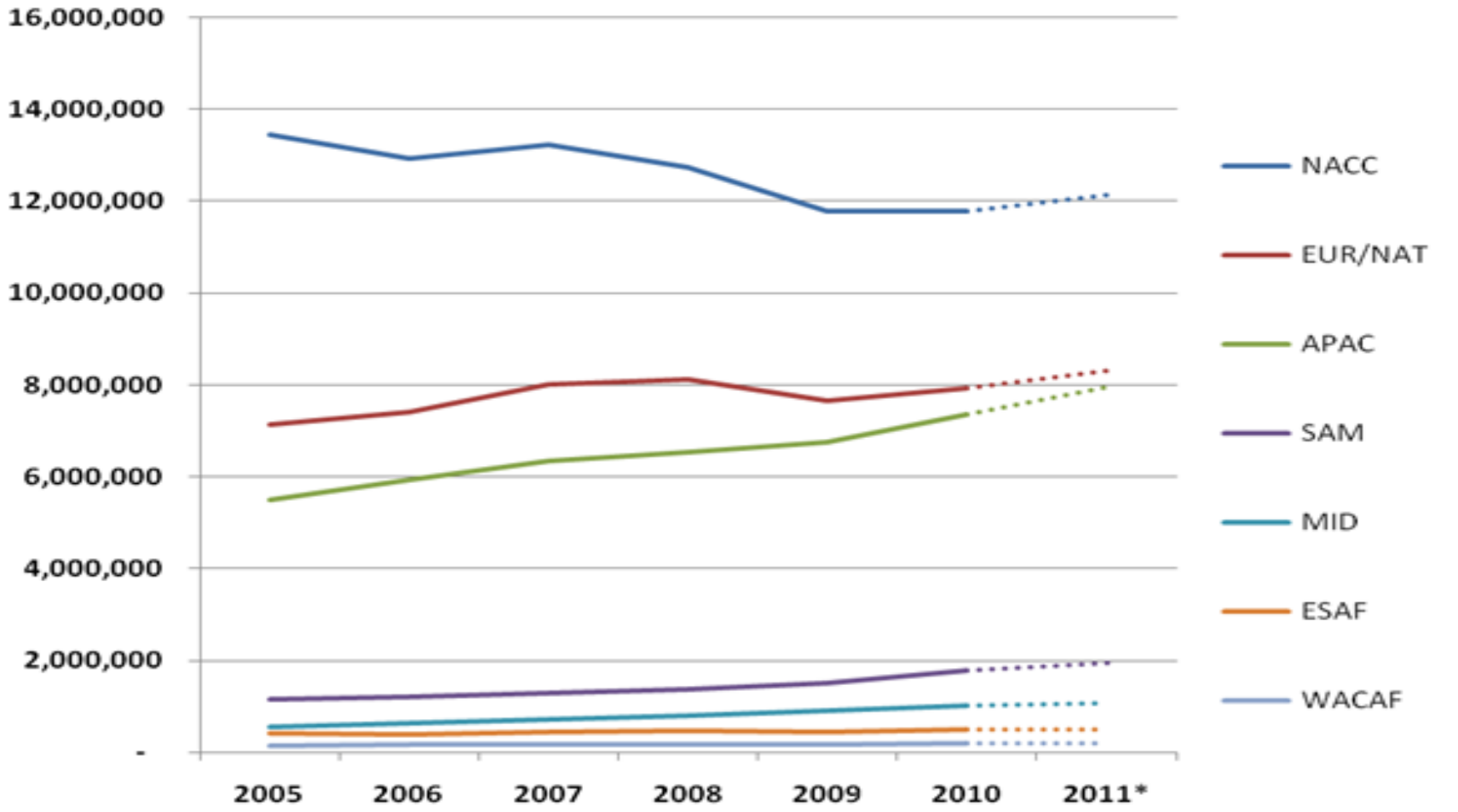
AFI Planning And Implementation Regional Group Eighteenth Meeting (APIRG/18)
Kampala, Uganda (27 – 30 March 2012)

Outline

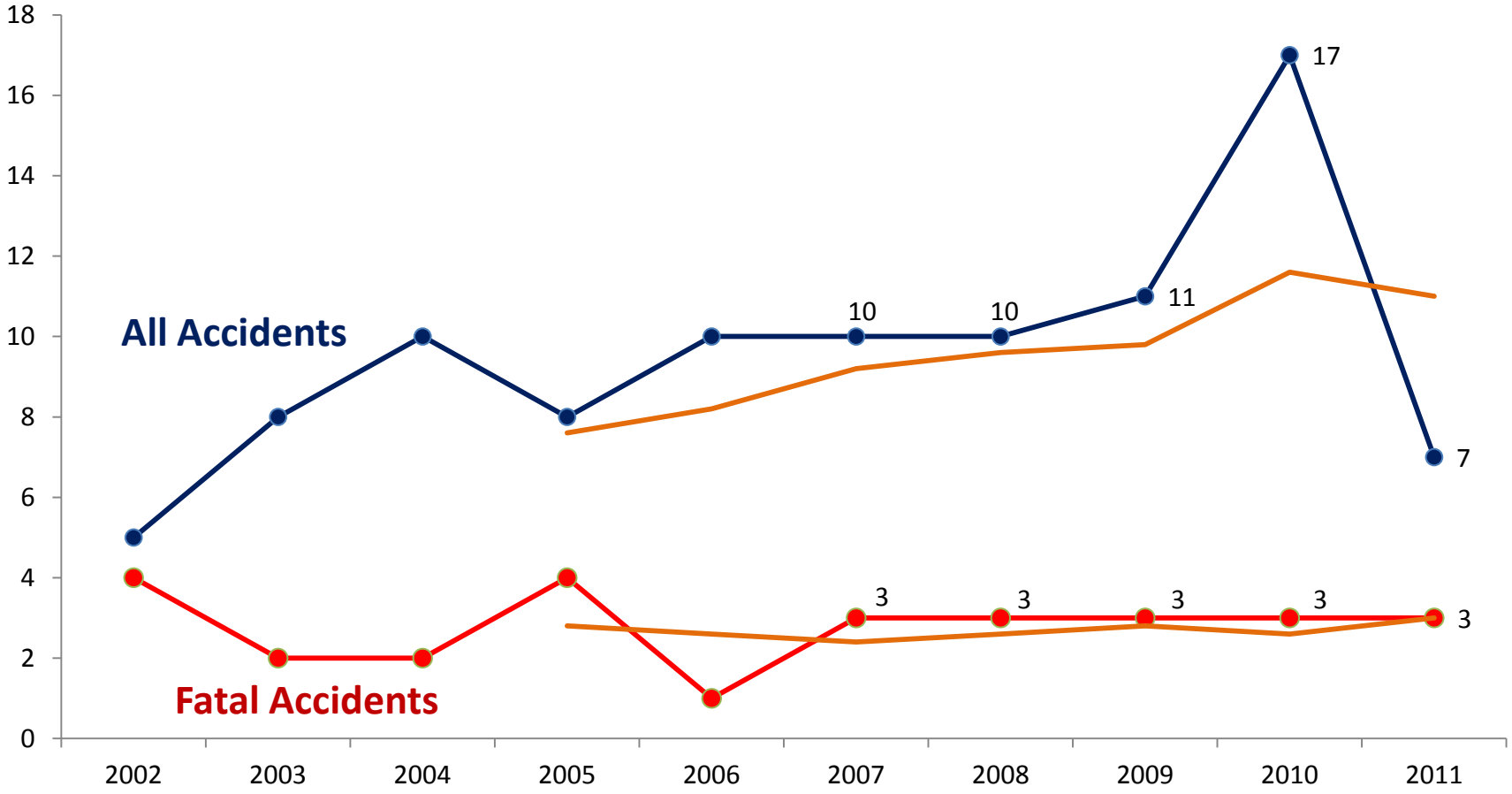
- Optimizing AFI Airspace
  - Current Traffic
  - Priorities
    - PBN, CDO, CCO
  - Measuring Ops/Environmental Benefits
    - State Action Plan on CO_2 reduction
    - IFSET Tool
- Today's Challenges and Tools that Work
    - The TAG Example
- Transparency
    - Demonstrating Progress/Assessing Risk
- 12th Air Navigation Conference
  - Aviation System Block Upgrades

Global Traffic by Region (2005-2011)



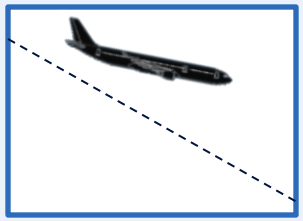
Source: OAG - Scheduled commercial flights
*: 2011 traffic has been estimated

Accidents in Africa (2002-2011)

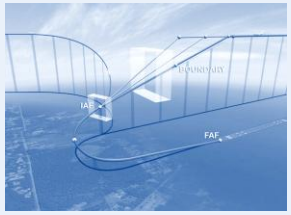


2011 Accidents based on preliminary data

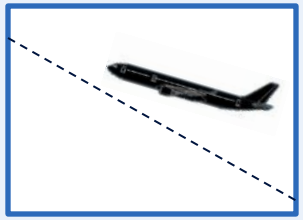
ICAO Air Navigation Policy
Tools to Optimize Airspace Today



Continuous Descent Operations



Performance-based Navigation



Continuous Climb Operations

Measuring Performance Enhancements

Safety, Standards & Infrastructure

Aviation System Block Upgrades

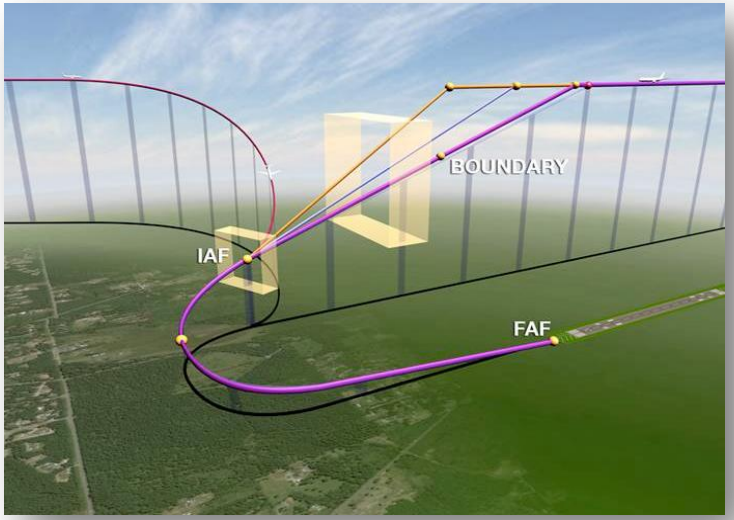
Civil/Military Cooperation

Reductions in Separation Minima

#1 Air Navigation Initiative – PBN

- Assembly Resolution A37-11; Expedite PBN
  - AFI PBN Regional Plan developed in 2010
  - 13 out of 56 States submitted National Plans
  - 31 out of 56 States implemented PBN approaches
  - 65 PBN routes developed in 2011
- AFI Performance Based Navigation

  Project is being considered to accelerate PBN implementation



#1 Efficiency Initiative – PBN

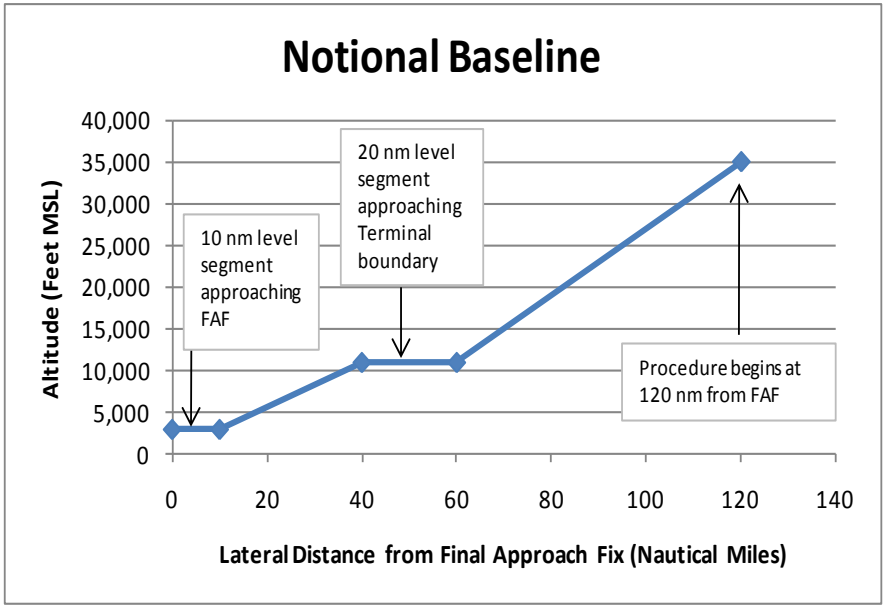
More Assistance on the Way

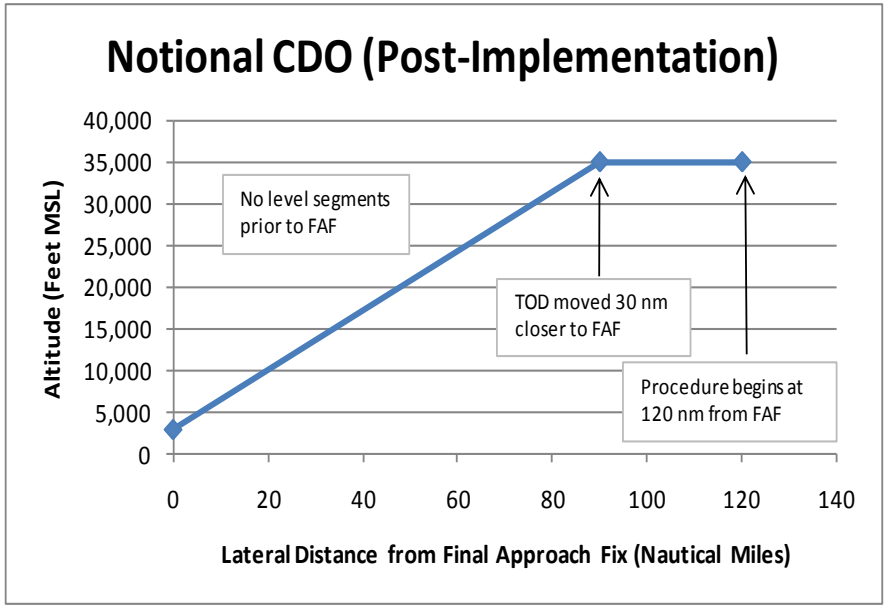
- ICAO, IATA and CANSO, join hands to support implementation with "Go Teams"
  - ICAO provides tech leadership
  - IATA provides tech financial support and technical assistance
  - CANSO provides support to measure performance improvement through IFSET
- Deploying Go-Teams (concentrated hands-on support ***in exchange for*** operational implementation) in conjunction with Industry for PBN implementation
  - Kenya received 1st Go-Team in 2011
- More PBN Workshops/Courses planned for AFI in 2012:
  - Airspace Design
  - Continuous Decent operations (as a follow-up to Go-Team visit to Kenya)
- Training (e-learning) for ATC/Pilots

#2 and 3 Efficiency Initiatives

Continuous Climb and Decent Operations

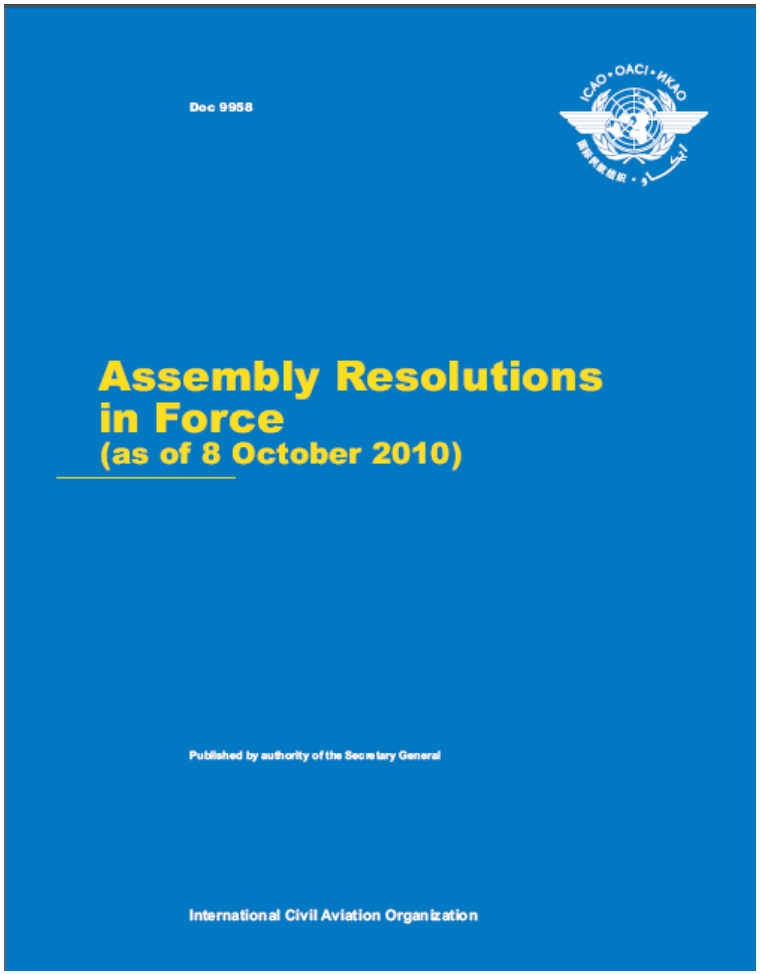
- Charts demonstrate a traditional arrival replaced by a Continuous Decent Operation
- Potential benefit of 250 kg fuel per arrival





- Continuous Decent Operation (CDO) Guidance provided in ICAO Doc 9931
- Continuous Climb Operation (CCO) Guidance underway; expected April 2012

ICAO Climate Change Policy



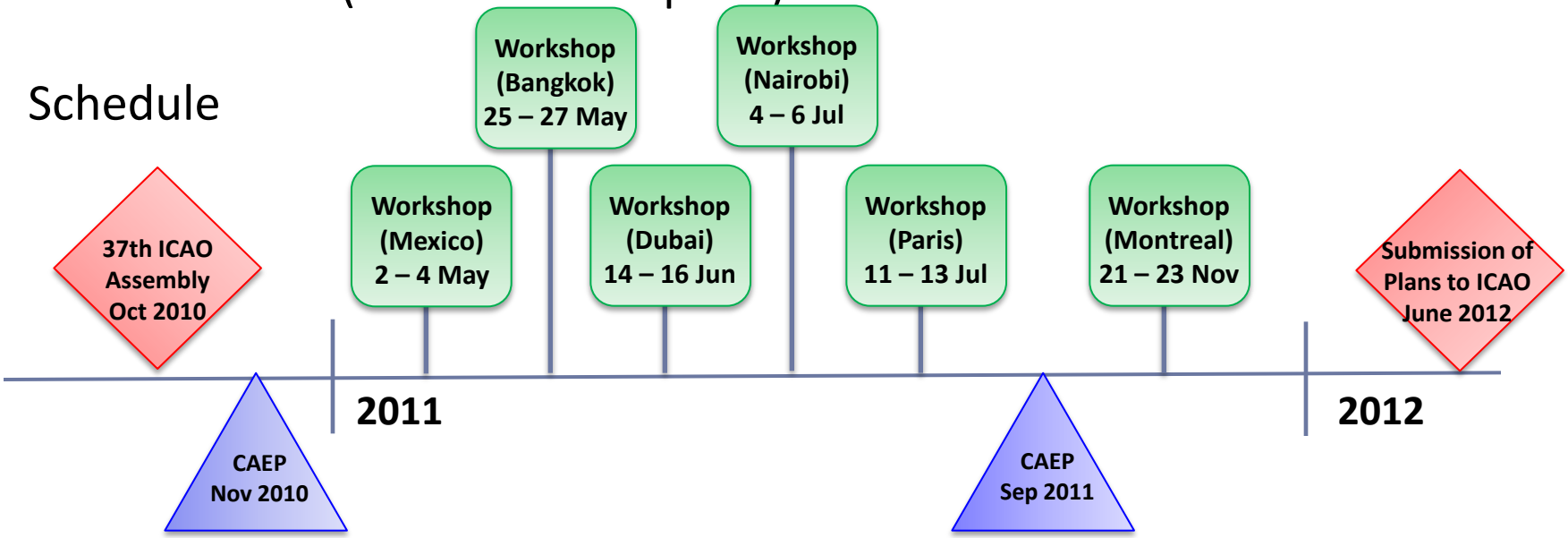
A37-19:

Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change, adopted by 37th ICAO Assembly in October 2010

ICAO encourages States to submit their action plans outlining their respective policies and action

ICAO Assistance to States

- Assist member States of each ICAO Region in preparing and submitting their action plans, by providing tools and appropriate information (guidance material, interactive website – electronic template) . Refer to APIRG/18-WP-33.
- Guidance document – available at www.icao.int
- Web Interface (electronic template) APER
- Schedule



Measure and Declare
Your Performance Improvements

- States ***without modelling and/or measurement capabilities*** **use the** ICAO Fuel Savings Estimation Tool IFSET to estimate fuel savings from operational improvements
- *APIRG/18/WP-19 outlines IFSET*
- Transparent; very easy-to-use; publicly available
- Delivers globally consistent estimates of fuel savings
- Report estimating global environment benefits accrued from operational improvements will be published by the end of 2012

IFSET Operational Today!

- Go to : http://www.icao.int/environmental-protection/Pages/Tools.aspx
- Scroll to the bottom and download the IFSET

ICAO Fuel Savings Estimation Tool

Operational measures are one of the instruments available to States to improve fuel efficiency and reduce CO2 emissions. The ICAO Fuel Savings Estimation Tool (IFSET) has been developed by the Secretariat with support from States and international organizations to assist the States to estimate fuel savings in a manner consistent with the models approved by CAEP and aligned with the Global Air Navigation Plan.

The ICAO Fuel Savings Estimation Tool (IFSET) 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 in a harmonized way.

Access the files here: IFSET (requires Microsoft Windows XP or newer) and the IFSET User Guide.

Additional Initiatives
Reductions in Separation Minima

- ICAO is working on following aspects to implement reductions in separation minima:
  - Use of 3 NM separation between aircraft utilizing automatic dependent surveillance-broadcast (ADS-B) & multilateration (2012)
  - Use of 2.5 NM separation between in-trail aircraft up to 20 miles from the runway threshold (2013)
  - Use of auto-navigation in closely-spaced parallel runway operations for PBN approved aircraft (2013)

Challenges: Tools that Work

- ICAO uses Tactical Action Group's (**TAG**) to address specific, short term operational issues
  - Recent example is a TAG for RVSM post implementation issues
    - use regularly scheduled telephone/internet conferences
    - providers have been proactive in responding
    - met with increasing success
    - consistent with Safety Continuous Monitoring Approach
  - Ability to pinpoint regional "hotspots" or trouble areas
  - Good feedback rate from States/Service Providers (79% for 2011) on items referred by TAG
- Expect to see expanded use soon, for example:
  - Sponsored quick meetings to solve problems such as coordination issue between Gaborone/Johannesburg FIRs

Regional Air Navigation Deficiencies

- Currently all PIRGs have developed, established and maintaining their respective regional air navigation deficiency databases to support the implementation of the Uniform Methodology.
- Each of the regional deficiency database has its own architecture, protocols and access rights
- Consequently they are not available for worldwide viewing and usage.
- Approach is not consistent with the principles of sharing safety information worldwide

New Global Approach

- **Transition from five regional databases into a central database**
  - Prototype system is incorporated in the integrated Safety Trend Analysis and Reporting System (iSTARS) *(APIRG/18-WP-21 refers)*
  - Results in harmonization of data structure and content, as well as uniform access to the respective Regional Offices, Member States and other authorized users
  - Provide consistent reporting across all regions and improve information sharing
- The complete transition to single centralised database on iSTARS (available through **https://portal.icao.int/istars**)is scheduled for December 2012.

Global Reporting

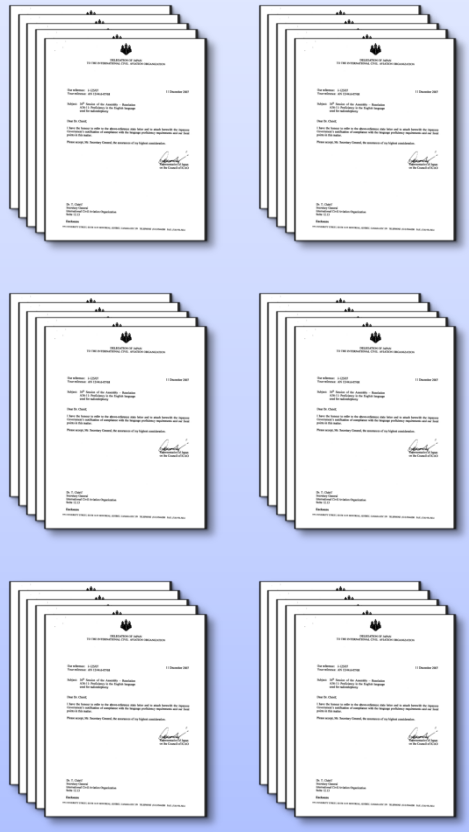
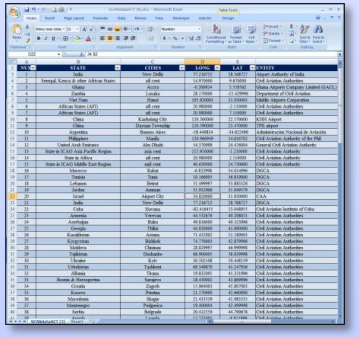
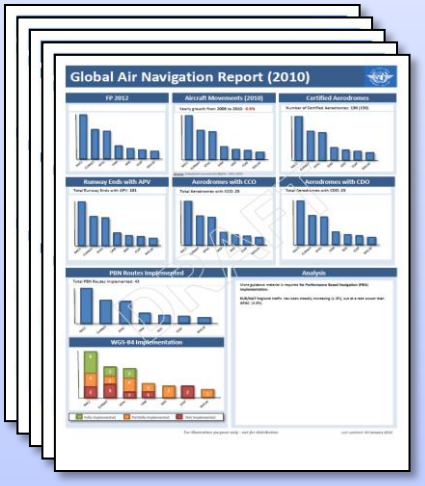
- New GANP and Global Aviation Safety plan(GASP)to serve as Strategic Plans
  - Global Aviation Safety Plan (GASP) revision – 2012
    - First Safety **REPORT**
  - Global Air Navigation Plan (GANP) revision – 2012
    - First Air Navigation **REPORT** planned for 2014
- The regional planning and implementation process is the principal engine of the work on safety and efficiency
- This is where the top-down approach of global guidance and regional harmonization measures converges with the bottom-up approach constituted by national planning by States

Transparency

Information When You Need It

Available 24/7

Current Reporting Lifecycle

REPORTS	DATA	ANALYSIS
		
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