

**SIXTEENTH MEETING ON THE IMPROVEMENT OF AIR TRAFFIC SERVICES OVER
THE SOUTH ATLANTIC
(SAT/16)**

Recife, Brazil, 4 to 6 May 2011

Agenda Item 5: Any other business

iFlex Project

(Presented by ASECNA and IATA)

SUMMARY

A flexible route network framework will enable airlines to leverage the prevailing upper wind conditions and seize opportunities for fuel and CO2 savings at the flight planning phase. With the introduction of a harmonized set of rules and procedures to facilitate the implementation of flexible routes, known as iFlex, a reduction of 2% in CO2 is possible. The ultimate goal is to remove the requirement for airlines to flight plan via fixed routes. However, this solution will certainly take some time to implement and deliver benefits. A first step will be to work with the partners to identify and implement shorter route segments that provide route options for the city pairs.

References:	ICAO Doc 9750 Global Air Navigation Plan, ICAO Assembly Resolution A36-7
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1. INTRODUCTION

1.1 The global aviation industry is united behind three targets to address environmental impact:

- A 1.5% average annual improvement in fuel efficiency to 2020.
- Capping net emissions from 2020 with carbon-neutral-growth.
- Cutting net emissions in half by 2050 compared to 2005.

1.2 These targets, coupled with the significant technological developments on the ground and in the air are leading to a paradigm shift within the industry. The International Civil Aviation Organization (ICAO), major ATM programs such as NextGen (the USA Next Generation Air Transportation System) and SESAR (Single European Sky Air Traffic Management Research) look upon the transition from ATC to ATM as a collaborative process involving all stakeholders.

1.3 Moreover,

- Ultra Long Haul (ULH) flights are challenging the currently airspace structure and published route network.
- Upper winds have a direct influence on fuel burn and proportionately in turn, on the carbon footprint. Winds change by time of day, seasons and geographical areas of flight.
- Air traffic around the world is expected to grow around 5% every year.
- Most aircraft and ATM ground systems are equipped enough to support flexible routes.

- 1.4 The ICAO Global Air Navigation Plan enlists various Global Plan Initiatives (GPIs) that facilitate the ATM design and planning process. In particular it calls upon States and other stakeholders to cooperate in the development and implementation of regional, sub-regional and national plans to create a traffic routing environment meeting the needs of the airspace.
- 1.5 A flexible route network framework will enable airlines to leverage their flight planning systems to generate appropriate routes in response to prevailing wind conditions. ASECNA, in partnership with, CANSO and ICAO is establishing a trial to facilitate the implementation of flexible routes (iFlex), in specific areas.

2 DISCUSSION

- 2.1 Under the iFlex project with the support of IATA, CANSO and ICAO, Emirates and Delta airlines wish to improve the route options available for the city pairs Dubai/Sao Paulo and Atlanta/Johannesburg, respectively.
- 2.2 In preparation for the trial, mentioned on 1.5, three workshops were convened as follows:
 - a) First Flexible ATS Route Management Workshop was held at ASECNA headquarters in Dakar, from 11 to 13 January 2011, attended by 7 States and 4 organizations and corporations.
 - b) Second Flexible ATS Route Management Workshop was held at Dubai, UAE, from 15 to 17 of February 2011, attended by 16 States and 6 organizations and corporations.
 - c) Third Flexible ATS Route Management Workshop was held at the ICAO European and North Atlantic (EUR/NAT) office in Paris, from 8 to 10 of March 2011, attended by 13 States and 8 organizations and corporations.

The outcome of the workshops and the trial will be incorporated into the iFlex guidance material
- 2.3 Due to the prevailing wind conditions, between these city pairs, the published fixed route network is not always efficient and significant benefits could be obtained if other route choices were available. Table 1 shows calculated benefits for each of the city pairs.

Table 1 Preliminary Benefit Analysis

Emirates: DXB-GRU (Boeing 777-200)	Fuel (kg)	Time (mins)	CO₂ (kg)
Savings per flight	1000	6	3150
Savings per year	365,000	2190	1,149,750
Delta: ATL-JNB (Boeing 777-200)	Fuel (kg)	Time (mins)	CO₂ (kg)
Savings per flight	670	6	2111
Savings per year	244,623	2190	770,562

- 2.4 IATA has prepared some flight planning images to demonstrate the huge range of lateral variations for optimal routings based on weather conditions. It is fully appreciated that to accommodate any such variation in routings will take a significant amount of time, planning and co-ordination with key stakeholders in the future. (Appendix A).
- 2.5 Currently, the published fixed route network does not permit airlines the flight planning flexibility for such long range flights consequently restricting benefits.

- 2.6 The eventual solution to this problem is to remove the requirement for airlines to flight plan via published fixed routes. However, this solution may take some time to implement and deliver benefits. A first step would be to work with the partners to identify and implement shorter route segments through trials that provide route options for the city pairs.
- 2.7 ANSPs concerned will have to conduct a safety assessment for the implementation of the system in order to ensure that the level of air traffic safety will not be affected.

3 Summary

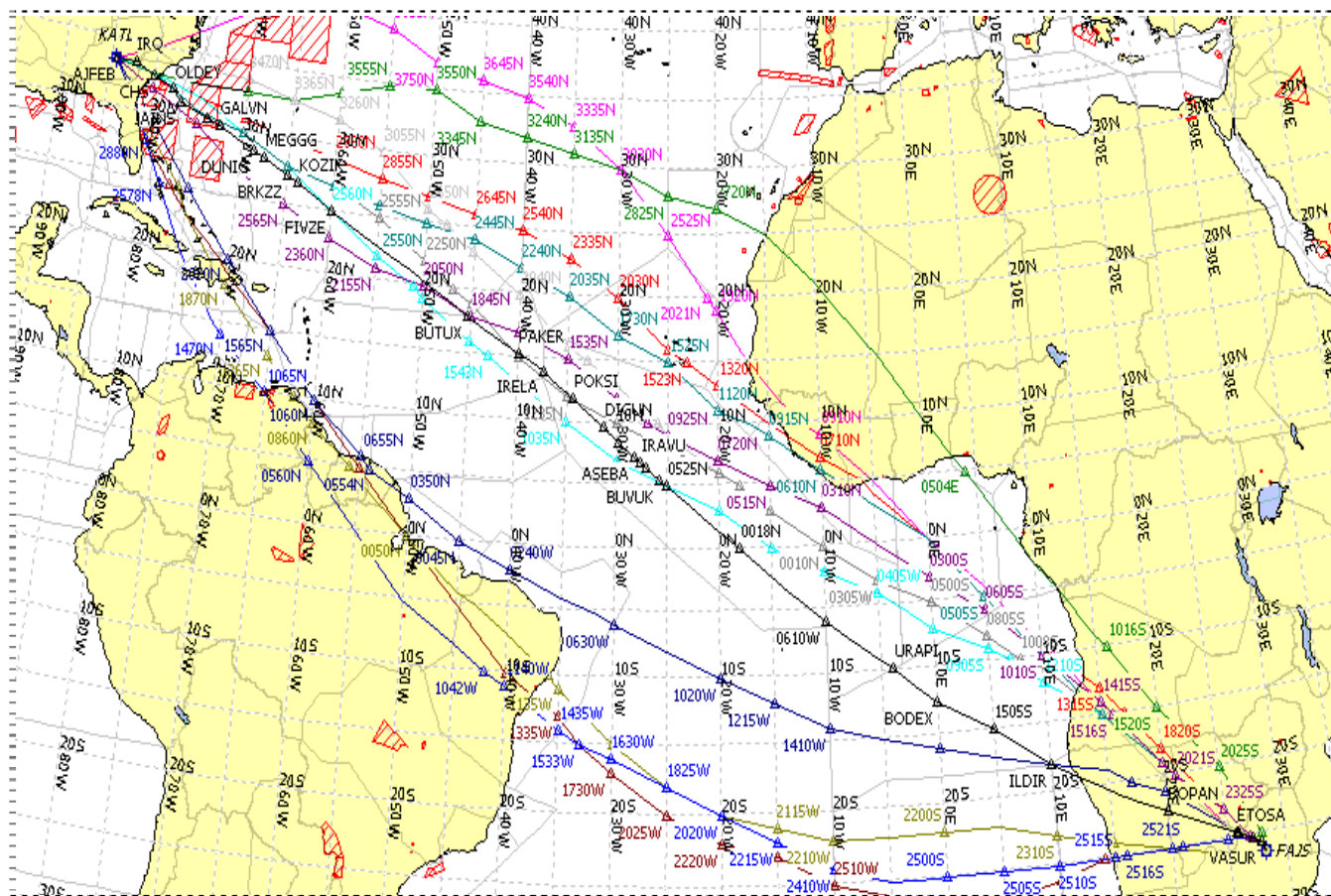
- 3.1 The proposed city pairs are examples of ultra-long range flights that have flight planning issues due to restrictions with the current published route network.
- 3.2 Resolving these fixed route issues will provide a direct and significant benefit to the airline and the environment.
- 3.3 Short term results can be quickly achieved by partners working together and supporting filing of direct routes creating route options for airlines on a trial basis. Longer term benefits can be provided by allowing constraint free flight planning.

4 ACTION BY THE MEETING

- 4.1 To take note of the iFlex initiative.

APPENDIX A

Johannesburg-Atlanta



Atlanta- Johannesburg

