ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

WESTERN AND CENTRAL AFRICA OFFICE

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Luanda, Angola, 5-7 June 2019

Agenda Item 3: Airspace Structure and ATM Operational Improvements

3.4.4 FLIGHT LEVEL OCCUPANCY IN THE EUR/SAM CORRIDOR

SAT/FIT-SAT/CNMC Performance

(Presented by ENAIRE)

SUMMARY
This working paper presents a study about Flight level Occupancy in the EUR/SAM Corridor
Related ICAO Strategic Objective(s): The working paper relates to the Air Navigation Capacity and Efficiency Strategic Objective of ICAO.

1. Introduction

1.1 In accordance with the SAT19/01 conclusion, SATMA was tasked to gather the necessary traffic data for airspace planning, safety assessments and statistics in the EUR/SAM Corridor. In order to achieve this objective, Brazil, Cape Verde, Spain and Senegal should collect Air Traffic Movement data from their ATM Systems in a period of six months in accordance with the pre-established format agreed with each member.

1.2 The importance of SATMA collection and treatment of statistical data of air traffic movements along the EUR-SAM Corridor during last years, has been strongly highlighted in previous SAT meetings as a relevant data to take preventive actions, in line with the evolution of these figures. Nevertheless, several issues were detected during last SATs related to the statistical data presented, so it was it was required, by SAT 22 ATM WG, to include information about Flight Level occupancy.

2. Discussion

2.1 Description

2.1.1 Observe that in the study performed by ENAIRE (see figures), it is assumed that, in EURSAM, the required level (in original FP) in southbound airways is granted in a 67% in UN873 and UN857, and in a 45% in UN743.

Beyond future implementations -PBCS, ADS-B,…- that for sure will drive to a better flight level manage, is important to study other aspects that impact in this problem.

2.2 Software.

2.21 Operators use several tools to get the better/optimal/efficient Flight Plan. All of them are based in similar algorithms, using parameters as meteo, taxes, fuel cost, crew constraints, payload, etc.

2.2.2 Obviously, this software for Flight Dispatching – as any software does- will show the same results for same parameters so, in the same time window, distinct aircrafts will be assigned the same (or very similar) route and FL. That is the first stone: Due to software assignments, the use of airways is not balance at all, as we may see in the diagram.

2.2.3 Moreover, this software takes over 30 minutes to calculate the optimal route and that, added to the extreme complicated logistic in Flight dispatching (payload, lots of Flights, delays, crew, last minute new on board load,…) makes it impossible to recalculate. “Once served, once forgotten”.

2.2.4 On the other hand, no historic or “memory” variable is assumed by the system, so at the time to calculate a route it is not taken into account the previous occurrences. An operator that finally could not get the required level on a selected route in the last four flights will select again the same route/FL, no matter what happened before. This important statistic in not taken into account at the time to select.

2.3 No flexibility

2.3.1 Crew prefer to stick to initial FP route from the departure (fuel, route, payload,…). So, when offered a change in the route, already in flight, the answer use to be negative, preferring a no optimal level than a change in the route. This lack of flexibility impacts in other flights solitudes and stops any ATC strategy to mitigate the problem.

2.4 Match number

2.4.1 Match number separation rule is another issue to appoint. “Slow” traffic penalize strongly the levels occupancy. Dedicate different airways (or levels) for fast and slow traffic could be a solution to get a better achievement. In that sense, a bilateral periodical review in the application of separation rules for traffic transfer is recommended.

2.4.2 To summarize, we must conclude that a huge problem to solve is that flight dispatchers act as if they have the exclusive use of airways and Flight Levels, so some coordination between them should be desirable, at the time of dispatch.

3. Actions

1) Take into account

2) IATA to distribute this WP to (EUR/SAM) Operators and urge them to :

   a. Push for a better coordination between their Flight Dispatching

   b. Introduce “Historic parameters” in Flight Dispatching Software

   c. Find ways to solve “Fast/Slow” aircraft alternatives.

Operational Restrictions

Example 1

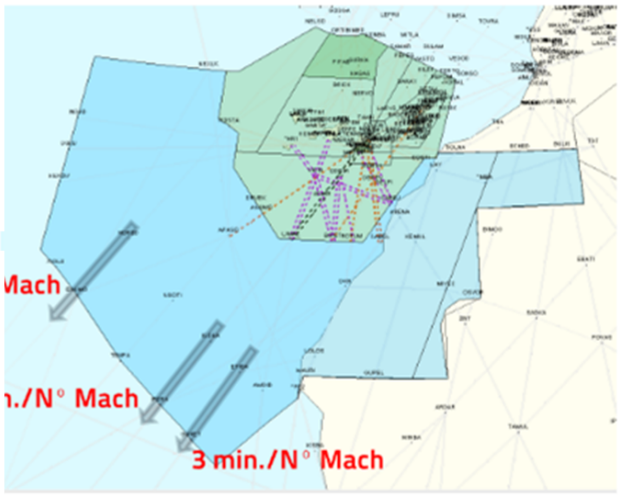
Fast traffic below a Slow traffic
IBE6240(.85) below AEA123(.81)

Separation: 11 – 4 → 7 min

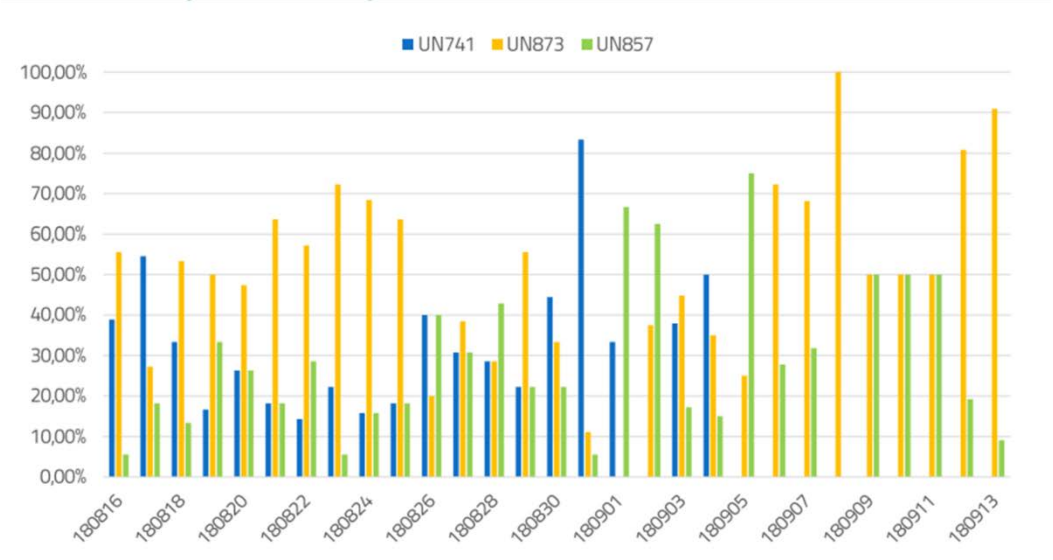
Example 2

Slow traffic below a Fast traffic:
IBE600(.81) below AEA074(.85)

Separation: 10+3 *4 → 22 min



EUR/SAM Airways traffic distribution



Southbound traffic between 23:00 and 03:00 UTC
AIRAC 1809, Aug. 16th- Sept. 12th

FLevel required/flown

Diff. Niveles	No Vuelos	%
UN873		
-40	6	3%
-20	50	23%
0	144	67%
20	14	7%
30	1	0%
Total UN873	215	52%
UN857		
-40	2	2%
-20	13	14%
-10	4	4%
0	64	67%
10	4	4%
20	8	8%
40	1	1%
Total UN857	96	23%
UN741		
-30	1	1%
-20	9	9%
-10	30	30%
0	45	45%
10	10	10%
20	5	5%
Total UN741	100	24%
Total	411	100%

Compares FL presented in FP with FL flown on Canarias FIR Border