



**OPS Working Group  
NET Task Force**

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# **BLUE MED FEP – Annual Report 2021**

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BLUE MED FAB OPS Working Group / NET Task Force  
BLUE MED FEP – Annual Report 2021



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#### Abstract

This document is a summary of the results of the optimization of the EnRoute and Terminal Network within the Airspaces of the 4 Member States of the BLUE MED FAB, as well as of the improvements in the Airspace Availability and in the Departure and Arrival Procedures at local airports, relating the reference year 2021.

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BLUE MED FEP – Annual Report 2021**



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The table records the complete history of the successive editions of the document.



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## 1 INTRODUCTION

### 1.1 General overview of the Document

This document is a summary of the results of the optimization of the EnRoute and Terminal Network within the Airspaces of the 4 Member States of the BLUE MED FAB, as well as of the improvements in the Airspace Availability and in the Departure and Arrival Procedures at local airports, relating the reference year 2021.

Since 2014/2015, the FEP Task Force (composed of Flight efficiency's experts from each Member State) defined a methodology for collecting information, processing and evaluating the implementations introduced to optimize the Network and the Airspace availability and make it more efficient.

Such methodology is based on the post analysis of the flight plans of AUs that have benefited from the implementations both in terms of flight efficiency and in terms of lower fuel consumption, with consequent environmental benefits thanks to lower CO<sub>2</sub> emissions in the atmosphere.

As required at that time by EU Reg. 390/2013, a 'BLUE MED FEP - Annual Report' has been released every year since 2015. That Report is a document which collects and publicizes yearly results in terms of Operational Performances and a series of KPIs that quantify the efforts put in place.

Nowadays, the Report is no longer officially required, but the ANSP Committee of the BLUE MED FAB has deemed it appropriate to carry on the good practice of quantifying and making visible to the stakeholders the effort and the results of the work of the 4 ANSPs, always in coordination with each other to allow and facilitate the implementation of Flight efficiency actions.



## 2 FLIGHT EFFICIENCY REPORT

### 2.1 Summary

The *BLUE MED FEP - Annual Report* has been a valuable tool for the FAB since 2015; it condenses and highlights, for the benefit of the FAB's partners and stakeholders, the improvements made to the network and the Airspace in terms of operational efficiency and availability for AUs.

The text and the tables contained in this Deliverable, collected into a more formal document than it was in the previous years, summarize the benefits in terms of Flight Efficiency that AUs have obtained by improving their flight trajectories when crossing the BLUE MED airspace.

This Deliverable can be considered as an official document and can be shared with all relevant stakeholders as well as published on the BLUEMED website.

### 2.2 Analysis of data

The first analysis that the FEP Report does is the comparison of traffic data with the data of the previous years, both in terms of percentage and in terms of absolute value. Data refer to the airspace of the 4 Member States as a single airspace (i.e., counting the flights that cross the common airspace as a single transit).

The PI (the performance indicator that is also monitored in the Annual Performance Report published by the PRU and commissioned by the EU/PRC) of the EnRoute ATFM Delay (KPA Capacity domain) is also added and considered, to evaluate the efficiency of the FAB in managing the Airspace ATC Capacity that the AUs request by planning a flight Trajectory within the FAB Airspace.

As shown in **Table\_#1**, until 2019 (the last year of RP2), the PI of the EnRoute Efficiency measured the ATFM Delay, that was addressed in the FAB context.

Starting from 2020 (the first year of RP3), this PI as well as the EnRoute efficiency KPI (ENV domain) called KEA (*Key performance Environment indicator based on Actual trajectory*), is measured locally for each of the States that are included in the EU's SES Performance Scheme.

Nonetheless, in order to maintain references and to measure the flight efficiency performances at FAB level, it was decided to continue the measurement and reporting as in RP2. Therefore, in **Table\_#1**, the PI of the ATFM Delay (EnRoute Punctuality) continues to be measured also for 2020 and 2021, even in the absence of a Reference Target.

Finally, as can be seen from the reference percentages compared to both 2020 and 2019 (due to the COVID 19 pandemic which had a highly negative impact on air traffic), the numbers of flights that have been controlled in the common airspace have not yet gone back to pre-COVID 19 numbers.



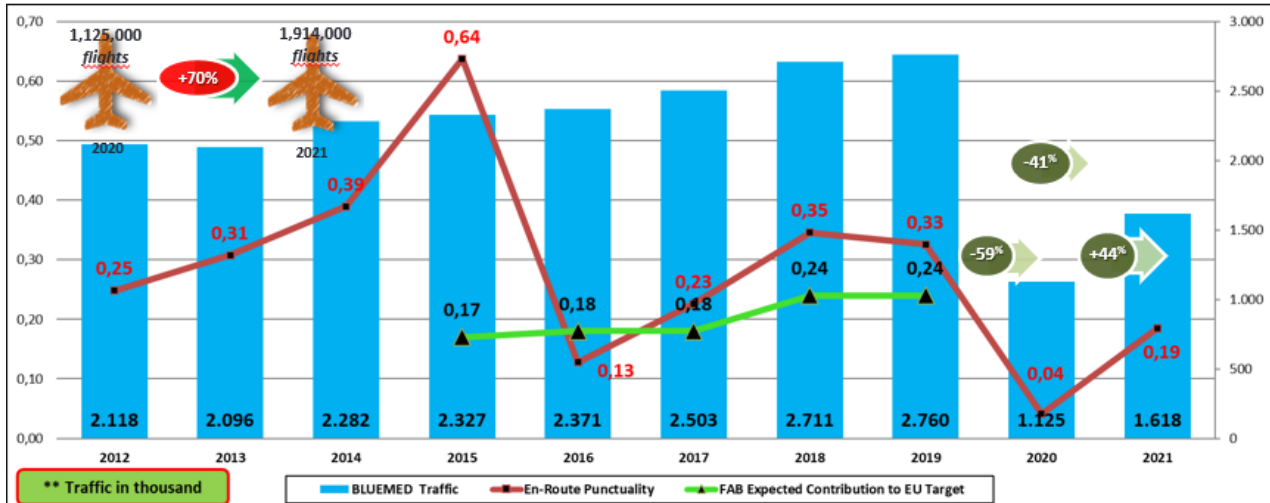


BLUE MED FAB

Operational Performances & Flight Efficiency

2021 - Flight Efficiency Plan

Traffic & Delay – EnRoute Punctuality vs EU Target



TABLE\_#1

**Table\_#2**, on the other hand, completes the performance picture for the Capacity & EnRoute Delay domain. The Table highlights and compares the 2021 total traffic (on the right) with those of the first year of RP1 (2012) and of the beginning of RP2 (2015). The section on the left, on the other hand, highlights the **Punctuality** data, i.e., the % of traffic which – within the Airspace of the 4 BLUE MED States – was *not affected by any ATFCM Delay*, or which was affected by a delay of less than 15 mins (*flights on time*), or higher (*flights with more than 15' delay*).

From the values in **Table\_#2** it can be deduced that, given the persistence of the non-recovery of the number of flights within the airspace of the BLUE MED FAB due to the COVID 19 pandemic, the usual minimum assignment of ATFCM Regulations for traffic affecting the BLUE MED Airspace continues over the years, guaranteeing AUs a quality of ATC service that matches the capacity of planning management.



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 Traffic & Delay – Traffic & Flight Punctuality



**TABLE\_#2**

From **Table\_#3** to **Table\_#6**, are presented the full Flight Efficiency benefits observed in 2021, following the effort made by the ANSPs of the 4 BLUE MED member States.

**Table\_#3** shows a summary of the state of implementation of the FREE Route in the FAB area. Both Italy and Malta have already implemented FRA airspace above FL 305 since May 2018, while Greece has completed the second phase implementation (night-time only for the moment) and from the 2<sup>nd</sup> of December 2021 by lowering the vertical limit to FL 305 and so aligning it to that of the other 2 States.

Cyprus is also preparing for the full FRA/H24 Implementation Phase, scheduled in 2025 (Phase 1 will be implemented beginning of 2023), and the benefits of the implementations already introduced to their EnRoute Network are shown in the following tables.

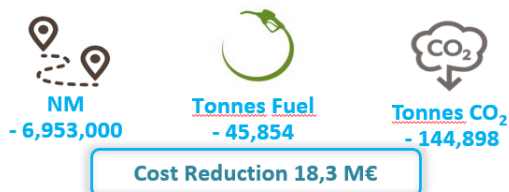


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Since 30<sup>th</sup> of January 2020 within the BLUE MED FAB another important step has been accomplished towards the full implementation of the BLUE MED FRA Programme: **Hellas FRA** has been implemented during night-time (21:00-04:00/z) from FL335 to FL 460.

Then, since **2<sup>nd</sup> December 2021** Hellas FRA has been vertically extended to FL 305 with the aim to uniform the Hellas FRA with the Italian and the Maltese FRA.

The Annual Flight Efficiency Performance Analysis highlights (below) the benefits counted for AU into the BLUE MED FREE Route Airspace.



**2020 - Flight Efficiency Plan**  
 Traffic & Delay – Free Route Airspace



**TABLE\_#3**

In addition, **Table\_#3** quantifies the *NM* and *Fuel savings* and lower *CO2 emissions* into the atmosphere, that the FRA Airspace has determined in 2021 within the FAB BLUE MED area for the benefit of AUs (lower costs for airlines).

**Table\_#4** and **Table\_#5** highlight the other benefits, in terms of Flight Efficiency, which were accounted within the EnRoute domain, thanks to the optimization both in the Route Network and in the Airspace Availability for the 4 Member States.

Cyprus has continued the optimization phase of its Network, preparatory actions for the implementation of the full Free Route Airspace implementation, while the other 3 States continued following the efficiency program of their EnRoute Network (below the FRA Airspace) with the aim to improve the trajectories that can be planned by the AUs.

Actually, one of the actions that are always requested, both from the Network Manager and the AUs, is to optimize both the flight trajectories and the Airspace Capacity, as well as to improve the cost Efficiency and the Environmental impact, all above while maintaining and ensuring a very high level of Safety, as is habitual in BLUE MED.

**Table\_#4** highlights the improvements that the AUs have perceived in terms of optimization of their planning activities for the trajectories selected within the Airspaces of the 4 BLUE MED States, and specifically: a reduction of the planned distance of approximately **12 NM per flight** compared to 2020, a reduction of approximately 90 kg of fuel per aircraft, and approximately **285 kg of lower CO<sub>2</sub> emissions** into the atmosphere.



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**2021 - Flight Efficiency Plan**  
**Traffic & Delay – Network Routing & Availability**

Airspace Design activities & NTW availability optimization Programme continued throughout the course of 2021 with the planned strategy and without incurring any delay, still with the COVID emergency in progress although actually in a decreasing phase and nearing its end, let's hope so!!

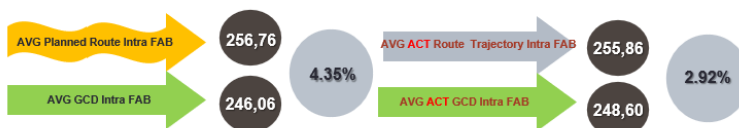
**Cyprus** is still gaining in Flight Efficiency benefits (and the AUs that cross the Cypriot Airspace too) from the implementation of its **NICFRA Project** since 26<sup>th</sup> of March 2020, waiting for the next scheduled phases that will finish with the full Free Route Airspace implementation late in 2025.

**Greece, Italy** and **Malta** from their sides accomplished all their scheduled tasks inherent the planned NTW's implementations for 2021 and, as requested by Network Manager and AUs due to the COVID Emergency situation, continued by suspending most of their National RAD Restrictions, in 2021 during Winter months only due to the recover of traffic during the Summer Season, prior introduced to flow the traffic and to reduce the complexity into the National ATC Sectors.

Flight Efficiency Benefits into the BM Airspace are offered here and into the following tables.

**Flight Efficiency Gain per Flight intra BM\_FRA in 2021**

**Comparison AVG Distance per Flight Intra BLUE MED FAB (distances in NM)**



**TABLE\_#4**

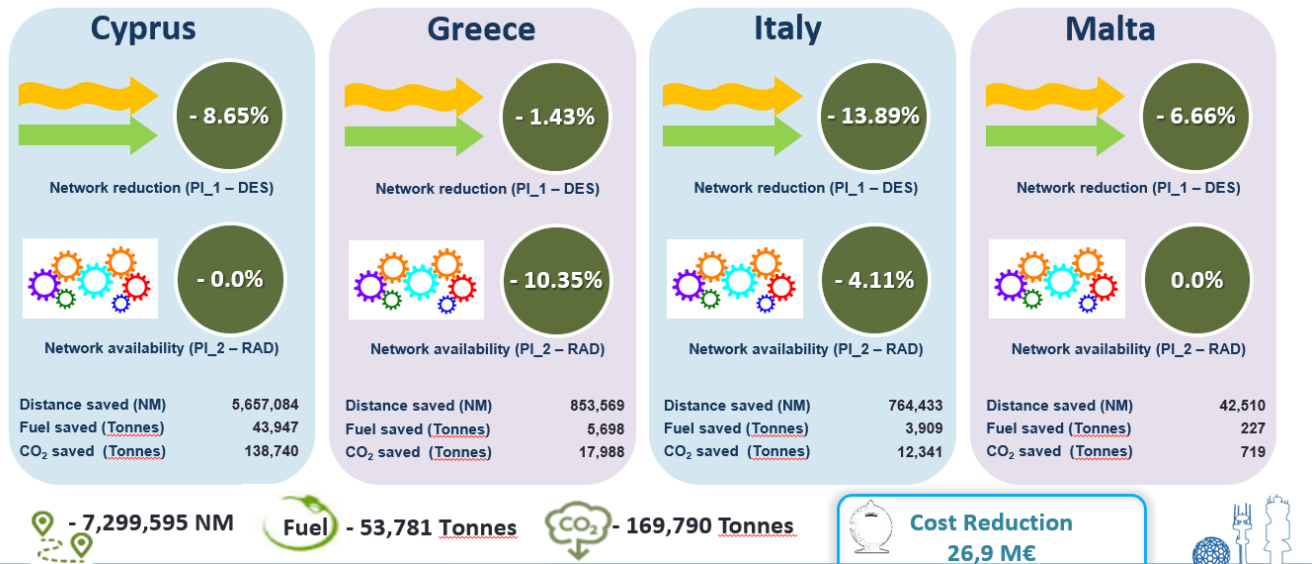
Another value that is important to underline is the constant reduction of the flight distance on City\_Pairs settled by the AUs with respect to their planning, a sign of the optimal management of aircraft trajectories by the ATCOs in the BLUE MED Member States, as well as of the goodness of the EnRoute Network which favors a reduction of airspace constraints.

**Table\_#5** completes the above picture, highlighting and accounting for the benefits that each of the ANSPs in BLUE MED have made possible with their implemented Flight Efficiency actions in 2021. These operational benefits are defined both as individual data and as cumulative outputs and quantify the reduction in the *planned NM* (bringing along lower costs for the AUs) that allows *lower fuel consumption* for the entire flight trajectory, and therefore a *reduction of CO<sub>2</sub> emissions* into the atmosphere.



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**2021 - Flight Efficiency Plan**  
 Traffic & Delay – **Network Routing & Availability**



**TABLE\_#5**

To complete the picture, **Table\_#6** highlights the benefits that have been introduced to the Terminal and the Airport Network domain.

The *PBN Implementation Programme* continues to grow at the BLUE MED FAB airports for the Arrival/Departure Network.

Other actions, such as the optimization of the APP Service integrated in the ACC in Italy during 2021, brought an improvement for the AUs in terms of less distance planned of more than **5 NM per flight**, that in the Terminal area corresponds to a reduction of **more than 1 minute of flight** and therefore to a lower fuel consumption of almost **20 kg of fuel per aircraft** (about **65 kg CO<sub>2</sub> emissions less** into the atmosphere per flight).



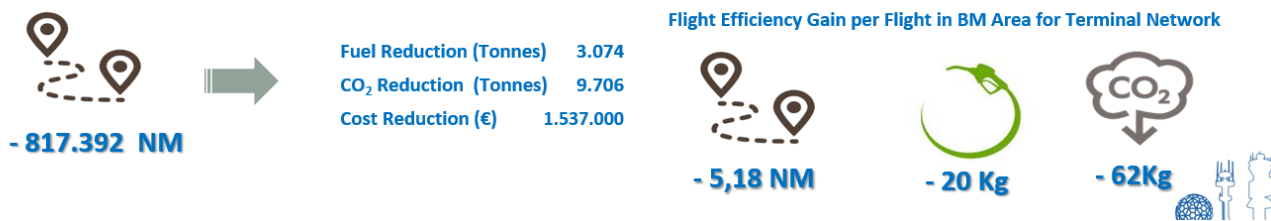
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**2021 - Flight Efficiency Plan**  
 Traffic & Delay – Airport & Terminal NTW

The improvement activity to update the DEP/ARR ATS procedures from/to the airports in the BLUE MED Area, and the related Terminal NTW procedures, have also continued in line with the programs of each individual ANSPs part of BLUE MED FAB.

Most of the implementation have related to the PBN procedure integration program and the alignment and optimization of the Terminal NTW to the best trajectory for entry/exit from the Free Route Area.

Greece and Italy introduced, during 2021, significant and numerous implementations; in particular Greece implemented some GNSS procedures added to the existing DEP/ARR procedures for the airports in the islands while Italy implemented multiple alignment of the SID/STAR procedures with the Terminal NTW due to the new APP needs and also started the Programme to move the APP Service within the ACC (initially Ronchi APP – Verona APP – Calabria APP – Apulia APP).



TABLE\_#6

### 3 CONCLUSIONS & CONSIDERATIONS

The above summary represents the complete output of the post analysis of Operational Efficiency in the BLUE MED FAB. These values that have been coordinated and validated by the appointed ad-hoc Task Force.



## 4 ACRONYMS & TERMINOLOGY

### 4.1 ACRONYMS (example)

Acronym	Definition
ACC	Area Control Centre
ANSP	Air Navigation Service Provider
ATC	Air Traffic Control
ATCO	Air Traffic Control Officer
ATS	Air Traffic Service
ATM	Air Traffic Management
BM	BLUE MED
DCAC	Department of Civil Aviation of Cyprus
EC	European Commission
ENAV	Società Nazionale per i Servizi della Navigazione Aerea (Italian ANSP)
EU	European Union
FAB	Functional Airspace Block
FIR	Flight Information Region
HCAA	Hellenic Civil Aviation Authority
ICAO	International Civil Aviation Organisation
IP	Implementation Plan
KPA	Key Performance Area
KPI	Key Performance Indicator
MATS	Malta Air Traffic Services
SES	Single European Sky
TF	Task Force
WG	Working Group



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## 4.2 TERMINOLOGY (example)

Terminology	Definition
ATM	Aggregation of the airborne and ground-based functions (air traffic services, airspace management and air traffic flow management) required to ensure the safe and efficient movement of aircraft during all phases of operations.
FAB	An airspace block based on operational requirements and established regardless of State boundaries, where the provision of air navigation services and related functions is performance-driven and optimised through enhanced cooperation among air navigation service providers or, when appropriate, an integrated provider.



*Operational Performances & Flight Efficiency*  
Performance Indicators' Outlook  
Updated 31 December 2021



*Operations – OCS / Aeronautical Design-Simulations-AIM  
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