

# Time Based Separation

## And the

# Deployment Programme

What is required by the PCP

Recommendations for deployment

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24 October 2017, TBS Workshop

**SESAR**  
DEPLOYMENT MANAGER



DEPLOYMENT  
PROGRAMME 2017

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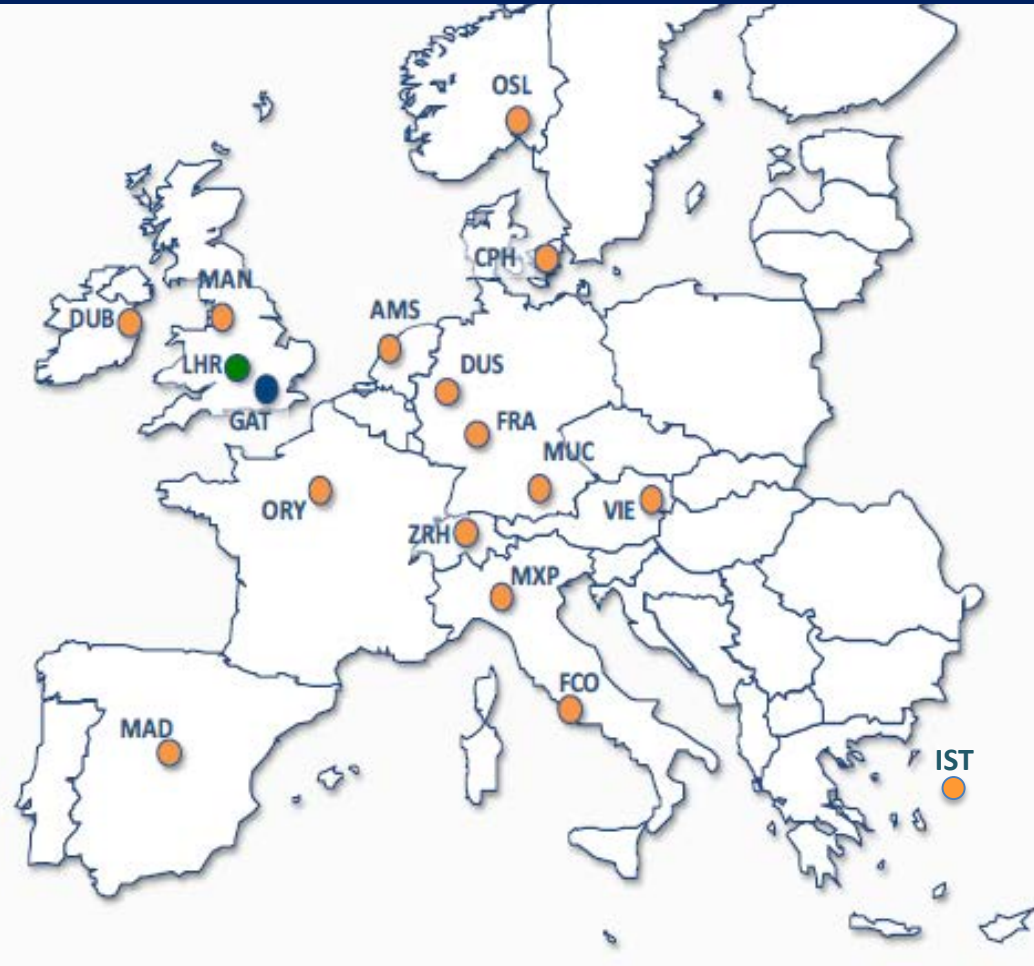
# TBS airports in today's PCP \_ 17

- London-Heathrow
- London-Gatwick
- Paris-Orly
- Milan-Malpensa
- Frankfurt International
- Madrid-Barajas
- Amsterdam-Schiphol
- Munich Franz Josef Strauss
- Istanbul Ataturk Airport
- Rome-Fiumicino
- Zurich Kloten
- Düsseldorf International
- Oslo Gardermoen
- Manchester Ringway
- Copenhagen Kastrup
- Vienna Schwechat
- Dublin

## **2.3. Stakeholders are required to implement the functionality \_ deployment target dates:**

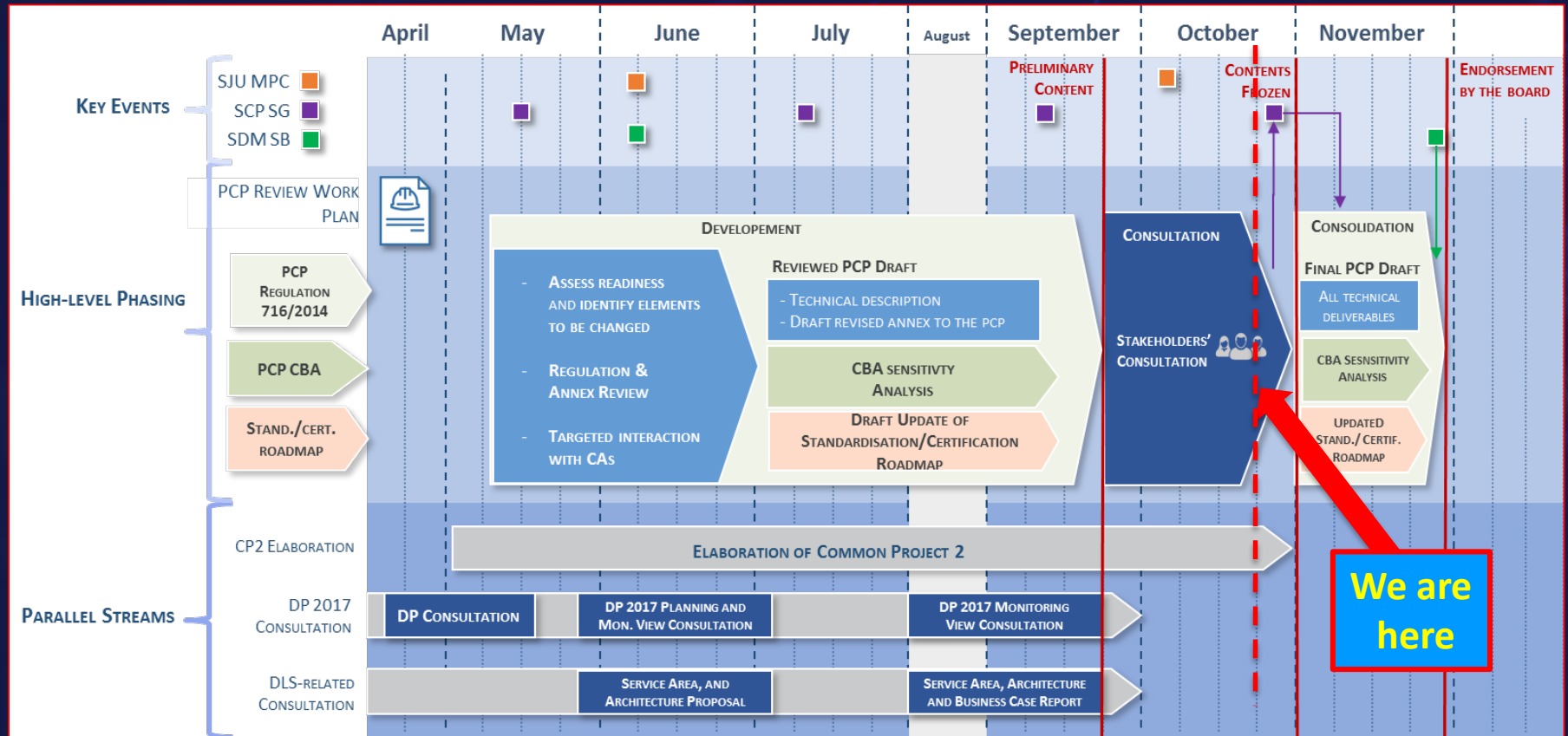
- Time-Based Separation for Final Approach as from 1 January 2024

# TBS airports in today's PCP \_ 17





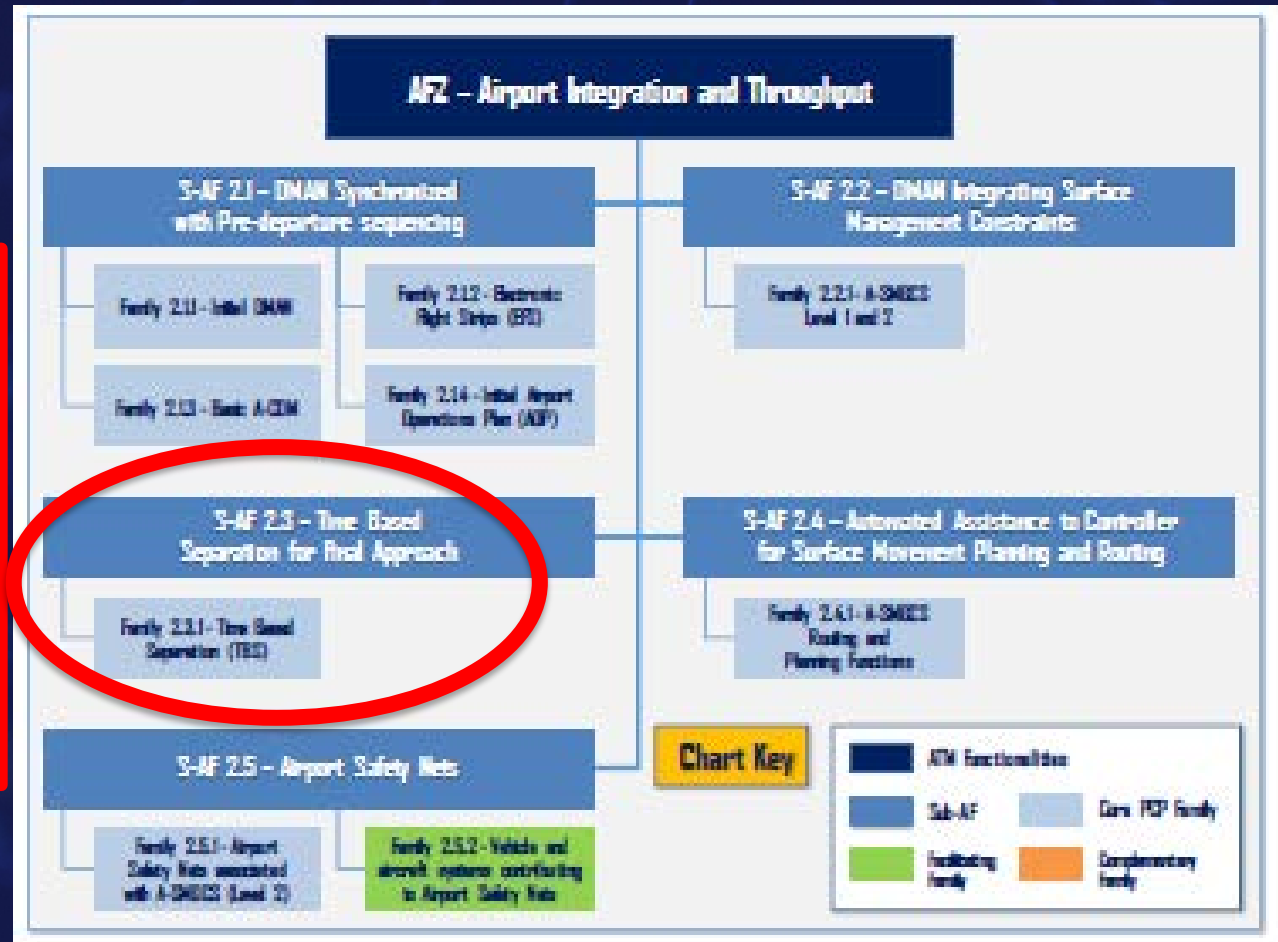
# PCP Revision Timeline



➤ *Final delivery agreed for November 30<sup>th</sup>, 2017*

# Deployment Programme 2017

**Under DP 2017  
TBS belong to  
the AF2  
Sub-AF2.3  
Family 2.3.1**



# Deployment Programme 2017

Call 2014:

- **London Heathrow 097AF2** – Time Based Separation: completed
- **Gatwick 094AF2** – Time-Based Separation for Final Approach: feasibility study completed

Call 2015:

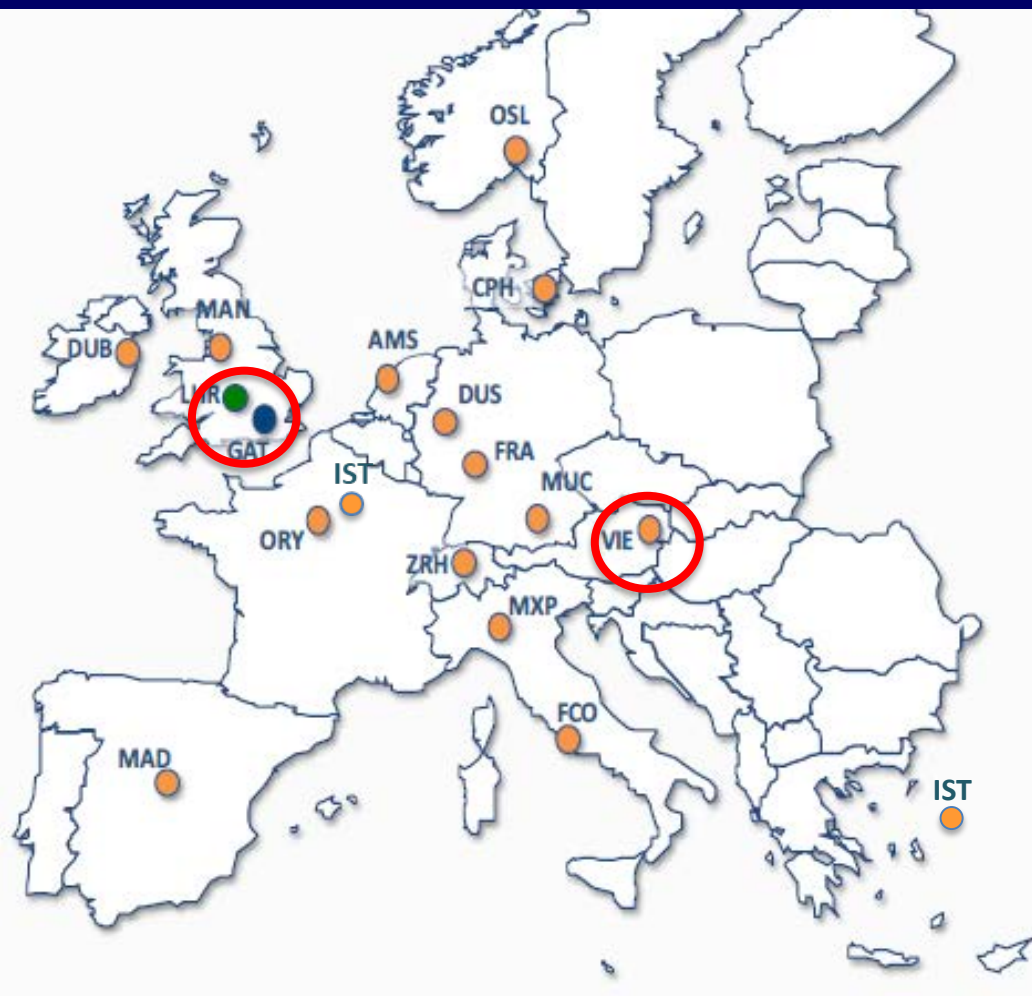
- **Vienna 2015\_220\_AF2** – MET Compliance Programme: on-going, completion planned end 2020
- **Vienna 2015\_232\_AF2** – TBS for Vienna Airport: on-going, completion planned end 2018

Call 2016:

- None



# Deployment Programme 2017



# Description and Scope (1/2)

- ❖ Time Based Separation (TBS) consists in the **separation of aircraft in sequence** on the approach to a runway **using time intervals instead of distances**.
- ❖ It may be **applied during final approach** by allowing equivalent distance information to be **displayed to the controller** taking account of prevailing wind conditions.
- ❖ **Radar separation minima and Wake Turbulence Separation parameters shall be integrated in a TBS support tool** providing guidance to the air traffic controller to enable time-based spacing of aircraft during final approach that considers the effect of the headwind.
- ❖ The TBS support tool shall **integrate an automatic monitoring and alerting of separation infringement safety net**.



# Description and Scope (2/2)

- ❖ The objective is to **recover loss in airport arrival capacity** currently experienced in headwind conditions on final approach under distance-based wake turbulence radar separation rules.
- ❖ By using time-based parameters, this loss is mitigated, having a **positive effect on runway throughput and runway queuing delays**. Minimum radar separation is not affected.
- ❖ Whilst TBS operations are **not exclusive to a headwind** on final approach, the current deployment proposal is specifically targeted at realizing the potential capacity benefits in these currently constraining conditions.
- ❖ Radar separation minimum and **new wake-vortex separation standards (such as RECAT) shall be integrated in the Time Based Separation support tool** that provide guidance to the controller to achieve the time proposed spacing to counter the effect of the headwind.
- ❖ Where available, ensure **local MET info** with actual glide-slope wind conditions are provided to the TBS Support tool. When relevant, ensure the **AMAN system** is compatible with the TBS support tool.

# Interdependencies

- ❖ Family 1.1.1 Basic AMAN.
- ❖ Family 1.1.2 AMAN Upgrade to include Extended Horizon Function.
- ❖ Family 2.1.2 EFS can facilitate / help support the necessary electronic exchange of information between the Tower Runway Control, the Final Approach Control and the TBS support tool.
- ❖ Families 5.4.1 and/or 2.1.4, for Meteorological Information.



# Concerned Stakeholders

- ❖ Aircraft operators
- ❖ ANSPs
- ❖ Airport Operators
- ❖ Military Authorities: only applicable to those airports open to civil and military operations



# Guidance Material, Specifications, Standards (1/2)

- ❖ SESAR Solution: #64 “Time Based Separation”

[https://www.atmmasterplan.eu/data/sesar\\_solutions/298](https://www.atmmasterplan.eu/data/sesar_solutions/298)

- ❖ ECTL Time Based Operation (TBS) Specification for Final Approach and Safety Case

[https://www.eurocontrol.int/sites/default/files/content/documents/single-sky/specifications/esdp\\_16\\_001\\_draft\\_spec\\_TBS\\_v0.5.pdf](https://www.eurocontrol.int/sites/default/files/content/documents/single-sky/specifications/esdp_16_001_draft_spec_TBS_v0.5.pdf)

- ❖ ECTL Safety Case on TBS

**Link not specified to date**

# Guidance Material, Specifications, Standards (2/2)

- ❖ ICAO Meteorological Information Exchange Model (IWXXM)
- ❖ ICAO Doc 10003 Manual on the digital exchange of aeronautical information
- ❖ ICAO Doc 8896 Manual of Aeronautical Meteorological Practice
- ❖ ICAO Doc 9328 Manual of Runway Visual Range Observing and Reporting Practices
- ❖ ICAO Doc 9377 Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services
- ❖ ICAO Doc 9817 Manual on Low-level Wind Shear
- ❖ ICAO Doc 9837 Manual on Automatic Meteorological Observing Systems at Aerodromes

**All ICAO documents can be found at: <https://store.icao.int/>**



# Deployment Approach (1/2)

- ❑ The implementation of the Family would require the integration of the Time Based Separation (TBS) tool in the local environment (including necessary upgrades for other systems, e.g. AMAN, EFS, etc.)
- ❑ The AMAN system compatibility with the TBS support tool shall be ensured; CWP shall be modified in order to integrate the tool with the safety net; wind conditions shall be provided to the tool as well as automatic monitoring and alerting  
**(MM1 – Integration in local environment)**



# Deployment Approach (2/2)

- ❑ Before the start of operational use of the tool, TBS Operational Procedures shall be elaborated and subsequently published (**MM2 – Operational Procedures**)
- ❑ Air Traffic Controller and Flight Crews shall be duly trained (**MM3 – Training**)
- ❑ A safety assessment shall be successfully performed and contextual report shall be made available (**MM4 – Safety Assessment**)
- ❑ The execution of such activities is expected to lead to the start of permanent operational use (**MM5 – Implementation completed**)

# Last words

- Still time to be on revised PCP list ... or not
- **But please confirm rapidly through email to SDM**
- Follow and use the Monitoring Milestones
- SDM can help and support
- EUROCONTROL also offers help and support

# Thank you for your attention

## Any questions?

### Contact:

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