



SESAR walking tours

2020 World ATM Congress

MATIAS Functional upgrade
Increasing capacity through new
ATC concepts

Gábor SZABÓ

Head of ATM System Development
Department



#PoweredBySESAR

Hungarian airspace and cross-border Free Route SEE FRA H24 operation since 7.11.2019.



February 2015

HUFRA

H24, ATS route network eliminated



November 2019

SEE FRA H24

GOAL: Single European Sky



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MATIAS AS A PIONEER ATM SYSTEM

New ATM System Eurocat 2000

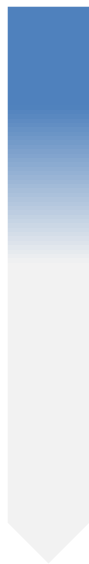
Paperstripless environment in Budapest ACC and APP partly in the TWR and FIC.



1999

Build 3

Start of operation with MATIAS system



2005

Build 6

Mode S and DAPS data display for the controllers



2008

Build 10.1

CPDLC
Free Route
Q1 2015



2014

Build 10.2
CDM Capability
Q4 2015



2015

Build 11

Q1 2019
TCT
'CFL Warning'



2019

Build 12

Q2 2021



2021



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Tactical Controller Tool (TCT) history and basic concept

TCT idea and development

by Eurocontrol FASTI programme

Today > ESSIP Plan > objective ATC12.1

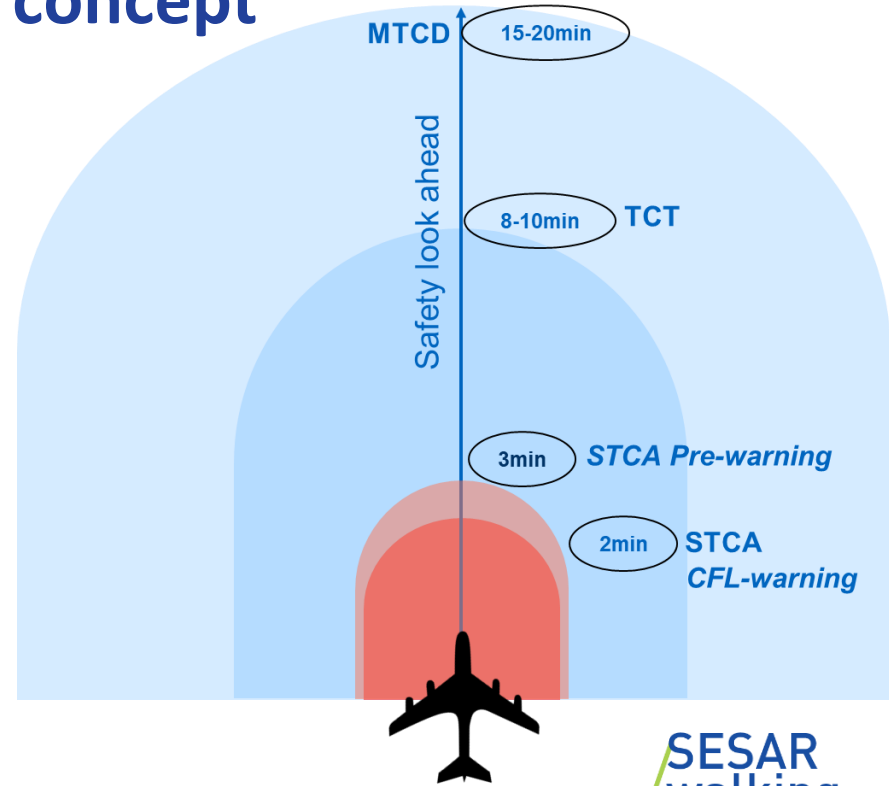
„Implement TCT and associated procedures”

by December 2021

- *Automated support*
- *Multihypothesis principle*
- *Conflict warning based on planned and observed actual behaviour*
- *Indicate critical manoeuvre-miss*
- *Threshold parameterisation*



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HungaroControl - TCT implementation

TCT implementation > MATIAS ATM system - Build 11 version

Project start - 2017

Start of operation – February 2019 > Budapest ACC

First operational use in Europe, second in the world(!)

Basic design by Thales > common design > tailoring according HungaroControl needs



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TCT – HungaroControl design

Our TCT operation

- Automatic tool
- Only for ACC > currently
- Label oriented solution
- TCT vector for the conflict visualization
- Multihypothesis principle
- 3D conflict detection
- Local offline parameter setting capability

So far - no advisory ability

TCT is driven by data:

- Flight Plan
- Surveillance data
- DAPS DSFL (Selected Flight Level) from the aircraft
- Aircraft performance
- Airspace data (flight profile)
- Wind



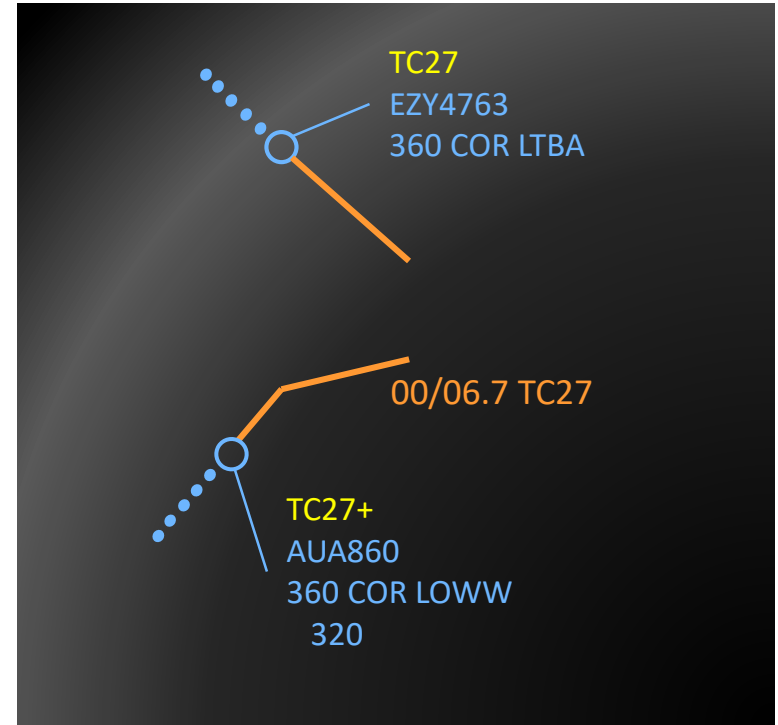
TCT – HungaroControl design

Our TCT operation

- Two kinds of hypothesis:
 - Enhanced prediction (CFL, DSFL, HDG, FPL route)
 - Straight line (current heading and speed)

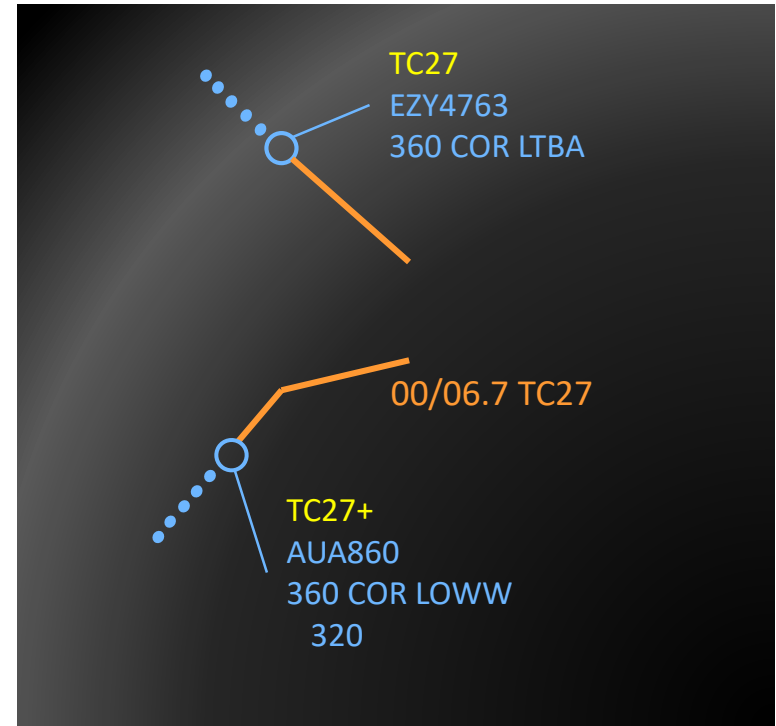
Main parameters used currently

- 8 min maximum look ahead time
- Horizontal: 5.9 NM
- Vertical: 800' RVSM; 1800' non-RVSM



Our operational experiences and the benefits of the TCT

- Saves time – precision
- Reduces unnecessary controller interventions > precision
- Provides continuous feedback on clearance effectiveness
- Enables the controller to perform “softer” interventions
- Mitigates [“Blind Spots”](#)
- Resolution advisories (depending on local implementation)



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Our operational experiences and the future

Feedback from our controllers

- **All the conflicts** are detected on time
- Very useful especially in high traffic
- High level of confidence

Solid basis for any capacity increase

- Less accurate during thunderstorm activity

Further development of TCT

Going towards the **advisory function** – even in our Build 13 version(?)

Redesign, integration with other future functions



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Thanks for the attention!

Any question?



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