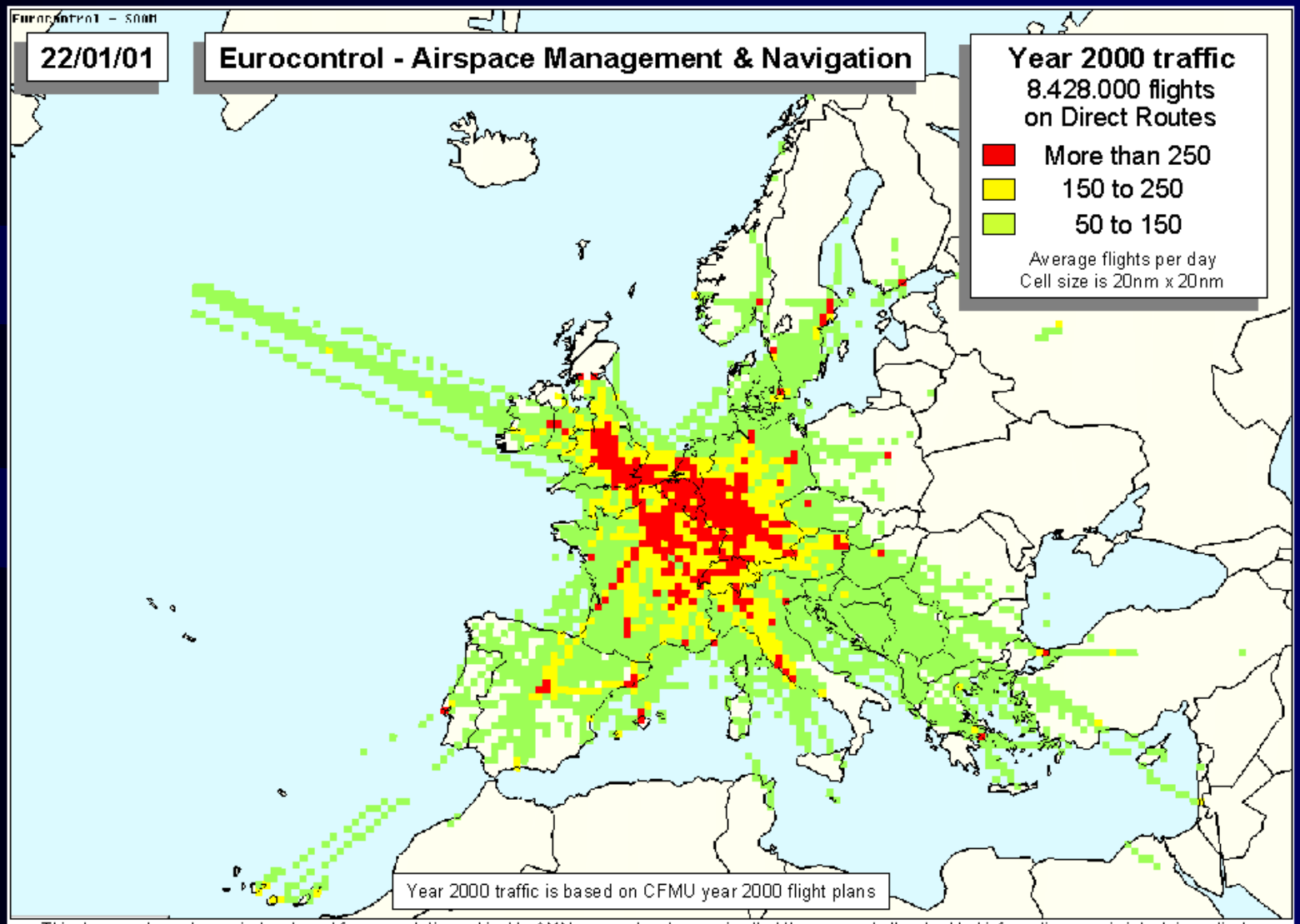
EUROPEAN AIRSPACE STRATEGY and PROGRAMMES

Magadan - 24-25/07/02

Alain Duchene

Eurocontrol
Airspace Management & Navigation Unit

Permanent Improvements & Support



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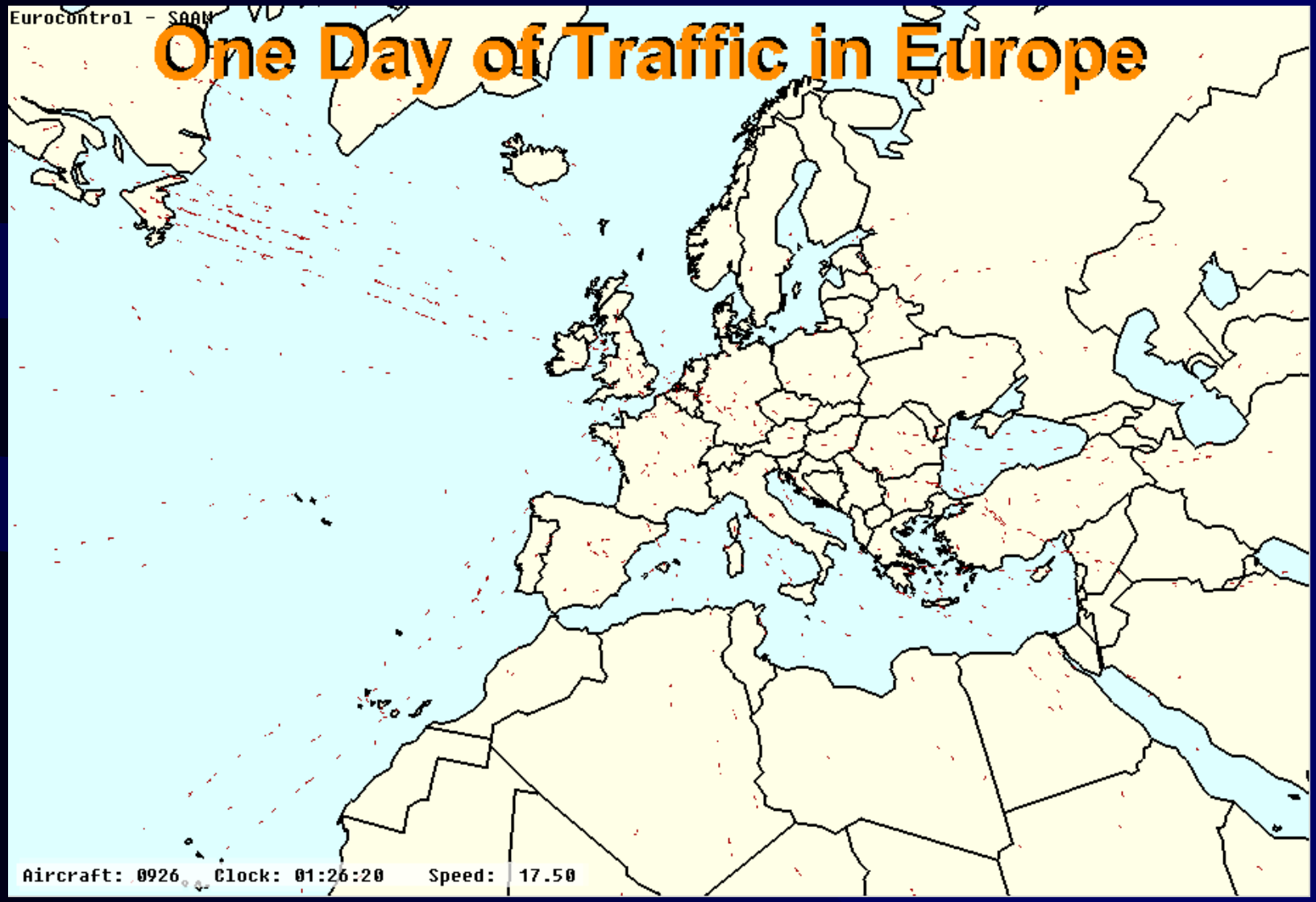
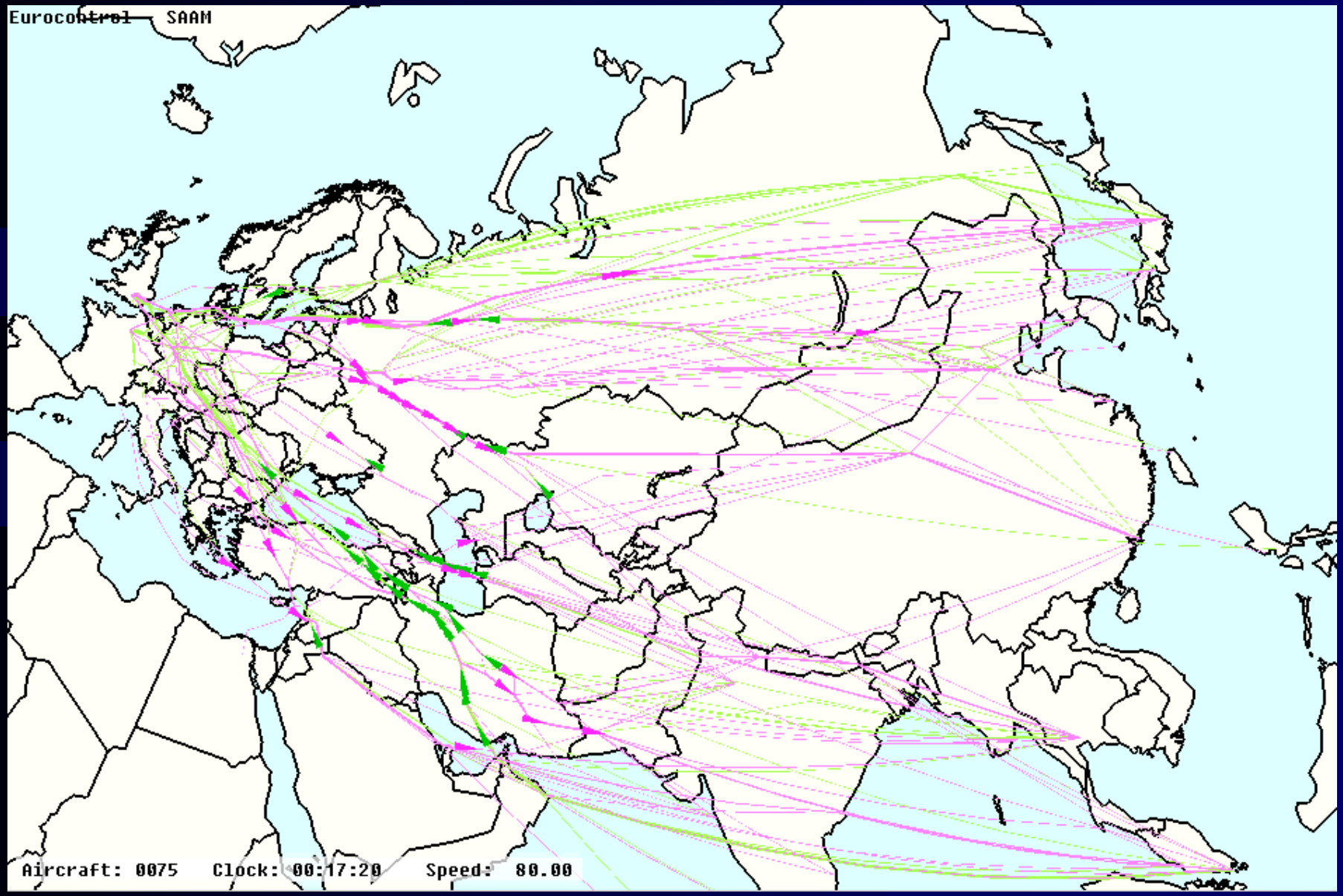
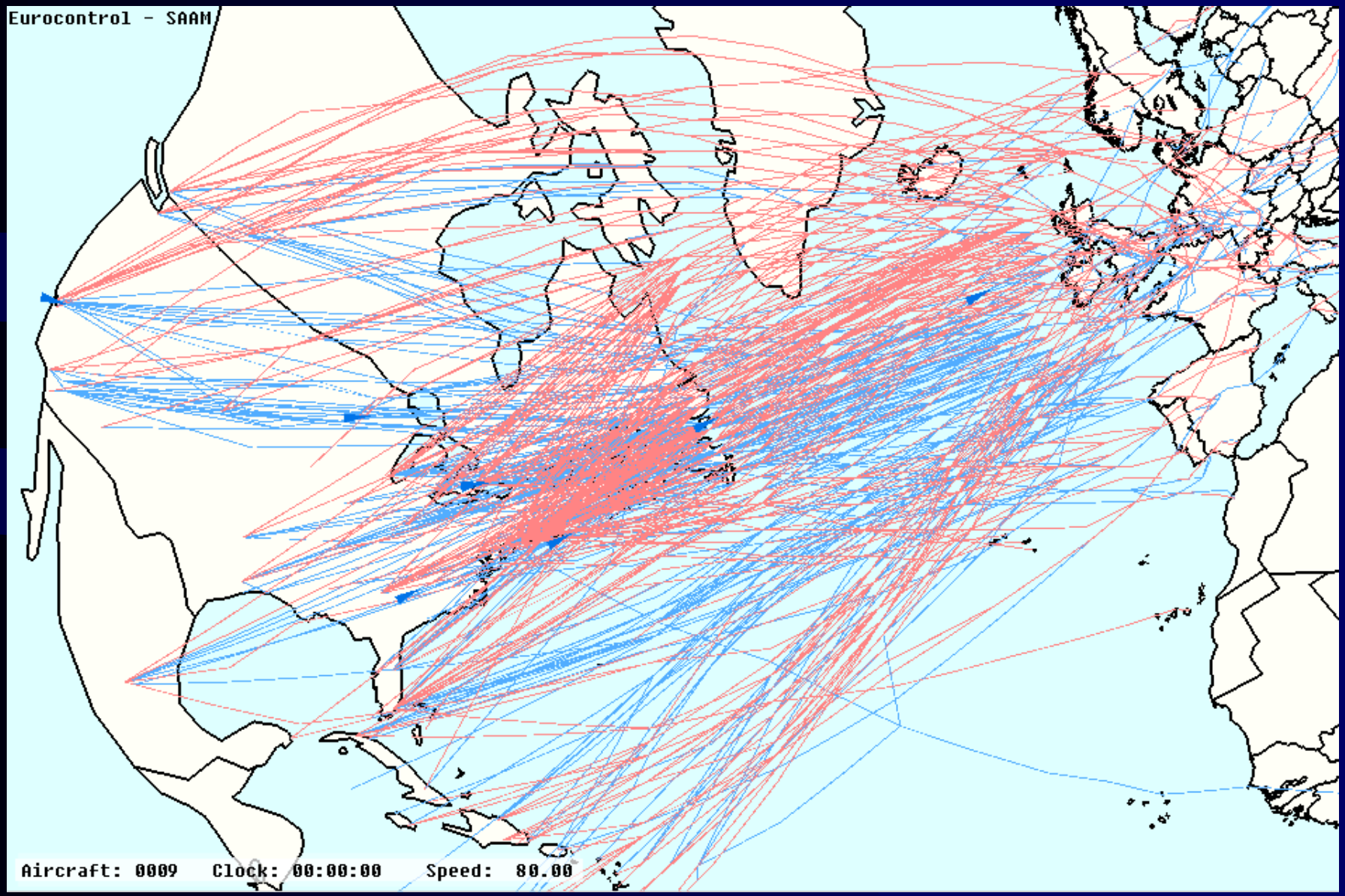


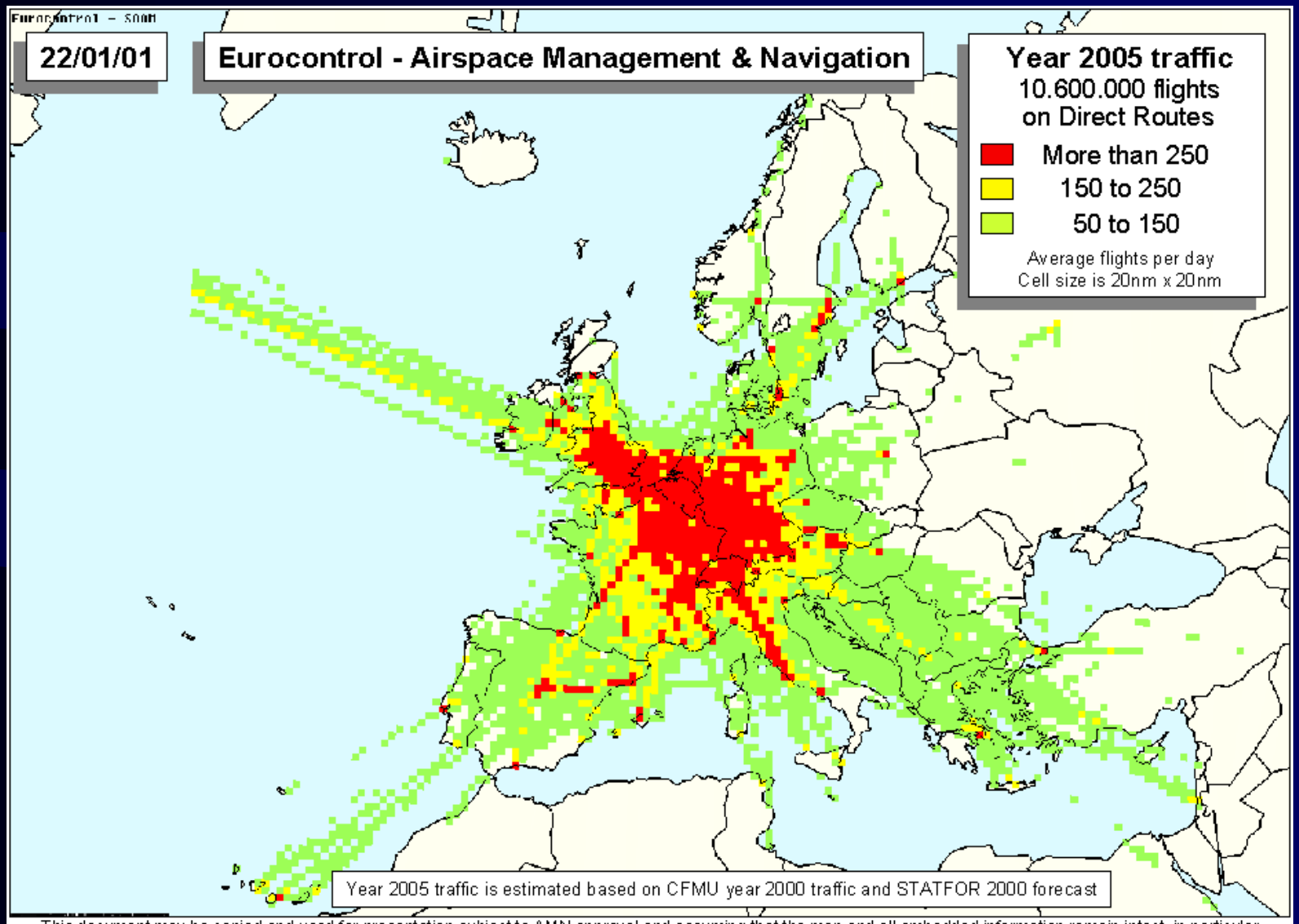
One Day of Traffic: Europe/Asia



One Day of Traffic: Europe/America



Permanent Improvements & Support



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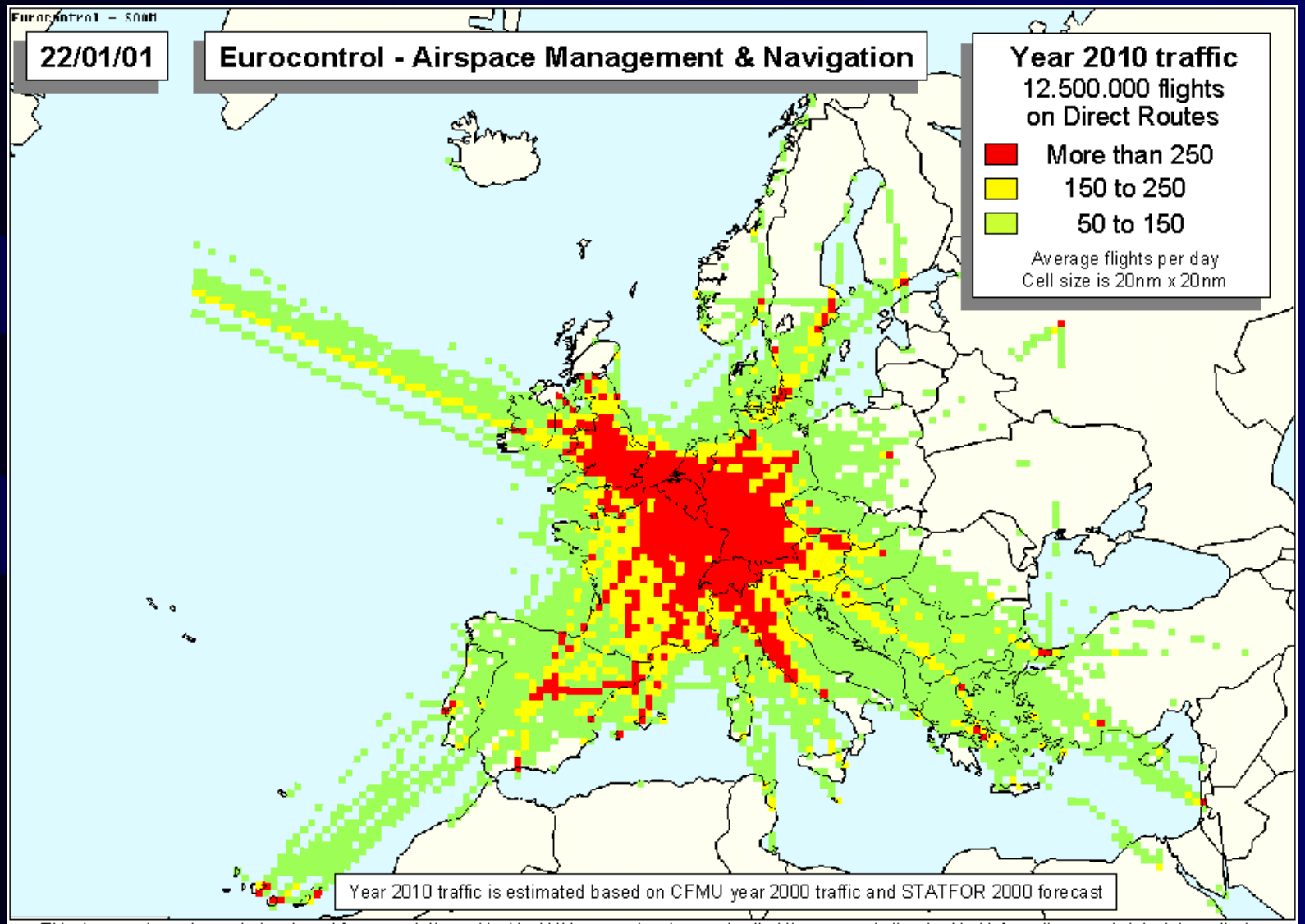

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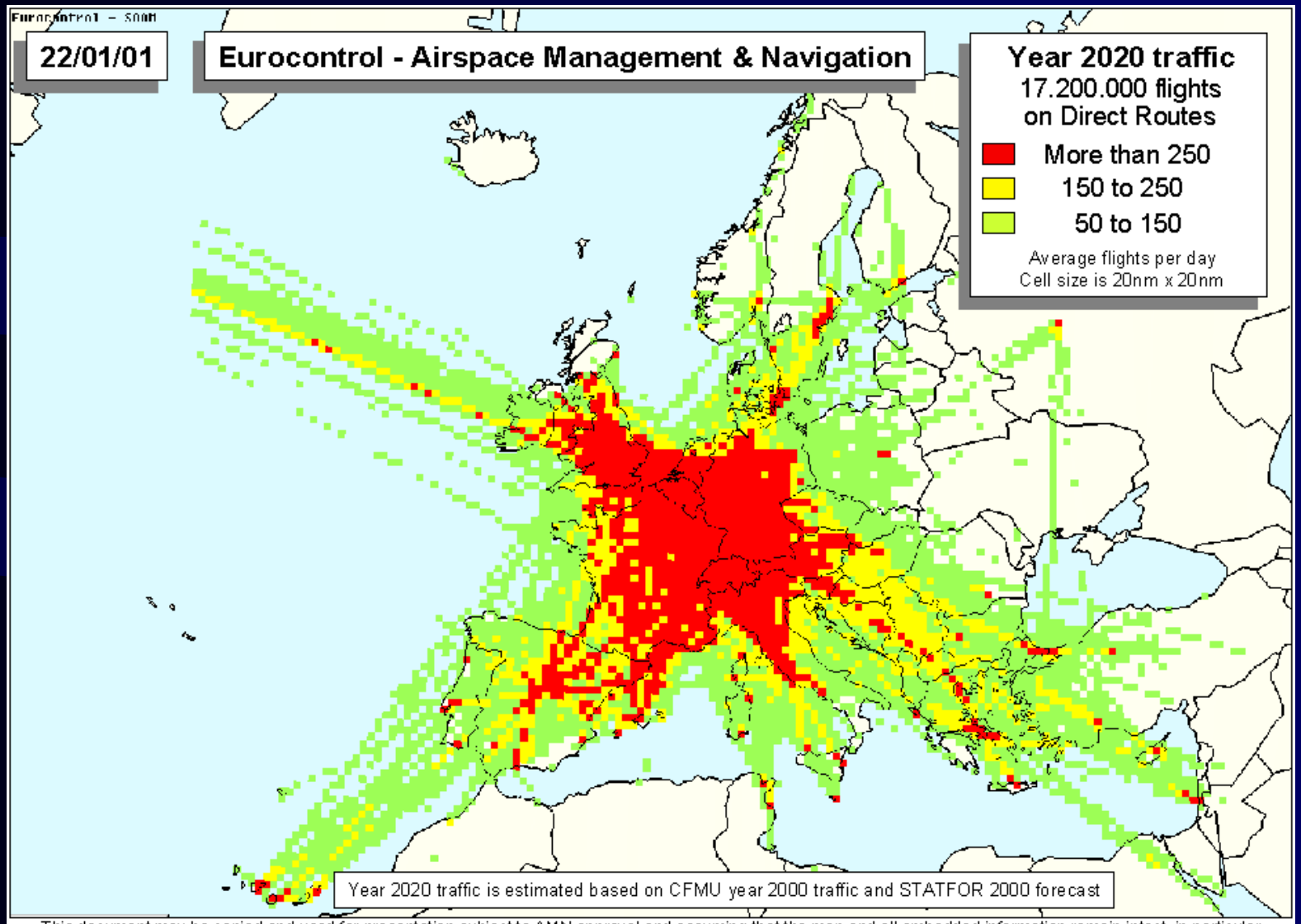


European Airspace Improvements Strategy

Strategic Planning of ECAC Airspace

- Route network Development
- Re-Sectorisation
- Simulations and Validations

Better Use and Management of Airspace

- Flexible Use of Airspace
- Reduced Vertical Separation Minima
- Area Navigation

Controller Workload

- ATC procedures
- System Support

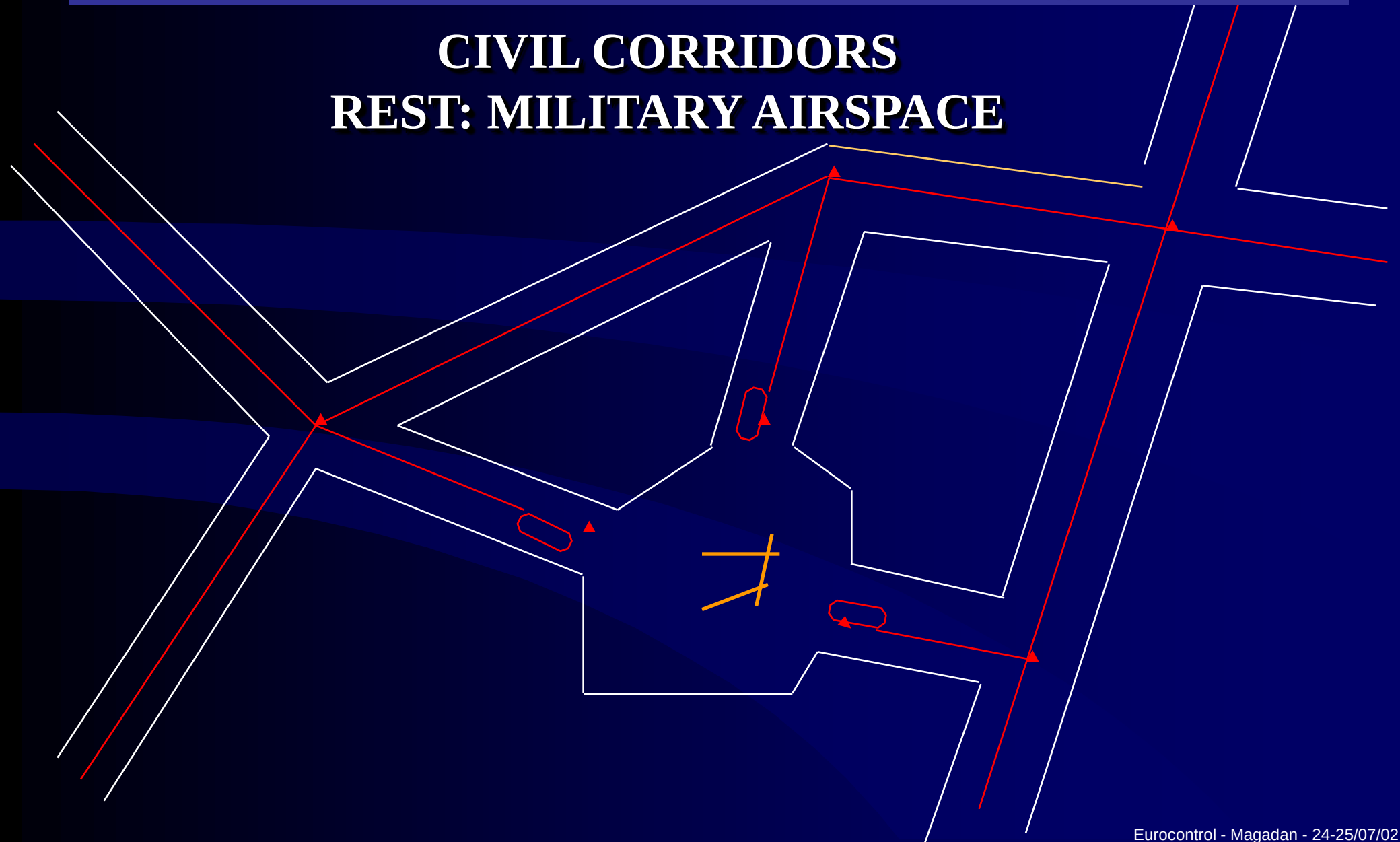
Increased Capacity

Reduced Delays

Improved Flight Profiles

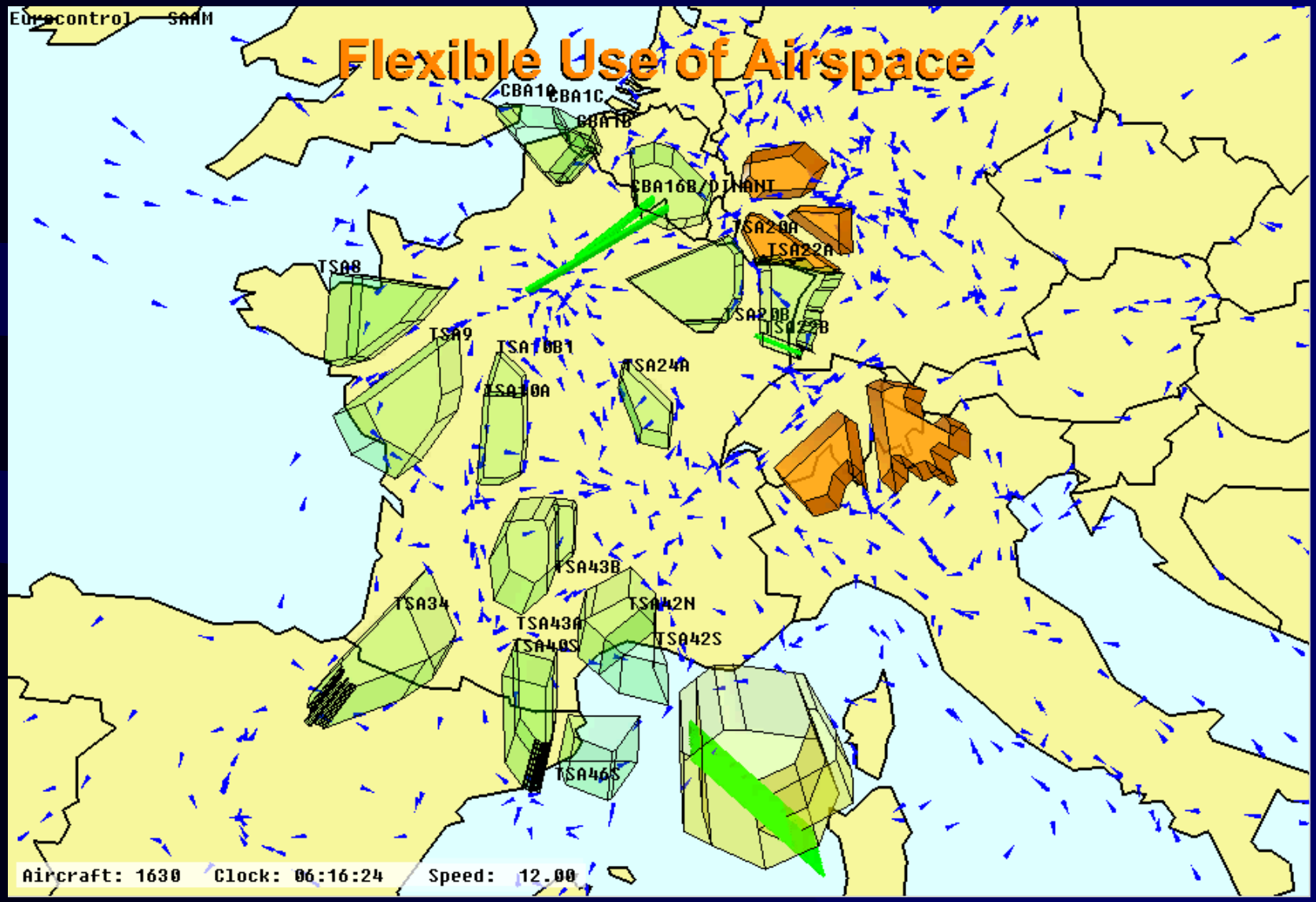
1960 Situation (10nm wide)

CIVIL CORRIDORS
REST: MILITARY AIRSPACE



Flexible Use of Airspace Programme

Flexible Use of Airspace Programme



Route Network Development

- **Short term** — **Annual cycle**

- **Medium term** — **Overlapping 5 year cycles**

  Version 2 1993 - 1998
  Version 3 1996 - 2001
  Version 4 1999 - 2004
  Version 5 2002 - 2007

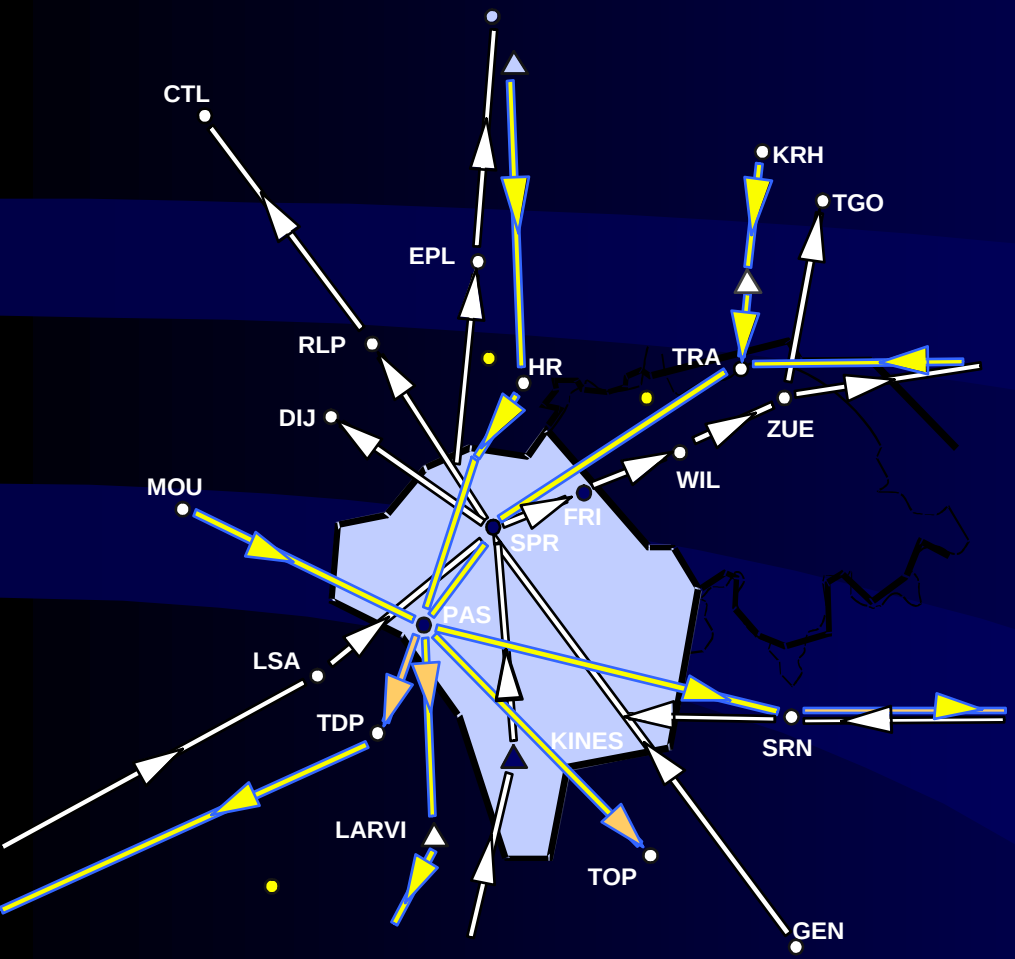
- **Long Term** — **2008 +**

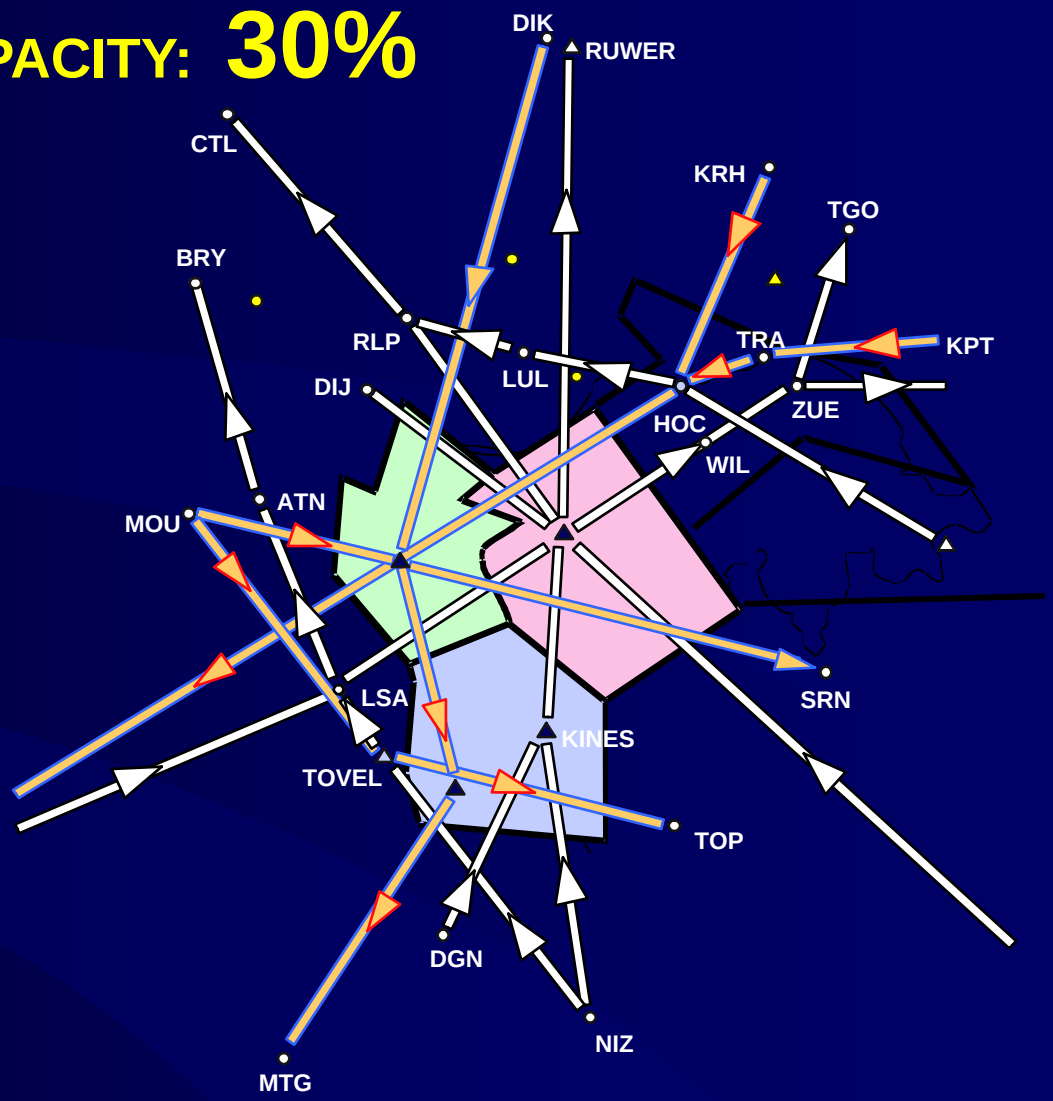
  "Free Routes" Concept

- **Future concept** — **Up to 20 years**

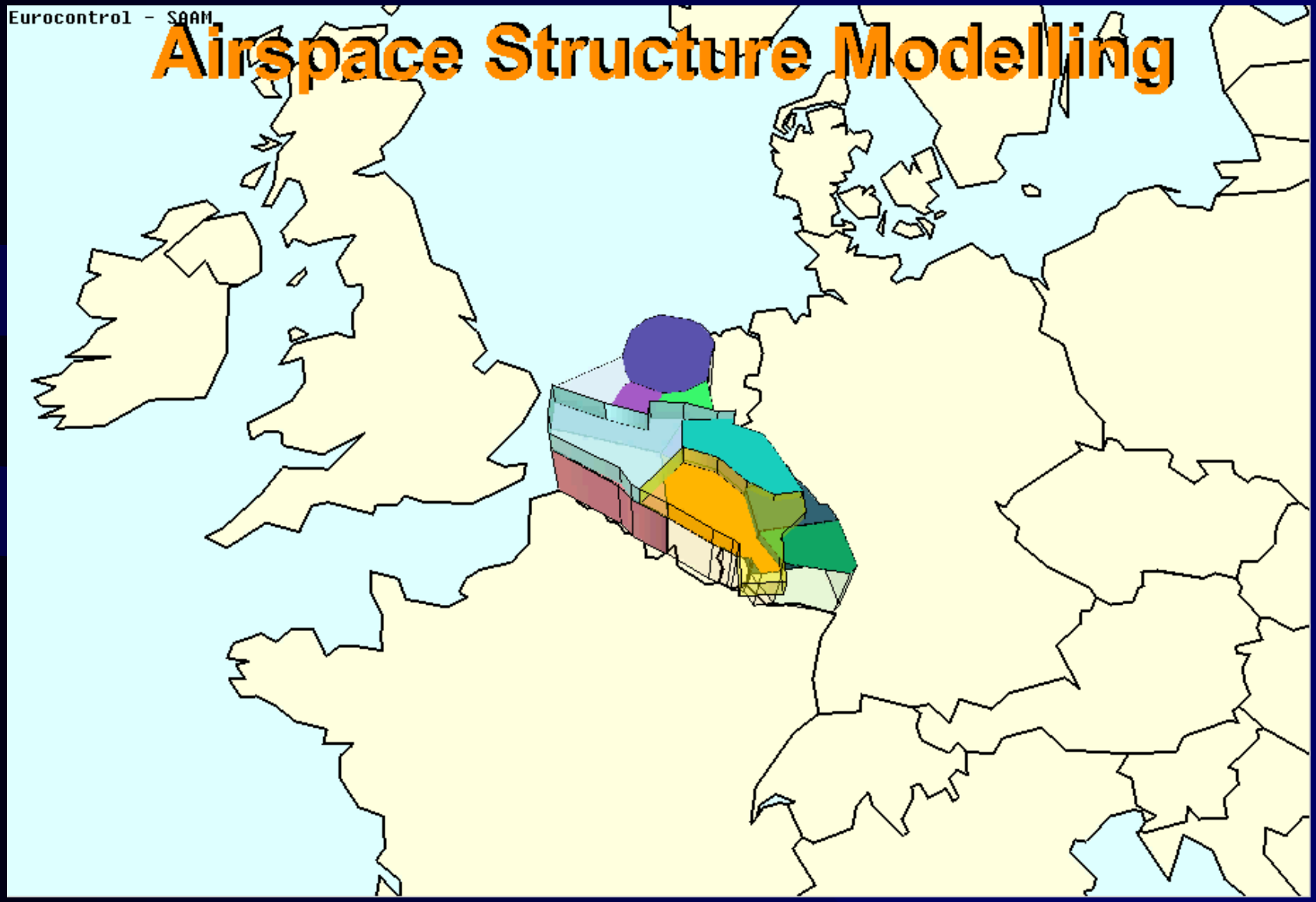
ARN Process: next few years

INCREASE IN CAPACITY: 30%

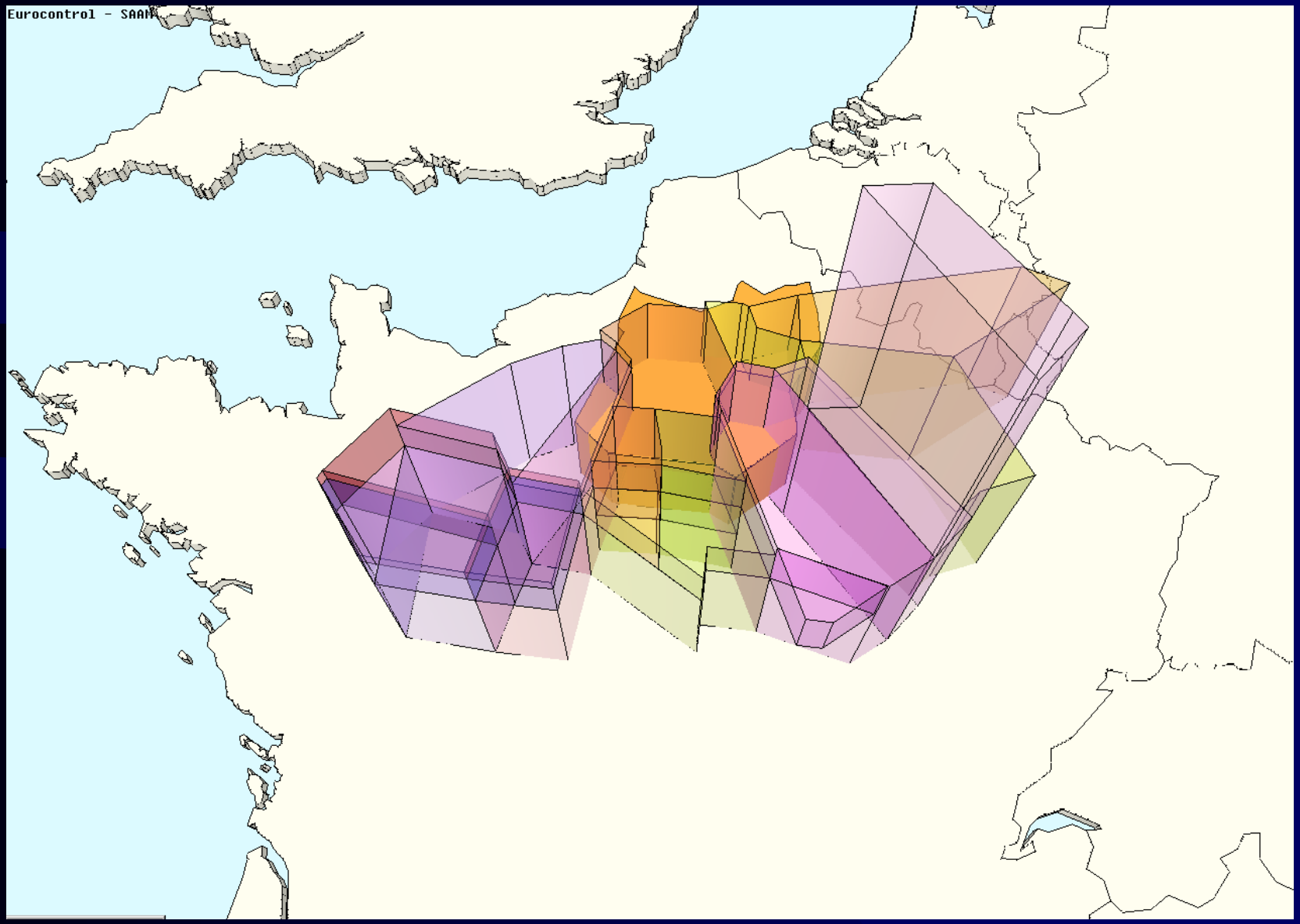




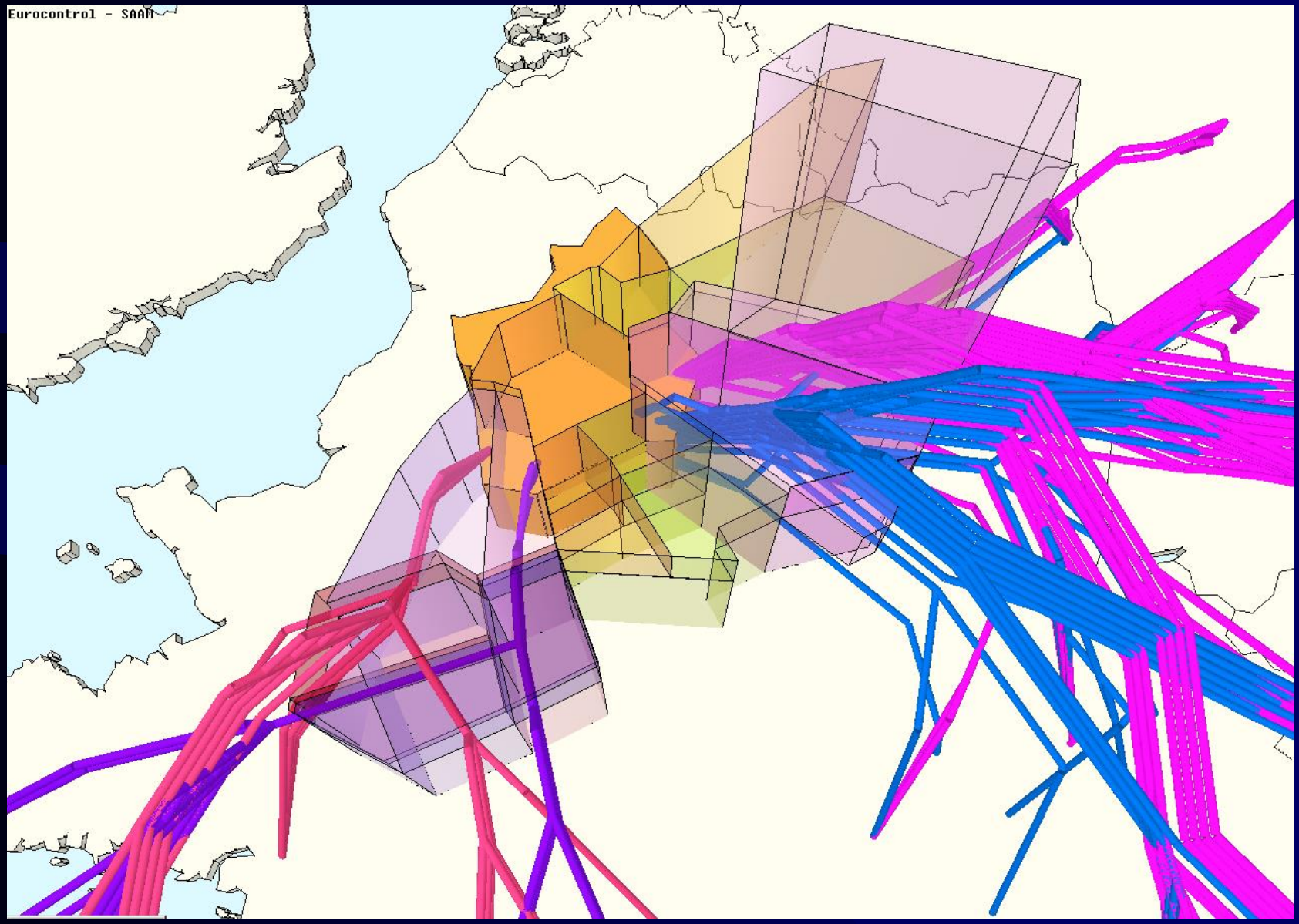
Collaborative Airspace Design Development



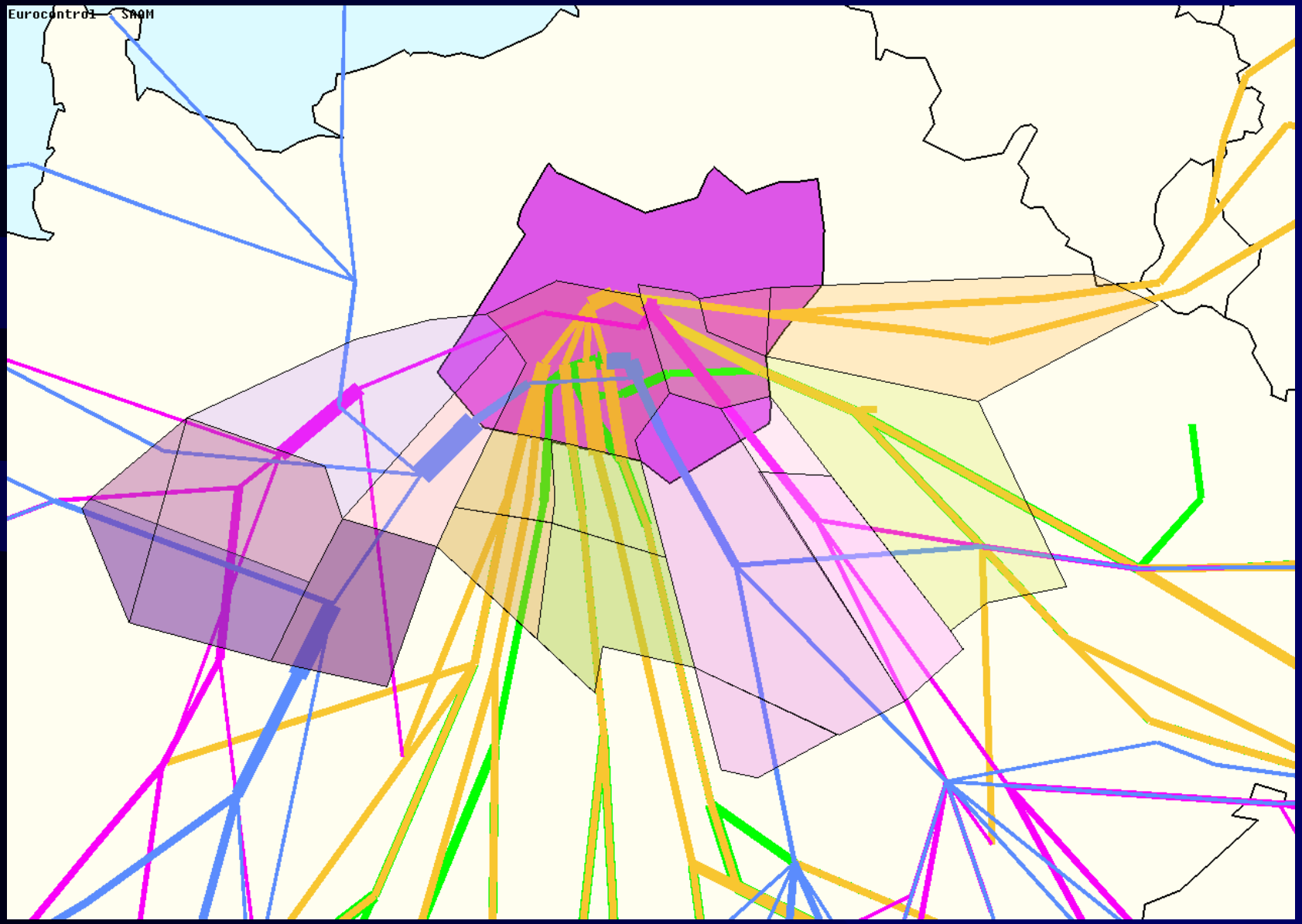
Example of TMA design: Paris



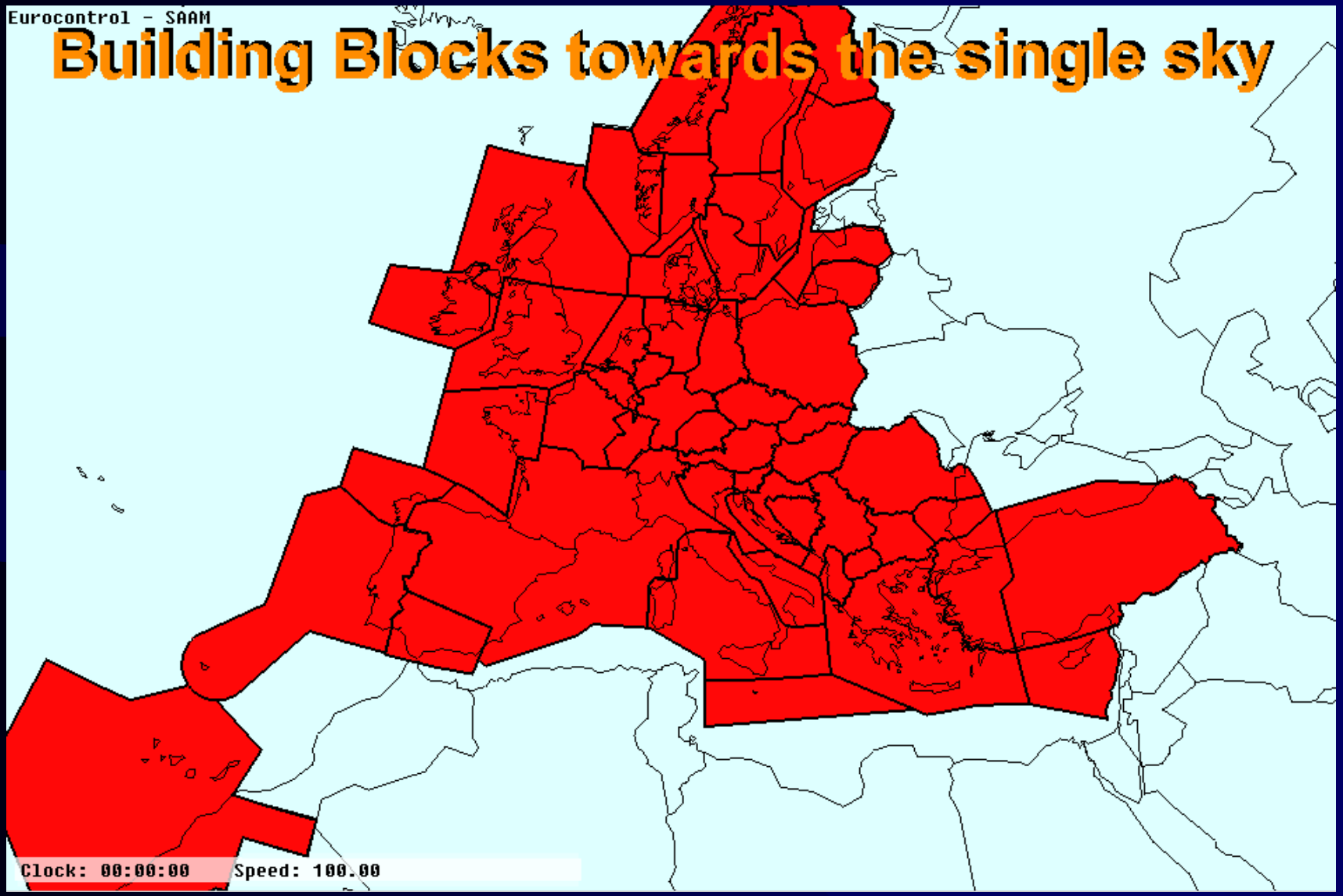
TMA design: Paris arrivals



TMA design: Paris arrivals / departures



Consolidation of European Airspace



European RVSM Programme

Reduced **V**ertical **S**eparation **M**inima

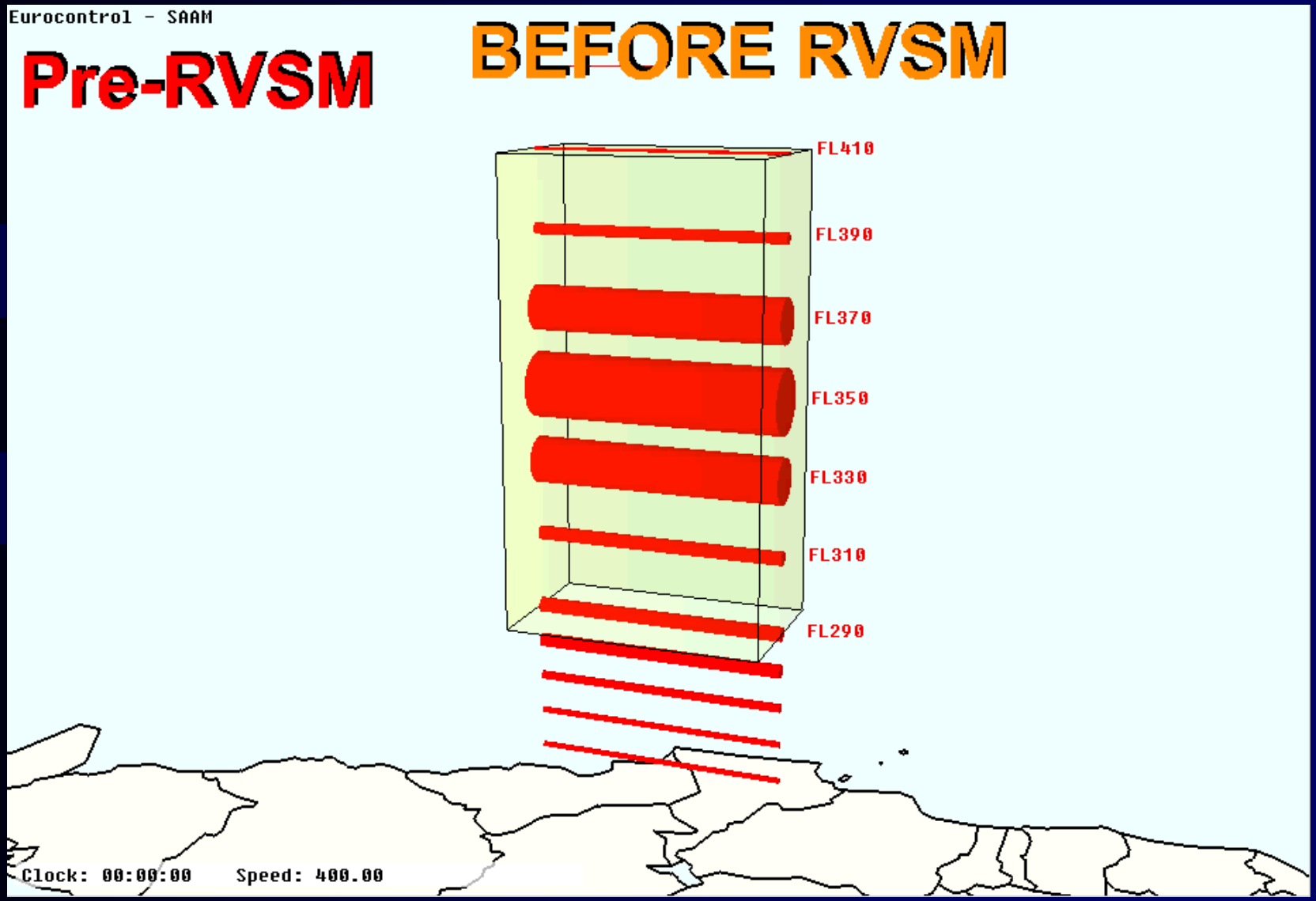
Introduced the 24 January 2002

A major improvement in

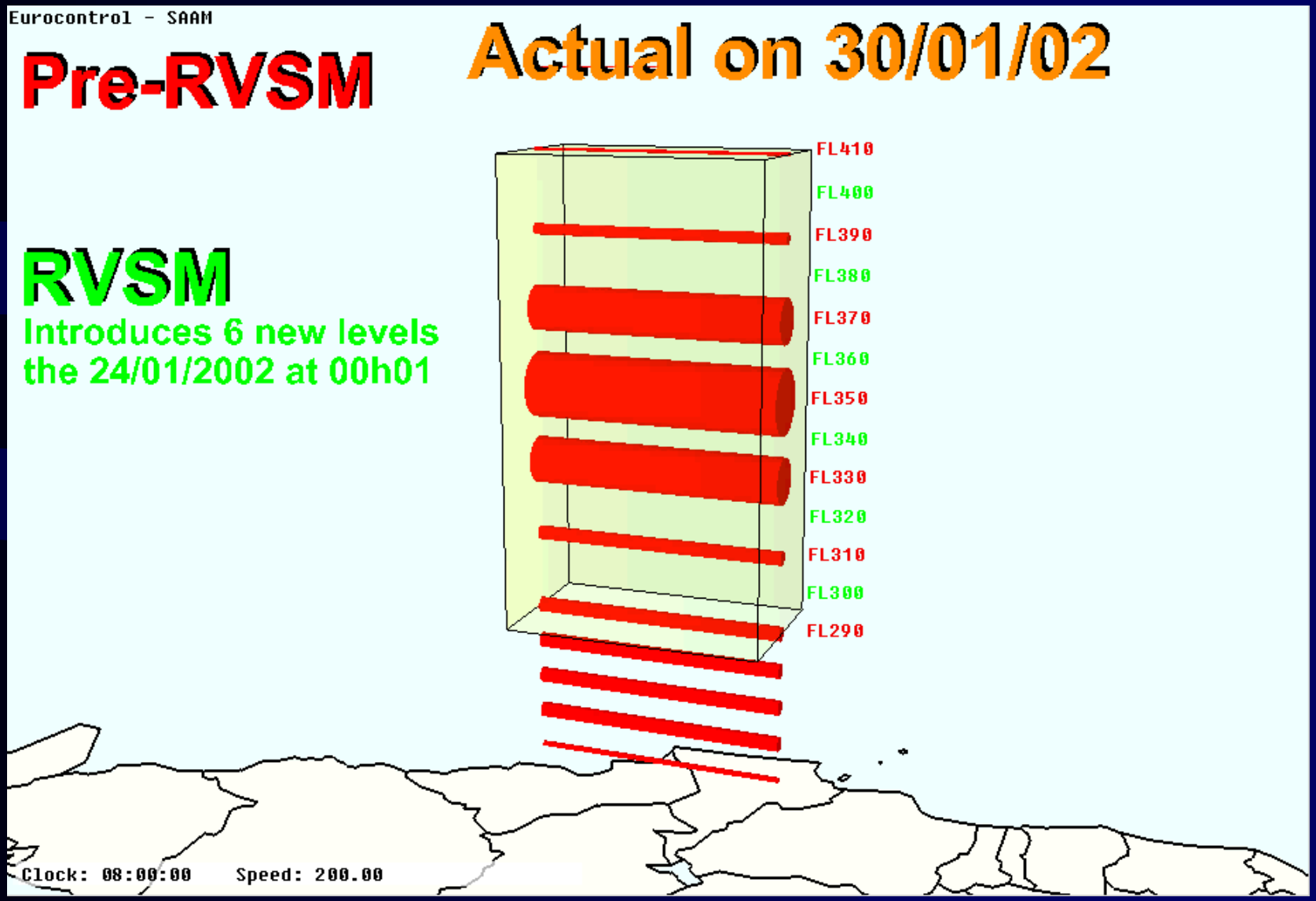
Air Traffic Management

in European Airspace

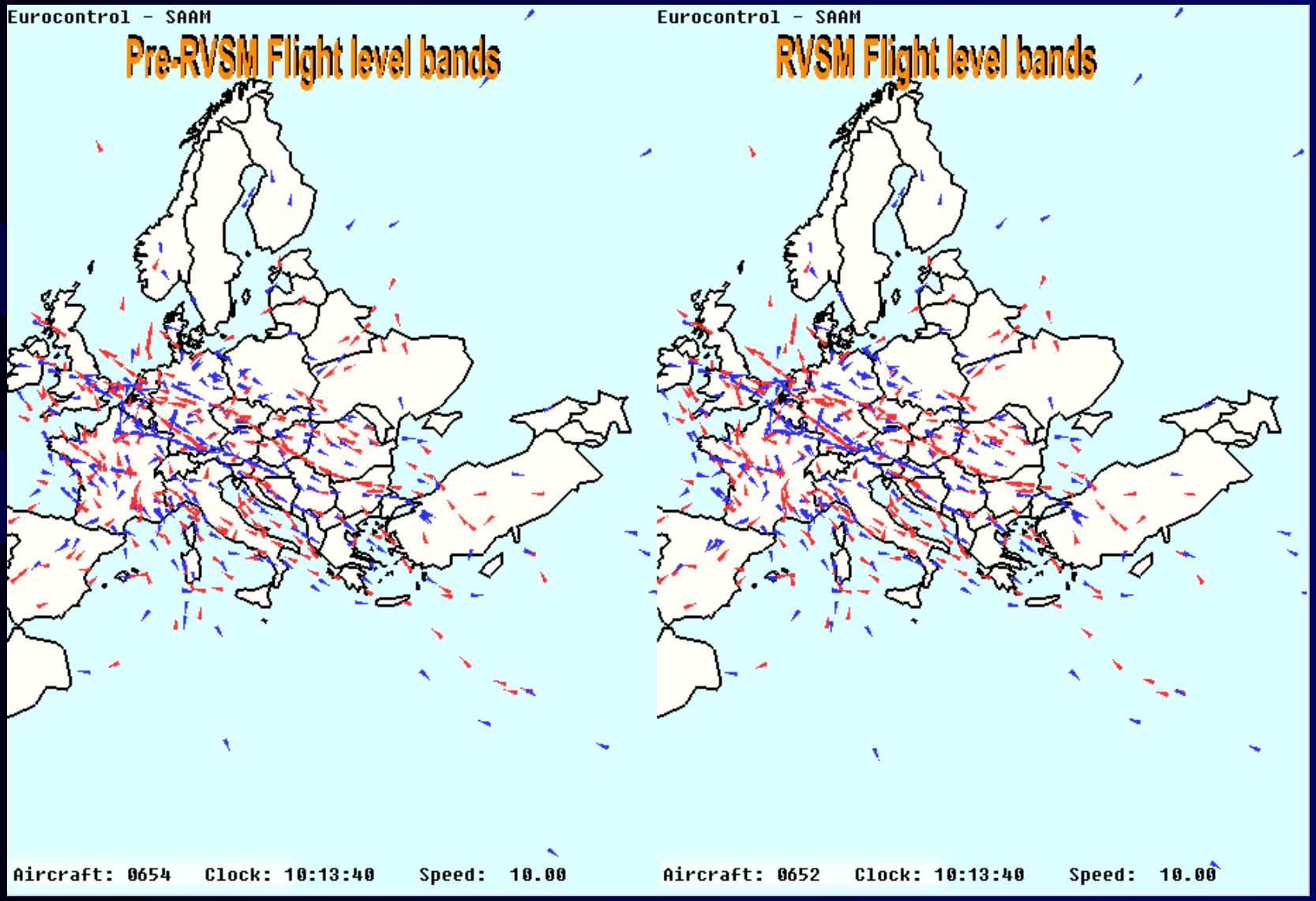
European RVSM Programme



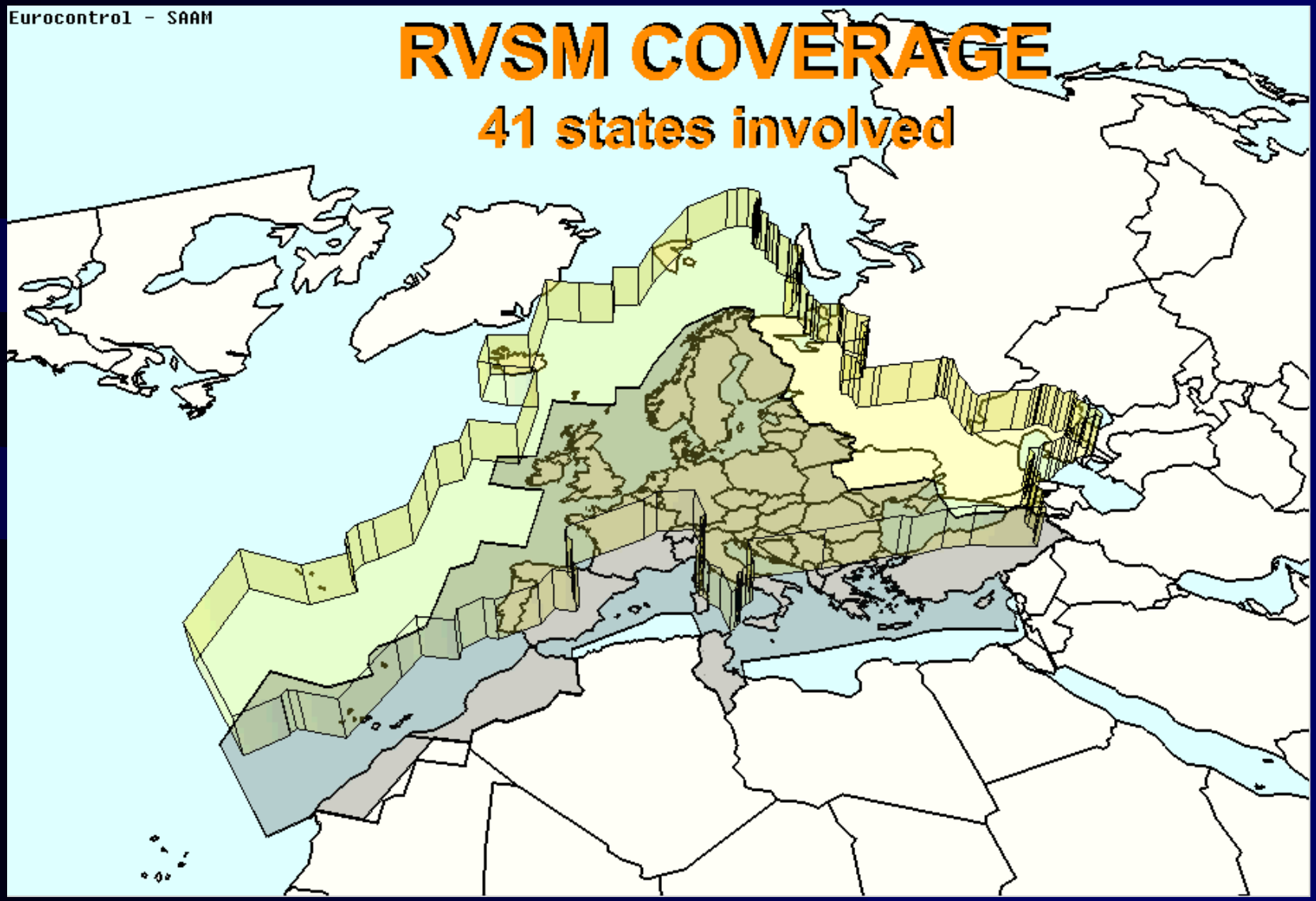
European RVSM Programme



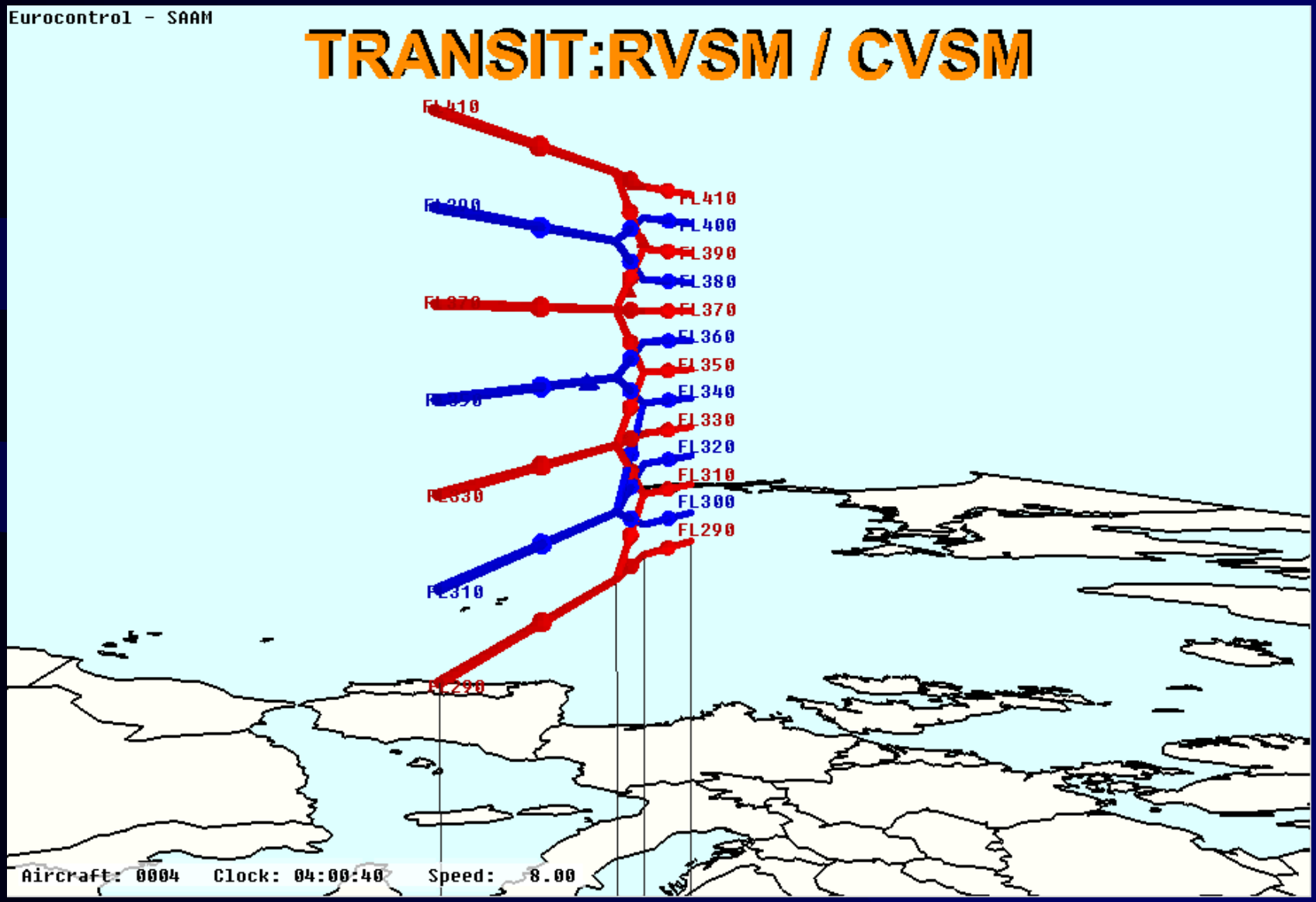
European RVSM Programme



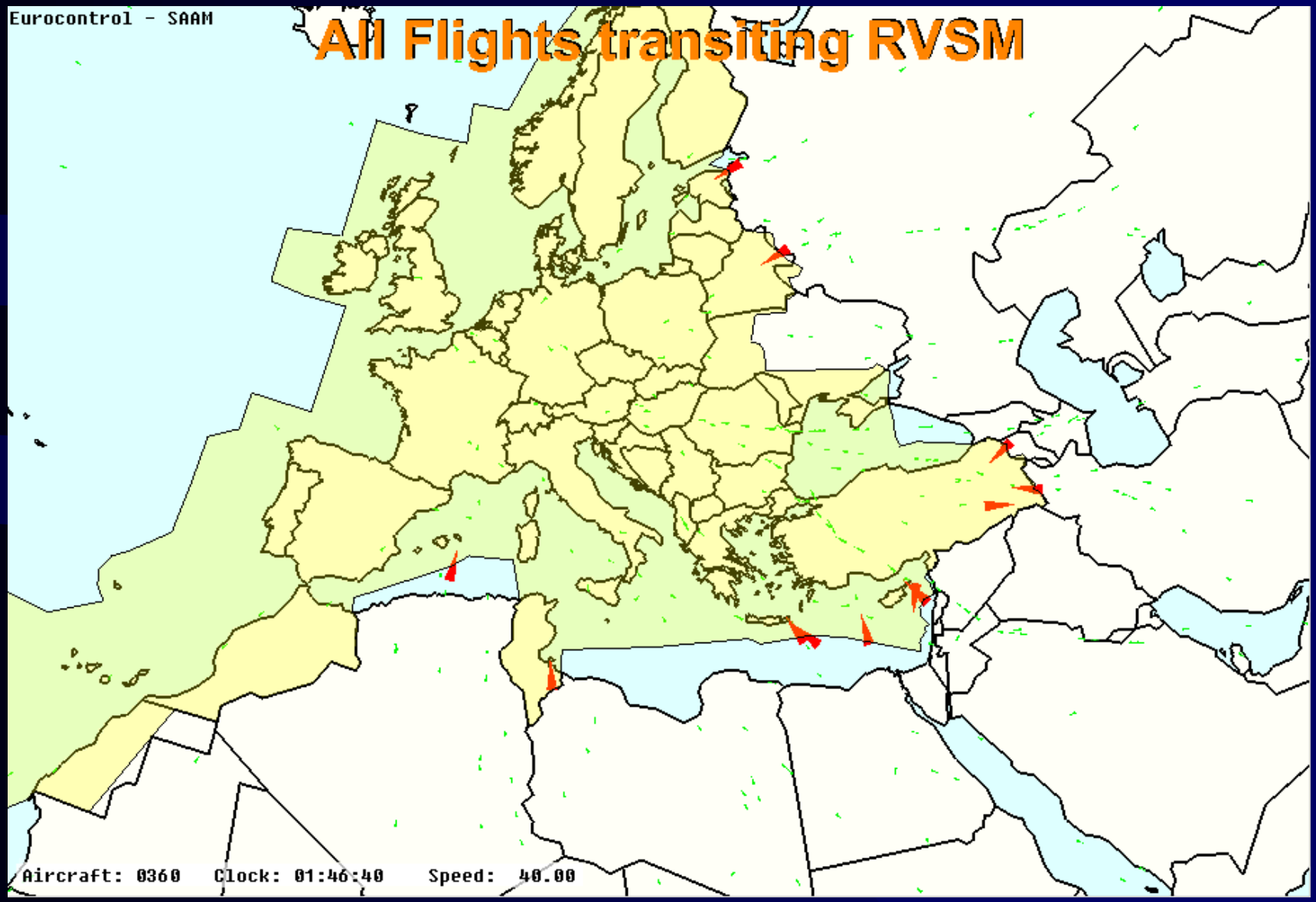
European RVSM Programme



European RVSM Programme: transition



European RVSM Programme: transition



GNSS and Aviation

GNSS provides an important positioning source:

- Single positioning source for Gate to Gate operation
- world-wide

Input to RNAV systems to provide flexible routeing:

- minimise fuel/time/cost
- increase airspace capacity
- reduce environmental impact etc.

Provide improved low visibility operations

But Many Challenges remain

Operational Requirements

Global capability

but architecture must cater for local variation in requirements

- traffic density
- environmental issues
- landing system capabilities

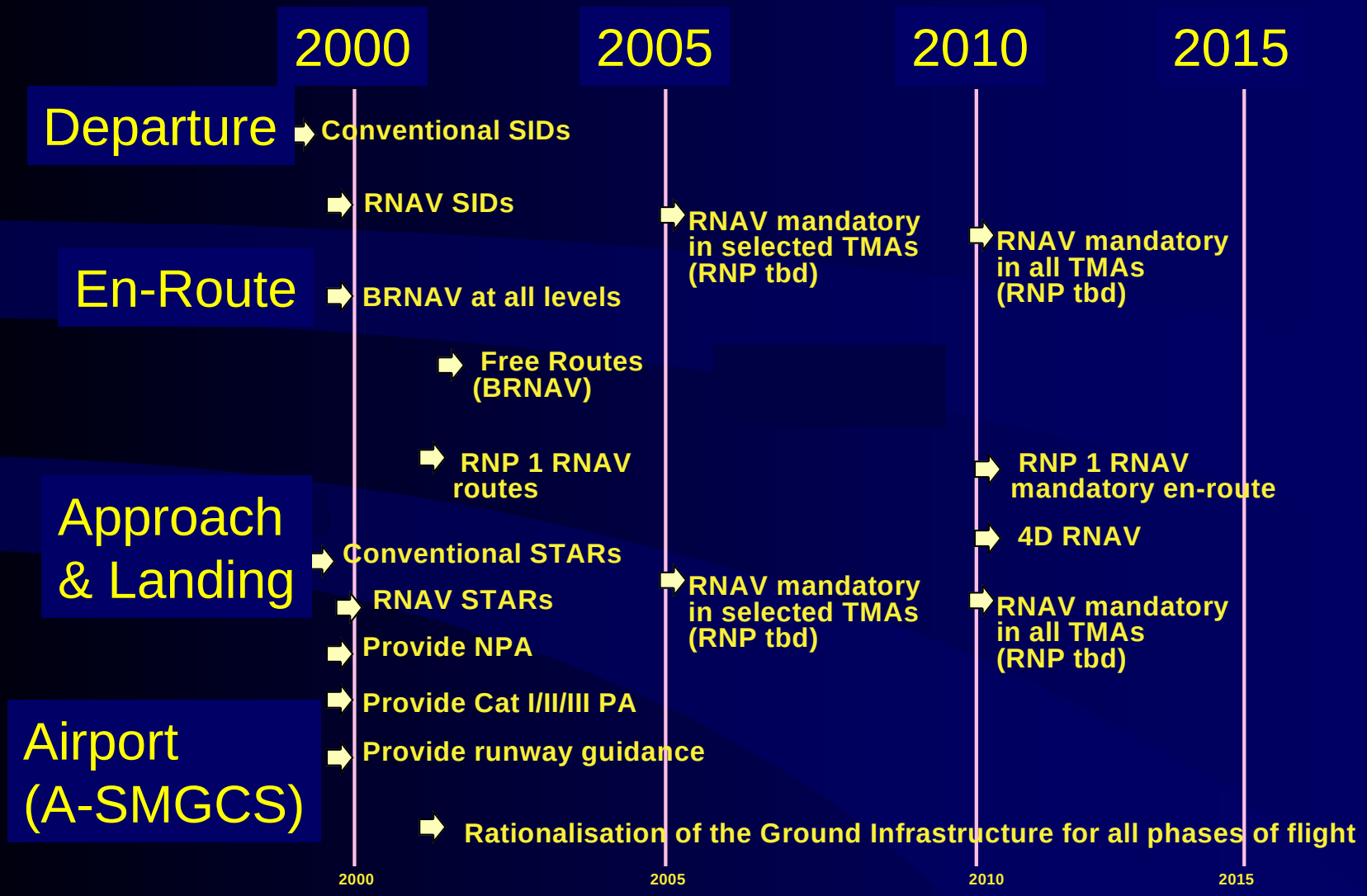
Safe operation:

- accuracy, integrity, continuity of service
- Impact of system failure, dependent upon ATM environment

Cost effective

- Good navigation environment exists in Europe
- GNSS must increase capability or offer lower cost

ECAC Navigation Strategy - Roadmap



ECAC Navigation Strategy - Infrastructure

Issues and Concerns

Institutional

- Global Standards
- Defined liability chain

Service Guarantees

- Level and quality of service
- Costs/pricing

Cost allocation

- Fair attribution of costs
- recognise that aviation has high quality navigation environment. GNSS must provide advantages
- residual ground based system expected to remain for disaster recovery

Transition Planning

Global issue

- Safe and cost effective transition
- Identify residual infrastructure requirements
- decommission unnecessary aids

But need more than GNSS:

- RNAV systems of required integrity
- high integrity co-ordinate data
- ATM developments to maximise use of Nav capability

Conclusion

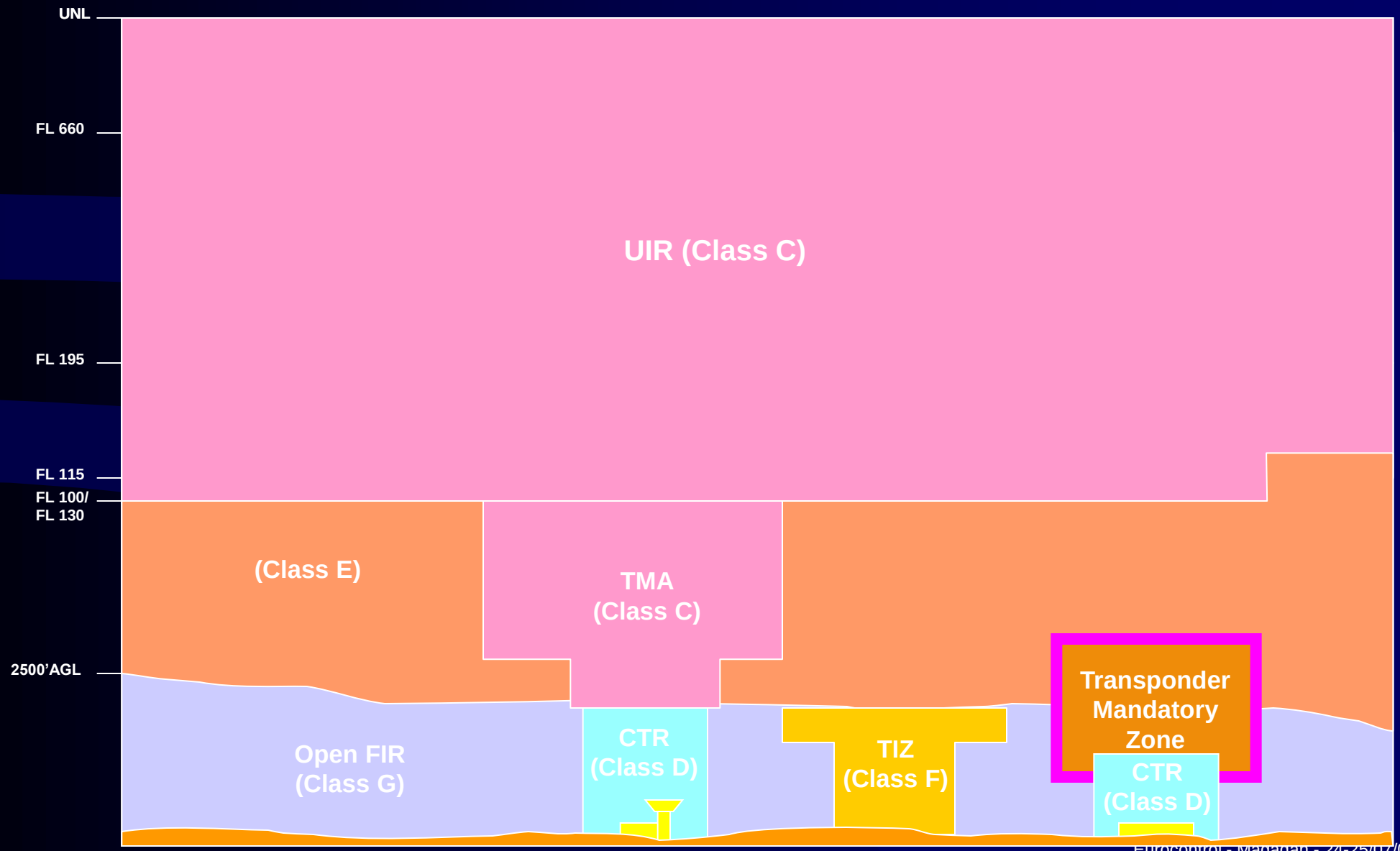
- GNSS is an important part of the present and future Navigation environment
- EUROCONTROL working with Stakeholders to ensure aviation's voice clear
- Learning how to work with a system not dedicated to aviation

But

- Maintaining a safe operation is a prime requirement
- Several concerns remain which need to be addressed before the full advantages can be realised

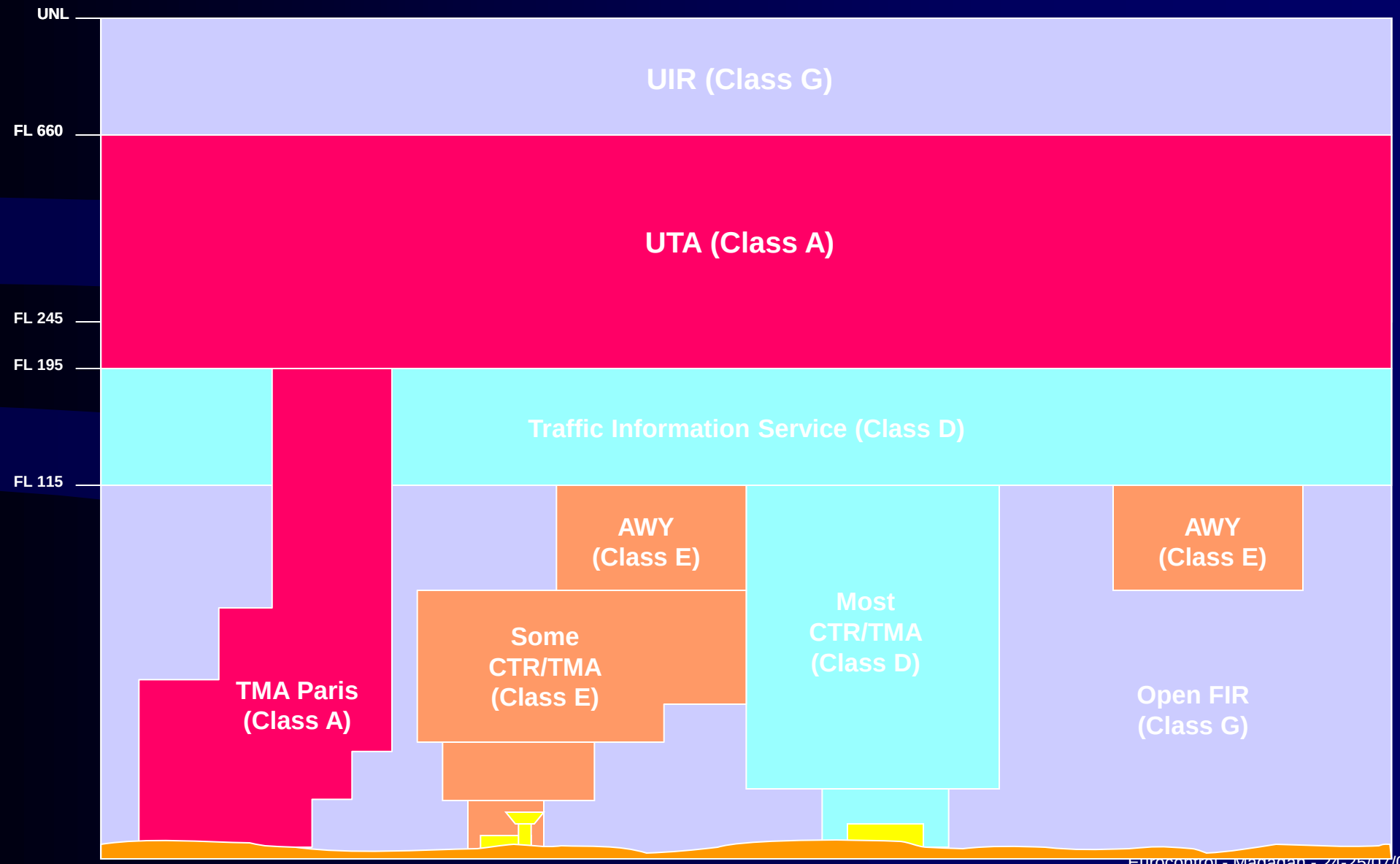
Lack of Harmonised Airspace Structure

Current Airspace Organisation in Germany



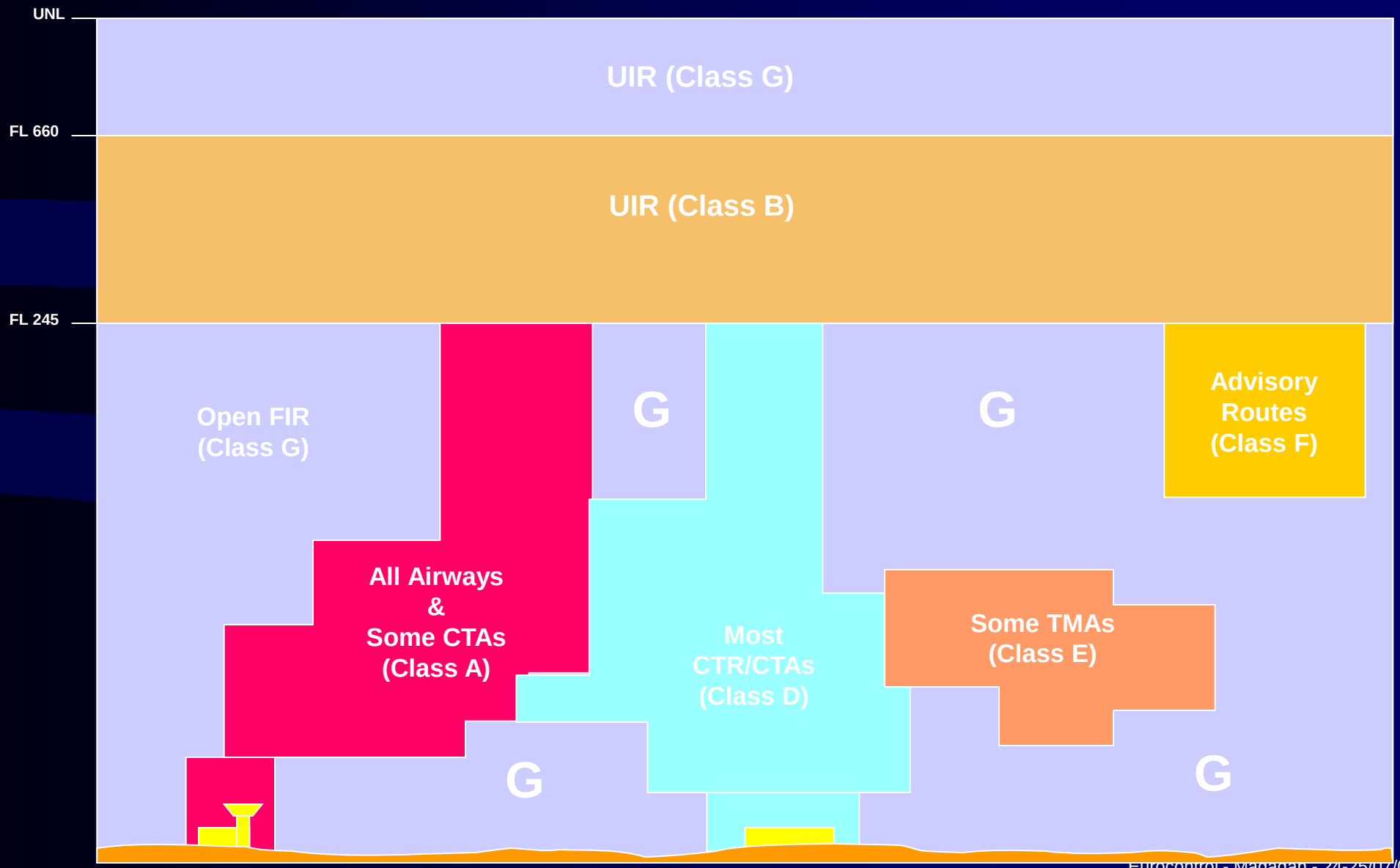
Lack of Harmonised Airspace Structure

Current Airspace Organisation in France



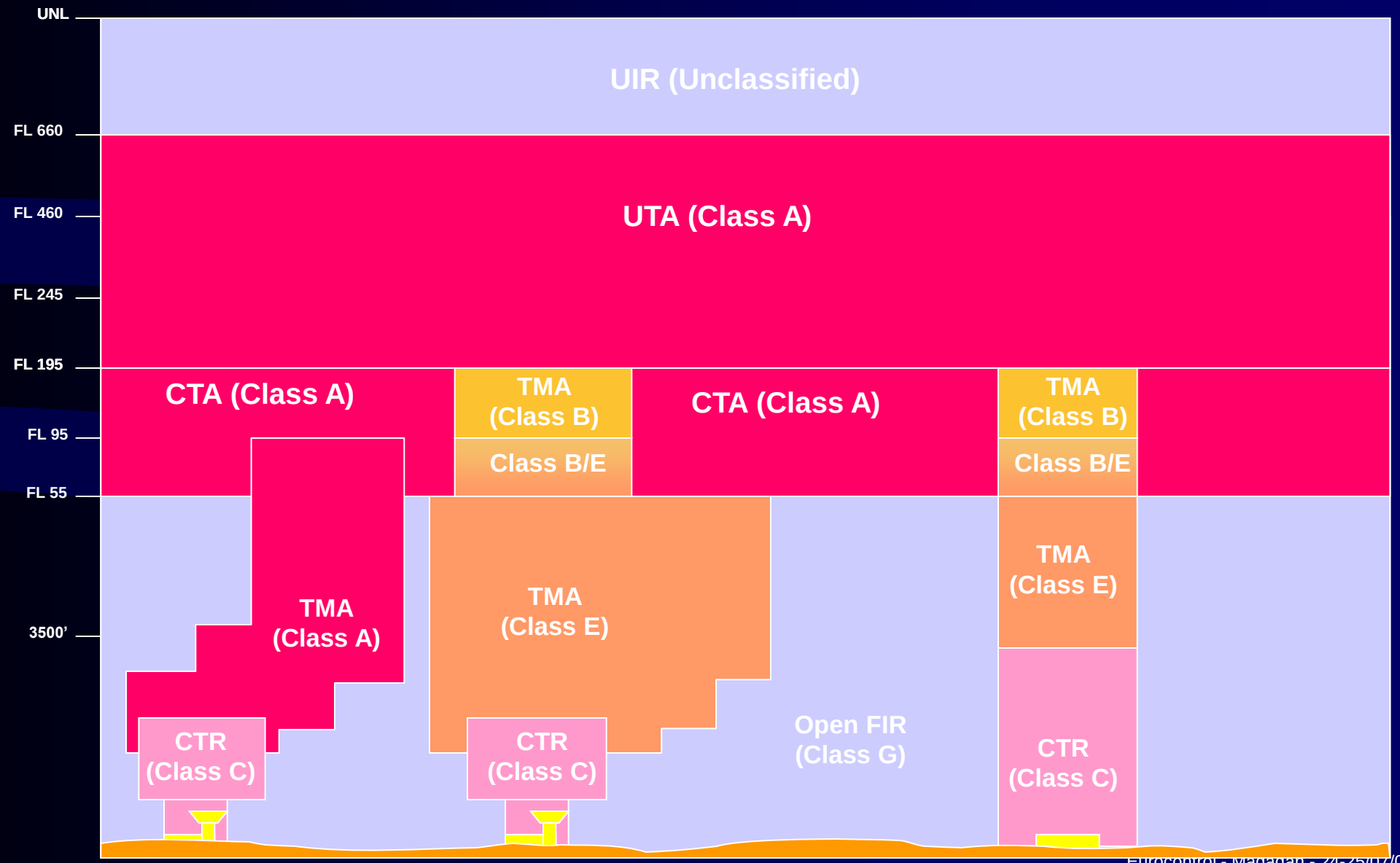
Lack of Harmonised Airspace Structure

Current Airspace Organisation in the United Kingdom

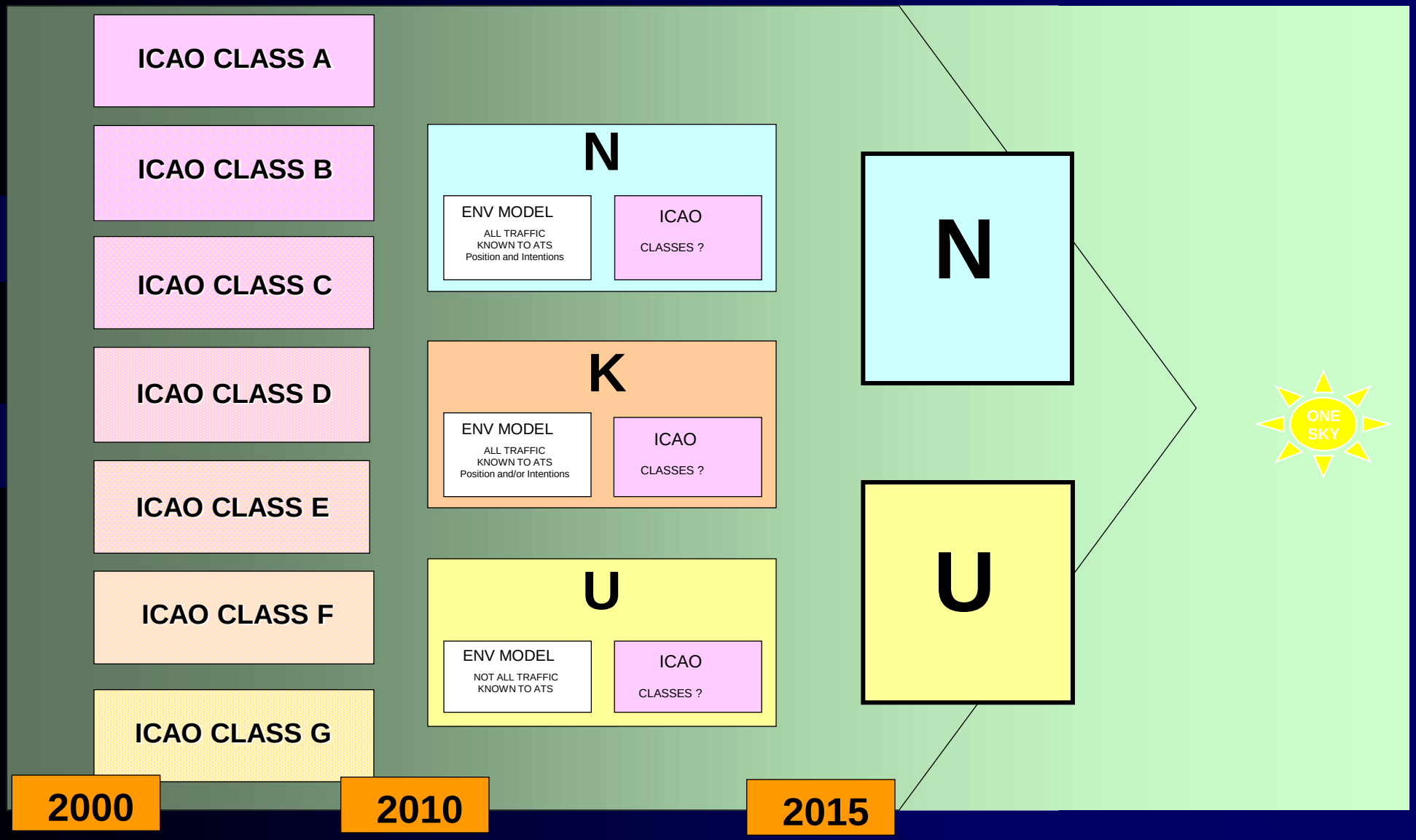


Lack of Harmonised Airspace Structure

Current Airspace Organisation in the Netherlands



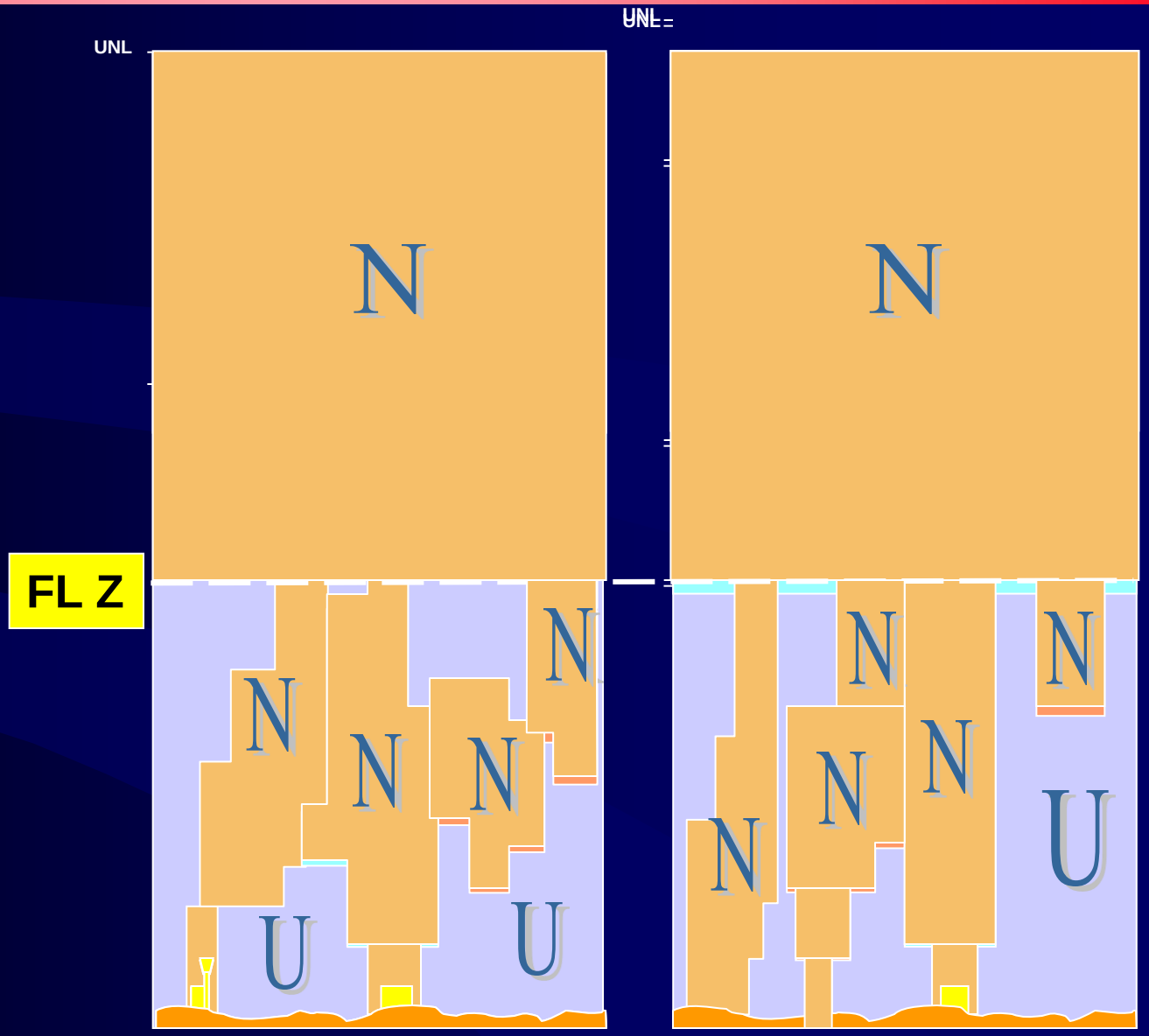
Simplification of Airspace Designation



Strategic Steps towards a Simplified Airspace Organisation

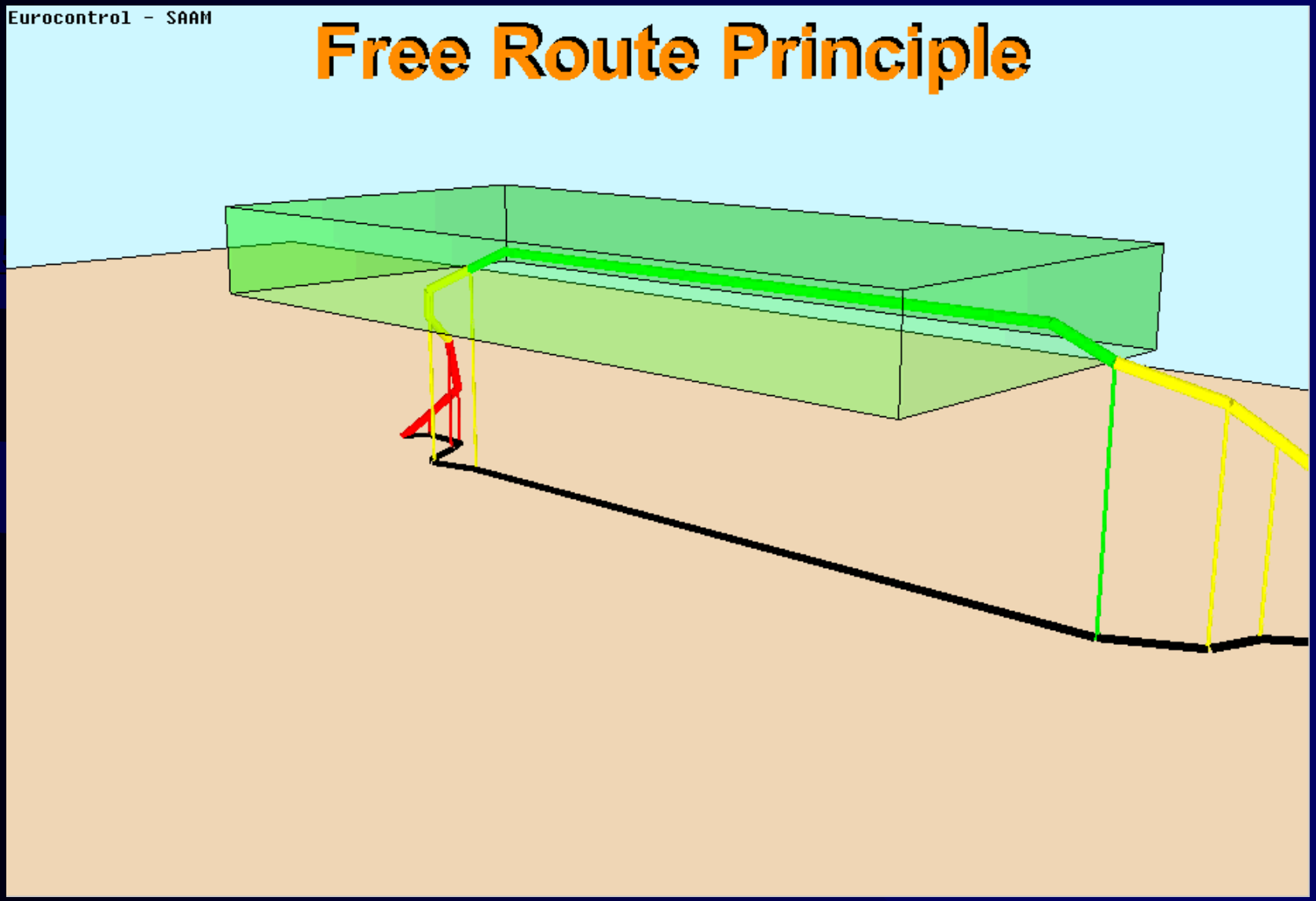
Fictitious Example of a New Airspace Organisation

- ☆ Harmonise ICAO Airspace Classification of all Upper ECAC Airspace above a Common Agreed Level
- Harmonise and Simplify Application of ICAO Classification in all ECAC Airspace
- Reduce Number of Airspace Categories to only <u>three</u> Types (N, K, U)
- Harmonise/Reduce vertical airspace division to a common base level
- Reduce Number of Airspace Categories to only tow types (N & U)



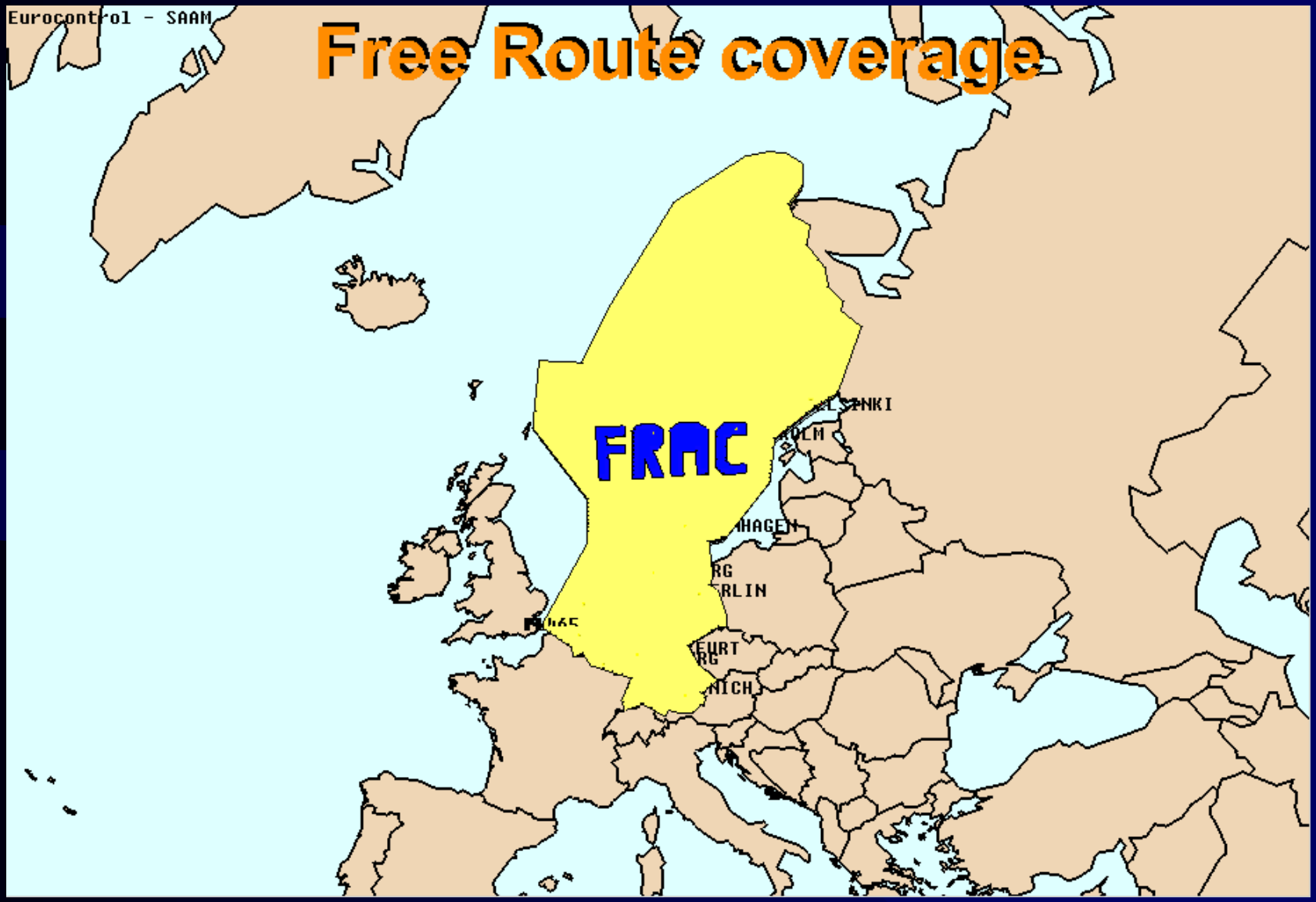
2015

Free Route Flight Profile

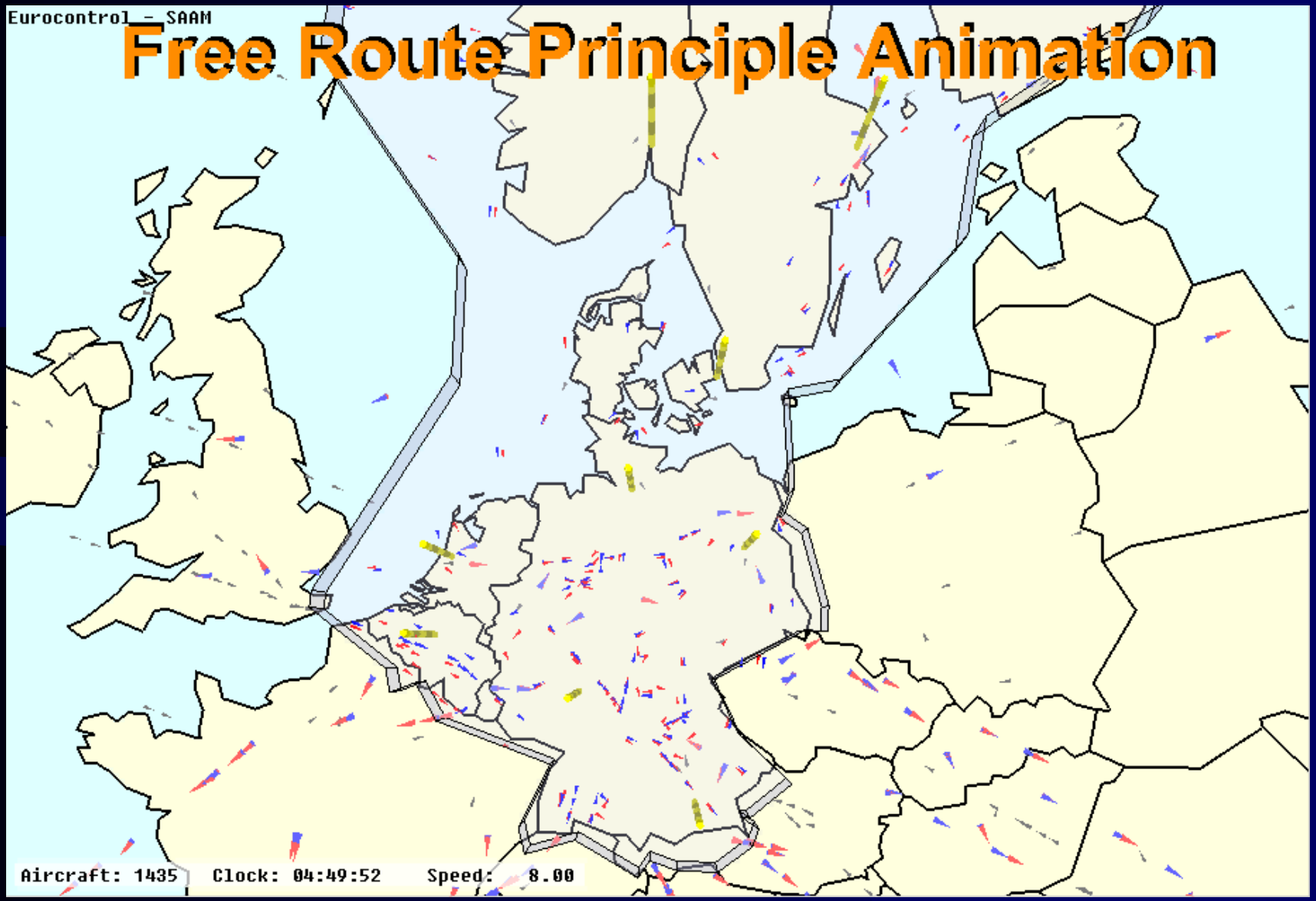


FL 33

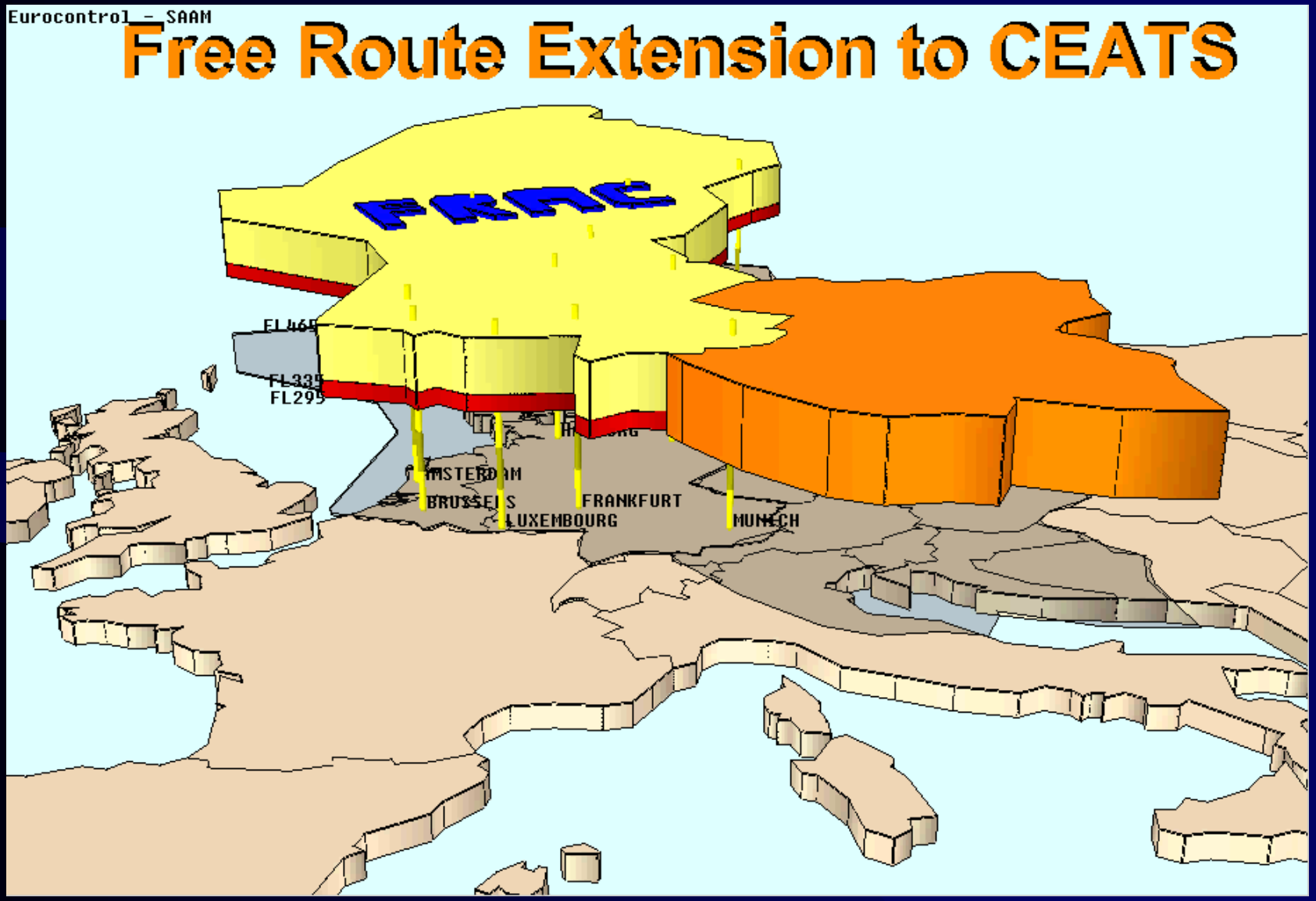
8 States Free Routes Airspace



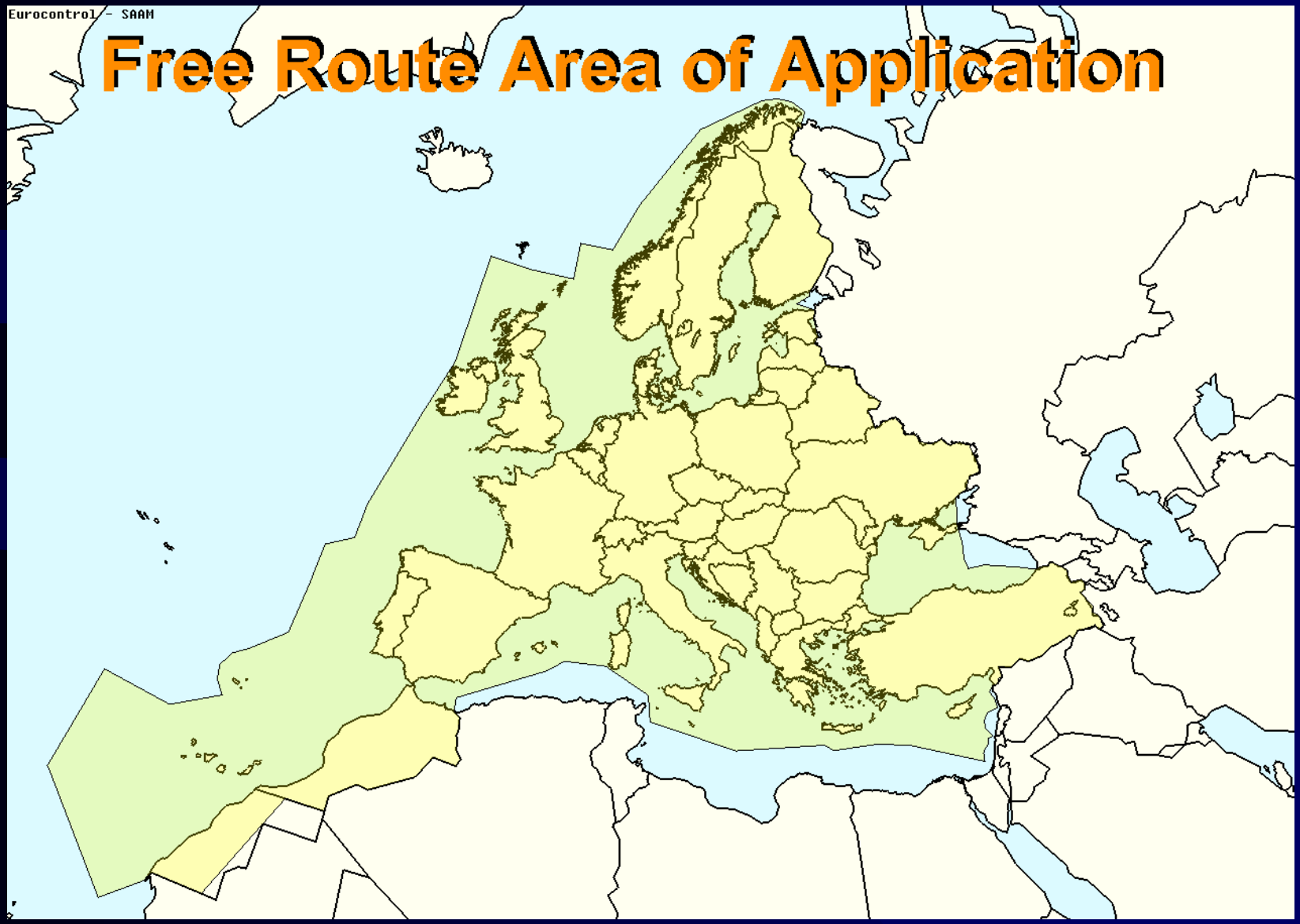
Free Route Airspace Traffic Animation



Free Route with CEATS Airspace



Free Route within European Airspace



Capacity Increase

These Airspace and Navigation initiatives are expected to increase the en-route airspace Capacity around 2006-2008 by about

70 %

Thus the en-route capacity problem will cease to exist

But…….. it requires that

a) A simplified, common and pan-European airspace design and classification can be implemented (EUROCONTROL's Airspace Strategy for the ECAC States)

and

b) a common pan-European management of the airspace can be agreed and implemented

Three problem areas to be addressed:

→ Military traffic

→ Perceived sovereignty issues

→ Traffic = revenue to ATS Providers