ENVIRONMENTAL BENEFITS FROM IMPROVED OPERATIONAL MEASURES

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EUROCONTROL

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Air Traffic Emissions Estimates
EU 27 States 2004-2006 – Tonnes of CO_2

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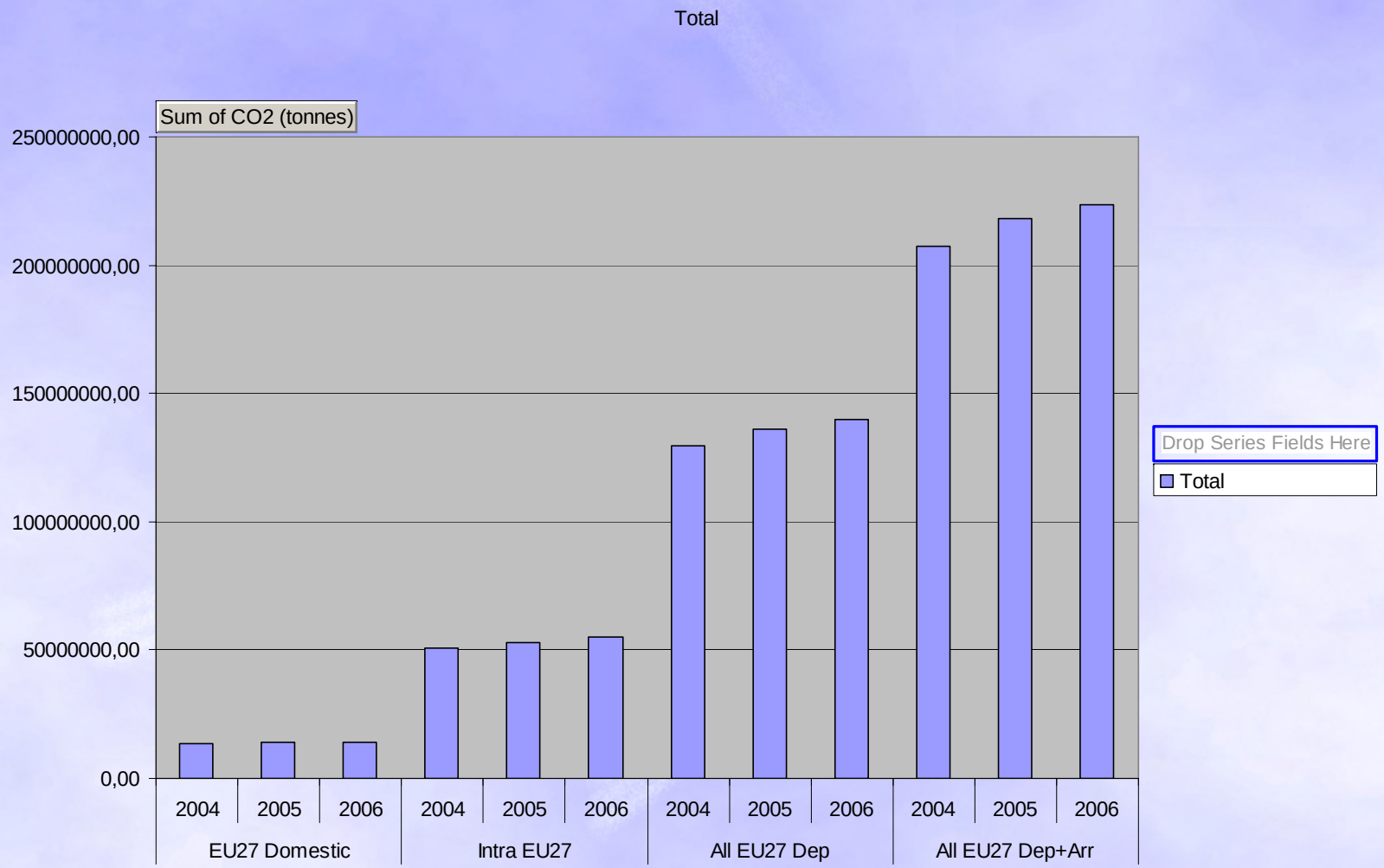
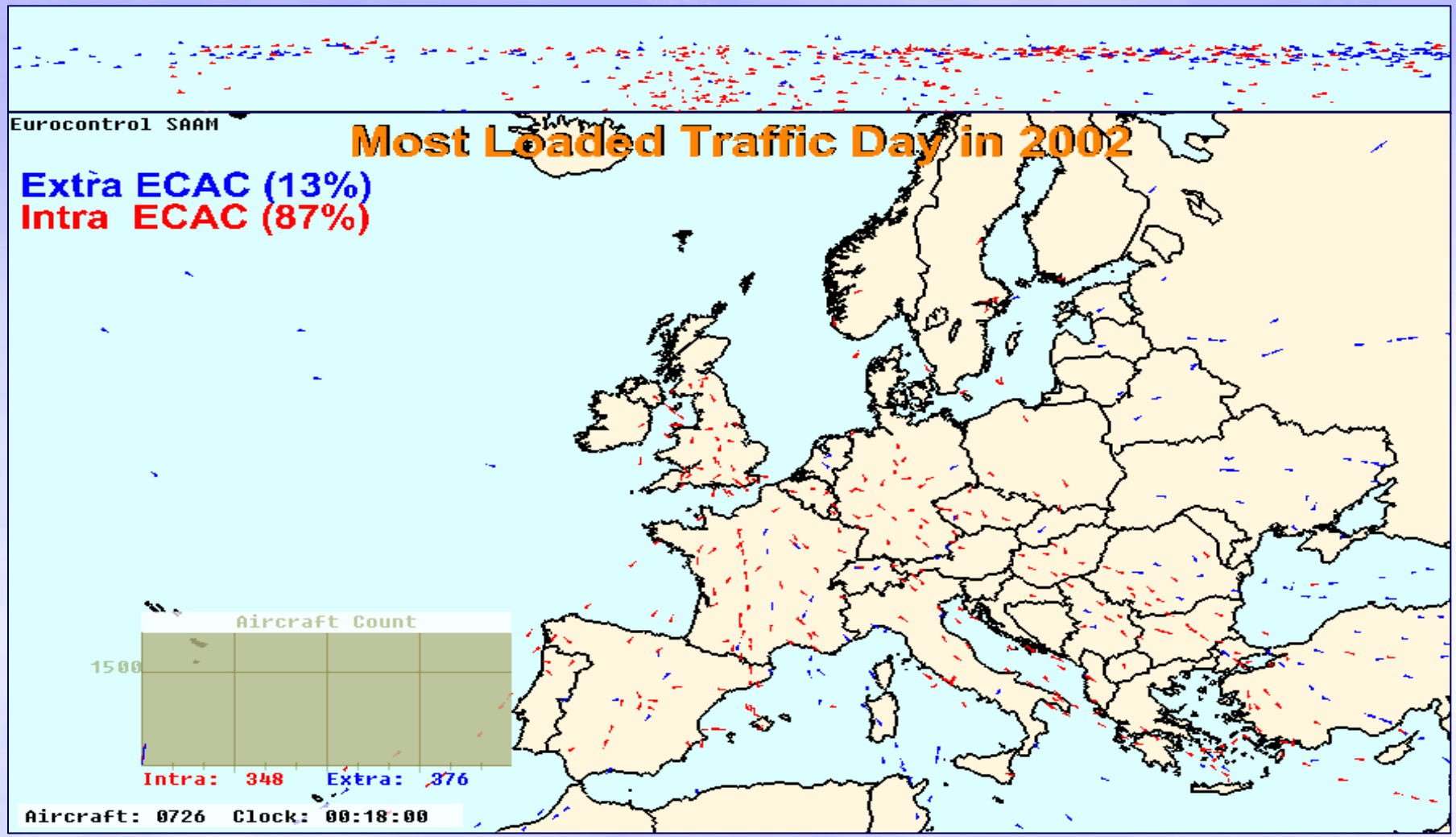
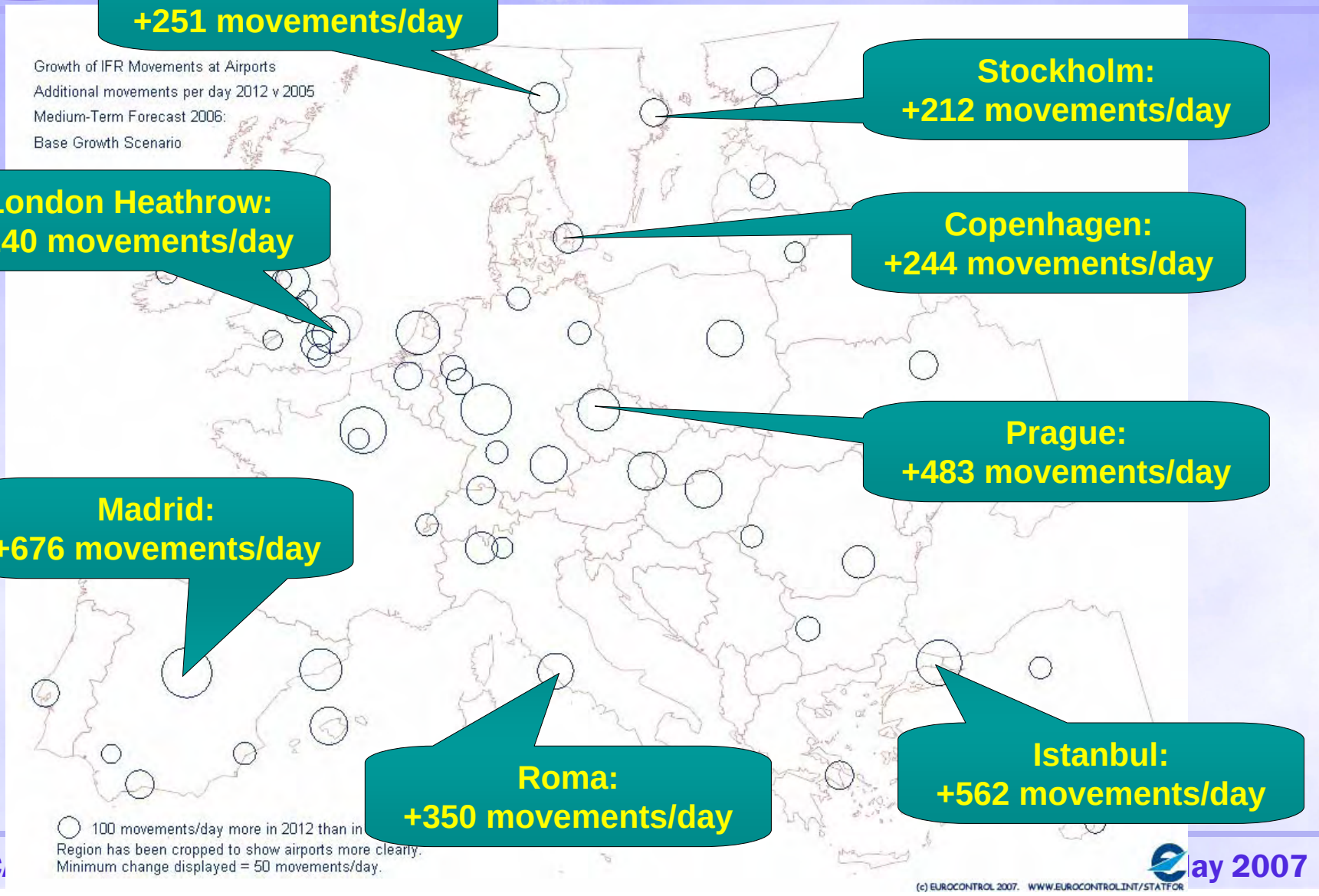


Society's Demand For Mobility
24 Hours of European Air Traffic



EUROCONTROL
Medium-term Traffic Forecast
Increase in movements/day 2005-2012



Oslo:
+251 movements/day

Stockholm:
+212 movements/day

London Heathrow:
+240 movements/day

Copenhagen:
+244 movements/day

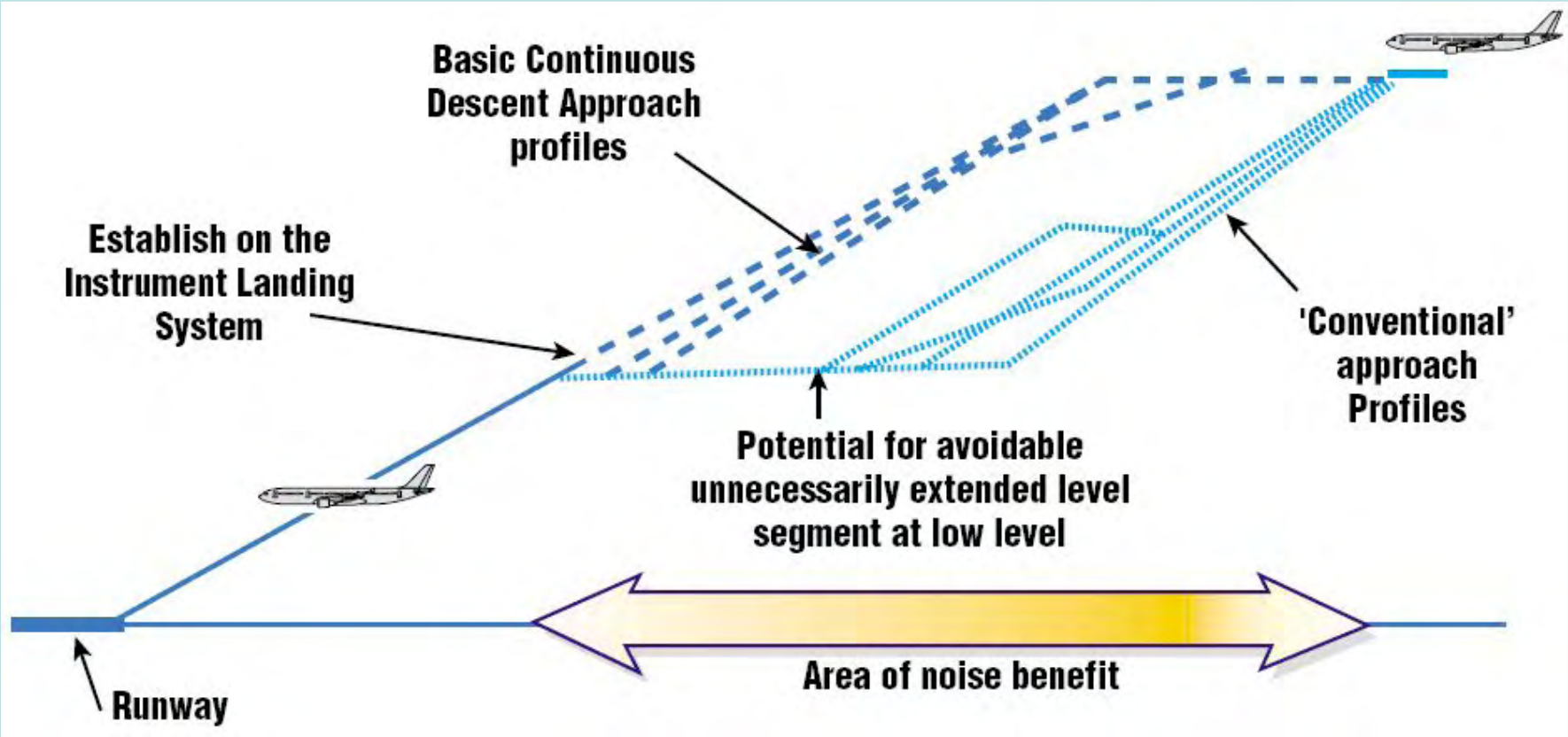
Prague:
+483 movements/day

Madrid:
+676 movements/day

Roma:
+350 movements/day

Istanbul:
+562 movements/day

Operational emissions reduction measures
Continuous Descent Approach (CDA)

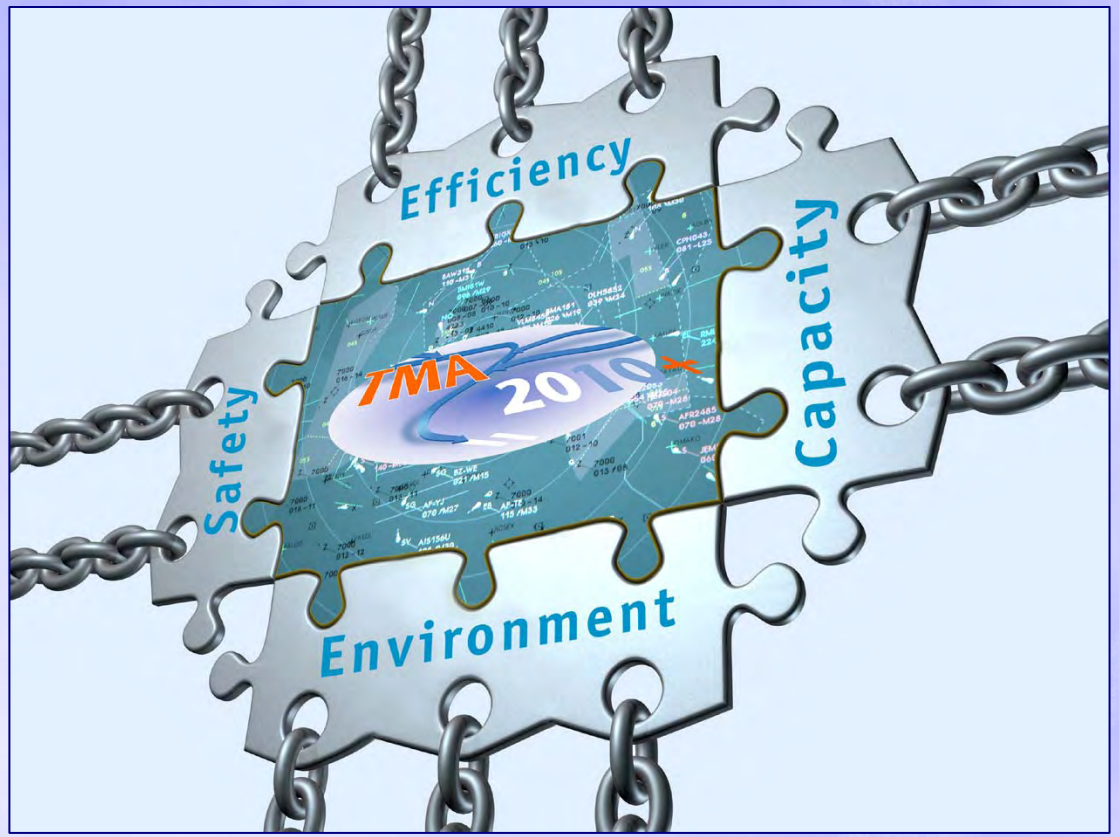


- Keep aircraft higher for longer
- Reduce occurrence of level flight
- Noise, fuel burn & emissions reductions

CDA Implementation Support
Harmonised Guidance Material

- EUROCONTROL
  - CDA Stakeholder Focus Group
  - Airspace Users, Regulators, Air Navigation Service Providers
  - Guidance Material July 2007
  - Implementation Support from 2008
- ICAO-CAEP
  - Working Group 2
  - EUROCONTROL participation
  - Technical report to CAEP/8
  - Review of noise abatement projects

TMA2010+
Optimising terminal airspace operations

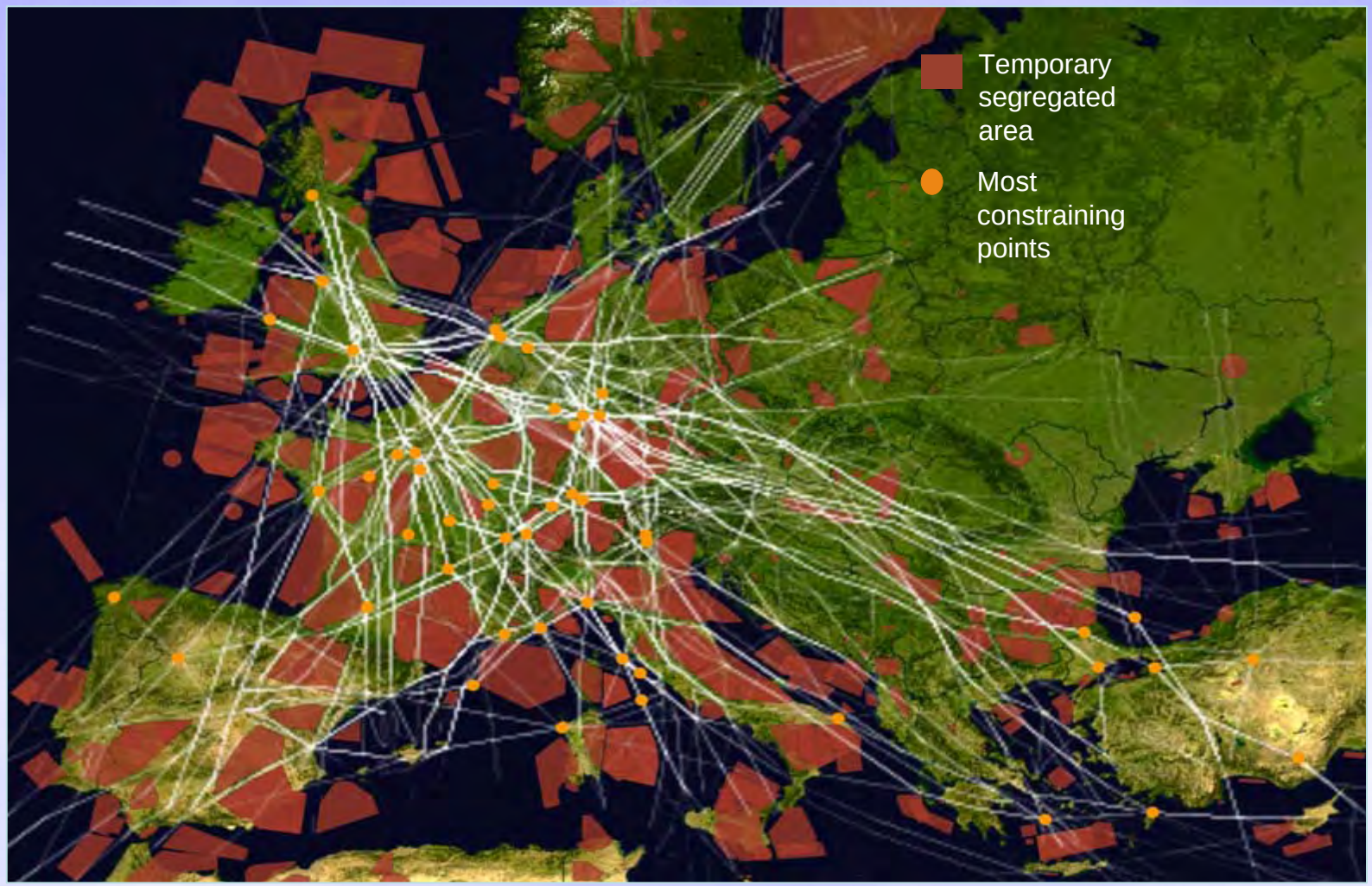


OUR AIM

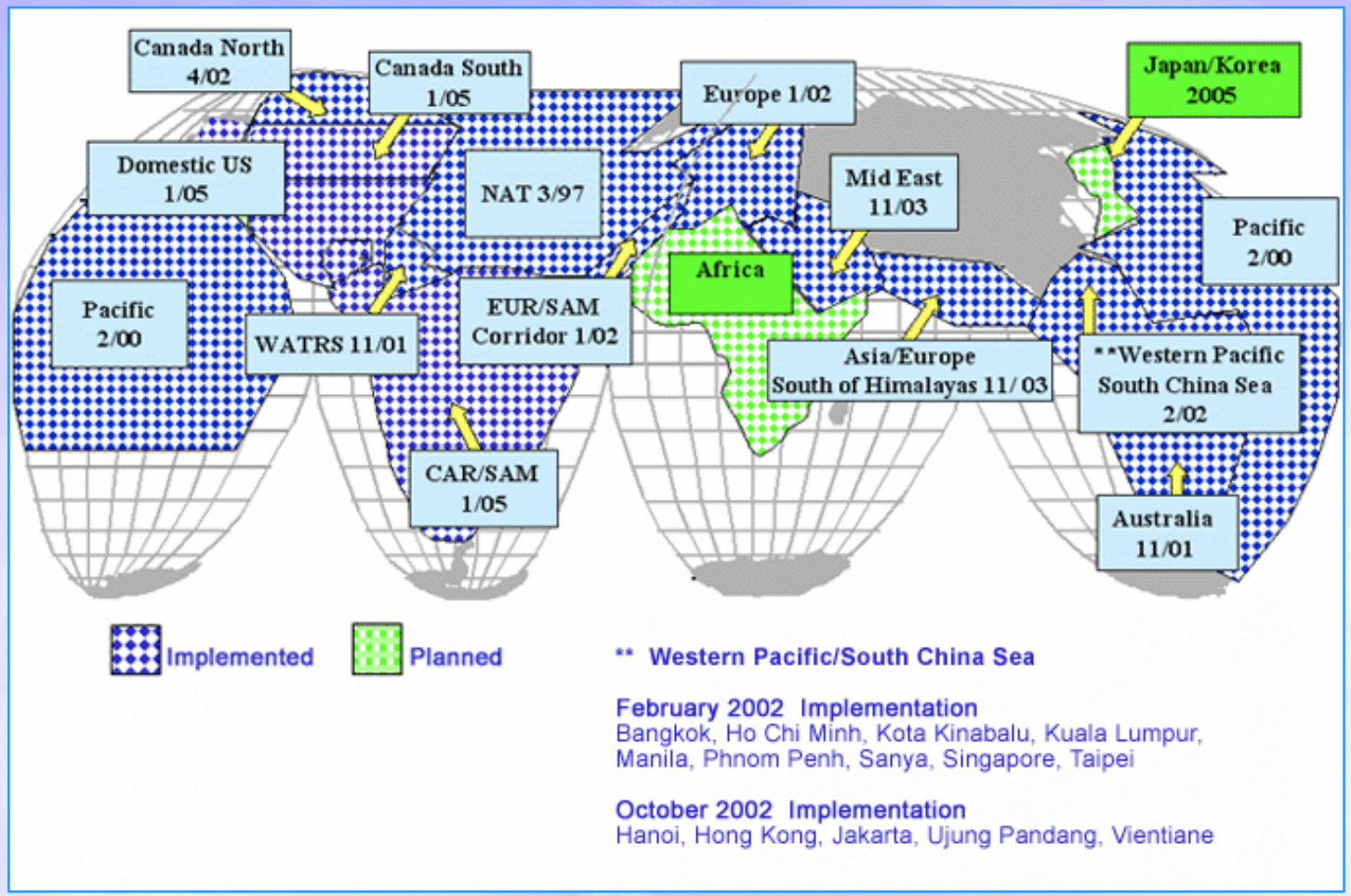
To optimise terminal operations by:

- Utilising existing aircraft navigation capabilities (PRNAV)
- Enabling greater use of Continuous Descent Approach procedures
- Providing required controller support tools

Network Efficiency
Actual traffic routing



RVSM
World-wide Implementation Status



Source: FAA - http://www.faa.gov/ats/ato/status_ww.htm

RVSM Environmental Impact Analysis Summary

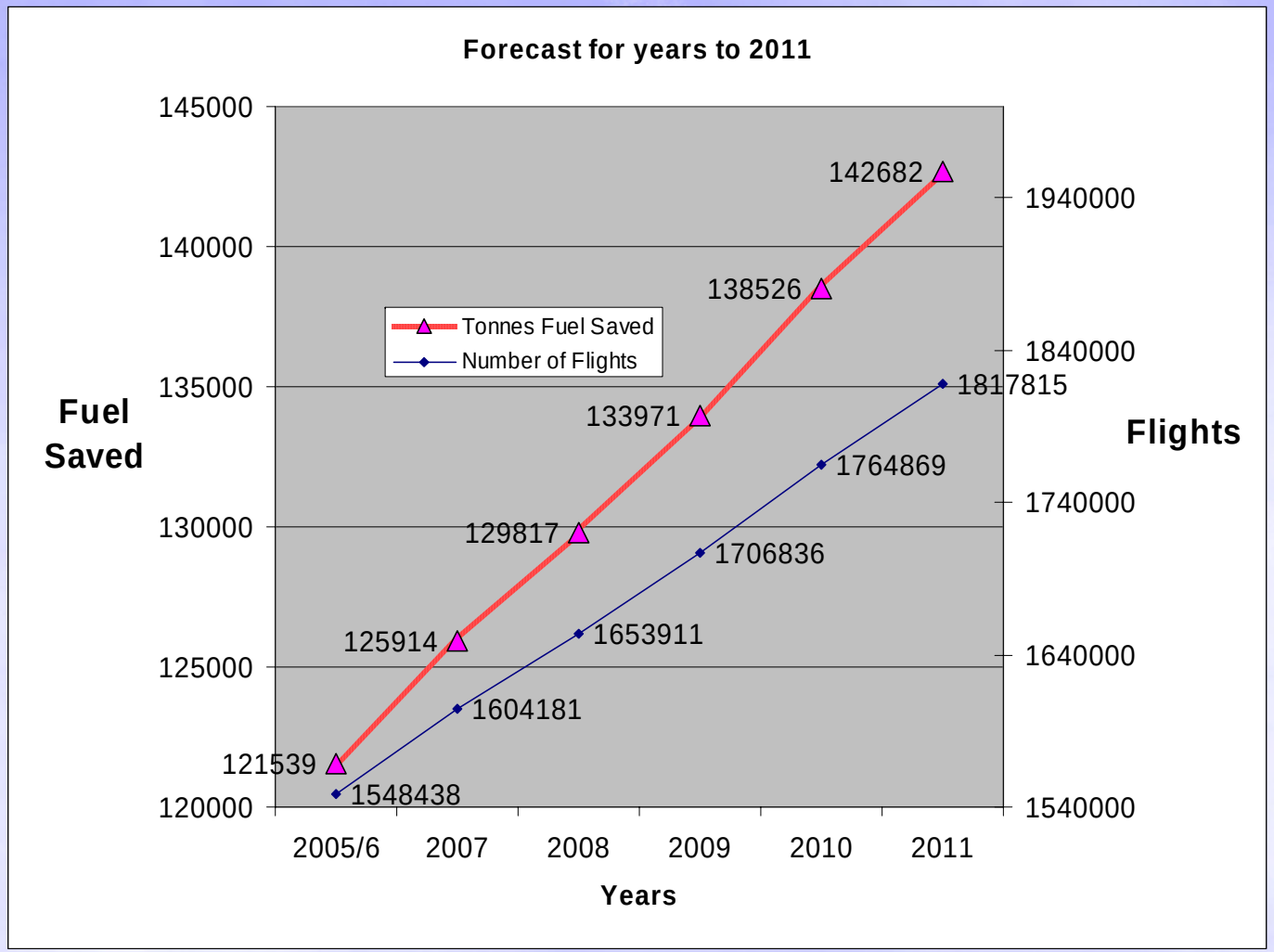
Annual savings (tonnes)

CO_2	-976 000
H_2O	-381 000
Fuel	-310 000
NOx	-3 500
SOx	-260

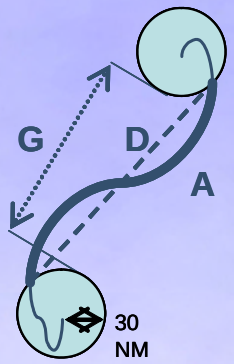
Annual Equivalent Emissions Avoided

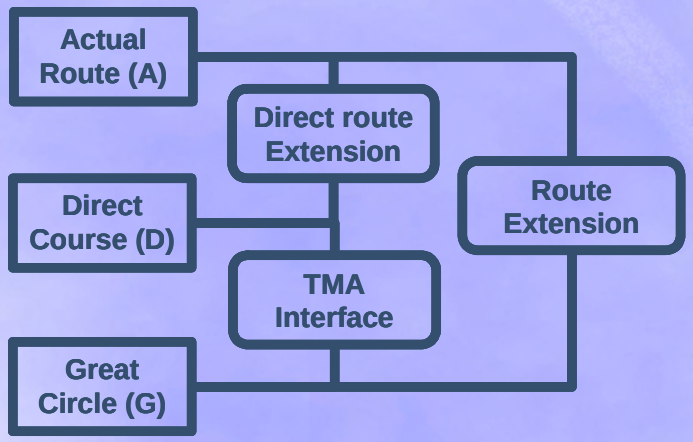
- 4 days' intra-European traffic
- 5600 transatlantic flights

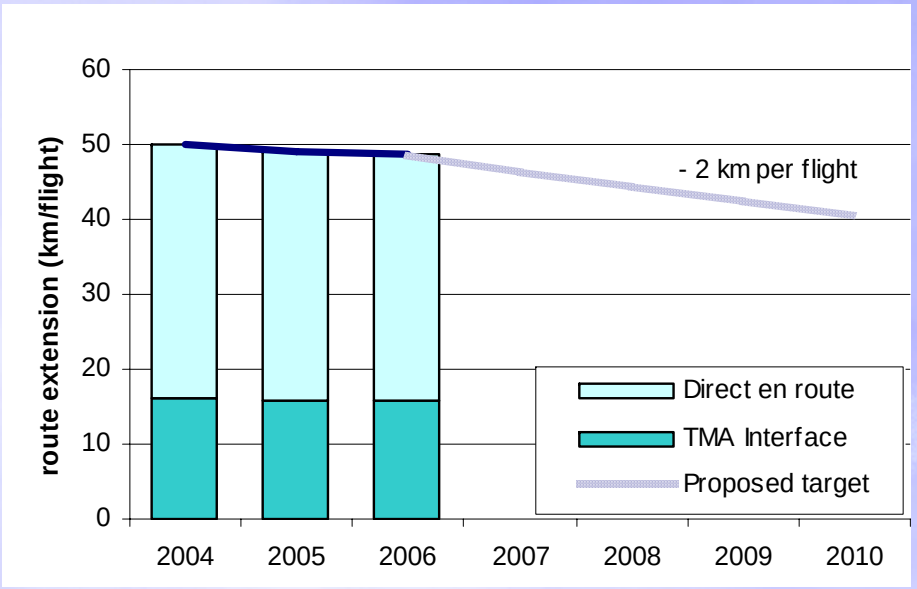
Flexible Use of Airspace
Potential Fuel Savings



Improving Network Efficiency
EUROCONTROL Performance Target



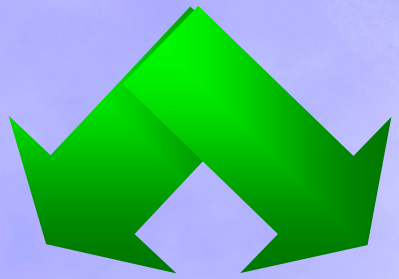




- 2km/year reduction in average distance flown
- Applies 2007-2010
- Planning target until 2013
- 220 million km distance reduction
- 2.3 million tonnes CO_2 saved

Air Traffic Flow Management Environment Benefits

- Balance demand with capacity
- Protect ATC systems from overload

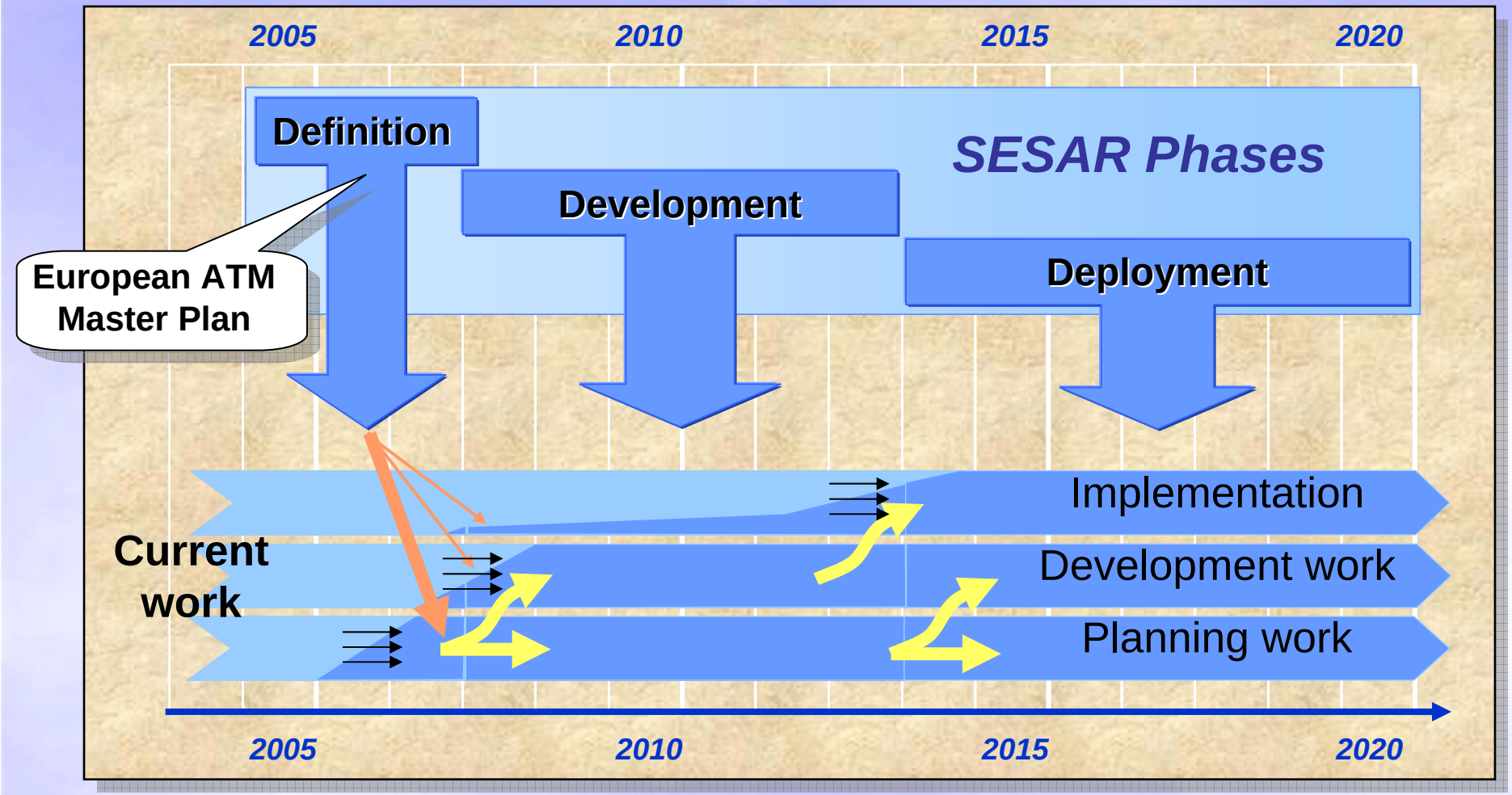


Re-routings
- avoid congested areas

Aircraft held at airports
- engines shut down
- avoid en-route and approach holding
- avoid taxi queuing

- Saves ~300,000 tonnes of fuel annually

The future: SESAR
Single European Sky ATM Research



Fuel and Emissions Reductions Contributions From Operational Measures

Operation	Location	Fuel Savings	CO_2 Savings	Potential Network Savings Fuel (T)	Potential Network Savings CO_2 (T)	Potential Fuel Cost Savings at €450/T
Variable taxi times	Munich airport	50kg/flight	160kg/flight	150,000	470,000	€68M
CDA	Bucharest Manchester Stockholm	100kg	315kg	300,000	945,000	€135M
RVSM	ECAC-wide			310,000	976,000	€140M
FUA	ECAC-wide			130,000	410,000	€58M
ATFM	ECAC-wide			300,000	945,000	€135M
2km route extension reductions	ECAC-wide			180,000	570,000	€80M

Environmental Benefits from Improved Operational Measures Conclusions

- Fuel efficiency & Environment now recognised as main drivers for ATM
- Fuel burn & emissions reductions already achieved, and there are more to come
- Decoupling environmental impact from projected traffic growth presents a major global challenge
- SESAR, Europe's future ATM system, must deliver on efficiency improvements
- Collaborative stakeholder action through ICAO is key