

Supporting  
European  
Aviation



# ATFM in Europe

## ATFM Workshop: Kathmandu November 2019

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- ATFM in the 1980s – 5 sub-regional FMUs
  - London
  - Frankfurt
  - Paris
  - Madrid
  - Rome

- Shortcomings
  - Inaccurate picture of Demand – no single Flight Plan
  - Slot approval request for every flight (no automation)
  - Waste of Capacity
  - High Delays
  - Inflexible



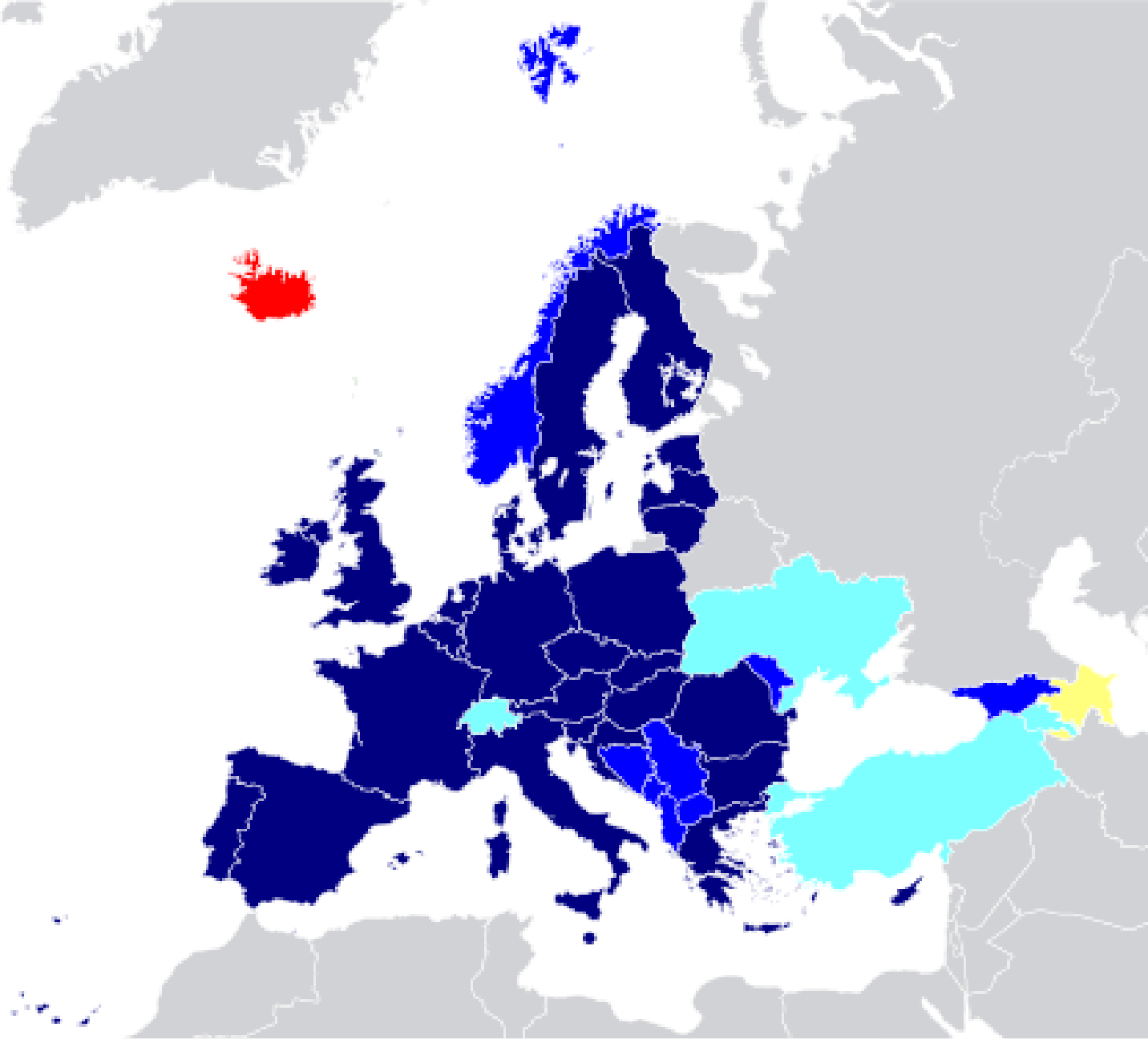
# ATFM in Europe



- Evolution of Flow Management
  - Political decision to create CFMU by ECAC Minister of Transport **(1988)**
  - Decision to create centralised flight plan processing unit (IFPS).
  - ICAO Provisions (Doc 7030) – ATFM available to all EUR states
  - April 1996 – ATFM operations – 6 states
  - **2018 – 43 states**, 41 Eurocontrol members, 2 bilateral agreements



2018 – 43 states, 41  
Eurocontrol members, 2  
bilateral agreements



Member countries of the ECAC are shown as non-gray.

- ECAC, Eurocontrol, ECAA, EU
- ECAC, Eurocontrol, ECAA
- ECAC, Eurocontrol
- ECAC, ECAA
- ECAC

# ATFM in Europe



- Evolutions since 1996
  - 1996 – Airspace Data, IFPS, CFMU
  - 1998 – Flexible Use of Airspace
  - 2000 – ATFM > ATFCM – Capacity Optimisation,
  - 2004 – TACT to ETFMS – Integration of surveillance data
  - 2009 – Integration of Airport CDM data
  - 2009 – Network Operations Portal
  - 2010 – ATFM for disruption and crisis management
  - 2010 – ATFM and Flight Efficiency
  - 2011 – CFMU to Network Manager
  - 2011 – Operations Planning – Operations – Post operations and performance management
  - 2012 – EU SES Performance targets
  - 2012 – Short term ATFM Measures (STAM) ATC <> ATFM
  - 2012- 2018 Many system and processes improvements (CCAMS, B2B in ATFM)
  - 2020 and beyond- iNM system.

- ATFM Objective
  - Air Traffic Flow Management (ATFM) is an ATM service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that **ATC capacity is utilised to the maximum extent possible**, and that the traffic volume is **compatible with the capacities declared** by the appropriate ATS authority.

# Network Operations Concept



Unique collaboration of all ATM stakeholders



- Centralised ATFM, fully collaborative between all Operational actors
- Five milestone activities
  - Strategic (NOP)
  - Pre-tactical (D-6) and event management
  - Tactical (real-time operations)
  - Post-operations reporting and performance measurement
  - Crisis & contingency management

## Strategic

- **Timeframe**
  - From five years until one week before real-time operations
- **Coordination**
  - The Network Manager Operations Centre (NMOC) helps the Air Navigation Service Providers (ANSPs) predict capacity they will need to provide in each of their air traffic control centers
  - Route Availability Document (RAD) – a structure of air routes across Europe designed to balance the air traffic flows and maximise capacity
  - Additional scenarios created to avoid imbalances between capacity and demand for events taking place a week or more in the future
  - The capacity commitments of every operational stakeholder in the network are reflected in a common planning document: the Network Operations Plan (NOP).
  - Manage significant events (Olympic games, Air show and more)

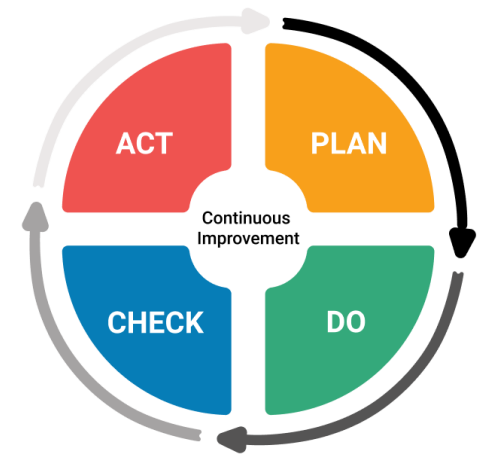
## Pre - Tactical

- **Time frame**
  - D-6 to D-1
- **Coordination**
  - Daily Plan (optimising the overall ATM network performance, minimising delay and cost)
  - Inform partners about the ATFM measures that will be in force in European airspace on the following day via the publication of the agreed plan for the day of operations. The Daily Plan is published on the NOP Portal
  - Operational scenarios created to anticipate specific events which may cause congestion

- **Tactical**
- **Timeframe**
  - Day of Operation
- **Coordination:**
  - Adapting D-1 daily plan depending upon actual situation.
  - Optimise network: Rerouting, Applying/Adapting new measures, modifying restrictions
  - Consulting with partners to ensure best outcomes.
  - Communicating with all stakeholders all adaptations to plan throughout the tactical period.

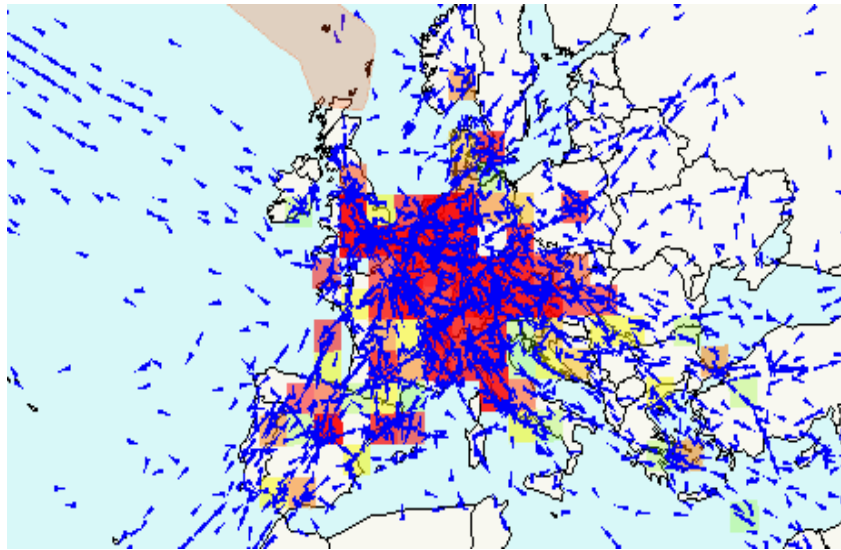
- **Post Operations**

- Closes the loop : Continuous improvement
- Data led – Simplify data retrieval: Efficient analysis.
- Collects feedback from all partners and systems
- Lessons learned exercises in full transparency
- No blame culture
- Link to KPIs – Performance reporting and evolution.

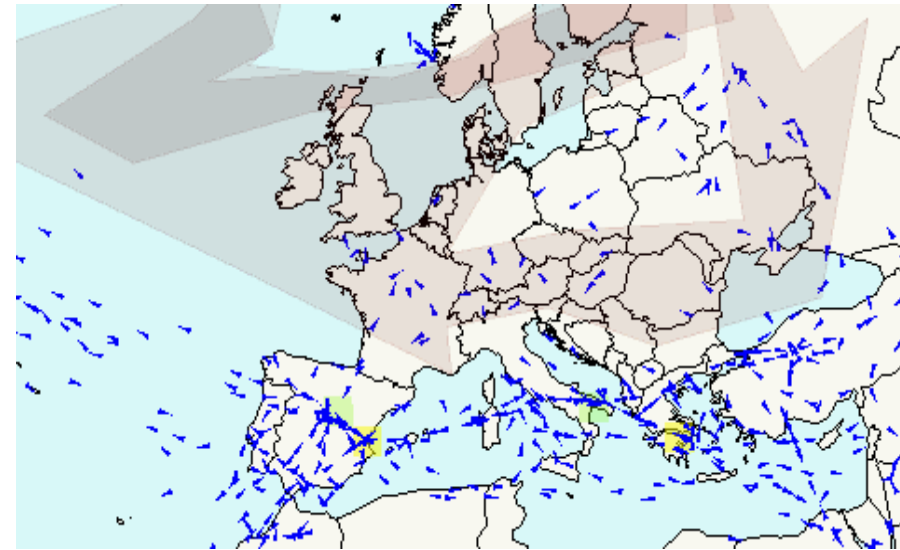


# ATFM in Europe

- Crisis & contingency management



Normal traffic density in Europe on 18 April 2010

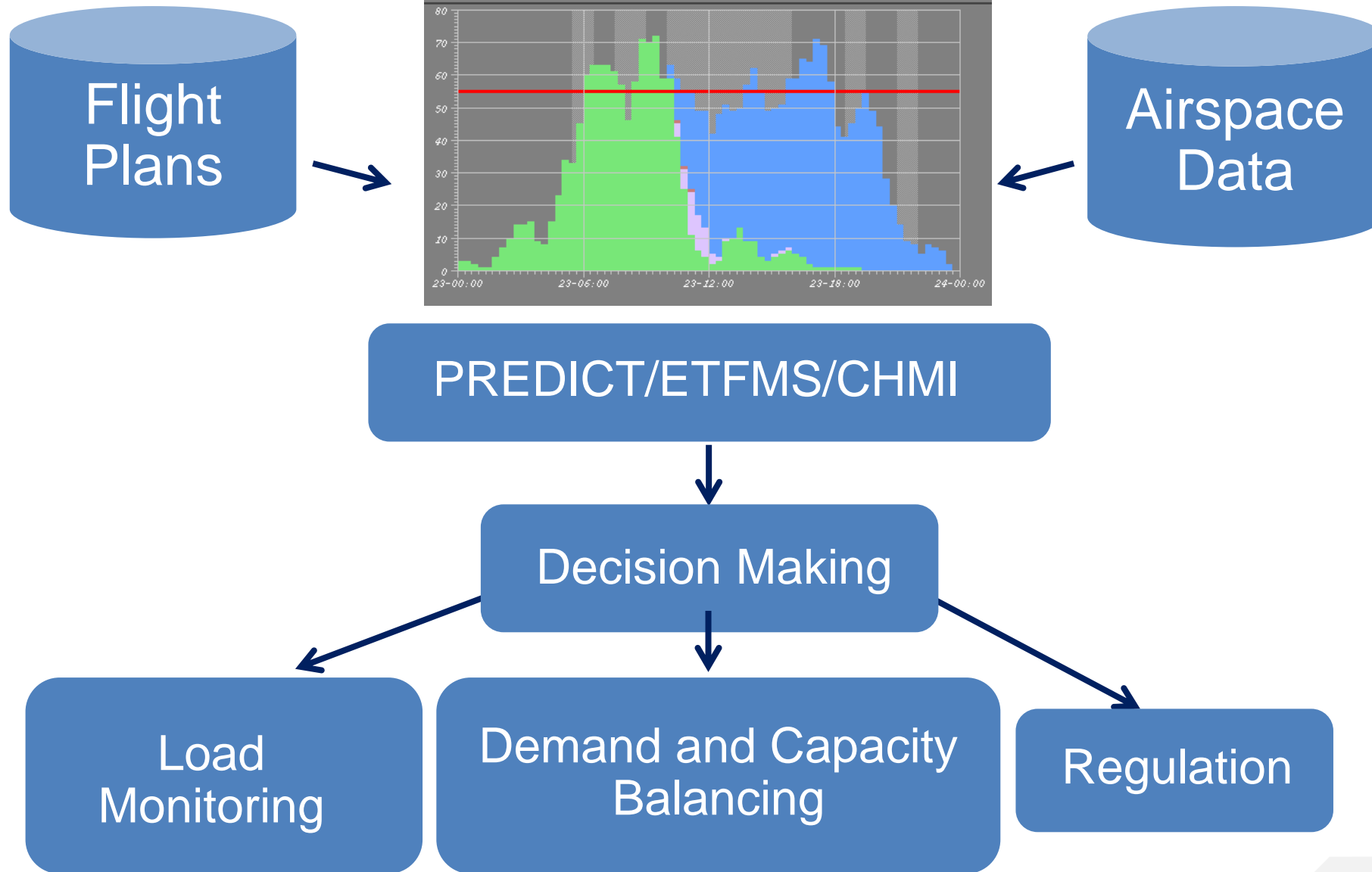


Traffic density at 4pm on 18 April 2010

# ATFM in Europe

- Network Manager ATFM: 4 cornerstones:
  - Airspace Data Management and EAD Data Management
  - IFPS
  - ATFM-ETFMS
  - Flight Data: Collection and redistribution. Additional data provided through B2B services.







## **Airspace Management and EAD Data management**

- Airspace Data Management manages all necessary airspace information to feed Network Manager Operational systems
- Central and permanently updated view of the European airspace for effective decision making
- All 43 countries part of EUROCONTROL's area of operations send their airspace and aeronautical data through centralised systems dedicated to this task
- Both static and dynamic data flows are input into ETFMS and IFPS systems to provide a constantly updated network view; they support the Air Traffic Flow and Capacity Management (ATFM) activities
- EAD is the world's largest Aeronautical Information System (AIS), a centralised reference database of quality-assured aeronautical information and, simultaneously, a fully integrated, state-of-the-art AIS solution

## **IFPS - The Integrated Initial Flight Plan Processing System**

- A single, centralised flight plan reception, verification and distribution process
- The Network Manager Operations Centre receives, processes and distributes up to +37,000 flight plans a day. This concerns over 500 European airports and airfields
- All flight plans and associated messages for IFR/GAT flights or parts thereof intending to operate in IFPS Zone must be submitted by Aircraft Operators to the IFPS for processing

## **ETFMS (Enhanced Traffic Flow Management System)**

- ETFMS calculates the traffic demand in every sector and airport in the area of operations, using the flight plan information received from the aircraft operations via the Integrated Flight Plan Processing System (IFPS) and flight position updates.
- Identifies and manages areas of congestion
- Allocates CTOT based on ETO.

# ATFM in Europe

**Network Manager adds value to network performance!**

**NM - connecting you to the network!**

