EUROCONTROL
Network Management Operations Centre

Keith Crawford

EUROCONTROL

EUROCONTROL Headquarters Brussels

The **European Organisation for the Safety of Air Navigation** (**EUROCONTROL**) is an intergovernmental organisation for the central coordination of air traffic control in Europe. The headquarters of EUROCONTROL are in Brussels.

MUAC, Maastricht

IANS, Luxembourg

EUROCONTROL
Experimental Centre Paris Brétigny

One single
Flow Management System
over Europe

ATFCM structure in Europe

43 States

68 En-route centres = **1750** Sectors

6 664 Airspace Users

525 Airports

60 FMPs

NETWORK MANAGER OPERATION CENTRE

+5 530 Connected end-users

Peaks **+37101** flights a day

+11 011 000 flights a year

Fri 07/09/18: 37101
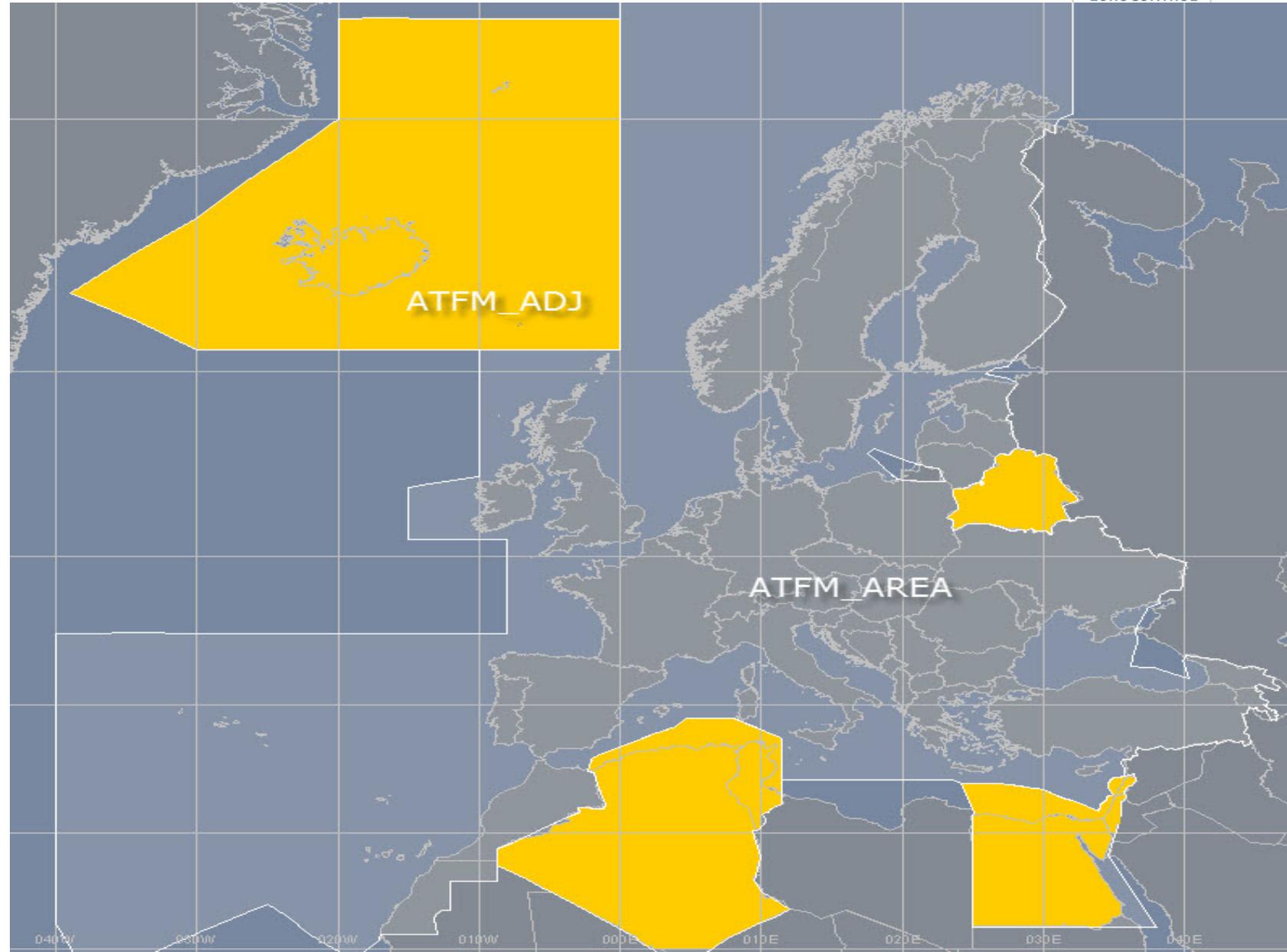**2018: 11 011 434**

NM Main Areas of Operations
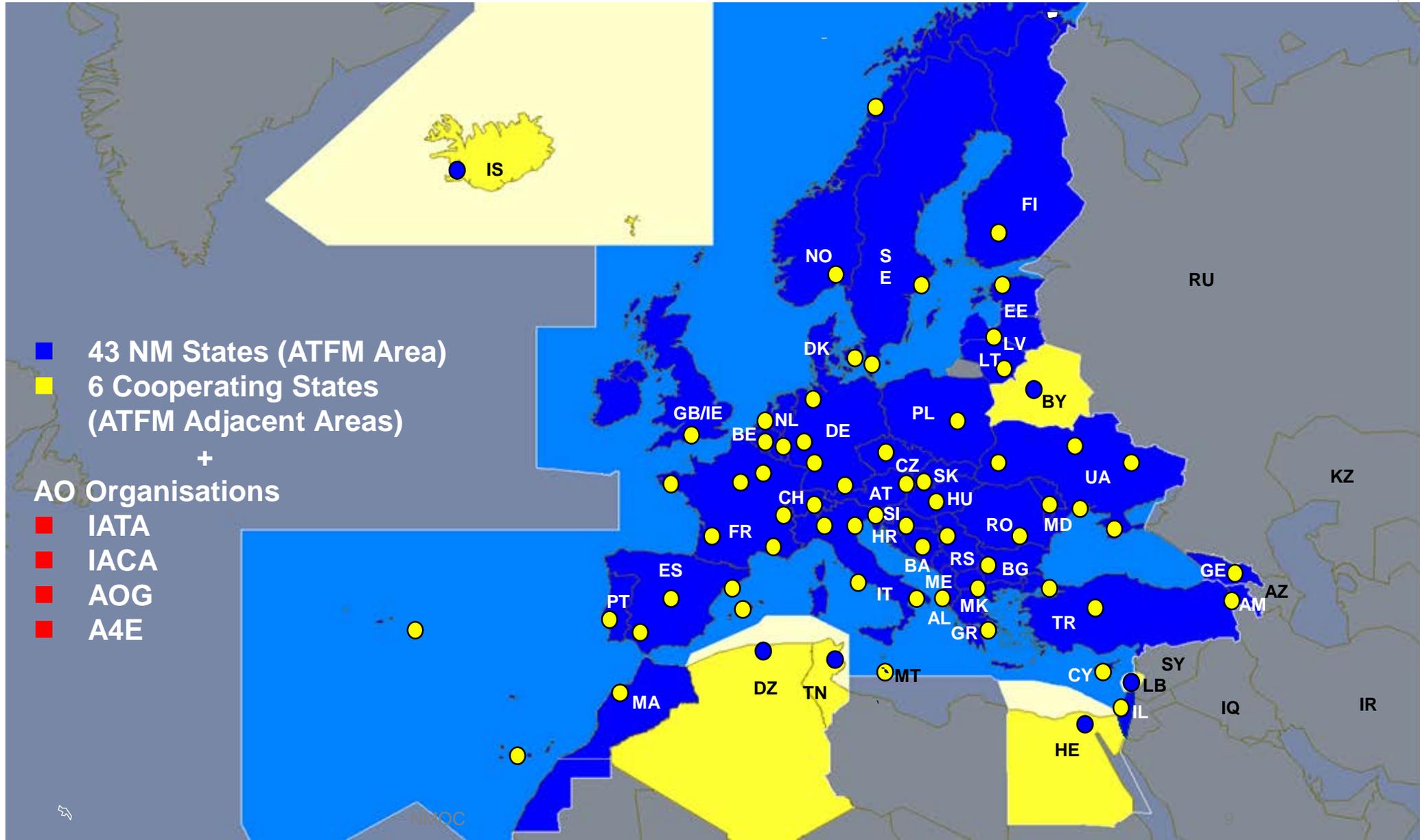
ATFM Area – 43 states

- NM is directly responsible for ATFM

ATFM Adjacent Area – 6 states

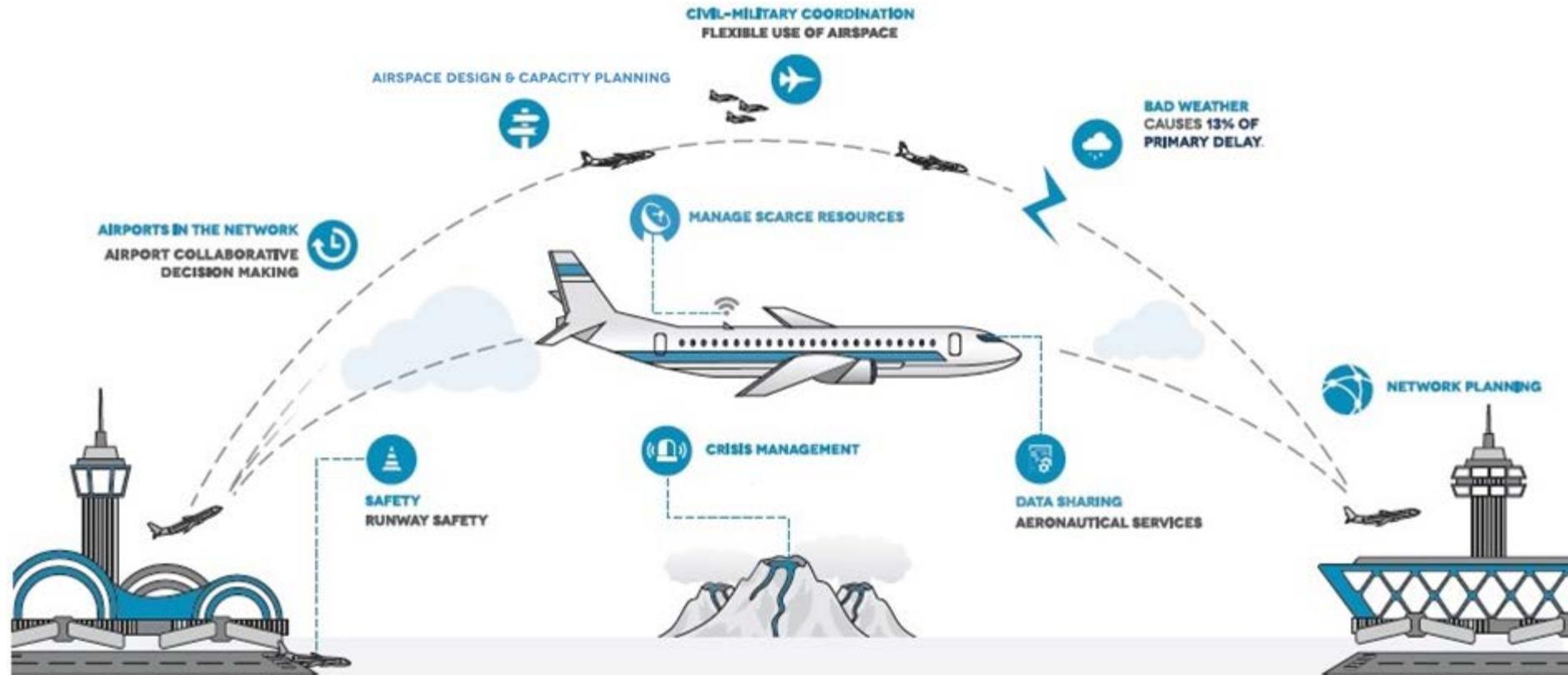- Any flight departing this area and penetrating the ATFM area may be subject to ATFM measures

NMOC coordination - FMPs

■ **43 NM States (ATFM Area)**

■ **6 Cooperating States (ATFM Adjacent Areas)**

+

AO Organisations
- ■ **IATA**
- ■ **IACA**
- ■ **AOG**
- ■ **A4E**

The Network Manager
Connecting the Network to deliver Improved Performance

CIVIL-MILITARY COORDINATION
FLEXIBLE USE OF AIRSPACE

AIRSPACE DESIGN & CAPACITY PLANNING

BAD WEATHER
CAUSES 13% OF
PRIMARY DELAY.

AIRPORTS IN THE NETWORK
AIRPORT COLLABORATIVE
DECISION MAKING

MANAGE SCARCE RESOURCES

NETWORK PLANNING

SAFETY
RUNWAY SAFETY

CRISIS MANAGEMENT

DATA SHARING
AERONAUTICAL SERVICES

FLOW MANAGEMENT SINCE 1995

FLIGHT EFFICIENCY INITIATIVE
LAUNCHED IN 2013

The Network Manager Factsheet

Legal Basis

EUROCONTROL nominated since July 2011	NM defined by EC regulation N°677/2011	Amended by EC regulation N°970/2014	Other regulations: Performance Scheme (390/2013) Flight Planning (1033/2006) ATFM (255/2010) …	Until end 2019, Seeking re-designation for RP3 & RP4

Organisation

Staff: 437 FTE Operations: 154 Systems: 130 Planning: 66	**Annual budget:** €164 million + €35 million costs from past (e.g. pensions)	**Sites:** Brussels & Brétigny-sur-Orge

Scope

NM delivers ATM performance to the pan-European network in the areas of safety, capacity, environment, flight efficiency and cost-effectiveness	Functions: ATFM - European Network Route Design - Scarce resources (TCF & RFF) Airports - Operational safety – new systems

Governance & Oversight

Governance: NMB SSC	EASA has oversight on behalf of the EC: 3-year cycle; annual report	EASA common requirements regulation: NM is a pan-European ANSP obliged to obtain certification by January 2020

Figures

NM area EU/non-EU average daily flights +/-29.000	Max Nb of flights yearly 36.000	Delay average 0,88 min	Minutes saved yearly 1.5 mil

EUROCONTROL
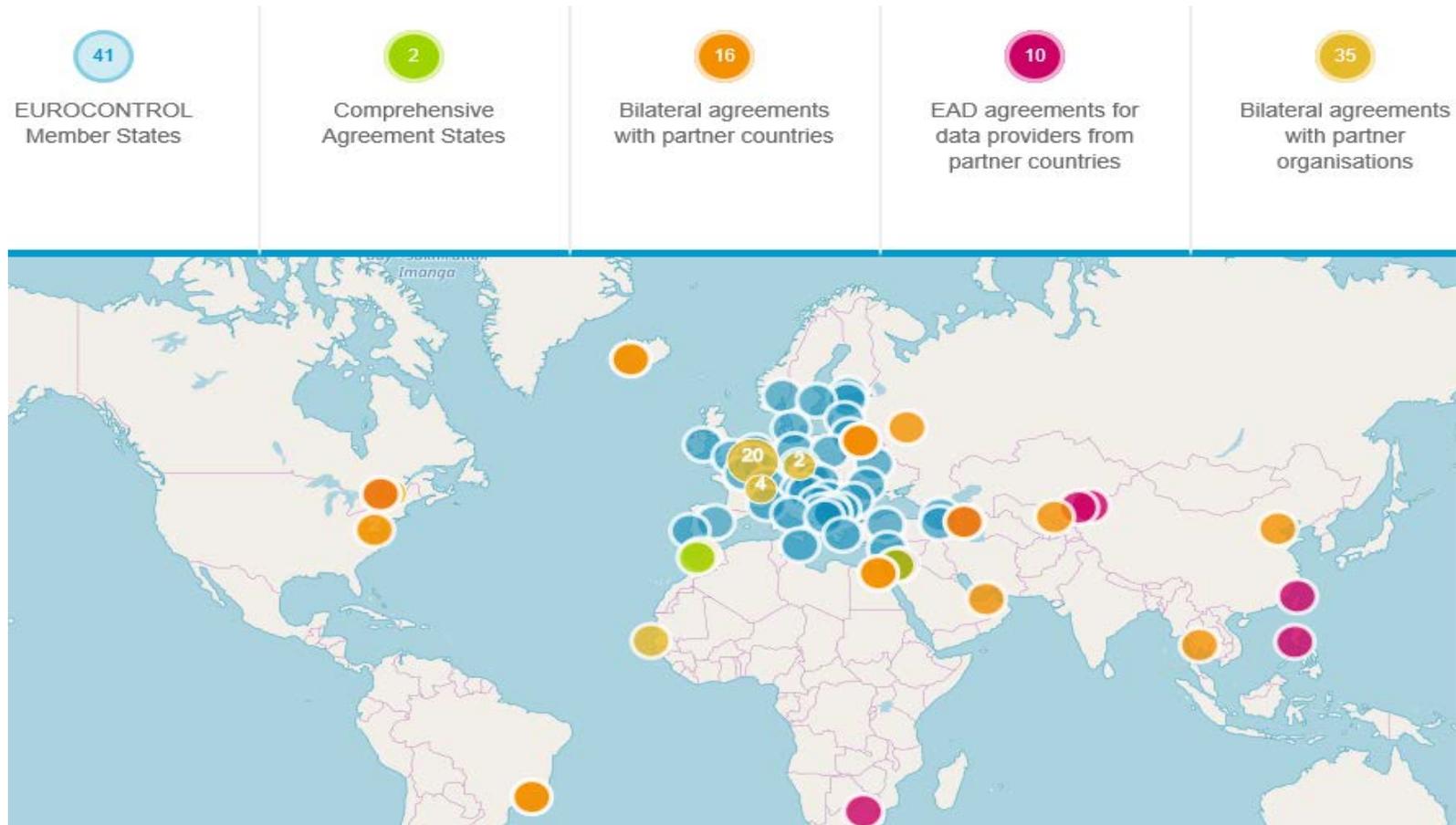
Network Management and Network Manager

- Network Management involves:
  - ~2000 airspace users
  - ~ 500 airports
  - 9FABs, 40 European ANSPs, ~70 ACCs, ~700 ATC enroute sectors, ~29000 flights/day
  - Global/interregional operational links
  - Network Manager

- The Network Manager (NM) has:
  - Key role in Flow management (coordinating & applying ATFM measures)
  - Influence on capacity planning and management (CDM)
  - Key role in airspace design, planning and use (including military)
  - Formal role in scarce resources management (R/F spectrum, SSR codes)
  - Key role in crisis management

- The NM
  - is nominated by the EC
  - reports to and works under industry-led NMB governance

The Eurocontrol Network Manager is the operational pillar of the Single European Sky

Inter-institutional relationships

DGs MOVE, GROW,
RTD, ENV, CLIMA,
CNECT

EUROCONTROL - General Presentation

NM Network Operations collaboration and partners

41	2	16	10	35
EUROCONTROL Member States	Comprehensive Agreement States	Bilateral agreements with partner countries	EAD agreements for data providers from partner countries	Bilateral agreements with partner organisations

Network Management Directorate

Performance Monitoring

Deployment coordination

Network Technical Systems

Network Operations Management

Training

Network Management Directorate

Network Operations Management

| Airspace AIS Data Mgt | **Network Operations** | Safety | Airports | Operations Planning |

Network Management Functions

- the design of the European Route Network;
- the coordination of scarce resources, in particular;
  - radio frequencies within aviation frequency bands used by general air traffic;
  - SSR transponder codes.
- the ATFM function.

Network Manager Operations Centre

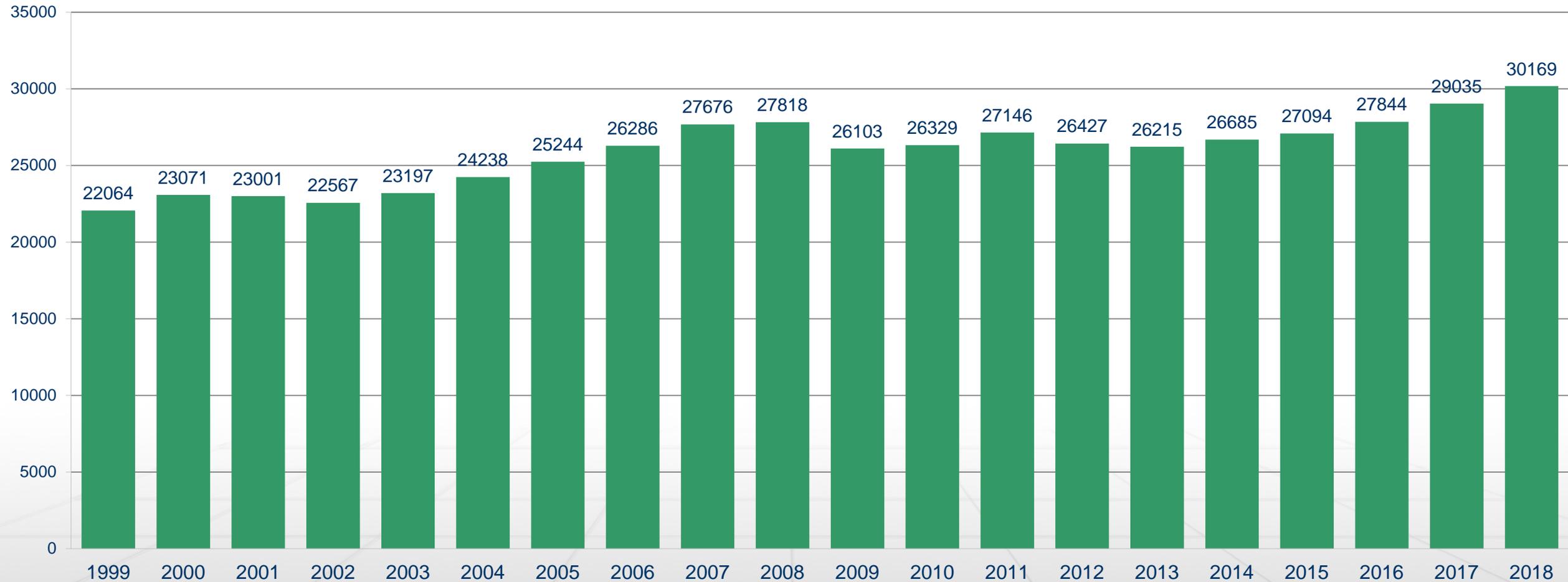# The ATFCM
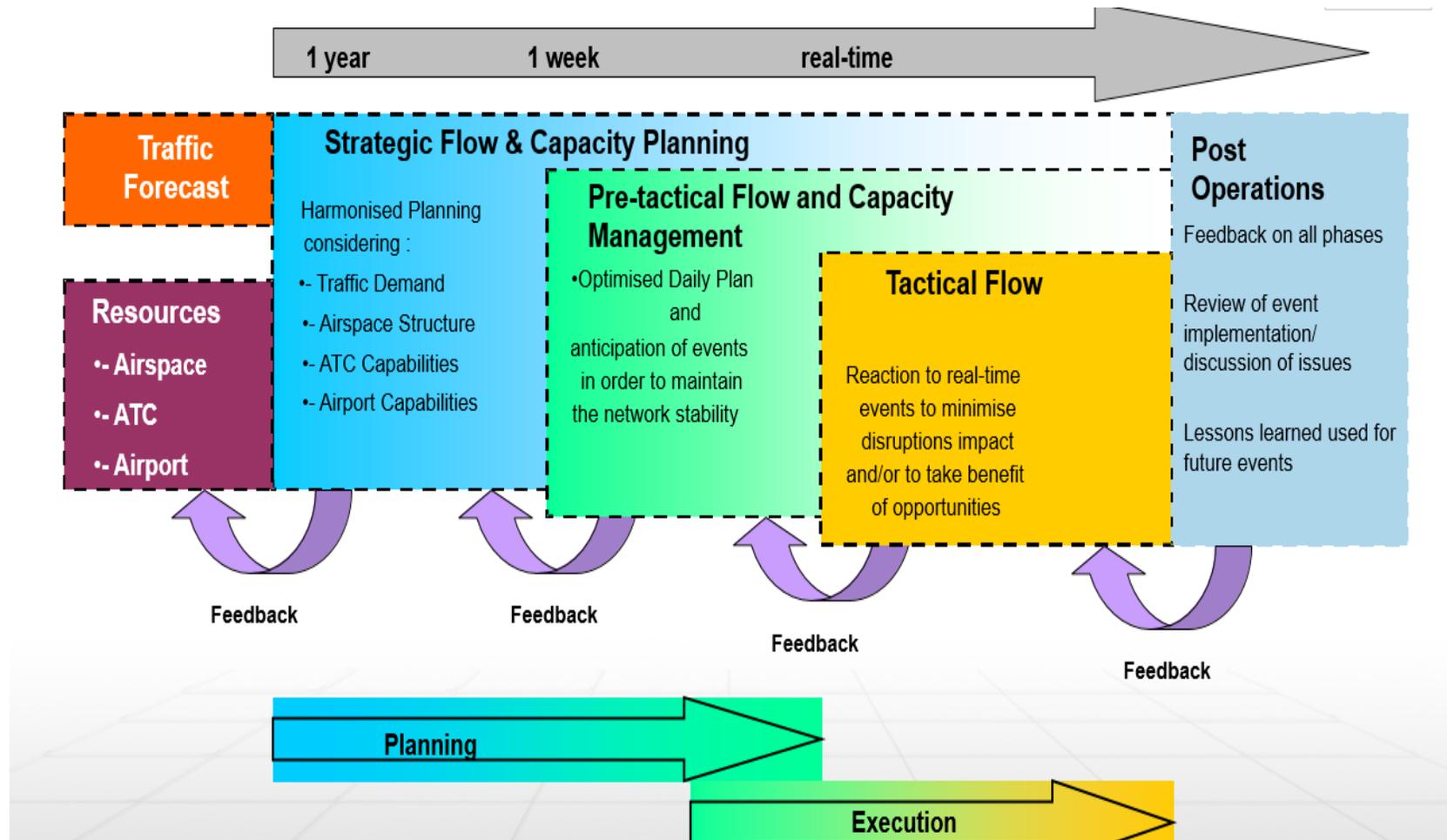
Air Traffic Flow and Capacity Management

Overall set of flow management activities in NM/NMOC (in coordination with ANSPs, AU, Airports, MIL authorities, CFSP) dealing with:

- **Strategic/pre-tactical planning of events** (from *Year -1* to *Day of ops -1*) leading to capacity reduction (en-route or airports) potentially causing ATFM delay for AUs
- **Day of operation (tactical day)**
  - demand/capacity balancing aimed at providing safety, resulting in delay on the ground (CTOT) to flights flying across congested airspaces or to congested airports.
- **Managing any tactical disruption:** weather, system failures, staffing issues, industrial actions…
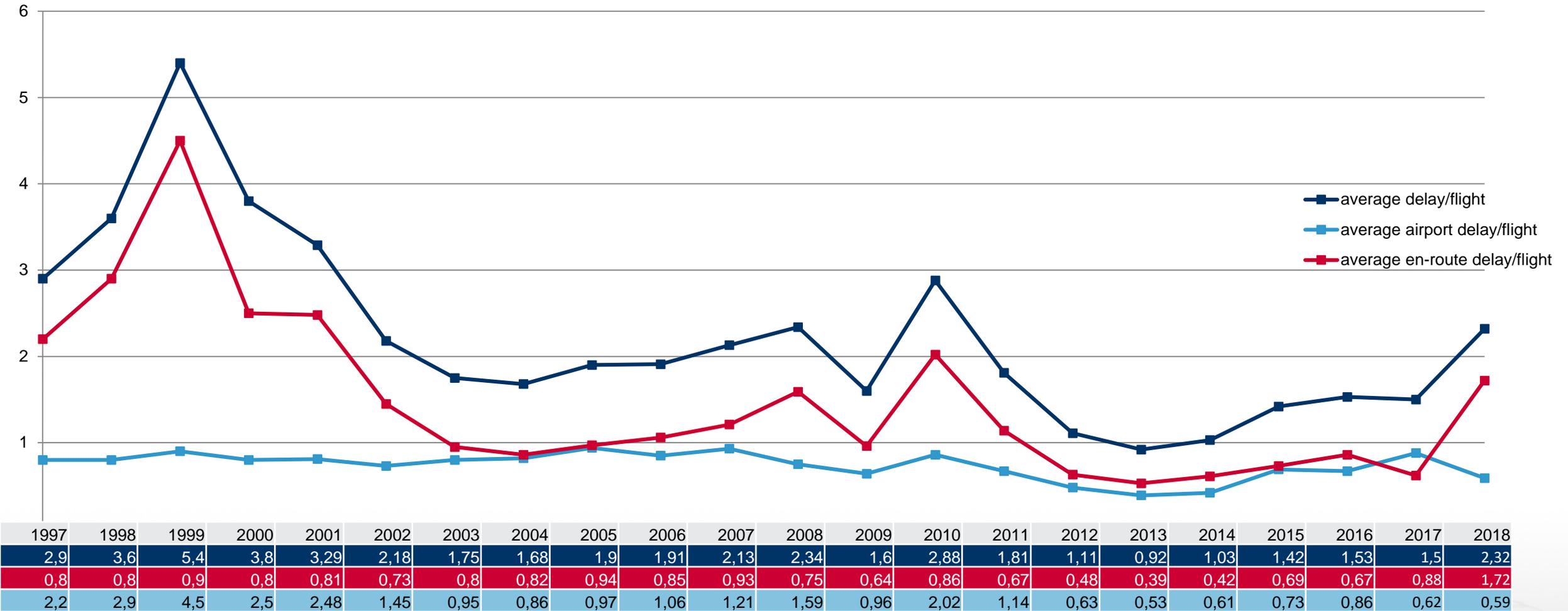- …**or crisis** in coordination with EACCC (EU Aviation crisis Cell): volcanic ash, Crimea, Libya…

How to mitigate ATFM delay?

- **Offloading congested areas** by applying RR (re-routeing) and FL (level-capping) predetermined scenarios, agreed with ANSPs and AUs (it is mandatory for AUs to comply with).
- **Sector configuration management**
- **STAM** (Short Term ATFM Measures)
- **Slot list manipulation by NMOC staff**

- **Tactical re-routeing** (RRP) offered to AUs (up to Operator whether to accept it or not)
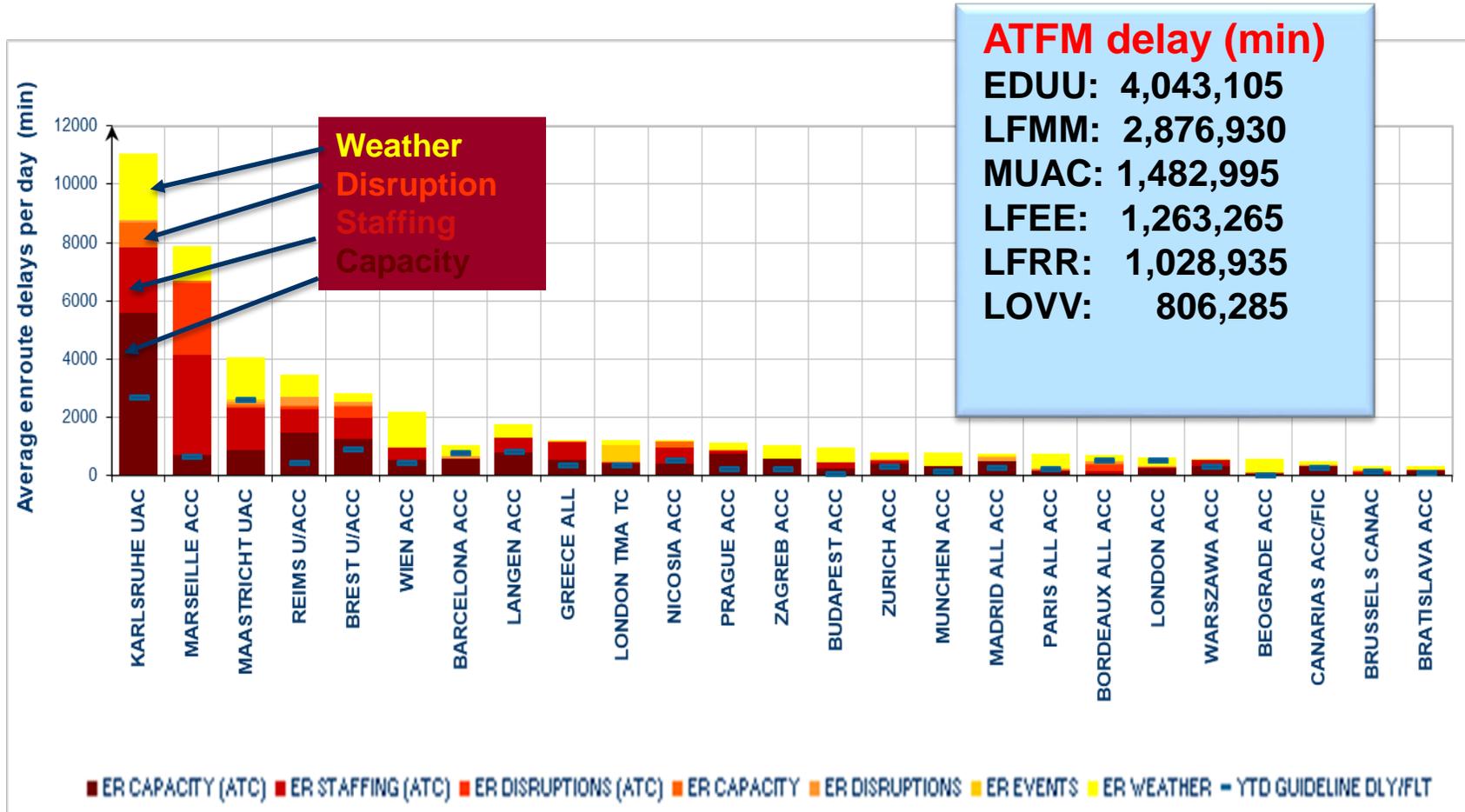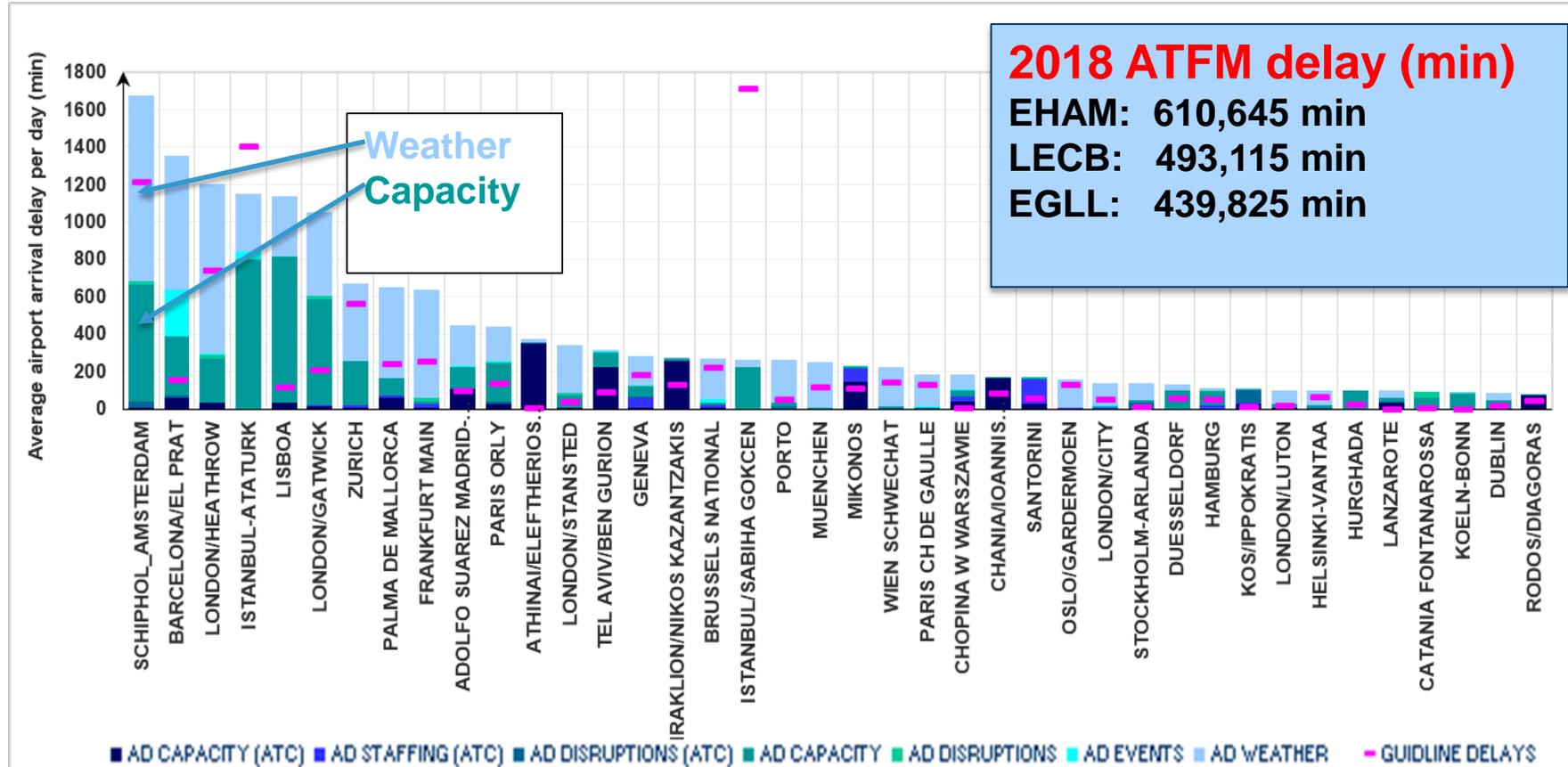
European Air Traffic

Average daily traffic

© EUROCONTROL

Yearly traffic and ATFCM delays

Legend:
- average delay/flight
- average airport delay/flight
- average en-route delay/flight

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
average delay/flight	2,9	3,6	5,4	3,8	3,29	2,18	1,75	1,68	1,9	1,91	2,13	2,34	1,6	2,88	1,81	1,11	0,92	1,03	1,42	1,53	1,5	2,32
average en-route delay/flight	0,8	0,8	0,9	0,8	0,81	0,73	0,8	0,82	0,94	0,85	0,93	0,75	0,64	0,86	0,67	0,48	0,39	0,42	0,69	0,67	0,88	1,72
average airport delay/flight	2,2	2,9	4,5	2,5	2,48	1,45	0,95	0,86	0,97	1,06	1,21	1,59	0,96	2,02	1,14	0,63	0,53	0,61	0,73	0,86	0,62	0,59

2018 top 40 delayed airports

2018 ATFM delay (min)
EHAM: 610,645 min
LECB: 493,115 min
EGLL: 439,825 min

Pan-European Dimension

Ensuring that it meets its mission and priorities, the Network Manager relies on working closely with ANSPs, airports, civil and military airspace users **across the airspace of 43 States.**

Its Pan-European global view:
- Promotes the EU aviation strategy to the widest possible European scope
- Exports SES standards to non-EU states which have not yet signed agreements with the EU
- Ensures global consistency and interoperability
- Establishes a common cooperation framework
- Achieves international reach to ICAO, FAA and others

The Eurocontrol Network Manager has global reach through a concrete policy of concluding agreements with 3rd country Air Navigation Service Providers - **providing a concrete platform for global ATM cooperation**

Agreements with 3ʳᵈ country ANSProviders

The EUROCONTROL Network Manager currently <u>has agreements with 19 non-EU non-EUROCONTROL States</u>

The Network Management Board has already provided in principle approval for agreements with :
- USA (FAA)
- Algeria (ENNA)
- Tunisia (OACA)

The Network Manager has also been invited by the EC to initiate dialogue for a future cooperation with Azerbaijan (AZANS)"

The main challenge: traffic growth

2000: 8 million   **2018: 11 million**   **2030: 17 million**

Growth forecast to 2040 (IFR movements)
most-likely scenario

Details in:

Average Annual Growth 2040 vs 2017 ☐ 0%-1% ☐ 1%-2% ☐ 2%-4% ☐ 4%-6%

# The Network Vision

Free Route airspace - fully deployed in upper airspace

Efficient access to airports - high density segregated departure and arrival routes requiring PBN capabilities

Advanced flexible use of airspace - unused airspace will be made available to either civil or military users

Network operations (e.g. TTO) are integrated with local/FAB ops (e.g. AMAN/DMAN) through **cooperative traffic management**

Network Safety is addressed with focus on human aspects

SWIM sharing of dynamic ATM information supports the European ATM Network
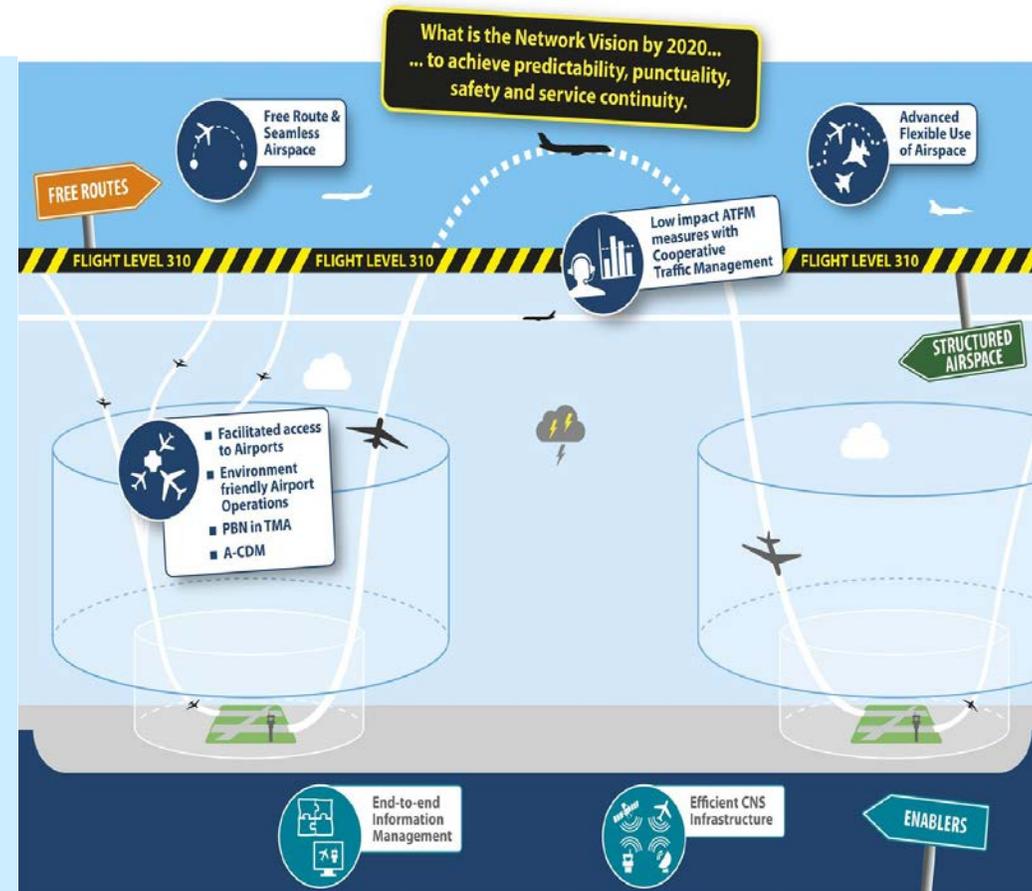
Delay mitigation plans 2019

➤ **NM supporting ANSPs to deliver required capacity**
- check *declared* sector configurations vs the *applied*, info available to AUs
- need for solid and long term ATCO recruitment plans by ANSPs (unknown)

➤ **Expand NM-4ACC initiative: eNM-ANSPs plan**
- Several hundred of flights removed from congested airspaces
- these actions will grant an amount of ATFM delay similar to 2018!

➤ **Improve airspace management with focus congested airspaces**

➤ **Cross-border WX initiatives in S19, following S18 trial**
- Common WX forecast, Teleconferences

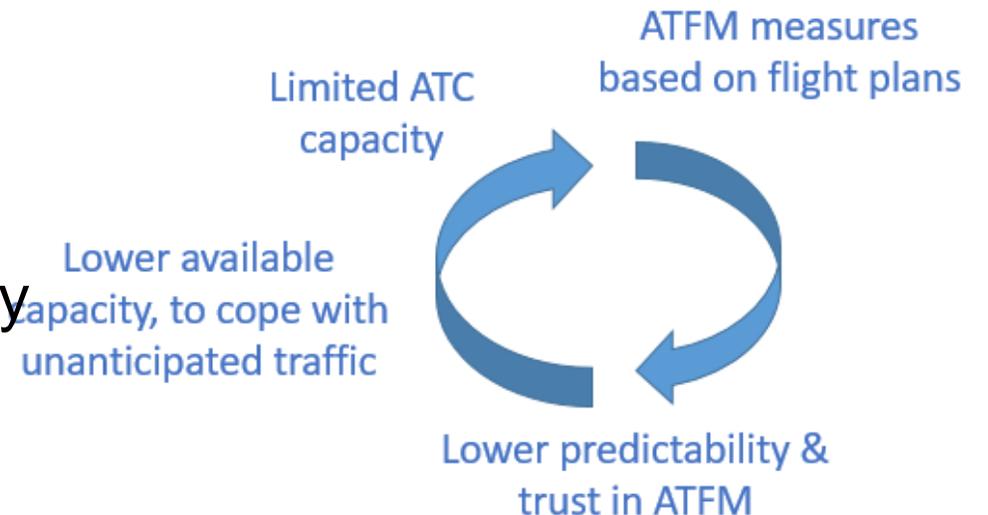# We take your ATC flight plan seriously!

ATFCM planning based on filed ATC flight plans, to match traffic demand against available ATC capacity

ATC flight plan not just an initial theoretical plan that meets all the rules, but can be ignored after take-off

Non adherence impact:

- Less effective ATFCM
- Non-anticipated traffic in ATC sectors already having max demand => safety!
- Lack of trust in ATFCM => larger ATC safety margins reducing available capacity!

=> reduced overall network performance!

Limited ATC capacity

ATFM measures based on flight plans

Lower available capacity, to cope with unanticipated traffic

Lower predictability & trust in ATFM

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https://www.public.nm.eurocontrol.int/PUBPORTAL/gateway/spec/index.html

Search...

NOP Network Operations P...

X McAfee

Resources & Services | Post-Operations | Tactical | PreTactical | Strategic

Initial Network Plan
Network Plan ▶
- Headline News
- Events
- ACCs
- NAT
- Weather
- Hotspot

Network Static Map ▶   Network Static Map (IE7/8) ▶

ATFCM Measures (Scenarios)
Scenarios aim at the optimisation of capacity across the European Network of ACCs. Network Operations NMC works actively to minimise the number of ATFM regulations, consistent with the protection of ATC sectors.

Scenario List ▶

Network Axis Management
Involvement of ACCs in the axes processes

The following links provide information on the Axes for the Summer 2018 Season:

South East Axis Summer 2018
South West Axis Summer 2018
Read the NM Axes Meetings Terms of Reference.

Axis Weekly Management

Ski axis 2018-2019

SKI axis Agreed plan for the weekend 09-10 March 2019

SKI Axis statistics for the weekend 09-10 March 2019

Contingency
The status of the Network Manager operations is NORMAL.
NM ATFCM Contingency Plan Winter 2018-2019
valid 28th October 2018
NM ATFCM Contingency Plan Summer 2019
valid 31st March 2019

These documents address the contingency procedure to be carried out in the event of a long term failure of Network

Network Headline News
Latest News | Ongoing News

15MAR 13:47 ▶ Tactical update
15MAR 10:49 ▶ Pakistan Airspace Non-availability
14MAR 11:45 ▶ Suspension of B737-8 MAX and B737-9 MAX Operations
13MAR 11:37 ▶ National French Strike 19th March 2019
07MAR 13:55 ▶ NM 23.0 Helpdesk deployment support WEBEX for TWR and FMP
25FEB 14:29 ▶ Istanbul (New) Airport (LTFM) - Update 25/02/19 'Transfer program for LTFM' now available.

more ▶

Network Events
Friday, 15 March 2019   ◀◀ ◀ ◼ ▶ ▶▶

Month | Day
☐ Show only starting events
Select Types
LPPC
MADEIRA- Porto Santo radar replacement
18/10/2018 00:00 - 19/04/2019 23:59
LFMM, LFRR, LFFF, LIPX, LFEE, LIPB, LIPO, LFBB, LIMF, LIME, LIMZ, LOWS, LOWI, LOVV, LFLB, LFLI, LFLJ, LFLL, LFLP, LFLY, LFLS, LFBO, LIRR, LIPP, LIMM, LEDA, EDMM, EDYY, EDUU, LSAG, LSAZ, EGTT, LSGL, LSGG, LSGS, LSZS, LSZB, LSZR
SKI Season 2018 - 2019
06/12/2018 00:00 - 24/04/2019 23:59
LBSRCTA
Sofia ACC - Istanbul New Airport
29/10/2018 00:00 - TBD
Search ▶   List ▶

Tele/WebEx conferences
Tele/WebEx conferences
Customers will be invited via AIM or Headline News to join a Tactical Briefing targeted towards adhoc situations as they occur.

These conferences may be in the form of a web conference via WebEx or a teleconference via InterCall.

* For the WebEx conference click here
* For the teleconference dial +32 2891 0103. The required PIN will be published via AIM and/or Headline News.

Claims
Central Claim Management System (CCMS) Log in
CCMS allows users to raise claims at the Network Manager: operational problem reports, user requirements or general requests. The preferred media is the CCMS-Web secured application. Alternatively, a web form is

Current Network Situation
Last update: 15/03/2019 14:32
- < 15 MIN
- < 30 MIN
- < 45 MIN
- >= 45 MIN

Static Map ▶   Static Map (IE7/8) ▶

ATFCM Network Situation Data
Last update 15/03/2019 14:24

Flights
Total   28,193
Landed   13,000 (46%)
Airborne   4,918 (17%)
Expected   10,275 (36%)

Delays (in minutes)
Cumulated   52,034.0
Average/Flight   1.8
En-route   27,881 (54%)
Airport   24,153 (46%)
>= 30 min   563

Delay Causes

Reason	Delay	Delay (%)
Weather	18599	36%
Airspace Management	11588	22%
ATC Capacity	8784	17%
ATC Staffing	8748	17%
Aerodrome Capacity	3826	7%
ATC Ind Action	322	1%
ATC Equipment	167	0%
Accident / Incident	0	0%
De-Icing	0	0%
Aerodrome Services	0	0%
Ind Action non-ATC	0	0%

more ▶

Network Operations Weather Assessment
Network Operations Weather Assessment objective

EUROCONTROL

valid 31st March 2019

These documents address the contingency procedure to be carried out in the event of a long term failure of Network Operations systems.

The following document is for use in the event of a CCAMS contingency **CCAMS contingency plan**

ANM

Valid On 15/03/2019
Last Released **15/03/2019 14:25**

AIM

Description	Released on
STRONG WIND CONDITION FORECAST AT EHAM	14/03/2019 19:53
DEST EHAM EXCLUSIONS UPDATE NR.2	15/03/2019 12:13
DEST EHAM EXCLUSIONS UPDATE	15/03/2019 07:42
DEST EHAM EXCLUSIONS	15/03/2019 05:53

more ▸

European AUP/UUP

EUUP	**15/03/2019 12:30**	16/03/2019 06:00
EUUP	**15/03/2019 11:00**	16/03/2019 06:00
EUUP	**15/03/2019 10:30**	16/03/2019 06:00
EUUP	**15/03/2019 10:00**	16/03/2019 06:00
EUUP	**15/03/2019 09:30**	16/03/2019 06:00
EUUP	**15/03/2019 08:00**	16/03/2019 06:00
EUUP	**15/03/2019 07:30**	16/03/2019 06:00
EUUP	**15/03/2019 07:00**	16/03/2019 06:00
EUUP	**15/03/2019 06:00**	16/03/2019 06:00
EAUP	**15/03/2019 06:00**	16/03/2019 06:00
EUUP	**14/03/2019 17:00**	15/03/2019 06:00
EUUP	**14/03/2019 16:00**	15/03/2019 06:00
EUUP	**14/03/2019 15:00**	15/03/2019 06:00
EUUP	**14/03/2019 14:00**	15/03/2019 06:00
EUUP	**14/03/2019 13:30**	15/03/2019 06:00
EUUP	**14/03/2019 13:00**	15/03/2019 06:00
EUUP	**14/03/2019 12:30**	15/03/2019 06:00
EUUP	**14/03/2019 11:30**	15/03/2019 06:00
EUUP	**14/03/2019 11:00**	15/03/2019 06:00
EUUP	**14/03/2019 10:30**	15/03/2019 06:00
EUUP	**14/03/2019 10:00**	15/03/2019 06:00
EUUP	**14/03/2019 09:00**	15/03/2019 06:00
EUUP	**14/03/2019 08:00**	15/03/2019 06:00
EUUP	**14/03/2019 07:00**	15/03/2019 06:00
EUUP	**14/03/2019 06:00**	15/03/2019 06:00
EUUP	**14/03/2019 06:00**	15/03/2019 06:00
EAUP	**14/03/2019 06:00**	15/03/2019 06:00

more ▸

RAD

The RAD is designed as a part of the Network Manager (NM) ATFCM operation. The objective of the RAD is to facilitate flight planning, in order to improve ATFCM, while allowing aircraft operators flight planning flexibility.

RAD Homepage

Increment File

1904 - 28 March 2019

1903 - 28 February 2019

Additional Documentation

Network Manager: operational problem reports, user requirements or general requests. The preferred media is the CCMS-Web secured application. Alternatively, a web form is available.

CCMS Web

More info on CCMS

Contacts

Depending on the nature of your enquiry you can get direct contact with the NM or make a search on the Agency Contacts page

Network Operations & NM - All Contacts

EUROCONTROL Contacts

Portal Assistance

If you have an **urgent Operational request** in relation to a **flight**, please follow the procedure in place to reach the Network Manager Operations Center **NMOC**.

If you experience **login** or other **technical urgent problems** please contact our **Technical helpdesk (CSO)**

To provide non-urgent feedback on your user experience or any question in relation to the NOP Portal please send an email to **NOP Portal Support**.

To understand a little more how the NOP works, you can access **Video Tutorials** via **NM Flight Management Zone**.

Network Operations Weather Assessment

Network Operations Weather Assessment objective

To support ANSPs and AOs in anticipating, identifying, monitoring and planning for potential severe weather events that may impact ATM capacity.

Daily Update (click here)

Incident Management Tool

You are not authorised to see IMT

EVITA

For more information on the European Crisis Visualisation Interactive Tool for ATFCM (EVITA), please consult the **EVITA web page**.

E-Helpdesk

To request access to the E-Helpdesk please fill in the **NM information request form**.

Flights

Access to Flights is restricted to NOP (Protected) Portal Users. For more information on this function consult the online help through the ? button on the right of the title. To read the instructions for subscription please visit the **NM Operational services and products** page of our website.

Measures

Access to Measures is restricted to NOP (Protected) Portal Users. For more information on this function consult the online help through the ? button on the right of the title. To read the instructions for subscription please visit the **NM Operational services and products** page of our website.

Traffic Counts

Access to Traffic Counts is restricted to NOP (Protected) Portal Users. For more information on this function consult the online help through the ? button on the right of the title. To read the instructions for subscription please visit the **NM Operational services and products** page of our website.

Airspace Data

Access to Airspace Data is restricted to NOP (Protected) Portal Users. For more information on this function consult the online help through the ? button on the right of the title. To read the instructions for subscription please visit the **NM Operational services and products** page of our website.

Flight Planning

The Network Manager Flight Planning area provides a flight plan validation service as well as a flight plan management and route finding service for secure access users.

Access our video tutorials in the **NM Flight Planning Zone**

Flight Planning Tools:

Free Text Editor ▸
Structured Editor ▸
Contacts and Support ▸

EUUP	14/03/2019 08:00	15/03/2019 06:00
EUUP	14/03/2019 07:00	15/03/2019 06:00
EUUP	14/03/2019 06:00	15/03/2019 06:00
EUUP	14/03/2019 06:00	15/03/2019 06:00
EUUP	14/03/2019 06:00	15/03/2019 06:00
EAUP	14/03/2019 06:00	15/03/2019 06:00

more ▸

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RAD Homepage

Increment File

1904 - 28 March 2019

1903 - 28 February 2019

Additional Documentation

EU/EURO

FRA Projects

FRA DCT Restrictions

PTRs

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- **Structured Editor** ▸
- **Contacts and Support** ▸
- **NM Flight Planning Documentation** ▸
- **Flight Plan Guide** ▸

EAD

EAD

The European AIS Database (EAD) is the world's largest Aeronautical Information System (AIS): it is a centralized reference database of quality-assured aeronautical information and, simultaneously, a fully integrated, state-of-the-art AIS solution.
EAD is a single source for aeronautical data needs. It is a safer, faster, more accurate and more cost-effective solution than older, non-harmonized methods of AIS data collection and delivery. Besides, it increases the availability and accessibility of AIS information.
EAD offers instant **access**, no matter where you are, to the most up-to-date digital aeronautical information from the ECAC area, NOTAM (Notices to Airmen), Pre-flight Information Bulletins (PIBs) from around the world.
For more info on the EAD, please see **www.eurocontrol.int/ead**

Network Operations HANDBOOK

Network Operations Procedure Updates

ATFCM Users Manual - Edition 22.1 Date 14/11/2018

ATFCM Operations Manual - Edition 22.1 Date 14/11/2018

IFPS Users Manual - Edition 22.1 Date 20/11/2018

Provision of CACD Data - Edition 12.1 Date 09/03/2017

Flexible Use of Airspace AMC/CADF Operations Manual - Edition 10 Date 12/11/2018

CCAMS Users Manual - Edition 2.3 Date 10/11/2017

NM Operational Problem Reporting - Edition: 18.0 Date 19/02/2016

Other operational documentation & CACD forms

nop.office@eurocontrol.int   Legal Notice & Disclaimer

EUROCONTROL

The vision for Global ATFM
A set of interlinked operational ATM regions