TRAFFIC AND DELAY EVOLUTION

EUROCONTROL Network
ATFM Delay per day 2022 vs 2019 (averaged over 7 days)

2019 Weather (CBs) + FDPS Failure (France)

2019 ATC Industrial Action (Italy) 2022 TopSky (Portugal) + ATC Industrial Action (Italy)

2022 Weather (CBs) + ATC Industrial Action (Marseille)

2019 / 2022 Weather (CBs)

2022 ATC Industrial Action (France)

2019 ATC Industrial Action (France)

2019 ATC Industrial Action (France)

2022 Social Negotiations Warsaw ACC

2022 Weather (UK + Portugal)

2022 4-Flight Implementation Reims ACC

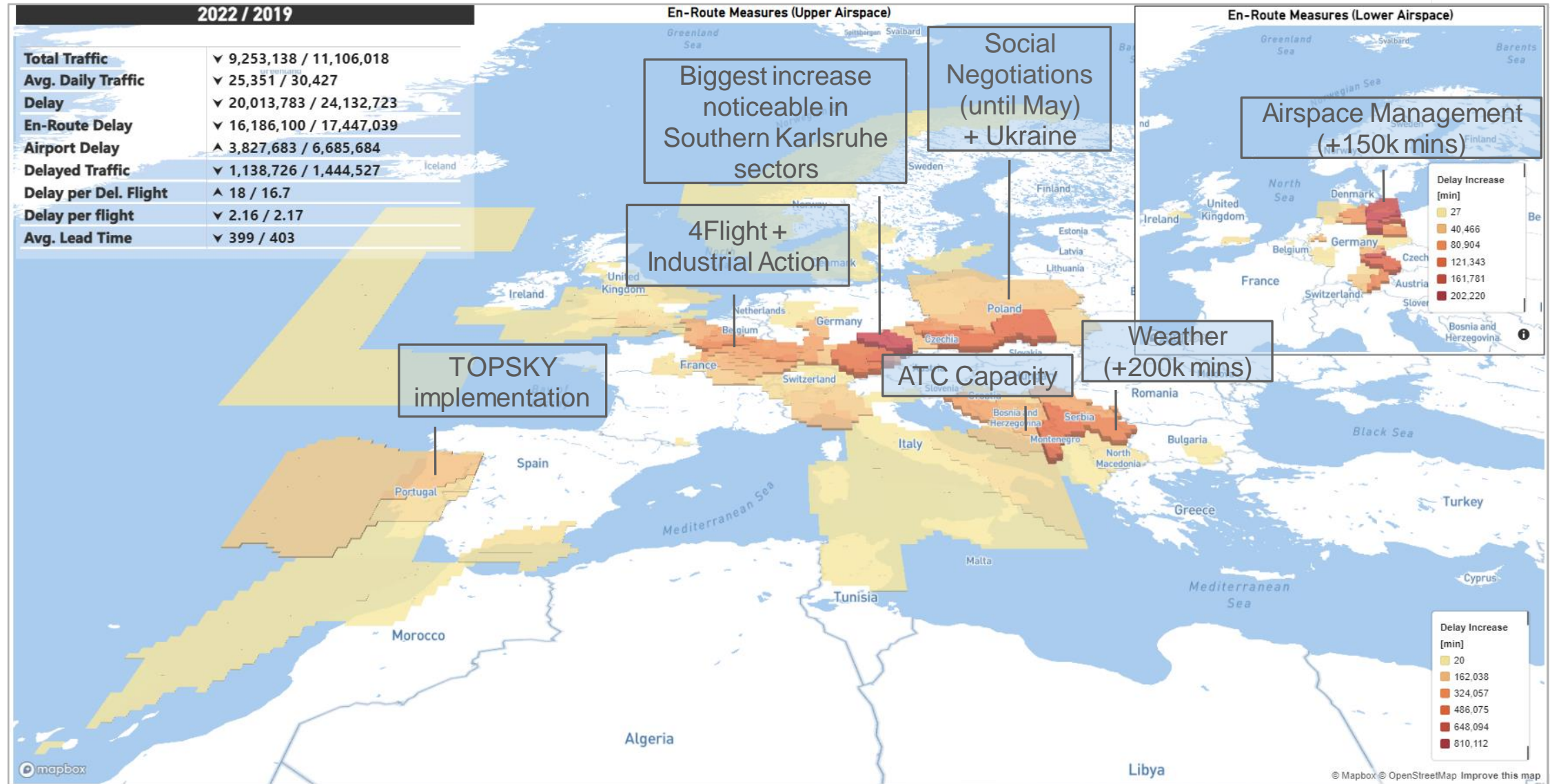Delay 2019   Delay 2022   % Traffic 2022 vs 2019 ....

TRAFFIC CHANGE (2022 VS 2019)

- **2022: 83% of 2019 traffic (83% of delay)**

- South-East Europe increases above 2019 level:
  - Albania +13%
  - North Macedonia +5%,
  - Serbia +2%
  - Croatia and Greece +1%

- South-West Europe generally below 2019:
  - France -12%
  - Spain -8%,
  - Portugal -5%, Morocco -5%

- Ukraine -90% traffic

- Armenia +18%
- Azerbaijan +21%

*Bosnia has been removed due to airspace changes that affect comparison

Traffic Change
[%]
- 10%
- 55%
- 100%
- 110%
- 121%

Areas of ATFM delay increase 2022 VS 2019

2022 / 2019	
Total Traffic	▼ 9,253,138 / 11,106,018
Avg. Daily Traffic	▼ 25,351 / 30,427
Delay	▼ 20,013,783 / 24,132,723
En-Route Delay	▼ 16,186,100 / 17,447,039
Airport Delay	▲ 3,827,683 / 6,685,684
Delayed Traffic	▼ 1,138,726 / 1,444,527
Delay per Del. Flight	▲ 18 / 16.7
Delay per flight	▼ 2.16 / 2.17
Avg. Lead Time	▼ 399 / 403

En-Route Measures (Upper Airspace)

En-Route Measures (Lower Airspace)

Biggest increase noticeable in Southern Karlsruhe sectors

Social Negotiations (until May) + Ukraine

Airspace Management (+150k mins)

4Flight + Industrial Action

Weather (+200k mins)

TOPSKY implementation

ATC Capacity

Delay Increase [min]
- 27
- 40,466
- 80,904
- 121,343
- 161,781
- 202,220

Delay Increase [min]
- 20
- 162,038
- 324,057
- 486,075
- 648,094
- 810,112

TOTAL DELAY BREAKDOWN

Regulation Reason	2022 vs 2019 Delay
Accident/Incident	-5K (-31%)
Aerodrome Capacity	-.7M (-41%)
Aerodrome Services	-16K (-57%)
Airspace Management	-.1M (-27%)
ATC Capacity	-2.2M (-25%)
ATC Equipment	-.2M (-31%)
ATC Ind Action	-.3M (-32%)
ATC Routeings	+53 (18%)
ATC Staffing	-2.3M (-51%)
Environmental Issues	-85K (-82%)
Ind Action non-ATC	-4K (-11%)
Other	+1.1M (599%)
Special Event	+2.2M (564%)
Weather	-1.5M (-23%)

En-Route

Regulation Reason	2022 vs 2019 Delay
Accident/Incident	+438 (105%)
Aerodrome Capacity	+10K (203%)
Aerodrome Services	-194 (-100%)
Airspace Management	-39K (-10%)
ATC Capacity	-1.7M (-22%)
ATC Equipment	-.2M (-45%)
ATC Ind Action	-.2M (-30%)
ATC Routeings	+53 (18%)
ATC Staffing	-2.5M (-59%)
De-Icing	()
Environmental Issues	+2K (61%)
Ind Action non-ATC	-939 (-100%)
Other	+1.1M (1098%)
Special Event	+2.3M (2214%)
Weather	-8K (0%)

Airport

Regulation Reason	2022 vs 2019 Delay
Accident/Incident	-6K (-35%)
Aerodrome Capacity	-.7M (-41%)
Aerodrome Services	-16K (-57%)
Airspace Management	-.1M (-68%)
ATC Capacity	-.5M (-47%)
ATC Equipment	+15K (11%)
ATC Ind Action	-36K (-48%)
ATC Staffing	+.2M (81%)
De-Icing	()
Environmental Issues	-86K (-86%)
Ind Action non-ATC	-3K (-9%)
Other	-40K (-50%)
Special Event	-96K (-34%)
Weather	-1.5M (-53%)

En Route:
- Delays for **ATC Staffing** have reduced.
- **Special Event** and **Other (**mainly due to military activity associated with Ukraine), increased.

Airports:
- Delay generated at airports reduced by **3m** minutes.
- Reductions: **Aerodrome Capacity, ATC Capacity and Weather**.
- **ATC Staffing** and **Non ATFM ground** delays have increased.

ATFM Delay per flight summary

En-route

- ATFM delay per flight 1.76 min/flight (Summer 2.9 min/flight)
- ATFM delay higher on weekends
- Pre-pandemic capacity issues are back: Karlsruhe
- Reims and Prague – slower capacity recovery after implementation
- Strikes returned in September onwards.
- Most of the ACCs with very low or zero delays

Airport

- ATFM Delay per flight 0.41min (Summer 0.47min)
- ATFM delay higher on weekends
- Gatwick, Tel Aviv, and Amsterdam had highest ATFM delay mixed in with ground issues
- Greek airports increased capacity and had network average punctuality

Top 20 delay location for year-to-date delays
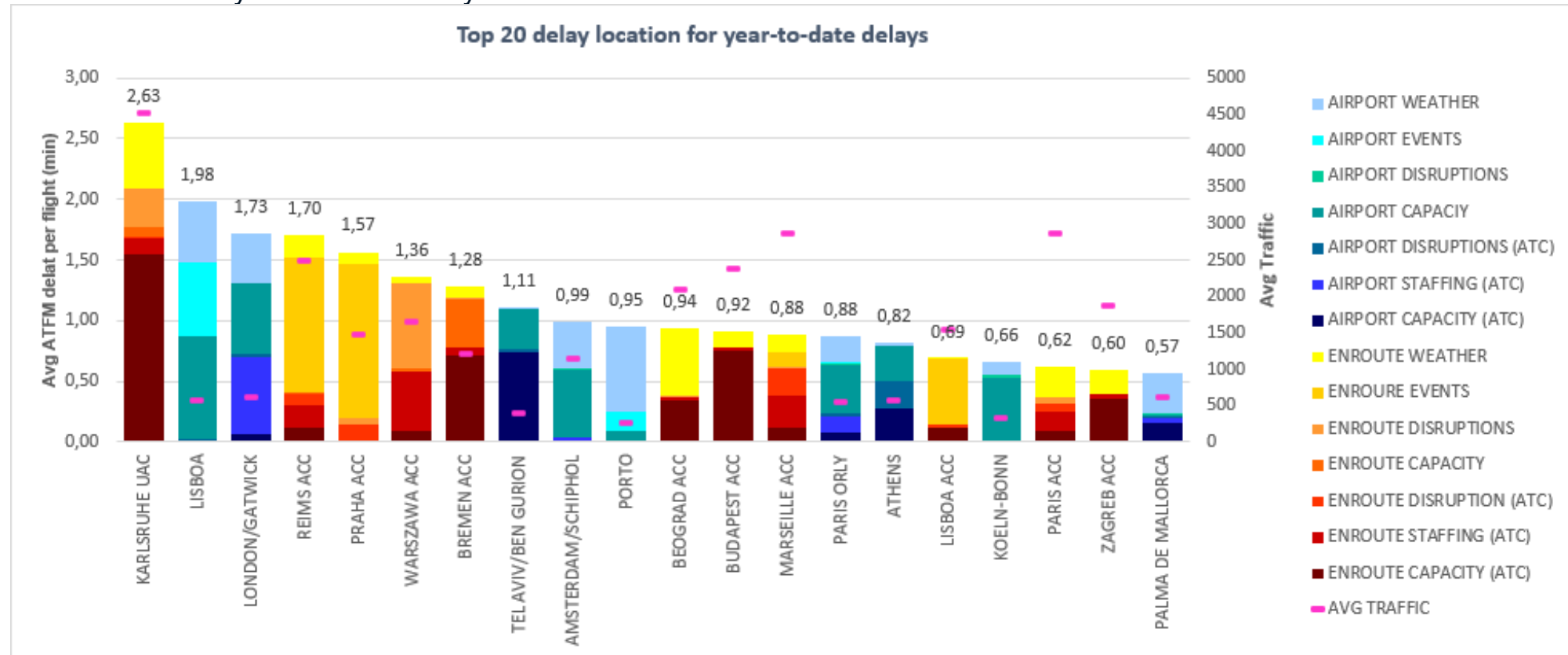
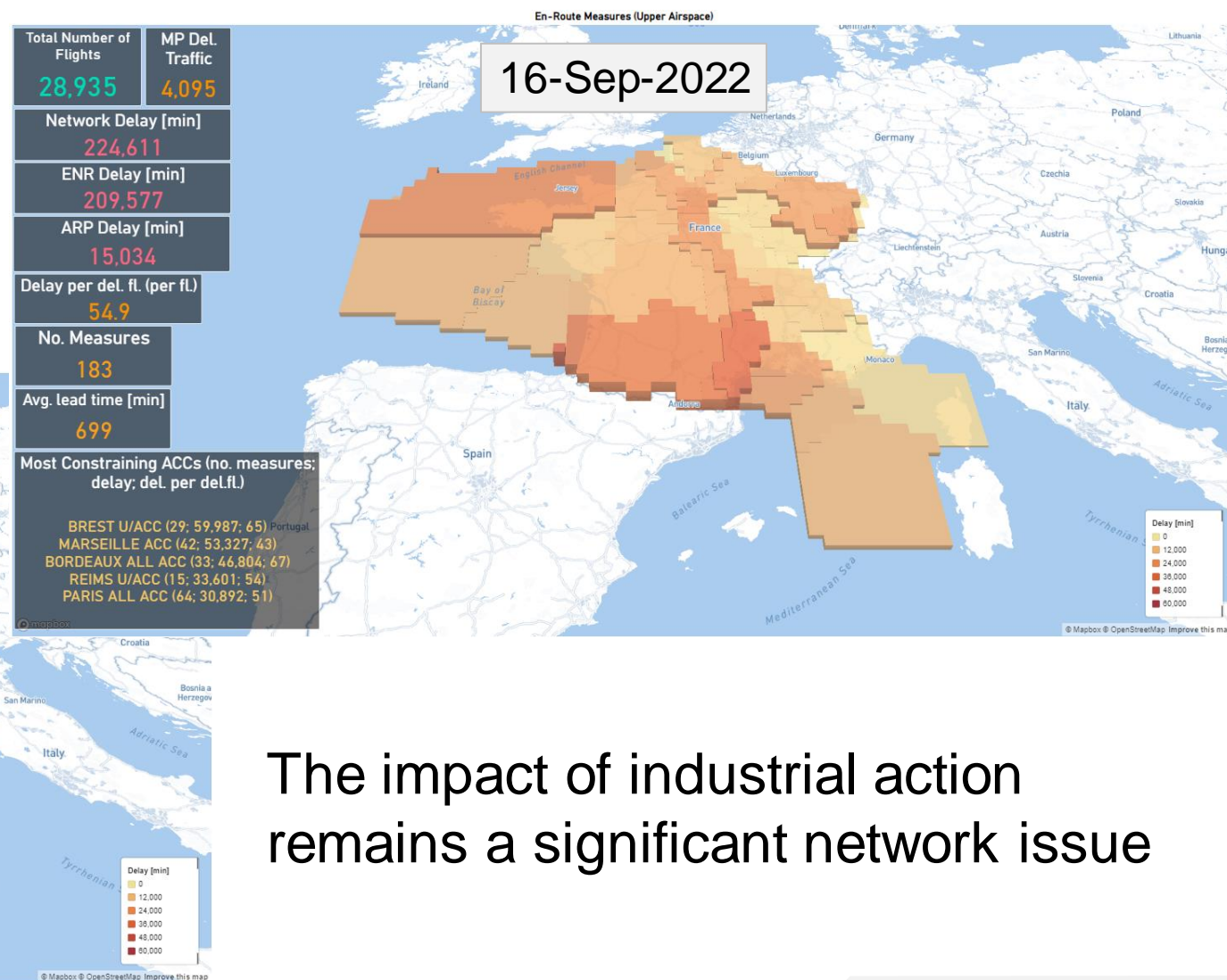# Volatility

Some contributory factors:

- Regulation modifications +11%

- Slot revision messages (SRM)
  - per regulated flight +25%

- More accurate data
  - Updating of profiles,
  - Increase in update messages
  - Better reflection of reality:
    the downside of accuracy

User Commands Statistics
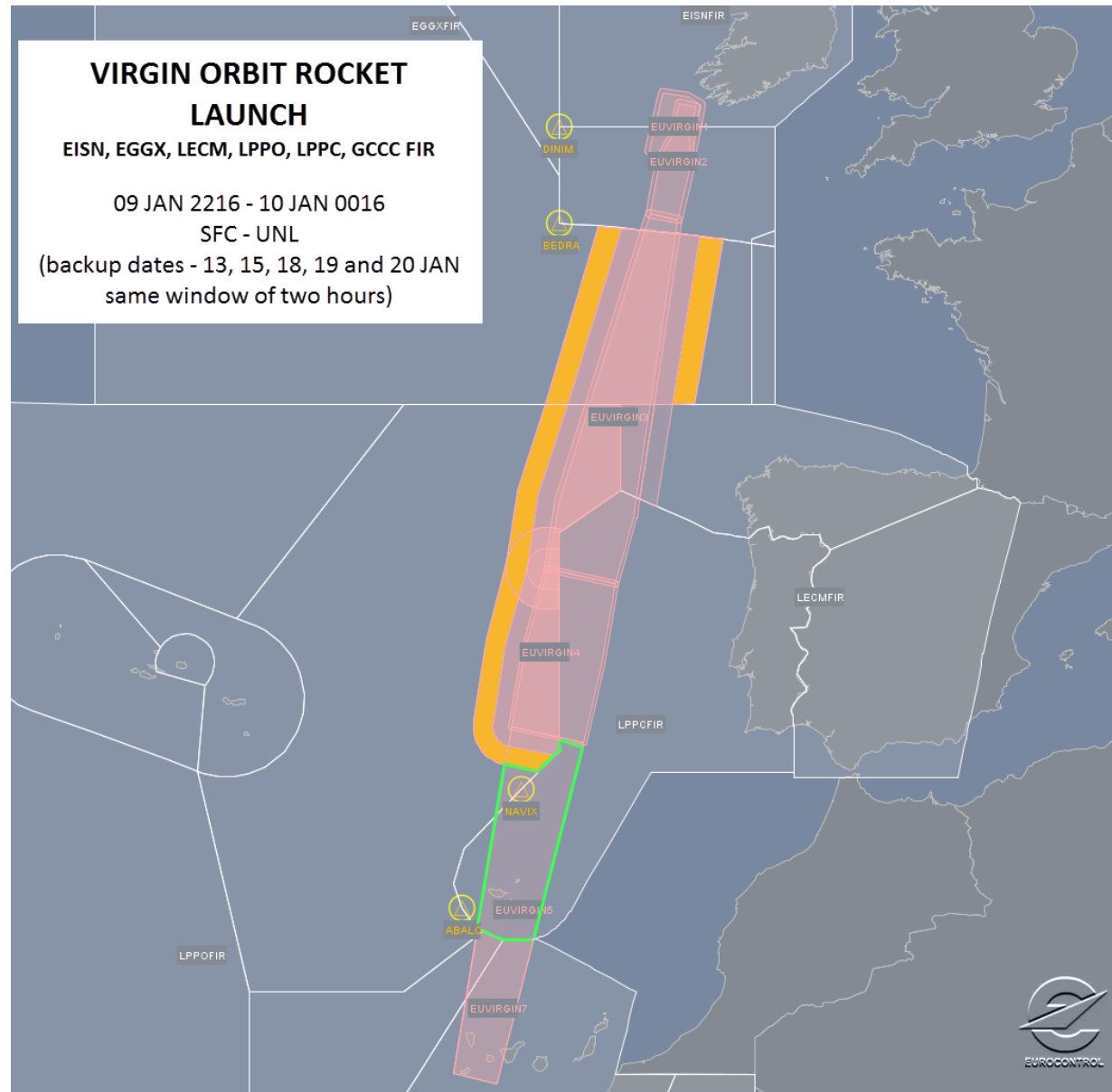

User Commands Statistics
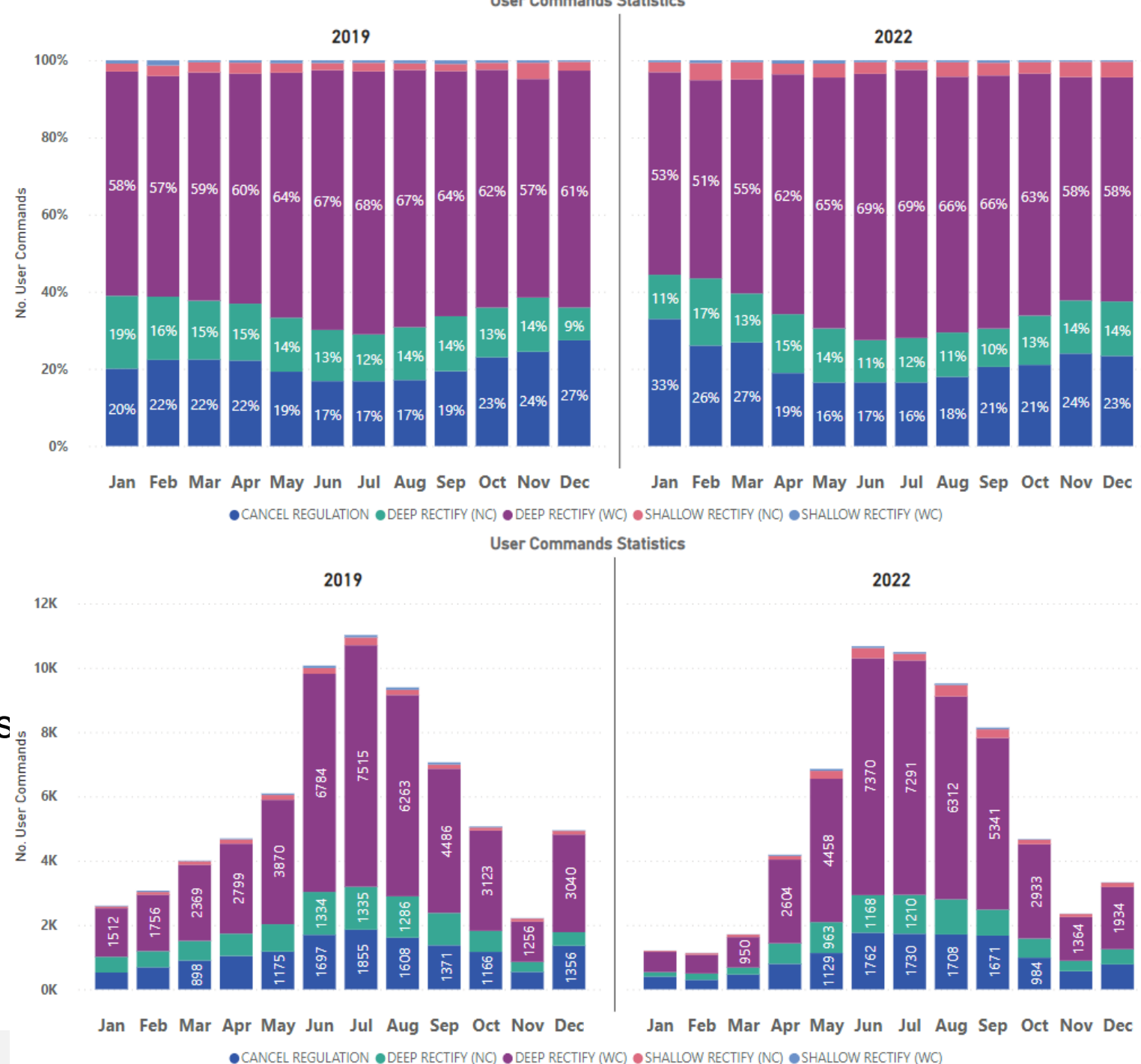
ATC Industrial Action 2019 vs 2022 (most delayed date)

2019 - 900,227 minutes
2022 - 616,607 minutes

The impact of industrial action remains a significant network issue

9-May-2019

En-Route Measures (Upper Airspace)

Total Number of Flights	MP Del. Traffic
31,097	3,872

Network Delay [min]
203,599

ENR Delay [min]
197,966

ARP Delay [min]
5,633

Delay per del. fl. (per fl.)
52.6

No. Measures
202

Avg. lead time [min]
507

Most Constraining ACCs (no. measures; delay; del. per del.fl.)

MARSEILLE ACC (38; 81,095; 57)
BORDEAUX ALL ACC (44; 55,122; 59)
BREST U/ACC (49; 50,007; 65)
PARIS ALL ACC (58; 14,757; 23)
LF DSNA (2; 1,479; 37)
REIMS U/ACC (11; 1,139; 21)

16-Sep-2022

En-Route Measures (Upper Airspace)

Total Number of Flights	MP Del. Traffic
28,935	4,095

Network Delay [min]
224,611

ENR Delay [min]
209,577

ARP Delay [min]
15,034

Delay per del. fl. (per fl.)
54.9

No. Measures
183

Avg. lead time [min]
699

Most Constraining ACCs (no. measures; delay; del. per del.fl.)

BREST U/ACC (29; 59,987; 65)
MARSEILLE ACC (42; 53,327; 43)
BORDEAUX ALL ACC (33; 46,804; 67)
REIMS U/ACC (15; 33,601; 54)
PARIS ALL ACC (64; 30,892; 51)

What goes up…

VIRGIN ORBIT ROCKET LAUNCH
EISN, EGGX, LECM, LPPO, LPPC, GCCC FIR

09 JAN 2216 - 10 JAN 0016
SFC - UNL
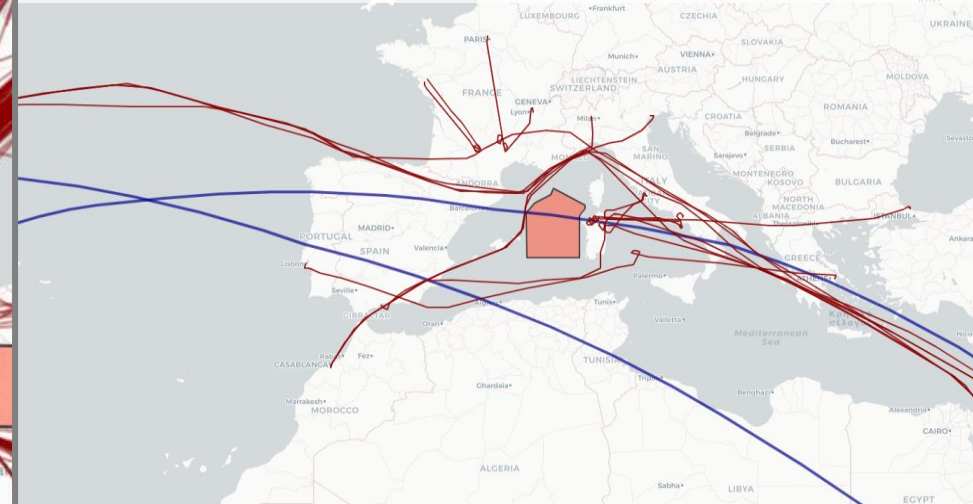(backup dates - 13, 15, 18, 19 and 20 JAN
same window of two hours)

Regulated airspace LFMM-EK
- zero-rate lead time: 17 min
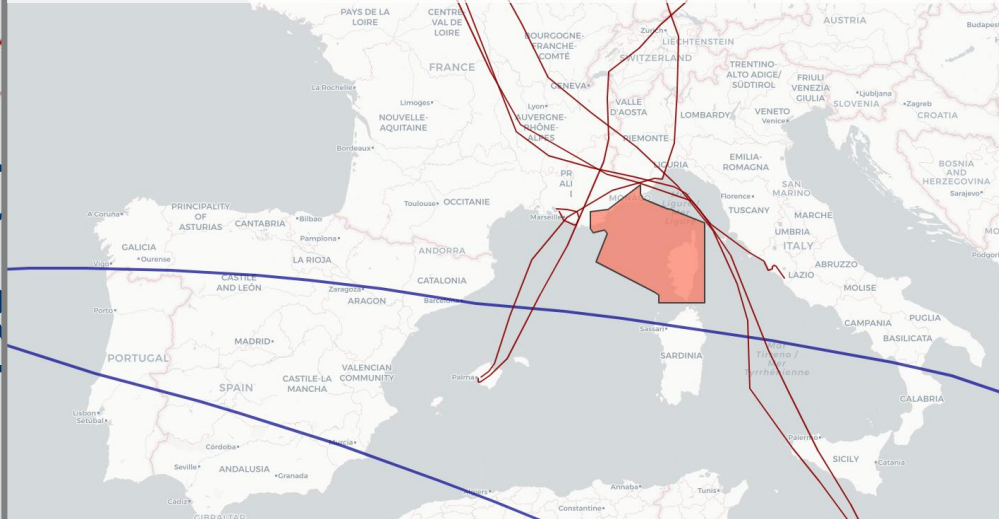
Regulated airspace LFMM-DZ
- zero-rate lead time: 22 min

| Top 10 operators by minutes of delay			
Operator	Delay [min]	No. del. flights	Del. per del. flight
RYANAIR	2986	143	21
EASYJET UK LTD	1226	41	30
IBERIA - LINEAS AEREAS DE ESPANA, SOCIEDAD ANONIMA OPERADORA	1192	31	38
VUELING AIRLINES	1092	64	17
AIR NOSTRUM LINEAS AEREAS DEL MEDITERRANEO, S.A.	796	34	23
JET2.COM LTD	786	21	37
ROYAL AIR MAROC - COMPAGNIE NATIONALE DE TRANSPORTS AERIENS	557	33	17
EASYJET EUROPE AIRLINE GMBH	478	24	20
AIR ALGERIE	448	16	28
EUROWINGS GMBH	429	13	33

A complex Network - Operational Highlights

➢ Traffic growth

➢ Ukraine-Russia situation

➢ Many significant ANSP's transition plan or events

➢ Post Covid rustiness in ATFM personnel

A complex Network - Operational Highlights

2022 traffic outlook compared to 2019 – 19 December to 25 December 2022
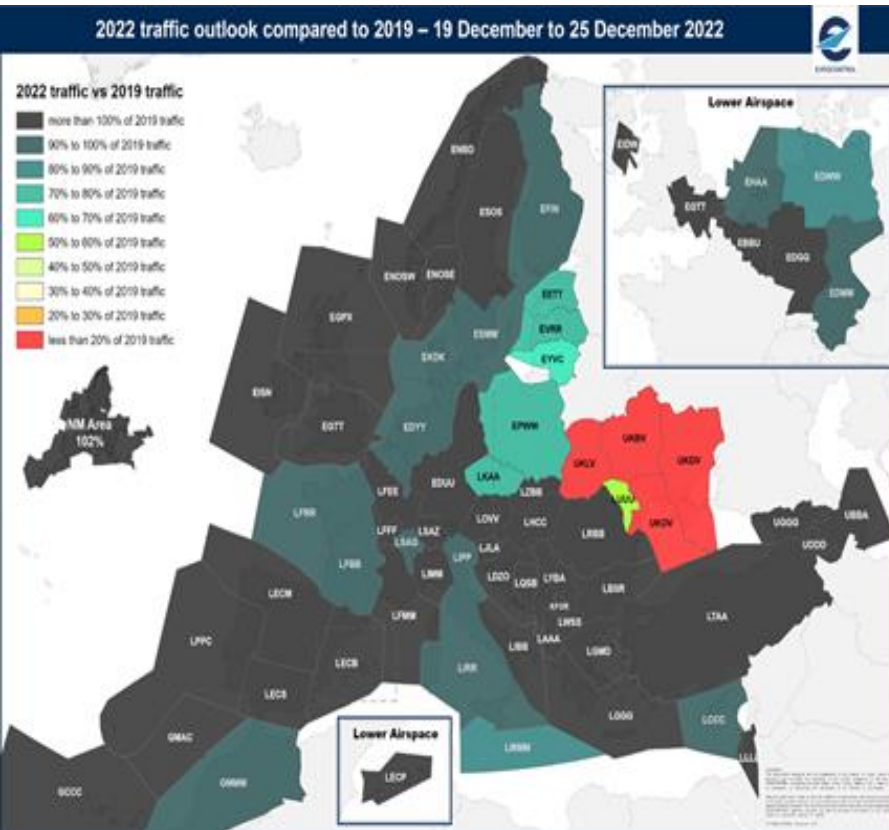
- ➢ Traffic growth
  - unbalanced traffic recovery
  - Slight decrease on SW whilst good increase on SE axis

- ➢ Ukrainian-Russia war
  - With 20% less airspace, many flights were forced into Central-East airspace
  - increased ad-hoc military activity
  - NMOC managed effectively a complex work related to the situation
    by creating/monitoring 100+ EU restrictions to comply to NOTAM
    publication and/or to EU & EASA requirements

A complex Network - Operational Highlights

➢ Major ANSP's transition plan
  - 4 flight implementation in Reims, Marseilles
  - TopSky implementation in Praha, Lisbon
  - iCAS live trials Munich

➢ Post-Covid rustiness in ATFM personnel
  - Loss of expertise & best practices
  - Staffing issues

In NMOC, what did we do, or do differently?

What did we do or do differently?

➢ Support to ANSP's transition plan and/or major airspace design projects
- 31 Pre-Validations
- NMOC hosted Ops representatives from ANSP's

➢ Support to AOs
- FPL assistance to comply to the ban and derogation process related to Ukrainian situation
- Providing RRPs – delay mitigation
- Critical flights: crew hours, night curfew
- NMOC hosted several training or familiarization visits
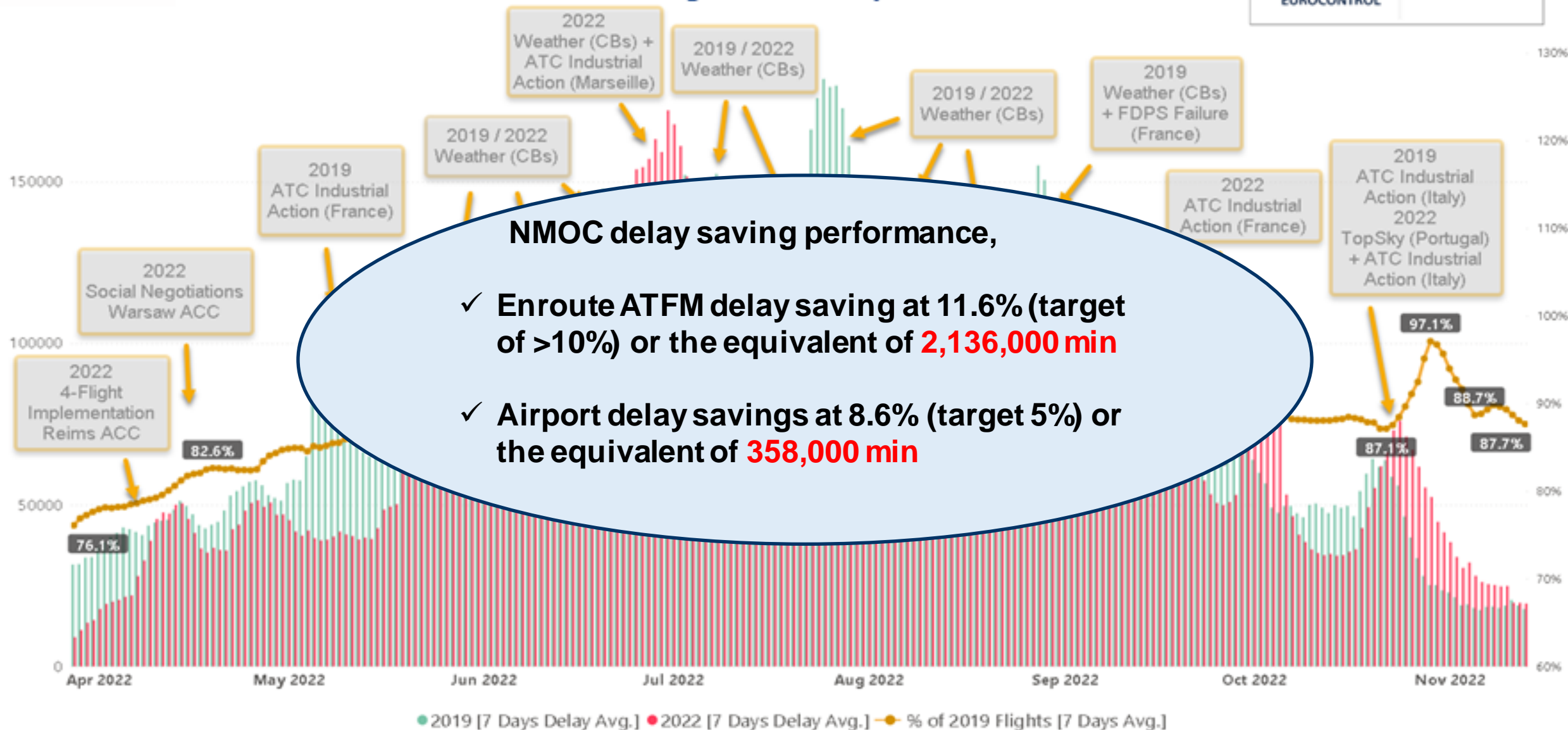
What did we do or do differently?

➢ Support to Airports
- monitoring adherence to APT slot
- First rotation optimization
- Assistance to night curfew

➢ Support to military units
- 88 military exercises through the Network in 2022
- 60% increased military movements in Europe compared with average of last 3 years
- MILO presence in NATO AirCom Ramstein

EUROCONTROL Network
ATFM Delay (all causes, Airport + En-Route), per day, 2019 and 2022
(averaged over 7 days)

2022 Weather (CBs) + ATC Industrial Action (Marseille)

2019 / 2022 Weather (CBs)

2019 / 2022 Weather (CBs)

2019 Weather (CBs) + FDPS Failure (France)

2019 / 2022 Weather (CBs)

2019 ATC Industrial Action (France)

2022 Social Negotiations Warsaw ACC

2022 4-Flight Implementation Reims ACC

2022 ATC Industrial Action (France)

2019 ATC Industrial Action (Italy) 2022 TopSky (Portugal) + ATC Industrial Action (Italy)

NMOC delay saving performance,

✓ **Enroute ATFM delay saving at 11.6% (target of >10%) or the equivalent of 2,136,000 min**

✓ **Airport delay savings at 8.6% (target 5%) or the equivalent of 358,000 min**

76.1% 82.6% 87.1% 97.1% 88.7% 87.7%

Apr 2022   May 2022   Jun 2022   Jul 2022   Aug 2022   Sep 2022   Oct 2022   Nov 2022

● 2019 [7 Days Delay Avg.]   ● 2022 [7 Days Delay Avg.]   → % of 2019 Flights [7 Days Avg.]

Sources of departure delays

Total Departure delays [k min]

	Ground delay	Regul En-Route	Regul Airport	Reactionary
May-Sept 2022	14836	9118	1558	38185
	+14%	+4%	-47%	+29%
May-Sept 2019	12991	8753	2949	29510
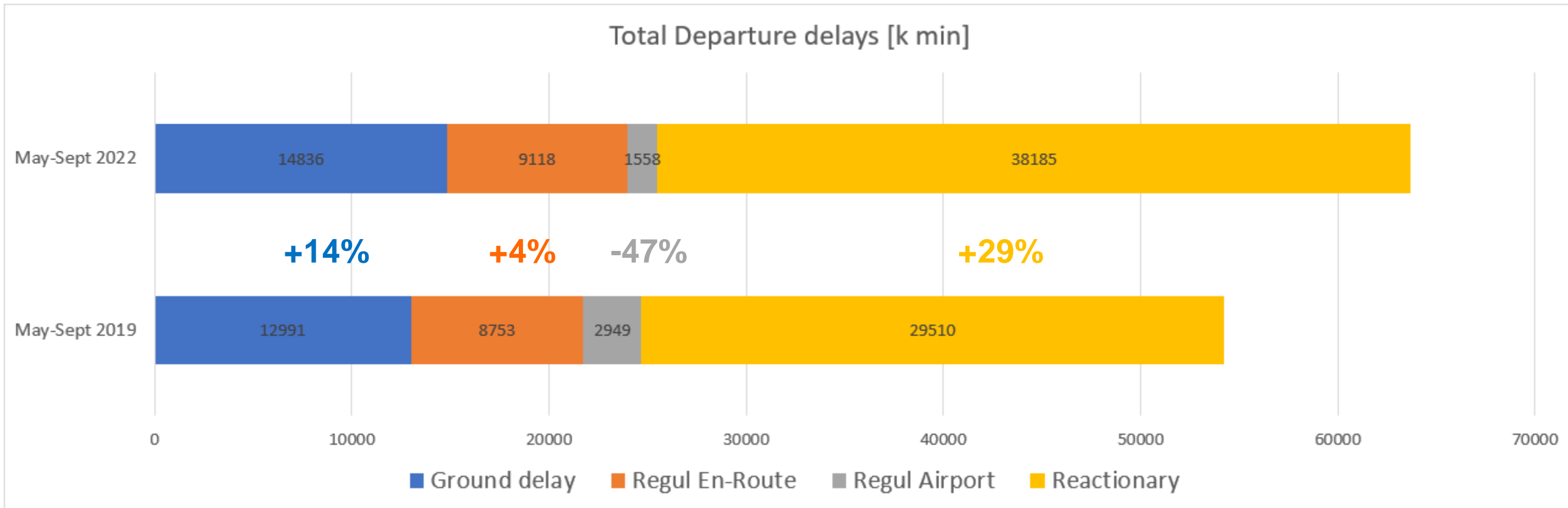
Airport as a black box for the Network

Purpose: identify where the Airport "black box" generate delay
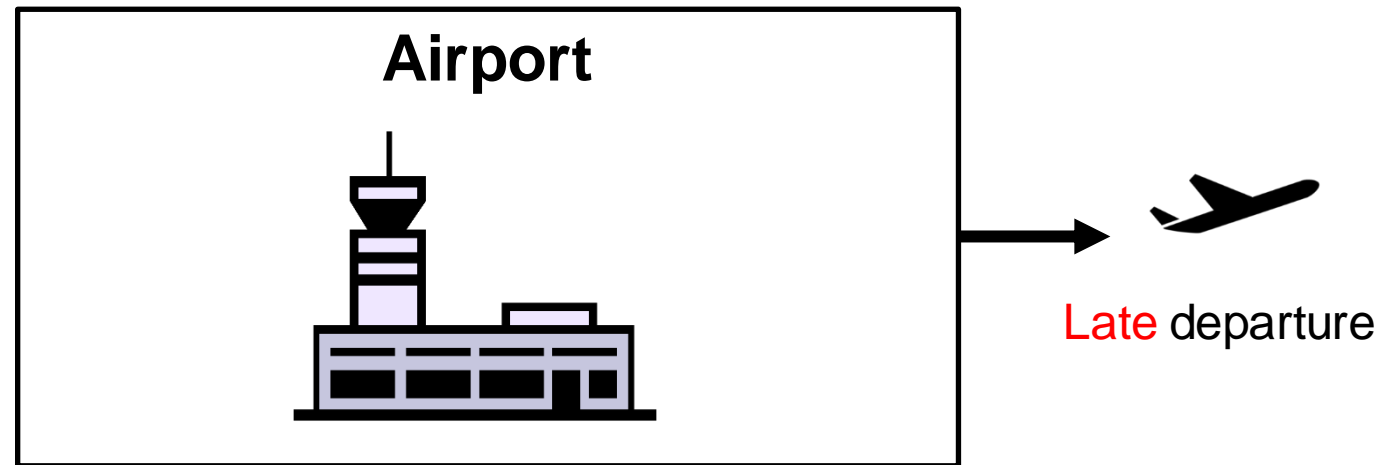
Airport

Late departure

Something happened within the airport area = **Ground Delay**

Airport as a black box for the Network

Sample of data used: departure without regulation and not impacted by late arrival

No ATFM regulation

Airport

Arrival on time or with no impact on next departure

Late departure

Something happened within the airport area = **Ground Delay**
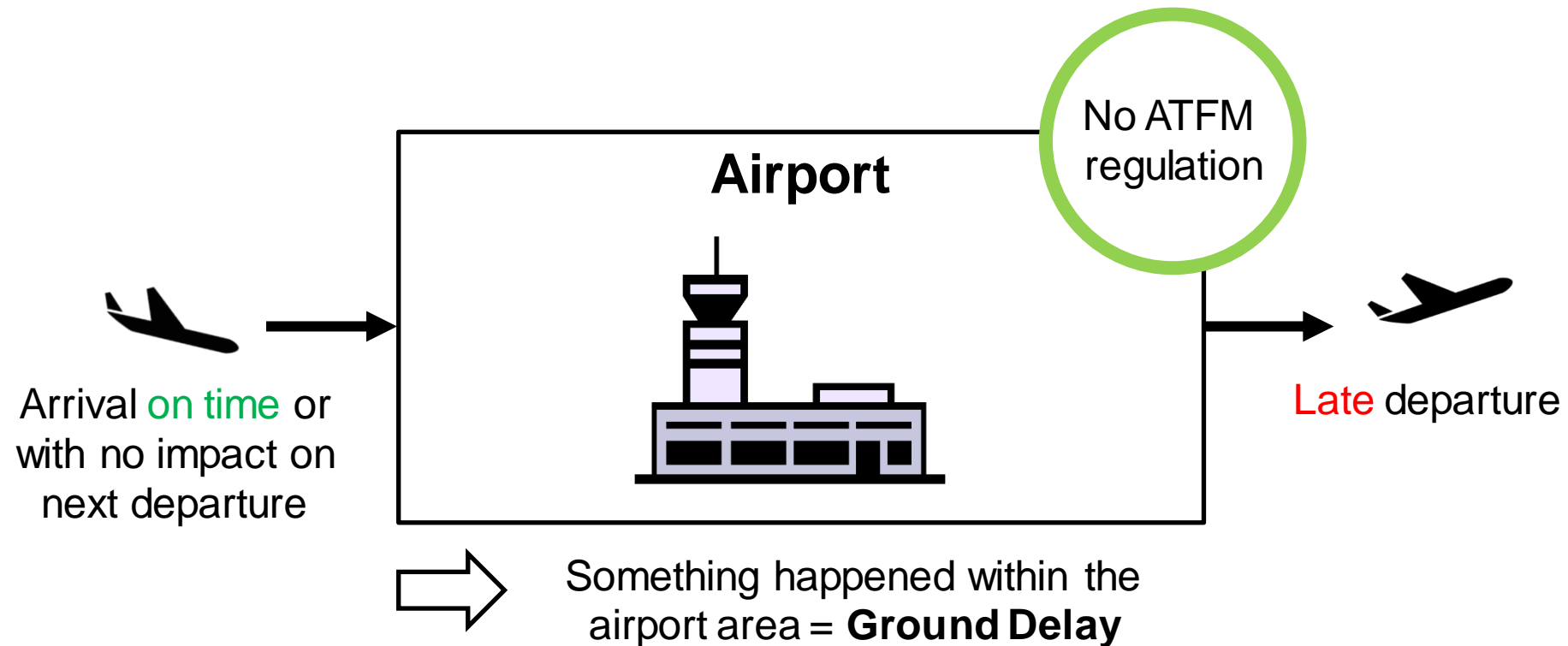
Airport as a black box for the Network

Example: IBS3739 flight on 04/07/2022 from LFPG to LEMD

|	
Scheduled Arrival at LFPG :	04-07-2022 08:20
Actual Arrival at LFPG :	04-07-2022 08:13
➜ Arrival delay at LFPG:	0 min
Scheduled departure from LFPG:	04-07-2022 09:05
Actual departure from LFPG :	04-07-2022 09:34
ATFM Regulation:	None
➜ Departure delay :	29 min
Scheduled arrival time at LEMD:	04-07-2022 11:20
Actual arrival time at LEMD :	04-07-2022 11:31
➜ Arrival delay at LEMD	11 min

Weekly evolution of the ground delay

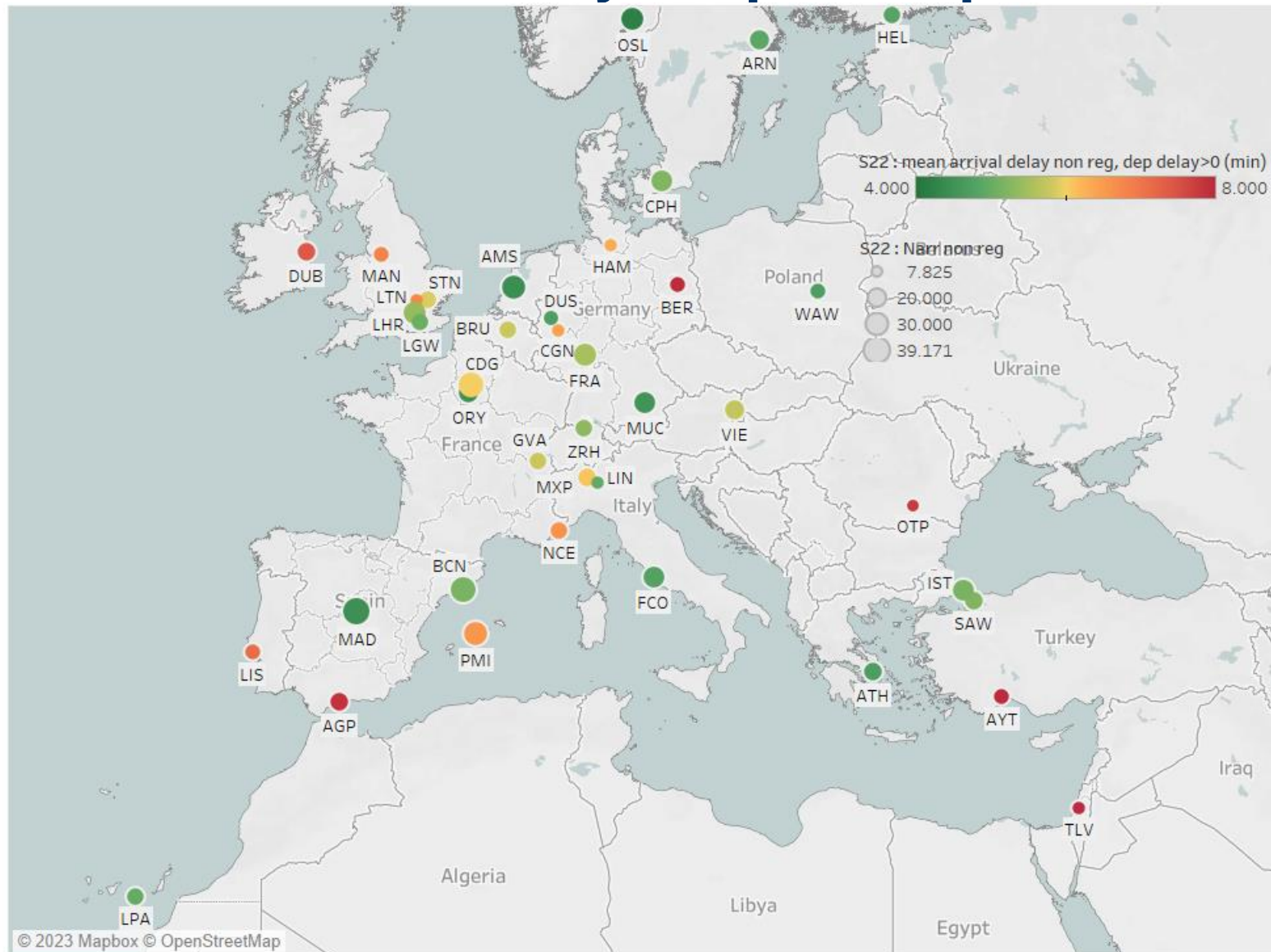Mean ground delay evolution : **+38%**

2019

2022

Network : 5.6 min/flight

Network : 7.7 min/flight
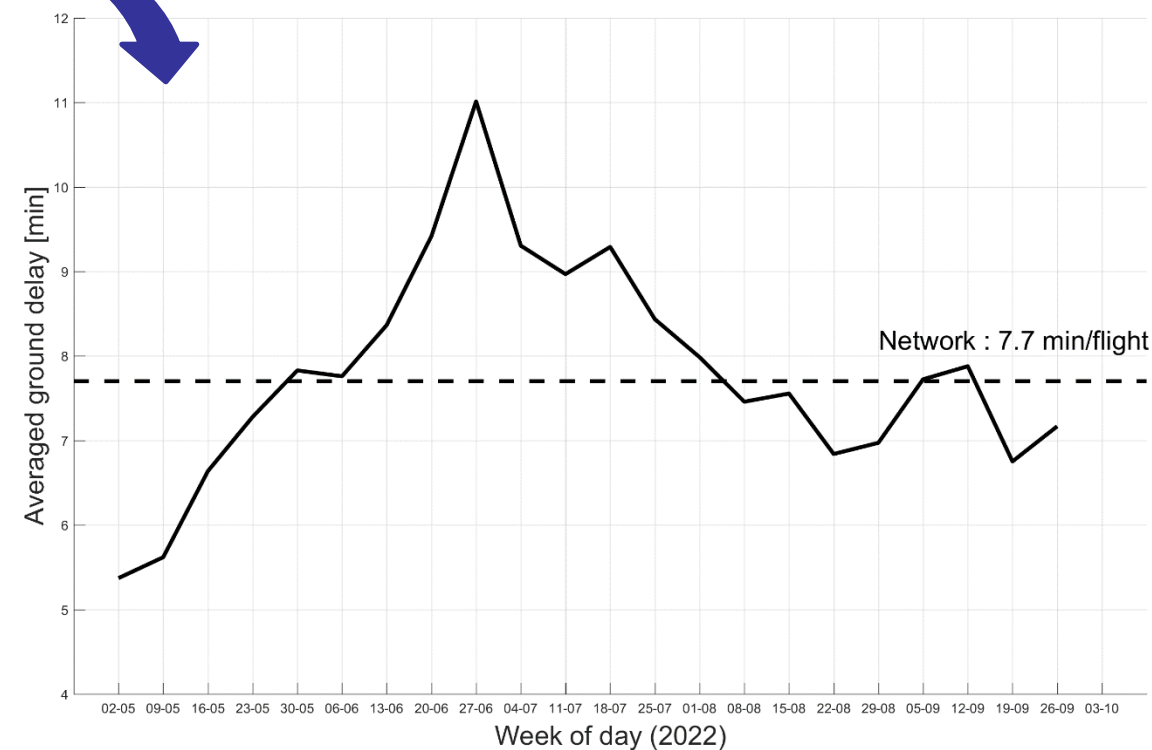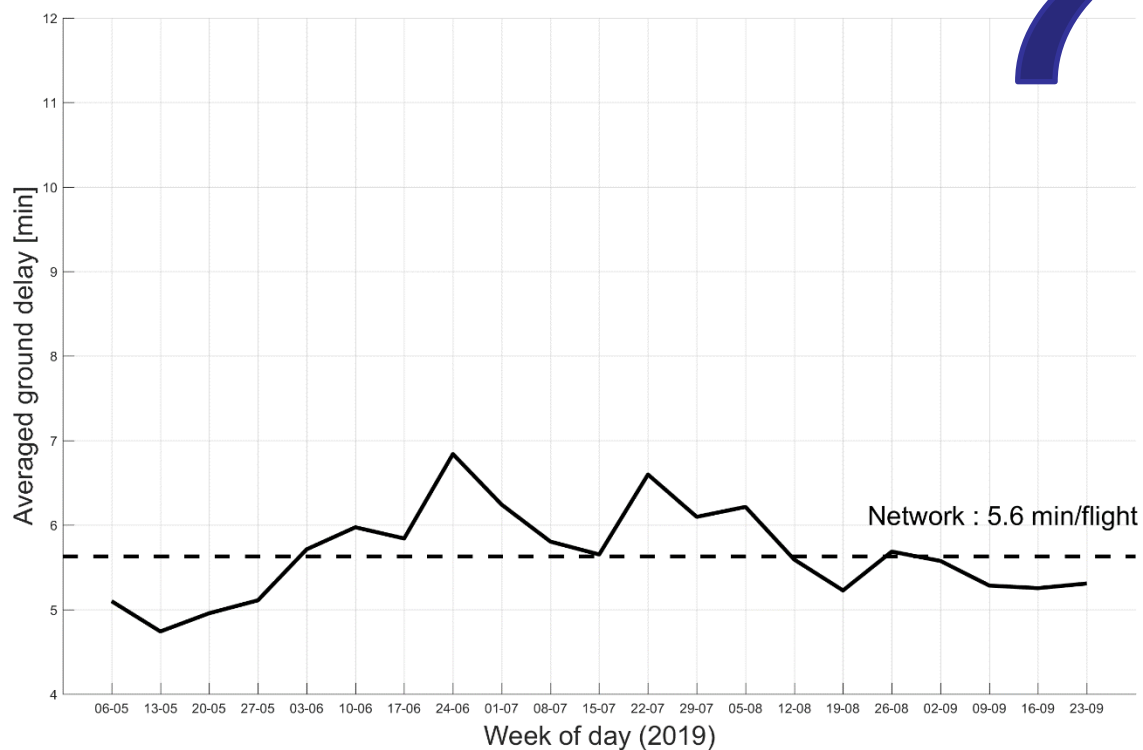
	Summer 19	Summer 22	Evolution
Ndep total	3766228	3374327	-10%

Ground departure delay - top 40 airports
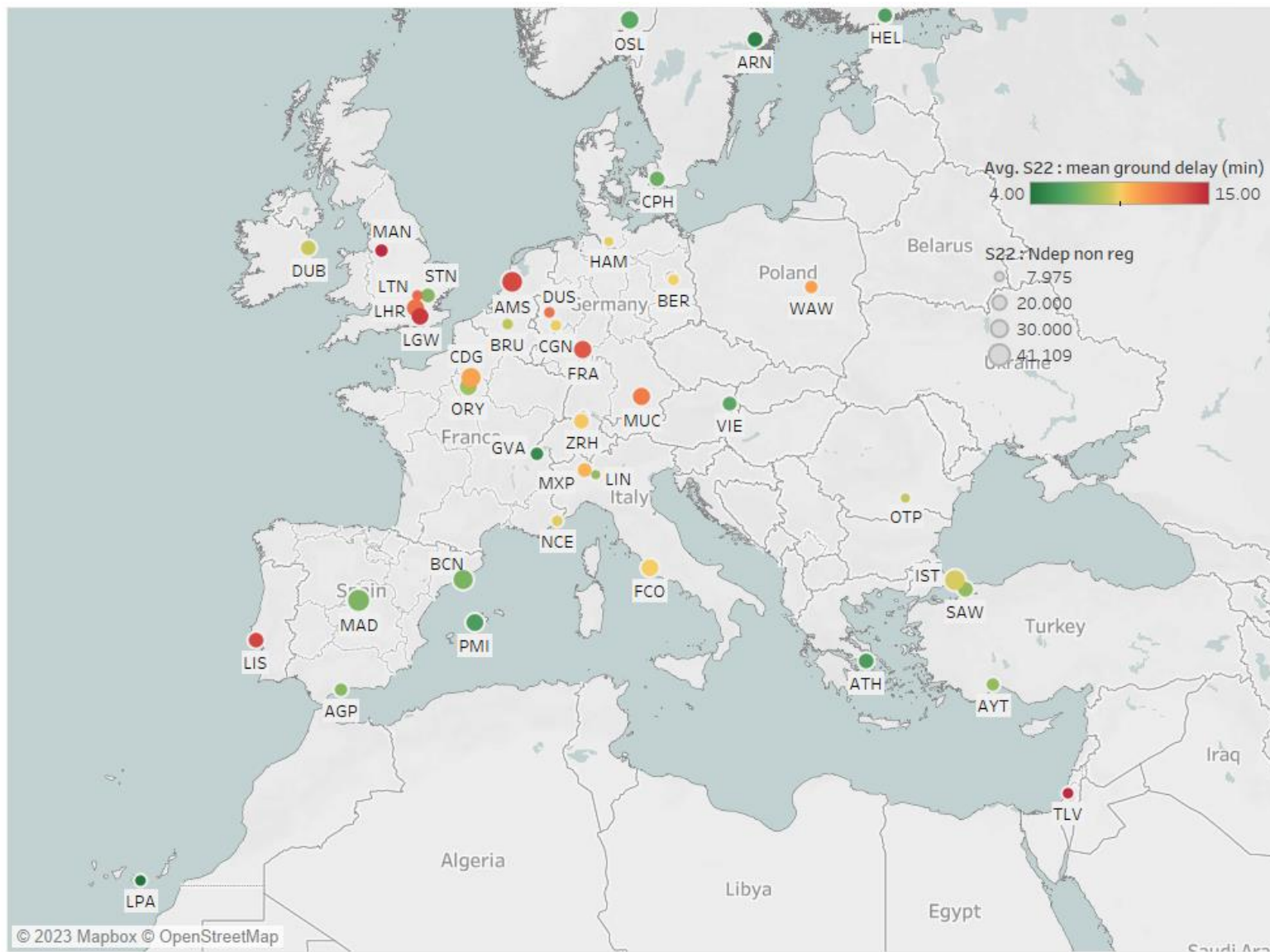
Ground arrival delay - top 40 airports

Supporting
European
Aviation

Panel Discussion
User Forum

Steven MOORE – Head of Operations Division

Panellists

- **Airports**

  Graham Alder, Gatwick Airport
  Andreas Deckert, Berlin Airport

- **ANSPs**

  Andreas Völckel, DFS

  Holger Schneider, DFS
  Yolanda Portillo Pérez, ENAIRE

Questions?

- **Airlines**

  Thomas Smeets, Brussels Airlines
  Nicolas Galtier, Air France

  Raphaël Eyrolle, Air France

- **NMOC**

  Daniel Degehet, NMOC