



Network Manager
nominated by
the European Commission



Monthly Network Operations Report

Analysis – April 2019



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NOTICE

Traffic and Delay Comparisons

All traffic and delay comparisons are between report month and equivalent month of previous year, unless otherwise stated.

Graphics

All graphs in sections 2, 3 and 4 are in average minutes of ATFM delay per day, unless otherwise stated.

NM Area

All figures presented in this report are for the geographical area that is within Network Manager's responsibility (NM area). For further information on the NM Area go to the Reporting Assumptions and Descriptions document available on the EUROCONTROL website at <http://www.eurocontrol.int/articles/network-operations-monitoring-and-reporting>.

Regulation Reason Groupings

The table below shows the colour coding used in the report charts.

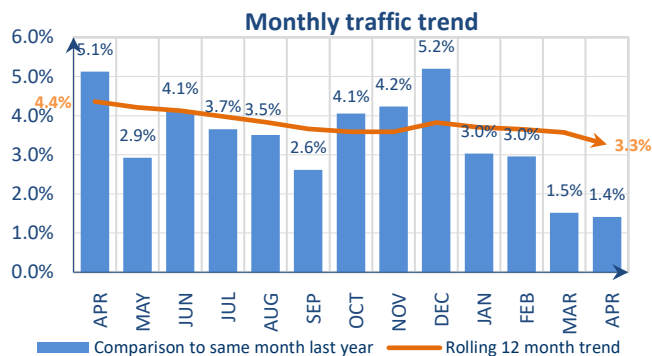
EN-ROUTE CAPACITY (ATC)	AIRPORT CAPACITY (ATC)
EN-ROUTE STAFFING (ATC)	AIRPORT STAFFING (ATC)
EN-ROUTE DISRUPTIONS (ATC)	AIRPORT DISRUPTIONS (ATC)
EN-ROUTE CAPACITY	AIRPORT CAPACITY
EN-ROUTE DISRUPTIONS	AIRPORT DISRUPTIONS
EN-ROUTE EVENTS	AIRPORT EVENTS
EN-ROUTE WEATHER	AIRPORT WEATHER

For further information on the regulation reason groupings, go to the Reporting Assumptions and Descriptions document available on the EUROCONTROL website at <http://www.eurocontrol.int/articles/network-operations-monitoring-and-reporting>.

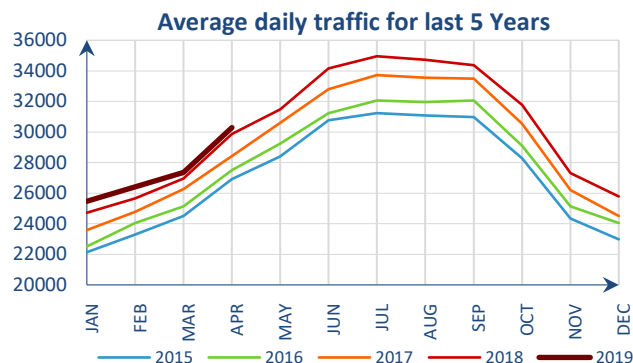
ATFM Statistics dashboard

More detailed information available via the new [ATFM Statistics dashboard](#).

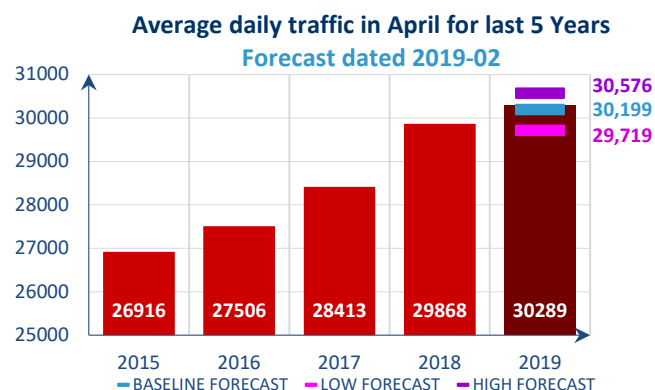
1. TOTAL TRAFFIC



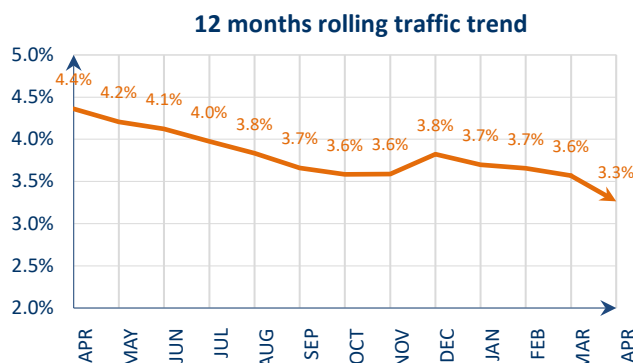
Traffic increased by 1.4% in April 2019ⁱ.



Average daily traffic in April 2019 was 30,289, the highest ever recorded for April.



The traffic increase of 1.4% for April was aligned with baseline forecast published in February 2019.



This graph shows the variation in average daily traffic for the last 12-month period relative to the previous 12-months. The average daily traffic from May 2018 to April 2019 was 3.3% higher than the average from May 2017 to April 2018.

Ten states added more than 50 flights per day to the European localⁱⁱ traffic growth. France (impacted by industrial action in April 2018) was the top contributor and added 240 flights per day owing primarily to its internal flow (+59 flights/day) along with its flows to and from North Africa (Morocco, +18 flights/day and Tunisia, +11 flights/day), Italy (+25 flights/day) and Germany (+22 flights/day). Spain ranked second with 229 flights/day owing mainly to its flows to and from Germany (+41 flights/day), UK (+34 flights/day), Austria (+26 flights/day), Italy (+20 flights/day) and Canary Islands (+18 flights/day). Italy was the third contributor with 162 extra daily flights owing mainly to its flows to and from Western Europe (Germany +28 flights/day, France +25 flights/day, Spain +19 flights/day) and Egypt (+17 flights/day). Germany ranked fourth and added 138 flights per day due to flows to and from Spain (+42 flights/day), Turkey (+41 flights/day), Italy (+29 flights/day) and France (+25 flights/day). Austria was the fifth contributor with 100 extra flights per day, an 11.3% growth of its local traffic mainly due to its flow to and from Southern Europe (Spain +26 flights/day, Italy +12 flights/day and Greece +8 flights/day). The next five states added together 316 daily flights to the network: Greece (+76 flights/day), Portugal excl. Azores (+67 flights/day), Ukraine (+62 flights/day and 15% growth), Morocco (+60 flights/day up 11.7% growth in April 2018). At the other end of the scale, pilot strikes at SAS Scandinavian Airlines resulted in significantly fewer flights in Sweden (-131 flights/day) also impacted by the flying shame movement, Norway (-103 flights/day) and moderately fewer flights in Denmark (-36 flights/day). Turkey saw 95 fewer daily flights due to its internal flow, which was down 215 flights per day in April.

The top five external partners in average daily flights on flows in both directions were the United States (1,002 flights, up 0.6%), the Russian Federation (855 flights, up 6.0%), Egypt (323 flights, up 23.4%), the United Arab Emirates (318 flights, down 5.5%), and Qatar (207 flights, up 13.1%).

The aircraft operators which added the most flights to the network on a daily basis were Ryanair (+123 flights), Air France (+118 flights), Vueling (+45 flights), LOT (+42 flights) and Wizz Air (+35 flights).

For more information on EUROCONTROL Statistics and Forecasts, go to <http://www.eurocontrol.int/statfor/sid>

Nine of the top ten airports had positive traffic growth. Overall, the largest traffic increases in April 2019 were at Antalya, Vienna, Berlin/Tegel, Milano/Malpensa, Düsseldorf and Paris/Charles de Gaulle airports. The largest traffic decreases were at Stockholm/Arlanda, Oslo/Gardermoen, Copenhagen, Köln/Bonn and Birmingham airports. The increase of traffic in Berlin/Tegel airport is partially due to the opening of new routes. The traffic changes in Vienna, Berlin Tegel and Palma can be partly attributed to airline failures in 2017 creating opportunity for start-up carriers and existing competitors to increase frequencies. Paris/Charles de Gaulle traffic variation is due to the comparison with April 2018 where several industrial actions took place.

Six of the top ten aircraft operators flew more compared to April 2018. The operators with the highest traffic growth were Volotea, Jet2.com, Air France, Loganair, Easyjet Switzerland, European Air Transport, Air Europa and Aer Lingus. easyJet, Scandinavian Airlines, Norwegian Air International, Turkish Airlines and Emirates recorded the highest traffic decreases. Flight restrictions for the Boeing 737 Max aircraft saw approximately 200-250 fewer flights/day by the type. Where required affected operators have leased in capacity to cover any shortfalls.

The traffic variation of Aeroflot follows an increase in fleet size and introduction of new routes. Air Europa 14% increase in flights was attributed to new aircraft deliveries. easyJet Europe commenced use of their EJU operator code at the start of the IATA summer season, resulting in a shift of flights from the EZY code. Pilot strikes at SAS Scandinavian Airlines partially explained the decrease of traffic.

N°	ADEP	ADEP NAME	201904	%	N°	ICAO	AIR OPERATOR	201904	%
1	EDDF	FRANKFURT MAIN	728	1.8%	1	RYR	RYANAIR	2402	5.6%
2	EHAM	AMSTERDAM/SCHIPHOL	716	0.4%	2	DLH	DEUTSCHE LUFTHANSA	1518	1.3%
3	LFPG	PARIS CH DE GAULLE	711	10.9%	3	THY	TURKISH AIRLINES	1250	-8.7%
4	EGLL	LONDON/HEATHROW	674	1.1%	4	AFR	AIR FRANCE	914	14.9%
5	LEMD	ADOLFO SUAREZ MADRID-BARAJA	580	2.9%	5	EZY	EASYJET	837	-45.2%
6	EDDM	MUENCHEN	568	1.3%	6	EJU	EASY JET EUROPE AIRLINE GMBH	794	0.0%
7	LEBL	BARCELONA/EL PRAT	496	4.2%	7	SAS	SCANDINAVIAN AIRLINES SYSTEM	744	-16.2%
8	LTFM	ISTANBUL NEW AIRPORT	444	0.0%	8	BAW	BRITISH AIRWAYS	724	1.8%
9	LIRF	ROMA/FIUMICINO	439	2.3%	9	KLM	KLM ROYAL DUTCH AIRL	717	1.9%
10	LOWW	WIEN SCHWECHAT	402	15.6%	10	VLG	VUELING AIRLINES SA	637	7.6%
11	EGKK	LONDON/GATWICK	400	2.4%	11	EWG	EUROWINGS AG	634	-6.3%
12	LSZH	ZURICH	379	0.3%	12	WZZ	WIZZ AIR	561	6.7%
13	EKCH	KOBENHAVN/KASTRUP	358	-4.1%	13	AZA	ALITALIA	532	1.9%
14	LFPO	PARIS ORLY	340	3.4%	14	PGT	PEGASUS HAVA TASI	444	-3.5%
15	EIDW	DUBLIN	338	4.2%	15	SWR	SWISS INTERNATIONAL	434	5.1%
16	ENGM	OSLO/GARDERMOEN	328	-12.2%	16	BEE	JERSEY EUROPEAN T/A FLYBE	404	-2.3%
17	EBBR	BRUSSELS NATIONAL	322	-0.7%	17	AUA	AUSTRIAN AIRLINES	398	1.4%
18	LEPA	PALMA DE MALLORCA	316	10.4%	18	TAP	TAP/AIR PORTUGAL	375	3.1%
19	ESSA	STOCKHOLM-ARLANDA	314	-12.4%	19	FIN	FINNAIR O/Y	368	7.3%
20	EDDL	DUESSELDORF	312	10.7%	20	LOT	LOT-POLISH AIRLINES	365	13.0%
21	LPPT	LISBOA	310	4.0%	21	NAX	NORWEGIAN AIR SHUTTLE	357	-2.2%
22	LTFJ	ISTANBUL/SABIHA GOKCEN	306	-0.4%	22	AFL	AEROFLOT-RUSSIAN	338	10.1%
23	LIMC	MILANO MALPENSA	291	11.3%	23	WIF	WIDEROE	309	-5.3%
24	LGAV	ATHINA/IELEFTHERIOS VENIZELOS	288	7.2%	24	AEA	AIR EUROPA	295	13.9%
25	EGSS	LONDON/STANSTED	278	0.0%	25	IBE	IBERIA	260	2.2%
26	EGCC	MANCHESTER	276	2.6%	26	IBK	NORWEGIAN AIR INTERNATIONAL	251	-14.7%
27	EDDT	BERLIN-TEGEL	273	14.4%	27	QTR	QATAR AIRWAYS COMP.	244	8.0%
28	EFHK	HELSINKI-VANTAA	266	1.4%	28	BEL	BRUSSELS AIRLINES	240	-0.2%
29	EPWA	CHOPINA W WARSZAWIE	263	7.7%	29	EIN	AER LINGUS TEORANTA	230	10.0%
30	LSGG	GENEVA	247	-1.4%	30	ANE	AIR NOSTRUM	220	-1.9%
31	LTAI	ANTALYA	237	19.1%	31	HOP	HOP (MERGE OF BZH + RAE + RLA)	210	4.0%
32	LLBG	TEL AVIV/BEN GURION	230	3.4%	32	RAM	ROYAL AIR MAROC	208	0.1%
33	LEMG	MALAGA/COSTA DEL SOL	216	7.0%	33	EXS	JET2.COM	183	15.4%
34	EDDH	HAMBURG	212	3.5%	34	UAE	EMIRATES	178	-8.5%
35	LFMN	NICE-COTE D'AZUR	204	6.4%	35	BCS	EUROPEAN AIR TRANSP.	176	13.9%
36	EGGW	LONDON/LUTON	199	5.5%	36	BTI	AIR BALTIC CORPORAT.	176	13.9%
37	LKPR	PRAHA RUZYNE	197	-1.2%	37	TRA	TRANSVIA.COM	170	10.1%
38	EGPH	EDINBURGH	187	1.1%	38	EZS	EASY JET SWITZERLAND	168	14.1%
39	EDDS	STUTTGART	186	5.3%	39	VOE	VOLOTEA	168	31.5%
40	EDDK	KOELN-BONN	185	-2.2%	40	AUI	UKRAINE INTERNATIONAL	164	0.0%
41	GCLP	GRAN CANARIA	174	-0.8%	41	OAL	OLYMPIC	159	5.5%
42	LFLL	LYON SAINT-EXUPERY	172	9.6%	42	TVF	TRANSVIA FRANCE	145	8.4%
43	LROP	BUCURESTI/HENRI COANDA	167	-0.2%	43	AEE	AEGEAN AIRLINES	144	11.4%
44	LHBP	BUDAPEST LISZT FERENC INT.	167	6.6%	44	SXS	SUNEXPRESS AIRLINES	138	3.6%
45	LIML	MILANO LINATE	154	0.3%	45	LOG	LOGANAIR	137	14.7%
46	LEAL	ALICANTE	151	7.2%	46	DAL	DELTA AIR LINES INC.	131	7.8%
47	LFML	MARSEILLE PROVENCE	148	0.0%	47	UAL	UNITED AIRLINES INC.	126	2.5%
48	EGBB	BIRMINGHAM	145	-1.6%	48	NJE	NETJETS	123	-3.3%
49	UKBB	KYIV/BORYSPIL	145	0.0%	49	CFE	CITYFLYER EXPRESS	120	13.2%
50	LFBO	TOULOUSE BLAGNAC	141	1.6%	50	TOM	THOMSON FLY LTD	116	-0.9%
TOTALS and % TOTAL TRAFFIC			15580	57.8%	TOTALS and % TOTAL TRAFFIC			20936	69.1%

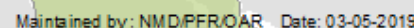
Top 50 Departure Airports with average daily traffic and percentage compared to same period of previous year

Top 50 Air Operators with average daily traffic and percentage compared to same period of previous year

N°	ICAO	AIR OPERATOR	201904	%
		Unidentified	1968	-4.9%

Average daily traffic and percentage compared to same period of previous year for all flights where Air Operators can't be identified

<= 0.0%
 0.1% - 5.0%
 5.1% - 10.0%
 10.1% - 15.0%
 15.1% - 20.0%
 20.1% - 30.0%
 > 30.0%

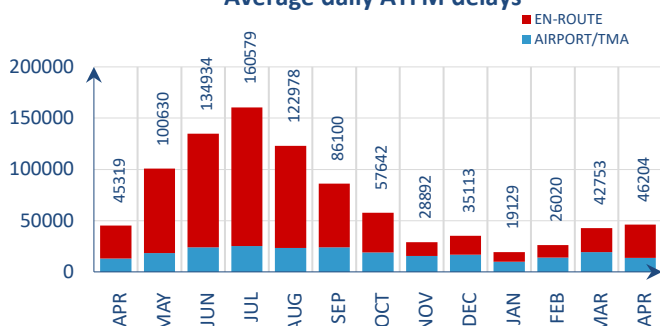


N°	ASP ID	ASP NAME	201904	%
39	LFBBALL	BORDEAUX ALL ACC	2839	4.1%
40	LFEEACC	REIMS U/ACC	2916	0.9%
41	LFFBALL	PARIS ALL ACC	3506	5.1%
42	LFMMACC	MARSEILLE ACC	3345	10.4%
43	LFMMAPP	MARSEILLE TMA	931	7.5%
44	LFRRACC	BREST U/ACC	3261	7.0%
45	LGGGACC	ATHINAI CONTROL	1448	7.8%
46	LGMDACC	MAKEDONIA CONTROL	1210	15.8%
47	LHCCACC	BUDAPEST ACC	2171	4.1%
48	LIBBACC	BRINDISI ACC	883	9.3%
49	LIMMACC	MILANO ACC	2479	6.3%
50	LIPPACC	PADOVA ACC	1999	5.3%
51	LIRRACC	ROMA ACC	2431	5.8%
52	LILAACC	LIUBJANA ACC	957	18.7%
53	LKAAACC	PRAGUE ACC	2248	2.7%
54	LLLLACC	TEL AVIV ACC	577	5.1%
55	LMMMACC	MALTA ACC	359	1.7%
56	LOVVACC	WIEN ACC	2536	12.0%
57	LPPCACC	LISBOA ACC/UAC	1734	6.1%
58	LPPOOAC	SANTA MARIA OACC	412	1.0%
59	LQSBACC	BOSNIA-HERZEGOVINA	117	11.4%
60	LRBBACC	BUCURESTI ACC	1798	-0.1%
61	LSAGACC	GENEVA ACC	1942	3.2%
62	LSAZACC	ZURICH ACC	2309	4.1%
63	LTAACC	ANKARA ACC	3638	-2.8%
64	LTBBACC	ISTANBUL ACC	1896	-8.0%
65	LUUUUACC	CHISINAU ACC	125	-1.6%
66	LWSSACC	SKOPIE ACC	506	29.7%
67	LYBAACC	BEOGRADE ACC	1874	14.0%
68	LZBBACC	BRATISLAVA ACC	1313	0.3%
69	OLBBACC	BEIRUT ACC	151	-4.4%
70	UDDACC	YEREVAN ACC	134	-15.2%
71	UGGGACC	TBILISI ACC	308	-24.3%
72	UKBVACC	KYIV ACC	457	10.4%
73	UKDVACC	DNIPRO ACC	58	16.0%
74	UKLVACC	L'VIV ACC	386	18.4%
75	UKOVACC	ODESA ACC	257	3.2%
76	UMMVACC	MINSK ACC	788	2.9%

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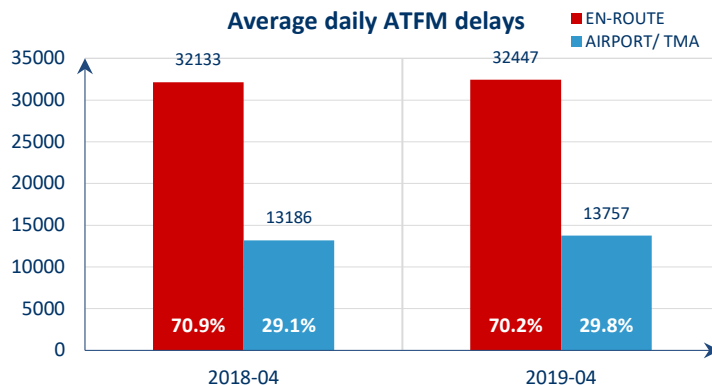
2. ATFM DELAY AND ATTRIBUTIONS

Average daily ATFM delays



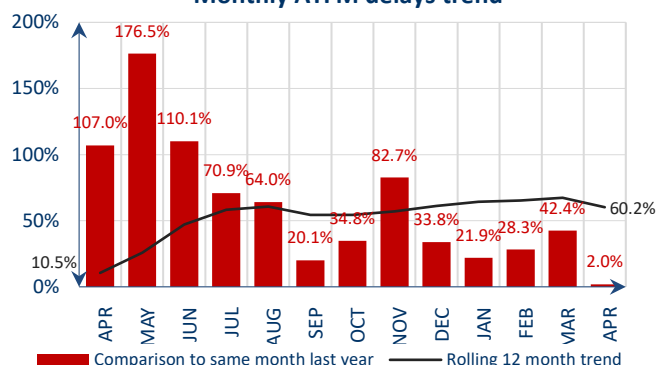
Total ATFM delays increased by 2.0% in April 2019¹.

Average daily ATFM delays



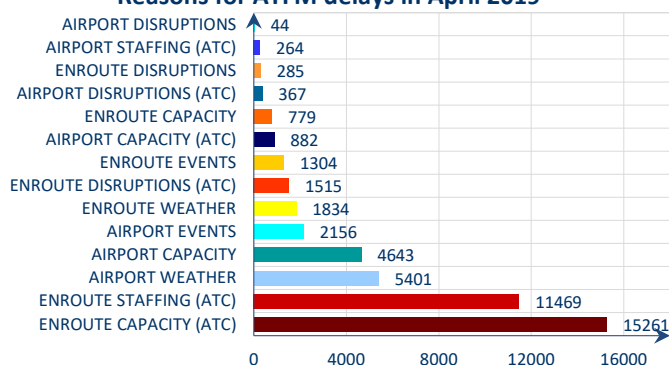
En-route ATFM delays increased by 1.0% and airport ATFM delays increased by 4.3%.

Monthly ATFM delays trend



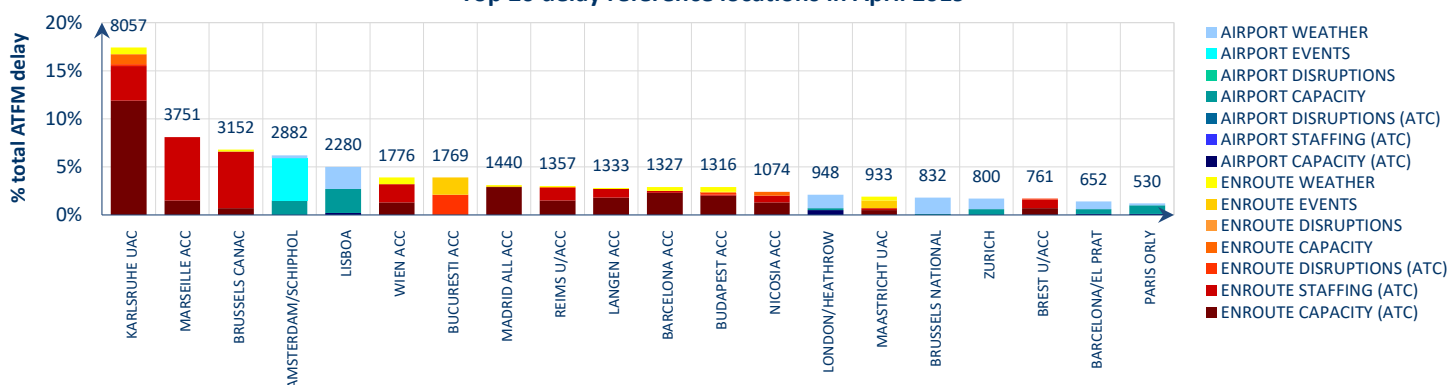
The rolling 12-month trend shows that ATFM delay was 60.2% higher during the period May 2018 – April 2019 compared to May 2017 – April 2018.

Reasons for ATFM delays in April 2019



En-route ATC capacity (33.0%), en-route ATC staffing (24.8%), airport weather (11.7%) and airport capacity (10.1%) were the main causes of ATFM delays in April 2019.

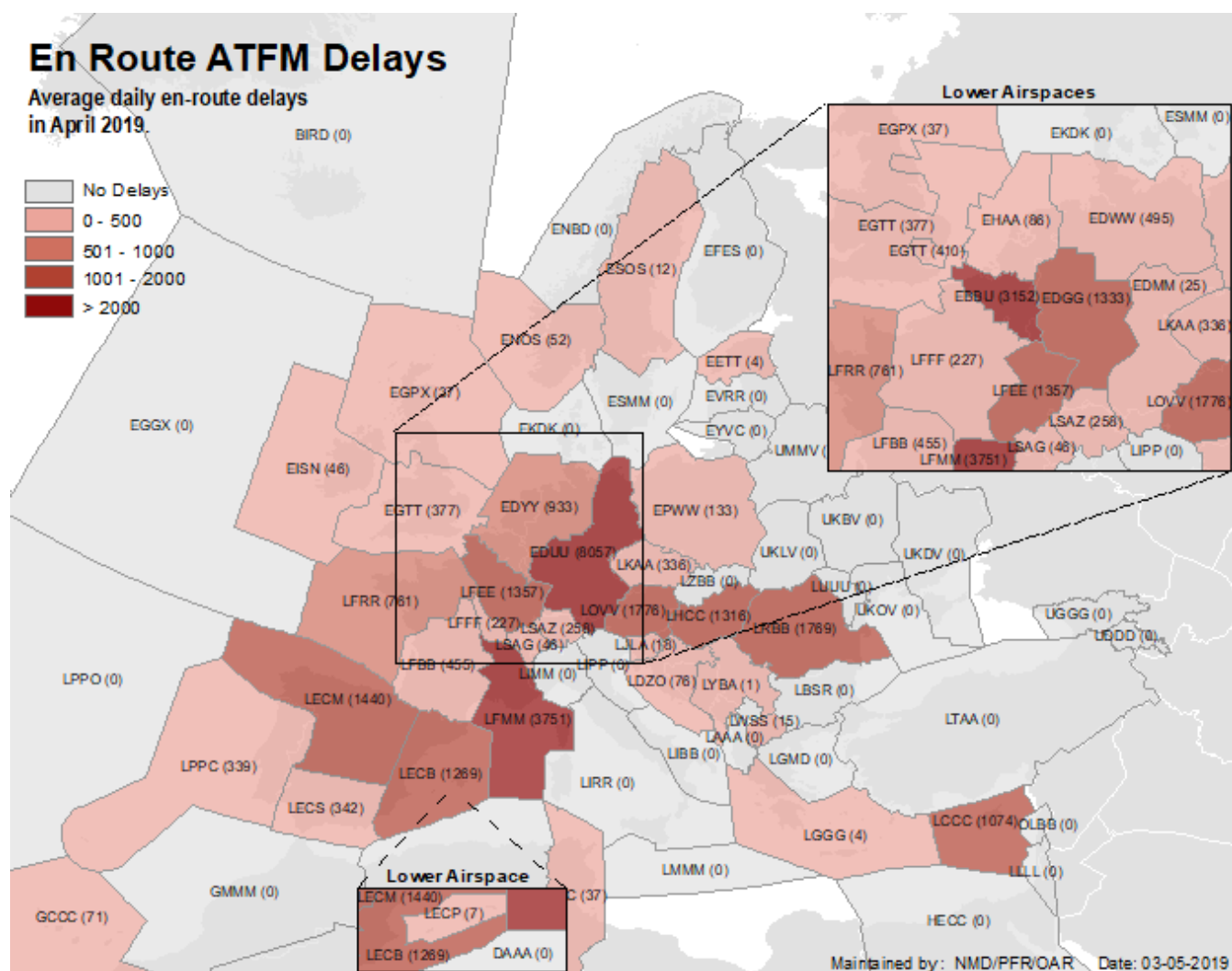
Top 20 delay reference locations in April 2019



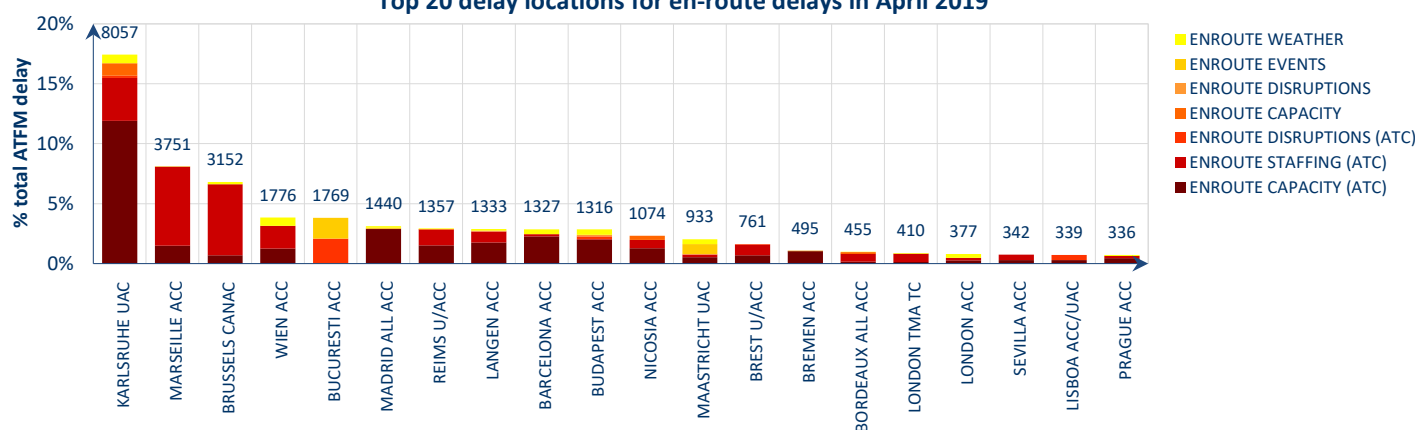
These are the top 20 delay generating locations for the reporting month with respect to total ATFM delays. Figures are the average daily delays in minutes for the individual locations.

- High en-route capacity delays in Karlsruhe UAC;
- High ATC staffing issues in Marseille and Brussels ACCs;
- Familiarisation with the new electronic flight strips at Amsterdam/Schiphol airport generated high delays;
- Implementation of new ATM system in Bucuresti ACC generated delays;
- Aerodrome capacity issues in conjunction with military exercises in the vicinity of Lisbon airport.

EN-ROUTE ATFM DELAY PER LOCATION



Top 20 delay locations for en-route delays in April 2019



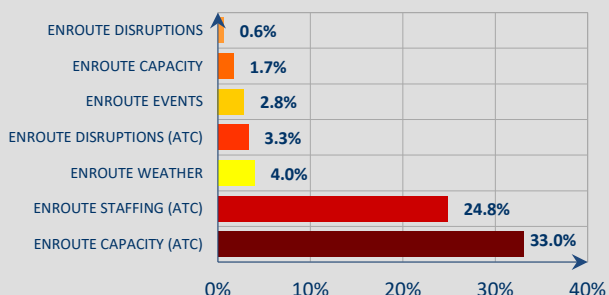
These are the top 20 en-route ATFM delay generating locations for the reporting month with respect to total ATFM delays. Figures are the average daily delays in minutes for the individual locations.

The top 20 en-route ATFM delay locations generated **66.7%** of the monthly total (network) ATFM delay. The top 5 en-route ATFM delay locations generated **40.0%** of the monthly total (network) ATFM delay.

More detailed information available in the Airspace dashboard via the [ATFM Statistics dashboard](#).

EN-ROUTE ATFM DELAY PER DELAY GROUP

Reasons for en-route delays in April 2019



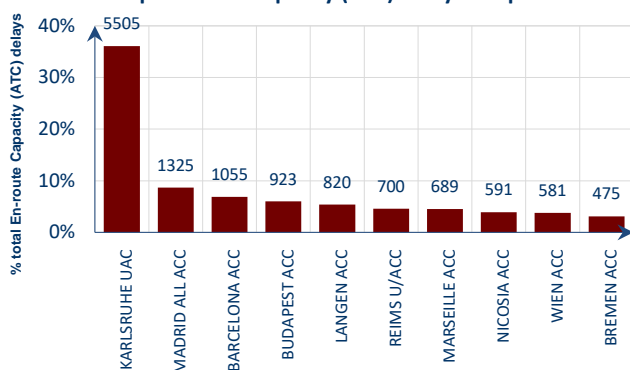
En-route ATFM delays accounted for 70.2% of all ATFM delays. Most of this delay was caused by en-route ATC capacity, en-route ATC staffing and weather as explained in detail below. The other causes were:

En-route ATC disruptions; Sectors regulated in Bucuresti ACC due to new ATM system implementation; Radar replacement in Lisbon ACC; ATC industrial action in Budapest ACC on 17 April.

En-route events; Implementation of new ATM system in Bucuresti ACC; Military exercise FRISIAN FLAG 2019 in Maastricht UAC.

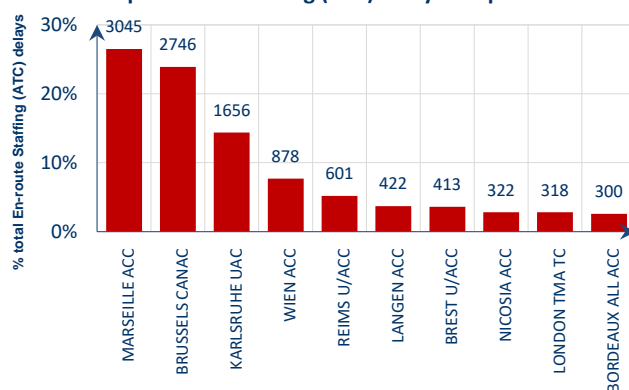
En-route capacity; Military exercises in Karlsruhe and Nicosia ACC.

Top en-route Capacity (ATC) delays in April 2019



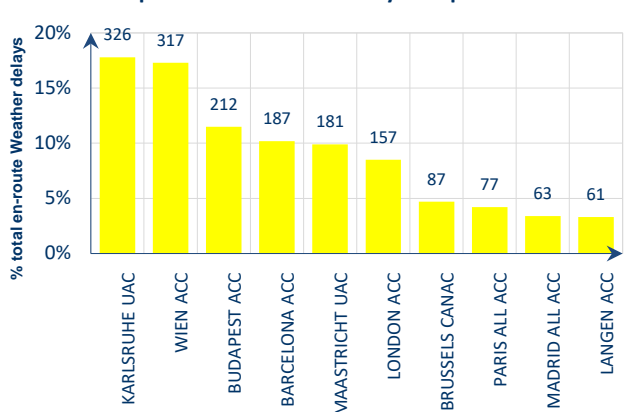
Karlsruhe UAC generated 36% of these delays throughout the month.

Top en-route Staffing (ATC) delays in April 2019



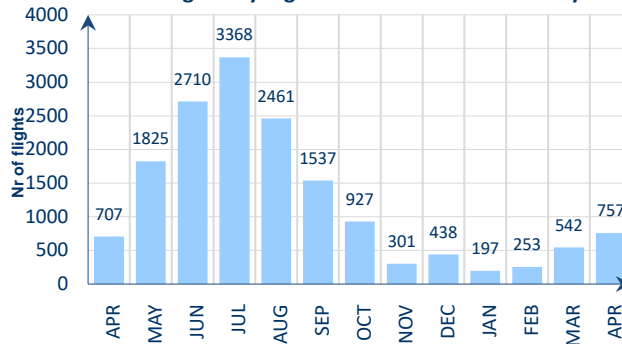
Staffing shortages occurred in Marseille, Brussels and Karlsruhe ACCs throughout the month.

Top en-route Weather delays in April 2019



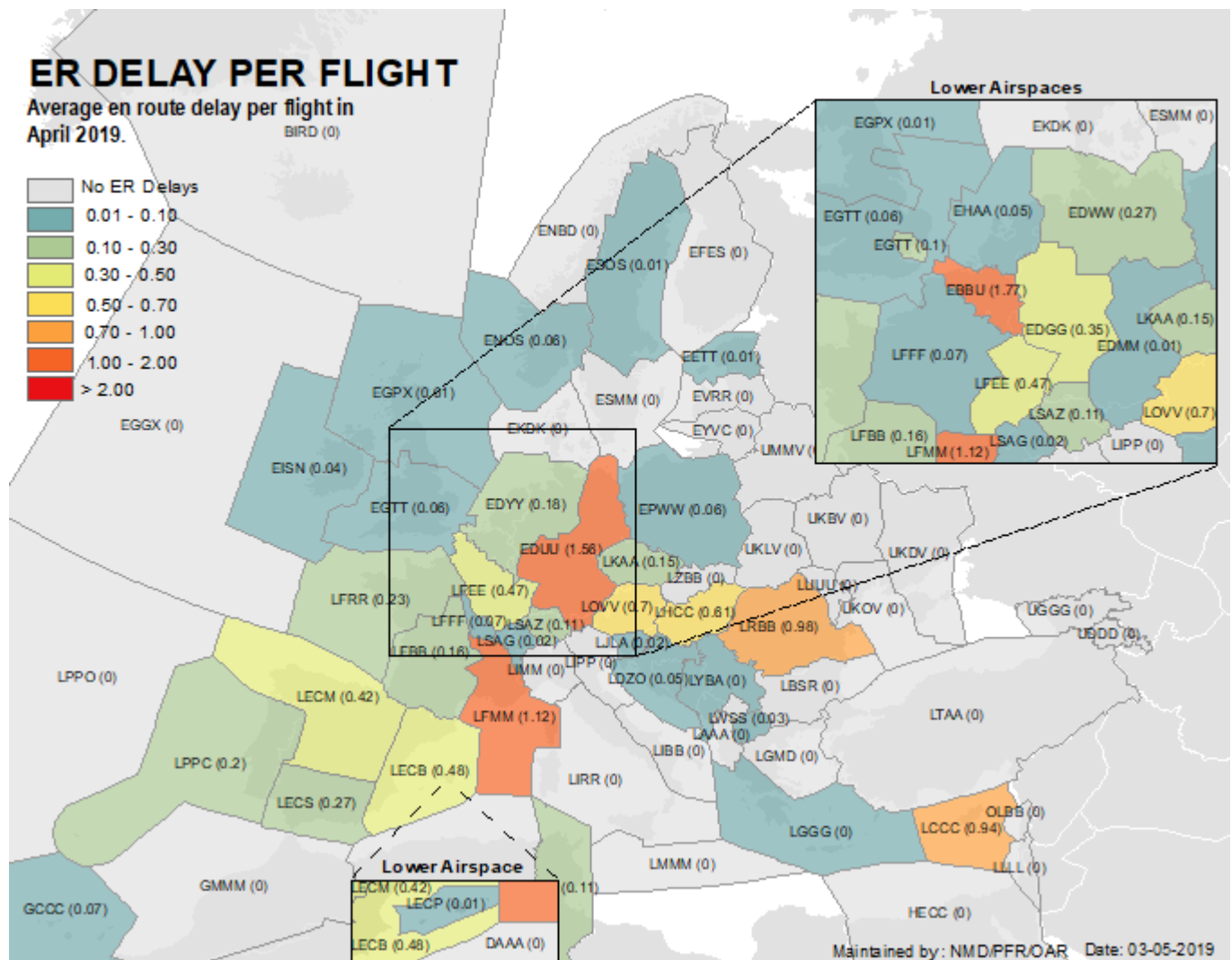
Thunderstorms and turbulence impacted operations in Karlsruhe and Vienna ACCs.

Average daily flights >= 15 min en-route delay

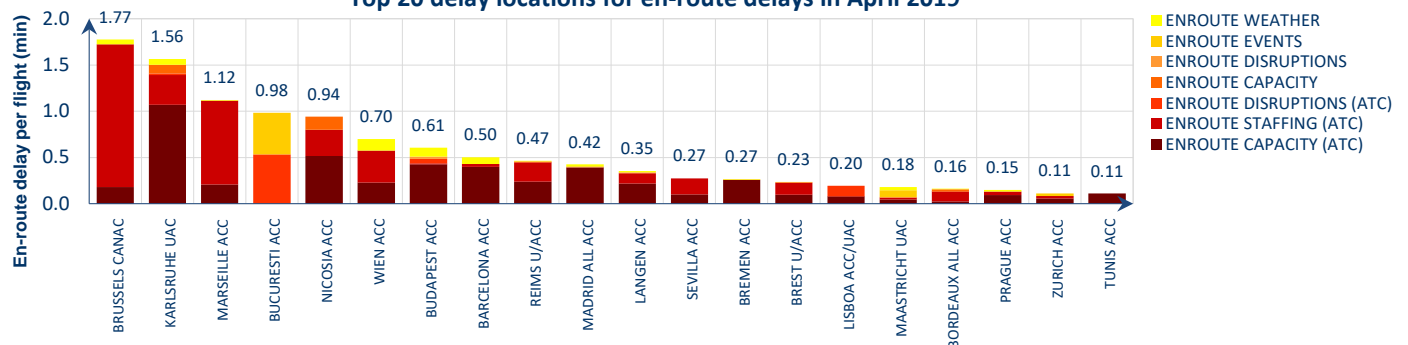


The average daily flights with an en-route ATFM delay of at least 15 minutes increased from 707 flights/day in April 2018 to 757 flights/day in April 2019, which represents 2.5% of all traffic.

EN-ROUTE ATFM DELAY PER FLIGHT



Top 20 delay locations for en-route delays in April 2019



These are the top 20 average en-route ATFM delay per flight generating locations for the reporting month. Figures are the average en-route ATFM delay per flight in minutes for the individual locations.

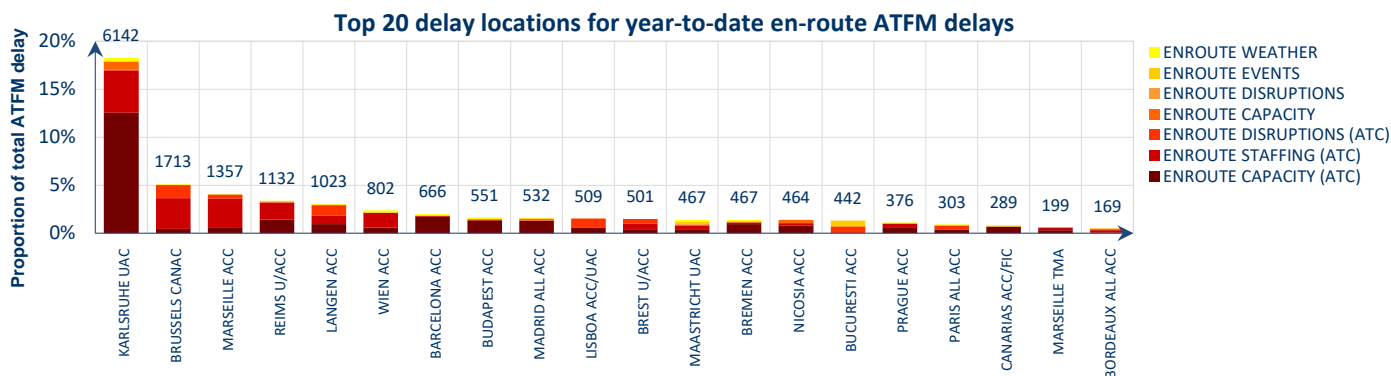
Marseille ACC en-route ATFM delay/flight increased from 0.38 min/flight in March 2019 to 1.12 min/flight in April 2019 due to more ATC staffing shortage;

Bucuresti ACC en-route ATFM delay/flight increased from 0.00 min/flight in March 2019 to 0.98 min/flight in April 2019 due to implementation of new ATM system;

Nicosia ACC en-route ATFM delay/flight increased from 0.39 min/flight in March 2019 to 0.94 min/flight in April 2019 due to more ATC capacity and staffing issues.

Brussels ACC en-route ATFM delay/flight decreased from 2.14 min/flight in March 2019 to 1.77 min/flight in April 2019 due to fewer staffing issues;

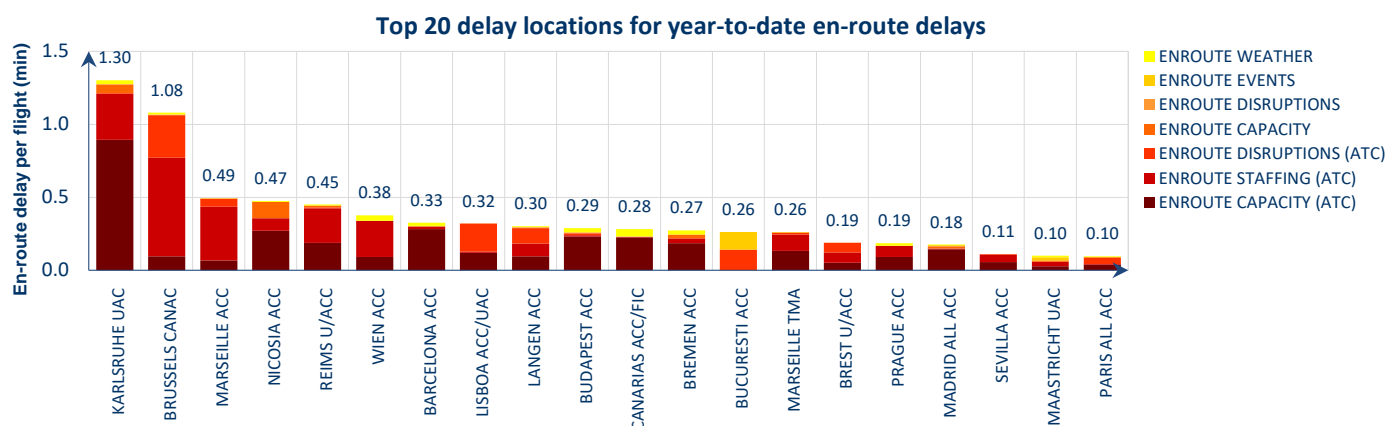
EN-ROUTE ATFM DELAY YEAR-TO-DATE



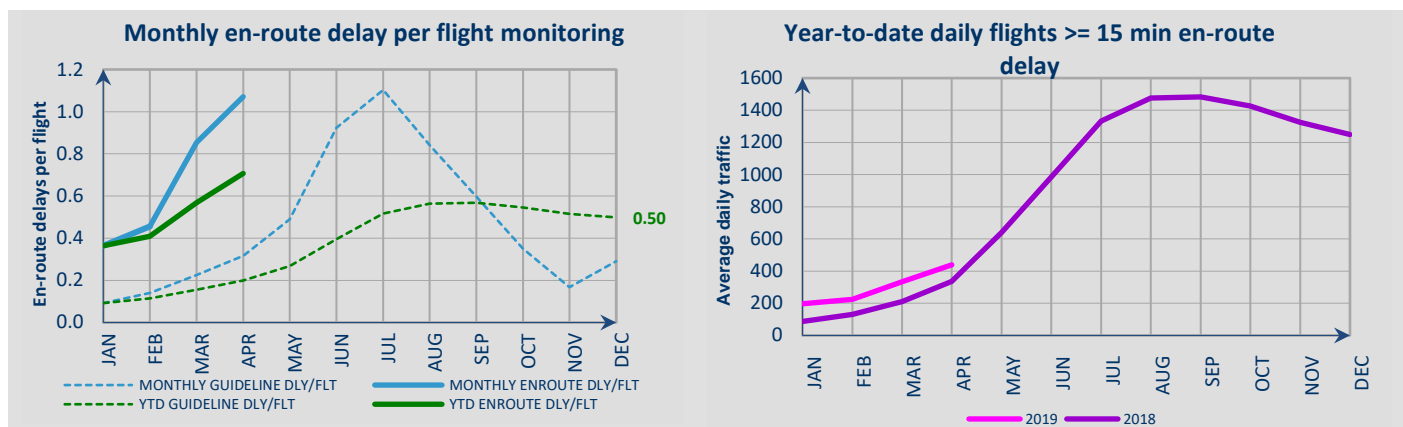
These are the top 20 en-route delay locations for 2019 with respect to the total ATFM delay. Figures are the average daily en-route delay in minutes for the individual locations.

The top 20 en-route delay locations generated **53.8%** of the total ATFM (network) delay.

The top 5 en-route delay locations generated **33.8%** of the total ATFM (network) delay.



These are the top 20 average en-route ATFM delay per flight generating locations in 2019. Figures are the average daily en-route delay in minutes for the individual locations.



Reporting month: The average en-route ATFM delay per flight in the NM areaⁱⁱⁱ in April was 1.07 min/ft, which is well above the corresponding monthly guideline^{iv} value of 0.32 min/ft.

Year To Date: The average YTD en-route ATFM delay per flight in 2019 in the NM areaⁱⁱⁱ is 0.71 min/ft which is three times the corresponding guideline value of 0.20 min/ft.

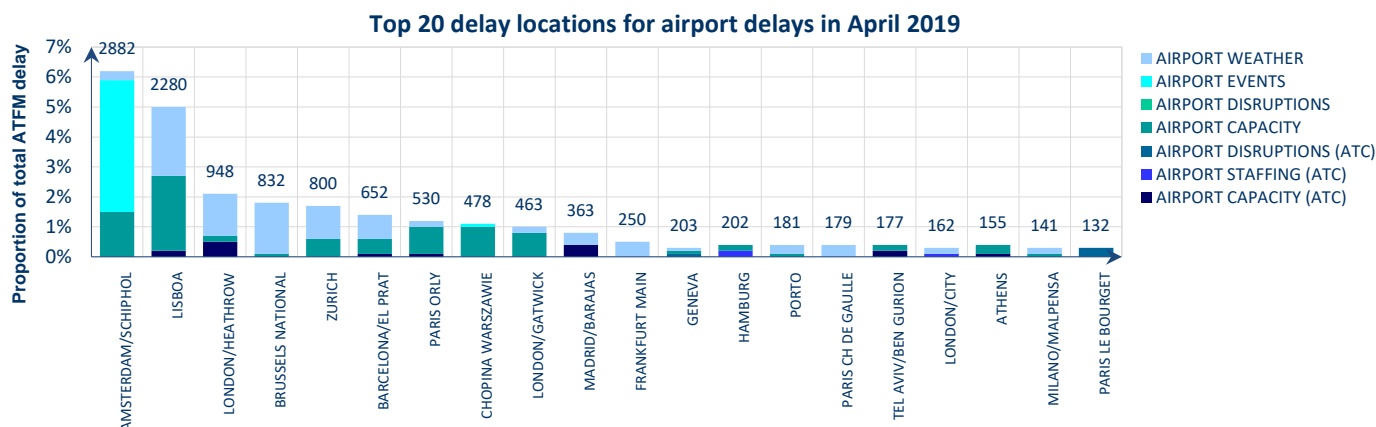
An average of 439 flights/day had an en-route ATFM delay of at least 15 minutes in 2019. The corresponding figure in 2018 was 335 flights/day.

The top 3 locations for flights with 15 minutes or more en-route ATFM delay (year-to-date) are:

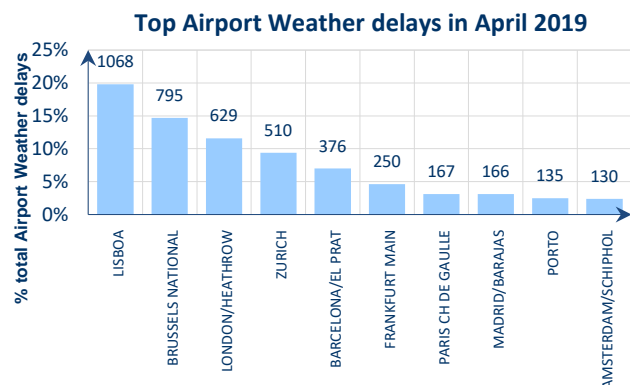
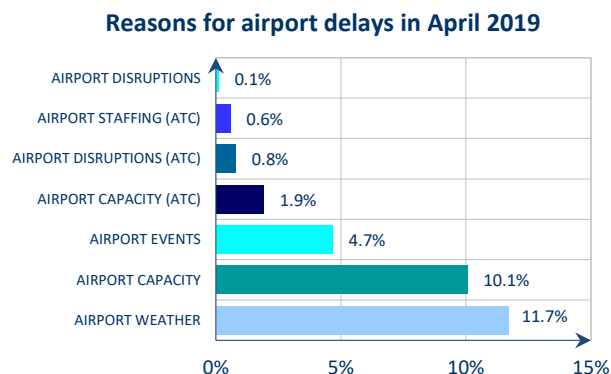
- Karlsruhe UAC with 130 flights/day
- Brussels ACC with 41 flights/day
- Marseille ACC with 39 flights/day

4. AIRPORT/TMA ATFM DELAYS

AIRPORT/TMA ATFM DELAY PER LOCATION

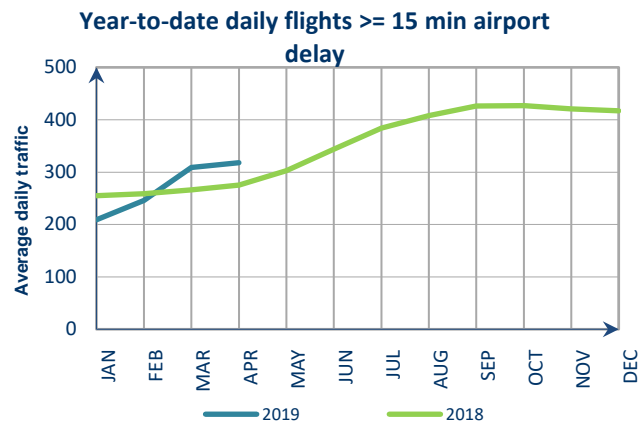
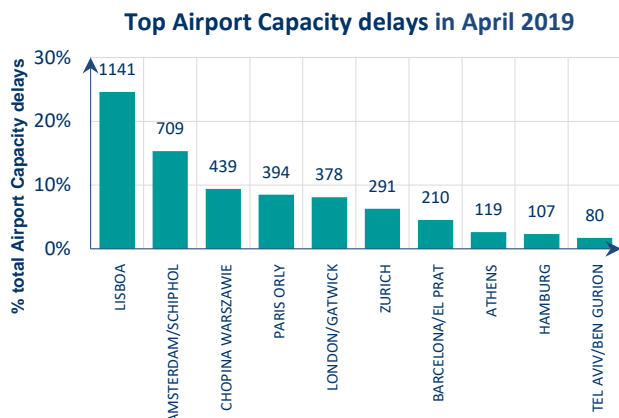


AIRPORT/TMA ATFM DELAY PER DELAY GROUPS



Airports accounted for 29.8% of all ATFM delays in April 2019, mainly due to airport weather and capacity. Events delay due to reduced arrival rate at Amsterdam/Schiphol airport during familiarisation with the new electronic flight strips (EFS).

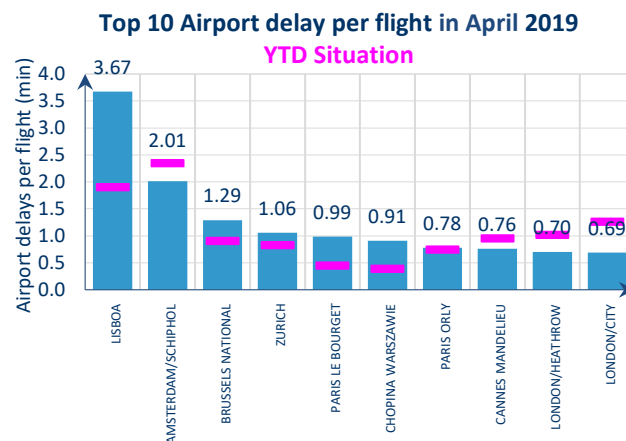
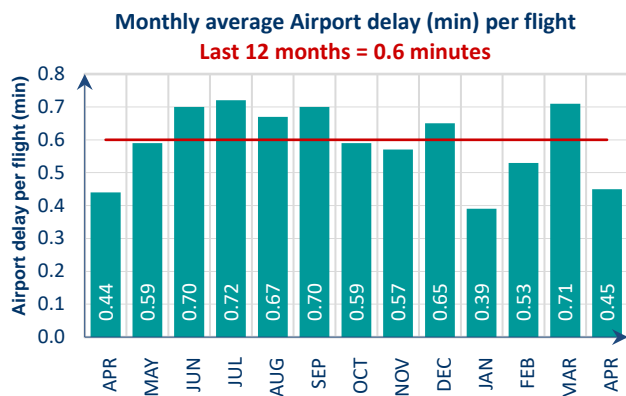
Low visibility and strong winds impacted operations at Lisbon airport. Wind direction necessitating the use of sub-optimal runway configurations at Brussels airport generated delays throughout the month.



Aerodrome capacity issues in conjunction with military activity generated delays at Lisbon airport. Capacity issues at Amsterdam/Schiphol airport due to high demand.

An average of 318 flights/day had an airport ATFM delay of at least 15 minutes. The corresponding figure in 2018 was 275 flights.

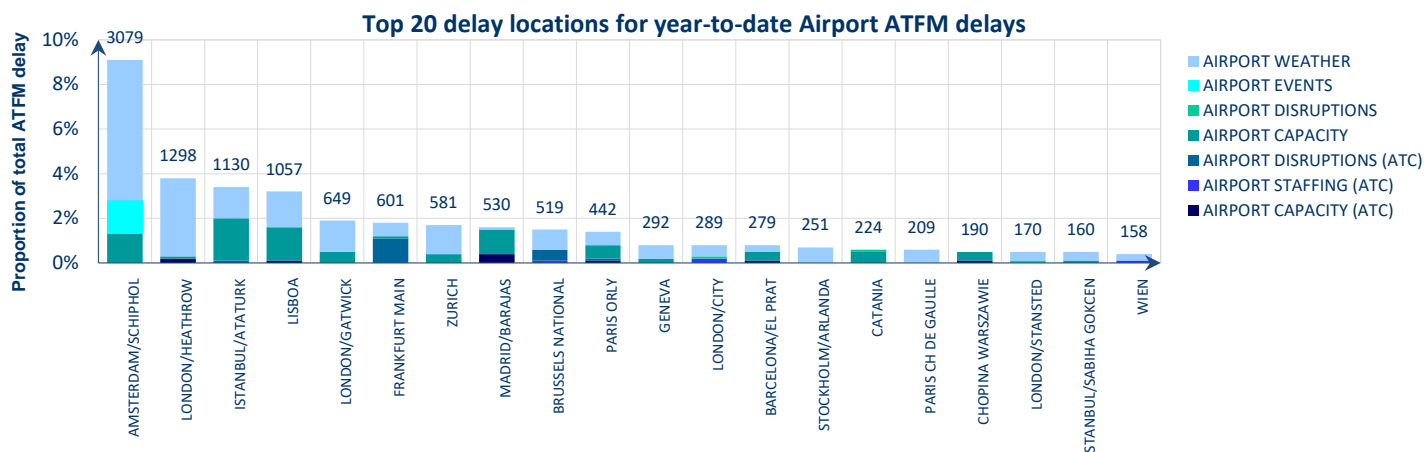
AIRPORT/TMA ATFM DELAY PER FLIGHT



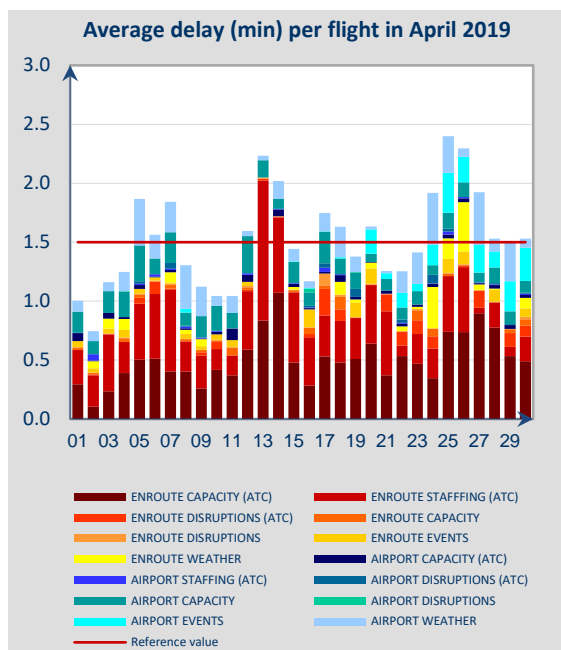
Average airport/TMA delay per flight increased from 0.44 min/flt in April 2018 to 0.45 min/flt in April 2019.

Lisbon had the highest delay per flight in April due to weather and capacity issues.

AIRPORT/TMA ATFM DELAY YEAR-TO-DATE



5. DAILY EVOLUTION



Fifteen days in April 2019 had an average ATFM delay per flight exceeding 1.5 min. These were the most significant days:

13-14 April: 88% of all ATFM measures were attributed to en-route ATC capacity and staffing; ATC capacity issues in Karlsruhe, Marseille, Madrid, Maastricht and Budapest ACCs; Staffing measures were applied in Marseille, Sevilla, Brest, Karlsruhe and Bordeaux ACCs;

24 April: Convective activity on the north-west Europe generated delays in Maastricht, Karlsruhe and London ACCs, as well as Amsterdam/Schiphol and Frankfurt airports; Strong winds impacted operations at Lisbon airport; ATC capacity issues in Karlsruhe and Barcelona ACCs; ATC staffing shortage in Karlsruhe and Brussels ACCs;

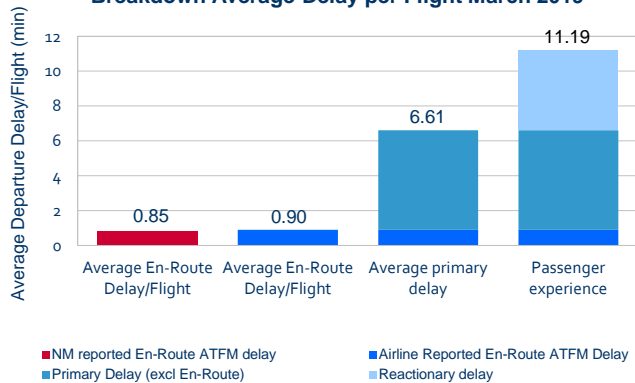
25-26 April: Continuing familiarisation with the new electronic flight strips at Amsterdam/Schiphol airport generated high delays; ATC capacity issues in Karlsruhe, Brussels, Bremen and Barcelona ACCs; ATC staffing delays in Brussels, Karlsruhe, Langen and Marseille ACCs; Strong winds and thunderstorms impacted operations at Lisbon and Madrid airports; Turbulence impacted operations in Vienna, Karlsruhe, London and Budapest ACCs.

6. ALL AIR TRANSPORT DELAYS (SOURCE: CODA)

This section presents the all air transport delay situation as seen from the airlines by using the data collected by Central Office for Delay Analysis (CODA) from airlines. Data coverage is 64% of the commercial flights in the ECAC region for March 2019. ATFM delays reported by airlines may be lower than the NM calculated ATFM delays due to difference in methods: ATFM delays of NM are the (flight) planned “delays”; the airlines report the “actual” experienced ATFM delay on departure.

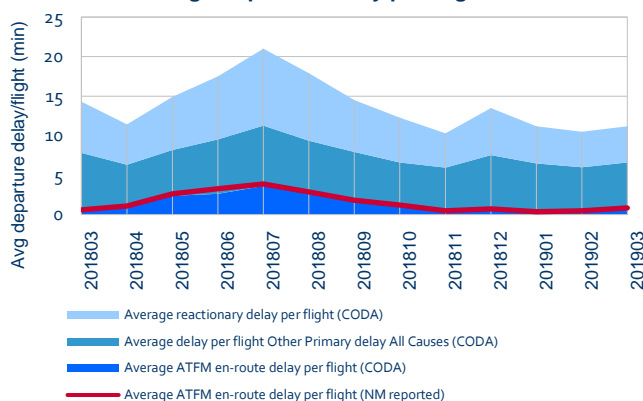
For instance, a flight with an ATFM delay may also have a handling delay absorbed within the ATFM delay. In the event of a long delay an example being during ATC industrial action a flight may keep its original schedule, however when it's flight plan is submitted for example a day later any ATFM delay allocated may be lower or zero, in this case airline reported delay will exceed NM reported ATFM delay.

Breakdown Average Delay per Flight March 2019



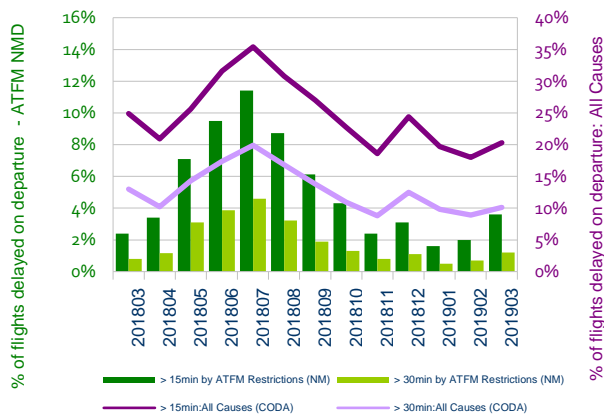
Based on airline data, the average departure delay per flight from 'All-Causes' was 11.19 minutes per flight, a 20% decrease in comparison to March 2018. Primary delays counted for 59% or 6.61 min/ft, with reactionary delays representing the smaller remaining share of 41% at 4.58 min/ft.

Average Departure Delay per Flight 2018/2019



Further analysis of the past 12 months shows that the monthly average 'All-Causes' en-route ATFM delay was at 0.90 minutes per flight in March 2019. Reactionary delay contributed 4.58 minutes/flight, ATFM airport delay was the third highest contributor with 0.92 mins/flight.

Percentage of Delayed Flights: ATFM & All Causes

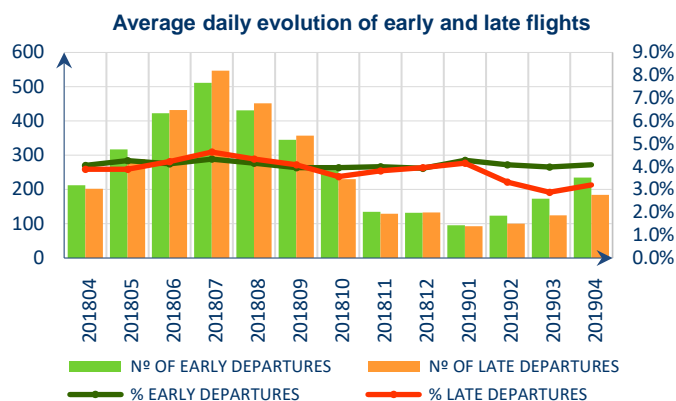


The percentage of flights delayed greater than 15 minutes from 'All-Causes' decreased by 4.6 percentage points to 20.3% compared to the same period last year. All-causes delays exceeding 30 minutes also decreased to 10.1% of flights. 3.6% of flights in March 2019 experienced an ATFM delay exceeding 15 minutes with 1.2% of flights having an ATFM delay exceeding 30 minutes.

For more information on CODA delays:

<https://www.eurocontrol.int/sites/default/files/publication/files/flad-march-2019.pdf>

7. ATFM SLOT ADHERENCE

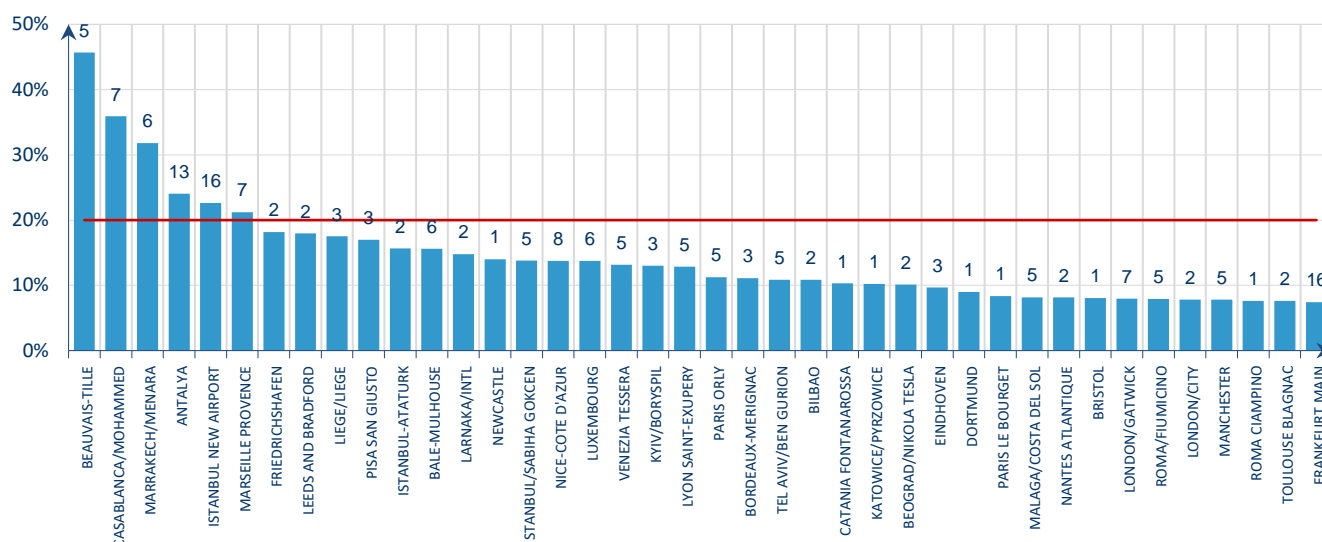


The percentage of early departures for April 2019 is 4.1% of regulated flights, which is stable compared to April 2018.

The percentage of late departures for April 2019 is 3.2% of regulated flights, which is a decrease of 0.7 percentage points compared to April 2018.

The chart below shows the airports that have more than 300 regulated flights during the month with their average daily number and proportion of regulated flights that departed outside of the Slot Tolerance Window (STW). Any airport above the red line is non-compliant with the threshold (20%). Those airports with a number of departures outside the slot tolerance window can reduce network predictability.

Proportion of regulated flights outside the Slot Tolerance Window in April 2019



8. SIGNIFICANT EVENTS AND ISSUES

PLANNED EVENTS

ACC

MAJOR AIRSPACE OR ATM SYSTEM IMPROVEMENT PROJECTS

Planned Events

Bucaresti ACC migrated to a new ATM system on 12 April generating 24,376 minutes of ATFM delay until the end of the month. Sector capacities were reduced, even if no capacity reduction had been foreseen in the transition plan.

New Istanbul airport became operational on 05 April affecting operations of Sofia and Ankara ACCs. Neither of the ACCs generated ATFM delay.

AIRPORTS

Local Plans in April

A number of airports undertook infrastructure and technical system improvement works during April. These improvements as well as some special events had at most a minor impact on local airport operations, unless otherwise stated.

Special Events

- Lisbon airport became a fully operational A-CDM airport on 16 April. Lisbon is the third A-CDM airport connected to the network via B2B.
- Military test flights in Bordeaux airport generated a total of 2,392 minutes of ATFM delay over 5 days in April.
- Familiarisation with the new electronic flight strips at Amsterdam/Schiphol generated 61,276 minutes of ATFM delay (in conjunction with capacity and weather);
- Rehearsal for military parade celebrating Poland's accession to NATO and the EU generated a total of 1,194 minutes of ATFM delay on 27 April.

Completed

- Runway maintenance/closure at Nice airport;
- Taxiway and/or apron improvements at Olsztyn/Mazury airport;
- Tower improvements at Amsterdam/Schiphol;
- ILS maintenance at Nice airport.

Ongoing

- Runway maintenance/closure at Madrid/Barajas (generated over 34,500 minutes of ATFM delay), Istanbul/Sabiha Gökçen and Tbilisi airports;
- Taxiway and/or apron improvements at Basel/Mulhouse, Hamburg, Munich, Nice, Olsztyn/Mazury, Paris/Charles de Gaulle, Paris/Orly (7,049 minutes of ATFM delay), Porto, Tbilisi, Tirana, Venice, Vienna and Warsaw/Chopin (generated 1,555 minutes of ATFM delay) airports;
- Tower improvements at Amsterdam/Schiphol generated 3,778 minutes of ATFM delay (in conjunction with capacity and weather);
- ILS maintenance at Budapest, Milano/Malpensa (1,440 minutes of ATFM delay), Palma de Mallorca (generated a total of 2,606 minutes of ATFM delay) and Paris/Le Bourget (generated a total of 3,927 minutes of ATFM delay) airports;
- Terminal building improvements/works at Budapest, Frankfurt/Main, Oslo/Gardermoen and Paris/Charles de Gaulle airports.

DISRUPTIONS

Technical

- Radar replacement in Lisbon ACC generated 6,017 minutes of ATFM delay throughout the month;
- Radar failure in Oslo ACC on 05 April generated 1,572 minutes of ATFM delay;
- Radar issues at Geneva airport on 07 April generated 1,431 minutes of ATFM delay;
- Communication system failure in Shannon ACC on 10 April generated 1,379 minutes of ATFM delay;
- Radar issues at Nice airport generated a total of 1,679 minutes of ATFM delay from 24 to 30 April;
- Radar instability in Karlsruhe UAC on 30 April generated a total of 2,543 minutes of ATFM delay;

Industrial Action

- ATC industrial action in Budapest ACC on 17 April generated 2,977 minutes of ATFM delays. Additional ATFM delay due to locally reported traffic onload in Zagreb ACC generated 1,337 minutes.
- Transportation personnel industrial action affected fuel supply at Lisbon airport from 15 to 20 April;

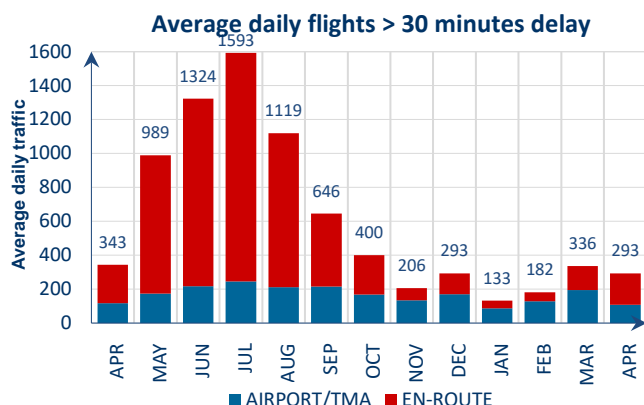
9. NM ADDED VALUE

FLIGHTS WITH DELAY > 30'

The number of flights with more than 30 minutes of ATFM delay decreased by 14.6% between April 2018 and April 2019.

In April 2019, 63.5% of flights with more than 30 minutes of ATFM delay were en-route and 36.5% were airport.

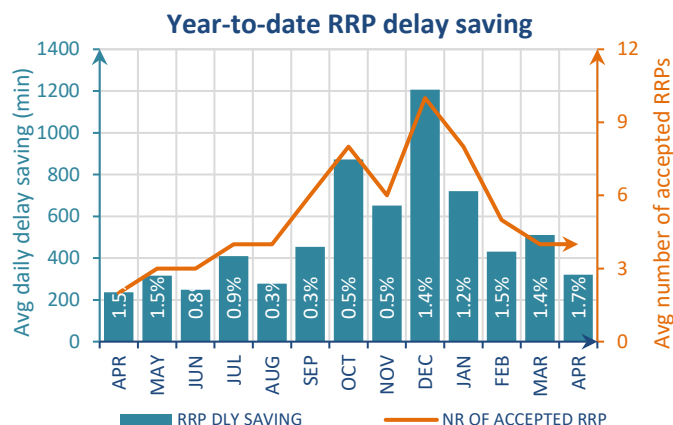
An average 41 flights per day had their delay reduced to less than 30 minutes by NM.



REROUTING PROPOSAL DIRECT DELAY SAVINGS

On average 4 RRP/day were executed saving 321 min/day, accounting for 1.7% of ATFM delays.

This graph shows the actual daily averages for the previous 13 months' period^v.



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i See Notice on page 2 for more information on traffic and delay comparison.

ii Internals, international arrivals and departures, excluding overflights.

iii See Notice on page 2 for more information on NM Area.

iv NM's calculation that provides the guideline en-route delay (min) requirements to achieve the annual target (0.5 min/flight).

v NM has revised the delay saving method. Where flights are subject to scenarios, delay savings from RRP are considered when the RRP is sent 3 hours (or less) in advance of the EOBT.