

Monthly Network Operations Report

Analysis November 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 <https://www.eurocontrol.int/publication/reporting-assumptions-and-descriptions>

Regulation Reason Groupings

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

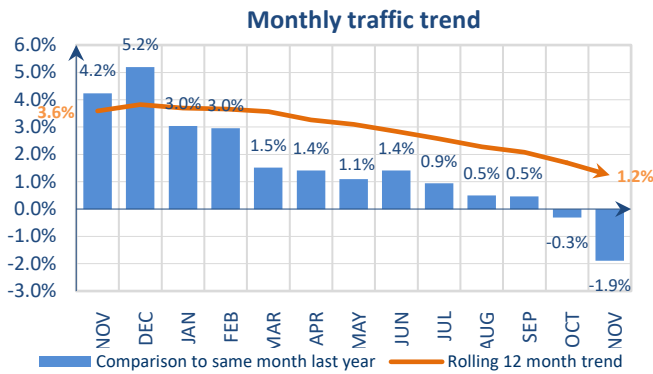
EN-ROUTE CAPACITY (ATC)	AIRPORT CAPACITY (ATC)
EN-ROUTE STAFFING (ATC)	AIRPORT STAFFING (ATC)
EN-ROUTE DISRUPTIONS (ATC)	AIRPORT DISRUPTIONS (ATC)
EN-ROUTE CAPACITY	AIRPORT CAPACITY
EN-ROUTE DISRUPTIONS	AIRPORT DISRUPTIONS
EN-ROUTE EVENTS	AIRPORT EVENTS
EN-ROUTE WEATHER	AIRPORT WEATHER

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

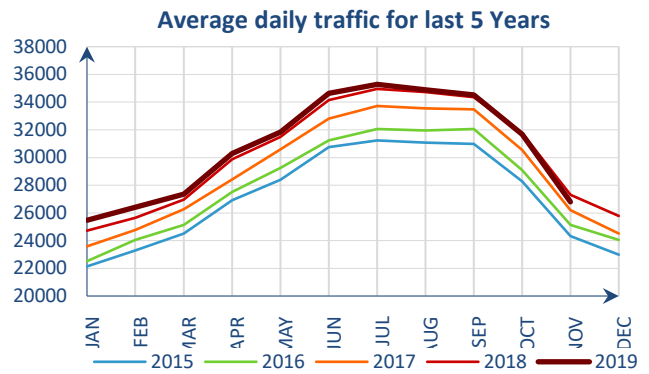
ATFM Statistics dashboard

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

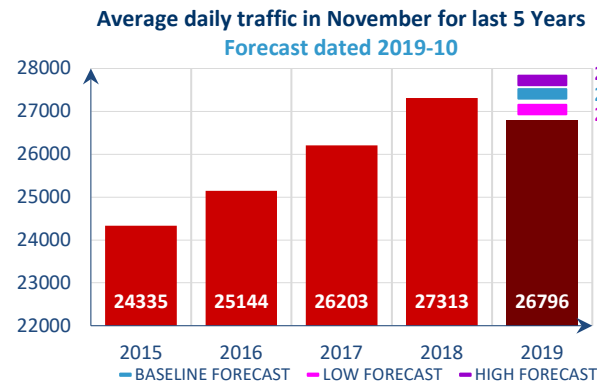
1. TOTAL TRAFFIC



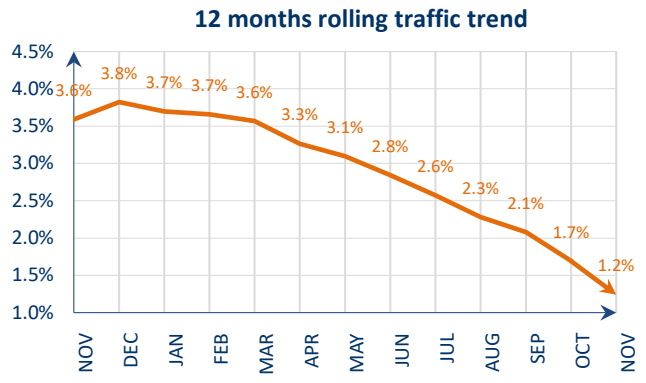
Traffic decreased by 1.9% in November 2019ⁱ.



Average daily traffic in November 2019 was 26,796.

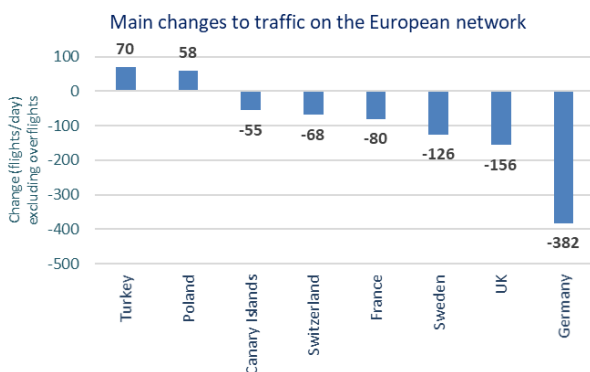


The traffic decrease of 1.9% for November was below the low forecast published in October 2019.



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 December 2018 to November 2019 was 1.2% higher than the average from December 2017 to November 2018.

European flights kept declining for the second consecutive month and were down -1.9% in November from -0.3% in October. The decrease reflected a deteriorating economic situation, trade tensions, political unrest along with the aftermath of the recent airline failures, namely Thomas Cook. Additionally, a two-day industrial action at Lufthansa (8-9 November) accelerated the decline in Germany's local traffic which was down 7% (-382 flights/day) in November.



Two states added more than 50 flights per day to the European localⁱⁱ traffic growth, owing mainly to their flows to and from:

- **Turkey (+70):** Russian Federation (+25), Middle East (+17), Asia (India, Indonesia, Thailand, Malaysia) (+12), Germany (+11) and France (+10). However, Turkey's internal flow remained weak and saw 60 fewer flights per day;
- **Poland (+58):** Ukraine (+10), Norway (+7), internal flow (+6), Netherlands (+5), UK (+4).

When including states contributing to at least 25 extra daily flights, Spain (+36), Hungary (+29) and Ukraine (+25) increased the list.

On the other hand the major European States continued to record fewer daily flights with the following states being the most affected: Germany's flows were affected by Lufthansa's industrial action: internal flow (-107), <-> UK (-57), <-> Spain (-42), <-> Switzerland (-32), <-> Canary Islands (-29), <-> France (-22). Then, the recent airline failures had an impact on flows in UK, namely the internal flow (-41), as well as on flows from and to Germany (-57), <-> France (-12), <-> Canary Islands (-17), <-> Ireland (-12).

The top five external partners in average daily flights on flows in both directions were the United States (865 flights, down 3.6%), the Russian Federation (748 flights, down 3.7%), the United Arab Emirates (352 flights, up 3.1%), Egypt (321 flights, up 12.3%) and Qatar (213 flights, up 4.7%).

The airlines which added the most flights to the European network on a daily basis were Ryanair (+81 flights), Wizz Air Hungary (+77 flights), Jet2.com (+29 flights), Pegasus (+23 flights) and LOT (+12 flights).

For more information on EUROCONTROL Statistics and Forecasts, go to: <https://www.eurocontrol.int/dashboard/statfor-interactive-dashboard>

A majority of airports has less traffic this month and only three of the top ten airports posted a positive traffic growth. The largest traffic decreases were recorded at German airports (Berlin/Tegel, Düsseldorf, Hamburg) mostly explained by the Lufthansa's two-day industrial action. Palma de Mallorca and Stockholm/Arlanda airports recorded traffic reduction close to 10% each. On the other hand, the largest traffic increases in November 2019 were at Tel Aviv/Ben Gurion, Budapest, Antalya, Barcelona and Milano/Malpensa airports.

Three of the top ten aircraft operators flew more compared to November 2018. The operators with the highest traffic growth were Loganair, Jet2.com, Air France, Wizz Air and United Airlines.

Norwegian Air International, Ukraine International, Flybe, Eurowings and Norwegian Air Shuttle recorded the highest traffic decreases.

The increase in the number of flights for Air France follows the reintegration of HOP flights into AFR. easyJet Europe commenced use of their second operator code EJU at the start of the IATA summer season, resulting in a shift of flights from the EZY code. Jet2.com saw new aircraft join their fleet. The decrease in flights for Norwegian Air International follows company restructuring, as well as a reduction in flights following the Boeing 737 Max grounding.

N°	ADEP	ADEP NAME	201911	%	N°	ICAO	AIR OPERATOR	201911	%
1	EDDF	FRANKFURT MAIN	647	-5.8%	1	RYR	RYANAIR	1943	4.5%
2	EHAM	AMSTERDAM/SCHIPHOL	647	-1.4%	2	DLH	DEUTSCHE LUFTHANSA	1370	-7.4%
3	LFPG	PARIS CH DE GAULLE	641	-0.4%	3	THY	TURKISH AIRLINES	1244	0.7%
4	EGLL	LONDON/HEATHROW	635	-0.3%	4	AFR	AIR FRANCE	1034	19.6%
5	LTFM	ISTANBUL NEW AIRPORT	574	0.0%	5	SAS	SCANDINAVIAN AIRLINES SYSTEM	826	-4.1%
6	LEMD	ADOLFO SUAREZ MADRID-BARAJA	565	2.7%	6	KLM	KLM ROYAL DUTCH AIRL	655	0.0%
7	EDDM	MUENCHEN	525	-5.7%	7	BAW	BRITISH AIRWAYS	638	-1.5%
8	LEBL	BARCELONA/EL PRAT	416	5.0%	8	EZY	EASYJET	618	-49.5%
9	LIRF	ROMA/FIUMICINO	373	-4.5%	9	EJU	EASY JET EUROPE AIRLINE GMBH	575	0.0%
10	LOWW	WIEN SCHWECHAT	364	1.5%	10	EWG	EUROWINGS AG	533	-13.6%
11	EKCH	KOBENHAVN/KASTRUP	341	-4.6%	11	AZA	ALITALIA	505	-1.7%
12	ENGM	OSLO/GARDERMOEN	339	-6.0%	12	WZZ	WIZZ AIR	497	18.3%
13	LSZH	ZURICH	325	-6.2%	13	VLG	VUELING AIRLINES SA	493	-0.5%
14	EGKK	LONDON/GATWICK	307	-5.0%	14	PGT	PEGASUS HAVA TASI	456	5.4%
15	LTFJ	ISTANBUL/SABIHA GOKCEN	306	4.7%	15	SWR	SWISS INTERNATIONAL	377	0.1%
16	ESSA	STOCKHOLM-ARLANDA	305	-9.7%	16	LOT	LOT-POLISH AIRLINES	358	3.4%
17	EBBR	BRUSSELS NATIONAL	294	-3.1%	17	AUA	AUSTRIAN AIRLINES	358	-0.9%
18	EIDW	DUBLIN	282	-3.8%	18	TAP	TAP/AIR PORTUGAL	347	-0.8%
19	LPPT	LISBOA	279	-0.2%	19	FIN	FINNAIR O/Y	347	1.5%
20	EDDL	DUESSELDORF	273	-9.9%	20	WIF	WIDEROE	335	-0.2%
21	LFPO	PARIS ORLY	271	-7.0%	21	BEE	JERSEY EUROPEAN T/A FLYBE	321	-13.8%
22	LIMC	MILANO MALPENSA	270	5.0%	22	AFL	AEROFLOT-RUSSIAN	320	-2.5%
23	EPWA	CHOPINA W WARSZAWIE	254	4.6%	23	NAX	NORWEGIAN AIR SHUTTLE	316	-11.4%
24	EFHK	HELSINKI-VANTAA	253	-5.1%	24	IBE	IBERIA	259	0.4%
25	LGAV	ATHINA/ELEFTHERIOS VENIZELOS	237	-2.0%	25	QTR	QATAR AIRWAYS COMP.	252	2.6%
26	EDDT	BERLIN-TEGEL	231	-14.8%	26	AEA	AIR EUROPA	248	-5.0%
27	EGSS	LONDON/STANSTED	229	-5.2%	27	ANE	AIR NOSTRUM	204	2.9%
28	EGCC	MANCHESTER	229	-3.3%	28	BEL	BRUSSELS AIRLINES	204	-3.1%
29	LLBG	TEL AVIV/BEN GURION	208	12.1%	29	UAE	EMIRATES	201	0.3%
30	LSGG	GENEVA	207	-3.8%	30	EIN	AER LINGUS TEORANTA	191	-3.1%
31	EDDH	HAMBURG	185	-9.7%	31	BCS	DHL EXPRESS	190	0.3%
32	LKPR	PRAHA RUZYNE	184	-0.5%	32	RAM	ROYAL AIR MAROC	189	4.1%
33	GCLP	GRAN CANARIA	178	-6.1%	33	IBK	NORWEGIAN AIR INTERNATIONAL	170	-39.3%
34	EDDK	KOELN-BONN	172	-4.0%	34	LOG	LOGANAIR	151	40.7%
35	EDDS	STUTTGART	163	-2.1%	35	BTI	AIR BALTIC CORPORAT.	149	3.7%
36	EGPH	EDINBURGH	161	-1.5%	36	EXS	JET2.COM	146	25.1%
37	LHBP	BUDAPEST LISZT FERENC INT.	161	9.0%	37	OAL	OLYMPIC	140	5.4%
38	LROP	BUCURESTI/HENRI COANDA	157	-1.3%	38	AUI	UKRAINE INTERNATIONAL	129	-16.8%
39	EGGW	LONDON/LUTON	156	-2.1%	39	EZS	EASY JET SWITZERLAND	119	-7.0%
40	LIML	MILANO LINATE	150	-1.7%	40	AEI	AEGEAN AIRLINES	118	2.4%
41	LEPA	PALMA DE MALLORCA	147	-10.4%	41	UAL	UNITED AIRLINES INC.	118	8.0%
42	LTAI	ANTALYA	147	6.1%	42	IBB	BINTER CANARIAS	113	2.1%
43	LEMG	MALAGA/COSTA DEL SOL	145	-3.7%	43	NJE	NETJETS	112	-3.4%
44	LFMN	NICE-COTE D'AZUR	144	-2.4%	44	CFE	CITYFLYER EXPRESS	111	-2.9%
45	LFLL	LYON SAINT-EXUPERY	140	-8.8%	45	DAH	AIR ALGERIE	106	7.5%
46	UKBB	KYIV/BORYSPIL	139	4.8%	46	SXS	SUNEXPRESS AIRLINES	106	7.3%
47	LFBO	TOULOUSE BLAGNAC	131	-0.7%	47	IBS	IBERIA EXPRESS	104	6.0%
48	LFML	MARSEILLE PROVENCE	130	0.0%	48	ROT	TAROM	100	-7.3%
49	ENBR	BERGEN/FLESLAND	125	0.0%	49	TRA	TRANSAVIA.COM	100	-1.5%
50	LPPR	PORTO	122	0.0%	50	SHT	BAW SHUTTLE	100	5.0%
TOTALS and % TOTAL TRAFFIC			13864	58.6%	TOTALS and % TOTAL TRAFFIC			18596	69.4%

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	201911	%
		Unidentified	1837	-1.2%

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

EN-ROUTE TRAFFIC GROWTH

Percentage change in traffic November 2019 compared to the same month last year

Legend:

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

Lower Airspaces (Central Europe):

- EGPX (-1.5%)
- EKDK (-2.6%)
- ESMM (-5.4%)
- EGTT (-2.2%)
- EHAH (-2.2%)
- EDWW (-11%)
- EBBU (-3.1%)
- EDGG (-6.3%)
- LKAA (-3.8%)
- EDMM (-3.4%)
- LFFF (-2.6%)
- LFEE (-3.4%)
- LOVV (1.8%)
- LFMM (-2.6%)
- LSAZ (-5.8%)
- LFBB (-1.7%)
- LSAG (-4.8%)
- LPP (1.3%)

Lower Airspace (Eastern Europe):

- LECP (-7.7%)
- LECB (2.6%)
- DAAA (0.8%)

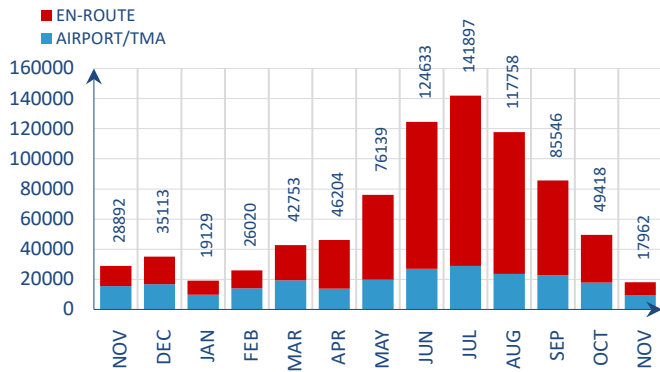
Other Regions:

- BIRD (7%)
- ENBD (-3.4%)
- ESOS (-9%)
- EFES (-3.9%)
- EETT (-6.3%)
- EVRR (-2.9%)
- EYVC (0.2%)
- UMMV (2.2%)
- EPWW (5.2%)
- UKBV (4.6%)
- UKDV (26%)
- UKLV (11.4%)
- LZBB (-0.9%)
- LUUU (2.8%)
- UKOV (3.3%)
- USGG (-10.5%)
- UDDO (2.4%)
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- EGTT (-2.2%)
- ED

The highest relative traffic increases in November 2019 were in Dnipro, Skopje, Beirut, L'viv and Zagreb ACCs. Traffic increase in Ukraine is partially due to an increase in overflights. High traffic in the Western Balkan region and eastern Italy due to increased traffic to Greece, Turkey and Middle-East combined with flows shifting from more northerly routes. Italian industrial action on 25 November contributed to the traffic variation in the Italian ACCs.

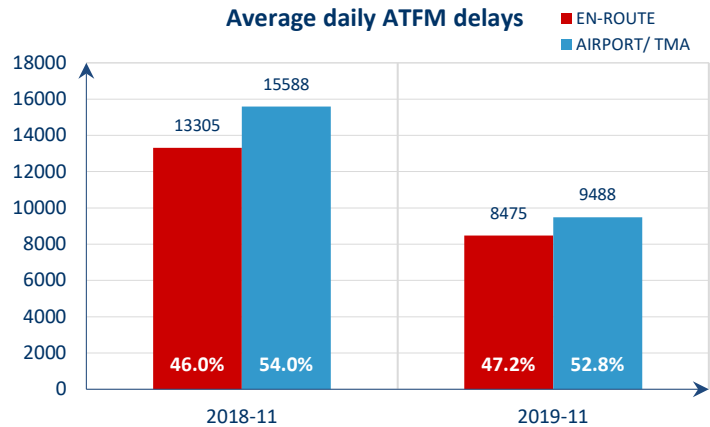
2. ATFM DELAY AND ATTRIBUTIONS

Average daily ATFM delays



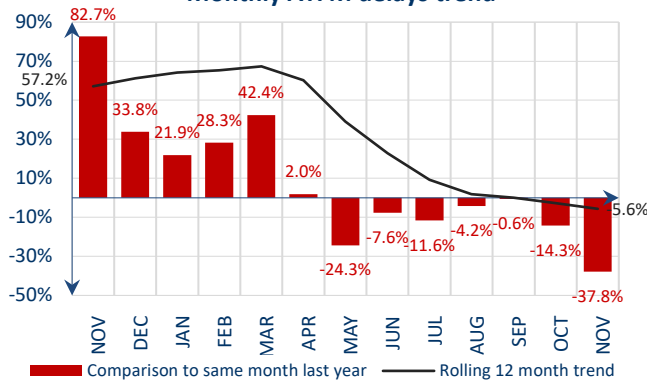
Total ATFM delays decreased by 37.8% in November 2019.

Average daily ATFM delays



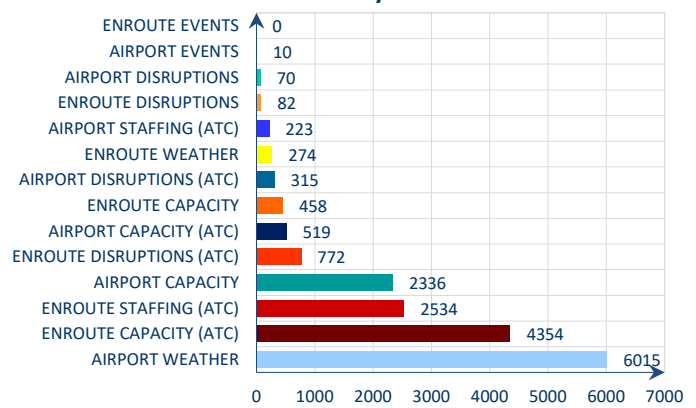
En-route ATFM delays decreased by 36.3% and airport ATFM delays decreased by 39.1%.

Monthly ATFM delays trend



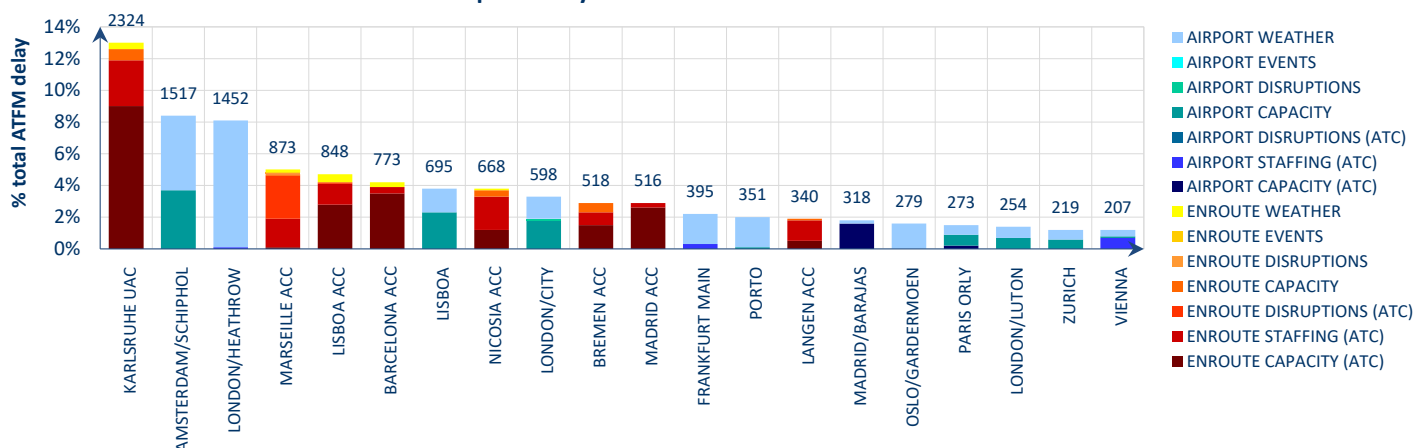
The rolling 12-month trend shows that ATFM delay was 5.6% lower during the period December 2018 – November 2019 compared to December 2017 – November 2018.

Reasons for ATFM delays in November 2019



Airport weather (33.5%), en-route ATC capacity (24.2%), en-route ATC staffing (14.1%) and airport capacity (13.0%) were the main causes of ATFM delays in November 2019.

Top 20 delay reference locations in November 2019

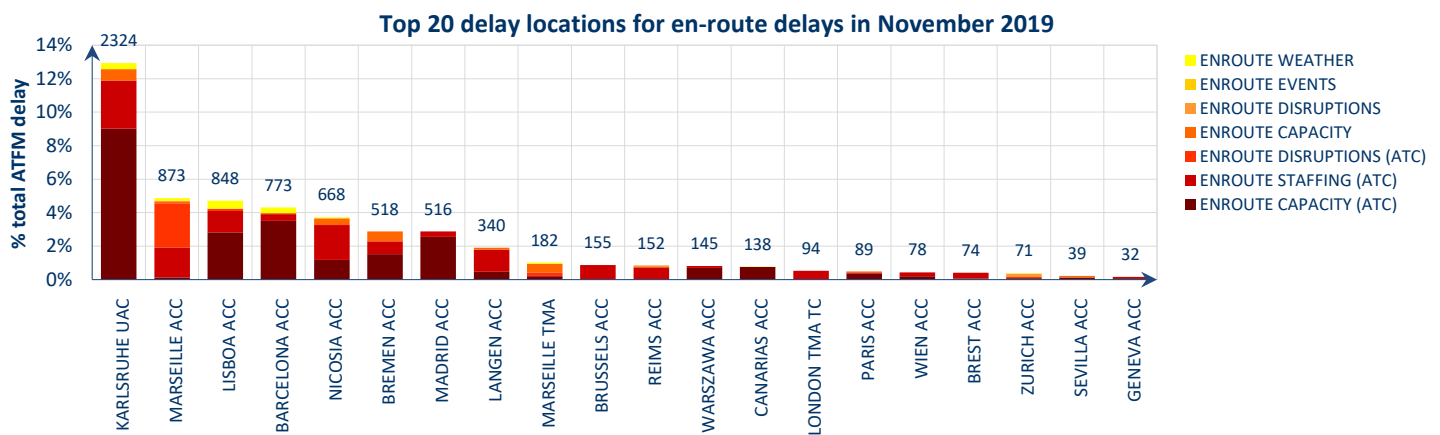
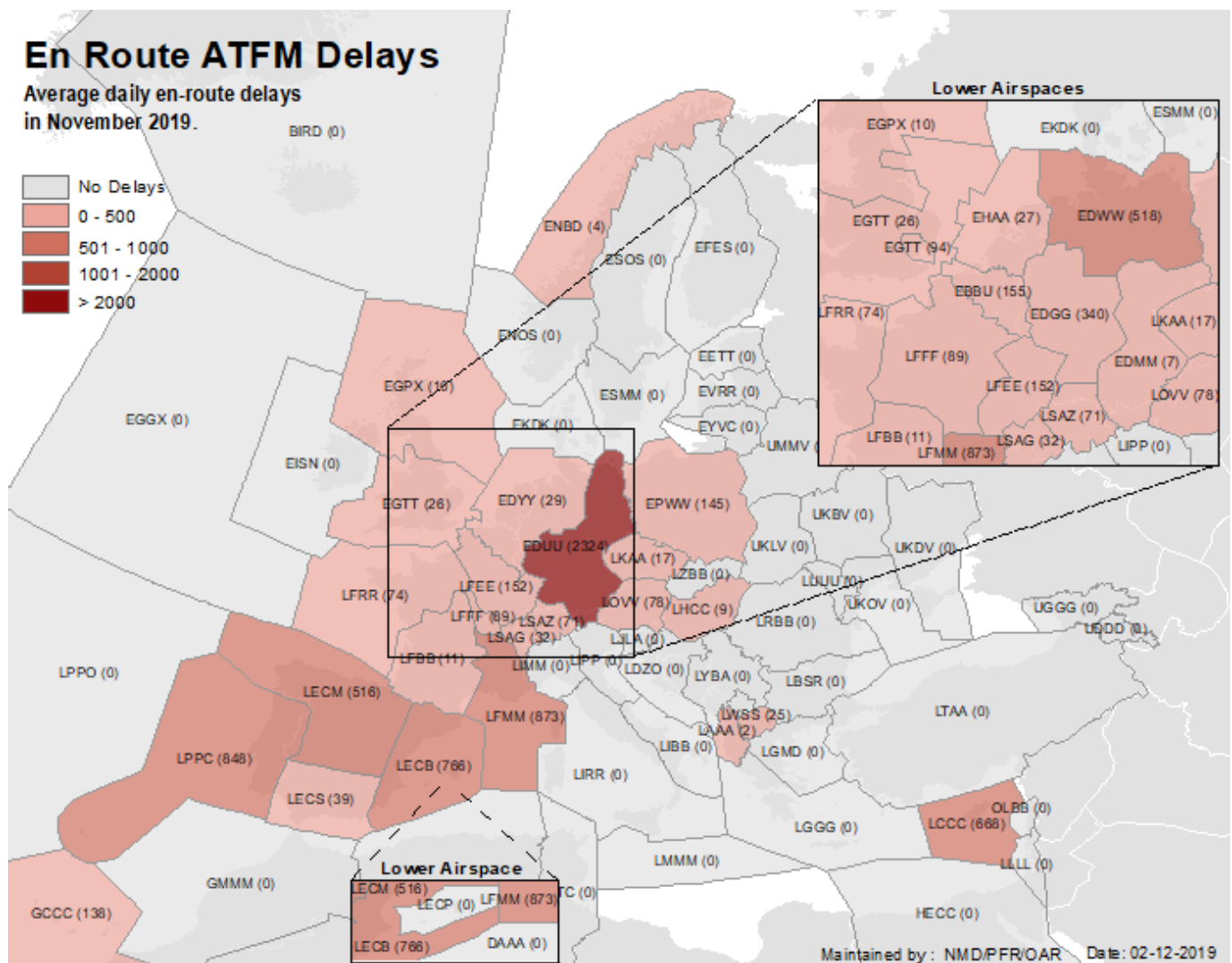


These are the top 20 delay generating locations for the reporting month with respect to total ATFM delays. Figures are the average daily delays in minutes for the individual locations.

- ATC capacity issues in Karlsruhe, Barcelona, Lisbon and Madrid ACCs;
- Staffing shortage in Karlsruhe, Nicosia and Marseille ACCs;
- Low visibility impacted operations strongly at London/Heathrow and Amsterdam/Schiphol airports;
- Radio frequency instability in Marseille ACC on 15 November.

3. EN-ROUTE ATFM DELAYS

EN-ROUTE ATFM DELAY PER LOCATION



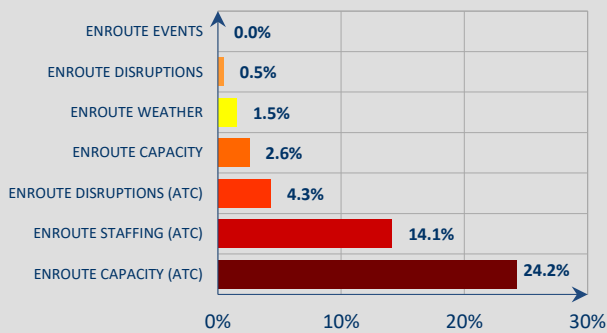
These are the top 20 en-route ATFM delay generating locations for the reporting month with respect to total ATFM delays. Figures are the average daily delays in minutes for the individual locations.

The top 20 en-route ATFM delay locations generated **45.2%** of the monthly total (network) ATFM delay.
The top 5 en-route ATFM delay locations generated **30.5%** 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 November 2019



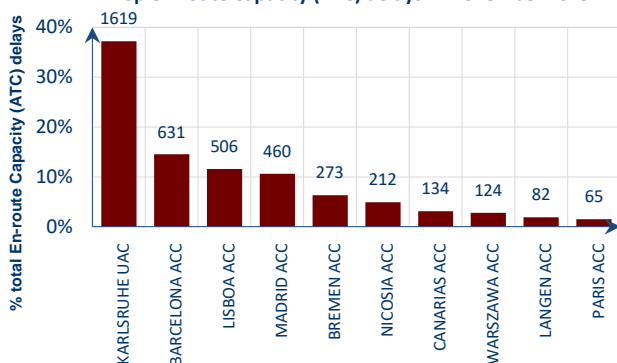
En-route ATFM delays accounted for 47.2% of all ATFM delays. Most of this delay was caused by en-route ATC capacity, en-route ATC staffing and en-route ATC disruptions as explained in detail below. The other causes were:

En-route capacity; Several military activities impacted operations in Karlsruhe, Bremen, Marseille TMA and Nicosia ACCs;

En-route weather; Operations were impacted by severe turbulence in Karlsruhe UAC;

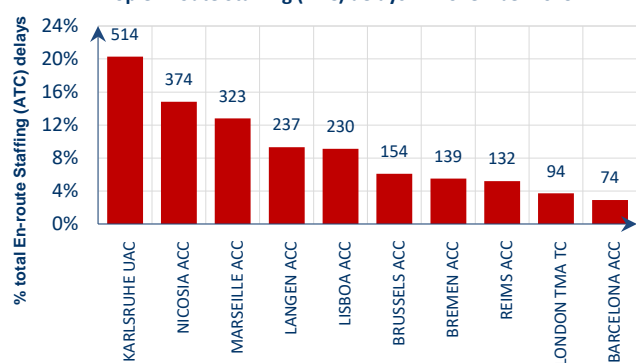
En-route disruptions; Traffic onload in Marseille and Zurich ACCs due to Italian industrial action on 25 November.

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



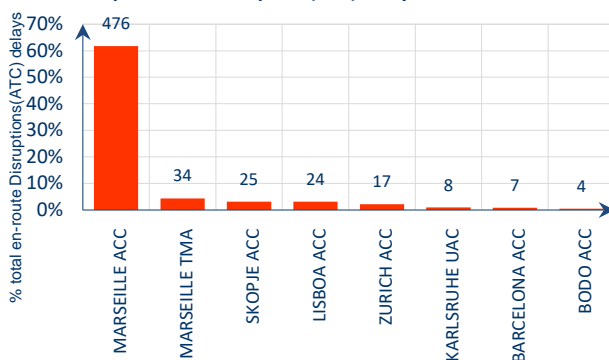
Karlsruhe UAC was the biggest generator of ATC capacity delays in November 2019.

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



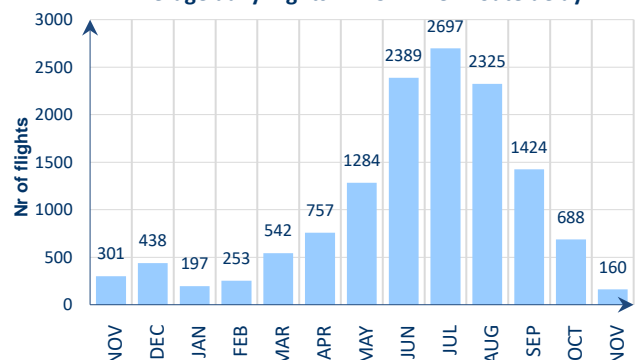
Several staffing issues throughout the month in Karlsruhe UAC generated a total of 15,414 minutes of ATFM delay.

Top en-route Disruption (ATC) delays in November 2019



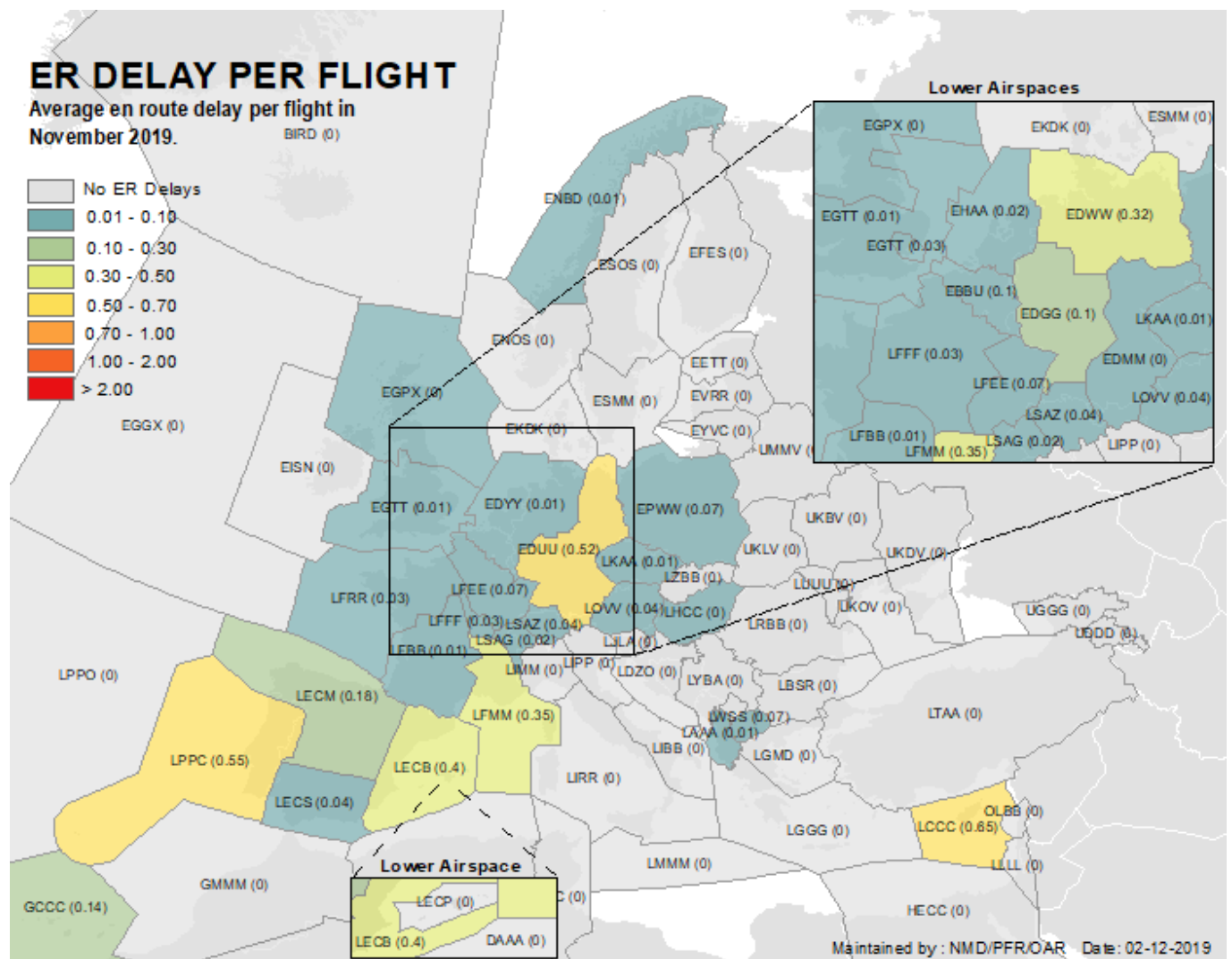
Radio frequency instability in Marseille ACC on 15 November generated a total of 13,213 minutes of ATFM delay.

Average daily flights >= 15 min en-route delay

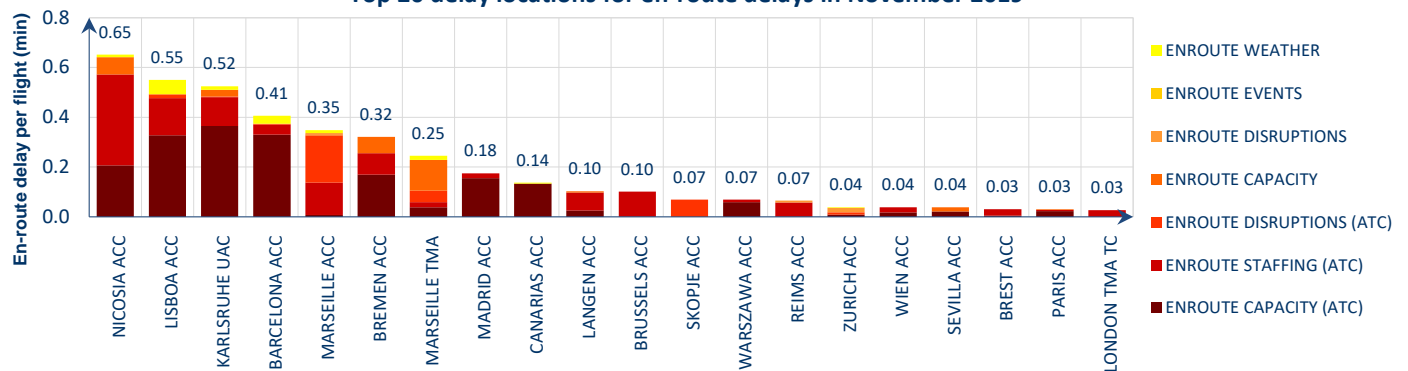


The average daily flights with an en-route ATFM delay of at least 15 minutes decreased from 301 flights/day in November 2018 to 160 flights/day in November 2019, which represents 0.6% of all traffic.

EN-ROUTE ATFM DELAY PER FLIGHT



Top 20 delay locations for en-route delays in November 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.

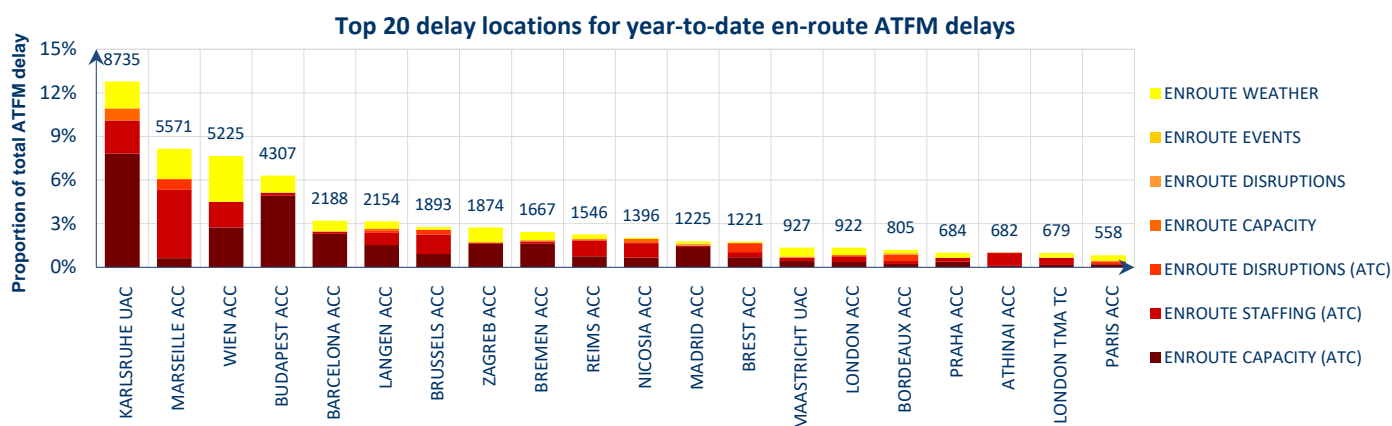
Nicosia ACC en-route ATFM delay/flight decreased from 1.24 min/flight in October 2019 to 0.65 min/flight in November 2019 due to fewer ATC capacity and weather issues;

Karlsruhe UAC en-route ATFM delay/flight decreased from 1.10 min/flight in October 2019 to 0.52 min/flight in November 2019 due to fewer ATC capacity issues;

Marseille ACC en-route ATFM delay/flight decreased from 1.08 min/flight in October 2019 to 0.35 min/flight in November 2019 due to fewer ATC staffing issues;

Lisbon ACC en-route ATFM delay/flight increased from 0.15 min/flight in October 2019 to 0.55 min/flight in November 2019 due to more ATC staffing and capacity issues.

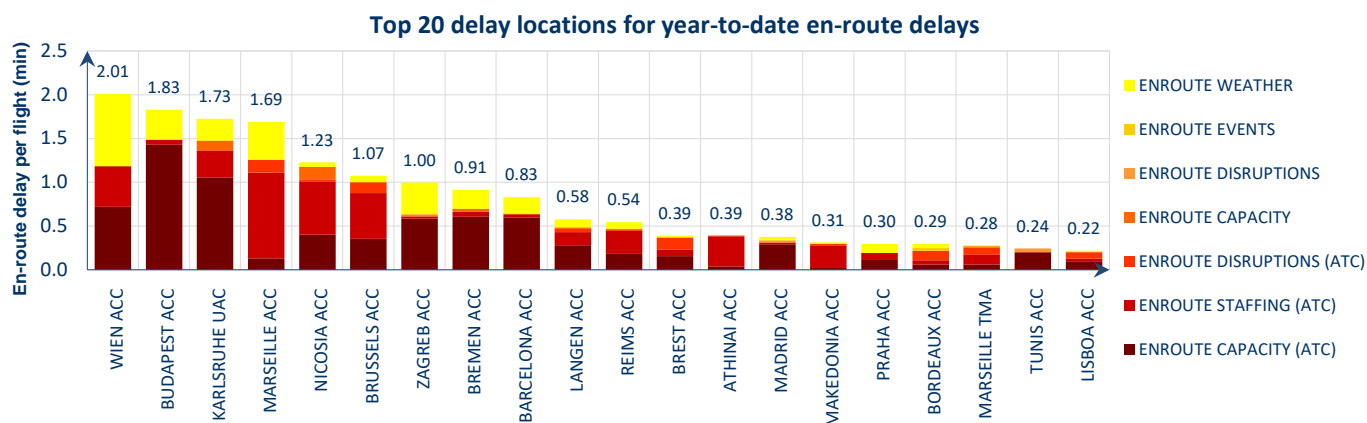
EN-ROUTE ATFM DELAY YEAR-TO-DATE



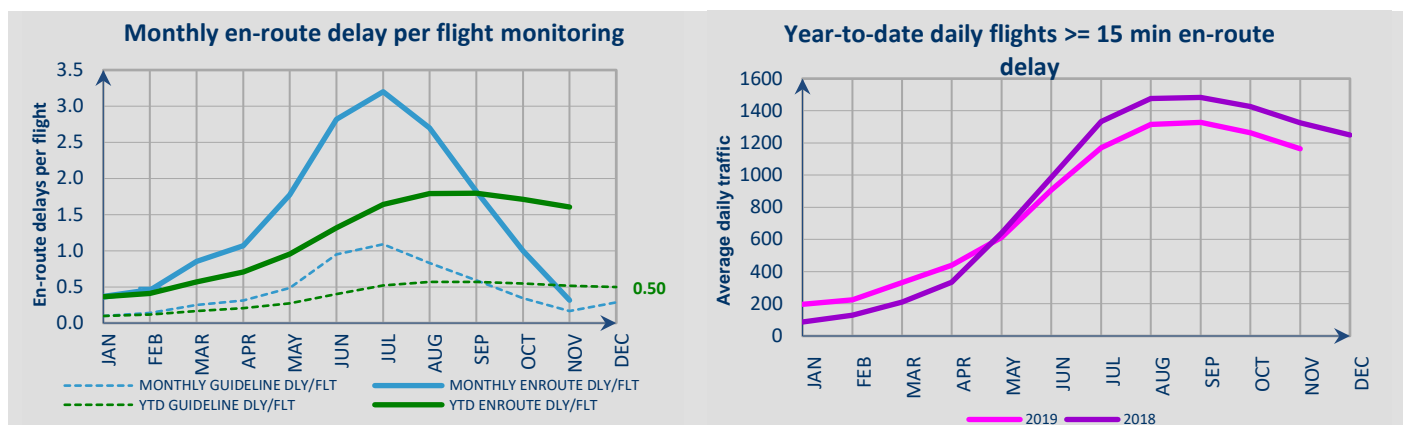
These are the top 20 en-route delay locations for 2019 with respect to the total ATFM delay. Figures are the average daily en-route delay in minutes for the individual locations.

The top 20 en-route delay locations generated **64.8%** of the total ATFM (network) delay.

The top 5 en-route delay locations generated **38.1%** 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 per flight for the individual locations.



Reporting month: The average en-route ATFM delay per flight in the NM areaⁱⁱⁱ in November was 0.32 min/ft, which is above the corresponding monthly guideline^{iv} value of 0.17 min/ft.

Year To Date: The average YTD en-route ATFM delay per flight in 2019 in the NM areaⁱⁱⁱ is 1.60 min/ft which is three times the corresponding guideline value of 0.52 min/ft.

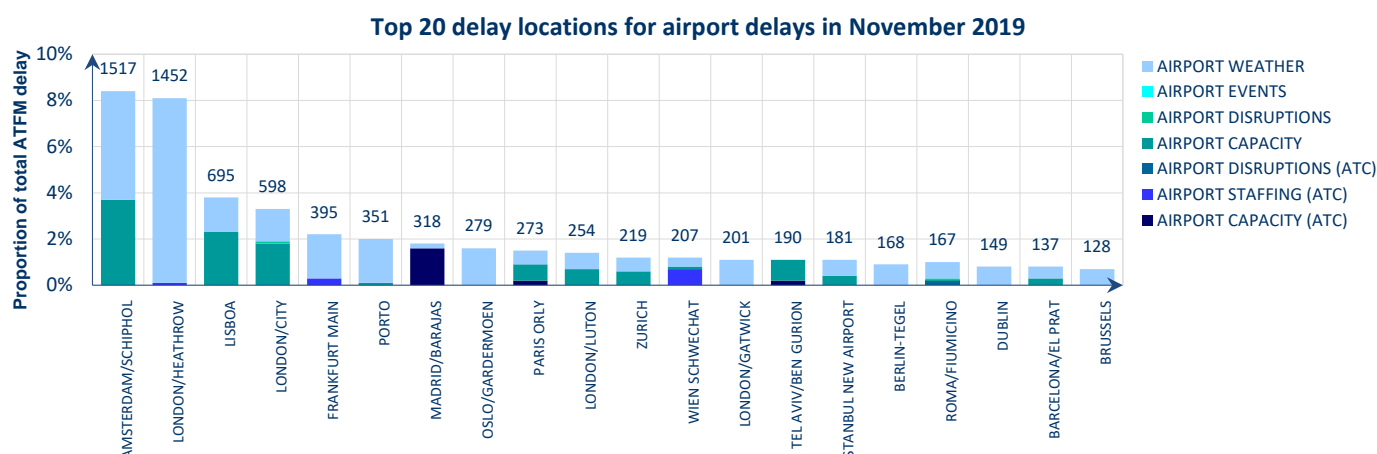
An average of 1,164 flights/day had an en-route ATFM delay of at least 15 minutes in 2019. The corresponding figure in 2018 was 1,325 flights/day.

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

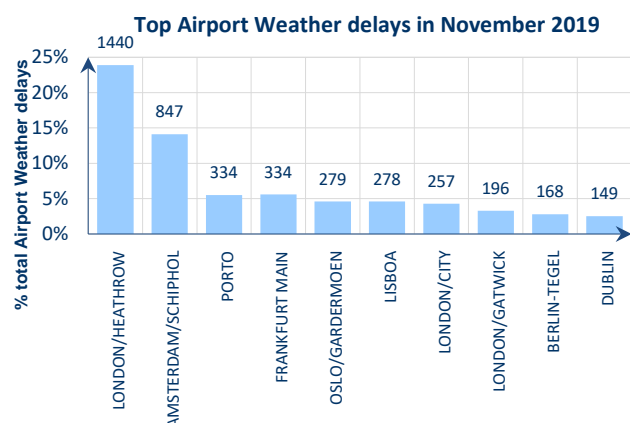
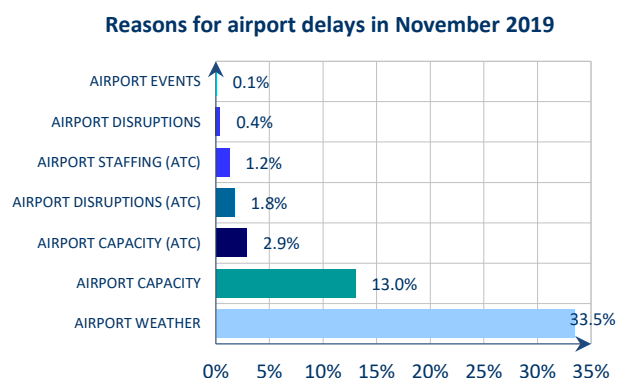
- Karlsruhe UAC with 197 flights/day;
- Marseille ACC with 137 flights/day;
- Wien ACC with 131 flights/day.

4. AIRPORT/TMA ATFM DELAYS

AIRPORT/TMA ATFM DELAY PER LOCATION

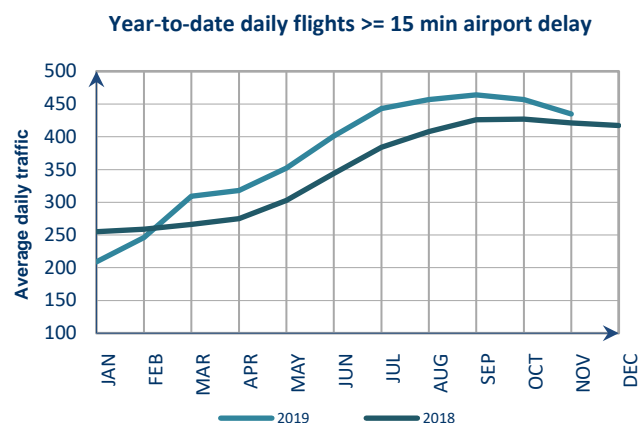
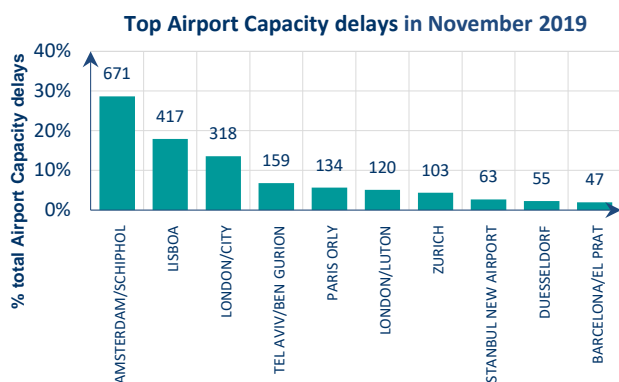


AIRPORT/TMA ATFM DELAY PER DELAY GROUPS



Airports accounted for 52.8% of all ATFM delays in November 2019, mainly due to weather and airport capacity.

Low visibility impacted operations at London/Heathrow airport throughout the month with a total of 43,201 minutes of ATFM delay.



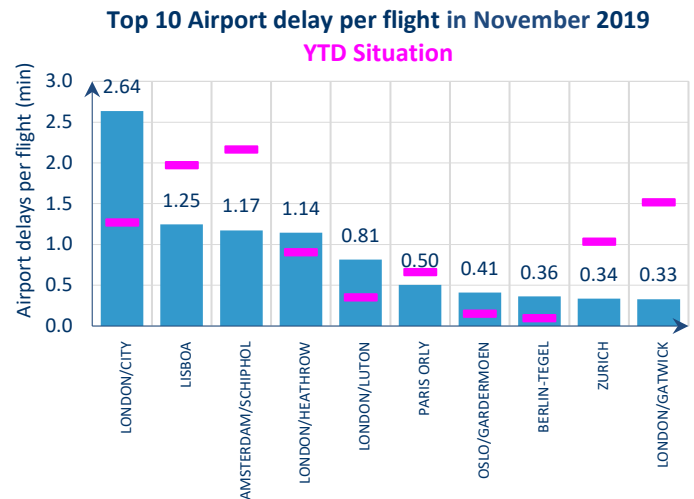
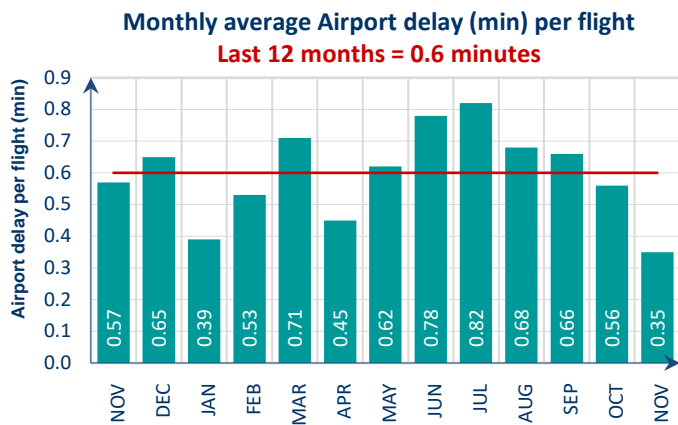
Airport capacity issues at Amsterdam/Schiphol due to high demand. Military activity in the vicinity of Lisbon airport generated delays. Capacity delays at London/City airport due to reduced stands.

An average of 435 flights/day had an airport ATFM delay of at least 15 minutes. The corresponding figure in 2018 was 421 flights.

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

- Amsterdam Schiphol with 135 flights/day;
- Madrid/Barajas with 31 flights/day;
- London/Gatwick with 29 flights/day.

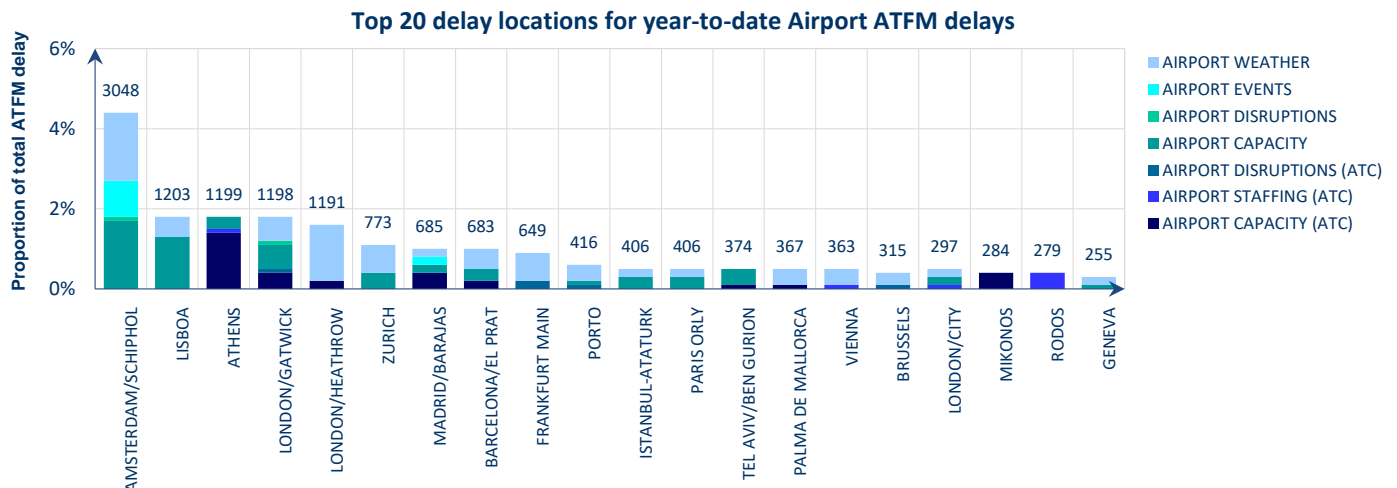
AIRPORT/TMA ATFM DELAY PER FLIGHT



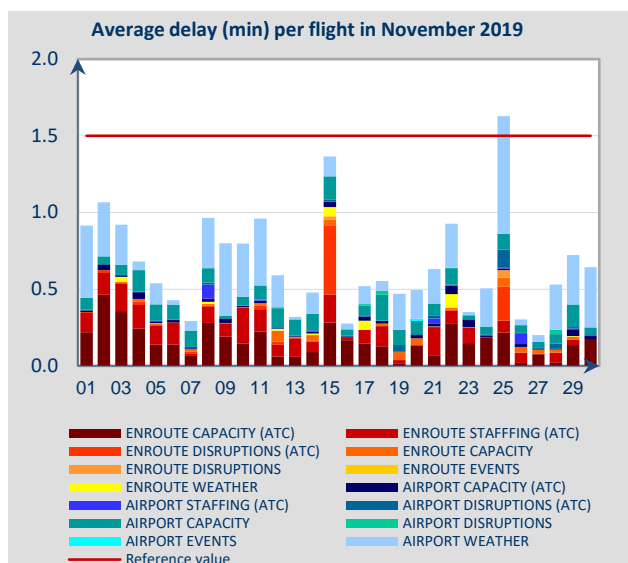
Average airport/TMA delay per flight decreased from 0.57 min/flt in November 2018 to 0.35 min/flt in November 2019.

London/City airport generated an average delay per flight well above its year to date average mainly due to airport weather and capacity.

AIRPORT/TMA ATFM DELAY YEAR-TO-DATE



5. DAILY EVOLUTION



One day in November 2019 had an average ATFM delay per flight exceeding 1.5 min :

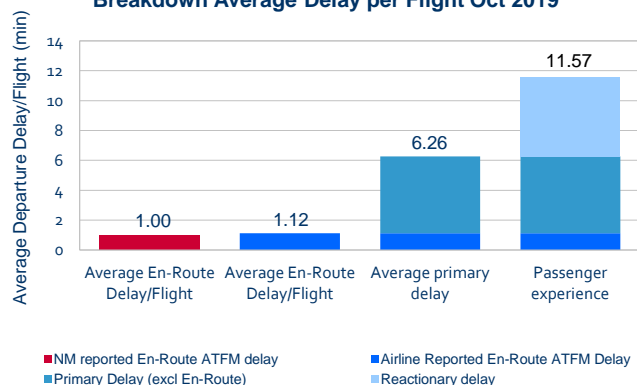
25 November; Low visibility impacted several airports such as Amsterdam/Schiphol, Dublin, Frankfurt and Munich airports; Delays due to Italian industrial action in Italian ACCs and Italian airports; Neighbouring States were also impacted due to traffic onload; ATC capacity issues in Karlsruhe UAC; Staffing shortage in Brussels ACC; Airport capacity delays in Lisbon airport.

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 60% of the commercial flights in the ECAC region for **October 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.

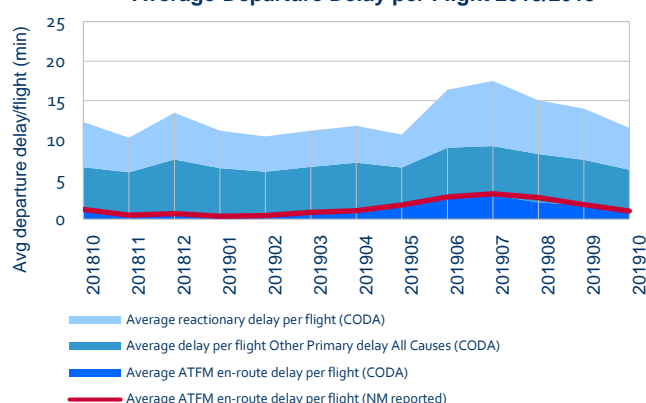
For instance, a flight with an ATFM delay may also have a handling delay absorbed within the ATFM delay. In the event of a long delay an example being during ATC industrial action a flight may keep its original schedule, however when it's flight plan is submitted for example a day later any ATFM delay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

Breakdown Average Delay per Flight Oct 2019



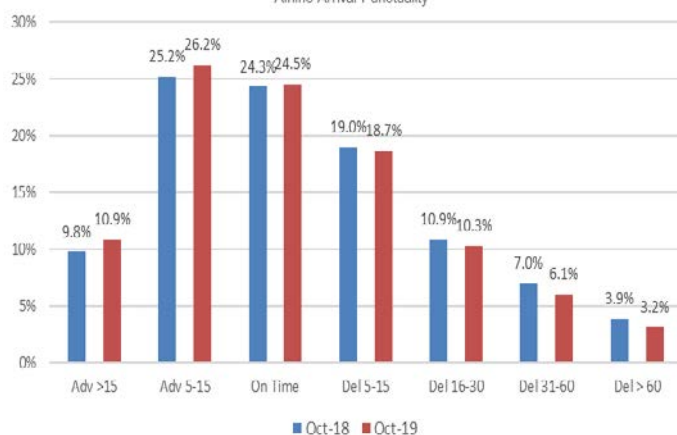
Based on airline data, the average departure delay per flight from ‘All-Causes’ was 11.57 minutes per flight, an 8% decrease in comparison to October 2018 where the average delay was 12.51 mins/flight. Primary delays counted for 54% or 6.26 min/ft, with reactionary delays representing the smaller remaining share of 46% at 5.31 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 1.12 min/ft in October 2019. Weather (low visibility, convective activity, strong winds and thunderstorms) affected operations in London/Heathrow, Amsterdam/Schiphol, London/Gatwick, Frankfurt, Vienna, Brussels, London/Luton, Barcelona, Palma and Zurich airports. Lufthansa Industrial Action on 20 October 2019 led to approximately 400 fewer flights; An Italian ATC industrial action on 25 October occurred mostly impacting Milano/Malpensa, NM estimates there were 600 fewer flights operated to/from Italian airspace.

Airline Arrival Punctuality

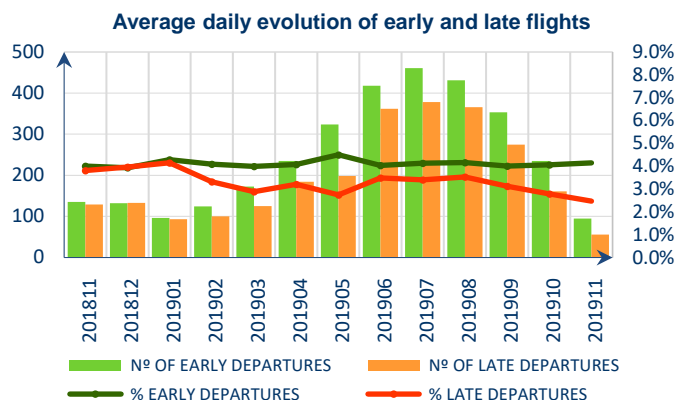


Airline punctuality improved in October 2019 with 80.3% of flights arriving within the 15-minute threshold, or earlier than their scheduled arrival time (STA) this was an increase of 2.0 percentage points in comparison to October 2018.

For more information on CODA delays:

<https://www.eurocontrol.int/publication/all-causes-delay-air-transport-europe-october-2019>

7. ATFM SLOT ADHERENCE

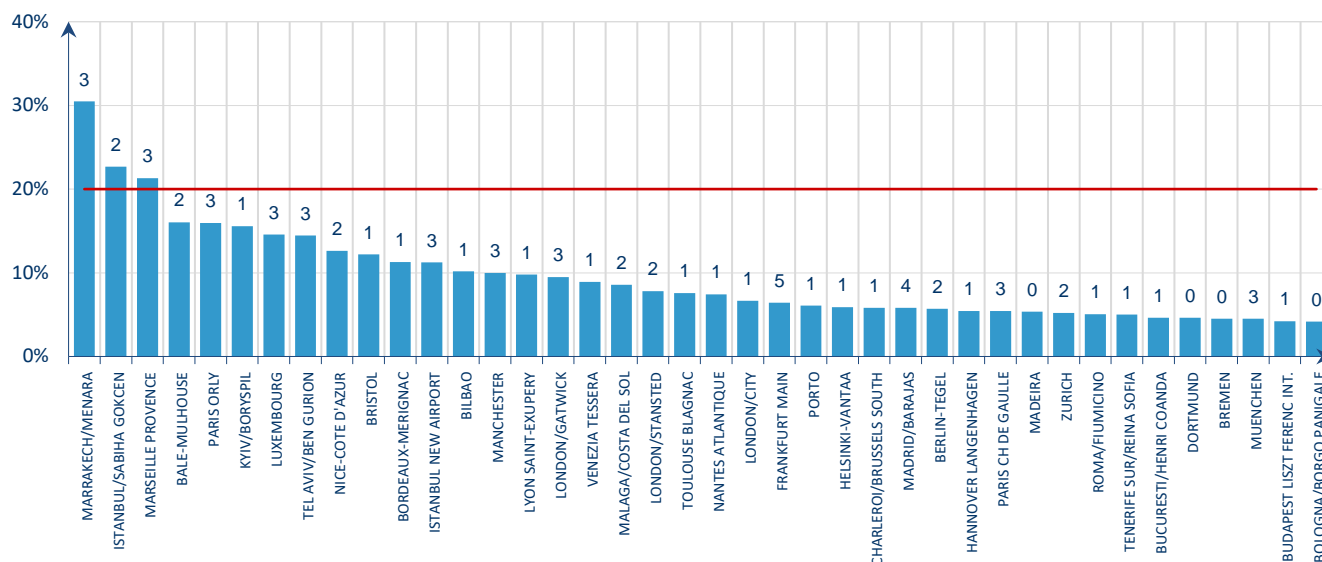


The percentage of early departures for November 2019 is 4.2% of regulated flights, which is an increase of 0.2 percentage points compared to November 2018.

The percentage of late departures for November 2019 is 2.5% of regulated flights, which is a decrease of 1.3 percentage points compared to November 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 November 2019



8. SIGNIFICANT EVENTS AND ISSUES

PLANNED EVENTS

ACC

MAJOR AIRSPACE OR ATM SYSTEM IMPROVEMENT PROJECTS

PLANNED EVENTS

Reims ACC carried out training for the future implementation of 4 Flight ATM system, without generating ATFM delays.

Prestwick ACC and London TC implemented Swanwick Airspace Improvement Project (SAIP) AD5 on 07 November, without generating ATFM delays.

AIRPORTS

Local Plans in November

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

Completed

- Runway maintenance/closure at Amsterdam/Schiphol, Nice and Paris/Charles de Gaulle airports;
- Taxiway improvements at Stockholm/Arlanda airport;
- Military Air Show on 11 November affected operations at Iraklion airport;
- Airside ground lightning works at Bologna airport;
- Snow removal exercises on 19 and 26 November at Athens airport.

Ongoing

- Runway maintenance/closure at Frankfurt/Main, Katowice, Larnaca, Palma de Mallorca, Paris/Orly (1,489 minutes of ATFM delay) and Venice airports;
- Taxiway and/or apron improvements at Amsterdam/Schiphol, Basel/Mulhouse, Cologne, Frankfurt/Main, Hamburg, Ibiza, Malta, Paris/Charles de Gaulle, Porto, Rome/Fiumicino, Tenerife/Sur, Tirana and Venice airports;
- Terminal building improvements/works at Belgrade, Budapest, Frankfurt/Main, Ljubljana, Oslo/Gardermoen and Paris/Charles de Gaulle airports;
- APP/TWR radar and HMI software update at Luxembourg airport generated 2,926 minutes of ATFM delays throughout November;
- ATC equipment calibration at Gran Canaria airport generated 1,461 minutes of ATFM delays on 19 and 21 November.

DISRUPTIONS

Technical

- Radio frequency instability in Marseille ACC on 15 November generated 13,213 minutes of ATFM delay;
- Taxiway lights problems at Bordeaux airport generated 1,013 minutes of ATFM delay from 27 to 29 November.

Industrial Action

- Lufthansa industrial action on 07 and 08 November generated 1,300 flight cancellations;
- Industrial action by ground personnel generated flight cancellations on 25 and 26 November at Helsinki. NM estimates that 238 flights did not operate;
- Italian ATC industrial action on 25 November generated 6,575 minutes of en-route ATFM delay and 2,974 minutes of airport ATFM delay, mostly impacting Rome/Fiumicino.

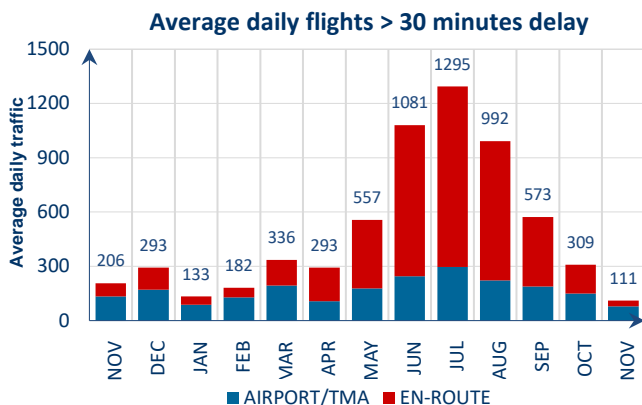
9. NM ADDED VALUE

FLIGHTS WITH DELAY > 30'

The number of flights with more than 30 minutes of ATFM delay decreased by 46.1% compared to November 2018.

In November 2019, 28.8% of flights with more than 30 minutes of ATFM delay were en-route and 71.2% were airport.

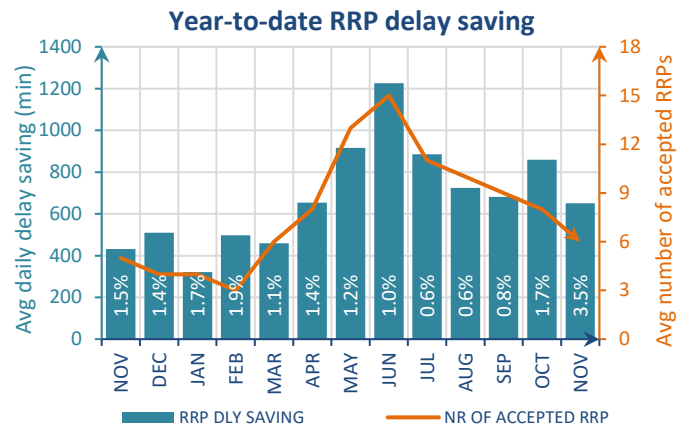
An average 18 flights per day had their delay reduced to less than 30 minutes by NM.



REROUTING PROPOSAL DIRECT DELAY SAVINGS

On average 6 RRP/day were executed saving 651 min/day, accounting for 3.5% of ATFM delays.

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



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<https://www.eurocontrol.int/network-performance>

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 EOB.



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