Monthly Network Operations Report

Analysis – July 2017

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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 chapter 3 and chapter 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**.

1. TOTAL TRAFFIC

Monthly traffic trend
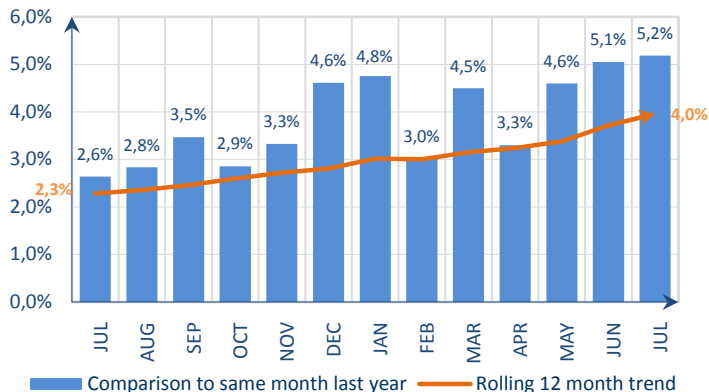
Traffic increased by 5.2% in July 2017[i].

Average daily traffic for last 5 Years
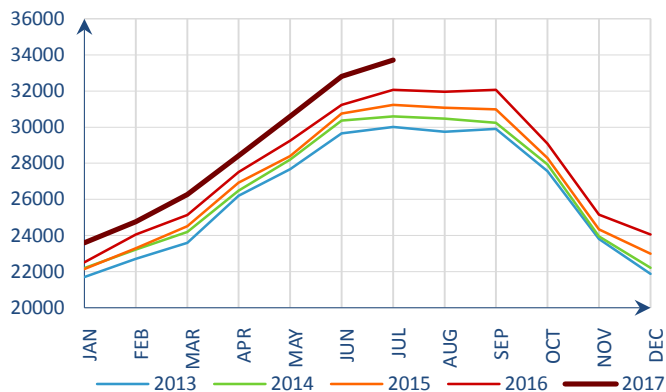
Average daily traffic in July 2017 was the highest for July in the last five years.

Average daily traffic in July for last 5 Years
Forecast dated 2017-02

33197
32735
32283
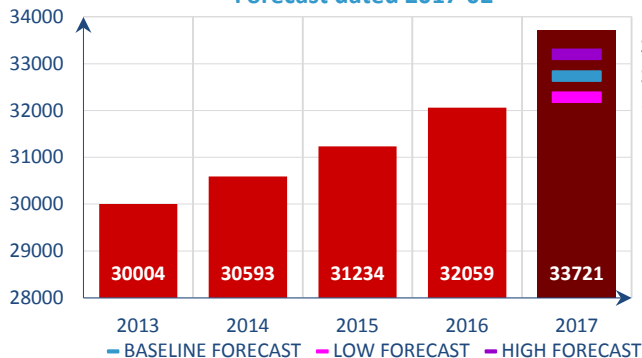
The traffic increase of 5.2% for July was above the high forecast updated in February 2017.

12 months rolling traffic trend
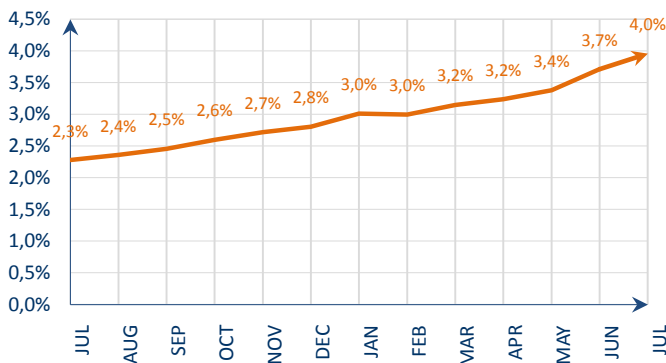
This graph shows the variation in average daily traffic for the last 12-month period relative to the previous 12-months. The average daily traffic from August 2016 to July 2017 was 4.0% higher than the average from August 2015 to July 2016. The trend shows a continuous growth in traffic.

Fifteen states contributed most to the European local traffic[II] growth in July, adding more than 50 daily flights to the network and together added some 1,900 flights per day. Turkey has returned to the top of contributors adding 282 flights per day in July when it saw 310 fewer daily flights last year owing mainly to the recovery of its flow to and from the Russian Federation which increased to 226 flights per day. Germany and Spain ranked second and third adding 238 and 224 daily flights respectively. UK (+186 daily flights) and Italy (+162 daily flights) came next and completed the top five contributors. Greece, Portugal (excl. Azores) and Poland added together 323 flights per day to the network. The following states: Romania (+86 flts/day), France (+84 flts/day), Ukraine (+75 flts/day) Sweden (+68 flts/day), Croatia (+62 flts/day), Czech Republic (+52 flts/day) and Belgium/Luxembourg (+52 flts/day) completed the list.

Euro-zone economic indicators continue to Improve, and Summer traffic growth overall continues to be at or faster than the high-growth forecast, with particular strength in Eastern Europe, including some destinations there showing faster-than-expected recovery.

All-cargo was the strongest market segment with a growth rate of 11.7% owing to a 13.6% increase of flows within Europe. The low-cost and business aviation segments both increased by 6.1% whereas the charter segment was up 5.8% and the traditional scheduled segment rose 4%.

The Russian Federation was back as the biggest external partner in average daily flights on flows in both directions with 1,149 flights per day (back to the 2014 levels) corresponding to a 34% growth on July 2016. The second biggest partner was the United States with 1,118 flights per day, an increase of 1.2% compared to the same month last year. The United Arab Emirates remained the third partner with 331 flights per day (up 2.7%).

Traffic flows between Europe and North-African states have evolved as follows:
- Moroccan flows increased by 8% to 365 flights per day partly due to flows to/from France which grew by 10% to 145 flights/day.
- Egypt continued to recover and was up 53% to 209 flights per day although still below the 2010 levels (307 flights/day).
- Tunisia rose by 19% to 173 flights per day and still below the 2010 levels (222 flights/day).

The aircraft operators that added the most flights to the network on a daily basis were Ryanair (+199 flights), easyJet UK (+87 flights), Turkish Airlines (+82 flights), Wizz Air (+73 flights) and LOT Polish Airlines (+70 flights).
For more information on EUROCONTROL 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 July 2017 were at Antalya, Tel Aviv/Ben Gurion, Birmingham, Warsaw and Bucharest/Henri Coanda airports. The largest traffic decreases were at Rome/Fiumicino, Istanbul/Sabiha Gökcen, Paris/Orly, Zurich and Geneva airports. Antalya traffic increase is due to the comparison with July 2016 when there was a clear drop in tourism due to the unstable political situation. Tel Aviv/Ben Gurion traffic increase was due to increase in tourism and the integration of Israel in IFPS. The increase of traffic in Birmingham airport is due to the opening of new routes.

Seven of the top ten aircraft operators had more traffic compared to July 2016. The operators with the highest traffic growth were Eurowings, FlyNiki, Norwegian Air International, Olympic and LOT-Polish airlines. Air Berlin, Germanwings, Aegean, Norwegian Air Shuttle and HOP airlines recorded the highest traffic decrease.

Norwegian Air International traffic variation comes from a change in fleet size following new aircraft deliveries, as well as aircraft moving from using NAX to the IBK callsign. The traffic variation of Olympic and Aegean is due to Aegean flights operated with Olympic callsign. Airberlin has transferred its 16 European holiday destinations to FlyNiki which operate from Dusseldorf to destinations in Spain, the Canary Islands, Portugal and the Greek islands from the start of the summer schedule. The traffic variation of Eurowings follows the continued integration of Germanwings and some Lufthansa routes into the Eurowings operation.

N°	ADEP	ADEP NAME	201707	%	N°	ICAO	AIR OPERATOR	201707	%
1	EHAM	AMSTERDAM/SCHIPHOL	767	2,6%	1	RYR	RYANAIR	2224	9,8%
2	LFPG	PARIS CH DE GAULLE	713	0,8%	2	THY	TURKISH AIRLINES	1479	5,9%
3	EDDF	FRANKFURT MAIN	701	2,3%	3	EZY	EASYJET	1470	6,3%
4	LTBA	ISTANBUL-ATATURK	682	2,7%	4	DLH	DEUTSCHE LUFTHANSA	1464	2,5%
5	EGLL	LONDON/HEATHROW	676	0,3%	5	AFR	AIR FRANCE	925	2,7%
6	EDDM	MUENCHEN	588	2,9%	6	SAS	SCANDINAVIAN AIRLINES SYSTEM	788	1,9%
7	LEMD	ADOLFO SUAREZ MADRID-BARAJA	566	1,8%	7	BAW	BRITISH AIRWAYS	728	-1,6%
8	LEBL	BARCELONA/EL PRAT	518	3,9%	8	KLM	KLM ROYAL DUTCH AIRL	710	5,5%
9	LIRF	ROMA/FIUMICINO	470	-5,0%	9	VLG	VUELING AIRLINES SA	660	-4,6%
10	LEPA	PALMA DE MALLORCA	468	5,3%	10	AZA	ALITALIA	599	-5,8%
11	EGKK	LONDON/GATWICK	453	0,9%	11	WZZ	WIZZ AIR	505	17,0%
12	LSZH	ZURICH	392	-1,3%	12	PGT	PEGASUS HAVA TASI.	502	10,4%
13	EKCH	KOBENHAVN/KASTRUP	371	-0,3%	13	BEE	JERSEY EUROPEAN T/A FLYBE	468	5,1%
14	LTAI	ANTALYA	362	37,8%	14	SWR	SWISS INTERNATIONAL	409	-5,5%
15	LOWW	WIEN SCHWECHAT	362	0,9%	15	AUA	AUSTRIAN AIRLINES	406	9,6%
16	EBBR	BRUSSELS NATIONAL	352	2,3%	16	BER	AIR BERLIN, INC.	388	-38,2%
17	LGAV	ATHINAI/ELEFTHERIOS VENIZELOS	349	5,1%	17	EWG	EUROWINGS AG	381	149,0%
18	LFPO	PARIS ORLY	347	-2,2%	18	TAP	TAP/AIR PORTUGAL	378	11,4%
19	EIDW	DUBLIN	346	3,3%	19	NAX	NORWEGIAN AIR SHUTTLE	328	-11,6%
20	EDDL	DUESSELDORF	339	3,4%	20	LOT	LOT-POLISH AIRLINES	308	29,3%
21	ENGM	OSLO/GARDERMOEN	330	4,4%	21	WIF	WIDEROE	299	-7,7%
22	EGCC	MANCHESTER	328	5,7%	22	AFL	AEROFLOT-RUSSIAN	297	11,6%
23	LTFJ	ISTANBUL/SABIHA GOKCEN	324	-4,2%	23	FIN	FINNAIR O/Y	295	7,2%
24	ESSA	STOCKHOLM-ARLANDA	322	9,7%	24	IBK	NORWEGIAN AIR INTERNATIONAL	291	60,1%
25	LPPT	LISBOA	318	10,9%	25	EXS	JET2.COM	271	22,1%
26	EGSS	LONDON/STANSTED	289	8,4%	26	IBE	IBERIA	264	2,7%
27	LIMC	MILANO MALPENSA	281	10,1%	27	GWI	GERMAN WINGS	247	-33,6%
28	LFMN	NICE-COTE D'AZUR	277	2,5%	28	RAM	ROYAL AIR MAROC	245	0,7%
29	EDDT	BERLIN-TEGEL	271	3,0%	29	AEA	AIR EUROPA	245	-2,3%
30	EPWA	CHOPINA W WARSZAWIE	262	13,3%	30	TOM	THOMSON FLY LTD	243	3,4%
31	LSGG	GENEVA	258	-1,2%	31	BEL	BRUSSELS AIRLINES	241	3,8%
32	LEMG	MALAGA/COSTA DEL SOL	247	9,6%	32	EIN	AER LINGUS TEORANTA	238	2,3%
33	LLBG	TEL AVIV/BEN GURION	237	17,8%	33	ANE	AIR NOSTRUM	237	-2,7%
34	LKPR	PRAHA RUZYNE	233	9,9%	34	OAL	OLYMPIC	219	41,6%
35	EFHK	HELSINKI-VANTAA	231	8,4%	35	TRA	TRANSAVIA.COM	211	-1,8%
36	EDDH	HAMBURG	229	3,0%	36	VOE	VOLOTEA	208	19,0%
37	EDDK	KOELN-BONN	214	6,1%	37	QTR	QATAR AIRWAYS COMP.	204	11,9%
38	EGGW	LONDON/LUTON	212	1,8%	38	HOP	HOP (MERGE OF BZH + RAE + RLA)	203	-9,5%
39	LEIB	IBIZA	204	2,9%	39	AEE	AEGEAN AIRLINES	195	-29,3%
40	EGPH	EDINBURGH	199	4,6%	40	UAE	EMIRATES	195	-1,4%
41	EGBB	BIRMINGHAM	197	14,2%	41	SXS	SUNEXPRESS AIRLINES	187	25,0%
42	LIML	MILANO LINATE	183	1,7%	42	NLY	NL LUFTFAHRT GMBH(FLYNIKI)	181	98,9%
43	EDDS	STUTTGART	182	1,8%	43	AUI	UKRAINE INTERNATIONA	179	16,0%
44	LROP	BUCURESTI/HENRI COANDA	179	12,3%	44	NJE	NETJETS	174	-3,6%
45	LTAC	ANKARA-ESENBOGA	174	0,0%	45	DAL	DELTA AIR LINES INC.	170	2,9%
46	LEAL	ALICANTE	172	7,9%	46	TVS	TRAVEL SERVIS	167	-1,6%
47	LFLL	LYON SAINT-EXUPERY	167	1,1%	47	TCX	THOMAS COOK AIT LTD	157	7,2%
48	LHBP	BUDAPEST LISZT FERENC INT.	161	9,0%	48	UAL	UNITED AIRLINES INC.	156	-2,4%
49	LIPZ	VENEZIA TESSERA	156	-0,3%	49	BCS	EUROPEAN AIR TRANSP.	153	6,9%
50	EGPF	GLASGOW	150	3,4%	50	EZS	EASY JET SWITZERLAND	153	1,3%
	TOTALS and % TOTAL TRAFFIC		**16809**	**55,9%**		**TOTALS and % TOTAL TRAFFIC**		**21645**	**64,2%**

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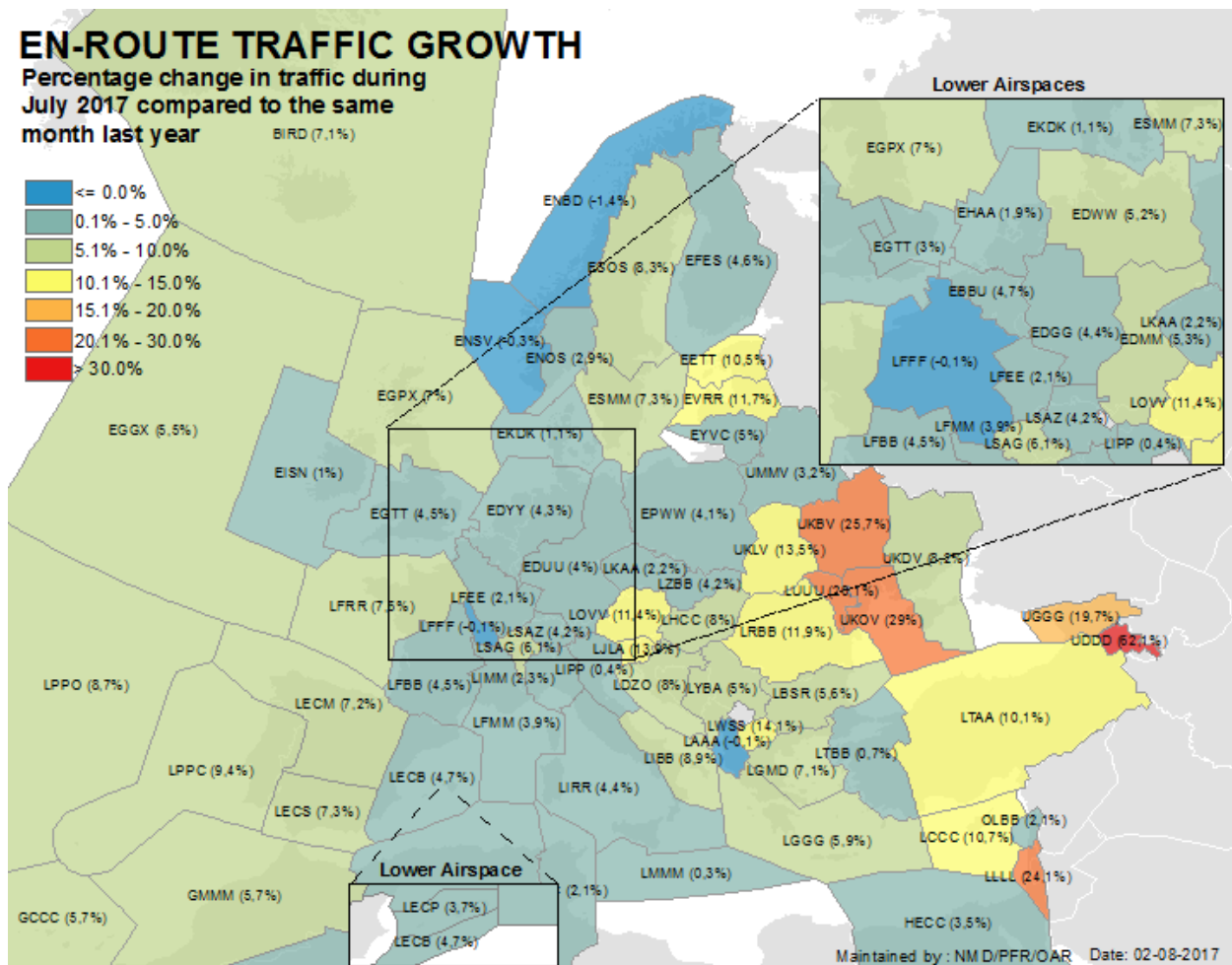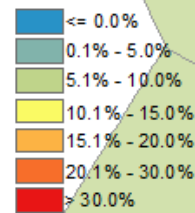
Top 50 Air Operators with average daily traffic and percentage compared to same period of previous year

N°	ICAO	AIR OPERATOR	201707	%
		Unidentified	2438	1,0%

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

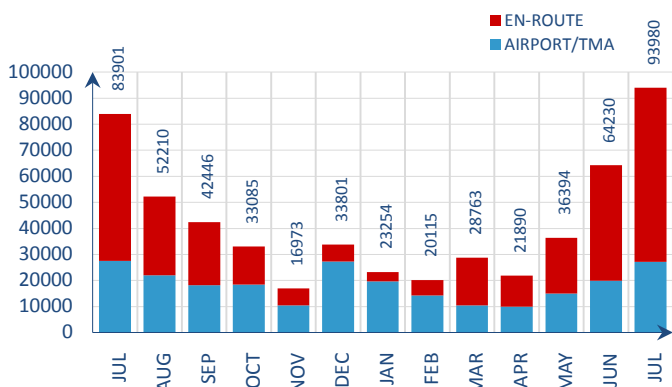**Percentage change in traffic during July 2017 compared to the same month last year**

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%

Map labels: BIRD (7,1%), ENBD (-1,4%), ESOS (8,3%), EFES (4,6%), ENSV (-0,3%), ENOS (2,9%), EETT (10,5%), EGPX (7%), ESMM (7,3%), EVRR (11,7%), EYVC (5%), EGGX (5,5%), EKDK (1,1%), UMMV (3,2%), EISN (1%), EGTT (4,5%), EDYY (4,3%), EPWW (4,1%), UKBV (25,7%), UKLV (13,5%), UKDV (8,2%), EDUU (4%), LKAA (2,2%), LZBB (4,2%), LUUU (20,1%), UKOV (29%), UGGG (19,7%), LFRR (7,6%), LFEE (2,1%), LOVV (11,4%), LHCC (8%), LRBB (11,9%), UDDD (62,1%), LFFF (-0,1%), LSAZ (4,2%), LSAG (6,1%), LJLA (13,9%), LPPO (8,7%), LFBB (4,5%), LIMM (2,3%), LIPP (0,4%), LDZO (8%), LYBA (5%), LBSR (5,6%), LTAA (10,1%), LECM (7,2%), LFMM (3,9%), LWSS (14,1%), LAAA (-0,1%), LTBB (0,7%), LPPC (9,4%), LECB (4,7%), LIRR (4,4%), LIBB (8,9%), LGMD (7,1%), OLBB (2,1%), LECS (7,3%), LGGG (5,9%), LCCC (10,7%), GMMM (5,7%), LMMM (0,3%), LLLL (24,1%), GCCC (5,7%), HECC (3,5%), LECP (3,7%), LECB (4,7%)

Lower Airspaces (inset): EGPX (7%), EKDK (1,1%), ESMM (7,3%), EHAA (1,9%), EDWW (5,2%), EGTT (3%), EBBU (4,7%), LKAA (2,2%), EDGG (4,4%), EDMM (5,3%), LFFF (-0,1%), LFEE (2,1%), LOVV (11,4%), LFMM (3,9%), LSAZ (4,2%), LIPP (0,4%), LFBB (4,5%), LSAG (6,1%)

Lower Airspace (inset): LECP (3,7%), LECB (4,7%)

Maintained by : NM D/PFR/OAR   Date: 02-08-2017

Nº	ASP ID	ASP NAME	201707	%	Nº	ASP ID	ASP NAME	201707	%
1	BIRDACC	REYKJAVIK ACC	497	7,1%	39	LFBBALL	BORDEAUX ALL ACC	3311	4,6%
2	DAAAACC	ALGERS ACC	527	4,8%	40	LFEEACC	REIMS U/ACC	3266	2,1%
3	DTTCACC	TUNIS ACC	343	2,1%	41	LFFFALL	PARIS ALL ACC	3733	-0,1%
4	EBBUACC	BRUSSELS CANAC	1946	4,7%	42	LFMMACC	MARSEILLE ACC	4007	3,9%
5	EDGGALL	LANGEN ACC_FIR	3840	4,4%	43	LFMMAPP	MARSEILLE TMA	1177	2,2%
6	EDMMACC	MUNCHEN ACC	3430	5,3%	44	LFRRACC	BREST U/ACC	3660	7,6%
7	EDUUUAC	KARLSRUHE UAC	5878	4,0%	45	LGGGACC	ATHINAI CONTROL	2238	5,9%
8	EDWWACC	BREMEN ACC	1988	5,2%	46	LGMDACC	MAKEDONIA CONTROL	1759	7,1%
9	EDYYUAC	MAASTRICHT UAC	5687	4,3%	47	LHCCACC	BUDAPEST ACC	2893	8,0%
10	EETTACC	TALLIN ACC	673	10,5%	48	LIBBACC	BRINDISI ACC	1164	8,9%
11	EFESACC	TAMPERE ACC	408	4,6%	49	LIMMACC	MILANO ACC	2885	2,3%
12	EGGXOCA	SHANWICK OACC	1600	5,5%	50	LIPPACC	PADOVA ACC	2489	0,4%
13	EGPXALL	SCOTTISH ACC	3176	7,0%	51	LIRRACC	ROMA ACC	3017	4,4%
14	EGTTACC	LONDON ACC	6571	4,5%	52	LJLAACC	LJUBLJANA ACC	1180	13,9%
15	EGTTTC	LONDON TMA TC	4326	3,0%	53	LKAAACC	PRAGUE ACC	2616	2,2%
16	EHAAACC	AMSTERDAM ACC(245-)	1793	1,9%	54	LLLLACC	TEL AVIV ACC	603	24,1%
17	EIDWACC	DUBLIN ACC	765	3,4%	55	LMMMACC	MALTA ACC	352	0,3%
18	EISNACC	SHANNON ACC	1452	1,0%	56	LOVVACC	WIEN ACC	2961	11,4%
19	EKDKACC	COPENHAGEN ACC	1685	1,1%	57	LPPCACC	LISBOA ACC/UAC	1752	9,4%
20	ENBDACC	BODO ACC	575	-1,4%	58	LPPOOAC	SANTA MARIA OACC	462	8,7%
21	ENOSACC	OSLO ATCC	1026	2,9%	59	LQSBACC	BOSNIA-HERZEGOVINA	166	12,9%
22	ENSVACC	STAVANGER ATCC	653	-0,3%	60	LRBBACC	BUCURESTI ACC	2351	11,9%
23	EPWWACC	WARSZAWA ACC	2542	4,1%	61	LSAGACC	GENEVA ACC	2151	6,1%
24	ESMMACC	MALMO ACC	1638	7,3%	62	LSAZACC	ZURICH ACC	2542	4,2%
25	ESOSACC	STOCKHOLM ACC	1089	8,3%	63	LTAAACC	ANKARA ACC	4425	10,1%
26	EVRRACC	RIGA ACC	859	11,7%	64	LTBBACC	ISTANBUL ACC	2266	0,7%
27	EYVCACC	VILNIUS ACC	740	5,0%	65	LUUUACC	CHISINAU ACC	179	20,1%
28	GCCCACC	CANARIAS ACC/FIC	888	5,7%	66	LWSSACC	SKOPJE ACC	737	14,1%
29	GMMMACC	CASABLANCA ACC	1176	5,7%	67	LYBAACC	BEOGRADE ACC	2515	5,0%
30	HECCACC	CAIROACC	621	3,5%	68	LZBBACC	BRATISLAVA ACC	1881	4,2%
31	LAAAACC	TIRANA ACC	794	-0,1%	69	OLBBACC	BEIRUT ACC	197	2,1%
32	LBSRACC	SOFIA ACC	2792	5,6%	70	UDDDACC	YEREVAN ACC	167	62,1%
33	LCCCACC	NICOSIA ACC	1193	10,7%	71	UGGGACC	TBILISI ACC	444	19,7%
34	LDZOACC	ZAGREB ACC	2199	8,0%	72	UKBVACC	KIEV ACC	524	25,7%
35	LECBACC	BARCELONA ACC	3327	4,7%	73	UKDVACC	DNIPROPETROVSK ACC	66	8,2%
36	LECMALL	MADRID ALL ACC	3389	7,2%	74	UKLVACC	L'VIV ACC	403	13,5%
37	LECPACC	PALMA ACC	1510	3,7%	75	UKOVACC	ODESSA ACC	347	29,0%
38	LECSACC	SEVILLA ACC	1259	7,3%	76	UMMVACC	MINSK ACC	895	3,2%

The Lisbon, Santa Maria, Madrid, Casablanca, Canarias and Bordeaux ACCs variation is due to increased traffic in the South/West axis. However, the highest relative traffic increases in July 2017 were in Yerevan, Odessa, Kiev, Tel Aviv and Chisinau ACCs. Reykjavik ACC traffic variation is due to an increase usage of northern routes between US and Europe. Tel Aviv ACC variation is due to increase of domestic flights and integration of Israel in IFPS.
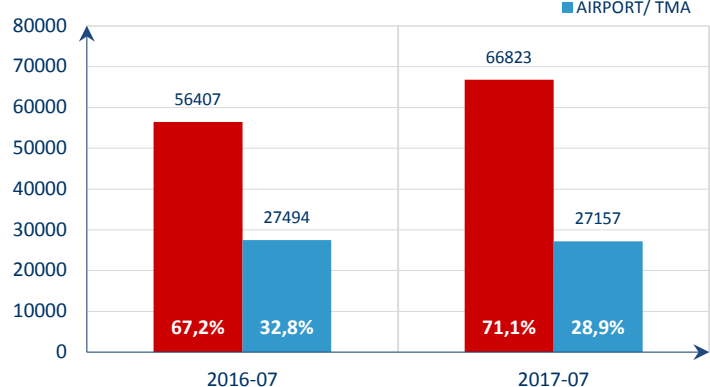
2. ATFM DELAY AND ATTRIBUTIONS

Average daily ATFM delays

EN-ROUTE
AIRPORT/TMA

Total ATFM delays increased by 12% in July 2017.

Average daily ATFM delays

EN-ROUTE
AIRPORT/ TMA

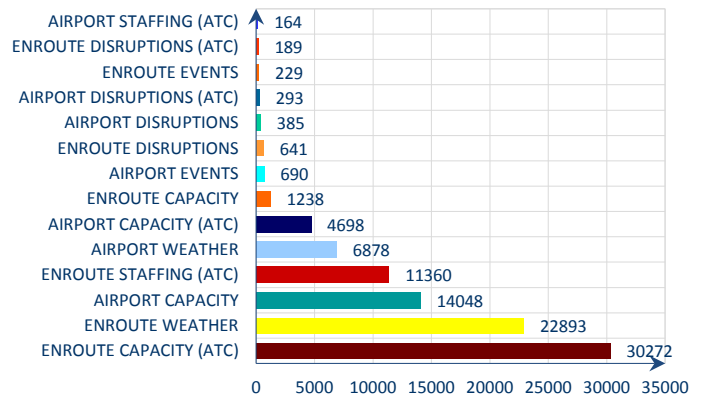|	2016-07	2017-07
En-route	56407 (67,2%)	66823 (71,1%)
Airport/TMA	27494 (32,8%)	27157 (28,9%)

En-route ATFM delays increased by 18.5% and airport ATFM delays decreased by 1.2%.

Monthly ATFM delays trend

Comparison to same month last year — Rolling 12 month trend
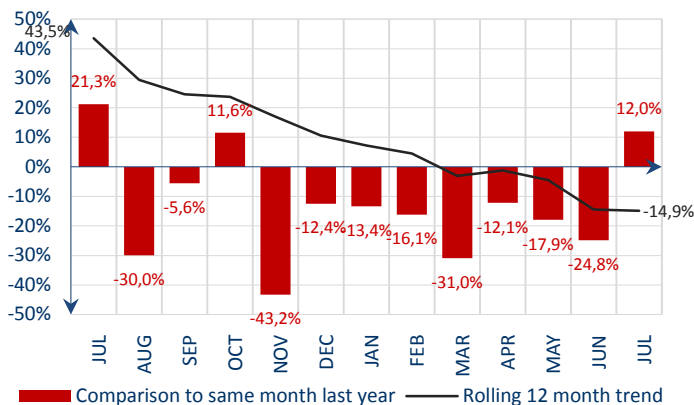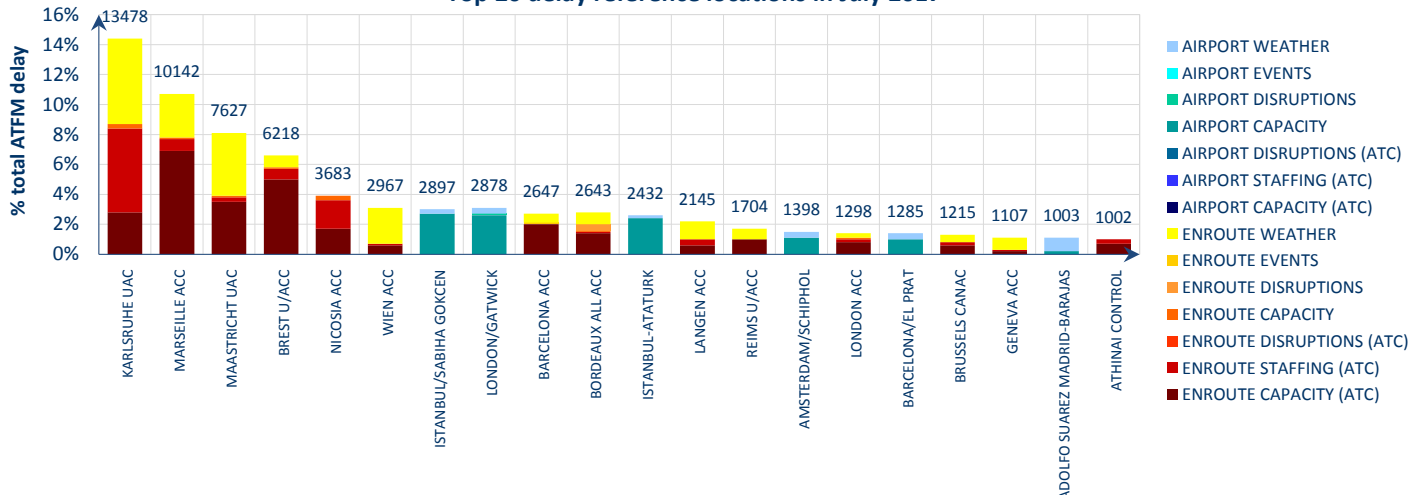
The rolling 12-month trend shows continuous improvement since July 2016. ATFM delay was 14.8% lower during the period August 2016 – July 2017 compared to August 2015 – July 2016.

Proportion of ATFM delays in July 2017

Cause	Value
AIRPORT STAFFING (ATC)	164
ENROUTE DISRUPTIONS (ATC)	189
ENROUTE EVENTS	229
AIRPORT DISRUPTIONS (ATC)	293
AIRPORT DISRUPTIONS	385
ENROUTE DISRUPTIONS	641
AIRPORT EVENTS	690
ENROUTE CAPACITY	1238
AIRPORT CAPACITY (ATC)	4698
AIRPORT WEATHER	6878
ENROUTE STAFFING (ATC)	11360
AIRPORT CAPACITY	14048
ENROUTE WEATHER	22893
ENROUTE CAPACITY (ATC)	30272

En-route ATC capacity (32.2%), en-route weather (24.4%) and airport capacity (15.0%) were the main causes of ATFM delays in July 2017.

Top 20 delay reference locations in July 2017

AIRPORT WEATHER
AIRPORT EVENTS
AIRPORT DISRUPTIONS
AIRPORT CAPACITY
AIRPORT DISRUPTIONS (ATC)
AIRPORT STAFFING (ATC)
AIRPORT CAPACITY (ATC)
ENROUTE WEATHER
ENROUTE EVENTS
ENROUTE DISRUPTIONS
ENROUTE CAPACITY
ENROUTE DISRUPTIONS (ATC)
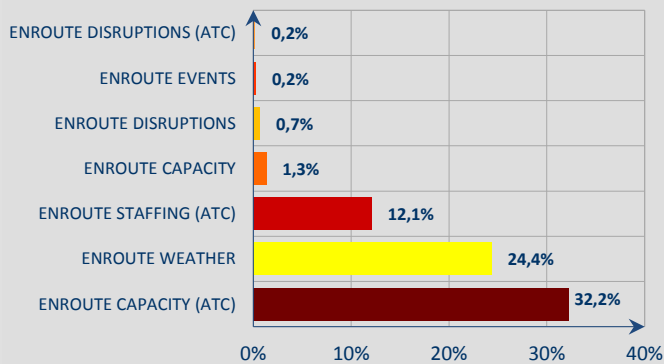ENROUTE STAFFING (ATC)
ENROUTE CAPACITY (ATC)

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.

- En route weather delays in Karlsruhe, Marseille, Maastricht, Brest and Vienna ACCs;
- En-route ATC capacity issues in Karlsruhe, Marseille, Maastricht, Brest, Nicosia, Barcelona, Bordeaux, Reims and Athens ACCs;
- En-route ATC staffing issues in Karlsruhe and Nicosia ACCs;
- Capacity issue at both Istanbul airports, London/Gatwick, Amsterdam/Schiphol and Barcelona airports;
- Seasonal weather impacted both Istanbul airports and Madrid/Barajas airports.
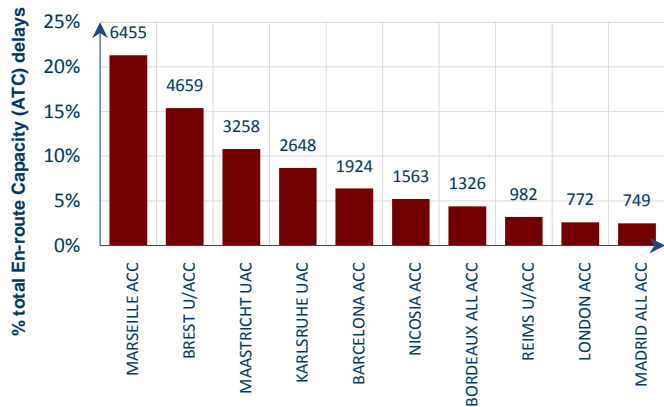
3. EN-ROUTE ATFM DELAYS

EN-ROUTE ATFM DELAY PER LOCATION

Top 20 delay locations for en-route delays in July 2017

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 **65.7%** of the monthly total (network) ATFM delay.
The top 5 en-route ATFM delay locations generated **43.7%** of the monthly total (network) ATFM delay.

More detailed information available in the Monthly per ACC Summary Report via the **NM ATFCM Statistics website**.

EN-ROUTE ATFM DELAY PER DELAY GROUP

Reasons for en-route delays in July 2017

Category	%
ENROUTE DISRUPTIONS (ATC)	0,2%
ENROUTE EVENTS	0,2%
ENROUTE DISRUPTIONS	0,7%
ENROUTE CAPACITY	1,3%
ENROUTE STAFFING (ATC)	12,1%
ENROUTE WEATHER	24,4%
ENROUTE CAPACITY (ATC)	32,2%

En-route ATFM delays accounted for 71.1% of all ATFM delays. Most of this delay was caused by en-route ATC capacity, en-route weather and en-route ATC staffing as explained in detail below. The other causes were:
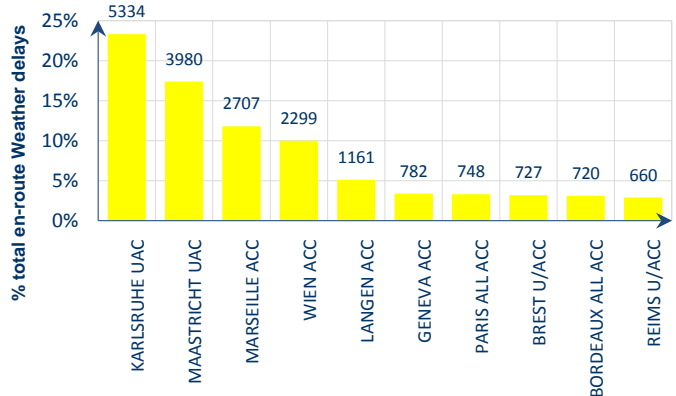
En-route capacity; Military activities in Nicosia, Karlsruhe, Maastricht, Brest, Marseille and London ACCs;
En-route disruptions; ATFM protective measure in Bordeaux ACC due to the implementation of new Bordeaux-Barcelona ACC interface; Communication failure in Ottawa Communication Centre generated delays in Shanwick Oceanic ACC;
En-route events; familiarisation with new sectorisation in Barcelona ACC generated some delays.

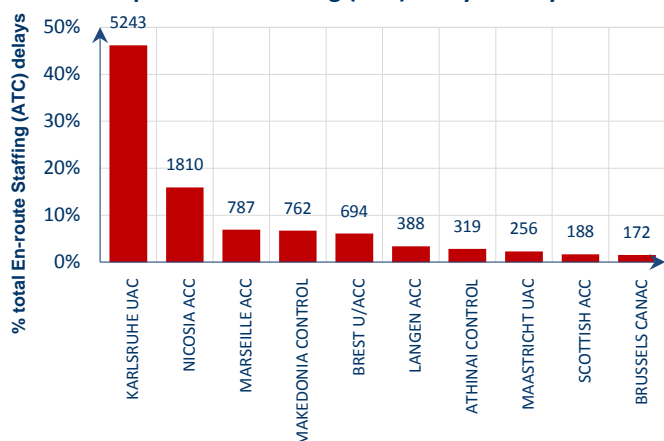## Top en-route Capacity (ATC) delays in July 2017

ACC	Value
MARSEILLE ACC	6455
BREST U/ACC	4659
MAASTRICHT UAC	3258
KARLSRUHE UAC	2648
BARCELONA ACC	1924
NICOSIA ACC	1563
BORDEAUX ALL ACC	1326
REIMS U/ACC	982
LONDON ACC	772
MADRID ALL ACC	749

Marseille, Brest and Maastricht were the biggest generators of en-route ATC capacity delays in July.

Top en-route Weather delays in July 2017

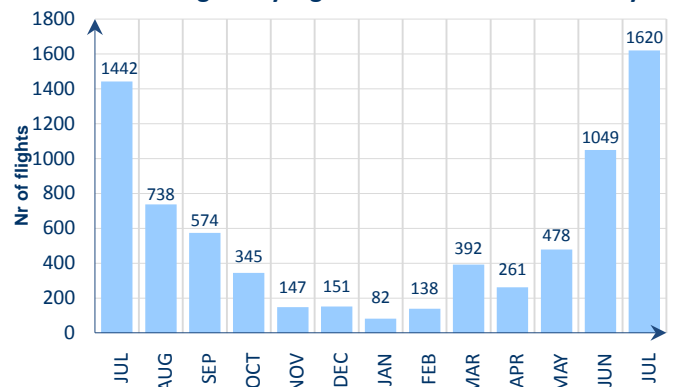| ACC	Value
KARLSRUHE UAC	5334
MAASTRICHT UAC	3980
MARSEILLE ACC	2707
WIEN ACC	2299
LANGEN ACC	1161
GENEVA ACC	782
PARIS ALL ACC	748
BREST U/ACC	727
BORDEAUX ALL ACC	720
REIMS U/ACC	660

Thunderstorms generated delays in several ACCs. Karlsruhe, Maastricht and Marseille ACCs were the most impacted throughout the month. The worst days for en-route weather were on 19 July in Maastricht ACC with a total of 40,759 min of delay and on 22 July in Karlsruhe ACC with a total of 23,382 min of delay.

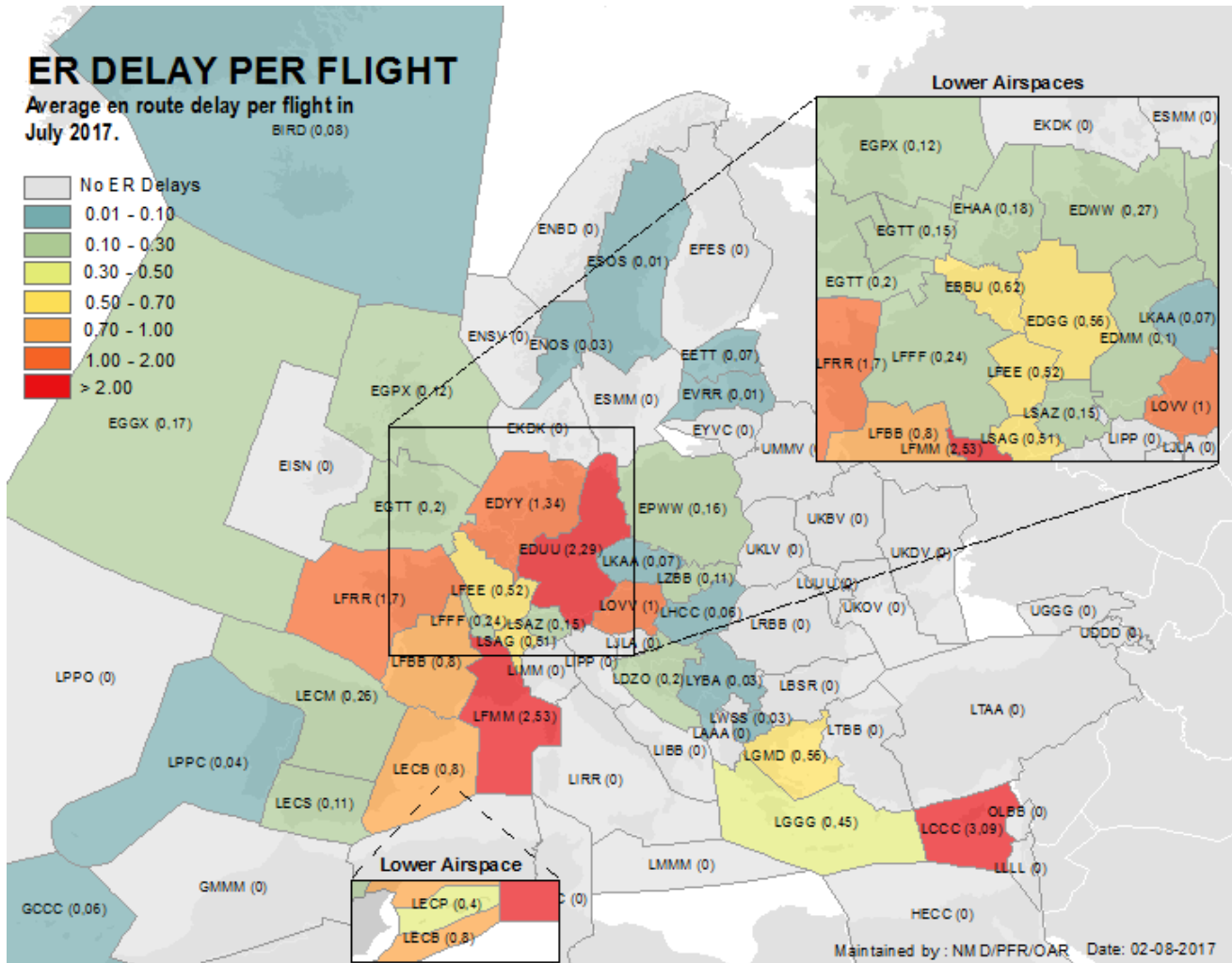## Top en-route Staffing (ATC) delays in July 2017

ACC	Value
KARLSRUHE UAC	5243
NICOSIA ACC	1810
MARSEILLE ACC	787
MAKEDONIA CONTROL	762
BREST U/ACC	694
LANGEN ACC	388
ATHINAI CONTROL	319
MAASTRICHT UAC	256
SCOTTISH ACC	188
BRUSSELS CANAC	172

ATFM delays due to staff shortage in Karlsruhe UAC and, to a lesser extent in Nicosia ACC.

Average daily flights >= 15 min en-route delay

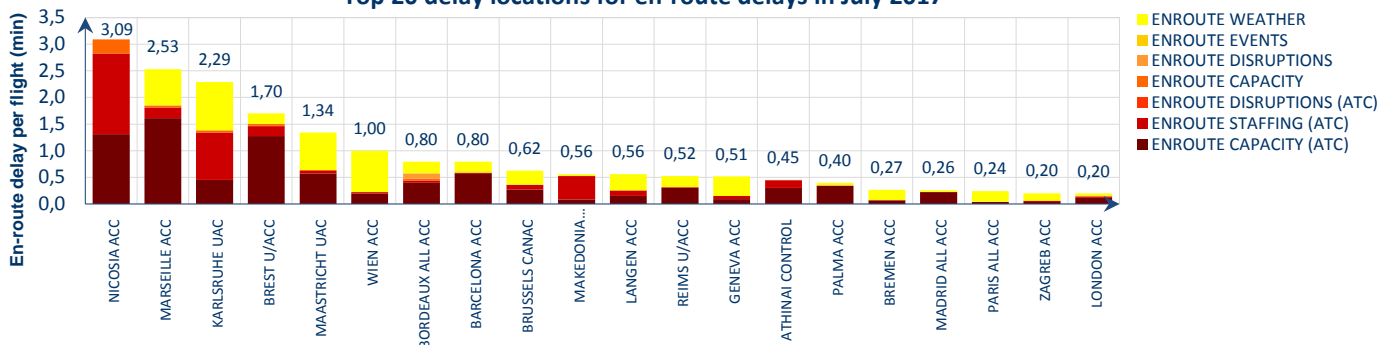| Month	Nr of flights
JUL	1442
AUG	738
SEP	574
OCT	345
NOV	147
DEC	151
JAN	82
FEB	138
MAR	392
APR	261
MAY	478
JUN	1049
JUL	1620

The average daily flights with an en-route ATFM delay of at least 15 minutes increased from 1,442 flights/day in July 2016 to 1,620 flights/day in July 2017.

EN-ROUTE ATFM DELAY PER FLIGHT

ER DELAY PER FLIGHT
Average en route delay per flight in July 2017.

Legend:
- No ER Delays
- 0.01 - 0.10
- 0.10 - 0.30
- 0.30 - 0.50
- 0.50 - 0.70
- 0.70 - 1.00
- 1.00 - 2.00
- > 2.00

Maintained by : NM D/PFR/OAR   Date: 02-08-2017

Top 20 delay locations for en-route delays in July 2017

Legend:
- ENROUTE WEATHER
- ENROUTE EVENTS
- ENROUTE DISRUPTIONS
- ENROUTE CAPACITY
- ENROUTE DISRUPTIONS (ATC)
- ENROUTE STAFFING (ATC)
- ENROUTE CAPACITY (ATC)

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 average en-route ATFM delay/flight increased from 1.63 min/flt in June 2017 to 3.09 min/flt in July 2017, mainly due to ATC capacity and ATC staffing.

Marseille ACC average en-route ATFM delay/flight increased from 1.19 min/flt in June 2017 to 2.53 min/flt in July 2017.

Karlsruhe ACC average en-route ATFM delay/flight increased from 1.15 min/flt in June 2017 to 2.29 min/flt in July 2017.

Maastricht ACC average en-route ATFM delay/flight decreased from 1.47 min/flt in June 2017 to 1.34 min min/flt in July 2017.
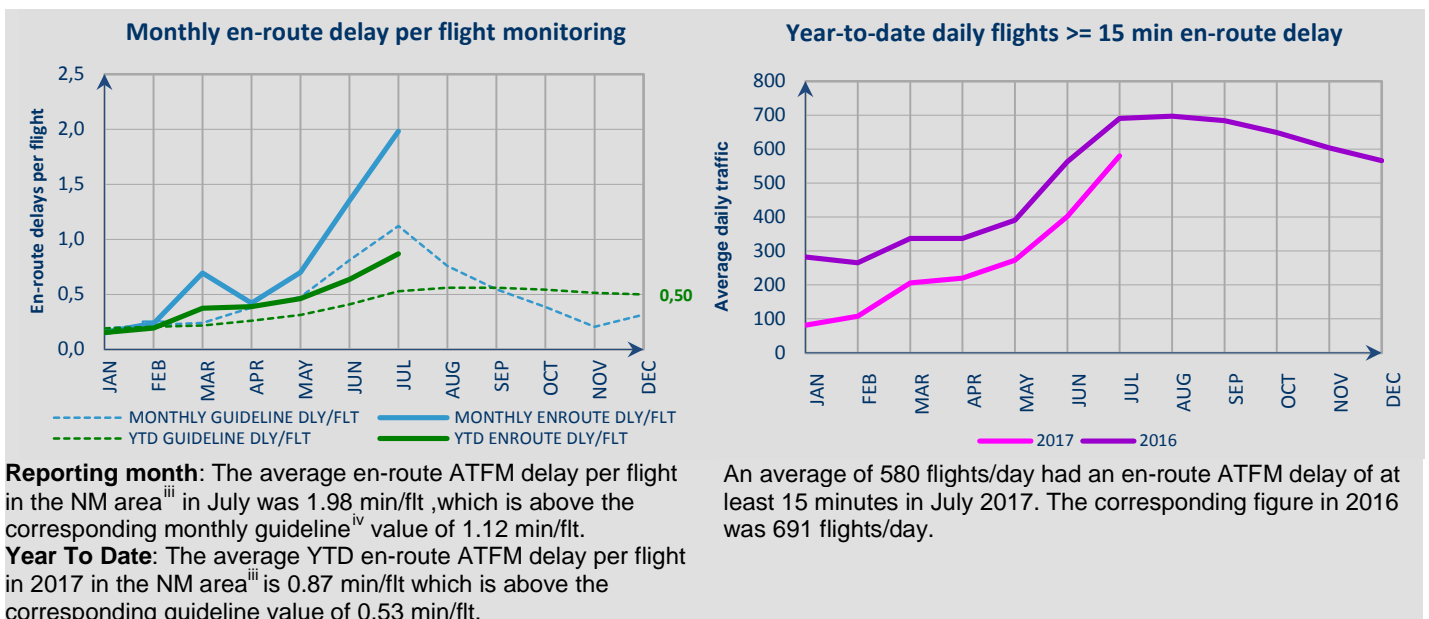
EN-ROUTE ATFM DELAY YEAR-TO-DATE

Top 20 delay locations for year-to-date en-route ATFM delays
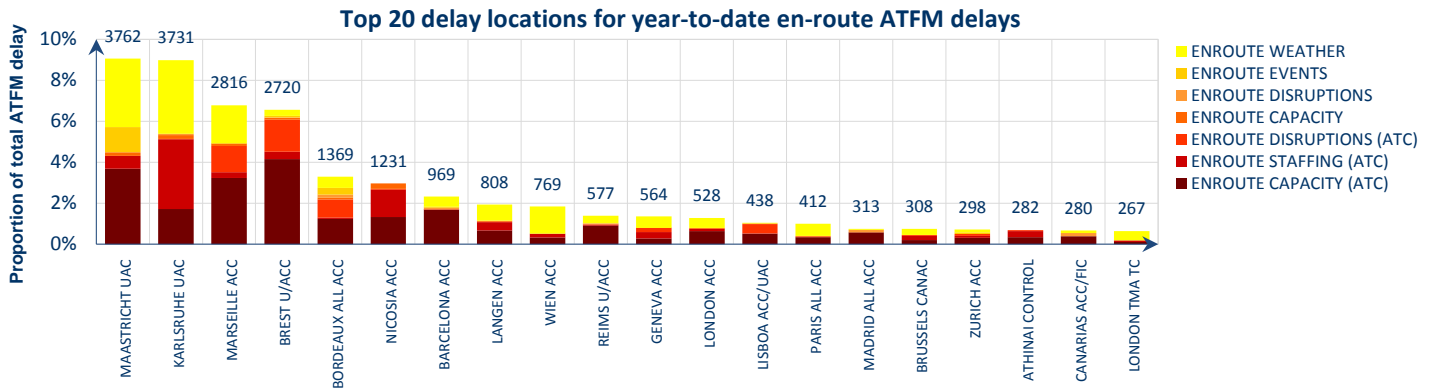
These are the top 20 en-route delay locations for 2017 with respect to the total ATFM delay. Figures are the average daily en-route delay in minutes for the individual locations.
The top 20 en-route delay locations generated **54.0%** of the total ATFM (network) delay.
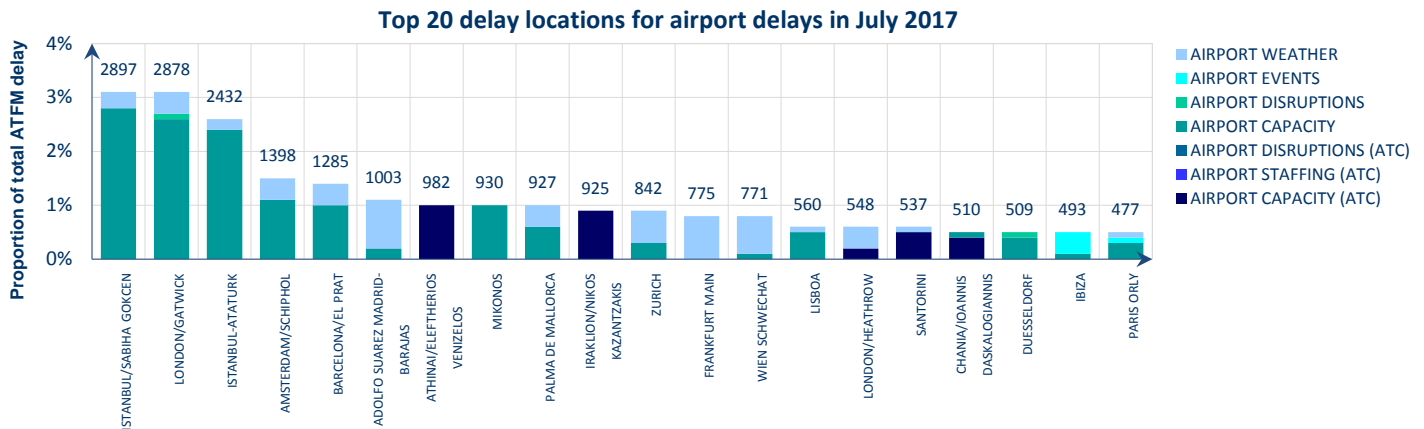The top 5 en-route delay locations generated **34.7%** of the total ATFM (network) delay.

Top 20 delay locations for year-to-date en-route delays
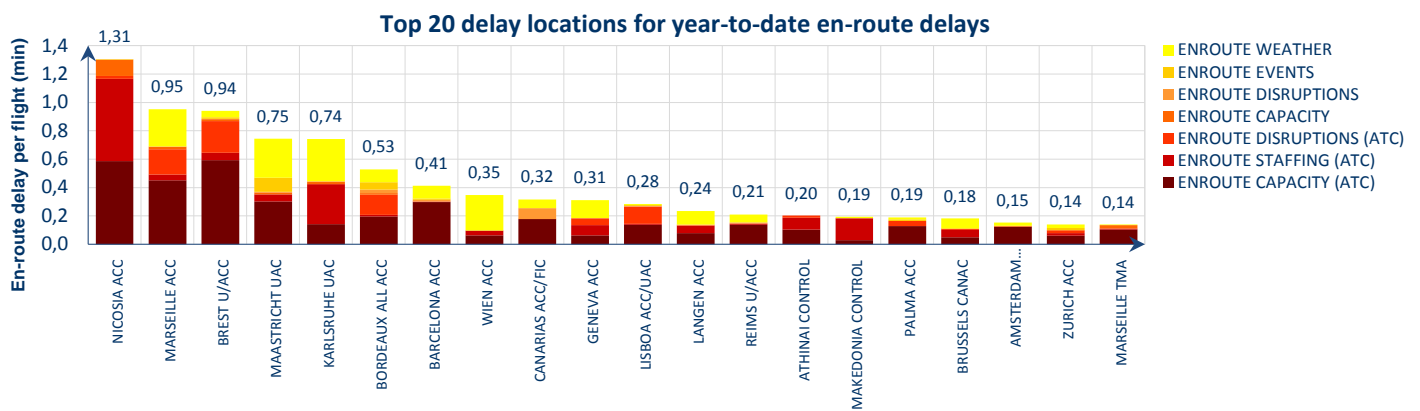
These are the top 20 average en-route ATFM delay per flight generating locations for 2017. Figures are the average daily en-route delay in minutes per flight for the individual locations.
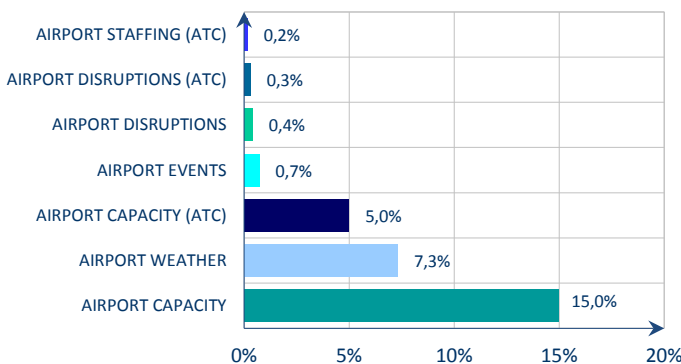
Monthly en-route delay per flight monitoring

Year-to-date daily flights >= 15 min en-route delay

Reporting month: The average en-route ATFM delay per flight in the NM area[iii] in July was 1.98 min/flt ,which is above the corresponding monthly guideline[iv] value of 1.12 min/flt.
Year To Date: The average YTD en-route ATFM delay per flight in 2017 in the NM area[iii] is 0.87 min/flt which is above the corresponding guideline value of 0.53 min/flt.

An average of 580 flights/day had an en-route ATFM delay of at least 15 minutes in July 2017. The corresponding figure in 2016 was 691 flights/day.

4. AIRPORT/TMA ATFM DELAYS

AIRPORT/TMA ATFM DELAY PER LOCATION

Top 20 delay locations for airport delays in July 2017

Legend:
- AIRPORT WEATHER
- AIRPORT EVENTS
- AIRPORT DISRUPTIONS
- AIRPORT CAPACITY
- AIRPORT DISRUPTIONS (ATC)
- AIRPORT STAFFING (ATC)
- AIRPORT CAPACITY (ATC)

Values: 2897, 2878, 2432, 1398, 1285, 1003, 982, 930, 927, 925, 842, 775, 771, 560, 548, 537, 510, 509, 493, 477

AIRPORT/TMA ATFM DELAY PER DELAY GROUPS

Reasons for airport delays in July 2017

Reason	%
AIRPORT STAFFING (ATC)	0,2%
AIRPORT DISRUPTIONS (ATC)	0,3%
AIRPORT DISRUPTIONS	0,4%
AIRPORT EVENTS	0,7%
AIRPORT CAPACITY (ATC)	5,0%
AIRPORT WEATHER	7,3%
AIRPORT CAPACITY	15,0%

Top Airport Capacity delays in July 2017

Values: ISTANBUL/SABIHA GOKCEN 2572, LONDON/GATWICK 2426, ISTANBUL-ATATURK 2230, AMSTERDAM/SCHIPHOL 1030, BARCELONA/EL PRAT 899, MIKONOS 880, PALMA DE MALLORCA 528, LISBOA 487, DUESSELDORF 345, ZURICH 314
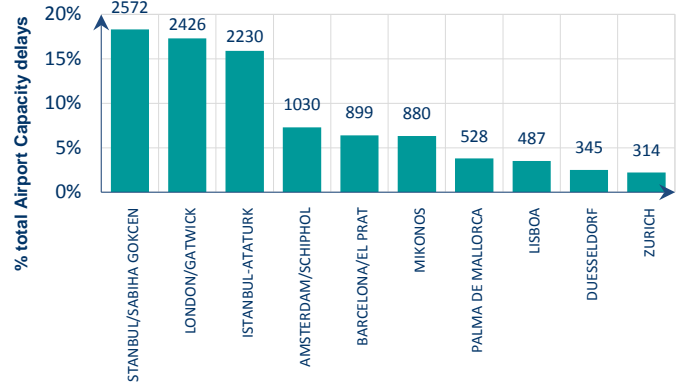
Airports accounted for 28.9% of all ATFM delays in July 2017, mainly due to aerodrome capacity, airport weather and ATC capacity.

Capacity issues at both Istanbul airports, London/Gatwick and Amsterdam/Schiphol airports due to high demand.

Top Airport Weather delays in July 2017

Values: ADOLFO SUAREZ MADRID-BARAJAS 799, FRANKFURT MAIN 775, WIEN SCHWECHAT 678, ZURICH 525, LONDON/GATWICK 399, LONDON/HEATHROW 385, PALMA DE MALLORCA 377, AMSTERDAM/SCHIPHOL 368, BARCELONA/EL PRAT 356, ISTANBUL/SABIHA GOKCEN 325

Top Airport Capacity (ATC) delays in July 2017

Values: ATHINAI/ELEFTHERIOS VENIZELOS 953, IRAKLION/NIKOS KAZANTZAKIS 874, SANTORINI 470, CHANIA/IOANNIS DASKALOGIANNIS 418, ZAKINTHOS/DIONISIOS SOLOMOS 394, FIGARI-SUD-CORSE 342, TEL AVIV/BEN GURION 314, RODOS/DIAGORAS 297, LONDON/HEATHROW 163, CANNES MANDELIEU 120

Thunderstorms impacted operations strongly at Madrid/Barajas airport on 06 and 07 July. Frankfurt and Vienna airports generated delays throughout the month.
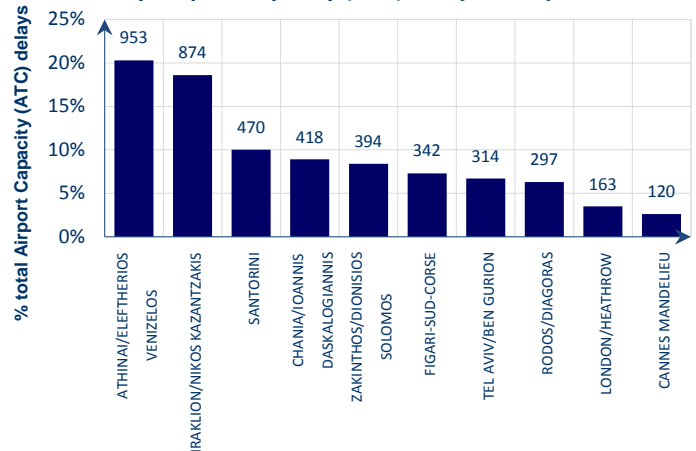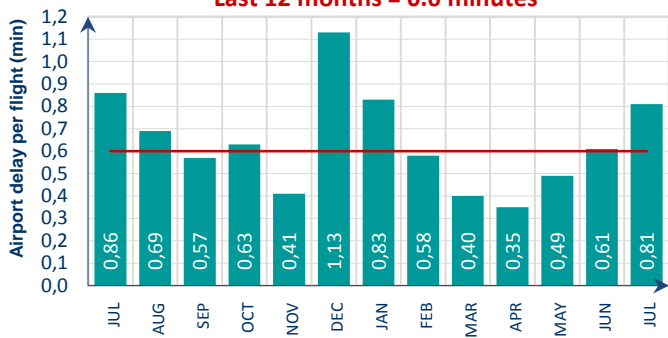
Greek island airports generated delays due to high demand relative to their capacity.

AIRPORT/TMA ATFM DELAY PER FLIGHT
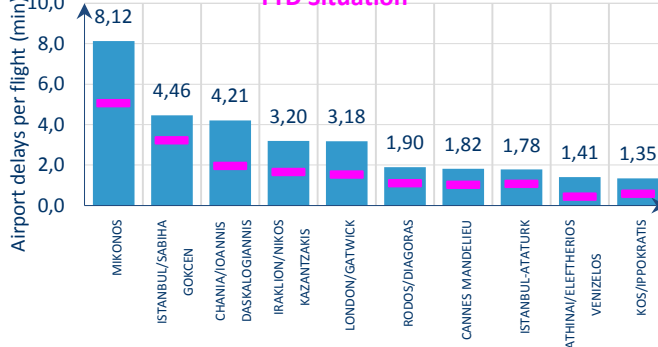
Monthly average Airport delay (min) per flight
Last 12 months = 0.6 minutes

Top 10 Airport delay per flight in July 2017
YTD Situation

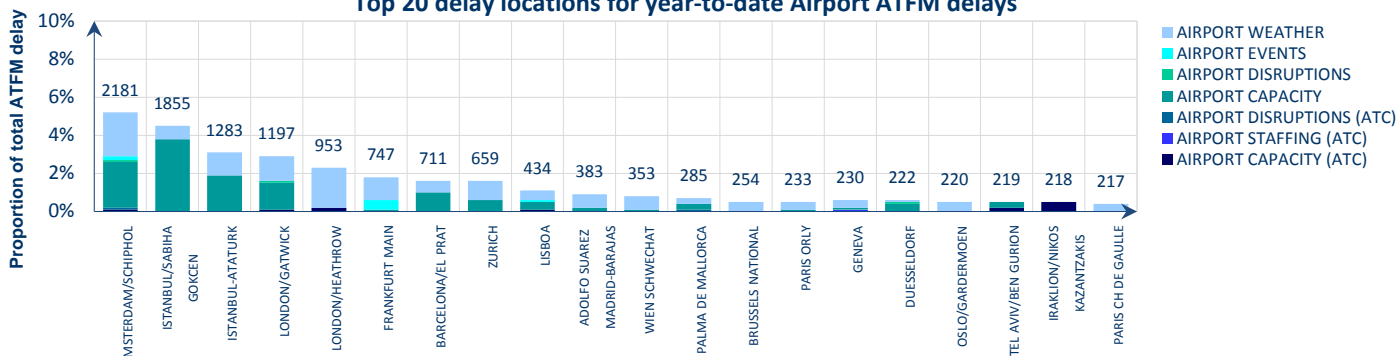Average airport/TMA delay per flight decreased from 0.86 min/flt in July 2016 to 0.81 min/flt in July 2017.

All top 10 airports generated an average delay per flight above their year to date average.
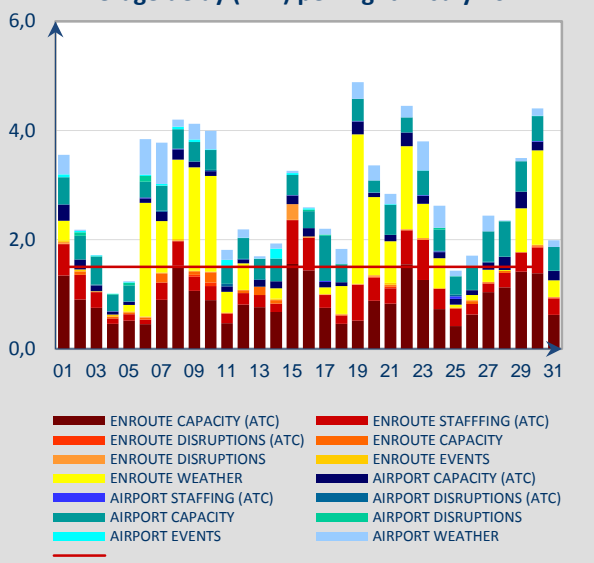
AIRPORT/TMA ATFM DELAY YEAR-TO-DATE

Top 20 delay locations for year-to-date Airport ATFM delays

The top 20 Airport/TMA delay locations have generated **30.5%** of the total ATFM (network) delay in 2017.
The top 5 Airport/TMA delay locations have generated **18.0%** of the total ATFM (network) delay in 2017.

5. DAILY EVOLUTION

Average delay (min) per flight in July 2017

All but 3 days in July 2017 had an average ATFM delay/flt exceeded 1.5 min/flt. These were the most significant days;

06-10 July; En-route weather delays in Maastricht, Karlsruhe, Marseille, Langen, Vienna, Brest, Bordeaux and Geneva ACCs; En-route ATC capacity delays in Marseille, Brest, Nicosia, Bordeaux, Maastricht, Karlsruhe and Barcelona ACCs; En-route ATC staffing issues in Karlsruhe, London, Nicosia and Vienna ACCs; Airport weather issues at Madrid, Frankfurt, Vienna, London/Heathrow and Amsterdam/Schiphol airports; Airport capacity delays at both Istanbul airports, London/Gatwick, Amsterdam/Schiphol, Barcelona and Palma de Mallorca airports; Military exercises generated delays in Brest, London, Karlsruhe, Nicosia and Marseille ACCs; Airport ATC capacity delays at Greek island airports;

15 July; En-route ATC capacity issues in Marseille, Brest, Maastricht, Karlsruhe, Reims and Athens ACCs; ATC staffing issues in Marseille, Brest, Karlsruhe, Brussels and Macedonia ACCs; Communication failure in Ottawa Communication Centre generated delays in Shanwick Oceanic ACC; Airport capacity delays at both Istanbul airports, Barcelona, London/Gatwick and Palma de Mallorca airports;

19 July; En-route weather impacted operations strongly in Maastricht, Karlsruhe, Brussels, Langen, Paris and Bremen ACCs; ATC staffing issues in Marseille, Karlsruhe, Nicosia and Macedonia ACCs; ATC capacity delays in Brest, Nicosia and Langen ACCs; Airport weather issues at Vienna, Frankfurt and Barcelona airports; Airport capacity delays at Istanbul/Sabiha Gökcen, Amsterdam/Schiphol and London/Gatwick airports;

30 July; En-route weather delays in Karlsruhe, Marseille, Reims, Maastricht and Geneva ACCs; En-route ATC capacity issues in Marseille, Brest, Barcelona, Maastricht and London ACCs; ATC staffing issues in Nicosia, Karlsruhe, Brest and Athens ACCs; Airport capacity delays at both Istanbul airports, London/Gatwick, Amsterdam/Schiphol and Barcelona airports.

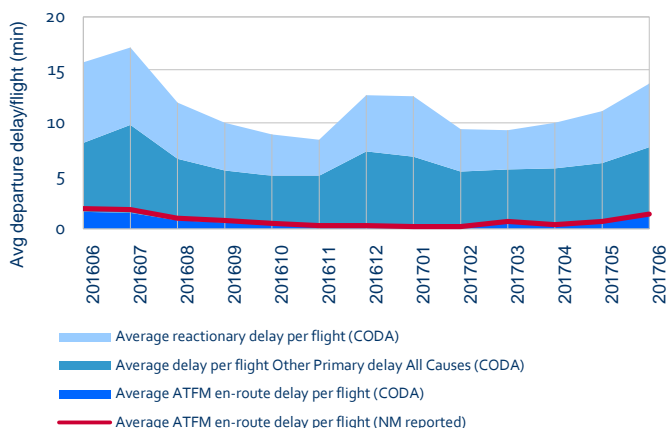# 6. ALL AIR TRANSPORT DELAYS (SOURCE: CODA)

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 June 2017. 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. For the airline, a part of this delay is the ATFM delay and the remaining amount is the handling delay.
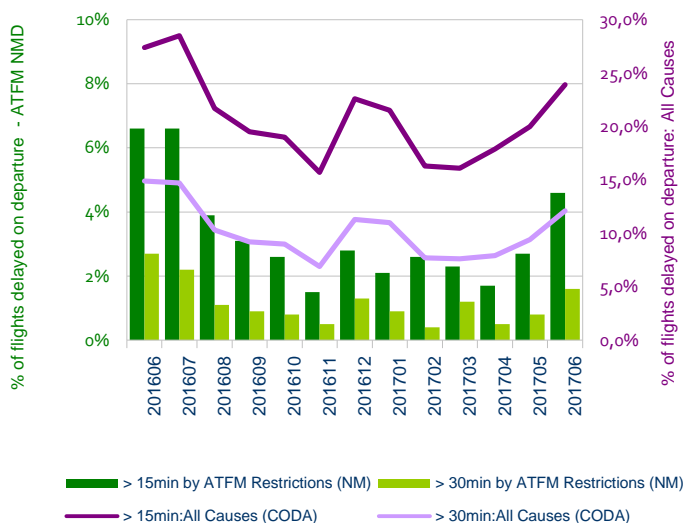
Breakdown Average Delay per Flight June 2017
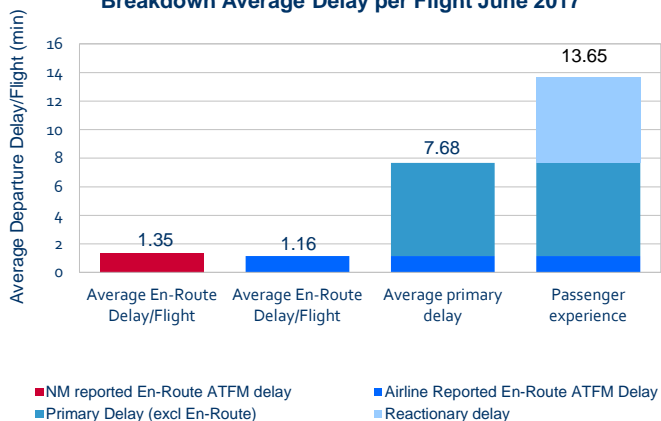
Based on airline data, the average departure delay per flight from 'All-Causes' was 13.65 minutes per flight, this was a decrease of 13% in comparison to June 2016 where the average delay was 15.70 minutes per flight. Primary delays counted for 56% (or 7.68 min/flt), with reactionary delays representing the smaller remaining share of 44% at (5.97 min/flt).

- NM reported En-Route ATFM delay
- Airline Reported En-Route ATFM Delay
- Primary Delay (excl En-Route)
- Reactionary delay
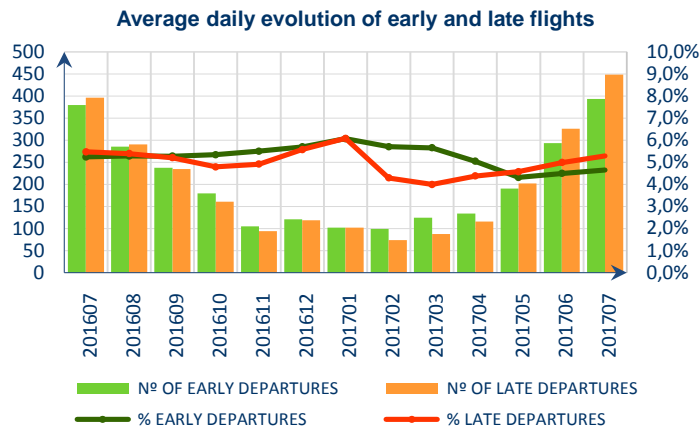
Average Departure Delay per Flight 2016/2017

Further analysis of the past 12 months shows that the average 'All-Causes' en-route ATFM delay reported by airlines was 1.16 minutes per flight. This was lower when compared to the NM reported average en-route ATFM delay of 1.35 minutes per flight in June 2017.

- Average reactionary delay per flight (CODA)
- Average delay per flight Other Primary delay All Causes (CODA)
- Average ATFM en-route delay per flight (CODA)
- Average ATFM en-route delay per flight (NM reported)

Percentage of Delayed Flights: ATFM & All Causes

The percentage of flights delayed from 'All-Causes' decreased with (those exceeding 15 minutes) falling by 3.5 percentage points to 23.9%. Those (exceeding 30 minutes) also decreased with 12.1% of flights being delayed in June 2017.

- > 15min by ATFM Restrictions (NM)
- > 30min by ATFM Restrictions (NM)
- > 15min:All Causes (CODA)
- > 30min:All Causes (CODA)

7. ATFM SLOT ADHERENCE

Average daily evolution of early and late flights

The percentage of early departures for July 2017 is 4.7% of regulated flights, which is a decrease of 0.6 percentage points compared to July 2016.

The percentage of late departures for July 2017 is 5.3% of regulated flights, which is a decrease of 0.2 percentage points compared to July 2016.

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 July 2017
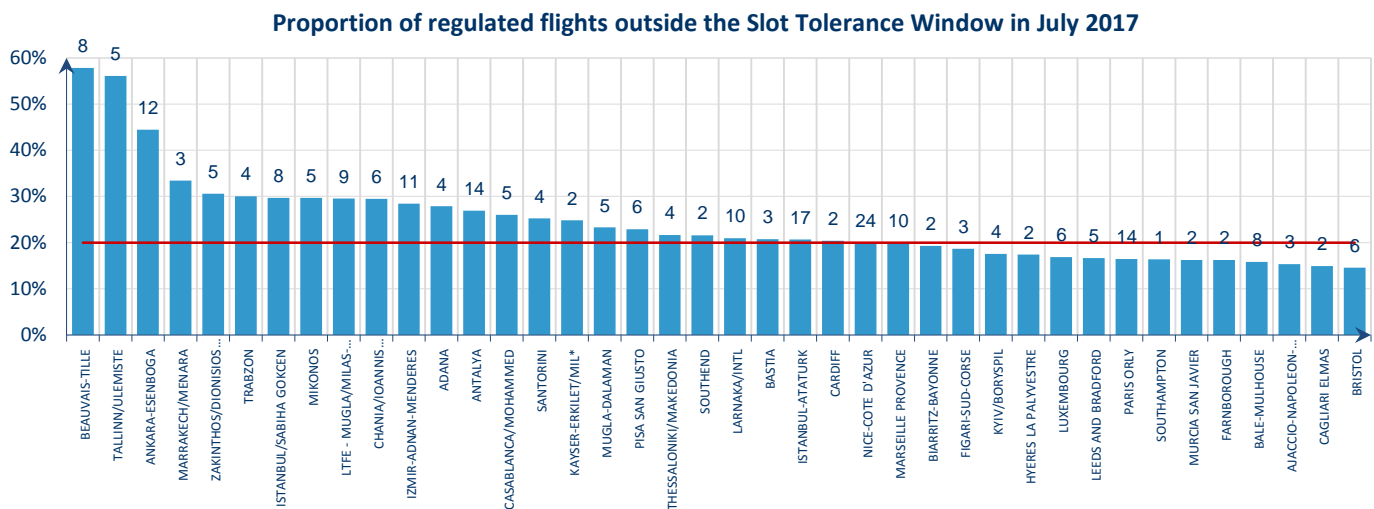
8. SIGNIFICANT EVENTS AND ISSUES

PLANNED EVENTS

ACC

MAJOR AIRSPACE OR ATM SYSTEM IMPROVEMENT PROJECTS

PLANNED EVENTS

One ACC carried out activities preceding an ATM system implementation project, during this reporting period.

Karlsruhe ACC, performed live night operations of their new iCAS ATM system, on 07/08 and 23/24 July. As anticipated, neither of the activities had impact on the network performance.

ADDITIONAL INFORMATION

Palma ACC generated 1,215 minutes of ATFM delay due to new RNAV procedures at Ibiza airport, which were implemented on 22 June.

AIRPORTS

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

Special Events
- Almedalen Week - People in Visby (Sweden) from 01 until 09 July;
- G20 Summit in Hamburg from 06 until 09 July;
- WW2 bomb disposal at Düsseldorf airport on 11 July generated 1,258 minutes of ATFM delay;
- Bastille day Fly-By in Paris on 14 July generated a total of 5,817 minutes of ATFM delay to several French airports. The fly-by rehearsal on 11 July generated 2,483 minutes of ATFM delay to several French airports as well;
- The Royal International Air Tattoo (RIAT) at Fairford (UK) from 12 until 17 July;
- Belgian National Day Fly-by in Brussels on 21 July (Fly-by rehearsals on 12 and 18 July);
- Hungarian Formula 1 Grand Prix in Budapest from 27 until 30 July.

Completed
- Runway maintenance at Amsterdam/Schiphol, Goteborg/Landvetter, Hamburg, Stockholm/Arlanda, Tbilisi and Vardo airports;
- Taxiways and/or aprons improvements at Amsterdam/Schiphol, London/Heathrow and Rome/Fiumicino airports;
- ILS maintenance at Stuttgart airport.

Ongoing
- Runway maintenance at Chisinau, Cologne, Copenhagen, Dublin, Gran Canaria, Hannover, Istanbul/Sabiha Gökcen, Krakow, Manchester, Oulu, Paris/Orly (6,253 minutes of ATFM delay), Tallinn, Tel Aviv/Ben Gurion (12,295 minutes of ATFM delay - in combination with airport capacity constraints), Thessaloniki, Venice and Vilnius airports;
- Taxiways and/or aprons improvements at Berlin/Schönefeld, Dublin, Frankfurt/Main, Hamburg, Lisbon, Paris/Charles de Gaulle, Stuttgart, Tallinn, Tenerife/Sur and Zurich airports;
- Terminal building improvements/works at Barcelona, Belgrade, Bergen, Budapest, Frankfurt/Main, Malta and Oslo/Gardermoen airports;
- Fuel infrastructure maintenance (limited fuel delivery capacity) at Oslo/Gardermoen airport.

DISRUPTIONS

Technical
- Radar issues at Bordeaux/Merignac airport from 01 until 12 July generated 4,827 minutes of ATFM delay;
- Frequency issues in Marseille ACC on 09 July generated 1,077 minutes of ATFM delay;
- Radar failure in Beograd ACC on 10 July generated 2,165 minutes of ATFM delay;
- Communication failure in Ottawa Communication Centre on 15 July generated 8,345 minutes of ATFM delay in Shanwick Oceanic ACC;
- Frequency issues in Bordeaux ACC on 21 July generated 1,101 minutes of ATFM delay;
- Radar issues in Rhodes airport on 25 July generated 1,059 minutes of ATFM delay.

Other
- Terminal 3 evacuation at Manchester airport on 5 July generated 1,339 minutes of ATFM delay;
- Incident with a disabled aircraft on the runway at Düsseldorf airport on 6 July generated 2,734 minutes of ATFM delay.

9. NM ADDED VALUE

FLIGHTS WITH DELAY > 30'

The number of flights with more than 30 minutes of ATFM delay increased between July 2016 and July 2017.
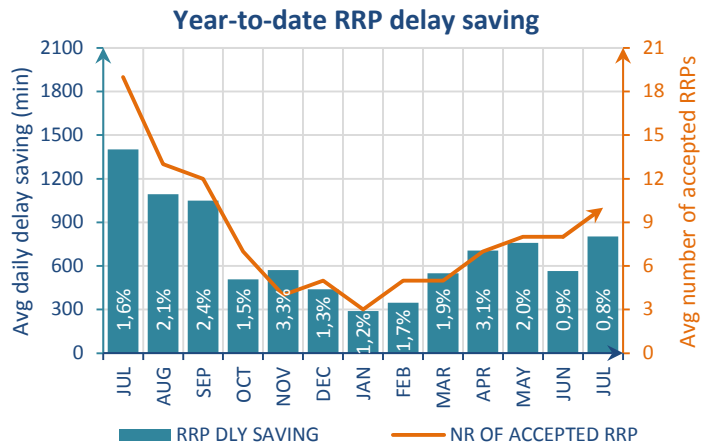
69.2% of flights with more than 30 minutes of ATFM delay in July 2017 were en-route and 30.8% were airport.
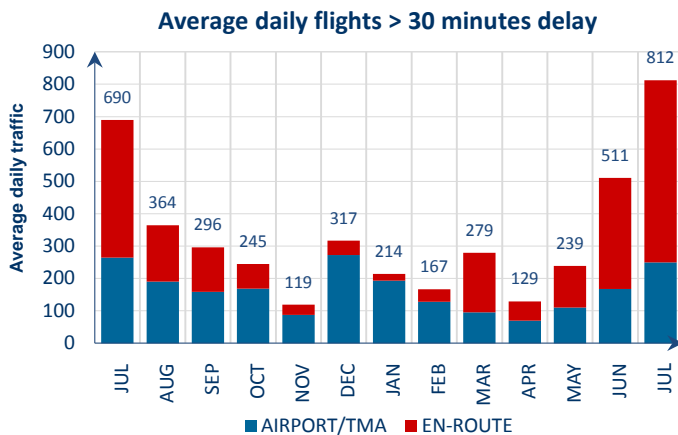
RRP DIRECT DELAY SAVINGS

On average 10 RRPs/day were executed saving 803min/day, accounting for 0.8% of ATFM delays.

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

Average daily flights > 30 minutes delay

Year-to-date RRP delay saving

Contact Us
Operational Analysis & Reporting,
Performance, Forecasts and Relations (PFR) Unit,
Network Manager Directorate (NMD),
EUROCONTROL,
96 Rue de la Fusée,
B - 1130 Brussels

e-mail:nm.ops.perf@eurocontrol.int
http://www.eurocontrol.int/articles/network-operations-monitoring-and-reporting

i See Notice on page 2 for more information on traffic and delay comparison.
ii Internals, international departures and arrivals, 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 RRPs are considered when the RRP is sent 3 hours (or less) in advance of the EOBT.