

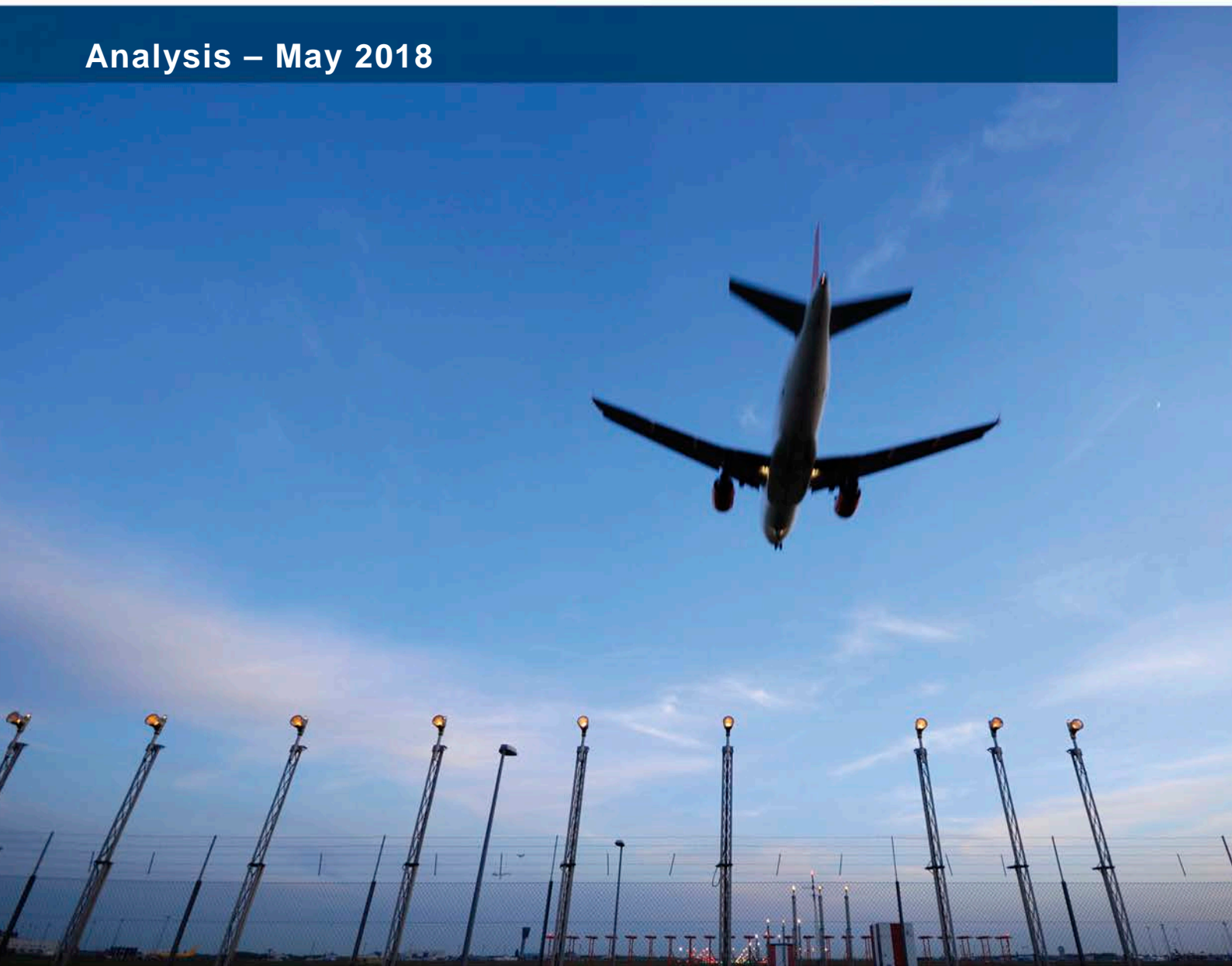


**Network Manager**  
nominated by  
the European Commission



# Monthly Network Operations Report

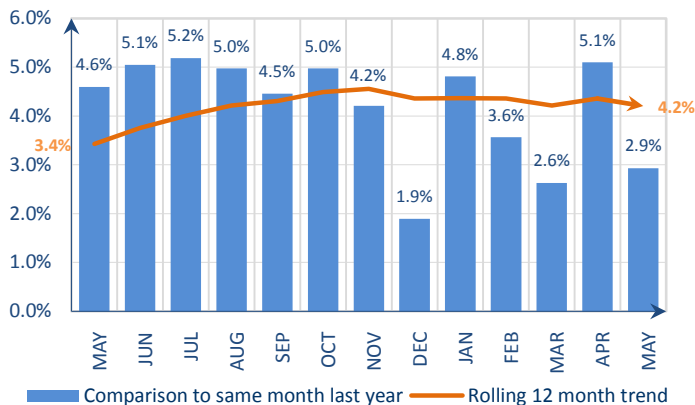
**Analysis – May 2018**





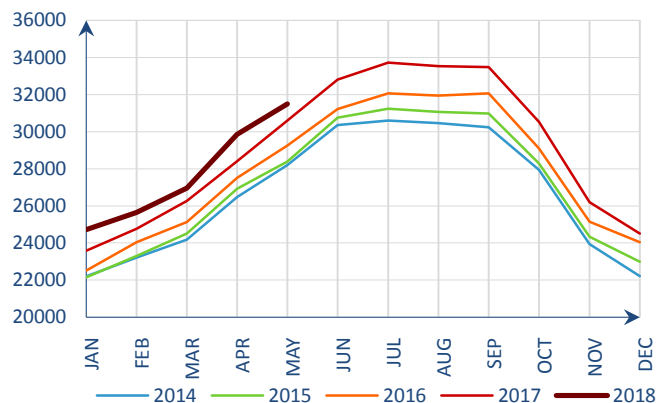
# 1. TOTAL TRAFFIC

Monthly traffic trend



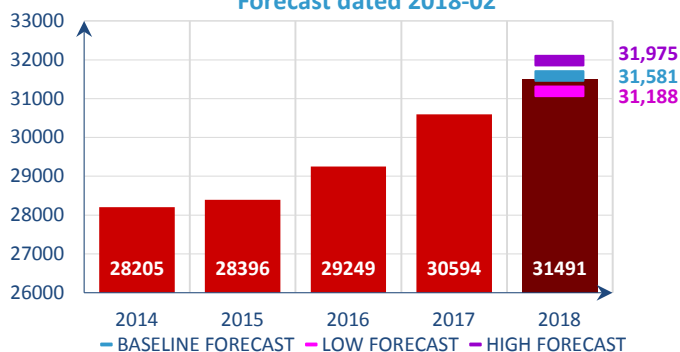
Traffic increased by 2.9% in May 2018<sup>ii</sup>.

Average daily traffic for last 5 Years



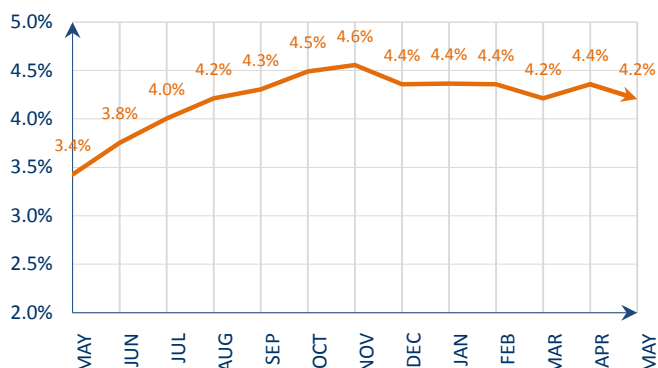
Average daily traffic in May 2018 was the highest for May in the last five years. Several events slowed down the growth: industrial action and weather.

Average daily traffic in May for last 5 Years  
Forecast dated 2018-02



The traffic increase of 2.9% for May was in line with the baseline forecast published in February 2018.

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 June 2017 to May 2018 was 4.2% higher than the average from June 2016 to May 2017.

Nine states added more than 50 flights per day to the European local<sup>iii</sup> traffic growth. Greece was the top contributor with 205 flights per day and saw a 17% growth rate of its local traffic. This was due to strong growth of the flow from and to Western Europe (the flow from and to Germany alone generated 55 extra flights per day) as well as a dynamic internal flow (+29 flights/day). Turkey ranked second with 193 flights per day owing primarily to its flow to and from the Russian Federation (+75 flights/day) and its flows to and from Germany and UK (respectively +51 flights/day and +24 flights/day). Spain was the third contributor with 141 extra daily flights owing mainly to a dynamic internal flow (+47 flights/day). Poland was next with 138 extra daily flights 14% increase thanks to strong growth of the flows from and to Greece (+19 flights/day), Turkey (+13 flights/day) and Ukraine (+12 flights/day). Germany was the fifth contributor with 118 extra daily flights thanks to the growing flows indicated above (from and to Greece and Turkey) as well as the continued recovery of the flow from and to Egypt. Ukraine added 87 flights per day and saw an increase of 22% in its local traffic owing to its flow to and from Poland (+12 flights/day), Egypt (+11 flights/day) and Turkey (+10 flights/day). Portugal (excluding Azores), Canary Islands and Finland added altogether 178 flights per day.

At the other end of the scale, France was affected by ATC and Air France industrial action and saw 83 fewer flights, and saw its local traffic declined by 6% in May. The United Kingdom still impacted by the failure of Monarch saw 69 fewer flights due to its weak arrival, departure and internal flows.

With an increase of 22%, the charter segment had the fastest growth owing to strong increases of touristic flows between North-Africa (eg Tunisia, Egypt) and Europe, Middle-East or Russian federation. The traditional scheduled saw a 3% increase. The all-cargo segment and the low-cost segment grew respectively by 2% and 1%. The business aviation segment declined by 0.5%.

The top six external partners in average daily flights on flows in both directions were the United States (1065 flights, up 0.6%), the Russian Federation (1034 flights, up 17.5%), Israel (344 flights, up 11.5%), Morocco (312 flights, up 5.3%), The United Arab Emirates (302 flights, down 2%), and Egypt (236 flights, up 38.3%).

The airlines which added the most flights to the European network on a daily basis were easyJet UK (+113 flights), Ryanair (+110 flights/day), Wizzair (+67 flights/day), Lufthansa (60 flights/day) and Air Europa (+53 flights/day).

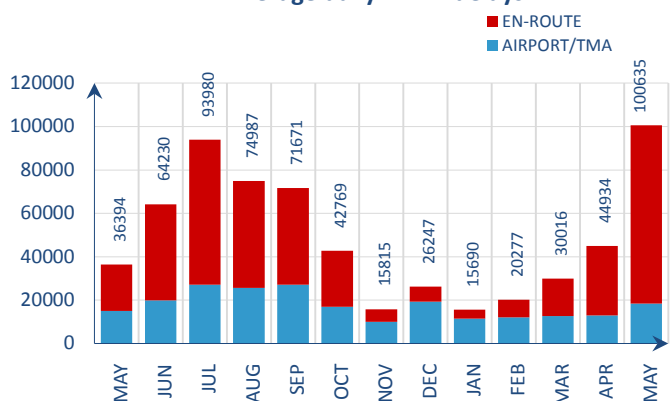
For more information on EUROCONTROL Statistics and Forecasts, go to <http://www.eurocontrol.int/statfor/sid>





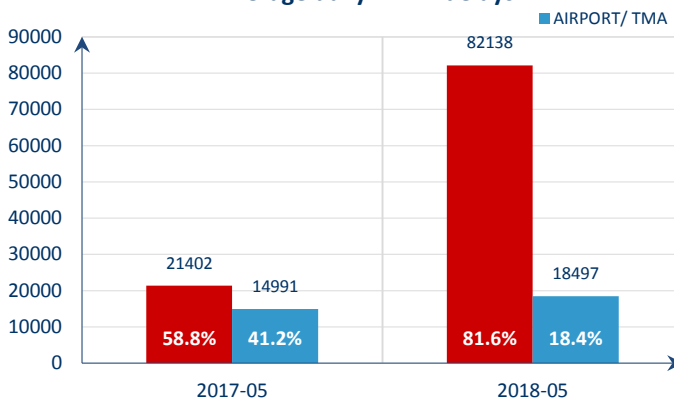
## 2. ATFM DELAY AND ATTRIBUTIONS

Average daily ATFM delays



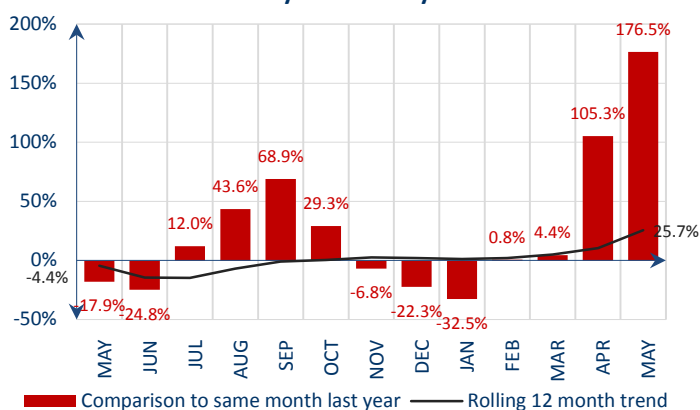
Total ATFM delays increased by 176.5% in May 2018<sup>ii</sup>.

Average daily ATFM delays



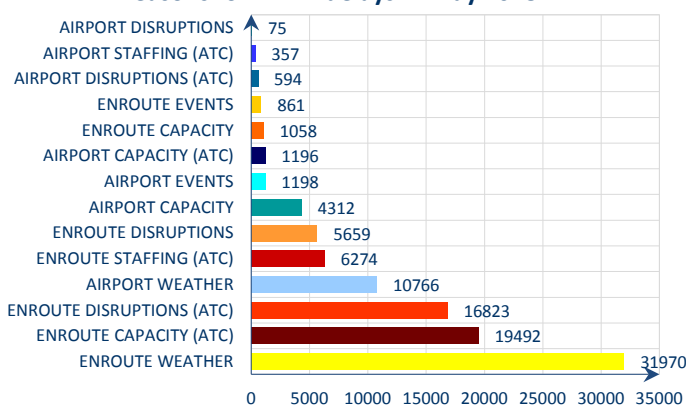
En-route ATFM delays increased by 283.8% and airport ATFM delays increased by 23.4%.

Monthly ATFM delays trend



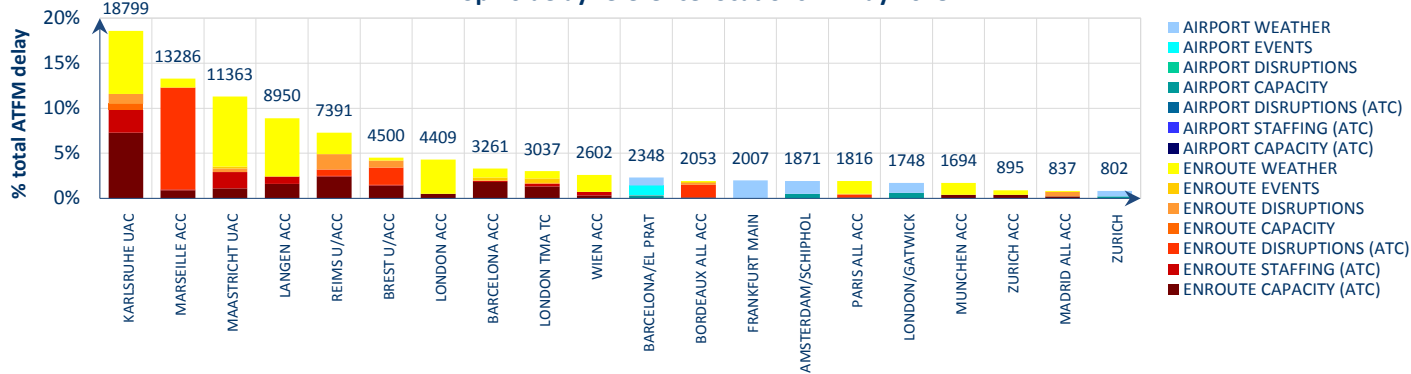
The rolling 12-month trend shows that ATFM delay was 25.7% higher during the period June 2017 – May 2018 compared to June 2016 – May 2017.

Reasons for ATFM delays in May 2018



En-route weather (31.8%), en-route ATC capacity (19.4%), en-route ATC disruptions (16.7%) were the main causes of ATFM delays in May 2018.

Top 20 delay reference locations in May 2018

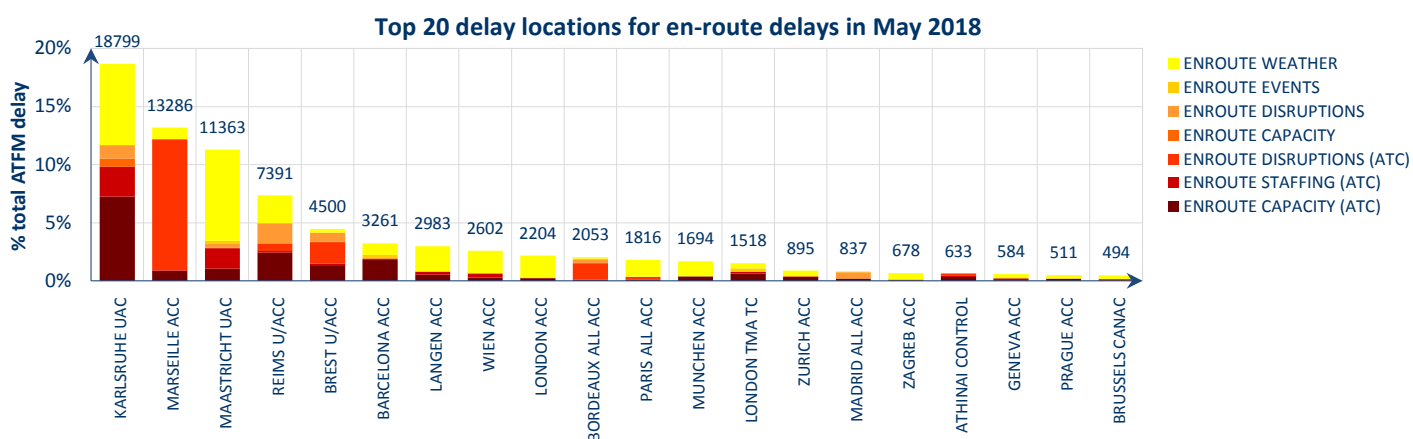
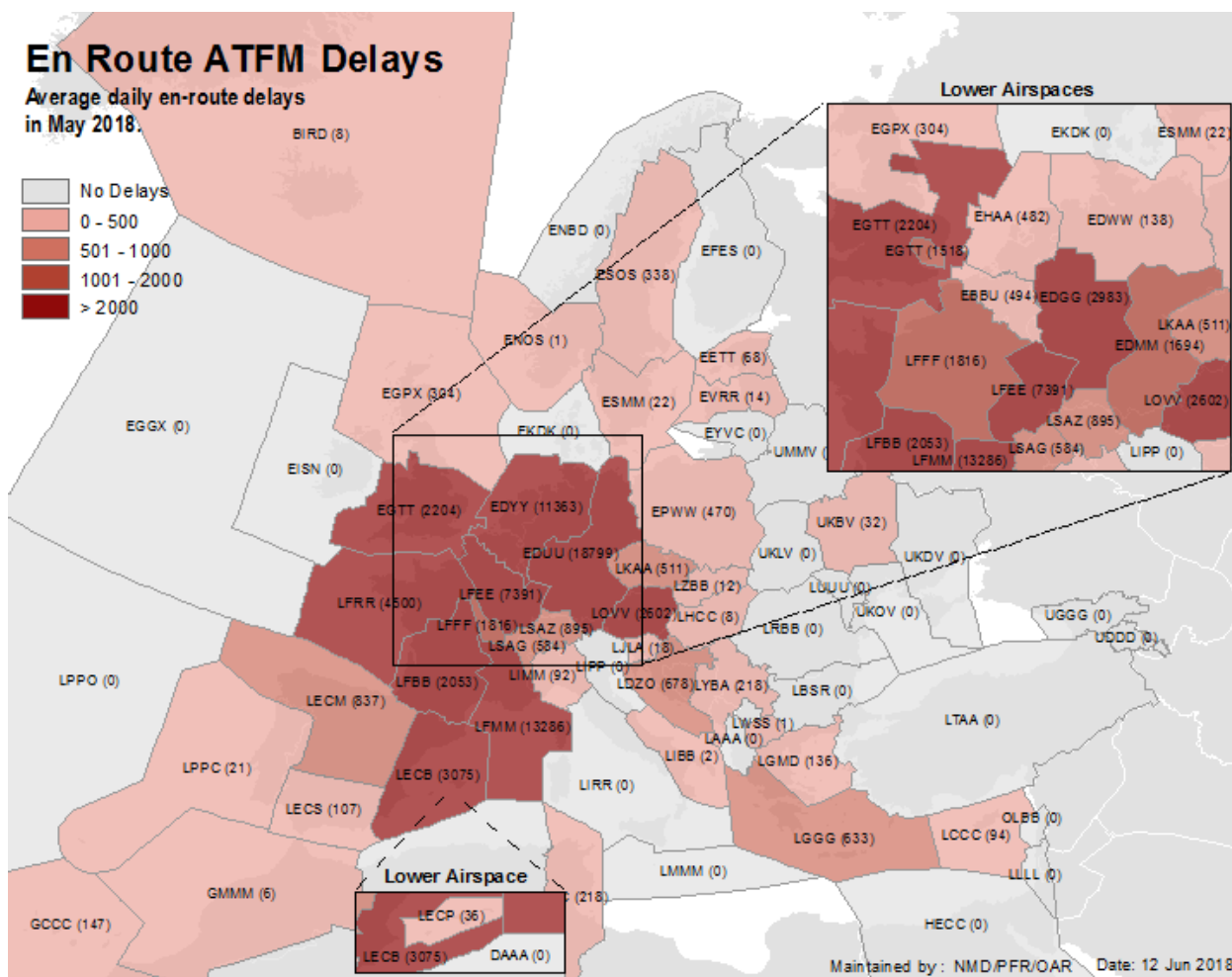


These are the top 20 delay generating locations for the reporting month with respect to total ATFM delays. Figures are the average daily delays in minutes for the individual locations.

- En-route weather issues in Karlsruhe, Maastricht, Langen, Reims, London and Vienna ACCs;
- ATC industrial action in Marseille ACC generated disruptions in Marseille ACC with additional delays in Reims and Madrid ACCs;
- French ATC industrial action from 21 May to 23 May resulted in disruptions delays for Marseille, Brest, Bordeaux and Reims ACCs;
- En-route ATC staffing issues in Karlsruhe and Maastricht UACs;
- En-route capacity delays in Karlsruhe, Maastricht, Langen, Reims, Brest, Barcelona and London ACCs;
- Seasonal weather impacted operations at Frankfurt/Main, Amsterdam/Schiphol and London/Gatwick airports;
- Event delays at Barcelona airport due to BRAIN (Barcelona RNAV Approach Innovations) implementation in Barcelona TMA.

### 3. EN-ROUTE ATFM DELAYS

#### EN-ROUTE ATFM DELAY PER LOCATION



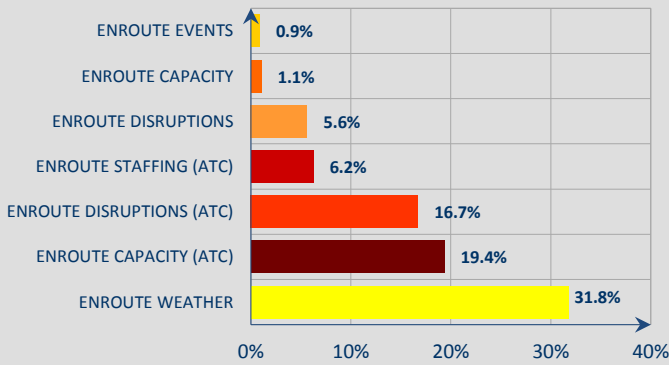
These are the top 20 en-route ATFM delay generating locations for the reporting month with respect to total ATFM delays. Figures are the average daily delays in minutes for the individual locations.

The top 20 en-route ATFM delay locations generated **77.6%** of the monthly total (network) ATFM delay.  
The top 5 en-route ATFM delay locations generated **55.0%** 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

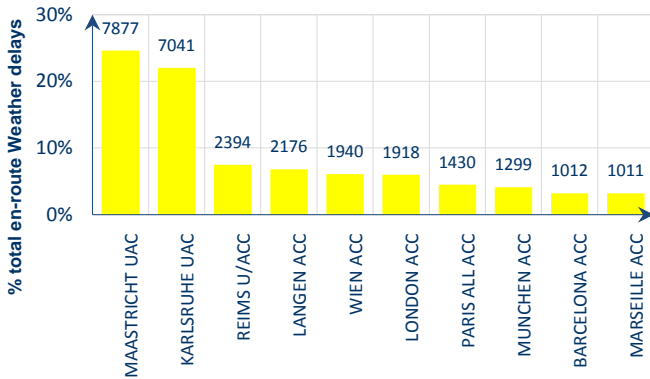
Reasons for en-route delays in May 2018



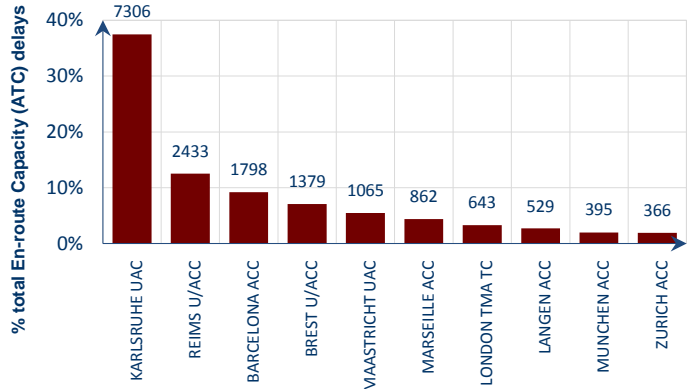
En-route ATFM delays accounted for 81.6% of all ATFM delays. Most of this delay was caused by en-route ATC weather, en-route ATC capacity and en-route ATC disruptions as explained in detail below. The other causes were:

- En-route ATC staffing*; Staffing issues in Karlsruhe and Maastricht UACs throughout the month;
- En-route disruptions*; ATFM delay due to locally reported traffic onload in Reims and Karlsruhe ACCs due to ATC industrial action in French ACCs;
- En-route capacity*; Military exercises in Karlsruhe UAC.

Top en-route Weather delays in May 2018



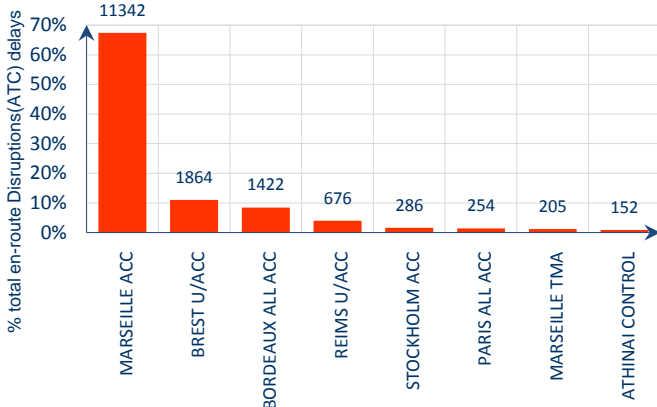
Top en-route Capacity (ATC) delays in May 2018



Thunderstorms particularly affected Maastricht and Karlsruhe UACs throughout the month, with a peak of 74,171 minutes of delay in Maastricht UAC on 27 May, and a peak of 28,253 minutes of delay in Karlsruhe UAC on 31 May.

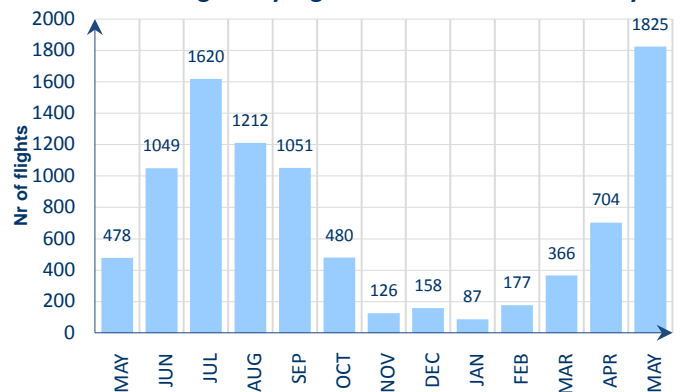
Karlsruhe UAC was the biggest generator of en-route ATC capacity delays in May. Delays in Reims ACC are partially due to Marseille ACC industrial action and strong seasonal traffic growth.

Top en-route Disruption (ATC) delays in May 2018



ATC industrial action in Marseille ACC throughout the month. French ATC industrial action from Monday 21 May to Wednesday 23 May generated delays in Brest, Bordeaux, Reims and Paris ACCs.

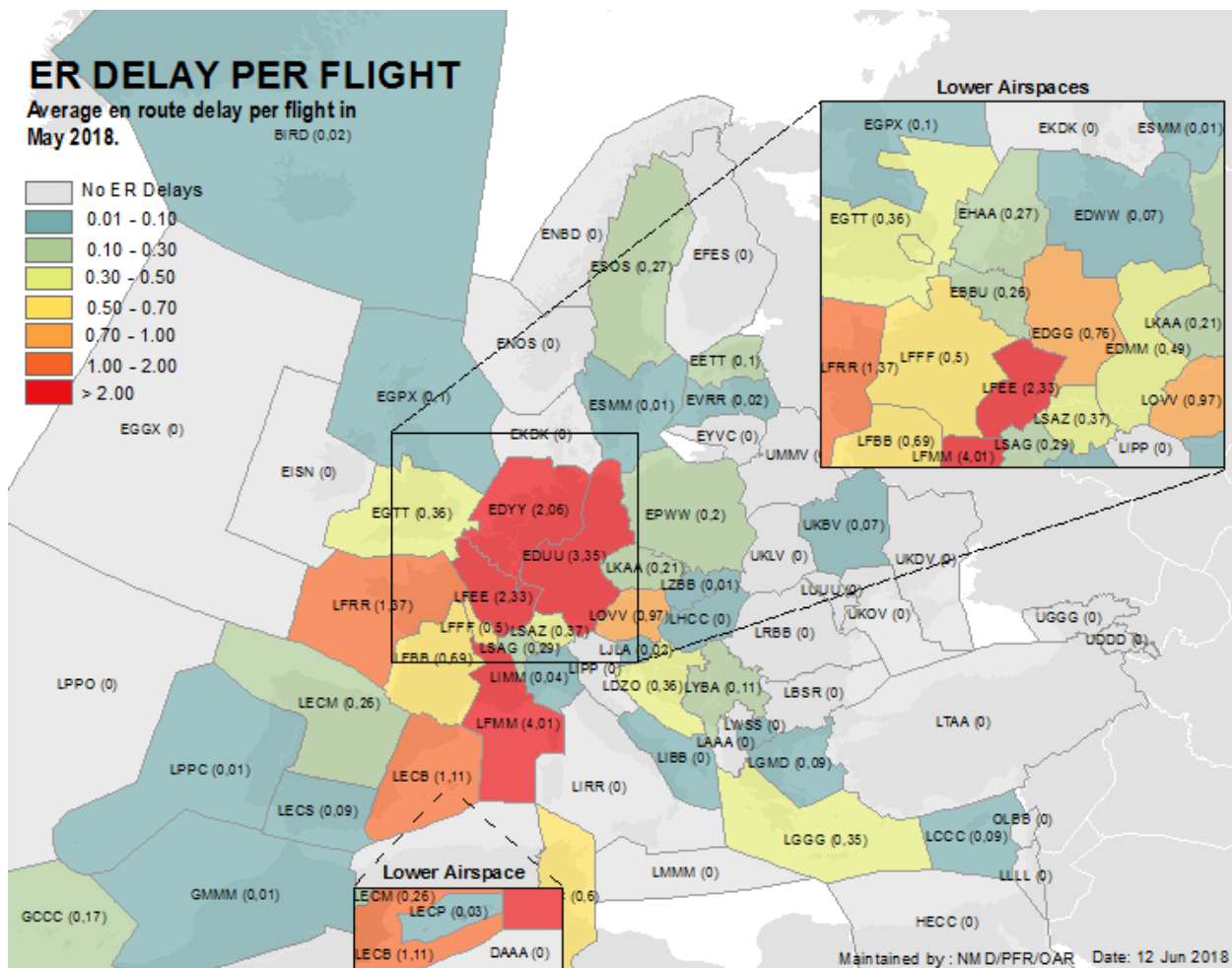
Average daily flights >= 15 min en-route delay



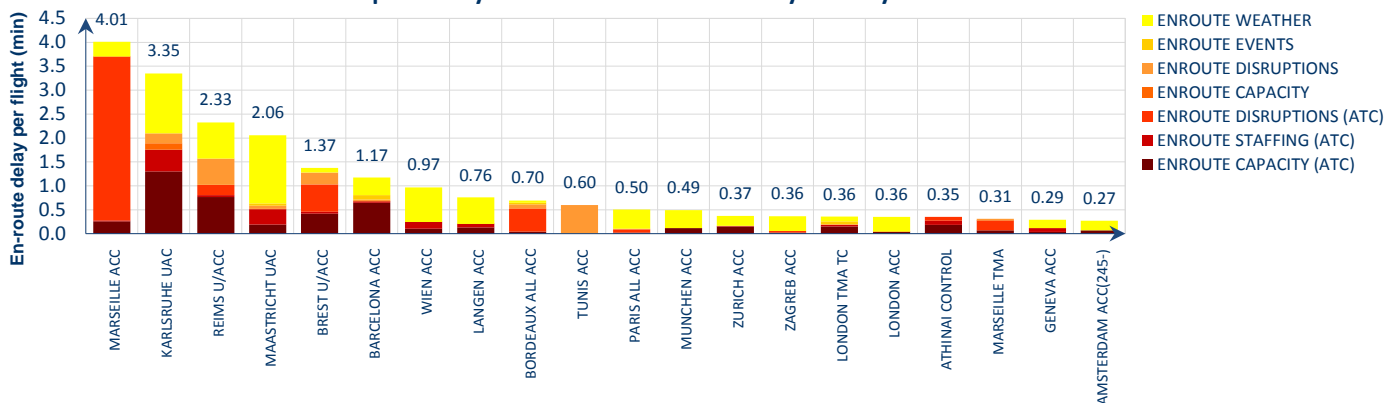
The average daily flights with an en-route ATFM delay of at least 15 minutes increased from 478 flights/day in May 2017 to 1,825 flights/day in May 2018, which represents 5.8% of all traffic.



# EN-ROUTE ATFM DELAY PER FLIGHT



**Top 20 delay locations for en-route delays in May 2018**



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.

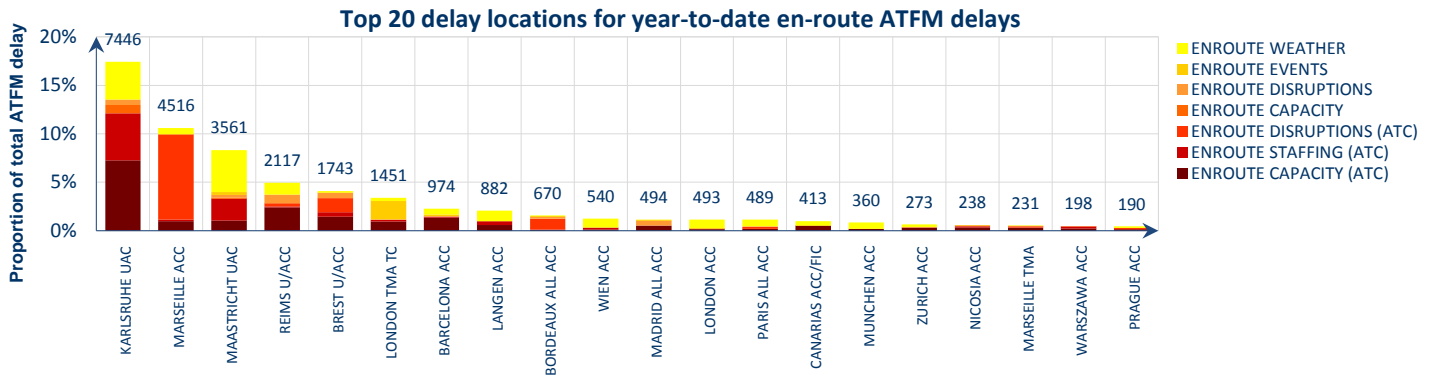
Marseille ACC en-route ATFM delay/flight increased from 2.24 min/flight in April 2018 to 4.01 min/flight in May 2018, mainly due to several ATC industrial actions;

Karlsruhe UAC en-route ATFM delay/flight increased from 1.50 min/flight in April 2018 to 3.35 min/flight in May 2018, mainly due to ATC capacity and weather;

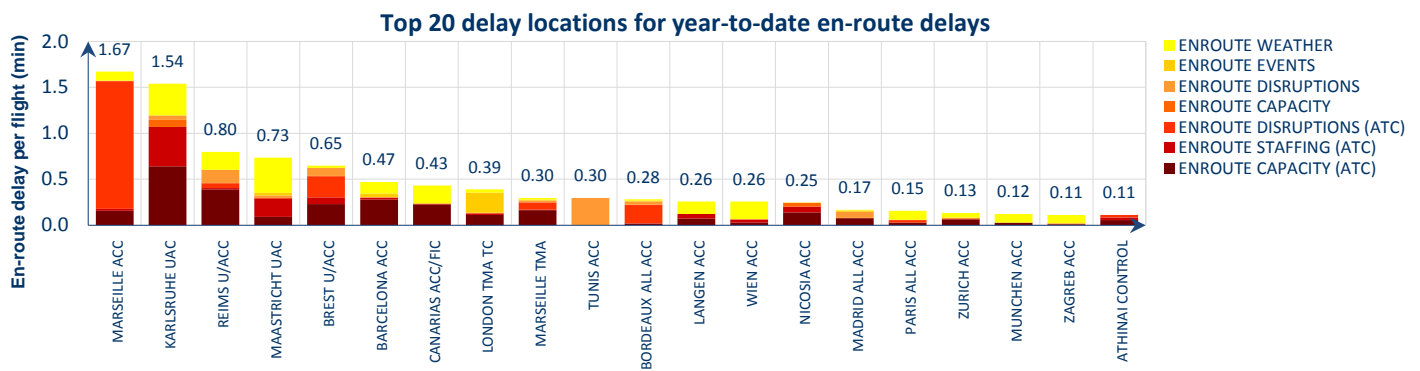
Reims ACC en-route ATFM delay/flight increased from 0.58 min/flight in April 2018 to 2.33 min/flight in May 2018, mainly due to ATC capacity and disruptions;

Maastricht UAC en-route ATFM delay/flight increased from 0.60 min/flight in April 2018 to 2.06 min/flight in May 2018, mainly due to weather.

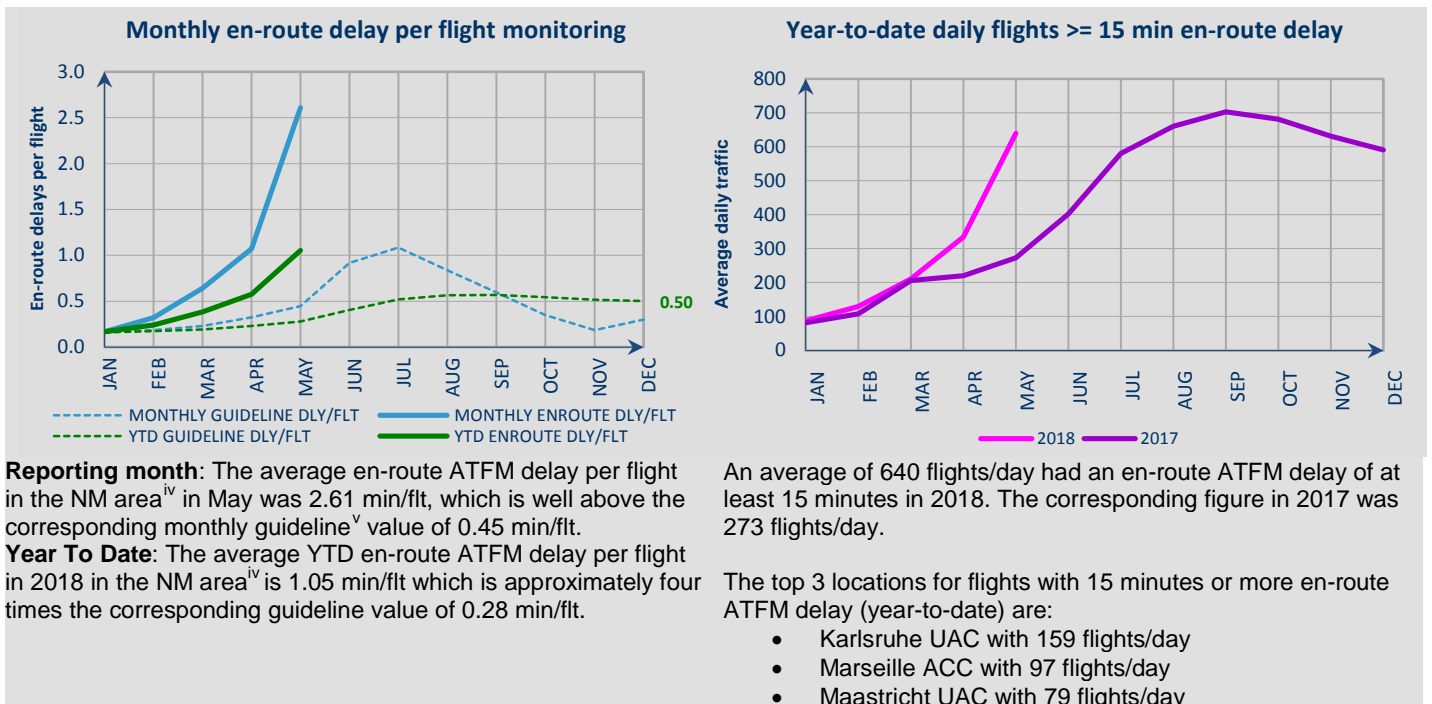
# EN-ROUTE ATFM DELAY YEAR-TO-DATE



These are the top 20 en-route delay locations for 2018 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 **63.9%** of the total ATFM (network) delay.  
 The top 5 en-route delay locations generated **45.5%** of the total ATFM (network) delay.

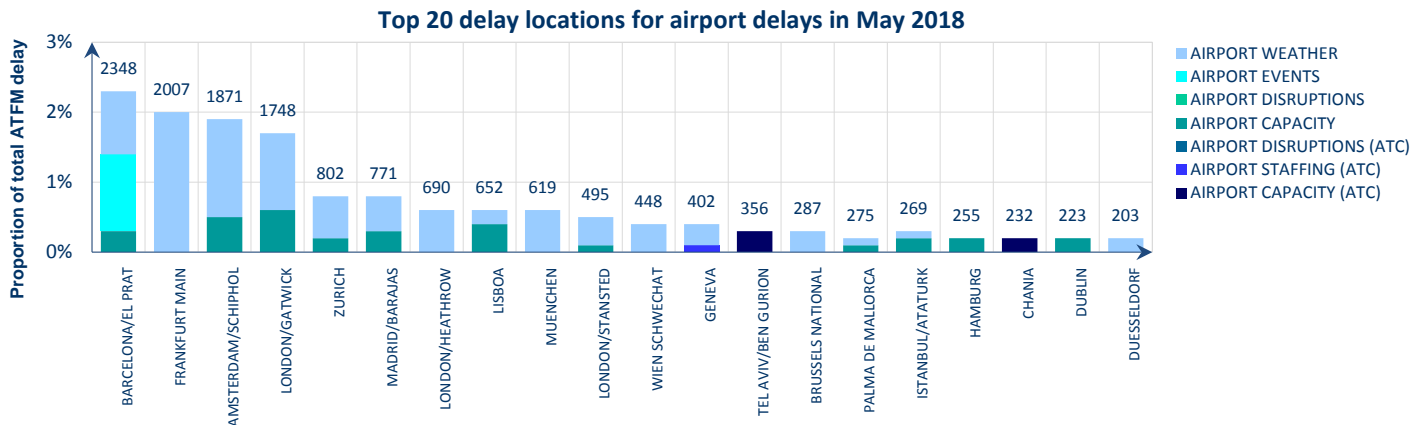


These are the top 20 average en-route ATFM delay per flight generating locations in 2018 with respect to the total ATFM delay. Figures are the average daily en-route delay in minutes for the individual locations.



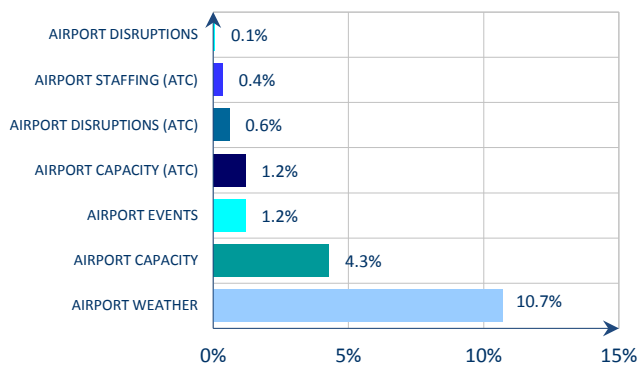
# 4. AIRPORT/TMA ATFM DELAYS

## AIRPORT/TMA ATFM DELAY PER LOCATION

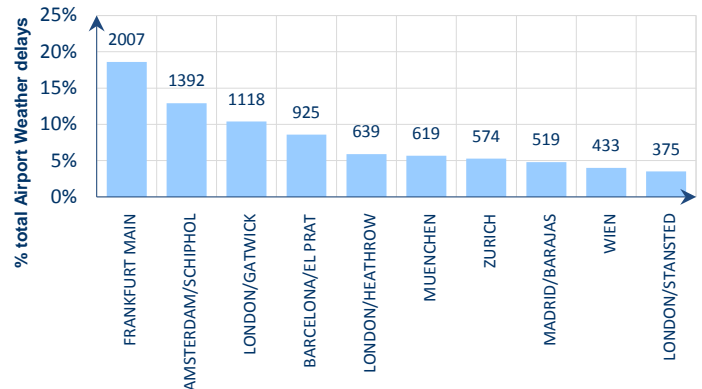


## AIRPORT/TMA ATFM DELAY PER DELAY GROUPS

**Reasons for airport delays in May 2018**



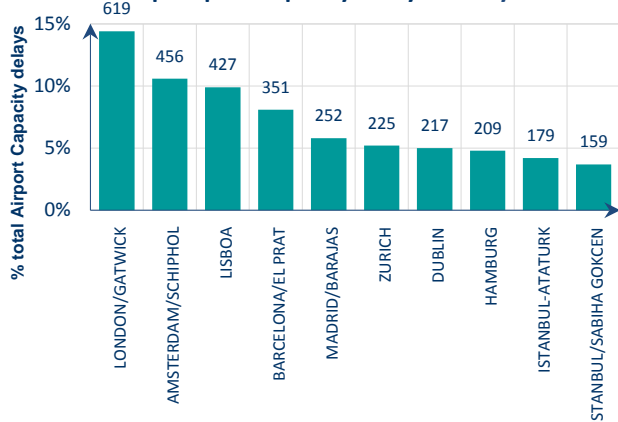
**Top Airport Weather delays in May 2018**



Airports accounted for 18.4% of all ATFM delays in May 2018, mainly due to airport weather and aerodrome capacity.

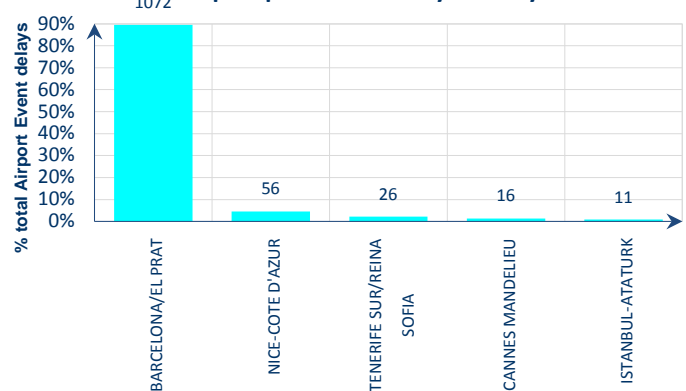
Thunderstorms impacted operations strongly at Frankfurt/Main airport for several days, especially on 23-24 May with a total of 13,663 minutes of delay. Capacity was reduced at Amsterdam/Schiphol airport on 29 May due to convective activity which generated 15,321 minutes of delay.

**Top Airport Capacity delays in May 2018**



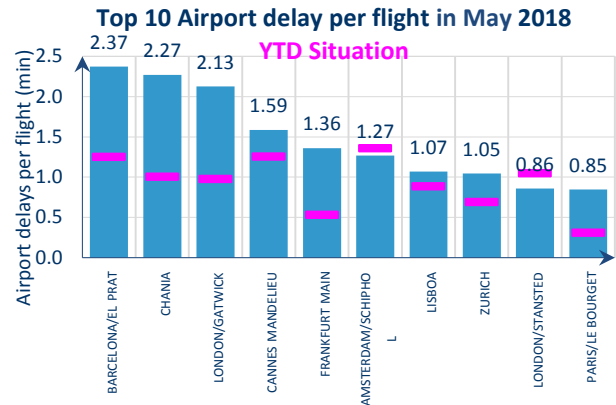
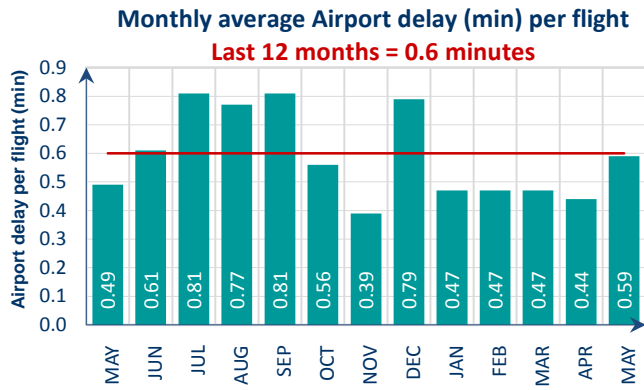
Arrivals regulated at London/Gatwick airport to balance with departures throughout the month.

**Top Airport Event delays in May 2018**



Barcelona TMA generated 90% of these delays due to ongoing BRAIN (Barcelona RNAV Approach Innovations) implementation.

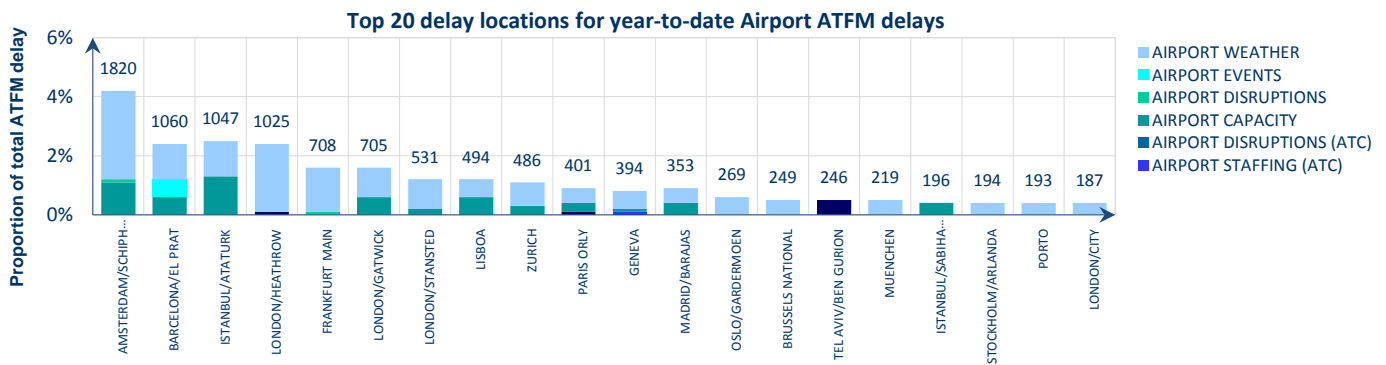
# AIRPORT/TMA ATFM DELAY PER FLIGHT



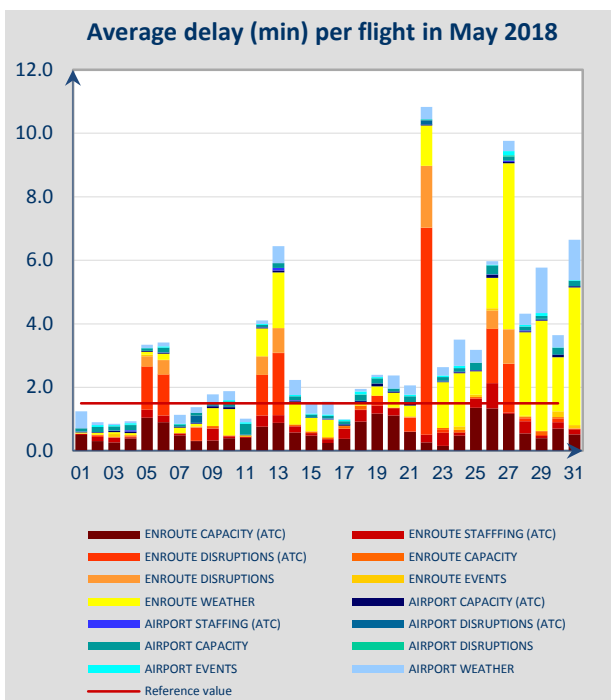
Average airport/TMA delay per flight increased from 0.49 min/flt in May 2017 to 0.59 min/flt in May 2018.

Barcelona airport had the highest delay per flight in May mainly due to system implementation in TMA. Chania airport generated delays due to high demand relative to their capacity.

# AIRPORT/TMA ATFM DELAY YEAR-TO-DATE



# 5. DAILY EVOLUTION



All but 9 days in May 2018 had an average ATFM delay per flight exceeding 1.5 min. These were the most significant days:

**05-06 May:** En-route disruptions delays in Marseille ACC due to ATC industrial action, with additional delays in Brest, Reims and Madrid ACCs; En-route ATC capacity delays in Karlsruhe, Brest and Maastricht ACCs;

**12-13 May:** En-route disruptions delays in Marseille ACC due to ATC industrial action, with additional delays in Brest, Reims, Bordeaux and Madrid ACCs; Thunderstorms impacted operations in Karlsruhe, Maastricht, Barcelona, Vienna and Langen ACCs; En-route capacity delays in Karlsruhe, Brest, Maastricht and Barcelona ACCs; Seasonal weather impacted operations at Frankfurt/Main, Munich and Barcelona airports; ATC staffing issues in Karlsruhe, Maastricht and Brest ACCs;

**22 May:** En-route ATC disruptions delay in Marseille, Brest, Bordeaux, Reims and Paris ACCs due to the French ATC industrial action, with additional delays in Karlsruhe, Maastricht, Madrid and London ACCs; Thunderstorms impacted operations in Karlsruhe, Maastricht, Langen, Paris and Zurich ACCs; Weather delays at Frankfurt/Main airport;

**26-27 May:** En-route disruptions delays in Marseille ACC due to ATC industrial action, with additional delays in Reims, Brest, Milano and Barcelona ACCs; Thunderstorms impacted operations strongly in Maastricht and London ACCs, and to a lesser extent in Karlsruhe, Marseille, Vienna and Langen ACCs; ATC staffing issues in Maastricht, Vienna, Langen and Barcelona ACCs;

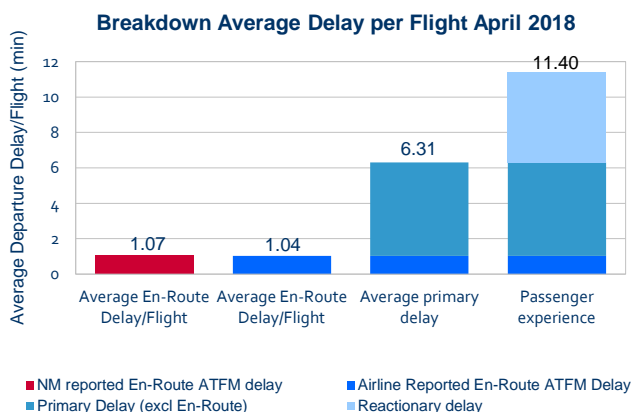
**29 May:** Thunderstorms impacted operations strongly in Maastricht and Karlsruhe UACs, and to a lesser extent in Langen, Vienna and Reims ACCs; Seasonal weather generated delays at Amsterdam/Schiphol, London/Gatwick, London/Heathrow and London/Stansted airports; ATC capacity and staffing issues in Karlsruhe UAC;

**31 May:** Thunderstorms impacted operations strongly in Maastricht, Karlsruhe, Reims, London, Paris, Zurich and Langen ACCs; High weather delays at London/Gatwick, Amsterdam/Schiphol, Frankfurt/Main, London/Heathrow, London/Stansted and London/City airports; ATC capacity and staffing issues in Reims ACC.

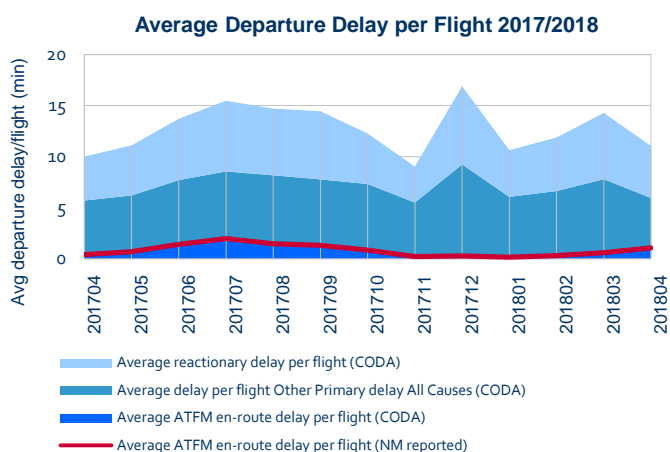
## 6. ALL AIR TRANSPORT DELAYS (SOURCE: CODA)

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 62% of the commercial flights in the ECAC region for April 2018. ATFM delays reported by airlines could 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.

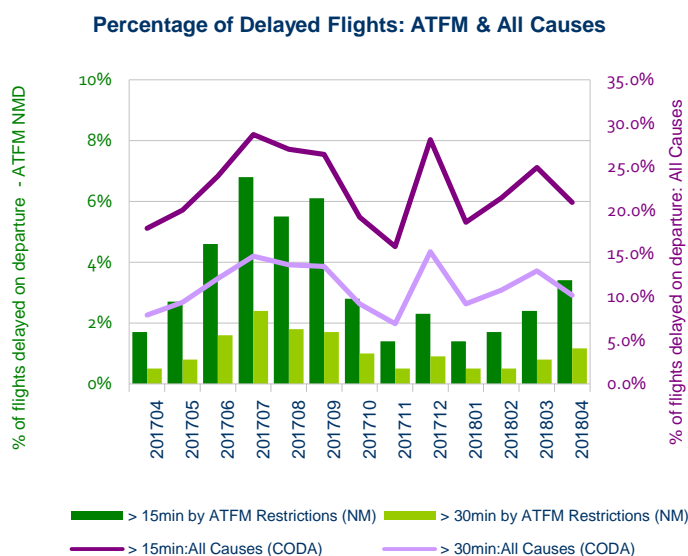
For instance, a flight with an ATFM delay may also have a handling delay absorbed within the ATFM delay. In the event of a long delay an example being during ATC industrial action a flight may keep its original schedule however when it's flight plan is submitted for example a day later any ATFM delay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



Based on airline data, the average departure delay per flight from ‘All-Causes’ was 11.4 minutes per flight, an increase in comparison to April 2017 where the average delay was 9.9 minutes per flight. Primary delays counted for 55% (or 6.31 min/ft), with reactionary delays representing the smaller remaining share of 45% at (5.09 min/ft), and increase of 0.8min/ft compared to April 2017.



Further analysis of the past 12 months shows that the average ‘All-Causes’ en-route ATFM delay reported by airlines was 1.07 minutes per flight in April 2018. This was significantly higher when compared to April 2017 when the ‘All-Causes’ en-route ATFM delay was 0.4 minutes per flight. April 2018 saw ATC industrial actions, mainly during the First Rotation Hours which in turn caused an increase in reactionary delays for airlines.

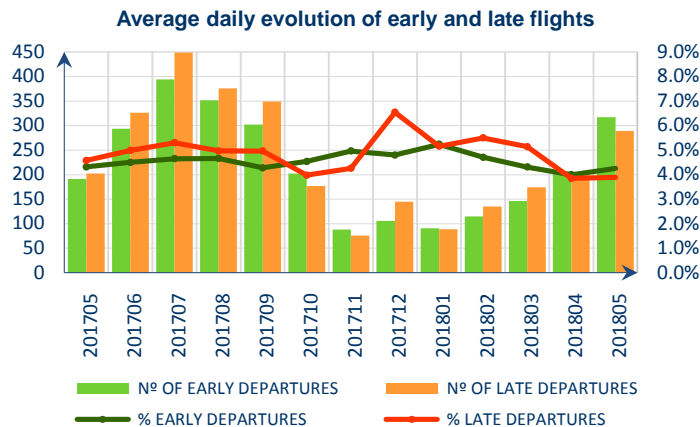


The percentage of flights delayed greater than 15 minutes from ‘All-Causes’ increased by 3.9 percentage points to 21.8%. Delays exceeding 30 minutes also increased, with 10.2% of flights delayed in April 2018.

For more information on CODA delays:

<http://www.eurocontrol.int/sites/default/files/content/documents/official-documents/facts-and-figures/coda-reports/flad-april-2018.pdf>

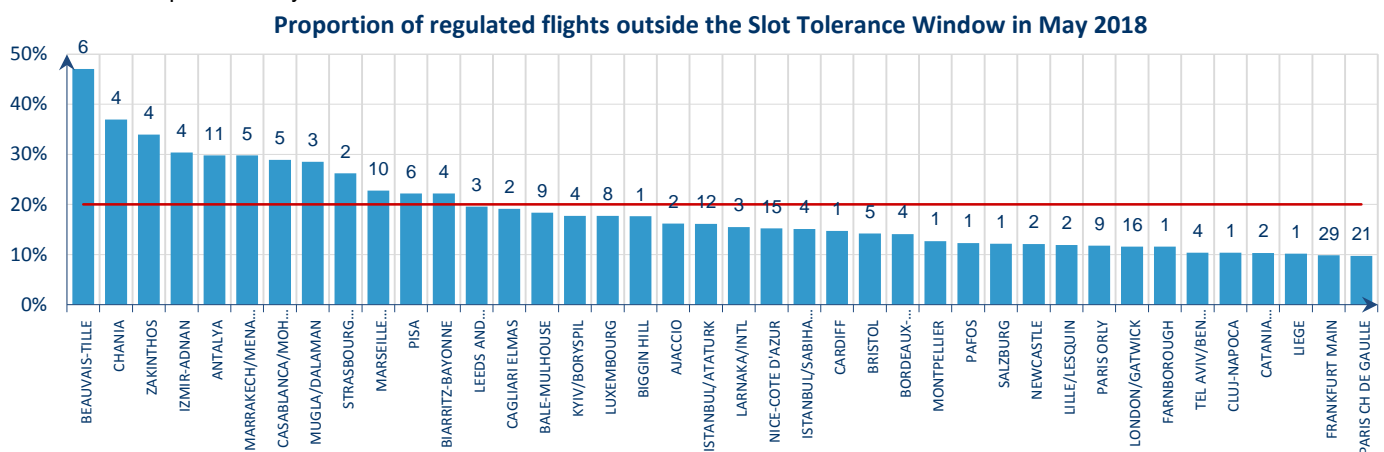
## 7. ATFM SLOT ADHERENCE



The percentage of early departures for May 2018 is 4.3% of regulated flights, which is a decrease of 0.1 percentage points compared to May 2017.

The percentage of late departures for May 2018 is 3.9% of regulated flights, which is a decrease of 0.7 percentage points compared to May 2017.

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.



## 8. SIGNIFICANT EVENTS AND ISSUES

### PLANNED EVENTS

#### ACC

#### MAJOR AIRSPACE OR ATM SYSTEM IMPROVEMENT PROJECTS

##### PLANNED EVENTS

Three ACCs carried out activities involving airspace ATM system changes or upgrades, during this reporting period.

Agadir ACC progressed through the transition phase after the move to the new ACC building and the migration to the new ATM system, not generating ATFM delays, despite anticipated capacity reductions of 15%.

London TC introduced ExCDS into the TMA East and Thames sectors, on 30 May as planned, and generated 7,820 min of ATFM delay. Previously, 20% of capacity reductions had been planned for the said sectors. This amount of delay presented 17% of total delay (47,073 min) by London TC in May.

Shannon ACC upgraded their ATM system without generating ATFM delays, as it had been anticipated.

##### ADDITIONAL INFORMATION

Barcelona ACC generated 7,911 minutes of ATFM delay due to the implementation of RNAV-1 in Barcelona TMA. In addition, Barcelona airport generated 33,241 minutes of delay on the same account.

Bordeaux ACC generated 4,794 minutes of ATFM delay due to the reorganized interface with LECB/LEBL, and 2,991 minutes due to the new TMA at LFZB.

## AIRPORTS

### Local Plans in May

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

### Special Events

- Monaco Grand Prix generated 1,743 minutes of ATFM delay at Nice airport on 27 May;
- UEFA Champion's league final generated 2,382 minutes of ATFM delay at Kiev airport over 25, 26 and 27 May.
- Amsterdam/Schiphol became a fully operational A-CDM airport on 16 May. It is the first airport to be connected via B2B on first operations and the second to be sending DPI messages via B2B.

### Completed

- Runway maintenance at Bilbao, Copenhagen (2,690 minutes of ATFM delay), Dublin, London/Stansted, Nurnberg and Katowice airports;
- Taxiway and/or apron improvements at Ibiza, Lisbon and Palma de Mallorca airports;
- ILS maintenance at Porto (generated 1,725 minutes of ATFM delay over two days) and Lisbon airports.

### Ongoing

- Runway maintenance at Amsterdam/Schiphol, Bucharest (2,953 minutes of ATFM delay generated over four days), Budapest, Cologne, Hamburg (in combination with apron works generated 3,555 minutes of ATFM delay), Istanbul/Sabiha Gökçen, Krakow, Tenerife/Sur, Thessaloniki and Warsaw airports;
- Taxiway and/or apron improvements at Bergamo, Copenhagen, Dusseldorf, Frankfurt/Main, Hamburg, Helsinki, Paris/Orly, Paris/Charles de Gaulle, Rome /Fiumicino, Stuttgart, Tenerife/Sur and Warsaw airports;
- Tower works at Tenerife/Sur airport;
- ILS maintenance at Milan/Malpensa and Poznan airports;
- Terminal building improvements/works at Budapest, Frankfurt/Main, Malta, Manchester, Oslo/Gardermoen and Paris/Charles de Gaulle airports.

## DISRUPTIONS

### Technical

- FDPS technical issue in Stockholm ACC on 19 May generated 8,855 minutes of ATFM delay;
- Frequency issue in Brussels CANAC on 28 May generated 2,503 minutes of ATFM delay.

### Industrial Action

- Marseille ACC industrial action from 0430 UTC on Saturday 05 May to 0430 UTC on Monday 07 May generated 76,117 minutes of en-route ATFM delay in France; Neighbouring states generated 21,686 minutes due to ATFM protective measures;
- Marseille ACC industrial action from 0430 UTC on Saturday 12 May to 0430 UTC on Monday 14 May generated 95,922 minutes of en-route ATFM delay in France; Neighbouring states generated 41,050 minutes due to ATFM protective measures;
- French ATC industrial action from 1700 UTC on 21 May to 0400 UTC on 23 May generated 214,650 minutes of en-route ATFM delay in France; Neighbouring states generated 60,253 minutes due to ATFM protective measures;
- Marseille ACC industrial action from 0430 UTC on Saturday 26 May to 0430 UTC on Monday 28 May generated 95,482 minutes of en-route ATFM delay in France; Neighbouring states generated 49,671 minutes due to ATFM protective measures;
- Italian ATC industrial action on 08 May generated 12,462 minutes of en-route ATFM delay in Italy; NM estimates there were 600 flights which did not operate to/from Italian airports.
- Greeks ATC industrial action from 0700 UTC to 1000UTC on Wednesday 30 May generated 4,252 minutes of en-route ATFM delay in Greece. Athens TMA was regulated immediately after the strike to protect against a peak of traffic, generating 6,270 minutes of en-route ATFM delay.

# 9. NM ADDED VALUE

## FLIGHTS WITH DELAY > 30'

The number of flights with more than 30 minutes of ATFM delay increased between May 2017 and May 2018.

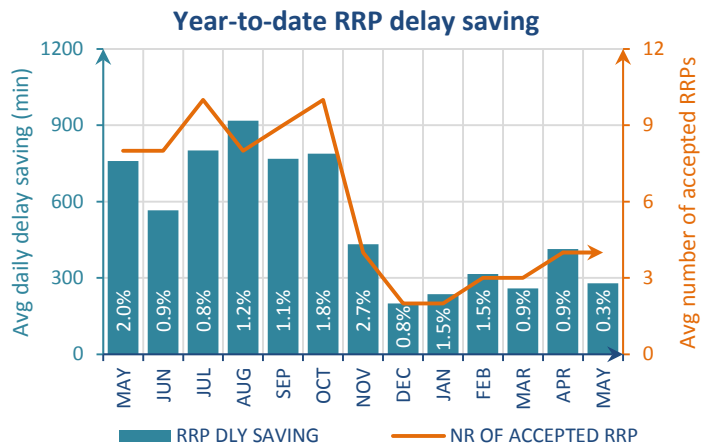
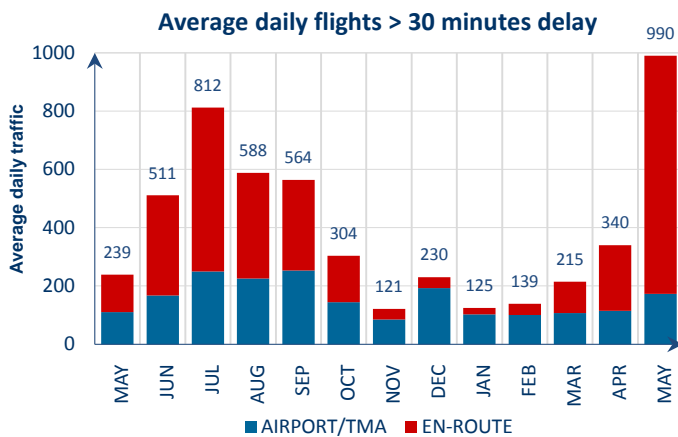
In May 2018, 82.5% of flights with more than 30 minutes of ATFM delay were en-route and 17.5% were airport.

An average 57 flights per day had their delay reduced to less than 30 min by NM.

## RRP DIRECT DELAY SAVINGS

On average 4 RRPs/day were executed saving 259 min/day, accounting for 0.3% of ATFM delays.

This graph shows the actual daily averages for the previous 13 months' period<sup>vi</sup>.



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i On the 03 April the Network Manager suffered an outage of its technical system affecting its operational services, which resulted in the non-availability of traffic data. Therefore the NOR traffic data for this date are based on guideline estimated traffic.

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

iii Internals, international arrivals and departures, excluding overflights.

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

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

vi 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.