CODA Digest

All-causes delay and cancellations to air transport in Europe

Report for Q1 2020

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1   COVID-19 Impact

This CODA Digest covers the first three months of 2020 (Q1 2020), and is published while aviation remains strongly affected by the **COVID-19 pandemic**. Due to this unprecedented situation, we have reduced the CODA Quarterly Digest to a minimum level of reporting. Even with this, we caution against comparison with previous years.

2   Executive Summary

The quarter started well with lower levels of delay in **January 2020**, despite several French ATC industrial actions throughout the month.

However this coincided with **traffic levels beginning to fall** towards the end of the month predominantly on long haul city pairs **between the EU and China** as the COVID-19 crisis in Europe began.

February 2020 showed higher delays with further French ATC industrial action, as well as severe weather causing airport delay, notably at Amsterdam Schiphol and London Heathrow airports.
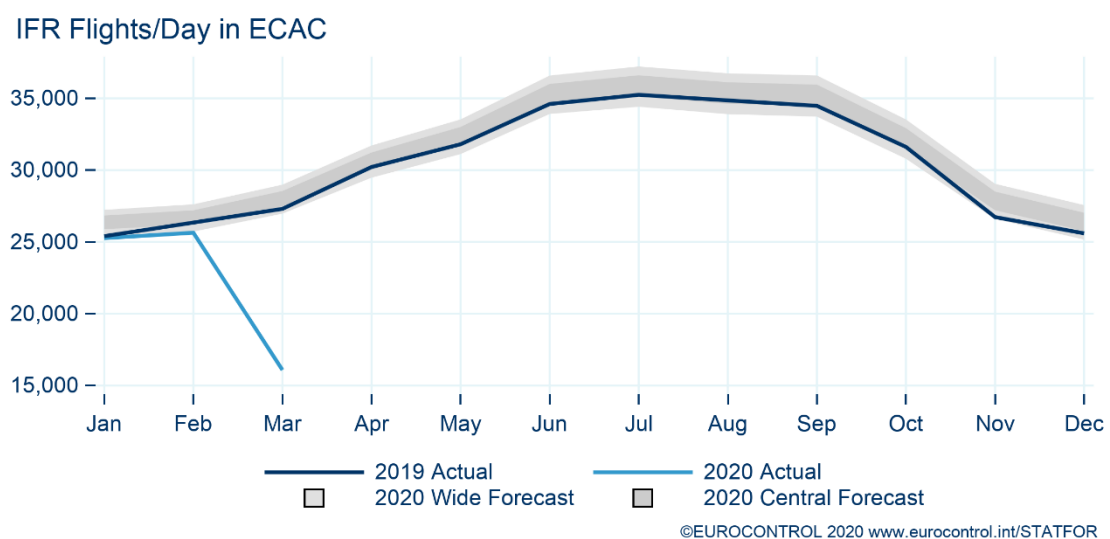
Traffic continued to fall with the epidemic hitting Italy in the second half of the month, with airlines starting to adjust their schedules to cancel or reduce operations to Northern Italian airports.

The final month of the quarter **March 2020**, saw one further French ATC industrial action, Spain implemented a staff reduction programme as the COVID-19 crisis worsened, resulting in increased en-route ATFM delay, as well as some airport delays.

The trend of **declining traffic sharply accelerated** mid-month due to the effect of the COVID-19 pandemic. **US restrictions** on European passengers started to affect flight schedules from 13 March, by the end of the month the Top 5 airline groups operated some **90% less flights**. States were also experiencing sharp decreases in flights, at the end of the month **Italian airports** had seen the worst with almost two thirds fewer flights.

3   Traffic
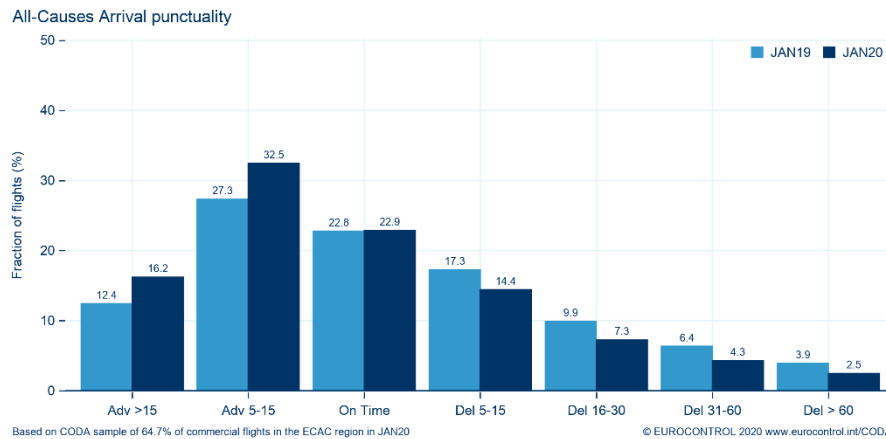
Figure 1. Total Flights per Day in ECAC

European flights (ECAC) in average daily terms (Figure 1) decreased by 14.6% in Q1 2020 compared with Q1 2019. This quarterly average is of course strongly driven by the COVID-19 influence of March 2020. Further information regarding traffic and forecasts can be consulted at the STATFOR website and via the STATFOR Interactive Dashboard (SID).

4 Arrival Punctuality by Month

Figure 2. Arrival Punctuality January 2020

All-Causes Arrival punctuality

Based on CODA sample of 64.7% of commercial flights in the ECAC region in JAN20

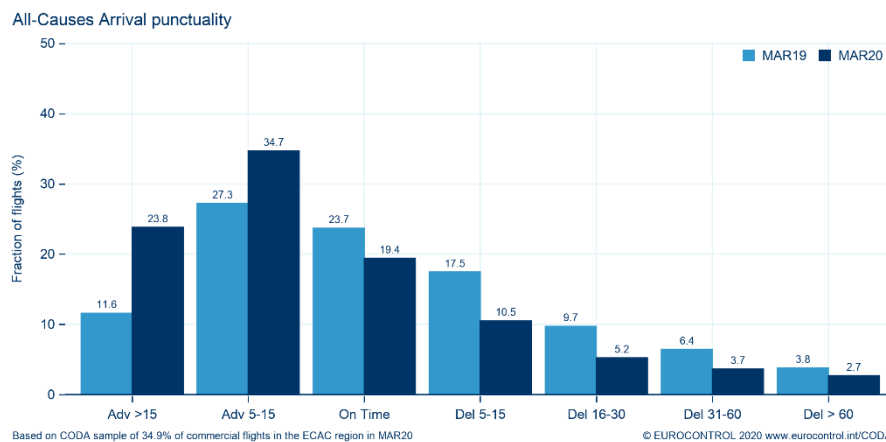© EUROCONTROL 2020 www.eurocontrol.int/CODA

In January 2020 arrival punctuality improved, with 86.0% of flights arriving within 15 minutes or earlier than their scheduled arrival time (STA), compared to 79.8% in January 2019.

Figure 3. Arrival Punctuality February 2020

All-Causes Arrival punctuality

Based on CODA sample of 66.4% of commercial flights in the ECAC region in FEB20

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February 2020 saw relative stability in punctuality levels, with 82.4% of flights arriving within 15 minutes, compared to 82.8% in February 2019.

Figure 4. Arrival Punctuality March 2020

All-Causes Arrival punctuality

Based on CODA sample of 34.9% of commercial flights in the ECAC region in MAR20

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The COVID-19 disrupted month of March 2020 saw significant changes in airline punctuality as airline traffic fell and the flights that were operated achieved better punctuality with 88.4% arriving within 15 minutes or earlier. Notable are the amount of early arrivals, as airlines that could operate flights saw many depart ahead of schedule (80.0%) in turn arriving even earlier than their STA.
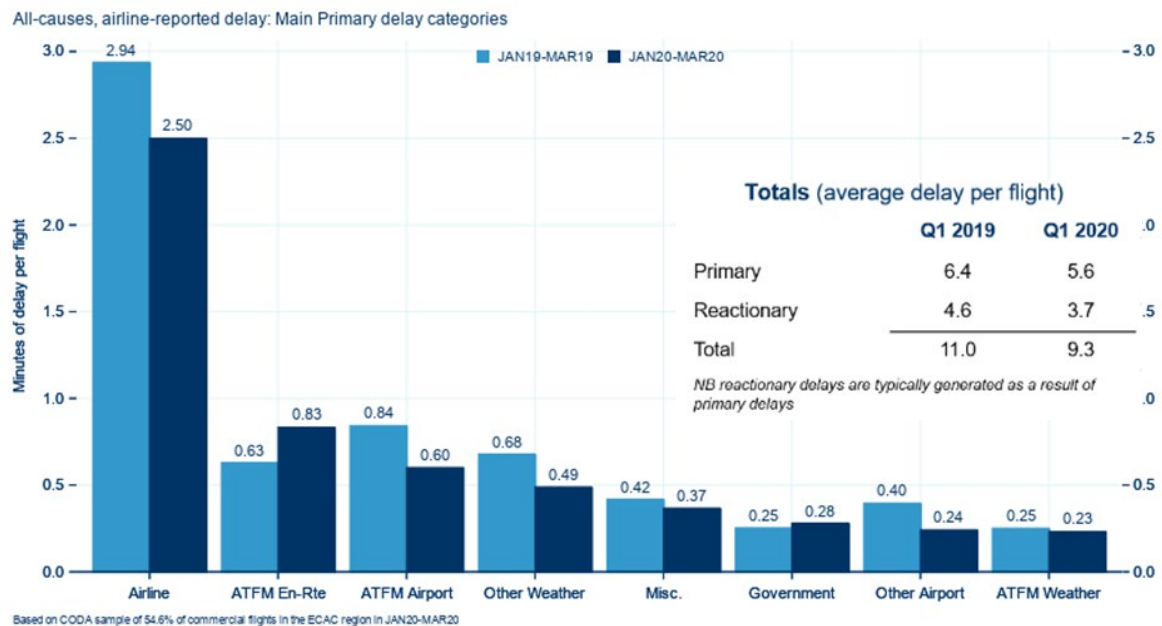
5   2020 Monthly Summary

Section 3 provides a month-by-month view for Q1 2020, highlighting the particular locations, causes of Network delay or disruptions in further detail.

January 2020. Several French ATC industrial actions throughout the month generated en-route ATFM delay and airport ATFM delay in French ACCs such as Paris, Marseille, Brest and Bordeaux. Additional delays were also reported locally in neighbouring states due to traffic on load. Weather conditions (strong winds and low visibility) impacted operations at London/Heathrow, Amsterdam/Schiphol, Lisbon, Geneva, Porto and Vienna airports.

February 2020. French ATC industrial action (05-08 and 19-21 February) generated high delays in French ACCs such as Marseille, Brest, Paris, Reims and Bordeaux ACCs also impacting neighbouring states due to traffic on load. Weather conditions generated disturbance throughout the network. Snow impacted operations at Istanbul airports. Low visibility at London airports, strong winds and heavy rain impacted Northern Europe with high delays at airports such as Amsterdam Schiphol, London Heathrow, London Gatwick and Vienna. Sandstorms impacted operations in Canary Islands. Ground handling union industrial action at Helsinki airport on 26 and 27 February also occurred.

March 2020. COVID-19 affected network traffic from the beginning of the month. The February reduction in the number of long-haul flights to Asia continued into March. US restrictions on European passengers started to affect flight schedules from 13 March. Italian flight numbers fell from 14 March, quickly followed by Spanish flights from 21 March; and then the rest of European destinations. All-Cargo flights represented close to 30% of all traffic by the end of March with the use of passenger aircraft for cargo flights increasing further in the last week of March as the crisis deepened.

Figure 5. Breakdown of the Average Delay per Flight Q1 2019 vs. Q1 2020

All-causes, airline-reported delay: Main Primary delay categories

| JAN19-MAR19 | JAN20-MAR20 |

Airline	ATFM En-Rte	ATFM Airport	Other Weather	Misc.	Government	Other Airport	ATFM Weather
2.94	0.63	0.84	0.68	0.42	0.25	0.40	0.25
2.50	0.83	0.60	0.49	0.37	0.28	0.24	0.23

Totals (average delay per flight)

	Q1 2019	Q1 2020
Primary	6.4	5.6
Reactionary	4.6	3.7
Total	11.0	9.3

NB reactionary delays are typically generated as a result of primary delays

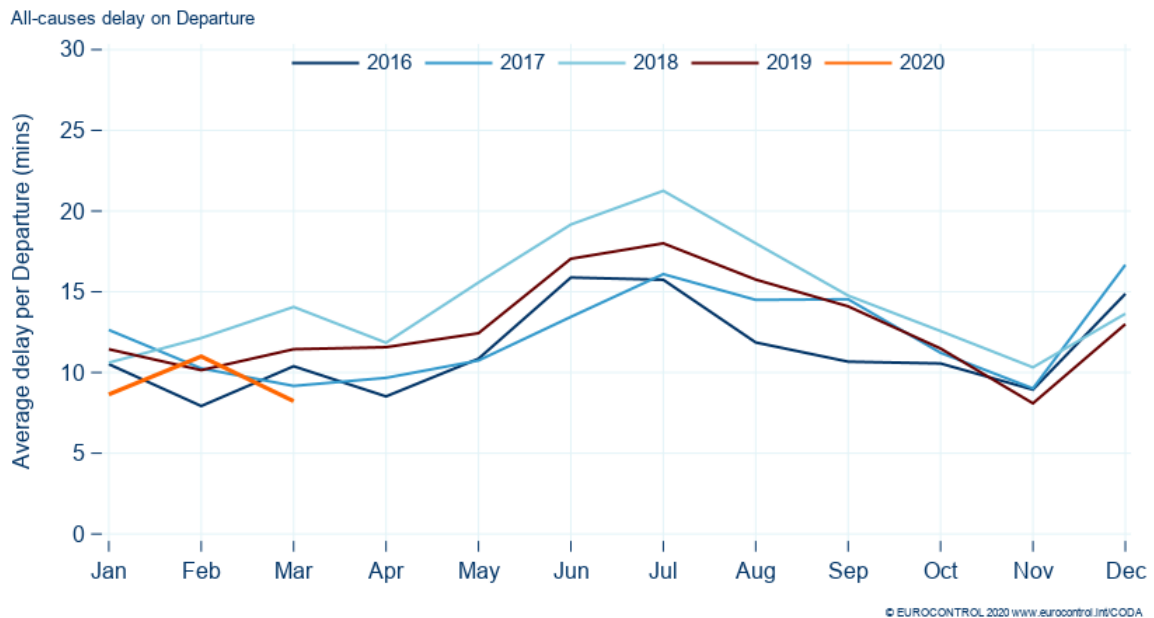Based on CODA sample of 54.6% of commercial flights in the ECAC region in JAN20-MAR20

6 Average Delay per Delayed Flight (Departure)

Overall the average departure delay per flight in Q1 2020 decreased to 9.3 minutes, compared to 11.0 minutes per flight in Q1 2019. Analysing the three months separately, the very good delay performance achieved in January can be observed, February less so with weather notably driving delay. Following the large reduction in flights in March, those flights that did operate saw both extremes of delay with many operating ahead of schedule, however the fewer flights that did experience delay tended to experience longer delays, this is reflected in the higher average delay per delay flight in Figure 9.
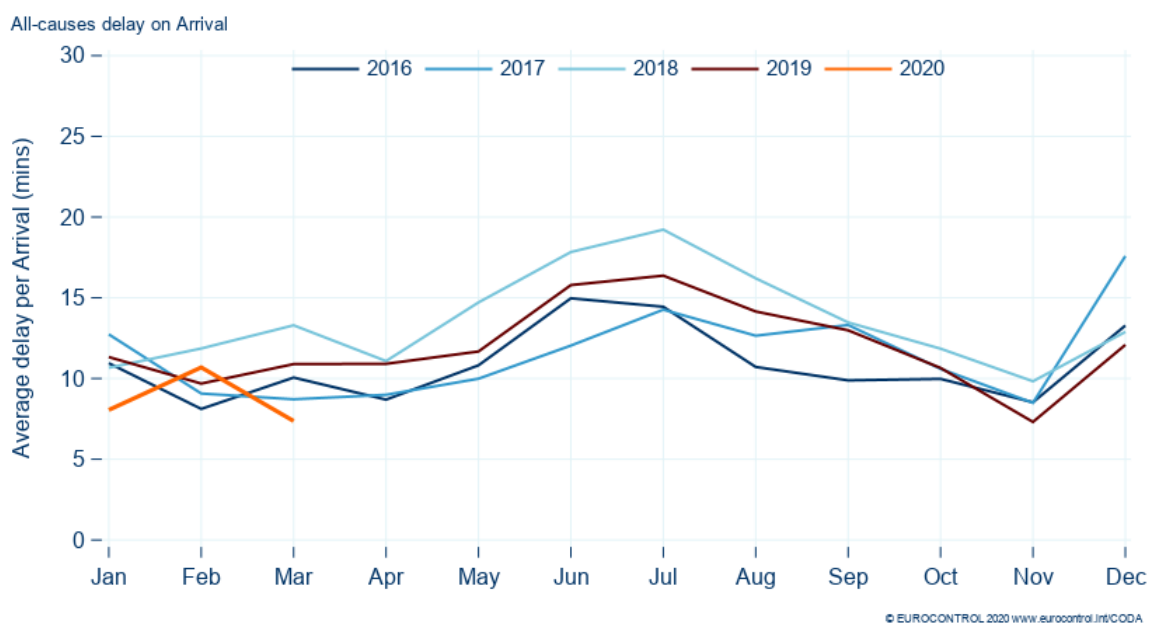
Figure 6. Average Delay per Flight (All-Causes) for Departures

7 Average Delay per Delayed Flight (Arrival)

The average delay per flight on arrival (Figure 8) showed a similar decreasing trend to that of the departure, at 8.9 minutes per flight, a decrease of 1.8 minutes when compared to Q1 2019.

Figure 7. Average Delay per Flight (All-Causes) for Arrivals

8   Scheduling Indicators

Two CODA scheduling indicators help airline schedulers determine the optimal schedule based on historical flight data:

Scheduling correctly is a difficult art: if too long a time is blocked for a flight, the airline will not be able to make best use of resources - staff, airframes, infrastructure. Too short a time can arguably be worse as late flights generate rotational delay with late incoming aircraft and passengers from previous flights having to be accommodated. When flights leave on time but arrive after the scheduled time of arrival they cause reactionary delays. Schedule padding is essential for air carriers in order to find schedules which work with the typical patterns of delay, so that they can deliver passengers on time, and get maximum use out of their aircraft. Consequently, when delays decrease it takes one or two (IATA) seasons for the airline to adapt its schedule accordingly.
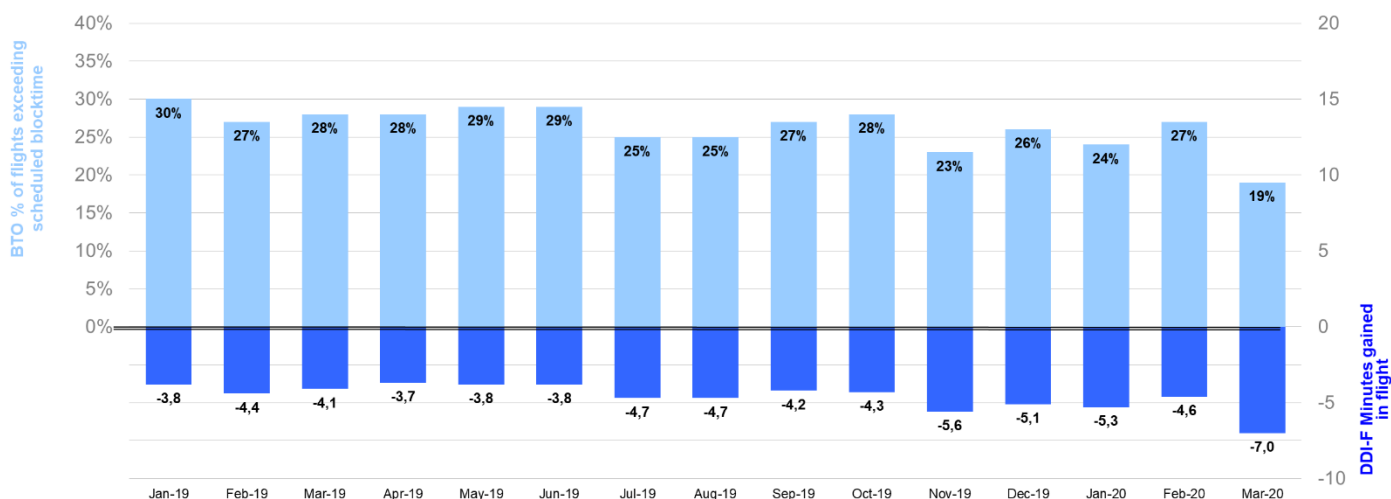
The **Delay Difference Indicator - Flight (DDI-F)** or the difference between departure and arrival punctuality expressed in minutes. This can be indicated as a positive or negative figure, for example, a flight departing with 20 minutes delay and arriving with 30 minutes arrival delay will have a DDI-F of +10 minutes.

The European DDI-F in Q1 2020 was -5.6 minutes, this an increase in comparison to Q1 2019 where the DDI-F was -4.1 minutes. The exceptional operational conditions caused a large increase in the DDI-F as congestion reduced in the network.

The **Block Time Overshoot (BTO)** is the percentage of flights with an actual block time that exceeds the scheduled block time.

The European BTO in 2019 decreased to 23% compared to 28% in Q1 2020, again here March 2020's unique operational conditions drove this decrease, as the reduction in traffic saw those flights that did operate, operate well within their scheduled block time.

Figure 8. Block Time Overshoot (BTO) and Delay Difference Indicator - Flight (DDI-F) 2019

9 Year on Year Trends in All-Causes Indicators

This section summarises the year-on-year trends in the main indicators of delay from all-causes. A flight is considered delayed from 5 minutes.

The performance in Q1 2020 can be observed in (Figures 9, 10 and 11). Despite a good average delay per flight, the average delay per delayed flight saw increases in February and notably March, a month where despite many flights operating ahead of schedule, those that did experience delays saw those increase significantly.

Figure 9. Average all-causes delay per delayed flight ≥ 5 mins (departures top, arrivals bottom)

All-causes delay on Departure

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All-causes delay on Arrival
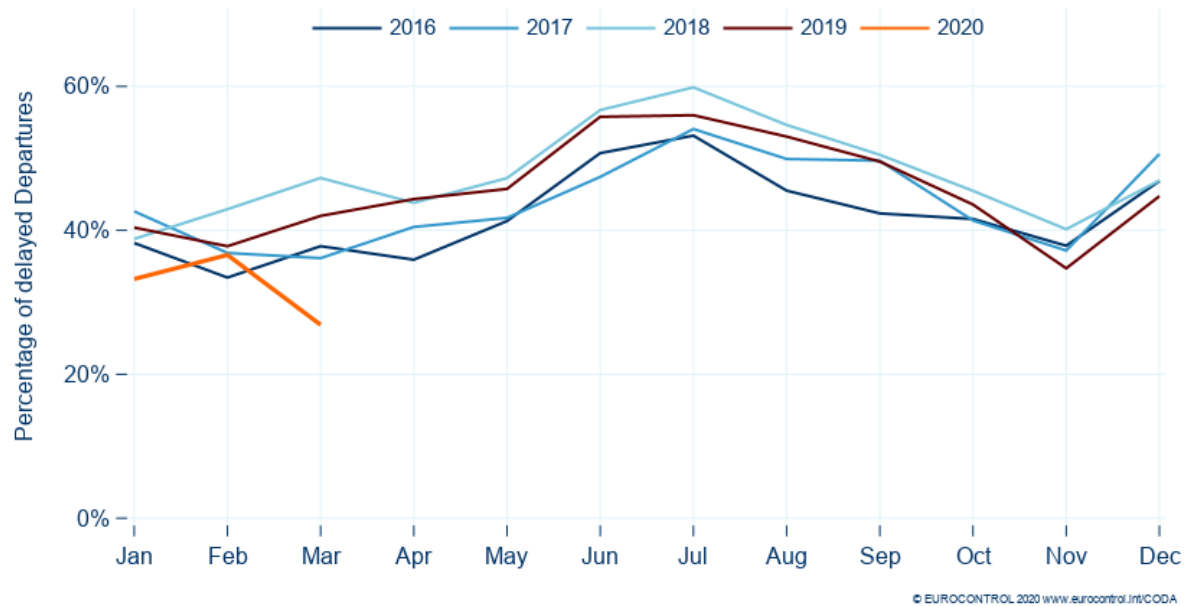
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Figure 10. Percentage of flights delayed ≥ 5 mins for all-causes delay (departures top, arrivals bottom)

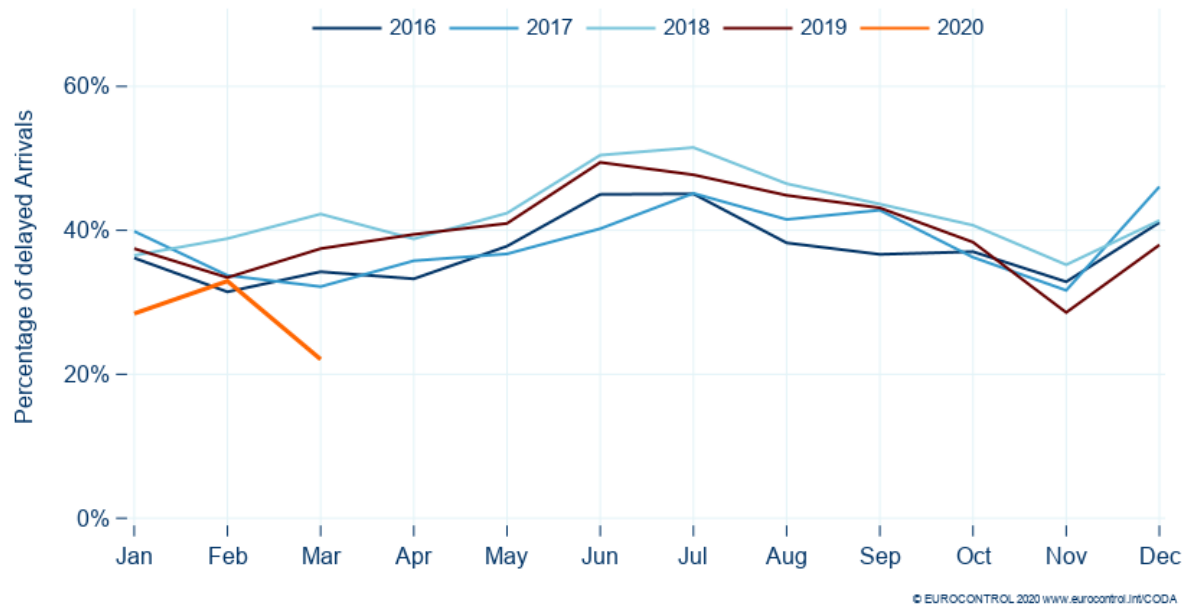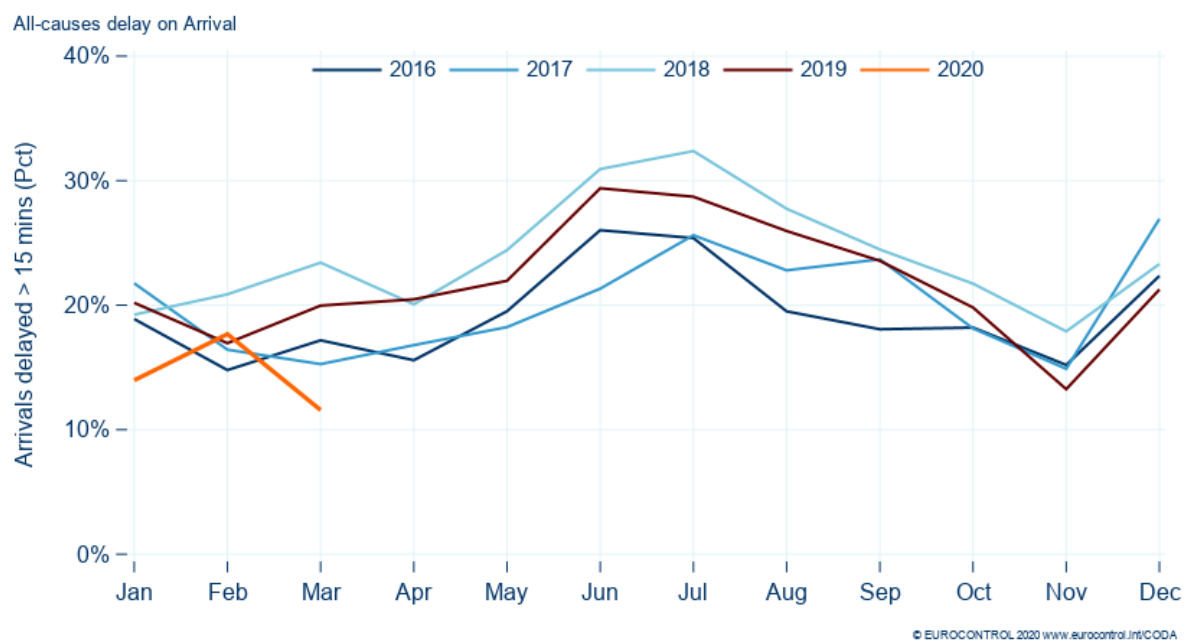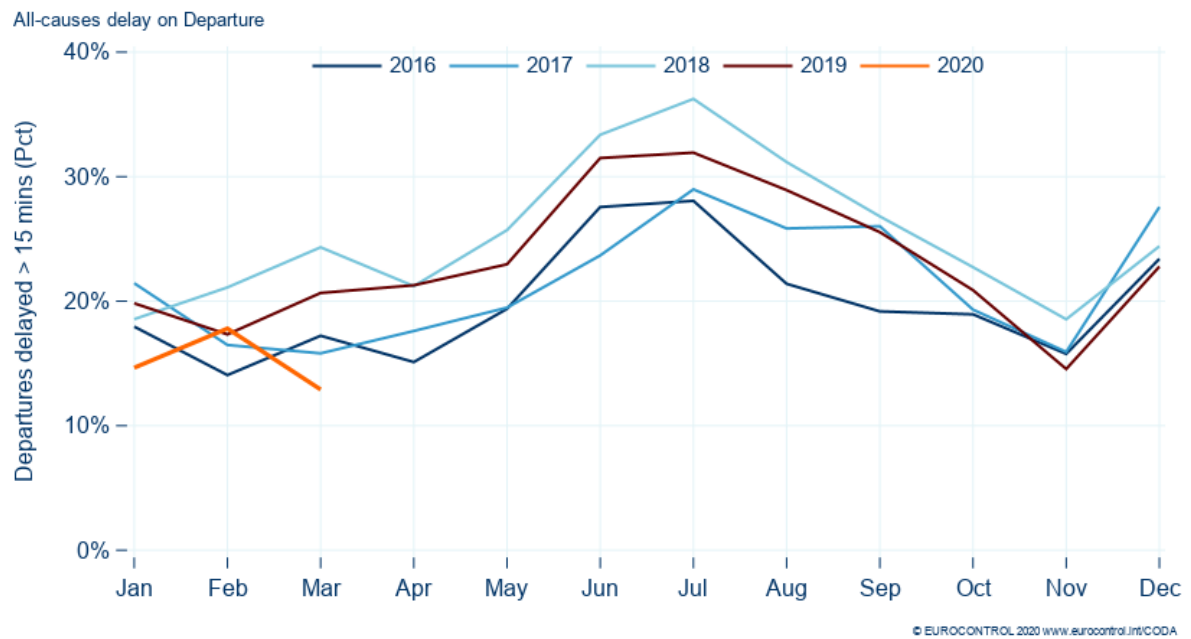All-causes delay on Departure

All-causes delay on Arrival

Figure 11. Percentage of flights delayed >15mins for all-causes (departures top, arrivals bottom)

All-causes delay on Departure

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All-causes delay on Arrival

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