



# CODA Digest

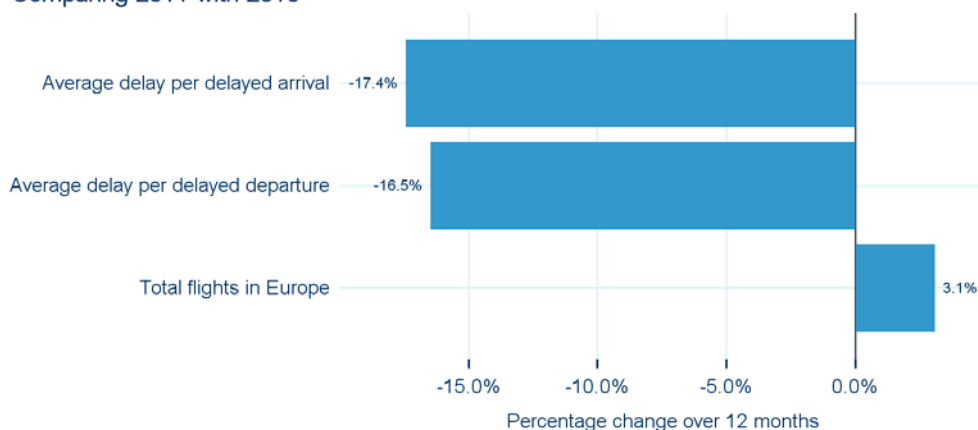
## Delays to Air Transport in Europe

Annual 2011

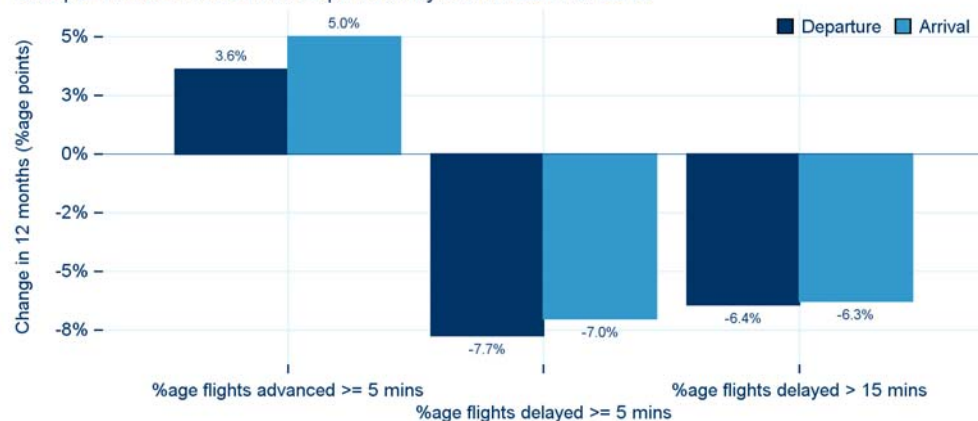
Directorate Network Management

Delays improved markedly in 2011, in spite of a 3% increase in flights. While much of the improvement was because of poor performance in 2010 – due to the ash cloud, strikes during the summer and poor weather – by many indicators 2011 saw the best performance of the last five years for delay.

### Comparing 2011 with 2010



### Comparison of main all-cause punctuality counts 2011 v. 2010



Based on CODA sample of 68.8% of commercial flights in the ECAC region in 2011

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## FOREWORD

This report gives an overview of the delay situation in the European Civil Aviation Conference Area. This report has been prepared by the Central Office for Delay Analysis (CODA), a service of EUROCONTROL. It is based on the EUROCONTROL CODA database which contains delay data provided directly by airlines.

The report consists of an overview of the reporting period, a summary of the main delay effects, and a series of charts and graphics, which illustrate the main characteristics of the reporting period. A glossary of terms and abbreviations used throughout the report is given in Annex 1.

Airline data from the CODA database contains real recorded delays provided to CODA by airlines and is based on the difference between scheduled time of departure and actual off block time.

This report discusses delays from all-Causes; for information regarding ATFCM delays see the complementary reports available at <http://www.eurocontrol.int/articles/network-operations-monitoring-and-reporting>

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\* This revised version of the Digest discusses all-causes of delay. For more details of the ATFCM delay situation please see the sister publications available at <http://www.eurocontrol.int/articles/network-operations-monitoring-and-reporting>

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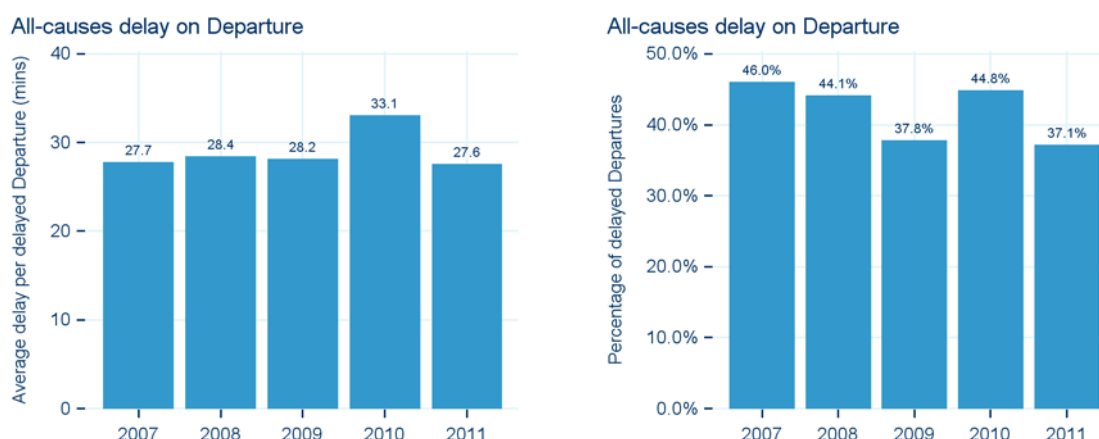
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## 1. Headlines and 2011 Overview.

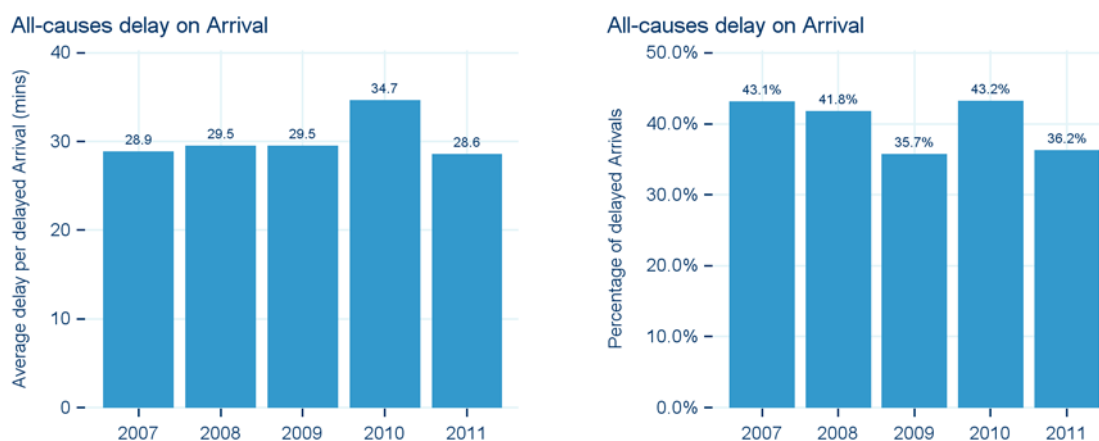
Following the high levels of delay experienced in 2010, the results for 2011 show delays have returned to levels similar to those seen in 2009.

- The average delay per delayed flight (ADD) for departure traffic from all-causes of delay was 28 minutes, this was a decrease of 17%.
- The percentage of flights delayed (by 5 minutes or more) decreased by 8 percentage points to 37% in comparison to 2010
- The percentage of flights delayed by more than 15 minutes on departure decreased from 20% to 18%.
- The average delay per delayed flight for arrival traffic from all-causes of delay was 29 minutes, this was a decrease of 18%.
- The percentage of flights delayed on arrival (by 5 minutes or more) decreased by 7 percentage points to 36% in comparison to 2010.

**Figure 1. Average Delay per Delayed Departure and Percentage of Delayed Departures Comparison**



**Figure 2. Average Delay per Delayed Arrival and Percentage of Delayed Arrivals Comparison**



## 2. 2011 Overview

2011 was a year that saw far less industrial action disruption than 2010 and alongside coordinated action by ATM to address the recurring capacity problems, a month on month trend in 2011 of consistently lower average delays per flight was observed. This resulted in monthly average delays similar to those seen throughout 2009. 2011 saw the lowest delays for 5 years. An overview of the 2011 and previous years performance can be found in (Annex A).

### Weather Delays:

- In January and February, mainly weather delays were observed, with Frankfurt and Heathrow being particularly affected by snow, high winds and low visibility.
- During summer, Frankfurt airport suffered from airport delays, alongside Heathrow and Munich. An increase in weather related delay minutes was seen in June. In August weather also affected Heathrow, Paris, Zurich and again Frankfurt.
- December saw significantly lower delays when compared to cold weather disrupted December 2009 & 2010. However cold weather delays were still experienced in Heathrow, Amsterdam and Geneva. Munich and Istanbul suffered from snow during the month.

### Air Traffic Control Delays:

- Capacity delays in Spain, Canaries and Greece affected delays in July, Summer seasonal airports saw delays particularly Palma and Madrid.
- Delays in Cyprus as a result of aircraft re-routing to avoid Greek airspace.

### Airport Delays:

- In June a new control tower was implemented at Frankfurt with a slight increase in delays being observed.
- September saw strikes in Italy and Greece, with high delays at Athens and Rome airports. Some flight cancellations were observed at the airports, flights that did operate saw delays.
- Warsaw airport was closed for two days following an aircraft incident that blocked its runway on the 1<sup>st</sup> and 2<sup>nd</sup> November.

### Airspace Disruptions:

- March saw the start of the events in Libya with a no-fly zone being enforced, the main effect being on traffic flows in the region, rather than a direct impact on delays.
- A smaller volcanic ash disruption in Iceland (Grimsvotn) the main effect of this being in aircraft re-routing to avoid temporally closed airspace in Germany and northern UK.
- Industrial action in France, Greece and Italy occurred in May.
- Summer and autumn saw severe social tension and industrial action in Greece.
- There was also a strike in Portugal on the 23<sup>rd</sup> and 24<sup>th</sup> November, the main effects of this action were in flights re-routing and cancellations.

Analysis of delay causes contributing to the average delay per flight in minutes (Figure 3) shows falls in contribution in all of the delay causes. Reactionary delay contribution fell by 34% to 2.3 minutes. Other falls included the contribution of ATFCM delay to the average (a fall of 1 minute per flight) following a far less industrial action affected year Figure 4. Other weather (non ATFCM related weather delays) also fell (down 65%) because of less extreme cold weather, particularly snowfall as seen in December 2010. (Figure 4).

Figure 3. Primary delay causes, 2011

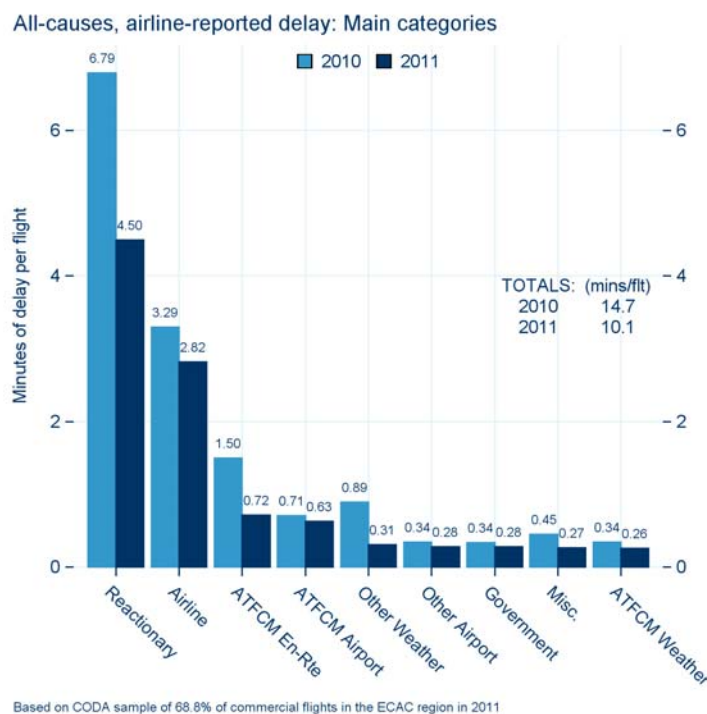


Figure 4. Primary delay causes, 2011

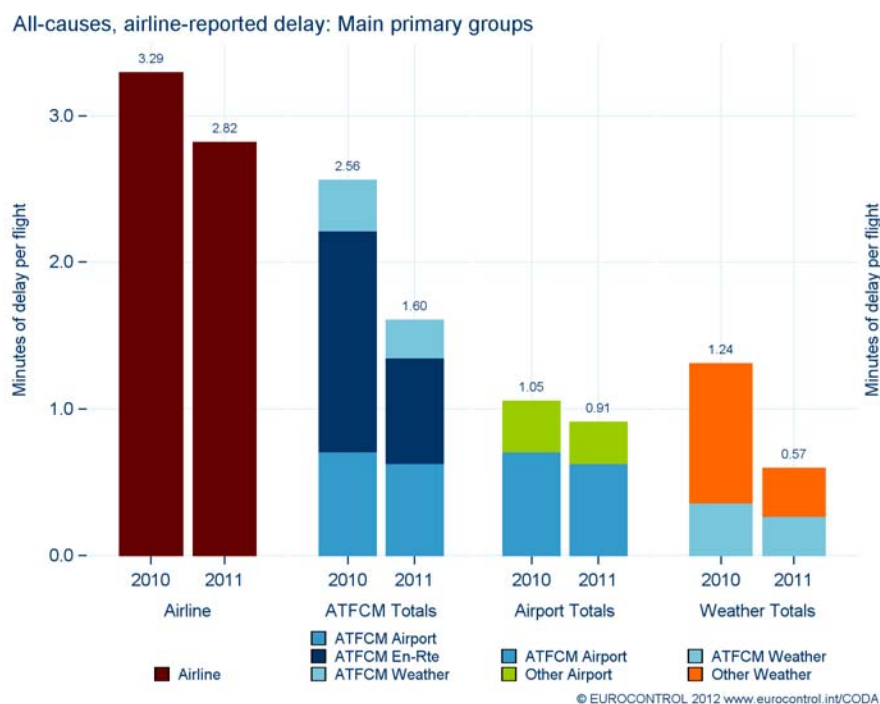
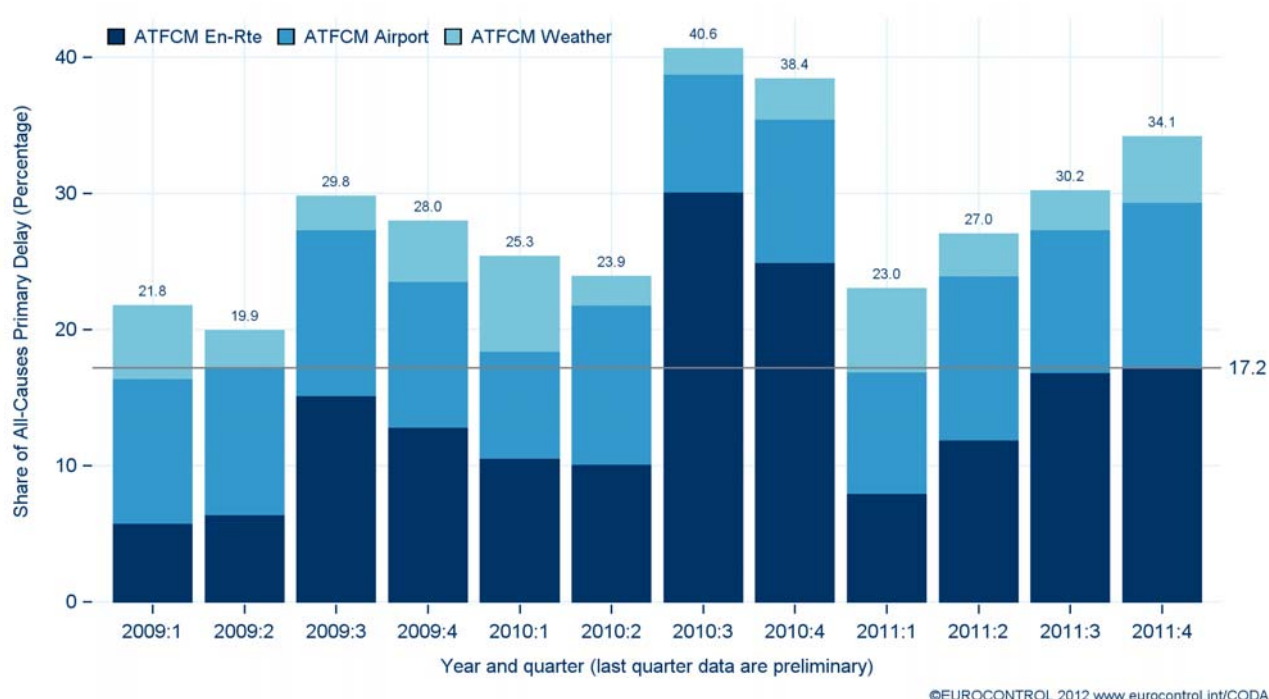


Figure 5. ATFCM Share of All-Causes Primary Delay.



Looking further into the history of the ATFCM proportion of the primary delay by quarter for 2009, 2010 and 2011 (

Figure 5). 2011 saw a continuation in the trend of lower ATFCM shares of primary delay during the first two quarters of the year, followed by an increase in the remainder of the year. However 2011 differed slightly as the ATFCM share of primary delay increased throughout the year, from a starting level similar to that seen in Q1 2009. Q4 experienced a 17.2% share in delay minutes for en-route delay; the highest in the year, closely followed by Q3. The months of September and October saw higher shares in ATFCM delay following Greek social tensions which affected Athens and Makedonia ACC as well as Athens airport.

In comparison to 2010 the proportions of en-route delay remained lower than the exceptional levels seen during 2010 Q3 & 4, a period which saw disruption due to industrial action in France, Spain and Greece throughout the summer.

### 3. All-Causes Departure Delay Summary<sup>1</sup>

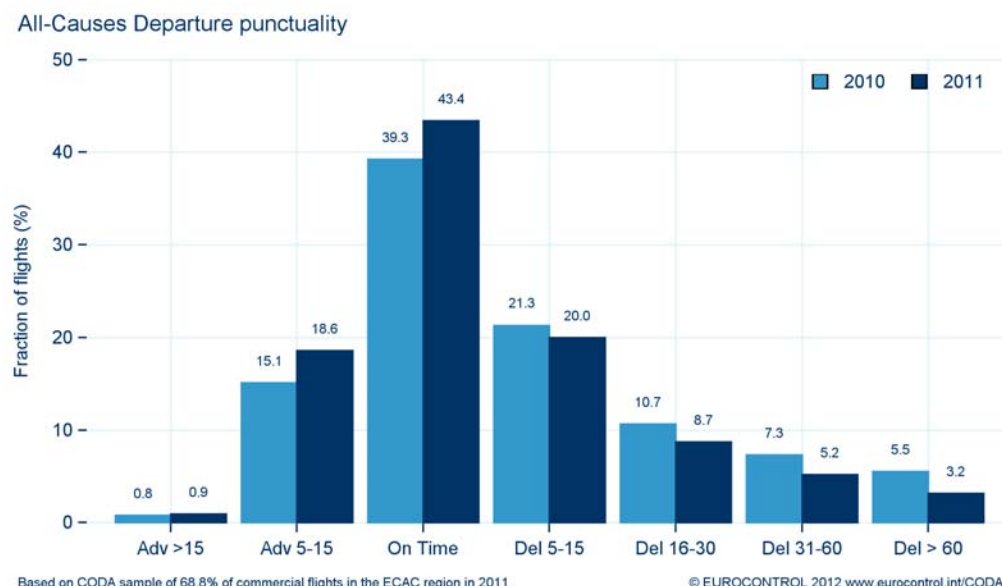
The average delay per flight from all-causes of delay decreased by 31% to 10 minutes in 2011. The average delay per delayed flight (ADD) for departure traffic from all-causes of delay was 28 minutes.

Departure punctuality improved with 43% of flights departing on time (less than 5 minutes before or after the scheduled departure time), an improvement of 4 percentage points. Flights departing 5-15 minutes ahead of schedule saw an increase of 4 points (see Figure 7).

**Figure 6. Average delay per movement (all-Causes) for Departures**



**Figure 7. All-causes departure punctuality 2010 vs 2011**

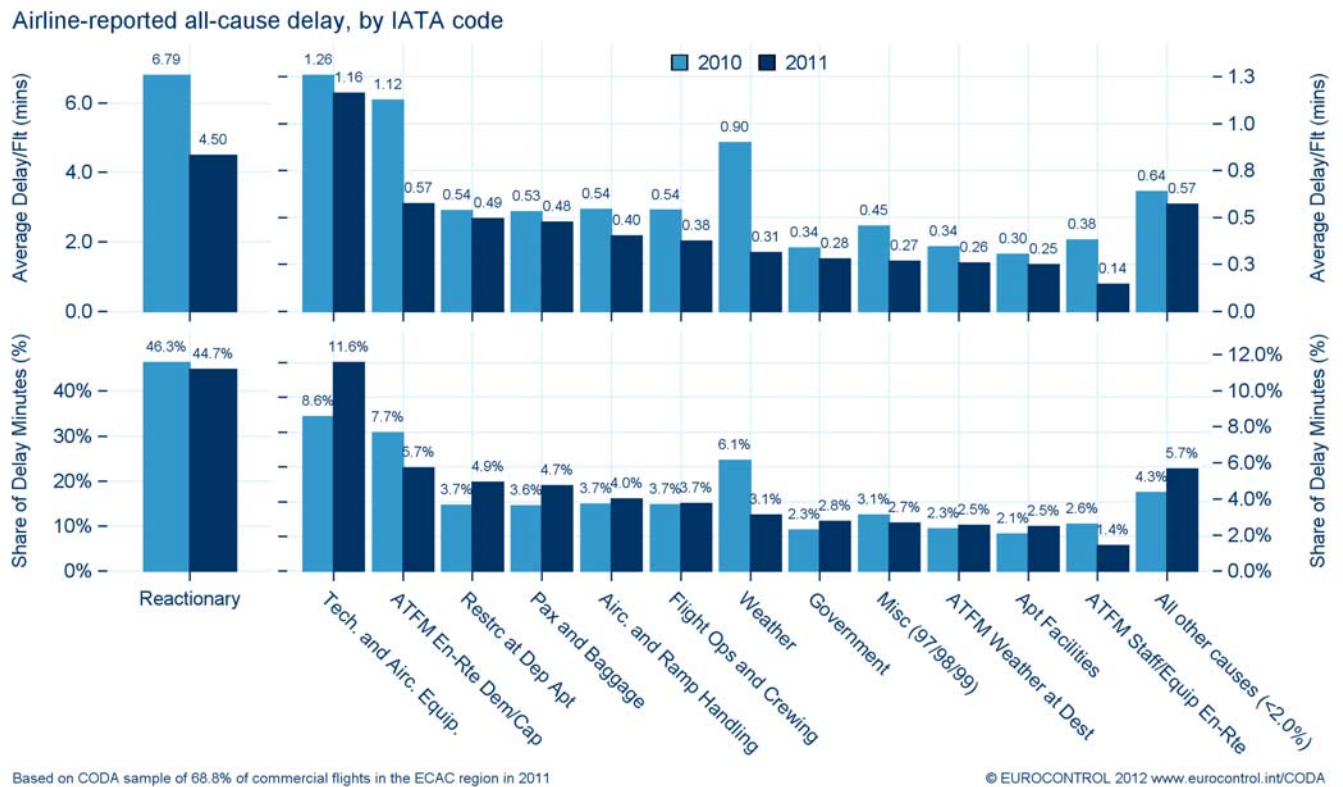


<sup>1</sup>A flight is considered delayed as from 5 minutes.

The analysis was based on airline data provided to CODA, which for 2011 contains details on 69% of commercial flights in the ECAC region. Unless otherwise mentioned, a flight is considered delayed/advanced as from 5 minutes.



Figure 8. Primary and reactionary all-cause delay, by IATA code (%)



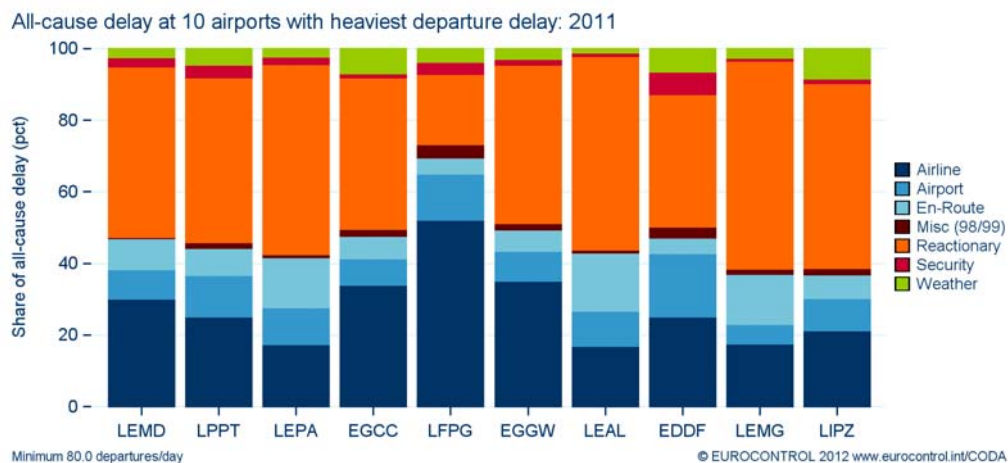
The average delay per flight and share of delay minutes for all-causes is shown in Figure 8 (grouped by IATA code). Reactionary delay saw a fall in minutes from 6.8 minutes to 4.5 minutes per flight and a small fall in its share of the total delay minutes for the year. Technical and Equipment delay share increased by 3 points, however its contribution to the average delay for this cause fell. Indeed, all individual causes saw a drop in their minutes per flight that they caused. The most significant fall in 2011 came for ATFCM En-Route Demand and Capacity and Weather related delay following significantly less en-route delays and extreme winter weather conditions as experienced in 2011, with both categories seeing their contribution to the average delay fall by half. The link from these categories to IATA codes is summarised in Figure 16.



**Figure 9. All-Causes Delay. Top 20 Affected Departure Airports 2011**

Rank	Departure airport	ICAO Code	Average Delay per Departure (mins)	Average Delay per Departure Percentage Change	Average Delay per Delayed Departure	Percentage Delayed Departures
1	MADRID BARAJAS	LEMD	16.1	-20%	29.8	54.3%
2	LISBOA	LPPT	13.6	-31%	28.1	48.4%
3	PALMA DE MALLORCA	LEPA	13.2	-30%	30.6	43.0%
4	MANCHESTER	EGCC	12.7	-36%	33.1	38.2%
5	PARIS CH DE GAULLE	LFPG	12.5	-27%	25.5	49.1%
6	LONDON/LUTON	EGGW	12.5	-43%	29.0	43.1%
7	ALICANTE	LEAL	11.9	-39%	27.7	42.8%
8	FRANKFURT MAIN	EDDF	11.4	-29%	22.1	51.5%
9	MALAGA	LEMG	11.3	-45%	28.8	39.3%
10	ROME FIUMICINO	LIRF	11.1	-30%	23.6	47.1%
11	LONDON/GATWICK	EGKK	10.9	-48%	27.0	40.4%
12	LONDON/HEATHROW	EGLL	10.7	-30%	24.5	43.8%
13	BARCELONA	LEBL	10.6	-32%	27.9	38.1%
14	SCHIPHOL AMSTERDAM	EHAM	10.6	-25%	25.6	41.3%
15	FERIHEGY-BUDAPEST	LHBP	10.4	-36%	24.4	42.7%
16	MUNICH	EDDM	10.4	-18%	20.5	50.9%
17	MILANO MALPENSA	LIMC	10.4	-41%	25.7	40.3%
18	NICE	LFMN	10.2	-44%	25.5	40.1%
19	PARIS ORLY	LFPO	10.2	-40%	24.6	41.5%
20	WARSAW	EPWA	10.1	-28%	27.0	37.4%

**Figure 10. Main delay causes at the top 10 affected departure airports**



Analysis of the Top 20 most affected departure airports shows the overall lower delays in 2011, with all of the Top 20 affected airports seeing reductions in their average delay per flight. Madrid Barajas saw the highest average delay per flight following delays due to en-route delays and airport capacity. Lisbon was affected by arrival airport delays at other EU hubs, as well en-route delays in Spain. Palma suffered particularly in the summer holiday peak months from airport capacity related departure delays and en-route delays in Barcelona and Marseille. Manchester saw delays from arrival restrictions at the major hub airports as well as seasonal leisure destinations. Paris CDG experienced high proportions of airline related delay. Frankfurt suffered from weather delays.

**Figure 11. All-Causes delay situation for the 20 most affected airport pairs 2011**

Rank	Departure Airport	Arrival Airport	Average Delay Per Departure	% Change since Previous Period	Average Delay Per Delayed Departure	Percentage Delayed Departures
1	ROME FIUMICINO	MADRID BARAJAS	21.9	-20%	31.6	69.2%
2	LONDON/HEATHROW	MADRID BARAJAS	20.5	-20%	33.2	61.6%
3	LAS PALMAS	MADRID BARAJAS	19.9	-3%	35.4	56.3%
4	TENERIFE NORTE	MADRID BARAJAS	19.7	-5%	31.2	63.1%
5	MADRID BARAJAS	TENERIFE NORTE	19.5	0%	29.3	66.6%
6	PARIS ORLY	MADRID BARAJAS	19.4	-11%	31.8	60.8%
7	IBIZA	MADRID BARAJAS	18.6	-31%	36.7	50.6%
8	MADRID BARAJAS	LAS PALMAS	18.1	-11%	31.3	57.8%
9	MADRID BARAJAS	LONDON/HEATHROW	17.6	-20%	28.4	62.1%
10	MADRID BARAJAS	IBIZA	17.5	-30%	33.3	52.7%
11	SCHIPHOL AMSTERDAM	FRANKFURT MAIN	17.5	-3%	28.5	61.4%
12	MADRID BARAJAS	VALENCIA	17.2	12%	32.6	52.6%
13	MUNICH	MADRID BARAJAS	17.1	-15%	26.4	64.9%
14	MADRID BARAJAS	PARIS ORLY	16.8	-3%	28.1	59.7%
15	MADRID BARAJAS	ROME FIUMICINO	16.7	-19%	29.8	56.1%
16	MADRID BARAJAS	VIGO	16.5	-1%	30.7	53.8%
17	LISBOA	MADRID BARAJAS	16.1	-17%	33.5	48.1%
18	SCHIPHOL AMSTERDAM	MADRID BARAJAS	15.9	-36%	27.8	57.2%
19	MADRID BARAJAS	FRANKFURT MAIN	15.9	-21%	27.8	57.1%
20	MADRID BARAJAS	MUNICH	15.8	-10%	29.7	53.3%

An analysis of the Top 20 Most-Affected Airport Pairs shows that Madrid features frequently in the Top 20 with both arrival and departure delay being prominent. Both international and domestic flights were affected following airport ATC capacity delays at Madrid. Frankfurt also features following the high arrival delays from weather in 2011.

#### 4. All-Causes Arrival Delay Summary <sup>2</sup>

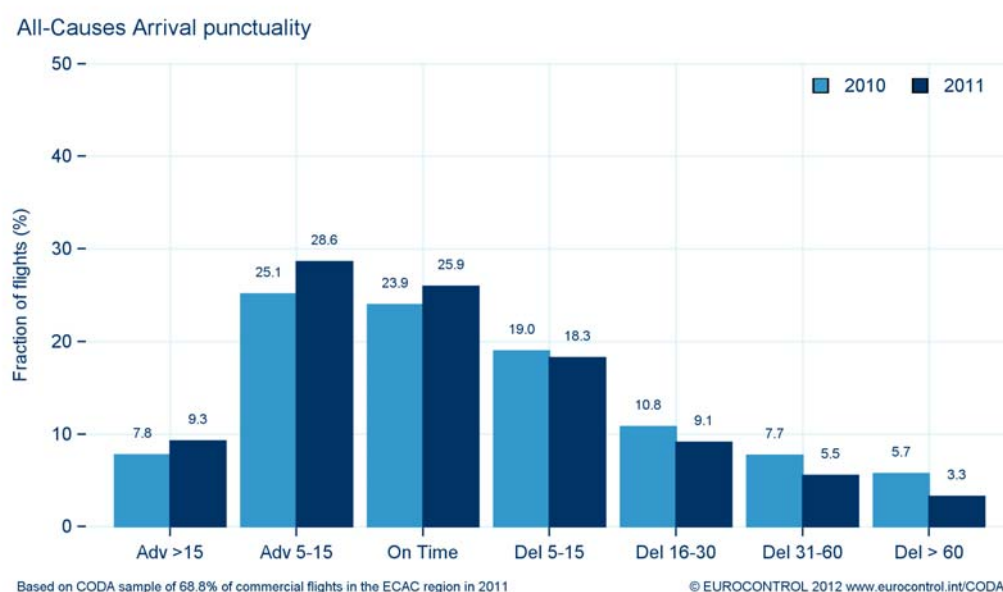
The average delay per flight from all-causes decreased by 31% to 10 minutes in 2011 when compared to last year, see Figure 12. The average delay per delayed flight for arrival traffic from all-causes of delay was 29 minutes.

As for arrival punctuality, 26% of flights arrived on time (less than 5 minutes before or after the scheduled arrival time), a 2 percentage point improvement. In addition, flights arriving 5-15 minutes ahead of schedule increased to 29% from 25%.

**Figure 12. Average delay per flight (all-Causes) for Arrivals**



**Figure 13. All-Causes arrival punctuality 2010 vs 2011**

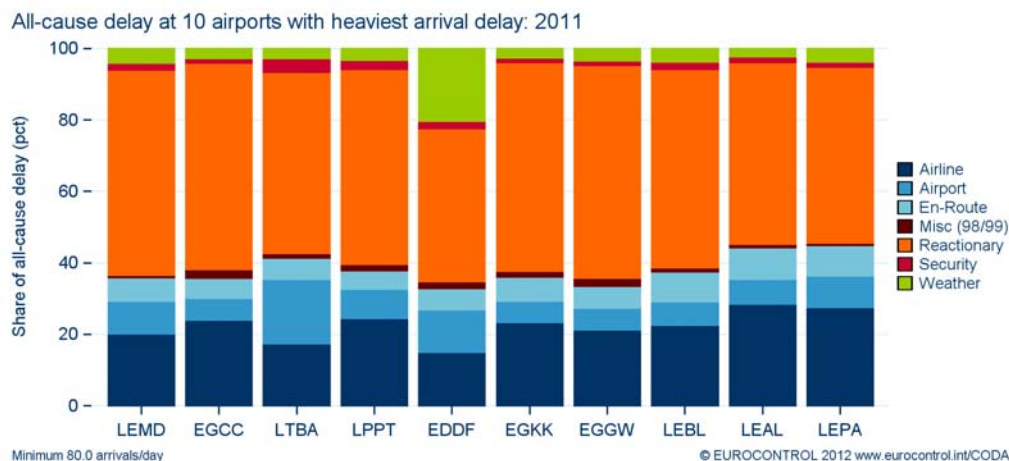


<sup>2</sup> The analysis was based on airline data provided to CODA, which for 2011 contains details on 69% of commercial flights in the ECAC region. Unless otherwise mentioned, a flight is considered delayed/advanced as from 5 minutes.

Figure 14. All-Causes Delay. Top 20 Affected Arrival Airports 2011

Rank	Arrival airport	ICAO Code	Average Delay per Arrival (mins)	Average Delay per Arrival Percentage Change	Average Delay per Delayed Arrival	Percentage Delayed Arrivals
1	MADRID BARAJAS	LEMD	21.1	-14%	33.8	62.4%
2	MANCHESTER	EGCC	14.0	-34%	38.3	36.5%
3	ISTANBUL-ATATURK	LTBA	13.4	-37%	26.6	50.4%
4	LISBOA	LPPT	12.7	-29%	29.5	43.2%
5	FRANKFURT MAIN	EDDF	12.5	-25%	29.2	42.7%
6	LONDON/GATWICK	EGKK	12.4	-48%	35.3	35.1%
7	LONDON/LUTON	EGGW	11.9	-45%	34.5	34.5%
8	BARCELONA	LEBL	11.4	-28%	28.2	40.5%
9	ALICANTE	LEAL	11.4	-37%	27.9	40.8%
10	PALMA DE MALLORCA	LEPA	11.2	-26%	28.7	39.0%
11	LONDON/HEATHROW	EGLL	10.9	-28%	29.3	37.3%
12	LAS PALMAS	GCLP	10.9	-55%	27.7	39.3%
13	ATHINAI E. VENIZELOS	LGAV	10.2	-7%	26.1	38.9%
14	DUBLIN	EIDW	10.0	-31%	28.5	35.2%
15	FERIHEGY-BUDAPEST	LHBP	10.0	-32%	28.1	35.6%
16	BIRMINGHAM	EGBB	10.0	-38%	32.6	30.5%
17	SCHIPHOL AMSTERDAM	EHAM	9.8	-22%	34.4	28.6%
18	MILANO MALPENSA	LIMC	9.7	-42%	28.4	34.2%
19	OSLO/GARDERMOEN	ENGM	9.7	-1%	26.2	37.0%
20	KOELN-BONN	EDDK	9.5	-34%	27.0	35.4%

Figure 15. Main delay causes at the top 10 affected arrival airports



When analysing the Top 20 affected arrival airports, Madrid experienced high shares in reactionary delays, with flights suffering from a build up of delay during the day impacting later flights. Istanbul ranked 3<sup>rd</sup>, following airport capacity problems. Weather delays in Frankfurt are prominent in Figure 15, with this airport being affected by weather delays throughout 2011.

Figure 16. Link between CODA Causes and IATA delay codes.

CODA CAUSE		Description	IATA Code
Primary Delay Causes	Airline	Passenger and Baggage	11-19
		Cargo and Mail	21-29
		Aircraft and Ramp Handling	31-39
		Technical and Aircraft Equipment	41-49
		Damage to Aircraft & EDP/Automated Equipment Failure	51-58
		Flight Operations and Crewing	61-69
		Other Airline Related Causes	Others
	Airport	ATFM due to Restriction at Departure Airport	83
		Airport Facilities	87
		Restrictions at Airport of Destination	88
		Restrictions at Airport of Departure	89
	En-Route	ATFM due to ATC En-Route Demand / Capacity	81
		ATFM due to ATC Staff / Equipment En-Route	82
	Governmental	Security and Immigration	85-86
	Weather	Weather (other than ATFM)	71-79
		ATFM due to Weather at Destination	84
	Miscellaneous	Miscellaneous	98-99
	Reactionary	Late Arrival of Aircraft, Crew, Passengers or Load	91-96

## 5. Summary of Significant Events in 2011.

January:

Low visibility and winds affected: Amsterdam, Frankfurt, Heathrow, Madrid, Munich, Vienna and Zurich.

Istanbul Ataturk: Airport capacity related delays.

Moscow Domodovo: Bomb attack in arrivals hall on 24<sup>th</sup> January 2011

Ski traffic increases particularly weekends (Saturdays).

Mount Etna volcanic eruption 11<sup>th</sup> to 14<sup>th</sup> January Catania airport closure

28/29/30<sup>th</sup> January Davos World Economic Forum.

February:

Frankfurt, London Heathrow and Amsterdam: Affected by low visibility and winds.

Istanbul Ataturk: Airport capacity related delays.

Las Palmas works in progress.

London Heathrow 13<sup>th</sup> February: Temporary runway closure due to aircraft emergency landing.

Stockholm Arlanda: Affected by snow

March:

Wind and low visibility Canary Islands, London airports, Frankfurt, Oslo.

ATC capacity and staffing Madrid ACC and Barajas.

Political unrest in Tunisia and Egypt: Minimal effect on delays.

Istanbul Ataturk: Airport capacity delays.

Libyan airspace closed: Minimal effect on delays, Malta ACC modified route structure, military activity.

April:

ATC capacity delays in Spain. (Madrid, Canary Islands and Barcelona).

Oslo Gardermoen new ATC implementation system.

Thunderstorm activity, wind and low visibility affected Gran Canaria, Frankfurt, Barcelona, Madrid and Zurich.

Istanbul Ataturk aerodrome capacity delays.

May:

ATC capacity delays in Spain. (Madrid, Barcelona).

Industrial action: Greece (Athens) 11<sup>th</sup> and France 31<sup>st</sup> May.

Thunderstorm activity, wind and low visibility affected Frankfurt, Madrid, London Heathrow, Munich, Oslo and Geneva.

Istanbul Ataturk aerodrome capacity delays

June:

ATC capacity delays in Spain. (Madrid, Barcelona).

Thunderstorm activity, high winds and low visibility Frankfurt, Madrid, London Heathrow, Munich.

Frankfurt: New control tower implementation (13<sup>th</sup> & 14<sup>th</sup> June)

Industrial action: Greece (28 & 29<sup>th</sup> June)

July:

Heathrow, Frankfurt, Munich and Amsterdam were affected by thunderstorms, high winds and low visibility.

Airport capacity related delays at Palma de Mallorca, Istanbul.

Helsinki runway resurfacing in progress.

ATC capacity and staffing delays Madrid, Barcelona, Canarias ACC, Nicosia, Athens, Warsaw and Makedonia.

August:

Amsterdam, Frankfurt, Heathrow, Paris and Zurich were affected by thunderstorms, high winds and low visibility.

ATC capacity and staffing delays Athens, Madrid, Barcelona, Canarias ACC, Langen, Marseille, Nicosia, Athens, Warsaw and Makedonia.

Airport capacity related delays at Palma de Mallorca, Istanbul and Kos.



**September:**

ATC industrial action: Italy (6<sup>th</sup> Sept) Greece (22<sup>nd</sup> Sept)

Amsterdam & Heathrow: Thunderstorms, high winds & low visibility.

Frankfurt: Weather and ATC capacity delays.

Madrid and Athens: Airport ATC capacity delays.

**October:**

ATC Industrial action: Greece 4<sup>th</sup> & 5<sup>th</sup> October.

Athens, Amsterdam, Antalya, Heathrow, Faro, Istanbul, Madrid & Zurich: Airport capacity delays.

Frankfurt: Weather (strong winds, low cloud ceiling and occasional thunderstorms) ATC capacity delays were also recorded.

**November:**

Warsaw airport: Aircraft incident airport closure 1<sup>st</sup> and 2<sup>nd</sup> November.

ATC Industrial action: Portugal 23<sup>rd</sup> and 24<sup>th</sup> November.

Low visibility and strong winds: Amsterdam, Frankfurt, Heathrow, Munich.

Weather delays affected airports: Munich, Vienna, Amsterdam, Milan, Zurich, Berlin Tegel.

Implementation of new noise abatement procedures in Paris ACC.

**December:**

Cold weather related delays (de-icing) experienced in London Heathrow, Frankfurt, Munich (snow), Geneva, Manchester, Oslo, Madrid and Istanbul.

Istanbul Ataturk: Single runway operations and snow reduced capacity.

Stockholm: Power failure.

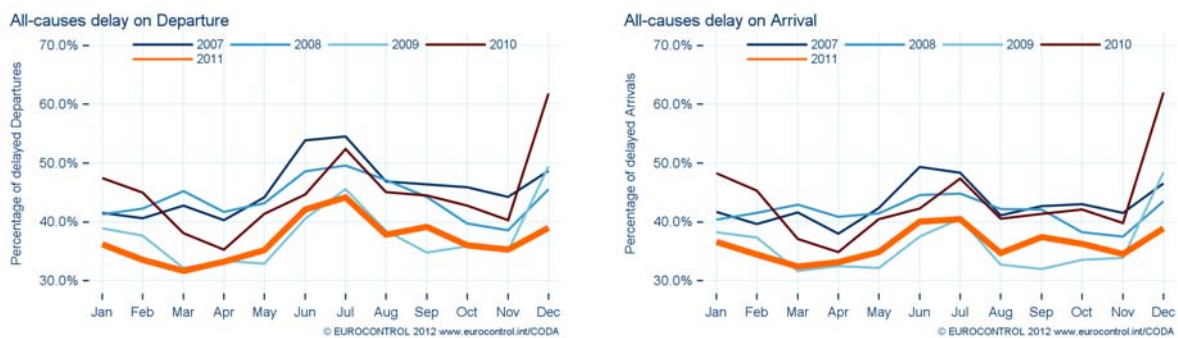
## A. Year-on-Year Trends in All-Causes Delay Indicators

This annex summarises the year-on-year trends in the main indicators of delay from all-causes. A flight is considered delayed from 5 minutes. This is based on CODA data covering 69% of commercial flights in the ECAC region in 2011.

**Figure 17. Average all-causes delay/delayed flight (departures left, arrivals right)**



**Figure 18. Percentage of flights delayed for all-causes delay (departures left, arrivals right)**



**Figure 19. Percentage of flights delayed > 15mins for all-Causes (departures left, arrivals right)**



## B. Busiest Airport pairs

Figure 20. Busiest airport pairs for flights in 2011

Rank	Departure Airport	Arrival Airport	Flights/Day 2011	Change since 2010 (%)
1	MADRID BARAJAS	BARCELONA	76.0	-1%
2	ISTANBUL-ATATURK	IZMIR-ADNAN-MENDERES	52.9	13%
3	TOULOUSE BLAGNAC	PARIS ORLY	50.8	3%
4	BERGEN/FLESLAND	OSLO/GARDERMOEN	49.0	6%
5	ROME FIUMICINO	MILANO LINATE	47.4	-5%
6	PALMA DE MALLORCA	BARCELONA	47.3	1%
7	TRONDHEIM/VAERNES	OSLO/GARDERMOEN	46.7	8%
8	NICE	PARIS ORLY	45.1	7%
9	LAS PALMAS	TENERIFE NORTE	44.7	8%
10	STAVANGER/SOLA	OSLO/GARDERMOEN	42.7	7%
11	GUERNSEY	JERSEY	42.4	3%
12	ISTANBUL-ATATURK	ANTALYA	41.7	20%
13	MADRID BARAJAS	PALMA DE MALLORCA	40.6	-2%
14	ISTANBUL-ATATURK	ANKARA-ESENBAGA	40.5	13%
15	DUESSELDORF	MUNICH	39.4	0%
16	MUNICH	TEGEL-BERLIN	39.0	5%
17	HAMBURG	MUNICH	38.1	3%
18	FRANKFURT MAIN	TEGEL-BERLIN	38.0	10%
19	CATANIA FONTANAROSSA	ROME FIUMICINO	37.9	3%
20	COPENHAGEN KASTRUP	AALBORG	37.7	1%

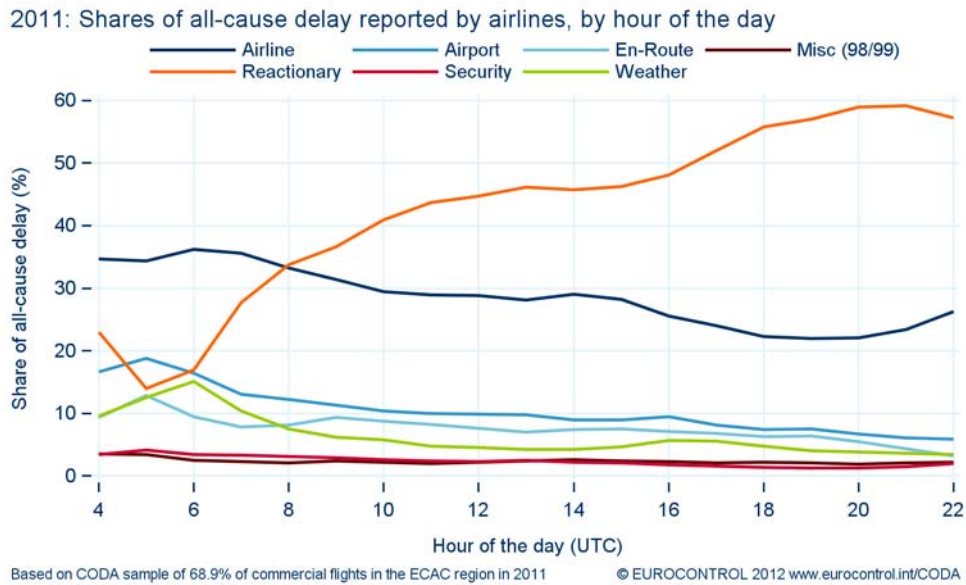
European flight growth in 2011 was 3.1% in the EUROCONTROL Statistical Reference Area (ESRA) in 2011 than in 2010.

2011 saw increases in the numbers of flights from Istanbul to Izmir, Antalya and Ankara of 13%, 20% and 13% respectively. Routes in the Norwegian domestic market also saw changes in their numbers of flights with Bergen, Trondheim and Stavanger to Oslo experiencing increases of 6%, 8% and 7% respectively.

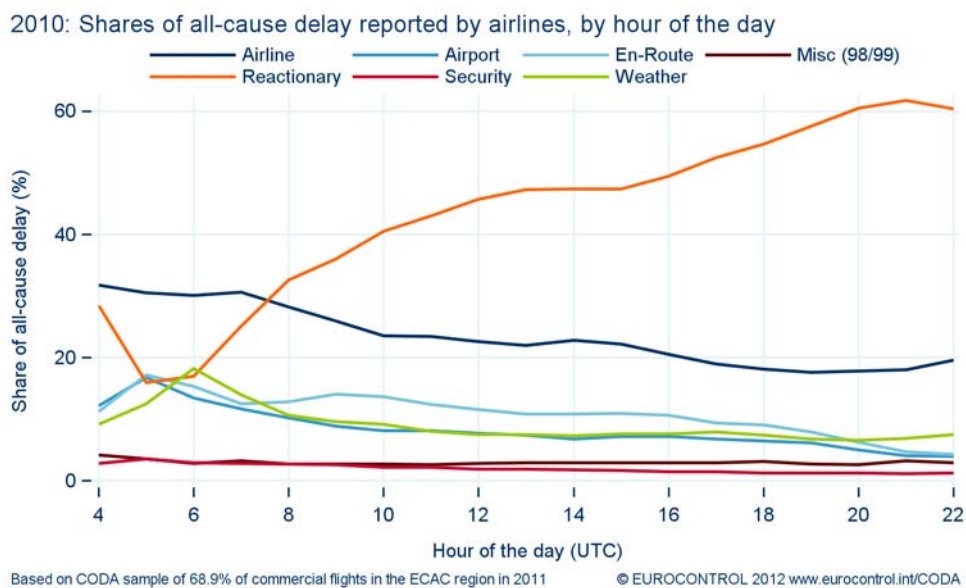
### C. All-causes departure delay by hour

This annex summarises the all-cause delay by hour of the day and major causes.

**Figure 21. All-causes departure delay by hour of the day 2011.**



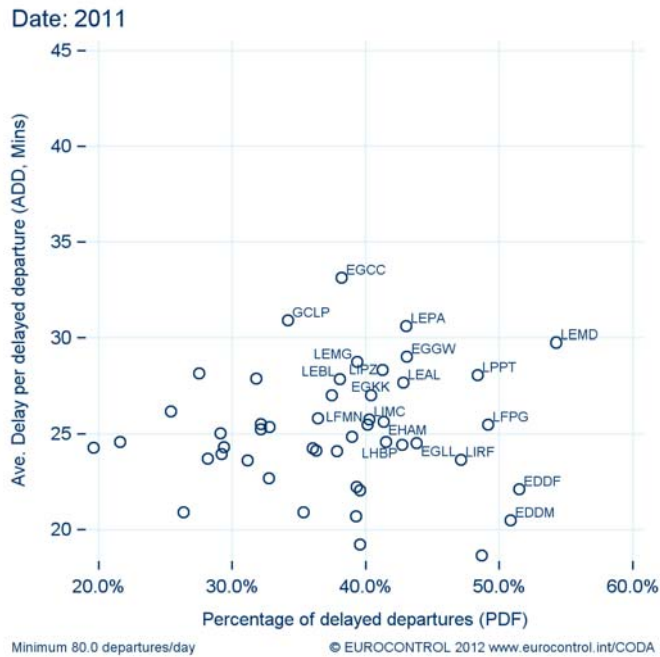
**Figure 22. All-causes departure delay by hour of the day 2010.**



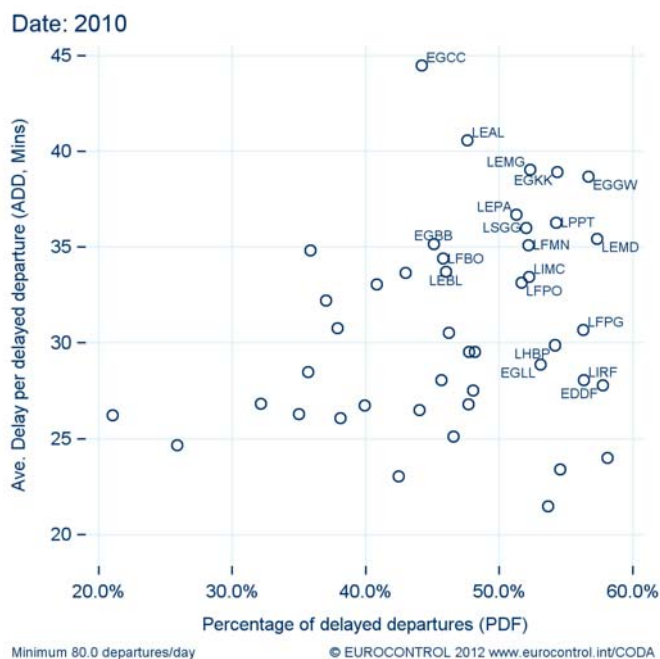
## D. Average Delay per Delayed Flight & Percentage of Flights Delayed at Departure Airports

For airports with an average of more than 80 departures a day, this annex summarises the average delay per delayed flight (ADD) on departure and percentage of flights delayed (PDF) on departure in the month.

**Figure 23. ADD vs. PDF 2011 (2011 top 20 airports for average delay/flight are labelled)**



**Figure 24. ADD vs. PDF 2010 (2010 top 20 airports for average delay/flight are labelled)**



## E. Glossary of Terms and Abbreviations

### Delay Parameter Abbreviations

<b>TTF</b>	Total Flights
<b>TRF</b>	Total Regulated Flights
<b>TDF</b>	Total Delayed Flights
<b>PRF</b>	Percentage of Regulated Flights
<b>PDF</b>	Percentage of Delayed Flights
<b>TDM</b>	Total Delay in Minutes
<b>ADM</b>	Average Delay per Movement
<b>ADR</b>	Average Delay per Regulated Flight
<b>ADD</b>	Average Delay per Delayed Flight

### Glossary of Terms

<b>ACC</b>	Area Control Centre
<b>AEA</b>	Association of European Airlines
<b>ATFM</b>	Air Traffic Flow Management (used by IATA in the Standard IATA Delay Codes)
<b>ATFCM</b>	Air Traffic Flow and Capacity Management (used by NM as a more comprehensive reference to the function)
<b>ATS</b>	Air Traffic Services
<b>CODA</b>	Central Office for Delay Analysis
<b>DNM</b>	Directorate Network Management
<b>NMOC</b>	NM Operations Centre (Network Manager)
<b>ECAC</b>	European Civil Aviation Conference
<b>FDPS</b>	Flight Data Processing System
<b>FMP</b>	Flow Management Position
<b>IACA</b>	International Air Carrier Association
<b>IATA</b>	International Air Transport Association



## F. Standard IATA Delay Codes

### Others

00-05	AIRLINE INTERNAL CODES
06 (OA)	NO GATE/STAND AVAILABILITY DUE TO OWN AIRLINE ACTIVITY
09 (SG)	SCHEDULED GROUND TIME LESS THAN DECLARED MINIMUM GROUND TIME

### Passenger and Baggage

11 (PD)	LATE CHECK-IN, acceptance after deadline
12 (PL)	LATE CHECK-IN, congestions in check-in area
13 (PE)	CHECK-IN ERROR, passenger and baggage
14 (PO)	OVERSALES, booking errors
15 (PH)	BOARDING, discrepancies and paging, missing checked-in passenger
16 (PS)	COMMERCIAL PUBLICITY/PASSENGER CONVENIENCE, VIP, press, ground meals and missing personal items
17 (PC)	CATERING ORDER, late or incorrect order given to supplier
18 (PB)	BAGGAGE PROCESSING, sorting etc.
19 (PW)	REDUCED MOBILITY, boarding / deboarding of passengers with reduced mobility.

### Cargo and Mail

21 (CD)	DOCUMENTATION, errors etc.
22 (CP)	LATE POSITIONING
23 (CC)	LATE ACCEPTANCE
24 (CI)	INADEQUATE PACKING
25 (CO)	OVERSALES, booking errors
26 (CU)	LATE PREPARATION IN WAREHOUSE
27 (CE)	DOCUMENTATION, PACKING etc ( <i>Mail Only</i> )
28 (CL)	LATE POSITIONING ( <i>Mail Only</i> )
29 (CA)	LATE ACCEPTANCE ( <i>Mail Only</i> )

### Aircraft and Ramp Handling

31 (GD)	AIRCRAFT DOCUMENTATION LATE/INACCURATE, weight and balance, general declaration, pax manifest, etc.
32 (GL)	LOADING/UNLOADING, bulky, special load, cabin load, lack of loading staff
33 (GE)	LOADING EQUIPMENT, lack of or breakdown, e.g. container pallet loader, lack of staff
34 (GS)	SERVICING EQUIPMENT, lack of or breakdown, lack of staff, e.g. steps
35 (GC)	AIRCRAFT CLEANING
36 (GF)	FUELLING/DEFUELLING, fuel supplier
37 (GB)	CATERING, late delivery or loading
38 (GU)	ULD, lack of or serviceability
39 (GT)	TECHNICAL EQUIPMENT, lack of or breakdown, lack of staff, e.g. pushback

### Technical and Aircraft Equipment

41 (TD)	AIRCRAFT DEFECTS.
42 (TM)	SCHEDULED MAINTENANCE, late release.
43 (TN)	NON-SCHEDULED MAINTENANCE, special checks and/or additional works beyond normal maintenance schedule.
44 (TS)	SPARES AND MAINTENANCE EQUIPMENT, lack of or breakdown.
45 (TA)	AOG SPARES, to be carried to another station.
46 (TC)	AIRCRAFT CHANGE, for technical reasons.
47 (TL)	STAND-BY AIRCRAFT, lack of planned stand-by aircraft for technical reasons.
48 (TV)	SCHEDULED CABIN CONFIGURATION/VERSION ADJUSTMENTS.

### Damage to Aircraft & EDP/Automated Equipment Failure

51 (DF)	DAMAGE DURING FLIGHT OPERATIONS, bird or lightning strike, turbulence, heavy or overweight landing, collision during taxiing
52 (DG)	DAMAGE DURING GROUND OPERATIONS, collisions (other than during taxiing), loading/off-loading damage, contamination, towing, extreme weather conditions
55 (ED)	DEPARTURE CONTROL
56 (EC)	CARGO PREPARATION/DOCUMENTATION
57 (EF)	FLIGHT PLANS
58 (EO)	OTHER AUTOMATED SYSTEM

## Flight Operations and Crewing

- 61 (FP) FLIGHT PLAN, late completion or change of, flight documentation
- 62 (FF) OPERATIONAL REQUIREMENTS, fuel, load alteration
- 63 (FT) LATE CREW BOARDING OR DEPARTURE PROCEDURES, other than connection and standby (flight deck or entire crew)
- 64 (FS) FLIGHT DECK CREW SHORTAGE, sickness, awaiting standby, flight time limitations, crew meals, valid visa, health documents, etc.
- 65 (FR) FLIGHT DECK CREW SPECIAL REQUEST, not within operational requirements
- 66 (FL) LATE CABIN CREW BOARDING OR DEPARTURE PROCEDURES, other than connection and standby
- 67 (FC) CABIN CREW SHORTAGE, sickness, awaiting standby, flight time limitations, crew meals, valid visa, health documents, etc.
- 68 (FA) CABIN CREW ERROR OR SPECIAL REQUEST, not within operational requirements
- 69 (FB) CAPTAIN REQUEST FOR SECURITY CHECK, extraordinary

## Weather

- 71 (WO) DEPARTURE STATION
- 72 (WT) DESTINATION STATION
- 73 (WR) EN ROUTE OR ALTERNATE
- 75 (WI) DE-ICING OF AIRCRAFT, removal of ice and/or snow, frost prevention excluding unserviceability of equipment
- 76 (WS) REMOVAL OF SNOW, ICE, WATER AND SAND FROM AIRPORT
- 77 (WG) GROUND HANDLING IMPAIRED BY ADVERSE WEATHER CONDITIONS

## ATFM + AIRPORT + GOVERNMENTAL AUTHORITIES

### AIR TRAFFIC FLOW MANAGEMENT RESTRICTIONS

- 81 (AT) ATFM due to ATC EN-ROUTE DEMAND/CAPACITY, standard demand/capacity problems
- 82 (AX) ATFM due to ATC STAFF/EQUIPMENT EN-ROUTE, reduced capacity caused by industrial action or staff shortage, equipment failure, military exercise or extraordinary demand due to capacity reduction in neighbouring area
- 83 (AE) ATFM due to RESTRICTION AT DESTINATION AIRPORT, airport and/or runway closed due to obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights
- 84 (AW) ATFM due to WEATHER AT DESTINATION

### AIRPORT AND GOVERNMENTAL AUTHORITIES

- 85 (AS) MANDATORY SECURITY
- 86 (AG) IMMIGRATION, CUSTOMS, HEALTH
- 87 (AF) AIRPORT FACILITIES, parking stands, ramp congestion, lighting, buildings, gate limitations, etc.
- 88 (AD) RESTRICTIONS AT AIRPORT OF DESTINATION, airport and/or runway closed due to obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights
- 89 (AM) RESTRICTIONS AT AIRPORT OF DEPARTURE WITH OR WITHOUT ATFM RESTRICTIONS, including Air Traffic Services, start-up and pushback, airport and/or runway closed due to obstruction or weather<sup>3</sup>, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights

## Reactionary

- 91 (RL) LOAD CONNECTION, awaiting load from another flight
- 92 (RT) THROUGH CHECK-IN ERROR, passenger and baggage
- 93 (RA) AIRCRAFT ROTATION, late arrival of aircraft from another flight or previous sector
- 94 (RS) CABIN CREW ROTATION, awaiting cabin crew from another flight
- 95 (RC) CREW ROTATION, awaiting crew from another flight (flight deck or entire crew)
- 96 (RO) OPERATIONS CONTROL, re-routing, diversion, consolidation, aircraft change for reasons other than technical

## Miscellaneous

- 97 (MI) INDUSTRIAL ACTION WITH OWN AIRLINE
- 98 (MO) INDUSTRIAL ACTION OUTSIDE OWN AIRLINE, excluding ATS
- 99 (MX) OTHER REASON, not matching any code above

*SOURCE: IATA – Airport Handling Manual (730 & 731)*

<sup>3</sup> Restriction due to weather in case of ATFM regulation only, else refer to code 71 (WO)

# G. Correlation between IATA Delay Codes and the CFMU Reasons for Regulation

CORRELATION BETWEEN IATA DELAY CODES AND THE CFMU REASONS FOR REGULATION			
Reason for Regulation	CFMU		IATA
	CODE	Regulation Location	Example
ATC capacity	C	D	Demand exceeds the capacity
	C	E	
	C	A	
ATC Ind action	I	D	Controller's strike
	I	E	
	I	A	
ATC Routings	R	E	Phasing in of new procedures
ATC Staffing	S	D	Illness, traffic delays on the highway
	S	E	
	S	A	
ATC equipment	T	D	Radar failure, RTF failure
	T	E	
	T	A	
Accident / Incident	A	D	RWY23 closed due to accident
	A	A	
Aerodrome capacity	G	D	Lack of parking; taxiway closure; areas closed for maintenance;
De-icing	G	A	demand exceeds the declared airport capacity
	D	D	
Equipment non-ATC	E	D	Runway or taxiway lighting failure
	E	A	
Ind Action non-ATC	N	D	Firemen's strike
	N	A	
Military activity	M	D	Brilliant Invader; ODAX
	M	E	
	M	A	
Special Event	P	D	European football cup; Heads of Government meetings
	P	A	
Weather	W	D	Thunderstorm; low visibility; X winds
	W	E	
	W	A	
Environmental issues	V	D	Noise
	V	A	
Other	O	D	Security alert
	O	E	
	O	A	

## H. 2011 CODA coverage of commercial flights in the ECAC region

