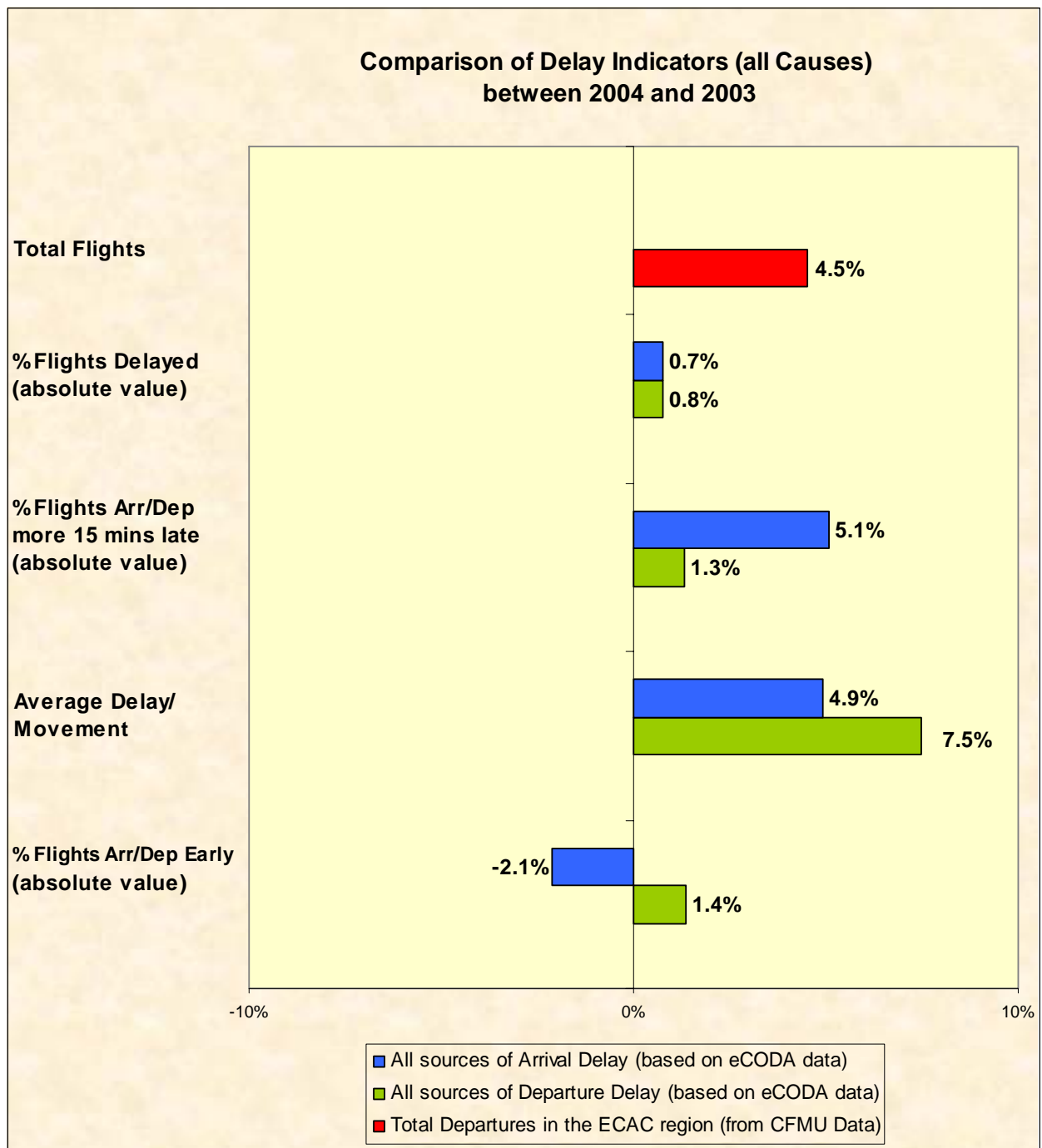


Delays to Air Transport in Europe Annual Report 2004



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FOREWORD

This report represents an overview of the delay situation in the European Civil Aviation Conference Area. It is based on delay data supplied by the CFMU and airline data from eCODA, and has been prepared by the Central Office for Delay Analysis (CODA), a service of the European Air Traffic Management Programme (EATMP).

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 2.

In this report the definition of the CFMU ATFM departure delay is based on the difference between the scheduled off-block time and the calculated off-block time, taking into account slot time and estimated taxi time. Airline data from eCODA is based on real recorded delays.

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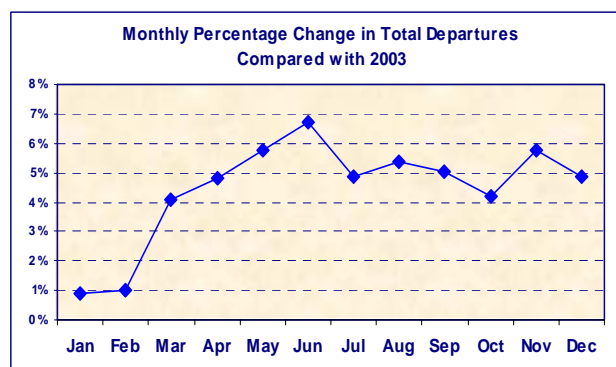
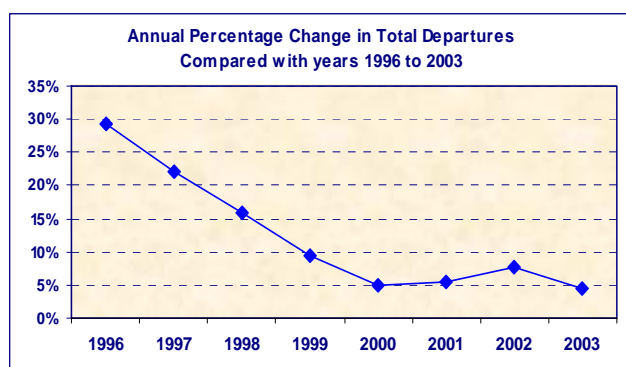
1. SUMMARY OVERVIEW

Traffic growth in 2004 was the highest since CFMU data became available in 1996, with rises in each month of the year, to reach an annual figure of almost 9 million flights; an increase of 4.5% on 2003¹. The Average Delay per Movement, for departures, for all causes of delay, was 10 minutes, an increase of 7.5% on 2003. 40.4% of flights were delayed on departure, with 17.7% delayed by more than fifteen minutes. On the positive side, 13% of flights departed before their scheduled time. The Average Delay per Movement, for arrivals, for all causes of delay, was 10.4 minutes, an increase of 4.9% on last year. 39% of flights were delayed on arrival, with 18.5% delayed by more than fifteen minutes. This was offset by 34% of flights landing before their scheduled time.

Turning to the ATFM delays, despite the growth in traffic, the Average Delay per Movement in 2004 remained at an all-time low since the CFMU began operating, decreasing by 3.7% to 1.7 minutes. Total ATFM delay increased by 0.7%.

TRAFFIC SITUATION FOR 2004²

Departures throughout the ECAC region increased by four and a half percent when compared with 2003 and were up eight percent on 2002, six percent on 2001 and five percent on the 2000 traffic level. September 10th, 2004 was the busiest traffic day, with almost twenty nine thousand and five hundred flights.



The key factors in the increased growth in 2004 were the improved economic situation in much of the EU and the recovery of air traffic after the Iraq war and the SARS crisis of 2003. The arrival of 10 new EU Member States with newly deregulated air markets also contributed.

¹ 2004 being a leap year, in order to have meaningful comparisons with 2003, figures adjusted to compensate for the extra day in February were used in this report.

² The analysis was based on the CFMU database, which contains details on all IFR flights in the ECAC region.

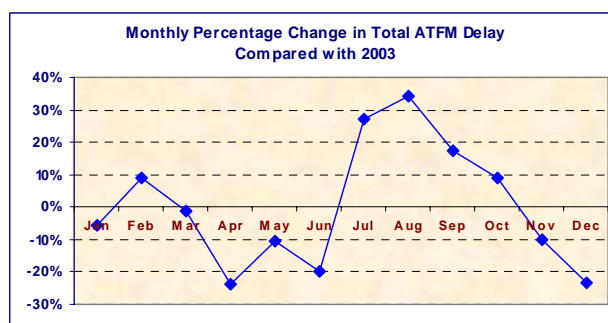
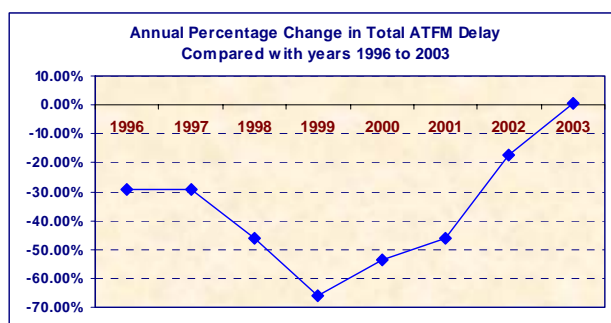
Domestic flights, which accounted for thirty seven percent of the traffic in 2004, increased by just over one percent and International traffic increased by seven percent. Ninety five percent of the busier countries had an increase in international traffic, with the largest real increases in Germany, the United Kingdom and Spain. At the other end of the scale, Cyprus and the Former Yugoslav Republic of Macedonia were the only two countries with a decrease in traffic levels. Turning to the domestic traffic, the United Kingdom, Turkey, Spain and Greece had the largest rises; France, on the other hand, had the largest decrease and was followed by Italy, Germany and Switzerland.

With the overall increase in traffic, eighty two percent of the busier airports (*those with more than thirty thousand flights per year*) had increases in traffic levels, with the largest real increases (up by almost fifteen thousand flights) at Prague, Munich, Vienna, Istanbul, Budapest, Athens and Antalya. At the other end of the scale, Nice, Naples, Birmingham and Basle-Mulhouse had the largest real decreases. Traffic to New York was up seven percent on 2003 but still down fourteen percent on the 2000 levels.

Sixty percent of the city pairs (*those with more than three thousand flights per year*) had an increase in traffic, with twenty three percent having a double figure increase. Although down two percent on 2003, Barcelona-Madrid was the busiest city pair, with over twenty two thousand flights in each direction, and was followed by Milan/Linate-Rome-Fiumicino and Barcelona-Palma de Mallorca. Those three city pairs were the only ones with over ten thousand flights in each direction. Compared with 2003, the largest real increases in traffic were between Jersey-Guernsey (due to a new airline operating on this route), Gotenborg-Stockholm and Las Palmas-Tenerife Norte. On the other hand, the largest real decreases were between Cologne/Bonn-Berlin and Rome/Fiumicino-Milan/Malpensa.

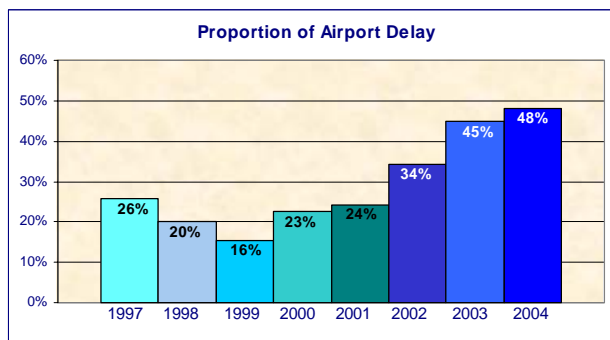
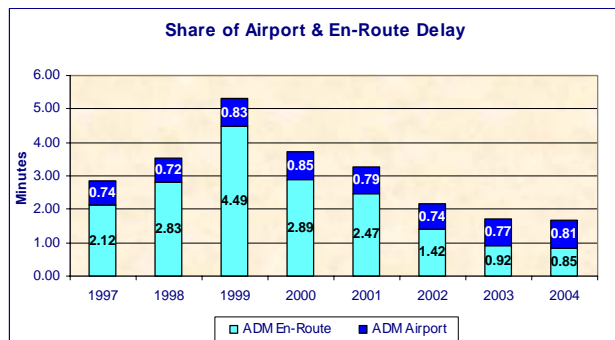
ATFM DELAY SITUATION FOR 2004

Delays due solely to ATFM measures increased by less than one percent when compared with 2003.



The Average Delay per Movement had a small decrease, falling by four percent to just over one and a half minutes. Delayed flights increased by one and a half percent, with the percentage of flights delayed being similar to that of 2003 at just over eight and a half percent. Flights delayed by more than fifteen minutes increased by almost two percent whereas flights delayed by more than sixty minutes decreased by four percent. Lack of ATC Capacity accounted for forty two percent of the delay and was followed by Weather (twenty six percent), Airport Facilities (fifteen percent), ATC Equipment (five and a half percent) and ATC Staffing (five percent).

Forty eight percent of the ATFM delay in the ECAC region was due to regulations put in place to protect airports.

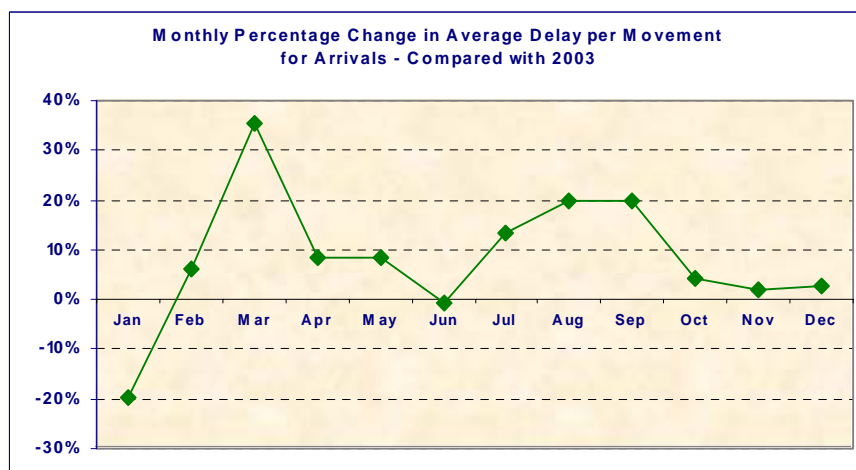
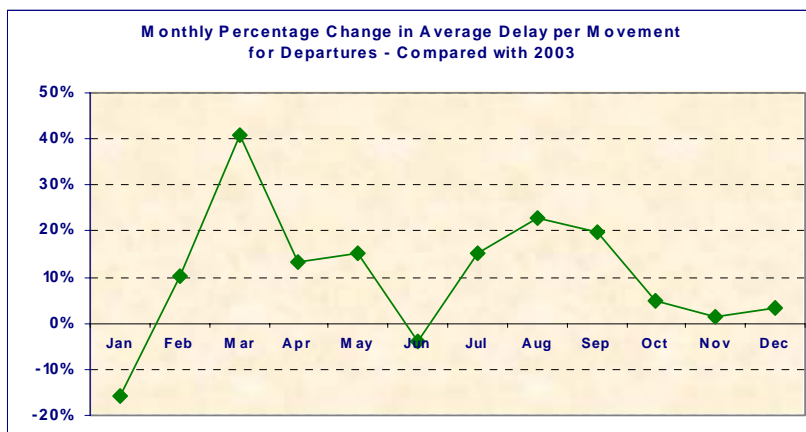


Compared with 2003, the share of the delay due to these restrictions increased by two percentage points and the actual amount of the delay rose by nine percent. Weather accounted for forty eight percent of airport-related ATFM delay, followed by Airport Capacity with thirty two percent and ATC Capacity with eleven percent. The main real increases were in the Weather, ATC Capacity and Airport Capacity categories whereas there were significant decreases in the ATC Staffing and Other categories. The airports with the largest levels of delay due to this type of restrictions were Frankfurt, Paris, London and Zurich. Compared with 2003, the largest real rise was at Vienna followed by Zurich, Madrid, Prague and Brussels whereas there were falls at Frankfurt, Paris and Roma.

Based on the locations of the most penalising regulations, traffic (including overflights) using the airspace of France, the United Kingdom, Germany, Italy and Switzerland had the largest share of the delay and accounted for sixty one percent of the total ATFM delay in the ECAC region. Compared with last year, Austria, the Czech Republic and Spain had the largest increases, whereas France, the United Kingdom, Germany and Italy had the largest decreases.

ALL CAUSES DELAY SITUATION FOR 2004³ (eCODA)

The Average Delay per Movement for departures, for all causes of delay, was ten minutes, an increase of seven and a half percent on 2003. Forty percent of flights had a departure delay, with eighteen percent delayed by more than fifteen minutes. On the other hand, thirteen percent of flights departed before their scheduled time.



The Average Delay per Movement for arrival traffic, for all causes of delay increased by five percent to just over ten minutes. Thirty nine percent of flights were delayed on arrival, with eighteen and a half percent delayed by more than fifteen minutes. To offset these increases, thirty four percent of flights landed before their scheduled time.

Forty two percent of the busier departure airports (*those with at least fifteen thousand flights per year*) had an Average Delay per Movement of more than ten minutes. London/Heathrow was the most affected airport with an average delay of fourteen minutes and was followed by Belfast, Edinburgh, Paris/Charles de Gaulle and Rome/Fiumicino. Compared with 2003, thirty eight percent of the busier airports had an increase in average delay of more than one minute, with the largest rises at London/Luton (up four minutes), Manchester, Warsaw, Edinburgh, Alicante, Vienna and Madrid. These increases were balanced by decreases at Rome/Fiumicino (down three minutes), Prague, Naples, Milan/Linate and Zurich. In all, fifteen percent of the airports had a decrease in average delay of more than one minute. All the airports had a proportion of their traffic departing before their scheduled time ranging from four percent at Copenhagen and thirty one percent at Alicante.

Turning to the busier airports as destination (*again, those with at least fifteen thousand flights per year*) shows that traffic arriving at London/Heathrow had the largest Average Delay per Movement, with fifteen minutes and was followed by Manchester, Prague, Turin, London/Gatwick, Edinburgh and Alicante. Compared with 2003, forty four percent of the busier destination airports had an increase in average delay, with thirty one percent having a rise of more than one minute. The largest rises were at Manchester (up three minutes),

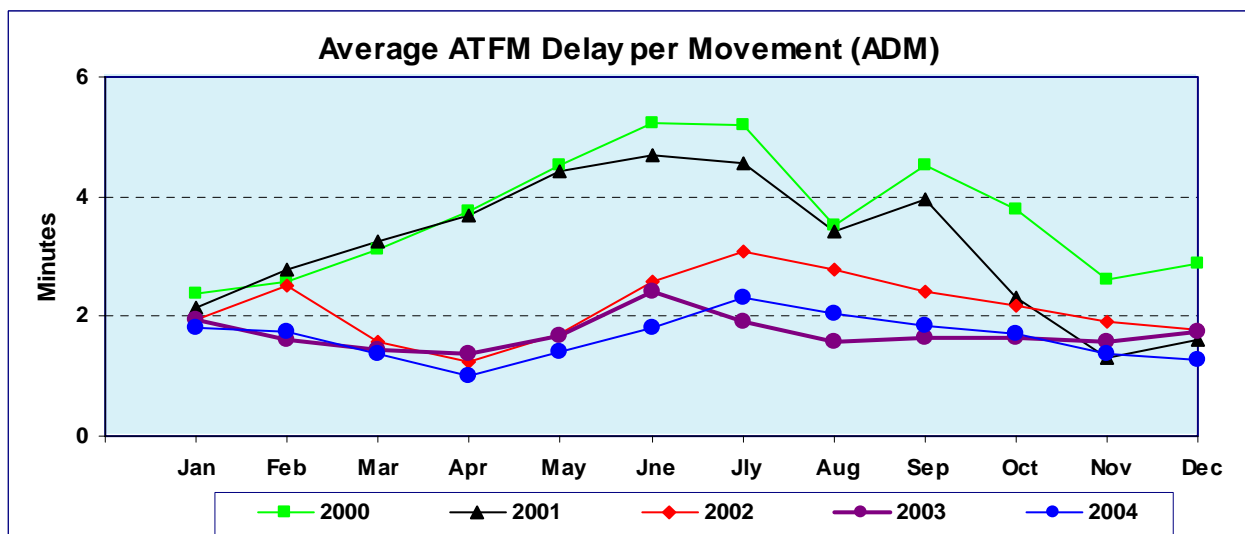
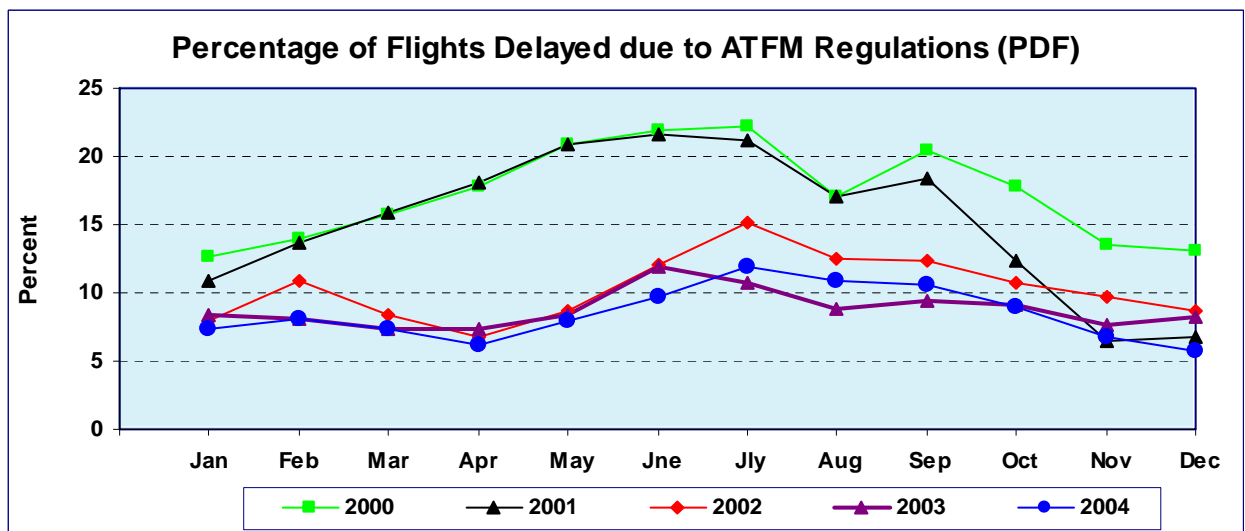
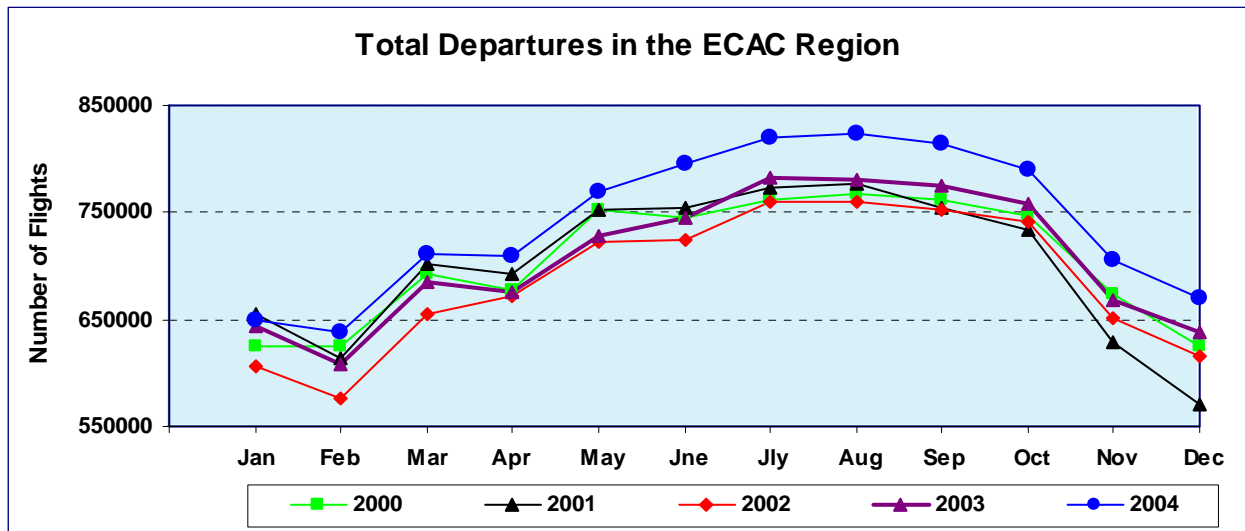
³ The analysis was based on airline data from eCODA, which for 2004 contains details on **41.5%** of IFR GAT flights in Europe.

London/Heathrow, Oslo, London/Gatwick, Stockholm, Edinburgh and Brussels. These increases were offset by decreases at London/Stansted (down eight minutes), Prague, London/Luton, Venice and Rome/Fiumicino. Thirty three percent of the busier destination airports had a decrease in average delay of more than one minute. As with departures, all the airports had a proportion of their flights arriving early, with Belfast having the largest with forty seven percent and Amsterdam the lowest with fifteen percent.

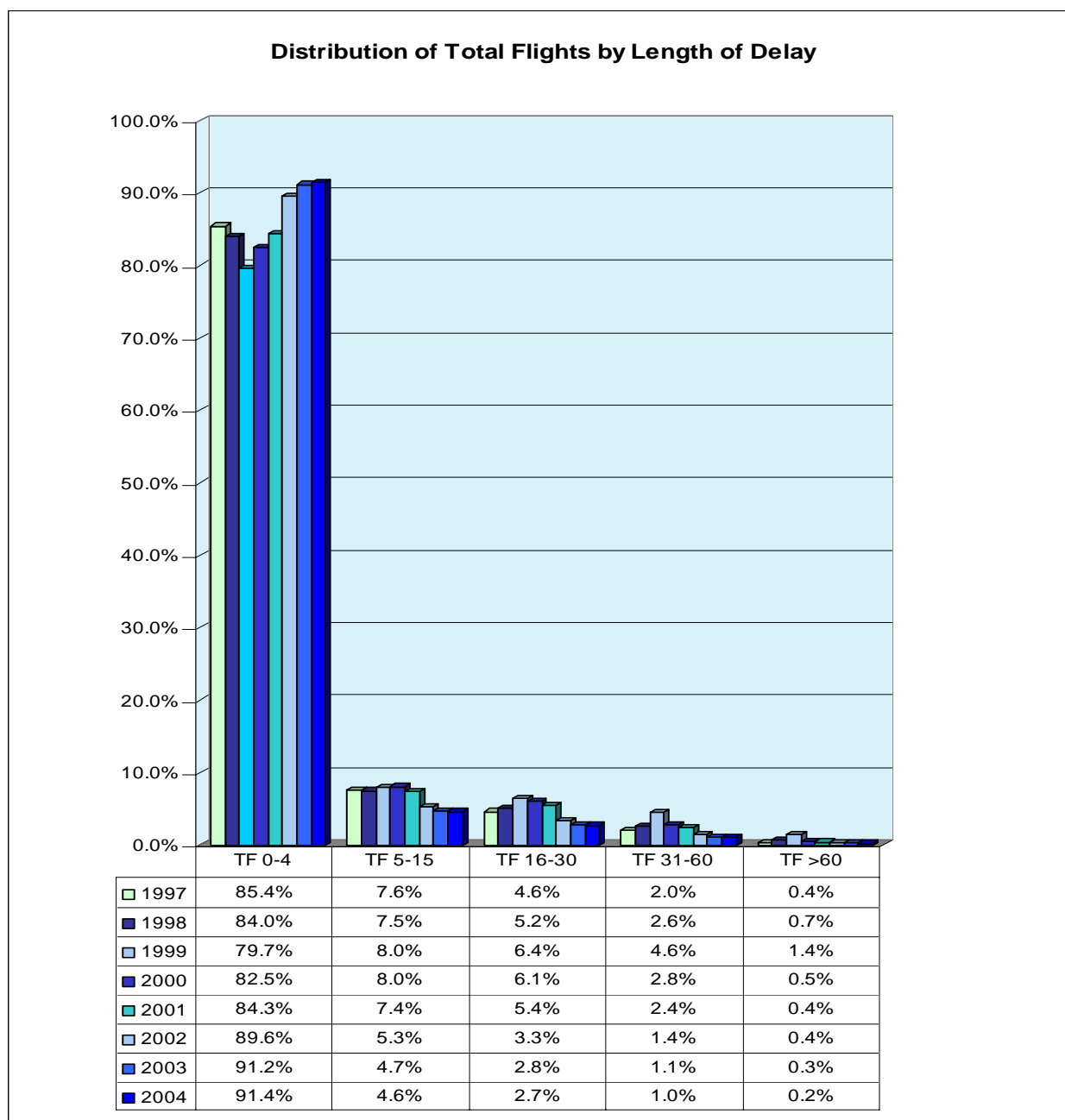
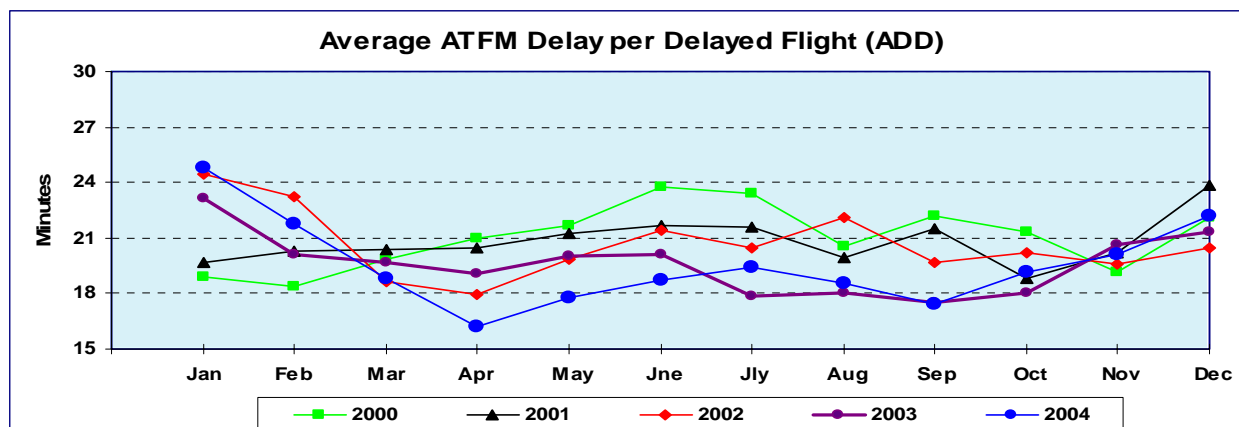
The most affected city pairs (*those with more than two thousand five hundred flights per year*) were Rome/Fiumicino-London/Heathrow with an Average Delay per Movement of twenty two minutes, followed by Madrid-London/Heathrow, Milan/Malpensa-London/Heathrow, London/Heathrow-Vienna, Vienna-London/Heathrow, London/Heathrow-Rome and New York-London/Heathrow. Compared with 2003, sixty three percent of the busier pairs had an increase in average delay, with forty one percent having an increase of one minute or more. The largest increase was between London/Heathrow-Rome/Fiumicino (up five minutes), Rome/Fiumicino-London/Heathrow and Vienna-London/Heathrow. At the other end of the scale, a quarter of the city pairs had a decrease in average delay of one minute or more, with the largest falls between Rome/Fiumicino-Cagliari (down twenty three minutes), Milan/Malpensa-Rome/Fiumicino, Cagliari-Rome/Fiumicino and Rome/Fiumicino-Milan/Malpensa.

An analysis of the delay causes and categories, grouped by IATA codes shows that Technical & Aircraft Equipment was the most penalising direct delay category in 2004, with nine percent share of the delay, followed by Restriction at Departure Airport (seven percent), Aircraft & Ramp Handling (six and a half percent) and ATFM En-Route Demand Capacity (six percent). Compared with 2003, the Cargo & Mail, Others, Miscellaneous, Aircraft & Ramp Handling categories had the largest increases whereas the Weather, Passenger & Baggage and Flight Operations & Crewing categories had the largest decreases (only those categories with more than one percent of the delay were taken into account). The ATFM En-Route Demand Capacity category decreased by fifteen percent on 2003.

2. Year on Year Trends in Main Indicators (ATFM delay situation)

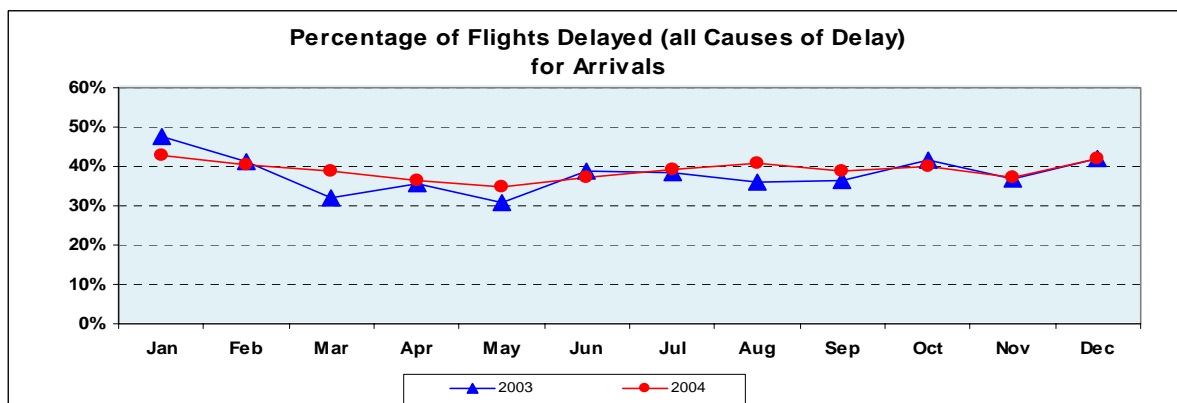
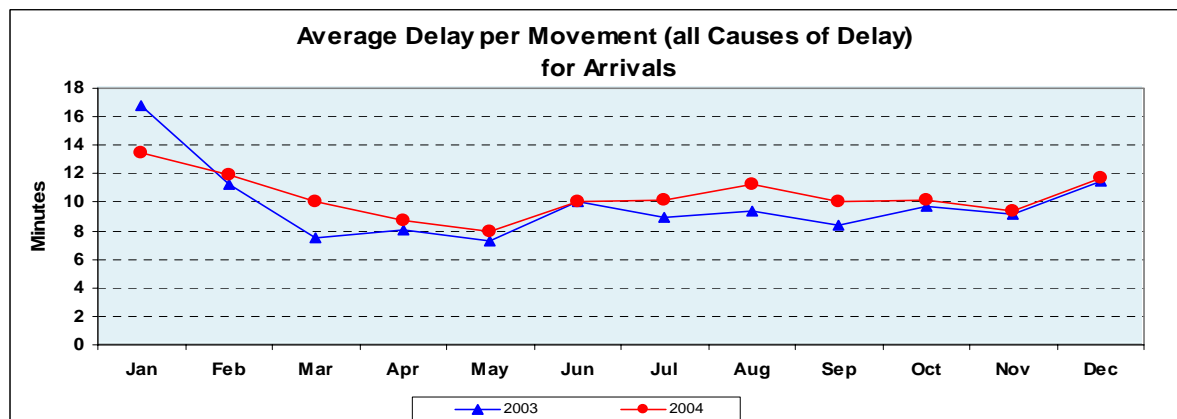
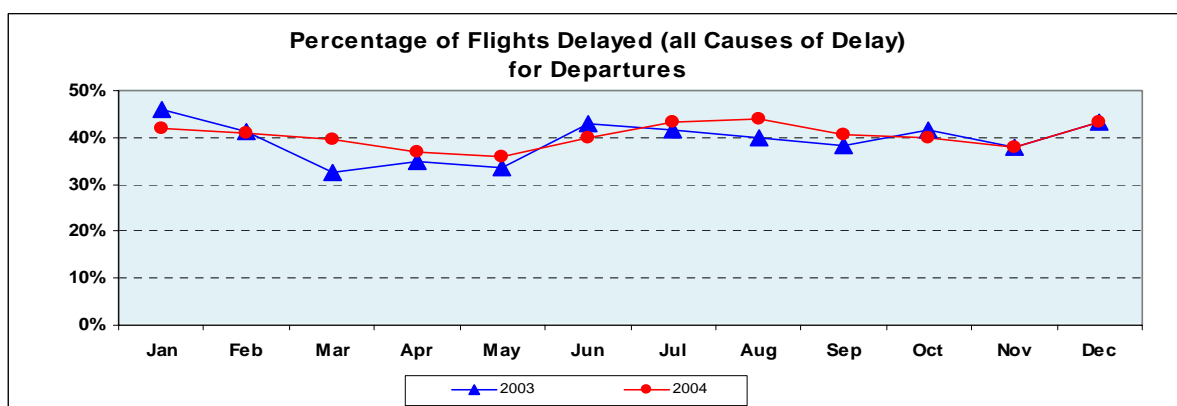
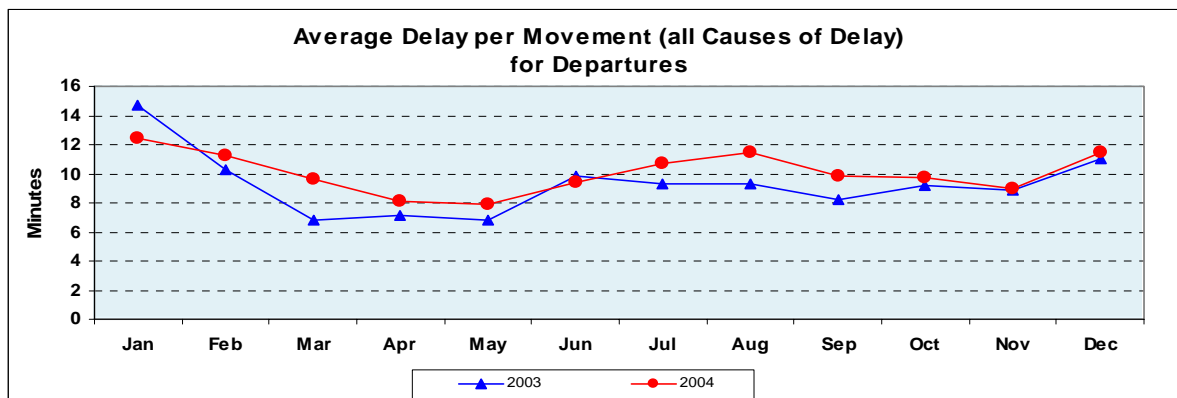


Source : CFMU ATFM Data

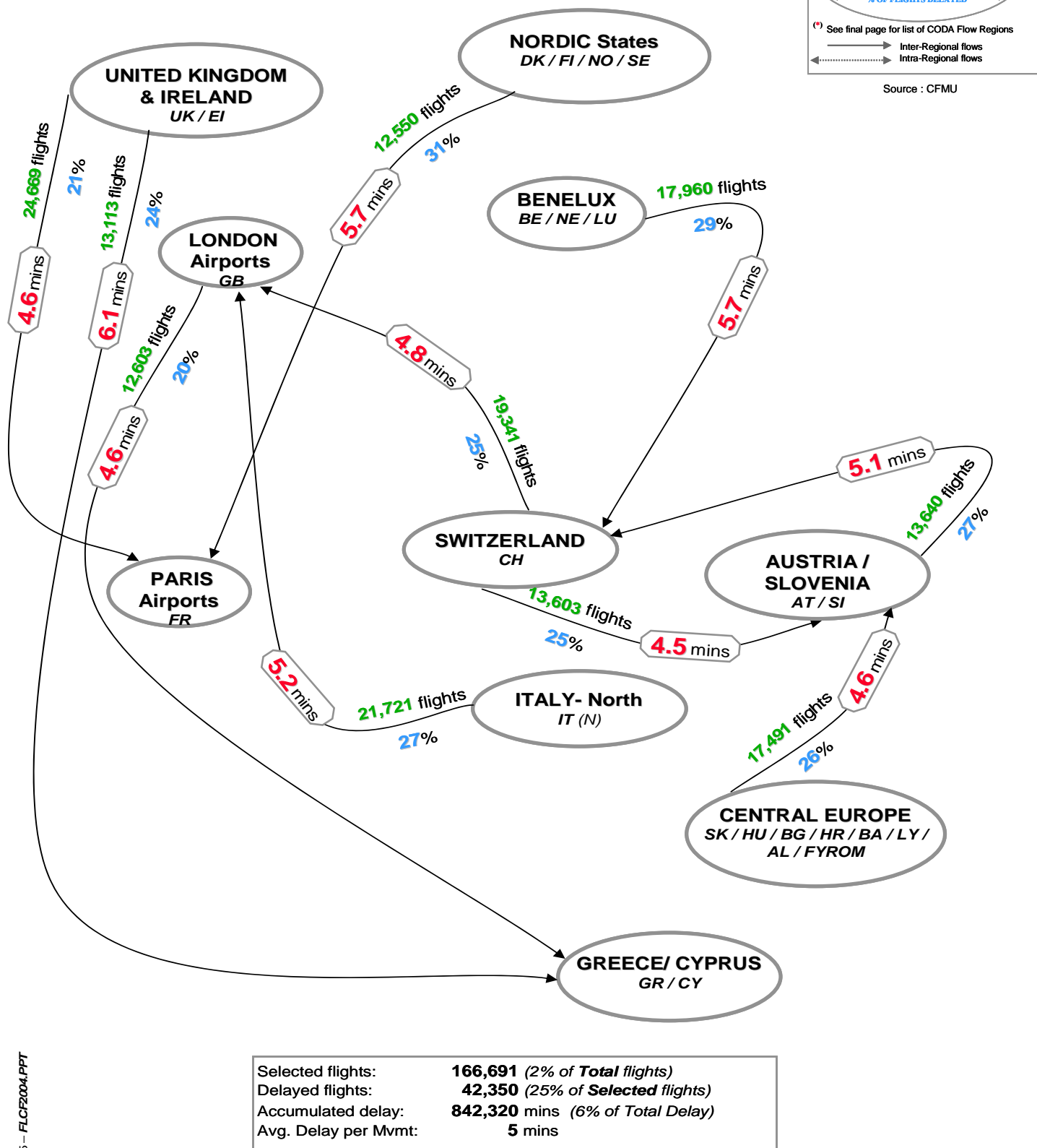


Source : CFMU ATFM Data

3. Year on Year Trends in Main Indicators (All causes delay situation)



4. Most Affected Traffic Flows by CODA Regions



ATFM Delay Situation on 10 Regional CODA Traffic Flows (>12,000 flights) in 2004

5. Most Affected and Most Dense Traffic Flows

MOST AFFECTED TRAFFIC FLOWS (CFMU)

| Rank | Departure | Destination | TTF | TRF | TDF | PDF | TDM | ADD | ADM |
|--------|---------------------------|--------------------------|---------|---------|--------|-------|-----------|-------|------|
| 1 | United Kingdom & Ireland | Greece/Cyprus | 13,113 | 5,006 | 3,161 | 24.11 | 79,552 | 25.17 | 6.07 |
| 2 | Nordic States | Paris Airports | 12,550 | 7,081 | 3,851 | 30.69 | 71,220 | 18.49 | 5.67 |
| 3 | BENELUX | Switzerland | 17,960 | 8,636 | 5,284 | 29.42 | 101,671 | 19.24 | 5.66 |
| 4 | Italy-North | London Airports | 21,721 | 10,276 | 5,837 | 26.87 | 113,442 | 19.43 | 5.22 |
| 5 | Austria/Slovenia | Switzerland | 13,640 | 6,812 | 3,661 | 26.84 | 69,998 | 19.12 | 5.13 |
| 6 | Switzerland | London Airports | 19,341 | 8,813 | 4,858 | 25.12 | 92,005 | 18.94 | 4.76 |
| 7 | United Kingdom & Ireland | Paris Airports | 24,669 | 8,785 | 5,186 | 21.02 | 114,335 | 22.05 | 4.63 |
| 8 | London Airports | Greece/Cyprus | 12,603 | 4,042 | 2,579 | 20.46 | 58,411 | 22.65 | 4.63 |
| 9 | Central Europe | Austria/Slovenia | 17,491 | 8,018 | 4,546 | 25.99 | 80,360 | 17.68 | 4.59 |
| 10 | Switzerland | Austria/Slovenia | 13,603 | 5,779 | 3,387 | 24.90 | 61,326 | 18.11 | 4.51 |
| 11 | Italy-North | Paris Airports | 22,355 | 10,422 | 4,839 | 21.65 | 98,884 | 20.43 | 4.42 |
| 12 | London Airports | Switzerland | 19,368 | 7,126 | 4,269 | 22.04 | 82,831 | 19.40 | 4.28 |
| 13 | Germany-West | Switzerland | 41,297 | 16,009 | 8,639 | 20.92 | 174,122 | 20.16 | 4.22 |
| 14 | France Southeast | Germany-West | 17,270 | 6,306 | 3,550 | 20.56 | 68,131 | 19.19 | 3.95 |
| 15 | Italy-North | Germany-West | 44,312 | 14,696 | 8,541 | 19.27 | 173,000 | 20.26 | 3.90 |
| 16 | Greece/Cyprus | United Kingdom & Ireland | 13,119 | 4,404 | 2,522 | 19.22 | 49,638 | 19.68 | 3.78 |
| 17 | Paris Airports | Italy-North | 22,403 | 8,798 | 4,523 | 20.19 | 84,543 | 18.69 | 3.77 |
| 18 | Greece/Cyprus | London Airports | 12,646 | 4,693 | 2,547 | 20.14 | 47,463 | 18.63 | 3.75 |
| 19 | Iberian Peninsula/Canaria | Germany-West | 39,311 | 15,511 | 8,363 | 21.27 | 147,204 | 17.60 | 3.74 |
| 20 | Paris Airports | Switzerland | 18,460 | 6,059 | 3,438 | 18.62 | 68,626 | 19.96 | 3.72 |
| Totals | | | 417,232 | 167,272 | 93,581 | 22.43 | 1,836,762 | 19.63 | 4.40 |

MOST DENSE TRAFFIC FLOWS (CFMU)

| Rank | Departure | Destination | TTF | TRF | TDF | PDF | TDM | ADD | ADM | ADM-Rank |
|------|---------------------------|---------------------------|---------|--------|--------|-------|---------|-------|------|----------|
| 1 | Nordic States | Nordic States | 739,287 | 24,097 | 10,800 | 1.46 | 223,869 | 20.73 | 0.30 | 32 |
| 2 | United Kingdom & Ireland | United Kingdom & Ireland | 364,626 | 31,468 | 15,609 | 4.28 | 280,490 | 17.97 | 0.77 | 20 |
| 3 | Iberian Peninsula/Canaria | Iberian Peninsula/Canaria | 322,765 | 29,129 | 13,451 | 4.17 | 278,584 | 20.71 | 0.86 | 19 |
| 4 | Germany-West | Germany-West | 260,958 | 36,172 | 18,800 | 7.20 | 373,716 | 19.88 | 1.43 | 12 |
| 5 | Greece/Cyprus | Greece/Cyprus | 139,019 | 5,189 | 3,077 | 2.21 | 102,276 | 33.24 | 0.74 | 22 |
| 6 | Non ECAC | Non ECAC | 136,545 | 851 | 494 | 0.36 | 10,400 | 21.05 | 0.08 | 35 |
| 7 | Italy-South/Malta | Italy-North | 119,432 | 14,251 | 7,772 | 6.51 | 168,414 | 21.67 | 1.41 | 13 |
| 8 | Italy-North | Italy-South/Malta | 119,402 | 21,069 | 13,088 | 10.96 | 302,277 | 23.10 | 2.53 | 4 |
| 9 | London Airports | United Kingdom & Ireland | 114,195 | 14,366 | 7,965 | 6.97 | 141,398 | 17.75 | 1.24 | 15 |
| 10 | United Kingdom & Ireland | London Airports | 113,713 | 24,796 | 13,253 | 11.65 | 270,511 | 20.41 | 2.38 | 5 |
| 11 | Italy-South/Malta | Italy-South/Malta | 102,114 | 11,010 | 5,624 | 5.51 | 124,386 | 22.12 | 1.22 | 16 |
| 12 | Non ECAC | London Airports | 101,111 | 2,839 | 1,625 | 1.61 | 36,699 | 22.58 | 0.36 | 30 |
| 13 | London Airports | Non ECAC | 100,278 | 14,611 | 8,192 | 8.17 | 134,783 | 16.45 | 1.34 | 14 |
| 14 | Germany-West | Non ECAC | 99,047 | 18,941 | 9,756 | 9.85 | 167,504 | 17.17 | 1.69 | 7 |
| 15 | Non ECAC | Germany-West | 98,734 | 4,721 | 2,295 | 2.32 | 43,275 | 18.86 | 0.44 | 26 |
| 16 | Balearics/Spain East | Iberian Peninsula/Canaria | 95,725 | 17,188 | 7,352 | 7.68 | 137,349 | 18.68 | 1.43 | 11 |
| 17 | Iberian Peninsula/Canaria | Balearics/Spain East | 95,486 | 14,441 | 6,142 | 6.43 | 110,990 | 18.07 | 1.16 | 17 |
| 18 | Turkey | Turkey | 95,421 | 656 | 414 | 0.43 | 16,280 | 39.32 | 0.17 | 33 |
| 19 | Paris Airports | Non ECAC | 85,233 | 17,621 | 10,275 | 12.06 | 220,243 | 21.43 | 2.58 | 3 |
| 20 | Non ECAC | Paris Airports | 84,744 | 5,133 | 2,029 | 2.39 | 41,056 | 20.23 | 0.48 | 25 |
| 21 | Germany-East/Czech Rep | Germany-West | 81,949 | 14,076 | 6,655 | 8.12 | 127,229 | 19.12 | 1.55 | 9 |
| 22 | Germany-West | Germany-East/Czech Rep | 81,720 | 8,722 | 3,092 | 3.78 | 52,455 | 16.96 | 0.64 | 24 |
| 23 | Balearics/Spain East | Balearics/Spain East | 80,830 | 5,231 | 2,573 | 3.18 | 61,211 | 23.79 | 0.76 | 21 |
| 24 | Central Europe | Central Europe | 70,266 | 3,136 | 1,639 | 2.33 | 27,106 | 16.54 | 0.39 | 29 |
| 25 | BENELUX | Non ECAC | 63,762 | 12,459 | 6,114 | 9.59 | 105,311 | 17.22 | 1.65 | 8 |

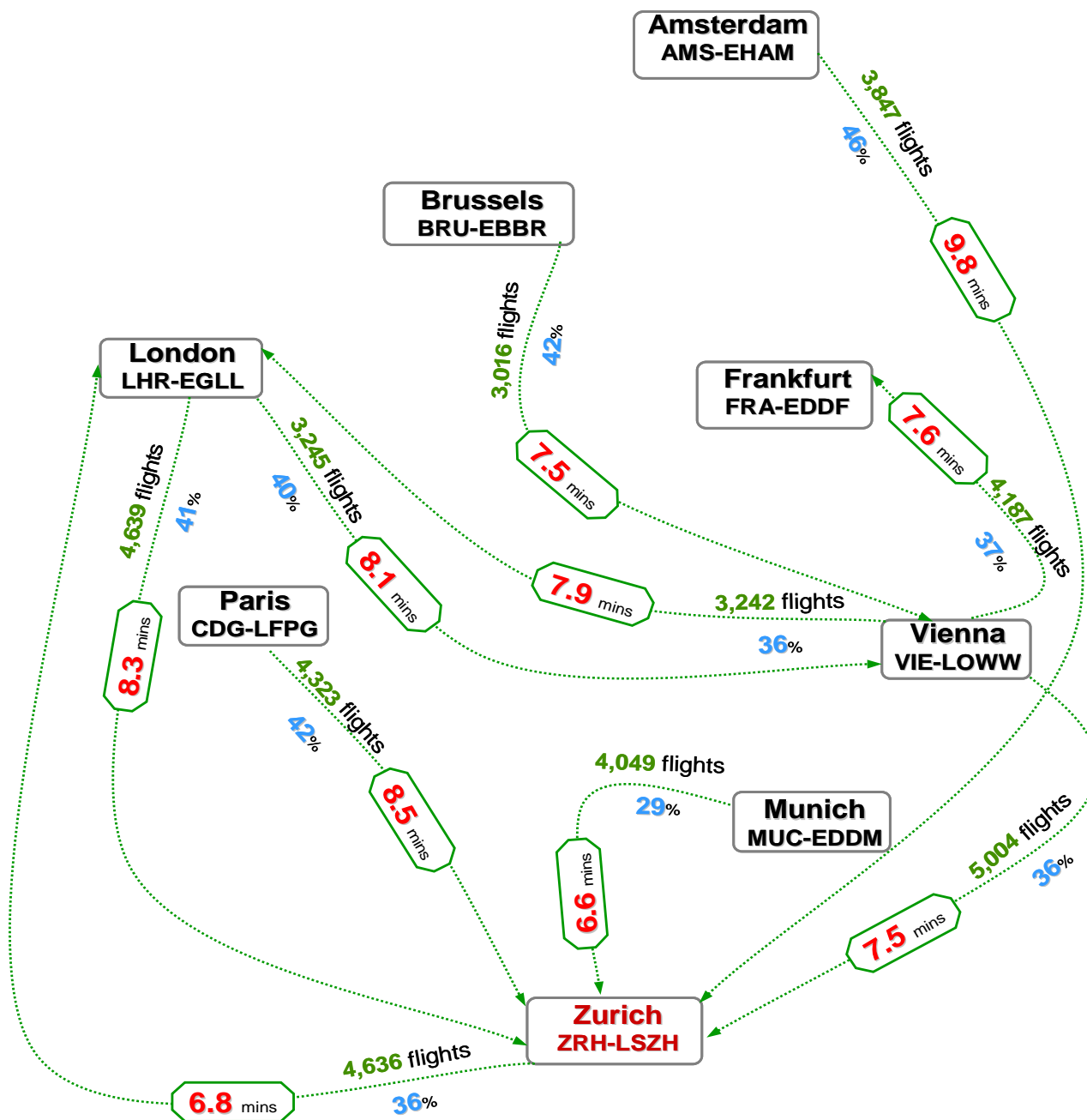
Source: CFMU ATFM Data

6. Most Affected City Pairs

AVERAGE DELAY PER MOVEMENT

Source : CFMU

Total Number of Flights & % of Flights Delayed



| | |
|-----------------------|---|
| Selected flights: | 40,188 (0.5% of Total flights) |
| Delayed flights: | 15,448 (38% of Selected flights) |
| Accumulated delay: | 314,225 mins (2% of Total Delay) |
| Avg. Delay per Mvmt.: | 7.8 mins |

ATFM Delay Situation on 10 City Pairs (>3000 flights) in 2004

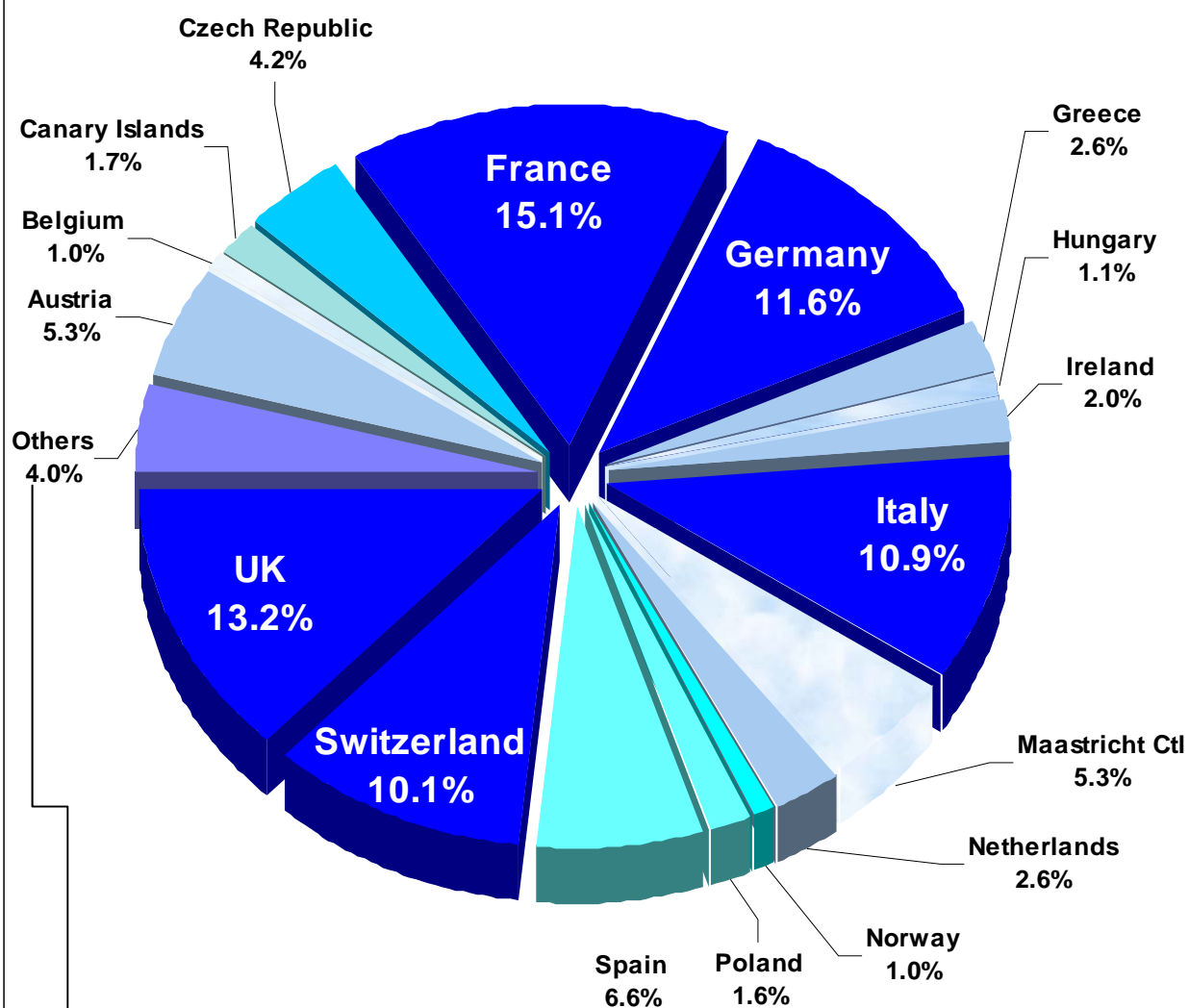
7. Most Affected and Most Dense City Pairs

| <u>MOST AFFECTED CITY PAIRS (CFMU)</u> | | | | | | | | | | |
|---|-------------------------|-------------------------|---------------|---------------|---------------|--------------|----------------|--------------|-------------|----------|
| Rank | Departure | Destination | TTF | TRF | TDF | PDF | TDM | ADD | ADM | |
| 1 | Amsterdam | Zurich | 3,847 | 2,511 | 1,797 | 46.71 | 37,512 | 20.87 | 9.75 | |
| 2 | Paris/Charles-De-Gaulle | Zurich | 4,323 | 2,858 | 1,818 | 42.05 | 36,746 | 20.21 | 8.50 | |
| 3 | London/Heathrow | Zurich | 4,639 | 2,902 | 1,887 | 40.68 | 38,450 | 20.38 | 8.29 | |
| 4 | London/Heathrow | Vienna | 3,245 | 1,932 | 1,305 | 40.22 | 26,196 | 20.07 | 8.07 | |
| 5 | Vienna | London/Heathrow | 3,242 | 1,824 | 1,171 | 36.12 | 25,514 | 21.79 | 7.87 | |
| 6 | Vienna | Frankfurt | 4,187 | 2,310 | 1,556 | 37.16 | 31,835 | 20.46 | 7.60 | |
| 7 | Brussels | Vienna | 3,016 | 2,163 | 1,264 | 41.91 | 22,570 | 17.86 | 7.48 | |
| 8 | Vienna | Zurich | 5,004 | 3,027 | 1,804 | 36.05 | 37,288 | 20.67 | 7.45 | |
| 9 | Zurich | London/Heathrow | 4,636 | 2,853 | 1,667 | 35.96 | 31,610 | 18.96 | 6.82 | |
| 10 | Munich | Zurich | 4,049 | 1,935 | 1,179 | 29.12 | 26,504 | 22.48 | 6.55 | |
| 11 | Rome/Fiumicino | London/Heathrow | 3,843 | 1,866 | 1,173 | 30.52 | 24,440 | 20.84 | 6.36 | |
| 12 | Berlin-Tegel | Paris/Charles-De-Gaulle | 3,020 | 1,919 | 1,139 | 37.72 | 19,165 | 16.83 | 6.35 | |
| 13 | Geneva | London/Heathrow | 3,554 | 1,926 | 1,127 | 31.71 | 22,541 | 20.00 | 6.34 | |
| 14 | Venice/Tessera | Rome/Fiumicino | 4,047 | 1,590 | 1,148 | 28.37 | 25,610 | 22.31 | 6.33 | |
| 15 | Dusseldorf | Zurich | 4,175 | 2,632 | 1,408 | 33.72 | 26,183 | 18.60 | 6.27 | |
| 16 | Madrid/Barajas | Frankfurt | 3,778 | 2,240 | 1,248 | 33.03 | 23,518 | 18.84 | 6.22 | |
| 17 | Munich | London/Heathrow | 4,031 | 1,865 | 1,130 | 28.03 | 24,641 | 21.81 | 6.11 | |
| 18 | Berlin-Tegel | Zurich | 3,345 | 1,906 | 1,028 | 30.73 | 20,073 | 19.53 | 6.00 | |
| 19 | Hamburg | Zurich | 3,589 | 1,743 | 1,077 | 30.01 | 21,382 | 19.85 | 5.96 | |
| 20 | Dublin | Paris/Charles-De-Gaulle | 3,438 | 1,576 | 955 | 27.78 | 20,448 | 21.41 | 5.95 | |
| Totals | | | 77,008 | 43,578 | 26,881 | 34.91 | 542,226 | 20.17 | 7.04 | |
| <u>MOST DENSE CITY PAIRS (CFMU)</u> | | | | | | | | | | |
| Rank | Departure | Destination | TTF | TRF | TDF | PDF | TDM | ADD | ADM | ADM-rank |
| 1 | Barcelona | Madrid/Barajas | 22,598 | 8,150 | 3,276 | 14.50 | 59,684 | 18.22 | 2.64 | 7 |
| 2 | Madrid/Barajas | Barcelona | 22,256 | 5,046 | 2,163 | 9.72 | 38,302 | 17.71 | 1.72 | 13 |
| 3 | Milan/Linate | Rome/Fiumicino | 14,088 | 4,203 | 2,407 | 17.09 | 57,957 | 24.08 | 4.11 | 4 |
| 4 | Rome/Fiumicino | Milan/Linate | 14,049 | 577 | 346 | 2.46 | 10,371 | 29.97 | 0.74 | 23 |
| 5 | Barcelona | Palma De Mallorca | 10,881 | 201 | 118 | 1.08 | 3,638 | 30.83 | 0.33 | 32 |
| 6 | Palma De Mallorca | Barcelona | 10,479 | 2,016 | 905 | 8.64 | 17,843 | 19.72 | 1.70 | 14 |
| 7 | London/Heathrow | Paris/Charles-De-Gaulle | 9,932 | 2,639 | 1,360 | 13.69 | 28,736 | 21.13 | 2.89 | 5 |
| 8 | Paris/Charles-De-Gaulle | London/Heathrow | 9,921 | 3,623 | 2,200 | 22.18 | 52,770 | 23.99 | 5.32 | 1 |
| 9 | Toulouse/Blagnac | Paris/Orly | 9,386 | 646 | 318 | 3.39 | 5,835 | 18.35 | 0.62 | 25 |
| 10 | Paris/Orly | Toulouse/Blagnac | 9,378 | 1,330 | 599 | 6.39 | 9,364 | 15.63 | 1.00 | 19 |
| 11 | Athens | Makedonia | 9,132 | 893 | 502 | 5.50 | 12,552 | 25.00 | 1.37 | 15 |
| 12 | Makedonia | Athens | 9,051 | 101 | 69 | 0.76 | 3,653 | 52.94 | 0.40 | 30 |
| 13 | Madrid/Barajas | Palma De Mallorca | 8,582 | 244 | 132 | 1.54 | 2,765 | 20.95 | 0.32 | 33 |
| 14 | London/Heathrow | Amsterdam | 8,571 | 1,029 | 640 | 7.47 | 15,113 | 23.61 | 1.76 | 12 |
| 15 | Amsterdam | London/Heathrow | 8,558 | 2,935 | 1,614 | 18.86 | 35,644 | 22.08 | 4.16 | 3 |
| 16 | Palma De Mallorca | Madrid/Barajas | 8,462 | 2,270 | 993 | 11.73 | 16,168 | 16.28 | 1.91 | 9 |
| 17 | Paris/Orly | Nice | 8,371 | 991 | 446 | 5.33 | 6,585 | 14.76 | 0.79 | 21 |
| 18 | Nice | Paris/Orly | 8,367 | 639 | 317 | 3.79 | 6,350 | 20.03 | 0.76 | 22 |
| 19 | Dusseldorf | Munich | 8,290 | 2,071 | 998 | 12.04 | 21,902 | 21.95 | 2.64 | 6 |
| 20 | Munich | Dusseldorf | 8,175 | 1,187 | 545 | 6.67 | 9,880 | 18.13 | 1.21 | 17 |
| 21 | Berlin-Tegel | Munich | 8,124 | 2,160 | 767 | 9.44 | 15,437 | 20.13 | 1.90 | 10 |
| 22 | Munich | Berlin-Tegel | 8,099 | 1,327 | 264 | 3.26 | 3,672 | 13.91 | 0.45 | 28 |
| 23 | Cologne/Bonn | Munich | 8,012 | 1,334 | 643 | 8.03 | 14,312 | 22.26 | 1.79 | 11 |
| 24 | Munich | Hamburg | 7,995 | 1,452 | 610 | 7.63 | 10,254 | 16.81 | 1.28 | 16 |
| 25 | Hamburg | Munich | 7,993 | 2,046 | 901 | 11.27 | 18,202 | 20.20 | 2.28 | 8 |

Source: CFMU ATFM Data

8. ATFM Delay Share by Country

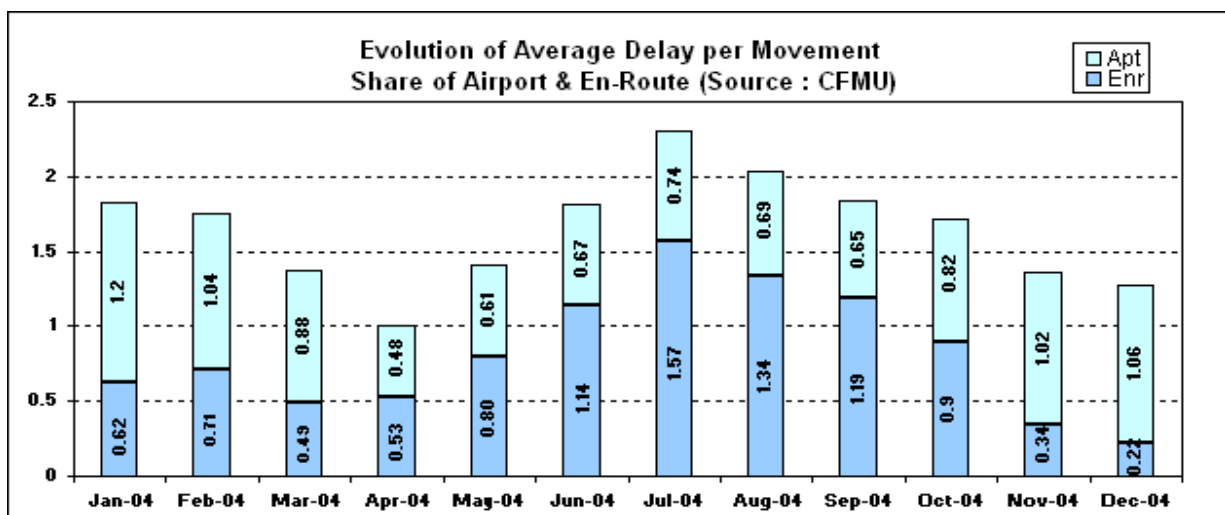
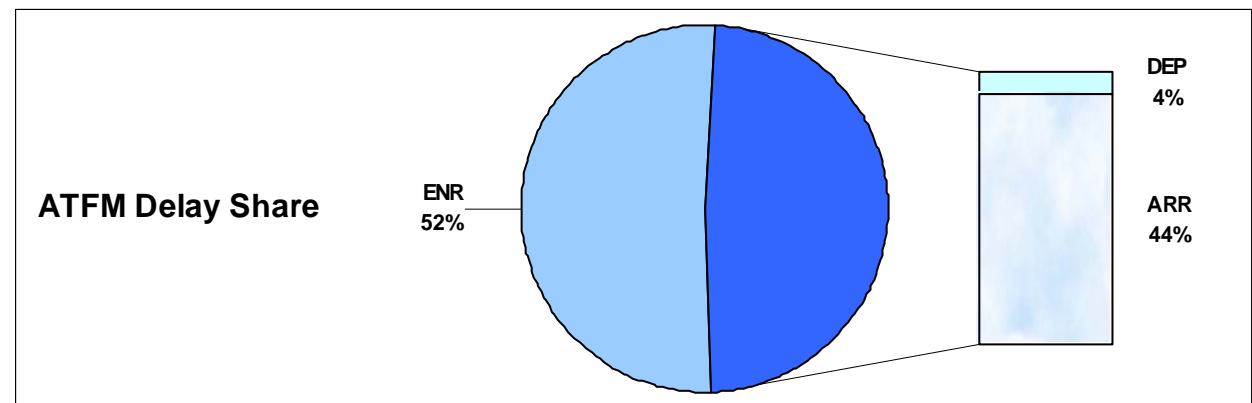
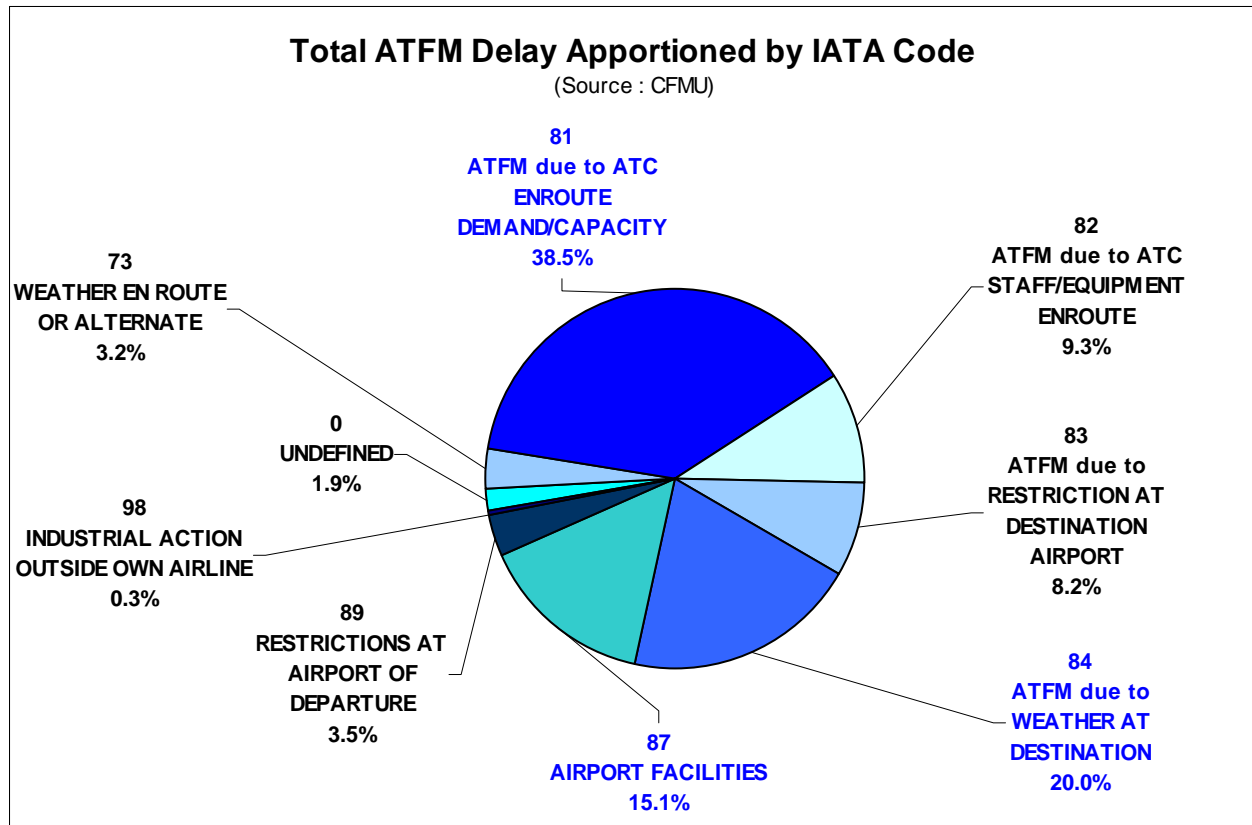
**ATFM Delay Share as Imposed by Country
based on the most penalising regulation
(Source : CFMU)**



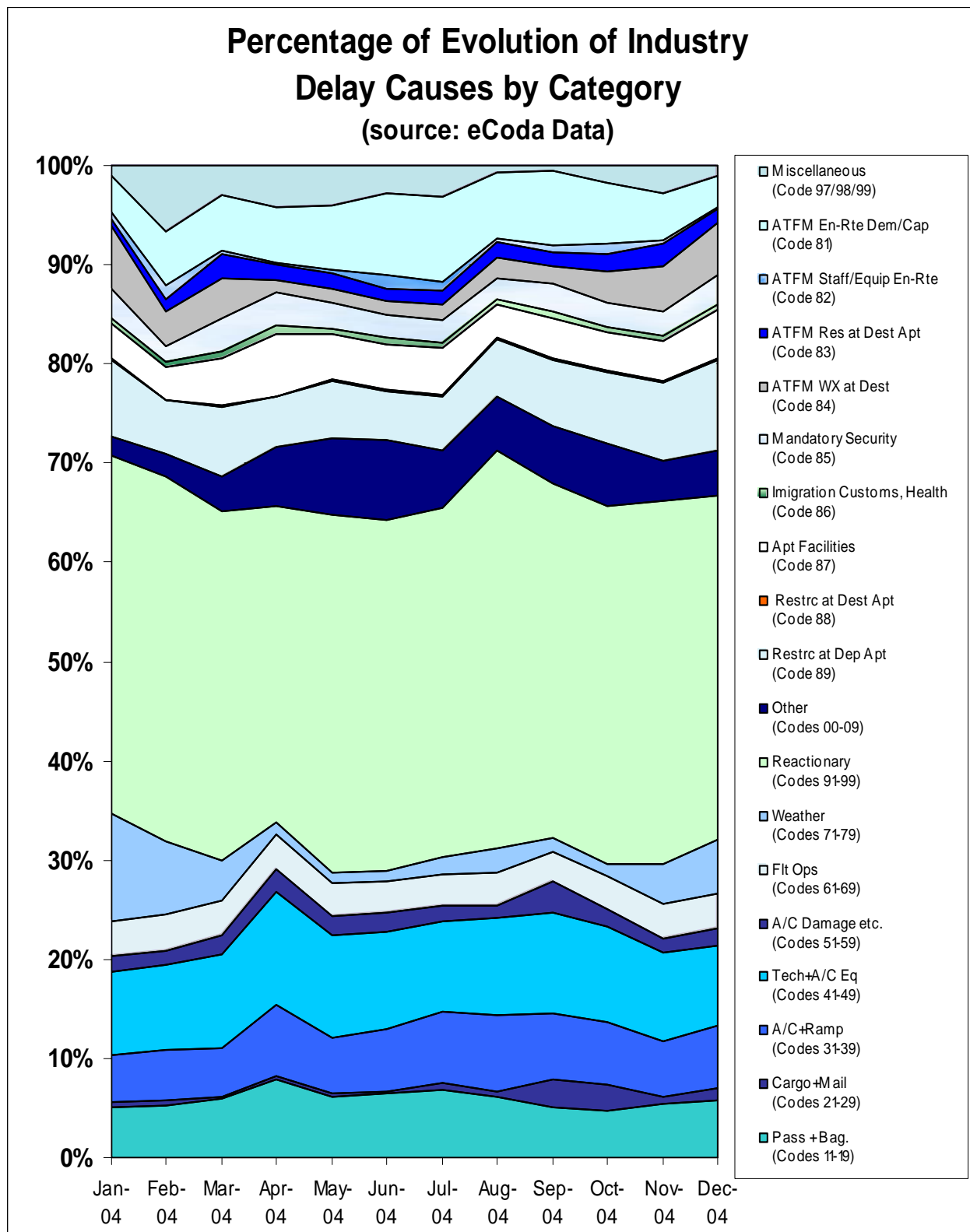
Others = Albania, Croatia, Cyprus, Denmark, Egypt, Finland, Iceland, Morocco, Portugal, Slovakia, Slovenia, Sweden, Turkey and Serbia & Montenegro (the remaining countries did not cause delay).

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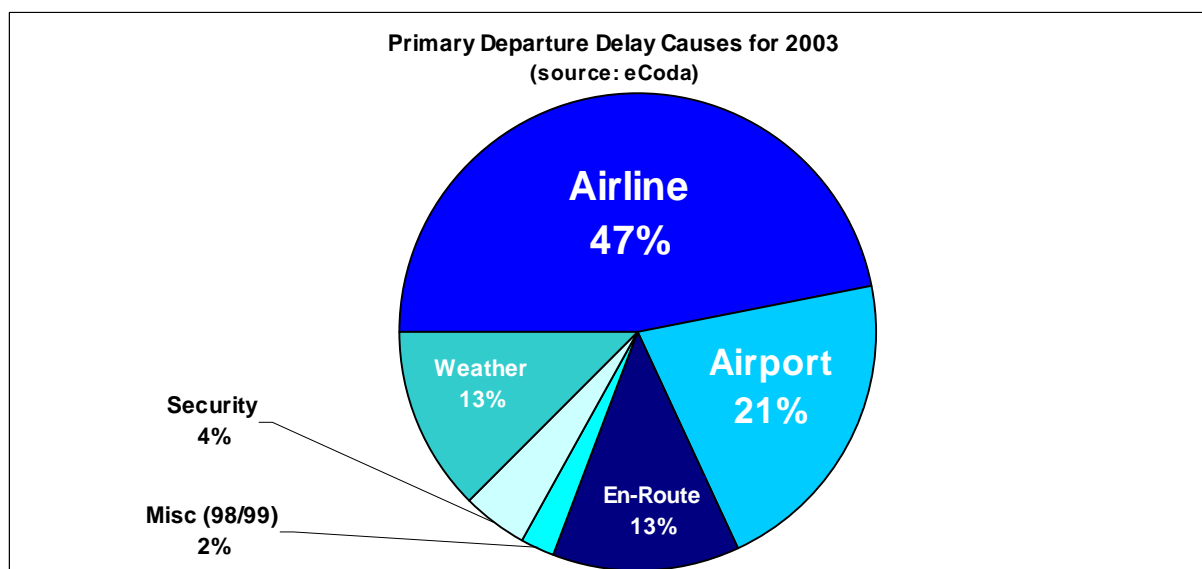
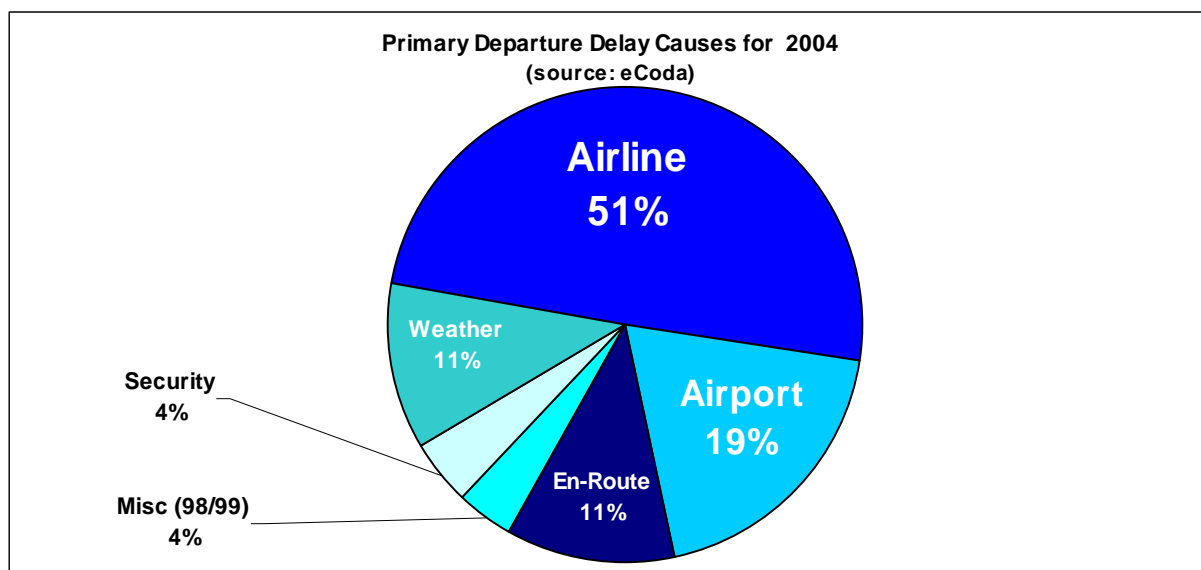
9. Reasons for ATFM Delay



10. Consolidated Evolution of Industry Delay Causes by Category

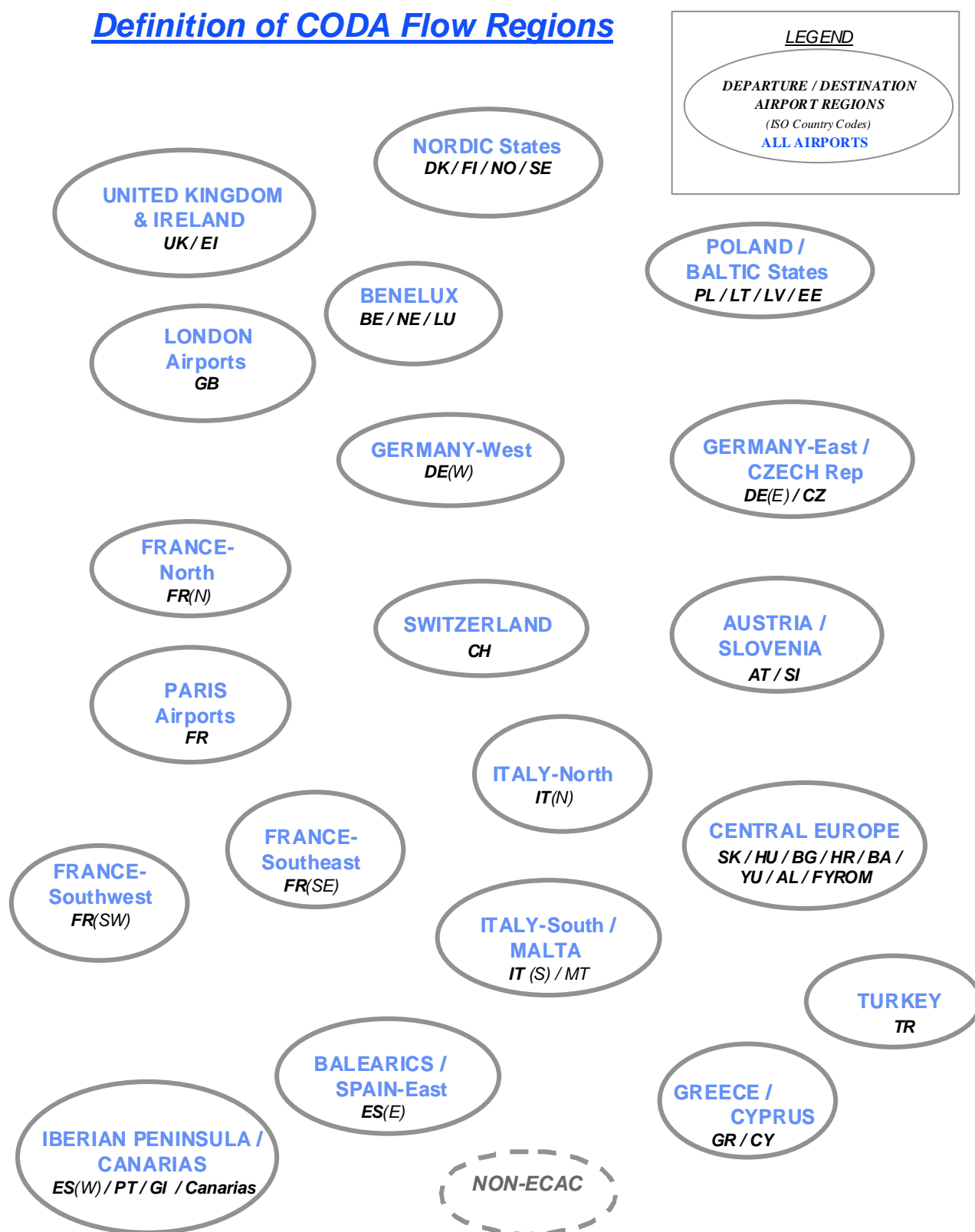


11. Primary Departure Delay Causes



| eCODA Cause | Description | IATA Code |
|-------------|---|-----------|
| Airline | Passengers + Baggage | 11-19 |
| | Cargo + Mail | 21-29 |
| | Aircraft + Ramp Handling | 31-39 |
| | Technical + Aircraft Equipment | 41-49 |
| | Aircraft Damage and Ops Computer Failure | 51-59 |
| | Flight Operations | 61-69 |
| | Other Airline-Related Causes | Others |
| Airport | ATFM due to Restriction at Destination Airport | 83 |
| | Immigration, Customs, Health | 86 |
| | Airport Facilities | 87 |
| | Restriction at Destination Airport | 88 |
| | Restriction at Airport of Departure, with or without ATFM | 89 |
| En-Route | ATFM due to ATC En-Rte Demand Capacity | 81 |
| | ATFM due to ATC Staff/Equipment En-Route | 82 |
| Misc | Miscellaneous | 98-99 |
| Security | Mandatory Security | 85 |
| Weather | Weather | 71-79 |
| | ATFM due to Weather at Destination | 84 |

Definition of CODA Flow Regions (Annex 1)

Definition of CODA Flow Regions

Glossary of Terms and Abbreviations (Annex 2)

Delay Parameter Abbreviations

| | |
|------------|------------------------------------|
| TTF | Total Flights |
| TRF | Total Regulated Flights |
| TDF | Total Delayed Flights |
| PRF | Percentage of Regulated Flights |
| PDF | Percentage of Delayed Flights |
| TDM | Total Delay in Minutes |
| ADM | Average Delay per Movement |
| ADR | Average Delay per Regulated Flight |
| ADD | Average Delay per Delayed Flight |

Glossary of Terms

| | |
|---------------|---|
| AEA | Association of European Airlines |
| ATFM | Air Traffic Flow Management |
| ATS | Air Traffic Services |
| CFMU | Central Flow Management Unit |
| CODA | Central Office for Delay Analysis |
| EATMP | European Air Traffic Management Program |
| ECAC | European Civil Aviation Conference |
| EDAS | European Delay Analysis System |
| ERA | European Regions Airline Association |
| EURACA | European Air Carrier Assembly |
| IACA | International Air Carrier Association |
| IATA | International Air Transport Association |

Standard IATA Delay Codes (Annex 3)

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. |

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 |

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 weather⁴, 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: Provisional list composed by IATA

⁴ Restriction due to weather in case of ATFM regulation only, else refer to code 71 (WO)

Correlation between IATA Delay Codes and the CFMU Reasons for Regulation (Annex 4)

| CORRELATION BETWEEN IATA DELAY CODES AND THE CFMU REASONS FOR REGULATION | | | | | |
|--|------|---------------------|--|------|--|
| CFMU | | | IATA | | |
| REASON FOR REGULATION | CODE | REGULATION LOCATION | EXAMPLE | CODE | DELAY CAUSE |
| ATC Capacity | C | D | Demand exceeds the capacity | 89 | RESTRICTIONS AT AIRPORT OF DEPARTURE |
| | | E | | 81 | ATFM due to ATC ENROUTE DEMAND/CAPACITY |
| | | A | | 83 | ATFM due to RESTRICTION AT DESTINATION AIRPORT |
| ATC Ind Action | I | D | Controllers' strike | 89 | RESTRICTIONS AT AIRPORT OF DEPARTURE |
| | | E | | 82 | ATFM due to ATC STAFF/EQUIPMENT ENROUTE |
| | | A | | 83 | ATFM due to RESTRICTION AT DESTINATION AIRPORT |
| ATC Routeings | R | E | Phasing in of new procedures | 81 | ATFM due to ATC ENROUTE DEMAND/CAPACITY |
| ATC Staffing | S | D | Illness; traffic delays on the highway | 89 | RESTRICTIONS AT AIRPORT OF DEPARTURE |
| | | E | | 82 | ATFM due to ATC STAFF/EQUIPMENT ENROUTE |
| | | A | | 83 | ATFM due to RESTRICTION AT DESTINATION AIRPORT |
| ATC Equipment | T | D | Radar failure; RTF failure | 89 | RESTRICTIONS AT AIRPORT OF DEPARTURE |
| | | E | | 82 | ATFM due to ATC STAFF/EQUIPMENT ENROUTE |
| | | A | | 83 | ATFM due to RESTRICTION AT DESTINATION AIRPORT |
| Accident/Incident | A | D | RWY23 closed due accident | 87 | AIRPORT FACILITIES |
| Aerodrome Capacity | G | D | Lack of parking; taxiway closure; areas closed for maintenance; demand exceeds the declared airport capacity | 87 | AIRPORT FACILITIES |
| | | A | | 89 | RESTRICTIONS AT AIRPORT OF DEPARTURE |
| De-icing | D | D | De-icing | 87 | AIRPORT FACILITIES |
| Equipment non-ATC | E | A | Runway or taxiway lighting failure | 87 | AIRPORT FACILITIES |
| Ind Action non-ATC | N | D | Firemen's strike | 98 | INDUSTRIAL ACTION OUTSIDE OWN AIRLINE |
| | | A | | 98 | INDUSTRIAL ACTION OUTSIDE OWN AIRLINE |
| | | D | | 89 | RESTRICTIONS AT AIRPORT OF DEPARTURE |
| Military Activity | M | E | Brilliant Invader; ODAX | 82 | ATFM due to ATC STAFF/EQUIPMENT ENROUTE |
| | | A | | 83 | ATFM due to RESTRICTION AT DESTINATION AIRPORT |
| Special Event | P | D | European football cup; Heads of Government meetings | 89 | RESTRICTIONS AT AIRPORT OF DEPARTURE |
| | | A | | 83 | ATFM due to RESTRICTION AT DESTINATION AIRPORT |
| Weather | W | D | Thunderstorm; low visibility; X winds | 89 | RESTRICTIONS AT AIRPORT OF DEPARTURE |
| | | E | | 73 | WEATHER EN ROUTE OR ALTERNATE |
| | | A | | 84 | ATFM due to WEATHER AT DESTINATION |
| Other | O | D | Security alert | 89 | RESTRICTIONS AT AIRPORT OF DEPARTURE |
| | | E | | 81 | ATFM due to ATC ENROUTE DEMAND/CAPACITY |
| | | A | | 83 | ATFM due to RESTRICTION AT DESTINATION AIRPORT |