Network Performance Report

Summer 2011

Directorate Network Management

EUROCONTROL

FOREWORD

I reported in October 2010 on the very poor network performance of summer 2010. At that time, NM was mobilised to work with ATM partners to find solutions and improve ATM network performance in summer 2011.

This report shows that our joint efforts paid off. The network performance over summer 2011 was better than forecast despite adverse unplanned conditions, and also much better than summer 2010 outcome. This demonstrates the benefits of a more robust preparation for the summer. Additionally, the operational relations between the Network Manager and the ANSPs were improving during the summer and delivered clear benefits when managing unexpected situations such as the ATM / social difficulties in Greece. It is worth noting that some ANSPs were able to deliver more capacity than originally forecast, which helped to balance the difficulties for other ANSPs.

But in spite of these good results for summer 2011, there is a big challenge over the next few years to achieve the performance targets defined by EU for 2014. In fact, compared with 2011 an increase of capacity of 22 % is necessary to achieve the target of 0.5 minutes per flight average delay in 2014.

The cooperative approach that the Network Manager adopted in preparing for summer 2011 will be repeated to address the known systemic issues and critical areas impacting future network performance. We will also employ new procedures to drive down delay and mitigate unexpected disruptions to the network.

The next years will be very challenging, but once again NM is ready to work with our partners to find all possibilities to improve ATM network performance at the level defined by EU.

Jacques Dopagne
Director Network Management

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1. EXECUTIVE SUMMARY

The poor network performance of summer 2010 led to ANSB and DNM pursuing several actions to improve matters for summer 2011. These actions led to a summer en-route ATFM delay forecast of 1.7 minutes per flight.

Traffic growth over the summer was 2%, with high growth in the eastern part of the network (Baltic and Turkey). Traditional carriers and low-cost sectors (80% of traffic) each grew by around 3%. Traffic levels remain below the pre-economic crisis levels of 2007 and 2008.

Total ATFM delays were reduced by a third compared to summer 2010 and the effective capacity increased by approximately 10.2%. The reduction was in en-route ATFM delays, with airport ATFM delays remaining constant. The average ATFM delay per flight was 2.35 minutes. The average en-route ATFM delay was 1.64 minutes per flight, which is better than the forecast of 1.7 minutes per flight.

It is important to note that, with almost equal levels of traffic, European ATM capacity remained the same between 2007 and 2011.

Without considering the impact of strikes in both 2010 and 2011, the European network capacity increase in 2011 was 7.9% higher than in 2010.

81% of en-route ATFM delay was attributed to ATC capacity and staffing. 50% of en-route ATFM delay originated at five ACCs (Athens, Madrid, Barcelona, Marseille and Langen).

Five airports (Frankfurt Main, Madrid Barajas, London Heathrow, Istanbul Ataturk and Zurich) generated 45% of all airport delay during summer 2011.

Flight efficiency continues to improve, with a gain of some 0.2% in the flight planning efficiency indicator since 2010.

Social issues were the main underlying cause of en-route delays for the summer and are likely to continue into next year. As an example, Greek social issues during the course of summer 2011 were estimated to represent 11% of the entire en-route delay average per flight (0.18 minutes of 1.64 minutes). As a consequence, further attention is required to improve the flexibility of staff within ATC units, to address their mobility between ATC units or ANSPs, and to mitigate the impact of disruptions through improved contingency arrangements.

The good partnership between industry and NM in preparing for summer 2011 should continue when making preparations for reference period 1 (RP1).

At present, based on the ANSP capacity plans provided prior to summer 2011, the forecast for summer 2012 en-route ATFM delay is 2.11 minutes per flight. To this end, besides the preparation of the Network Strategic Plan (including the NM Performance Plan), work to prepare the Network Operations Plan (NOP) for 2012, 2013 and 2014 is being launched so that it can be endorsed by NMB in March 2012.

So while summer 2011 was better than 2010, there is still room for improvement.

2. PREPARATION FOR SUMMER 2011

Network performance in 2010 was poor, one of the worst years for ten years. En-route ATFM delay was particularly high compared to previous years, at 2.8 minutes per flight. ATM was affected by adverse circumstances such as the April 2010 ash cloud and the bad weather situation at the end of the year.

In 2010, ATFM delays were much higher than expected due to numerous social tensions and lack of ATC capacity in several areas. Excluding official industrial action, covert strikes and delays due to major ATM system changes (DFS VAFORIT system), en-route ATFM delay would nevertheless have been about 2 minutes per flight.

Since October 2010, pending the creation of NM and NMB, the ANSB and DNM gave a high priority to all actions that sought to improve performance for summer 2011.

The ANSB created a Senior Review Group that met seven times before summer 2011. There was an ANSB workshop and there were two specific DOP meetings. The summer 2011 performance issue was addressed several times at EU ministerial and PC level. Reports were made to the EU Transport Council in March and June 2011.

Critical areas were identified and priority was given to addressing the reasons for the lack of capacity in Cyprus, Greece, Austro Control, Croatia Control, PANSA, DFS, DSNA and AENA.

Systemic issues for the lack of capacity were addressed, namely:

- social issues;
- the shortfall of ATCOs in some ANSPs (ATCO mobility);
- ATCO management (roster, sector opening scheme);
- strikes, covert strikes;
- OPS transition for ATM changes.

Enhanced network performance was also sought through enhanced network procedures.

DNM worked with the ANSPs concerned to identify all possible short-term measures that would improve the performance for summer 2011.

The final preparations for summer 2011 were initiated in October 2010. DNM organised bilateral discussions with 20 ANSPs where capacity delivery was critical. These bi-lateral discussions, organised in some cases over several sessions, resulted in the collaborative development of local short- and medium-term capacity plans. Interactive sessions were organised with the ANSPs using updated traffic and capacity performance data and alternative planning scenarios. The tools made available at network level were fully used and, when required, additional training and support was provided to the ANSPs for the use of these tools.

The capacity plans developed during early 2011 included a large number of actions covering airspace changes, new procedures, the re-evaluation of rosters and of sector opening schemes, sector capacity evaluations, the implementation of new ops rooms and ATM systems, enhanced availability of ATCOs, better application of ATFM measures, etc. In addition, 191 airspace improvement packages designed to enhance capacity and flight efficiency were developed and implemented for summer 2011. Closer to summer 2011, axis meetings were organised to fine-tune the latest details of the capacity plans.

A Network Operations Plan for summer 2011 was finalised in May 2011. The Network Operations Plan for summer 2011 was more accurate and gave a more realistic reflection of the measures expected at network and local level.

As a result of all the planning actions for summer 2011, the en-route delay forecast for the summer season indicated that the average en-route delay per flight for the summer 2011 season would reach 1.7 minutes/flight – a net decrease compared to the summer 2010 situation. The summer 2011 situation would have been worst without all the actions taken.

Nevertheless, at the start of summer 2011, there were still major uncertainties surrounding:

- capacity plans still in progress (Greece, Cyprus);
- the risk of social tensions;
- military exercises;
- traffic pattern changes;
- and adverse weather conditions.

More generally, all the actions taken, in strong partnership between industry and NM, shape the way the Network Manager and the industry will address the management of RP1.

3. NETWORK PERFORMANCE OVERVIEW

NOTE: *All comparisons below were based on the official summer season covering the period between 1 May and 31 October.*

3.1. Traffic

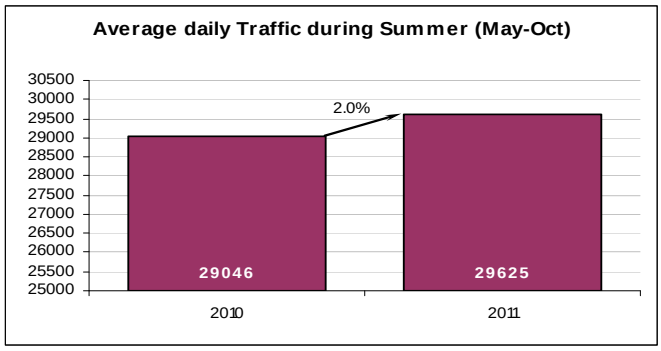

Figure 1 – Daily traffic

Overall network traffic increased by 2% in summer 2011.

Strongest growth was recorded at the eastern part of the network, with Baltic traffic up by 10-15% and Turkish traffic by 8%. Traffic to and from Russia to the Baltic states and Turkish domestic traffic were the main drivers for this increase.

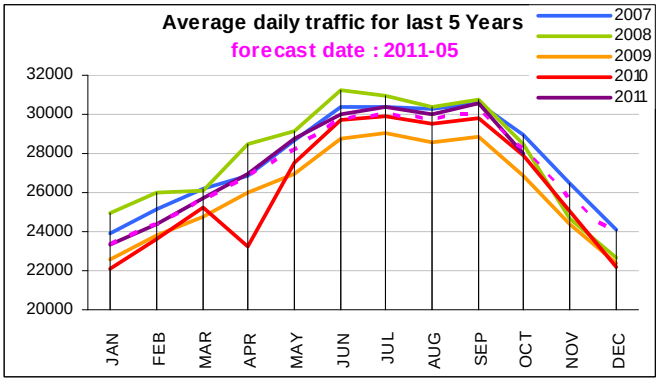

Figure 2 – Five yearly traffic evolution

The 2% traffic increase is at the high end of the forecast range (0.9%-2.1%).

Summer 2011 traffic was above the 2009 and 2010 levels, but still lower than the pre-economic crisis levels of 2007 and 2008. In September, 2011 traffic reached the levels of 2007 and 2008.

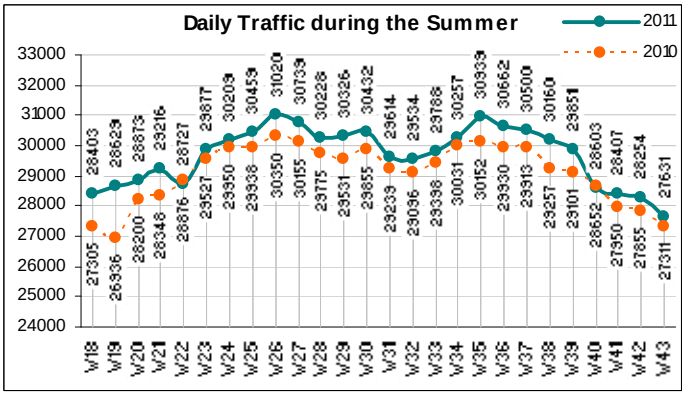

Figure 3 – Weekly traffic evolution

The level of traffic followed a similar profile to summer 2010, with more pronounced peaks at the beginning and end of the school holiday periods. The extremely late Easter meant the Ascension dip moved from May into June (Week 22). Seasonal decline commenced from the second week of September, with a sharp drop at the beginning of October (week 40).

May-Sep 21 2011	Flights/day	Market Share	Growth on 2010
Business Aviation	2148	7.3%	2.6%
Low-Cost	6803	23.2%	2.9%
Charter	1813	6.2%	-6.2%
Traditional Carriers	16400	56.0%	3.0%
All-Cargo	890	3.0%	1.6%
Others	1215	4.3%	-3.6%

Table 1 – Traffic growth per sector

In terms of market sectors, both traditional carriers and low-cost sectors, some 80% of traffic, showed strong growth over the summer. There was a marked decline in the charter flight sector.

3.2. Overall ATFM Delays

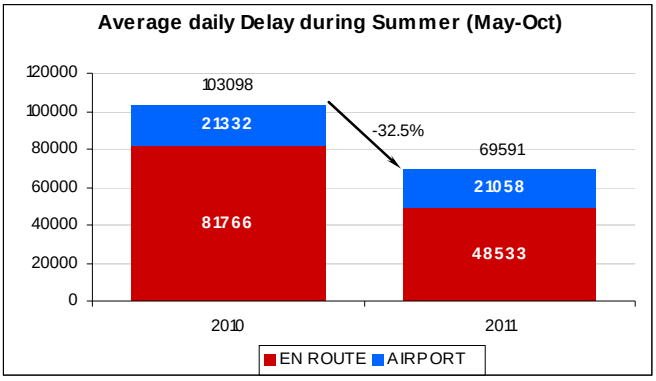

Figure 4 – Total ATFM delays

Total ATFM delays were 32.5% down on summer 2010. This reduction occurred almost entirely in the en-route area (40.6%), while airport delays decreased by only 1.3%.

With the reduced en-route delays, proportion of en-route vs. airport delays is now closer: the en-route/airport delay ratio for summer 2010 ratio was 80% vs. 20%, the same ratio for summer 2011 is 70% vs. 30%.

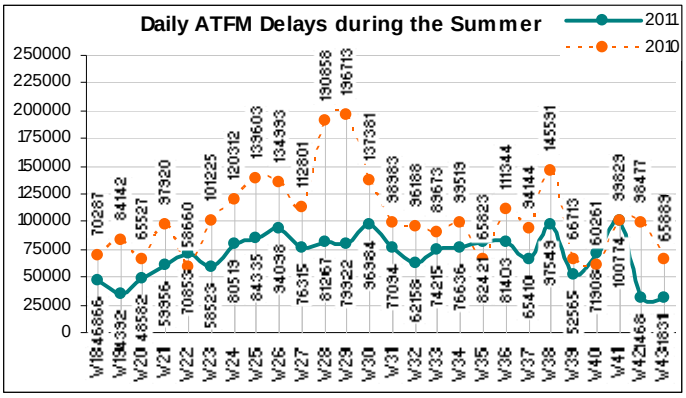

Figure 5 – Weekly ATFM delay evolution

The trend of the total ATFM delays was more stable than in 2010; the peaks that occurred during the industrial action of 2010 were not observed in 2011. However, the Greek issue which dominated network performance in the second half of the summer season also caused an unusual peak at the end of the season (week 41).

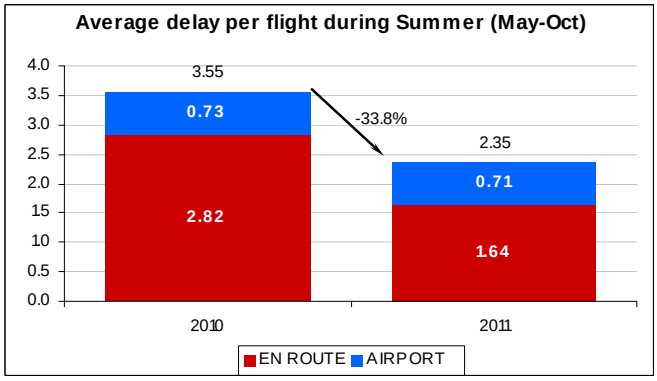

Figure 6 – Delay per flight

Due to reduced delays and increased traffic, the *ATFM delay per flight* figure reduced from 3.55 minutes in 2010 to 2.35 minutes in 2011 (a decrease of 33.8%).
The en-route ATFM delay per flight in summer 2011 was 1.64 minutes. This is a reduction of 41.8% from summer 2010, where the average en-route delay per flight was 2.82 minutes.

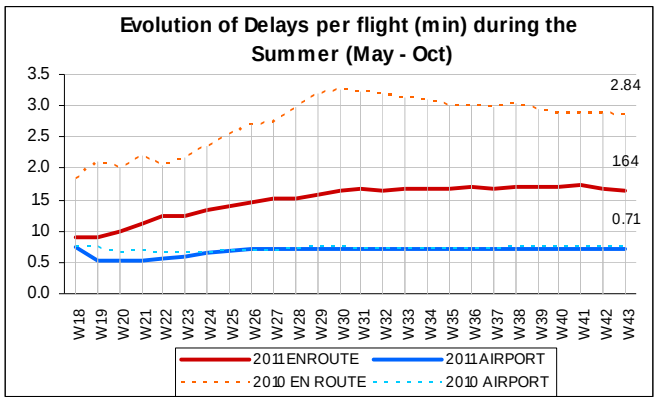

Figure 7 – En-route delay evolution per flight

Average summer en-route delay per flight was more stable and significantly lower than 2010 throughout the season, although the Greek issues in the second half of the season kept the average figure constantly high, prevented a seasonal tail off to take place and have risen the summer average (1.64 minutes) by 0.18 minutes. There was no real difference for airport delays.

Effective capacity increased by approximately 10.2% between summer 2010 and summer 2011. Adjusting for strikes and system implementation, the capacity gain in 2011 is 7.9%.

3.3. Air Transport Delays

Analysis[1] of the ATFCM share of all causes of delay shows an improvement in comparison to last summer. The ATFCM share fell from 38% in 2010 to 31% this summer. This share is, however, still high in comparison to 2007-2009 (which saw 25%, 29% and 27% shares, respectively).

In summer 2011, the average delay per flight on departure for all causes of delay was 10.8 minutes.
40% of flights were delayed by 5 minutes or more on departure, which is a 5 percentage point decrease:

The percentage of flights delayed on departure more than 15 minutes = 19% (fall of 4 points compared to 2010)
The percentage of flights delayed on departure more than 30 minutes = 9% (fall of 3 points compared to 2010)

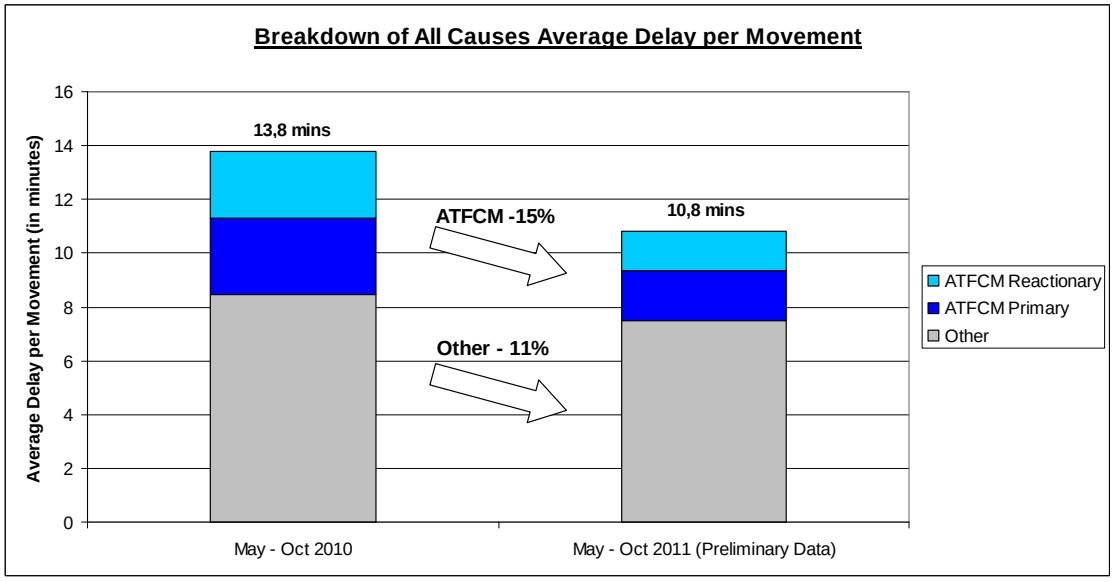

Figure 8 – All delay causes

[1] CODA data, May to October inclusive.

3.4. En-route ATFM Delays

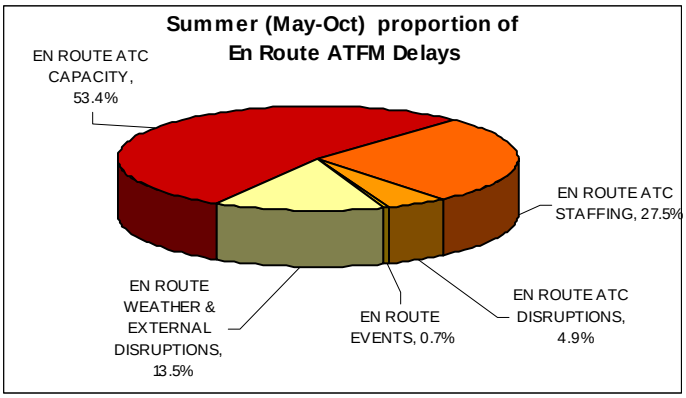

Figure 9 – En-route delay causes

81% of all en-route delays over summer 2011 were attributed to ATC capacity and staffing issues. The remaining 19% were caused by uncontrollable events such as weather, industrial action and other disruptions.

Based on the average daily en-route delay, the 20 highest-delay locations for summer 2011 are as shown in Figure 10. Note that more than half of all network en-route delay was generated by five locations: Athinai Control, Langen ACC, Barcelona ACC, Madrid All ACC and Marseille ACC.

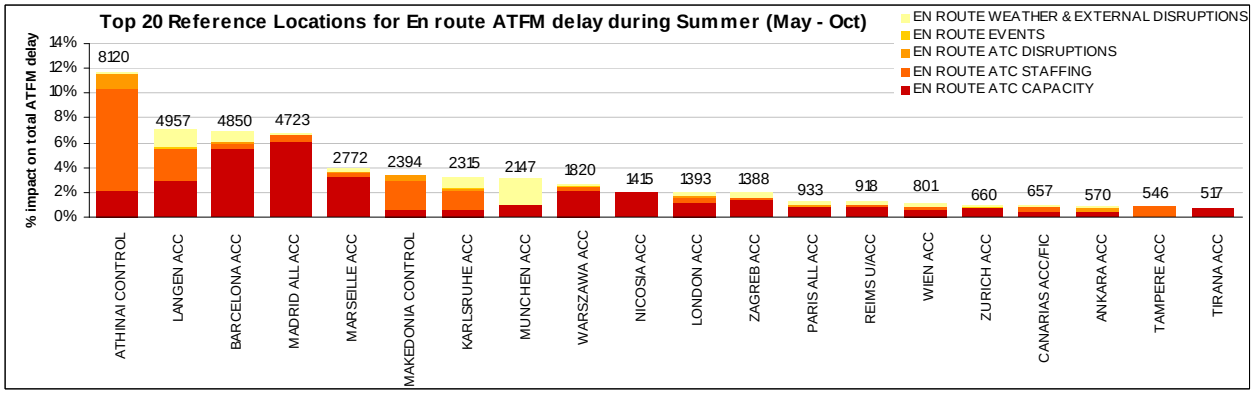

Figure 10 – Highest En-route delay locations (total)

Based on the average en-route delay per flight results, the 20 highest-delay locations for the summer period are as shown in Figure 11:

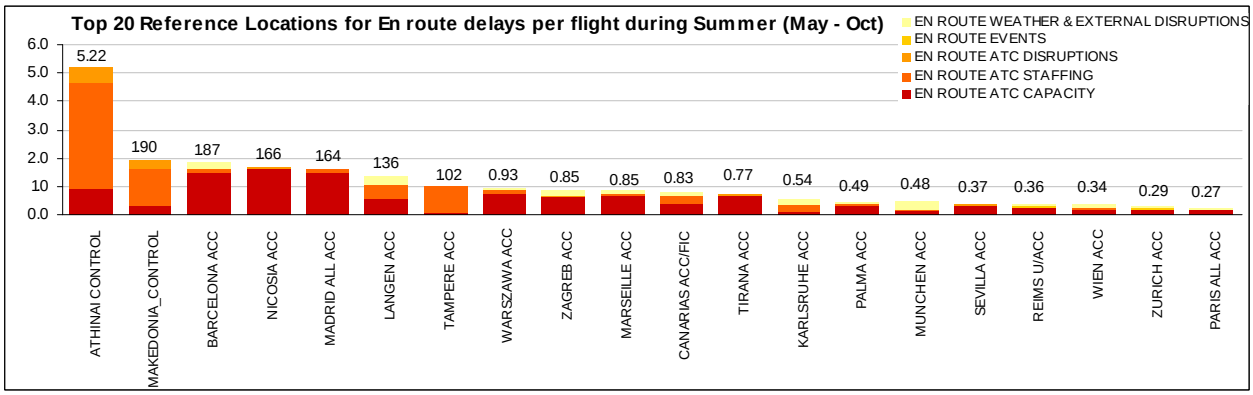

Figure 11 – Highest En-route delay locations (per flight)

3.5. Airport ATFM Delays

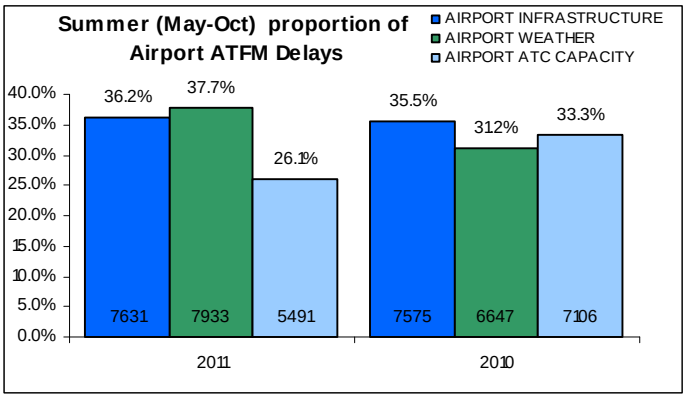

Figure 12 – Airport delay causes

Airport infrastructure and weather accounted for 74% of all airport ATFM delays. The remaining 26% was caused by airport ATC capacity.

Compared to summer 2010, the most significant difference was in airport ATC capacity delays: while airport infrastructure and weather delays increased slightly, ATC capacity delays were reduced noticeably both in terms of absolute minutes and as a proportion of all airport delays (by 7.2%).

Based on their average daily delay, the top 20 delay-generating airports for summer 2011 are as shown in Figure 13. Note that more than one-quarter of all airport ATFM delays was generated by two airports: Frankfurt Main and Madrid Barajas. The top six (Frankfurt Main, Madrid Barajas, London Heathrow, Istanbul Ataturk, Zurich and Athinai Eleftherios) generated 45% of all airport delay during the summer season.

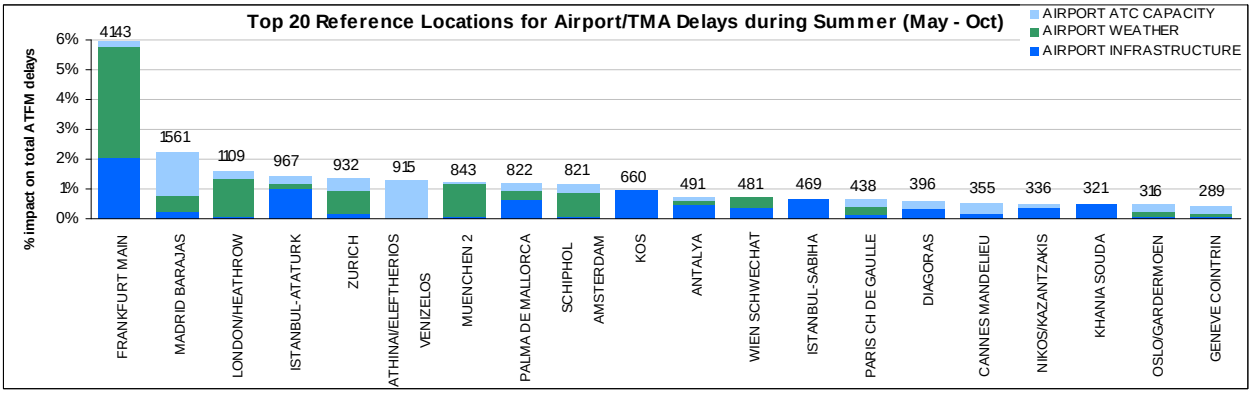

Figure 13 – Highest Airport/TMA delays

Based on their average delay per flight figures, the top 20 airport/TMAs for summer 2011 are as shown in Figure 14. Note that the highest delays per flight occur at smaller airports, e.g. Greek Islands, Cannes and Madrid Torrejon:

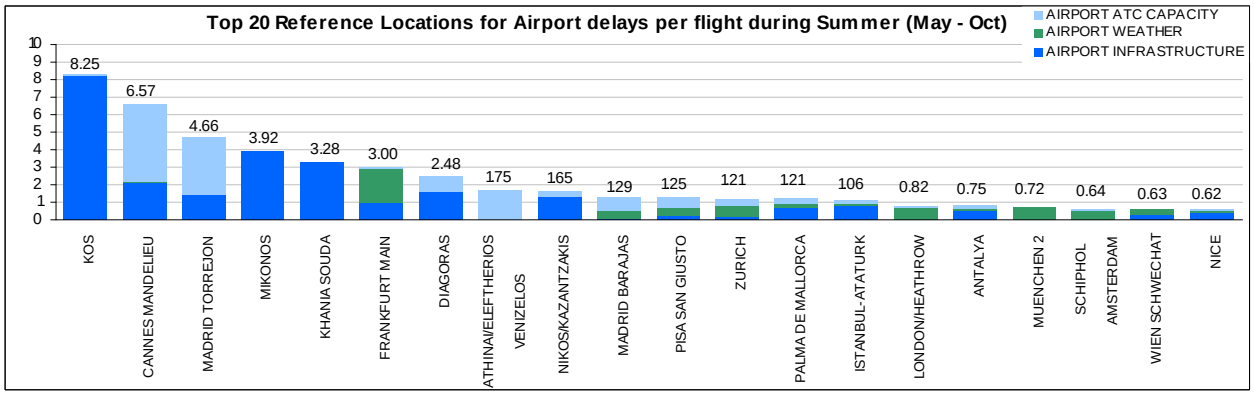

Figure 14 – Highest Airport/TMA delays (per flight)

3.6. Flight efficiency

3.6.1. Airspace design efficiency

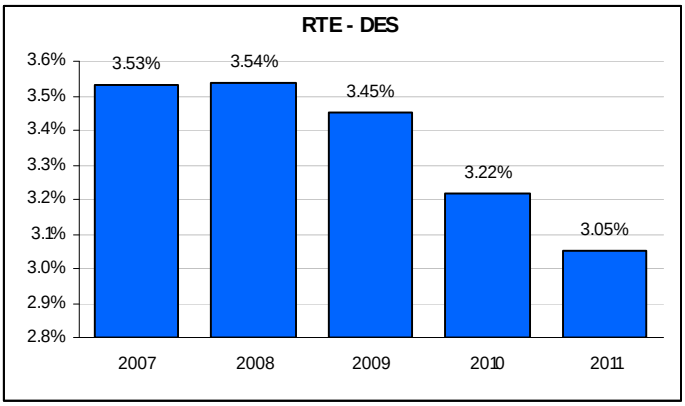

Figure 15 – Airspace design efficiency evolution

The airspace design efficiency indicator shows the difference between the shortest available route length without constraints (from TMA exit and entry points) and the great circle distance, expressed as a proportion of the great circle distance.

The graph on the left shows the yearly trend of airspace design efficiency over the period 2007-2011 (up to 20 October 2011). There is a continued reduction in shortest available route length through summer 2011 and further reductions are expected until the end of 2011. This comes as a result of the implementation of approximately 200 airspace design improvement packages.

3.6.2. Flight planning efficiency

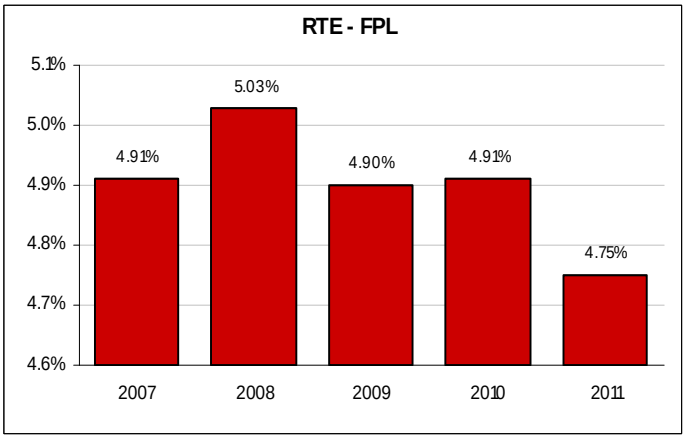

Figure 16 – Flight planning efficiency evolution

The flight planning efficiency indicator shows the difference between the route length from the last filed flight plan and the great circle distance, expressed as a proportion of the great circle distance.

The graph on the left shows the yearly trend of the flight planning efficiency indicator over the period 2007-2011 (up to 20 October 2011). There is a continued reduction in the flight planning indicator, which indicates a gain in flight efficiency. The reduction in the flight planning indicator is a direct result of the improvements in airspace design. Further reductions are expected until end of 2011. A deterioration in flight efficiency was noted in September/October as a result of the difficult social and capacity situation in Greece.

4. PERFORMANCE ANALYSIS

4.1. Overview

The summer season started with 0.9 minutes of en-route delay per flight in week 18. Delays started to increase from the third week of May onwards and the monthly average for May was 1.11 minutes per flight. In June, the monthly average reached 1.73 minutes and in July reached the seasonal peak of 2.05 minutes. In August, the seasonal decline started and the monthly average was down to 1.78 minutes per flight but in September, in conjunction with the social issues in Greece, the delays were still relatively high at 1.73 minutes. Following the resolution of the issues in Greece in October, the monthly average went down to 1.36 minutes in the final month of the summer season, which made the overall en-route delay per flight 1.64 minutes for the summer period.

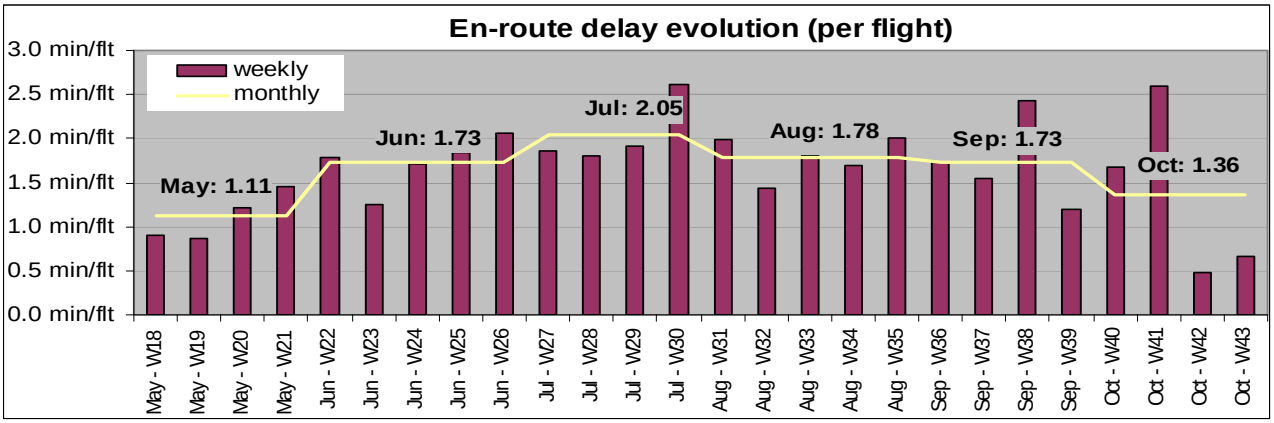

Figure 17 - summer 2011 delay evolution

The weekly delay trend showed that the main peaks occurred at the end/beginning of each month (weeks 21/22, week 26, week 30, week 35 and week 38), except week 41 where the problem was the social tension in Greece. The daily delay trend also shows that the highest level of delays occur at the weekends (see section 4.7 Weekend delays). These peaks are the main driver of the network performance and are closely linked to the performance of the individual ACCs that were identified as "critical" for summer 2011, namely the ACCs of Germany, France, Spain, Greece, Poland, Austria, Croatia and Cyprus. Additionally, delays at Finland Tampere and Albania Tirana ACCs were significantly higher than anticipated. The performance of these particular ACCs is further analysed in section 4.2, En-route (ACCs) below.

As mentioned above, an anticipated delay for each ACC was identified at the preparation/planning phase, which led to an overall en-route delay forecast of 1.7 minutes per flight for the entire network over the summer period. Based on the actual summer results, Figure 18 below shows how each ACC deviated from their anticipated delay:

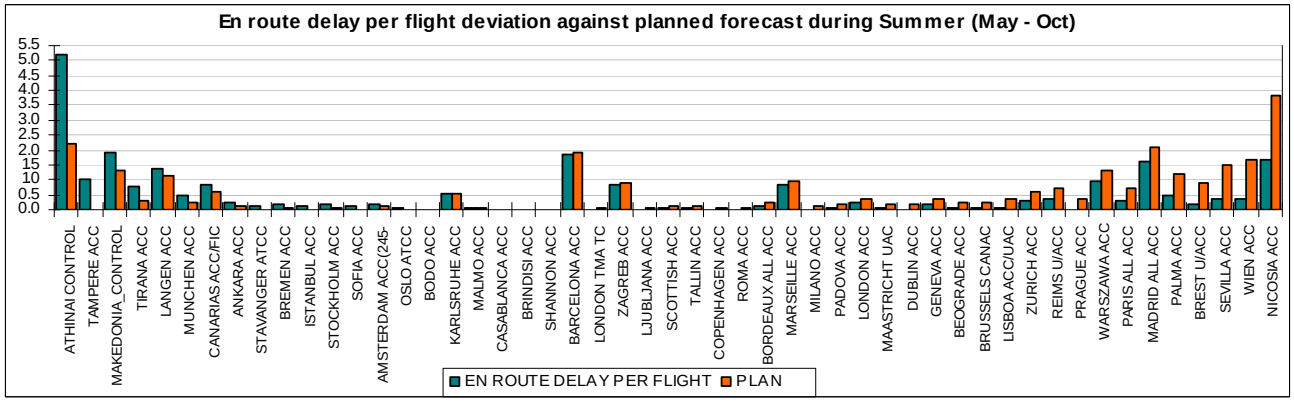

Figure 18 – ACC summer results: deviation from plan

Thus, the highest negative deviation was observed at Athens ACC with 5.22 minutes of actual delay versus 2.23 minutes of anticipated delay. Nicosia ACC, on the other hand, had the highest positive deviation with 1.66 minutes of actual delay versus 3.80 minutes of forecast delay.

4.2. En-route (ACCs)

4.2.1. Spain

Delays at the Spanish ACCs were slightly better than expected prior to the summer season. While a number of measures were taken to enhance capacity, staffing issues prevented the achievement of a better performance than in 2010. The only exception was Sevilla ACC, where delays fell to network-optimum levels.

Except at Barcelona ACC, coordination and advance information-sharing between Spanish FMPs and NM was not always efficient enough for NM to apply optimum solutions for the network.

- Barcelona ACC (LECB): The average en-route delay at the Barcelona ACC for summer 2011 was 1.87 minutes, which is in line with the forecast delay of 1.89 minutes. 5.0% actual growth was higher than the anticipated 4.7% growth. It generated 10% of all summer 2011 en-route delays, the third highest in the network. ATC capacity was the major cause of delay, accounting for 79.5%.

  The delay trend at Barcelona followed a similar profile to the network profile: it started with 0.9 minutes in May, gradually increased through June and July, peaking at week 30 (end July), only to gradually decline in August and September and become virtually nothing by the end of October.

  Barcelona ACC's pre-tactical collaboration was good. However, staffing uncertainty meant that Barcelona had an unstable configuration and capacity problems needed to be resolved in tactical operations.

  The sectorisation at Barcelona is efficient. However, one sector (BMNI) accounts for most of the delay observed, and this is believed to be due to staffing levels. Several measures, including cherry picking, rerouting and level caps were routinely employed to offload the north east area of Barcelona (sectors P1I, LGU and MNI). These were dependent on the level of cooperation of Marseille ACC.

  Attempts to find a better orientation for south west axis traffic were unsuccessful due to the level of consultation required with neighbouring ACCs.

- Madrid ALL ACC (LECM): Madrid ACC's summer performance was 1.64 minutes of actual delays compared to the 2.1 minutes of forecast delay. It generated 9.73% of the entire en-route delay in summer 2011, with ATC capacity being the major cause of delay (90%).

  Madrid started the summer season with a relatively high level of delay in May (2.6 minutes per flight). It had the highest delays in May and June, peaking for the summer at the end of June. From July on, Madrid delays gradually declined but stayed consistently at a mid-high range until the end of the season, which made Madrid the fourth highest delay-generating ACC of summer 2011.

  Traffic growth in Madrid was less than anticipated: 1.9% actual growth vs. 3.1% anticipated growth.

  Madrid is one of the ACCs where there was little pre-tactical collaboration to prepare for expected operational problems. The local policy of problem resolution in tactical operations by the FMP meant that regulations were applied late, with little or no time to mitigate the network impact.

  Again, much of the problem was due to staffing level uncertainty and the consequent impact on configurations. NM believes that much of the tactical work could have been done earlier to the benefit of the network.

The improvement in Madrid from July onward was a result of a new roster agreement, as well as its flexibility to increase capacity and adjust traffic flows when and where required.

- Palma ACC (LECP): Palma ACC's actual summer delay average was 0.49 minutes per flight, which is higher than the forecast 0.18 minutes. However, traffic growth in Palma was also much higher than anticipated: 7.3% actual traffic growth versus 4.0% anticipated growth. It generated 1% of all en-route delays, with ATC capacity being the major cause (69%).

  Palma ACC delays fluctuated between 0.3 and 1.1 minutes through the season.

  Generally, Palma ACC delays arose from the need to regulate traffic in order to protect Palma airport. There are large seasonal variations of traffic, creating demand peaks, particularly at weekends, and the capacity of the airport is insufficient. Other than balancing some traffic on feeder sectors to Palma airport, there were no specific NM actions for the Palma ACC. Specific NM actions for the airport are discussed in section 4.5, Airports. Like at Madrid ACC, delays at Palma ACC tailed off from July onwards.

- Sevilla ACC (LECS): Sevilla ACC performance was 0.37 minutes of actual delays versus 1.51 minutes of forecast delays. The contribution of LECS to total en-route delays for the network was 0.84%.

  Sevilla ACC started the season at a high level of delay (1.8 minutes in May) but gradually improved during the season, and from August onward it generated virtually no delays.

  Actual traffic growth at Sevilla ACC was lower than anticipated (2.9% actual vs. 4.1% anticipated). There were social issues in early summer, which improved from July onwards.

4.2.2. France

Delays at the French ACCs improved considerably on 2010. The performance was better than the plan for all ACCs, except Marseille ACC, where performance was in line with the plan. All French ACCs, apart from Marseille ACC, reduced their delays to network-optimum levels.

- Bordeaux all ACC (LFBB): The average en-route delay of Bordeaux ACC for summer 2011 was 0.14 minutes, which is below its forecast delay of 0.22 minutes. It generated 0.74% of all summer en-route delay, with ATC capacity being the major cause of delay (66%).

  Actual traffic growth at LFBB was also higher than forecast growth (2.9% forecast vs. 5.1% actual growth).

  There were no specific issues with Bordeaux ACC. However, Bordeaux was unable to support certain proposals for balancing traffic bound for Palma due to its own traffic complexity.

- Brest U/ACC (LFRR): Average en-route delay at Brest ACC was 0.18 minutes, which is below its forecast delay of 0.90 minutes. It generated 1.04% of all en-route summer delays. Considering that actual traffic growth at LFRR was significantly higher than forecast growth (2.70% forecast vs. 9.4% actual growth), LFRR summer performance was better than anticipated.

  There were no specific issues with Brest ACC. Collaborative pre-tactical activity between LFRR and NM was strong and effective.

- Marseille ACC (LFMM): Average en-route delay at Marseille ACC for summer 2011 was 0.81 minutes per flight, whereas the forecast was 0.94 minutes. Actual traffic growth was lower than anticipated: 3.0% actual growth vs. 4.2% anticipated. It generated 5.71% of the entire en-route delay over the summer period and was the fifth highest delay-generating location in the network. ATC capacity (82.5%) was the major cause of delay. Overall, LFMM summer performance was close to the planned levels.

LFMM started the season with 0.0 average en-route delay at week 18, but this increased gradually as the traffic built up. July was the worst month, with average LFMM delay reaching 2.5 minutes at week 28 but from week 31 (August) onwards, Marseille delays started to decline.

The Marseille East (MB3 elementary) sector caused most of the delays, particularly on Saturdays during July and August. Rerouting and flight-level capping scenarios were set up commonly to address this. Staffing problems were also evident and Marseille relied on its ability to switch configuration (dynamic scenarios) during tactical operations to cope with the problem. Considerable use was also made of offload measures and scenarios for B sectors during the summer. There is a need to assess traffic flows in Marseille East sector to find the root cause.

Marseille was taken to be the pioneer ACC to validate the delay-sharing procedure with Zurich. The summer trial worked well (see Section 5.4, Enhanced ATFM procedures) and also brought benefits in delay reduction

- Paris all ACC (LFFF): Average en-route delay of the Paris all ACC for summer 2011 was 0.27 minutes, which is below the forecast delay of 0.7 minutes. Actual traffic growth was similar to anticipated growth: 3.8% actual vs. 3.5% forecast. It generated 1.92% of the entire en-route delay with ATC capacity (62.8%) and weather (25.3%) being the two main reasons for delay.

  The UJ sector accounts for 60% of delays in Paris. The Harmonie airspace restructuring project is expected to enhance capacity in the UJ area.

- Reims U/ACC (LFEE): Average en-route delay for Reims U/ACC for summer 2011 was 0.35 minutes, which is half of the forecast (0.7 minutes). Actual traffic growth was also significantly higher than anticipated growth (6.90% actual vs. 3.60% forecast). It generated 1.9% of the entire en-route delay with ATC capacity (68.3%) and weather (22.0%) being the two main reasons for delay.

  Reims follows a successful dynamic tactical approach to ATFM using occupancy counts with close cooperation with AOs.

4.2.3. Germany

In general, resolving problems with German ACCs proved difficult over the summer season due to the different flow management approach applied in Germany, particularly with the introduction of a national (regional) FMP cell last year. Pre-tactical coordination is limited, with the regional German FMP operating only four days a week and only providing e-mails with requested configurations and regulations. This lack of communication also hampers tactical operations because the local FMPs have no authority to make decisions on proposed solutions, preventing cooperative improvements of the situation.

- Langen ACC (EDGG): The average en-route delay for summer 2011 was 1.36 minutes per flight, which is slightly above the forecast delay of 1.12 minutes. It generated 10.21% of all en-route delay and was the second highest delay-generating location of the network in summer 2011.

  It was anticipated that Langen traffic would grow by 2.8% during summer 2011 but in reality it fell by 1.2% (-1.2% growth).

  Delays doubled from around 0.7 minutes in May to 1.4 minutes in June. The figure stabilised but then increased in September to around 2 minutes/flight. The main reason for the continued high delays is related to staff shortages: ATC capacity and staffing causes 77.85% of the delays, which mainly impact the Dusseldorf approach/departure area. The nature of the areas means network improvement options are limited. Only small operational adjustments were possible, which produced small improvements.

- Karlsruhe UAC (EDUU): Average en-route delay for summer 2011 was 0.54 minutes per flight and it generated 4.77% of the network en-route delays, which have greatly reduced since 2010. It met the summer forecast delay of 0.53 minutes. Actual traffic growth was lower than anticipated growth (1.7% actual vs. 4.4% forecast). Delays more than doubled from around 0.5 minutes in April to one minute in June. They dropped to 0.5 minutes in July and have remained stable since. This coincides with a gradual capacity increase since VAFORIT implementation (completion February 11) to the pre-implementation capacity levels.

  Level-cap scenarios used for VAFORIT implementation continue to be used to reduce local traffic complexity. This is different from how level capping is used in other ACCs. In conjunction with the centralised FMP approach in Germany, NM did not manage to reduce this practice, which compromises flight efficiency.

- Munich ACC (EDMM): Average en-route delay for summer 2011 was 0.48 minutes as opposed to the forecast 0.24 minutes per flight. It generated 4.42% of the network en-route delay. Actual traffic growth was lower than anticipated growth (0.8% actual vs. 3.6% forecast). Delays increased sharply from May to June (0.45 minutes to 0.8), dropped slightly in July, and then sharply in August. Delays were around 0.3 minutes per flight by September. Summer 2011 delays are higher than 2010. Weather (thunderstorms) is the main problem with Munich, and their late application of regulations. New weather procedures (from weather trial) may improve the situation.

- Bremen ACC: no particular problems were encountered at Bremen ACC, even though the en-route delay was slightly above optimum.

4.2.4. Finland (EFES)

Unexpectedly high delays were recorded at Tampere ACC due to social issues. As from August 2011 they were resolved and delays are once again very low. At the same time, a very high traffic increase was recorded at Tampere ACC.

NM rerouted traffic around Tampere on an ad-hoc basis at problem times. Good cooperation with FMP and NM allowed mitigation of the delays.

4.2.5. Poland (EPWW)

At Warsaw ACC, average en-route delay for summer 2011 was below the forecast delay (0.93 minutes/flight actual vs. 1.34 minutes/flight forecast), while actual traffic growth was higher than anticipated growth (8.5% actual vs. 5.9% forecast). It nevertheless produced 3.75% of the network en-route delay

Delays increased sharply from April to July (0.2 minutes to 1.5), dropped down to 1 minute in August/September (0.9). Summer 2011 delays are below 2010 levels.

Significant work has been done to address sector configurations and opening schemes, staff availability and training planning during the summer 2011 for the implementation of the new ATM system. As a result of this cooperative work, the capacity increase achieved is higher then the original plan, set against a very high increase in traffic.

Local infrastructural aspects are the root cause of the problems.

Actions taken before summer, e.g. staff training, improved summer performance significantly. Other than the predictability of out of area (Russian) traffic, there were limited tactical issues. Despite the good progress, there is still a need to have closer pre-tactical and tactical cooperation. Euro2012 is an opportunity to foster this cooperation.

4.2.6. Austria (LOVV)

At Vienna ACC, average en-route delay for summer 2011 was 0.34 minutes/flight, which is well below the forecast 1.60 minutes/flight delay. It generated 1.65% of the network en-route delay. Actual traffic growth was lower than anticipated growth (2.4% actual vs. 5.2% forecast). Delays were consistently below 0.5 minutes all summer.

Significant work has been done to address sector configurations and opening schemes, staff availability, airspace changes and re-sectorisation. Using staff from other ANSPs was one of the reasons for this improvement. As a result of this cooperative work, the capacity increase achieved is higher then the original plan. From a network performance perspective, Vienna ACC was at optimum delay levels.

Consistent level cap measures by NM also helped the good result in LOWW (although they compromised flight efficiency).

4.2.7. Croatia (LDZO)

At Zagreb ACC, average en-route delay for summer 2011 was 0.85 minutes/flight, which is in line with the forecast delay for Zagreb: 0.9 minutes. It generated 2.86% of the network en-route delay. Actual traffic growth was higher than anticipated (8.4% actual vs. 5.6% forecast). There were no delays in April, but they increased each month to 1.5 minutes by July before dropping back down to 0.7 minutes by September. LDZO summer 2011 delays are below its summer 2010 delays.

A new agreement on working practices was signed between ATCO and management and this helped performance. Considerable work was also carried out to improve sectorisation, sector capacities, sector configurations, and opening schemes, according to planned staff availability. All these actions were run cooperatively and were successfully implemented at Zagreb ACC. The capacity increase achieved is higher then the original plan.

Zagreb is a good example of what can be achieved through collaboration between the local ANSP and NM. The introduction of a dedicated pre-tactical cell, which now manages all traffic in Zagreb, has improved coordination.

4.2.8. Cyprus (LCCC)

At Nicosia ACC, average en-route delay for summer 2011 was 1.66 minutes/flight, which is well below the forecast delay of 3.8 minutes, and it generated 2.92% of the network en-route delay. Actual traffic growth was lower than anticipated growth (0.9% actual vs. 6.9% forecast). Delays dropped sharply from April to June (2.5 minutes to 0.5), increased to 2 minutes in July, and dropped back to around 1.5 for August/September. The situation in Greece led to increased delays in September. Extensive rerouting measures were used to assist aircraft operators in avoiding Greek congestion. Summer 2011 delays were very significantly below summer 2010.

Intensive efforts have been undertaken with the Cypriot Ministry of Transport, the ATS authorities and the staff representative organisations to seek some real improvements in the ATFCM situation in Cypriot airspace. An FMP function was provided during the summer and appropriately staffed at Nicosia ACC. NM provided maximum assistance. This included intensive training and familiarisation visits on site, optimisation of configurations and routings, regular post-operation reports and feedback. A programme of formal FMP modular training has been scheduled for autumn/winter 2011/12.

4.2.9. Greece

The current serious economic situation impacted performance negatively with very significant staffing and capacity restrictions due to the social tension and official industrial action. As a result, delays continued to increase compared to the previous year in a highly unstable and unpredictable situation. Official industrial

action led to the cancellation of flights rather than delays. Such action was recoded on 4 occasions, impacting 6 days (11 May, 28-29 June, 22 September, 4-5 October) and an average of 290 flights were cancelled on each day of industrial action. High delays in Greece increased the summer 2011 en-route delay average by 0.18 minutes per flight.

The Greek situation had a significant impact on the neighbouring states as well, mainly in Bulgaria, Turkey, Serbia and FYROM, as well as Cyprus, as mentioned above. The impact lasted from mid September until mid October with the following results for each country:

Bulgaria: Impact observed for 7 weeks. Traffic increased by 8.97%, with an average of 156 extra fights per day. The en-route delay increase was 31,749 minutes in total, which pushed the en-route delay average of Sofia ACC from 0.0 minutes per flight in September to 0.71 minutes in October.

Turkey: Impact observed for 8+ weeks. Traffic increased by 3.91%, with an average of 124 extra fights per day. The en-route delay increase was 54,548 minutes in total, which pushed the en-route delay average of Istanbul ACC from 0.1 minutes per flight in September to 0.74 minutes in October. Ankara ACC had less delay impact: 0.1 minutes in September to 0.1 minutes in October.

Serbia: Impact observed for 6 weeks. Traffic reduced by 6.65% with around 123 fewer flights per day.

FYROM: Impact observed for 6 weeks. Traffic dropped by approximately 11% with around 50 fewer flights per day.

- Athens (LGGG): The average en-route delay for summer 2011 was 5.22 minutes/flight. With 16.73% of the network en-route delay (produced by LGGG), it was the highest delay-generating location of the network. The forecast summer delay of 2.23 minutes was substantially exceeded. Actual traffic growth was below anticipated growth (2.8% actual vs. 3.5% forecast), especially with the rerouting applied in September and October to mitigate the problem in Greece. There were no delays in April, but they increased sharply each month to over 10 minutes/flight by September. Summer 2011 delays were substantially above summer 2010. The primary cause of delay was staff shortage and social problems. NM has facilitated rerouting options through Istanbul ACC (which has 200+ extra flights on some days) and the lifting of RAD restrictions. Options were limited due to Libyan airspace closure.
- Makedonia (LGMD): The average en-route delay for summer 2011 was 1.9 minutes/flight and it generated 4.93% of the network en-route delay. The forecast summer delay of 1.3 minutes was exceeded. The forecast traffic growth was 4.7% but in reality the traffic fell by 0.5% during summer 2011. There were minimal delays up to June, but they increased to 1.0 minute in July and August, and rose sharply to over 6.0 minutes/flight by September. Summer 2011 delays were above summer 2010 from September. As with Athens, the primary cause of delay was staff shortage and social problems. NM has facilitated improvements as in Athens.

4.2.10. Albania (LAAA)

The average en-route delay for summer 2011 was 0.77 minutes/flight and it generated 1.07% of the network en-route delay. The forecast summer delay of 0.29 was exceeded. Actual traffic growth was more than double anticipated growth: 4.2% forecast vs. 8.8% actual. The preparations for the opening of a new operations room, the very high traffic increase (3 times higher than the forecast) and the good performance of Austria and Croatia have lead to high delays at Tirana ACC. The situation is expected to stabilise in 2012.

4.3. ER Weather

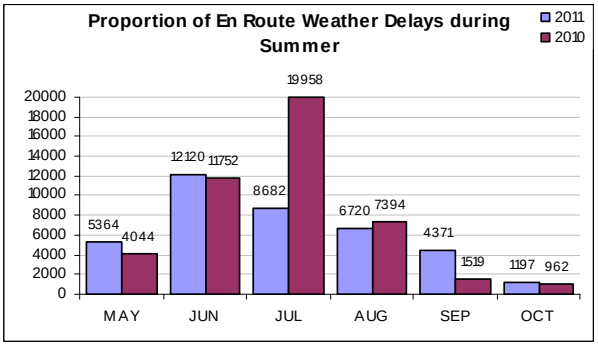

Figure 19 – Monthly ER weather delay over summer

There was 16% less delay in summer 2011 due to en-route weather. As shown in Figure 10, much of the en-route weather delay occurred at German ACCs, particularly in Munich.

Figure 19 shows that much of the en-route weather delay occurred early in the summer, with a noticeable drop in July compared to 2010.

4.4. ER Events

The Tiger Meet military exercise took place over eight days in mid May 2011 in north east France. It could have been better coordinated and communicated, which would have provided more operational flexibility. Despite this, it was well executed. In terms of operational impact, there were 22 regulations generating over 4,000 minutes of delay over the period of the exercise. Over 500 flights flew an extra 11,000 NM in the period – this is a conservative estimate. This equates to 117 tonnes of extra fuel burn – around € 82,000 extra cost.

4.5. Airports

Figure 13 shows the relative size of airport delay across the network. In 2011, the following countries/airports are encountering significant delay and have been, or will be, approached by DNM with an offer of support to resolve bottlenecks.

Germany

The highest airport ATFM delays in Europe are accumulated at Frankfurt airport, two thirds of which are due to weather. In summer they amounted to over 4,000 minutes per day. The new 4th runway starting operations end of October 2011 will allow a higher arrival capacity. Due to the fact that parallel runways can be operated independently, the maximum arrival capacity will be less vulnerable to unfavourable meteorological conditions.

The move to a new ATC Tower at Frankfurt airport reduced capacity. During the implementation phase between 14 and 30 June approximately 5,000 flights were regulated with an average delay of 21.4 minutes. DNM provided support in terms of traffic simulations as well as tactical support during the initial phase of operations itself. The simulations helped, in cooperation with aircraft operators, to strike a balance between "acceptable" delay and flight cancellations. In the implementation phase DNM provided recommendations and advice on the management of flow measures, which helped to reduce the impact and expected delay to a minimum.

A similar set of simulations were prepared for the start of operations of the new 4th runway in October 2011.

Spain

The second highest summer delays were at Madrid Barajas airport with an average daily delay of 1,838 minutes. Aerodrome ATC capacity is the predominant issue. An action plan has been developed addressing Madrid Barajas, Barcelona, and Palma de Mallorca airports. Areas for further joint investigation have been identified, such as airport slot management, departure procedures and interaction with ATC at TMA level. As a first step, a Memorandum of Understanding has been signed between the relevant stakeholders of Madrid

Barajas airport for implementing Airport Collaborative Decision Making. Further steps are awaiting detailed agreements with AENA.

Turkey

Istanbul Atatürk airport has encountered significant delays in the past and could increase its number of arrivals. However, this summer delays started to increase again and in parallel, delays at the second Istanbul airport, Sabiha Gökcen, started to build up as demand has significantly grown. Furthermore, Antalya airport encountered increasing delays this season. Support has been offered to the Turkish authorities (DHMI) to develop a joint action plan for identifying the real causes of delay and eventually find solutions to resolve the problems.

Greece

With the start of the summer season, some of the Greek islands encountered significantly higher delays than in 2010. Potential issues which may be responsible for this increase have been identified and the Greek authorities (HCAA) have been contacted by the Director DNM offering the support of DNM to identify joint measures that can be taken to resolve the situation. DNM has been invited to meet the Greek authorities and joint activities will be identified in close cooperation.

Italy

Treviso airport has been closed during the summer due to construction work on the runway. All traffic originally planned for Treviso has been accommodated by Venice airport. In addition to this higher traffic demand caused by the Treviso closure, extra traffic (in particular general aviation traffic) was expected due to the Biennale of Venice and the film festival at the end of August 2011.
The Italian ANSP (ENAV), in cooperation with the Airport Authorities (SAVE) and the Italian Civil Aviation Authority (ENAC) has requested assistance from EUROCONTROL (DNM) to support the management of this high traffic demand and avoid saturation at the airport. An operational procedure has been developed and agreed by all participants to suspend flights without an airport slot. For this purpose ENAC has empowered ENAV to identify flights without a valid airport slot and to request the DNM operational services to suspend those flights, preventing such traffic from taking off at the aerodrome of departure. This new procedure ensures that only traffic with valid airport slots is operating into Venice airport and overdeliveries are prevented.

4.6. Other network events (ER and airport)

There were three strikes in Europe during May-June that impacted the ATM network. They were in Italy, Greece and France. Each strike was managed well in terms of notification, planning and execution of procedures. Operational impact was small compared to last year's experience. The Italian and Greek strikes generated low delay (around 2,000 minutes each) but some flight cancellations (around 300-400 each). The French strike generated higher delay (20,000 mins) over two days but no cancellations. There was some impact in Spain.

Further strikes occurred in September in Italy and Greece. Again they were well managed with a smaller impact on the network than 2010. In Italy, delay was 7,300 minutes and there were around 1,100 cancellations. The Greek strike generated 7,000 minutes of delay and around 120-140 cancellations.

There was a volcanic eruption in Iceland (Grimsvotn) that impacted European air traffic between 23 and 25 May 2011. This was much less severe than the volcanic eruption in 2010. Post-event analysis indicates that around 645 departures were cancelled, mainly at Scottish and German airports. ATFCM regulations were introduced in Germany. These were quickly replaced by flight planning restrictions. No ATFCM measures

(flight plan or flow) were used in Scotland. Assuming that an equal number of arrivals to the Scottish and German airports were cancelled, around 1,200 flights were cancelled due to the Ash Cloud.

4.7. Weekend delays

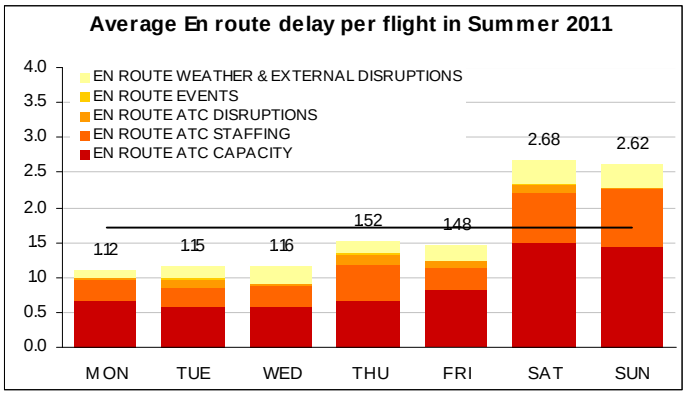

Figure 20 – Weekend delays

The en-route ATFM delay was 1.64 minutes during summer 2011. The chart shows that a significant amount of delay occurred at the weekend. Average delay per flight at the weekend was twice that experienced on most weekdays.

Further analysis of the weekend statistics shows that weekend performance at Athens ACC created twice as much delay than the average day in the week (see Section 3.4 – 7,147 minutes). The same can be said to a lesser extent for other ACCs – Barcelona, Madrid and Marseille. The primary cause of delay at these centres was staff shortage, which appeared to be compounded at weekends.

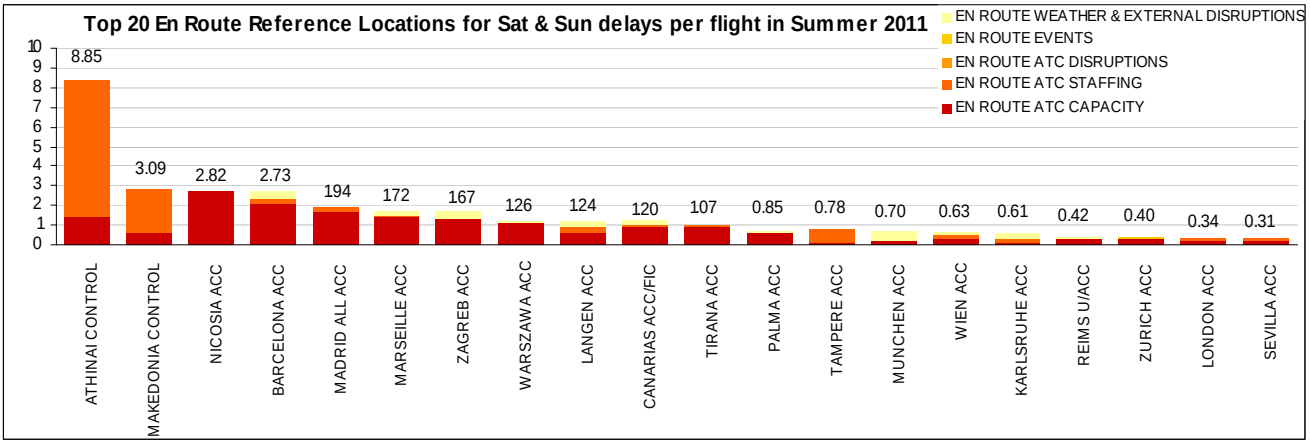

Figure 21 – Top 20 weekend delay locations

4.8. Summary

Staff availability is the main cause of delay at most of the critical places (Greece, Germany, Spain, Marseille, Finland). This is predominantly due to local social tension. Mitigation actions were carried out through avoidance measures such as:

- flight level capping and rerouting scenarios;
- cherry picking;
- negotiating optimal configurations;
- RAD relaxations.

Reduced staff availability at weekends limits sector configurations and this causes disproportionate delays compared to weekdays.

Infrastructure problems (lack of sectors, airspace configurations, lack of systems capability) remain in several places (e.g. Warsaw and Nicosia.) Work was done with such ACCs to mitigate network impact and will continue through the capacity planning process.

There was some unexpected delay due to unexpected traffic increases (e.g. Croatia and Albania).

Strikes were managed better this year compared to 2010. Agreed strike procedures were followed and communicated well with airspace users to keep the network impact down to minimum. Similarly, the May volcanic ash cloud was managed well through good collaborative decision-making and communication.

Weather has had some network impact during the summer. An attempt was made to use better prediction and communication and it is expected that new procedures resulting from the weather trial will improve the situation further in 2012.

Weather is the primary cause of delay at Frankfurt airport. Significant improvements might occur with the opening of the 4th runway in October 2011.

Summer 2011 proved that efficient coordination and information exchange between local FMPs and NM is vital for achieving the best possible network performance.

5. NETWORK READINESS

5.1. Capacity Planning

The final preparations for summer 2011 started in early autumn and were conducted in a very thorough manner with the critical ANSPs. All operational planning aspects have been discussed in detail and the final result following these preparations was a clear view of the opening schemes, number of sectors and the sector capacity benefits resulting from a series of capacity-enhancement measures. This was run though a series of bilateral meetings with ANSPs. In many cases several meetings were required and additional direct support was provided during these preparations. As a result, the Network Operations Plan for the summer 2011 was more accurate, the identification of bottlenecks was more precise and the identification of mitigation actions facilitated. Such an approach must continue in the future in NMB and must also be based on network operational performance criteria to indicate the required improvements in performance at both local and network level.

The better preparation of the Network Operations Plan for summer 2011 was also helped by the cooperative work between DNM and the ANSB. Several letters indicating the expected performance and measures have been exchanged between DNM and several CEOs of the ANSPs. This exchange helped in maintaining the commitment on the capacity plans cooperatively developed between the ANSPs and DNM.

5.2. Cooperation NM and FMPs

During summer 2011 a number of examples of good collaboration took place between DNM and FMPs, particularly with Cyprus and Zagreb where a 7-point action plan was designed and implemented. These areas have shown significant reductions in the amount of delay generated compared to summer 2010.
Other areas have also shown improvement in collaboration such as Istanbul and Sofia. This was largely driven by the problems in Greece which caused on-load and necessitated closer cooperation. The resulting package of measures designed reduced delay and, particularly with Istanbul, has started a longer term improvement process. These examples have shown that where collaboration took place at any stage of the process, mitigation could be implemented and paved the way for delivering a better service to the aircraft operators.

5.3. Tactical ad-hoc solutions

Various tools and techniques are used on an ad hoc basis but in close cooperation with stakeholders to assist in matching capacity with demand. These include the tactical application of rerouting and flight level cap scenarios. Due to the longer lead in time, it is often more appropriate to cherry pick specific traffic to relieve small overloads.
Configuration and capacity management in close collaboration with FMPs is used to better handle traffic following changes in tactical traffic patterns or staff availability.
The use of minimum departure intervals (MDIs), departure and slot tolerance windows, slot extensions and exclusions are all used to help FMPs deal with short-term tactical problems.

5.4. Enhanced ATFM procedures

There has been a delay-sharing trial over the summer involving LFMM and LSAZ using RR7MEK. The results are promising, with benefits to the network and to the parties involved. The trial will be reported to DOP. Network Ops is preparing to extend it to the skiing season and is selecting scenarios and creating measures.
Network Ops has begun a 'driving down delay' initiative to produce operational performance measures to achieve business delay targets. This uses historical information combined with recent operational performance to identify high risk areas. Validation of the results of this process has been completed, prototyping in the ops room will begin in October and live introduction is scheduled for January.

DNM has proved the viability of a network weather alerting procedure and coordination process. The purpose of the procedure is to better prepare the network for the possibility of severe weather and determine in advance the type of strategy to employ with network actors as a collaborative activity. The procedure will be implemented in 2012.

5.5. Strike Management

The experience with strikes gained during 2010 was used to improve planning and preparation for future industrial action. At the end of 2010 a request was made to all ANSPs for details on contingency plans if any that have been developed to handle industrial action. Although the response was limited it did allow some pre-planning. A strike template was designed to ensure that all events are handled in a consistent manner; a strike template is opened as soon as any industrial action is notified to DNM (officially or not). Once complete with post operational input and recommendations for future improvement, the strike template is used as a basis for the official strike report.

Recent developments include:

- The relaxation of RAD restrictions in surrounding airspace.
- Dedicated positions in the ops room to manage strikes.
- Pre and post strike teleconferences where required.

Standard strike procedures now exist for Italy, Greece and France and to a lesser extent, Germany and Spain. These are monitored and reviewed in the light of operational experience.

5.6. System Deployments

The VAFORIT system upgrades in Karlsruhe were completed in February. Throughout the summer there have been minor capacity increases so that by the end of June the capacity was back to pre-VAFORIT levels.

Training for IFACT implementation in London has led to some delays over the summer period due to staff shortages. These were not particularly heavy and were notified in good time.

Within DNM the CFMU 15 software enhancement was deployed before the summer season with no major operational impact. An increment to this (CFMU15.5) took place at the end of October, including capabilities to support the concept of Free Route Airspace (FRA).

5.7. Crisis management

The European Aviation Crisis Coordination Cell (EACCC) was established in May 2010 to coordinate the management of responses to network crises adversely impacting aviation in Europe. The eruption of Grimsvötn in May 2011 required full activation of the cell. It monitored the situation and from 23 May - through regular teleconferences - worked closely with all aviation partners to minimise the impact of the cloud on European airspace, while also maintaining Europe's high safety levels. This was largely achieved with minimal network disruption as a result of the progress achieved since April 2010.

Key to the EACCC's success was the element of collaborative decision-making in ensuring comprehensive and coordinated actions across a number of aviation domains when dealing with crisis situations. The EACCC has demonstrated its ability in this regard when formulating recommendations on actions to be taken in the event of another volcanic eruption, recommendations that were the basis for the successful outcome of both the VOLCEX 11/01 exercise and the Grimsvötn eruption. Moreover, the cell has played a key role in facilitating the coordination and assurance of consistent messages on the crisis status, its management and development amongst the EACCC participants, as well as with the media.

However, a number of open issues still need to be resolved. For instance, some European States still need to adopt the principle of mutual recognition of safety risk assessment (SRA) for operations in the ash contaminated areas.

5.8. Post ops monitoring and reporting

Post operations have provided operational feedback and input for all major events over the summer period including strikes and severe staff and capacity shortages (Greece). This has been used as part of the weekly network performance briefing, morning briefing and official strike reports. This will continue to be developed as required. Post operations will also be providing statistical input for the driving delay down project due to commence in 2012.

6. CONCLUSIONS, PREPARATION & RECOMMENDATIONS

6.1. Conclusions

In summer 2011, the network suffered less from both planned and unplanned events. There were fewer strikes and those that took place had a smaller impact on the network than 2010. There was improved network coordination for those strikes, but there is room for improved contingency planning. There were also fewer new system implementations.

En-route ATFM delays for the summer 2011 were consistent with the objective of 1.7 minutes forecast in March. Some ANSPs provided more capacity than planned, others less capacity (see in Annex the outcome of summer 2011 compared with the plans for the critical areas identified before summer 2011). Overall, deviations from the ACC plans balanced each other out.
The way summer 2011 was prepared in good partnership between industry and NM should continue for preparing the RP1.
Action: benefit from this experience of summer 2011 and improve the planning and monitoring process for the next reference period.

Delays related to events, planned or not, (system changes, weather, failures, etc) remain within expectations and represent on average 20%.
Two local disruptions (Libyan closure and Greek crisis) - unmanageable by ATM alone - impacted traffic and capacity. The most unforeseen penalising situation was the Greek crisis with a large impact in the September-October period. The contribution of these events to the ER delays is estimated at around 0.18 minutes.
Action: Benefit from this experience to develop disruption procedures.

Finland and Albania faced a large increase in traffic (2 to 3 times more than forecast); this created unexpected delays.
Action: Review traffic forecasts to share such developments with partners

Airport delays are stable compared to previous years.
Action: Develop a management process for airport ATFM delays.

Social issues (staff availability and social unrest) are the main underlying cause of en-route delays for the summer and are likely to continue next year. As a consequence, further attention is required to improve the flexibility of staff within ATC units, to address their mobility between ATC units or ANSPs, and to mitigate the impact of disruptions through improved contingency arrangements. It should also be noted that most delay attributed to "ATC capacity" by FMPs are in reality related to these social issues as there is only a few ACCs with structural lack of capacity.
Action: Address the impact of staff resources on capacity and identify mitigation actions.

Cooperation between the stakeholders when difficulties arise is an essential asset coming from the network management that, when used, provides benefits to the airspace users. Summer 2011 gives a good demonstration of the benefit of such cooperation, which worked better when clear responsibilities were identified.
Action: Make progress in the definition of Network procedures, benefitting from cooperation.
Action: Develop a clear CDM procedure between the operational stakeholders, involving both management and operations.

6.2. RP1 preparation

According to NM IR, NMB and NM must prepare and manage the RP 1 (2012, 2013 and 2014). To this end, besides the preparation of the Network Strategic Plan including the NM Performance Plan, the preparation of the NOP for 2012, 2013 and 2014 is being launched so that it can be endorsed by NMB in March 2012.

At present, based on the ANSP capacity plans provided in 2010, the forecast for summer 2012 en-route ATFM delay is 2.11 minutes per flight. The Network Manager is supporting ANSPs in the development of updated ACC capacity plans over the Winter 2011/2012, following which a new delay forecast will be made in Spring 2012.

In addition, the European Route Network Improvement Plan will continue to address airspace design and utilisation improvement actions through a cooperative approach.

In order to endorse a NOP for RP1 in March 2012, NMB should entrust NM to work with industry to prepare a NOP, as was the case before summer 2011, in particular by addressing critical areas and systemic issues.

6.3. Recommendations

NM recommends that NMB and the wider network community:

- note the outcome of summer 2011;
- acknowledge that the cooperative approach to preparing summer 2011 was beneficial and should be pursued;
- note that the systemic issues, in particular the staff aspects that were identified before summer 2011, were confirmed for summer 2011 and that they require close attention in the coming years;
- support the actions identified in the conclusions;
- entrust NM to work with industry to prepare the NOP for RP1 in order to have it endorsed in March 2012 by NMB and to address both the systemic issues and the critical areas which will shortly be identified for summer 2012 and the following years.

ANNEX I) SUMMER 2011 ANSP PERFORMANCE OVERVIEW

Country	ACC Name	ACC	Delay			Traffic increase		Capacity increase	
			Forecast 2011	Actual 2011	Actual 2010	Forecast	Actual	plan	actual
Austria	WIEN ACC	LOVV	1.69	0.34	2.2	5.20%	2.4%	7%	11%
Cyprus	NICOSIA ACC	LCCC	3.8	1.66	3.8	6.90%	0.7%	7%	22%
Croatia	ZAGREB ACC	LDZO	0.9	0.85	1.6	5.60%	8.4%	12%	17%
Germany	LANGEN ACC_FIR	EDGG	1.12	1.36	1.2	2.80%	-1.2%	0%	-1%
Germany	MUNCHEN ACC	EDMM	0.24	0.48	0.3	3.60%	0.8%	1%	-4%
Germany	RHEIN UAC	EDUU	0.53	0.54	1.7	4.40%	1.7%	11%	11%
Germany	BREMEN ACC	EDWW	0.05	0.17	0.4	2.90%	-0.3%	1%	0%
Greece	ATHINAI CONTROL	LGGG	2.23	5.22	1.6	3.50%	2.8%	0%	-4%
Greece	MAKEDONIA CONTROL	LGMD	1.3	1.9	0.6	4.70%	-0.5%	0%	-4%
France	BORDEAUX ALL ACC	LFBB	0.22	0.14	1.5	2.90%	5.1%	16%	18%
France	REIMS U/ACC	LFEE	0.7	0.35	0.4	3.60%	6.9%	2%	4%
France	PARIS ALL ACC	LFFF	0.7	0.27	1.1	3.50%	3.8%	1%	10%
France	MARSEILLE ACC	LFMM	0.94	0.81	4.3	4.20%	3.0%	12%	7%
France	BREST U/ACC	LFRR	0.9	0.18	3.5	2.70%	9.4%	12%	22%
Poland	WARSZAWA ACC	EPWW	1.34	0.93	1.4	5.90%	8.5%	6%	8%
Spain	BARCELONA ACC	LECB	1.89	1.87	2.6	4.70%	5.0%	4%	8%
Spain	CANARIAS ACC/FIC	GCCC	0.61	0.83	0.6	2.90%	7.1%	2%	3%
Spain	MADRID ALL ACC	LECM	2.11	1.64	1.7	3.10%	2.1%	4%	0%
Spain	PALMA ACC	LECP	0.18	0.49	0.2	4.00%	7.4%	2%	0%
Spain	SEVILLA ACC	LECS	1.51	0.37	0.7	4.10%	2.9%	3%	5%
Albania	TIRANA ACC	LAAA	0.29	0.77	0.2	4.20%	8.8%	4%	0%
Finland	TAMPERE ACC	EFES	0.02	1.02	0	3.20%	8.9%	0%	-14%

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