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Global Challenges to Improve Air Navigation Performance

European ATFM

11-13 February 2015

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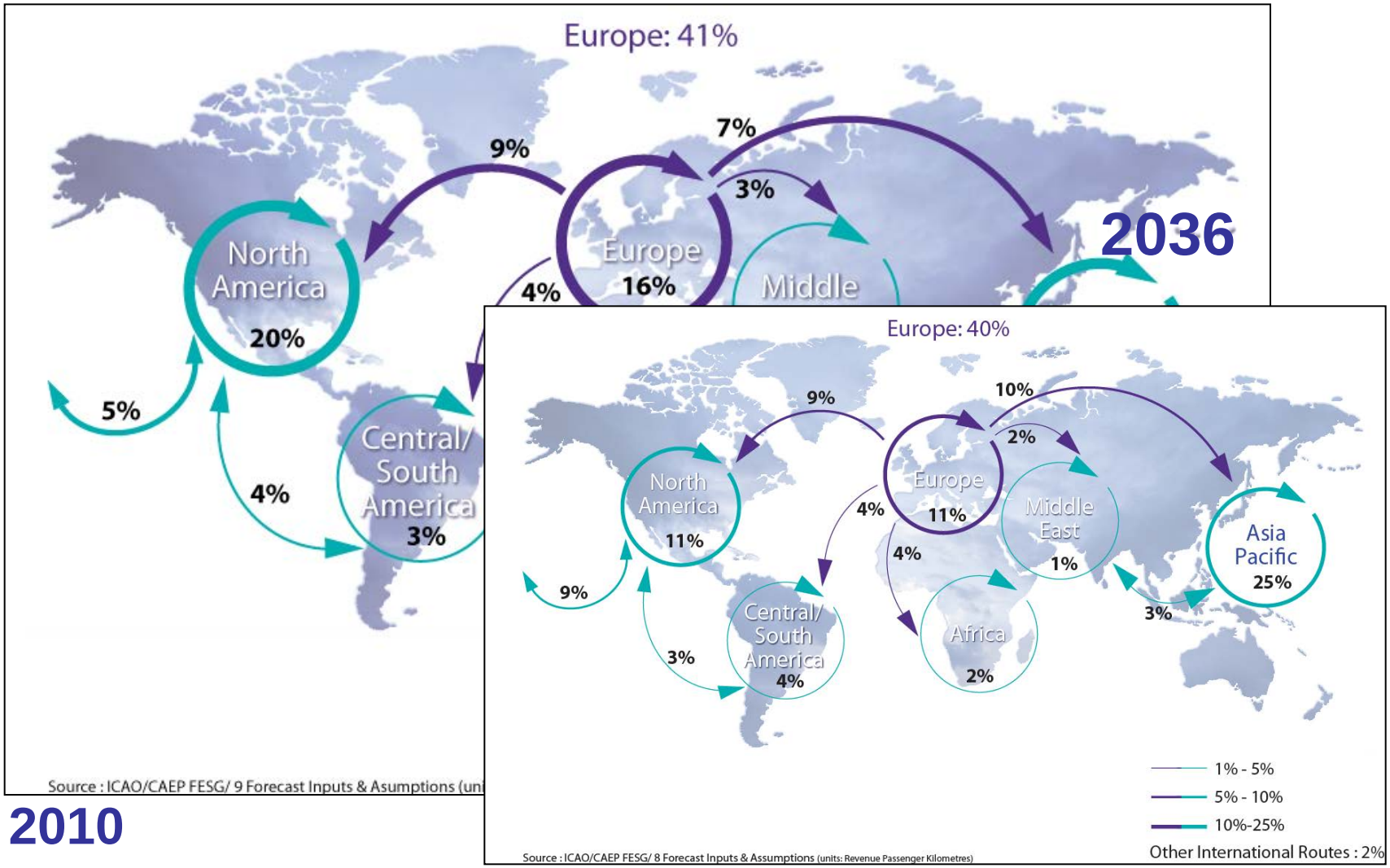
Head, Operational Analysis & Reporting
Network Manager Directorate

An idea of Europe's demand / capacity balancing act

- European landscape
- What upsets the balance
- Local ATFM techniques
- Network ATFM techniques
- Global – Cyprus example
- Future ATFM techniques
- NM's future performance ideas

Europe in World Traffic 2010/2036



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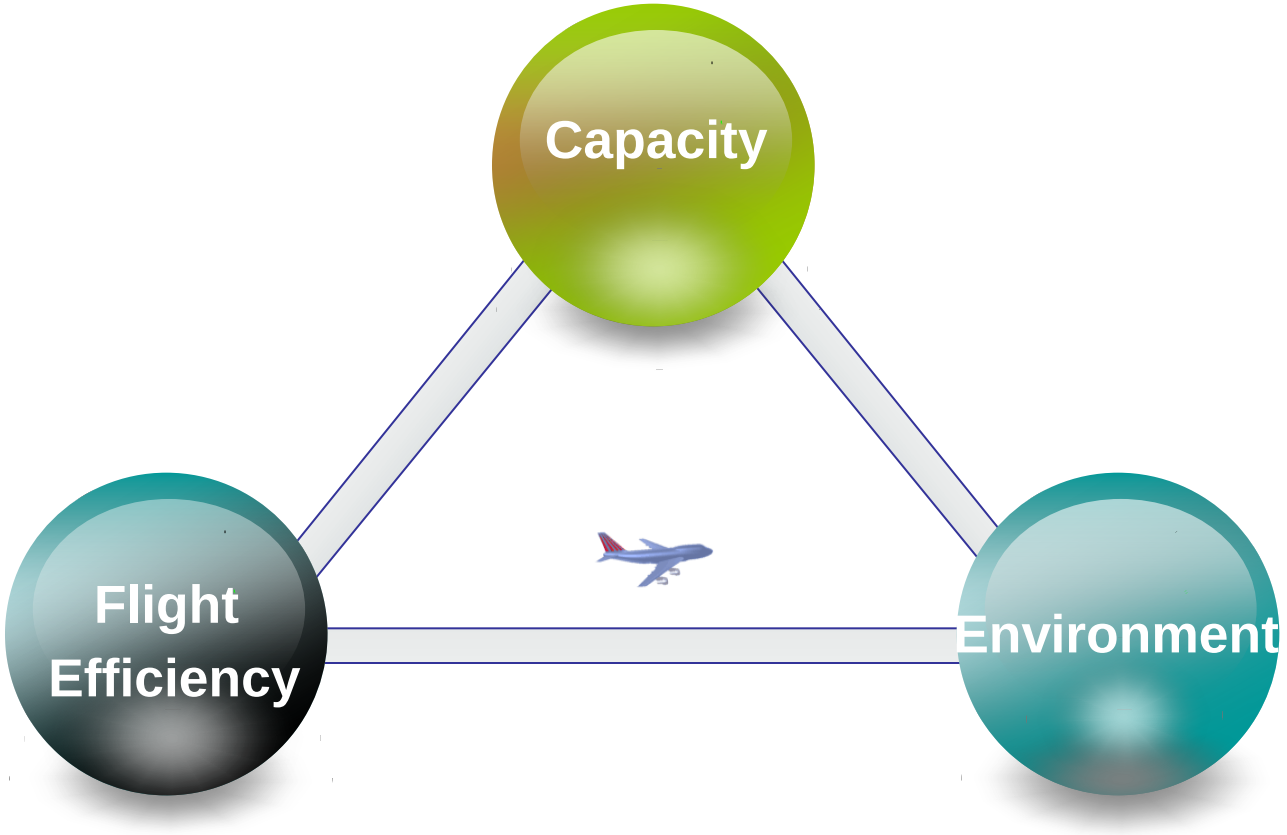
ATM Structure in Europe

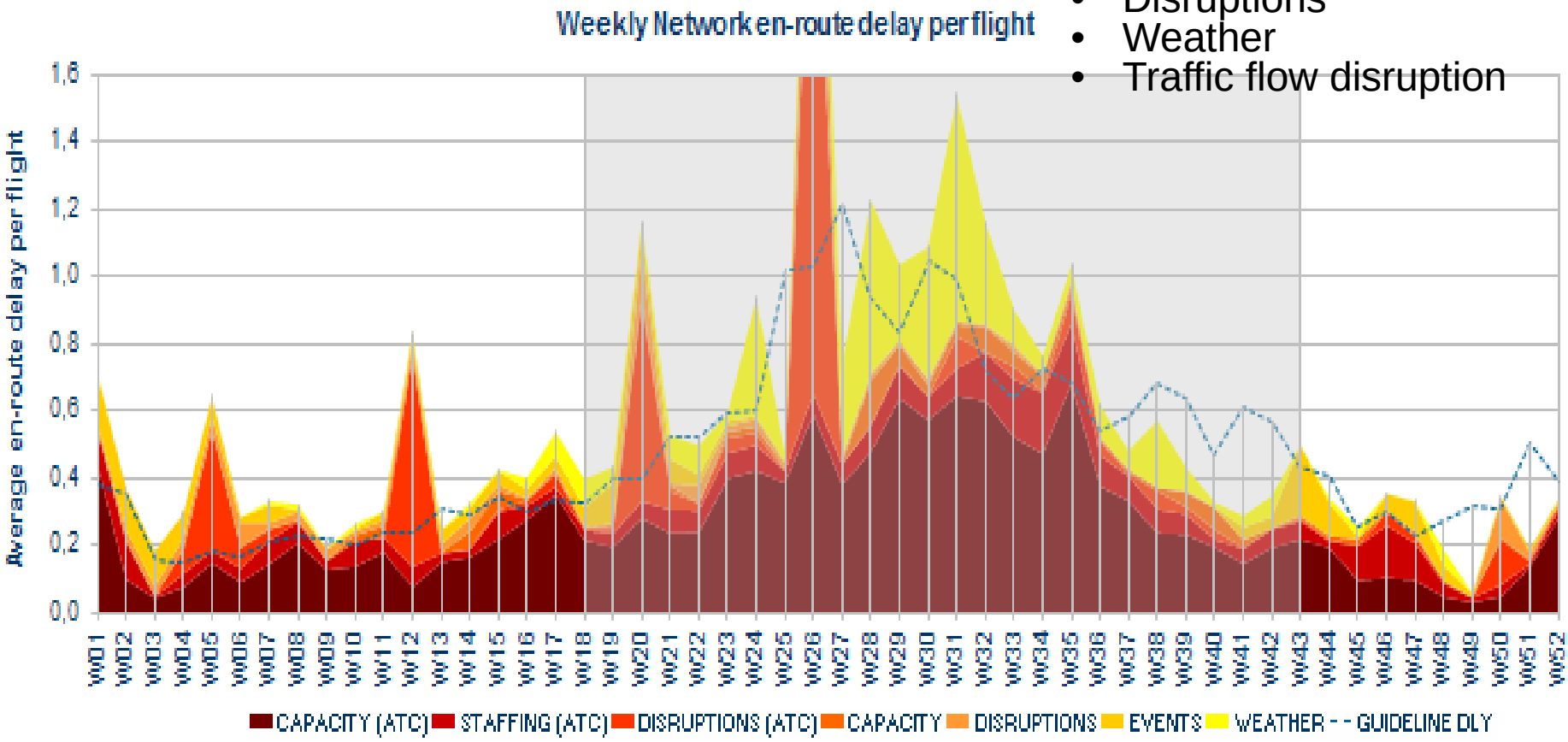
One single Flow Management System over Europe

Performance priorities



What upsets the balance?

- ATC capacity /staffing
- Disruptions
- Weather
- Traffic flow disruption



The ATFM techniques

Tactical

1. Capacity increase
2. Sector configuration management
3. Cherry picking, STAM, Rerouteing proposals, CARA…

Local and NM

4. Mandatory level capping scenarios
5. Mandatory rerouteing scenarios
6. ATFM regulation
    - Slot list management
        - **ad-hoc manual exclusions in coordination with FMP**
        - **Slot manipulation (e-helpdesk or delayed flight list monitoring)**

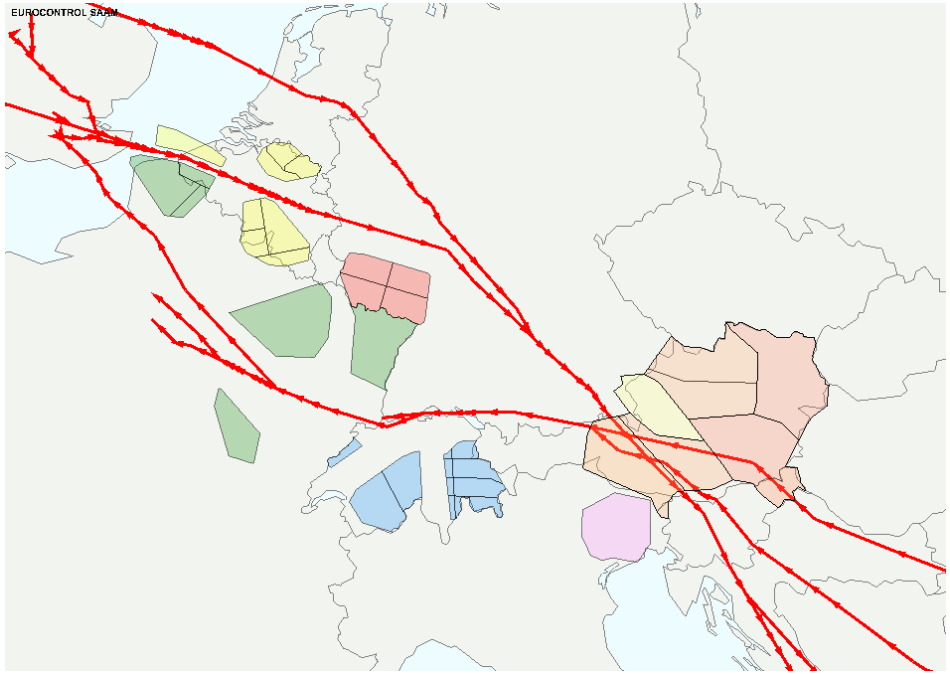
NM applied

Network techniques – Capacity

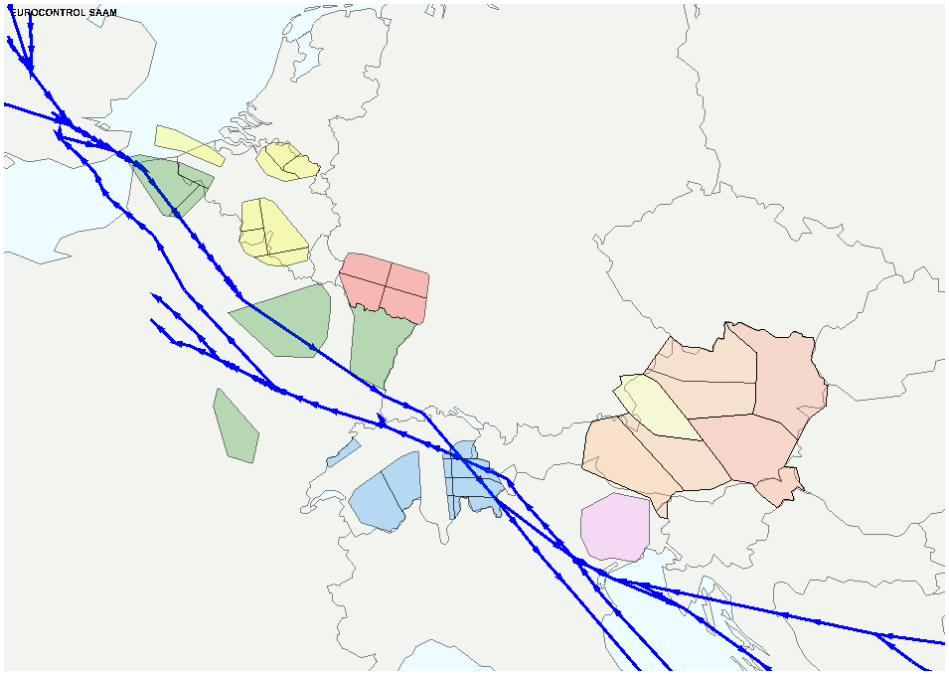
- NM negotiation with local units on configurations
- Airspace management negotiations

Network wide implementation required

Before

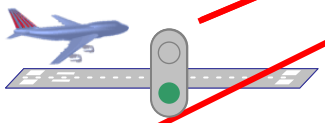


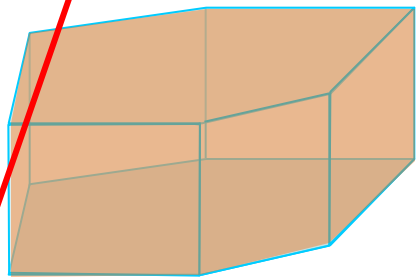
After



ATFM regulation avoiding congestion

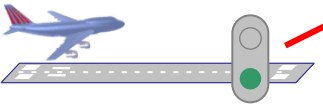
Sequencing the traffic

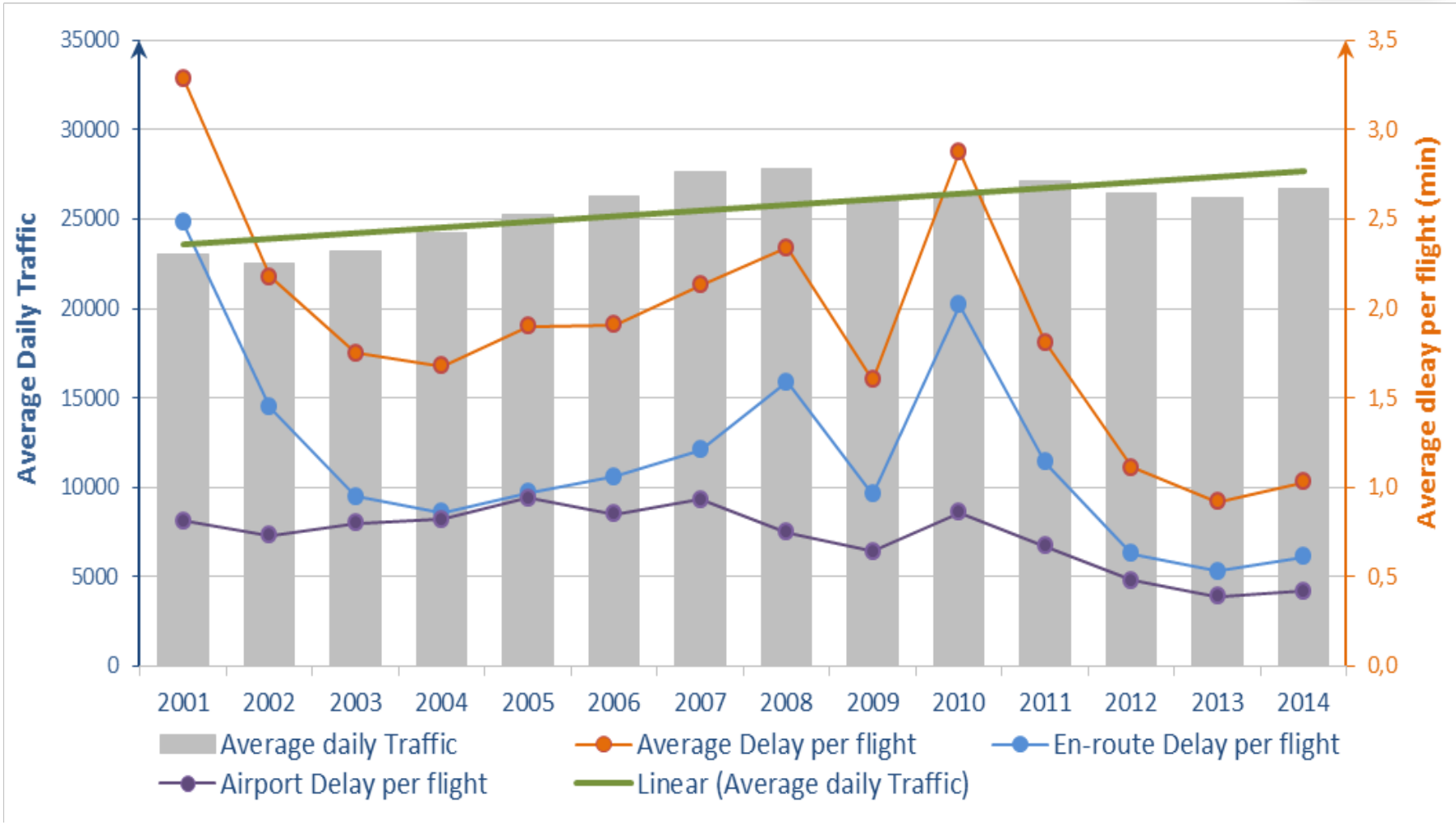




Optimisation:

- Exclusions
- Slot improvement
- Ground benefits




Average Daily Traffic
Average dleay per flight (min)
35000
30000
25000
20000
15000
10000
5000
0
3,5
3,0
2,5
2,0
1,5
1,0
0,5
0,0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Average daily Traffic
Average Delay per flight
En-route Delay per flight
Airport Delay per flight
Linear (Average daily Traffic)

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Reroute scenario

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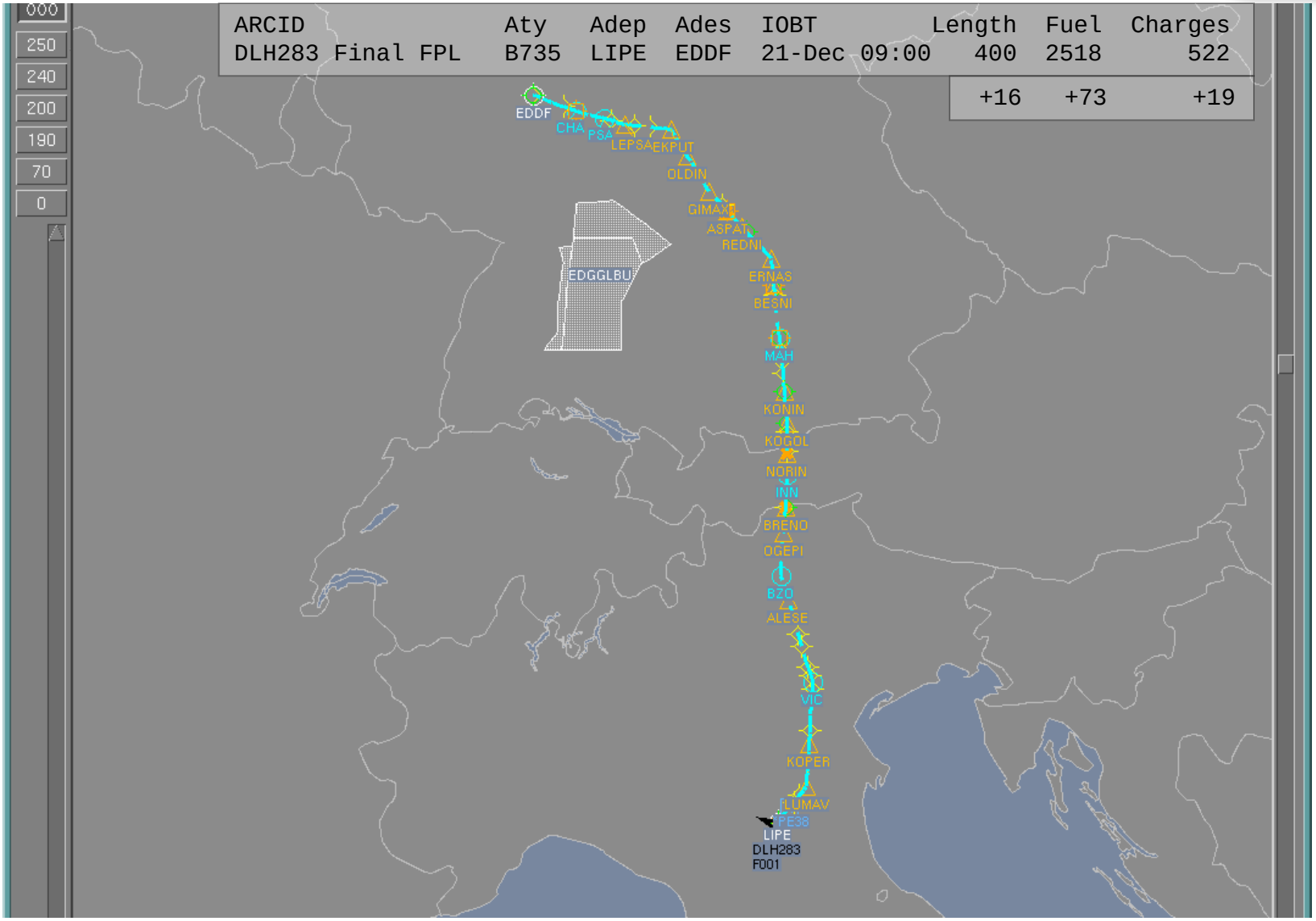
ARCID Aty Adep Ades IOBT Length Fuel Charges
DLH283 Final FPL B735 LIPE EDDF 21-Dec 09:00 400 2518 522
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ASPAT
REDNI
ERNAS
BESNI
EDGGLBU
MAH
KONIN
KOGOL
NORIN
INN
BRENO
OGEPI
BZO
ALESE
VIC
KOPER
LUMAV
PE38
LIPE
DLH283
F001

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FL level cap

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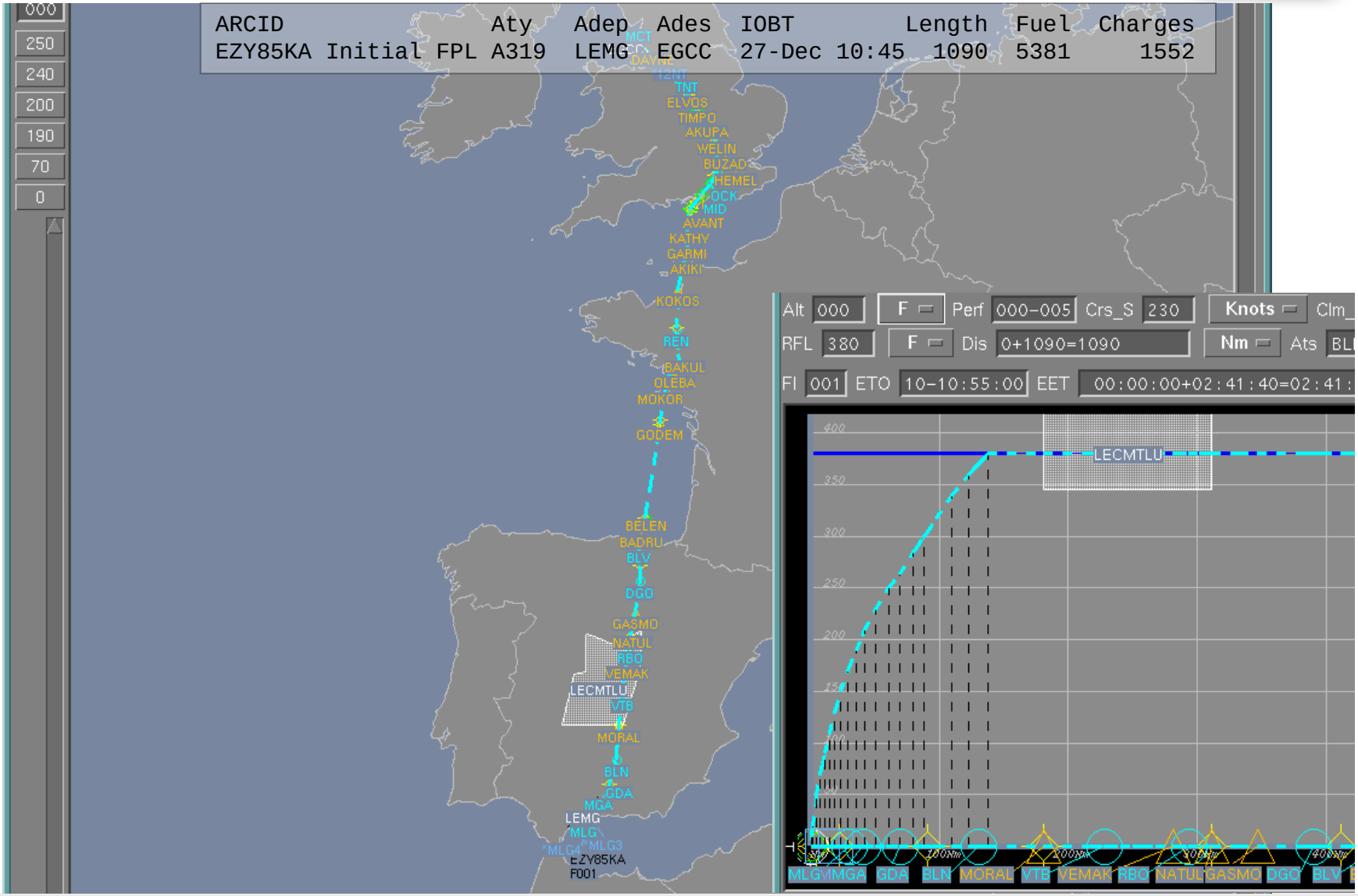

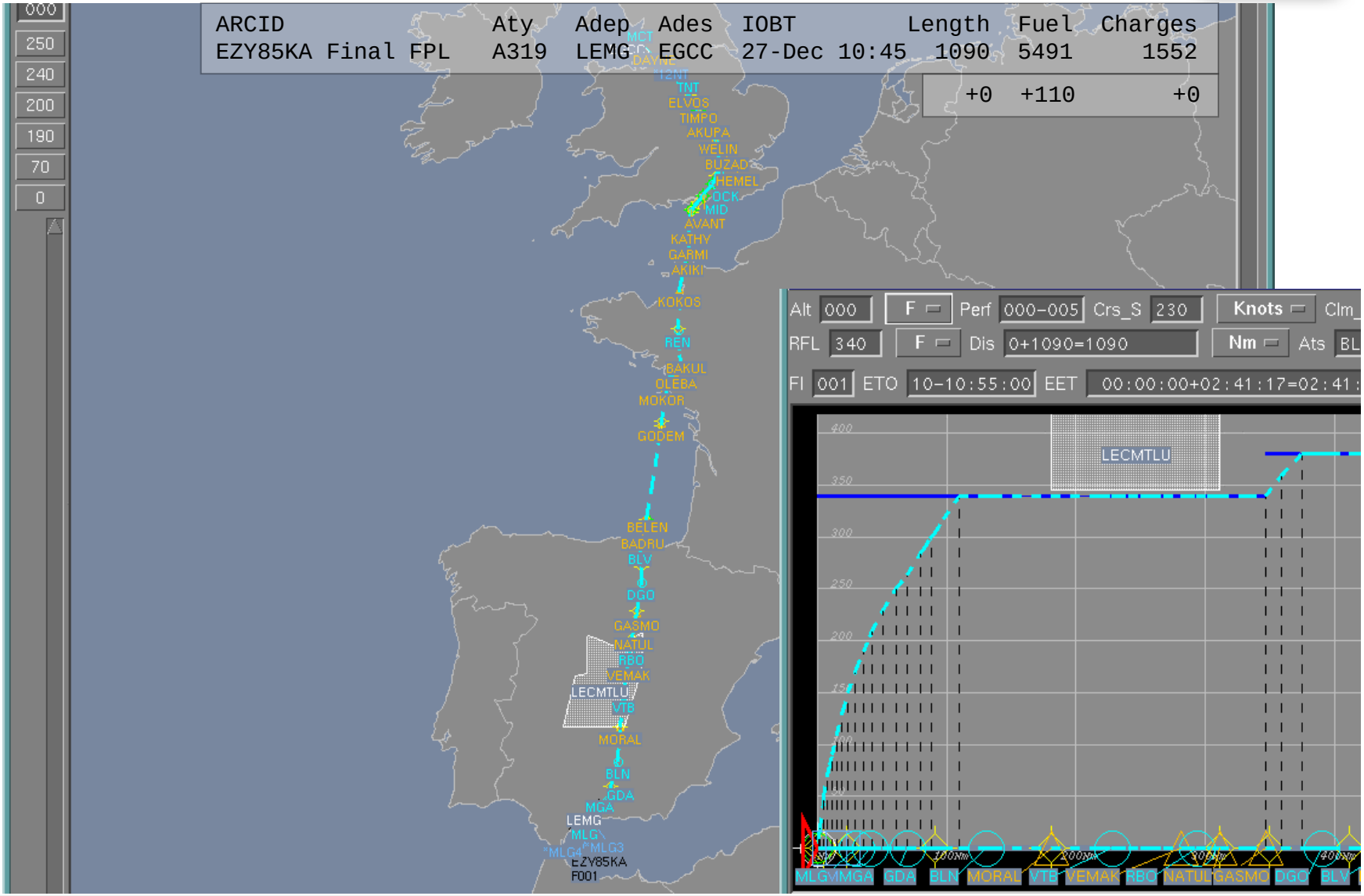
ARCID Aty Adep Ades IOBT Length Fuel Charges
EZY85KA Final FPL A319 LEMG EGCC 27-Dec 10:45 1090 5491 1552
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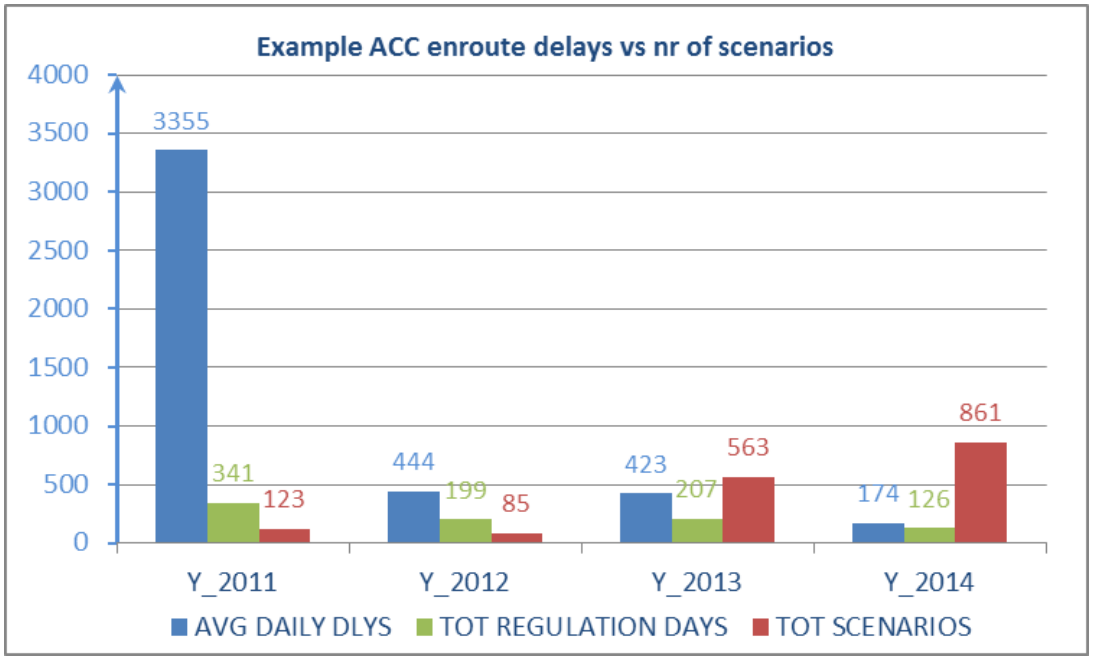
WELIN
BUZAD
HEMEL
LOCK
MID
AVANT
KATHY
GARMI
AKIKI
KOKOS
REN
BAKUL
OLEBA
MOKOR
GODEM
BELEN
BADRU
BLV
DGO
GASMO
NATUL
RBO
VEMAK
LECMTLU
VTB
MORAL
BLN
GDA
MGA
LEMG
MLG
MLG4
MLG3
EZY85KA
F001
Alt 000 F Perf 000-005 Crs_S 230 Knots Clm
RFL 340 F Dis 0+1090=1090 Nm Ats BL
Fl 001 ETO 10-10:55:00 EET 00:00:00+02:41:17=02:41:
LECMTLU
400
350
300
250
200
MLG MGA GDA BLN MORAL VTB VEMAK RBO NATUL GASMO DGO BLV

Performance priorities

- ANSP's performance judged by ATFM delay
- Aircraft operators penalised by scenarios
- Environment (route extension FPL) impacted by scenarios



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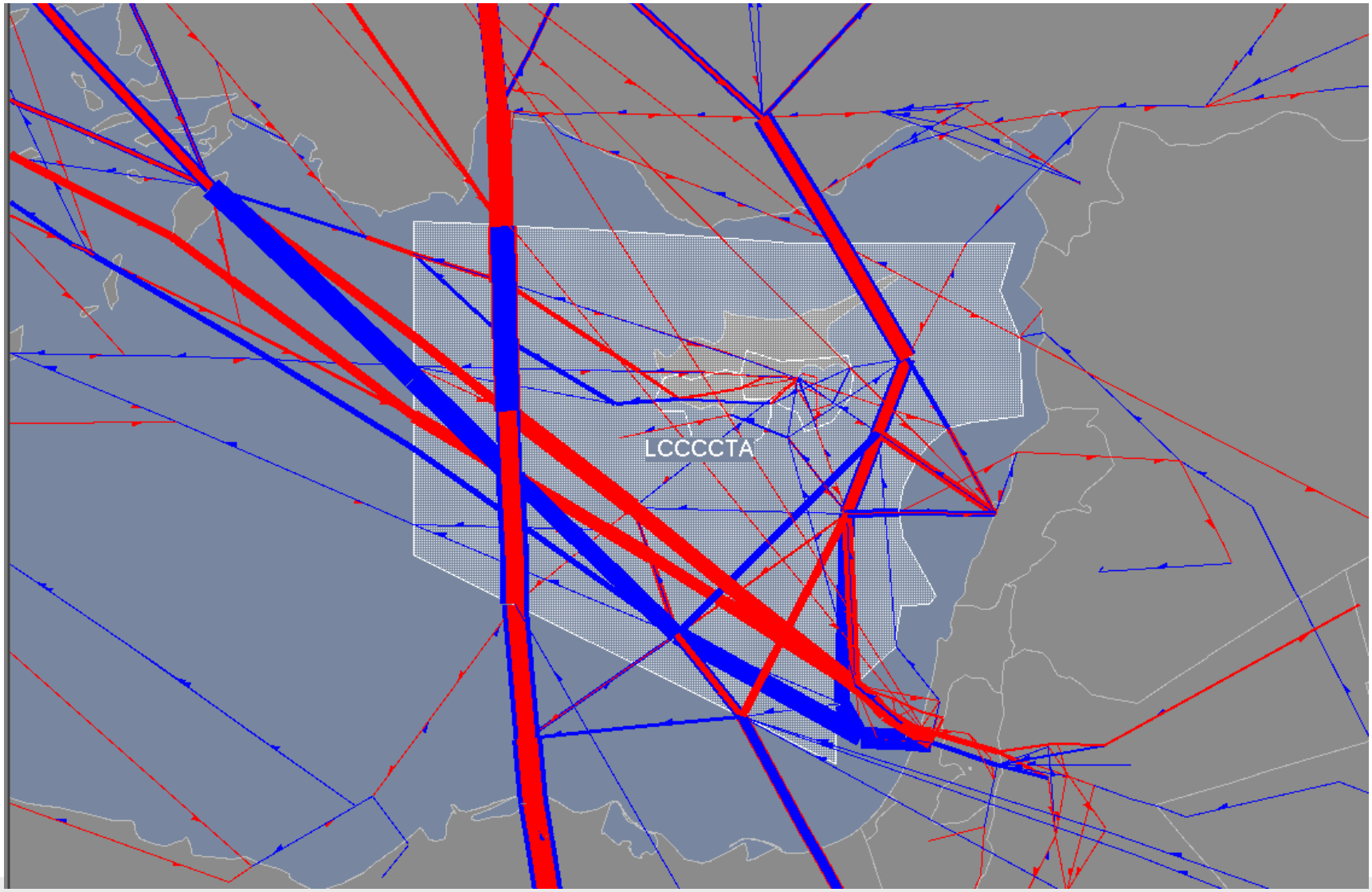
Cyprus airspace on a busy Thursday (1000 mvts)



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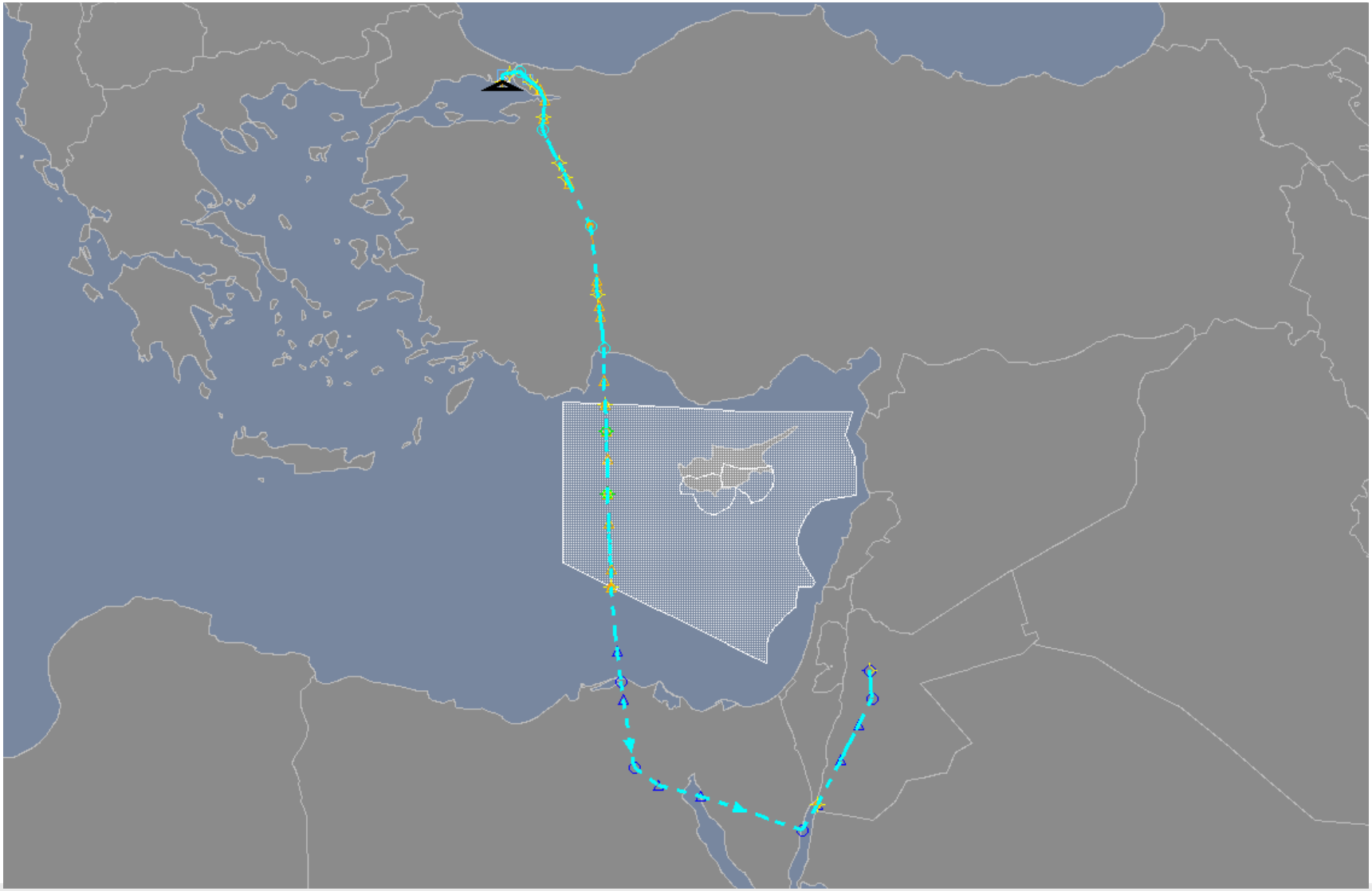
Istanbul to Amman: 660nm becomes 1070nm



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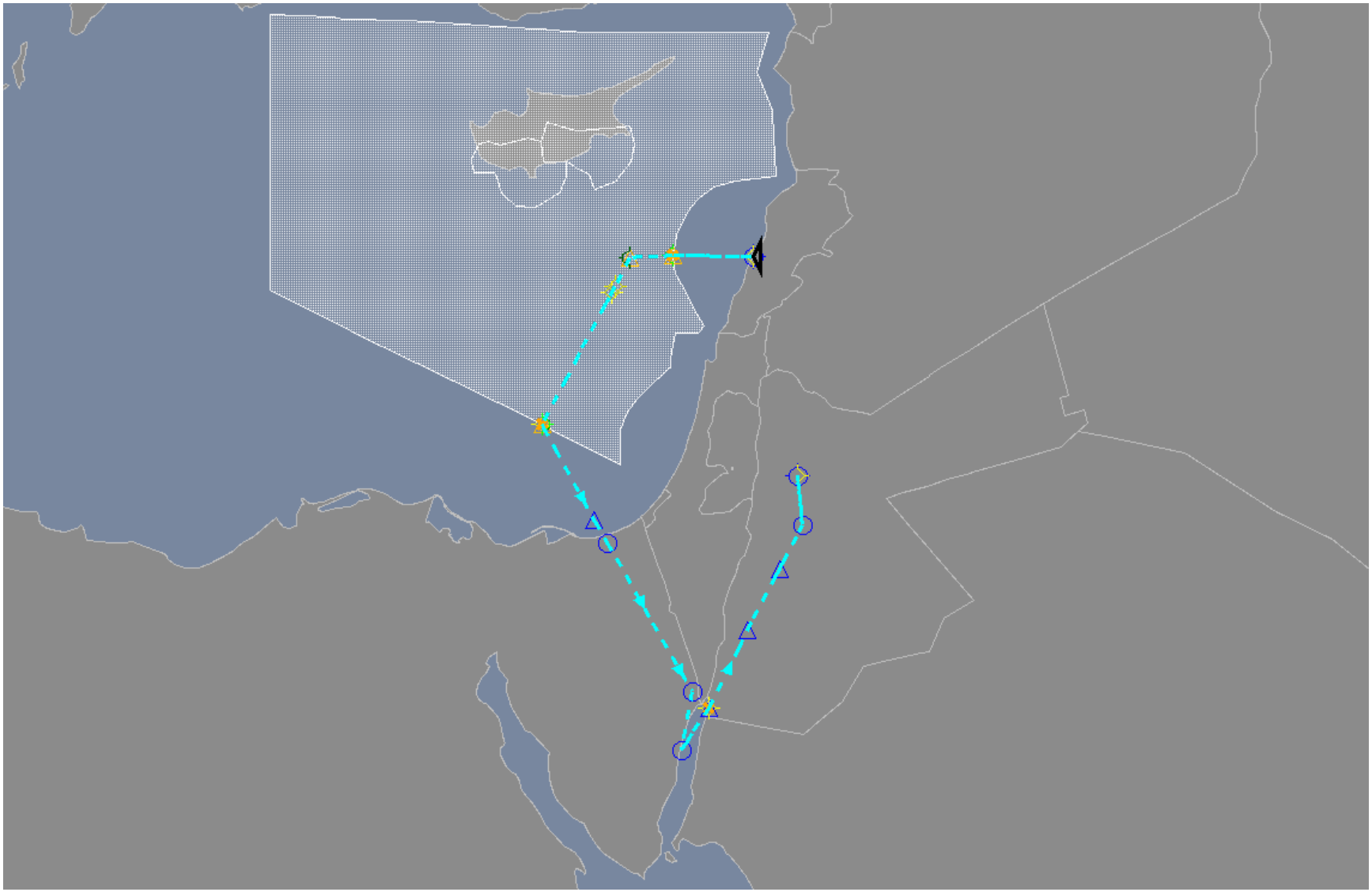
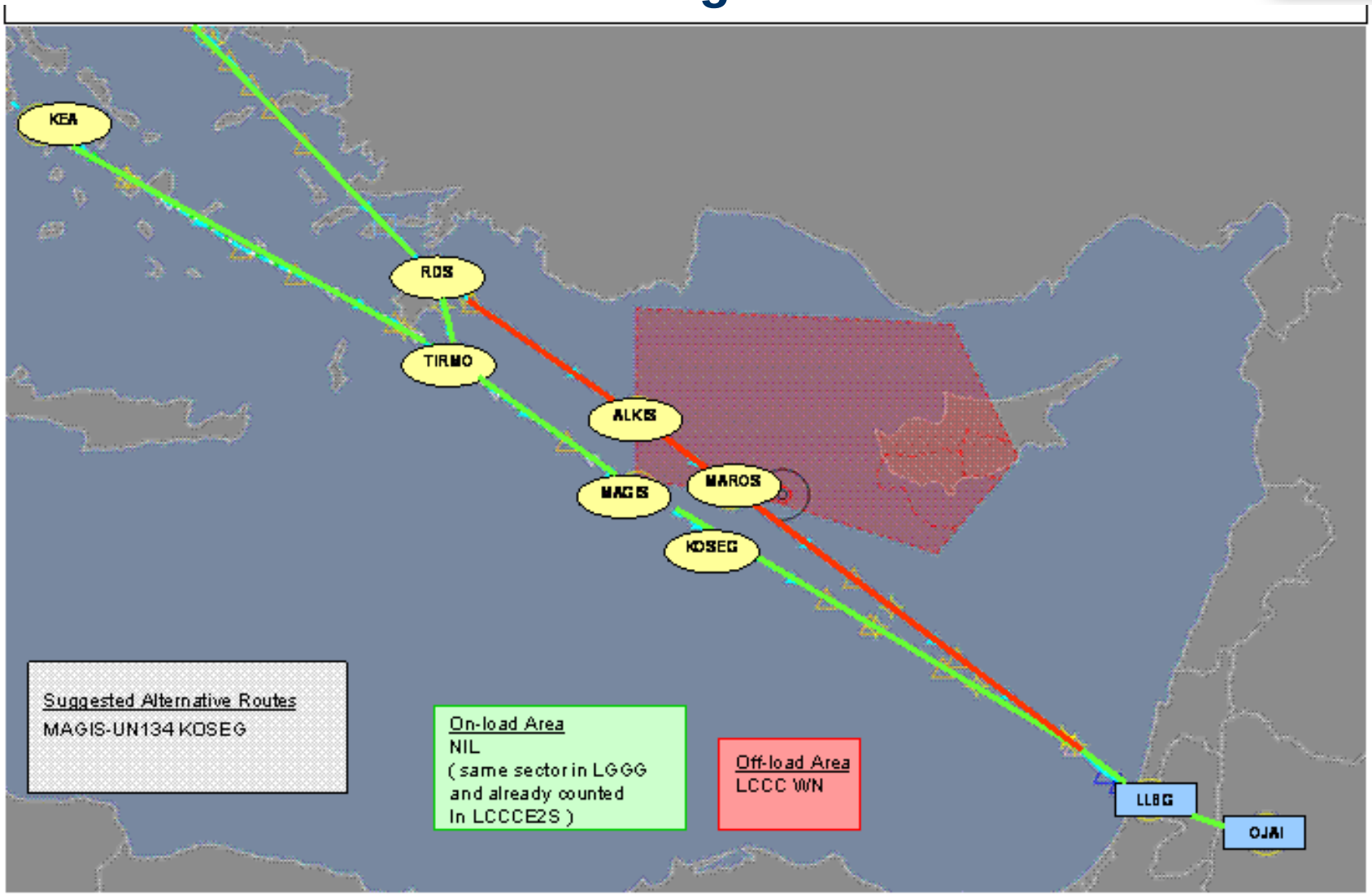
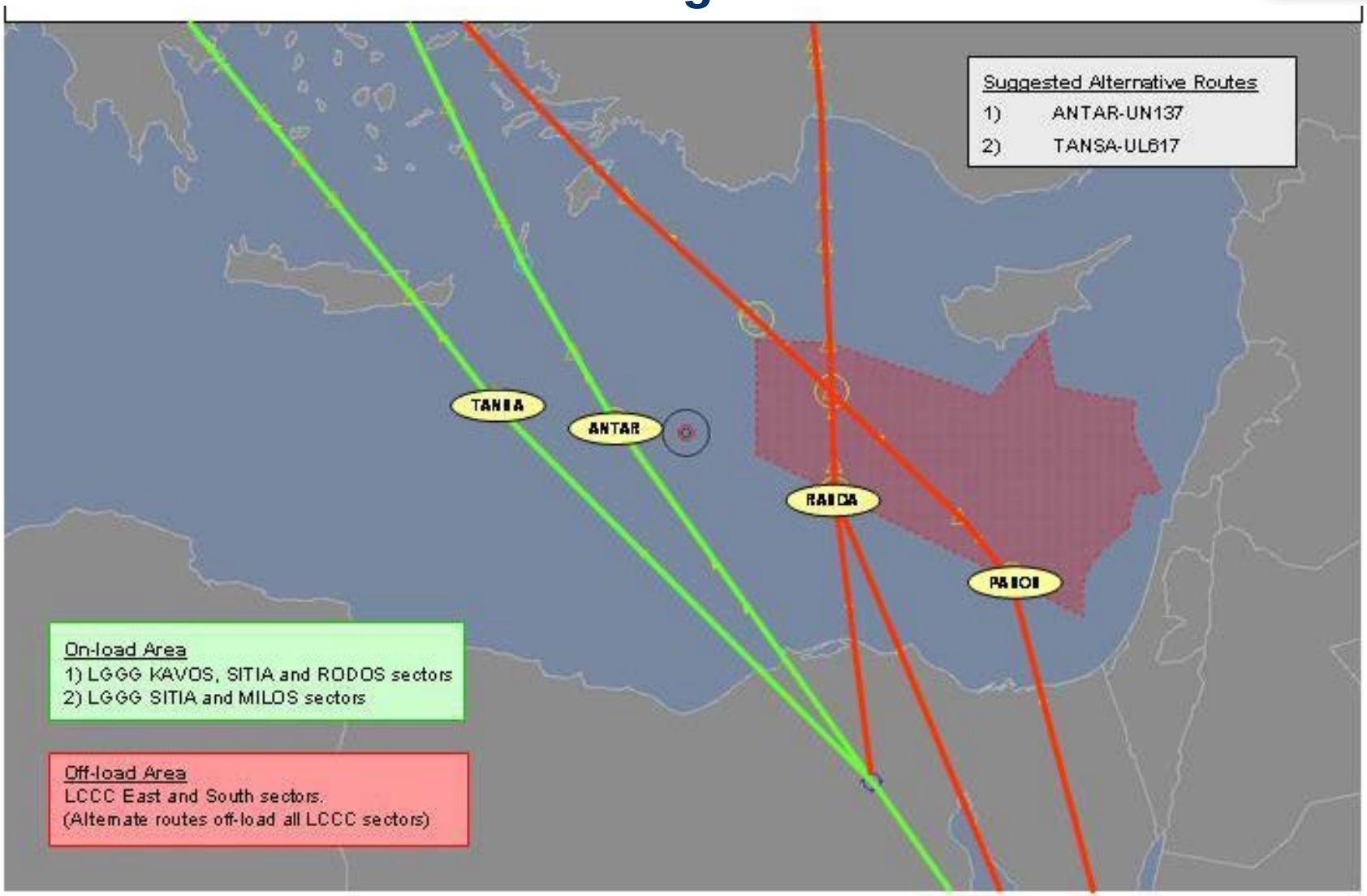
Beirut to Amman: 130nm becomes 570nm



Scenario RR1LCW off-loading LCCC West sector



Scenario RR1LCS off-loading LCCC South sector



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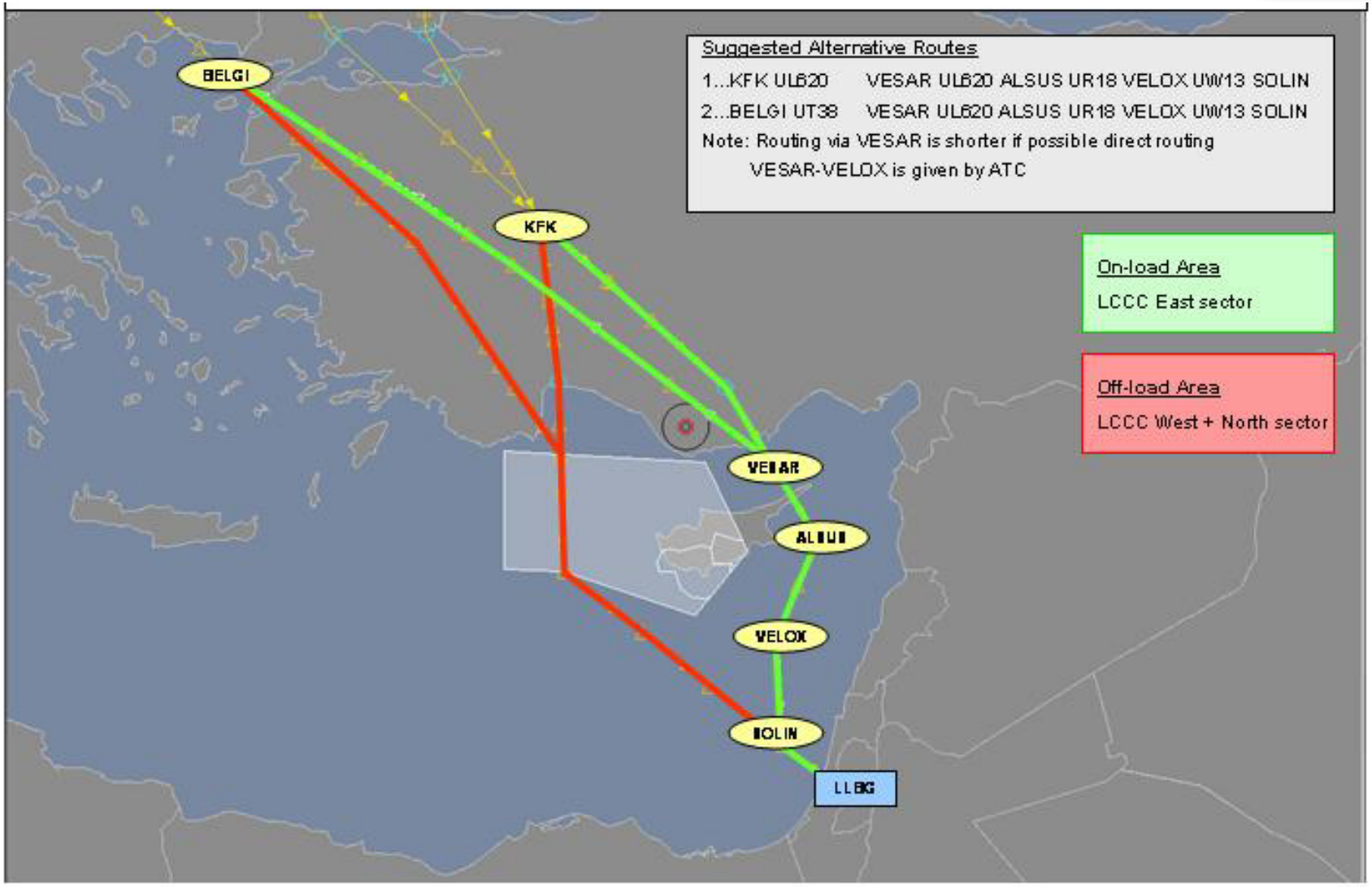
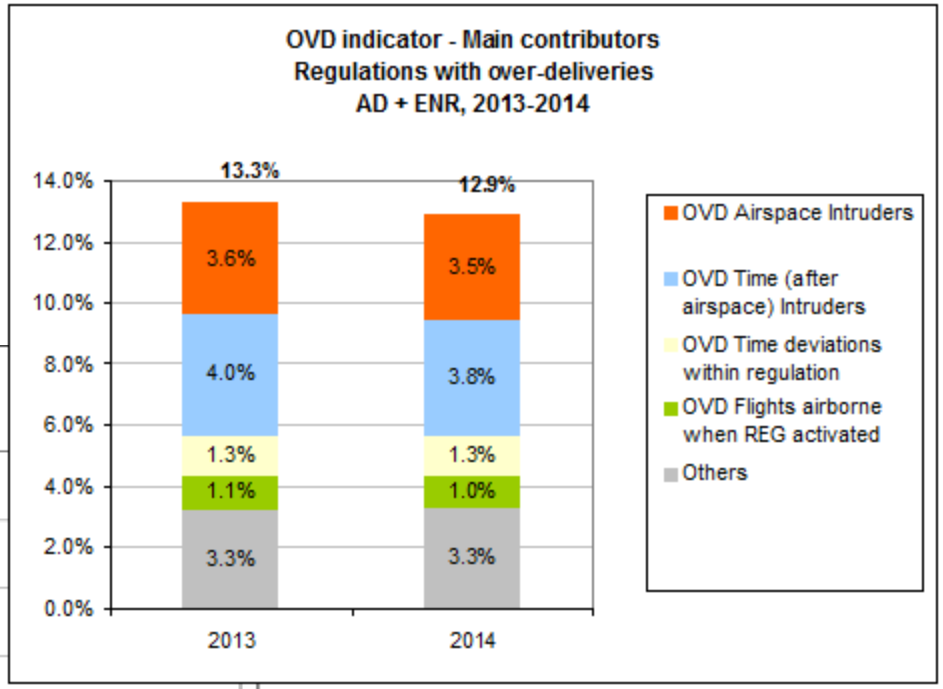
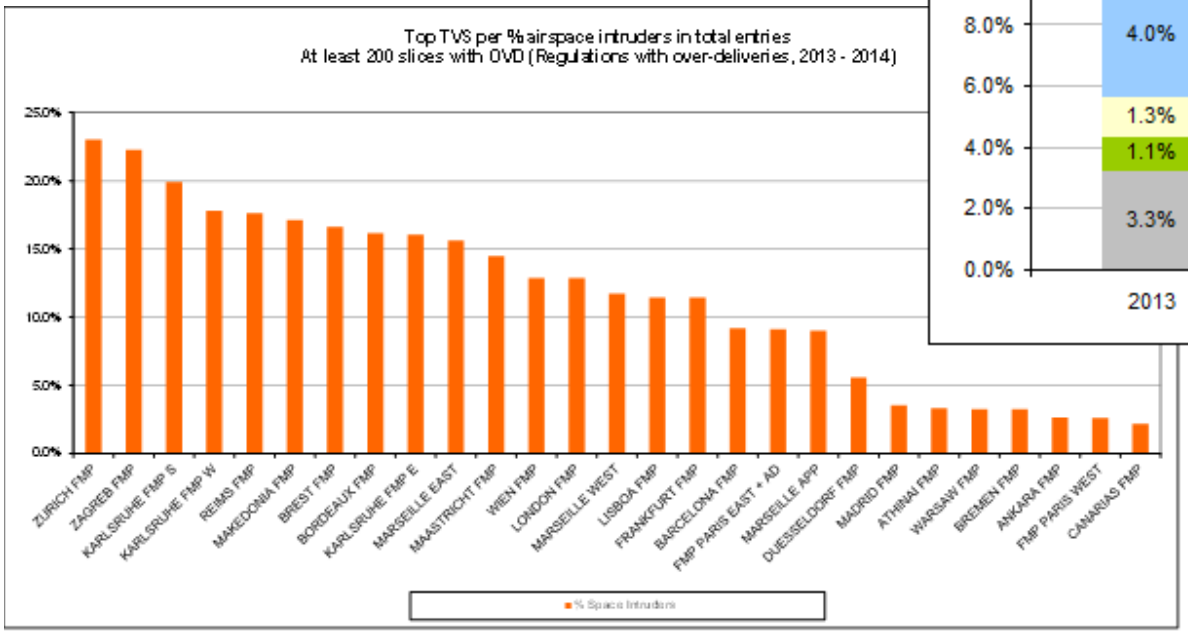
Scenario RR8LCW off-loading LCCC West sector



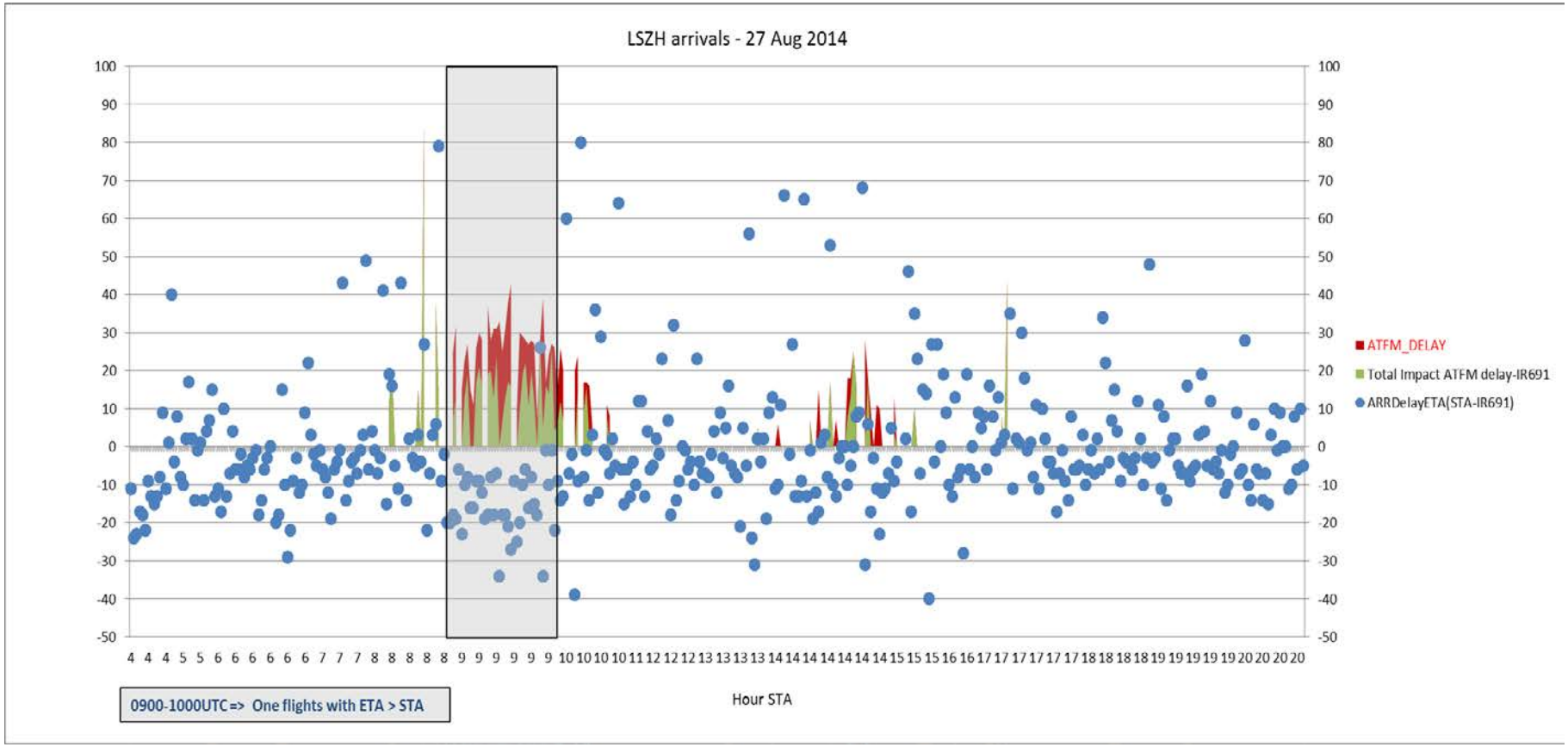
POST OPS - overdeliveries

- Intruders – cause of unpredictability
- Finding the point of deviation





POST OPS – airport capacity Zurich



FUTURE TECHNIQUES

- Data exchange
- Time based separation approach techniques
- Collaboration tools – SESAR trials

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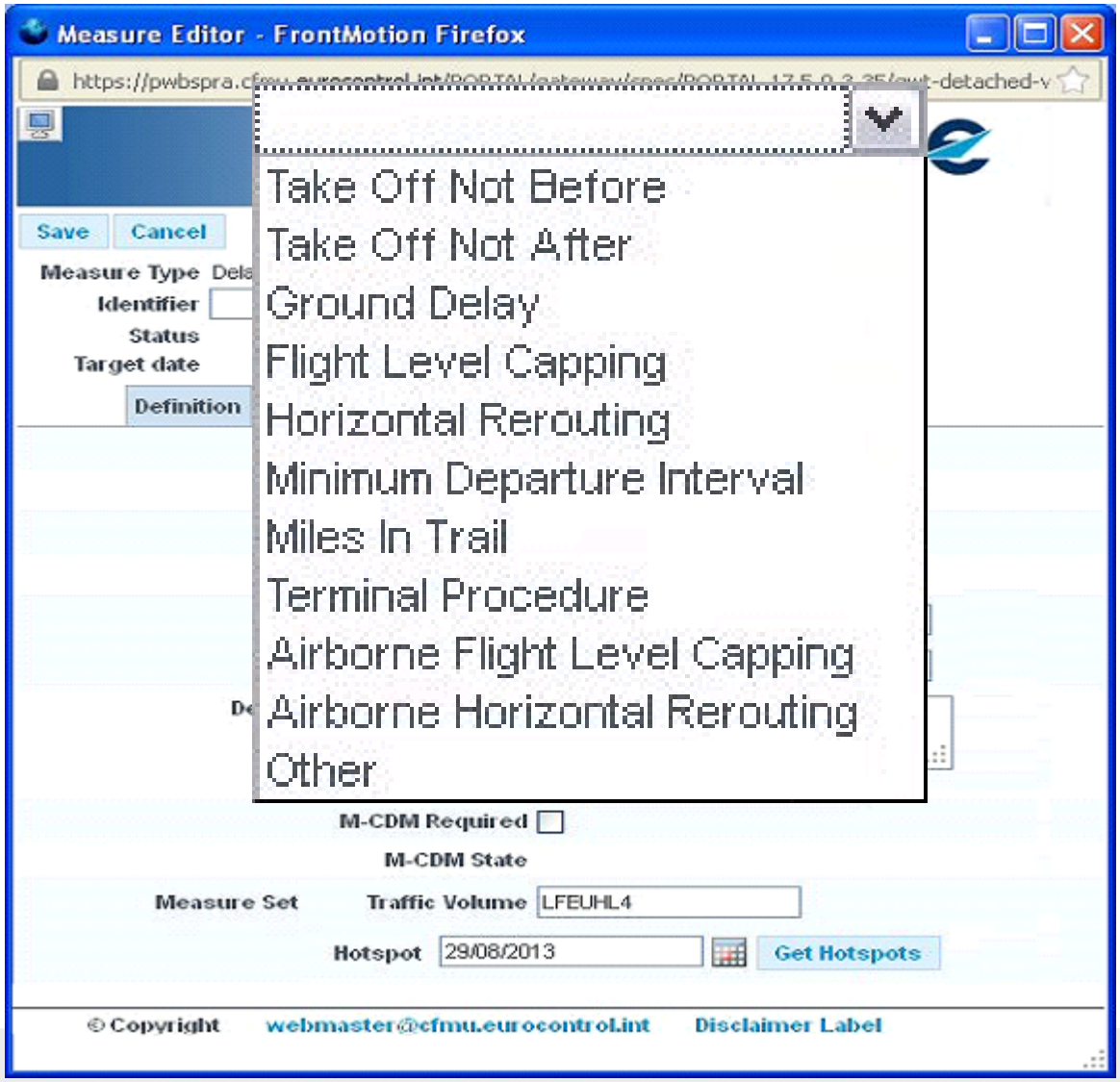
Development of STAM

Current trial: measure Editor

- Cherry Picked flights
- Precise and focussed
- Wider variety of measure type
- Coordinated workflow
- AU's preferences



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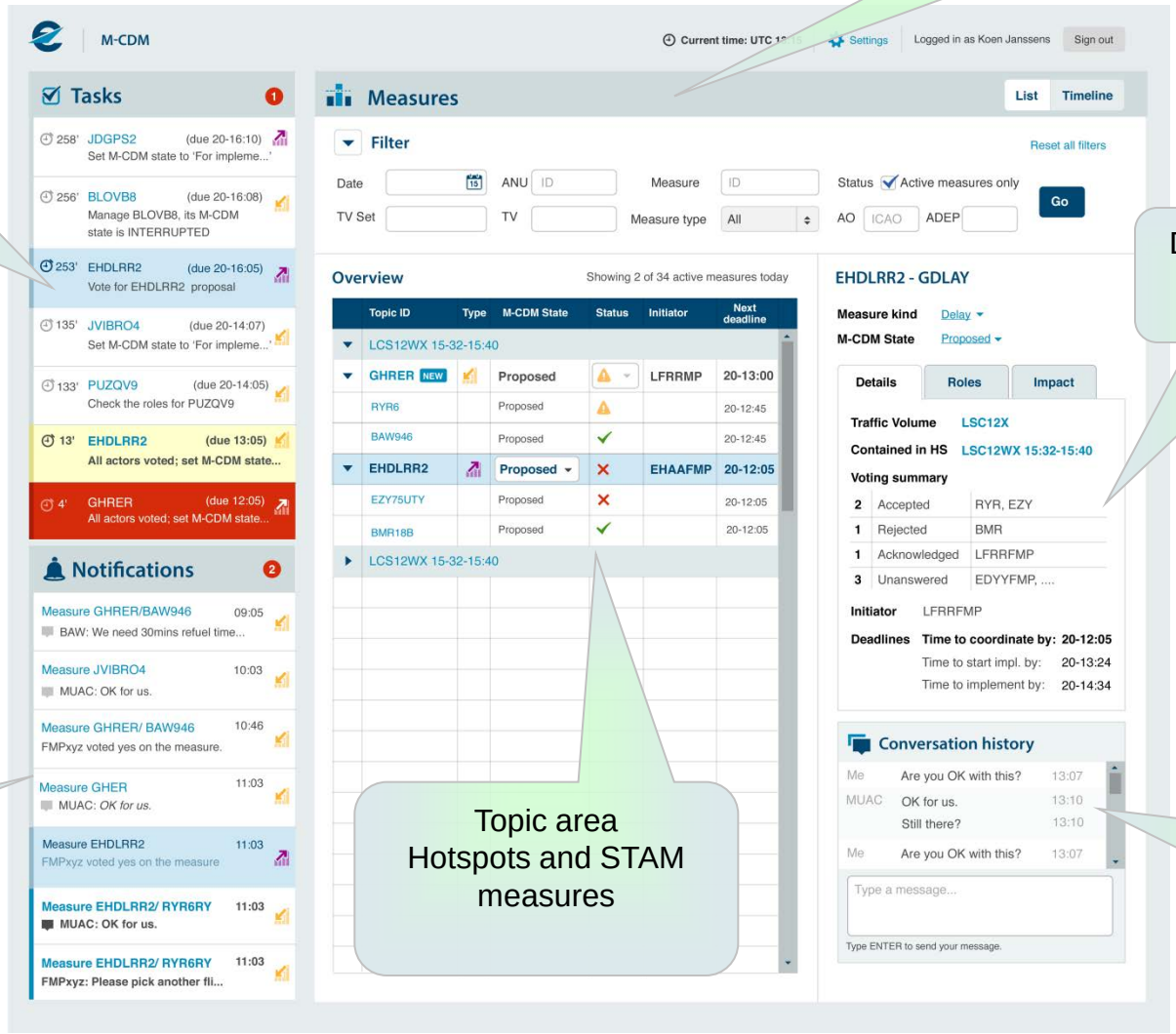
Development of STAM

STAM Collaboration Forum



Querying and filtering area

Incoming and outgoing Coordination request

Detail of the item to be coordinated

Notifications

Topic area Hotspots and STAM measures

Conversation history and Chat area

NM FUTURE PERFORMANCE

- Outcome
  - Airspace users – fly schedule / cost optimal
  - ATM – optimum use of capacity through traffic predictability

- Understanding
  - Airport capacity alignment
  - Airline schedule buffer
  - Cost optimal routes

- ATFM techniques
  - Scenarios
  - Local ATFM techniques

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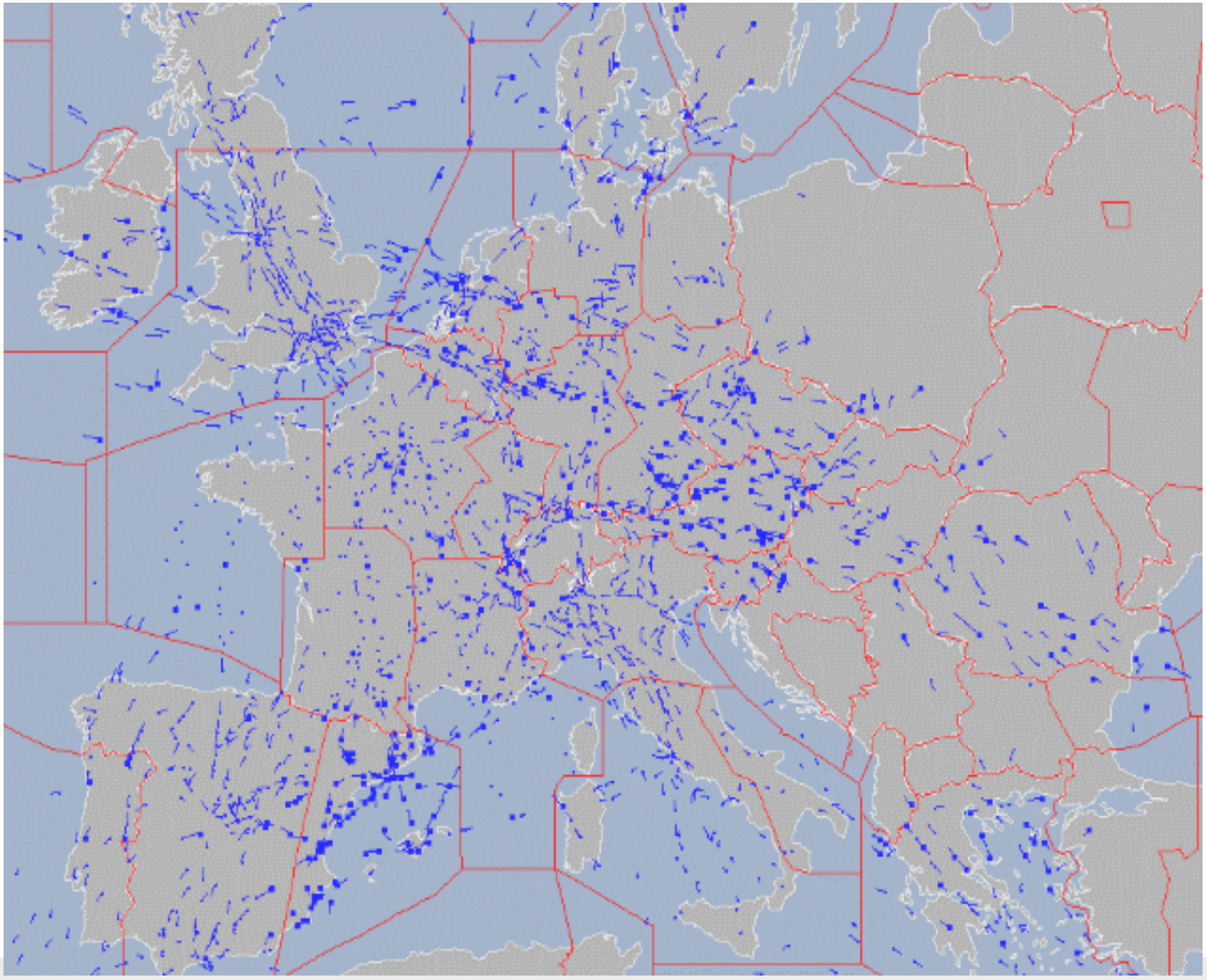
Thankyou