

ICAO SAIOSEACG/4

Clim van der Weijden 范科林
ATM Regional Manager Asia
Clim-van-der.Weyden@klm.com



Agenda

1. KLM history and business model
2. External factors affect route choices
3. Flight Dispatch example
4. How can you help airlines



KLM Royal Dutch Airlines

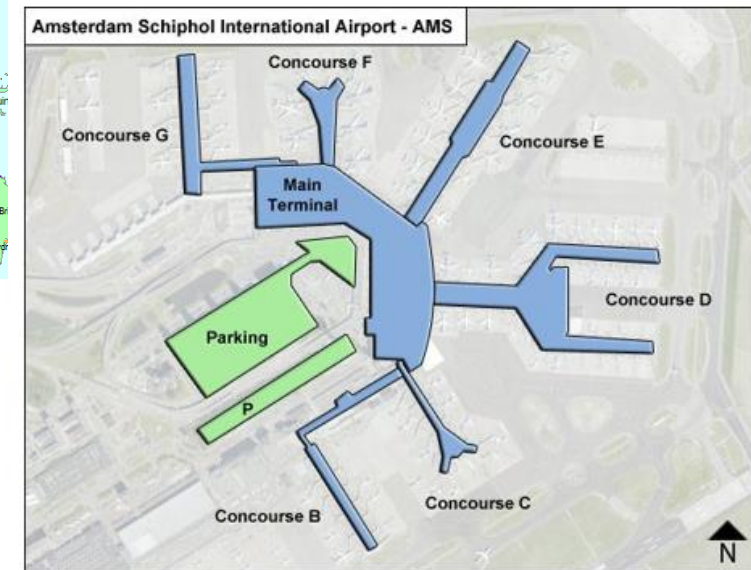
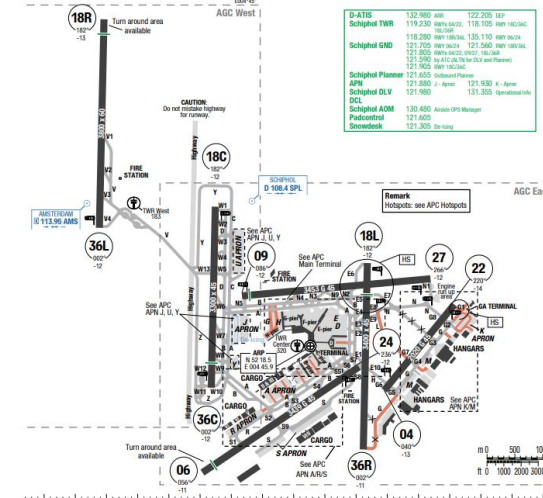
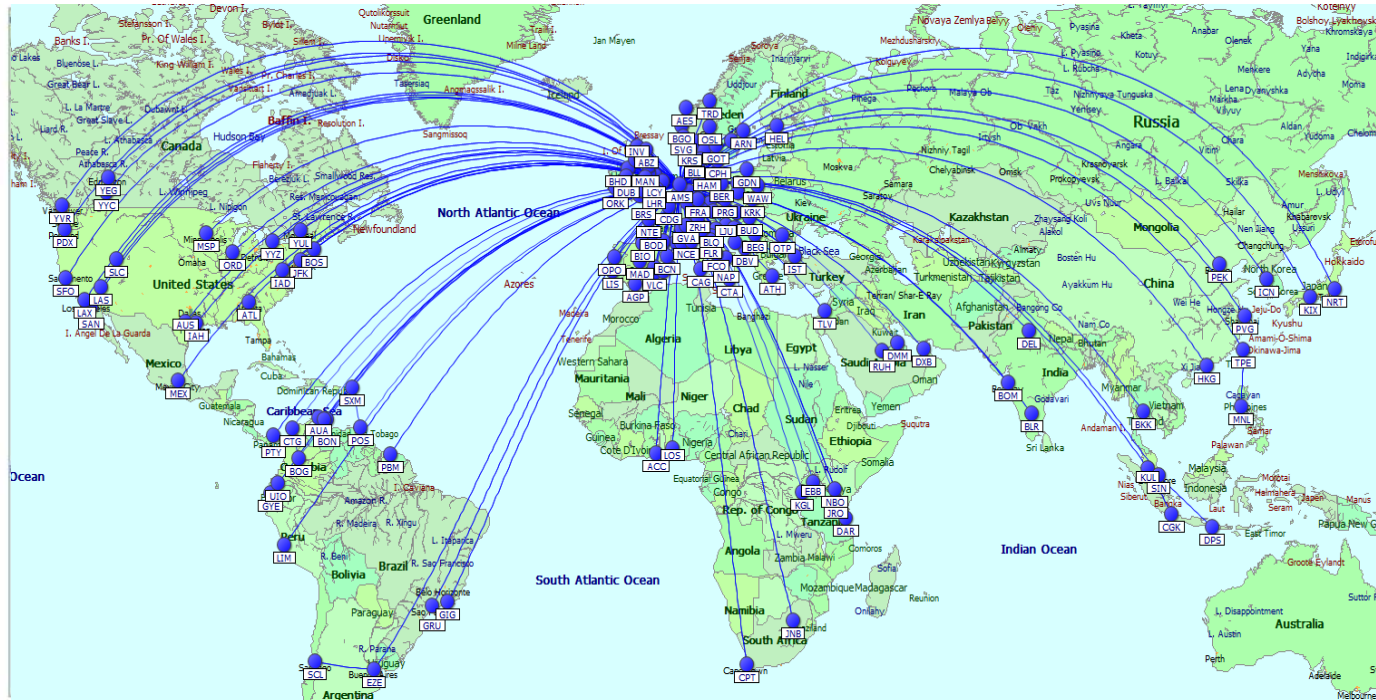
- Founded 7 October 1919



2024

- Fleet 170 (incl. KLM Cityhopper)
- Passengers 34 million (~70% transfer)
- Destinations 157 (65 ICA / 92 EUR)
- ~730 movements per day at Amsterdam Schiphol Airport

KLM Network overview and business model



One terminal concept Schiphol enables short connection times:
EUR-EUR: 40min
ICA-EUR+EUR-ICA: 50 min
Punctuality is very important!

KLM & partners



**No airline flies
everywhere**

But....

**The passenger
wants to fly from
anywhere to
everywhere**

KLM needs Airline partnerships & Good connections (pax flows)

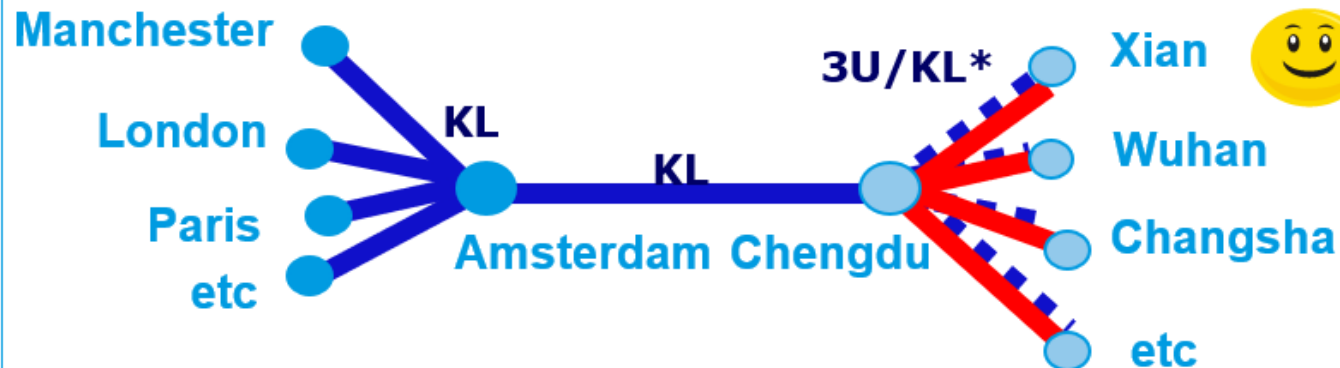


Market Amsterdam-Chengdu too small to fill the flight.
On average: only 25% is local traffic – not profitable!



KLM creates connections on its own hub Amsterdam, generating feeder traffic.

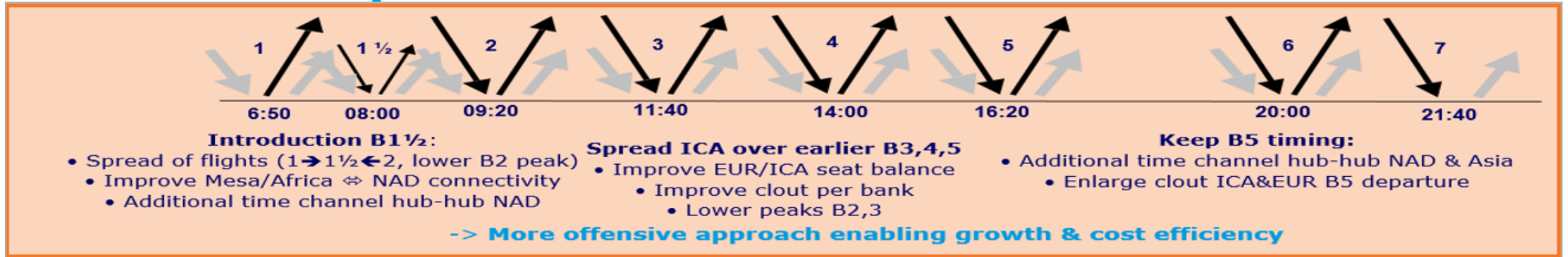
On average 70% is transfer traffic in Amsterdam.



KLM seeks partnerships with other airlines (e.g. Sichuan Airlines), to make connections at Chengdu or other (China) gateways.

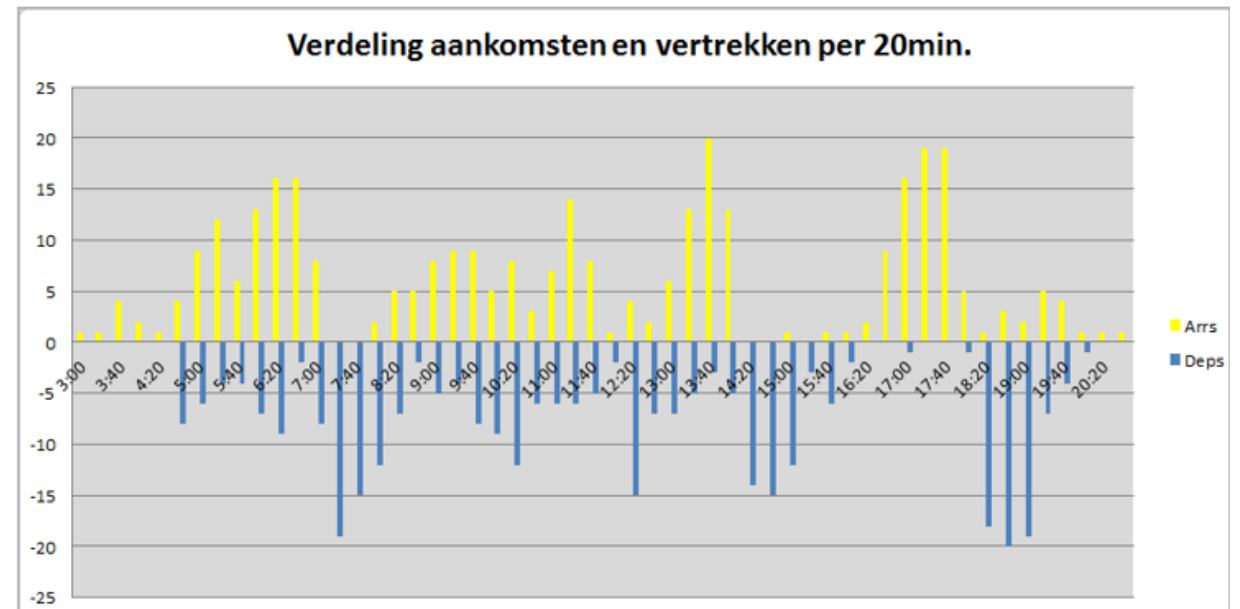
Flights sold in code share (e.g. KLM sells 3U flight as being "KL"), and needing good and seamless connectivity!

7 Wave system in AMS

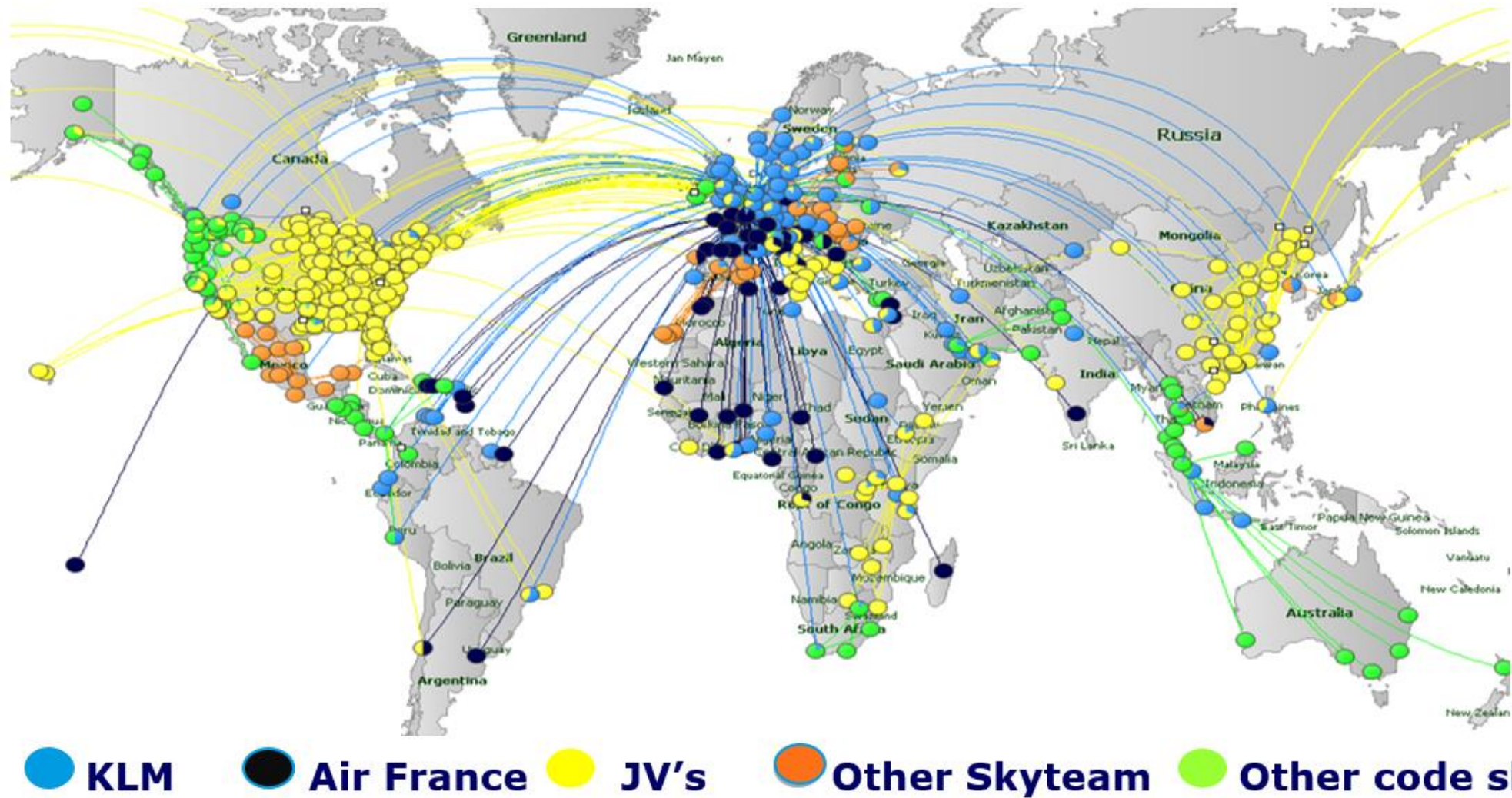


Wave system to enable connection to
Almost all EUR destinations in all banks

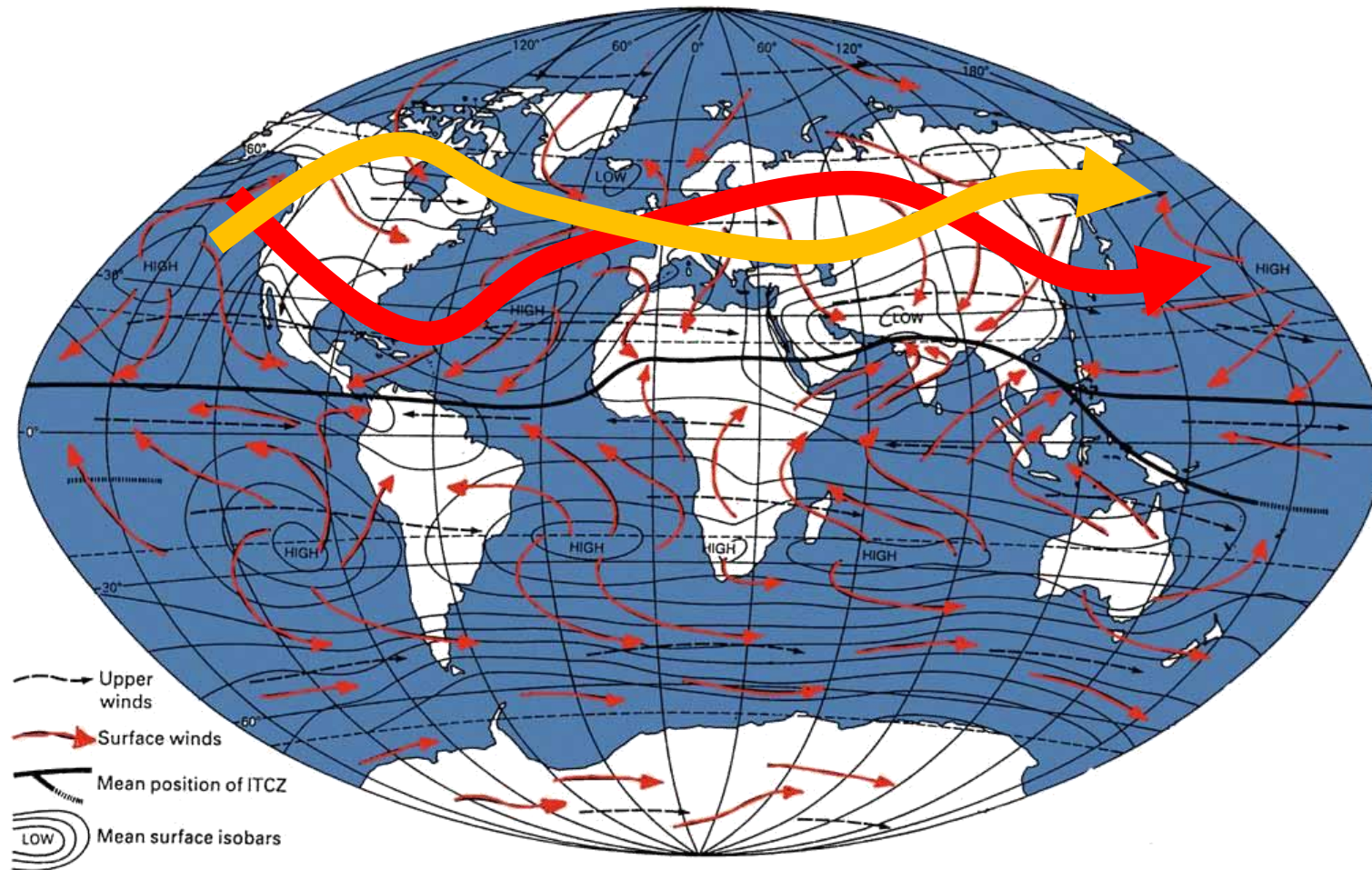
ICA schedules based on geographical
situation and connections at Outstations



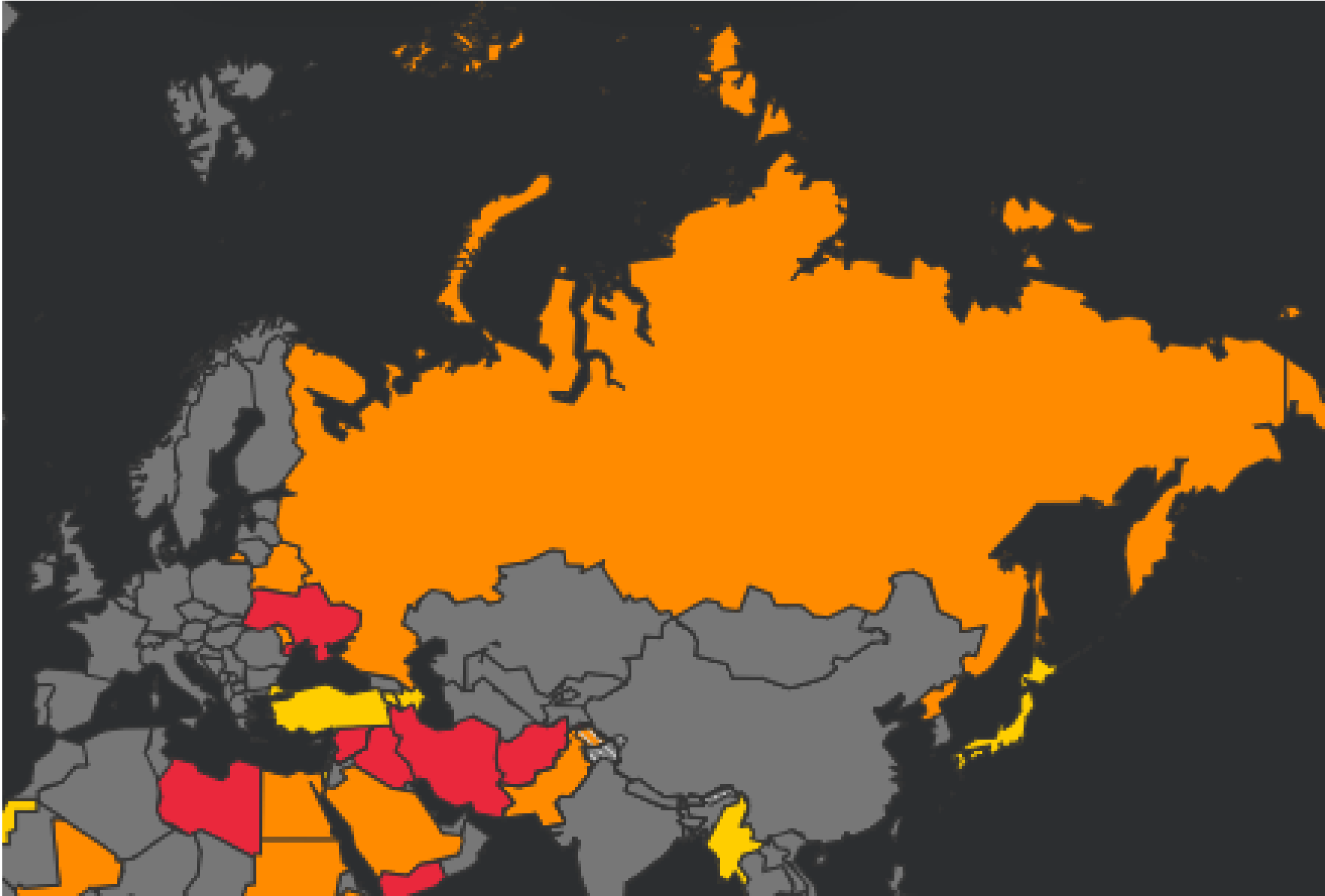
Extended world wide network



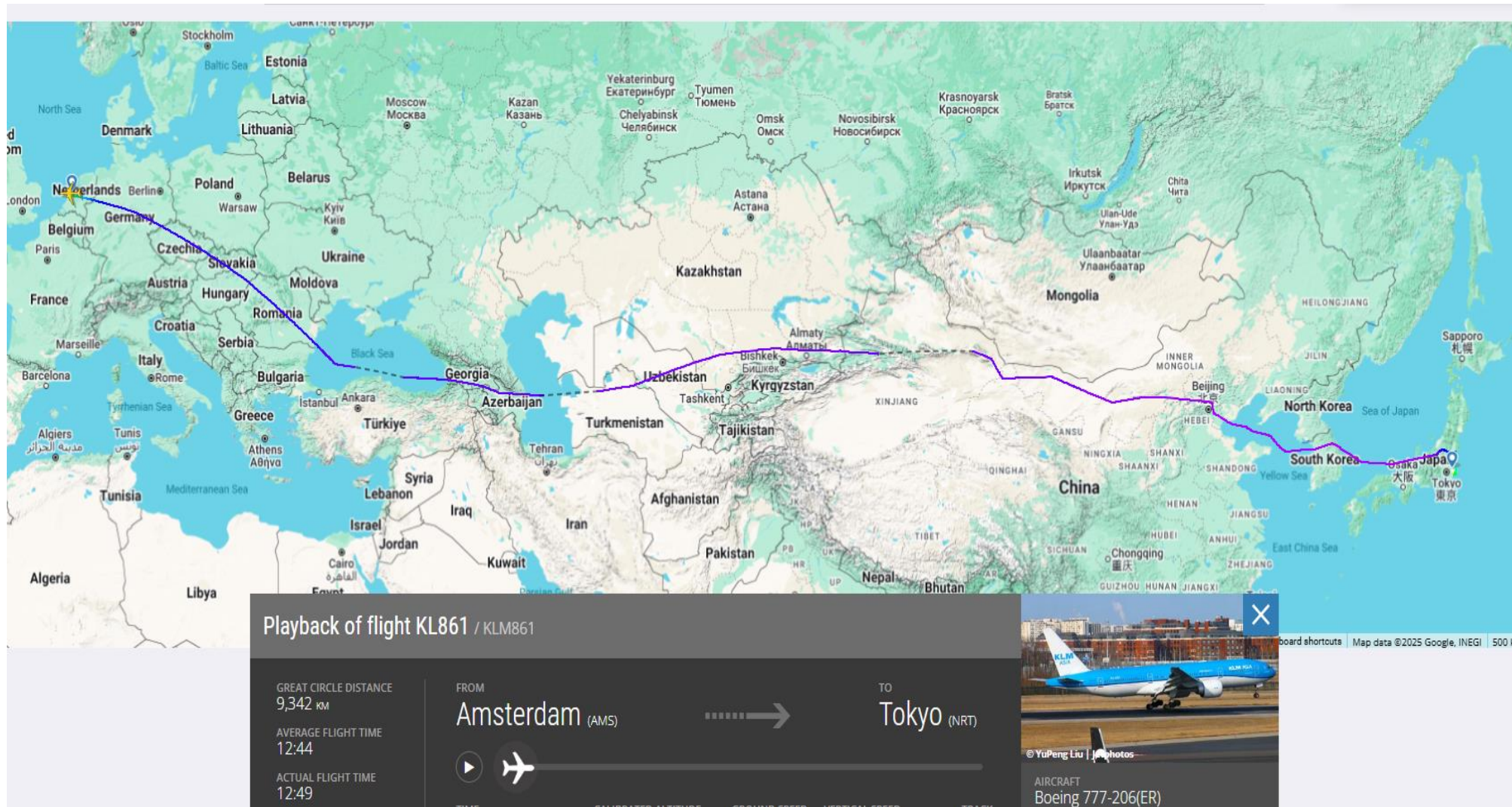
Flight planning (season vs day) influenced by external factors



Political conflict zones affect route planning



Airspace closures affect route planning



AMS-NRT
S19 11:10
S25 13:30

Airspace closures affect route planning



Flight Dispatch example



Contact details 24/7: Dispatch supervisor +31203041101

Flight Dispatch example

- Route choices will be made by Dispatchers based on:
 - Time (to arrive on time)
 - Costs (fuel and ATC)
 - Wind/ temperature
 - Available routes, flight levels and enroute Airports (closures due to Notams)

Flight Dispatch example – EHAM-VHHH

Planning Parameter

WX/NOTAM Check Analysis...

Basic Flight Data Remark

Airline: KL Flight: 001 OS: Q ATC C/S: KLM001 Date of Origin: 27-FEB-2018 DEP: EHAM STD: 271640 DEST: VHHH STA: 280350 PIC: E Priority: Load Initialization Time: 271114

Operator: KL Registration: PHBQO RWY: 36L ETD: 271640 RWY: 25R ETA: 280350 PET/ETOPS: ☐

Scenario (0)

General ETOPS DD/DP A/C Dev Taxi Time

Alternate Information

TKOF ALTN: VMMC DEST ALTN: ZGSZ VMMC Fuel ERA:

WEATHER / MINIMA CHECK

ICAO	Quality	Status	Q
EHAM	TKOF	Suitable 36L(TKOF) (271658 -> 271758)	
EHAM	TKOF_DEST	Suitable 06(CAT3B) (271558 -> 271758)	
VHHH	DEST	Suitable 25R(CAT2) *Wind VRB Unspecified NOTAM! (280250 -> 280450)	
ZGSZ	ALTN	Suitable 34(LOC+DME) Unspecified NOTAM! (280307 -> 280507)	F
ZSHC	ALTN	Suitable 07(LOC+DME) Unspecified NOTAM! (280428 -> 280628)	F
VTBS	ALTN	Suitable 19R(CAT1) Unspecified NOTAM! (280513 -> 280713)	F
VMMC	ALTN	Suitable 34(CAT1DME) Unspecified NOTAM! (280307 -> 280507)	C1
ZSAM	ALTN	Unsuitable 05 MIN 23 MIN Unspecified NOTAM! (280342 -> 280542)	C2
ZGGG	ALTN	Suitable 20L(LOC+DME) Unspecified NOTAM! (280315 -> 280515)	C3
RCTP	ALTN	Suitable 23L(CAT1DME) Unspecified NOTAM! (280406 -> 280606)	C4
RCKH	ALTN	Suitable 09(LOC+DME) (280355 -> 280555)	C5

ALTN Cruise & Holding

Procedure: ECON MN: 0.830 IAS: 320 kt CI: 0

Fuel Section

Sequence: Commercial Diversi CONT Policy: CONT90 Prohibit No Altn: ☐ Performance Co: 1.025 Taxi Out Fuel: 813 kg Taxi Out Time: 18 min

Aircraft & Weight Information

Quality: No Info CG-ZFW: 30.00% DOW: 148350 kg Load: 45000 kg ESTZFW: 193350 kg MALTOW: 297556 kg MALLAW: 213188 kg TCAP: 135750 kg

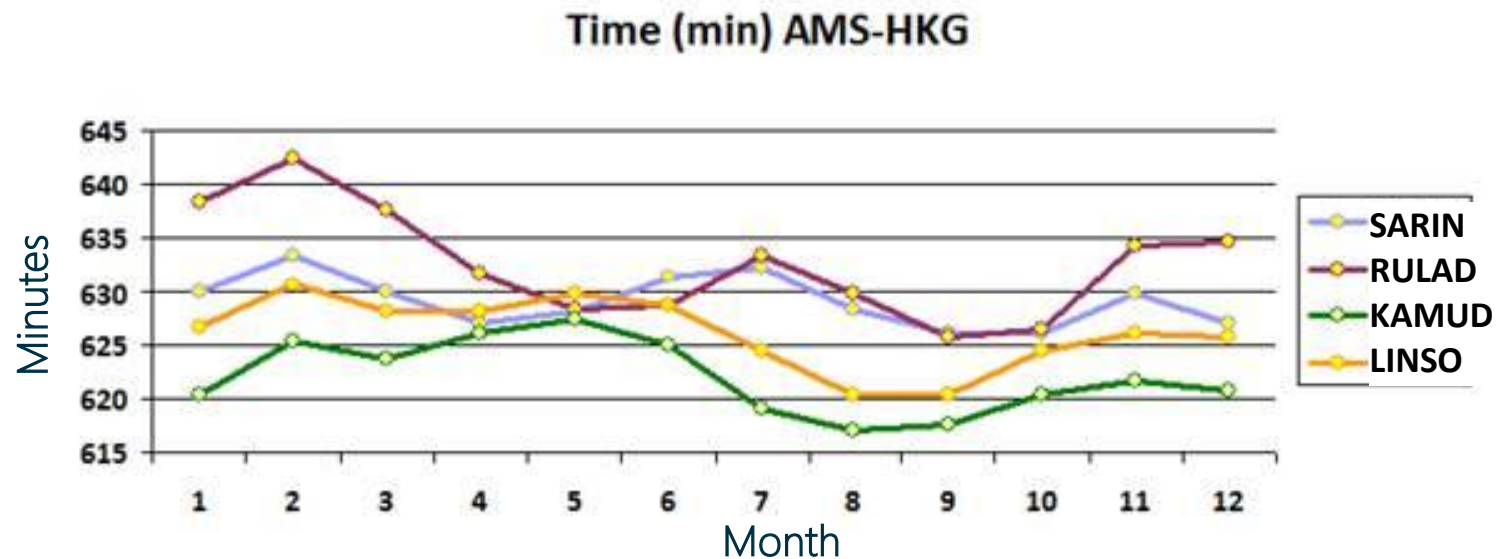
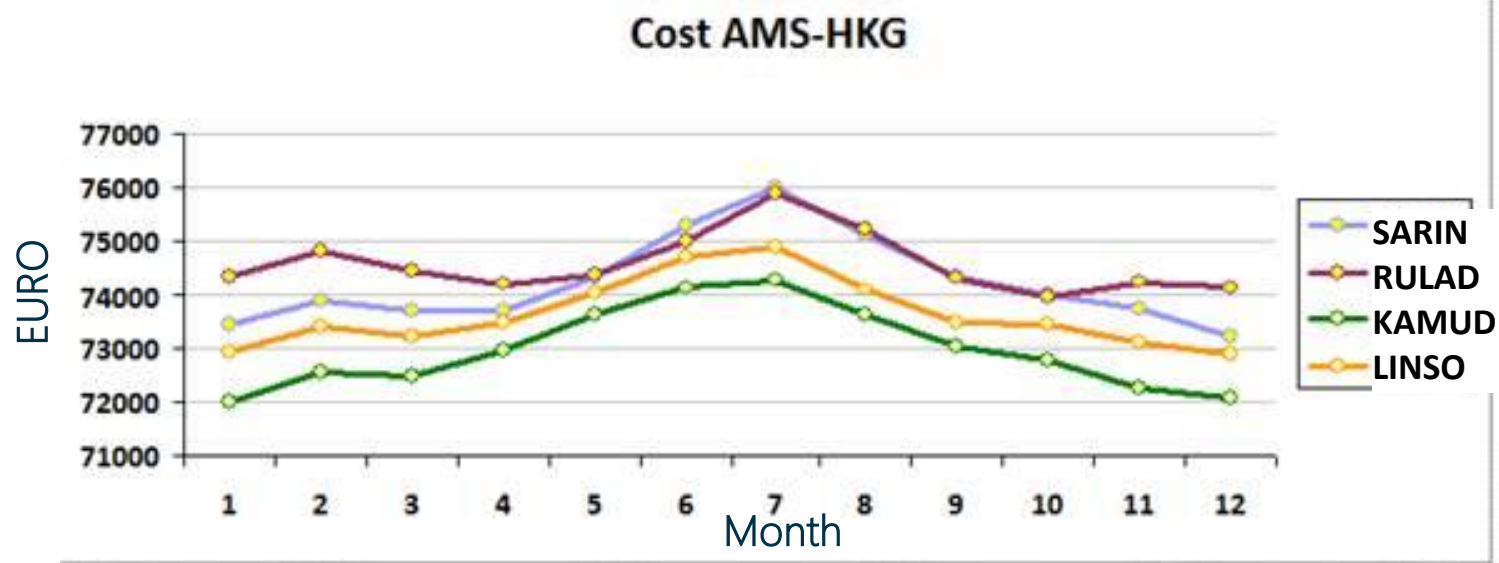
Calculate Takeoff ☐

Buttons: Initialize, Recheck, Per Calc, T/O Request, WX/NOTAM, Print

Buttons: Save, Update..., Analysis..., Route Def..., OFP Trans..., Flight List..., Search..., Dispatch Bulletin, New, Duplicate, Close

Flight Dispatch example

Route choice based on weather and ATC charges



Flight Dispatch example

Analysis

File Edit Frame Graphic Map Weather Help

AL Flight-No. OS Date DEP STD STA DEST Init. Time TFR Debug Prognosis actual Non ETOPS

KL 001 Q 27FEB18 EHAM 271640 280350 VHHH 271114 Scenario No. 1 Route Display: ATS

Operational Case

Standard ST Set to Def. 36L 271640 280350 25R Graphic OFF Zoom Menu Map ALTN 1

Climb

Procedure MN IAS

Speed 0.840 320

Cruise

Procedure Cost Index

ECON 100

Fixed MN Airspace/Airway VSOPS

Optimum MN OFF

Descent

Procedure MN IAS

Speed 0.840 310

REM Fuel Fuel Gravity

0.793

Special Fuel ...

Restriction view. Route Survey ...

Route Options ... ALTN Survey ...

Inflight ... DDTP ...

Tankering ... ETOPS ...

Reclearance ... Restriction ...

Analysis Opt Param ...

In background

ROUTE	MSHKG29	MSHKG02	MSHKG35	MSHKG21
OFF NO	LINSO	KAMUD	RULAD	SARIN
REG	PHBQO	PHBQO	PHBQO	PHBQO
CRUISE	CI100	CI100	CI100	CI100
TRIP	75171	74415	76475	76422
TTIME	1044	1046	1049	1058
ETA	0346	0348	0351	0400
COSTS	57203	56782	57752	57632
CONT	1554	1534	1577	1573
CONT POL	CONT90	CONT90	CONT90	CONT90
ALTN	ZGSZ	ZGSZ	ZGSZ	ZGSZ
AFUEL	2745	2745	2745	2745
HOLDING	2829	2829	2829	2829
PLNTOP	82299	81523	83626	83569
BLOCK	83112	82336	84439	84382
P EXTRA	12710L	12730L	12687L	12691L
DIST	5364	5392	5390	5411
AVG WC	P031	P037	P030	P027
MAXZFW	200487	200487	200487	200487
ESTZFW	193350	193350	193350	193350
PLNZFW	193350	193350	193350	193350
MALTOW	297556	297556	297556	297556
PLNTOW	275649	274873	276976	276919
MALLW	213188	213188	213188	213188
PLNLW	200478	200458	200501	200497
ADDFU				
SAVINGS				
MAX FL				

ROUTE selection & comparison

Remove OFF

OFF ...

More Info ...

Recheck

IFPUV

TFR debug

TFR Legality

SELECT

FLT LIST

PLAN PARAM

RTE DEF

OFF TRANS

WX/NOTAM

AC DEV

COSTS

REMARK

CLEAR

REFRESH

PRINT

HELP

CLOSE

ABC

Flight Dispatch example – checking weather enroute



Black line = Flight path
Red line = great circle

Check on Significant Weather
enroute

Flight Dispatch example – ETOPS choices



ETOPS 180min:

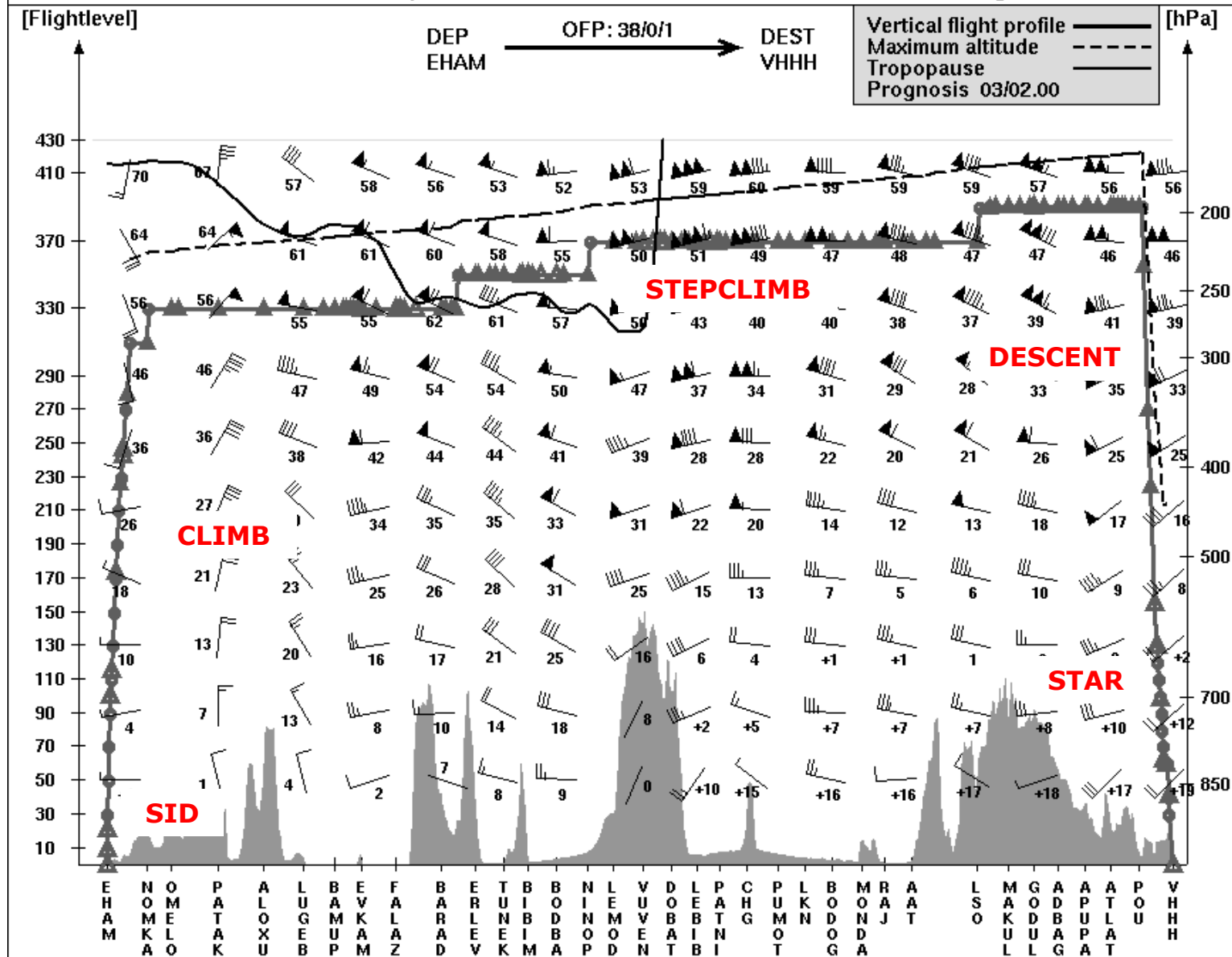
UBBB

VIDP

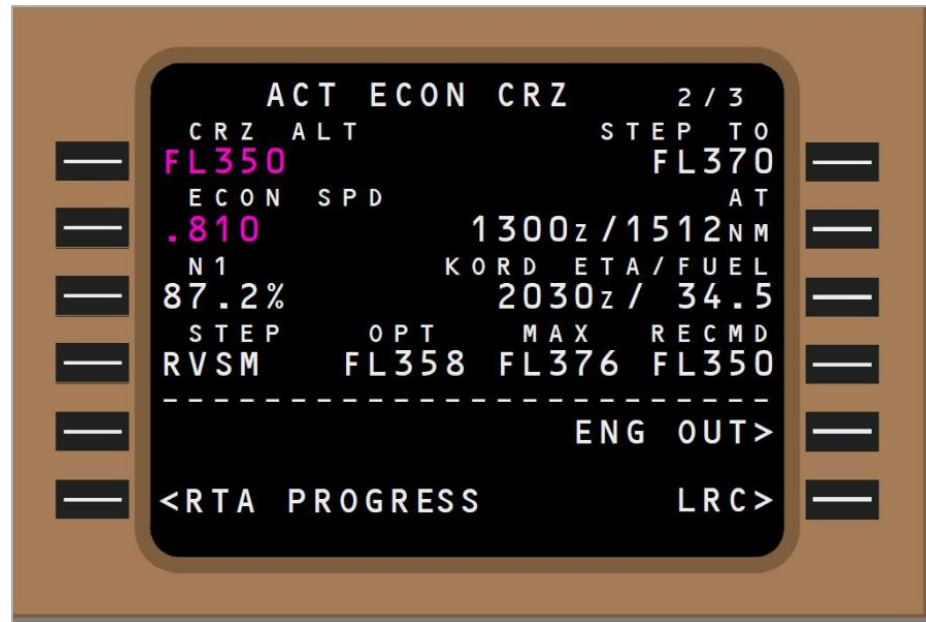
ZPPP

Flight Dispatch example – vertical profile

Airline:KL Flt-No.:887 02Mar Dep:EHAM STD:022025 STA:030820 Dest:VHHH Reg:PHBQN OFF: 38/0/1

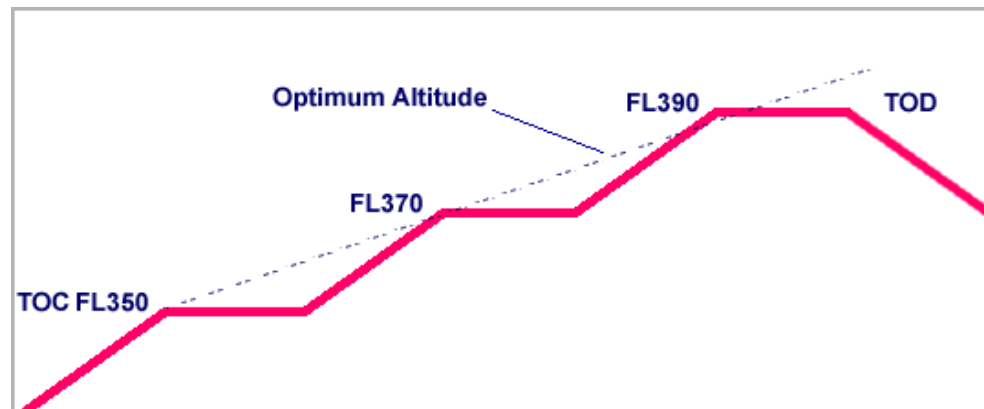


Flight Dispatch example- optimum vs not-optimum



FMC provides optimum and maximum altitude information

B777 AMS-PEK					
Level in ft	Level in meters	trip fuel kgs	trip time min	Delta fuel	Delta time
Optimum level	Optimum level	82141	639		
-2000	-600	83505	641	1364	2
-4000	-1200	85738	648	3597	9
-6000	-1800	88154	662	6013	23
-8000	-2400	90377	679	8236	40



B787 AMS-PEK					
Level in ft	Level in meters	trip fuel kgs	trip time min	Delta fuel	Delta time
Optimum level	Optimum level	57369	639		
-2000	-600	57832	639	463	0
-4000	-1200	58876	660	1507	21
-6000	-1800	60475	684	3106	45
-8000	-2400	62524	706	5155	67

Flight Dispatch example – Vertical profile by Lido

Route Definition

File Edit Frame Graphic Map Help

AL Flt-No. OS Date DEP STD STA DEST Registration ETOPS Prognosis actual Rte Def No 0

flightlevel selection as calculated by LIDO

Initialization Time: 210433 24 210820 211830 09

Operational Case Fixed MN Airspace/Airway VSOPS
Standard ST Optimum MN OFF

Graphic OFF Zoom Menu Map 1 Alt

WPT Code	Symbol	Ctry	AWY	Type	MSA [FT]	Vert Unit	FL WPT	Cruise Procedure	IAS	MN	Cost Index	Wind Dir	Wind Speed	Trip Time	Restriction
AMGOD	NI	EH	UL602	AWY	2000	FF	252	ECON	290	0.790		239	041	0013	
SUPUR	NI	EH	UL602	AWY	2000	FF	263	ECON	290	0.790		243	045	0014	
MIMVA	CCAI	EH	UL602	AWY	2000	FF	290	ECON	299	0.788	40	245	049	0015	
TOLSA	NI	EG	UL602	AWY	2000	FF	300	ECON	299	0.788	40	243	050	0016	
OKAMA	NI	EG	UL602	AWY	2000	FF	300	ECON	299	0.788	40	240	051	0018	
EMLON	NI	EG	UL602	AWY	2000	FF	300	ECON	299	0.788	40	236	054	0019	
LEGRO	NI	EG	UL602	AWY	2000	FF	300	ECON	299	0.788	40	229	061	0025	
NALAX	NI	EG	UL46	AWY	2000	FF	300	ECON	299	0.788	40	225	066	0030	
LIBSO	NI	EG	UL46	AWY	2400	FF	300	ECON	299	0.788	40	221	071	0032	

Weather and NOTAM per Segment

Waypoint Symbol Ctry

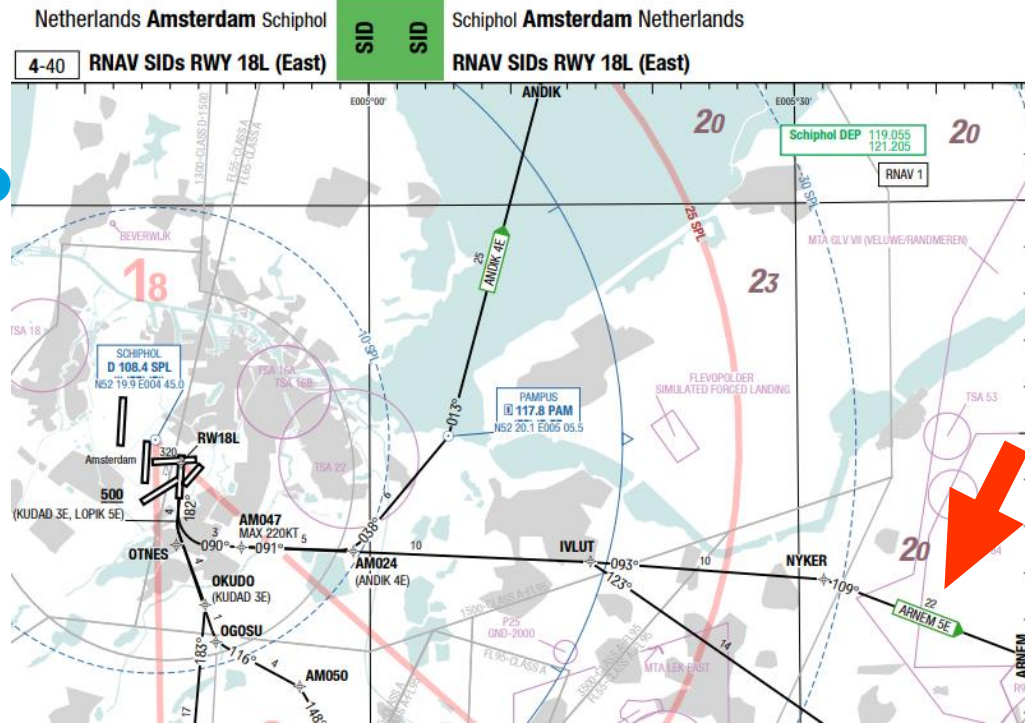
effect of wind / wind speed on route segments

Restriction ... Calculate Reclearance ... Recheck List of Routes ... Detailed Route ... ETOPS Output ... Display Mode

SELECT INSERT RTE FLT LIST PLAN PARAM ANALYSIS OFF TRANS COSTS REMARKS CLEAR HELP PRINT CLOSE

KLM

Flight Dispatch example – EHAM RWY & SID planning



Standard Instrument Departure



Departure airport

METAR 1342 MIN OLD

SA 050855Z 21010KT CAVOK 08/03 Q1023 NOSIG

TAF

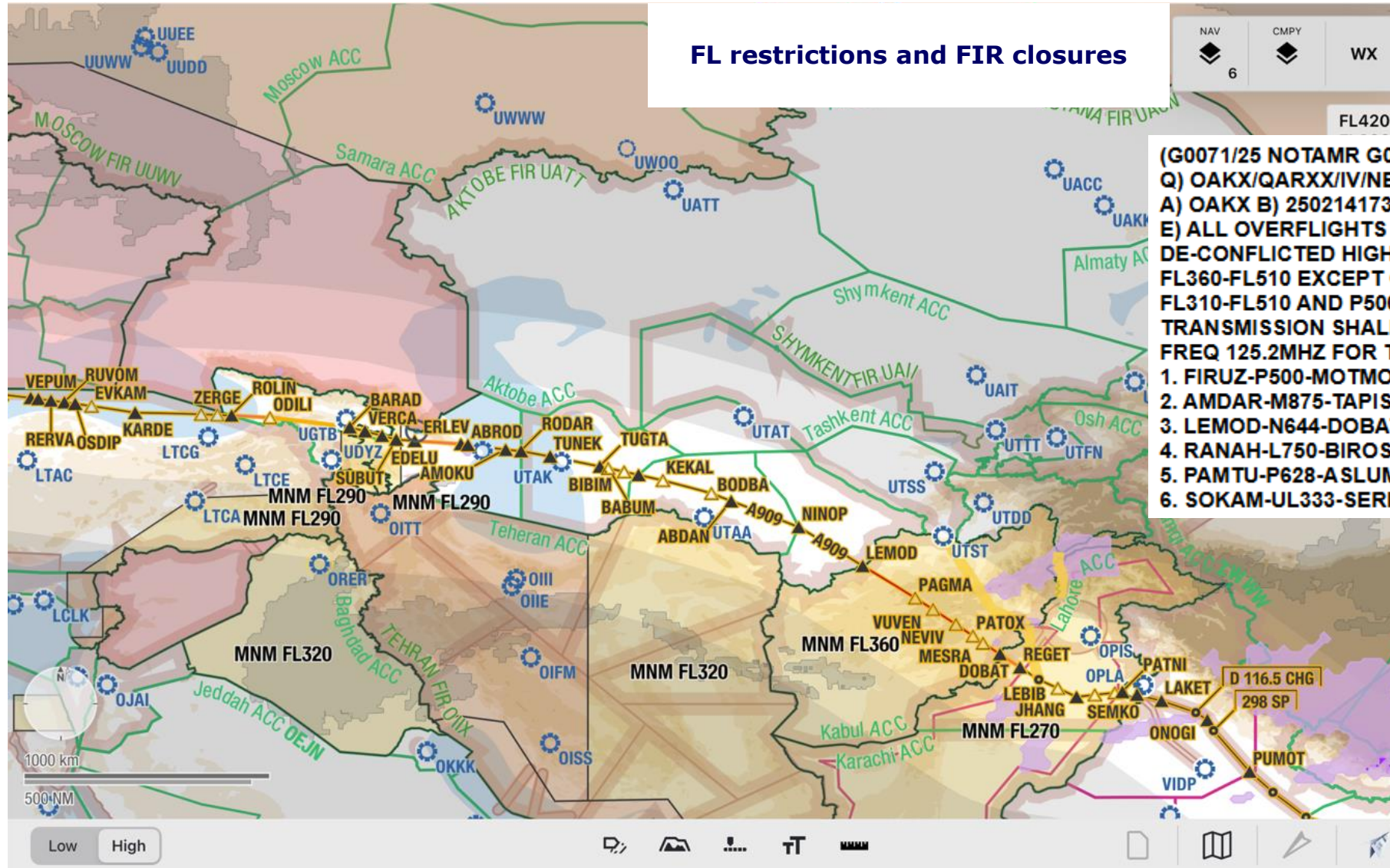
FT 050505Z 0506/0612 19007KT 6000 NSC
 BECMG 0507/0509 CAVOK
 BECMG 0510/0512 23010KT
 BECMG 0514/0517 27007KT
 PROB30 0602/0609 6000

ARNEM 5E
119.055
 ①

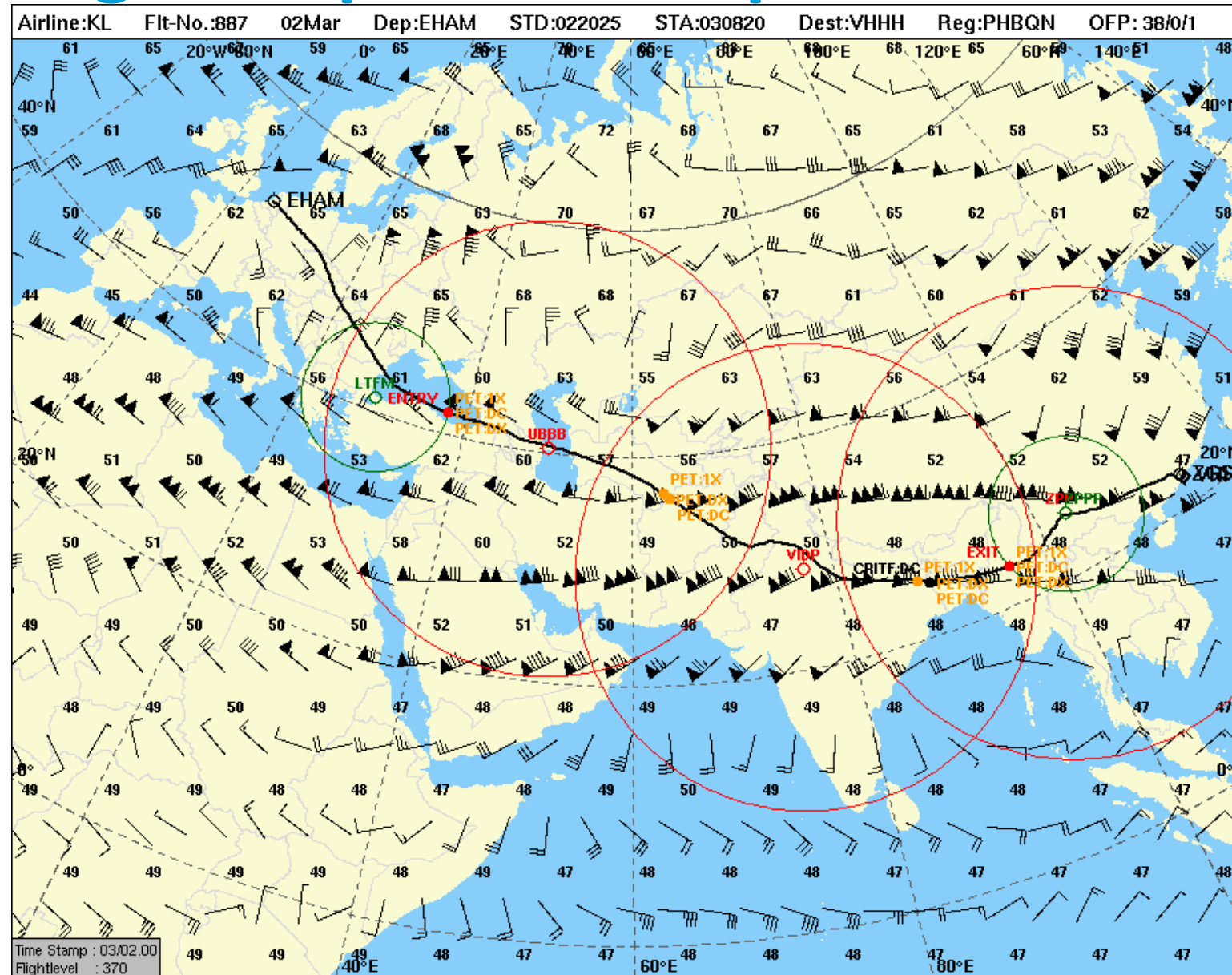
RW18L - OTNES - AM047 [K220-] - IVLUT - NYKER - ARNEM

initial climb FL60

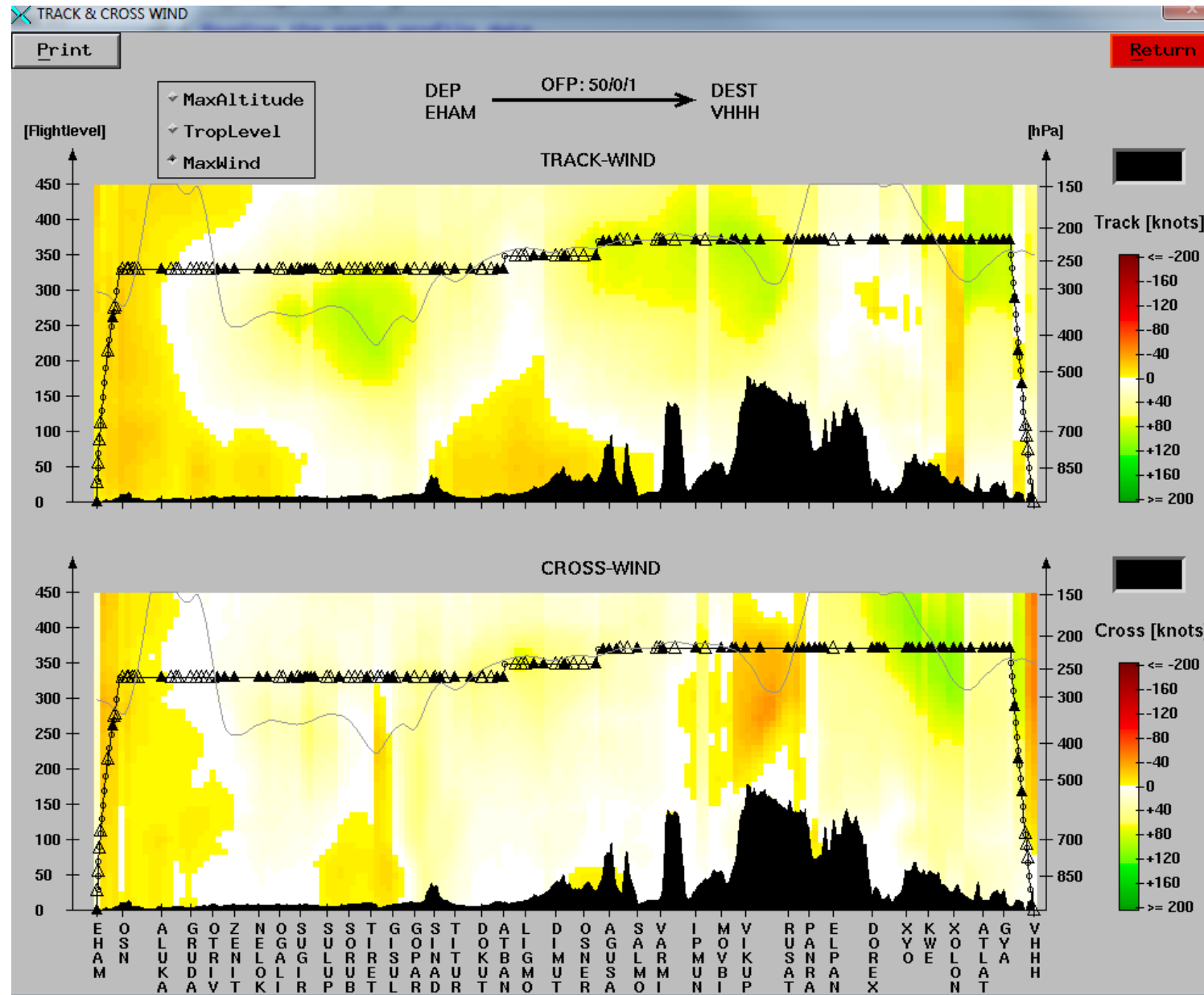
Flight Dispatch example – FL restrictions



Flight Dispatch example- ETOPS & wind for crew



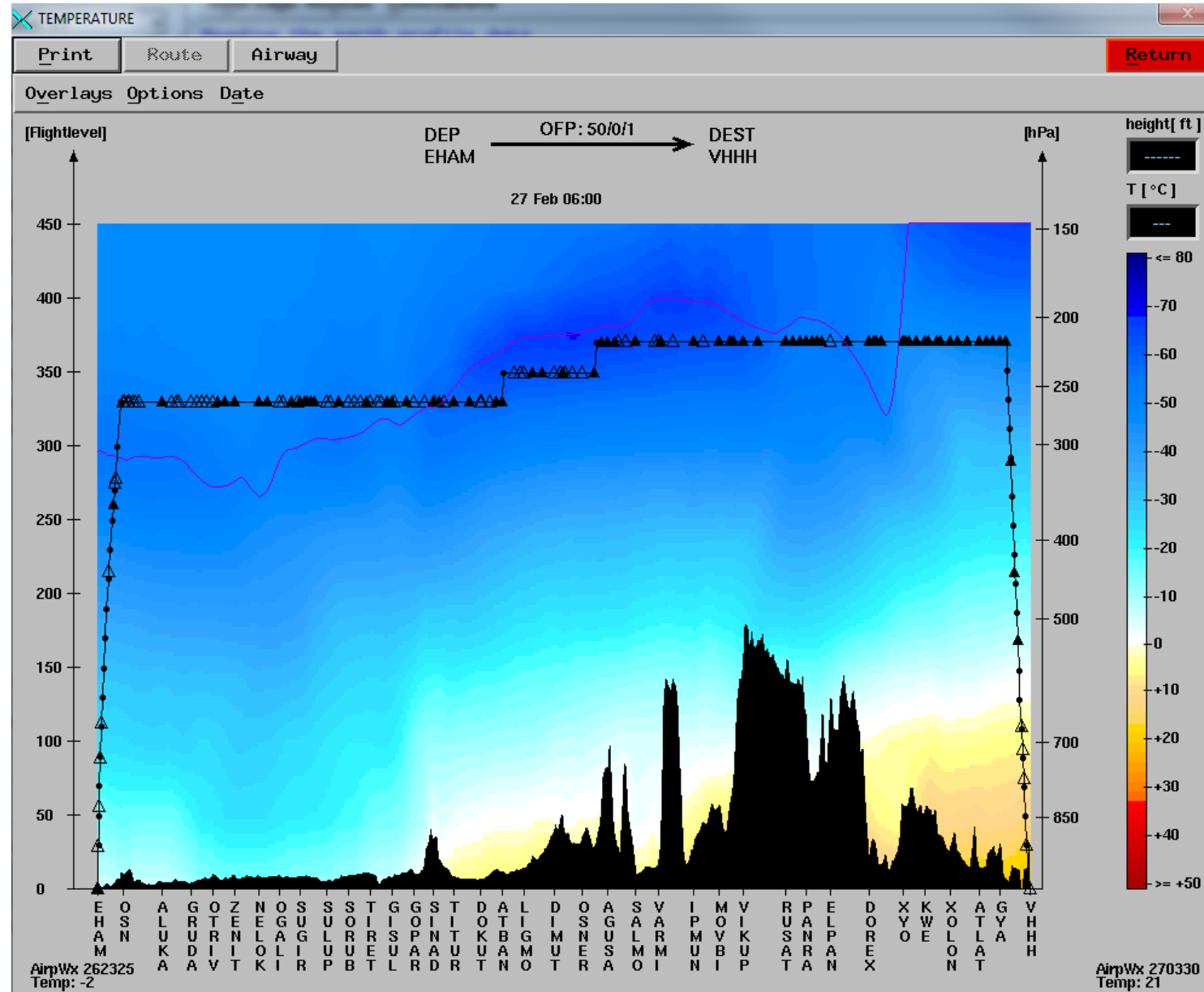
Flight Dispatch example- wind for crew



Profile check

Sometimes Lido creates a yo-yo effect in the vertical profile based on wind effects on different flight levels. Dispatch will check and correct if the changes in flight levels are undesirable

Flight Dispatch example – Temperature for crew



Cold fuel check

2 types of messages possible.

Examples for NATL flights:

FTPP-NOK

WARNING: Extreme low en-route temperature predicted

Model: A332 FLIGHT PLAN KL_682_03MAR2025CVREHAM OFP15/0/1

FUEL FREEZING ISSUES ENCOUNTERED. DETAILS FOLLOW.

THE FOLLOWING FUEL TRANSFER PROCEDURES WERE INVOKED:

FCOM PROCEDURE PRO-ABN-28 - FUEL LO_TEMP FOR INNER TANKS BETWEEN WAYPOINTS ERKIT AND SUGOL

FCOM PROCEDURE PRO-ABN-28 - FUEL LO_TEMP FOR OUTER TANKS BETWEEN WAYPOINTS DOLAS AND LAMSO

FUEL FREEZING IN INNER TANKS BETWEEN WAYPOINTS COONEK AND SUGOL

FUEL FREEZING IN THE OUTER TANKS BETWEEN WAYPOINTS TLA AND ETPOS

MINIMUM OAT : 197.1K / -76.0C OCCURS NEAR WAYPOINT TLA

MINIMUM TAT : 223.0K / -50.2C OCCURS NEAR WAYPOINT TLA

MINIMUM TANK TEMPERATURES:

TANK	TEMPERATURE	BETWEEN WAYPOINTS
L_OUTER	232.8K / -40.4C	B_O_D ENITO
L_INNER	236.0K / -37.1C	BUKUT LAMSO
CT	Remains empty for whole flight	
R_INNER	236.0K / -37.1C	BUKUT LAMSO
R_OUTER	232.8K / -40.4C	B_O_D ENITO
TRIM	255.3K / -17.8C	EXIT1 ETILO

FTPP-OK

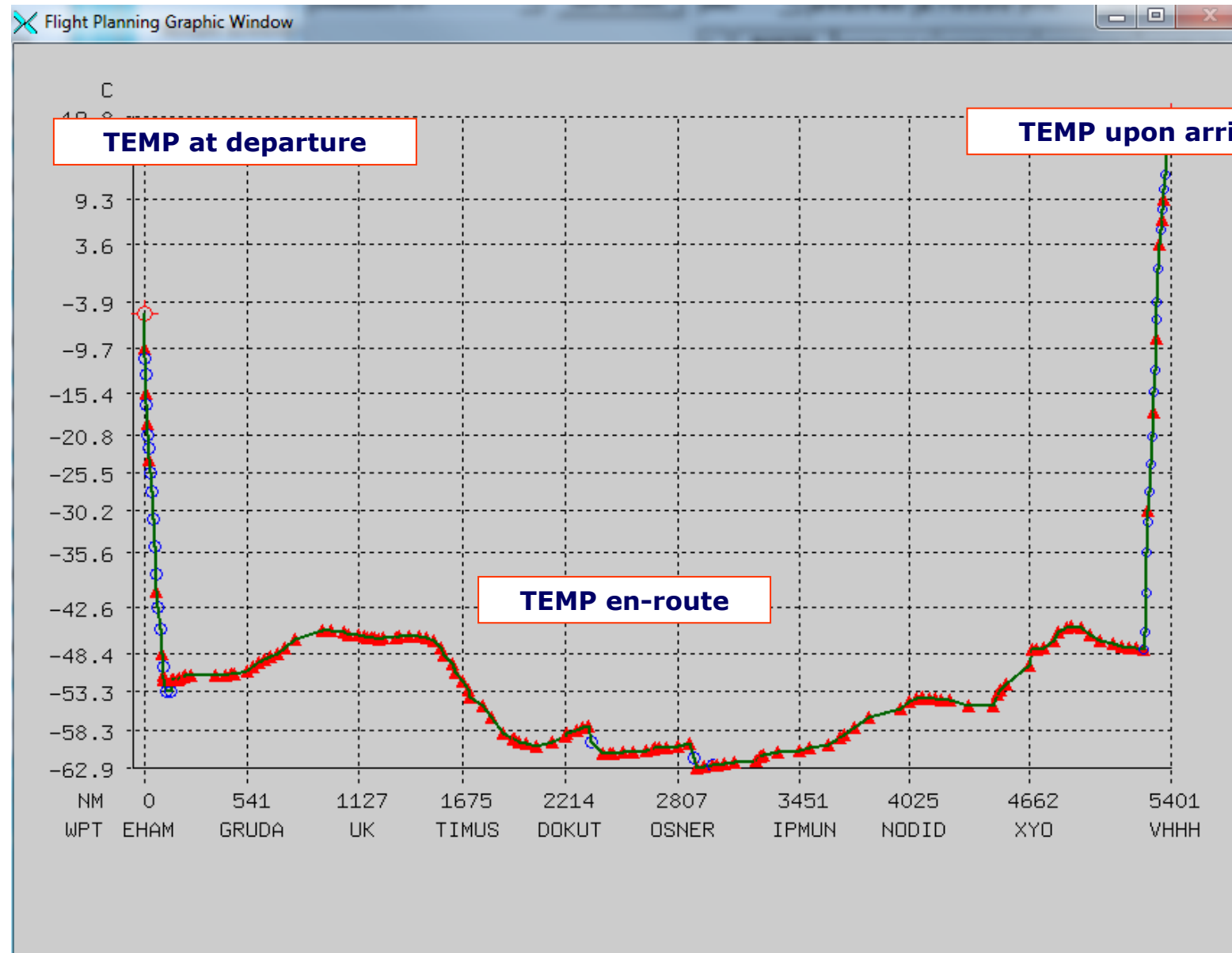
---- INFO: No extreme low en-route temperature predicted ----

Fuel Temperature Prediction Program - KLM Version 4.1(p1031b03)

KL_606_04MAR2025KSFOEHAM OFP7/0/1 B789

Note: The Lowest Temperature Predicted is -6.5C at 554 Minutes

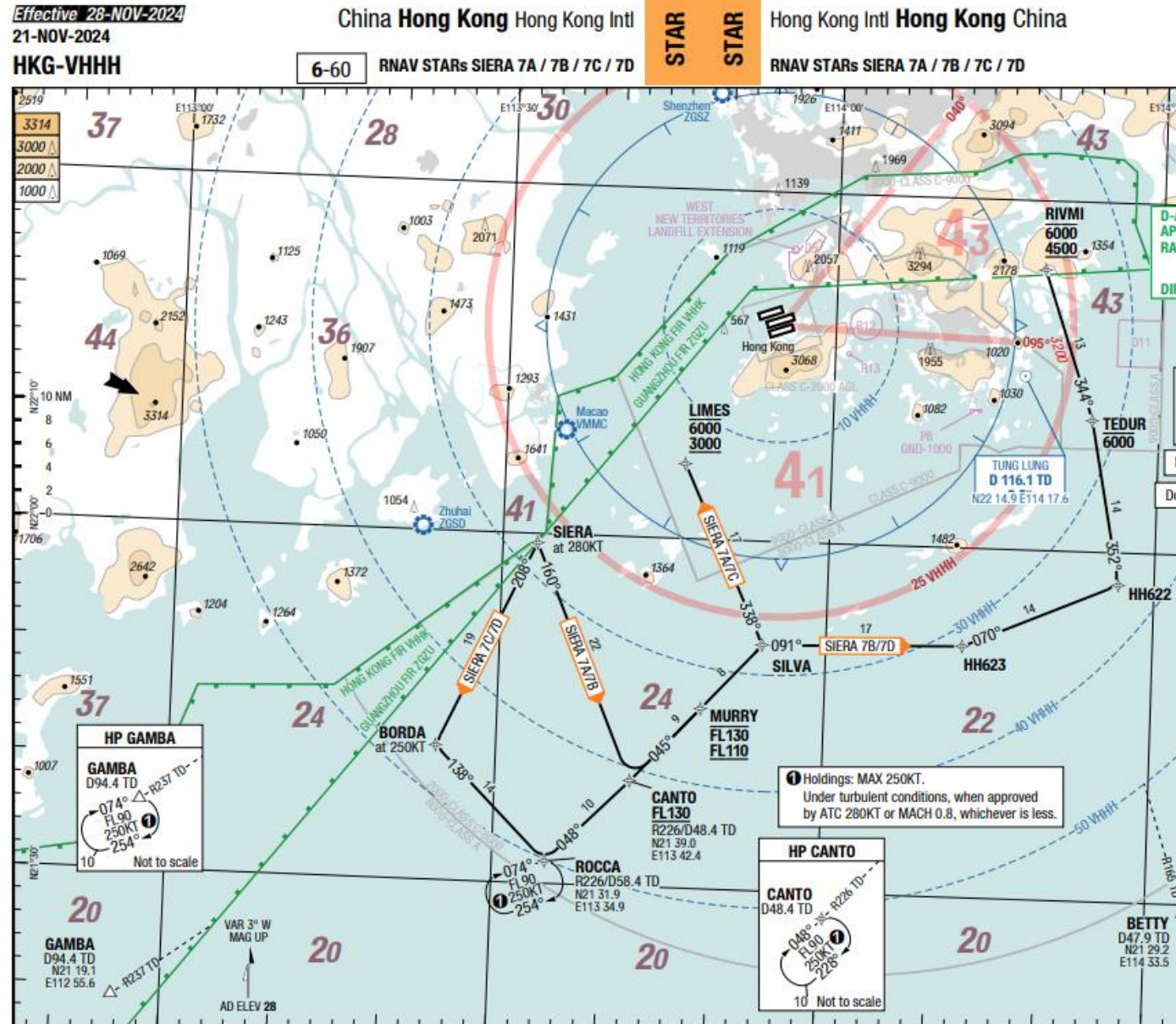
Flight Dispatch example – Temperature for crew



Flight Dispatch example – STAR & alternate route planning



Flight Dispatch example- STAR and RWY planning



**SIERA7A STAR
distance from SIERA
is 121 NM**

TT	GDIS	EET
157	121	00:24

INFO
MT 160 25L RNAV_STAR SIERA7B N2218.5 E11354.9 M 0.84 TROP 526 ISA 12

Destination airport

DEST VHHH - HKG - HONG KONG INTL

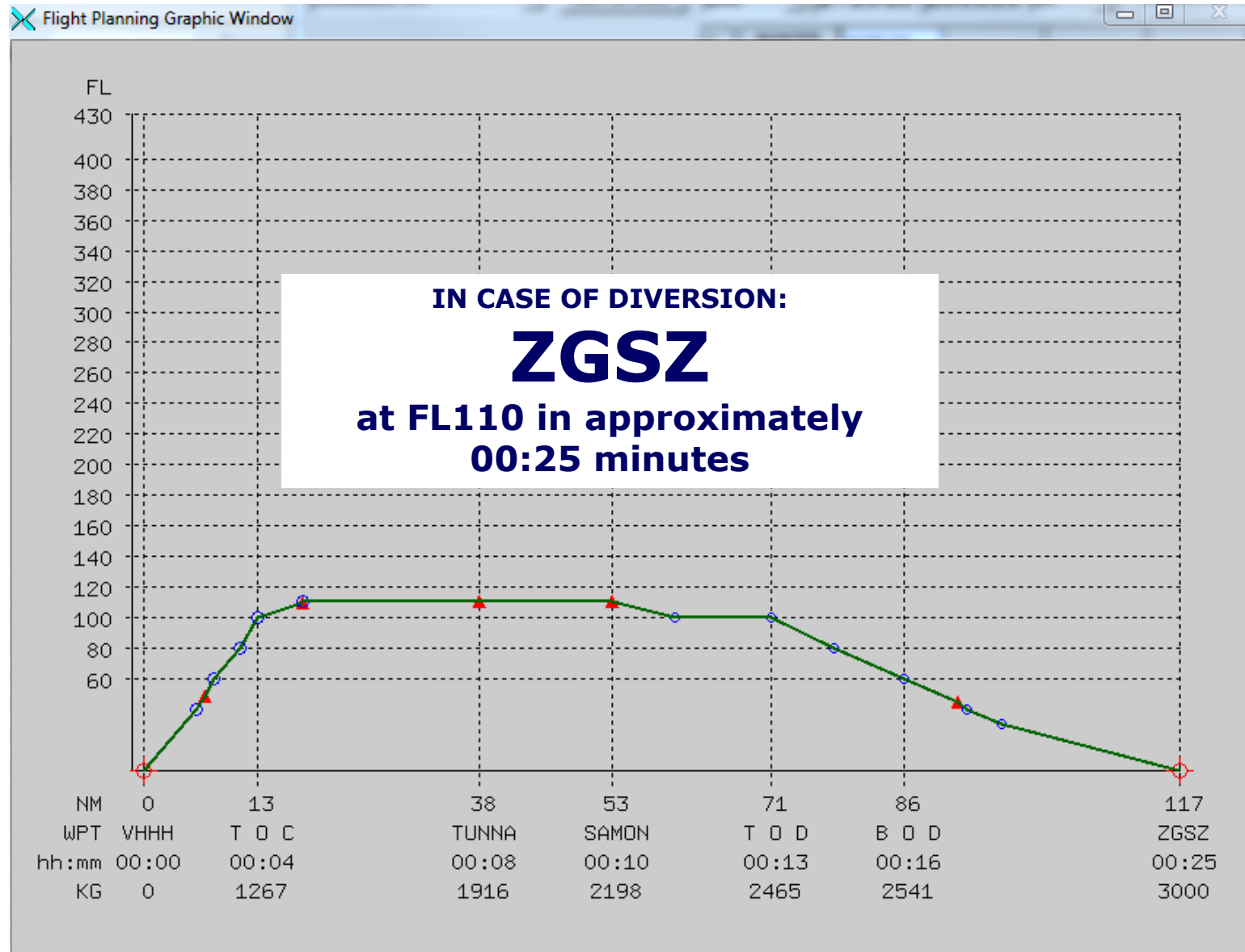
METAR 1307 MIN OLD

SA 050930Z 11006KT 9999 FEW007 SCT012 BKN040 19/17 Q1012 NOSIG

TAF

FT 050800Z 0509/0615 06015KT 7000 FEW008 SCT015 BKN040 TX20/0509Z TN15/0523Z
BECMG 0516/0518 36010KT

Flight Dispatch example – destination alternate



Flight Dispatch example – Send OFP

Flight plan preparation complete



Send OFP to ATC



Send OFP to Cockpit crew members via Ipad



Ready to fly!

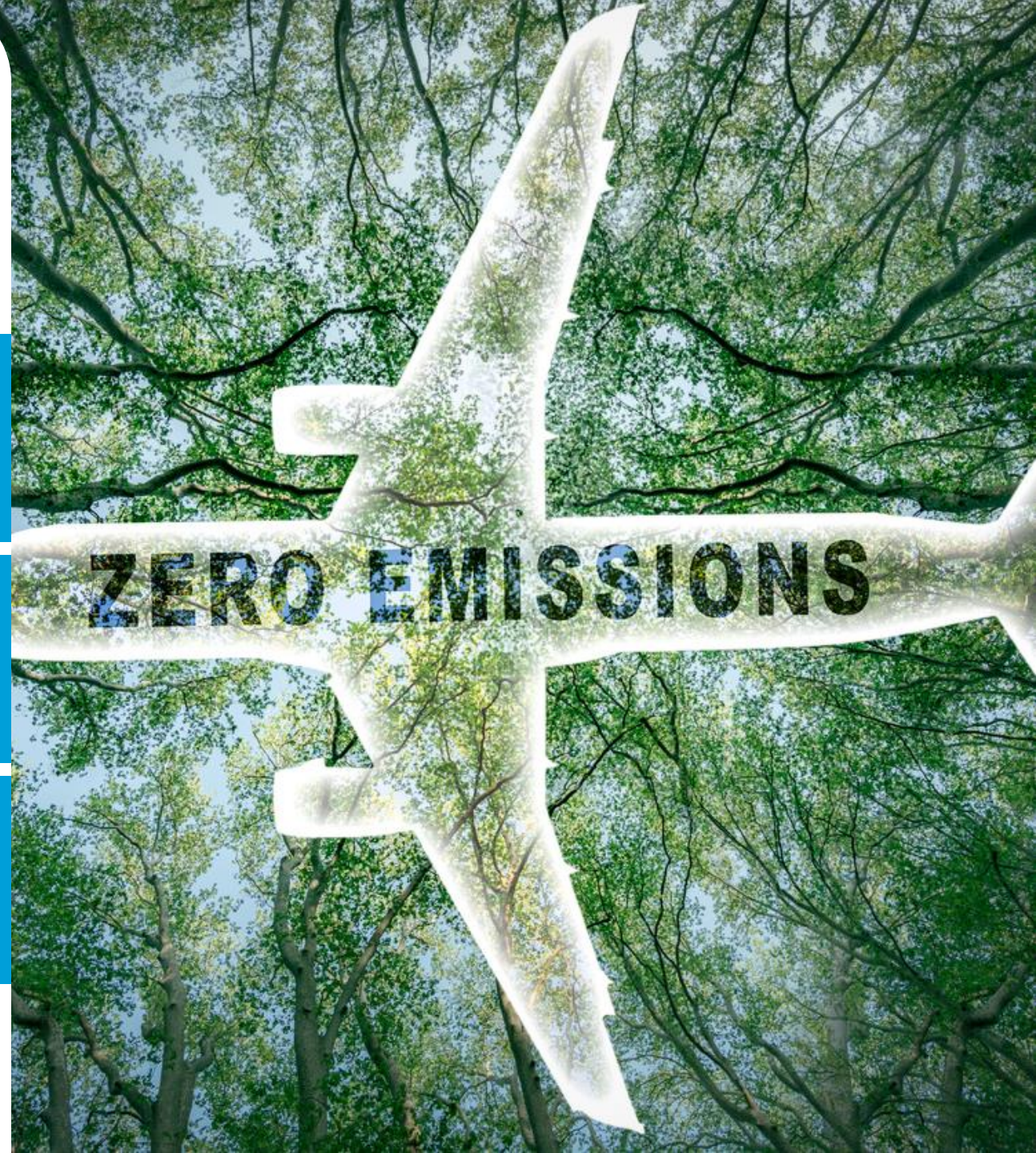


● How can you help airlines

Help airlines to improve efficiency, actively promote
Directs to crew or give feedback on our OFP

Introduce UPR, FRA or other means if flexibility in
route choice

ANSPs and airline need collaboration to reach Net Zero
goals for a sustainable future for aviation



Eurocontrol Network Manager Portal

Flight Details Airspace Profile Point Profile **Flight Management** e-Helpdesk Slot Swap Ops Log History IFPS History

Flight plan   Plot Extra addressing - Enter up to 100 AFTN addresses

(FPL-KLM23F-IS
-E190/M-SDE2E3FGIJ1RWY/HB1
-EHAM0820
-N0442F390 EDUP0 Z739 MISG0 DCT TIVUN DCT NEGIX DCT DINKU M867 XERUM DCT BAVAX DCT RADIZ/N0417F370
DCT ALIVO DCT NUPSO
-LDSP0147 LDZD
-PBN/A1B1D101S2 D0F/230504 REG/PHEXC EET/EDVV0012 EDUU0024 LOVV0057 LJLA0109 LDZ00119 CODE/485085
RVR/175 IFP/MODESASP OPR/KLC ORGN/EHAMKLMF PER/C RMK/TCAS)

STATUS: **Filed** - Targeted

Validate

Apply reroute

Send CHG

Send DLA

Send CNL

Result

EOBT VALIDITY CTOT DELAY
+ 12:20 08:58 25

[RAD Homepage](#)

MESSAGE	DETAIL	ACTION
Caught in measure	KLK3C04M	Avoid <input checked="" type="checkbox"/>


Propose route

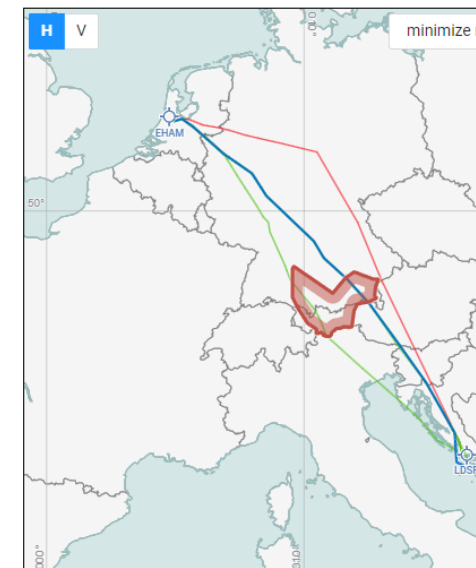
☐ Show the full route catalogue

Route proposal criteria

Route proposal results

ORIGINAL ROUTE	CDR	ERROR	TOT	DELAY	EET	NM	FCI	RCI	EV	REGUL+
▶ EHAM LDSP 1		OK	08:58	25	110	762	3361	843	+ 12:20	KLK3C04M











PROPOSED ROUTE ID	CDR	ERROR	TOT	DELAY	EET	NM	FCI	RCI	EV	REGUL+	TYPE	ROUTE ACTIONS 
▶ EHAM LDSP 5004		Overload			103	727	3244	843	+ 12:20		STANDARD	Copy FPL Copy F15 Validate
▶ EHAM LDSP 5024		Overload			104	727	3244	843	+ 12:20		STANDARD	Copy FPL Copy F15 Validate
▶ EHAM LDSP 5003		Overload			108	736	3322	851	+ 12:20		STANDARD	Copy FPL Copy F15 Validate
▶ EHAM LDSP 5021	CDR1	Overload	08:34	0	104	768	3321	871	+ 12:20	KD3C04M	STANDARD	Copy FPL Copy F15 Validate
▶ EHAM LDSP 5005		Overload			108	748	3326	843	+ 12:20		STANDARD	Copy FPL Copy F15 Validate

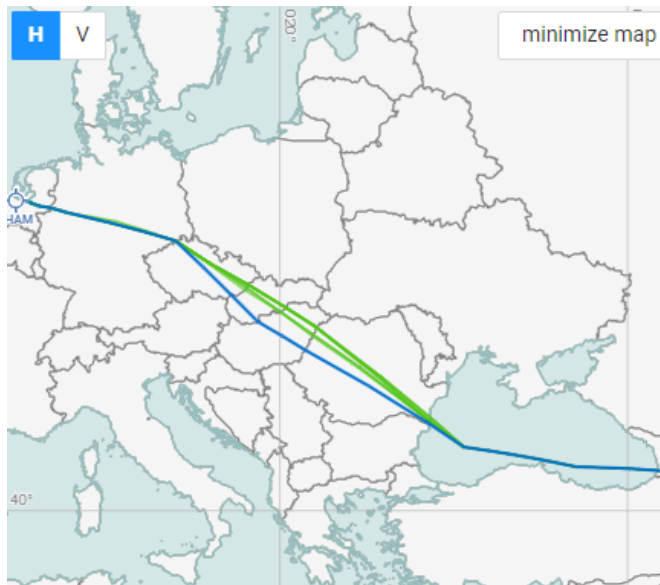


Eurocontrol Network Manager Portal

→	ORIGINAL ROUTE	TOT	DELAY	EET	NM	FCI	RCI	EV	REGUL+
▼	EHAM VIDP 1			446	3810	60195	5324	+ 15:20	
N0477F330 ARNEM L620 HMM DCT NOMKA DCT OMELO DCT ODNEM DCT ERGOM DCT BUDOP DCT UDROS/N0471F350 UM859 KARDE UN644 ROLIN/N0472F350 N644 C USETU G500 BUTRA L181 DAROW Z767 VAJEN G500 FIRUZ/N0480F350 P500 PS T400 NONIB L509 SULOM/M083F350 A466 ELKUX ELKUX6C									

PROPOSED ROUTES

	EXEC TIME	REROUTING NOTE	DELAY	EET	NM	FCI	RCI	EV	OPP ACTIONS	ROUTE ACTIONS i
▶	20-07:57	KLM 3 WIDE		445	3801	60093	5356	15:20	 	Copy FPL Copy F15 Validate
▶	20-07:57	KLM 3 WIDE		445	3801	60110	5356	15:20	 	Copy FPL Copy F15 Validate
▶	20-07:57	KLM 3 WIDE		445	3802	60123	5357	15:20	 	Copy FPL Copy F15 Validate
▶	20-07:57	KLM 3 WIDE		445	3801	60125	5368	15:20	 	Copy FPL Copy F15 Validate
▶	20-07:57	KLM 3 WIDE		445	3801	60125	5368	15:20	 	Copy FPL Copy F15 Validate



Conclusion

- Airlines need as much flexibility as possible to deal with wind variation. Impact on:
 - Passenger connections
 - Fleet connections
 - Crew working hours
- Necessity of having contingency routes is essential for making choices due to abnormal situations
- Opening additional entry and exits into airspace to create flexibility: flexible overflying permits needed
- Free Route Airspace (FRA) or User Preferred Route (UPR) development supported by airlines

All these points will lead to emission reduction for airlines which helps us reach our global aviation commitment to achieve net zero carbon in 2050



Thank you for your attention

Clim van der Weijden 范科林

ATM Regional Manager Asia

Clim-van-der.Weyden@klm.com