



ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY

PBN Route Laboratory
UNON 22 - 26 May 2023









PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS

- Are 38 Stakeholder Routing Proposals –
Some with options
- Paperless meeting
- Proposal structure
- Present the proposals visually
- Discuss stakeholder proposals
- Point out any “potential” issues
- SKYVECTOR “OJTI”

PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS

- Access ICAO ESAF website
- Demonstrate site interaction
- Saving/forwarding of work undertaken

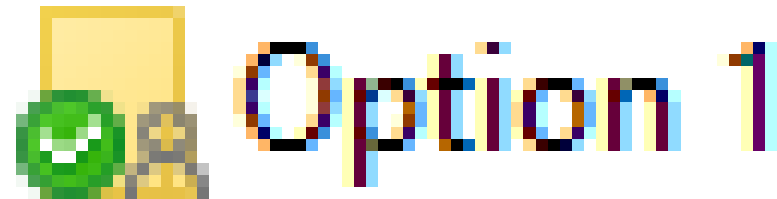
PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS

 Delta	19/05/2023 08:29	File folder
 Ethiopian	19/05/2023 08:30	File folder
 KENYA	19/05/2023 09:12	File folder
 RWANDA	19/05/2023 08:56	File folder
 South African	19/05/2023 09:12	File folder
 United	19/05/2023 09:11	File folder

PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS

-  DGAA_KJFK
-  DNMM_KATL
-  DNMM_KJFK
-  KATL_DNMM
-  KJFK_DGAA
-  KJFK_DNMM

PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS

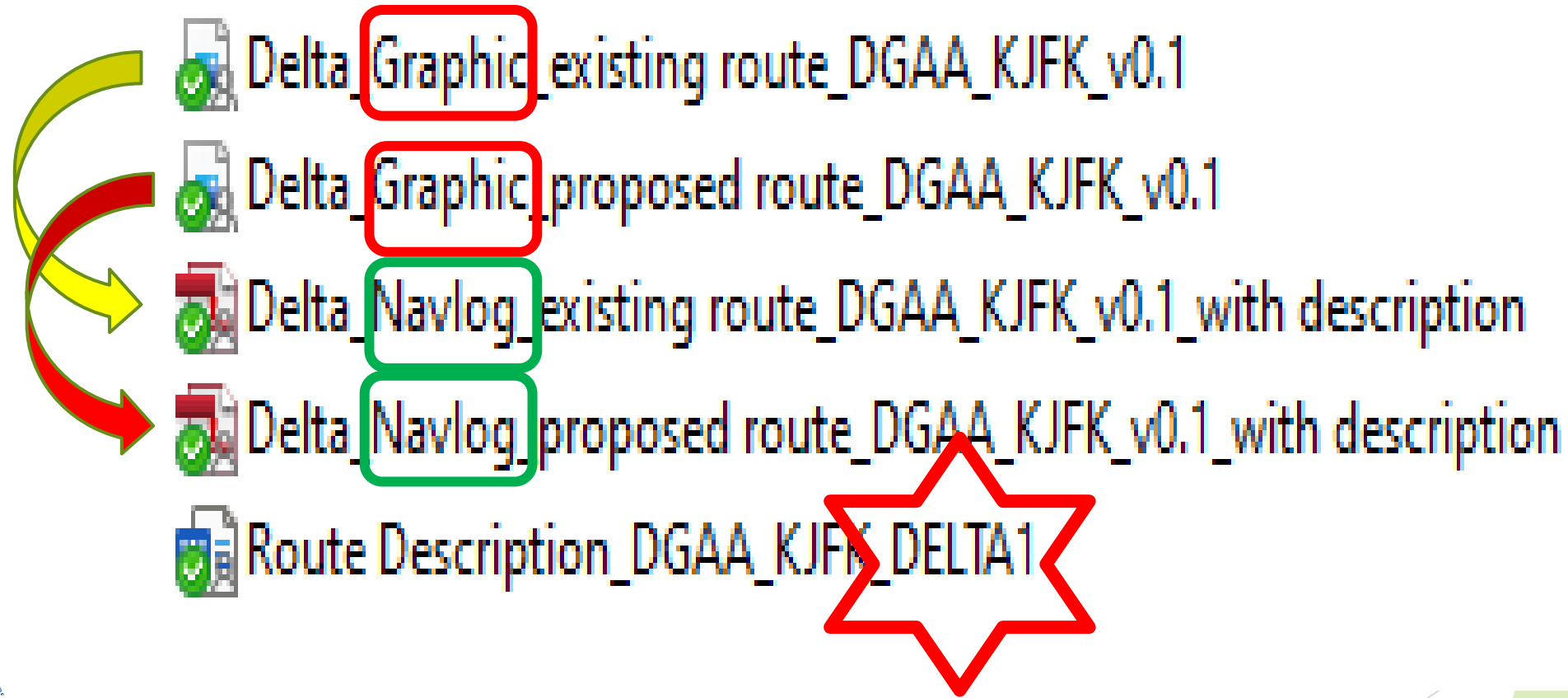


Option 1



Option 2

PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS



Flight Plan



Aircraft ✈ Spd Alt Fuel

Departure [Accra/Kotoka International Airport](#)

Destination [John F Kennedy International](#)

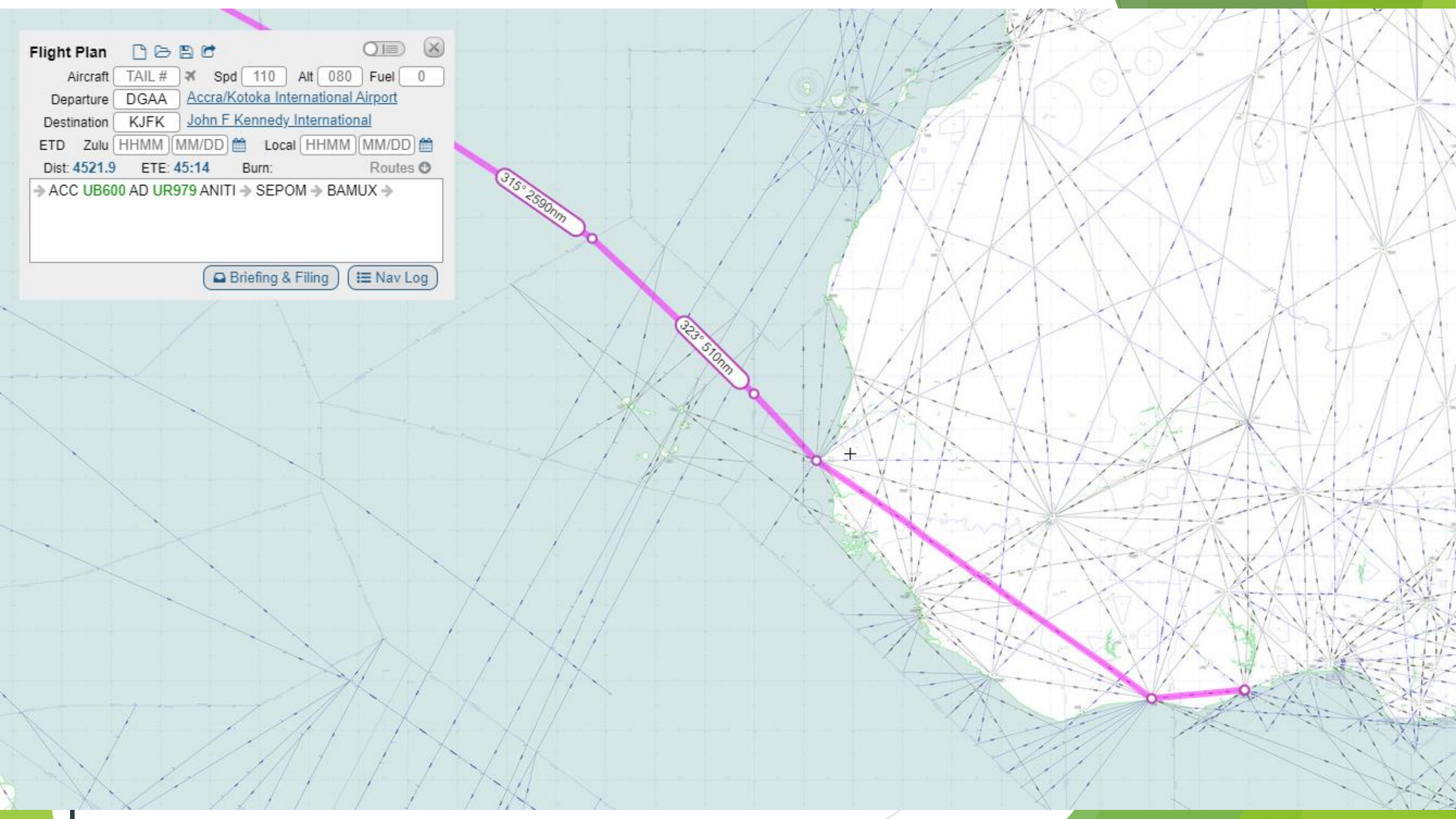
ETD Zulu Local

Dist: **4521.9** ETE: **45:14** Burn: Routes

→ ACC **UB600** AD **UR979** ANITI → SEPOM → BAMUX →

Briefing & Filing

Nav Log



This is the current routing used by Delta airlines. For the purposes of the Route Lab, the NavLog Ends at BAMUX on page 2 entering Oceanic airspace.

DGAA — KJFK

Block Time

IN : _____

OUT : _____

TOTAL : _____

Flight Time

ON : _____

OFF : _____

TOTAL : _____

Fuel Totals

START : _____

REMAIN : _____

USED : _____



Planned Route

ACC UB600 AD UR979 ANITI SEPOM BAMUX

Squawk Code

Clearance

Distance = 4558NM; Fuel used = 121946; ETE = 10:56



Waypoint	Route	wDir	wSpd	TAS	Track	TH	MH	GS	Dist	ETE	ATE	Fuel	Fuel
	Altitude	Temp (dew)			WCA	Var				ETO	ATO	EFR	AFR
DGAA <small>N 00°16.00' W 000°11.00'</small>	-0+	67° 17		110	22°	29°	31°	97	1.9	1.2		0.0	
ACC 113.1 <small>N 00°28.00' W 000°03.00'</small>	8000	13°C (+14°)			+6°	+3°				1.2		0.0	
UB600	UB600	67° 17		110	265°	267°	270°	127	60.0	29		0.0	
MIMTI <small>N 00°30.00' W 000°03.00'</small>	8000	13°C (+14°)			+3°	+3°				30		0.0	
UB600	UB600	70° 15		110	265°	267°	272°	125	33.2	16		0.0	
TEMBI <small>N 00°32.00' W 000°03.00'</small>	8000	14°C (+14°)			+2°	+5°				46		0.0	
UB600	UB600	71° 15		110	265°	267°	270°	125	63.0	30		0.0	
ONESI <small>N 00°34.00' W 000°03.00'</small>	8000	14°C (+15°)			+2°	+4°				1h16		0.0	
UB600	UB600	67° 17		110	265°	267°	271°	126	69.9	32		0.0	
AD 114.3 <small>N 00°16.00' W 000°03.00'</small>	8000	15°C (+16°)			+3°	+4°				1h48		0.0	
UR979	UR979	73° 23		110	306°	316°	320°	122	88.2	43		0.0	
ARLIX <small>N 00°06.00' W 000°06.00'</small>	8000	15°C (+16°)			+10°	+4°				2h31		0.0	
UR979	UR979	78° 22		110	306°	314°	318°	123	61.7	30		0.0	
POKSO <small>N 00°26.00' W 000°03.00'</small>	8000	14°C (+15°)			+8°	+4°				3h01		0.0	
UR979	UR979	89° 21		110	305°	311°	315°	127	169.2	1h21		0.0	
ERMIT <small>N 00°22.00' W 000°11.00'</small>	8000	14°C (+15°)			+6°	+4°				4h22		0.0	
UR979	UR979	91° 16		110	305°	309°	314°	123	72.1	35		0.0	
NANAN <small>N 00°03.00' W 000°11.00'</small>	8000	14°C (+15°)			+5°	+4°				4h58		0.0	
UR979	UR979	100° 14		110	307°	310°	316°	122	105.6	52		0.0	
ARBAL <small>N 00°04.00' W 000°03.00'</small>	8000	15°C (+16°)			+3°	+6°				5h50		0.0	
UR979	UR979	98° 12		110	298°	300°	306°	121	19.0	9.4		0.0	
BUNAP <small>N 00°15.00' W 000°06.00'</small>	8000	15°C (+16°)			+2°	+6°				5h59		0.0	
UR979	UR979	86° 12		110	307°	312°	317°	118	40.9	21		0.0	
KOLIP <small>N 00°06.00' W 000°13.00'</small>	8000	15°C (+16°)			+4°	+6°				6h20		0.0	
UR979	UR979	91° 13		110	306°	310°	317°	120	59.5	30		0.0	
LUGMI <small>N 00°15.00' W 000°12.00'</small>	8000	15°C (+17°)			+4°	+7°				6h49		0.0	
UR979	UR979	91° 13		110	305°	308°	316°	121	56.1	28		0.0	
DIRNO <small>N 00°07.00' W 000°06.00'</small>	8000	15°C (+16°)			+4°	+7°				7h17		0.0	
UR979	UR979	63° 8		110	309°	313°	318°	113	46.0	25		0.0	
BADIA <small>N 00°14.00' W 000°03.00'</small>	8000	14°C (+15°)			+4°	+6°				7h42		0.0	
UR979	UR979	58° 5		110	305°	307°	313°	112	50.4	27		0.0	
KOMAR	8000	14°C (+16°)			+2°	+6°				8h09		0.0	

This is the current routing used by Delta airlines. For the purposes of the Route Lab, the NavLog Ends at BAMUX on page 2 entering Oceanic airspace.

DGAA — KJFK



Block Time

IN: _____
 OUT: _____
 TOTAL: _____

Flight Time

ON: _____
 OFF: _____
 TOTAL: _____

Fuel Totals

START: _____
 REMAIN: _____
 USED: _____

Planned Route


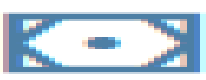
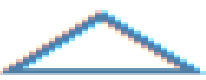
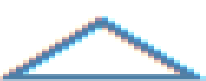
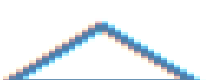
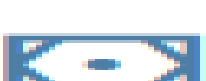
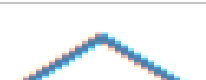
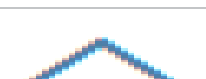
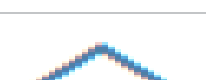

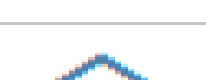
ACC UB600 AD UR979 ANITI SEPOM BAMUX

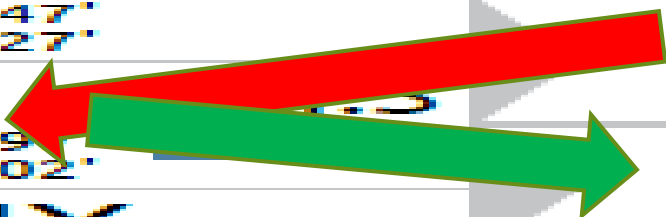
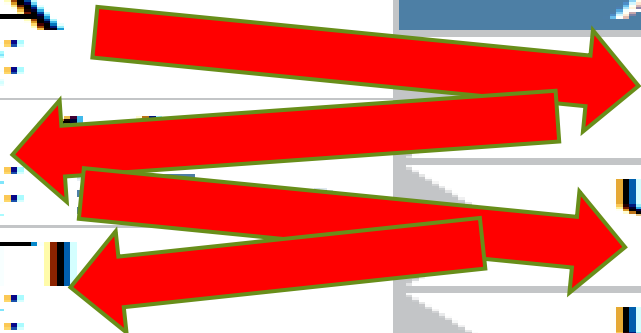
Squawk Code

Clearance

Distance = 4558NM; Fuel used = 121946; ETE = 10:56

Waypoint	Route Altitude	wDir	wSpd	TAS	Track	TH	MH	GS	Dist	ETE	ATE	Fuel EFR	Fuel AFR
		Temp (dev)			WCA	Var				ETO	ATO		
 DGAA <small>N 05°36.26' W 000°10.05'</small>	•D•	67°	17	110	22°	29°	31°	97	1.9	1.2		0.0	
 ACC 113.1	8000	13°C (+14°)			+6°	+3°				1.2		0.0	

Waypoint		Route	wDir	wSp
		Altitude	Temp (deg)	
	DGAA Z 05°36.26' E 000°10.05'	-D+	67°	17
	ACC Z 05°38.04' E 000°09.32'	8000	13°C (+14	
	MIMTI Z 05°32.34' E 001°09.21'	UB600 8000	67°	17
	TEMBI Z 05°29.20' E 001°42.40'	UB600 8000	13°C (+14	
	ONESI Z 05°23.47' E 002°45.27'	UB600 8000	70°	15
	AD Z 05°16.59' E 003°55.02'	UB600 8000	14°C (+14	
	ARLIX Z 06°09.03' E 005°06.60'	UB600 8000	71°	15
	POKSO Z 06°45.38' E 005°56.85'	UB600 8000	14°C (+15	
	ERMIT Z 08°22.00' E 008°17.00'	UR979 8000	67°	17
	NANAN Z 09°03.00' E 009°17.00'	UR979 8000	15°C (+16	
	ARBAL Z 12°06.33'	UR979 8000	73°	23



This is the Delta proposed routing. Once again for the purposes of the Route Lab, the routing ends at BAMUX

DGAA — KJFK - Name DELTA1



Block Time

IN: _____

OUT: _____

TOTAL: _____

Flight Time

ON: _____

OFF: _____

TOTAL: _____

Fuel Totals

START: _____

REMAIN: _____

USED: _____

Planned Route

ACC TUSEK BUNKA ERMIT UR979 ANITI SEPOM BAMUX

Squawk Code

Clearance









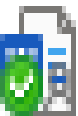

Fuel used = 121332 lbs; Distance = 4526NM; ETE = 10:53
 Is 32Nm shorter
 Three minutes saved
 Fuel saved = 614lbs; CO2 saved = 88.1 Kg
 Flights per year = 365

Waypoint	Route	Altitude	wDir	wSpd	TAS	Track	TH	MH	GS	Dist	ETE	ATE	Fuel	Fuel
			Temp (dev)			WCA	Var				ETO	ATO	EFR	AFR
DGAA N 05°36.26' W 000°10.05'	-D-		67°	22	110	22°	30°	33°	93	1.9	1.2		0.0	
ACC 113.1 N 05°38.04'	8000	13°C (+14°)	+8°	+3°		1.2					0.0			

PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS

- Graphics X2 – Current/Proposed
- NAVLOG X2 – Current/Proposed
- Read the NAVLOG
- Route Description????

PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS

-  Delta_Graphic_existing route_DGAA_KJFK_v0.1 
-  Delta_Graphic_proposed route_DGAA_KJFK_v0.1 
-  Delta_Navlog_existing route_DGAA_KJFK_v0.1_with description 
-  Delta_Navlog_proposed route_DGAA_KJFK_v0.1_with description 
-  Route Description_DGAA_KJFK_DELTA1 

Route:-DGAA_KJFK

Name:-DELTA1

¶

Route-Reference	Proposed-Route	Route-Status	Distance-Savings-(NM)	Fuel-Saved-(Kg)	CO2-Saved-(Kg)	Time-Saved-(Minutes)	Flights-per-year
DELTA1	DGAA ACC TUSEK BUNKA ERMIT NANAN ARBAL BUNAP KOLIP LUGMI DIRNO BADIA KOMAB ERIDI ANITI SEPOM BAMUX KJFK	Proposed	32Nm	614	88.1	3	365

¶

Objective

- → No optimal NW—SE airway structure to optimise to/from LOS and ACC that stays south of Mali
- → DCT routing would help solve this situation for Delta Airlines.
- → Delta flights are always required to plan/fly south of Mali airspace.

¶

Proposal

- → To create an airway as per attached NAVLOG and graphic

¶

PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS

Proposal

- To create an airway as per attached NAVLOG and graphic

Considerations

- Existing route structure, CNS considerations, Restricted airspace, Military airspace ,Existing procedures, Environmental, Other

PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS

Risks & Mitigation

Hazards identified.

HAZARD	Mitigation
1.FAP XYZ between point A and B	Use current routing between A and B
2.DCT will not comply with SID/STARs	From point A route to point B
3.Between point A and B, no Comms	Rather route from A to B
4.Between A and B – Military airspace	Consult with military for usage
5.Point A is used in a RNAV procedure	Rather use point XYZ
6.Route between A and B conflicts with route C and D	Use current routing between XYZ
7.Any possible reasons for not accommodating	

PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS

Actions required


1.	
2.	
3.	
4.	
5.	
6.	
7.	


PBN ACTIVITY 3 - STAKEHOLDER ROUTINGS

Actions required

1. Consult with FIR XYZ concerning proposal
2. Establish new FIR point at approximately XYZ
3. Alternate route suggestion between point XYZ and ABC is via XYZ
4. Military needs to be consulted regarding XYZ
5.
6.
7.

SAVING Route Description

Route Description_DGA DELTA1	 Save
Word Document (*.docx)	

DELTA1_KENYA ✓	 Save
Word Document (*.docx)	

[More options...](#)

KENYA 1_ASECNA ✓	 Save
Word Document (*.docx)	

[More options...](#)



PBN Route LAB

Proposed flight plan name allocation:

DELTA	
Routing	Name
DGAA_KJFK	DELTA 1
DNMM_KATL_Option1	DELTA2_OPTION 1
DNMM_KATL_Option2	DELTA2_OPTION 2
DNMM_KJFK_Option1	DELTA3_OPTION 1
DNMM_KJFK_Option2	DELTA3_OPTION 2
KATL_DNMM	DELTA4
KJFK_DGAA	DELTA5
KJFK_DGAA	DELTA6
KJFK_DNMM	DELTA7
Ethiopian	
HAAB_FAOR	ETHIO 1
KENYAN	
DIAP_HKJK	KENYA 1
DNMM_HKJK	KENYA 2
FACT_FLHN	KENYA 3

RWANDAN	
KNM_KMI	RWANDA 1
SAA	
DNMM_FAOR	SAA 1
FAOR_FALE	SAA 2
FAOR_FLKK Option 1	SAA 3 OPTION 1
FAOR_FLKK Option 2	SAA 3 OPTION 2
FAOR_FVRG	SAA 4
FAOR_FWCL	SAA 5
FAOR_FYWH	SAA 6
FQMA_FAOR	SAA 7
FVFA_FAOR	SAA 8
FVRG_FAOR	SAA 9
FWKI_FAOR	SAA 10
FYWH_FAOR	SAA 11
UNITED	
DGAA_ANITI	UNITED 1
DNMM_ANITI	UNITED 2
DNMM_BORTA	UNITED 3

Emailing saved
Route Description

Colin Bryant

cbryant@icao.int

**Subject line = As you
saved it:**

**Example: SAA 3_Zambia
KENYA 5_Mozambique**



Thank You!