RLA/06/901 – Quinta Reunión del Grupo de Estudio e Implantación del Espacio Aéreo SAM – GESEA/5 (09 a 11 abril 2021)

Seguimiento de las actividades SG1/GEPEA

Programa de Trabajo – SG1

ACTIVIDAD	DESCRIPCIÓN	RELATOR	ESTADO/ORG
DCT - EDE	Implantacion en base a estudios del SG1 en 2020. Trabajo con Estados, CANSO , IATA, Aerolineas. Desarrollar KPIs	Julio Pereira	IATA
CONT PLAN	Elaboración de los Planes de Contingencia de Estados armonizados y concordados, en base el Marco aprobado MCATS	Ricardo David	BRASIL
CONCEPTO DE ESPACIO AEREO SAM	Completar Estudios. Particpacion de Estados para comprension de la metodologia. Entregar insumo al VOL III ANSP CAR SAM.	Hector Ibarra	CHILE
NORMAS PLANIFICACIÓN EA	Material guia sobre proyectos de Espacio Aereo	Marcos Peçanha	BRASIL
CAPACITACIÓN PLANIFICADOR EA	Capacitacion sobre el Material guia sobre proyectos de EA	Marcos Peçanha	BRASIL
RUTAS RNAV 5	Optimizar ultimas 29 rutas convencionales. Aplicación excluyente de RNAV 5 en espacio superior regional y domestico. Planes de acción	Secretaria	ESTADOS
OPTIMIZACION DE ESPACIOS TMA	Optimizacion de TMA seleccionados. Aplicación inicial de sinergias ASM/ATFM	TBD	
POST-IMPLEM		Julio Pereira	IATA
FAVA			

Conclusiones SAM/IG/25

Conclusión SAM/IG/25-01 Implantación enrutamiento directo estratégico - EDE

Que: Los Estados SAM, analicen el material de orientación elaborado por el SG1 GESEA sobre el concepto Enrutamiento directo estratégico – EDE que se ha puesto a disposición de las Administraciones, y coordinen la implantación con IATA y Aerolíneas internacionales, así como con los Estados adyacentes.

Conclusiones SAM/IG/25

Conclusion SAM/IG/25-02 Adopción de orientaciones del Plan Marco para Contingencias ATS de la Región SAM (MCATS /SAM) y alineación de Planes Nacionales.

Que: Los Estados adopten las orientaciones del Plan Marco para Contingencias ATS de la Región SAM elaborado por GESEA, e inicien la armonización de sus Planes contingencia ATS nacionales, con miras a contar oportunamente con la documentación requerida para las actividades Regionales sobre Planes de Contingencia y Cartas acuerdo ATS, tentativamente programadas para el 2021

Conclusiones SAM/IG/25

Conclusion SAM/IG/25-03 Actividades para elaborar Plan Marco para Contingencias ATM/CNS de la Región SAM

Que: Los Estados apoyen las actividades del GESEA para una segunda etapa del MCATS, con miras a la elaboración de material guía para un “Plan Marco de Contingencia ATM/CNS de la Region SAM”.

EDE

Actualización por los Estados

EDE

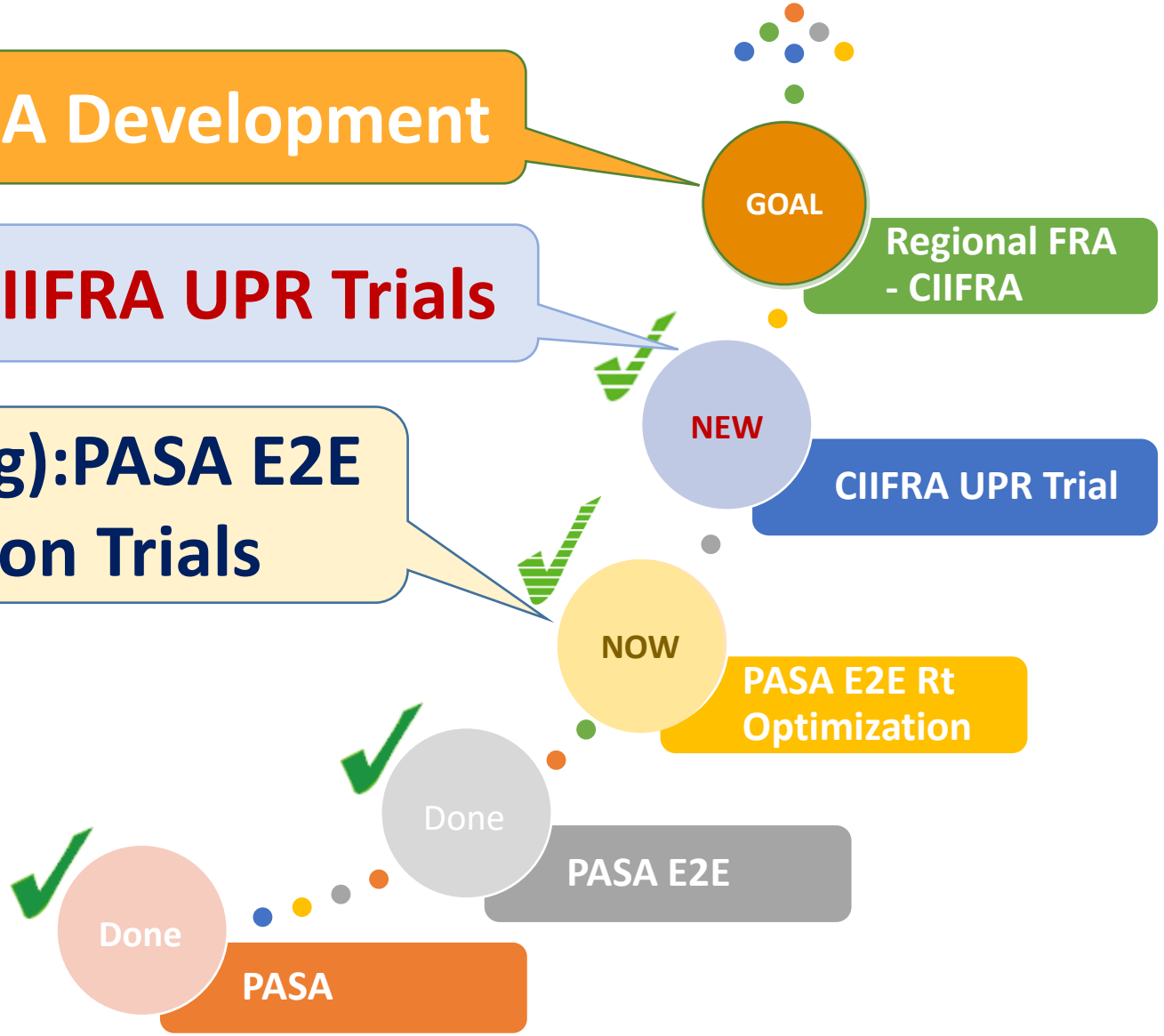
Canso/ICAO/IATA FRA (CIIFRA)

Step-by-Step: From PASA to Regional FRA

Track B (long-term): FRA Development

Track A2 (near-term): CIIFRA UPR Trials

Track A1 (ongoing):PASA E2E Route Optimization Trials



Currently running on two parallel Tracks:

- **A (near-term)**
- **B (long-term)**

Track A1: PASA E2E Route Optimization Track

- Four completed 90-day trials:
  - KATL - SPJC
  - KATL - SBGR
  - TTPP - SBGR
  - KATL - SBGR
- **Two on-going 90-day trials:**
  - SAEZ - KMIA
  - KATL - SAEZ
- Extended usage for one year for the trial completed optimized routes
- **Work toward publishing trial routes in AIC/AIP**
- **Conduct additional PASA E2E 90-day trials**

Track A1

PASA E2E Route Optimization: Completed 90-Day Trials

KATL..SPJC..KATL:	Jul 9 - Oct 7, 2021	
Savings	90-Day	1-Year
Flight minutes:	515	2,089
Fuel (lb):	145,425	589,779
CO2 (kg):	208,445	845,360
Ops cost ($):	94,693	384,033

Extended until 10/7/22

TTPP..KMIA..TTPP:	Aug 6 - Nov 3, 2021	
Savings	90-Day	1-Year
Flight minutes:	256	1,038
Fuel (lb):	46,780	189,719
CO2 (kg):	67,052.28	271,934
Ops cost ($):	39,494	160,170

Extended until 11/3/22

KATL..SBGR..KATL:	Jul 27 - Oct 25, 2021	
Savings	73-Day*	1-Year
Flight minutes:	235	1,175
Fuel (lb):	62,035	310,175
CO2 (kg):	88,918	444,590
Ops cost ($):	41,925	209,625

* Note: Trial conducted for 90 days and data available for 73 days.

Extended until 10/25/22

KIAH..MMPR..KIAH:	Sep 1 - Nov 27, 2021	
Savings	90-Day	1-Year
Flight minutes:	558	2,263
Fuel (lb):	52,841	214,300
CO2 (kg):	75,740	307,168
Ops cost ($):	72,993	296,027

Extended until 11/27/22

Total of 4 routes/year: 6,565 min; 1,303,973lb of fuel; 1,869,052Kg of CO2, and $1,049,855 of ops cost

Track A1

On-going 90-Day Route Optimization Trials

- SAEZ..KMIA..SAEZ
  by Aerolíneas Argentinas
  Dec 6, 2021 – Mar 5, 2022

Dec 6 2021 – Feb 18 2022	Savings
Flight min:	222
Fuel (Kg):	24,428
CO2 (kg):	77,192
Cost ($):	42,301

NOTE: Fuel unit is kg.

- KATL..SAEZ..KATL
  by Delta Airlines
  Dec 6, 2021 – Mar 5, 2022

Jan 3 – Feb 20, 2022	Savings
Flight min:	723
Fuel (lb):	137,092
CO2 (kg):	196,501
Cost ($):	113,223

NOTE: Dec 2021 data not available.

Track A1: New 90-Day Route Optimization Trials

- TTPP..KJFK..TTPP by Caribbean Airlines (in coordination)
- KATL..SCEL..KATL by Delta Airlines (in coordination)
- Selected city-pairs by Federal Express (in 2022)
- American Airlines is evaluating flights that could be added to the existing trials
- CIIFRA Team is evaluating other flights / city pairs that could be coordinated based on input from IATA

All airlines are invited to submit city-pair requests

Track A2: CIIFRA Trial Track

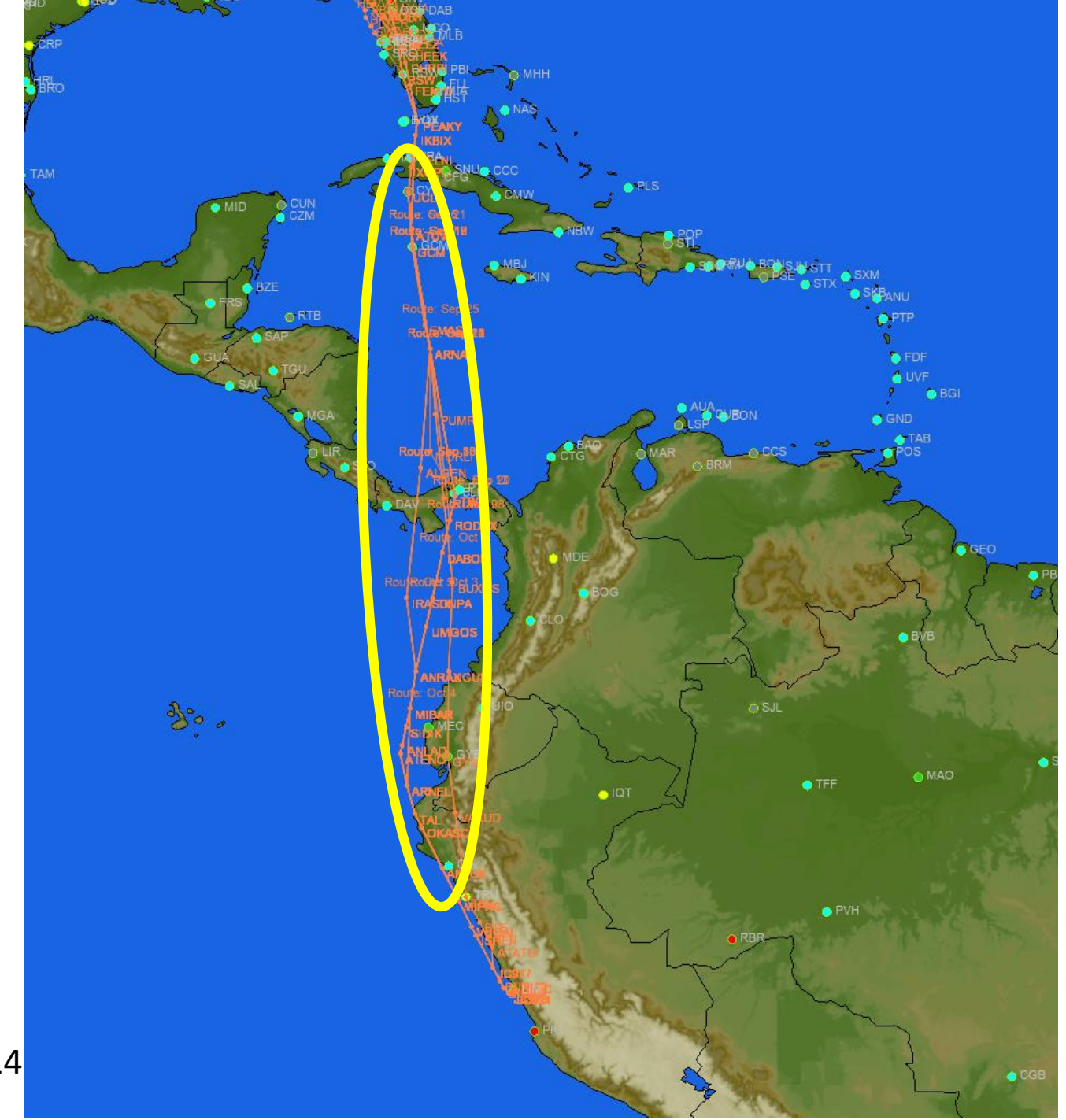
Conduct the 1st CIIFRA Test

- ✓ Identify the volunteer airline and route:
  Delta Airline, KATL-SPJC-KATL
- ✓ Identify ANSP/CAAs and coordinate the trial:
  February 24 & 25
- ❑ After the trial, coordinate with the Ad Hoc Team, collect Lessons Learned and establish next steps

Track A2:
CIIFRA UPR Trial

Where?

KATL..SPJC..KATL



Track A2 : CIIFRA UPR Trial – Who

AIRLINE:
Delta Air Lines

- Operations Center support system covering DAL's operation
  - Dispatchers
- Aircraft crew
  - Pilots
- Aircraft Equipment

ANSPs:
ECNA, JCAA, AAC, UAEAC, DGAC-E, CORPAC

- Area Control Centers covering their FIRs
  - ATCOs, Supervisors
- CSN systems covering their FIRs

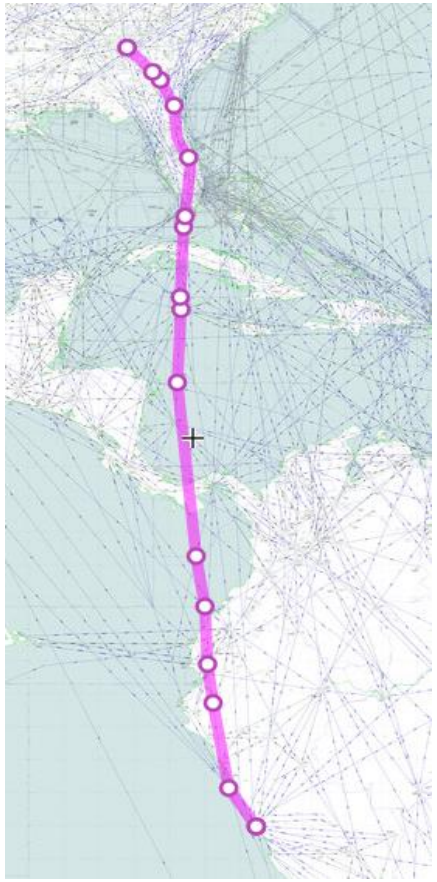
REGIONS:
NAM/CAR/SAM

- CANSO, IATA, and ICAO to guide and support the implementation at all levels, but especially at the regional level
- Adjacent ANSPs coordinating implementation

Track A2 : CIIFRA UPR Trial – What

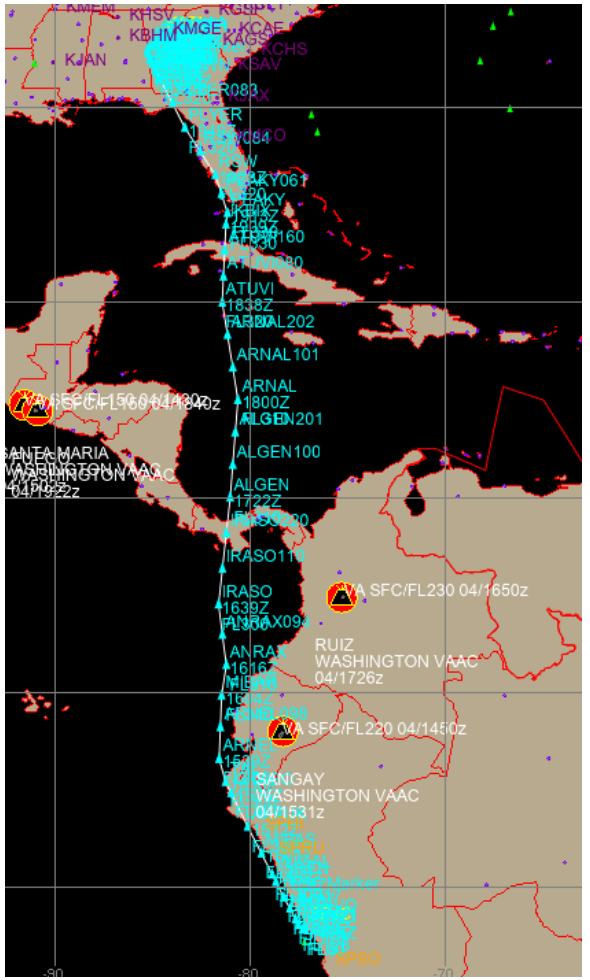
PASA E2E

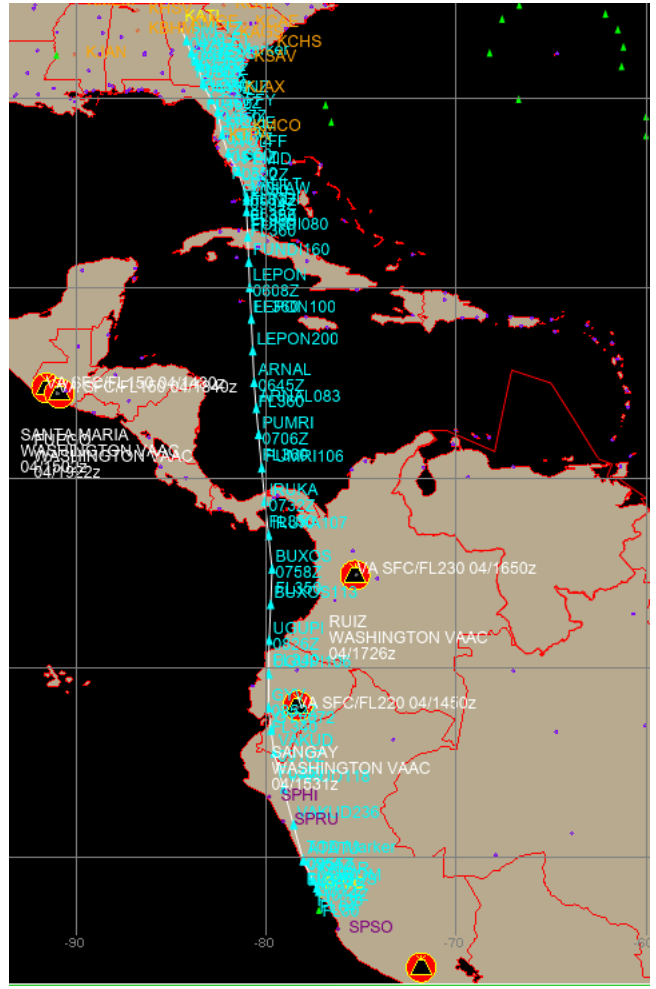
DAL150 DAL151



Trial UPR (examples)

DAL150 DAL151





Track A2 : CIIFRA UPR Trial – How

CADENA HQ will coordinate with ANSPs via email

Sample coordination table:

ACC/FIR	CURRENT E2E ROUTE	REQUESTED (sample) UPR ROUTE
MUFH	FUNDI DCT LEPON	NO CHANGE
MKJK	LEPON DCT ARNAL	NO CHANGE
MPZL	ARNAL DCT TINPA	**ARNAL DCT BUXOS**
SKED	TINPA DCT VAMOS	**BUXOS DCT UGUPI**
SEFG	VAMOS DCT GYV DCT VAKUD	**UGUPI DCT GYV DCT VAKUD**
SPIM	VAKUD DCT ATATU ATATU2 SPJC	NO CHANGE

Track A2 : CIIFRA UPR Trial – When

Proposed Trial dates

DAL151: KATL..SPJC, Thursday, February 24, 2022

- Departs at 0400 UTC

DAL150: SPJC..KATL, Friday, February 25, 2022

- Departs at 1400 UTC

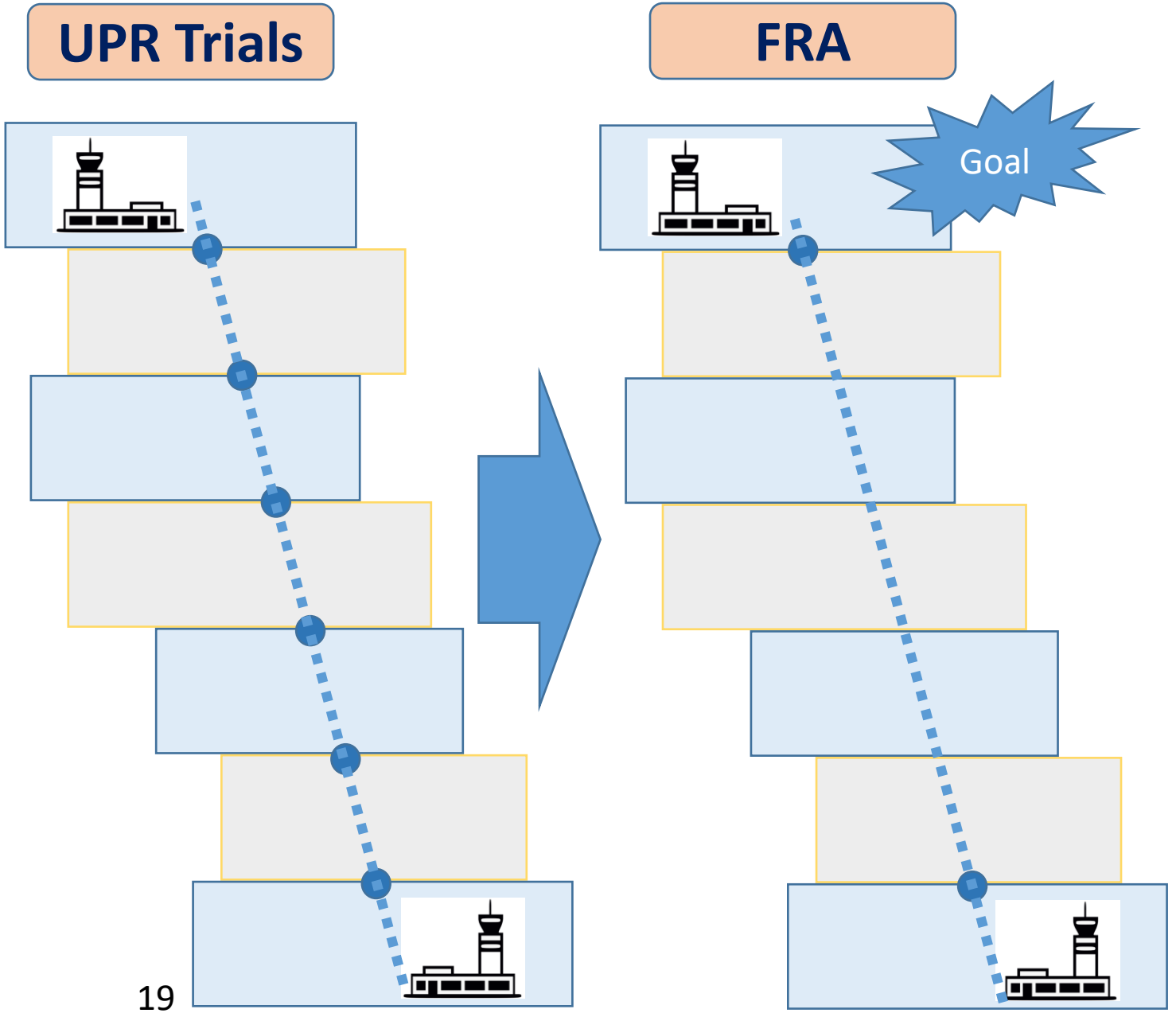
Track B

End Goal: FRA

Paso a paso !

From UPR trials, Ad Hoc team meetings, lessons learned, and process development *to* FRA

Your work and support will make this ground-breaking initiative possible !



DAL151 and DAL150 UPR Trial Benefits

KATL..SPJC..KATL: Feb 24 and Feb 25, 2022		
	Savings	
	1 day	1 year
Flight min:	15	5,475
Fuel (lb):	2,575	939,875
CO2 (kg):	3,691	1,347,173
Cost ($USD):	$2,269	$828,060

CIIFRA UPR Trial Feb 24 and Feb 25, 2022

Compared to the baseline routes from the very first trial in June 2021

DAL151 and DAL150 UPR Trial Benefits

KATL..SPJC..KATL: Feb 24 and Feb 25, 2022		
	Savings	
	1 day	1 year
Flight min:	4	1,460
Fuel (lb):	421	153,665
CO2 (kg):	603	220,256
Cost ($USD):	$526	$191,870

CIIFRA UPR Trial Feb 24 and Feb 25, 2022

Compared to PASA End-to-End Optimized Route from the 90-day trial

UPR AIC

USER PREFERRED ROUTES IN THE _____ FIR

1. Purpose

1.1. The purpose of this Aeronautical Information Circular (AIC) is to disseminate to all personnel involved in air operations a series of user preferred routes that may be filed in their flight plan and used by Air Traffic Control in the clearance.

1.2. The personnel responsible for the preparation and presentation of flight plans (Aircraft Operators or Pilots) are responsible for complying with the provisions of this AIC.

2. Introduction

2.1. The ICAO Global Air Navigation Plan (GANP) and Aviation System Block Upgrades (ASBU) methodology provide a flexible, global approach for all aviation stakeholders to advance their Air Navigation capacities based on their specific operational requirements. ASBU FRTO Block 0 Element 1 (B0/1, Direct routing (DCT) states that DCTs are established at national and regional levels and can be made available for flight planning within the published conditions of use. DCTs should be considered an early iteration of the FRA concept of operation that allow airspace users to optimize flight and fuel planning.

2.2. While the implementation of the broader concept of DCT routing is still being developed, it is operationally important to take advantage of opportunities to implement user preferred routes for filing flight plans, which consist of the most optimized routes possible according to the technical/operational capabilities of the involved ANSPs.

2.3. ICAO NACC Airspace Optimization Task Force, ICAO SAM Airspace Study and Implementation Group (GESEA), CANSO (CADENA), and IATA have identified opportunities to achieve fuel savings and reduce CO2 emissions by working collaboratively to help optimize a flight's end-to-end routing. In today's environment, after the flight plan has been filed and the aircraft is enroute, pilots will often receive "direct" routings from air traffic controllers. While this can help shorten the route, the aircraft has already been fueled for the longer route and must still carry that extra fuel to destination.

2.4. By working with the Civil Aviation Authorities (CAA), Air Navigation Service Providers (ANSPs) and Airlines, NACC and SAM ICAO offices, and with the support of CANSO (CADENA) and IATA, it has been possible to facilitate the development of optimized city-pair user preferred routes that can be used by dispatchers for filing flight plans so that fuel savings and CO2 reductions can be achieved.

2.5. Section 4 below contains routes that may be used by aircraft operators in the preparation of optimized IFR Flight Plans (FPL) between origin and destination airports.

2.6. As additional user preferred routes opportunities are identified and developed by ICAO NACC Airspace Optimization Task Force, the ICAO SAM Airspace Study and Implementation Group (GESEA), CANSO (CADENA), and IATA, and approved for use by the CAAs and ANSPs, this AIC will be updated and published in accordance with the applicable Aeronautical Information Regulation And Control (AIRAC) dates.

3. Aircraft Capabilities

In order to file and fly the optimized routes, the following minimum aircraft capabilities are required:

		Flight Plan Entries	
Communication Requirements	PBN Requirements	PBN in field 18 PBN/	
Voice comm – VHF, CPDLC as required, to maintain contact over the entire route to be flown	RNAV-5	L1	

4. Optimized Routes

The optimized routes below are predefined routes from origin to destination and have been coordinated, reviewed, and approved by all of the ANSPs along the route.

NOTE: Coordination of the following routes apply to Cuba, Jamaica, Panama, Ecuador, and Peru

4.1. KATL – SPJC Route
KATL SMLTZ2 WALET DCT YUESS Q79 MCLAW Y442 FUNDI DCT LEPON DCT ARNAL DCT TINPA DCT VAMOS DCT GYV DCT VAKUD DCT ATATU ATATU2 SPJC

4.2. SPJC – KATL Route
SPJC ISREN2F ISREN DCT VAKUD UL780 GYV DCT VAMOS DCT TINPA DCT LEVOR UP536 GCM UG448 ATUVI DCT IKBIX Y183 PEAKY Q87 MATLK Q77 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL

NOTE: Coordination of the following routes apply to the United States, Trinidad and Tobago, Guyana and Brazil.

4.3. KATL – SBGR Route
KATL VRSTY2 MCN DCT YANTI Q89 MANLE Y185 RENAH Y355 FIPEK Y294 GESSO L467 ANADA DCT KORTO DCT SIJMVA ... SBGR

4.4. SBGR – KATL Route
SBGR ... SIJMVA DCT KORTO DCT ANADA L452 HARBG Y421 HAGIT Y306 VENDS Y185 MANLE Q89 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL

NOTE: Coordination of the following routes apply to Cuba, Jamaica, Colombia, Brazil, Bolivia, and Argentina

4.5. SAEZ – KMIA Route
SAEZ BIVAM2A BIVAM UW8 PAR UL417 PABON EJA KILER UM779 ZEUSS VIICE1 KMIA

4.6. KMIA – SAEZ Route
KMIA GWAVA1 URSUS UP406 BILSI UL795 LORBA DCT EMABU UP525 SJE UB689 LET UP525 RCO UL417 LOKOX UM784 BOLET UL404 ISOPO UT672 MULTA UW24 SNT SNT6A SAEZ

4.7. KATL – SAEZ Route
KATL SMLTZ2 WALET DCT YUESS Q79 FEMID DCT DHP A509 URSUS UP406 BILSI EMABU UP525 RCO UL417 TOPOG UL404 ISOPO UT672 MULTA UW24 SNT SNT6A SAEZ

4.8. SAEZ – KATL Route
SAEZ BIVAM2A BIVAM UW8 PAR UL417 BORDO Y259 OCTAL Q77 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL

NOTE: Coordination of the following routes apply to the United States and Trinidad and Tobago

4.9. TTPP – KMIA Route
TTPP DCT ANADA DCT MUNOZ DCT HARBG Y330 FODED DCT MADIZ DCT FOXID DCT FLIPR FLIPR7 KMIA

4.10. KMIA – TTPP Route
KMIA SKIPS2 SKIPS Y290 HAGIT Y421 HARBG L452 ANADA UG449 PERGA ITRAK NAPKO LEXOR TALUS TTPP

NOTE: Coordination of the following routes apply to Mexico

4.11. KIAH – MMPR Route

UPR AIC

Cuba, Jamaica, Panama, Colombia, Ecuador, and Peru

KATL..SPJC Route

KATL SMLTZ2 WALET DCT YUESS Q79 MCLAW Y442 FUNDI DCT LEPON DCT ARNAL DCT TINPA DCT VAMOS DCT GYV DCT VAKUD DCT ATATU ATATU2 SPJC

SPJC..KATL Route

SPJC ISREN2F ISREN DCT VAKUD UL780 GYV DCT VAMOS DCT TINPA DCT LEVOR UP536 GCM UG448 ATUVI DCT IKBIX Y183 PEAKY Q87 MATLK Q77 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL

UPR AIC

United States, Trinidad and Tobago, Guyana and Brazil.

KATL..SBGR Route

KATL VRSTY2 MCN DCT YANTI Q89 MANLE Y185 RENAH Y355 FIPEK Y294 GESSO L467 ANADA DCT KORTO DCT SUMVA … SBGR

SBGR..KATL Route

SBGR … SUMVA DCT KORTO DCT ANADA L452 HARBG Y421 HAGIT Y306 VENDS Y185 MANLE Q89 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL

UPR AIC

NOTE: Coordination of the following routes apply to Cuba, Jamaica, Colombia, Brazil, Bolivia, and Argentina

SAEZ..KMIA Route

SAEZ BIVAM2A BIVAM UW8 PAR UL417 PABON EJA KILER UM779 ZEUSS VIICE1 KMIA

KMIA..SAEZ Route

KMIA GWAVA1 URSUS UP406 BILSI UL795 LORBA DCT EMABU UP525 SJE UB689 LET UP525 RCO UL417 LOKOX UM784 BOLET UL404 ISOPO UT672 MULTA UW24 SNT SNT6A SAEZ

KATL..SAEZ Route

KATL SMLTZ2 WALET DCT YUESS Q79 FEMID DCT DHP A509 URSUS UP406 BILSI EMABU UP525 RCO UL417 TOPOG UL404 ISOPO UT672 MULTA UW24 SNT SNT6A SAEZ

SAEZ..KATL Route

SAEZ BIVAM2A BIVAM UW8 PAR UL417 BORDO Y259 OCTAL Q77 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL

UPR AIC

NOTE: Coordination of the following routes apply to Cuba, Jamaica, Colombia, Brazil, Bolivia, and Argentina

SAEZ..KMIA Route

SAEZ BIVAM2A BIVAM UW8 PAR UL417 PABON EJA KILER UM779 ZEUSS VIICE1 KMIA

KMIA..SAEZ Route

KMIA GWAVA1 URSUS UP406 BILSI UL795 LORBA DCT EMABU UP525 SJE UB689 LET UP525 RCO UL417 LOKOX UM784 BOLET UL404 ISOPO UT672 MULTA UW24 SNT SNT6A SAEZ

KATL..SAEZ Route

KATL SMLTZ2 WALET DCT YUESS Q79 FEMID DCT DHP A509 URSUS UP406 BILSI EMABU UP525 RCO UL417 TOPOG UL404 ISOPO UT672 MULTA UW24 SNT SNT6A SAEZ

SAEZ..KATL Route

SAEZ BIVAM2A BIVAM UW8 PAR UL417 BORDO Y259 OCTAL Q77 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL