

P/03 – Agenda Items 2, 3 & 4

13th CADENA Regional Implementation Group Meeting

Date: August 2, 2022



The 13th CADENA RIG Meeting



ICAO Welcome and Introduction



IATA Welcome and Housekeeping



CANSO Welcome and CADENA RIG Meeting Opening Introductions



The 13th CADENA RIG Meeting Agenda



08:30 Registration

09:00 Meet and Greet

10:00 ICAO Welcome and Introduction
IATA Welcome and Housekeeping
CANSO Welcome and CADENA RIG Meeting Opening
Introductions

10:30 CADENA Accomplishments:

- A Look Back
- CIIFRA and Route Catalog
- Launch of the Virtual Support System (VSS)
- Launch of CADENA OIS R3.3.1 and Flight Radar 24

11:00 CADENA Next Steps:

- What is Next? (Brainstorm)
- VSS
- CADENA OIS R3.4
- Coordinating traffic management features with FR24

11:30 Lunch

1:00 Post High Season Review Part 1: TTCAA, IDAC,
OFNAC, ECNA, DC-ANSP, EANA, JCAA,
SENEAM, COCESNA

2:30 Airport Capacity Estimation Training

2:45 Break

3:15 Airspace Capacity Estimation Training

3:30 CADENA Communications During Contingency
Events

4:00 Any Other Business

4:30 Action Item Review

5:00 Adjourn

CADENA Accomplishments

CADENA Key Regional Stakeholders

ANSPs

- EANA (Argentina)
- BANSA (Bahamas)
- COCESNA (Central America)
- UAEC (Colombia)
- ECNA (Cuba)
- DC-ANSP (Curacao)
- IDAC (Dominican Republic)
- DGAC (Ecuador)
- FAA (USA)
 - ZMA, SJU, ZHU, ATCSCC
 - Space Operations Office
- OFNAC (Haiti)
- JCAA (Jamaica)
- SENEAM (Mexico)
- TTCAA (Trinidad & Tobago)
- INAC (Venezuela)

State/Territory/Group

- ANSA (Aruba)
- DGAC (Costa Rica)
- MWCR (Grand Cayman)
- CNES (Centre National d'Études Spatiales)
- CARRG (Caribbean Aviation Resilience and Recovery Group)




Accomplishments are recognized by IATA



CADENA PASA E2E Route Optimization 90-Day Trials

Quote of Peter Cerdá, Regional VP for the Americas of the IATA on April 7, 2022 at the opening of the 12th edition of the IATA Wings of Change Americas conference in Santiago, Chile.

Delta Airlines  DELTA

KATL↔SPJC

Jul 9 - Oct 6, 2021

Savings	90-Day	1-Year
Flight min:	515	2,089
Fuel (lb):	145,425	589,779
CO2 (kg):	208,445	845,360
Cost (\$):	94,693	384,033

“The savings in time, fuel and carbon emissions that we have seen so far on the first 6 routes tested are remarkable and demonstrate aviation's commitment to a sustainable industry. As an example, the tests of the route between Atlanta and Lima have provided, in three months, a reduction of 515 minutes in flight time, 66 thousand kilograms of fuel and more than 200 thousand kilograms of CO2. On this same issue, IATA has identified another 49 routes that could be implemented, generating savings and a more sustainable growth of air transport.”

Accomplishments are recognized by ICAO



Best Practices – CADENA’s Training and Operational Support for regional ATFM

Juan Carlos Salazar, Secretary General of ICAO, thanked CANSO for its global ATFM role and mentioned CADENA by name during his speech at the CANSO Global Leadership Summit 2022 on April 7, 2022.



“CANSO’s global ATFM role is also demonstrating through the training and support it provides to the states and by sharing the experiences and best practices it gained from the implementation of the CADENA, (CANSO) ATFM Data Exchange Network for the Americas.”

Accomplishments are recognized by CANSO



**CADENA
to
CADENCE**



CADENA Accomplishments:

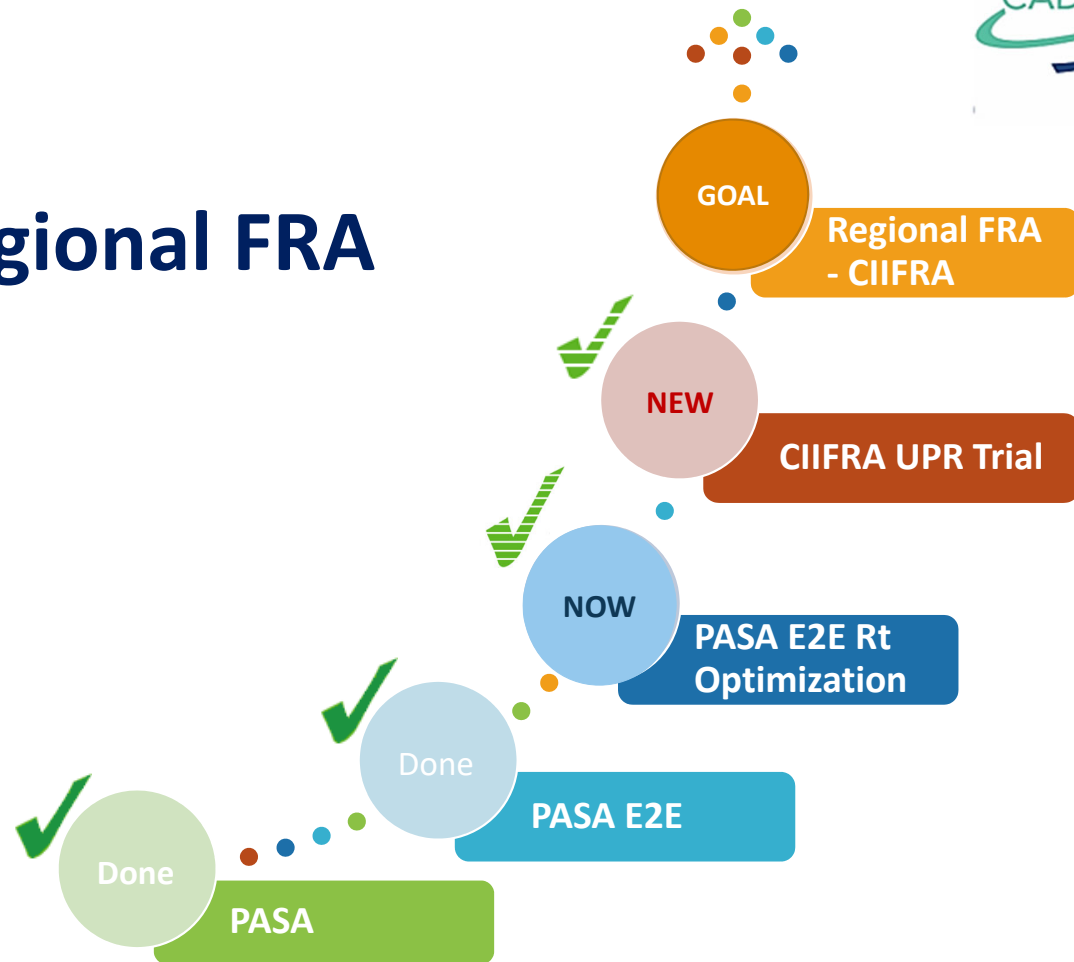
- A Look Back
 - ❖ Major accomplishments
 - ❖ CIIFRA and Route Catalog
 - ❖ Launch of the Virtual Support System (VSS)
 - ❖ Launch of CADENA OIS R3.3.1 and Flight Radar 24

CADENA – Major Accomplishments



2016	Jun: Established Aug: 1 st CADENA RIG Meeting Dec: Weekly Ops Webex	2020	Aug: PASA E2E via CADENA OIS Dec: 1 st Vaccine Flight & ATC-Zero Dec: La Soufrière Volcano Eruption
2017	May: 1 st Hurricane Training Aug: CADENA OIS v1.0 Oct: TTCAA DE via FAA SWIM	2021	Nov: Completed 4 PASA E2E Route Opt Trials Nov: Virtual Support System
2018	Oct: PASA DB Established	2022	Feb: CIIFRA UPR Trial Started <i>TBD: Publish PASA & CIIFRA Routes in AIC/AIP</i>
2019	Oct: Contingency Procedures – Routine Contingency Training	2023	<i>TBD:</i>

Step-by-Step: From PASA to Regional FRA



PASA E2E Route Optimization Results



Delta Airlines  **DELTA**

Delta Airlines  **DELTA**

Carribean Airlines  *Carribean Airlines*

	KATL↔SPJC Jul 9 - Oct 6, 2021		KATL↔SBRG Jul 27 - Oct 24, 2021		TTPP↔KMIA Aug 6 - Nov 3, 2021	
Savings	90-Day	1-Year	90-Day*	1-Year	90-Day	1-Year
Flight min:	515	2,089	235	1,175	256	1,038
Fuel (lb):	145,425	589,779	62,035	310,175	46,780	189,719
CO2 (kg):	208,445	845,360	88,918	444,590	67,052	271,934
Cost (\$):	94,693	384,033	41,925	209,625	39,494	160,170

United Airlines  **UNITED**

Delta Airlines  **DELTA**

Aerolineas Argentinas  *Aerolíneas Argentinas*

	KIAH↔MMPR Sep 1 - Nov 29, 2021		SAEZ ↔KATL Dec 6, 2021-Mar 5, 2022		SAEZ ↔KATL Dec 6, 2021-Mar 5, 2022	
Savings	90-Day	1-Year	90-Day*	1-Year	90-Day	1-Year
Flight min:	558	2,263	940	5,446	275	1,115
Fuel (lb):	52,841	214,300	175,508	1,016,832	64,673	262,283
CO2 (kg):	75,740	307,168	251,565	1,457,480	92,699	375,944
Cost (\$):	72,993	296,027	146,390	848,135	51,638	209,420

* Some data missing

CANSO IATA ICAO Free Route Airspace (CIIFRA)



- CIIFRA initiative created for Regional FRA
- Airlines select a city pair route for UPR trials and ANSPs do their best to accommodate
- Small steps

KATL-SPJC-KATL
DAL151/DAL150

- ✓ Step 0: one northbound and one southbound legs
- ✓ Step 1: one round trip
- ✓ Step 2: three consecutive round trips
- ✓ Step 3: seven consecutive round trips
- ❑ Step 4: 30 consecutive round trips
(initiated on July 15, 2022)
- ❑ Step 5: 90 consecutive round trips
- ❑ Goal: continued use of CIIFRA UPR

	Baseline vs UPR	
Savings	12 Day	1 Year
Flight min:	116	3,528
Fuel (lb):	12,479	379,570
CO2 (kg):	17,887	544,057
Cost (\$):	15,325	466,138

Estimation of 1-year savings based on 12 days of data obtained from Steps 0, 1, 2, and 3

Master CIIFRA Route Catalog



- The CIIFRA Team has created a Master CIIFRA Route Catalog in Excel
- The Master CIIFRA Route Catalog contains all CIIFRA routes in one central location
- The Master CIIFRA Route Catalog contains a comprehensive Route Summary Table that includes the following information for each UPR:
 - Airline
 - City pair
 - The southbound route
 - The northbound route
 - The status of the CIIFRA routes (i.e., approved, in coordination, to be coordinated, unable)
 - Start and end date
 - Comments
- The CIIFRA Route Summary Table can be found on the CADENA OIS under Reroute Repository
- The Master CIIFRA Route Catalog also contains a tab for each airline city pair which includes a graphic of the route and any realized benefits

Partial View of Master CIIFRA Route Catalog Summary Table

Airline	City Pair	Southbound Route	Northbound Route	Status	Start Date	End Date	Comments
Aerolinas Argentinas (ARG)	SAEZ - KJFK - SAEZ	Not requested	SAEZ PTA6A KUKEN UL324 MIGOT UM402 BV1 UM423 KIKER DCT DONQU L454 OKONU DCT YAAE Y495 CAMRN DCT KJFK	Approved	7/15/2022	10/13/2022	
Aerolinas Argentinas (ARG)	SAEZ - KMIA - SAEZ	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	SAEZ BIVAM2A BIVAM UW8 PAR UL417 PABON EJA KILER UM779 ZEUSS VIIICE1 KMIA	Approved		3/5/2023	Aerolinas Argentinas has requested a route modification
American (AAL)	KMIA - SPJC - KMIA	KMIA MAYNR1 FUNDI DCT LEPON DCT ARNAL DCT TINPA DCT VAMOS DCT GYV DCT VAKUD DCT ATATU ATATU2 SPJC	SPJC ISRE2F ISREN DCT VAKUD UL780 GYV DCT VAMOS DCT TINPA DCT LEVOR UP536 GCM UG448 ATUVI DCT IKBIX SNDBR2 KMIA	Approved	6/15/2022	10/7/2022	
American (AAL)	KDFW - SPJC - KDFW	KDFW ARTZ8 TNV MUSYL L207 IPSEV UL207 CPE IOS URPOS LIXAS UL203 ATEN O UM542 TAL UV1 ATATU ATATU2 SPJC	Not requested	To be coordinated			
American (AAL)	KMIA - SCEL - KMIA	KMIA MAYNR1 FUNDI LEPON ARNAL TINPA VAMOS GYV VAKUD ATUTU ILMAR UL302 SIMOK SIMO5D SCL	SCEL DONT4B DONTI UL780 ISREN VAKUD UL780 GYV VAMOS TINPA LEVOR UP536 GCM UG448 ATUVI IKBIX SNDBR2 KMIA	In coordination			
Caribbean (BWA)	TTPP - KMIA - TPPP	KMIA SKIPS2 SKIPS Y290 HAGIT Y421 HARBG L452 ANADA UG449 PERGA ITRAK NAPKO LEXOR TALUS TTPP	TTPP DCT ANADA DCT MUNOZ DCT HARBG Y330 FODED DCT MADIZ DCT FOXID DCT FLIPR FLIPR7 KMIA	Approved		11/4/2022	
Caribbean (BWA)	TTPP - KJFK - TTPP	KJFK JFK SHIPP SPDEY DOGRS BLUUU DUMPR ISLES SQUAD DARUX ENAPI SHEIL ODUCA GEECE PERGA ITRAK NAPKO LEXOR TALUS TTPP	TTPP POS GEECE ODUCA L459 SHEIL ENAPI DARUX L459 SAVIK YAAE YETTI MOUGH OWENZ PREPI LEECY CAMRN KJFK	Unable by ZNY. Further coordination required.			
Copa (CMP)	MPTO - SBGL - MPTO	MPTO DCT OREPI DCT DAKMO UW36 VASIL DCT OBKIL DCT GAVIT DCT ILKOD DCT 083505957W DCT PALEP DCT 1404505339W DCT NAXIV DCT SAMGA DCT OGMUK UTBOM2A SBGL	SBGL EVRAD1A ENSOD DCT VULER DCT GELIB DCT NAXIV DCT SAMAR DCT ESDAG DCT 0901505939W DCT MIMUM DCT 0428506440W DCT GAVIT DCT OBKIL UM549 DAKMO DCT ISOKO ISOKO1 MPTO	Approved	5/9/2022	No end date	
Copa (CMP)	MPTO - KLAX - MPTO	KLAX PNDAH2 TCATE DCT PPE DCT ALGUN DCT OTOSO DCT IPSAG DCT OTITI DCT EMOBI DCT EMADA DCT IOS DCT ANSON DCT VUMAN VUMAN1A MPTO	MPTO SIMAN2A SIMAN DCT AMUBI DCT VOKAS DCT ATUTO DCT AXOMU DCT RAULS DCT CVM DCT AVAPA DCT ASUTA DCT AMMOR OLAAA2 KLAX	In coordination			
Delta (DAL)	KATL - SPJC - KATL	KATL SMLT22 WALET DCT YUESS Q79 MCLAW Y442 FUNDI DCT LEPON DCT ARNAL DCT TINPA DCT VAMOS DCT GYV DCT VAKUD DCT ATATU ATATU2 SPJC	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	Approved		10/7/2022	
Delta (DAL)	KATL - SBGR - KATL	KATL VRSTY2 MCN DCT YANTI Q89 MANLE Y185 RENAH Y355 FIPEK Y294 GESSO L467 ANADA DCT KORTO DCT SUMVA ... SBGR	SBGR ... SUMVA DCT KORTO DCT ANADA L452 HARBG Y421 HAGIT Y306 VENDS Y185 MANLE Q89 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL	Approved		10/25/2022	
Delta (DAL)	KATL - SAEZ - KATL (Option 1)	KATL SMLT22 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 BIVAM2A BIVAM UW8 PAR UL417 BORDO Y259 OCTAL Q77 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL	Approved		10/7/2022	
Delta (DAL)	KATL - SAEZ - KATL (Option 2)	KATL VRSTY2 MCN DCT YANTI Q89 SHRKS DCT CRG DCT DEBRL DCT OMN DCT URSUS UP406 BILSI UL795 LORBA DCT EMABU DCT BOBKA DCT VULNO DCT LONAX DCT PUPAS DCT LET DCT ARNUB DCT ISARA DCT PUBUM UL417 TOPOG UL404 ISOPO UT672 MULTA UW24 SNT SNT6A SAEZ	SAEZ BIVAM2A BIVAM UW8 PAR UL417 PUBUM DCT CITRA DCT PUBBU DCT ARUXA DCT LONAX DCT IROTI DCT NEVPA UL417 LENAX DCT ALTIB UM779 ZEUSS DCT OCTAL Q77 SHRKS DCT LAIRI DCT LARZZ JJEDI2 KATL	Approved	6/24/2022	10/7/2022	
Delta (DAL)	KATL - SCEL - KATL	KATL VRSTY2 MCN DCT YANTI Q89 SHRKS DCT DEBRL Q97 EBAYY DCT DHP A509 URSUS UL780 SULNA DCT TOY UV208 SIMOK SIMO6B SCEL	Not requested	To be coordinated			

Example of Individual Airline City-Pair Tab

	A	B	C	D	E	F
1	Southbound 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				Benefits
2						
3	Northbound Route	SAEZ BIVAM2A BIVAM UW8 PAR UL417 PABON EJA KILER UM779 ZEUSS VIICE1 KMIA				
4						
5	Status	APPROVED UNTIL 03 05 2023				
6						
7	Comments	Aerolinas Argentinas has requested a route modification				
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Flight Plan

Aircraft: TAIL # X Spd 400 Alt FL360 Fuel 0

Departure: KMIA Miami International

Destination: SAEZ Ezeiza/Ministro Pistarini Airport

ETD Zulu HHMM MM/DD Local HHMM MM/DD

Dist: 3878.4 ETE: 9:48 Burn: Routes

→ KMIA → GWAVA2 → URSUS UP406 BILSI UL795 LORBA → EMABU UP525 SJE UB689 LET UP525 RCO UL417 LOKOX UM784 BOLET UL404 ISOPO UT672 MULTA UW24 SNT →

Southbound Route

Flight Plan

Aircraft: TAIL # X Spd 400 Alt FL360 Fuel 0

Departure: SAEZ Ezeiza/Ministro Pistarini Airport

Destination: KMIA Miami International

ETD Zulu HHMM MM/DD Local HHMM MM/DD

Dist: 3844.6 ETE: 9:54 Burn: Routes

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

Northbound Route

A Look Back:



Launch of the Virtual Support System

- Since its beginning in 2016, CADENA has proven to be an effective organization for implementing and sustaining the operational practices and procedures for Air Traffic Flow Measurement (ATFM) and Collaborative Decision Making (CDM) in the Latin America and Caribbean Region.
- What did not exist prior to 2016 is now a robust and efficient day-to-day process, based on ICAO Doc 9971, for exchanging operational information, enhancing operational safety, and enabling common situational awareness.

A Look Back:



Launch of the Virtual Support System

- It is now time to give serious consideration and planning to ensure the long-term **sustainability** of regional ATFM/CDM in the LAC region.
- As a first step, CADENA has established a Virtual Support System team to enhance the capabilities of CADENA Headquarters and to help ensure the long-term sustainability of CADENA's processes and procedures.

A Look Back:



Launch of the Virtual Support System

- The VSS Team is currently composed of the following volunteers:
 - ✓ Flavia Moreno (EANA)
 - ✓ Curtis Fraser (TTCAA)
 - ✓ Barry Phirangee (TTCAA)
 - ✓ Al Castillo (FAA support)
 - ✓ Joe Hof (FAA support)
- The schedule is maintained on the CADENA calendar in the OIS
- Duties rotate weekly

A Look Back:



Launch of the Virtual Support System

- Included in the CADENA ATFM/CDM Procedures Manual, Chapter 8
- The starter duties include:
 - Monitor email and WhatsApp for PASA Route Requests, Vaccine Priority Flights, and Chat messages:
 - ✓ Coordinate with the impacted ANSPs
 - ✓ Provide feedback to the requesting airspace user

A Look Back:

Launch of the Virtual Support System



Our focus is on providing outstanding customer service. This allows CADENA to continue building great working relationships with the stakeholders.

- “Tell us what we do not know”
- Put yourself in their shoes: What would you want to know about the current situation?
- Keep in mind that you probably cannot over communicate with people during an event.
- The more information shared, the better.
 - ✓ WhatsApp
 - ✓ CADENA OIS – Urgent Advisories / push email notifications
 - ✓ Email

A Look Back:



CADENA OIS R3.3.1 and Flight Radar 24

- Launched on June 30, 2022
- Requirements
 1. Provide an access to Flight Radar 24 website for CANSO member ANSPs
 2. Update the ANSP contact data in the “PASA Route Request” (not visible to users)
 3. Add a link to Haiti’s NOTAM page in the header of the Haiti page when their page is ready
 4. Widen the scroll bar for viewing ANSPs and Airlines
 5. Improve State Management (not visible to users)
 6. Upgrade DB on Amazon Server (not visible to users)

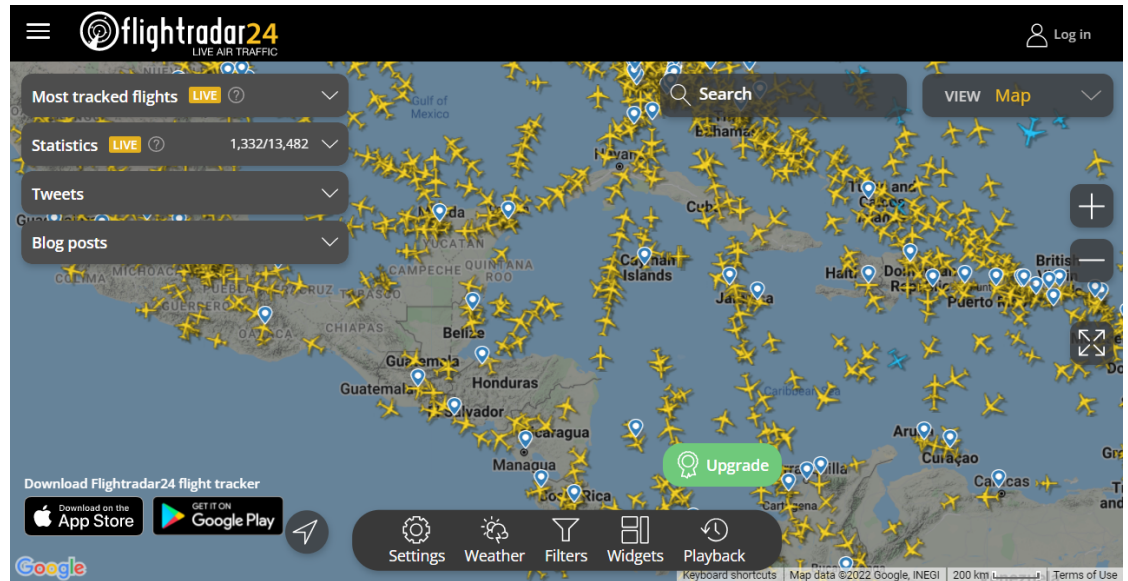
A Look Back:

CADENA OIS R3.3.1 and Flight Radar 24



CANSO member ANSPs

- EANA (Argentina)
- INAC (Venezuela)
- COCESNA (Central America)
- DC-ANSP (Curacao)
- Trinidad and Tobago CAA
- Jamaica CAA
- IDAC (Dominican Republic)
- ECNA (Cuba)
- BANSA (Bahamas ANS Authority)



Updated CADENA OIS Users Manual is available

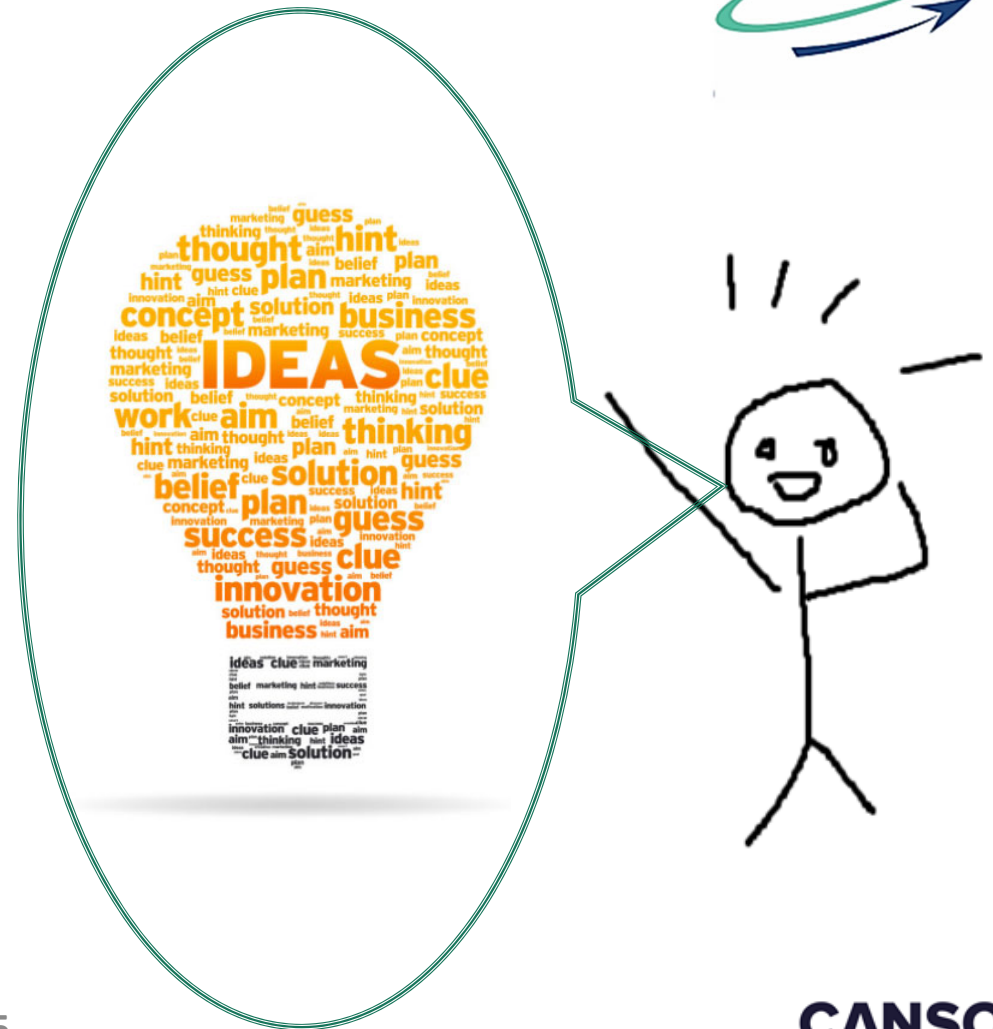
FR24 Usage Training provided

CADENA Next Steps:

- What is next?
- Brainstorming session

CADENA Next Steps

- Your ideas and input for the future of CADENA





CADENA Next Steps

- Starter ideas:
 - ❑ Optimized E2E Routes to AIC/AIP
 - ❑ Input for CADENA OIS R3.4
 - ❑ Enhancing / expanding the VSS team and duties
 - ❑ Coordinating traffic management features with FR24



A Look Ahead - Starter idea: Input for CADENA OIS R3.4

- Complete the 1st CIIFRA UPR Trials
 - Step 4: 30-day round trip trips
 - Step 5: 90-day round trip trips
- Enhancements to the CIIFRA Route Catalog
- Additional route trials



A Look Ahead - Starter idea:

Enhancing/Expanding the VSS team and duties

- Develop a traffic management log
- Ad Hoc Webex facilitation training
- Enhanced communication with the FAA ATCSCC
- Enhanced communication with the airline SOCs /OCCs
- Enhanced capabilities / distribution of information via the CADENA OIS



A Look Ahead - Starter idea:

Starter idea: Coordinating traffic management features with FR24

- Range rings
- Full route flight plan data
- Display the full route – not just for the portion flown, but for the remaining portion of the flight

Lunch
Be Back at 1:00 PM

Post High Season Review



Post High Season Review

- ✓ TTCAA
- IDAC
- OFNAC
- ✓ ECNA
- DC-ANSP
- EANA
- JCAA
- SENEAM
- COCESNA

Review of Traffic Recovery within the Piarco UTA/CTA/FIR and Piarco (TTPP) and ANR Robinson (TTCP), International Airports

Thirteenth CADENA RIG Meeting, August 2, 2022



TTCAA
Safer Skies

Briefing Contents

(1) Traffic recovery description within the Piarco FIR (TTZP)

(2) Traffic recovery description for Piarco (TTPP) and A.N.R. Robinson (TTCP) International Airports

(3) Conclusion

(4) Questions



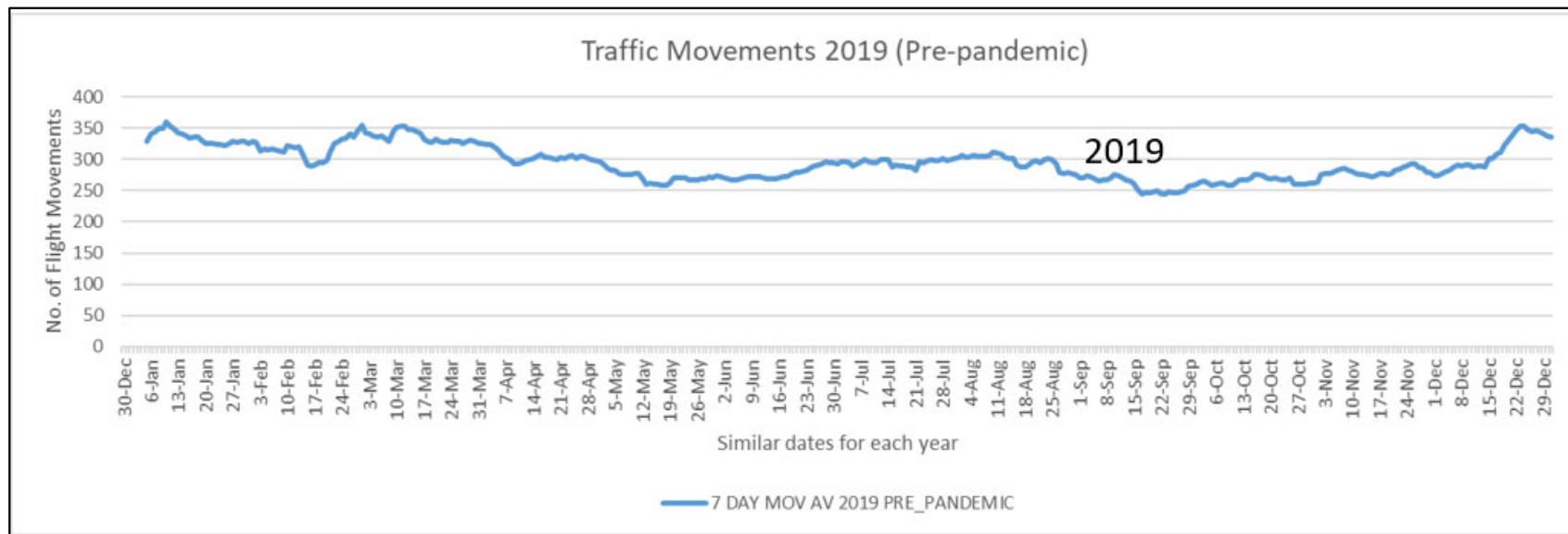
TTCAA
Safer Skies

TRAFFIC RECOVERY WITHIN PIARCO FIR (TTZP)



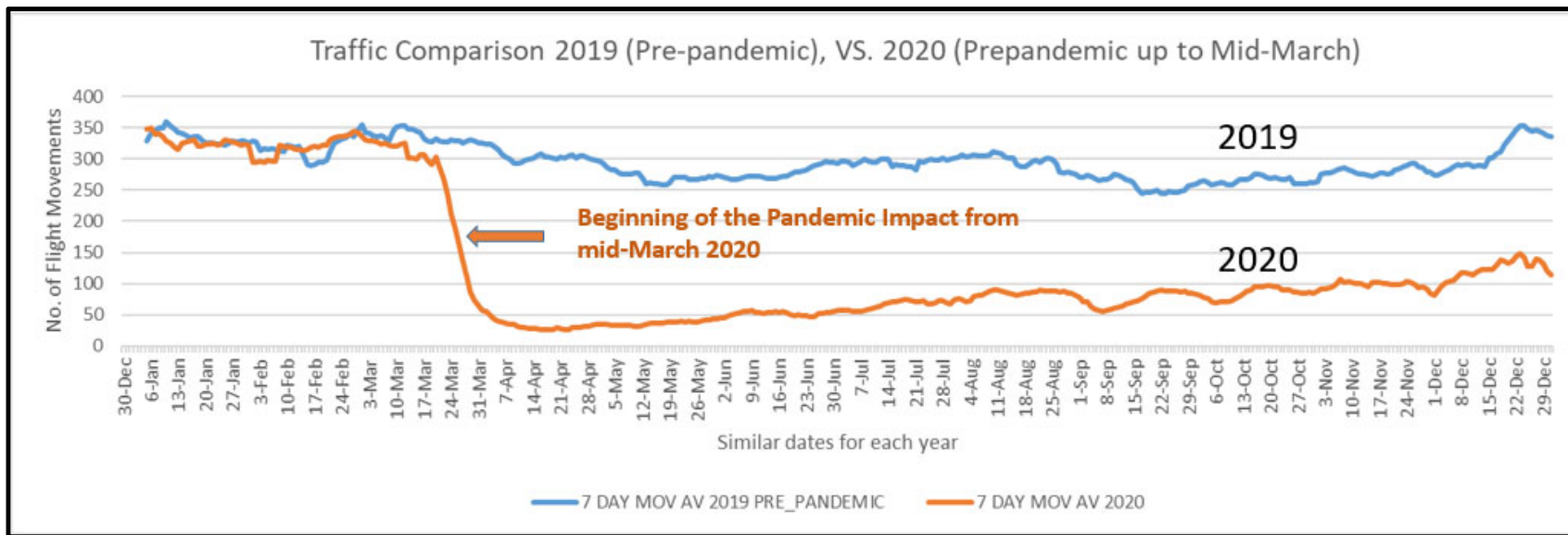
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Safer Skies

No. Traffic Movements 2019



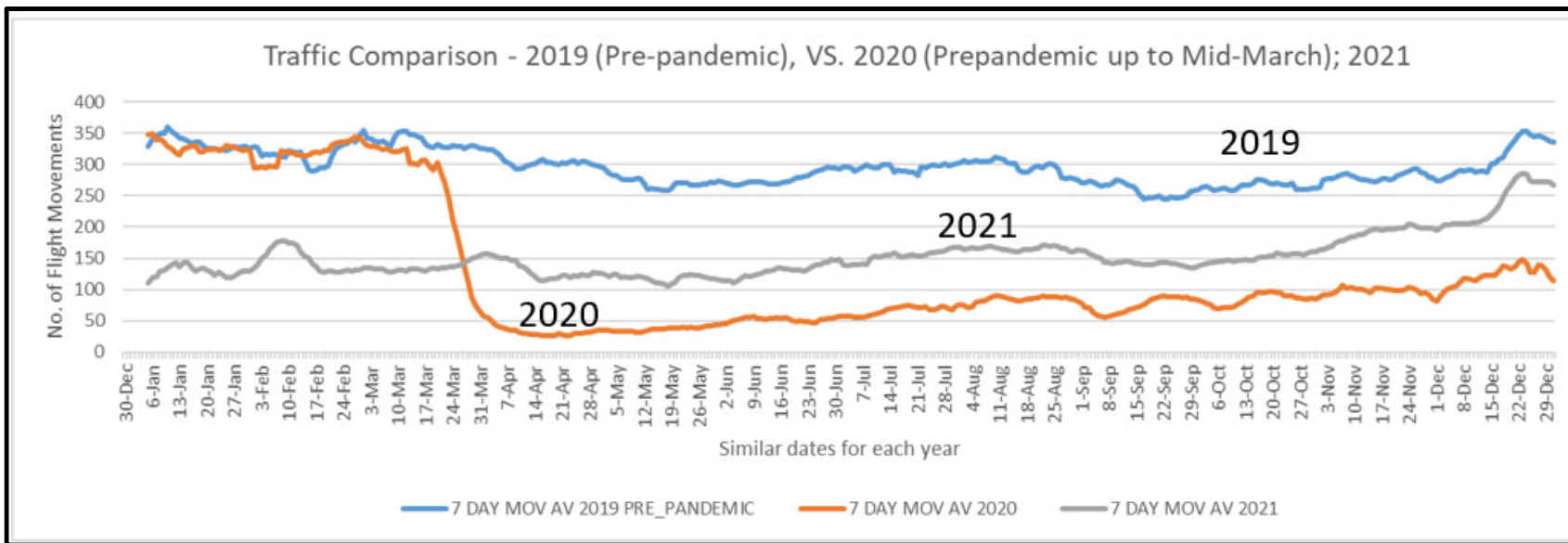
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No. of Traffic Movements 2019, 2020



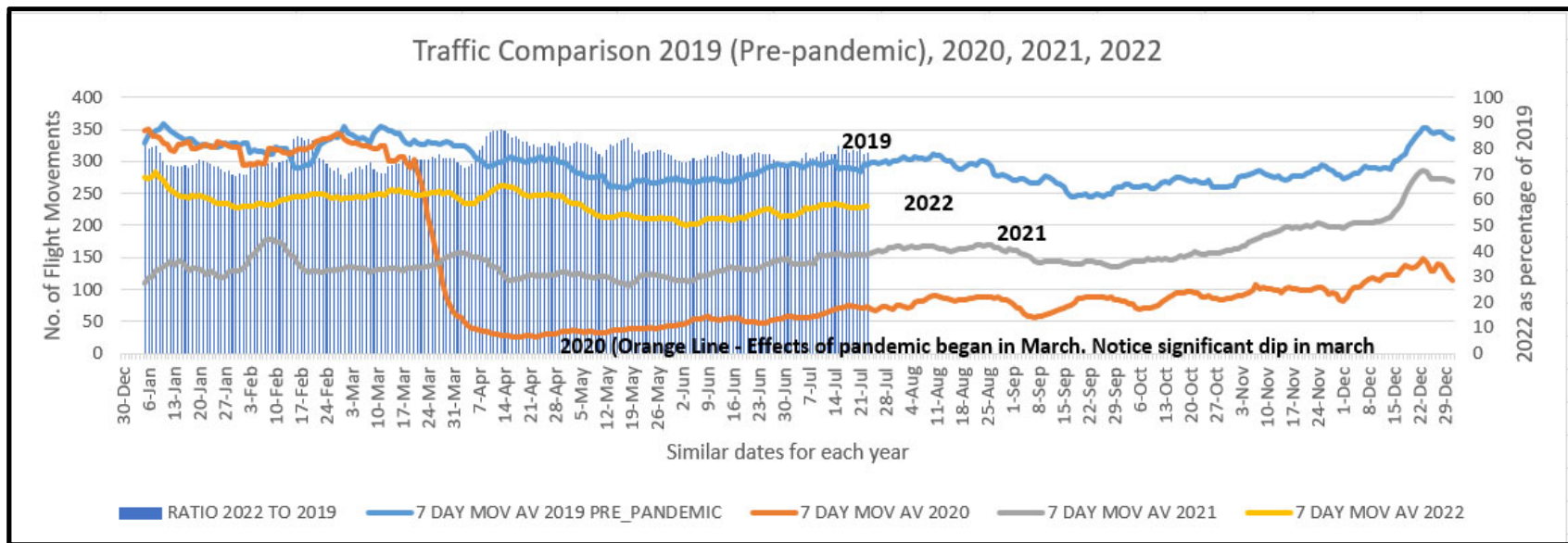
TTCAA
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No. of Traffic Movements 2019, 2020, 2021



TTCAA
Safer Skies

No. of Traffic Movements 2019, 2020, 2021, 2022



NOTE: 2022 DATA UP TO JULY 23

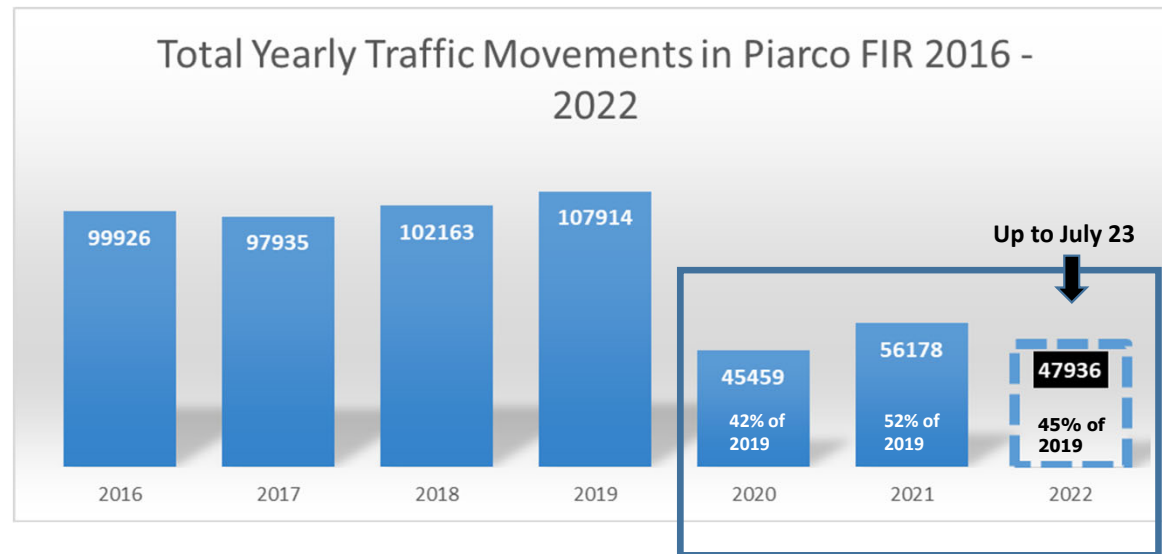


TTCAA
Safer Skies

Yearly Traffic Movement Totals (TTZP) 2016 to 2022

Month	Year and No. of Traffic Movements Piarco FIR							2022/2019 % ratio
	2016	2017	2018	2019	2020	2021	2022	
Jan	9764	9132	9256	10305	10156	4038	7729	75
Feb	8933	8275	8724	8956	9333	4142	6769	76
Mar	8717	8950	9433	10386	7292	4255	7654	74
Apr	8015	8079	8144	9027	940	3879	7468	83
May	7665	7536	7733	8339	1167	3625	6634	80
Jun	7663	7471	7883	8376	1607	3982	6367	76
Jul	8768	8334	8734	9167	2116	4832	5315	58
Aug	8862	8521	8725	9127	2601	5088		
Sep	7146	7129	7622	7738	2290	4251		
Oct	7508	7789	7940	8223	2380	4738		
Nov	7809	7995	8192	8440	2504	5783		
Dec	9076	8724	9777	9830	3073	7565		
TOTALS	99926	97935	102163	107914	45459	56178	47936	

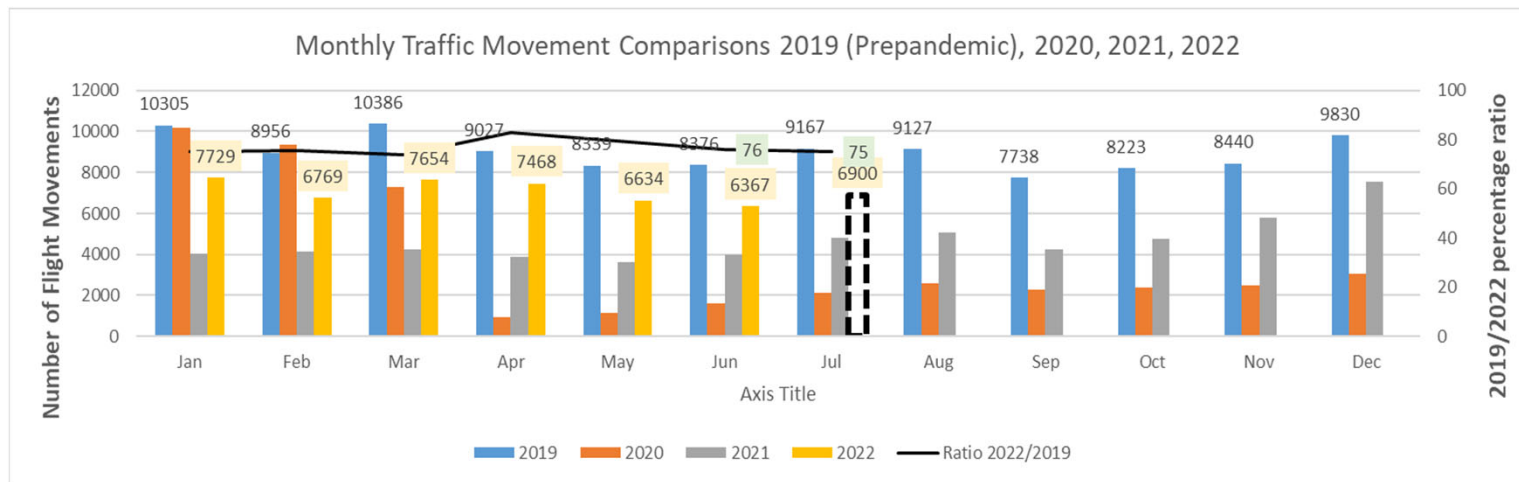
Period of pandemic impact



Period of pandemic impact

Monthly Traffic Movements Comparison – 2019-2022

Month	2019	2020	2021	2022	Ratio 2022/2019
Jan	10305	10156	4038	7729	75
Feb	8956	9333	4142	6769	76
Mar	10386	7292	4255	7654	74
Apr	9027	940	3879	7468	83
May	8339	1167	3625	6634	80
Jun	8376	1607	3982	6367	76
Jul	9167	2116	4832	6900	75
Aug	9127	2601	5088		
Sep	7738	2290	4251		
Oct	8223	2380	4738		
Nov	8440	2504	5783		
Dec	9830	3073	7565		



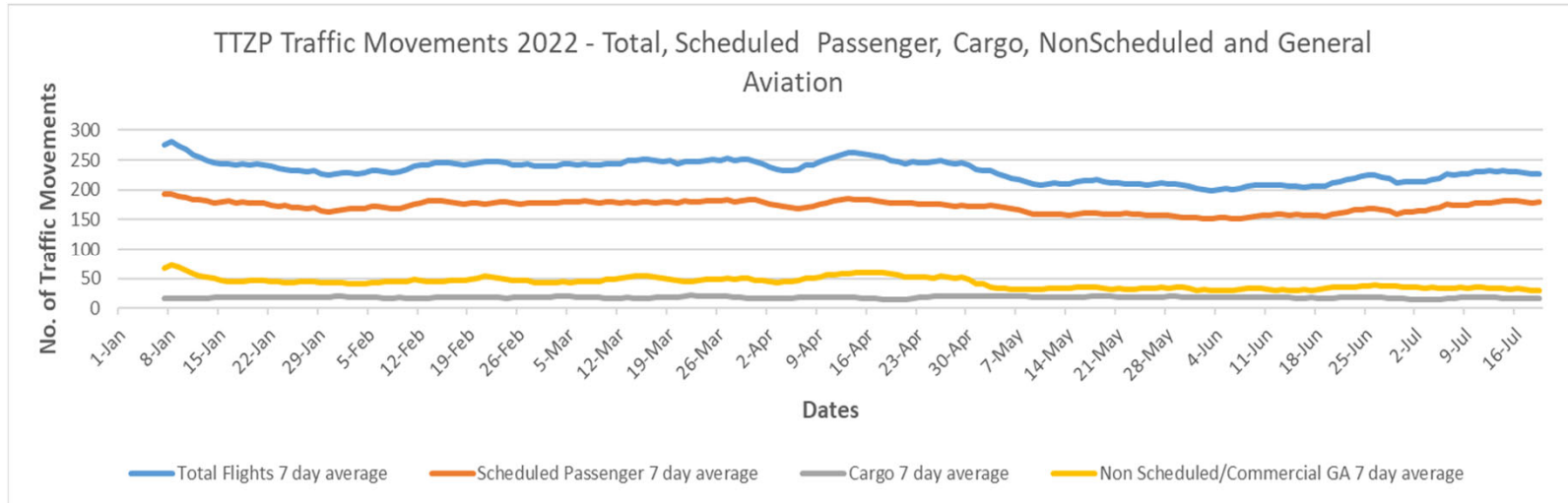
TTZP Traffic Movements 2022 – Total, Scheduled Passenger, Cargo, Non-Scheduled/General Aviation

Total Movements driven mostly by Scheduled Passenger Movements;

Moderate decrease in total traffic movements noted towards the end of April to Mid-June;

Gradual increase in total movements noted towards the end of June up to July 19;

Slight decrease in Non/Schedule and GA at the beginning of May. Cargo Flight movements remained constant throughout.



TRAFFIC RECOVERY DESCRIPTION FOR PIARCO (TTPP) AND ANR ROBINSON (TTCP) INTERNATIONAL AIRPORTS



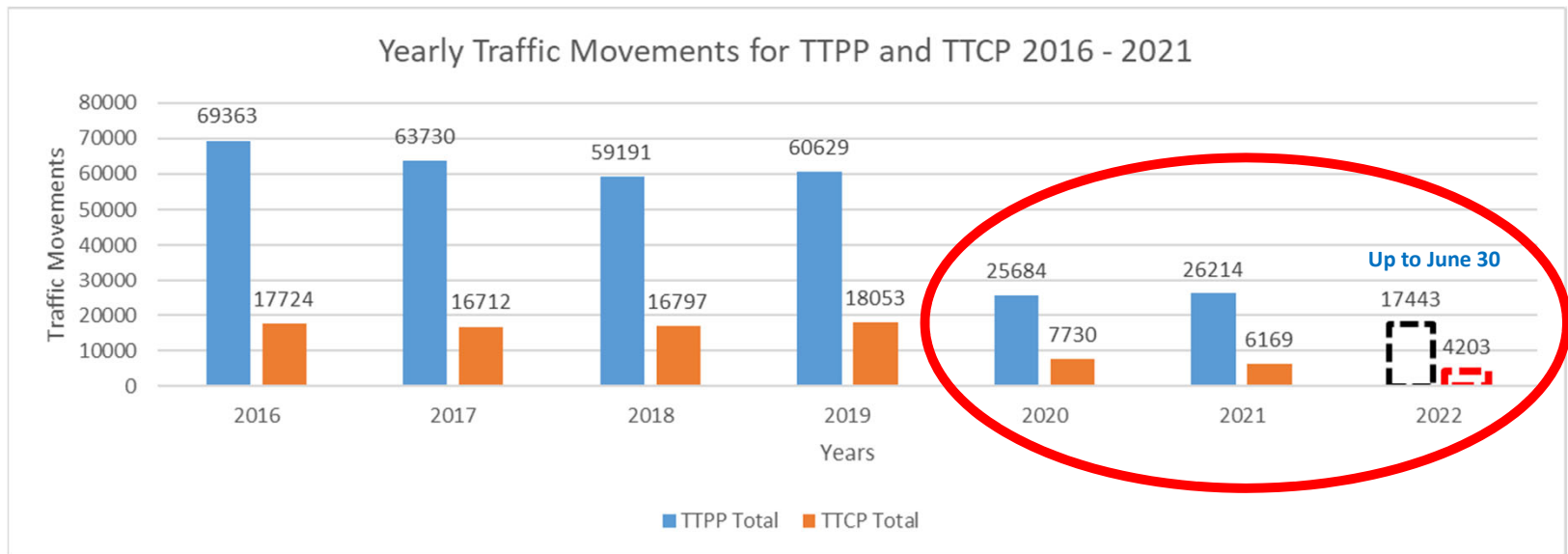
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Safer Skies

No. of Traffic Movements TTPP and TTCP from 2016 to June 2022 – Monthly and Yearly Totals

	TRAFFIC MOVEMENTS FOR TTPP AND TTCP BY YEAR													
	2016		2017		2018		2019		2020		2021		2022	
	TTPP	TTCP	TTPP	TTCP	TTPP	TTCP	TTPP	TTCP	TTPP	TTCP	TTPP	TTCP	TTPP	TTCP
January	5792	1451	5438	1314	4961	1350	5047	1379	4655	1304	1775	877	2725	608
February	5546	1527	5205	1341	4907	1386	4648	1246	4430	1289	2365	826	2449	534
March	5942	1549	5841	1548	5208	1514	5075	1495	3415	987	2499	830	2969	592
April	5869	1527	5661	1569	5069	1626	5097	1597	661	73	2512	841	2975	800
May	5993	1611	5649	1485	4904	1364	5114	1580	779	79	1732	185	3231	841
June	5746	1547	5393	1411	4740	1360	5047	1629	1320	434	1788	209	3094	828
July	6096	1555	5424	1324	5250	1465	5399	1689	2049	952	1827	207		
August	6167	1626	5953	1575	5350	1465	5675	1801	2020	781	2088	296		
September	5280	1285	4807	1305	4612	1317	4922	1391	1484	200	1828	318		
October	5725	1433	4858	1321	4745	1261	4906	1318	1578	294	2340	454		
November	5662	1338	4782	1241	4524	1267	4719	1359	1469	483	2569	524		
December	5545	1275	4719	1278	4921	1422	4980	1569	1824	854	2891	602		
TOTALS	69363	17724	63730	16712	59191	16797	60629	18053	25684	7730	26214	6169	17443	4203

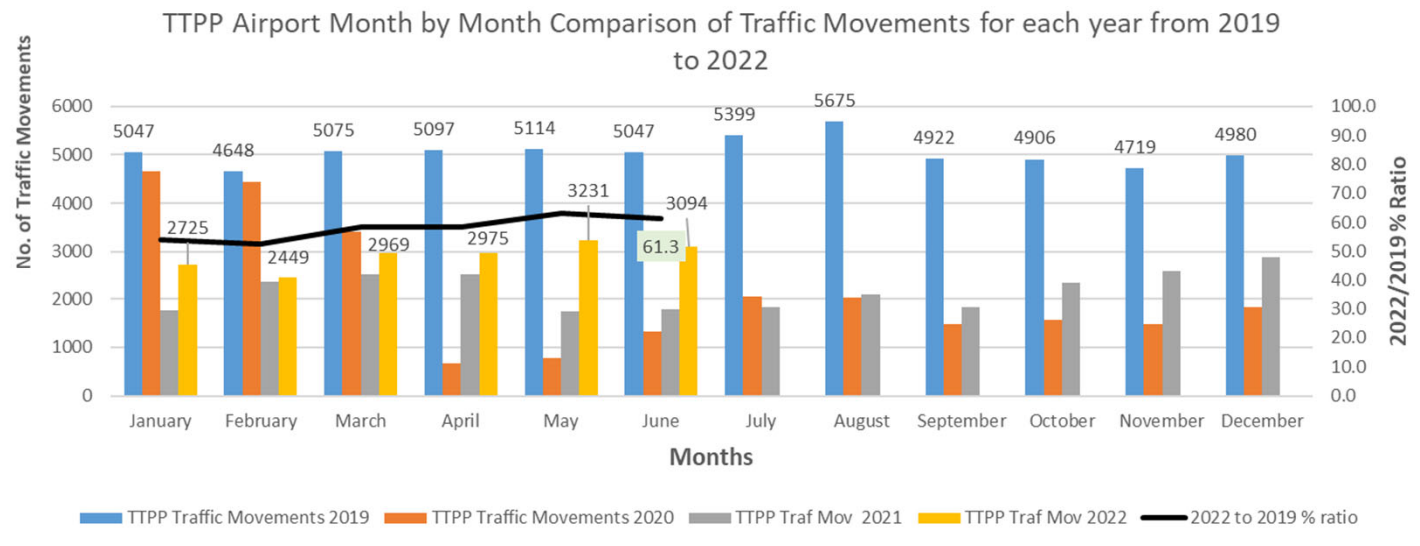
Yearly Traffic Movement Totals for TTPP and TTCP – 2016 to 2022

Year	TTPP Total	TTCP Total
2016	69363	17724
2017	63730	16712
2018	59191	16797
2019	60629	18053
2020	25684	7730
2021	26214	6169
2022	17443	4203



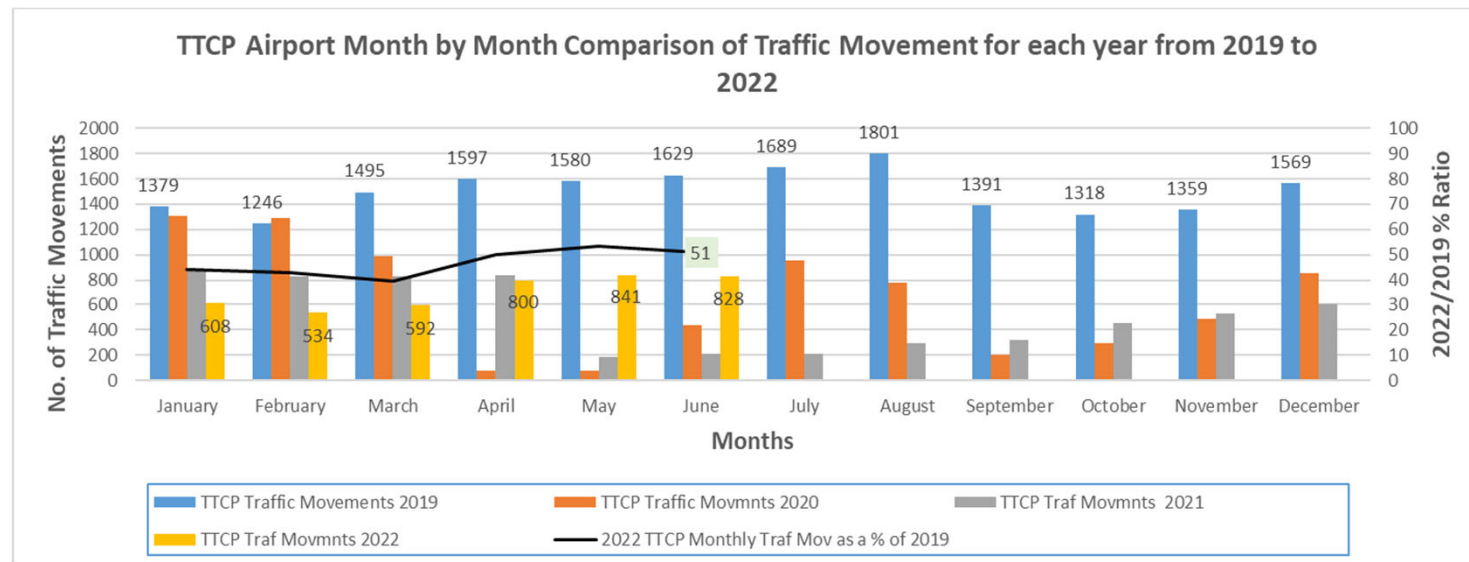
Piarco (TTPP) Airport Monthly Comparison of Traffic Movements from 2019 to 2022

Month	TTPP Traffic Movements 2019	TTPP Traffic Movements 2020	TTPP Traf Mov 2021	TTPP Traf Mov 2022	2022 to 2019 % ratio
January	5047	4655	1775	2725	54.0
February	4648	4430	2365	2449	52.7
March	5075	3415	2499	2969	58.5
April	5097	661	2512	2975	58.4
May	5114	779	1732	3231	63.2
June	5047	1320	1788	3094	61.3
July	5399	2049	1827		
August	5675	2020	2088		
September	4922	1484	1828		
October	4906	1578	2340		
November	4719	1469	2569		
December	4980	1824	2891		



ANR Robinson (TTCP) Airport Monthly Comparison of Traffic Movements from 2019 to 2022

Month	TTCP Traffic Movements 2019	TTCP Traffic Movmnts 2020	TTCP Traf Movmnts 2021	TTCP Traf Movmnts 2022	2022 TTCP Monthly Traf Mov as a % of 2019
January	1379	1304	877	608	44
February	1246	1289	826	534	43
March	1495	987	830	592	40
April	1597	73	841	800	50
May	1580	79	185	841	53
June	1629	434	209	828	51
July	1689	952	207		
August	1801	781	296		
September	1391	200	318		
October	1318	294	454		
November	1359	483	524		
December	1569	854	602		



Conclusion

The Piarco FIR's total yearly traffic movements are projected to reach 75% of pre-pandemic levels by the end of 2022;

The 2022 yearly total of traffic movements for the Piarco (TTPP) Airport are projected to reach between 55% to 60% of pre-pandemic traffic levels;

The 2022 yearly total of traffic movements at the A.N.R. Robinson (TTCP) Airport are projected to reach between 50% to 55% of pre-pandemic yearly traffic totals;

Projections are primarily based on average daily traffic movements and historical trends.



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THANK YOU

ANY QUESTIONS?



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A stylized map of the province of Quebec is shown in white and red. A semi-transparent graphic of the Quebec flag (blue, white, and red) is overlaid on the right side of the map. The background of the slide is a light blue gradient.

Direction de la Navigation Aérienne (DNA) Post High Season Review

2019 VS 2022

Juillet 2022

DENAC

PAP FIR

OVERFLIGHT DATA COUNTS 2019 VS 2022

Total movements : 2019

MONTH	OVERFLIGHT
Jan	2408
Feb	2254
Mar	2062
Apr	1777
May	1518
Jun	1650
Jul	
Aug	
Sep	
Oct	
Nov	
Dec	
Grand Total	11669

Total movements : 2022

MONTH	OVERFLIGHT
Jan	1792
Feb	1643
Mar	1794
Apr	1751
May	1767
Jun	1823
Jul	
Aug	
Sep	
Oct	
Nov	
Dec	
Grand Total	10570

TRAFFIC DATA FOR MTPP

2019 VS 2022

International Flight Data : MTPP 2019 (DEP - LDG)

MONTH	DEP	LDG	Grand Total
Jan	694	703	1397
Feb	596	611	1207
Mar	630	656	1286
Apr	554	561	1115
May	626	665	1291
Jun	620	638	1258
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			
Grand Total	3720	3834	7554

International Flight Data : MTPP 2022 (DEP - LDG)

MONTH	DEP	LDG	Grand Total
Jan	414	429	843
Feb	359	370	729
Mar	387	394	781
Apr	359	379	738
May	397	422	819
Jun	341	362	703
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			
Grand Total	3257	3356	6613

TRAFFIC DATA FOR MTPP

2019 VS 2022

Domestic Flight Data : MTPP 2019 (DEP - LDG)

MONTH	DEP	LDG	Grand Total
Jan	202	190	392
Feb	158	140	298
Mar	190	161	351
Apr	163	165	328
May	218	192	410
Jun	201	182	383
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			
Grand Total	1132	1030	2162

Domestic Flight Data : MTPP 2022 (DEP - LDG)

MONTH	DEP	LDG	Grand Total
Jan	504	486	990
Feb	306	295	601
Mar	284	274	558
Apr	273	238	511
May	298	272	570
Jun	312	287	599
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			
Grand Total	1677	1652	3329

TRAFFIC DATA FOR MTCH

2019 VS 2022

International Flight Data : MTCH 2019 (DEP - LDG)

MONTH	DEP	LDG	Grand Total
Jan	694	703	1397
Feb	596	611	1207
Mar	630	656	1286
Apr	554	561	1115
May	626	665	1291
Jun	620	638	1258
Jul	711	751	1462
Aug			
Sep			
Oct			
Nov			
Dec			
Grand Total	4421	4585	9016

International Flight Data : MTCH 2022 (DEP - LDG)

MONTH	DEP	LDG	Grand Total
Jan	414	429	843
Feb	359	370	729
Mar	387	394	781
Apr	359	379	738
May	397	422	819
Jun	341	362	703
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			
Grand Total	3257	3356	6613

TRAFFIC DATA FOR MTCH

2019 VS 2022

Domestic Flight Data : MTCH 2019 (DEP - LDG)

MONTH	DEP	LDG	Grand Total
Jan	202	190	392
Feb	158	140	298
Mar	190	161	351
Apr	163	165	328
May	218	192	410
Jun	201	182	383
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			
Grand Total	1132	1030	2162

Domestic Flight Data : MTCH 2022 (DEP - LDG)

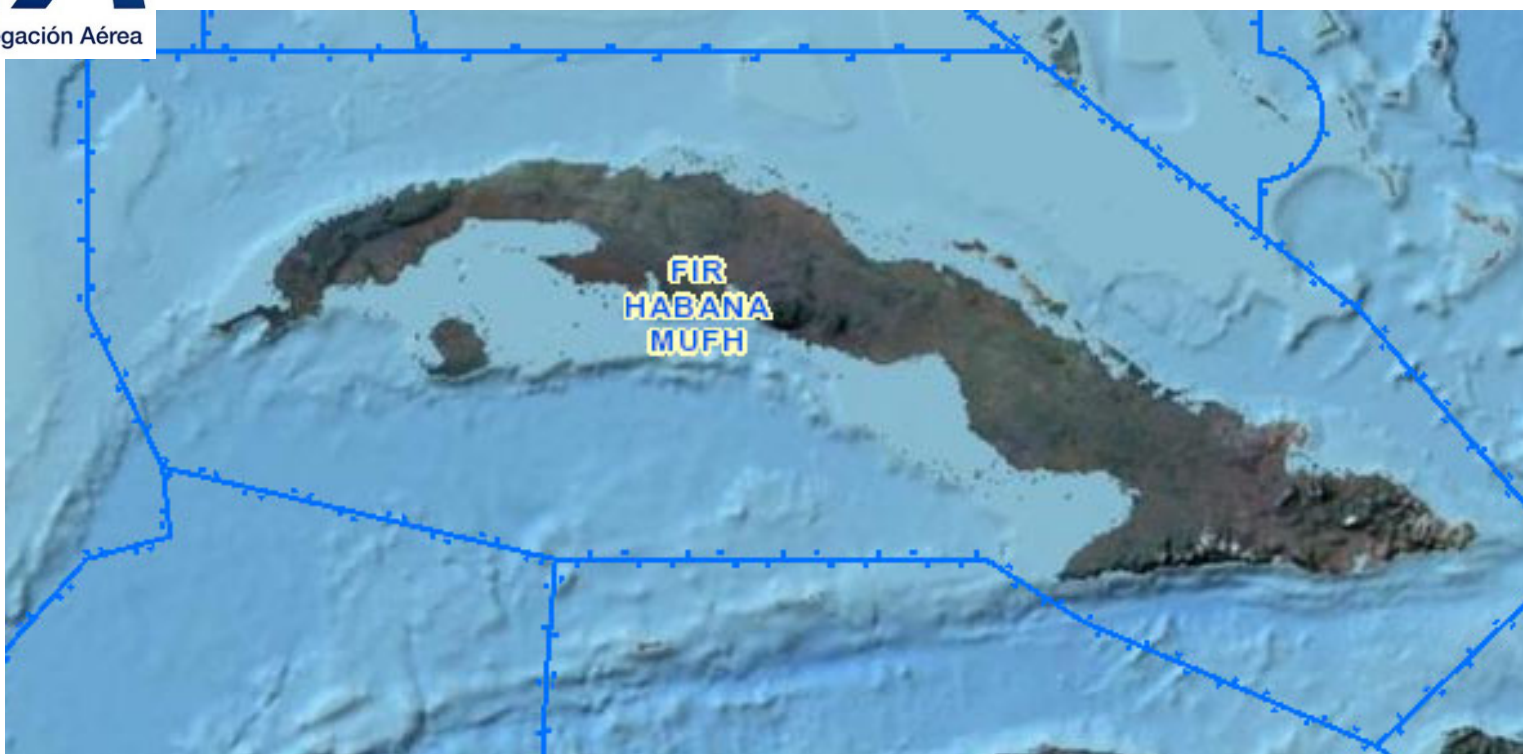
MONTH	DEP	LDG	Grand Total
Jan	504	486	990
Feb	306	295	601
Mar	284	274	558
Apr	273	238	511
May	298	272	570
Jun	312	287	599
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			
Grand Total	1877	1852	3729

- END -

CADENA



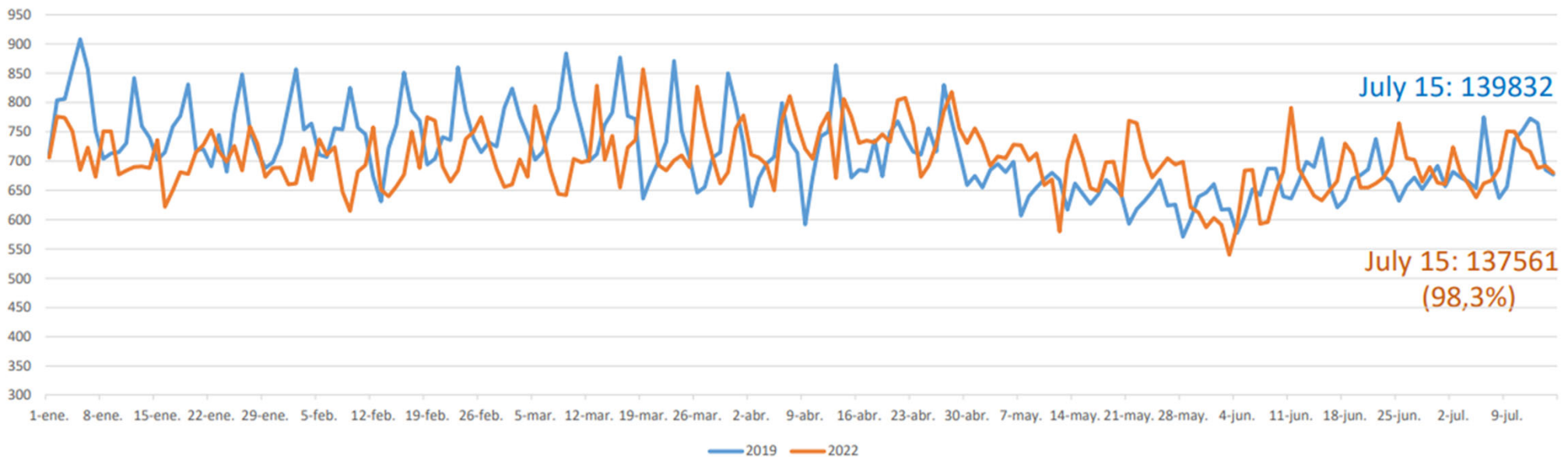
Empresa Cubana de Navegación Aérea



5th Meeting of CIIFRA Team – Miami 2 - 4 August 2022



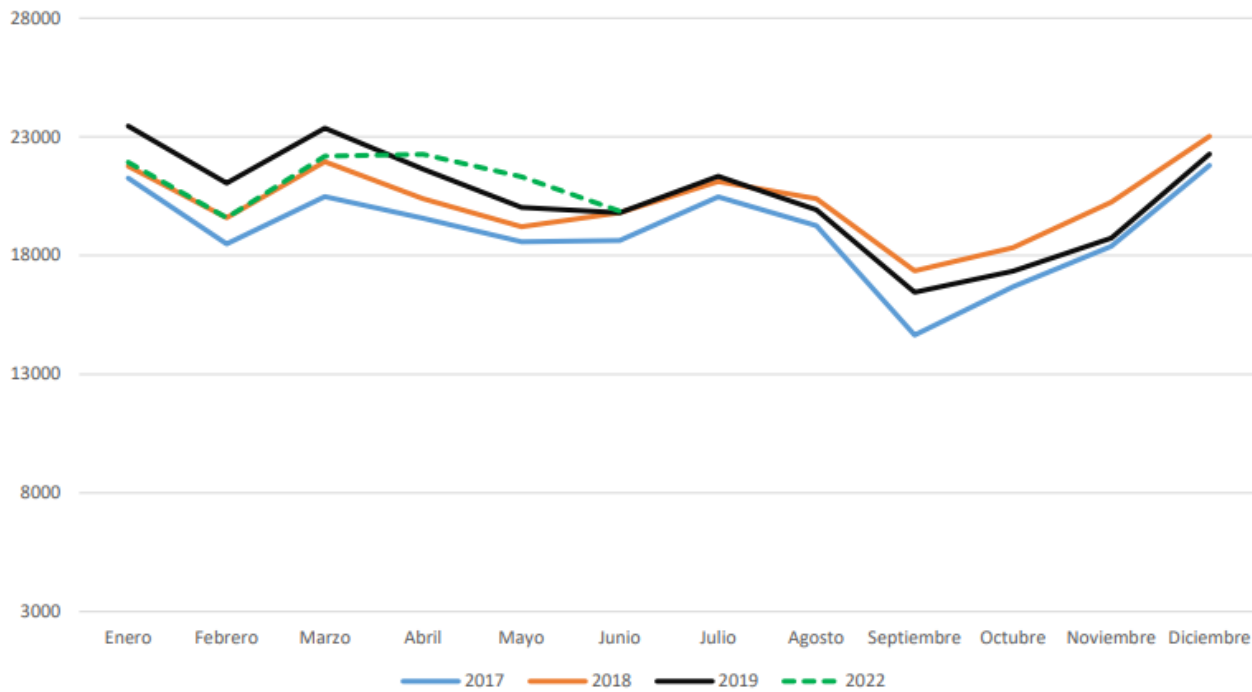
HABANA FIR OVERFLIGHTS BY DAY 2019 - 2022



Daily average 2019:	Jan 757	Feb 752	Mar 754	Apr 721	May 646	Jun 660	Jul 698
Daily average 2022:	Jan 708	Feb 700	Mar 716	Apr 743	May 687	Jun 662	Jul 691

5th Meeting of CIIFRA Team – Miami 2 - 4 August 2022

MUFH - Overflights by month

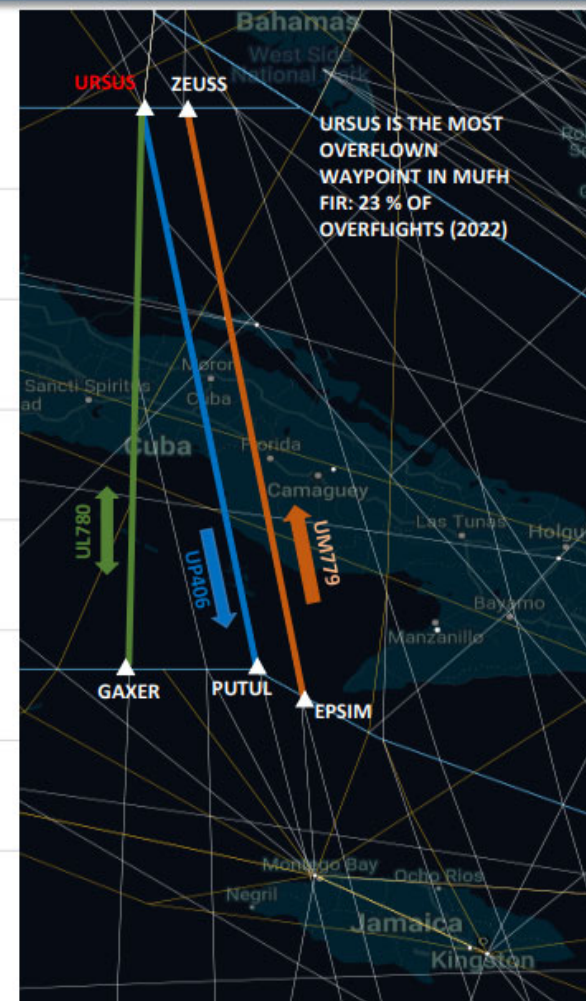
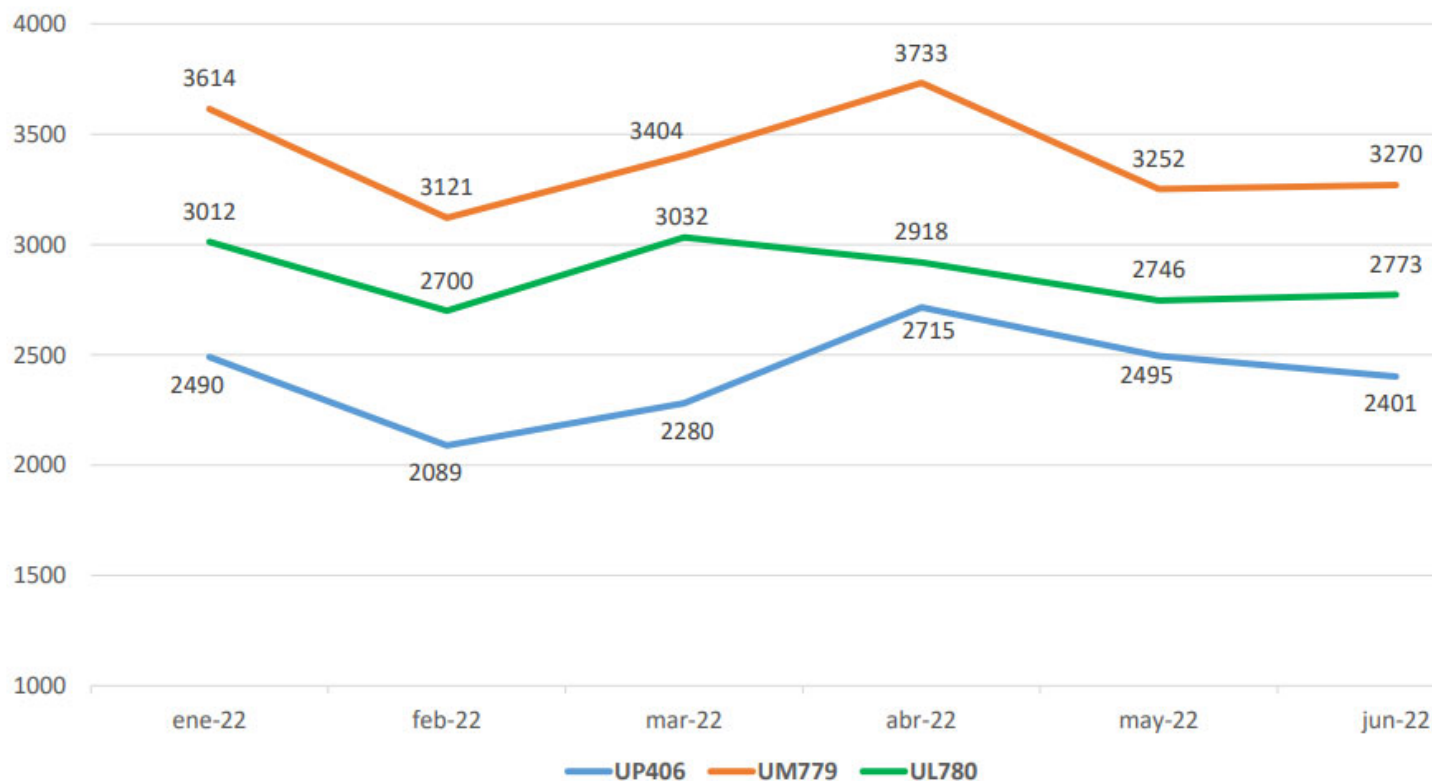


MUFH – Overflights trend.

After the strong recovery experimented on 2021's second half, 2022 started as 2018's level for January and February, but it went above historical data trough March and April, to reach again 2018/2019's level at the end of June, as shown in the graphic.

Ahead is the low season, usually starting in July to reach the lowest count in September. 2022 (green line) is currently showing trough July a tendency to remain almost at 2019's level, so it will keep the demand moderate to high for the rest of the month.

MUFH FIR HIGHER VOLUME ROUTES AND WAYPOINTS (OVERFLIGHTS) FIRST SEMESTER 2022

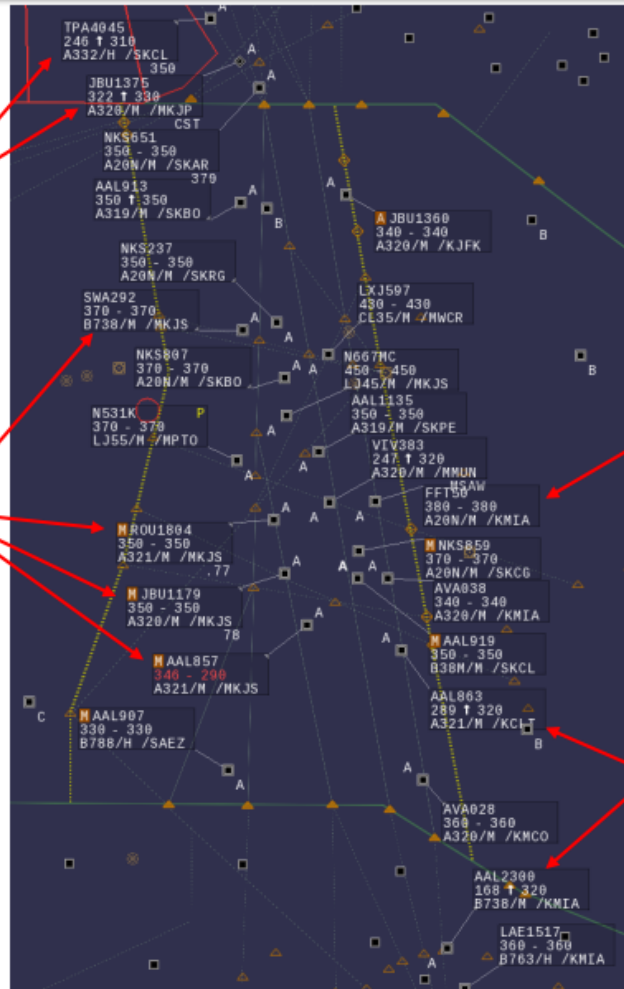


5th Meeting of CIIFRA Team – Miami 2 - 4 August 2022

CONFLICTS:

- TRAFFIC DEPARTED FROM MIAMI CLIMBING.

- TRAFFIC DESTINATION MONTEGO BAY MUST BE HANDLED OVER WITH 20NM IN TRAIL AND AT FL290.



SAT, 16 JULY, 2022, 15:45 UTC
HABANA FIR, SECTOR A AT MAXIMUM CAPACITY (20 AIRCRAFT).

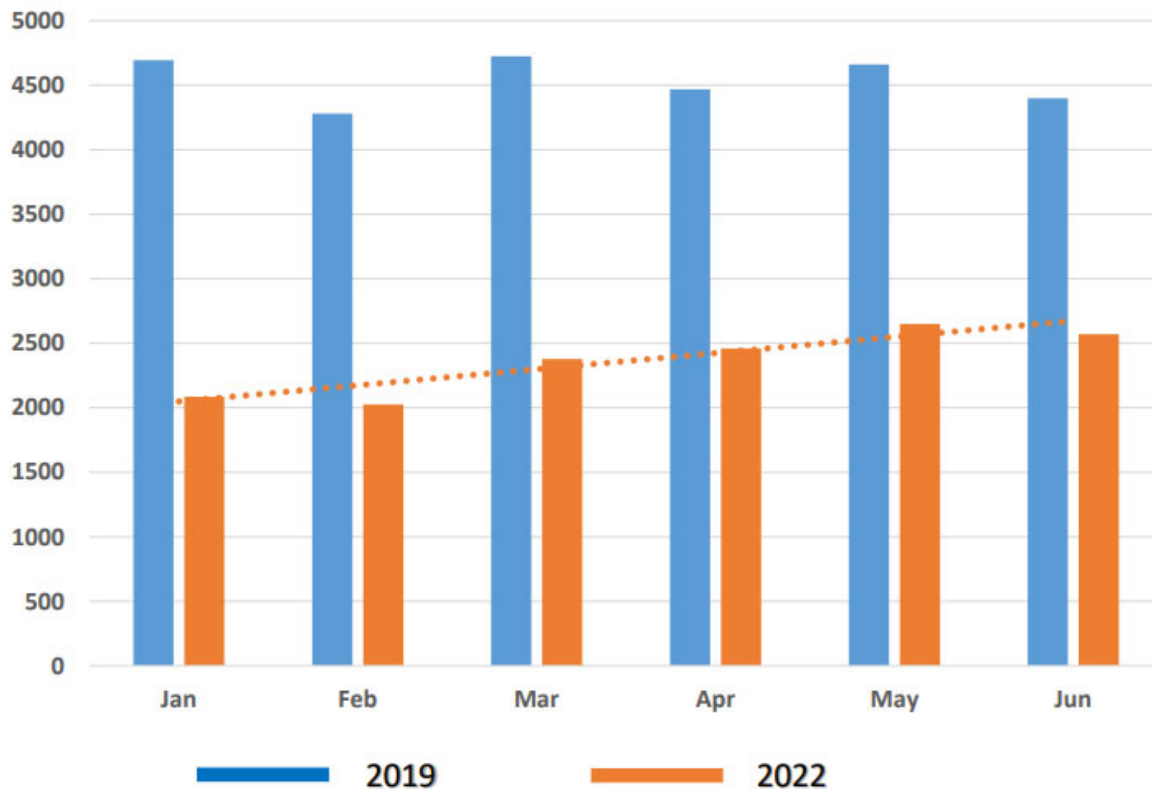
CONFLICTS:

- TRAFFIC DESTINATION MIAMI MUST BE HANDLED OVER AT FL340 OR LOWER.

- TRAFFIC DEPARTED MONTEGO BAY CLIMBING.

5th Meeting of CIIFRA Team – Miami 2 - 4 August 2022

JOSE MARTI INTL. (MUHA) TRAFFIC 2019 - 2022



OPS BY AIRCRAFT TYPE (JUNE 2022):

B737 (700/800 NG & MAX8): 888 (34,5%)
A320/321: 374 (14,5%)
B737 (300/400): 344 (13,3%)
ATR (42/45/72/76): 110 (4,2%)
A330 (200/300/900): 102 (3,9%)
MD83: 82 (3,1%)
B777/300: 44 (1,7%)
A340 (300/600): 32 (1,2%)
A350/900: 22 (0,8%)

TRAFFIC MIX (JUNE 2022):

65,4% MEDIUM JETS (B737/A320)

26,5% SMALL JETS AND TURBOPROPS

7,6% HEAVY JETS

Important operational issues and concerns within Habana FIR.

Disruptions of major traffic flows, caused by contingency situations on some FIRs on the region, originated by staffing issues, technical difficulties or other reasons.

In many cases, important flow restrictions are implemented (miles or minutes in trail), forcing Habana FIR to pass some of it to other FIRs, in order to be capable to comply with the original restriction and to prevent too much increase of the work load for our traffic controllers.

The worst case, ATC Zero, represents a non familiar scenario for many ATCOs and supervising staff, so it creates every time a multitasking and dangerous situation, because many operators avoid the impacted FIR, selecting unusual routes and increasing the demand in other FIRs and also in our sectors.

An important increase of space launches, event that originates very large Dangerous Areas, which are commonly implemented over the busiest routes.



The example shows the dangerous area implemented due to the SpaceX Transporter-5 Launch on last May 25, interrupting the UP406, UM779 and UL780.

5th Meeting of CIIFRA Team – Miami 2 - 4 August 2022

Important operational improvements within Habana FIR.

Development and implementation of a new ATM system in Habana ACC (will be operational from October, 2022), developed by ECNA, including a brand new hardware and a complete set of safety features (MTCA, STCA, MSAW, Prohibited/Restricted proximity alerts and MONA alerts). System also includes E-strips and will be deployed across the country at all ATM facilities (TMA/APP and TWR). The SSR network will add two MLATs installed in MUHA and MUVR and also ADS-B receivers, covering the Habana FIR.



CADENA



CADENA



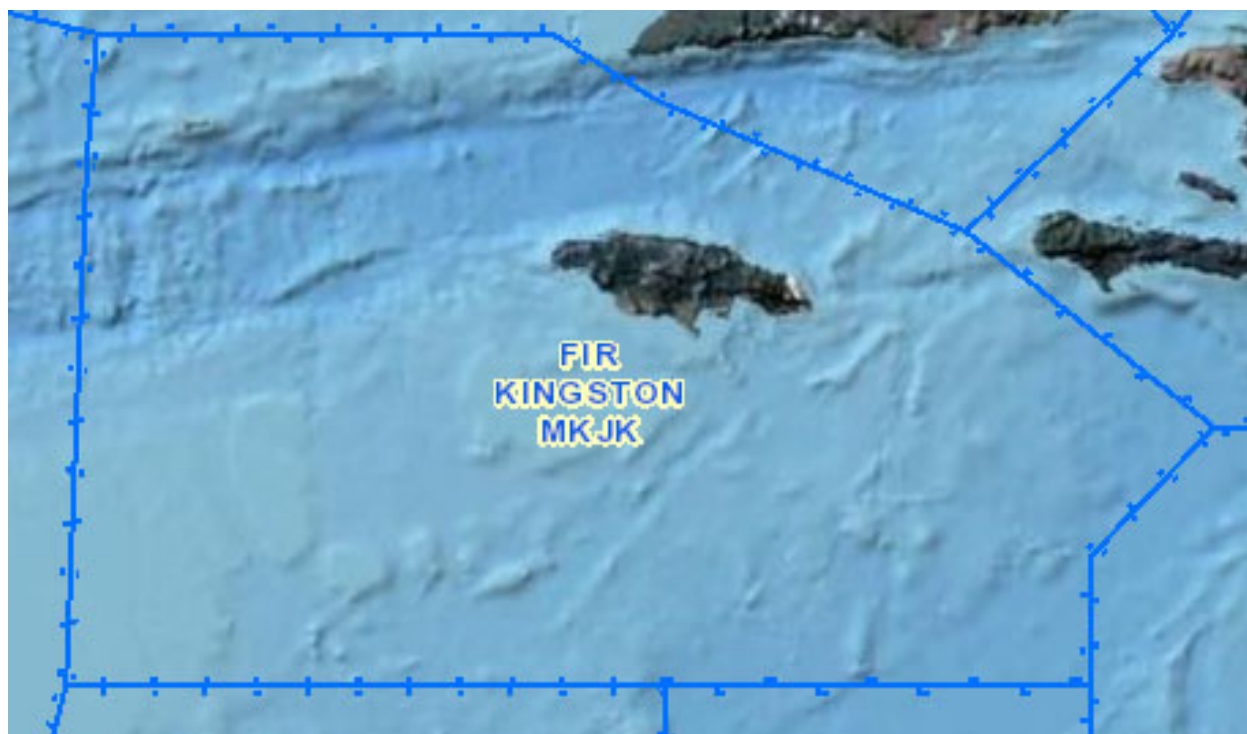
EANA
NAVEGACIÓN
AÉREA
ARGENTINA





CADENA

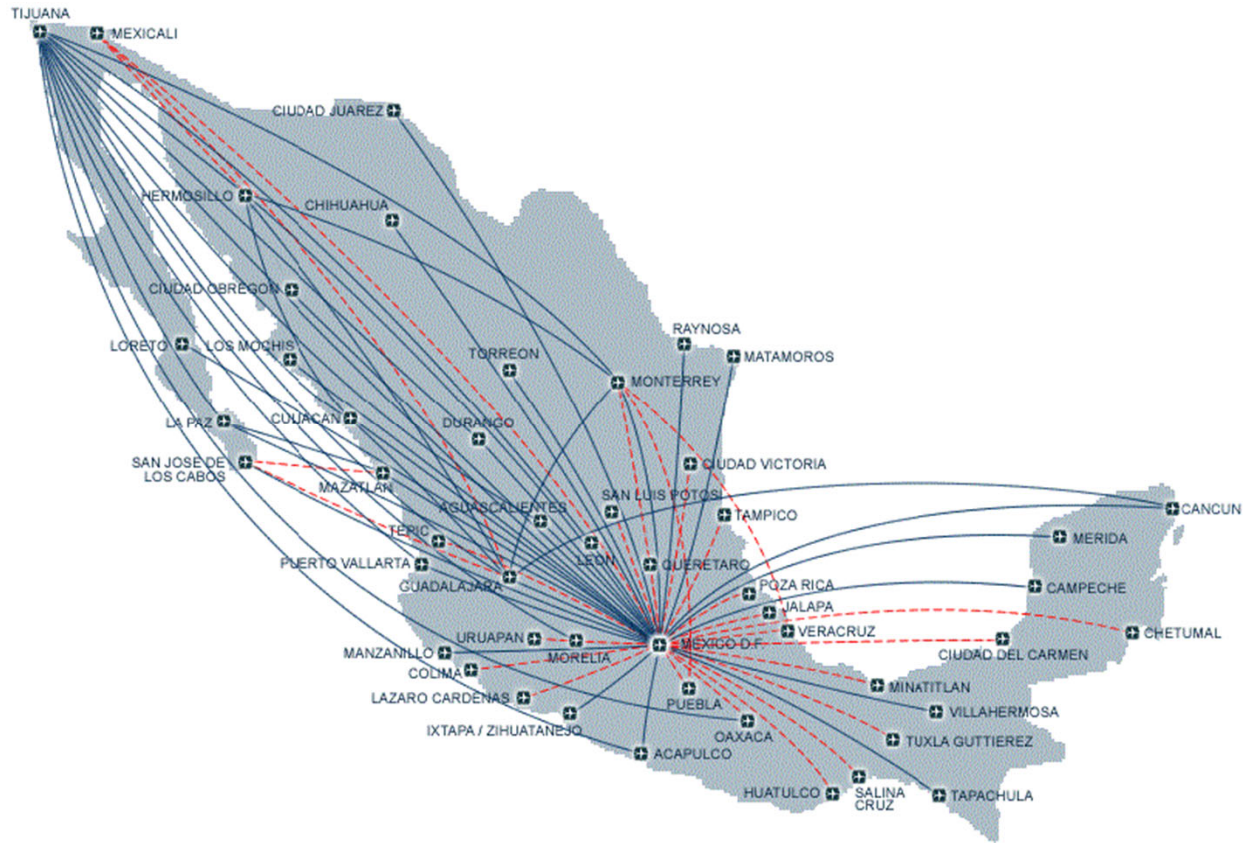
CANSO





SENEAM
SERVICIOS A LA NAVEGACIÓN EN EL
ESPACIO AÉREO MEXICANO

CADENA



CADENA



Airport Capacity Estimation Training

Airport Acceptance Rate

Model for Determining the Airport Acceptance Rate
(AAR)

Airspace Capacity Estimation Training

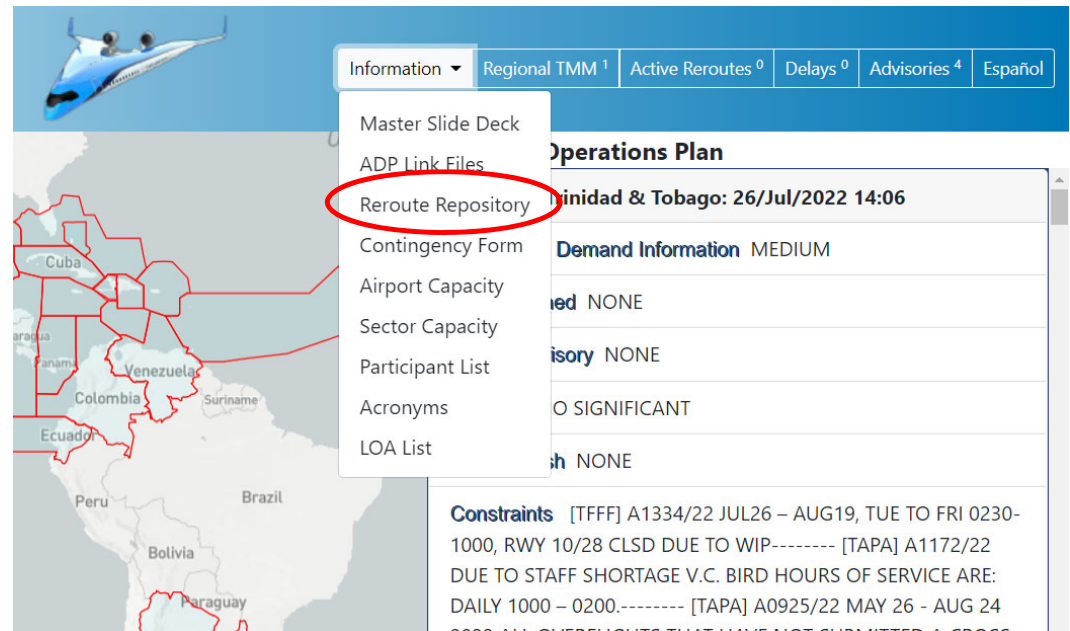
Determining Sector Capacity

Model for Determining the Sector Capacity

CADENA Communications During Contingency Events

Contingencies - General

- CADENA has developed contingency plans and checklists to mitigate unplanned disruptions to air traffic operations (see *CADENA ATFM-CDM Procedures Manual Section 6*).
- Examples of disruptions to air traffic include:
 - ACC evacuations
 - Radar failure
 - Communications failure
 - Power failure
 - Flight data processing system failure
- Some disruptions to air traffic (e.g., total ACC power failure, communications failure etc.) require airspace avoidance. During disruptions of this magnitude, Planned Airway System Alternative (PASA) contingency routes may be implemented.



CADENA OIS Reroute Repository



Contingency Communications

- Initial information distributed via the WhatsApp CADENA Ops Group or email
- An Urgent Advisory is issued via CADENA OIS
- An email with available information is sent to Operational contacts (e.g., ATCSCC, ACCs etc.) and Stakeholders (e.g., Airlines etc.)
- During significant contingency events (e.g., ATC Zero events), CADENA headquarters will call any airline with airborne traffic heading toward the impacted airspace
- When PASA contingency routes (re-routes) need to be implemented, an Ad Hoc conference will be scheduled with impacted ANSPs and stakeholders
- The Air Traffic Control System Command Center will be notified of any implemented PASA routes



Any Other Business

Action Item Review

Closing Remarks

A stylized map of the Americas is shown on a dark blue background. North America is colored red, and South America is colored orange. A thick white arc curves across the lower portion of the map. The text "Thank you!" is written in white in the lower-left area.

Thank you!