

CANSO LATIN AMERICA AND CARIBBEAN CONFERENCE 2022

Orlando, Florida, USA

6 – 8 December 2022

In coordination
with



HOW NEW TECHNOLOGIES SUPPORT AIR TRAFFIC MANAGEMENT

Organiser: **CANSO**

In coordination
with:



MODERATOR



Scott Leis

Operations Programme Manager

CANSO

PRESENTERS



Timothy Arel

ATO COO / LAC3 Chair
FAA / CANSO



Marcelo Franklin Rogrigues

Commander of Air Navigation Management
Center, CGNA
DECEA

PRESENTER



Timothy Arel

COO ATO / LAC3 Chair

FAA / CANSO

PRESENTERS



Vern Payne

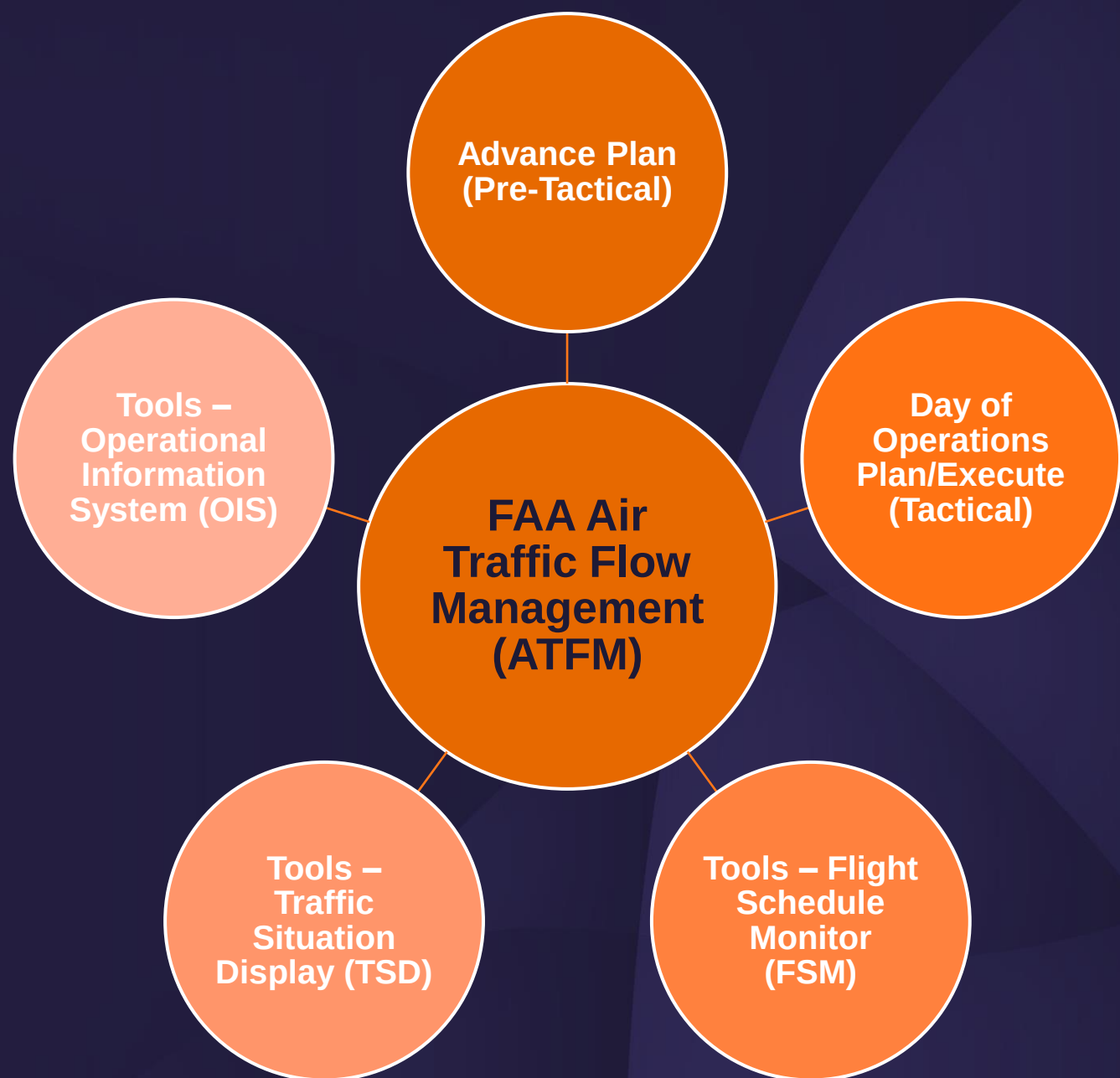
Manager, CDM and International Operations
FAA



Duane Freer

ATO Space Operations Manager at the Air Traffic
Control System Command Center
FAA

FAA Implementation of Air Traffic Flow Management



COLLABORATIVE DECISION MAKING (CDM)

- ❖ CDM is both a Philosophy and a Technology using Shared Data
- ❖ **Philosophy** – FAA defines constraint, solution is collaborated, flight operators apply their business model to the solution
- ❖ **Data** – Airlines and FAA exchange data, enabling a common view of Capacity/Demand balance
- ❖ **Technologies**

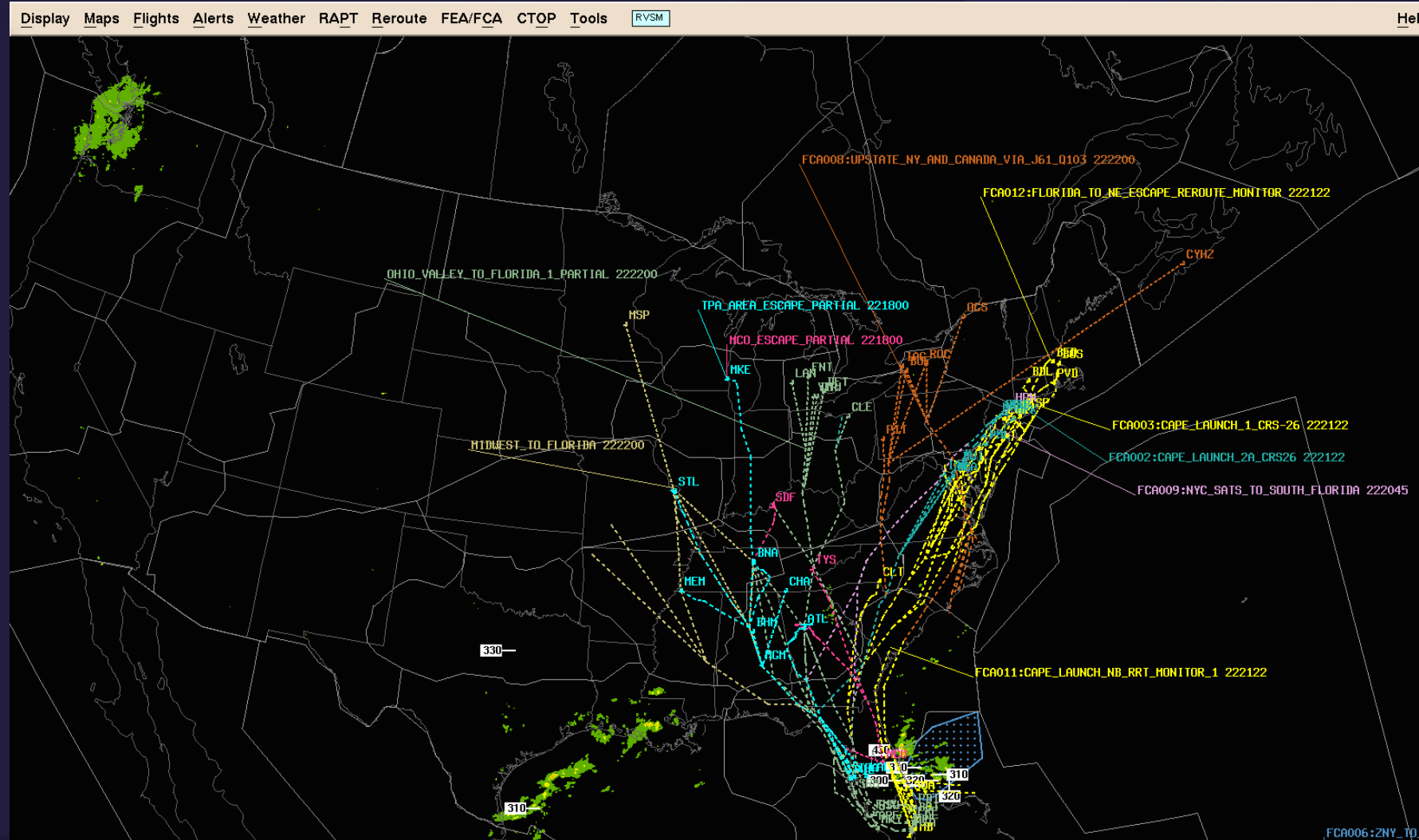
ATFM TOOLS – FLIGHT SCHEDULE MONITOR (FSM)

- Visualize and Analyze airport demand
- Implement
 - Ground Stops
 - Ground Delay Programs
 - Airspace Flow Programs



ATFM TOOLS – TRAFFIC SITUATION DISPLAY (TSD)

- Visualize Traffic
- Create Flow Evaluation Areas
- Flow Constrained Areas (for AFPs)
- Create Structured Routes
- Evaluate airspace demand



ATFM TOOLS – OPERATIONAL INFORMATION SYSTEM (OIS)

Current measures/delays ◇ Common awareness ◇ Information store



ATCSCC
OIS
SYSTEM

11 23 22
1258:15

(Note: This page will refresh every minute. Last updated Wed, 23 Nov 2022 12:57:41 UTC.)

NATIONAL PROGRAMS

PROGRAM NAME	START	END	SCOPE	REASON	AVG	AAR	PR	ADVZY	DA
FCAPV1	1700	1859	See Program Name...	VOLUME / COMPACTED DEMAND	29	--	7	041	DA

GROUND STOPS

ARPT	UPDATE	POE	SCOPE	REASON	ADVZY
MIA	1400	MED	2ndTier	WEATHER / LOW VISIBILITY	042

DELAY INFO

ARPT	AD	DD	TIME	REASON
------	----	----	------	--------

VACAPES REQUESTS

AREA	REQ/APVL	ALTITUDE	TIME	REMARKS
------	----------	----------	------	---------

CANCELLED INITIATIVES

ARPT	TYPE	TIME CANCELLED
------	------	----------------

AIRPORT CLOSURES

ARPT	TIME	REASON	REOPEN
------	------	--------	--------

TIME BASED FLOW MANAGEMENT

ARPT	START	END	STATUS
ATL	1100	0300	SCHEDULE
ATL	1200	0300	METERING
CLT	1200	0300	METERING
DFW	1100	0430	SCHEDULE
DTW	1100	0200	SCHEDULE

MISCELLANEOUS

NEXT PLANNING WEBINAR 1415Z

ATCSCC OIS SYSTEM

11 23 22 1258:15

ATCSCC OIS SYSTEM

11 23 22 1258:15

ATCSCC OIS SYSTEM

11 23 22 1258:15

Public View
nasstatus.faa.gov

FAA/Flight Operator View

United States Department of Transportation
Federal Aviation Administration

National Airspace System Status

Updated: Nov 29, 2022 10:57:49 AM EST
Current: Nov 29, 2022 10:58:12 AM EST

Advisories Airport Demand EDCOT NOTAMS Reroutes Restrictions RVR Weather

Thank you for visiting our site.

Active Airport Events

DEN
Deicing
Started 29/8:05 AM EST
View Details

MSP
Deicing
Started 29/7:00 AM EST
View Details

ONT
Departure Delay
Avg. 15 mins. (and increasing) due to tm initiatives.mlt staffing.
Updated 10:41 AM EST
View Details

SLC
Deicing
Started 29/8:41 AM EST
View Details

SWF
Airport Closure
Closed TO MIL TRG DLY 0300-1000
06/10:00 PM EST – 13/6:00 AM EDT
View Details

VNY
Departure Delay
Avg. 15 mins. (and increasing) due to vol compacted demand.
Updated 10:23 AM EST
View Details

Active En Route Events

No active en route events.

Forecast Events

Time

Event

Time

Event

View Full Operations Plan

Air Traffic Control System Command Center (ATCSCC) Announcements

NEXT PLANNING WEBINAR 1415Z

CANSO ATFM Data Exchange Network for the Americas (CADENA)

NAV CANADA	Operational Information System	© Copyright							
This page is refreshed every 5 minutes. Last updated: 13/06/17									
Current UTC Time: 13:10:13B									
Current Outlook/Forecast: 001									
Search Results FAA Messages Editable MISC Alerts									
Runway Configurations									
APRT	Air Rwy	Dep Rwy	AAR	ADR	Details				
CYUL	06L/R	06L/R	36						
CYYZ	24R/23	23	44						
CYYC	35L/R	35L/R	44						
CYVR	08L	08L	24						
CYEG	02/30	02/30							
CYWG	18	18							
CYOW	25	25							
CYHZ	23								
GDP/AFP									
Location	Start Date / Time	End Date / Time	Scope			Info ADVZY No.			
FCAFPV1	23/1700	23/1859	CYYZ CYTZ CYOW CYUL CYQB CYHZ, CYYJ CYVR CYYC CYEG CYLW			Volume 041			
Ground Stops									
APRT	Start	End	Scope			Info ADVZY No.			
There are currently no Ground Stops in effect.									
Restrictions									
Area	Start Date / Time	End Date / Time	Affected	Details		Info ADVZY No.			
CZY NORTH SPECIALTY	23/1223	23/1900	CZW CZY	CYYZ JET ARRIVALS WILL ENTER CZY AISPRACE FROM CZW 20 MIT DUE CZY STAFFING		CZY CZWG			
OCEANIC_ROUTE_CLOSURE_RQD	23/1230	23/1900	ALL	L453 CLSD DUE THUNDERSTORMS		FAA FAA 040			
Routes									
Route	Start Date / Time	End Date / Time	MET	Departure	Destination	Info ADVZY No.			
FCA018: UPSTATE NY / CANADA VIA J61 / Q103	23/1100	23/2200	0	CZY CZU CZM	UNKN	008			
FCA019: ZSU TO TTTP	23/1400	23/2200	0	UNKN	TBPB TLPC TLPL TVSA TGPY TTPP TVSC	011			
FCA020: ZNY TO TNCM / TQPF	23/1400	23/2200	0	UNKN	TNCM TQPF	012			

Regional Operations Plan	
✚	FAA San Juan: 23/Nov/2022 12:48
Anticipated Demand Information: MEDIUM	
TMM Planned: TMM WILL BE IMPLEMENTED DURING THE SNOWBIRD SEASON	
Urgent Advisory: NONE	
Weather: VFR/RA	
Volcanic Ash: NONE	
Constraints: NONE	
Special Events: ABO PARACHUTE JUMPING X63 PARACHUTE JUMPING	
Equipment Outages: PIM VOR OTS COY VOR OTS	
Other: NONE	
✚	JCAA Jamaica: 23/Nov/2022 12:40
Anticipated Demand Information: MEDIUM	
TMM Planned: NONE	
Urgent Advisory: NONE	
Weather: SIGNIFICANT FEATURE: A TROUGH ACROSS JAMAICA. THE TROUGH IS EXPECTED TO REMAIN ACROSS JAMAICA UNTIL THURSDAY WHEN A HIGH PRESSURE RIDGE BUILDS ACROSS THE CENTRAL CARIBBEAN. 24-HOUR FORECAST: THIS MORNING ... ISOLATED SHOWERS ACROSS SECTIONS OF NORTHERN PARISHES. THIS AFTERNOON... ISOLATED SHOWERS ACROSS SECTIONS OF CENTRAL AND WESTERN PARISHES. TONIGHT ... FAIR. CLOUDS GENERALLY ACROSS THE ISLAND. THIS MORNING...FEW022 THIS MORNING...	

CADENA OIS	Regional TMM	Español Log in																				
ATFM Daily Plan Information Regional TMM Active Reroutes Delays Advisories ANSPs Airlines	Regional AFTM Solutions/ Traffic Management Measures <table border="1"> <thead> <tr> <th>Initiated By</th><th>Provided By</th><th>Element</th><th>Type</th><th>Description</th><th>Start time</th><th>End time</th><th>Reason</th><th>NOTAM</th><th></th></tr> </thead> <tbody> <tr> <td>SENEAM</td><td>SENEAM</td><td>MMMX (AIRPORT)</td><td>ODP</td><td>15 ODP</td><td>23/NOV/2022 16:00</td><td>23/NOV/2022 23:59</td><td>OTHER</td><td>MMMX A8676/22</td><td>Detail</td></tr> </tbody> </table>	Initiated By	Provided By	Element	Type	Description	Start time	End time	Reason	NOTAM		SENEAM	SENEAM	MMMX (AIRPORT)	ODP	15 ODP	23/NOV/2022 16:00	23/NOV/2022 23:59	OTHER	MMMX A8676/22	Detail	
Initiated By	Provided By	Element	Type	Description	Start time	End time	Reason	NOTAM														
SENEAM	SENEAM	MMMX (AIRPORT)	ODP	15 ODP	23/NOV/2022 16:00	23/NOV/2022 23:59	OTHER	MMMX A8676/22	Detail													



More information: cdm.fly.faa.gov



THANK YOU



FAA CDM/International Manager: Vern.Payne@faa.gov

ATO SPACE OPERATIONS

Mission: Ensure space launch and reentry operations are safely and efficiently integrated into the National Airspace System (NAS)

- Notification

- Evaluation

- Decision

- Airspace Management Plan (AMP) Development and Distribution

- Monitor and support

- Post Operations Analysis

Planning and Coordination

Real-Time Operations

Post-Event and Future Planning

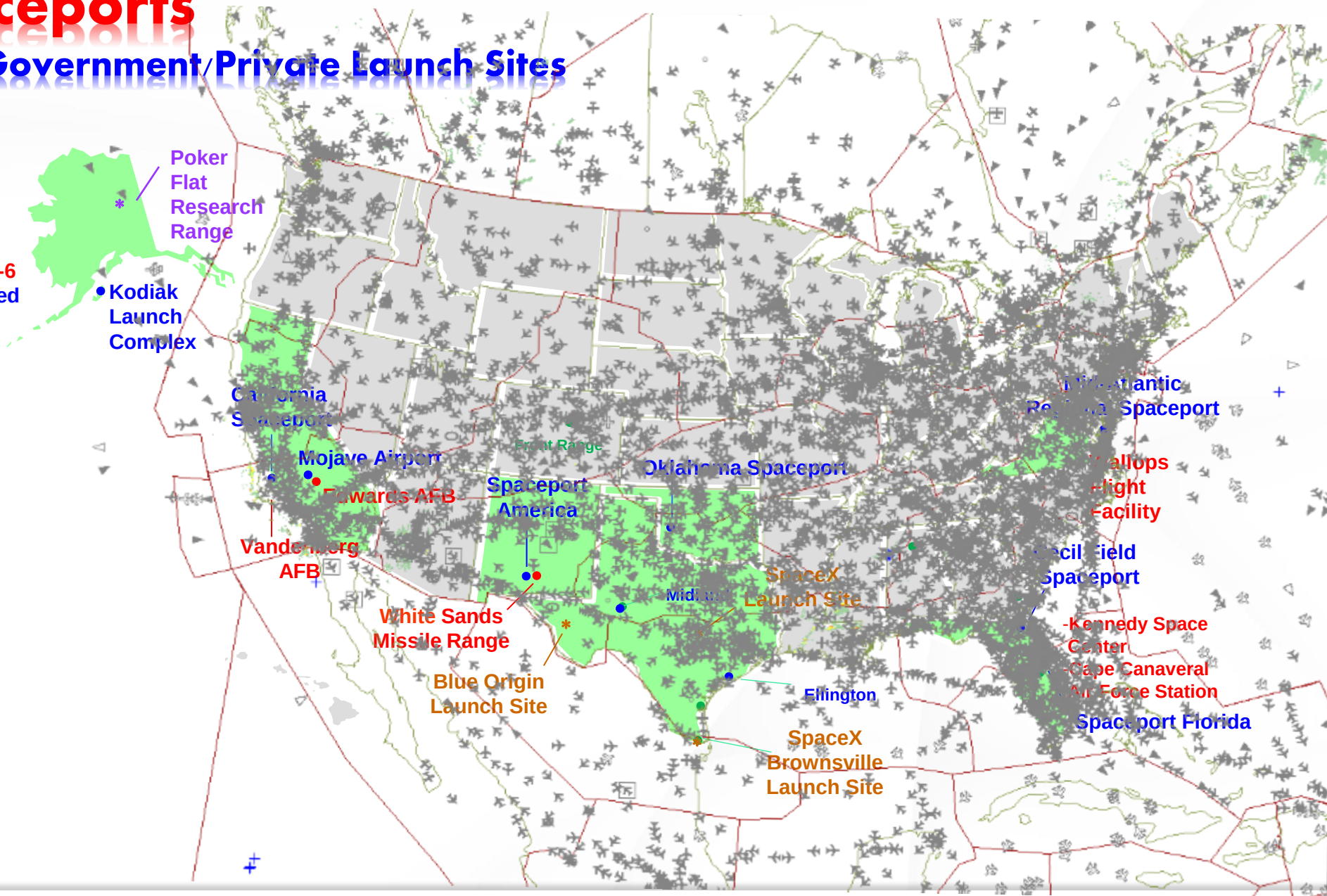


* U.S. Spaceports

Commercial/Government/Private Launch Sites

Key

- U.S. Federal Launch Site-6
- Non-Federal FAA-Licensed Launch Site-8
- * Owned by University of Alaska Geophysical Institute-1
- * Sole Site Operator-3



Organiser: **CANSO**

In coordination with:



CHALLENGER ROOM

CANSO

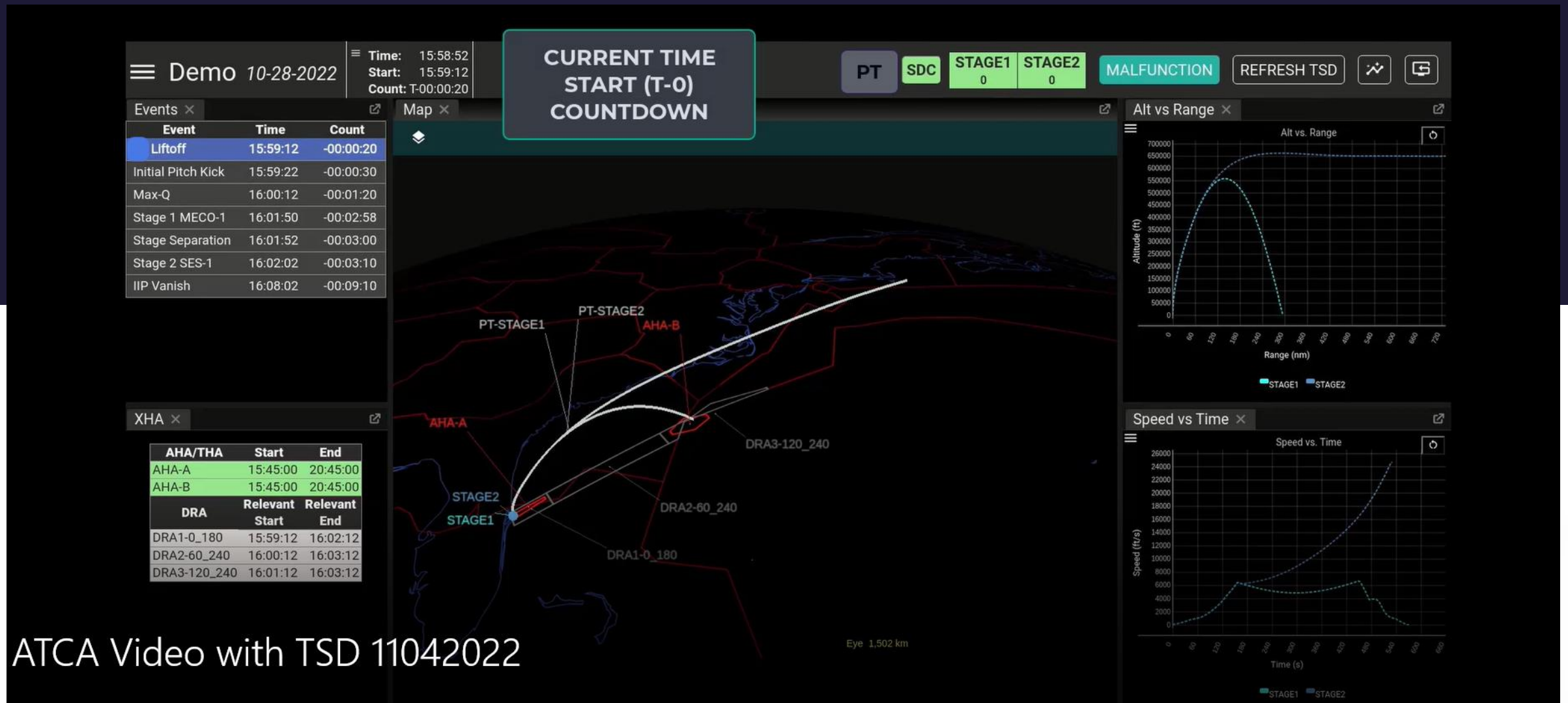


Organiser: **CANSO**

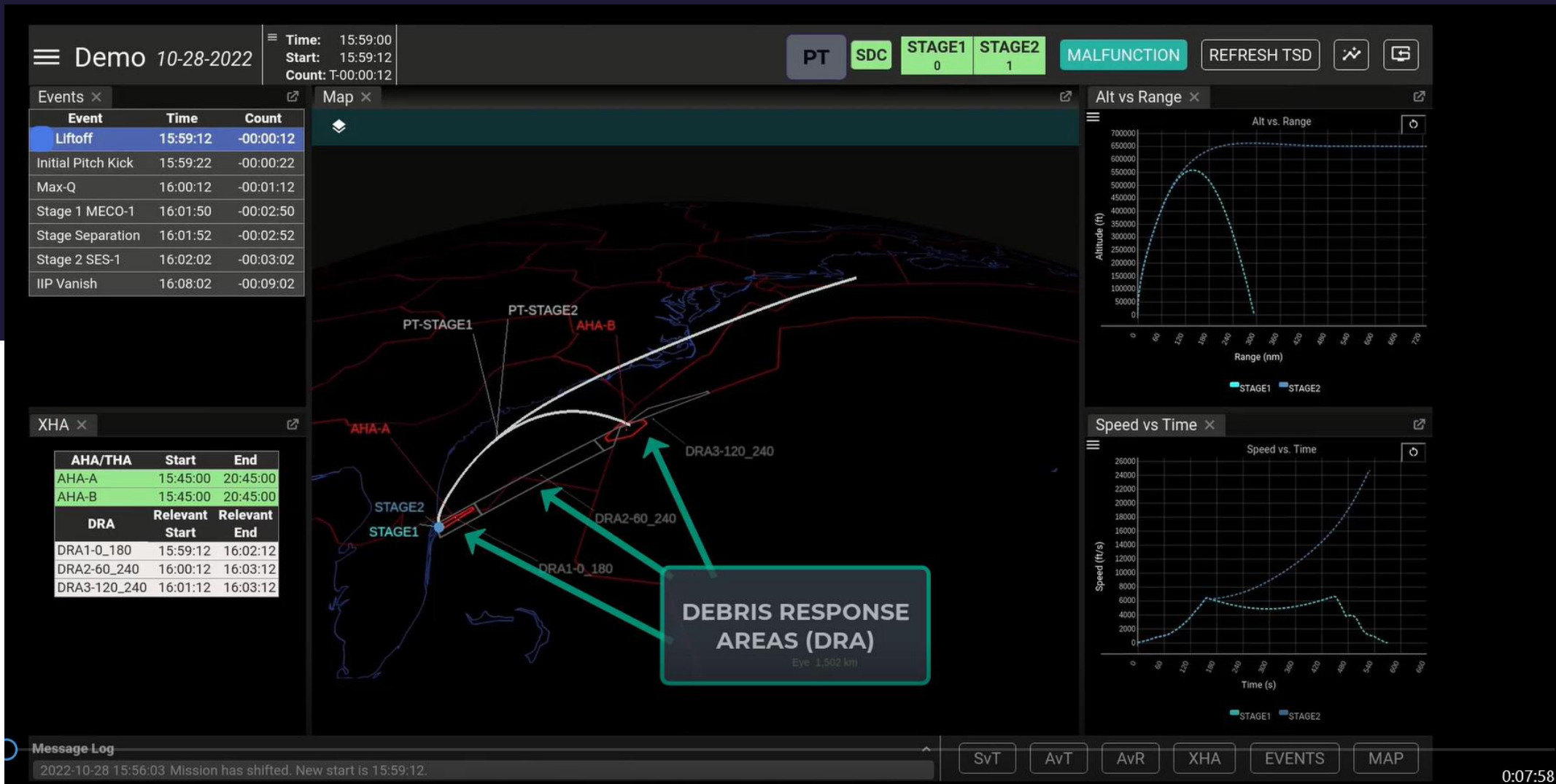
In coordination
with:



SPACE DATA INTEGRATOR (SDI)



SPACE DATA INTEGRATOR (SDI)



INTERNATIONAL COLLABORATION



LETTER OF AGREEMENT

EFFECTIVE: DECEMBER 3, 2020

SUBJECT: CANSO ATFM DATA EXCHANGE NETWORK FOR THE AMERICAS (CADENA) SPACE LAUNCH AND RECOVERY PROTOCOLS

The participating CADENA Air Navigation Service Providers (ANSPs) and the Federal Aviation Administration (FAA) Air Traffic Organization (ATO) Space Operations office (ATO Space Ops) enter into this Letter of Agreement (LOA) to facilitate the safe and efficient movement of space launch and recovery between and through participating ANSP flight information regions (FIRs).

1. PURPOSE: The purpose of this LOA is to facilitate the safe and efficient movement of space launch and recovery operations between and through participating ANSP FIRs. This LOA promotes communication, collaboration, and coordination between the participating ANSPs and ATO Space Ops regarding space launch and recovery operations. The information shared among participating CADENA participating ANSPs and stakeholders is for the sole purpose of aviation safety.

2. SCOPE: This agreement establishes a common regional, cross-border air traffic management (ATM) communications protocol, a seamless operational atmosphere that incorporates common operating procedures and practices, and a performance reporting and review structure and process. The operations described herein are for use by participating CADENA ANSPs and ATO Space Ops to provide space launch and recovery information. This LOA is a non-binding regional operational agreement and is not intended to replace any local agreements or any other LOAs between participating ANSPs.

3. BACKGROUND:

a. CANSO's main objective is to support its Members and participating stakeholders in the provision of safe, efficient and cost-effective air navigation services worldwide. The CANSO Operations Standing Committee (OSC) provides operational leadership and expertise in the implementation of ATM improvements, including commercial space operations, and identifies future technologies and procedures to help transform global ATM performance. The collaborative work of the OSC with the CANSO Regional Directors is instrumental in helping Members achieve seamless airspace globally.

b. The ATO Space Ops main objective is the integration of launch and reentry missions in a safe and efficient manner.



c. This LOA is in alignment with the practices and procedures specified in the International Civil Aviation Organization *Manual on Collaborative Air Traffic Flow Management* (Doc 9971).

4. RESPONSIBILITIES:

a. ATO Space Ops will:

- Brief scheduled launch and reentry information during the CADENA Weekly Planning Web Conferences or during CADENA Ad Hoc Web Conferences and include, at a minimum, the following information:

- Defined Hazard Areas
- Proposed date and time of operation
- Backup dates and times of operation
- General mission information required for aviation safety

- Post the associated launch and recovery Airspace Management Plan (AMP) on the ATCSOC CADENA OIS homepage – ATFM Daily Plan – Special Events.

- Advise affected ANSPs of any changes to hazard areas in a timely manner through the appropriate communication channels, including but not limited to:

- Advisories posted on the CADENA OIS
- CADENA Chat within the CADENA OIS
- CADENA Ops WhatsApp group messages
- Direct phone calls to the relevant ANSP point of contact (POC)

b. Participating ANSPs will:

- List their published NOTAM number that is associated with the launch and recovery, as required by ICAO, on their CADENA OIS homepage under the ATFM Daily Plan – Other category for ease of retrieval.

- Contact ATO Space Ops directly with the associated launch and recovery NOTAM number if they are unable to upload it onto the CADENA OIS.

- Ensure that their flow management units (FMUs) serve as the primary points of contact for coordinating commercial space launch and recovery information.
NOTE: CADENA has established and maintains the point of contact list.

c. The CADENA RIG will establish a regional process to provide space launch and recovery performance feedback and will share lessons learned with the CADENA stakeholders.

5. SAMPLE NOTAM: Annex A contains a sample NOTAM that ANSPs can refer to when developing their own airspace debris re-entry NOTAMs.



6. IMPLEMENTATION: The procedures agreed in this LOA will be implemented by personnel at participating CADENA ANSPs and at the ATO Space Ops office at the FAA Air Traffic Control System Command Center (ATCSOC).

7. REVIEW PERIOD: Participants agree to participate in a yearly review of this agreement.

Teri Bristol
Chief Operating Officer
FAA ATO
LAC3 Chair

Gabriela Logatto
President
EANA

Claudia Roa
Air Navigation Director
IDAC

Joel Beltrán Archer
Director General
ECNA

Rohan Garib
Executive Manager ANS
TTCAA

Roger Alberto Pérez Serrano
Manager and Coordinator ACNA
COCESNA

Nari Williams-Singh
Director General
Jamaica CAA

Micilia Albertus-Verboom
Director General
DC-ANSP

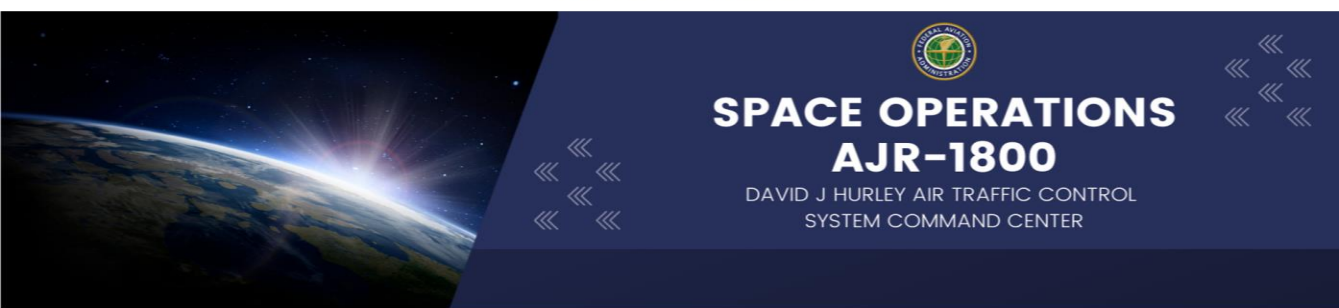
Organiser: **CANSO**

In coordination
with:



INTERNATIONAL COLLABORATION

CADENA

A banner for Space Operations AJR-1800. It features a dark blue background with a white graphic of a satellite in orbit on the left. The text is in white and yellow. The FAA logo is in the top right corner. There are decorative white chevrons on the right side.

**SPACE OPERATIONS
AJR-1800**
DAVID J HURLEY AIR TRAFFIC CONTROL
SYSTEM COMMAND CENTER

CADENA

A banner for Aircraft Hazard Areas - AHA Coordinates. It features a dark blue background with a white graphic of a satellite in orbit on the left. The text is in white and yellow. The FAA logo is in the top right corner. There are decorative white chevrons on the right side.

**SPACE OPERATIONS
AJR-1800**
DAVID J HURLEY AIR TRAFFIC CONTROL
SYSTEM COMMAND CENTER

Aircraft Hazard Areas - AHA Coordinates

UPCOMING LAUNCH EVENT

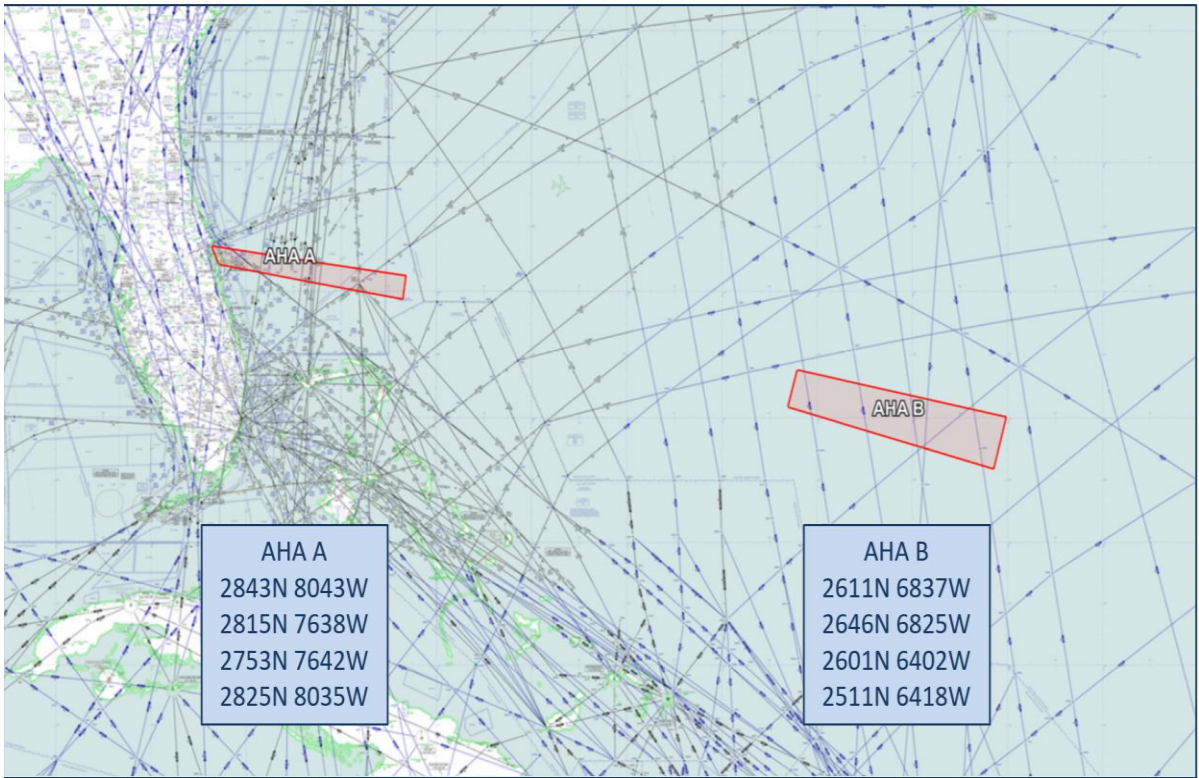
USSF-44, SpX Falcon 9 Heavy

Primary Launch date:
October 31, 1344-1439 UTC

Backup Dates:
November 01-06, Varying Times

LAUNCH SITE

Kennedy Space Center (KSC), Florida



Organiser: **CANSO**

In coordination
with:



SPACE COLLABORATIVE DECISION MAKING (CDM)



Participants:

- Federal Aviation Administration
- National Aeronautics and Space Administration
- Department of Defense
- Launch and Reentry Operators
- Aviation Stakeholders

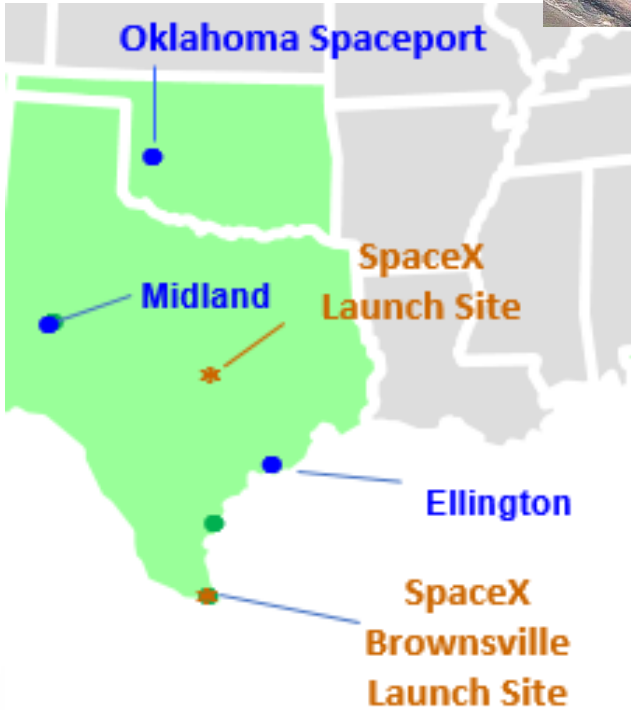
Initiated: June 2020

Modeled after aviation CDM

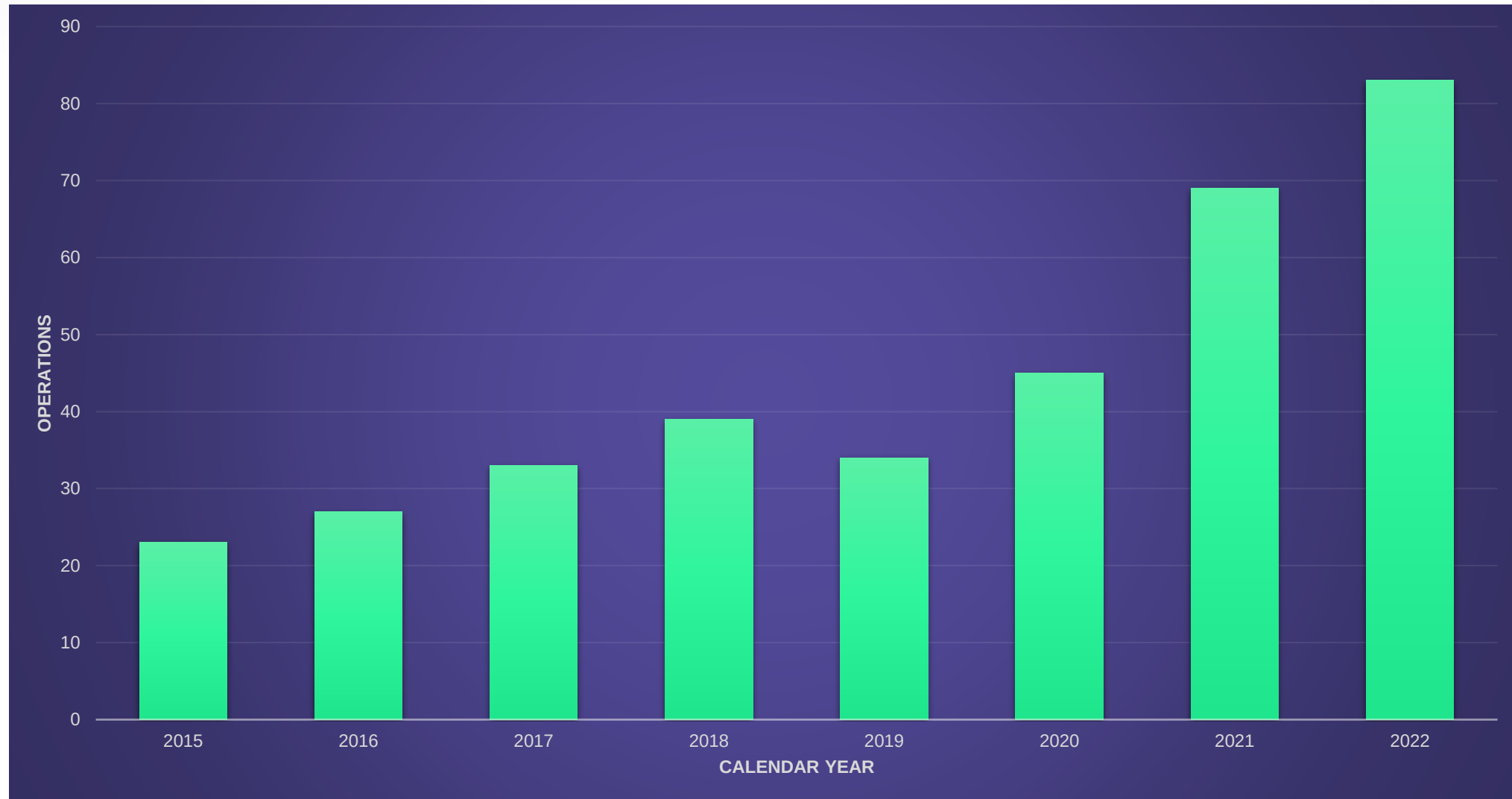
International sub team

- Global Outreach
- Information Exchange and Best Practices

STARBASE TEXAS



U.S. YEARLY LAUNCH AND REENTRY CADENCE





THANK YOU

Organiser: **CANSO**

In coordination
with:



PRESENTER



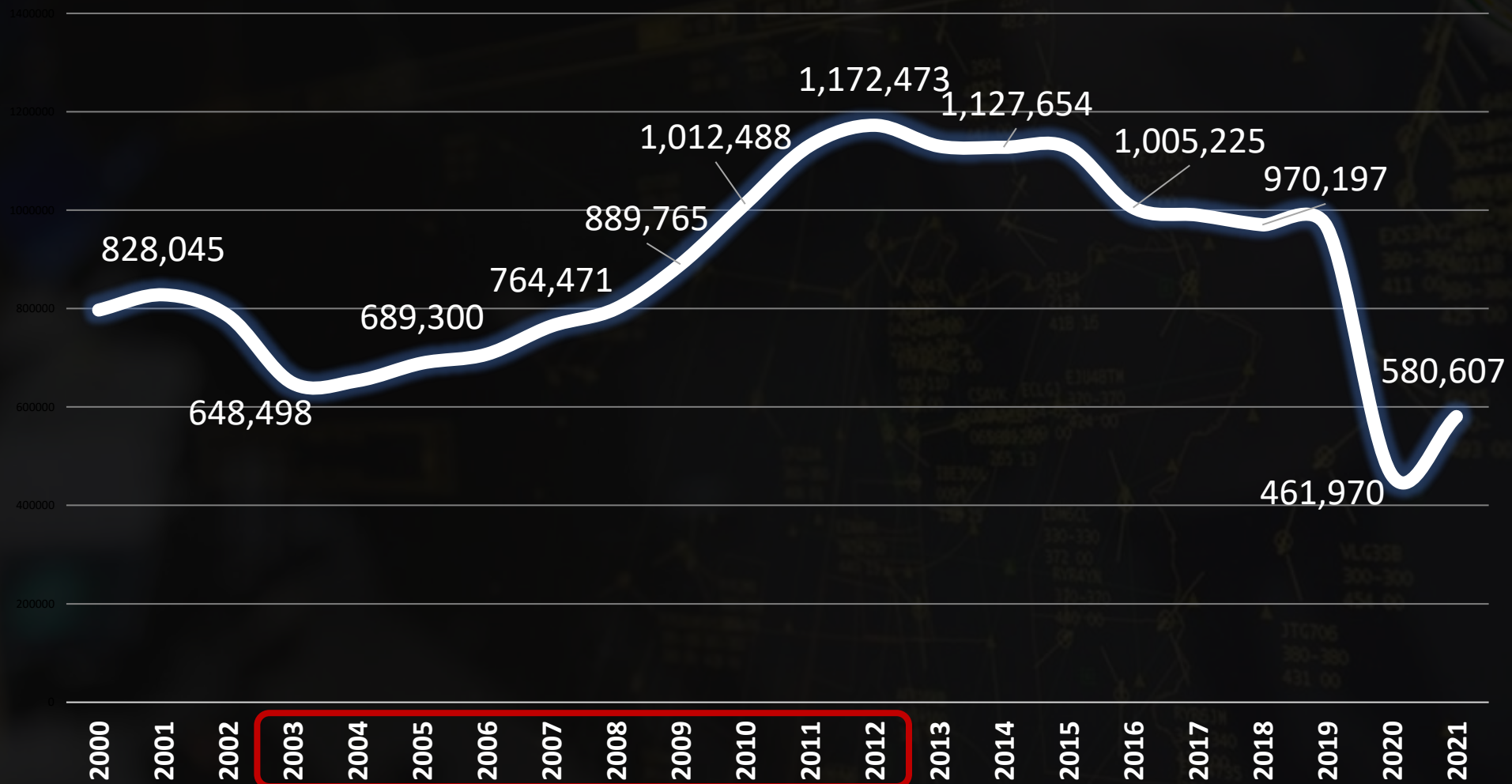
Marcelo Franklin Rogrigues

Commander of Air Navigation Management Center, CGNA
DECEA

EVOLUTION OF ATFM IN BRAZIL

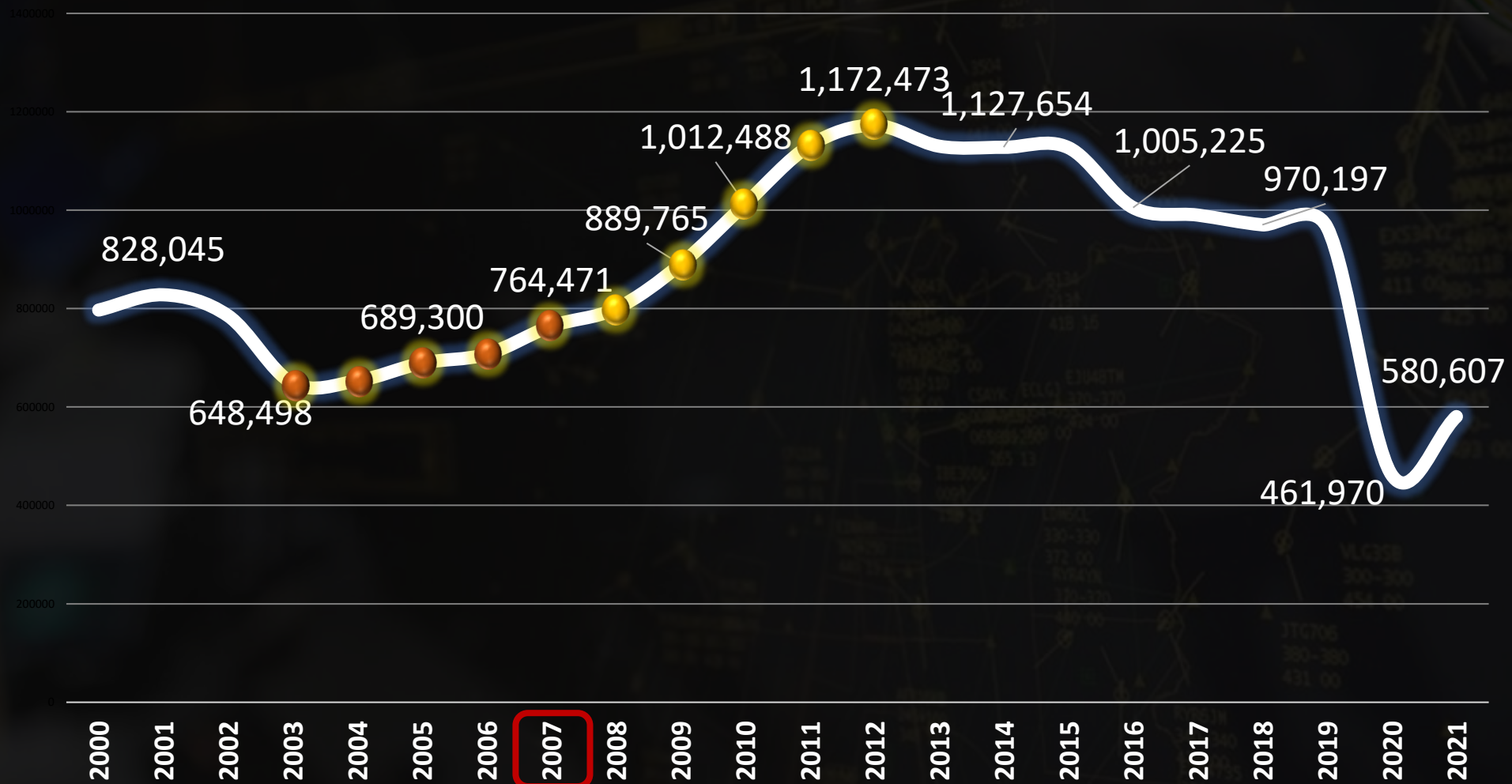


● Commercial Aviation



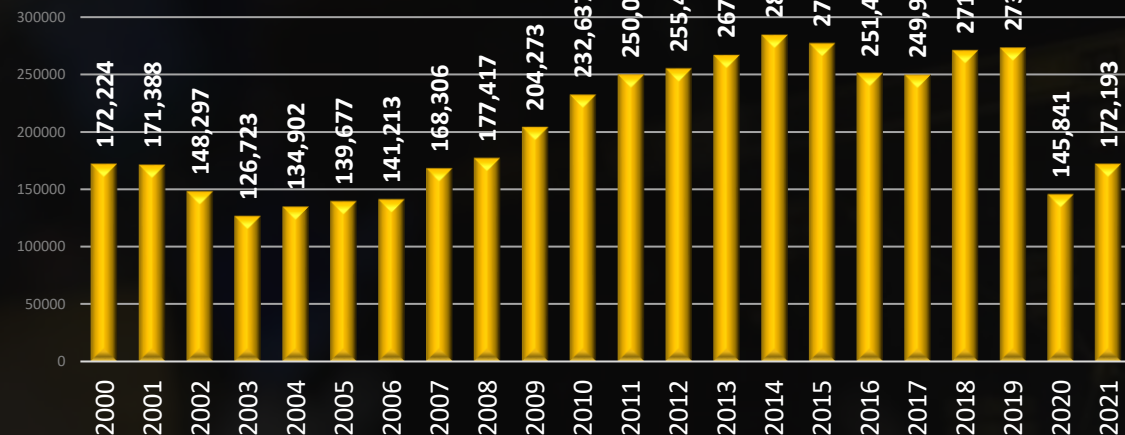
Source: ANAC – Total of flights

● Commercial Aviation

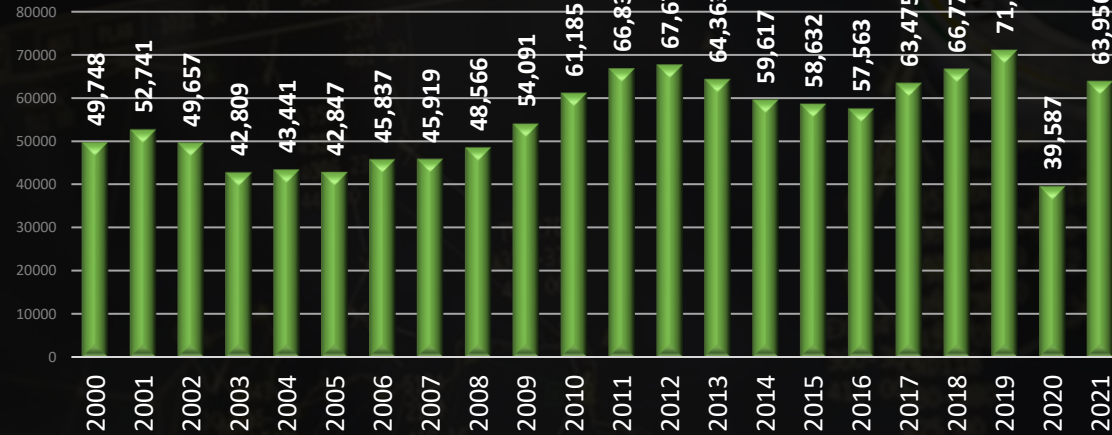


Source: ANAC – Total of flights

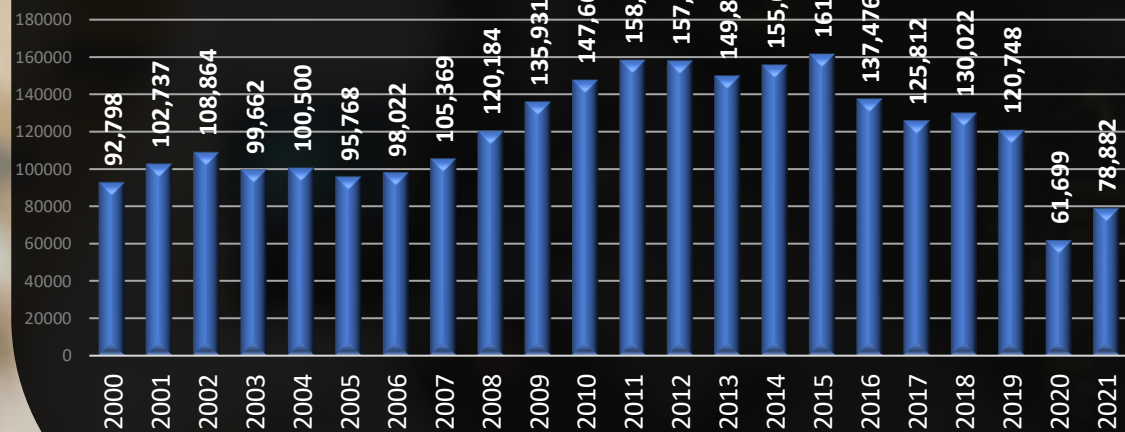
SBGR



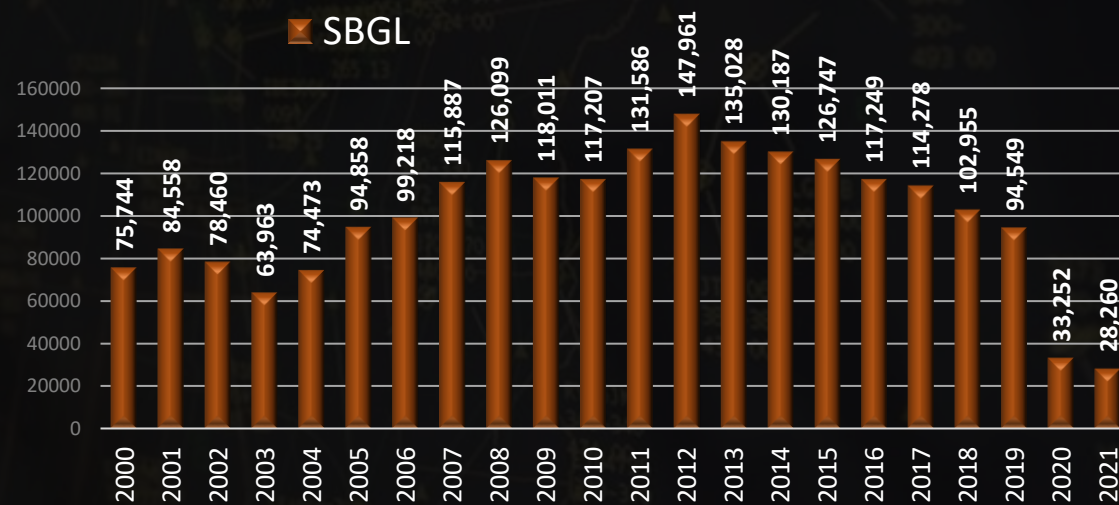
SBRF



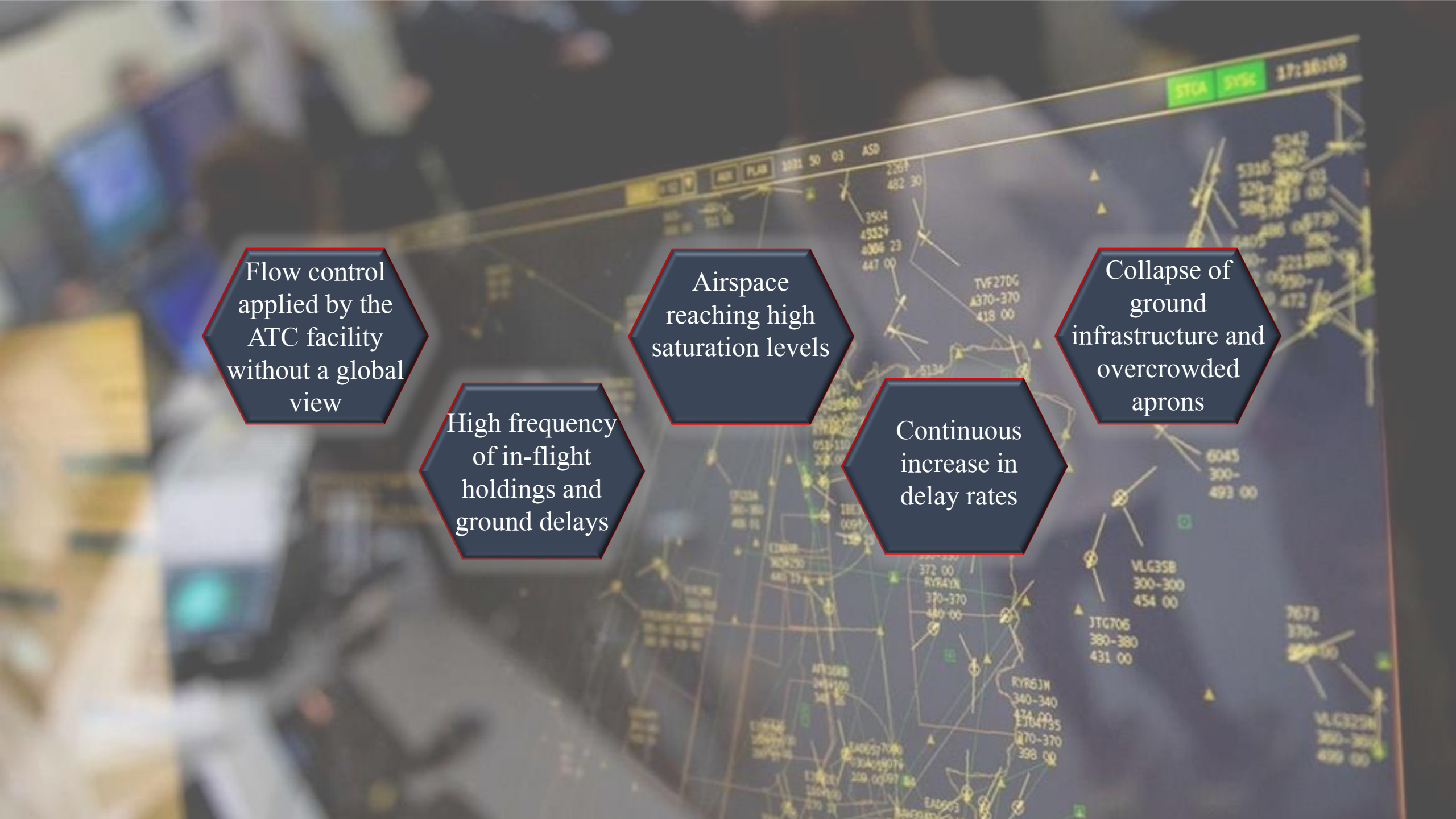
SBBR



SBGL



Source: ANAC – Total of flights



Flow control
applied by the
ATC facility
without a global
view

High frequency
of in-flight
holdings and
ground delays

Airspace
reaching high
saturation levels

Continuous
increase in
delay rates

Collapse of
ground
infrastructure and
overcrowded
aprons



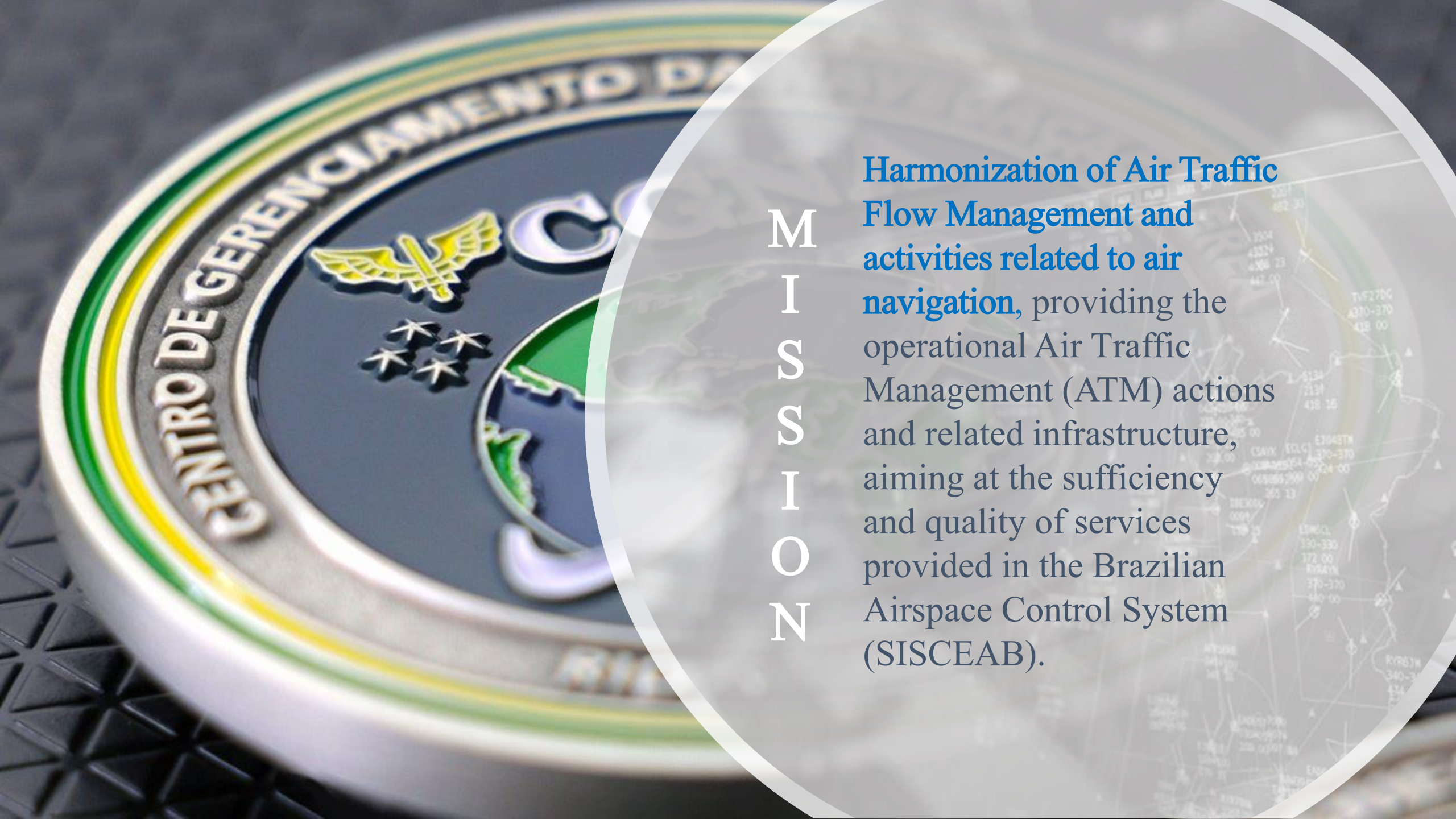
DEMAND
X
CAPACITY





STCA SVSC 17:26:03





M I S S I O N

Harmonization of Air Traffic Flow Management and activities related to air navigation, providing the operational Air Traffic Management (ATM) actions and related infrastructure, aiming at the sufficiency and quality of services provided in the Brazilian Airspace Control System (SISCEAB).



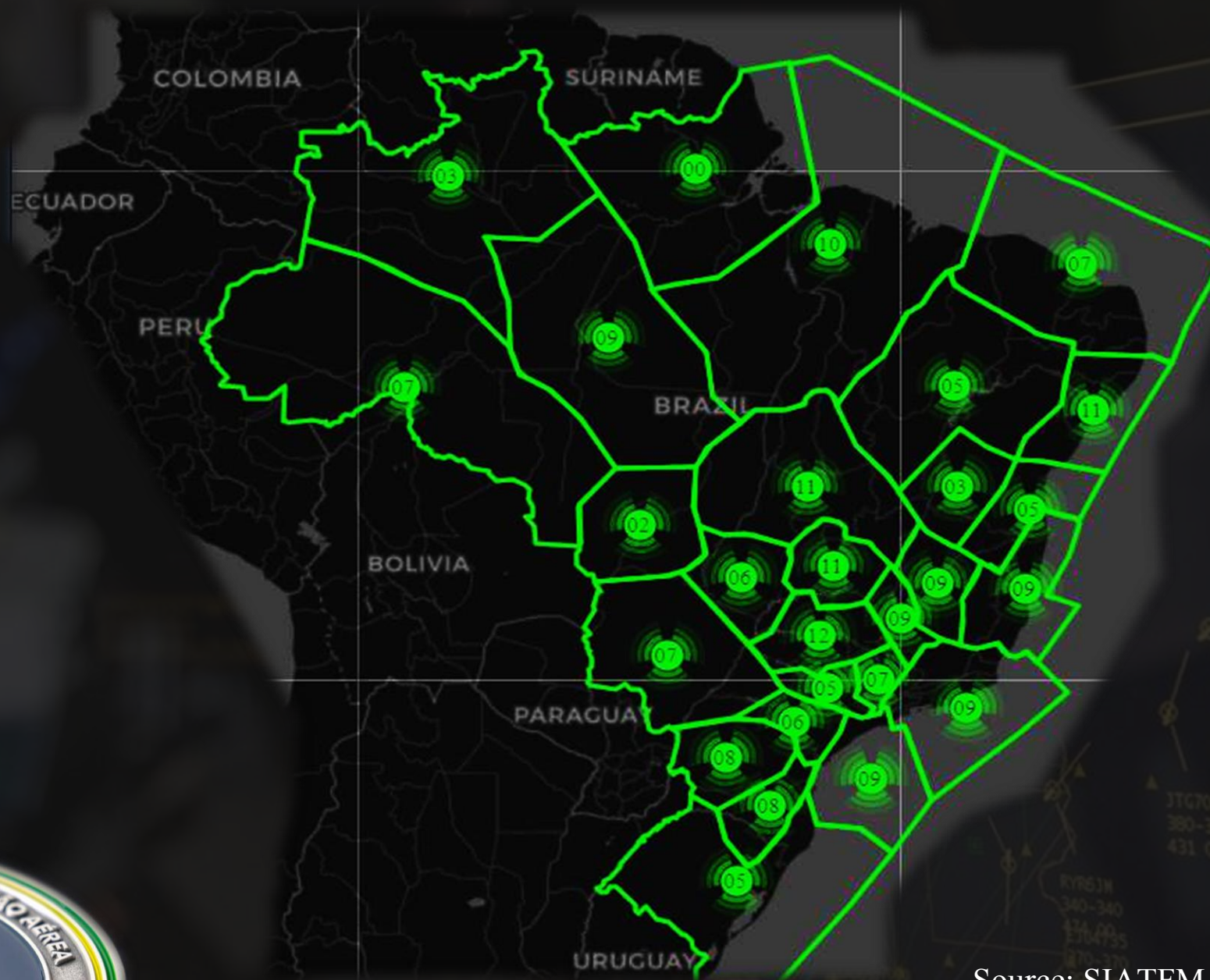
Professional Training

Development of an ATC
capacity methodology

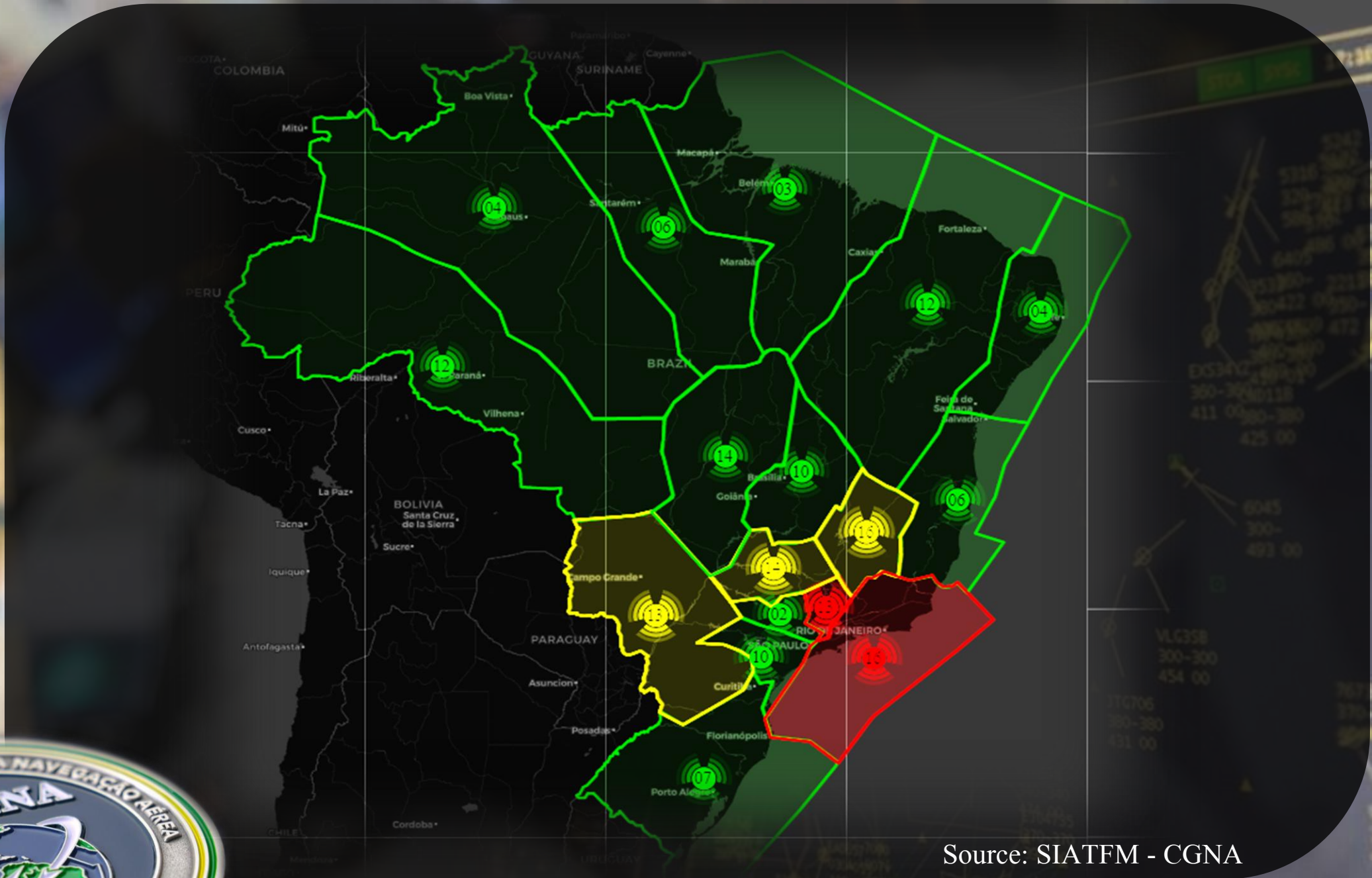
Real-time knowledge of
capacity

Search for possibilities of
improvements

22.000.000 km²



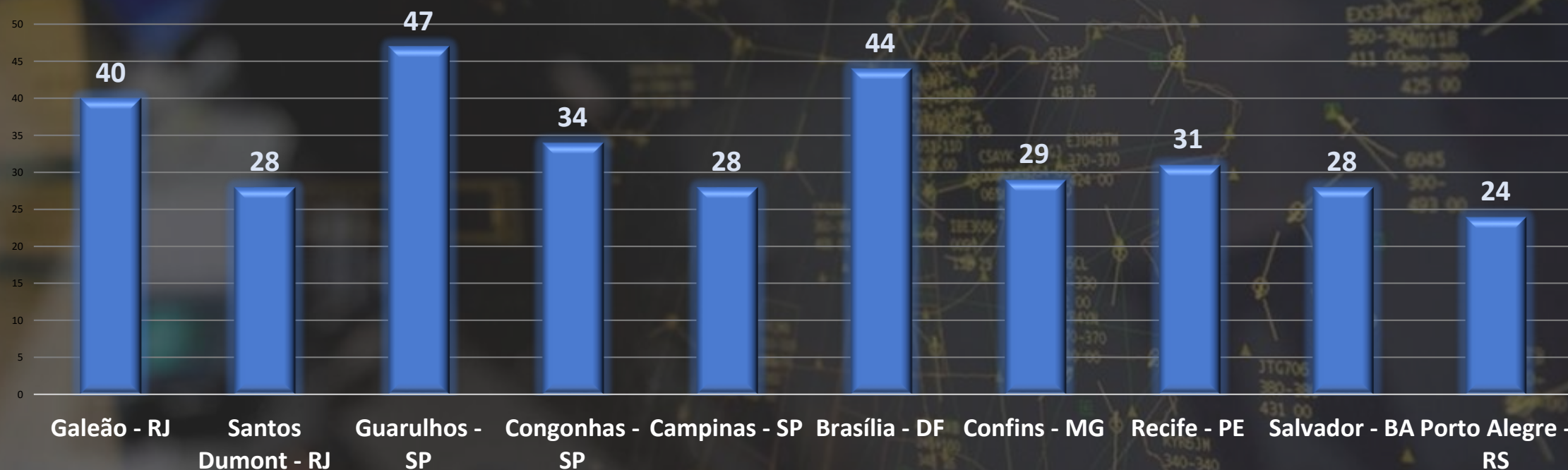
Source: SIATFM - CGNA



Source: SIATFM - CGNA

Airport hourly capacity

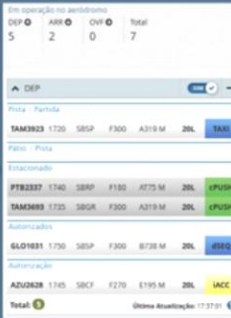
■ 2012



Fonte: SIGMA



SIGMA
Principal Sistema ATFM do CGNA

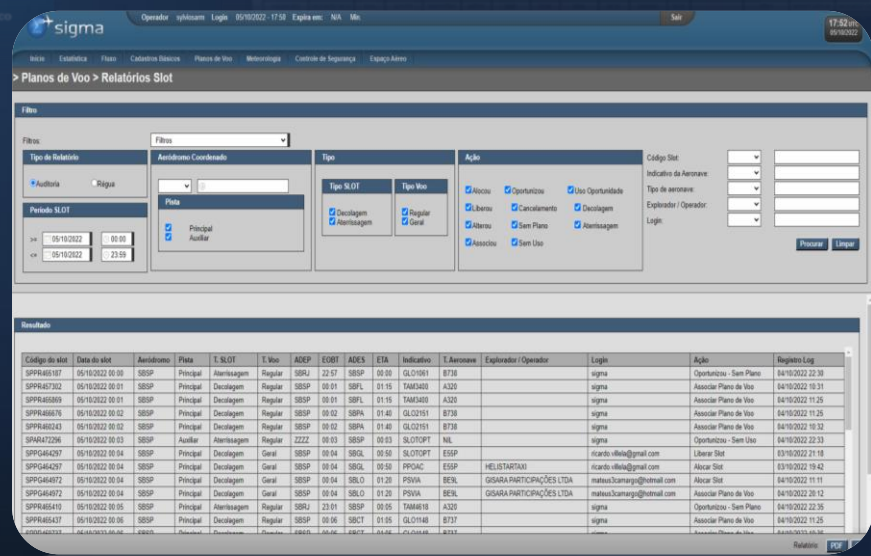
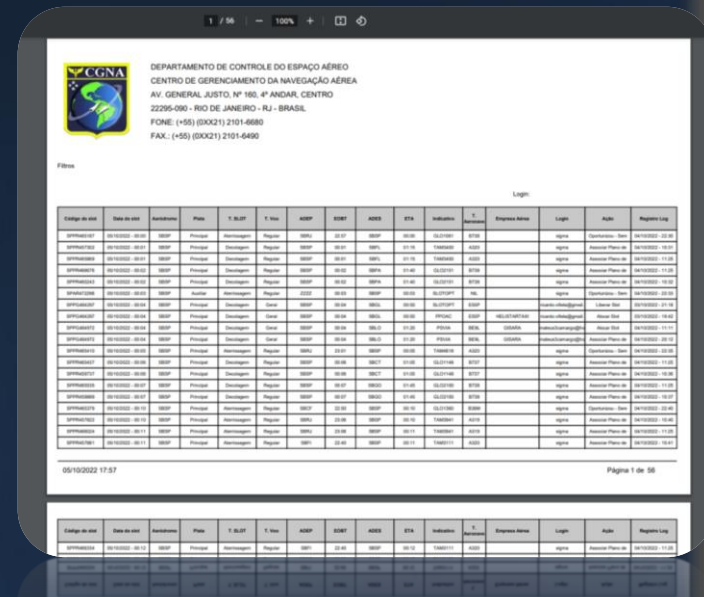


TATIC FLOW
Movimentação em Aeródromos

DEP	ARR	CDF	Total
5	2	0	7



TATIC A-CDM
Best Planned, Best Served



Filling flight plans via the internet.

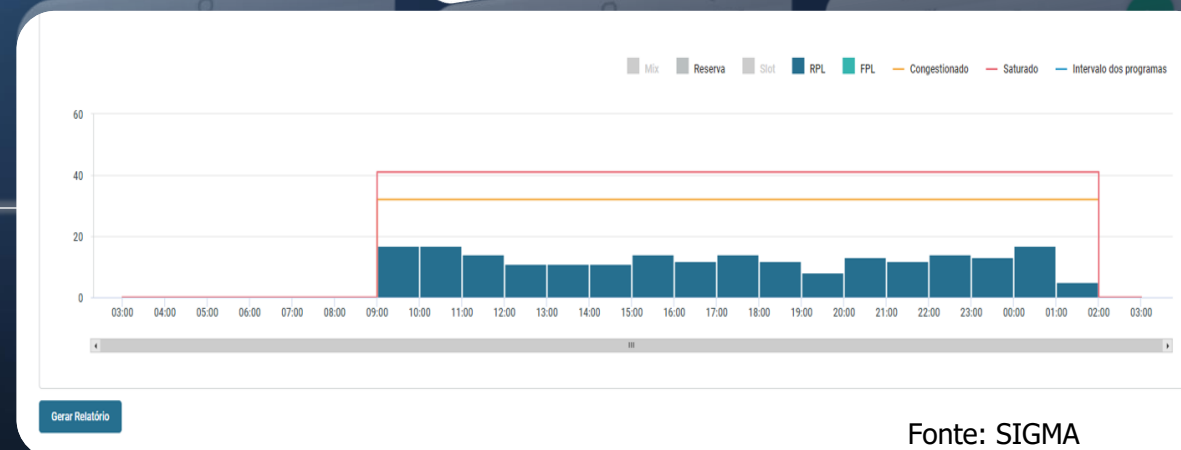
Possibility of fast generating reports and exporting.

Pilots can allocate their SLOT via the internet.
Possibility of consulting the allocations in real time.



Mobile devices and creation
of FPLBR make users
access faster.

Demand Forecast.



Single address for all
SISCEAB.

Centralization of the
demand.

Traceability and user
feedback.

System reliability.

CENTRALIZAÇÃO SIGMA SAIR

Parâmetros da centralização Consulta de mensagens ATS e RPL Correção de mensagens ATS Gráfico de mensagens transmitidas Empresa Aérea

Consulta de mensagens ATS e RPL

Tipo de mensagem ID PLANO Indicativo

RPL Insira o ID Plano Insira o indicativo de voo

EOBD Intervalo EOBT Intervalo ADEP ADES

10/11/2022 Insira o local de partida Insira o local de destino

LIMPAR FILTROS BUSCA REDUZIDA

BUSCAR

10 1 - 10(2393)

Aprovada Em Análise Descartada Nao Enviada Sem Resposta Recusada

Tipo	Indicativo	ADEP	ADES	EOBD	EOBT	ID PLANO	Detalhes	Timeline
RPL	TAM3686	SBBR	SBGO	10/11/2022	00:01	Z7GAUH0C		
RPL	AZU4811	SBGO	SBCY	10/11/2022	00:00	PU20M5JN		

RECEBIDO ENVIADO

DLA Data de Recebimento: 09/11/2022 - 14:39
PILOTO Originador: SBSPSIGX

DLA Data de Recebimento: 09/11/2022 - 14:44
Originador: SBRFYQYX

ACK Data de Recebimento: 09/11/2022 - 14:45
LEP Originador: SBREZQZX

ACT Data de Recebimento: 10/11/2022 - 12:35
LEP Originador: SBREZQZX

DLA Data de Envio: 09/11/2022 - 14:39
Destinatário(s): ["SBRFYQYX"]

DLA Data de Envio: 09/11/2022 - 14:45
LEP Destinatário(s): ["SBREZQZX"]

DLA Data de Envio: 09/11/2022 - 14:45
AMHS Destinatário(s): ["SBJEYSYX"]



Em operação no aeródromo

DEP	ARR	OVF	Total
5	2	0	7

DEP

Posta / Partida

TAM3923	1720	SBSP	F300	A319 M	20L	TAXI
---------	------	------	------	--------	-----	------

Páteo / Posta

Estacionado

PTB2337	1740	SBSP	F180	A375 M	20L	cPUSH
TAM3693	1735	SBGR	F300	A319 M	20L	cPUSH

Automatizados

GLO1031	1750	SBSP	F300	B738 M	20L	iSEQ
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Automatização

AZU2628	1745	SBGR	F270	E195 M	20L	IACC
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Total: 1

Última Atualização: 17:37:01

TATIC FLOW

Movimentação em Aeródromos



TATIC A-CDM

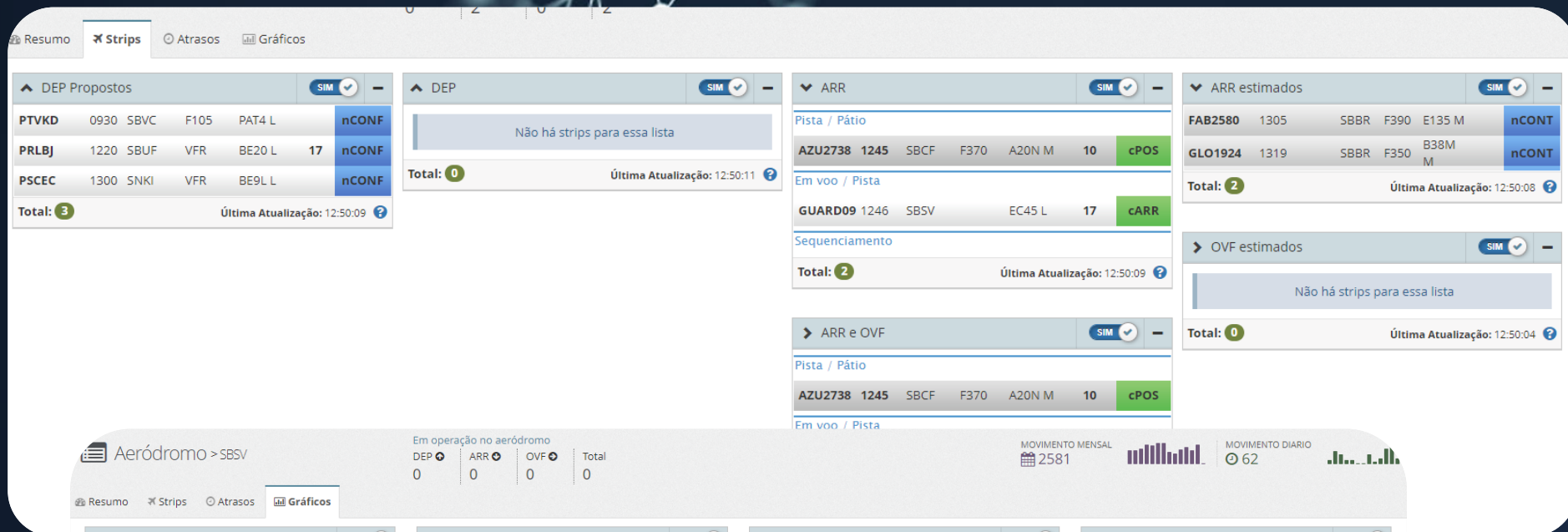
Best Planned, Best Served



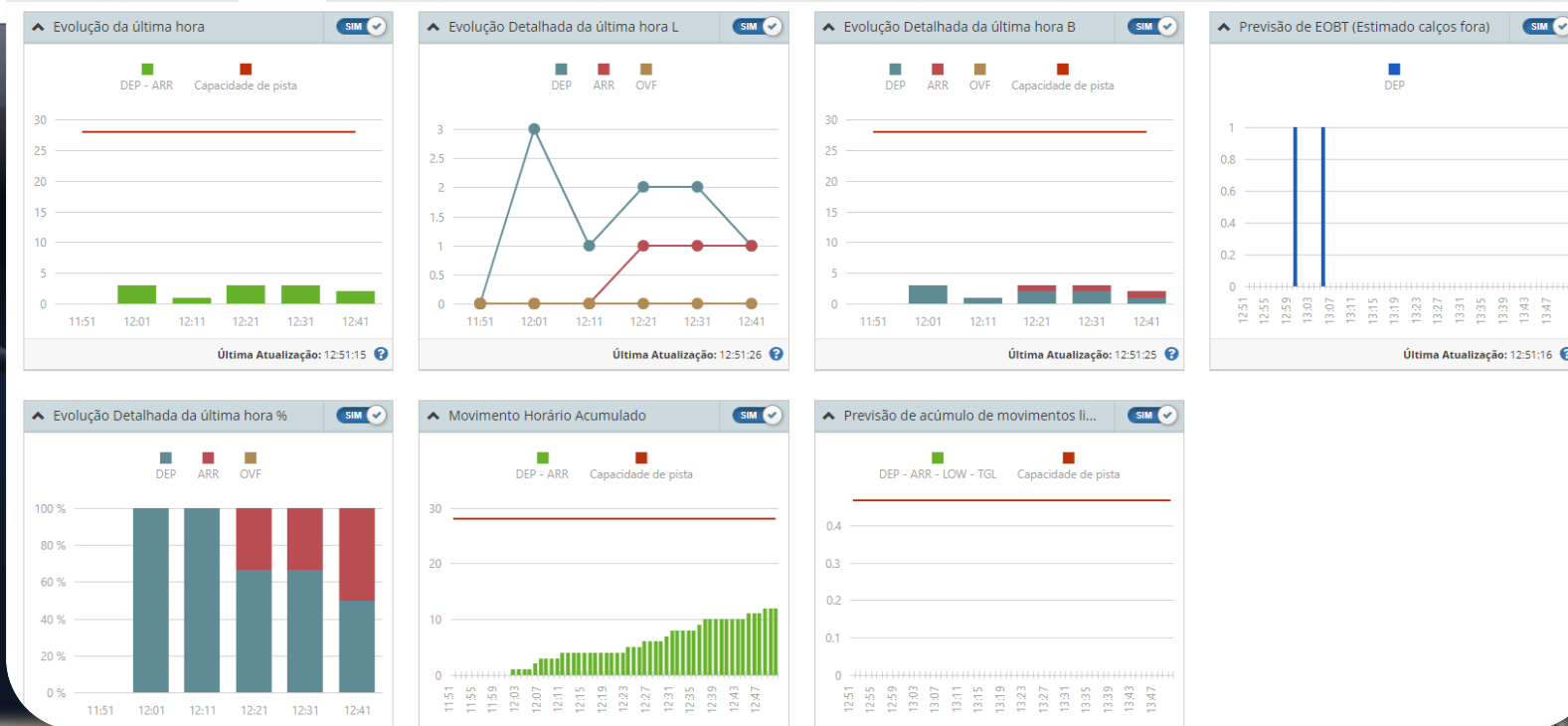
SBAF ☀️ VMC IF 26 IF 08, 26 Atrasos 0,00% Pista 0%	SBAR ☀️ VMC IF 12 IF 12 Atrasos 0,00% Pista 11%	SBBE ☀️ VMC IF 06 IF 06 Atrasos 0,00% Pista 20%	SBBH ☀️ VMC IF 13 IF 13 Atrasos 0,00% Pista 36%	SBBI ☀️ VMC IF 18 IF 18 Atrasos 0,00% Pista 0%	SBBR ☀️ VMC IF 11L, 11R IF 11L, 11R Atrasos 6,98% Pista 59%
SBBV ☀️ VMC IF 08 IF 08 Atrasos 0,00% Pista 4%	SBCF ☀️ VMC IF 16 IF 16 Atrasos 0,00% Pista 58%	SBCG ☀️ VMC IF 06 IF 06 Atrasos 0,00% Pista 33%	SBCO ☀️ VMC IF 13 IF 13 Atrasos 20,00% Pista 5%	SBCR ☀️ VMC IF 09, 27 IF 09, 27 Atrasos 0,00% Pista 0%	SBCT ☁️ IMC IF 15 IF 15 Atrasos 0,00% Pista 33%
SBCY ☀️ VMC IF 17 IF 17 Atrasos 0,00% Pista 27%	SBEG ☀️ VMC IF 11 IF 11 Atrasos 0,00% Pista 23%	SBFI ☀️ VMC IF 15 IF 15 Atrasos 0,00% Pista 6%	SBFL ☁️ IMC IF 14 IF 14 Atrasos 0,00% Pista 40%	SBFN ☀️ VMC IF 12, 30 IF 12, 30 Atrasos 0,00% Pista 5%	SBFZ ☀️ VMC IF 13 IF 13 Atrasos 0,00% Pista 35%
SBGL ☀️ VMC IF 15 IF 15 Atrasos 0,00% Pista 16%	SBGO ☀️ VMC IF 14 IF 14 Atrasos 25,00% Pista 53%	SBGR ☀️ VMC IF 10L IF 10R Atrasos 3,03% Pista 45%	SBJD ☀️ VMC IF IF Atrasos 100,00% Pista 0% IMP-36 IMP-18	SBJP ☀️ VMC IF 16 IF 16 Atrasos 0,00% Pista 22%	SBJV ☀️ VMC IF 33 IF 33 Atrasos 100,00% Pista 18%
SBKP ☀️ VMC IF 15 IF 15 Atrasos 0,00% Pista 70%	SBLS ☀️ VMC IF 13, 31 IF 13, 31 Atrasos 0,00% Pista 0%	SBME ☀️ VMC IF 06 IF 06 Atrasos 0,00% Pista 30%	SBMG ☀️ VMC IF 28 IF 28 Atrasos 0,00% Pista 10%	SBMN ☁️ IMC IF 09 IF 09 Atrasos 100,00% Pista 4%	SBMO ☀️ VMC IF 12 IF 12 Atrasos 0,00% Pista 0%
SBMT ☀️ VMC IF 12, H11 IF 12, H11 Atrasos 0,00% Pista 46%	SBNF ☁️ IMC IF 07 IF 07 Atrasos 0,00% Pista 25%	SBNT ☀️ VMC IF 12, 16L, 16R IF 12, 16L, 16R Atrasos 0,00% Pista 11% IMP-34R	SBPA ☀️ VMC IF 11 IF 11 Atrasos 0,00% Pista 50%	SBPS ☀️ VMC IF 10 IF 10 Atrasos 33,33% Pista 37%	SBPV ☁️ IMC IF 01 IF 01 Atrasos 0,00% Pista 0%

Monitoring
operations at
Brazilian
aerodromes.

Airport
weather
conditions.



Electronic
strip
system



Aerodrome
saturation
identification

A Condição Operacional de Pistas e Aeródromo

✈ Condição Opr/MET

SIM

Aeródromo

Interdição	Praticabilidade	Cond. Met.
DNT	PRT	VMC

A Pistas

Pista	DEP	ARR	PRT/IMP
10	✈	✈	PRT
17	✈	✈	PRT
17H	✈	✈	PRT
28	✈	✈	PRT
35	✈	✈	PRT

Última Atualização: 12:48:55 ?

✈ Instantâneo

SIM

✈ DEP



Previstas	3
Plano em autorização	0
Em acionamento	0
Em Taxi para pista	0
Na pista	1
Decoladas	0

Total: 8

Última Atualização: 12:49:05 ?

✈ ARR

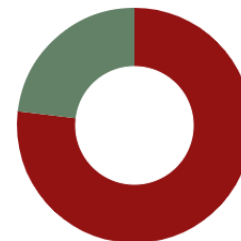


Previstas	2
Sob Controle	1
Pousadas	0
Em Taxi para posição	0
Aguardando posição	0
Estacionadas	1

✈ Volume nos últimos 60 minutos

SIM

Decoladas	10
Pousadas	3
TGL / LOW	0
Arremeteram	0
Retornaram ao Pátio	0
Cruzaram	0



Última Atualização: 12:49:00 ?

↕ Decolagens e Pousos nos últimos 60 minutos

Decolagens

SIM

PRNOW	1236	SDGX	VFR	P28A L	10	DEP
PRLDV	1231	ZZZZ	VFR	S76 L	17	DEP
GLO2045	1230	SBRJ	F380	B738 M	10	DEP
GLO1896	1226	SBCF	F360	B738 M	10	DEP
AZU4568	1211	SBKP	F380	A20N M	10	DEP
PTMBY	1207	SBMO	F135	E121 L	17	DEP

Pousos

SIM

AZU2738	1245	SBCF	F370	A20N M	10	cPOS
PRBTL	1237	SBSV	VFR	C150 L	17	BLKon
AZU2812	1223	SBRF	F380	E195 M	10	BLKon

Total: 3

Última Atualização: 12:49:05 ?

Arremetidas Recentes

Arremetidas

SIM

Não há strips para essa lista

Total: 0

Última Atualização: 12:49:05 ?

Airport
monitoring

ATFM CYCLE



CDM

Collaborative Decision Making



AIRPORTS



USERS



ATC

CDM - Collaborative Decision Making



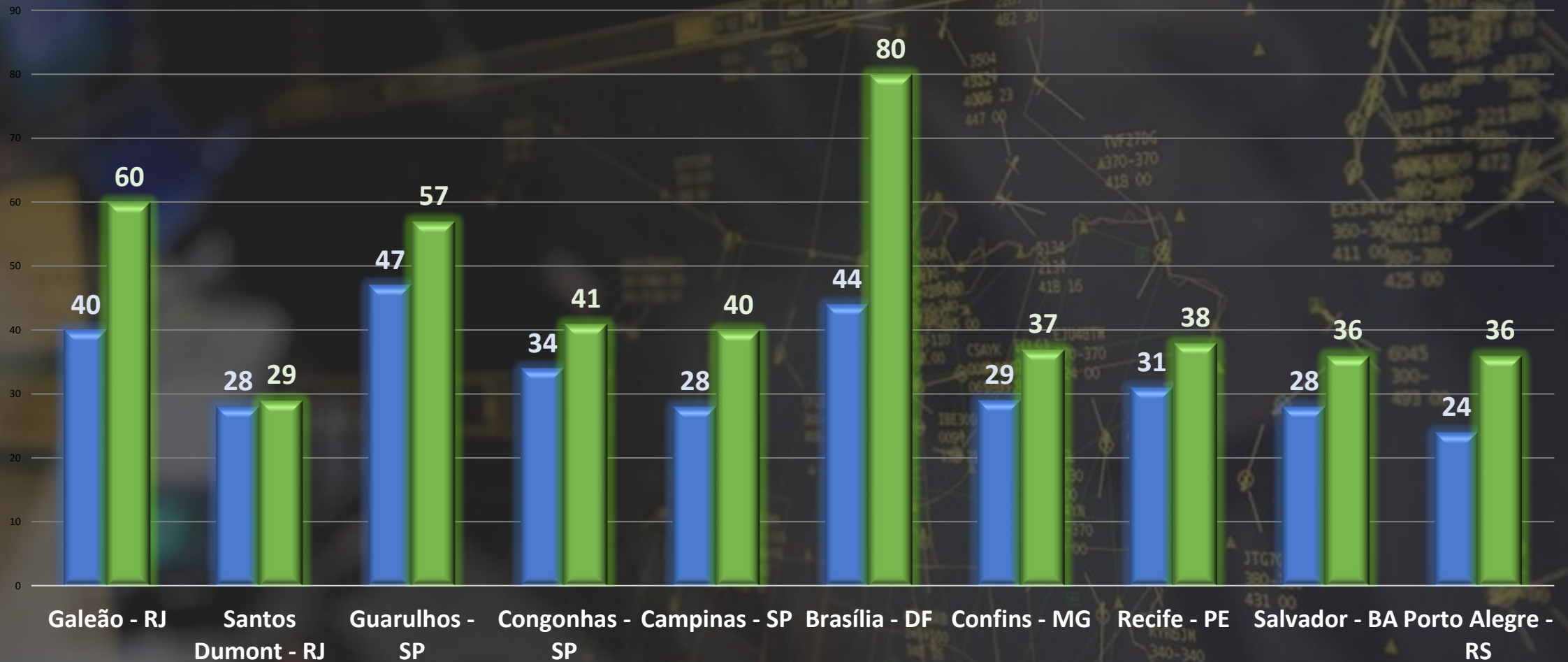
INTEGRATION

Collaborative Decision Making Cell



Airport hourly capacity

2012 2022



Source: SIGMA

Establishment of flexible
areas in Brazilian main
terminal airspaces during
the period of major
events.



RIO+20



AGILES

Increasing the efficiency of approach, landing and take-off operations at airports and airspace.

AGILE·GRU



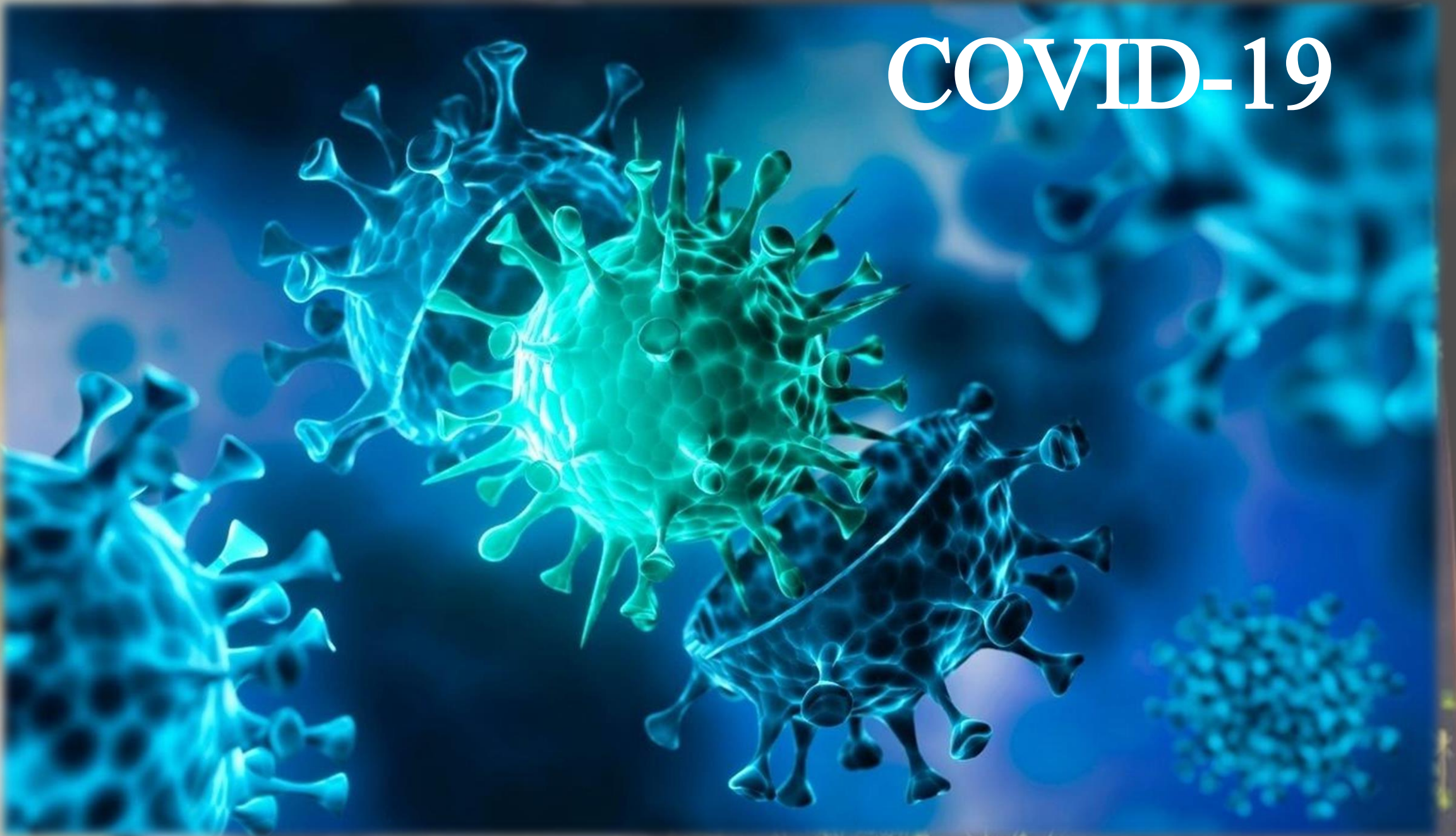
AGILE·RIO



AGILE·VCP

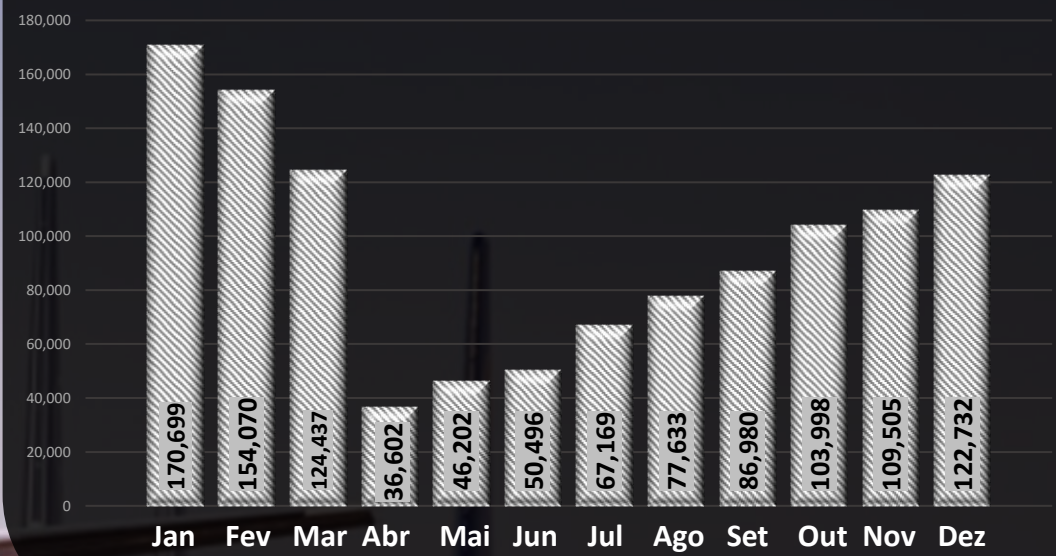


COVID-19





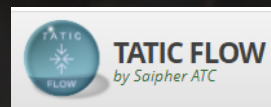
2020



Source: TATIC FLOW

OPERATIONS PLAN

-  **Airspace Optimization**
-  Identify capacity limiters
-  Follow the air traffic demand
-  Reduce existing restrictions applied due to high demand
-  Increasing airspace efficiency with DCT routes
-  Free route airspace
-  **New airspace sustainability**



Period: ABR 2020 to SET 2022



103.104.000 kg



325.808.640 kg



137.472.000,00

Azul 

 **LATAM**

GOL
Linhas aéreas inteligentes



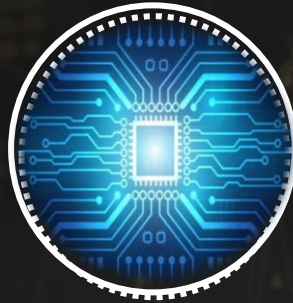






MANAGEMENT

INTEGRATED PLANNING AND
COLLABORATIVE DECISION
MAKING.



TECHNOLOGY

TOOLS PROVIDING AN AIRSPACE
WITH THE HIGHEST LEVELS OF
SAFETY AND EFFICIENCY.



TRAINING

FOCUS ON INTERNATIONAL BEST
PRACTICES AND CONTINUOUS
IMPROVEMENT OF AIR TRAFFIC
MANAGEMENT.



"It is not the most intellectual or strongest that survives but is the one that is able best to adapt and adjust to the changing environment in which it finds itself."

LEON C. MEGGINSON



THANK YOU

Organiser: **CANSO**

In coordination
with:





QUESTIONS AND ANSWERS

Organiser: **CANSO**

In coordination
with:



HOW NEW TECHNOLOGIES SUPPORT AIR TRAFFIC MANAGEMENT

Moderator: Scott Leis, Operations Programme Manager, CANSO

Presenters:

- **Timothy Arel**, ATO COO / LAC3 Chair, FAA / CANSO
- **Vern Payne**, Manager, CDM and International Operations, FAA
- **Duane Freer**, ATO Space Operations Manager at the Air Traffic Control System Command Center, FAA
- **Marcelo Franklin Rogrigues**, Commander of Air Navigation Management Center, CGNA, DECEA



THANK YOU

Organiser: **CANSO**

In coordination
with:

