

Collaborative Decision-Making and Operational Communication Via CADENA During Natural Disasters

For: The 6th Caribbean Aviation Safety Campaign & Workshop

Date: August 13 - 15, 2025

By: Alejandro Rodriguez, FAA ATO International CADENA Program Manager

Joe Hof, CGH Technologies support to CADENA

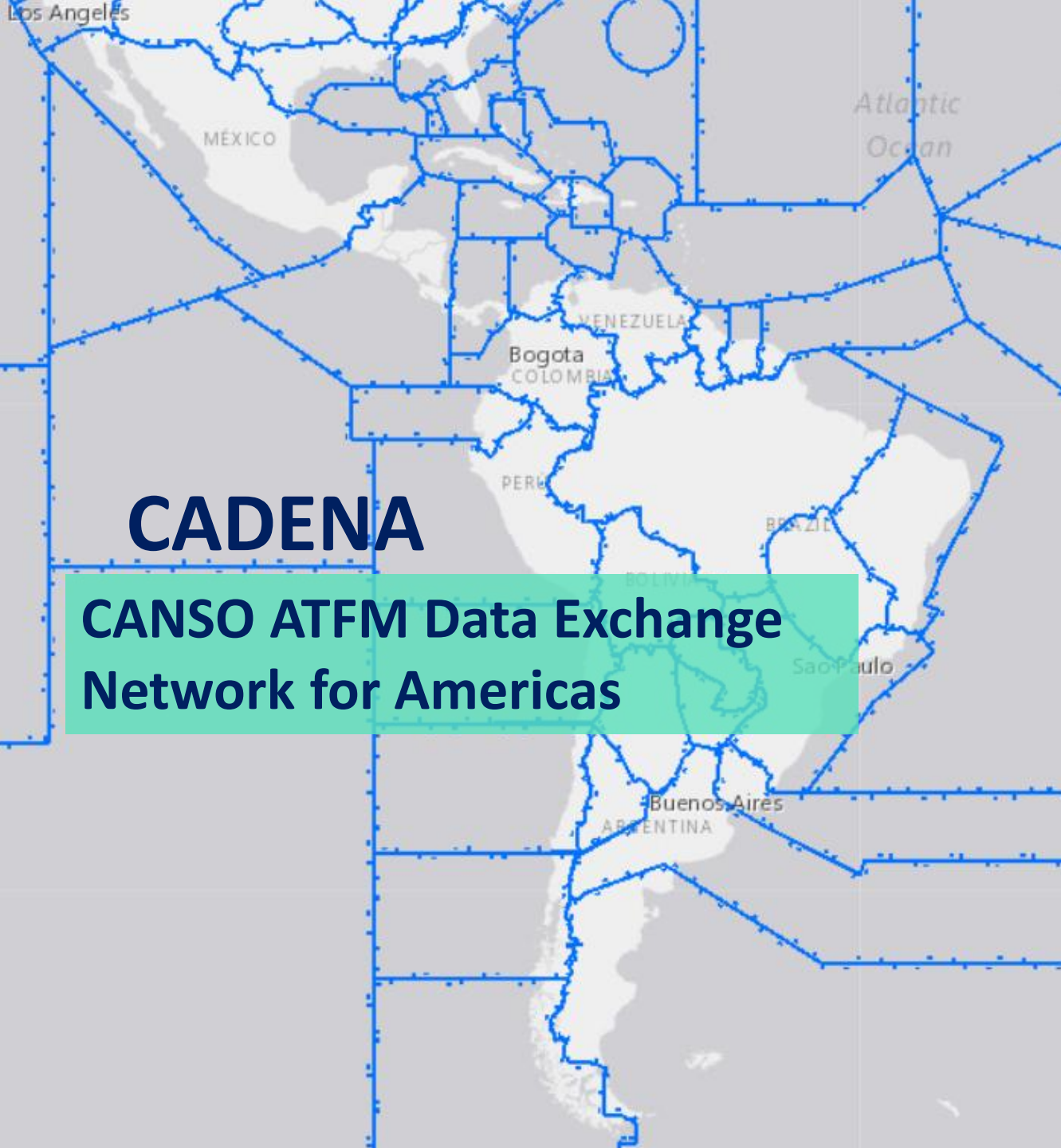
Al Castillo, CGH Technologies support to CADENA

Purpose

- Establish an operational Regional ATFM/CDM system
- Facilitate the development of optimized airspace

Objectives

- Exchange operational information
- Promote common situational awareness
- Enhance operational safety
- Improve operational efficiency



CADENA Regional Stakeholders

ANSPs

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

State/Territory/Group

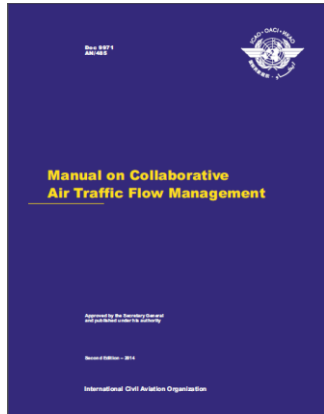
ANSA (Aruba)
 DGAC (Costa Rica)
 MWCR (Cayman Islands)
 TNCM (Sint Maarten)
 CNES (France)
 CARRG (Caribbean Aviation Resilience
 and Recovery Group)



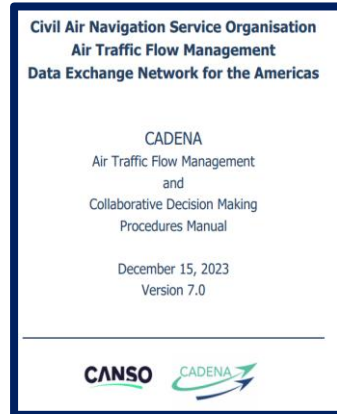
Procedures and Communications



In Concert with ICAO



ICAO Doc 9971



CADENA Proc. Manual

Email

Cadena OIS

Greetings from CADENA:

SENEAM Mexico has just submitted an Urgent Advisory as shown below.

ANSP/Airline Name: **SENEAM Mexico**

Type: **Urgent Advisory**

Start Date: **29/May/2025 20:34**

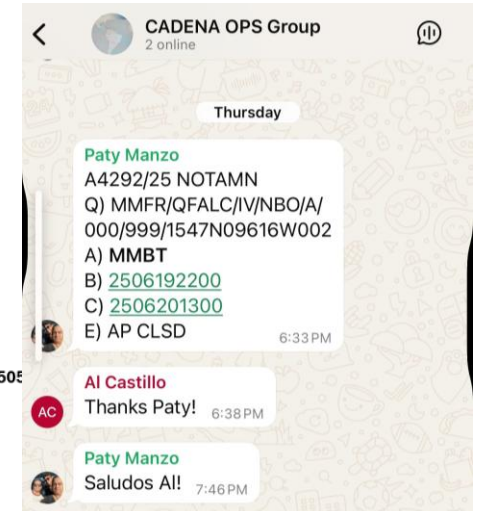
End Date: **29/May/2025 22:33**

Summary: **MMTL AIRPORT CLOSED**

Reason: **A320 ON RWY WITH NOSE GEAR MALFUNCTION**

Details: **A3621/25 NOTAMN Q) MMFR/QFALC/IV/NBO/A/000/999/2010N08740W002 A) MMTL B) 2505 AP CLSD**

WhatsApp



Web Conference



GoToMeeting



Microsoft Teams

zoom



Contingency Management

- 15 Contingency Events Check Lists
- ANSP / Airport Contingency Form
- ANSP / Airport Info Sharing Slide Template
- CADENA OIS – ANSP / Airport Advisory
- Ad Hoc Web Conferences
- Contingency Training

CADENA OIS

CADENA Operational Information System Web Page



CANSO **CADENA** Contingency Forms

Information Regional TMM 3 Active Reroutes 0 Delays 0 Advisories 21 Español

Regional Operations Plan

▼ TTCAA Trinidad & Tobago: 23/Jun/2025 14:00

- Anticipated Demand Information MEDIUM
- TMM Planned NONE
- Urgent Advisory NONE
- Weather TTZP SIGMET 3 VALID 231130/231530 TTPP TTZP PIARCO
- Volcanic Ash NONE
- Constraints A0815/25 NOTAMN TAPA AD HOURS OF SERVICE CHA
- Special Events NONE
- Equipment Outages 0506/25 NOTAMR A0190/25 TDPD NDB 'DOM
- Other NONE

▼ ECNA Cuba: 23/Jun/2025 12:48

- Anticipated Demand Information MEDIUM
- TMM Planned 20 MIT MMUN ARR VIA SHARQ/CANOA FM 1330/20

THE NEXT CADENA PLANNING WEB CONFERENCE WILL BE HELD ON THURSDAY, JUNE 26, 2025 AT 1400 UTC UTC: 23/Jun/2025 16:13:58

Exchange:

- MS documents (Word, PPT, Excel)
- Text, pdf, and picture

Enter:

- **ATM Solutions**
- **Advisories/Notices**
- **Airport delay**
- **ATFM Daily Plan**
- **Calendars**
- **Route Requests**
- **Chat**

Store:

- Routes (PASA, UPR)
- Forms (Contingency)
- Capacity info (Airport/Airspace)

<https://www.cadenaais.org> Public domain for read only. Member domain to read and upload information.

Features in the CADENA OIS



CANSO

CADENA

Volcanic Ash

Information

Regional TMM 7

Active Reroutes 0

Delays 0

Advisories 23

Español

Regional Operations Plan

TTCAA Trinidad & Tobago: 26/Jun/2025 15:28

Anticipated Demand Information MEDIUM

TMM Planned (A0782/25 NOTAMN Q) TTZP/QPFCA/IV/NBO/AE/00

Urgent Advisory NONE

Weather NO SIGNIFICANT WEATHER

Volcanic Ash NONE

Constraints A0866/25 NOTAMN Q) TTZP/QFALC/IV/NBO/A/000/99

CADENA OIS

Contingency Forms

ANSP	Upload Time	File Name
ECNA	24/Feb/2025 14:53	ECNA's re routing proposal for Space X Launch - CORREG

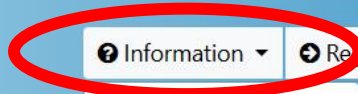
CADENA Space X 8th rocket Launch

Monday – February 24th, 2025

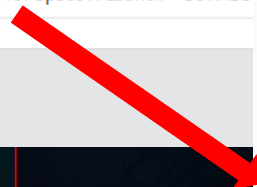
RE-ROUTING PROPOSAL FOR CANOA FLIGHTS

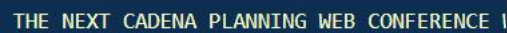
- Route segment M/UM346 CANOA-ULARI NOT AVBL. Re-routing MAXIM G/UG765 EMOVI DCT ULARI THEN FPL AND ULARI DCT EMOVI G/UG765 MAXIM.
- Route segment B/UB646 CANOA-LENUK NOT AVBL. Re-routing MAXIM DCT LENUK THEN FPL AND LENUK DCT EMOVI G/UG765 MAXIM.
- Route segment B/UB879 CANOA-WALKY NOT AVBL. Re-routing MAXIM DCT WALKY THEN FPL.

THE NEXT CADENA PLANNING WEB CONFERENCE WILL BE HELD ON MONDAY, JUNE 30, 2025 AT 1400 UTC



- Master Slide Deck
- ADP Link Files
- Reroute Repository
- Contingency Form
- Airport Capacity
- Sector Capacity
- Participant List
- Acronyms
- LOA List





Features in the CADENA OIS



CANSO

CADENA

CADENA HQ

PASA Route Requests

Español

Chat

FR24

Help

Setting

▼ Create new PASA Route Request

↺

To ANSP(s)

CADENAHQ-Joe Hof

Requestor

COPA SOC / Avoid Weather

City Pair

MPTO KMIA

En-Route

☐

Flight #

CMP334

Flight Date

26/Jun/2025

Dept Time

11

:

30

UTC

Route

MPTO SIMAN MORLI UA321 BONOS UZ403 SELEK UL345 IKBIX KMIA

Plot

Save as Template

Submit

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A

CADENA:

Transparency

Inclusiveness

Collaboration



- Working with the FAA Office of International Affairs (API)
- Caribbean Aviation Resilience & Recovery Group (CARRG) is a CADENA member
- **Aviation Infrastructure and Resiliency Efforts**
 - CADENA has established an infrastructure to support regional ATFM/CDM operations
 - CADENA has established proven contingency management procedures including quarterly training
 - CADENA is willing and ready to support the UN's objective of *"Improve preparation among the region in the wake of emergency response and ensure a safe operating environment for disaster response operations."*

CADENA OIS

ATFM Daily Plan

Information

Regional TMM

Active Reroutes

Delays

Advisories

ANSPs

Airlines

Airports

Mexico City International

CANCUN International

Cayman Islands

TTCAA Trinidad & Tobago

[Click here to open ANSP NOTAM Page](#)

ATFM Daily Plan Updated - 23/Jun 14:00

Anticipated Demand Information MEDIUM

TMM Planned NONE

Weather TTZP SIGMET 3 VALID 231130/231530 TTPP TTZP PIARCO FIR EMBD TS O W06147 - N1058 W06054 - N1006 W05406 - N0920 W05400 TOP ABV FL420 MOV

Constraints A0815/25 NOTAMN TAPA AD HOURS OF SERVICE CHANGED DUE TO SA0782/25 NOTAMN TAPA FLOW CONTROL FOR ALL TFC ENTERING V.C. BIRD STATE HELICOPTERS, DLY 0300 - 1100 TILL 2509171100.....A0448/25 NOTAMN TFI A0007/24 TFFR RWY 12/30 CLSD TO ALL TFC EXCEPT STATE HELICOPTERS; DLY: 030 2506292359.....A0604/25 NOTAMN TFFF RWY 10/28 CLOSED DUE TO WIP, SEE NC AREA CENTRED ON CIRCLE 144119N0610526W, SEE NOTAM FOR DETAILS, MON-S 1200-2359; TILL 2509112359.....A0830/25 NOTAMN TLPL AD HR OF OPS REDUCE OUTSIDE OF SKED OPR HR; SEE NOTAM FOR DETAILS, TILL 2508310100.....A0786, A0137/25 TTZP DUE TO LIMITED VHF COVERAGE IN THE NORTH SECTORS OF TTZP FREQ IN-USE AND RELAY VOICE REPORTS VIA NEW YORK HF TILL 2507262359

Special Events NONE

Equipment Outages 0506/25 NOTAMR A0190/25 TDPD NDB 'DOM' 273.0KHZ U/S

Volcanic Ash NONE

Other NONF

CADENA Collaboration during Hurricane Beryl



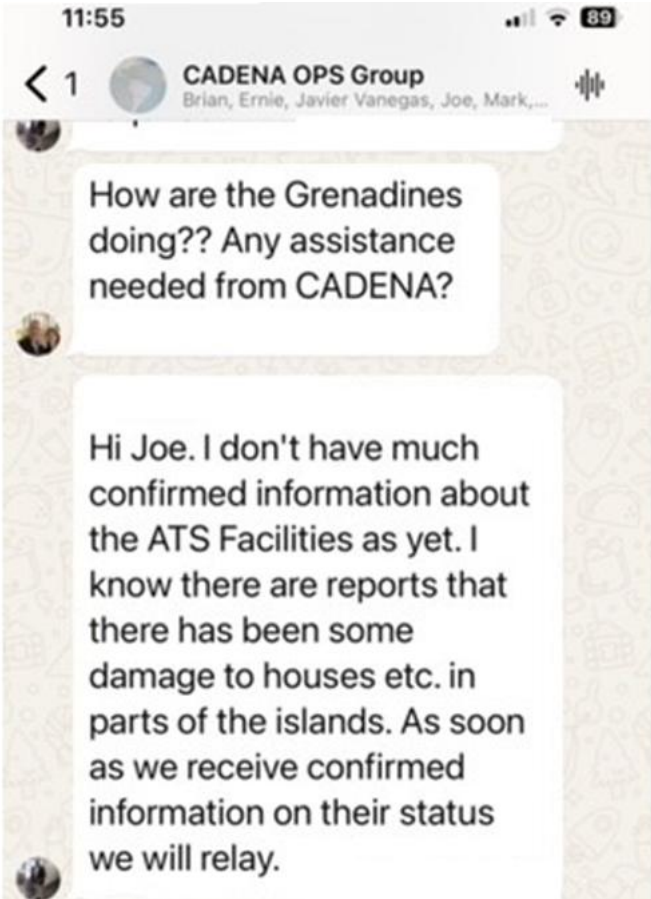
- June 30 – July 11, 2024
- Category 5
- It had a very significant impact on the region



Hurricane Beryl: CADENA communication and coordination



Chat – CADENA WhatsApp Ops Group



Email - CADENA Email List

From: Hof, Joe jhof@cghitech.com
Sent: Tuesday, July 2, 2024 3:41 PM
Subject: Update: Kingston ACC - No ATC Services - starting 1200 UTC on July 3

Good afternoon to all!

CADENA has been advised by the Kingston FMU that they will not be able to provide ATC services in their FIR starting at 1200 UTC on July 3.

A0253/24 – NO ATS AVBL IN KINGSTON FIR DUE HURRICANE BERYL. ATS CONTINGENCY ROUTING PROCEDURE NOT IN EFFECT. CAYMAN TMA NOT AFFECTED. 03 JUL 12:00 2024 UNTIL 04 JUL 11:59 2024. CREATED: 02 JUL 18:50 2024

The attached Planned Airway System Alternative routes may be used to avoid the Kingston FIR to the east and to the west.

	A	B	C	D	E
1	ORIG	DEST	NORTHBOUND		
2	VARIOUS	VARIOUS	... LENOM DCT DEPSI ...	AVOID MKJK - EAST	THROUGH PORT-AU-PRINCE
3	VARIOUS	VARIOUS	... LENOM DCT MODIT...	AVOID MKJK - EAST	THROUGH PORT-AU-PRINCE
4	VARIOUS	VARIOUS	... LENOM DCT URLAM ...	AVOID MKJK - EAST	THROUGH PORT-AU-PRINCE
5					
6	VARIOUS	VARIOUS	...SPP FALLA SELEK UCL ...	AVOID MKJK - WEST	

MEVA and Grand Cayman

Hof, Joe

To: Willi.CTR.Turner@faa.gov; rg.ecna@gmail.com; Alberto.Romero.Flores@aviacioncivil.gob.ec; alevaldes28@hotmail.com; arvivi@gmail.com; +152 others

Wed 7/3/2024 4:01 PM

Good afternoon to all !

CADENA has been advised by the FAA International Program Office that Grand Cayman will be powering down their MEVA equipment ahead of Hurricane Beryl.

The timing of the shutdown is after the last flight departs this evening ... approximately 2300 UTC.

Daily Planning Web Conferences

 **LATIN AMERICA AND CARIBBEAN**

 **SHAPING OUR FUTURE SKIES**



CADENA Hurricane Beryl Planning Web Conference

June 30, 2024
1800 UTC

Daily from June 30 to July 5, 2024

Airport/ATC	NOTAM #	Closing	Re-opening
TLPC	A1100/24	30 Jun 2300Z	02 Jul 1600
TLPL	A1099/24	30 Jun 2300Z	02 Jul 1600
TVSM	A1106/24	30 Jun 2100Z	02 Jul 1900
TVSU	A1101/24	30 JUN 2000Z	02 JUL 1900
TVSB	A1102/24	30 JUN 2000Z	02 JUL 1900
TVSC	A1103/24	30 JUN 2200Z	02 JUL 1900
TVSA	A1104/24	JUN 30 2200	JUL 02 1900
TGPY	A1108/24	JUN 30 2200	JUL 02 1400
TBPB	TBC	JUN 30 2300	



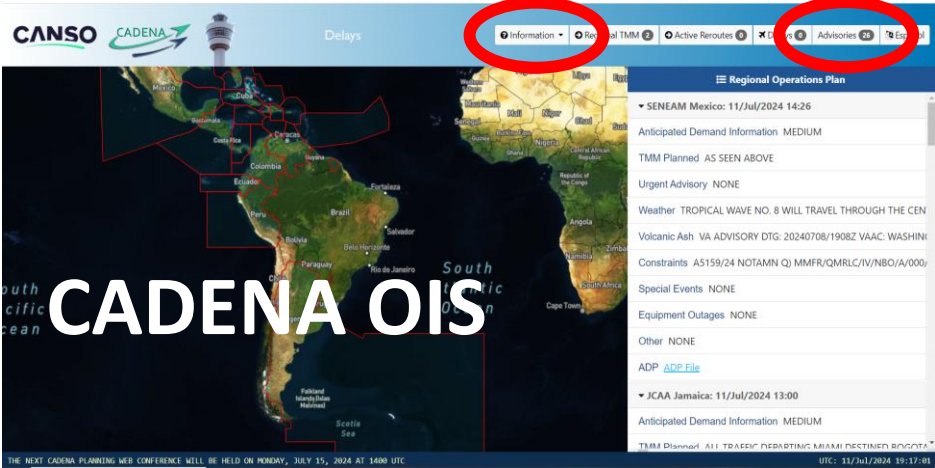
Hurricane Beryl: CADENA communication and coordination



Information

- Master Slide Deck
- ADP Files
- Route Repository
 - PASA Routes

Advisory



Route Coordination

From: Hof, Joe jhof@cghtech.com
Sent: Wednesday, July 3, 2024 1:32 PM
Subject: RE: CADENA PASA Routes
Good afternoon to all!

Based on the offload volume of the PASA Routes through the

Northbound: SPP DCT PEL

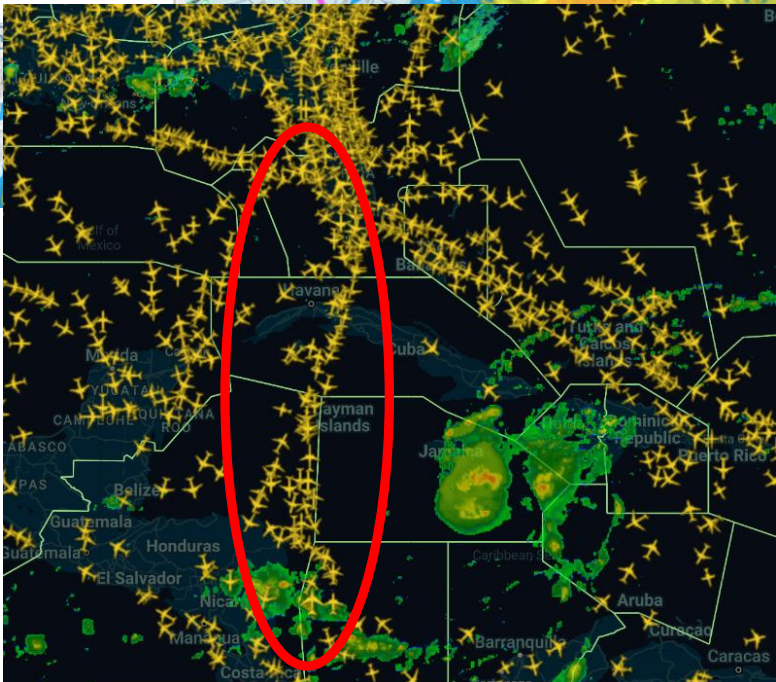
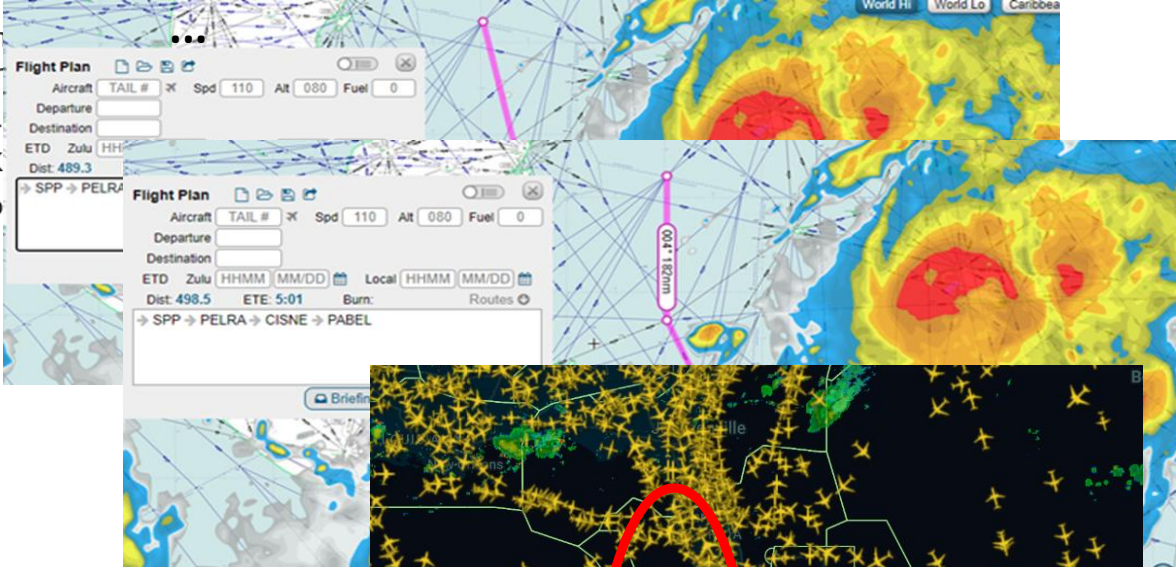
Southbound: SELEK DCT K

Thank you very much for your
Sincerely,
Joe

COCESNA: when SELEK becomes unavailable

Option 1: ... SPP DCT PELRA DCT PABEL ...

Option 2: ... SPP DCT PELRA DCT CISNE DCT PABEL



CADENA Collaboration during La Soufrière Volcano in Saint Vincent and the Grenadines



La Soufrière volcano became visibly active in December 2020, before a full-blown eruption on 9 April 2021



Event was communicated via:

- CADENA WhatsApp Ops Group
- CADENA OIS Urgent Advisories and the associated push email notifications
- CADENA Ops Group email notifications
- Twice-weekly Operational Web Conferences
- Piarco ACC Flow Management Unit updates posted on the CADENA OIS

CADENA Status Updates during La Soufrière Volcano Eruption

Status Briefing
uploaded to the
CADENA OIS

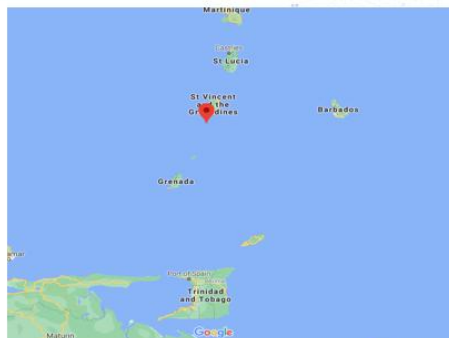


CADENA



CADENA

LA SOUFRIERE OVERVIEW



LA SOUFRIERE VOLCANO UPDATE – 1400 UTC – APRIL 10, 2021

PIARCO UTA/CTA/FIR GENERAL
INFORMATION

EQUIPMENT OUTAGES	TMMS PLANNED	REMARKS
TBPB A0539/21 NOTAMR A0534/21 C) TTZP/QNMW/IV/BO/AE/000/99 9/1304N05929W175 A) TBPB B) 2104092325 C) 2104101600 E) DVOR/DME 'BGI' 112.7 MHZ CH74X COMPLETELY WITHDRAWN. DO NOT USE	REROUTES WILL BE IMPLEMENTED TACTICALLY PLEASE REFER TO SLIDE 7 FOR ROUTE IMPACTS	NONE



LA SOUFRIERE VOLCANO UPDATE – 1400 UTC – APRIL 10, 2021

PIARCO UTA/CTA/FIR GENERAL
INFORMATION

DEMAND	Weather	Staffing
Low to Medium	VOLCANIC ASH – Affecting large portion of the Piarco UTA/CTA/FIR. Please see SIGMET on next page. No other Significant Weather in the forecast within the Piarco FIR.	Adequate





Tulum International Airport May 29, 2025



“A landing gear malfunction forced Tulum International Airport to halt operations on May 29, grounding flights and diverting air traffic. Authorities cleared the runway within hours, yet passengers faced delays and cancellations.” (The Tulum Times, 30 May 2025)

CADENA Collaboration During an Airport Closure

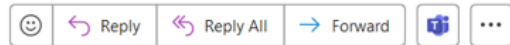


Urgent Advisory posted on the CADENA OIS

SENEAM Mexico has just submitted a new Urgent Advisory



CADENA <system@cadenaais.org>
To: system@cadenaais.org



Thu 5/29/2025 4:39 PM

Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

Cadena OIS

Greetings from CADENA:

SENEAM Mexico has just submitted an Urgent Advisory as shown below.

ANSP/Airline Name: **SENEAM Mexico**

Type: **Urgent Advisory**

Start Date: **29/May/2025 20:34**

End Date: **29/May/2025 22:33**

Summary: **MMTL AIRPORT CLOSED**

Reason: **A320 ON RWY WITH NOSE GEAR MALFUNCTION**

Details: **A3621/25 NOTAMN Q) MMFR/QFALC/IV/NBO/A/000/999/2010N08740W002 A) MMTL B) 2505292034 C) 2505292233 E)**

AP CLSD



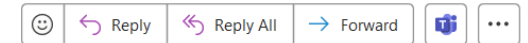
CADENA email to stakeholders

Tulum International Airport (MMTL) Closed



Castillo, Al

To: gustavo.garcialemos@aerolineas.com.ar; . AMC Control de Vuelos;
9-ATOR-HQ-ATCSCC-AT-PERTI (FAA); A4A Rep - ATCTCC; +186 others
Cc: Rodriguez, Alejandro (FAA)



Thu 5/29/2025 4:49 PM

This message was sent with High importance.

Good Afternoon to All,

SENEAM has issued an Urgent Advisory. Please see the details below:

SENEAM Mexico has just submitted an Urgent Advisory as shown below.

ANSP/Airline Name: **SENEAM Mexico**

Type: **Urgent Advisory**

Start Date: **29/May/2025 20:34**

End Date: **29/May/2025 22:33**

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Details: **A3621/25 NOTAMN Q) MMFR/QFALC/IV/NBO/A/000/999/2010N08740W002 A) MMTL B) 2505292034 C) 2505292233 E) AP CLSD**

Best Regards,

Al Castillo

Al Castillo

Sr ATM Specialist

CGH Technologies, Inc.

400 Virginia Ave, SW Suite 700B

CADENA Space Launch Support for the LAC Region

Al Castillo

Outline

- High level Space Launch Overview
- CADENA Space Launch Process
- Questions

Sample Launch Information

Mission Planning - ULA USSF-106 (A1055)
Cape Canaveral Space Force Station
FAA ATO Space Operations



Federal Aviation
Administration

Sample Launch Information

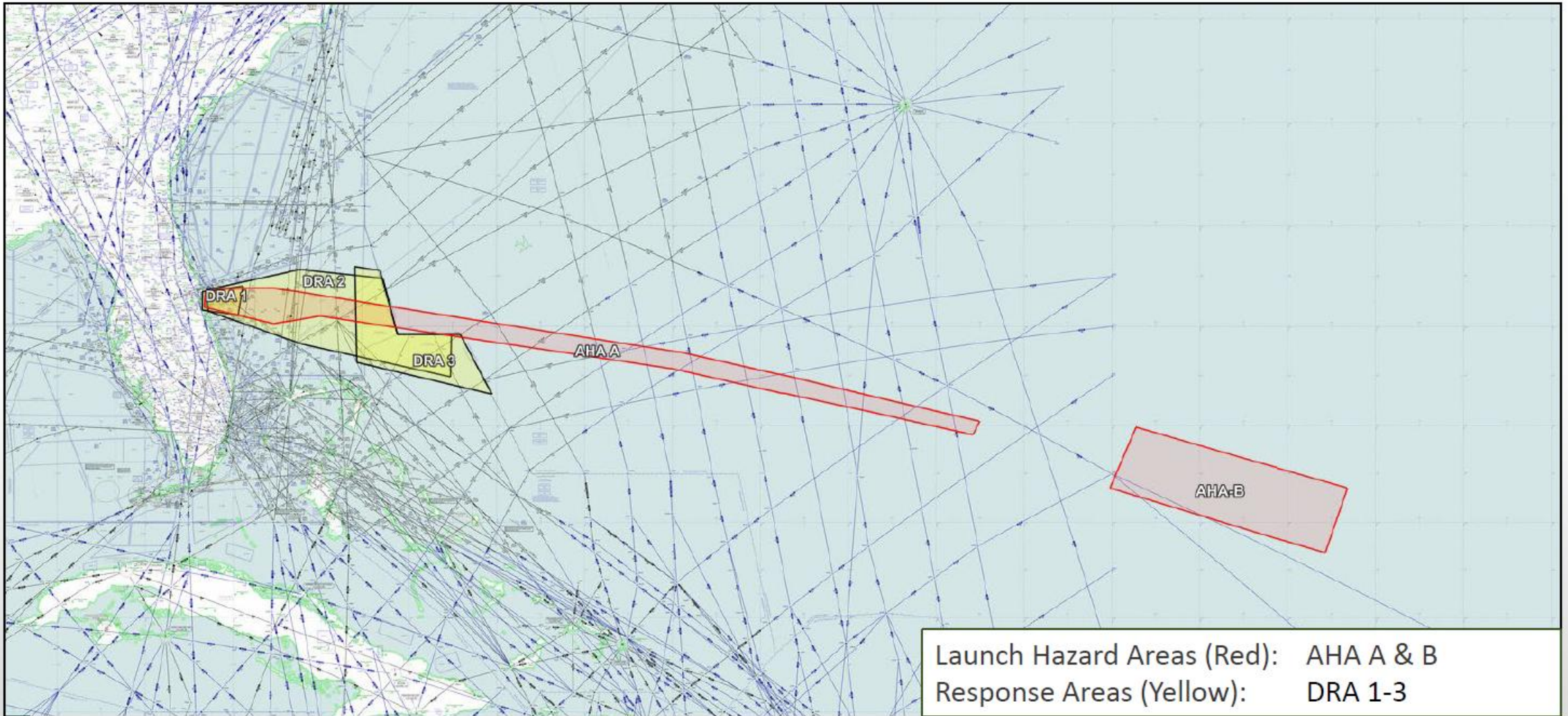
Launch Schedule

Primary/Backup Days	Dates	AHA A/B
Primary Launch Day	12 Aug	2359Z-0204Z
Backup Launch Day	13 Aug	2355Z-0200Z
Backup Launch Day	14 Aug	2351Z-0156Z
Backup Launch Day	15 Aug	2348Z-0153Z
Backup Launch Day	16 Aug	2344Z-0149Z
Backup Launch Day	17 Aug	2340Z-0145Z
Backup Launch Day	18 Aug	2336Z-0141Z



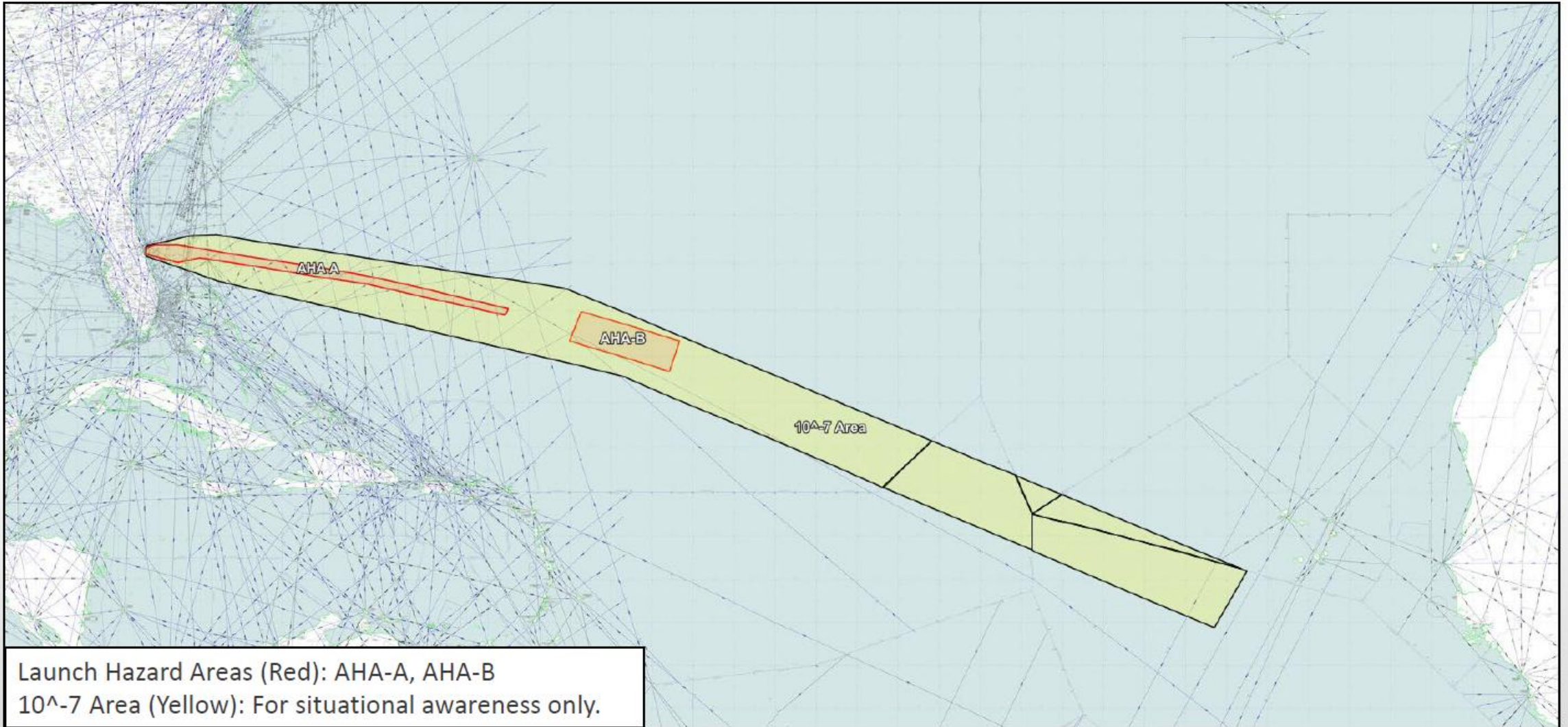
Sample Launch Information

Launch Hazard Areas

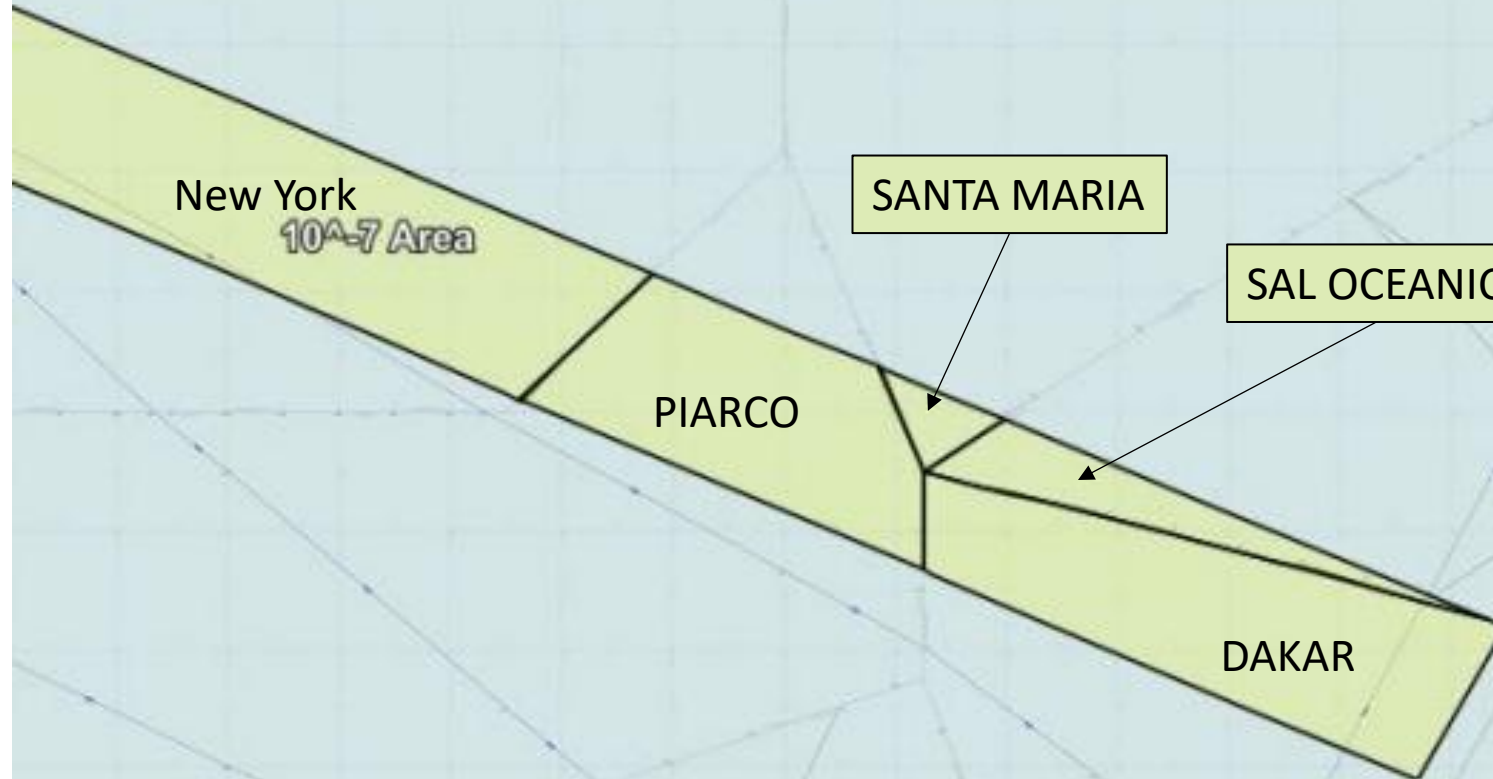


10⁻⁷ Area

Sample Launch Information



Sample Launch Information



Hazard Area Coordinates

Sample Launch Information

	AHA-A	AHA-B
Aircraft Hazard Area (AHA)	2823N 08040W 2840N 08039W 2845N 08014W 2846N 07907W 2824N 07628W 2754N 07252W 2728N 06946W 2703N 06743W 2633N 06517W 2605N 06301W 2548N 06310W 2616N 06532W 2645N 06800W 2708N 06957W 2728N 07226W 2752N 07525W 2813N 07802W 2803N 07905W	2442N 06003W 2557N 05928W 2519N 05701W 2442N 05439W 2322N 05509W 2402N 05736W



CADENA Space Launch Process

Initial ANSP Space Launch Meeting: CADENA organizes and facilitates the initial presentation of the launch details by FAA ATO Space Ops to the regions ANSPs.

ANSP Space Launch Coordination Meeting: CADENA organizes and facilitates a meeting in which all ANSPs present their Traffic Management Plan (e.g., Miles in Trail, re-routes, time no more flights will be accepted, etc.).

CADENA Space Launch Stakeholder Briefing:

- ATO Space Ops provides the launch details to the stakeholders.
- ANSPs provide stakeholders with their Traffic Management Plan.
- Stakeholders are provided an opportunity to ask questions.

International Carrier Notification:

- With the aid of the FAA ATCSCC and IATA, CADENA identifies international carriers forecast to be impacted by the launch.
- IATA and EUROCONTROL assist CADENA in notifying the identified carriers of the space launch information.

Live Space Launch CADENA Webex: ANSPs and Stakeholders join for detailed live launch information.

Questions

Thank you!

Joining and Participating in CADENA is Easy !

- ✓ Just contact any of the following individuals via email
- ✓ We can answer your questions and can schedule an Introduction to CADENA briefing for you and your team

- Javier Vanegas: javier.vanegas@canso.org
- Alex Rodriguez: alejandro.rodriguez@faa.gov
- Al Castillo: acastillo@cghitech.com
- Joe Hof: jhof@cghitech.com





THANK YOU



SHAPING OUR FUTURE SKIES