

CADENCE OIS

(CANSO ATFM Data Exchange Network
for Cooperative Excellence

Operational Information System)

For: Cross Polar Working Group

Date: September 14, 2021



Ms. Midori Tanino

Co-Chair CADENCE Task Force

FAA



Mr. Joe Hof

Co-Chair CADENCE Task Force

CGH Technologies

Introduction

The CANSO ATFM Data Exchange Network for Cooperative Excellence Task Force (CADENCE TF) is the newest member of the OSC Operations Programmes.



Purpose of CADENCE TF

- The CADENCE TF is a strategic initiative designed to help develop, or enhance, a network for operational coordination and information sharing among air navigation service providers (ANSPs) in flight information regions (FIRs) around the world.

Background of CADENCE - CADENA

The core capabilities offered by the CADENCE TF are based on the successful operational work accomplished by the CANSO ATFM Data Exchange Network for Americas, **CADENA**.

- CADENA is a multi-nodal, regional ATFM/CDM system operated under the policy of transparency, inclusiveness, collaboration, and simple-to-achieve solutions.
- CADENA became operational quickly and all ANSPs can participate with relatively small investment.
- CADENA's effectiveness to improve ATFM/CDM is proven in the Latin America and Caribbean Regions.

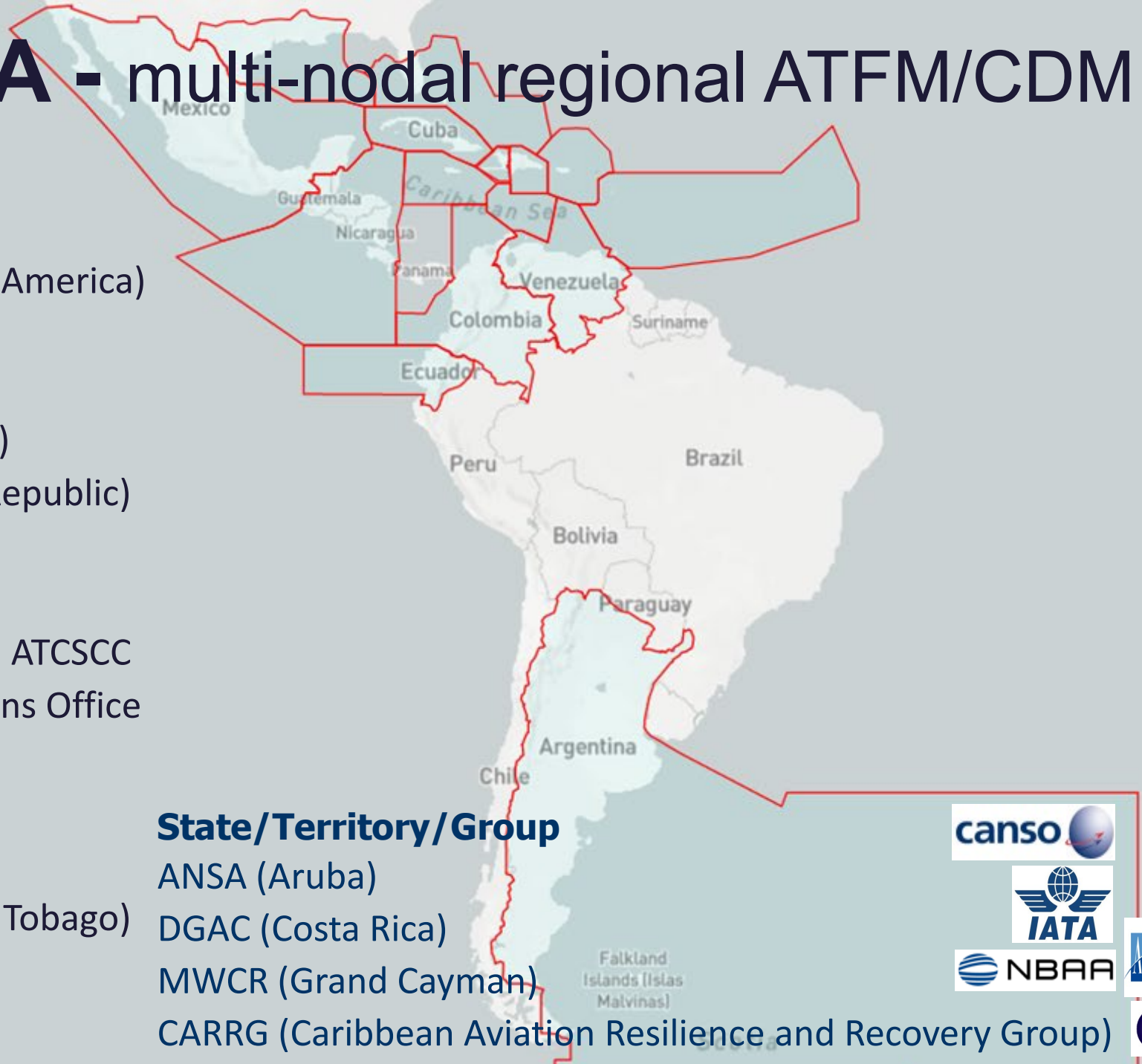
CADENA - multi-nodal regional ATFM/CDM

ANSPs

- EANA (Argentina)
- COCESNA (Central America)
- UAEAC (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

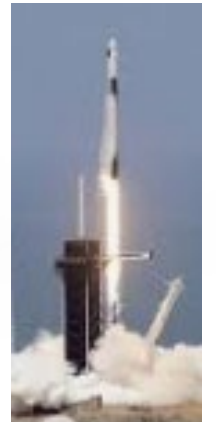
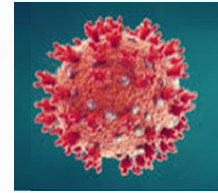
- ANSA (Aruba)
- DGAC (Costa Rica)
- MWCR (Grand Cayman)
- CARRG (Caribbean Aviation Resilience and Recovery Group)



Background of CADENCE - CADENA



CADENA has established effective ATFM/CDM in the Latin America and Caribbean Regions.



- CADENA has proven that the CADENA OIS web application is an effective means to exchange operational information.
- The value of information exchange and collaboration is most recognized during irregular operations.
 - Reduced MIT, CO2, and airlines' operational costs.

Background of CADENCE - CADENA

CADENA became operational quickly and all ANSPs can participate with a small investment

- 2016 Jun – Established
- 2016 Dec – Started regional ATFM/CDM Operational Planning Web Conferences
- 2017 Aug – Initial version of the CADENA Operational Information System (OIS) launched



You need only:

1. Computer
2. Internet Access
3. Human Resource

Background of CADENCE LOA between CGH Technologies and CANSO



CANSO and CGH Technologies virtual signing –
CADENCE (March 22, 2021)

CGH Technologies built the CADENA OIS
under the contract with the FAA.

CADENA OIS technology has been transferred
from the FAA to CGH Technologies.

- The agreement secures the provision of a purpose-built collaborative software platform based on the successful regional initiative, CADENA.
- CADENA OIS version 3.2 is the baseline for the CADENCE OIS v1.0.
- The baseline CADENCE OIS is offered at no cost to regions and functional groups for 20 years.
- CGH Technologies will support the CADENCE OIS for 20 years.

CADENCE OIS

– baseline version available at no cost

Information Regional TMM⁰ Active Reroutes⁰ Delays⁰ Advisories⁶ Español

Regional Operations Plan

ECNA Cuba :07/Jul/2021 12:18

Anticipated Demand Information MEDIUM

TMM Planned MIT FOR TRAFFIC DESTINATION MMUN.
DYNAMIC SECTORIZATION

Urgent Advisory
Weather ISOLATED LAYERED CLOUDS ARE OBSERVED OVER THE FIR WITH THE PRESENCE OF ISOLATED SHOWERS AND RAINS, ASSOCIATED WITH THE OUTERMOST CIRCULATION OF THE TROPICAL STORM.

Volcanic Ash NONE

Constraints A2090/21
MUFH 2107071300 - 2107071600
MUR 43 ACT SFC - FL100

A2091/21
MUHA 2107071300 - 2107071600
DUTAN-4B RWY 24 SID NOT AVBL

A2092/21
MUHA 2107071300 - 2107071600
DUTAN-9A RWY 06 STAR NOT AVBL

THE NEXT CADENA PLANNING WEB CONFERENCE WILL BE HELD ON THURSDAY, JULY 8, 2021 AT 1400 UTC

07/Jul/2021 21:44:42

Exchange:

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

Enter:

- ATFM Solutions
- Advisories/Notices
- Airport delay
- ATFM Daily Plan
- Calendars
- PASA Route Requests

<https://www.cadenoais.org> CADENA OIS version 3.2 is the CADENCE OIS baseline. Public domain for read only. Member domain to read and upload information.

The CADENCE OIS can support CP operations

- Support for:
 - ✓ Multi-nodal regional operations
 - ✓ Information sharing via web platform
 - For example, a CP Daily Operations Plan
- Support for contingency operations already used by and/or applicable to CP operations
 - ✓ Volcanic events
 - ✓ C/N/S outages
 - ✓ More -- to be defined



OIS BENEFITS – Operational Examples

- FAA Space Operations and CNES share operational information, such as:
 - ✓ Launch schedules
 - ✓ Launch sites
 - ✓ Launch AHAs with coordinates
 - ✓ Re-entry AHAs with coordinates



ATO Space Operations Office



CADENA



UPCOMING LAUNCH EVENT

Kennedy Space Center (KSC), Florida

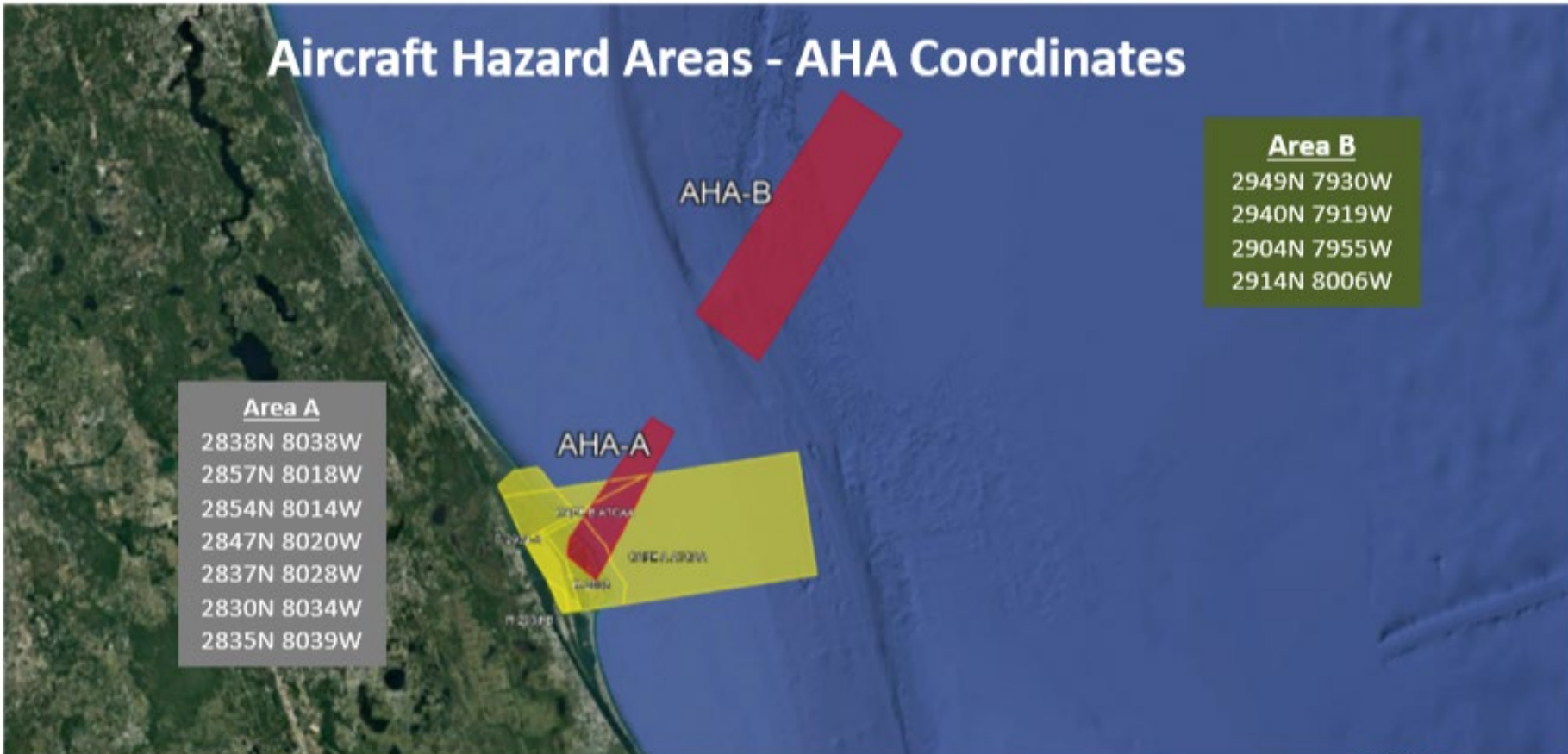
Boeing CST-100 OFT-2
JULY 30, 1843 - 1903 UTC

Backup dates:
JULY 31, AUG 3-4 Various Times

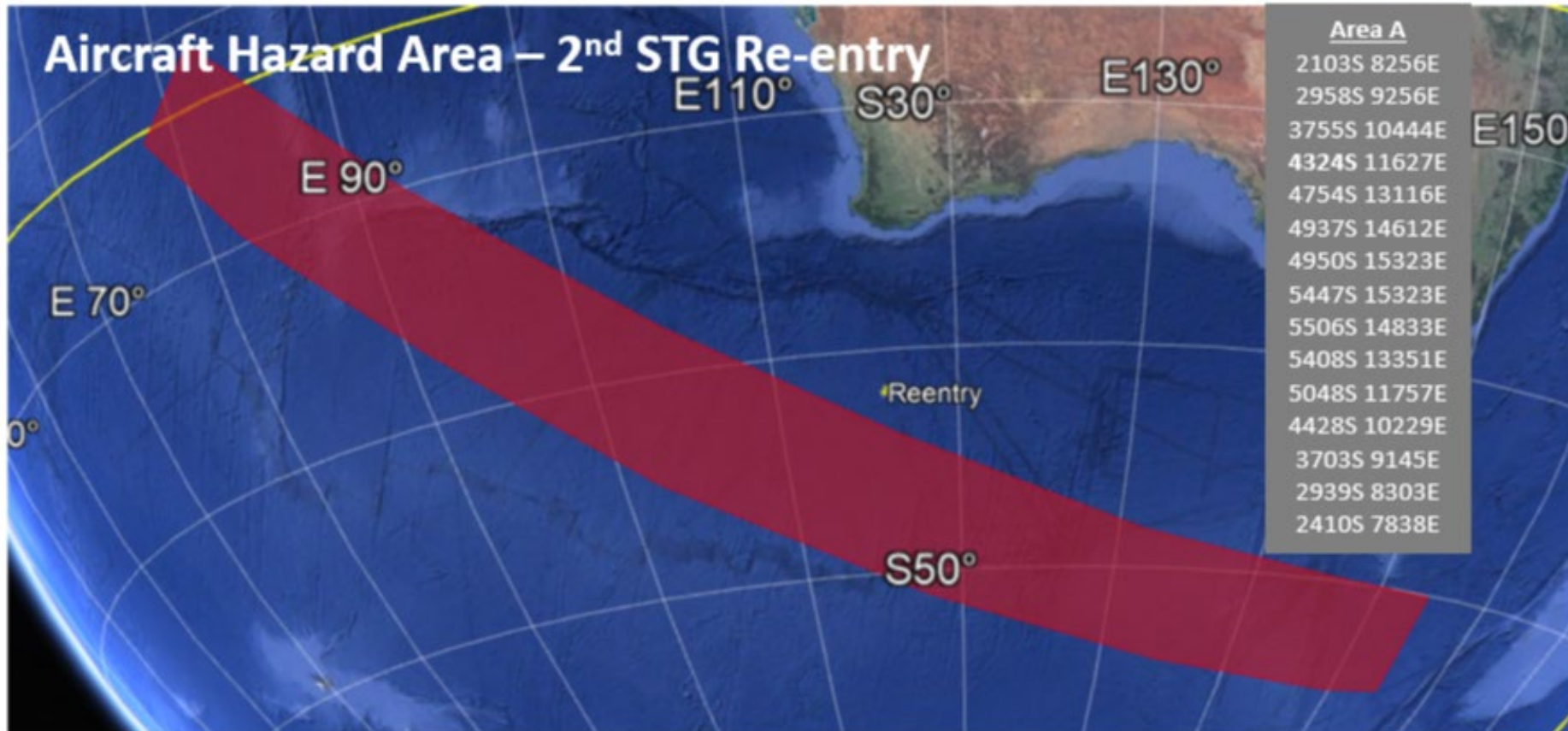
LAUNCH SITE –Kennedy Space Center, Florida



CADENA



CADENA



St. Vincent Volcano Situation

- The display of current:
 - ✓ Situational updates and forecast information
 - ✓ Volcanic ash impact within the FIR
 - ✓ NOTAMS
 - ✓ Urgent Advisories
 - ✓ Airport and airway closures
 - ✓ Airline reroute requests



CADENA LA SOUFRIERE VOLCANO ERUPTION UPDATE



canso
civil air navigation services organisation

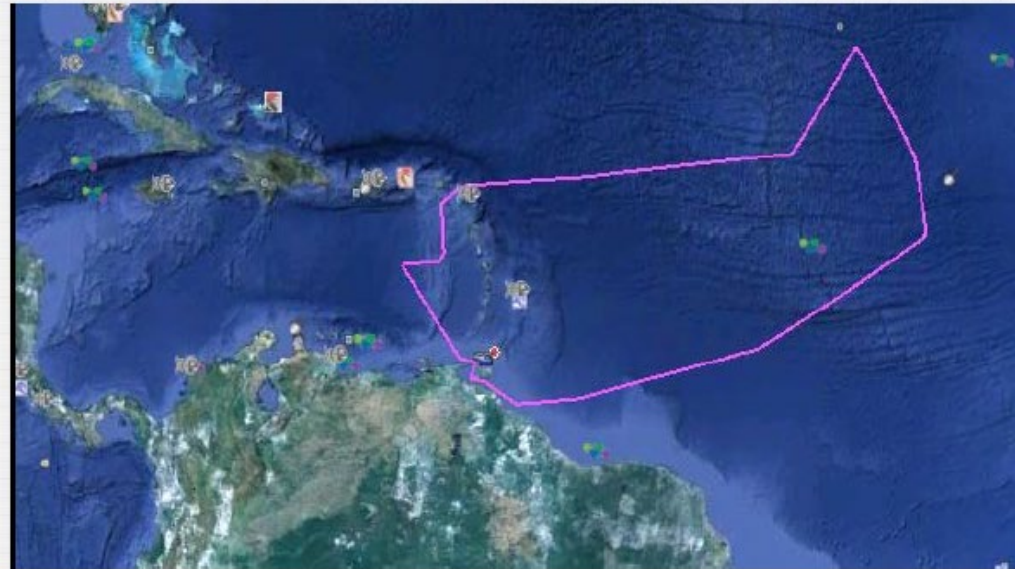
SUNDAY, APRIL 11, 2021
1130Z



CADENA

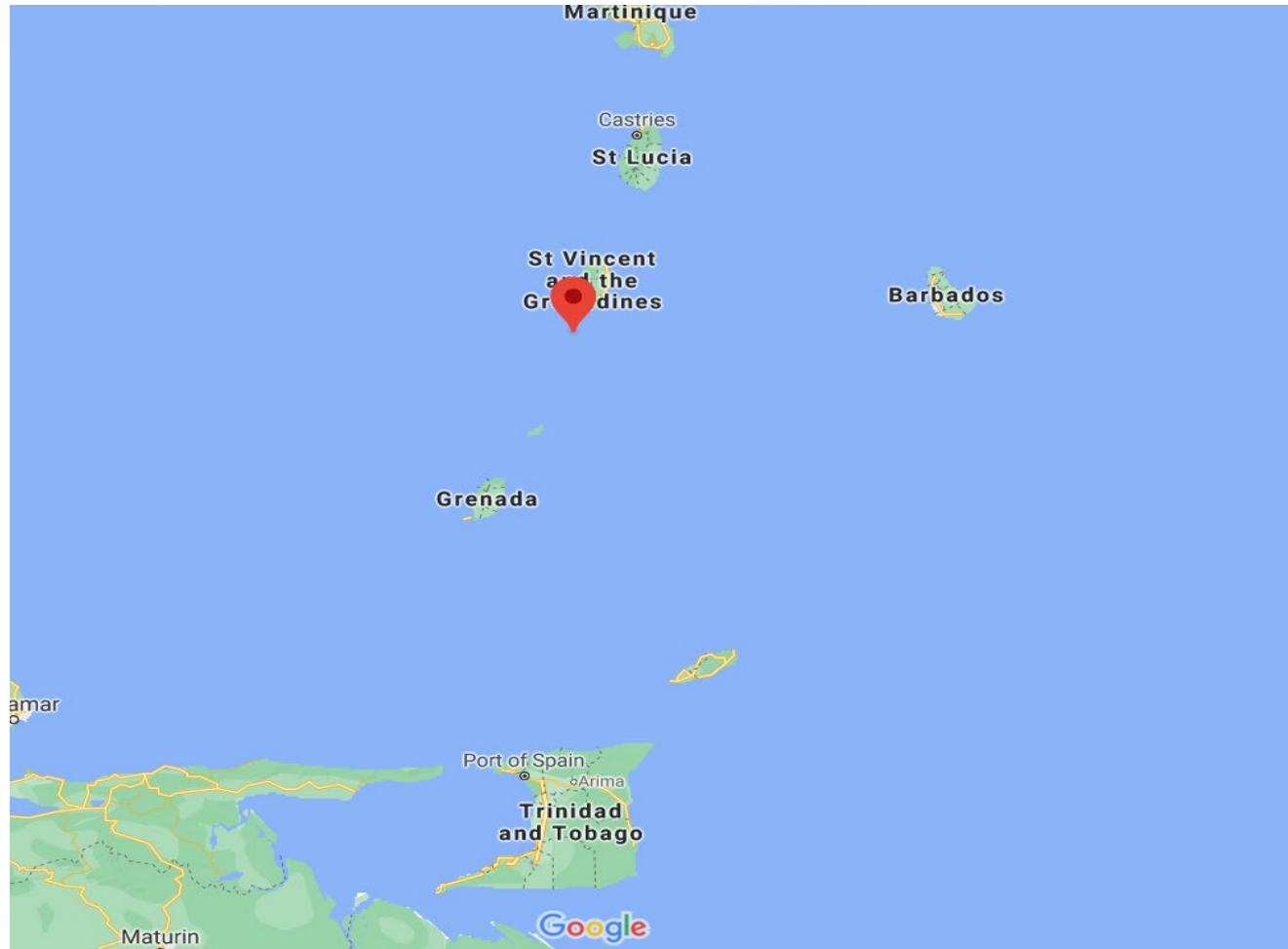


THE PIARCO FIR



CADENA

LA SOUFRIERE OVERVIEW



FVXX25 KNES 111753
 VA ADVISORY
 DTG: 20210411/1753Z
 VAAC: WASHINGTON
 VOLCANO: SOUFRIERE ST VINCENT 360150
 PSN: N1319 W06110
 AREA: W_INDIES
 SUMMIT ELEV: 3865 FT (1178 M)
 ADVISORY NR: 2021/015
 INFO SOURCE: GOES-16. NWP MODELS. HYSPLIT. ASH3D.
 VOLCAT. RADIOSONDE.

ERUPTION DETAILS: ONGOING EXPLOSIVE EMS.

OBS VA DTG: 11/1710Z
 OBS VA CLD: SFC/FL400 N2320 W03310 - N1913 W02634
 - N1323 W02747 - N0923 W03549 - N0908 W04247 -
 N1331 W04526 - N1502 W05204 - N1620 W05204 -
 N2320 W03310 MOV E 30KT SFC/FL520 N1618 W05211 -
 N1507 W05209 - N1331 W04524 - N0916 W04242 -
 N0911 W05349 - N1134 W06014 - N1254 W06122 -
 N1343 W06103 - N1522 W05837 - N1618 W05211 MOV E
 35KT

FCST VA CLD +6HR: 11/2300Z SFC/FL400 N2133 W02637
 - N1043 W02904 - N0931 W04227 - N1558 W05044 -
 N1649 W05035 - N2133 W02637 SFC/FL520 N1649
 W05040 - N1558 W05047 - N0933 W04234 - N0901
 W05437 - N1242 W06117 - N1335 W06108 - N1534
 W05753 - N1649 W05040

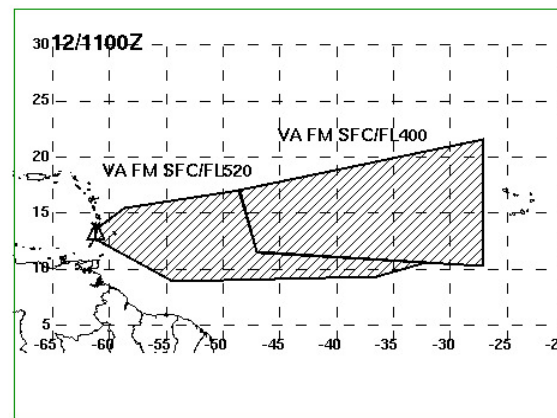
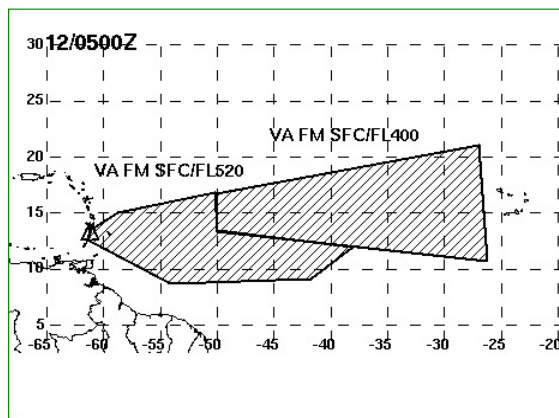
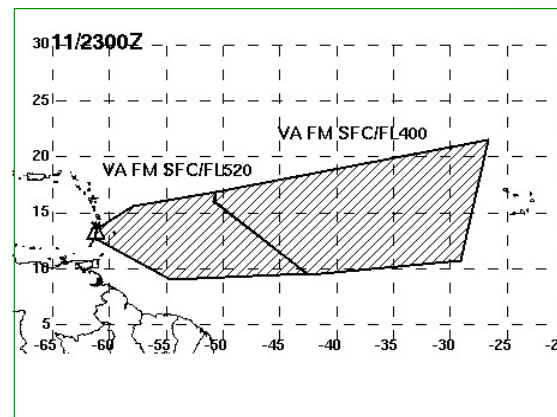
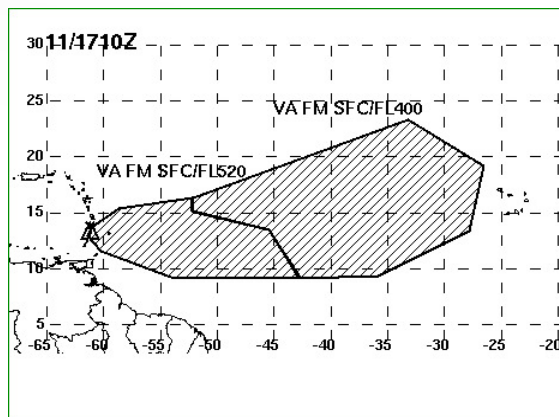
FCST VA CLD +12HR: 12/0500Z SFC/FL400 N2104
 W02656 - N1038 W02615 - N1320 W04958 - N1642
 W05005 - N2104 W02656 SFC/FL520 N1647 W05010 -
 N1323 W05001 - N1156 W03801 - N0908 W04144 -
 N0842 W05408 - N1237 W06122 - N1328 W06110 -
 N1502 W05844 - N1647 W05010

FCST VA CLD +18HR: 12/1100Z SFC/FL400 N2133
 W02705 - N1014 W02703 - N1127 W04637 - N1132
 W04704 - N1659 W04836 - N2133 W02705 SFC/FL520
 N1701 W04834 - N1132 W04701 - N1034 W03209 -
 N0920 W03628 - N0852 W05423 - N1242 W06120 -
 N1331 W06113 - N1527 W05837 - N1701 W04834

RMK: VERY LARGE PERIODIC EMS CONT. EMS LOFTED TO
 PERHAPS FL520 AND CARRIED ENE THRU ESE TO AROUND
 2000 NM E OF SUMMIT. VA BECOMES MORE DIFFUSE
 FURTHER E WITHIN VAAG AREA. VAAG ASSUMES CONT
 EXPLOSIVE EMS AND IS UPDATED AS NEEDED. ...LEE

NXT ADVISORY: WILL BE ISSUED BY 20210412/0000Z

APRIL 11, 2021 - LA SOUFRIERE VOLCANO ASH ADVISORY #2021/015 NEXT ADVISORY TO BE ISSUED AT 0000Z



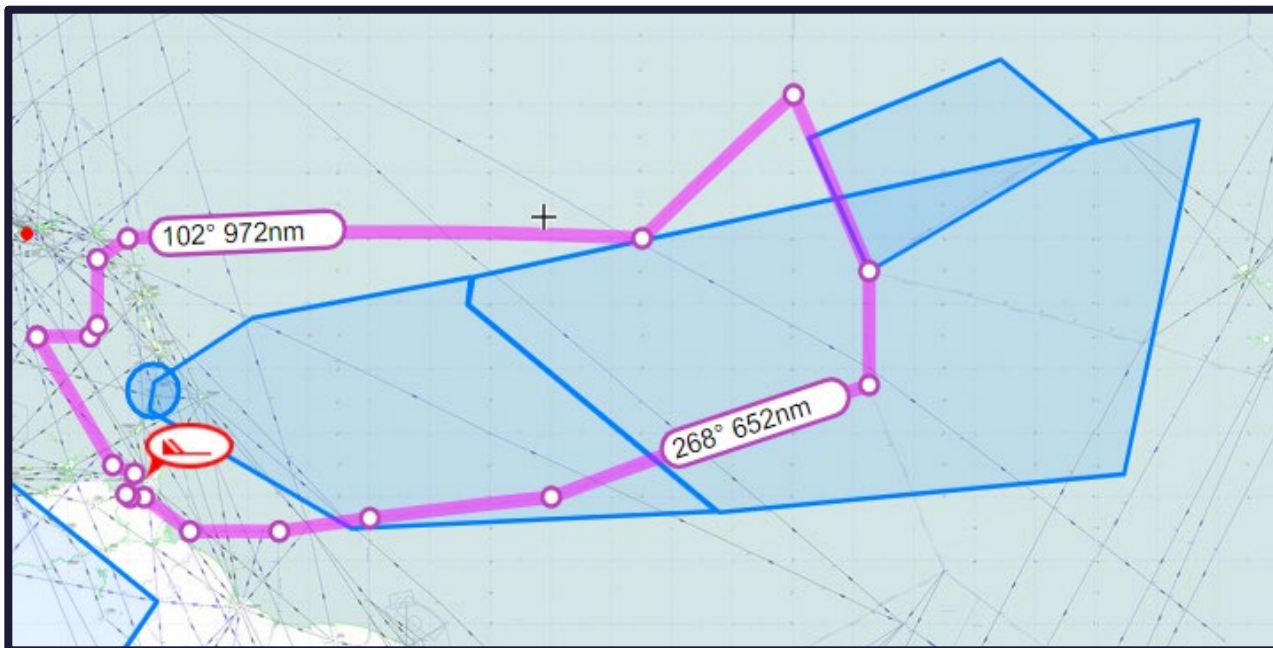
VOLCANIC ASH ADVISORY
 DTG: 20210411/1753Z
 VAAC: WASHINGTON
 VOLCANO: SOUFRIERE ST VINCENT 360150
 AREA: W_INDIES
 SUMMIT ELEV: 3865 FT (1178 M)
 ADVISORY NR: 2021/015

INFO SOURCE: GOES-16. NWP MODELS. HYSPLIT. ASH3D. VOLCAT.
 RADIOSONDE.
 ERUPTION DETAILS: ONGOING EXPLOSIVE EMS.
 RMK: VERY LARGE PERIODIC EMS CONT. EMS LOFTED TO PERHAPS
 FL520 AND CARRIED ENE THRU ESE TO AROUND 2000 NM E OF
 SUMMIT. VA BECOMES MORE DIFFUSE FURTHER E WITHIN VAAG AREA.
 VAAG ASSUMES CONT EXPLOSIVE EMS AND IS UPDATED AS NEEDED.
 NXT ADVISORY: WILL BE ISSUED BY 20210412/0000Z

SOURCE: Washington VAAC
<https://www.ssd.noaa.gov/VAAC/messages.html>

LA SOUFRIERE VOLCANO UPDATE – 2030 UTC – APRIL 11, 2021

PIARCO UTA/CTA/FIR IMPACT – ASH SIGMET (4) VALID TIL APRIL 12, 0115Z



WVCA31 TTPP 111916
TTZP SIGMET 4 VALID 111915/120115 TTPP-
TTZP PIARCO FIR VA ERUPTION SOUFRIERE ST VINCENT PSN
N1319 W06110 CLD
OBS AT 1710Z **OBS VA**
CLD: SFC/FL400 N2320 W03310 - N1913 W02634 - N1323 W02747
- N0923
W03549 - N0908 W04247 - N1331 W04526 - N1502 W05204 -
N1620 W05204
-N2320 W03310 MOV E 30KT SFC/FL520 N1618 W05211 - N1507
W05209 -
N1331 W04524 - N0916 W04242 - N0911 W05349 - N1134 W06014 -
N1254
W06122 -N1343 W06103 - N1522 W05837 - N1618 W05211
MOV E 35KT
FCST VA CLD +6HR: 11/2300Z SFC/FL400 N2133 W02637 - N1043
W02904 -
N0931 W04227 - N1558 W05044 - N1649 W05035 - N2133 W02637
SFC/FL520
N1649 W05040 - N1558 W05047 - N0933 W04234 - N0901 W05437
- N1242
W06117 - N1335 W06108 - N1534 W05753 - N1649 W05040=

LA SOUFRIERE VOLCANO UPDATE – 2030 UTC – APRIL 11, 2021

PIARCO UTA/CTA/FIR GENERAL INFORMATION

DEMAND	Weather	Staffing
Low to Medium	VOLCANIC ASH – Affecting large portion of the Piarco UTA/CTA/FIR, including the Ocean Sector. Please see SIGMET on following pages. No other Significant Weather in the forecast within the Piarco FIR.	Adequate

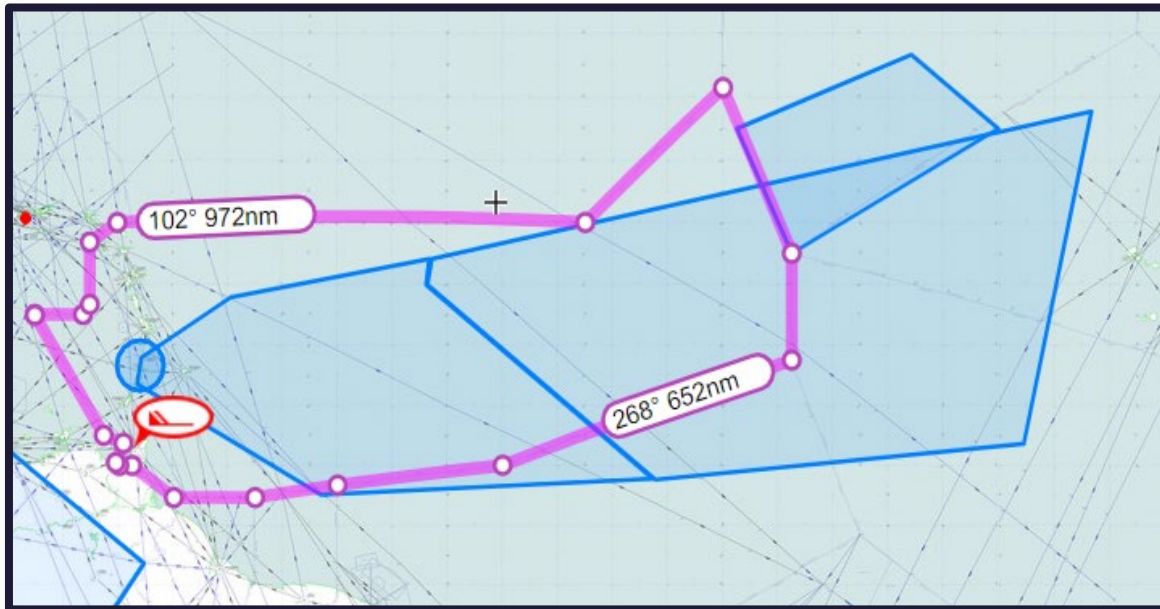
LA SOUFRIERE VOLCANO UPDATE – 2030 UTC – APRIL 11, 2021

PIARCO UTA/CTA/FIR GENERAL INFORMATION

EQUIPMENT OUTAGES	TMMS PLANNED	REMARKS
<p>TBPB (A0560/21 NOTAMR A0549/21Q) TTZP/QNMAW/IV/BO/AE/000/999/1304N0 5929W175 A) TBPB B) 2104110059 C) 2104121600 E) DVOR/DME 'BGI' 112.7 MHZ CH74X COMPLETELY WITHDRAWN. DO NOT USE.)</p>	<p>REROUTES WILL BE IMPLEMENTED TACTICALLY PLEASE REFER TO SLIDE 7 FOR ROUTE IMPACTS</p>	<p>NONE</p>

LA SOUFRIERE VOLCANO UPDATE – 2030 UTC – APRIL 11, 2021

PIARCO UTA/CTA/FIR – TMMs & ROUTE IMPACT



TMMs POSSIBLE REROUTES TO BE APPLIED TACTICALLY

USERS ARE ADVISED THAT THE FOLLOWING AIRWAYS, OR PORTIONS THEREOF ARE HEAVILY IMPACTED: TACTICAL REROUTES/DEVIATIONS MAY BE IN EFFECT.

- UT349 - BTWN OMKI-NOSOB
- UA632 - BTWN ANU-100MILES SOUTH BGI
- UA555- BTWN DUNTA-100MILES SOUTH BGI
- UM791- BTWN BGI TO 100MLS SOUTH BGI
- UL576- BTWN CITRS - PIPUV
- UL454 - BTWN ILURI - ROSLU
- UL329 - BTWN SORRL - 100MILES SOUTH YOLKK
- UA312 – BTWN PPR - DALGA
- UL205 - BTWN ANU - POS
- UA551 - BTWN PERRY - FOF
- UA511 - FULL ROUTE IN TTZP
- UL776 – BTEWN GEECE - KORTO
- UA324 - FULL ROUTE
- UA561 - FULL ROUTE
- UR515 – FULL ROUTE
- UL695 – FULL ROUTE
- UL375 – FULL ROUTE
- UL435 – FULL ROUTE

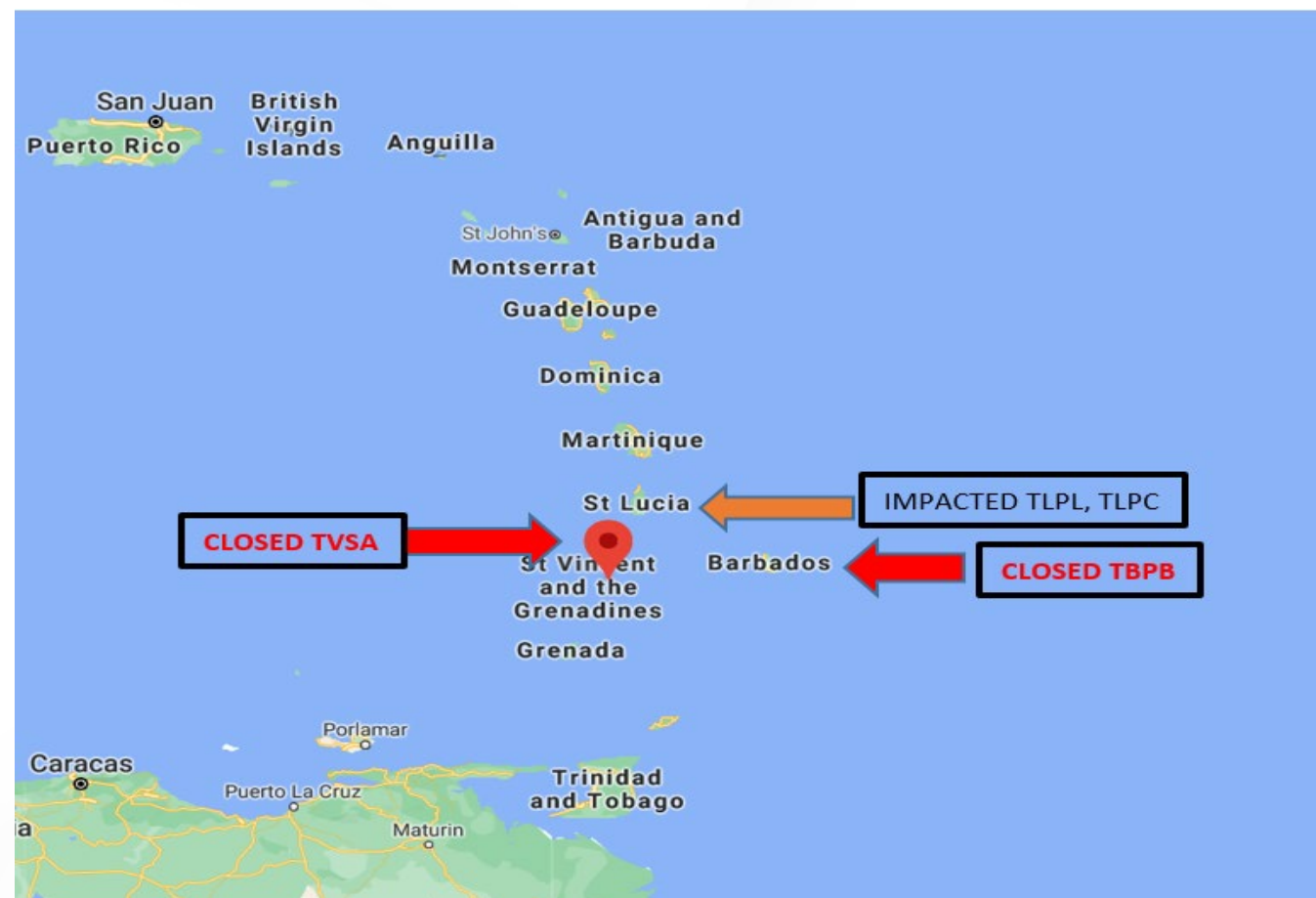
ALL EUROPEAN LANDERS INTO TFFR, TFFF, TLPL, TBPB, AND OTHER ECAR TMA FROM THE 18N LINE OF LONGITUDE (AND VICE VERSUS)

LA SOUFRIERE VOLCANO UPDATE – 2030 UTC – APRIL 11, 2021

TMA AIRPORTS IMPACT

AIRPORT CLOSURES	AIRPORT OPENING	NOTAM
TVSA – ARGYLE	OPENING AFTER APRIL 11 2359Z	A0553/21
TVSB – BEQUIA	OPENING AFTER APRIL 11 2359Z	A0554/21
TVSM – MUSTIQUE	OPENING AFTER APRIL 11 2359Z	A0556/21
TVSU – UNION	OPENING AFTER APRIL 11 2359Z	A0557/21
TVSC - CANOAN	OPENING AFTER APRIL 11 2359Z	A0555/21
TBPB – ADAMS	OPENING APRIL 12 @ 1600Z	A0562/21

IMPACTED AIRPORTS	REMARKS
TLPL – HEWANORRA (St. Lucia)	STATUS – OPEN
TLPC – GEORGE CHARLES (St. Lucia)	CONCERNS - MAY BE IMPACTED BY VOLCANIC ASH MATERIAL, AND MAY CLOSE AS NECESSARY.



LA SOUFRIERE VOLCANO UPDATE – 2030 UTC – APRIL 11, 2021

OTHER MEASURES

1. Daily Updates will be provided on the ADP LINK FILES of the CADENA OIS
2. **ATS Management has established WhatsApp group** and will convene ad-hoc web conferences, as necessary, to disseminate the latest and most accurate information in a timely manner;
3. **Contingency plan has been activated and disseminated** by ATS team to mitigate issues such as:
 - a. Impact of VA Clouds, (Reroutes, Deviations, Possible emergencies, etc.);
 - b. GA aircraft departing impacted airports to shelter at other TMA airports and airports within adjacent FIRs,
 - c. Coordination of Humanitarian Flights,
 - d. Continuous Coordination/Collaboration in order to disseminate the most accurate information in a timely manner.
4. **Piarco will continue to update the CADENA OIS in a timely manner with the latest and most accurate information.**

OIS BENEFITS – Operational Examples

COVID Situation

- Display of:
 - The daily COVID-19 operational limitations report
 - Alternate aerodromes information
 - Airline and ANSP outlook for future air traffic operations
- Coordination regarding:
 - ATC-Zero events (ACC closures)
 - Vaccine Priority Flights
 - PASA Route Requests
- Push email notifications

PASA REROUTE TO AVOID A CLOSED ACC

CANOA .. ELP

CANOA ELUNI COFRE UM506 SESNO UJ15 MOV UJ2 CUU UJ47 CJS ELP



OIS BENEFITS– Operational Examples

Qualitative Benefits - understood intuitively

- **More information sharing, better decisions**
- **Better coordination, better decisions**
- **Better decisions, more benefits**




Numbers in this briefing should not be interpreted literally; however, **the savings achieved by stakeholders are real.**

Quantitative (monetary - \$USD) Benefits

- UAL - Hurricane Maria Recovery Operation Case Study – \$1.0M-\$5.4M
- JBU - Return Home from Hurricane Maria Case Study – \$182.0K
- AAL - Jamaica Loss of Radar Surveillance Case Study – \$225.0K
- CPA - Jamaica Loss of Radar Surveillance Case Study – \$175.5K
- UAL - Colombia Loss of Satellite Comm Case Study – \$192.0K
- DAL - PASA optimization pilot test (ATL-LIM) - \$368.9K/yr, 1,118,000kg of CO2
- VOI – Filed FPLs via CADENA OIS while AFTN outage - \$690.8K

Short demo of the CADENCE OIS

 CADENCE OIS

Information ▾ Regional TMM ⁰ Active Reroutes ⁰ Delays ⁰ Advisories ⁰

Regional Operations Plan

FIR SHANGHAI :-

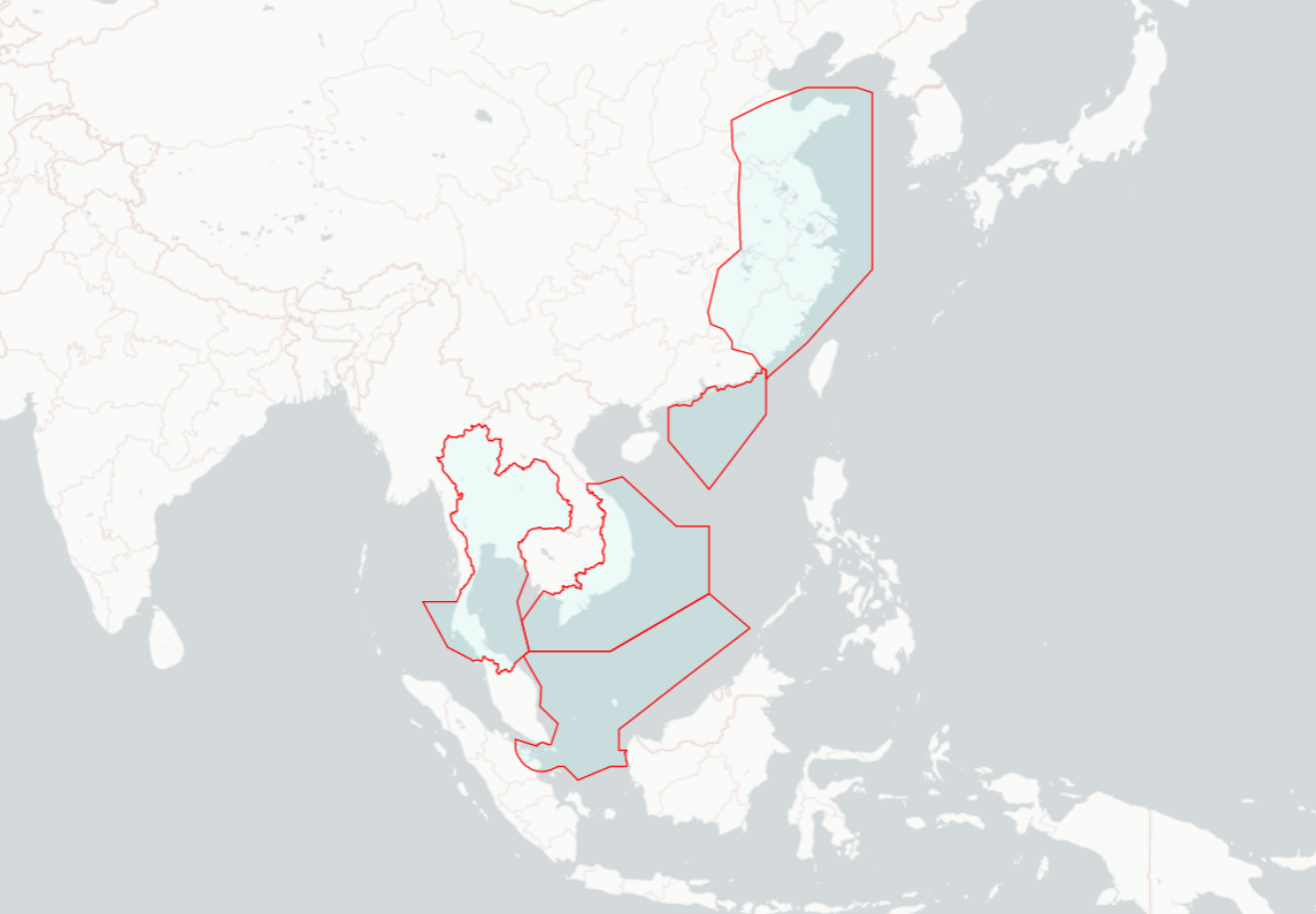
- Anticipated Demand Information
- TMM Planned
- Urgent Advisory
- Weather
- Volcanic Ash
- Constraints
- Special Events
- Equipment Outages
- Other

FIR SINGAPORE :-

- Anticipated Demand Information
- TMM Planned
- Urgent Advisory
- Weather
- Volcanic Ash
- Constraints
- Special Events
- Equipment Outages
- Other

FIR HO-CHI-MINH :-

- Anticipated Demand Information
- TMM Planned



THE NEXT CADENCE PLANNING WEB CONFERENCE WILL BE HELD ON THURSDAY, MAY 4, 2021 AT 0400 UTC

30/Apr/2021 11:41:03

Next Steps



- CADENCE TF proposes to provide an in-depth CADENCE OIS demonstration to the CPWG.
- CADENCE TF is available to meet individually with ANSPs to provide:
 - ✓ Additional operational and technical information.
 - ✓ High level demonstrations to management.
 - ✓ In-depth demonstrations to Operational Staff.



THANK YOU

CANSO

SHAPING OUR FUTURE SKIES