



International Civil Aviation Organization

**FOURTEENTH MEETING OF THE
COMMUNICATIONS/NAVIGATION/SURVEILLANCE
AND METEOROLOGY SUB-GROUP OF
APANPIRG (CNS/MET SG/14)**



Jakarta, Indonesia, 19 – 22 July 2010

Agenda Item 6: Surveillance

3) discuss other surveillance related issues

**THE FEDERAL AVIATION ADMINISTRATION'S AUTOMATIC DEPENDENT
SURVEILLANCE – BROADCAST (ADS-B) PROGRAM**

(Presented by the United States of America)

SUMMARY

The attached briefing presents information on the Federal Aviation Administration's (FAA's) ADS-B Program, including system overview program strategy, description of essential and critical services, description of airborne applications, existing and proposed Gulf of Mexico route structure, and domestic and international agreements.

This paper relates to

Strategic Objective:

- A. Safety – Enhance global civil aviation safety
- D. Efficiency – Enhance the efficiency of aviation operations

Global Plan Initiatives:

- GPI-9 Situational awareness
- GPI-17 Implementation of data link applications

1 Introduction

1.1 The attached briefing presents information on the Federal Aviation Administration's (FAA's) ADS-B Program, including system overview, program strategy, description of essential and critical services, description of airborne applications, existing and proposed Gulf of Mexico route structure, and domestic and international agreements.

2. Discussion

2.1 An essential component of the FAA's Next Generation Air Transportation System (NextGen), is the ADS-B Program. This program will increase safety, capacity and efficiency of air travel and provides critical flight information simultaneously to pilots and air traffic controllers.

2.2 The attached briefing presents the following information on the FAA’s ADS-B Program, FAA NextGen Program:

- a) Overview of FAA’s NextGen
- b) Program Strategy
- c) Description of Essential Services
- d) Description of Critical Services
- e) Description of Airborne Applications
- f) Existing and Proposed Gulf of Mexico Route Structure
- g) Domestic and International Agreements

3. Conclusion

3.1 States are invited to take into account the information presented in the attached briefing in order to better understand the United States plans for implementation of ADS-B and associated services.

APAC CNS/MET SG/14 MEETING

Automatic Dependent Surveillance – Broadcast (ADS-B)

Jakarta, Indonesia 19-22 July 2010



Federal Aviation
Administration

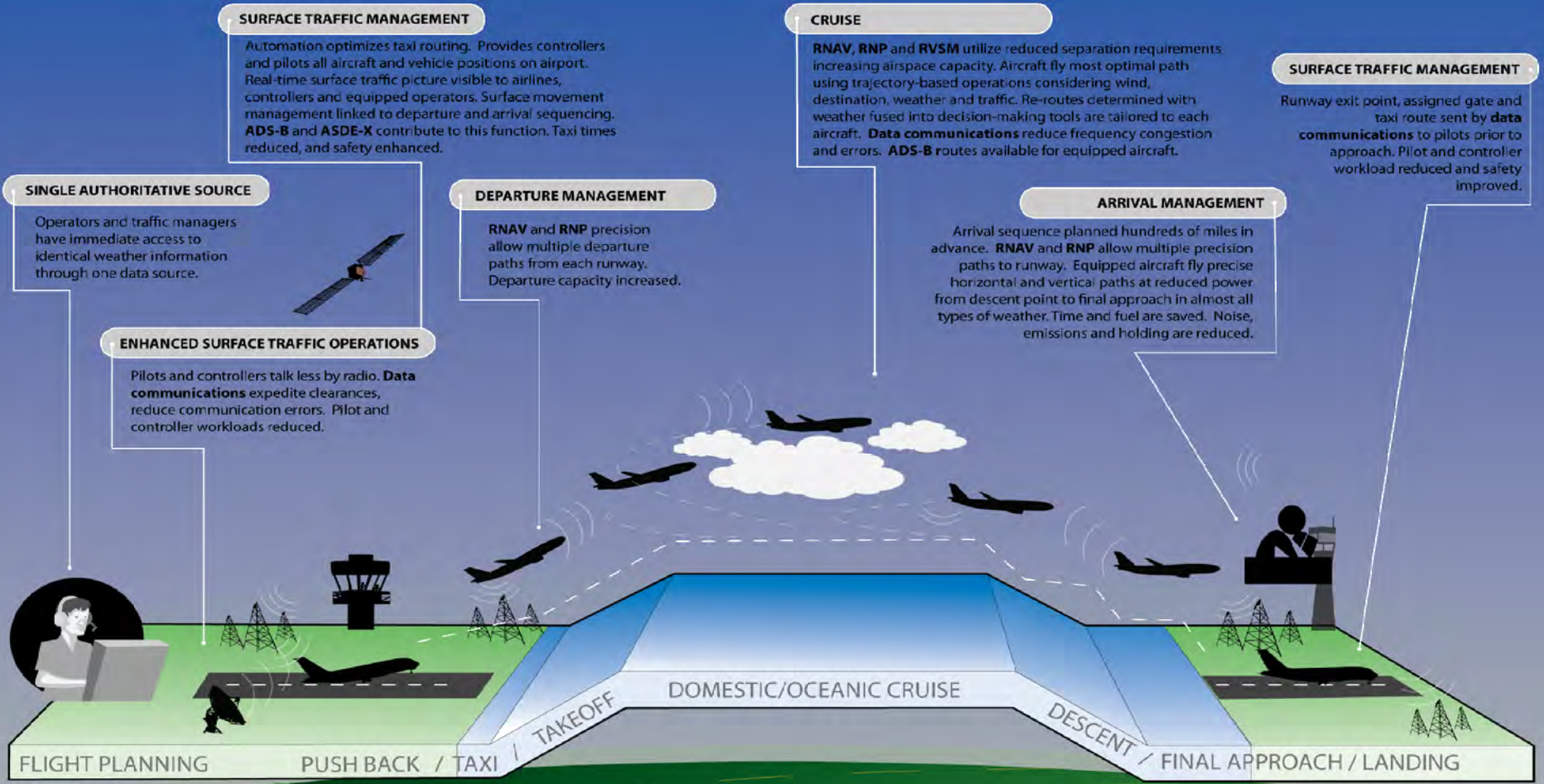


Agenda

- **FAA NextGen**
- **Strategy**
- **Essential Services**
- **Critical Services**
- **Applications**
- **Routes**
- **Agreements**



NextGen has “Gate to Gate” focus

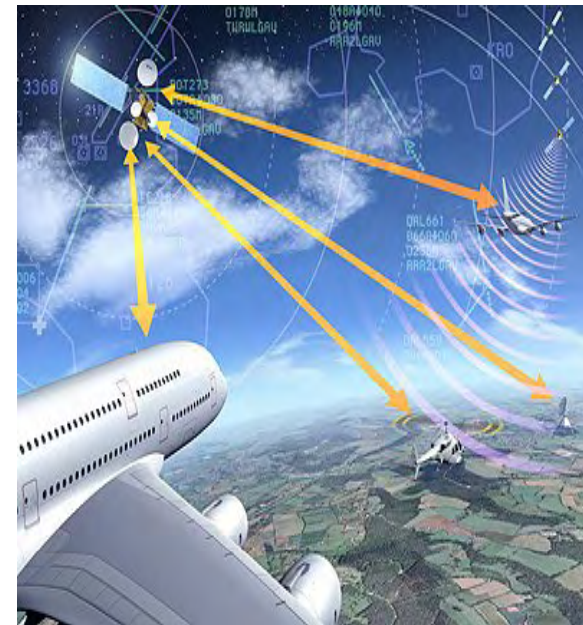


PHASES OF FLIGHT Mid-Term 2018



NextGen is Already Underway!

- **NextGen Transformational Programs**
 - Automatic Dependent Surveillance Broadcast (ADSB)
 - Collaborative Air Traffic Management (CATM)
 - System Wide Information Management (SWIM)
 - Data Communications
 - NAS Voice Switch (NVS)
 - NextGen Network Enabled Weather (NNEW)



Stages of readiness:

-  Implementation
-  Investment Analysis
-  Concept Development

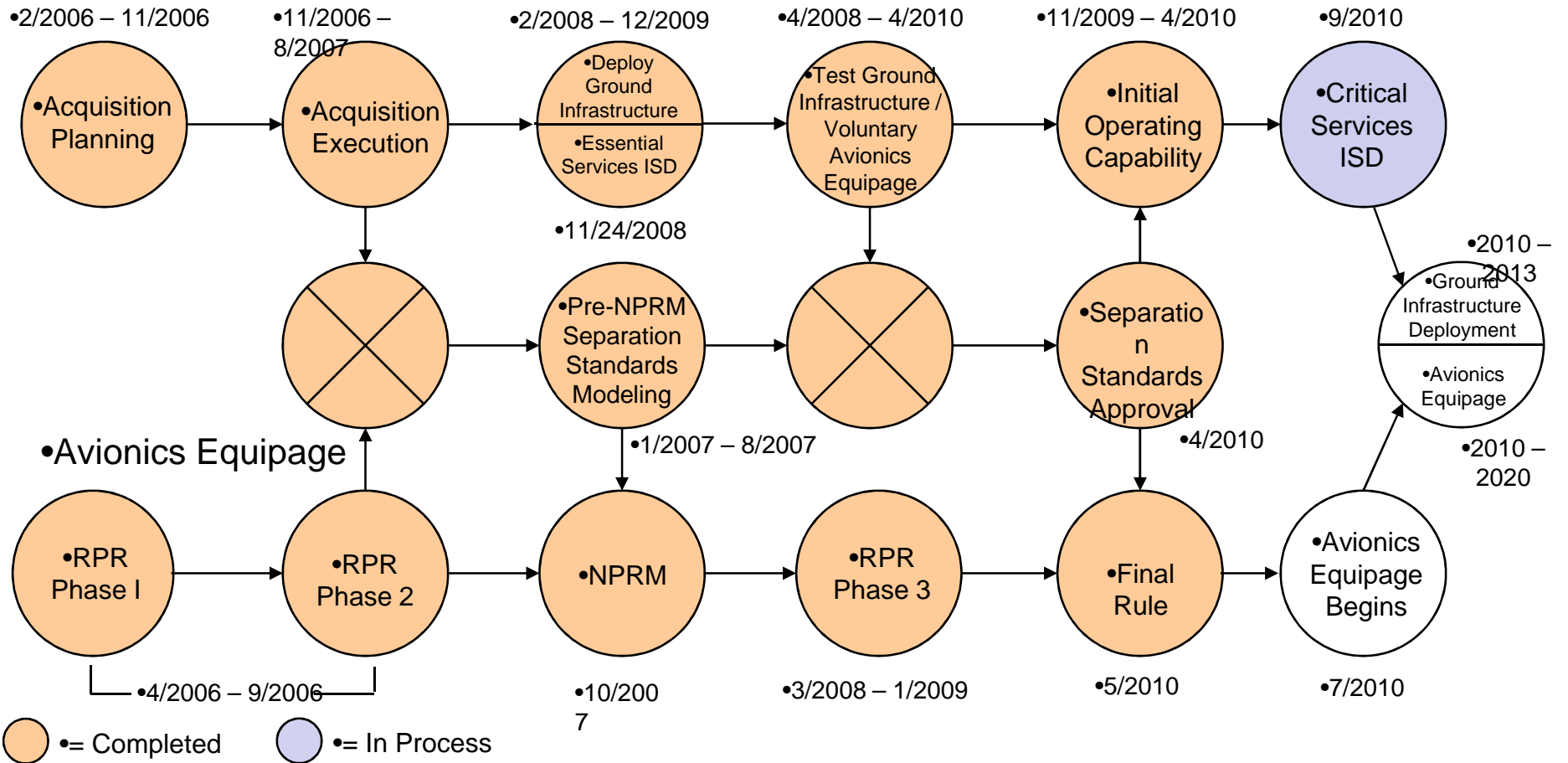
Background: Automatic Dependent Surveillance - Broadcast (ADS-B)

- **Automatic**
 - Periodically transmits information with no pilot or operator input required
- **Dependent**
 - Position and velocity vector are derived from the Global Positioning System (GPS)
- **Surveillance -**
 - A method of determining position of aircraft, vehicles, or other asset
- **Broadcast**
 - Transmitted information available to anyone with the appropriate receiving equipment



Strategy

•Ground Infrastructure



•RPR = Rulemaking Project Record; NPRM = Notice of Proposed Rulemaking; ISD = In-Service Decision

Critical Services Service Volume Roll-Out Key Sites



Louisville

10/2009 ✓

- CARTS

Gulf of Mexico

12/2009 ✓

- HOST/ERAM

Philadelphia

03/2010 ✓

- STARS

Juneau

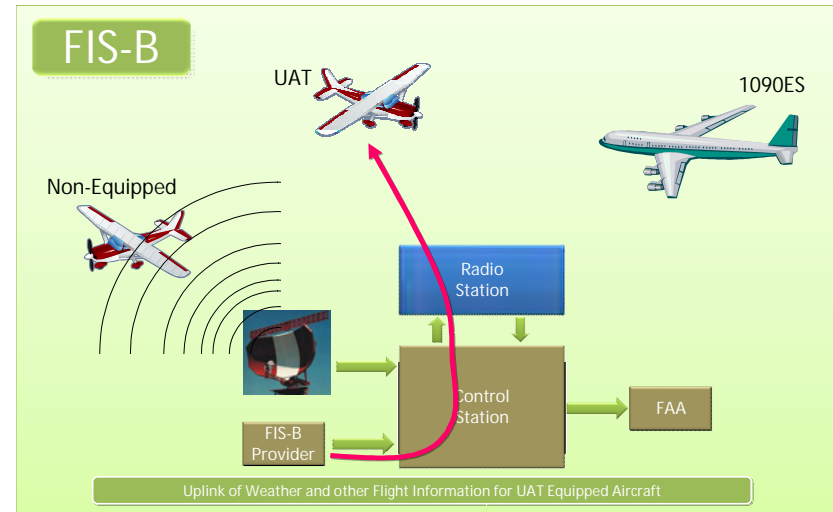
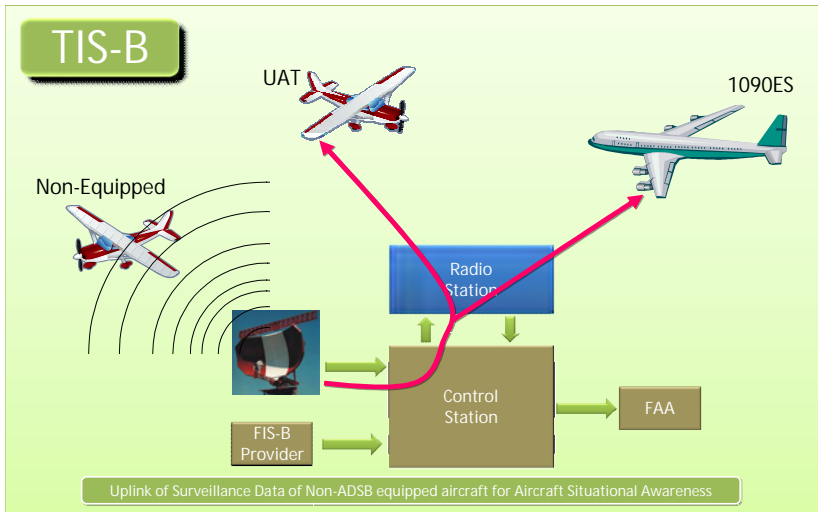
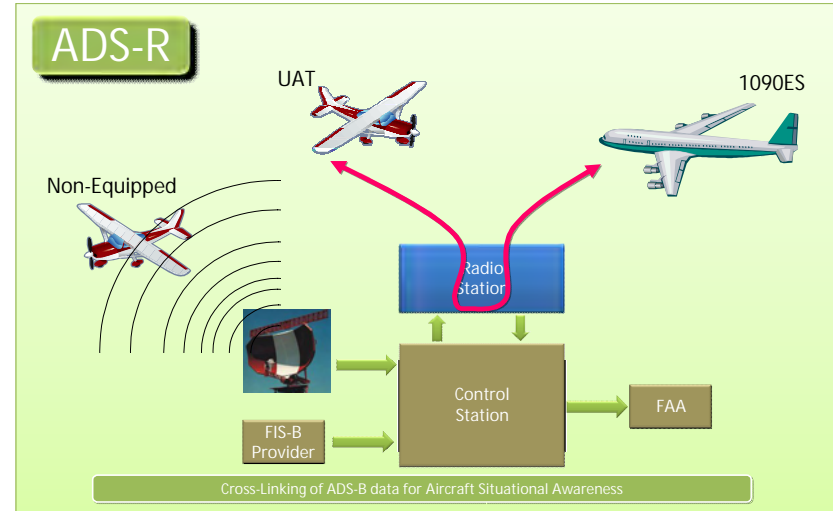
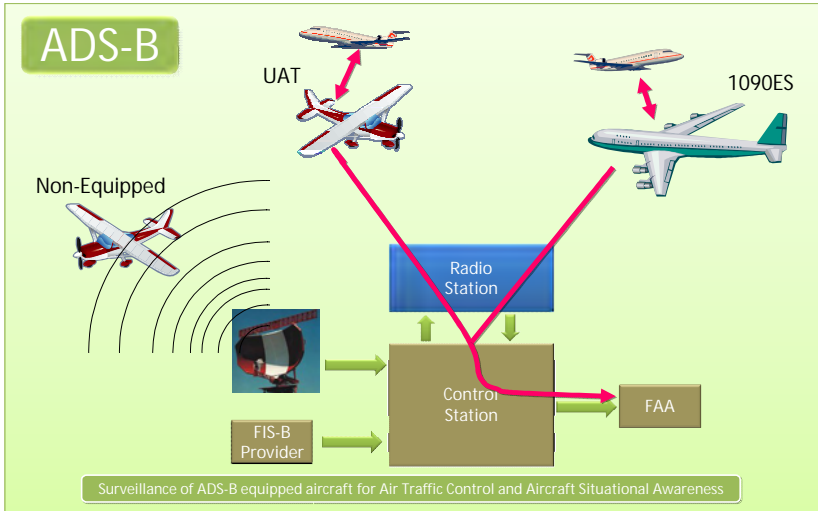
04/2010 ✓

- MEARTS

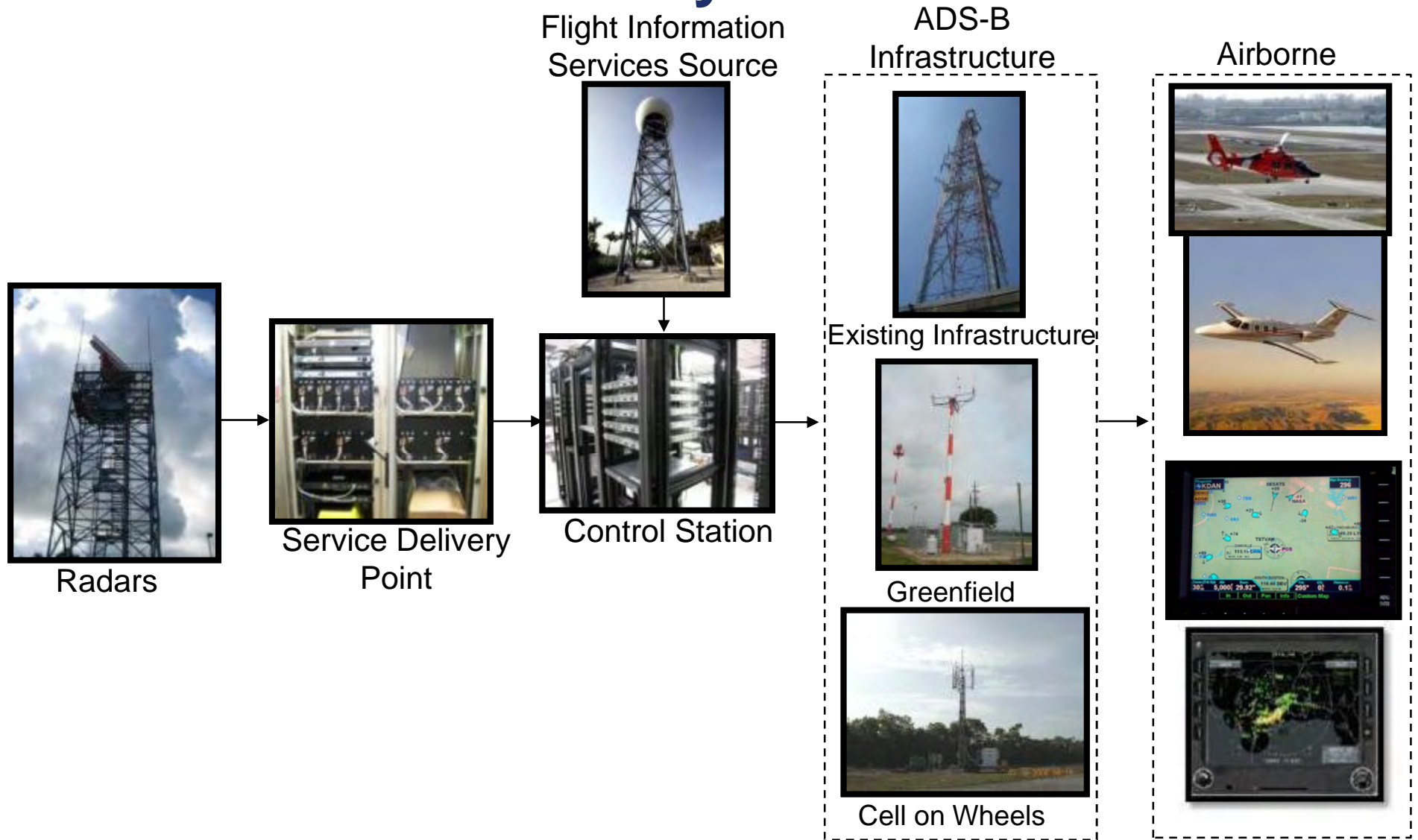
ADS-B Service Descriptions

C
R
I
T
I
C
A
L

E
S
S
E
N
T
I
A
L



Essential Services System



Essential Services: Traffic Information Service - Broadcast

TIS-B is a service which provides ADS-B equipped aircraft with position reports from secondary surveillance radar on non-ADS-B equipped aircraft.

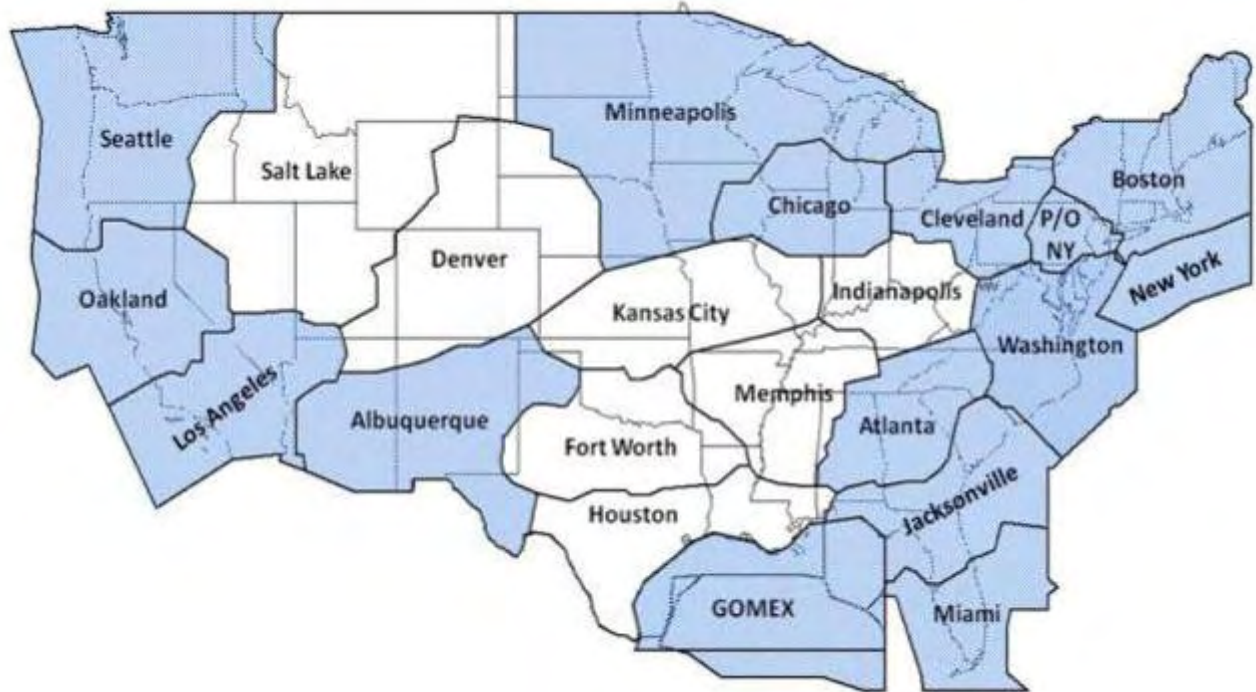


Essential Services: Flight Information Service – Broadcast



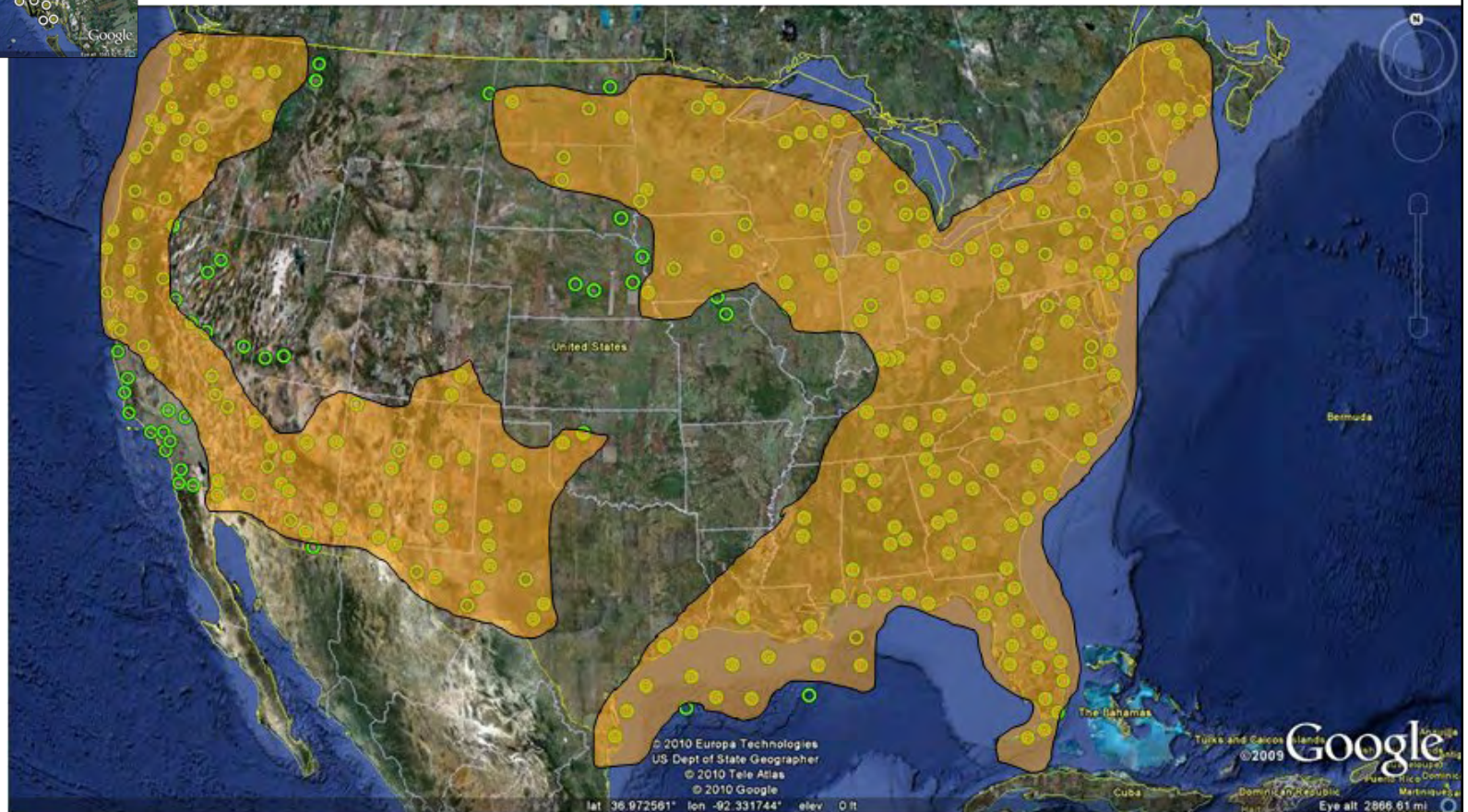
FIS-B transmits graphical National Weather Service products, pilot reports, and special use airspace.

Segment 1 / Segment 2 Roll Out



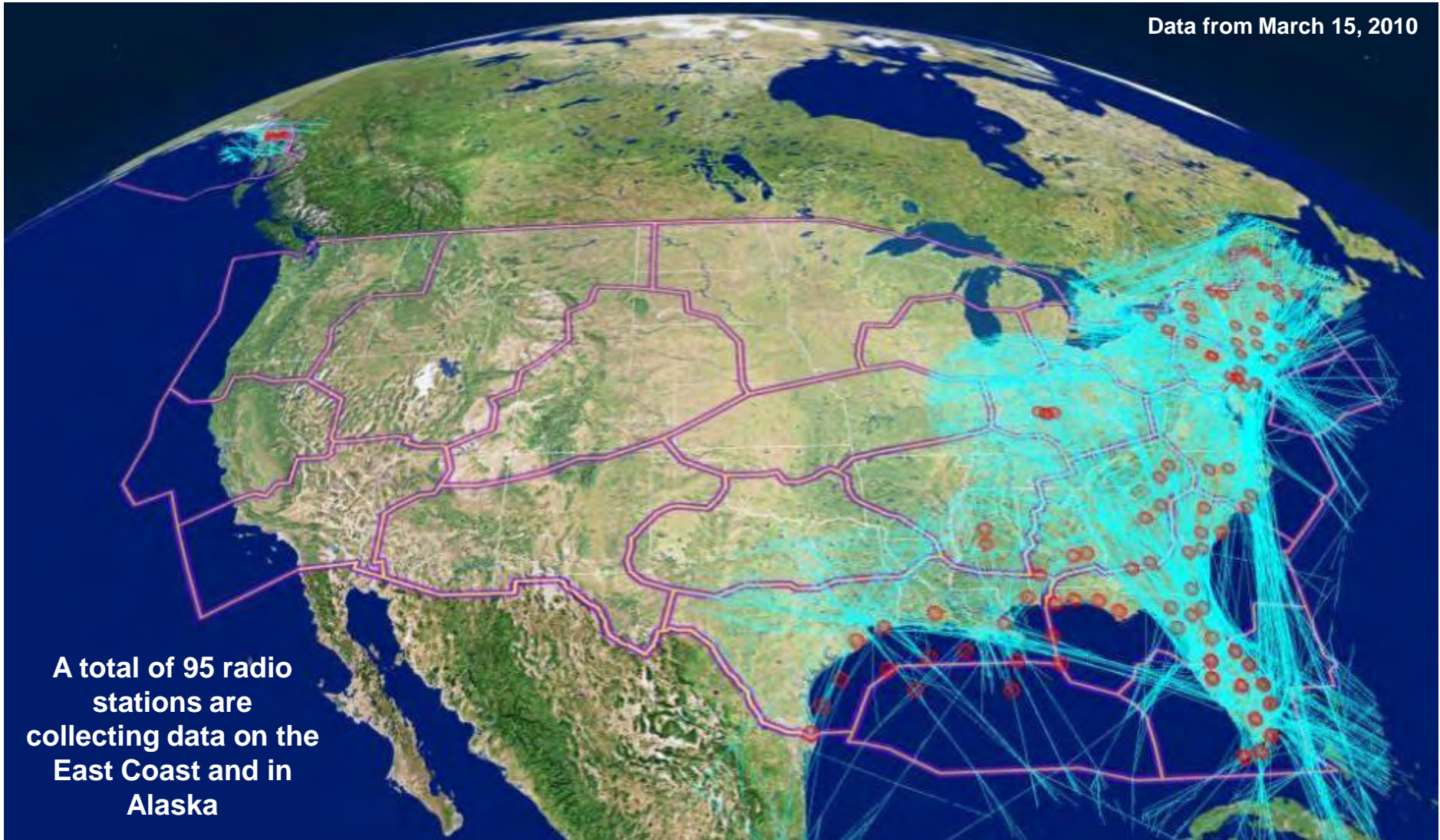
	Timeframe:	Key:
Segment 1	2007 – 2010	
Segment 2	2010 - 2014	

Implementation Status: April 2010



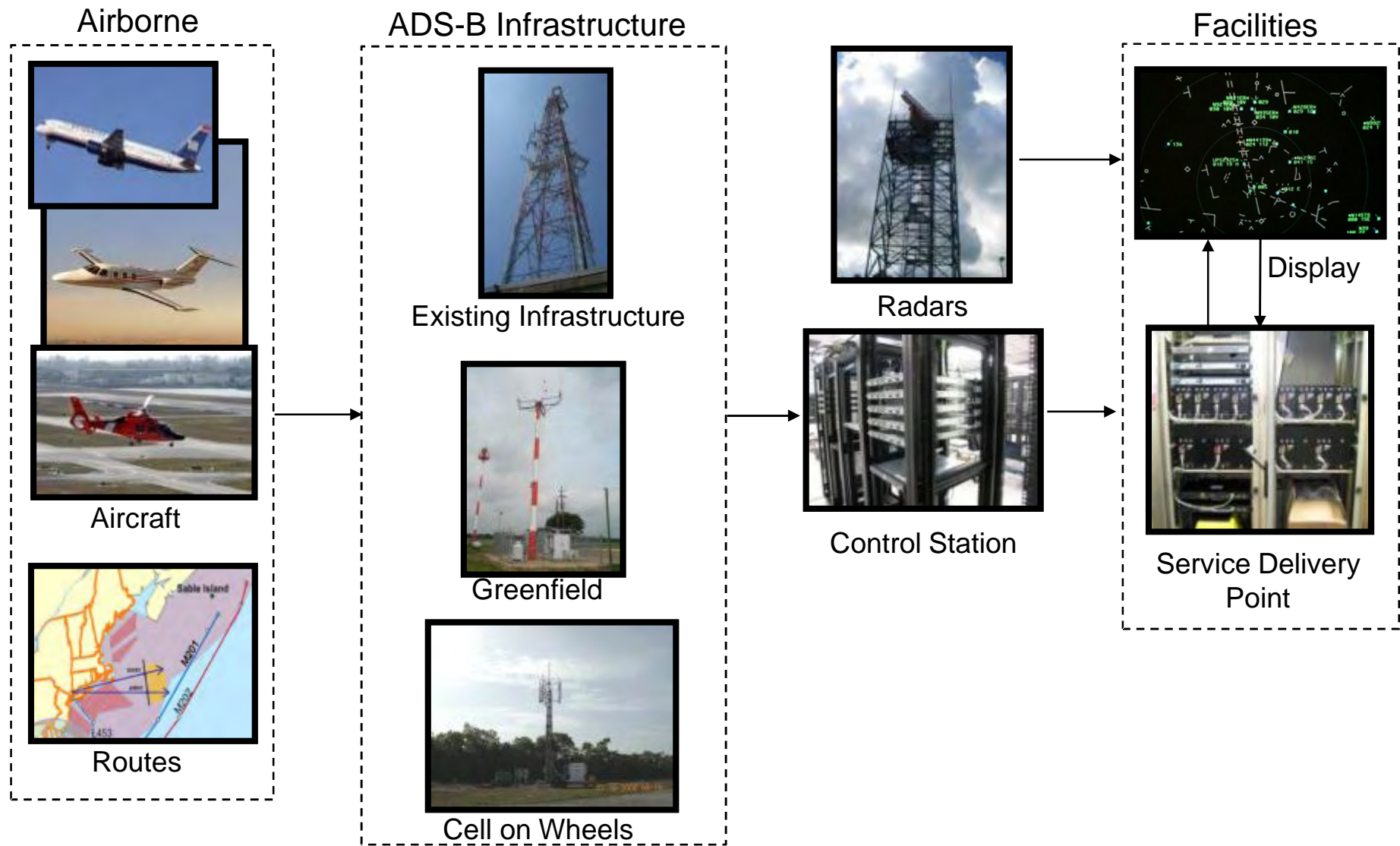
Coverage from Radio Stations

Data from March 15, 2010



A total of 95 radio stations are collecting data on the East Coast and in Alaska

Critical Services System



Building Block for Airborne Applications

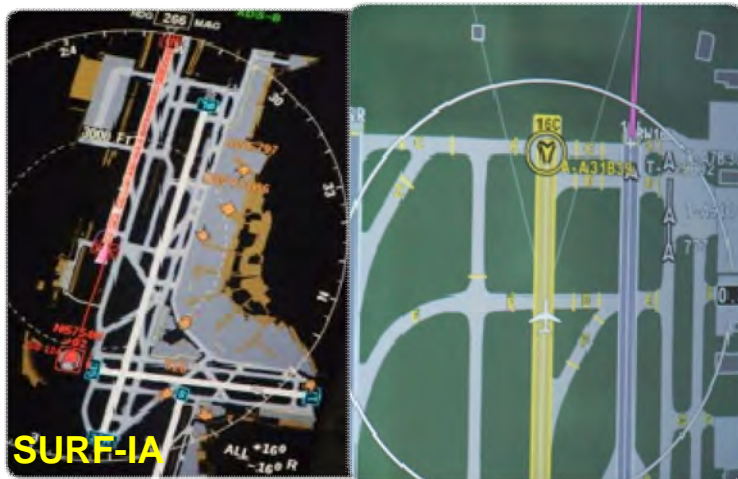
Situational Awareness



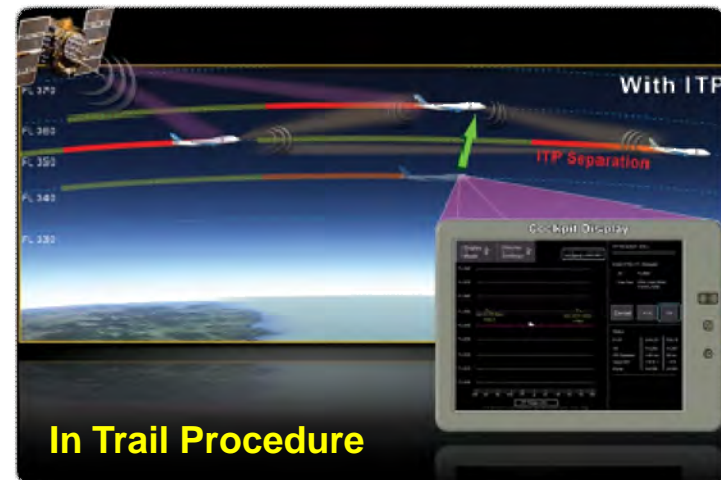
Spacing

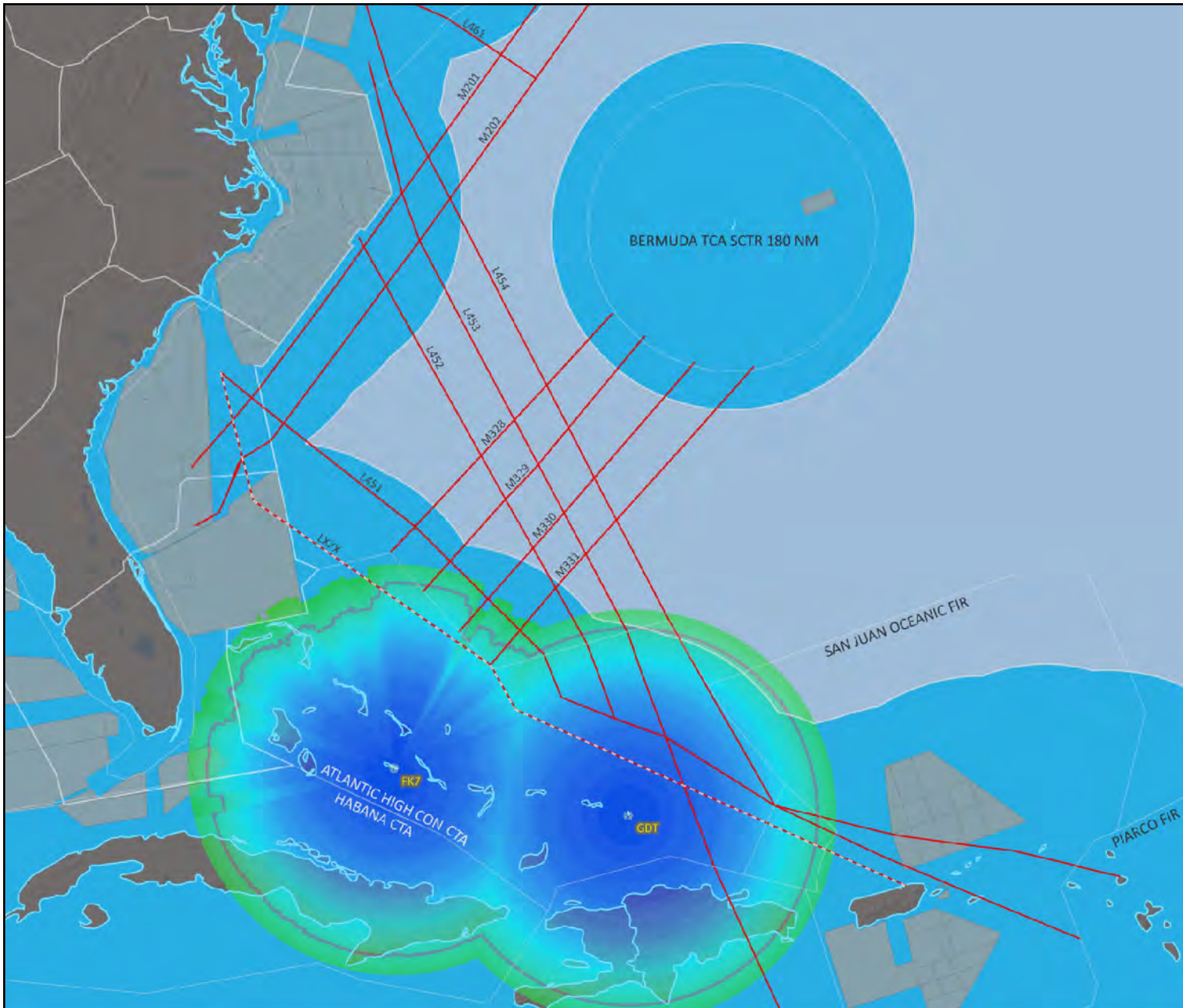


Indications and Alerts



Situational Awareness





Caribbean

Radar Height

FL300

Radar Coverage from Long Range Radar

225nm from Shore

Warning Areas (Special Use Airspace)

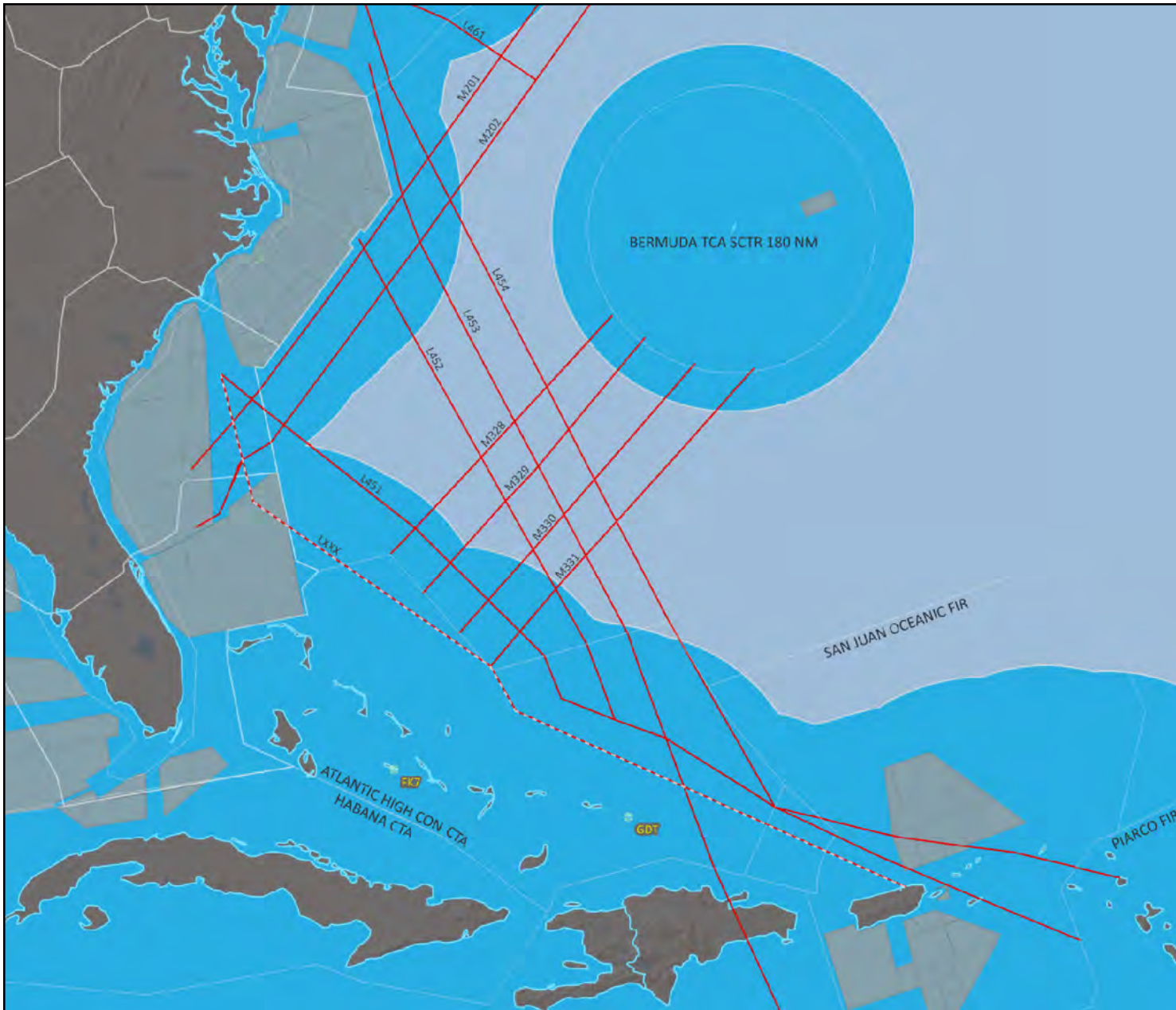
Oceanic Routes (of interest)

International Boundary

Airspace Boundary

Long Range Radar



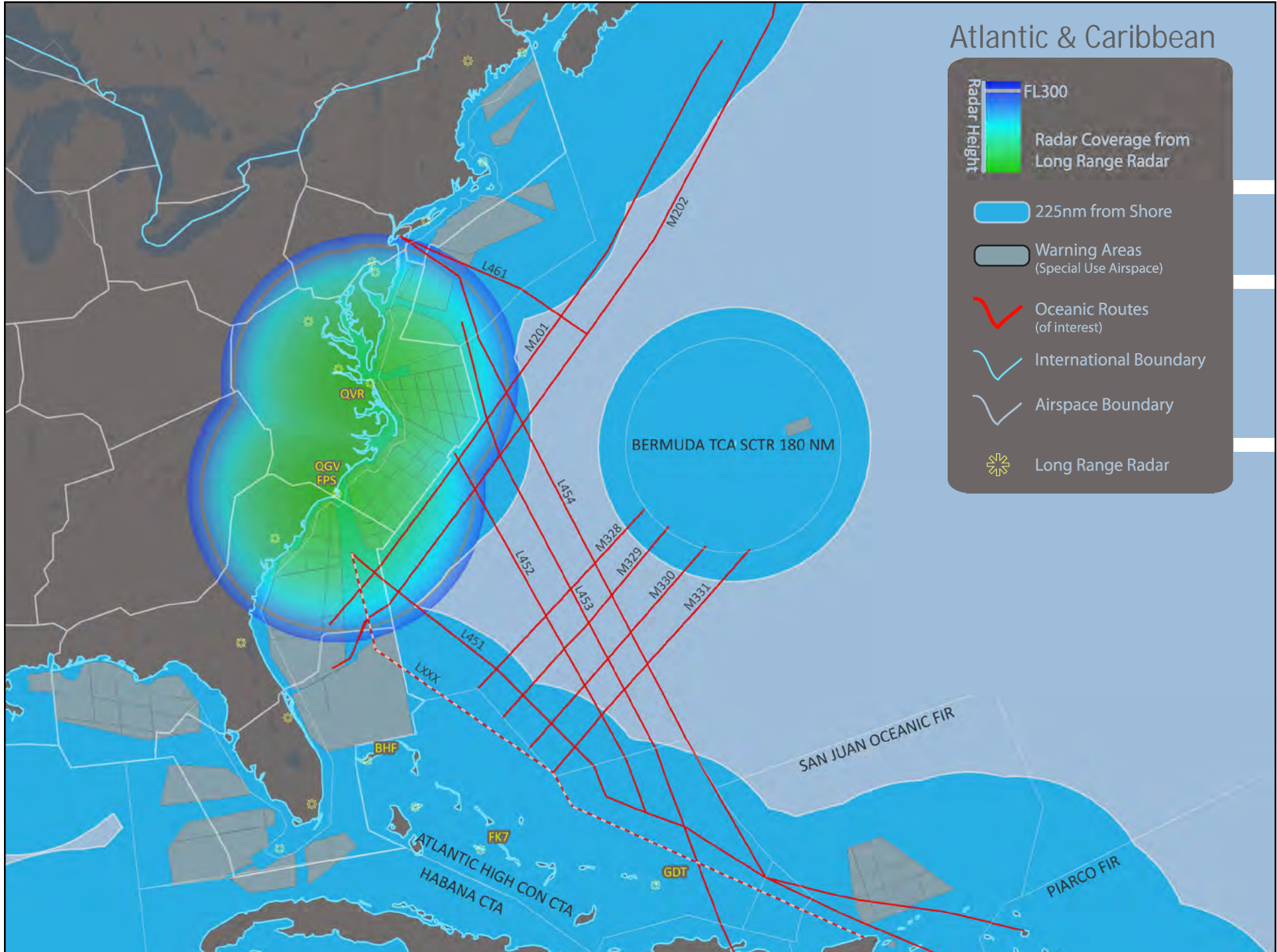


Caribbean

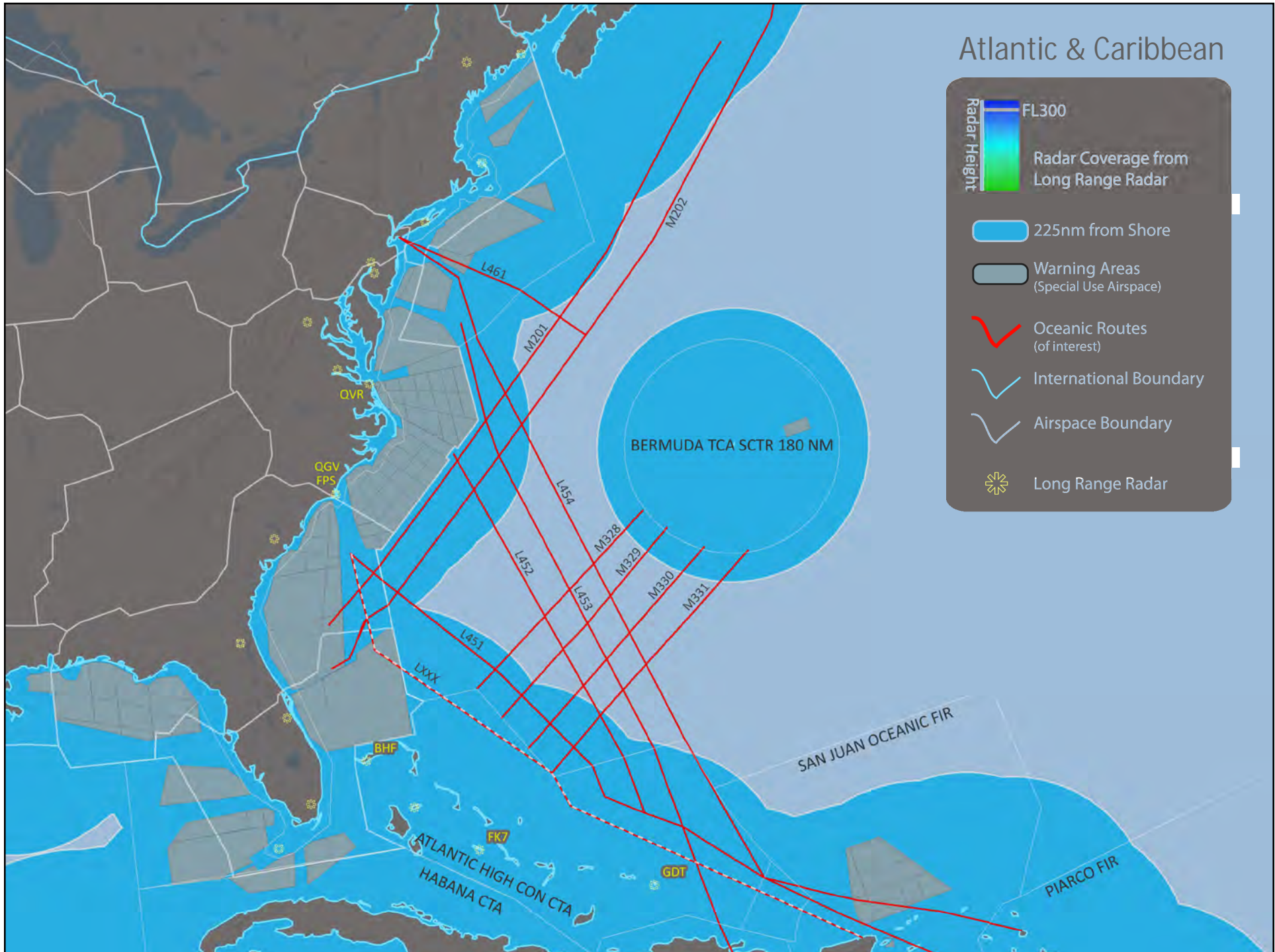
- Radar Height FL300
- Radar Coverage from Long Range Radar
- 225nm from Shore
- Warning Areas (Special Use Airspace)
- Oceanic Routes (of interest)
- International Boundary
- Airspace Boundary
- Long Range Radar

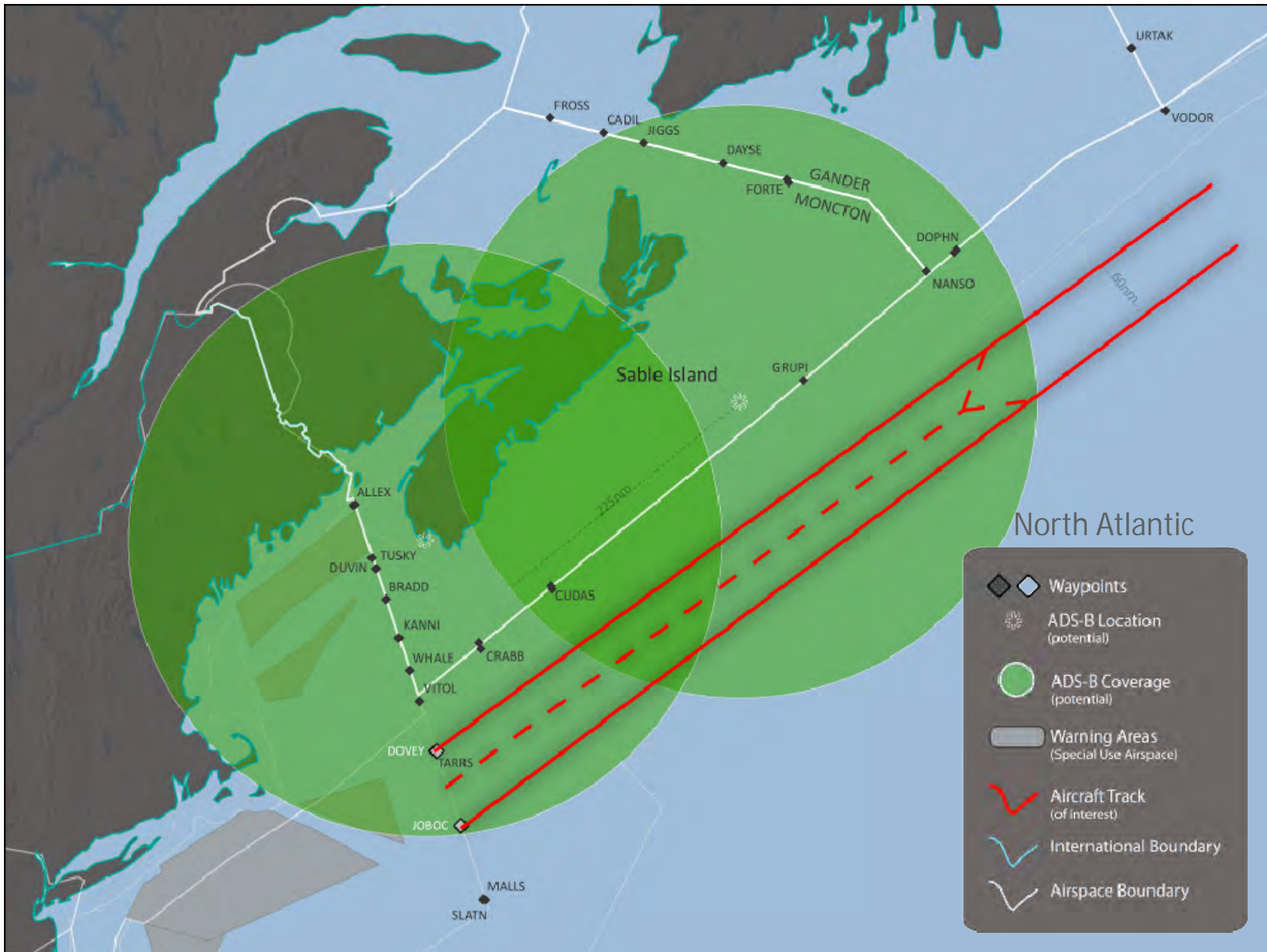


Atlantic & Caribbean

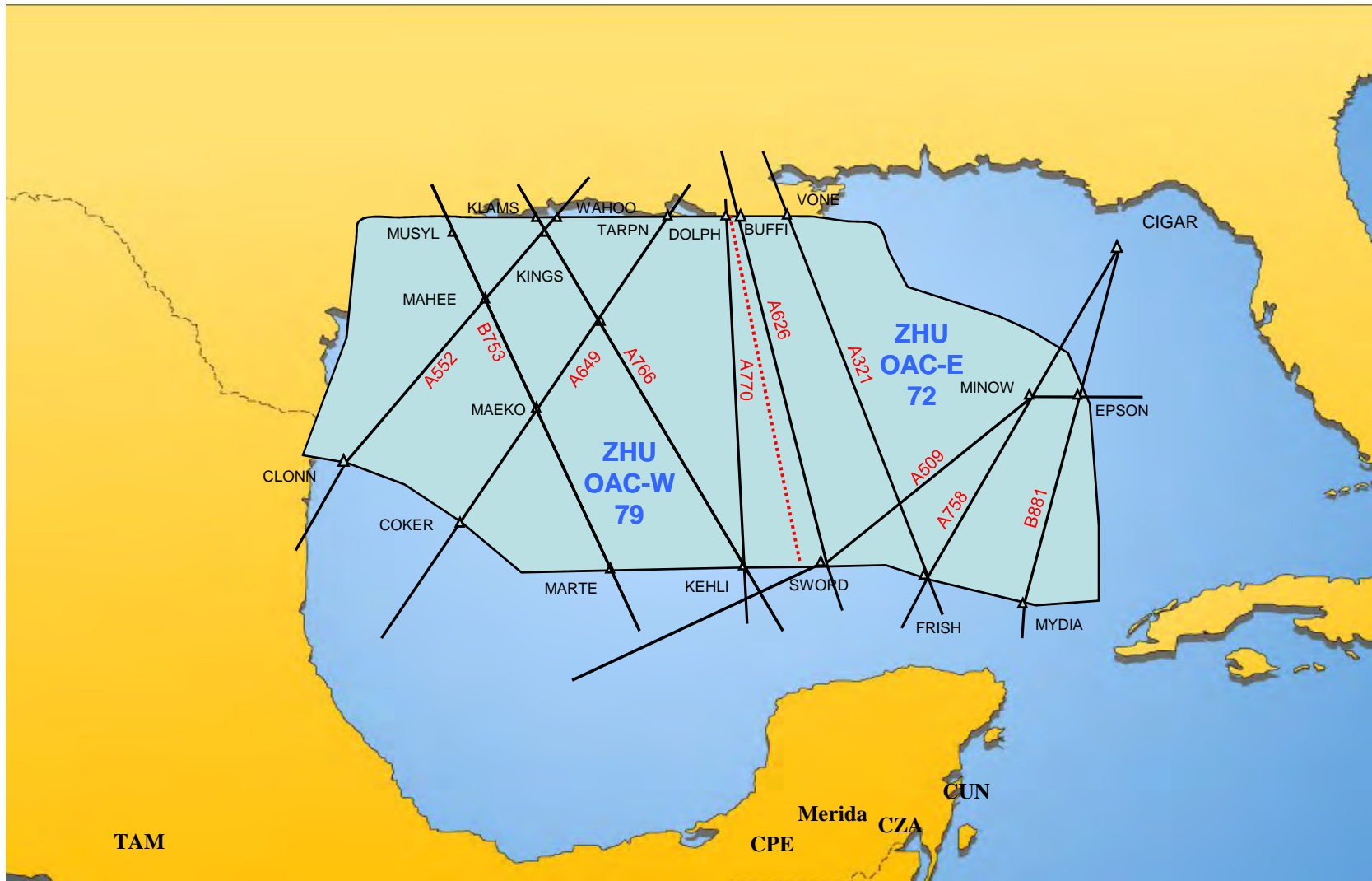


Atlantic & Caribbean

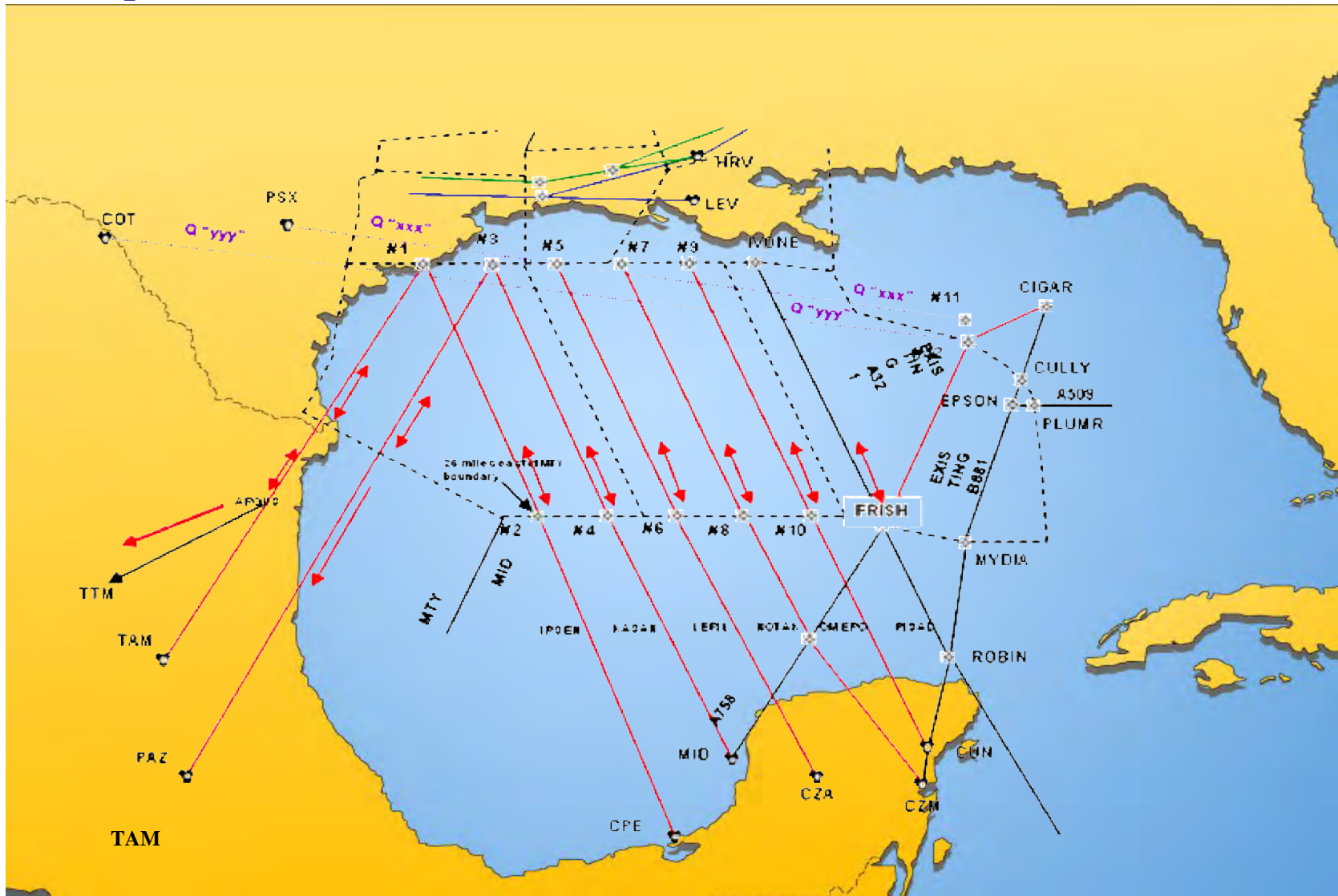




Today's GoM High Route Structure



Proposed GoM Route Structure



SBS External Agreements: Model for Collaboration



Delta MOA
Underway



DoD (US Air Force)
Underway



SSA MOA
December 2009



AOPA MOA
October 2009



Auburn University MOA
September 2009



United MOA
April 2009



U.S. Airways/ACSS MOA
January 2009



NetJets MOU
December 2008



Honeywell
October 2008



Aviation Communication
and Surveillance Systems
October 2008



Alaskan Aviation Community
& State Representative MOA
February 2007



UPS MOA
November 2006

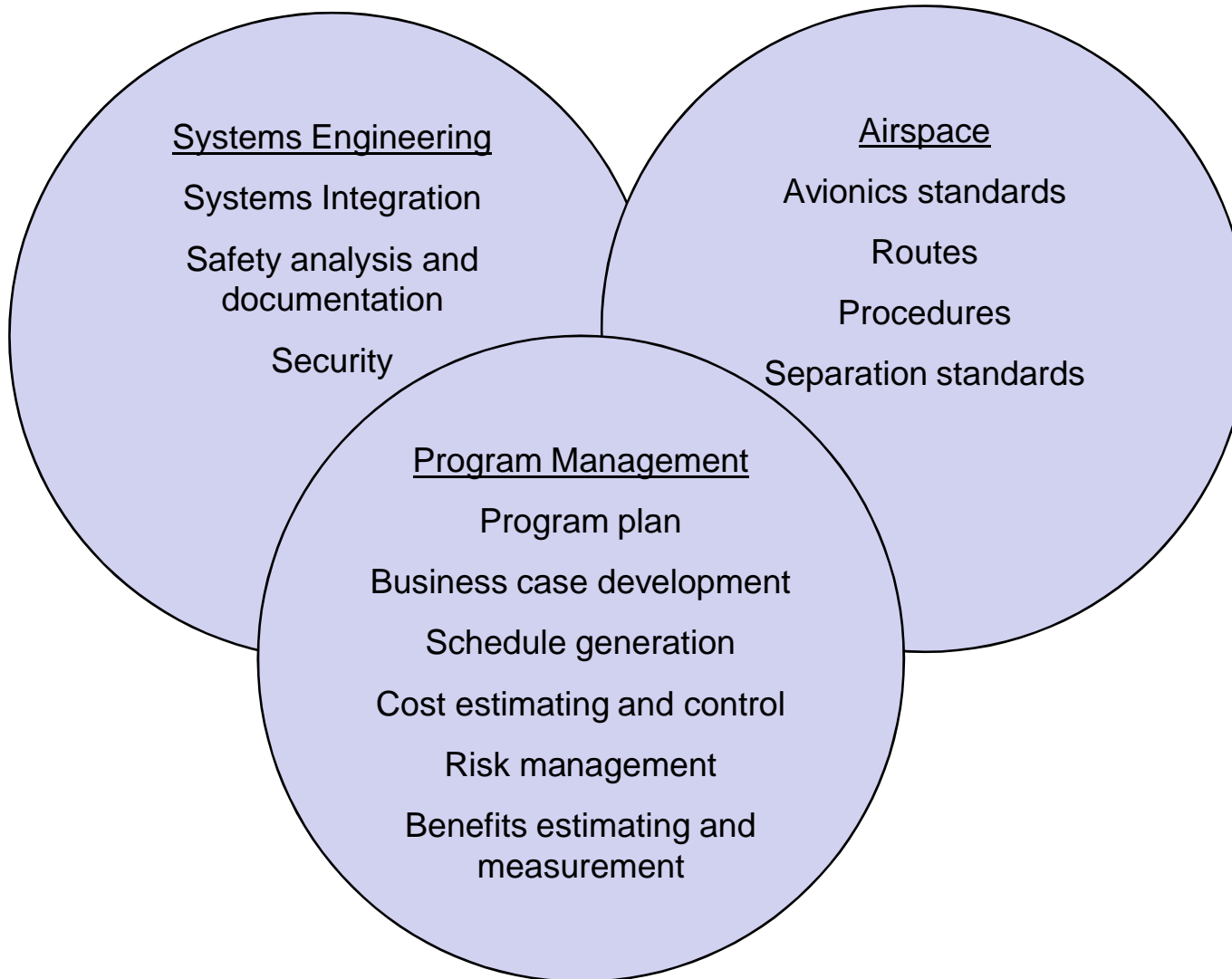


Colorado DOT
September 2006



HAI & Gulf of Mexico
Helicopter/Platform Owners MOA
May 2006

FAA ANSP Services



Surveillance and Broadcast Services

ADS-B Out Final Rule Overview

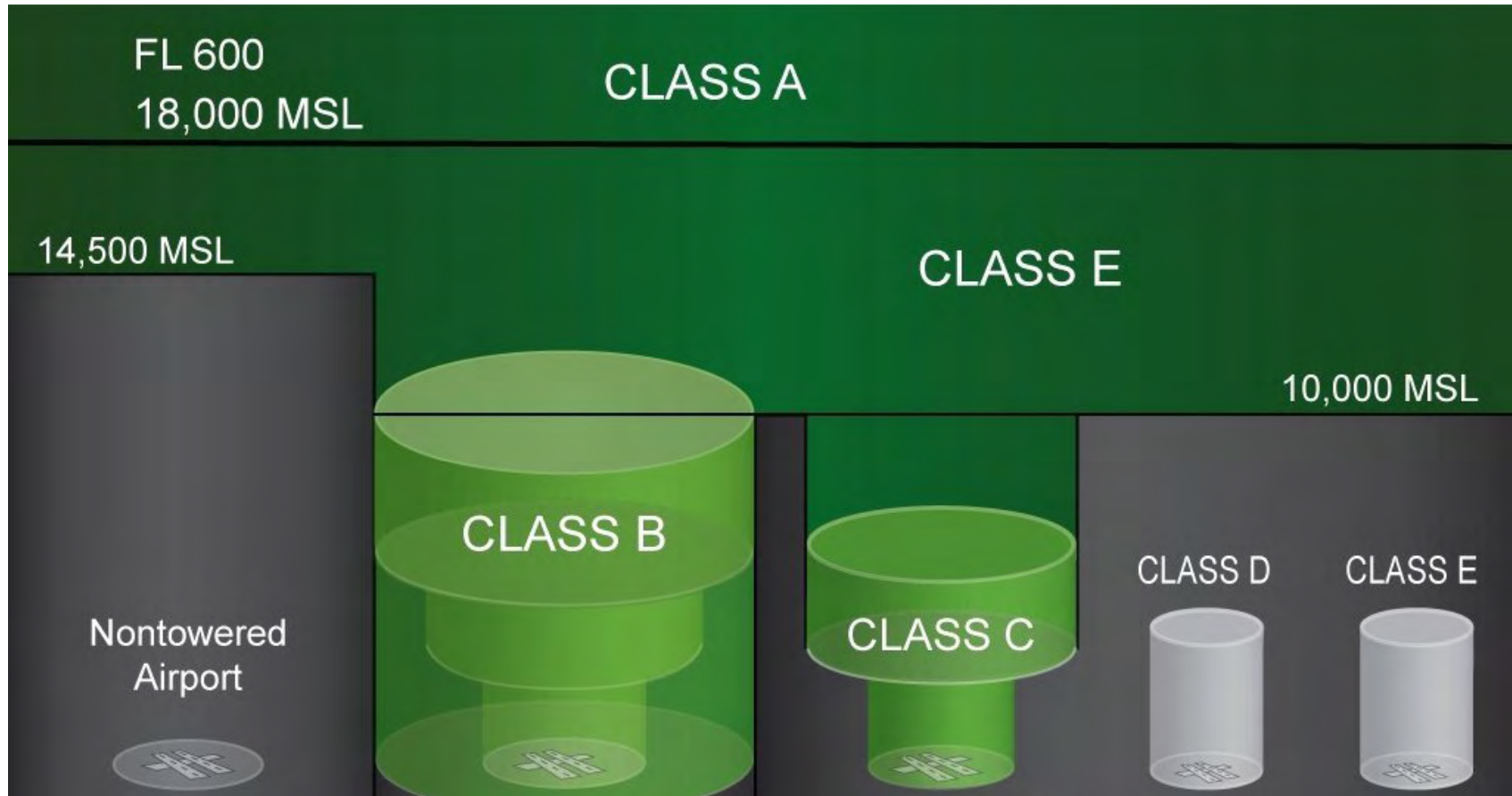
July 2010



Overview

- **On May 27, 2010, the FAA published the Final Rule for ADS-B Out equipage**
 - This rule mandates performance requirements for ADS-B avionics that will be required to fly in certain airspace
 - ADS-B Out transmits location information received from the Global Navigation Satellite System out of the aircraft to ADS-B ground stations and to other aircraft equipped to receive ADS-B broadcasts. The rule does not preclude other navigation source methods.
 - This rule does not mandate ADS-B In
 - A new Aviation Rulemaking Committee (ARC) will be chartered in June 2010 to address ADS-B In strategy

Required ADS-B Airspace (In Green)



Note: 1090MHz ES link is required above FL180



Jim Linney

Program Manager, Surveillance &
Broadcast Services

(W) 817-222-5655

(W) 202-385-8833 - HQ support
(schedule, link to Program
Office & data management)

Jim.Linney@faa.gov

www.adsb.gov