

Surveillance and Broadcast Services

Program Overview

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Surveillance and Broadcast Services - WSA

Date: October 23, 2013

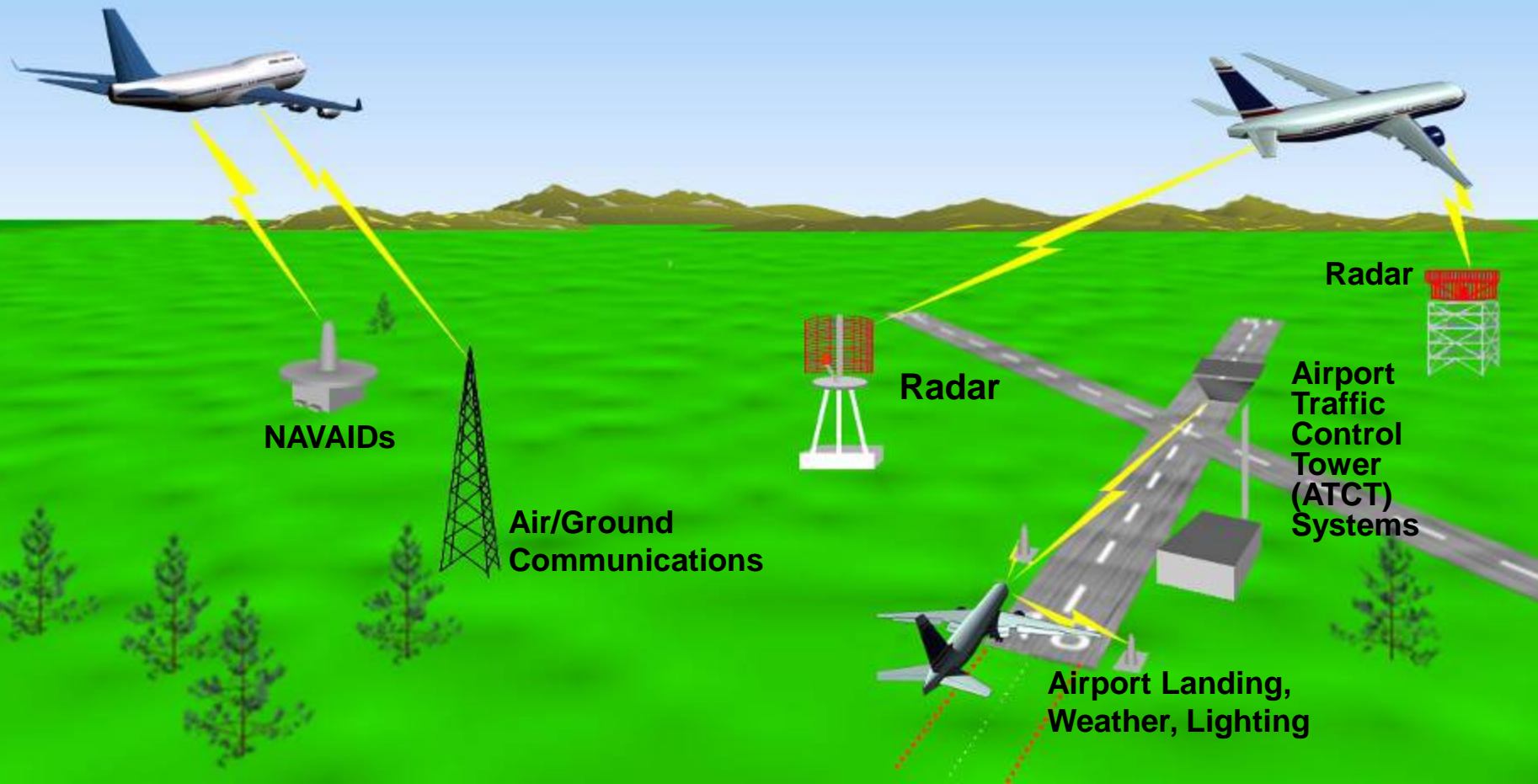


Federal Aviation
Administration



Today's Air Transportation System

- Ground-based
- Human-centric and un-automated
- Single channel voice control
- Aging Infrastructure (youngest En Route facility – 43 years)



What Changes Improve Services?

Today

Ground-based navigation and surveillance

Air Traffic Control communications by voice

Air traffic “control”

Fragmented weather forecasts

Airport operations limited by visibility conditions



NextGen

Satellite-based navigation and surveillance

Routine information sent digitally

Air traffic “management”

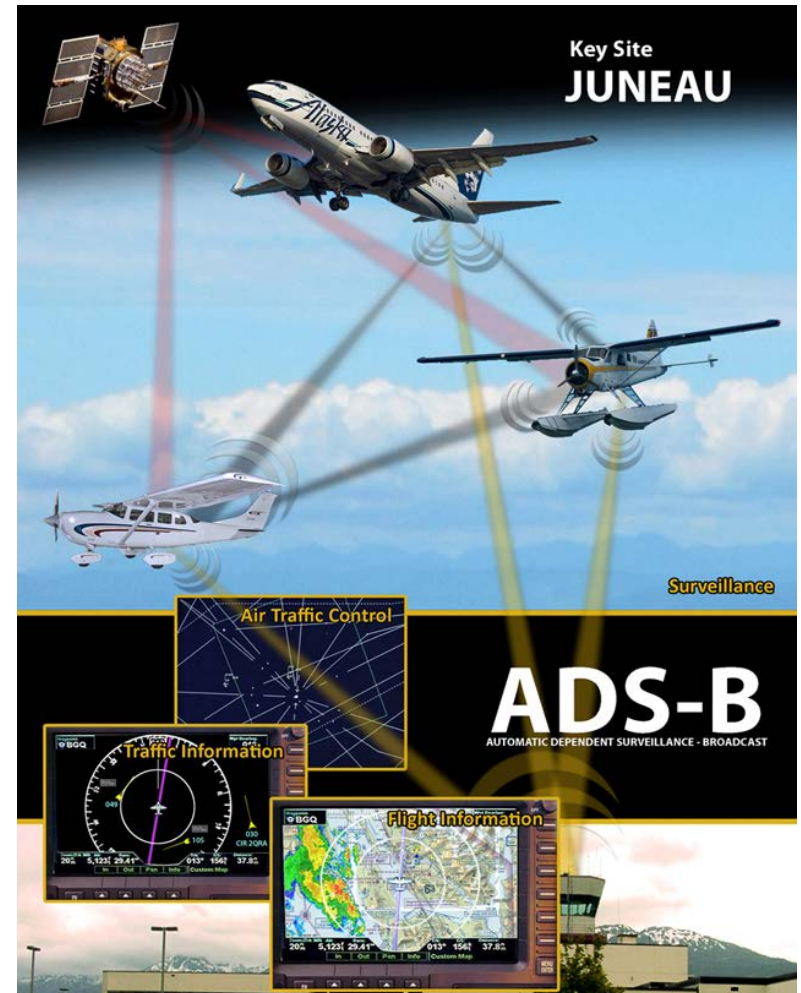
Forecasts embedded into decisions

Operations continue into lower visibility conditions



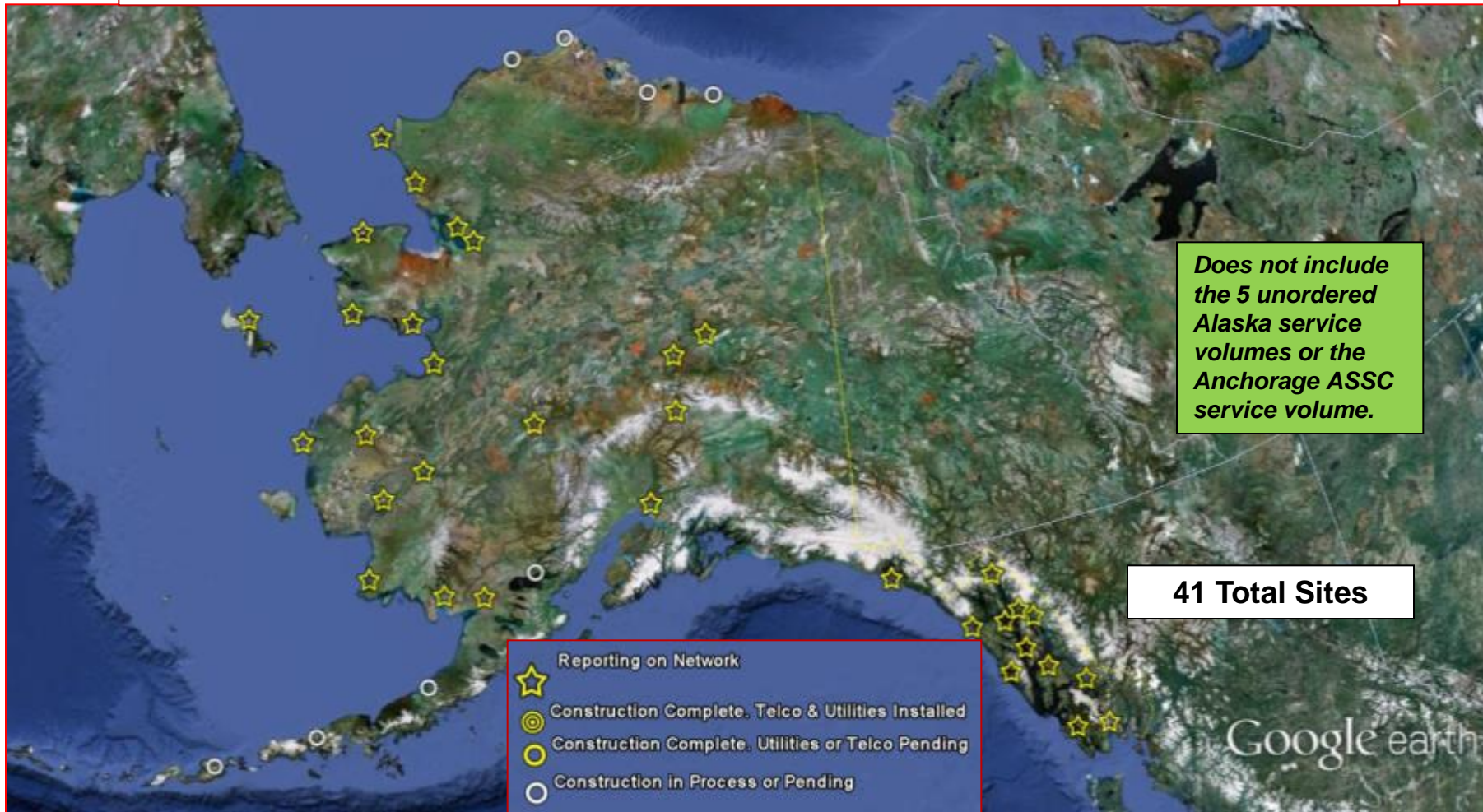
Background: Automatic Dependent Surveillance - Broadcast (ADS-B)

- **Automatic**
 - Periodically transmits information without pilot or operator input
- **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

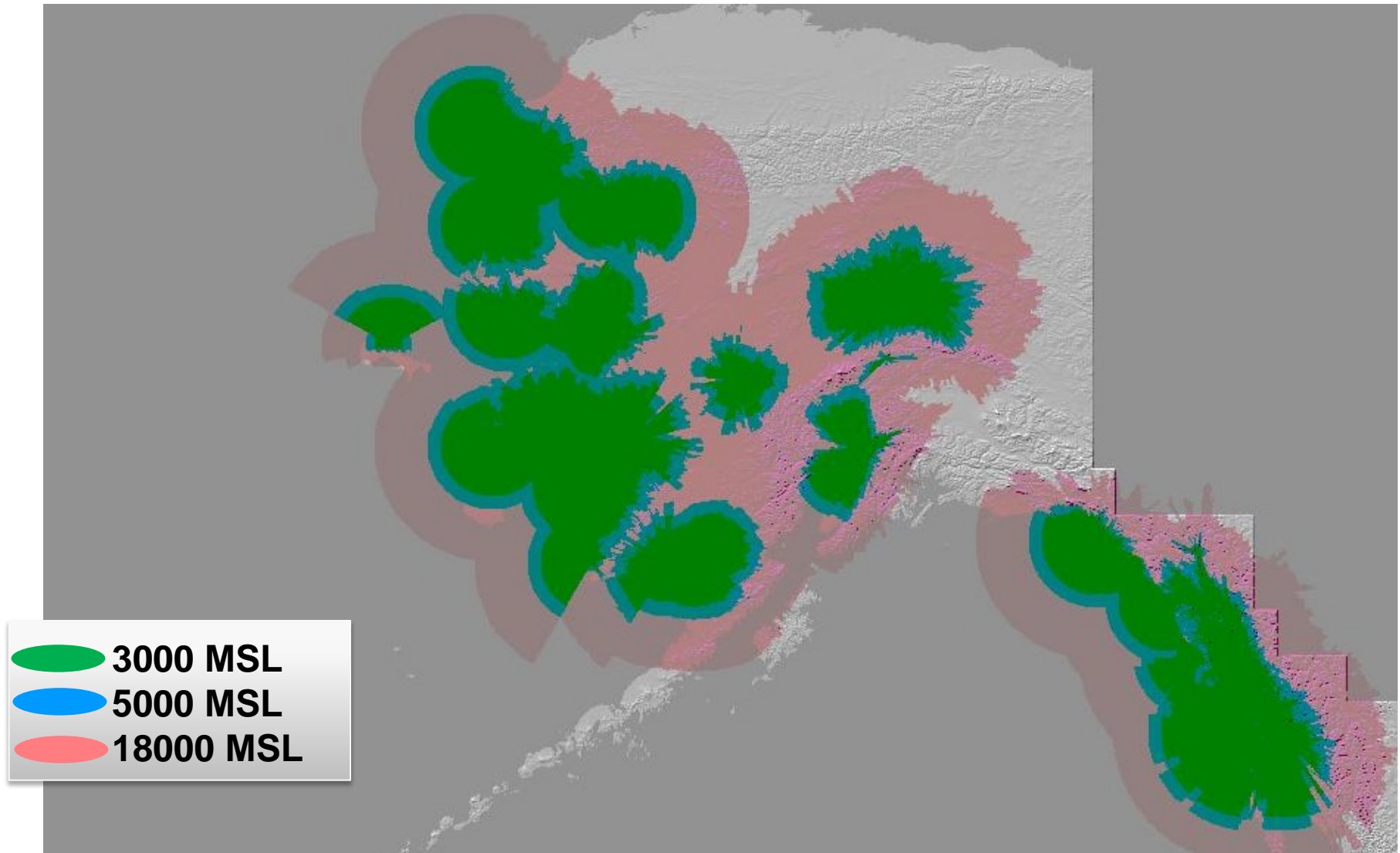


Alaska Status

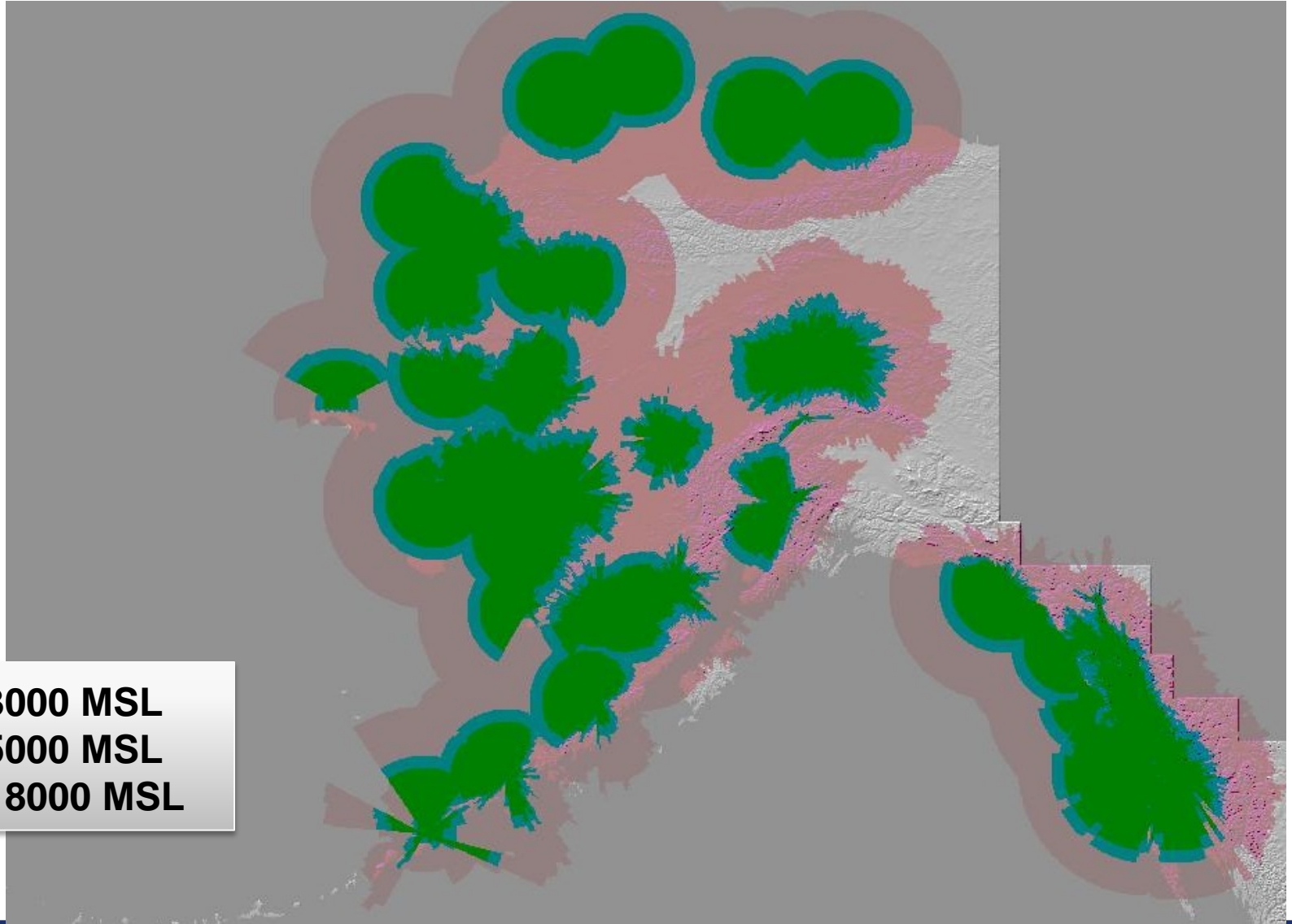
33 Sites Reporting on Network : 33 Sites Constructed : 4 Sites in Planning or Construction



Current ADS-B Coverage area



2014 ADS-B Coverage area

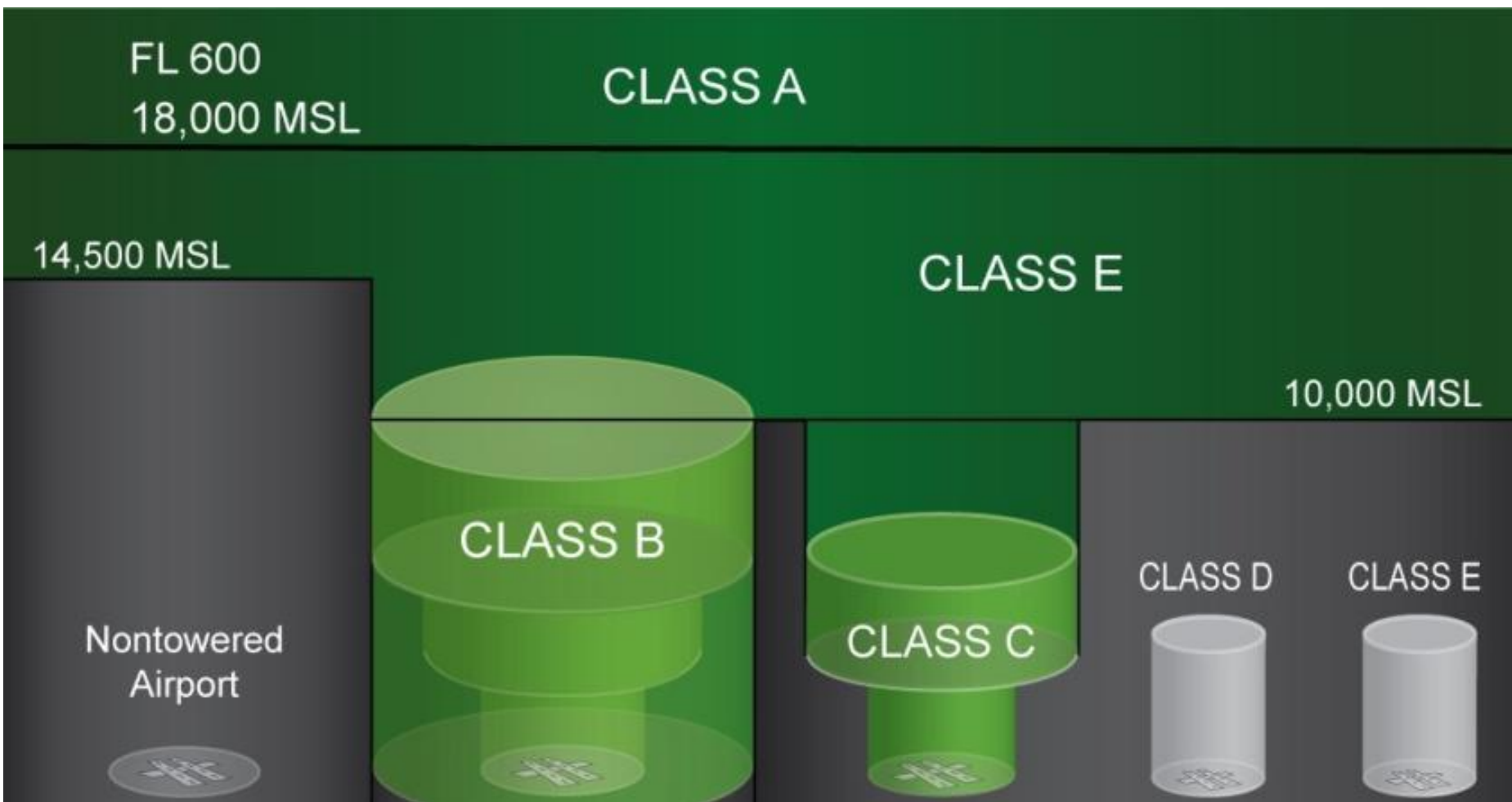


Aircraft Equipage Rule

- **Mandatory by Jan 1, 2020**
- **FAA published the Final Rule On May 27, 2010 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



Required ADS-B Airspace (In Green)



Note: 1090MHz ES link is required above FL180

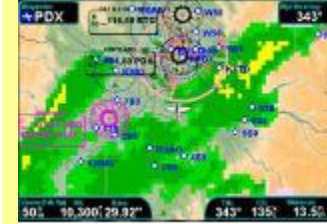


New Free Services Available to GA

Pilot Advisory Services



Traffic Information Services – 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.



Flight Information Services – Broadcast (FIS-B) is a service which transmits graphical National Weather Service products, pilot reports, and special use airspace.



Free Products	Update Interval	Transmission Interval
AIRMET	As Available	5 minutes
Convective SIGMET	As Available then at 15 minute intervals for 1 hour	5 minutes
METAR / SPECI	1 minute (where available) as available otherwise	5 minutes
NEXRAD Reflectivity (CONUS)	~ 5 minutes (10 minutes for clear air mode)	15 minutes
NEXRAD Reflectivity (Regional)	~ 5 minutes (10 minutes for clear air mode)	2.5 minutes
NOTAMs - D/FDC	As Available	10 minutes
PIREP	As Available	10 minutes
SIGMET	As Available, then at 15 minute intervals for 1 hour	5 minutes
SUA Status	As Available	10 minutes
TAF / AMEND	8 hours	10 minutes
Temperature Aloft	12 hours	10 minutes
Winds Aloft	12 hours	10 minutes



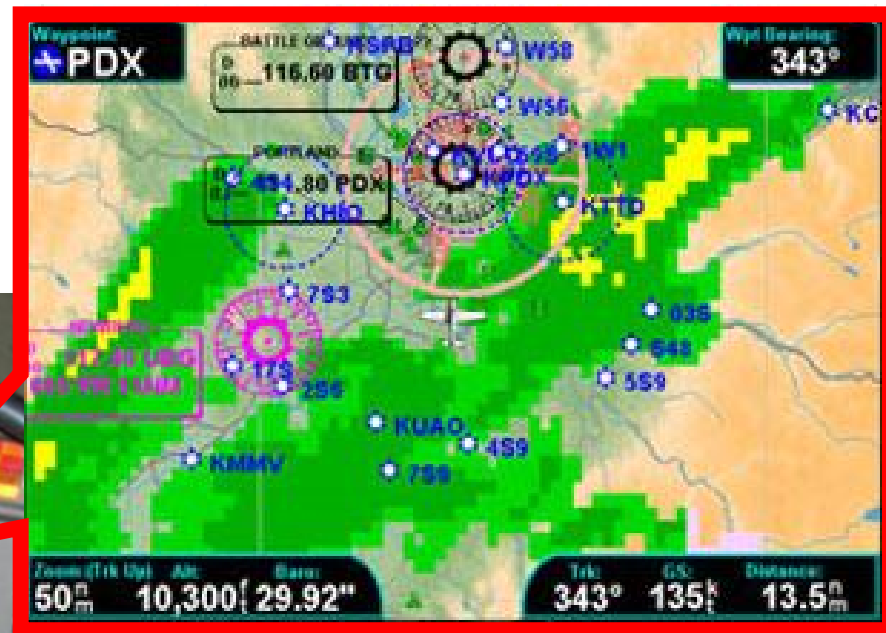
Advisory Service:

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.



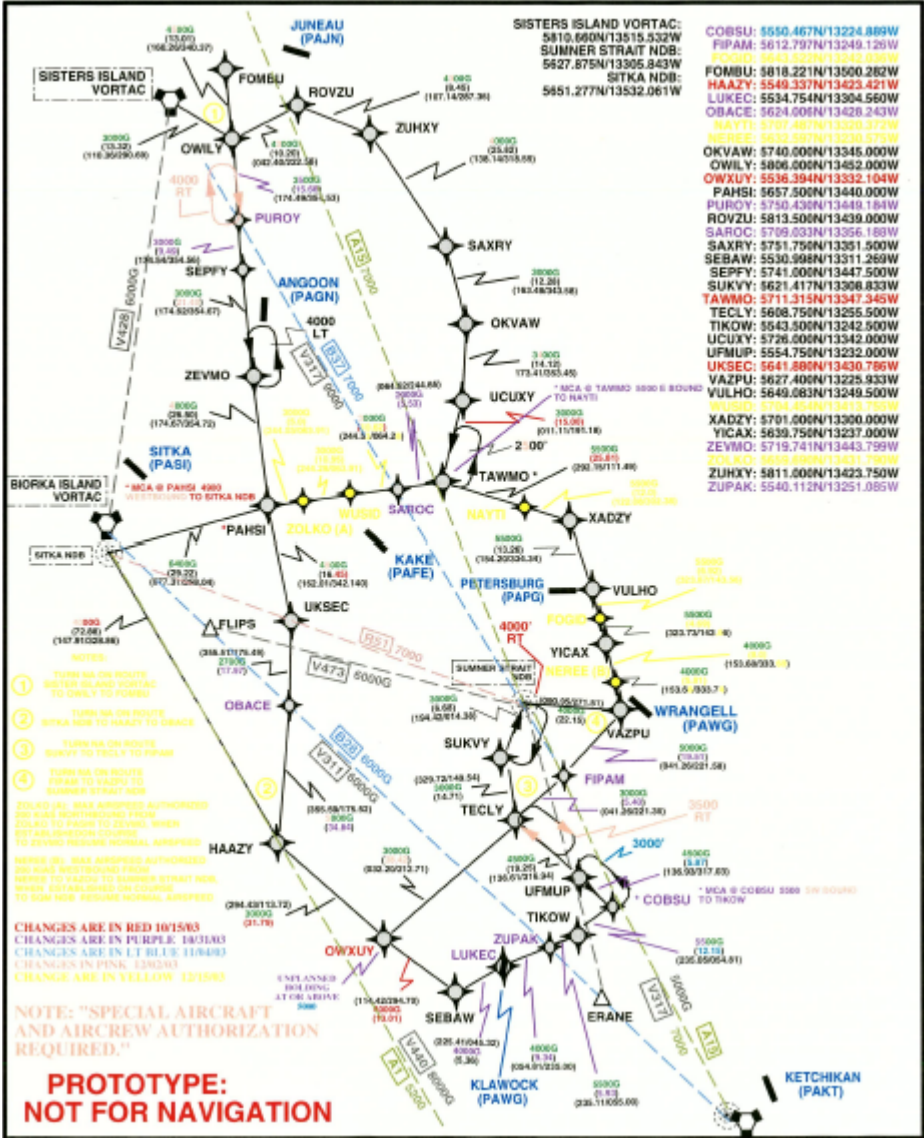
Advisory Service: Flight Information Service - Broadcast



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

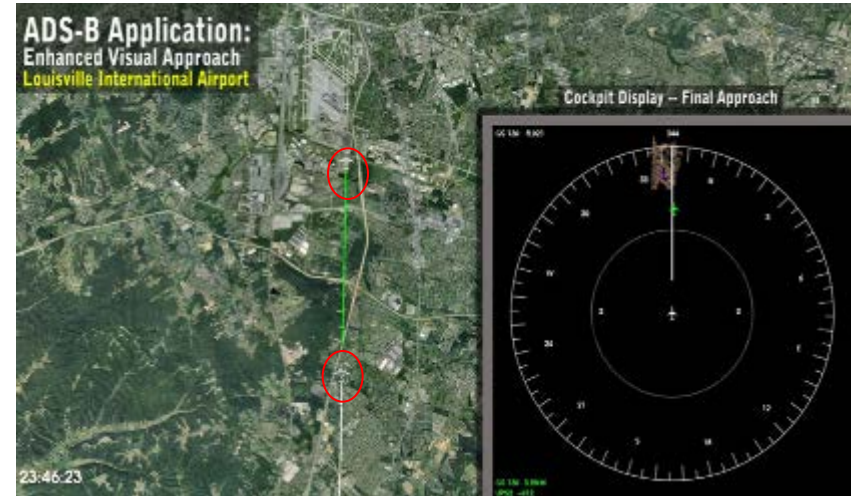
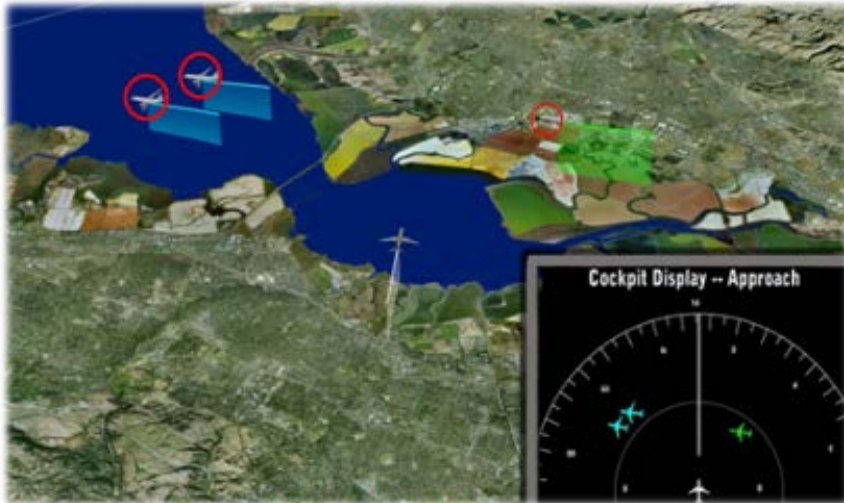


Capstone En Route- RNAV

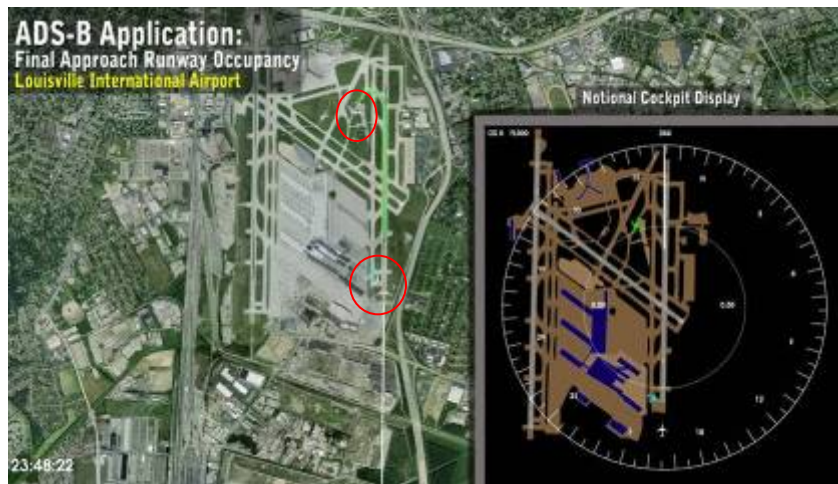


Airborne Applications

Enhanced Visual Approach

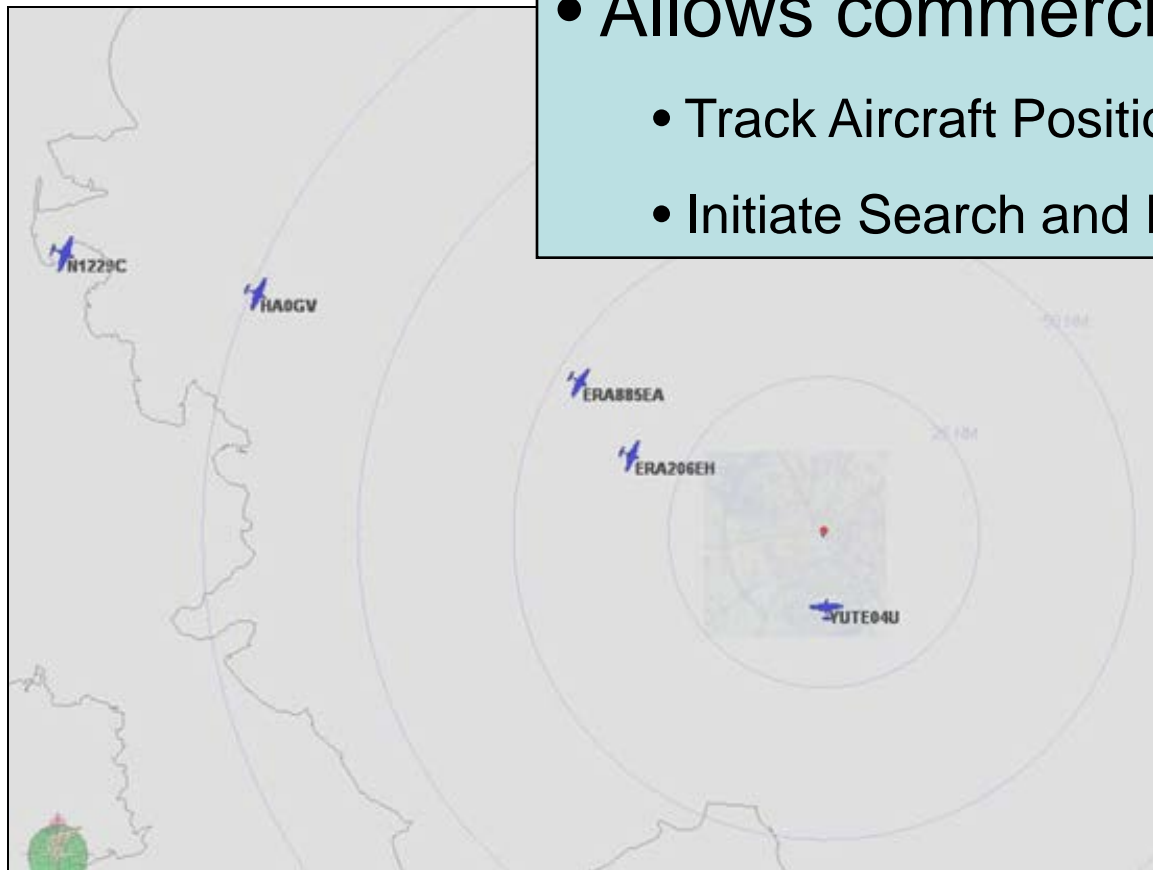


Airport Traffic Situational Awareness

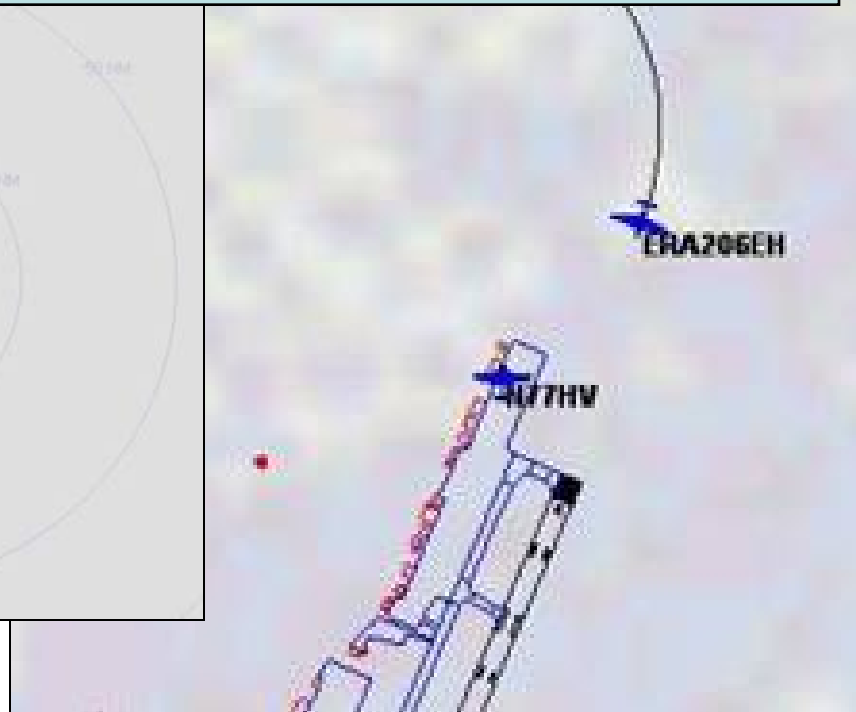


Benefits on the ground

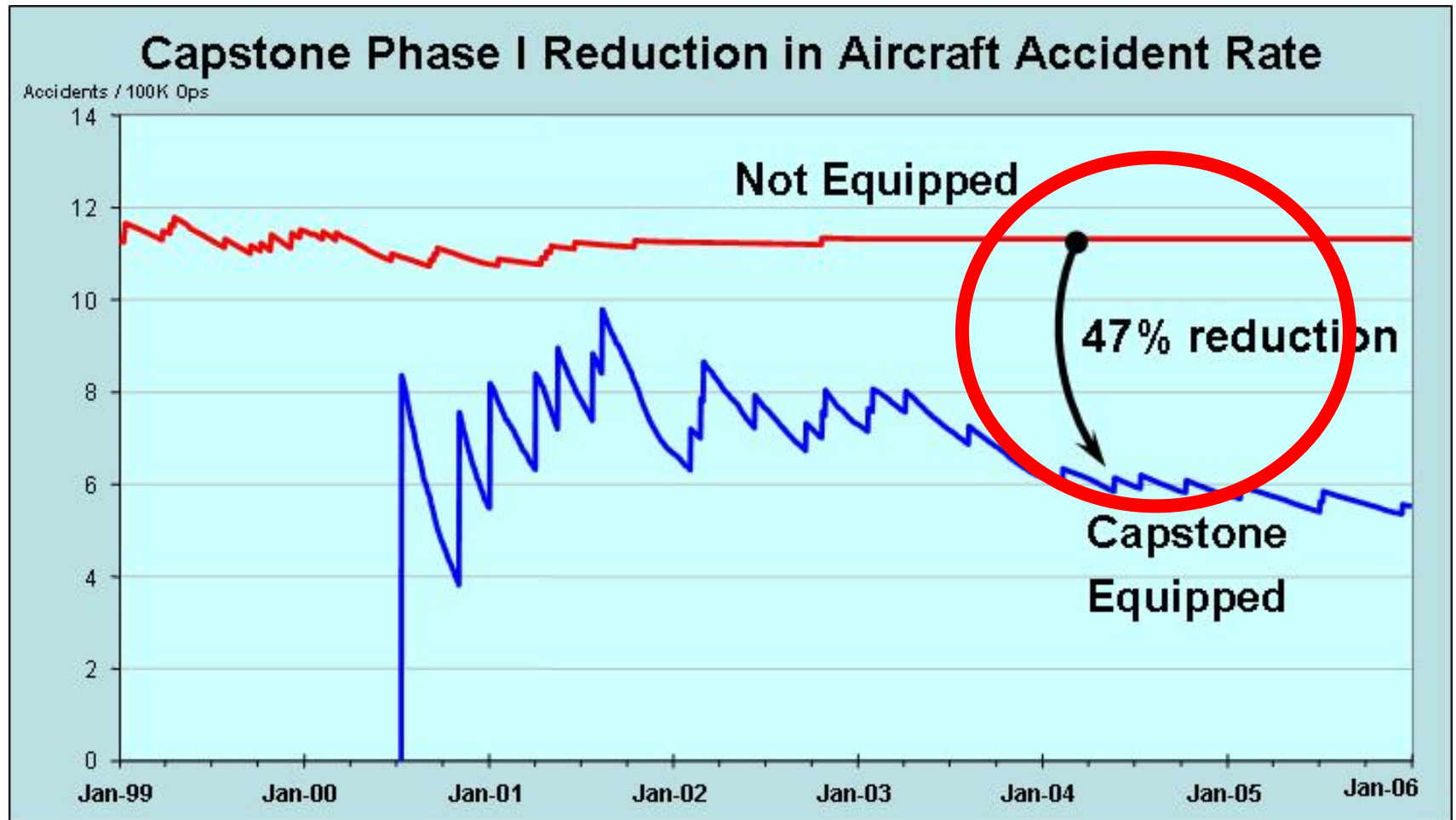
- Allows commercial operators to:
 - Track Aircraft Positions (Fleet Monitoring)
 - Initiate Search and Rescue Efforts



Displayed over the internet

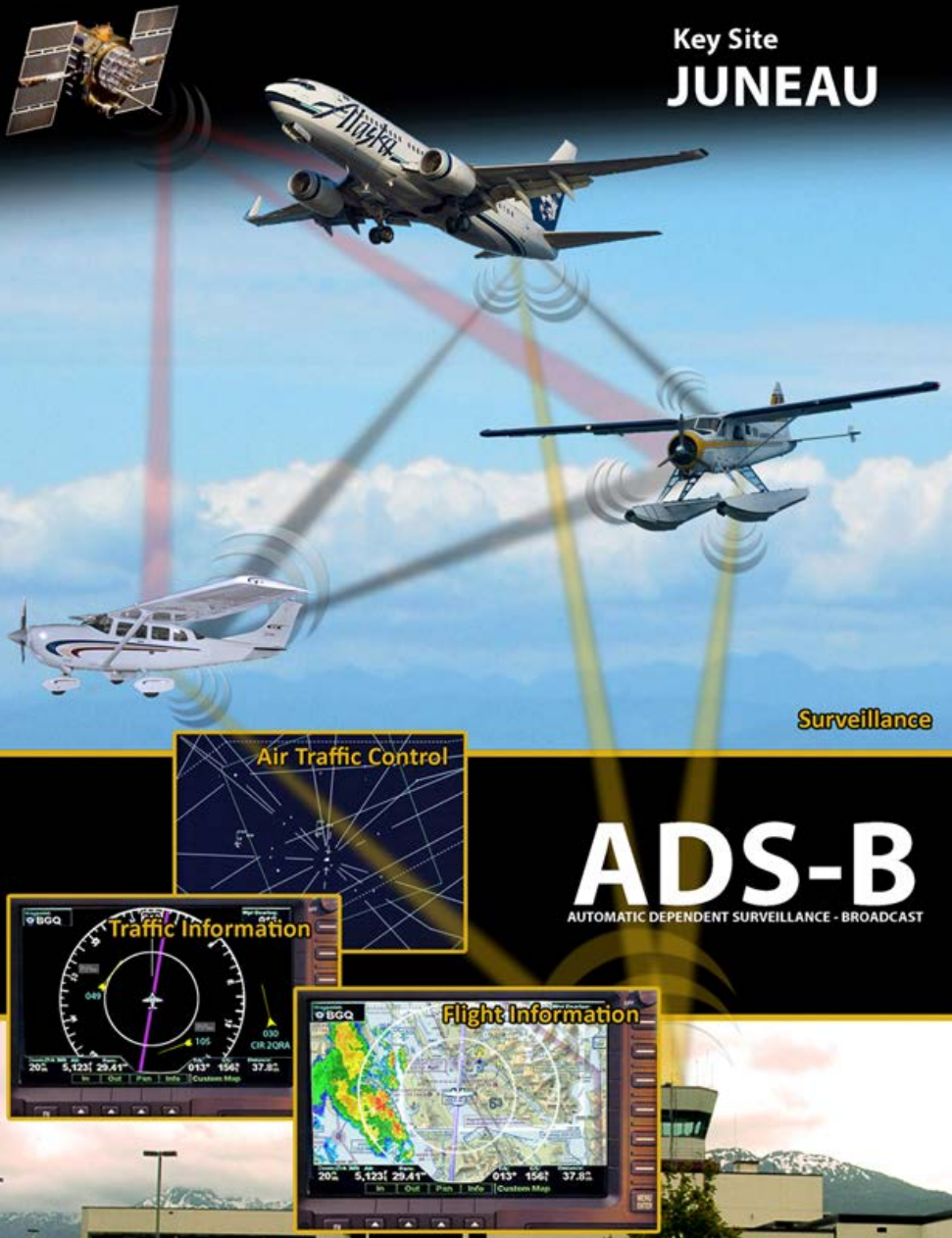


Results – Safety



Source: The Impact of Capstone Phase I Program – Final Report; UAA, The MITRE Corp, Embry Riddle; Sept 2006





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