

Program Management Organization

FAA Program Status

By: Doug Arbuckle and Don Walker

Date: April 14, 2015

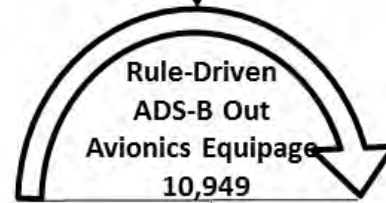


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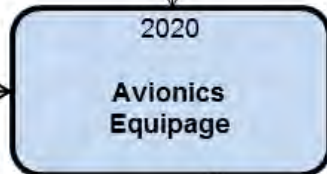
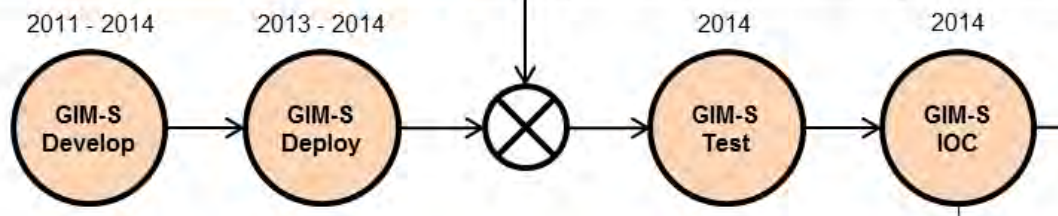


Service Delivery Points for ATC Separation Services

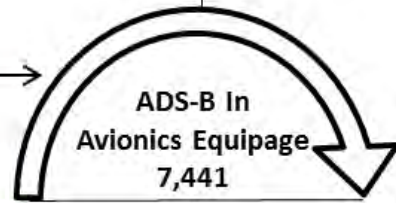
	FY10 – FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	Operational
En Route	6	4	12	1 of 2	0	0	0	0	23 of 24
Terminal	19	27	16	2 of 5	13	39	28	13	64 of 160
Surface (Advisory)	16	10	9	0 of 2	3	4	0	0	35 of 44
Oceanic	0	0	0	1 of 1	1	1	0	0	1 of 3



ATC Spacing Services
Ground-Based Interval Mgmt - Spacing (GIM-S) (En Route only)

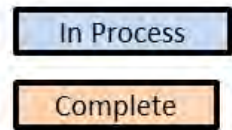


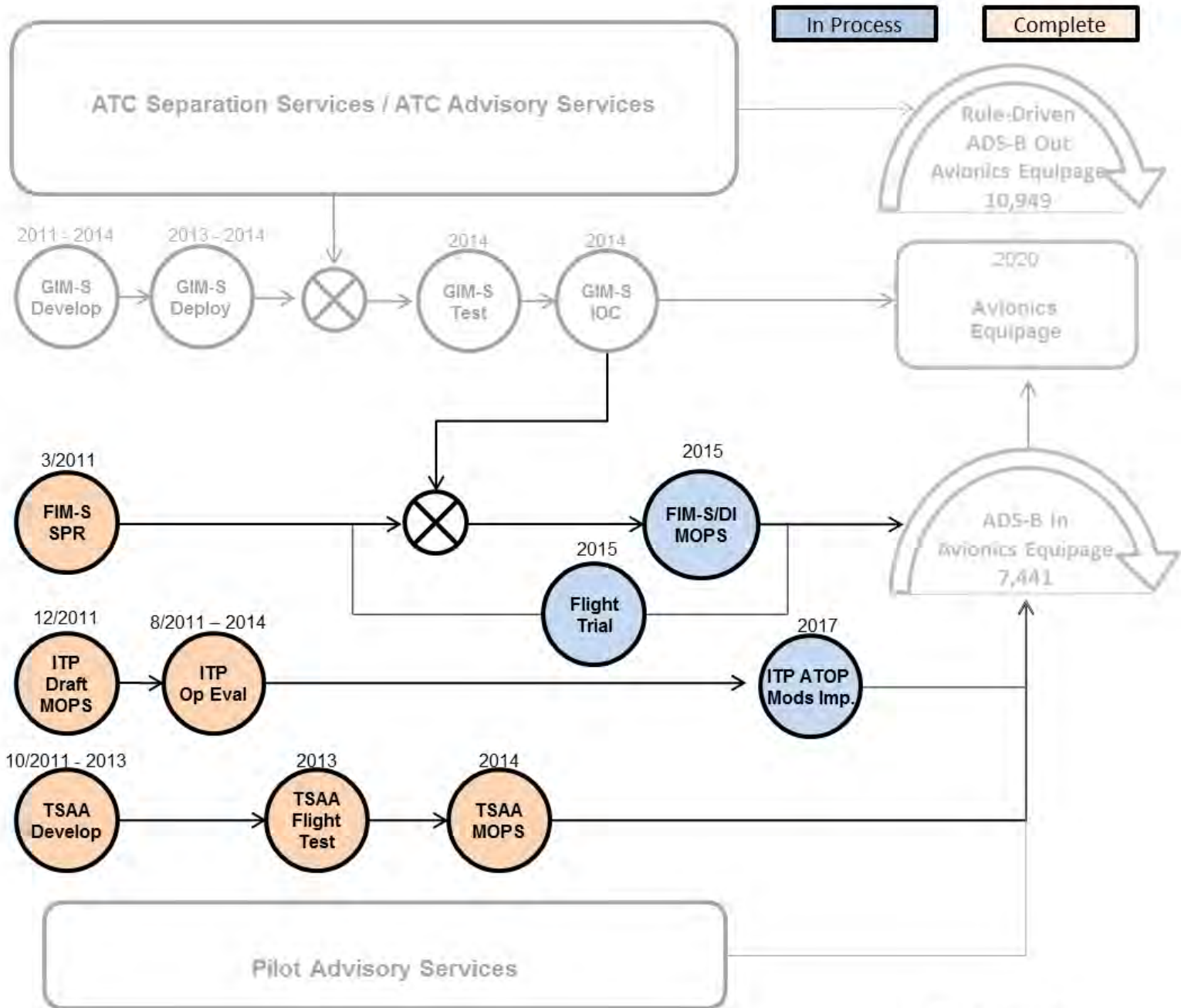
Flight Deck Based Interval Mgmt - Spacing (FIM-S)
In Trail Procedures (ITP)
Traffic Situation Awareness with Alerts (TSAA)



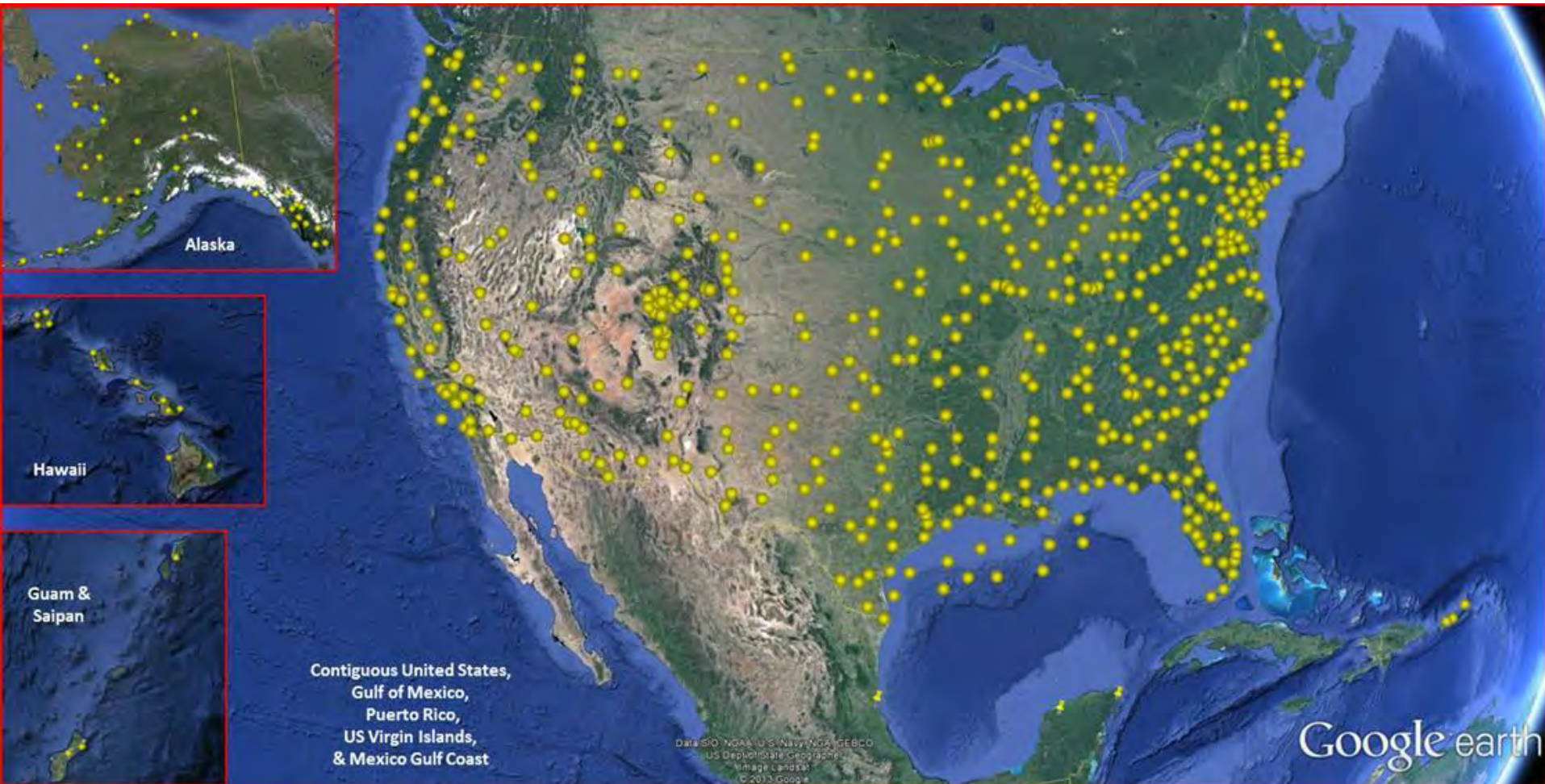
TIS-B
FIS-B
ADS-R

Pilot Advisory Services			
	FY14	FY15 – FY17	Total
Baseline Radio Station Installations (2008 – 2014)	634 of 634		
Alaska Expansion Radio Station Installations	4	3 of 4	7 of 8
Service Expansion Radio Station Installations (ASSC and Gulf of Mexico) (2014 – 2017)	2	0 of 19	2 of 21
Total Radio Station Installations (2008 – 2017)	643 of 663		





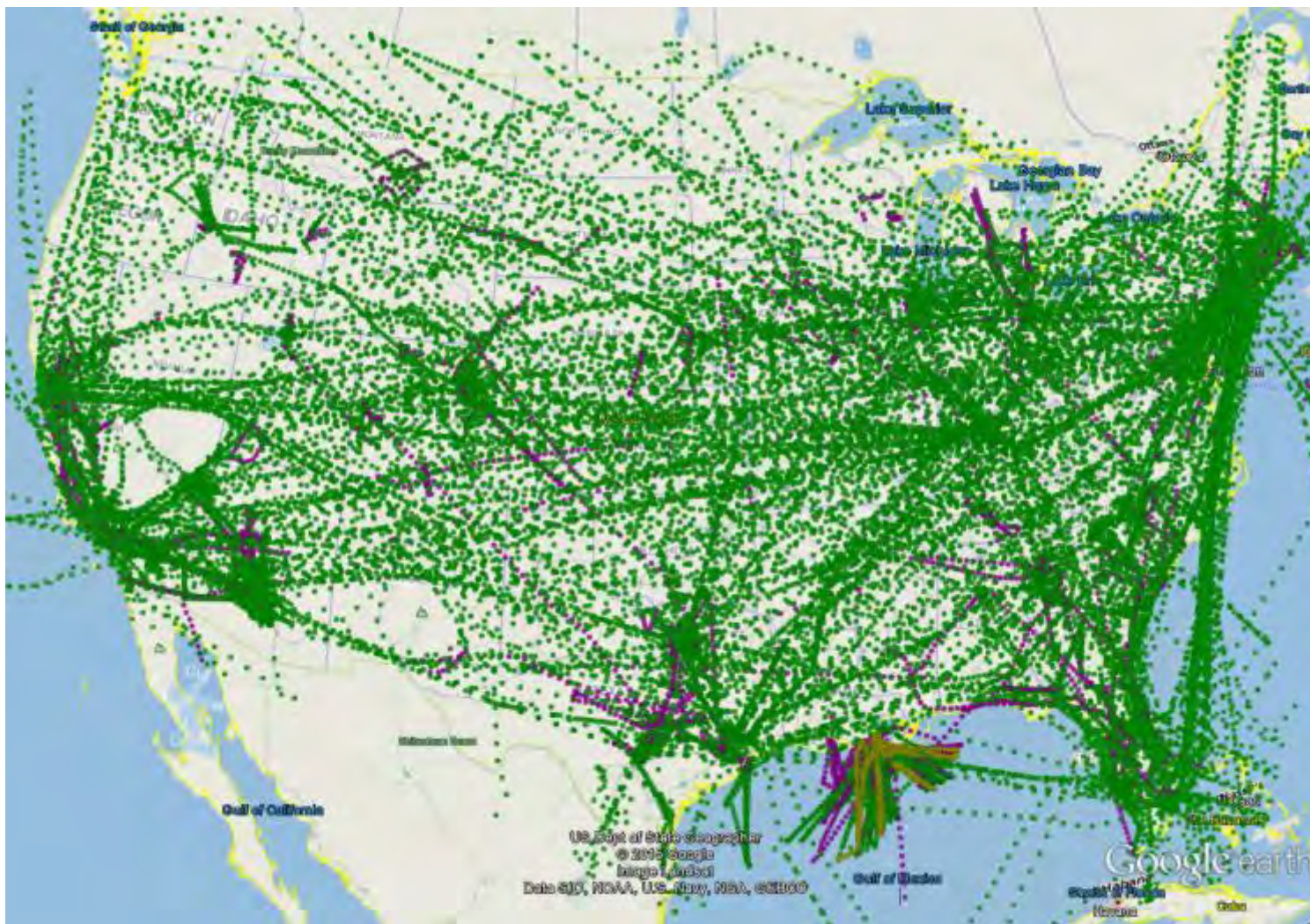
ADS-B Ground Infrastructure



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CONUS ADS-B V2 + V1 Approved GoMex Helicopters: 24 Hour Snapshot (Tues Mar 10th, 2015) Suitable for ATC automation

<https://vimeo.com/122279220>



Count	Link
852	260B
235	282B
16	Dual Out
7	260A Helos
0	Anonymous Ops (Included in 282B count)
1,110	LV1+LV2

Note: Some aircraft with multiple flights

Green = DO-260B
 Purple = DO-282B
 Yellow = 260A
 GoMex approved helicopters



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San Juan ADS-B LV2: 24 Hour Snapshot (Tues Mar 10th, 2015) Suitable for ATC automation

<https://vimeo.com/122279653>



Count	Operator or Type
10	JetBlue
2	UPS
3	US Airways
5	Business jets
20	260B

Note: Some aircraft with multiple flights

Green = DO-260B



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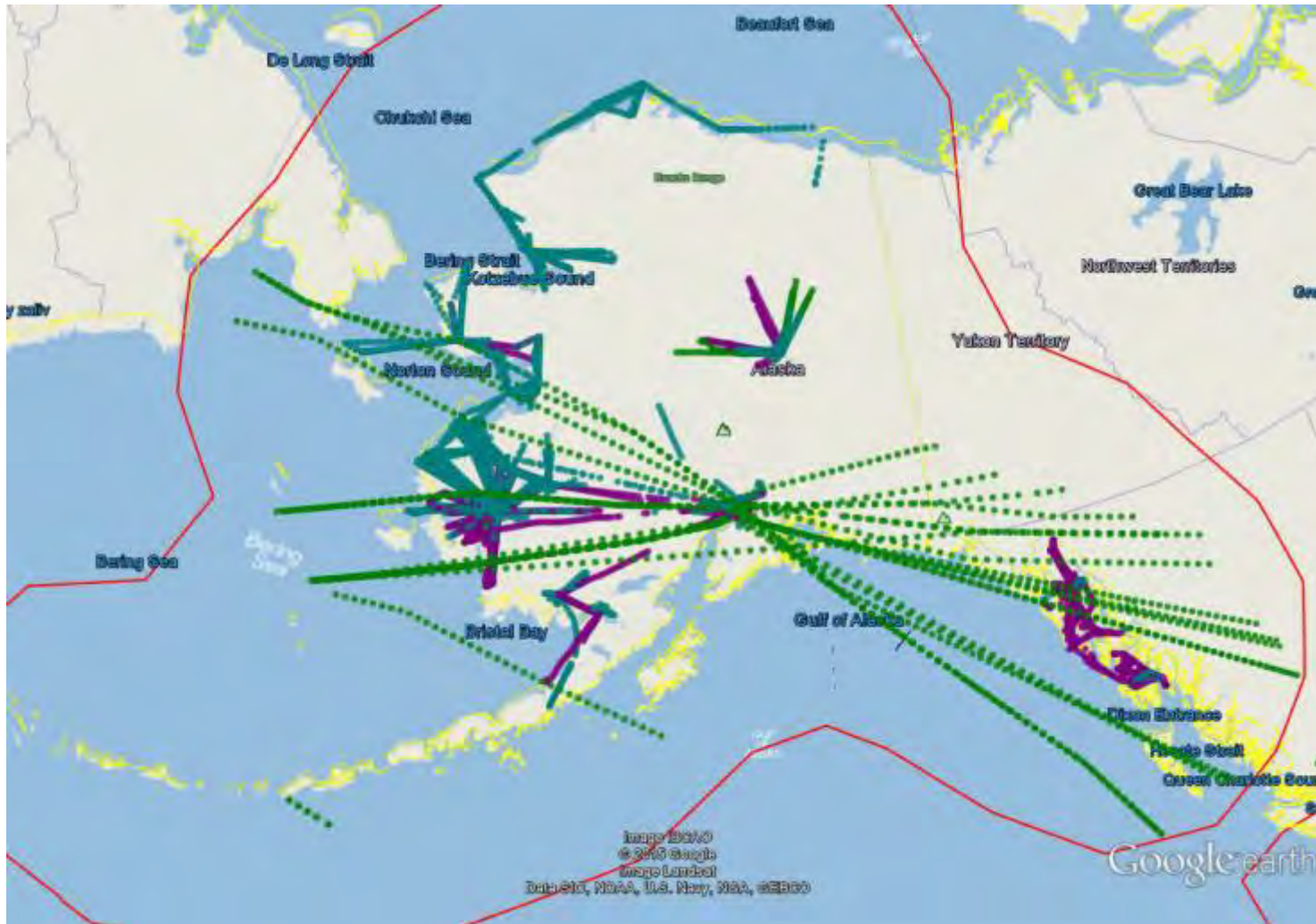
Alaska ADS-B V2 + UAT V1: 24 Hour Snapshot (Tues Mar 10th, 2015) Suitable for ATC automation

<https://vimeo.com/122279652>

Count	Link
27	260B
52	282B
1	Dual Out
107	282A
187	LV1+LV2

Note: Some aircraft with multiple flights

Green = DO-260B
Purple = DO-282B
Blue = DO-282A UAT



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Hawaii ADS-B LV2: 24 Hour Snapshot (Tues Mar 10th, 2015) Suitable for ATC automation

<https://vimeo.com/122279688>



Count	Operator or Type
4	UPS
4	Business Jets
1	UAT Piper PA-31
9	Total

Note: Some aircraft with multiple flights

Green = DO-260B
Purple = DO-282B



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FAA Air Transport Avionics Upgrades



- ADS-B Out
- Aircraft: 35 A320
- STC approved July 2012
- **All 35 modifications complete**



- ADS-B Out and In
- Aircraft: 12 747
- STC approved June 2011
- **12 ADS-B In equipped**



- ADS-B Out
- Aircraft: 110 737NG
- Boeing Service Bulletin 01 delivered May 2013
- United retrofit begins by January 2016
- Upgrades to DO-260B complete by December 2017

- ADS-B Out
- Aircraft: 164
 - 13 B747
 - 59 B767
 - 52 A300
 - 38 MD11
 - 2 B757



- STC for 767, 747/767 AML, MD11/A300 AML, and 757 approved (December 2011, January 2012, February 2013, and July 2014 respectively)
- **All 164 installs are complete**



- ADS-B Out and In
- Aircraft: 20 A330-300/200
- STC for ADS-B Out approved August 2012; STC for Merging & Spacing approved January 2013
- **19 ADS-B Out and 19 ADS-B In installs complete**
- Upgrades (Out and In) complete by October 2015



FAA General Aviation / Rotorcraft Avionics Upgrades



- ADS-B Out and In [Multi-function Display (MFD)
Aircraft: 2 Bell 206 helicopters
- STC issued January 2014
- **Upgrades completed February 2014**



- ADS-B Out
- Aircraft: 1 Cessna 150
- AML STC for Cessna 150/172/182 issued December 2012
- **Upgrade completed December 2012**



- ADS-B Out
- Aircraft: 54 helicopters
- DO-282B STC for AW-139 issued June 2012
 - **7 Chevron AW-139 completed February 2013**
- **DO-260B STCs for S-76 and S-92 issued March 2014 and April 2014, respectively**
 - 47 PHI: Upgrades complete by December 2015
 - **To date, 30 upgrades complete**



- ADS-B Out
- Aircraft: 400 legacy Capstone aircraft
- Contract awarded to FreeFlight Systems on April 30, 2013
- **AML STC for fixed wing issued March 2014**; AML STC to include AS-350 is expected in September 2015; working field approval for Bell 412
- Upgrades complete by 2016
 - **To date, 139 upgrades complete**



FAA Next Steps

- **Complete first radio construction in support of the Gulf of Mexico expansion by June 2015**
- **Continue rollout of Air Traffic Control Separation Services**
 - Achieve IOC at last en route site by September 2015
 - Achieve IOC at 3 additional terminal sites by September 2015
- **Monitor avionics compliance and work with industry on the *Equip 2020* initiative**
- **Prepare for JRC requests**
 - Investment Analysis Readiness Decision (IARD) for ADS-B In Applications



Operator Next Steps

- **Considerations for the U.S. ADS-B mandate**
 - **Version 2 ADS-B transmitter**
 - **Compliant position source approved to “pair” with V2 ADS-B transmitter**
 - **Aircraft wiring as needed**
- **4 years 261 days to go!**





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TSO-C199 Traffic Awareness Beacon System (TABS): Purpose, Requirements, Status

Don Walker (FAA AIR-132)

April, 2015



TSO-C199 Purpose

- **Increase safety by providing a standard for a low cost surveillance solution for aircraft excepted in 14 CFR 91.215 and 91.225**
 - i.e. balloons, aircraft without electrical systems etc.
- **Make aircraft visible to others equipped with collision avoidance systems such as TAS, TCAS I, TCAS II, ADS-B In**
- **Provide platform or interface to ADS-B functionality, loggers, flight computers etc.**



TSO-C199 Requirements

- **Derived from existing transponder and ADS-B requirements**
- **Requirements are reduced from full capability required in reference documents, but full functionality is acceptable**
- **Allows for use of commercial grade GNSS that pass defined screening tests**



TSO-C199 Requirements

- **Cannot transmit false or misleading information**
- **SDA=1 (1×10^{-3} or better)**
- **NACp=9 (30 meters or better)**
- **NACv=1 (10 m/s or better)**
- **NIC=6 (0.5 NM or better)**
- **SIL=1 (1×10^{-3} or better)**
- **Detect Step errors greater than 700 meters**
- **Capable of using SBAS integrity**
 - Ramp errors detected by SBAS integrity



TSO-C199 Status

- The TSO posted 10 Oct, 2014 to RGL:
 - http://rgl.faa.gov/Regulatory_and_Guidance_Library/rg_TSO.nsf/0/1600DF588A6F53AE86257D710070D105?OpenDocument
- Questions or comments, please contact
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 - John Fisher: john.d.fisher@faa.gov 202.267.8879
- Document embedded here:

