

The image features a background of an aircraft cockpit with various instruments and screens. Overlaid on this is the text 'Avionics FOR NEXT GEN'. 'Avionics' is in a large, blue, italicized sans-serif font. 'FOR' is in a smaller, light blue, spaced-out sans-serif font, positioned between two horizontal lines. 'NEXT GEN' is in a large, blue, spaced-out sans-serif font.

Avionics

FOR

NEXT GEN

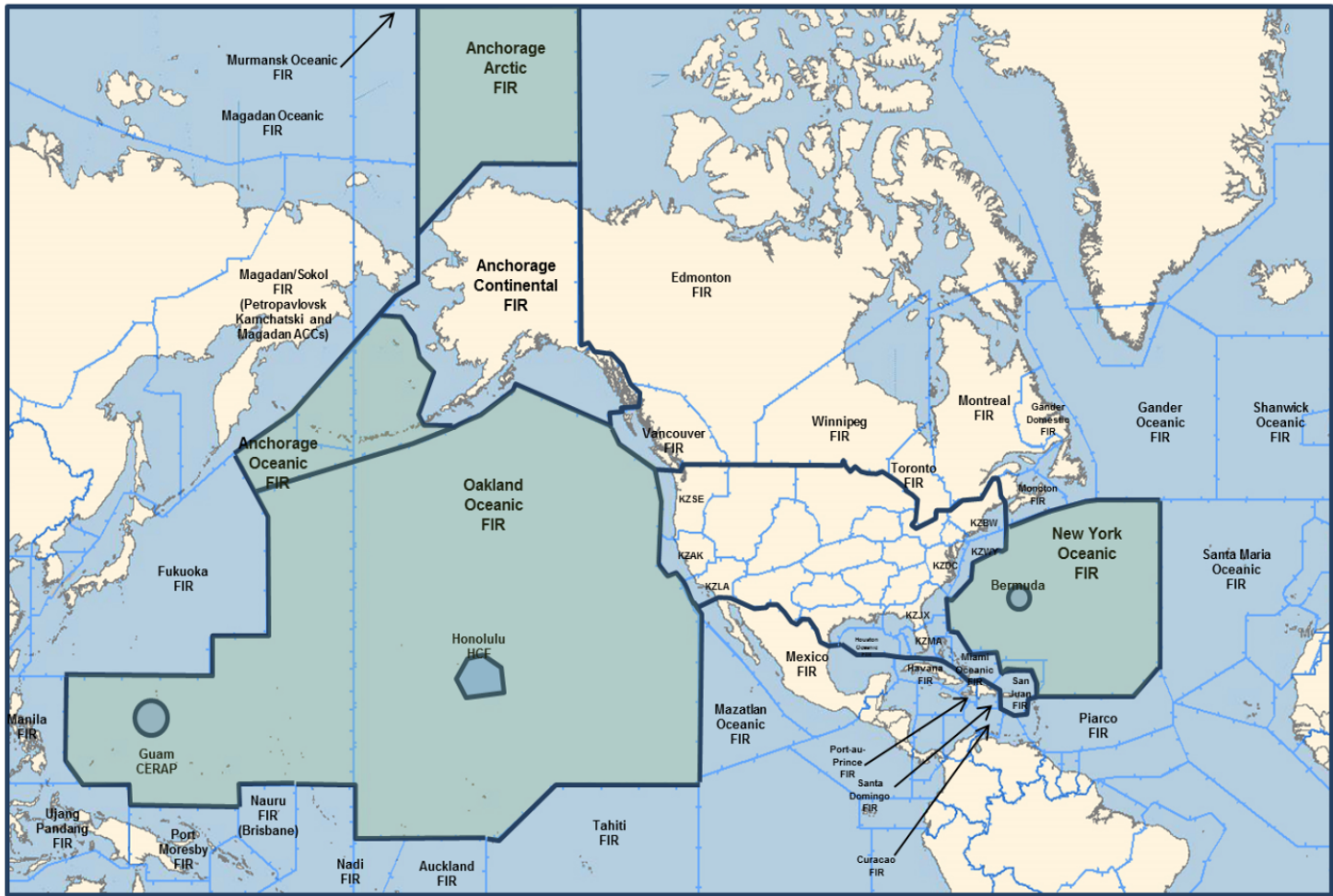
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Reduce Oceanic Separation using Space Based ADSB



Joseph Bertapelle
Dir Strategic Airspace Programs
JetBlue

United States Delegated Airspace



FAA Controlled Oceanic Airspace

Unique Characteristics

- Large volume of airspace
- Communications is an important limiting factor
 - No “push to talk”
 - Cannot directly intervene in a timely manner
- Airspace is not managed in the same tactical manner as domestic airspace
- “Timing” as a separation basis is an important safety mechanism

Tasking: Request from the FAA

- Evaluate the need and benefit of enhanced surveillance capabilities
- Examine the potential benefits to operators of reduced oceanic separation minima using space-based ADS-B or other improvements to surveillance
- Potential funding mechanisms that might be possible and at what cost
- Evaluate the business case for enhanced surveillance in US-controlled airspace

Summary of Benefits

- Reduced Separation Minima - oceanic separation standards
- Optimized operating profiles
- Enhanced Safety
- Enhanced Search and Rescue
- Reduced green-house gas emissions/Fuel savings
- More optimal design of airspace
- Enhanced Air Traffic Flow Management
- Increased surveillance system augmentation
- Harmonized surveillance requirements/equipage

Summary of Recommendations

- FAA should proceed with enhanced surveillance capability in Oceanic airspace.
- Space-based ADS-B technology recommended capability
- Operators have specific equipage requirements to participate
- Based on data and information available to ESTG, FAA should (as an ANSP) bear the costs as it does domestically.
 - The ESTG does not currently have sufficient information to conduct a valid analysis about the prioritization of this investment in comparison to other investments, and recommend that this would be done at the NAC level.
- Implementation should be done by regions
- WATRS airspace region holds most potential for increased benefit
- **NOV 2017 update:**
- Enhanced Surveillance passed JRC IID, now moves to FID Sept 2018.
- Technical solutions include SADCB and ADSC and Policy level question remains as to what the pay model will look like.
- NACSC continue engaging s FAA develops business case analysis

Back-up

Benefits

- Reduced Separation Minima - oceanic separation standards
- Optimized operating profiles
 - User Preferred Routings (UPRs)
 - Efficient flight levels and increased opportunity to step climb
 - Variable Mach
- Enhanced Safety
 - Enhanced Aircraft Tracking
 - Enhanced Situational awareness
 - Improved weather avoidance
 - Enhanced safety alerting
 - Improved cross-flight information boundary error detection
 - Improved and earlier detection of off-track errors
 - Enhanced height monitoring in RVSM airspace

Benefits (cont.)

- Enhanced Search and Rescue
- Reduction in green-house gas emissions/Fuel savings
- More optimal design of airspace
- Enhanced Air Traffic Flow Management
- Increased surveillance system augmentation and significant decrease of surveillance gaps
- Harmonize surveillance requirements/equipage for increasing interoperability for operators

Separation Standard	Aircraft Requirements				
Lateral	Surveillance	RSP	Communication	RCP	RNP
50 NM	Significant waypoint	400	HF Voice to third party radio operator	400	10
30 NM*	ADS-C - Waypoint change - Lateral deviation	180	VHF Voice or CPDLC	240	4
23 NM	ADS-C - Waypoint change - Lateral deviation	180	VHF Voice or CPDLC	240	4
15 NM (not approved by ICAO)	Space-based ADS-B - TBD ADS-C - TBD	TBD	TBD	TBD	TBD
Longitudinal					
10 minutes	Significant waypoint	400	HF Voice to third party radio operator	400	-
50 NM (w/ ADS-C)	ADS-C periodic - RNP 10: 27 minutes - RNP 4: 32 minutes	180	VHF Voice or CPDLC	240	10
50 NM (w/out ADS-C)	Position report every 24 minutes	180	VHF Voice or CPDLC	240	10
5 minutes	ADS-C periodic - 14 minutes	180	VHF Voice or CPDLC	240	10
30 NM	ADS-C periodic - ZOA: 12 minutes - ZNY: 10 minutes - ZAN: 10 minutes	180	VHF Voice or CPDLC	240	4
23 NM (not approved by ICAO)	ADS-C - TBD	TBD	TBD	TBD	TBD
15 NM (not approved by ICAO)	Space-based ADS-B – TBD ADS-C - TBD	TBD	TBD	TBD	TBD

Purple – Approved by ICAO but not implemented in FAA-controlled oceanic airspace

Blue – Current standards implemented in U.S. oceanic airspace

Red – Proposed standards in ASEPS concept.

* There are no RSP or RCP requirements for this standard; listed RSP/RCP are recommendations only.