

INMARSAT UPDATE

For Informal South Pacific Air Traffic
Services Coordinating Group

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aviation

Inmarsat Update

- I-3 to I-4 transition
- Programme of GES resource upgrades
- Maximizing Classic Aero benefits
- Swiftbroadband Safety

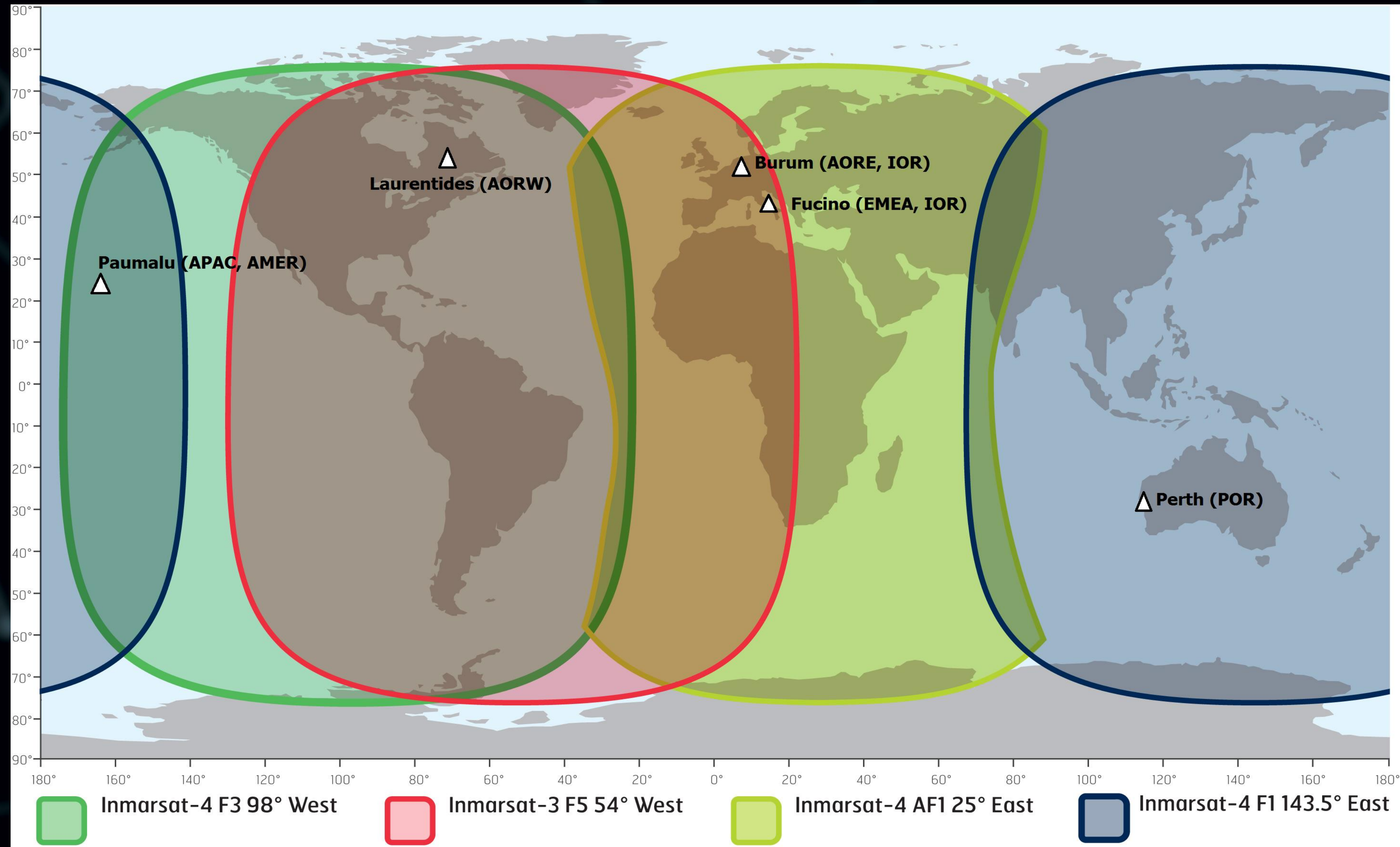
I-3 TO I-4 TRANSITION UPDATE



I-3 to I-4 migration	Timing
Atlantic Ocean Region West (AORW) I-3 to I-4 Americas (AMER)	May 9 th 2018
Pacific Ocean Region (POR) I-3 to I-4 Asia/Pacific (APAC)	August 29 th 2018
Atlantic Ocean Region East (AORE) I-3 services moved from 15.5W to 54W (I-3 F5 satellite)	October 30 th 2018
Indian Ocean Region (IOR) I-3 to I-4 Alphasat EMEA	December 12 th 2018

The resulting network configuration consists of three I-4 satellites (4F1 (APAC), 4F3 (AMER), AF1 (EMEA)) and one I-3 satellite, 3F5 (AORE).

E&E COVERAGE MAP



GES UPGRADES & ENHANCEMENTS

- Introduction of Laurentides GES supporting AORW traffic via AMER satellite April 2018
- Programme of GES resource upgrades to support I3 to I4 migration
- (As part of Laurentides GES s/w build) Validation of new activation and provisioning enhancements, roll-out now in planning phase
- VoIP enabled fast secure ground-to-air calling implemented – NAVCANADA rolling out service to ACCs
- Enhanced Classic Aero air-to-ground calling enabling Caller Line Identification (CLI) and Priority Digit ('P-digit') delivery via VoIP to selected ground destinations

Performance Monitoring

Examining FMS/ATSU ADS-C to GES timing

- Comparing Jan 18 to Jan 19
- Generally good performance post migration
- Remains compliant to PBCS
- Further tuning (power levels, resources) on-going

MAXIMIZE OPERATIONAL BENEFITS FROM CURRENT SATCOM EQUIPAGE

- Performance Based Communications and Surveillance (PBCS) specifications provide the framework
- Reduced separation minima where needed in oceanic airspace
- ADS-C and CPDLC configured to enable performance-based separation standards
- Fast satellite voice for normal ATC communications and tactical intervention



Performance-based Separation Minima



Performance-based Longitudinal separation minima for RNP-4 and RCP 240

Published: ICAO Doc 4444

Longitudinal	Surveillance	Other
50 NM	ADS-C RSP 180	ADS-C periodic reports each 32 minutes. RCP 240
30 NM	ADS-C RSP 180	ADS-C periodic reports each 12 minutes. RCP 240
5 Minutes	ADS-C RSP 180	ADS-C periodic reports each 14 minutes. RCP 240

Proposed for publication in 2020:

Longitudinal	Surveillance	Other
20 NM	ADS-C RSP 180	ADS-C periodic reports each 192 seconds. Additional airspace monitoring criteria. RCP 240.
17 NM	ADS-B	ATS Surveillance System. Additional airspace monitoring criteria. RCP 240.
14 NM	ADS-B	ATS Surveillance System. Additional airspace monitoring criteria. RCP 240 Same or crossing tracks and relative angle between the tracks is less than 45degrees.

Published ADS-C procedure: *Not Performance Based*

15 NM CDP	ADS-C	ADS-C near simultaneous demand reports. RCP 240
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Performance-based Oceanic Separation Minima



Performance-based Lateral separation minima for RNP-4 and RCP 240

Published: ICAO Doc 4444, 5.1.4.2.1.6.b

Lateral	Surveillance	Other
23 NM	ADS-C RSP180	5 NM LDE conformance monitoring. RCP 240

Proposed for publication in 2020:

Lateral	Surveillance	Other
19 NM	ADS-B	3 NM lateral deviation conformance monitoring. New airspace monitoring criteria. RCP 240.
15 NM	ADS-B	3 NM lateral deviation conformance monitoring. New airspace monitoring criteria. Airspace with low traffic levels or low rates and extent of weather deviations. RCP 240

Evolving the satellite voice capability

A commercial airplane is shown in flight, flying over a landscape of clouds and mountains. The sky is a mix of orange, yellow, and blue, suggesting a sunset or sunrise. The airplane is white with a dark tail and is flying towards the right of the frame.

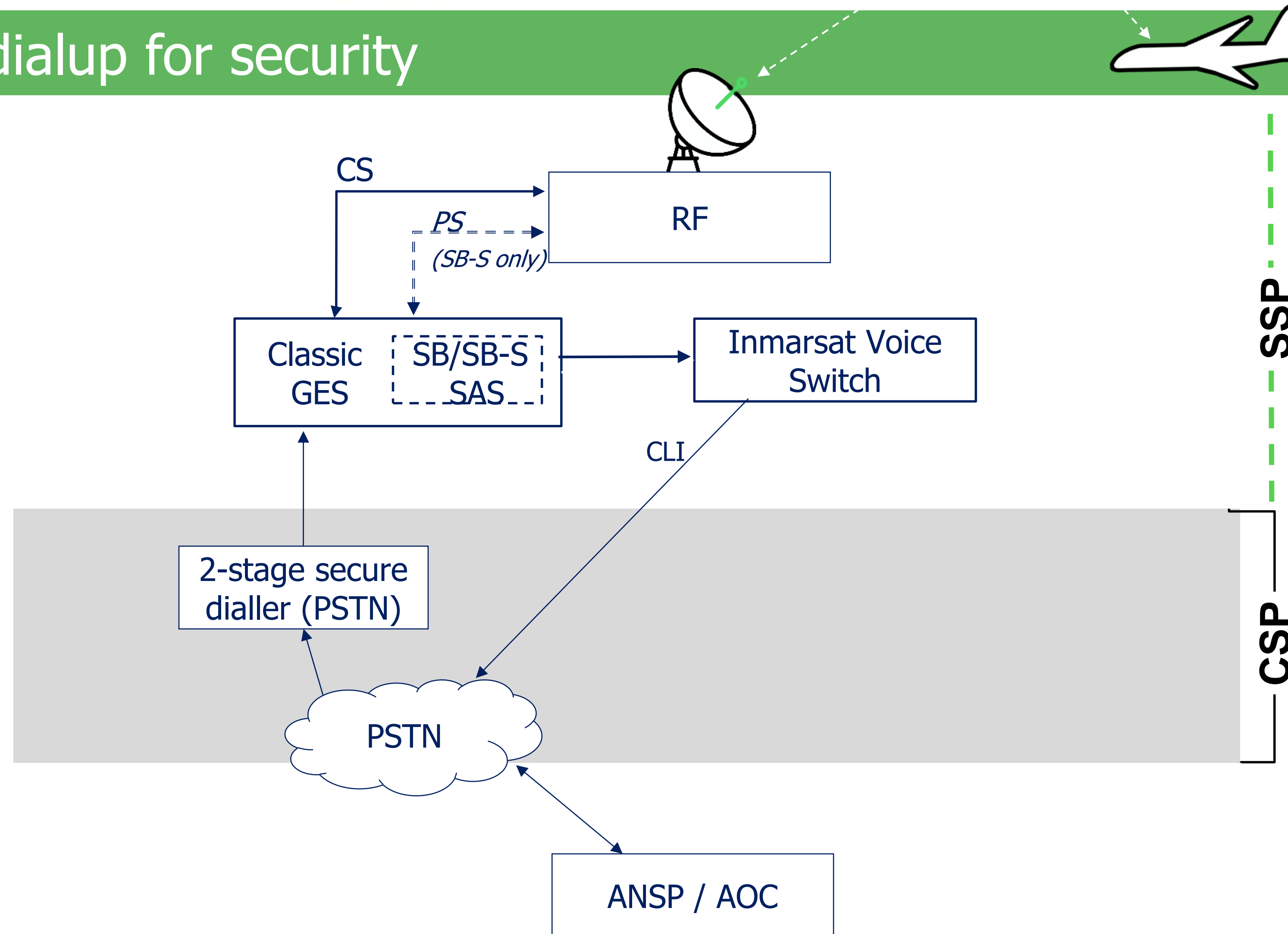
- ✓ New secure one step VoIP access fast G2A dialling service
- ✓ New A2G service offering Caller Line Identification (CLI) and Priority calling (P-digit) to selected destination addresses
- ✓ Enables Direct Controller Pilot Communication (DCPC)

Satellite Voice over PSTN



2-stage ground-to-air dialup for security

- Communications present the most significant constraint to reduced separation minima
- About 30 seconds for ground-to-air connection

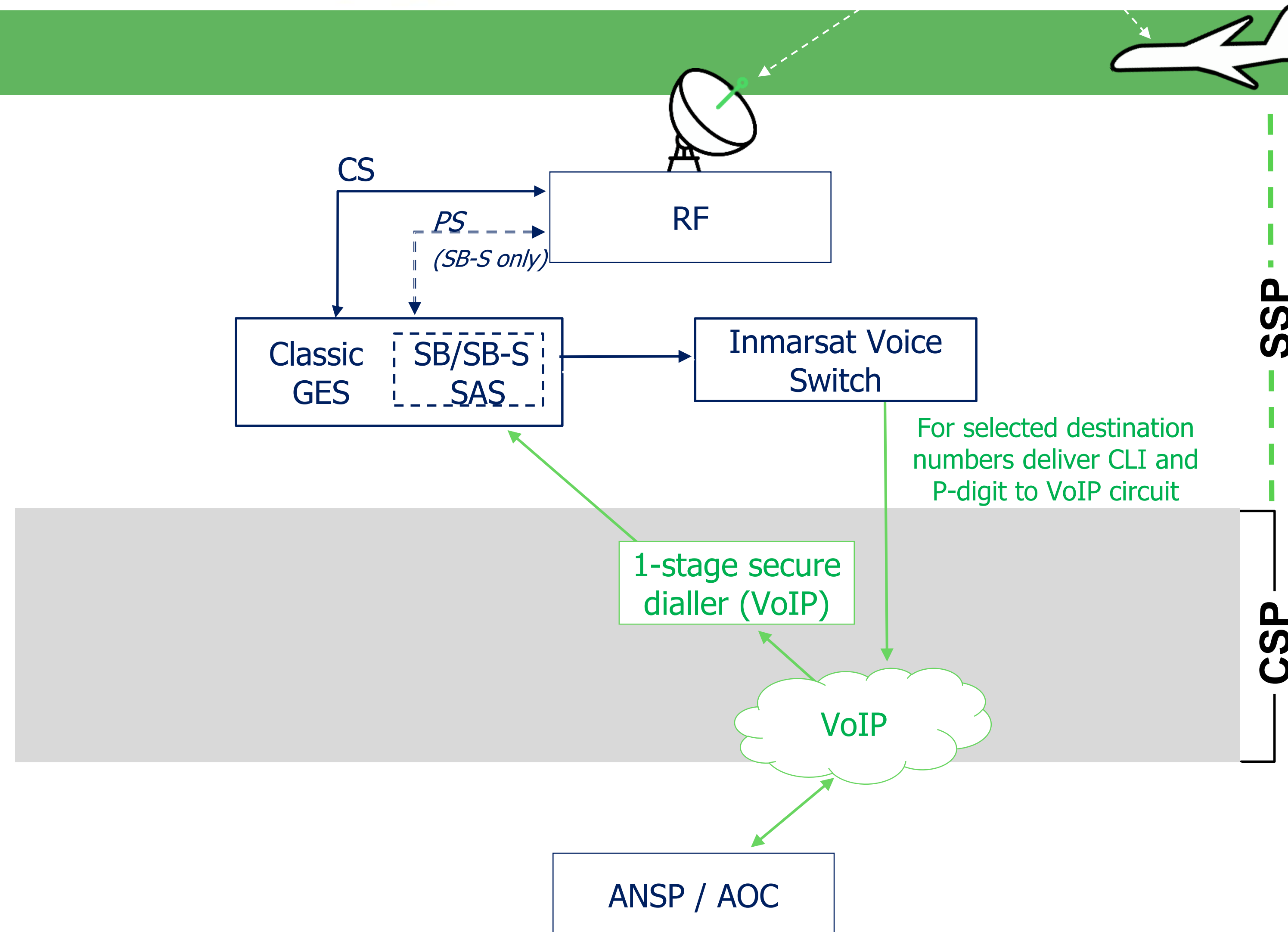


Satellite Voice over Secure IP



Bypass the PSTN

- Fast satellite voice is happening today with current Classic Aero network & equipage
- Enables tactical intervention
- Enables direct controller pilot communications





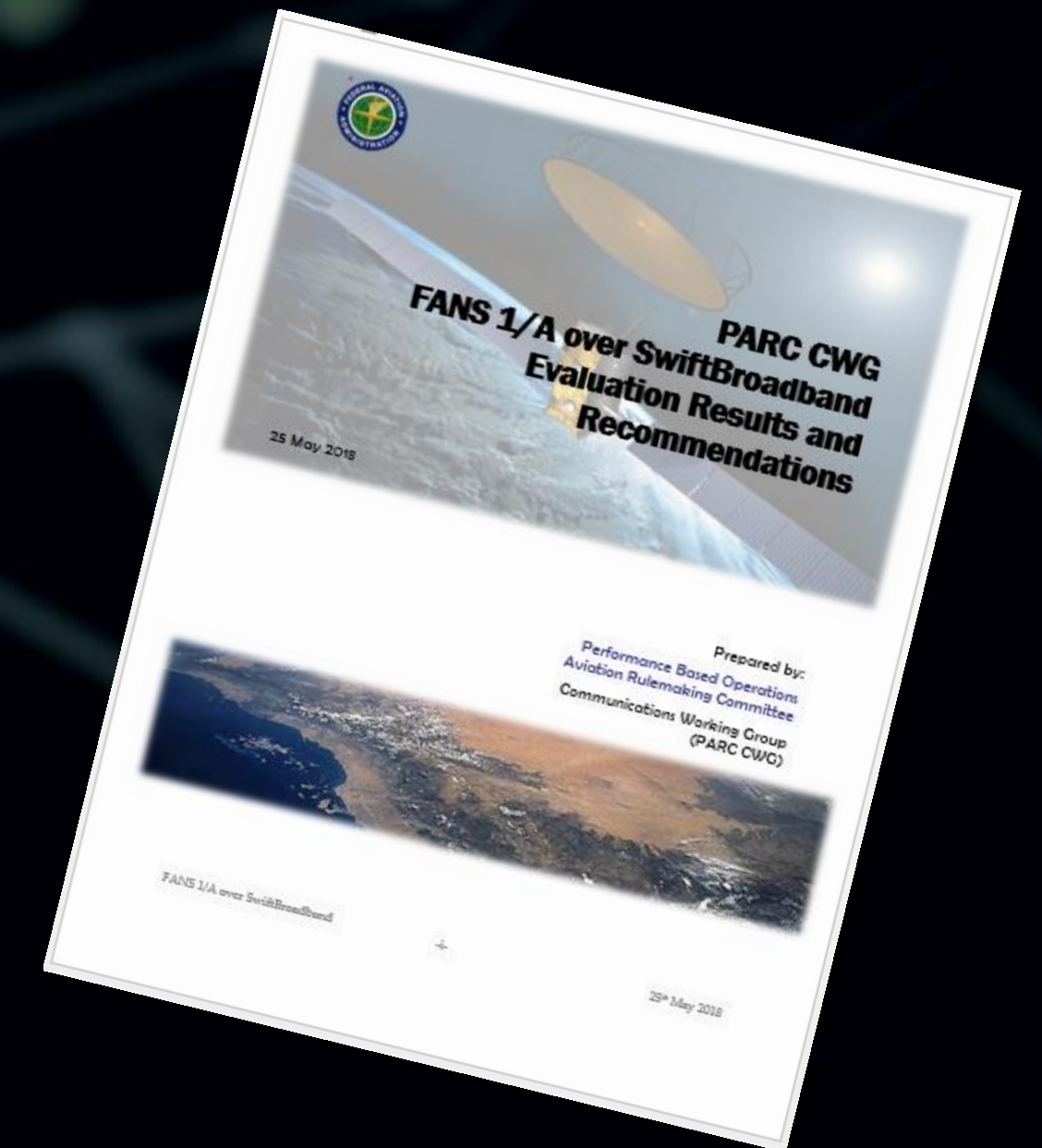
SB SAFETY 1.0 OVERVIEW

FANS1/A OVER SBB EVALUATION RESULTS & RECOMMENDATIONS REPORT

PARC CWG Recommendations

Evaluation data showed compliance with PBCS requirements. As a result, the PARC CWG recommended that FAA:

- accept FANS 1/A over SwiftBroadband as a viable medium for FANS 1/A operations in airspace requiring RSP 180/RCP 240 for reduced aircraft separation;
- advocate internationally, that aircraft using SwiftBroadband are eligible for operations requiring compliance to RSP 180/RCP 240 for reduced aircraft separation, and;
- Advocate for development of performance specifications to make use of the superior capabilities of the SwiftBroadband technology.



FAA PARC CWG FANS-1/A OVER SBB EVALUATION

PARC CWG Report Approval Status

- Performance in reliably routing Air Traffic Services FANS messages analysed as part of an FAA PARC FANS operational performance evaluation
 - Involved 8 Hawaiian Airlines B767s, two United Airlines B767 aircraft and two Hawaiian Airlines A321 neo aircraft
- Final FANS-1/A evaluation report submitted to CWG co-chairs on 12th June 2018
- Report provided by PARC committee to FAA Administrator on 9th July 2018
- Interim response provided by FAA on 6th December 2018 indicating a formal response to be provided by end of Q1 2019



SB SAFETY PROGRAMME STATUS

- SB-S in use for daily operations on 23 commercial air transport
 - Using Cobham Aviator 300D or 350D SB-Safety terminals
- Airbus committed SB-Safety as a line-fit offering on new A320/A330/A340/A350 aircraft, in service circa 2020
 - Airbus have selected Cobham as a supplier for their Lightweight Cockpit Satcom programme
- Boeing committed to SB-Safety as a line-fit offering on new 777X and 737 MAX aircraft, in service circa 2020
 - Cobham have announced they are a supplier
- Cobham and Honeywell production terminals due to be available in 2019 – will include VPN security layer, PKI operations

Thank you!



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