

**Fuze**

**Meeting**

**and**

**Telecon**

**1-866-398-2885**

**Passcode 151869##**



# Oceanic Work Group Meeting

Date:

January 27, 2016



# Oceanic Work Group Meeting

## Anchorage ARTCC Update

OWG

Steve Kessler,  
Support Manager, Airspace and Procedures  
September 30, 2015



Federal Aviation  
Administration

# Oakland Center Update

Dustin Byerly

SM Oceanic Airspace and Procedures

January 27, 2016



**Federal Aviation  
Administration**

# Oakland ARTCC Webpage



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## Air Traffic Organization

ATO Organization

Air Route Traffic Control Centers (ARTCC)

Airport Traffic Control Towers (ATCT)

Terminal Radar Approach Control Facilities (TRACON)

## Oakland Air Route Traffic Control Center (ZOA)



At the heart of Oakland ARTCC is a team of Air Traffic and Technical Operations Professionals. Oakland Center is unique in that two distinctly different air traffic control functions are handled here. There is the normal en route air traffic control as well as an oceanic air traffic operation that manages the largest volume of international airspace in the world at one facility.

- [KZOA Domestic ATC Operations](#)
- [KZAK Oceanic ATC Operations](#)
- [NOTAMS, TFRs, SUAs](#)



Oakland ARTCC

Oakland ARTCC  
5125 Central Ave.  
Fremont, CA. 94536  
Phone: (510) 745-3000

Rohitkumar Desai,  
Web POC  
[ZOA Web Site](#)  
[Feedback](#)

http://www.faa.gov/about/office\_org/headquarters\_offices/ato/service\_units/air\_traffic\_services/artcc/oakland/





Search

Air Traffic Services

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Air Route Traffic Control Centers (ARTCC)

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Terminal Radar Approach Control Facilities (TRACON)

# Oakland ARTCC Webpage

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## KZAK Oceanic ATC Operations

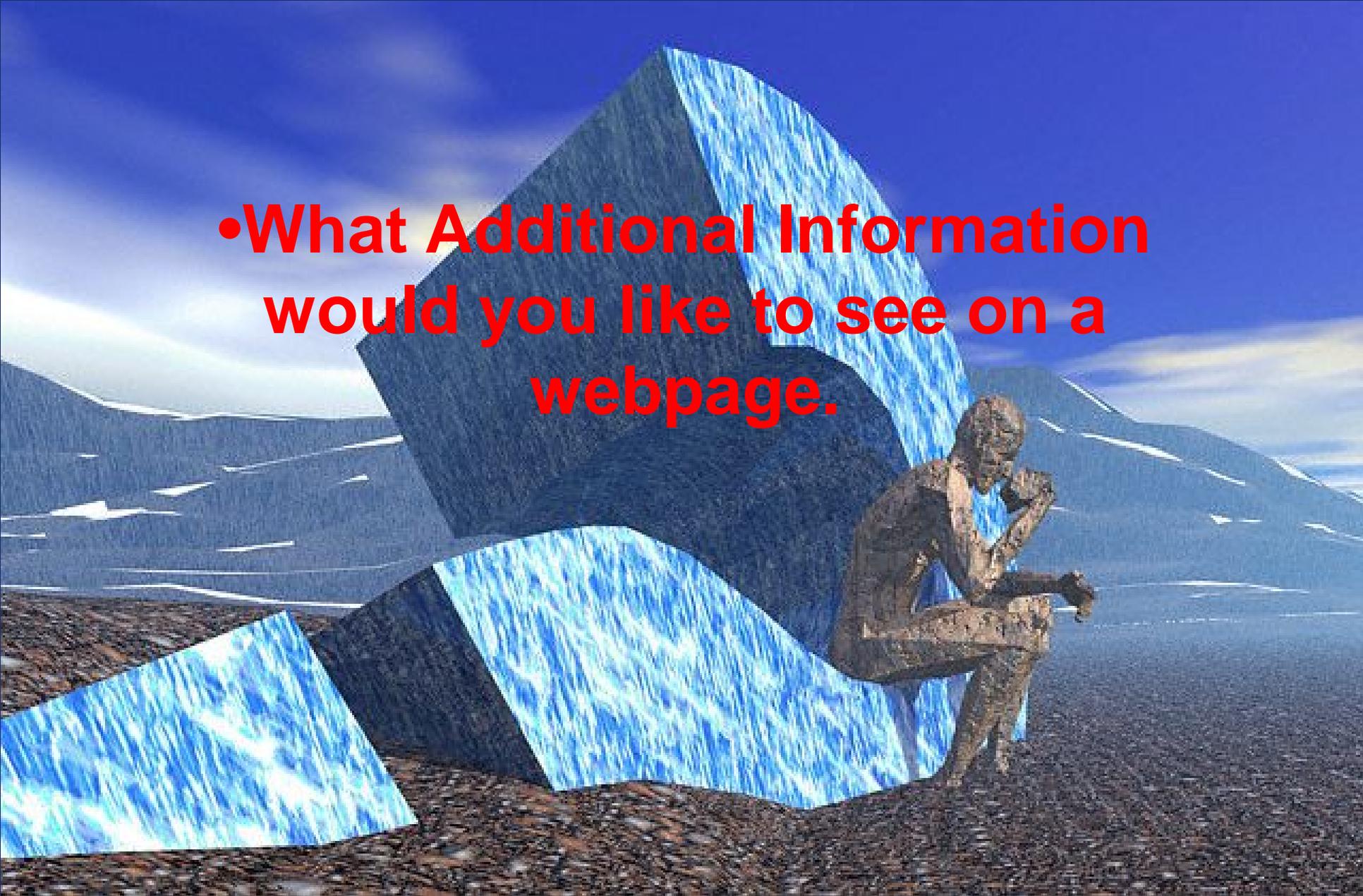
Print Share

- [Central East Pacific \(CEP\) Routes Guidelines \(PDF\)](#)
- [Guam Area Preferential Routings \(PDF\)](#)
- [High Altitude User Preferred Routes \(PDF\)](#)
- [Oakland ARTCC Oceanic Points of Contact \(PDF\)](#)
- [Oakland Oceanic Controlled Airspace/Flight Information Region \(OCA/FIR\) \(PDF\)](#)
- [Oakland Oceanic CPDLC \(PDF\)](#)
- [Pacific Organized Track System \(PACOTS\) Guidelines \(PDF\)](#)
- [Track Advisory User's Guide for Dispatchers \(Effective May 8, 2015\) \(PDF\)](#)
- [User Preferred Route \(UPR\) Flight Planning Guidelines \(PDF\)](#)

### Pacific Meetings

- [Informal Pacific Coordinating Group \(IPACG\)](#)
- [Informal South Pacific Coordinating Group \(ISPACG\) ~~re~~](#)
- [Oceanic Workgroup Meeting \(OWG\)](#)





**•What Additional Information  
would you like to see on a  
webpage.**

# ADS-C CDP & ADS-B ITP

## Status Update



Federal Aviation  
Administration

# ADS-C CDP

Procedure is based on in-trail Distance Measuring Equipment (DME) rules in ICAO Doc 4444

- Near Simultaneous ADS-C Demand Reports
- Climb/Descend an aircraft through the altitude of a blocking aircraft

# Automated Procedure

*CWP16*

### ATC ADS-C CDP CHECKLIST

**PRELIMINARY SCREENING CRITERIA CHECKS (STEPS 1-3)**

1. AIRCRAFT CALLSIGNS: *ANA609 / ANA615*

2. BOTH Blocking and Maneuvering Aircraft must have the "3" 3030 ADS separation flag set.

3. a. Both Aircraft Level Flight/Aircraft 1,000 Feet Apart/Planned Altitude Change 2,000 Feet or more.   
 b. Neither Aircraft on WX Dev nor requesting a WX Dev.  
 c. Both Aircraft RVSM  
 d. "POS" NOT Displayed on Either Data Block  
 e. There are no Out of Conformance (ARP) messages for either aircraft in the Sector Queue.  
 f. Aircraft Same Direction traffic.

**FINAL SCREENING CRITERIA CHECKS (STEPS 4-6)**

4. Initiate ADS DEMAND for both Aircraft. ENTER TIME that DEMAND request was sent to Maneuvering Aircraft: *1245Z*  
 5. From ADD Report,  
 Mach Number of Maneuvering Aircraft: *A-80 124.79*  
 Mach Number of Blocking Aircraft: *A-80 124.81*

6. SAME SPEED OR FASTER AIRCRAFT IN FRONT: 6a, 6b, and 6c Must be Satisfied

6a. From Conflict Report Window, ACTUAL Longitudinal Distance Between Maneuvering and Blocking Aircraft AT LEAST 10 MILES:  *11.6*

6b. From ASD, Both Aircraft Same Groundspeed, or Faster Aircraft is in Front:  *Faster in front*

6c. From Step # 5, Both Aircraft Same Mach Number, or FASTER Mach AIRCRAFT IN FRONT:

7. OVERTAKE SITUATION: 7a, 7b, and 7c Must be Satisfied

7a. From Conflict Report Window, ACTUAL Longitudinal Distance Between Maneuvering And Blocking Aircraft AT LEAST 20 MILES:

7b. From ASD, Trailing Aircraft Groundspeed Must NOT be More Than 10 Knots Faster:

7c. From Step # 5, Trailing Aircraft is NOT More Than .02 Mach Faster:

8. Build Clearance utilizing MOPS Message 25 or 28, "CLIMB/DESCEND TO REACH (level) BY (time). Probe the Pending Clearance. Ensure that Time Inserted in Clearance is within 15 Minutes of Time Inserted in Step #4.

8a. Append Pre-Text Advisory from the Pre Formatted messages "ADS-C CDP PROCEDURE IS BEING APPLIED BY ATC".

9. Check the 2nd Profile Conflicts of the Maneuvering Aircraft. IF THERE ARE ACTUAL OR IMMINENT CONFLICTS WITH OTHER AIRCRAFT, DO NOT EXECUTE PROCEDURE.

### CLEARANCE

**ANA61A** 37N160E 1631/ 39N170E 1725/ 41N180E 1817/ 42N170W 1908/ 42N160W 1957/ 40N150W 2050/ 39N140W 2

| Urgent | Rpt | Negot                            | Rspn  | Misc | Vert      | Route | Speed | X-ing | Conn | Pre-Fnt |
|--------|-----|----------------------------------|-------|------|-----------|-------|-------|-------|------|---------|
| RP     | RR  | climb                            | etime | ofix | etime     | ofix  | DSCND | etime | ofix | etime   |
|        |     | 20 CLIMB TO AND MAINTAIN (alt)   | F330  |      |           | EOS   |       |       |      |         |
|        |     | 26 CLIMB TO REACH (alt)          | F330  |      | BY (time) |       |       |       |      | EOS     |
|        |     | 27 CLIMB TO REACH (alt)          | F330  |      | BY (pos)  |       |       |       |      | EOS     |
|        |     | (20) CLIMB TO AND MAINTAIN (alt) | F330  |      |           |       |       |       |      | INS     |
|        |     |                                  |       |      |           |       |       |       |      | DEL     |

Probing : CLIMB TO AND MAINTAIN F330  
 [ANA61A]: Conflict with 1 aircraft, 0 airspace, IMMINENT  
 CDP is available

CDP CAN TPRB SND UNABL VHF SAVE EALT DVDR COORD RCPT REJ HLP CLS



### CLIMB/DESCEND PROCEDURE

REQUESTING ACID: ANA61A      BLOCKING ACID: ANA60B      ON-DEMAND STATUS: WAITING

REQUESTED ALT: F330      COUNTDOWN TIMER: 14 : 26

Clearance:

(26) CLIMB TO AND REACH (alt) F330 BY (time) 2129 EOS

Response Area:

CDP-PROBE      SEND      UNABLE      RESET      CLOSE

• June 9, 2015 Initial Software Checkout



# Automated Procedure

CWP16

## ATC ADS-C CDP CHECKLIST

### PRELIMINARY SCREENING CRITERIA CHECKS (STEPS 1-3)

| <u>Step #</u>                                      | <u>Checklist Item</u>   | <u>Checkmark or Insert Data</u>                       |
|--|---|---|
| 1.   | AIRCRAFT CALLSIGNS..... <i>RCN8059 / RCN0315</i> .....  | <input checked="" type="checkbox"/>                   |
| 2.   | BOTH Blocking and Maneuvering Aircraft must have the "3" 30/30 ADS separation flag set.   | <input checked="" type="checkbox"/>                   |
| 3.   | a. Both Aircraft Level Flight/Aircraft 1,000 Feet Apart/Planned Altitude Change 2,000 Feet or more.<br>b. Neither Aircraft on WX Dev nor requesting a WX Dev.<br>c. Both Aircraft RVSM<br>d. "POS" NOT Displayed on Either Data Block<br>e. There are no Out of Conformance (ARP) messages for either aircraft in the Sector Queue.<br>f. Aircraft Same Direction traffic | <input checked="" type="checkbox"/>                   |
| <u>FINAL SCREENING CRITERIA CHECKS (STEPS 4-9)</u> |   |   |
| 4.   | Initiate ADS DEMAND for both Aircraft. ENTER TIME that DEMAND request was sent to Maneuvering Aircraft  | <i>1245Z</i><br><input type="checkbox"/> <i>1240Z</i> |

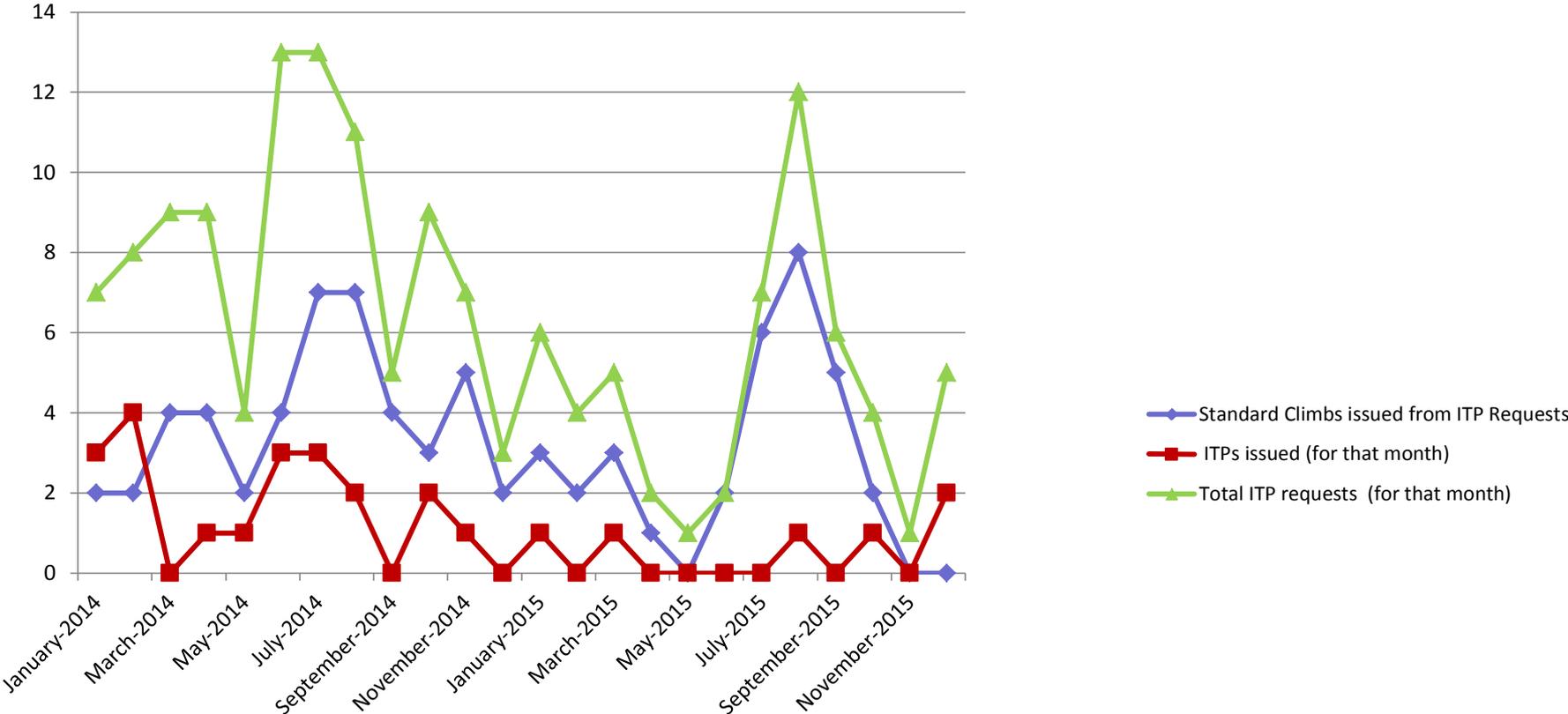
- Ocean21 will check the FOM in the ADS-C reports to make sure they meet RNP4 standards

# Ocean21 Automation Platform



- CDP Manual trial ended 2/15/2013
- CDP procedure is seen as a benefit.
- T24 software update 2016

# ITP Activity



5.4.2.7 LONGITUDINAL SEPARATION MINIMA BASED ON DISTANCE  
USING ADS-B IN-TRAIL PROCEDURE (ITP)

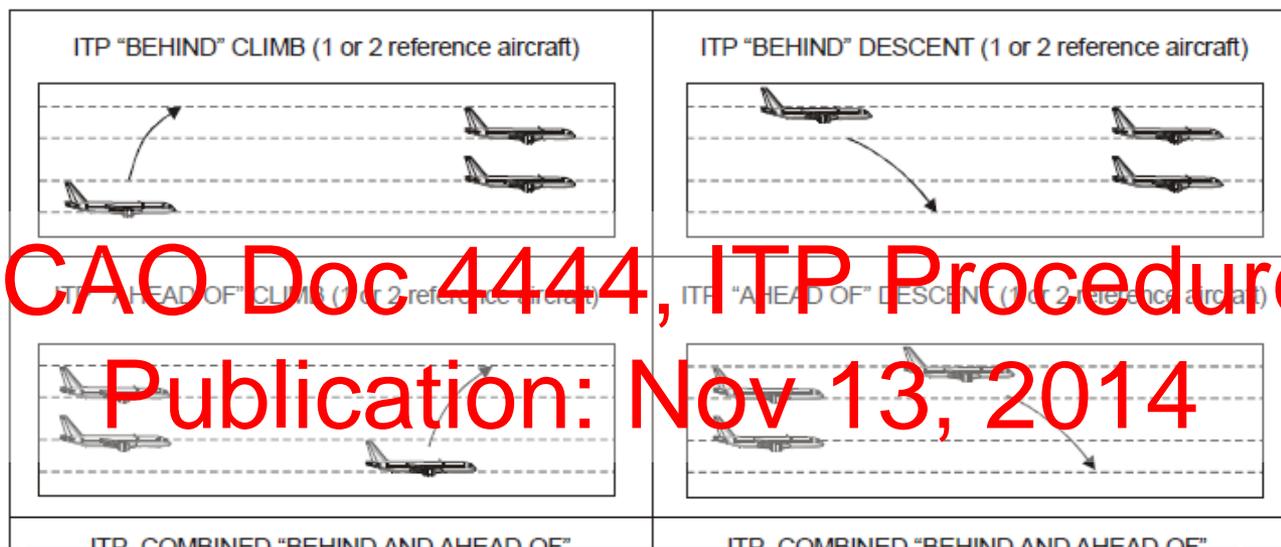
*Note 1.— Attention is drawn to Circular 325, In-Trail Procedure (ITP) Using Automatic Dependent Surveillance — Broadcast (ADS-B).*

*Note 2.— Guidance material on ITP equipment can be found in RTCA DO-312/EUROCAE ED-159 Safety Performance and Interoperability Requirements Document for the In-Trail Procedure in Oceanic Airspace (ATSA-ITP) Application and Supplement and RTCA DO-317A/EUROCAE ED-194, Minimum Operational Performance Standards (MOPS) for Aircraft Surveillance Application (ASA) System.*

5.4.2.7.1 The routes or airspace where application of the in-trail procedure is authorized, and the procedures to be followed by pilots in accordance with the provisions of Section 5.4.2.7, shall be promulgated in aeronautical information publications (AIPs).

5.4.2.7.2 ITP requests and clearances shall be communicated via a CPDLC message exchange only and in accordance with the appropriate message elements in Appendix 5.

5.4.2.7.3 Longitudinal separation between a climbing or descending ITP aircraft and reference aircraft shall be applied in accordance with 5.4.2.7.3.1, 5.4.2.7.3.2 and 5.4.2.7.3.3. An ITP aircraft shall not be separated simultaneously from more than two reference aircraft using the ITP separation minimum (see Figure 5-35).



ICAO Doc 4444, ITP Procedure  
Publication: Nov 13, 2014

# ADS-B ITP Checklist

- Manual Checklist is being automated in Ocean21.
- Automation is planned to be delivered 2016

## ADS-B ITP CONTROLLER PROCEDURE

This procedure must be initiated by an ITP request

If any of the following steps are not true, advise the aircraft UNABLE

### Validate ITP Request

The pilot reports on CPDLC a distance between the ITP aircraft and any referenced aircraft that is at least 18nm.

### Initiate probe on ITP aircraft

- Maximum of 1 or 2 conflicts exist
- All call signs in conflict report(s) are included in the ITP request
- All conflict aircraft are same direction traffic as ITP aircraft until vertical separation is reestablished
- Closing mach difference of ITP aircraft and any referenced aircraft is  $\leq .06$ .
- All conflict aircraft are within 2000' of the ITP aircraft
- All conflict aircraft are at a single-assigned altitude
- No conflict exists at the requested altitude.
- No aircraft involved are cleared for or requesting a route deviation
- ITP aircraft and Reference aircraft are not part of another ITP operation at the same time

Issue ITP Altitude Change Clearance (message examples are listed on the back side of this form)

• June 9, 2015 Initial Software Checkout

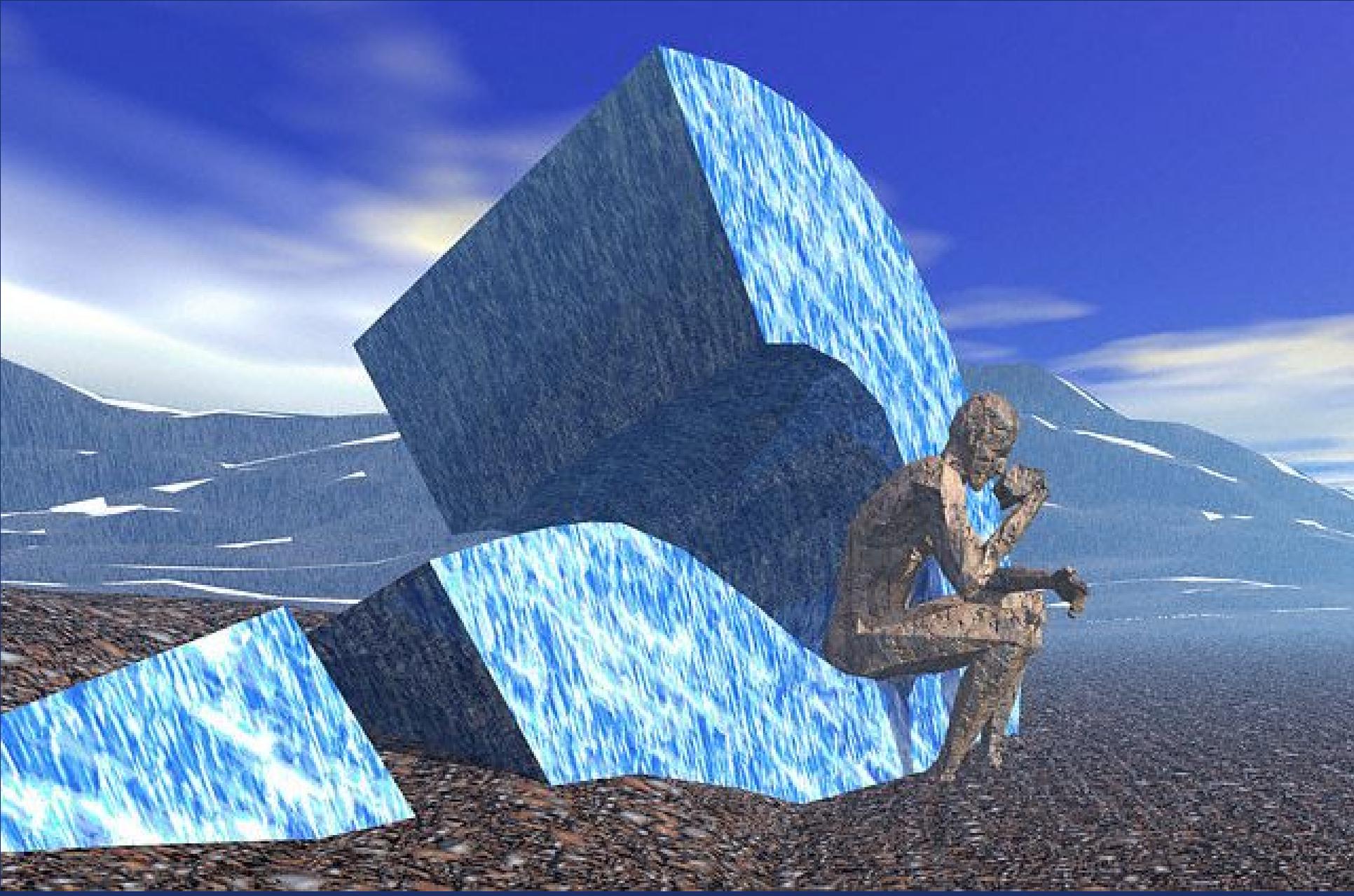
# ADS-B ITP Equipped Aircraft

- B787 obtained their certification for their ITP system.
- 10 airlines have purchased the capability



- Airbus offers ITP equipment in their aircraft as an option





# User Preferred Routes

Presented By: FAA, Oakland ARTCC  
Airspace and Procedures



Federal Aviation  
Administration



***Dennis Addison***  
***CSSI***  
***Oceanic Air Traffic SME***

*January 27, 2016*

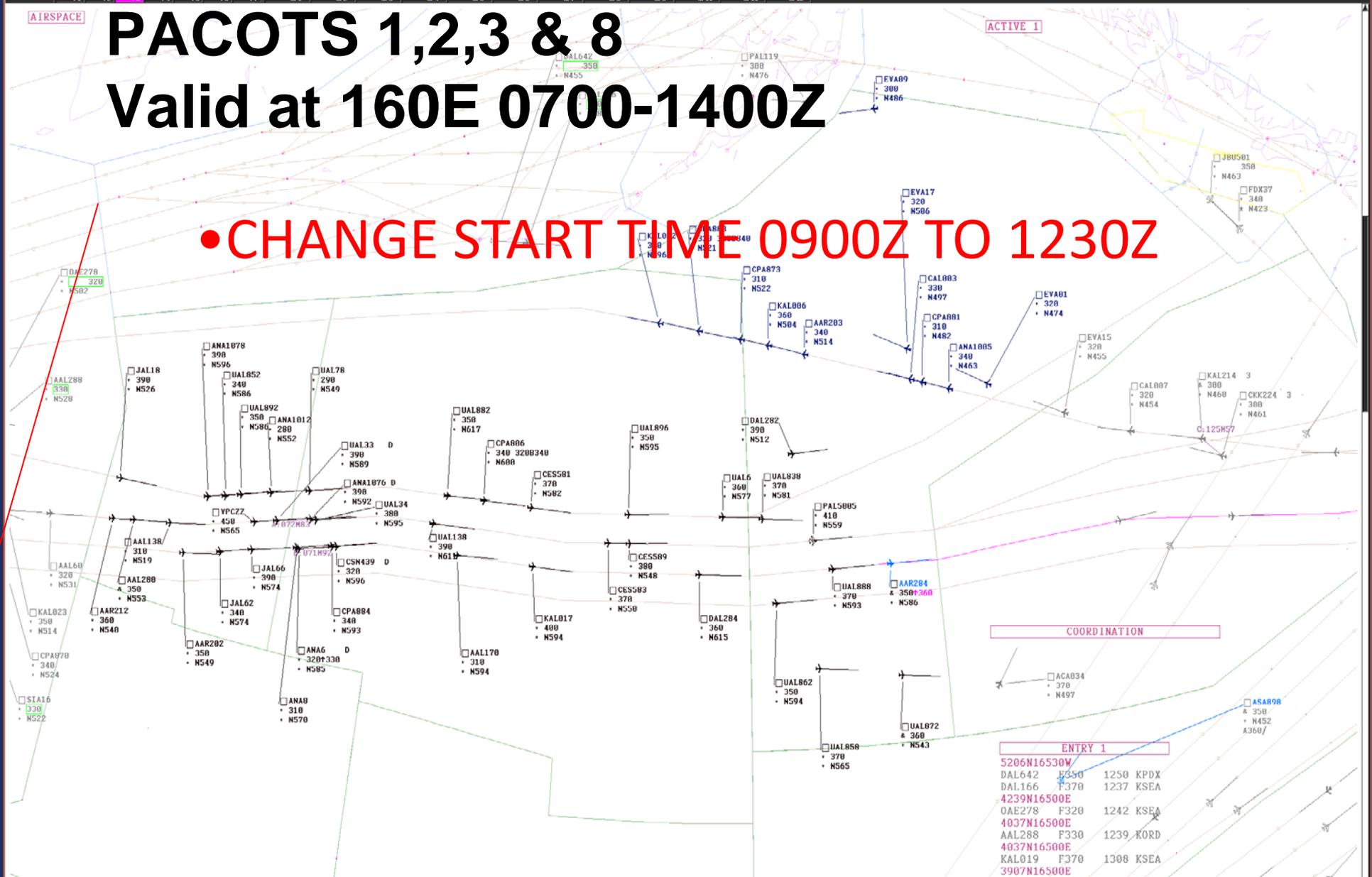




# PACOTS 1,2,3 & 8

## Valid at 160E 0700-1400Z

● CHANGE START TIME 0900Z TO 1230Z



| FLEX TRACKS |   |         |         |
|-------------|---|---------|---------|
| 3           | 0 | 3 07:00 | 3 21:00 |
| J           | 0 | 3 05:00 | 3 21:00 |
| K           | 0 | 3 05:00 | 3 21:00 |
| 14          | 0 | 3 07:00 | 3 21:00 |

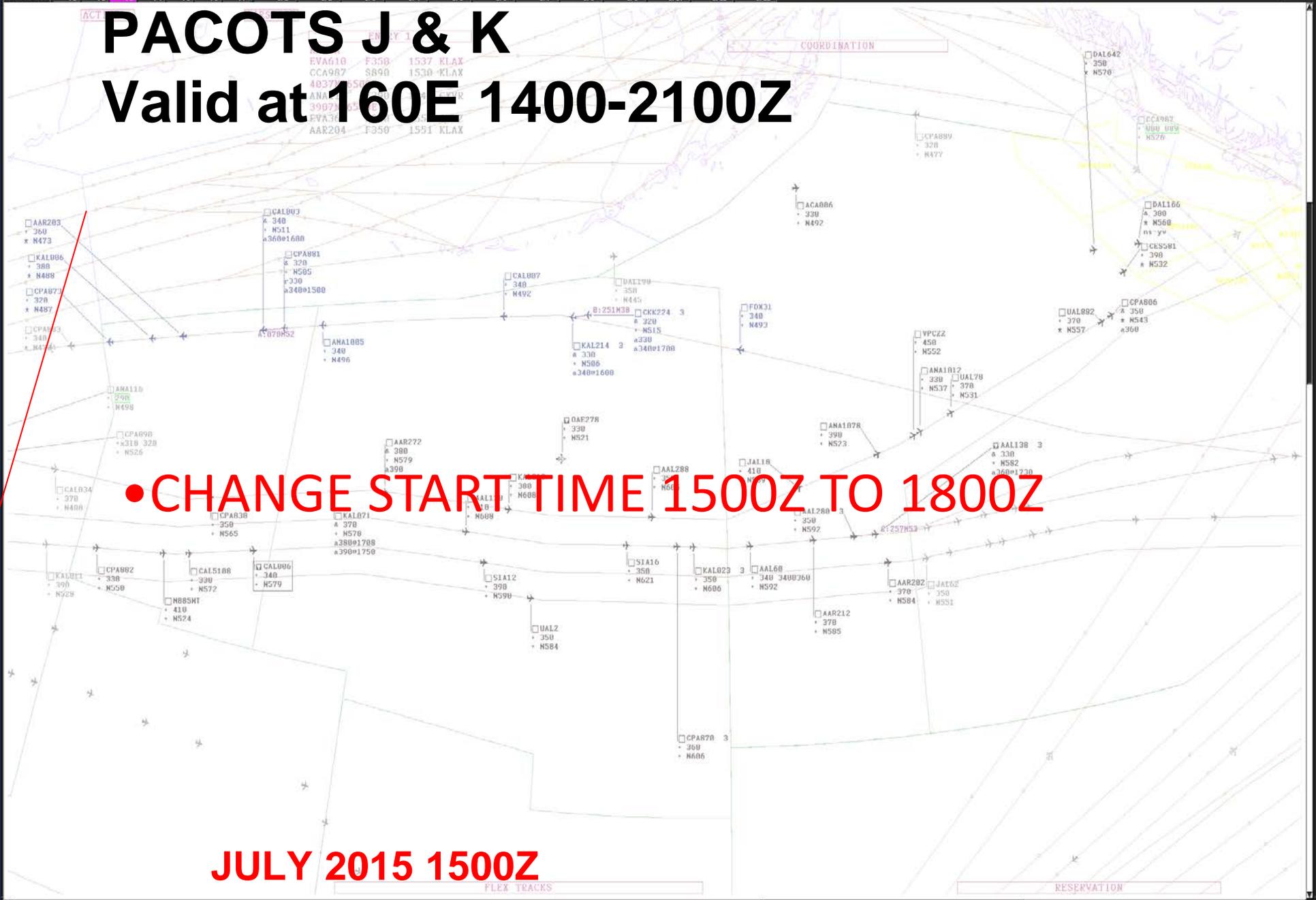
**JULY 2015 1200Z**

| RESERVATION |        |          |                    |
|-------------|--------|----------|--------------------|
| S           | CYD106 | 2 22:55  | 31 23:59 F000-F230 |
| C           | W01M   | 22 12:30 | 1 01:00 F000-F000  |

| ENTRY 1     |      |      |      |
|-------------|------|------|------|
| 5206N16530W |      |      |      |
| DAL642      | F350 | 1250 | KPDX |
| DAL166      | F370 | 1237 | KSEA |
| 4239N16500E |      |      |      |
| OAE278      | F320 | 1242 | KSEA |
| 4037N16500E |      |      |      |
| AAL288      | F330 | 1239 | KORD |
| 4037N16500E |      |      |      |
| KAL019      | F370 | 1308 | KSEA |
| 3907N16500E |      |      |      |
| STIA16      | F330 | 1242 | KSF0 |

# PACOTS J & K

## Valid at 160E 1400-2100Z



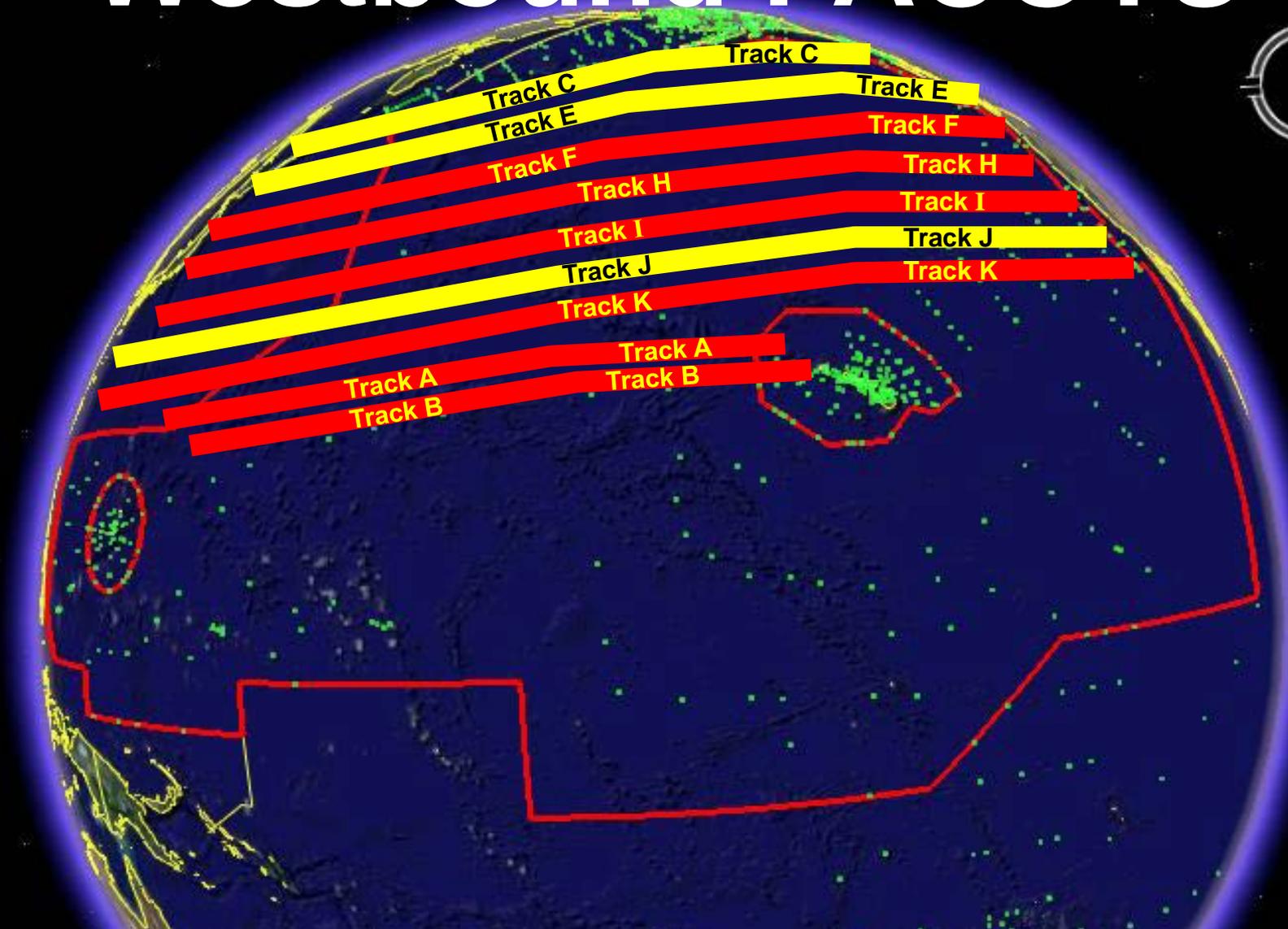
• CHANGE START TIME 1500Z TO 1800Z

JULY 2015 1500Z

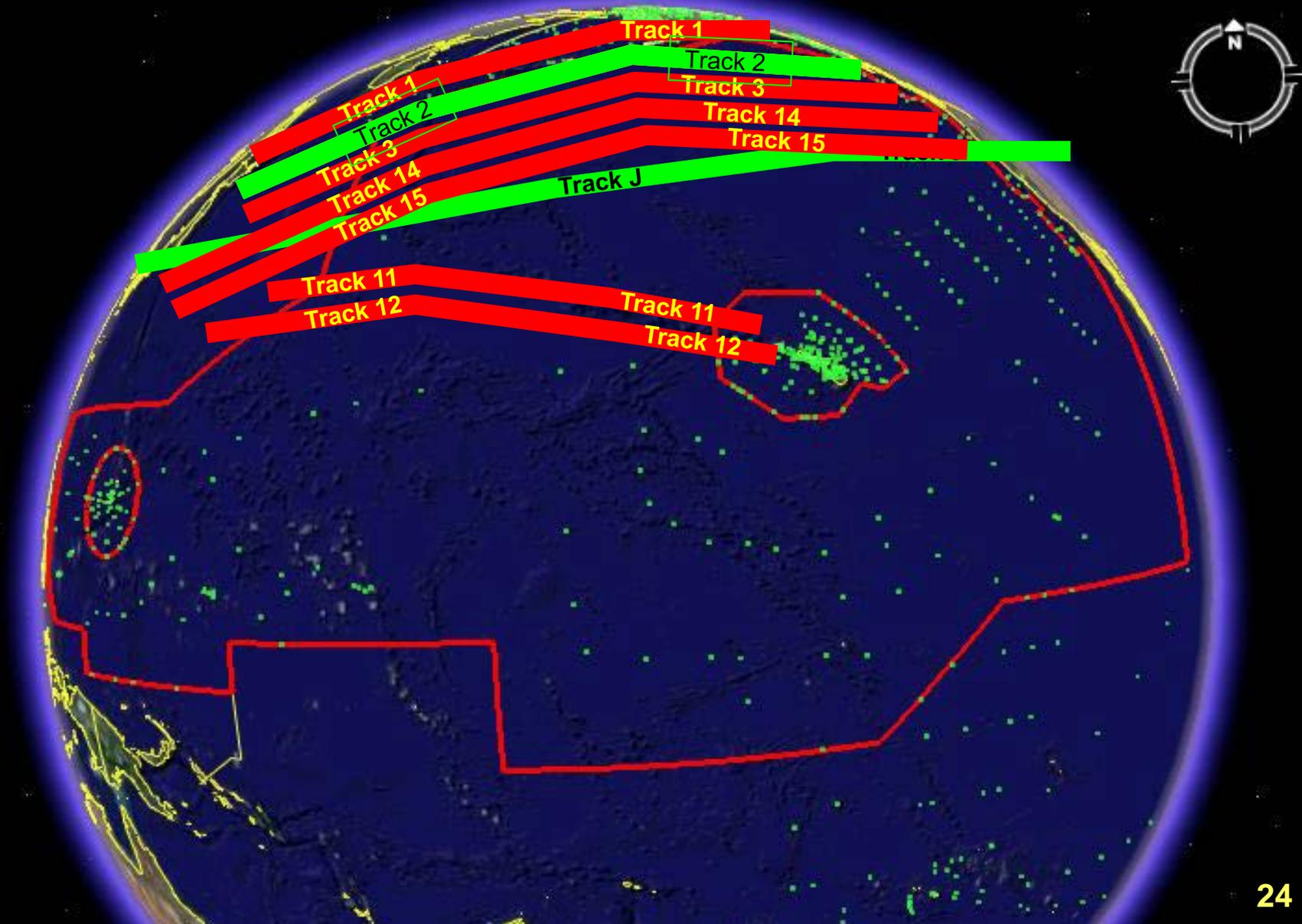
FLEX TRACKS

RESERVATION

# Westbound PACOTS



# Eastbound PACOTS

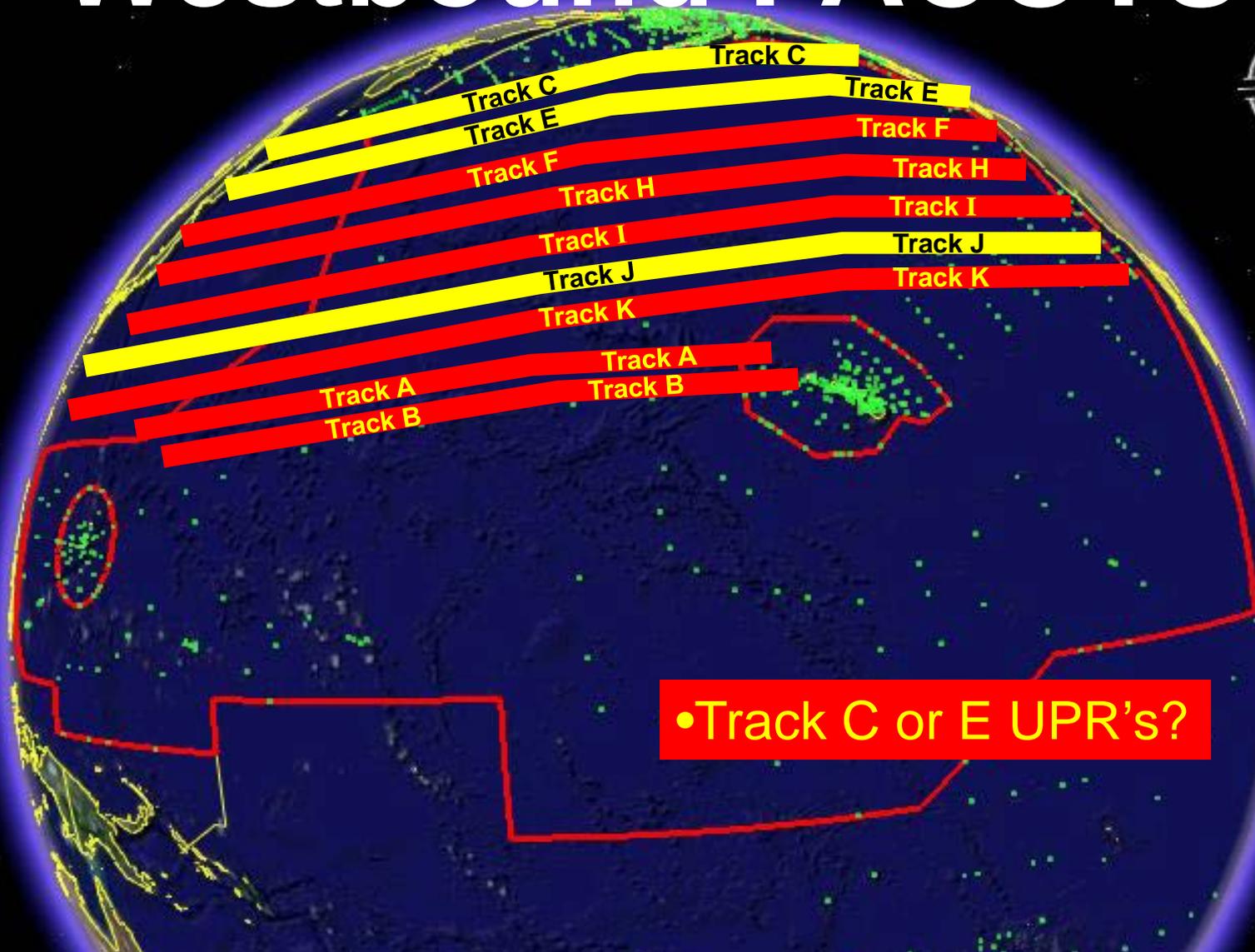


# PACOTS vs UPRs



**Overall 18 of 22  
PACOTS Tracks  
have been  
replaced with  
UPRs**

# Westbound PACOTS



# UPRs

Over 32.8 Mil  
Kg Fuel  
Savings  
Annually

????  
Kg An.

1.09M.  
Kg An.

2.88M.  
Kg An.

10M.  
Kg An.

1.09 Kg  
An.

1017Kg  
Flight

.266M.  
Kg An.

9.61M  
Kg An

2.88M.  
Kg An.

2.09M.  
Kg An.

????  
Kg An.

# High Level UPRs

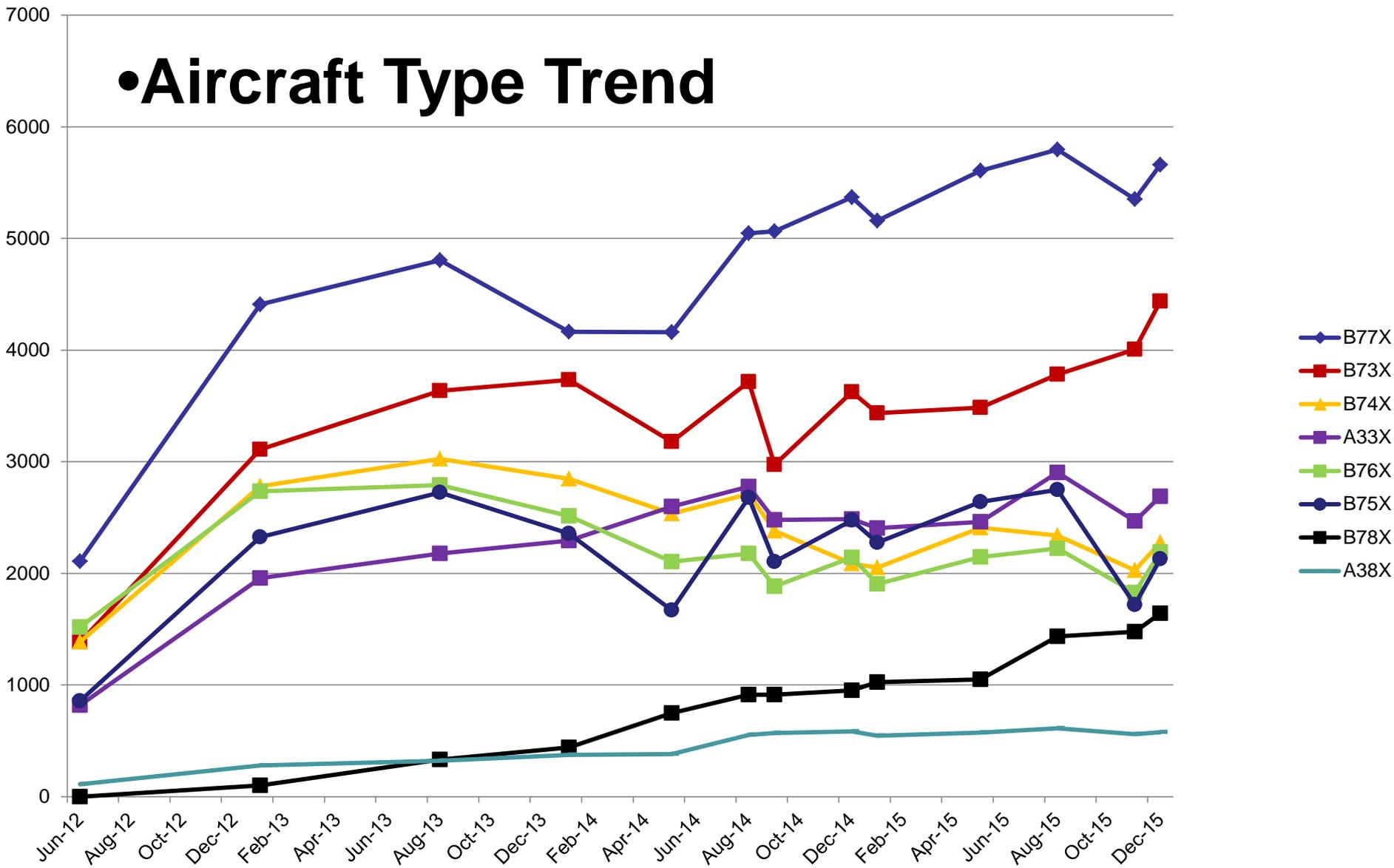


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Administration

# High Level UPR Trial

- Newer Composite aircraft climb above most traffic on PACOTS routes.
- Anchorage ARTCC started a High Level UPR Trial allowing aircraft at or above F380 by 180E can UPR up to NIPPI or OMOTO.
- Oakland has published the guidelines for a High Level UPR Trial as an alternative to westbound PACOTS to NOPAC
- Trial will have an indefinite lifespan.

# • Aircraft Type Trend



# High Level UPR Trial

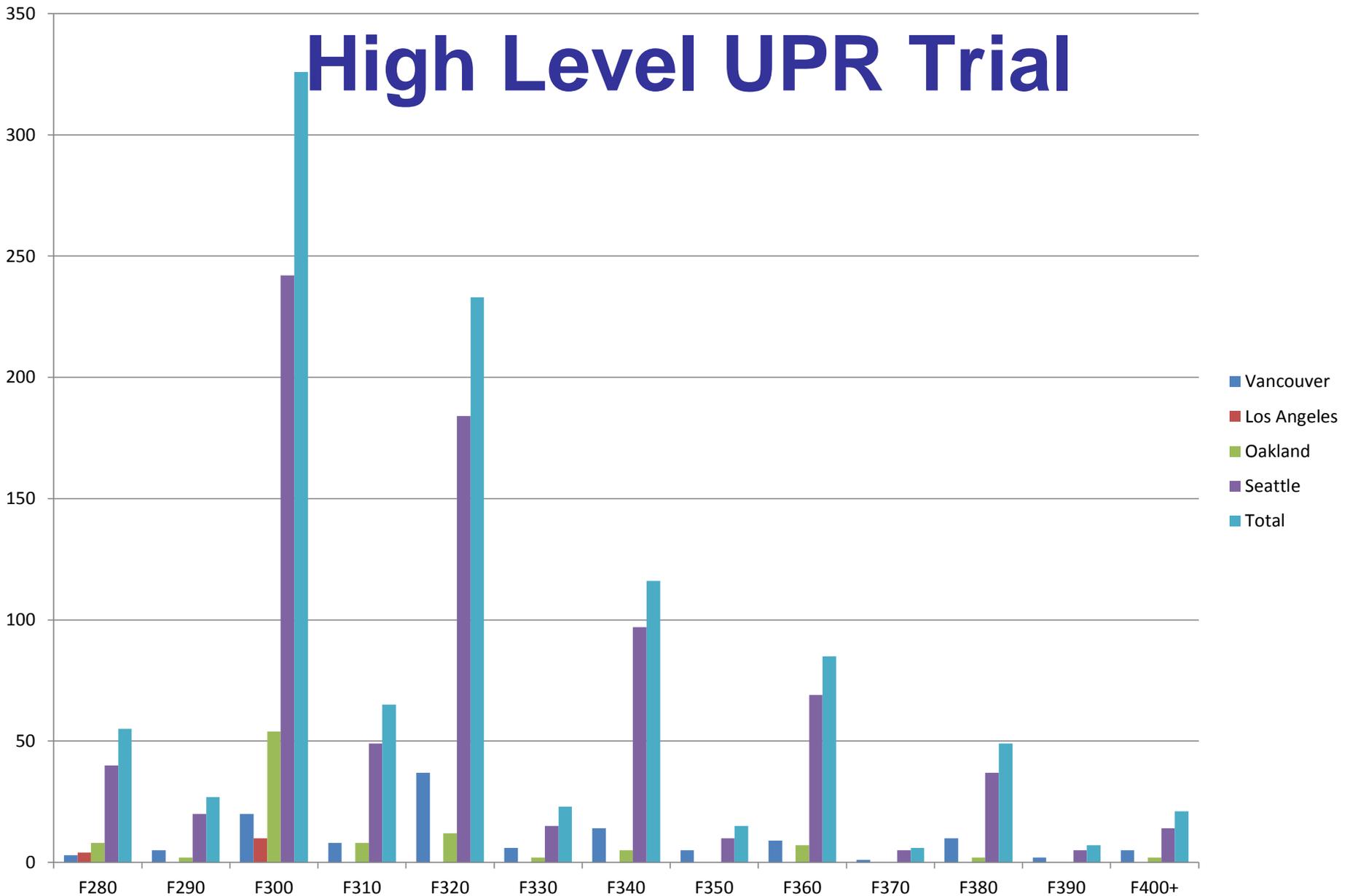
Beginning April 1, 2016, an operational trial for the use of high altitude User Preferred Routes (UPR) from North America to the NOPAC route system is authorized with the following constraints:

- 1. The high altitude UPR is only useable during the time period when the westbound PACOTS tracks are in effect; i.e., for aircraft estimated to cross 160E longitude between 0000Z and 0600Z.
- 2. Aircraft must enter the Oakland Oceanic FIR at a published boundary waypoint at or above FL380.
- 3. UPR must be planned to avoid active military special use airspace.
- 4. When transiting Anchorage Oceanic FIR, operators must adhere to the provisions of the current Anchorage Oceanic CTA (PAZA) NOTAM reference User Preferred Route (UPR) Requirements for Aircraft Transiting the PAZA FIR.

•[http://www.faa.gov/about/office\\_org/headquarters\\_offices/ato/service\\_units/air\\_traffic\\_services/artcc/oakland/kzak/media/high\\_altitude\\_upr.pdf](http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/air_traffic_services/artcc/oakland/kzak/media/high_altitude_upr.pdf)

Web Search Oakland ARTCC High Altitude UPR

# High Level UPR Trial



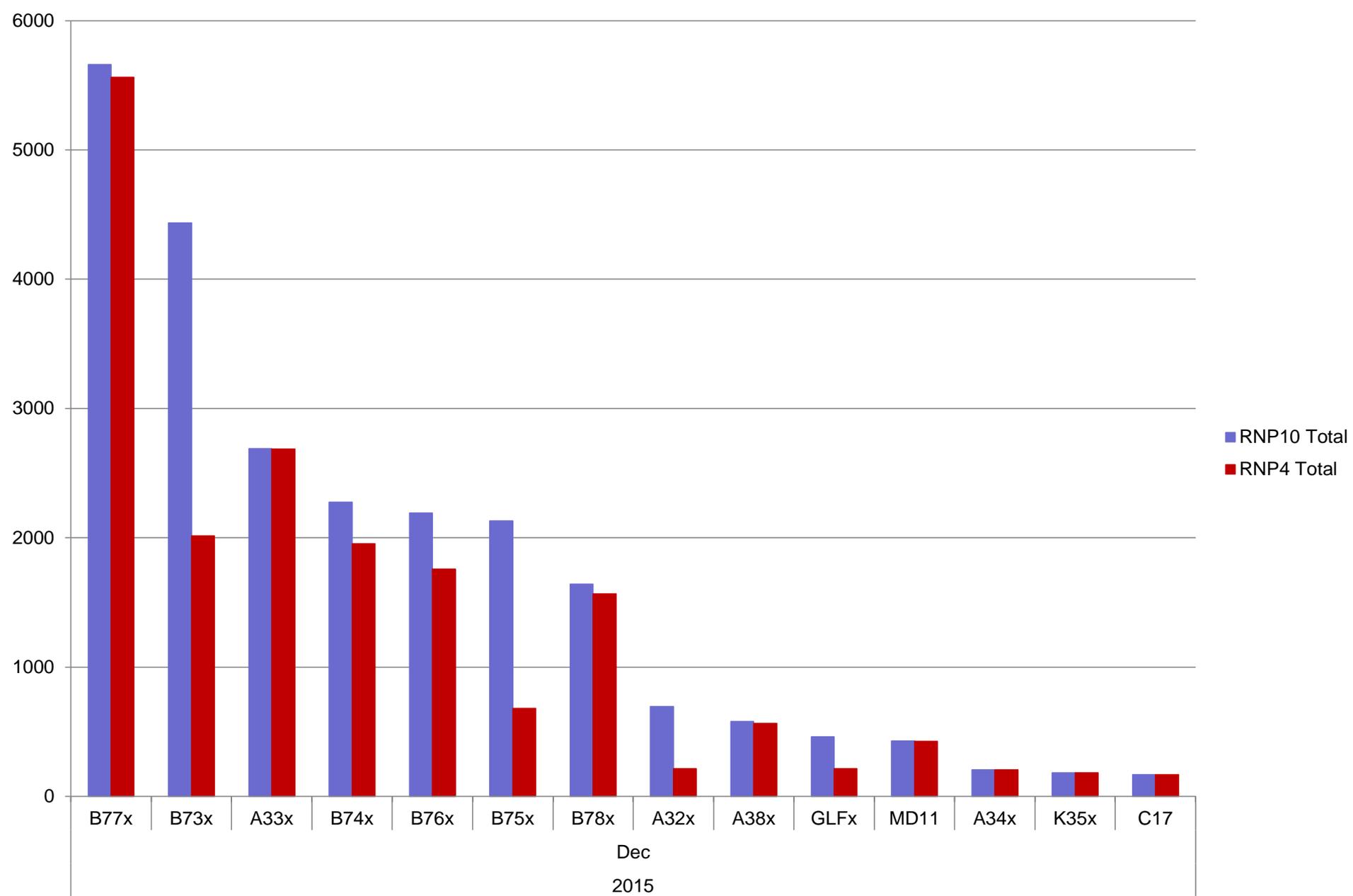
# High Level UPR Trial

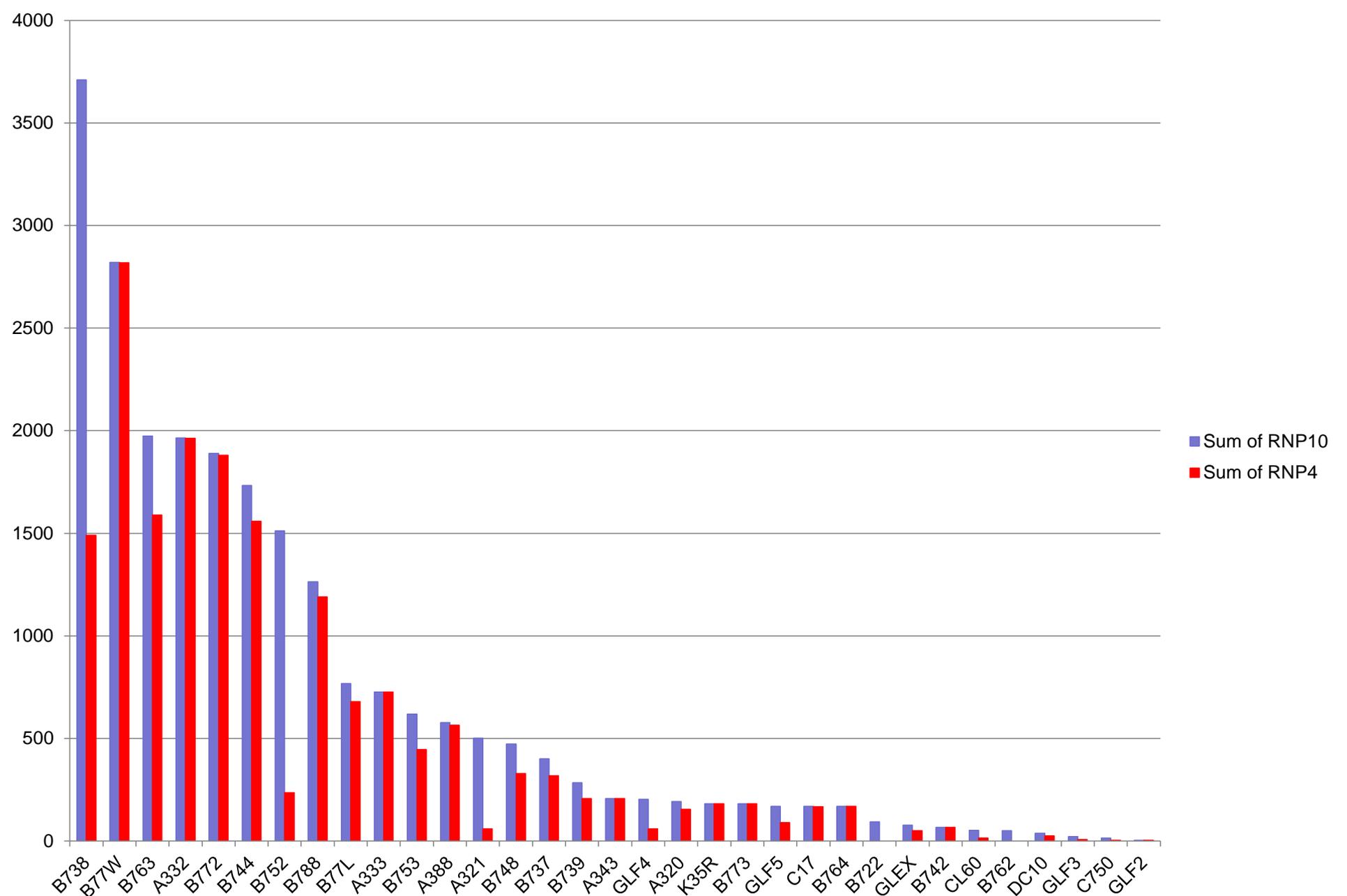
- IPACG PM Meeting
- Discussed expanding High Level UPRs to include the CENPAC.
- Non-NOPAC Gateways
  - LEPKI, SEALS, MORAY, FERAR, TONIK
- Potential Trial Late March 2016 with Fukuoka

# Oceanic Equipage and Separation Standards



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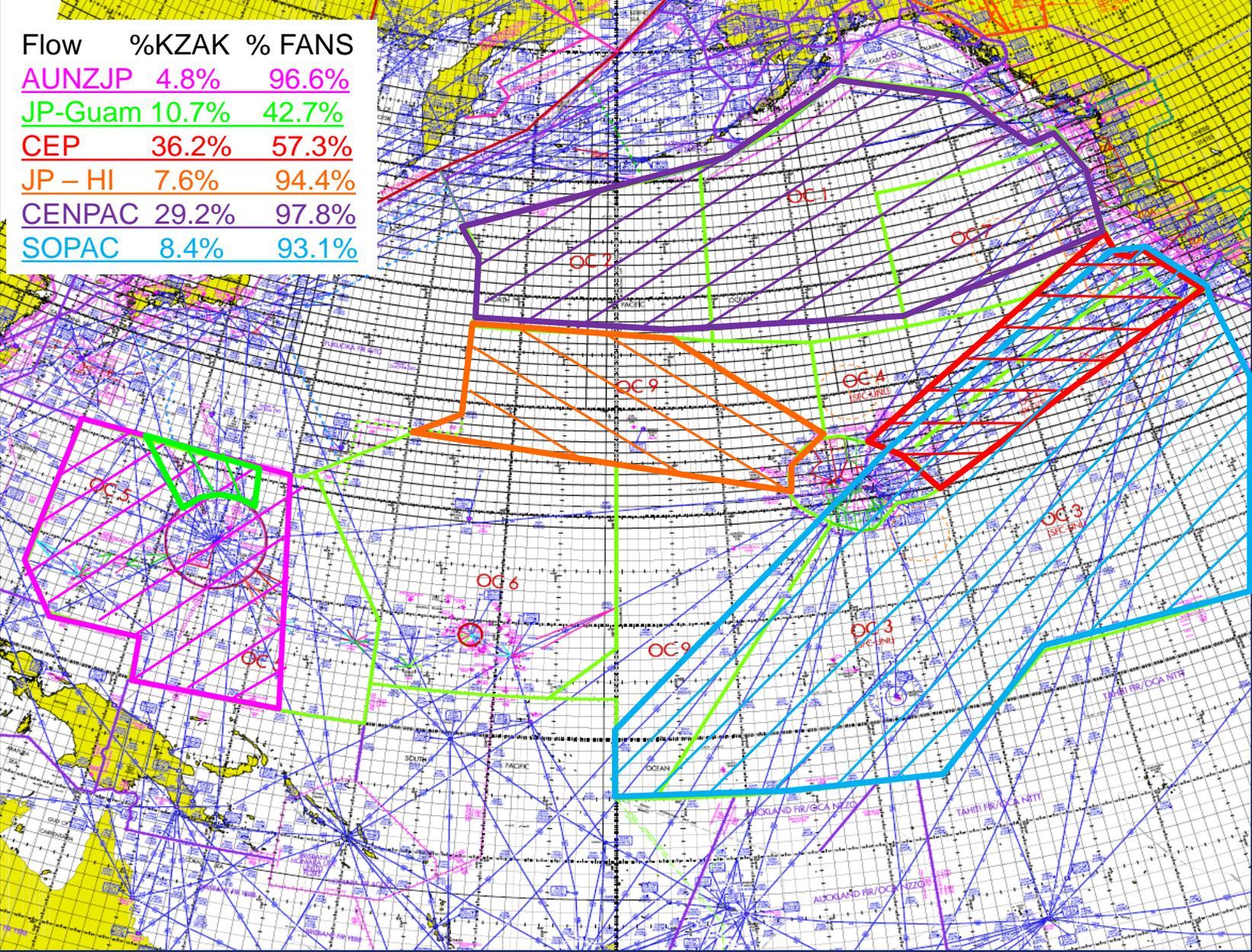


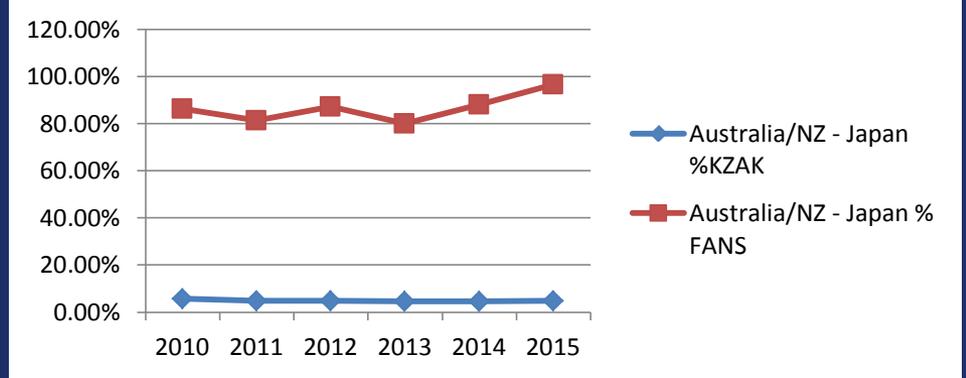
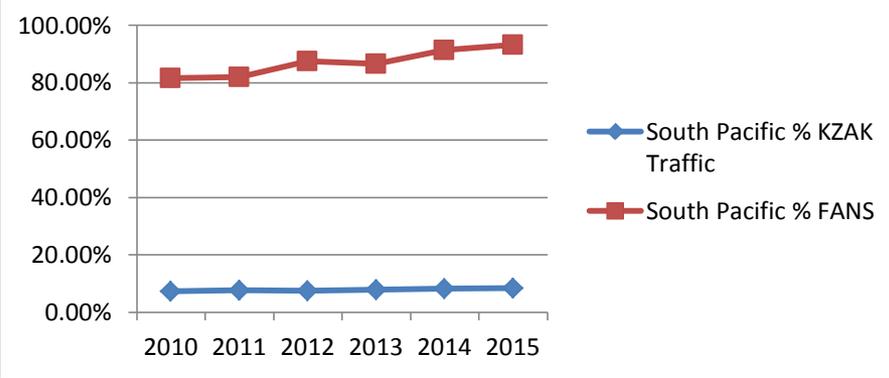
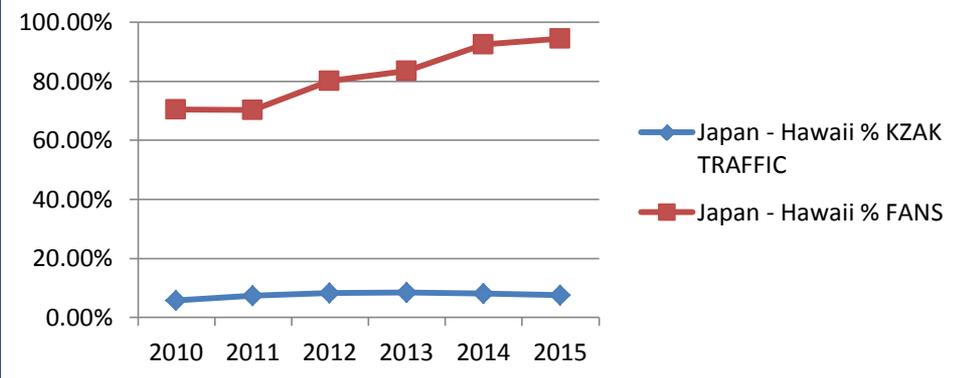
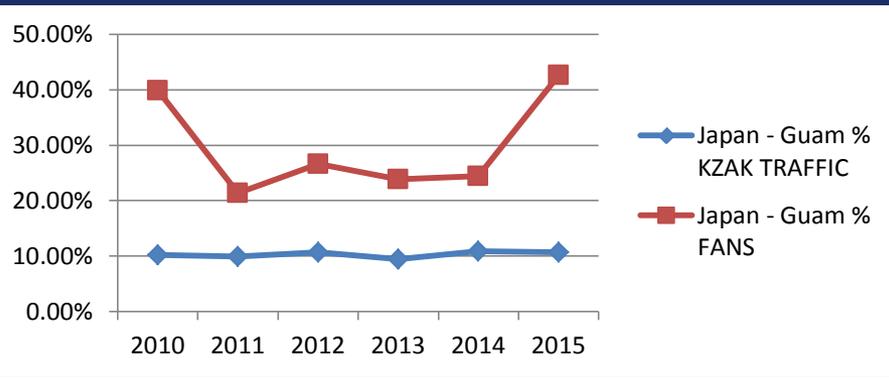
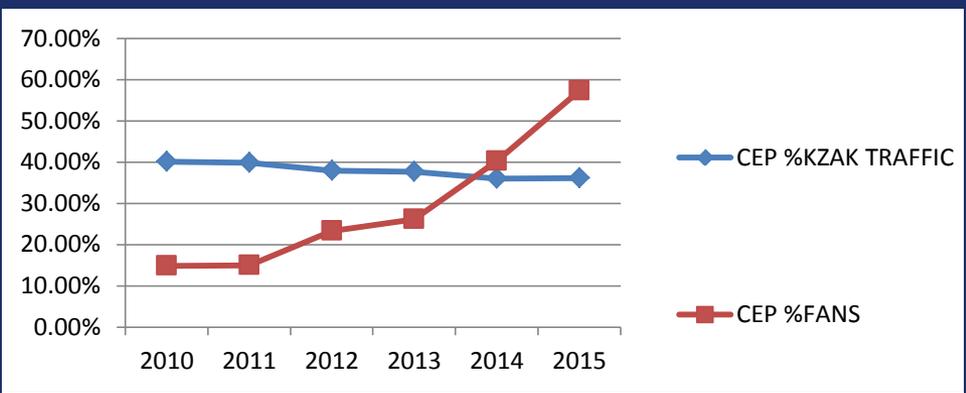
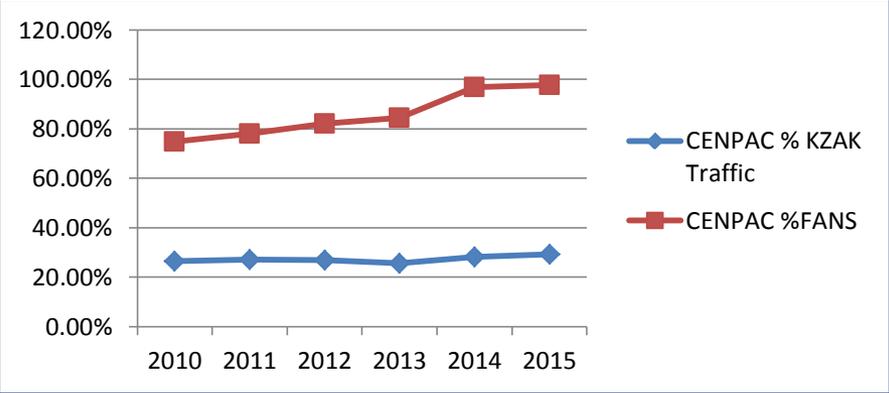


■ Sum of RNP10  
■ Sum of RNP4



| Flow    | %KZAK | % FANS |
|---------|-------|--------|
| AUNZJP  | 4.8%  | 96.6%  |
| JP-Guam | 10.7% | 42.7%  |
| CEP     | 36.2% | 57.3%  |
| JP - HI | 7.6%  | 94.4%  |
| CENPAC  | 29.2% | 97.8%  |
| SOPAC   | 8.4%  | 93.1%  |

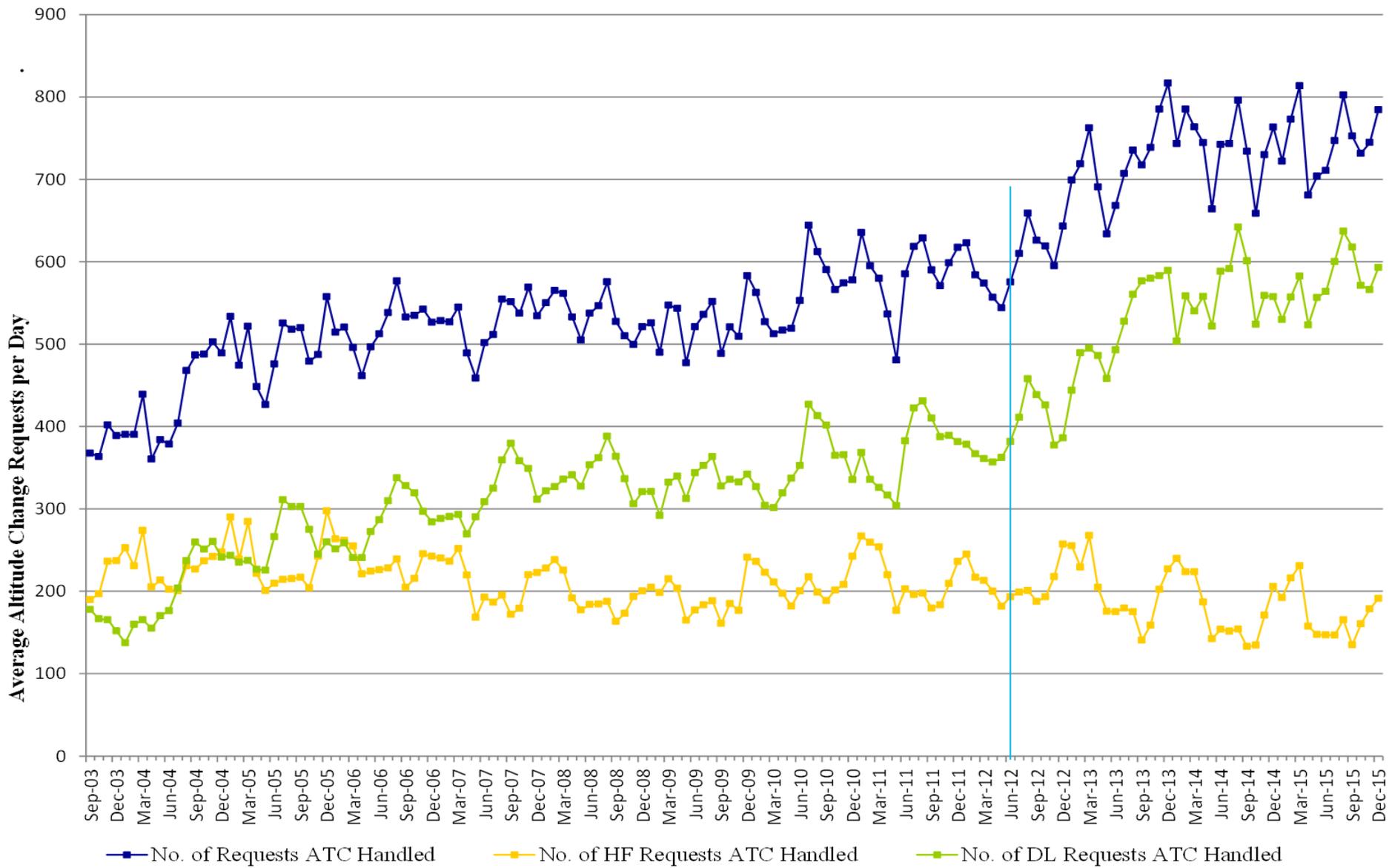




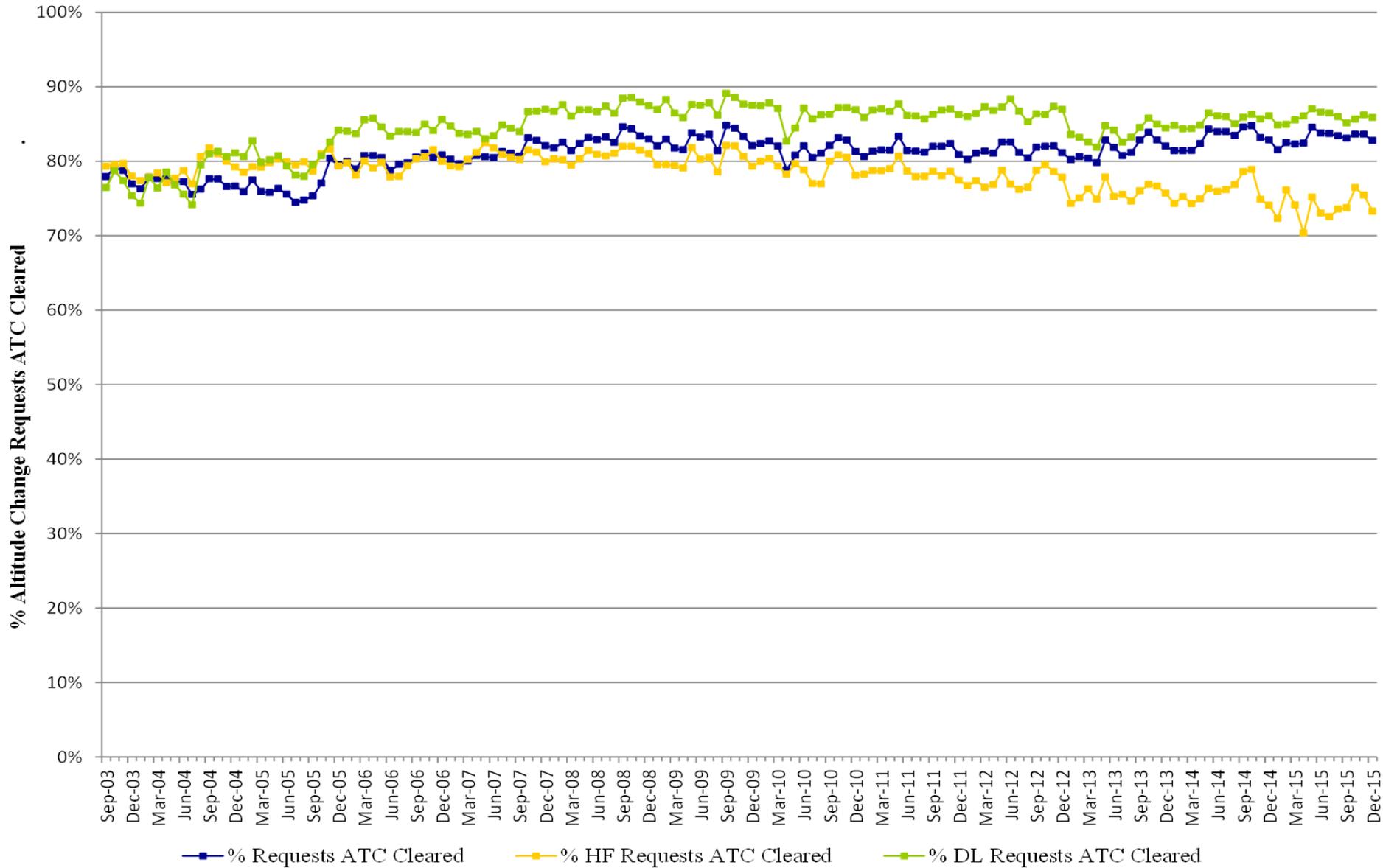
# FANS Eqp Trends



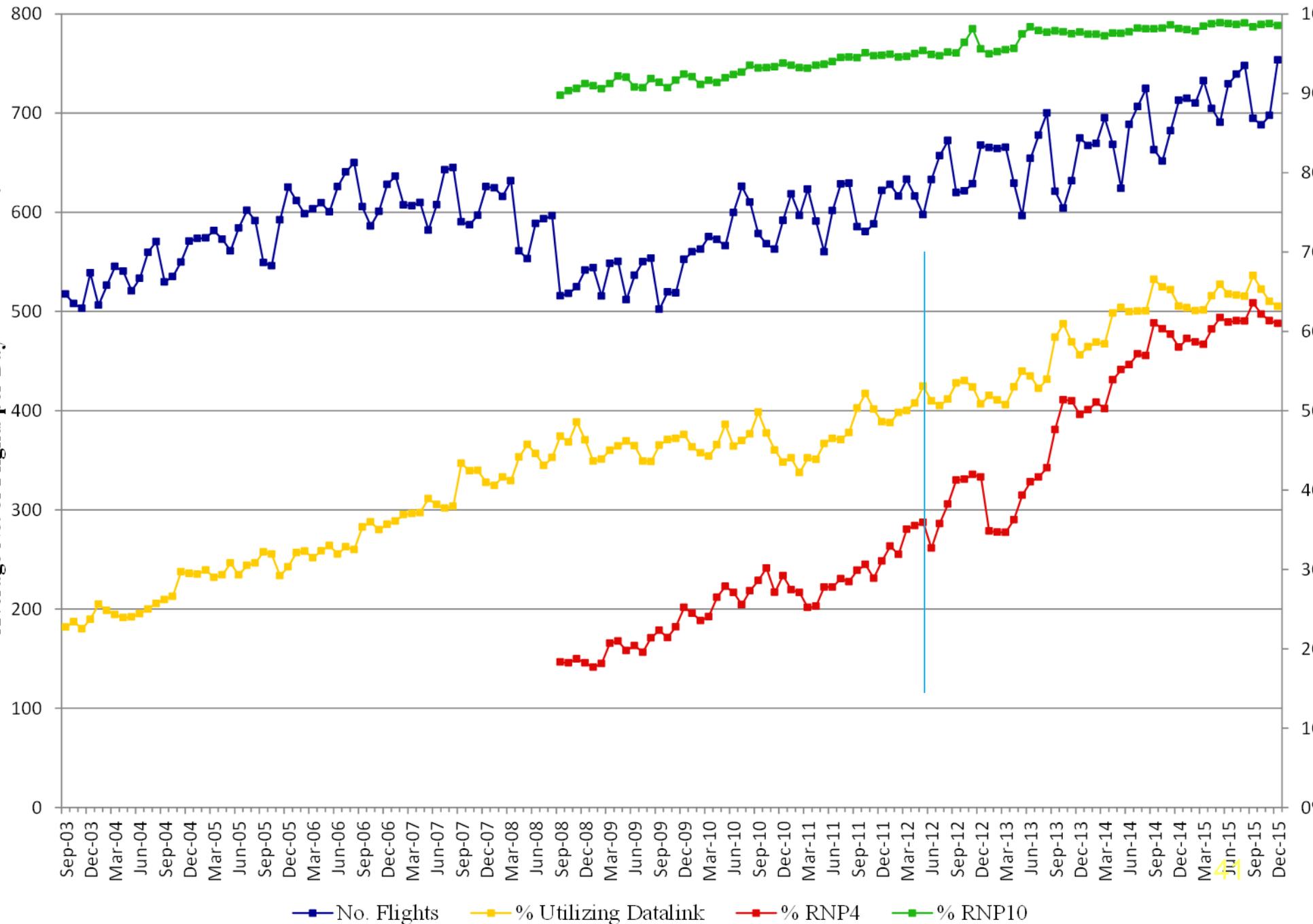
# ZOA Altitude Change Requests ATC Handled

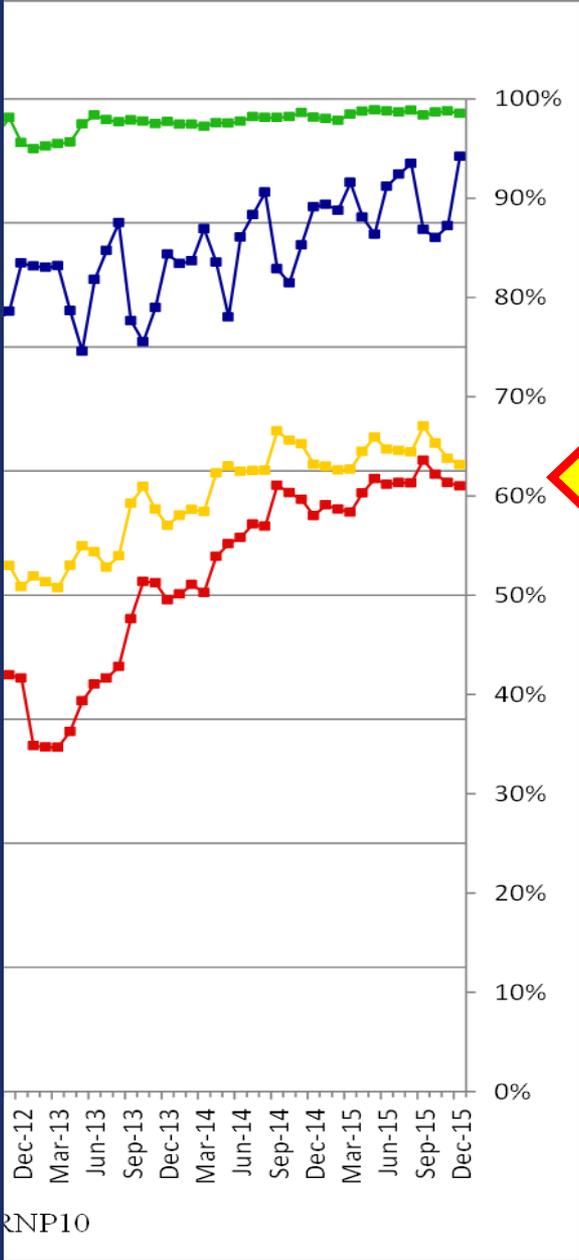


# ZOA % Altitude Change Requests ATC Cleared



# ZOA Flights & Equipment Utilization





RNP10

← QQQ, III, ???

# RNP4 and FANS Improves efficiency

□ DAL2237  
340  
N157

□ DAL1151  
390  
N394

FANS  
RNP10

□ FDX3875  
360  
N410

□ UAL650 3  
350  
N536

FANS  
RNP4

Non FANS RNP10

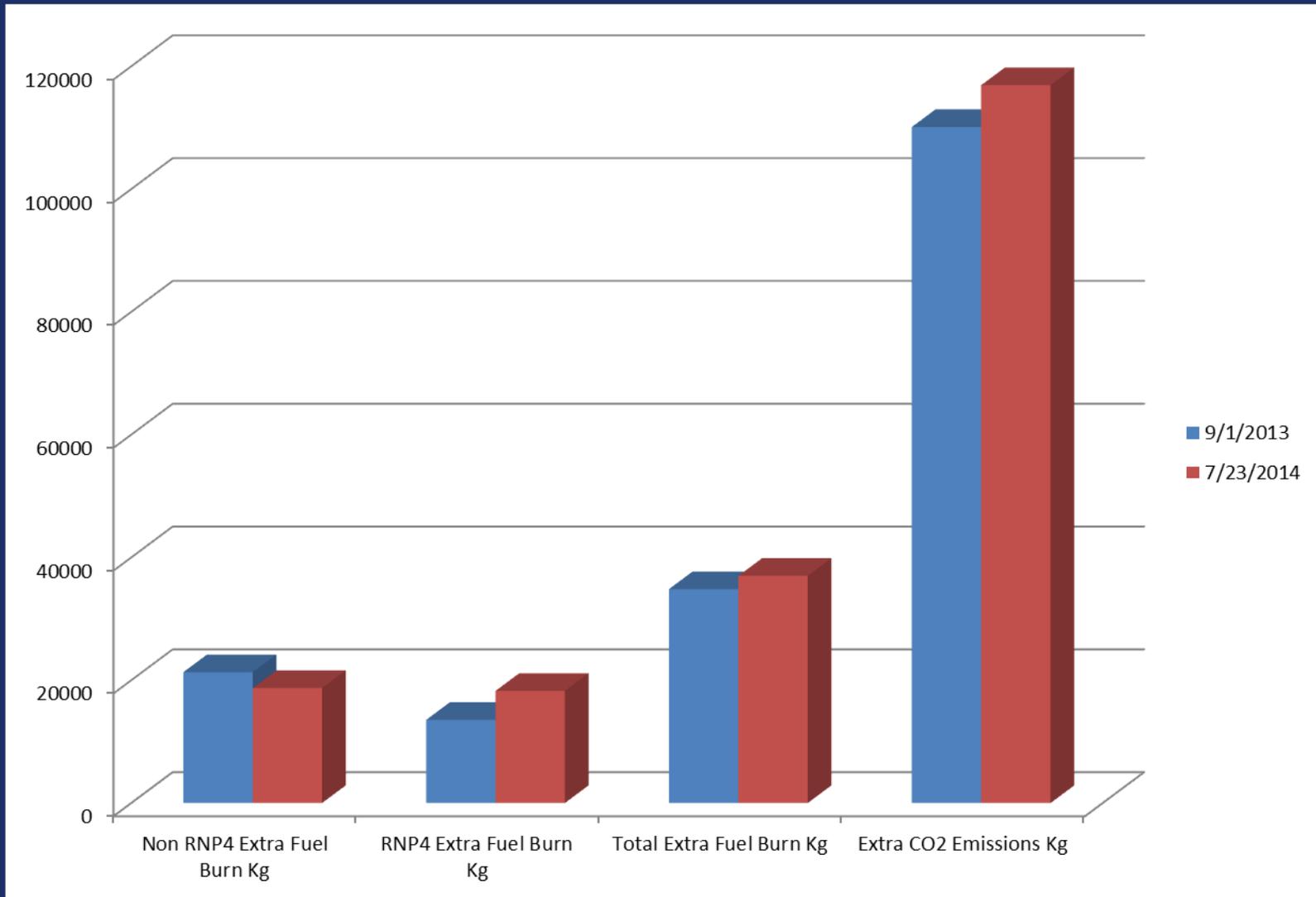
□ N17CX  
410  
N522

□ DAL836 3  
& 340↑360  
N522  
r360

# Lost Fuel Burn Savings

**The following slides identify denied aircraft requests for climb to optimum altitudes and places a value on the increased fuel burn due to lack of FANS equipment and RNP certification**

# RNP4 extra fuel burn



# Additional benefits are not tracked

- 30nm separation after two opposite direction aircraft have passed
- If an aircraft is held below optimum altitude because of traffic and does not make requests for a new optimum altitude.

# Additional benefits are not tracked

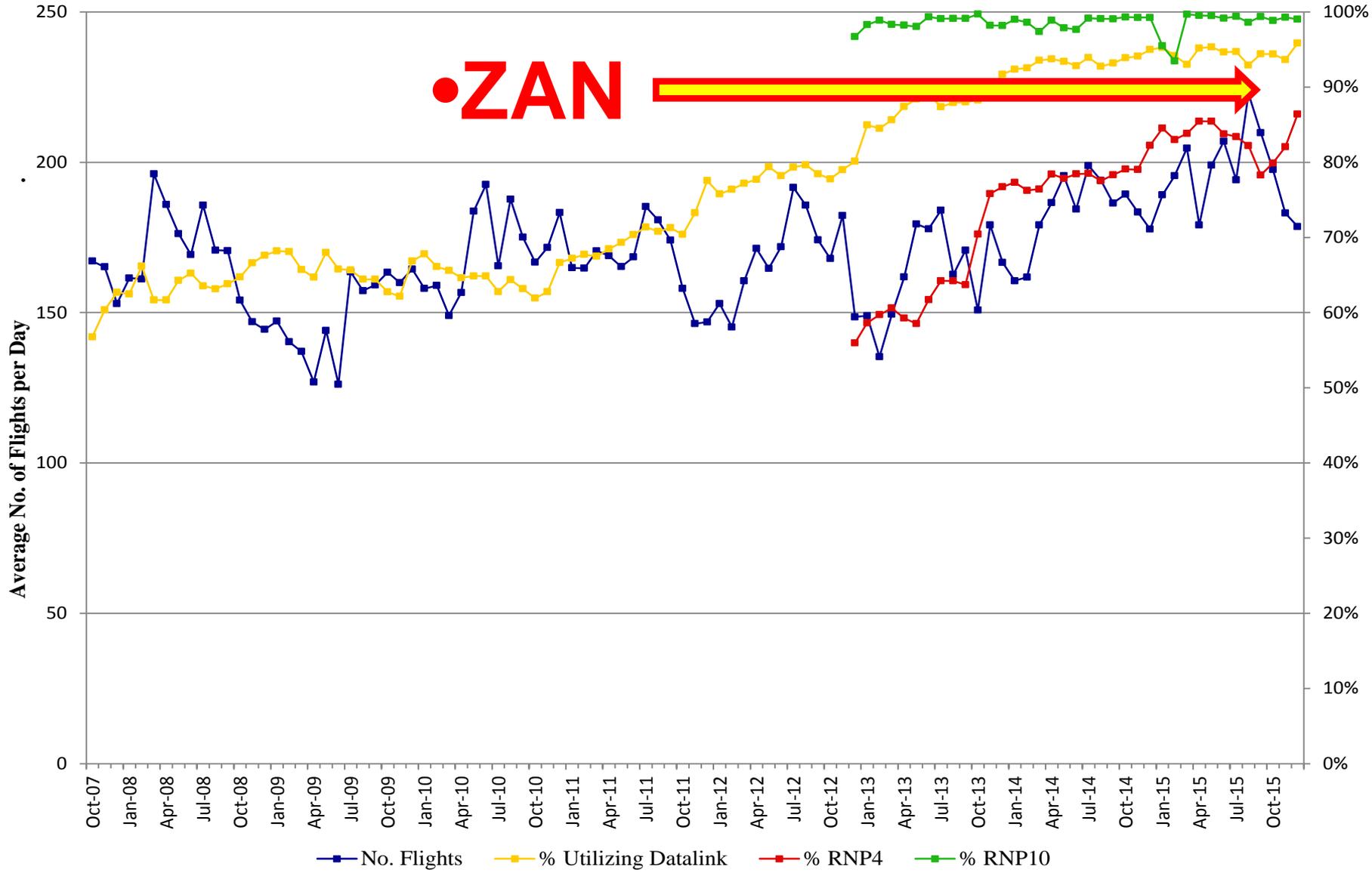
- Savings that could be realized by developing route systems based on a 30nm lateral standard.
- This paper only captures the lost savings for the Oakland FIR. It would be much higher if calculated for all FIRs

# Conclusion

- **The meeting is requested to:**
  - **Recognize the benefits of RNP 4 and FANS equipage; and**
  - **Consider certifying FANS equipped aircraft as RNP 4; and**
  - **Consider equipping aircraft with satellite FANS and RNP 4 certification.**

# ZAN Flights & Equipment Utilization

**ZAN** 



Anchorage  
D50, 30/30  
PAZN FIR

Anchorage

Vancouver

Seattle

Oakland

Los Angeles



Vancouver  
D50

Anchorage  
D50 D30

Fukuoka  
D50, 30/30

ZSE, ZOA,  
ZLA  
D50, 30/30

Honolulu

Brisbane  
D50, 30/30

Nadi  
D50, 30/30

HCF  
D50, 30/30

Manila  
Guam  
Ujung  
Guam  
D50, 30/30

Brisbane  
Nadi

Auckland

Auckland  
D50, 30/30

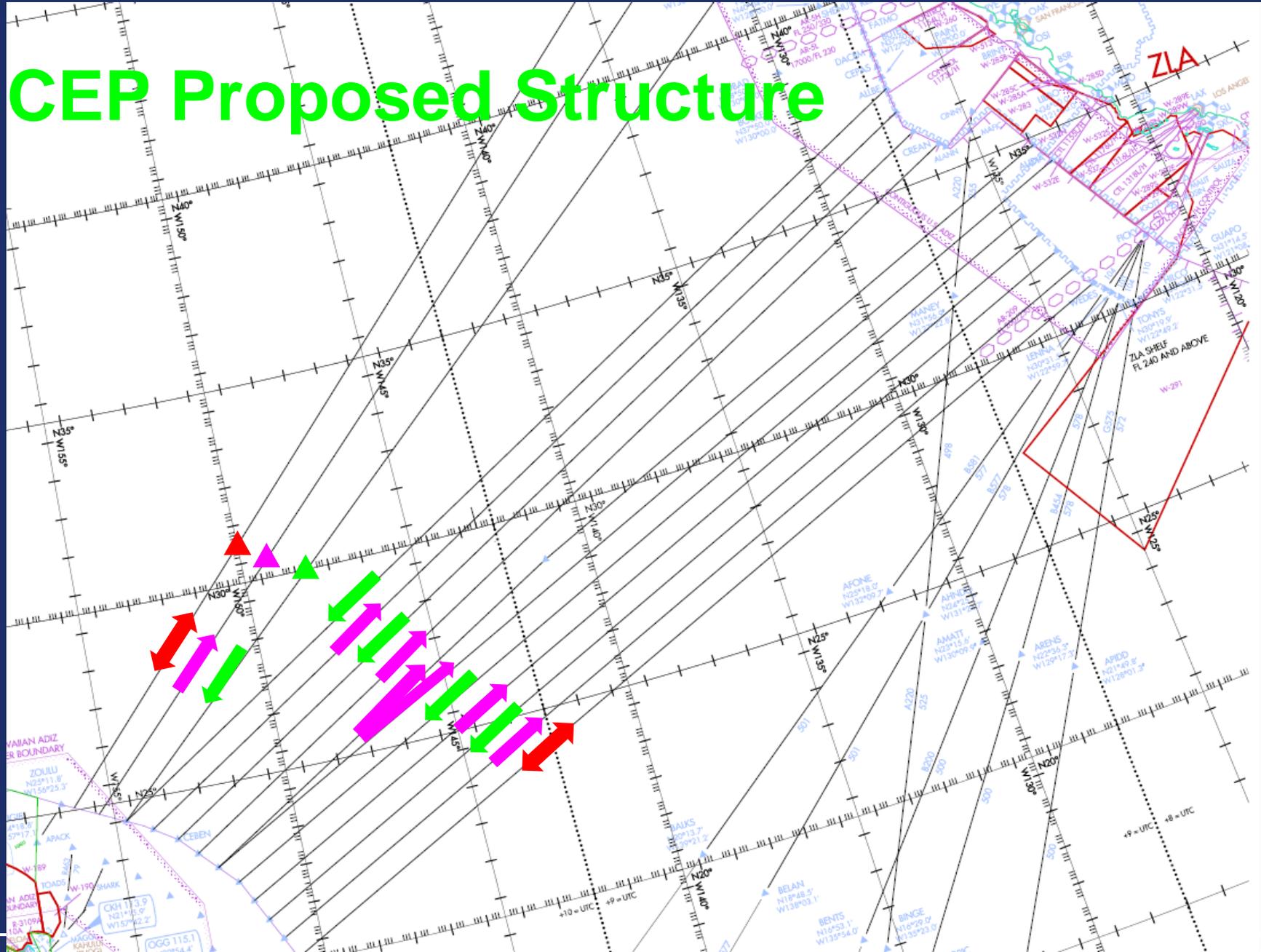
# ADS Distance Based Separation

# CEP Route Structure



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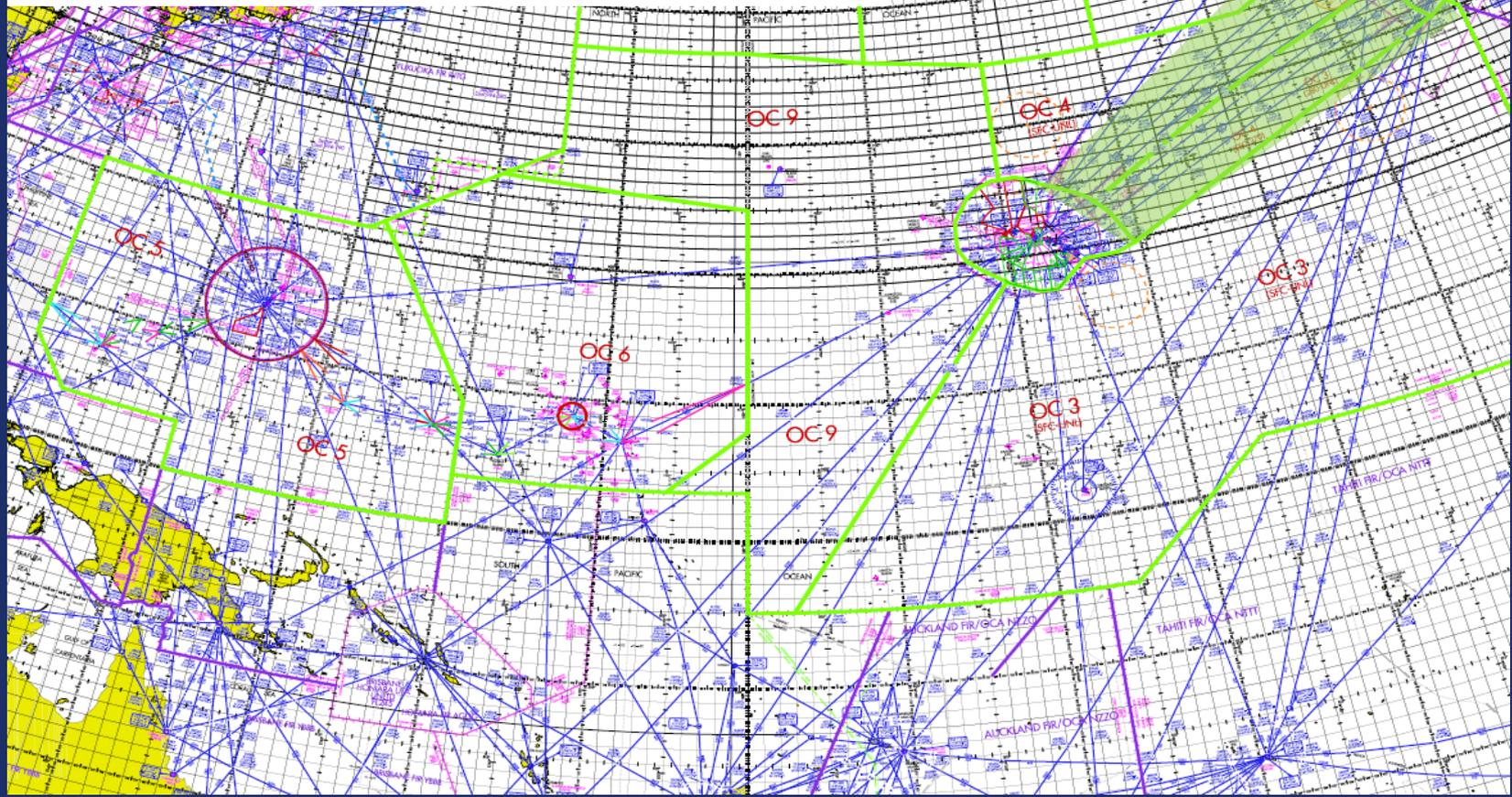
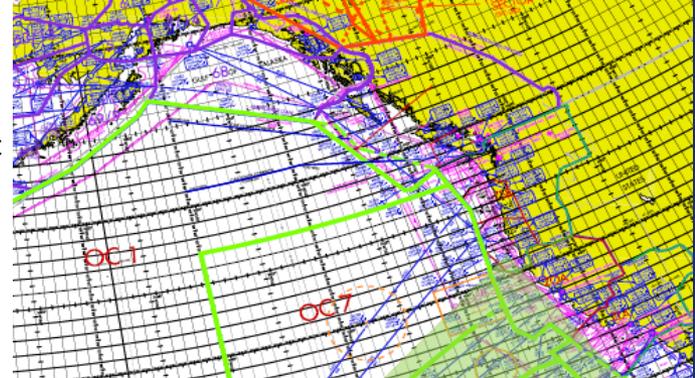
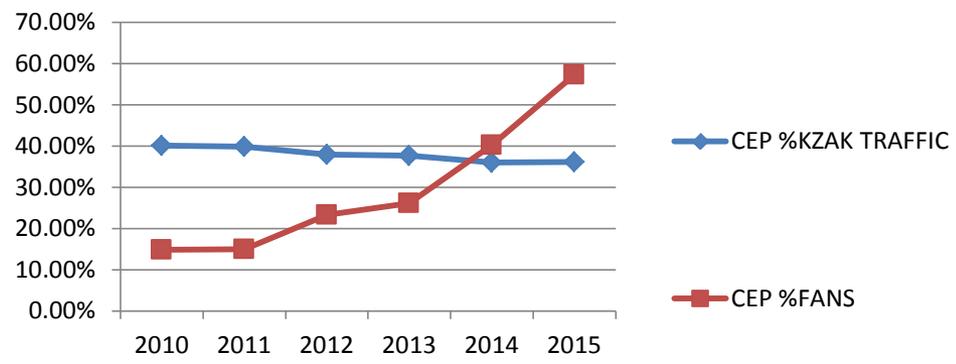
# CEP Proposed Structure



OWG Meeting  
January 27, 2016

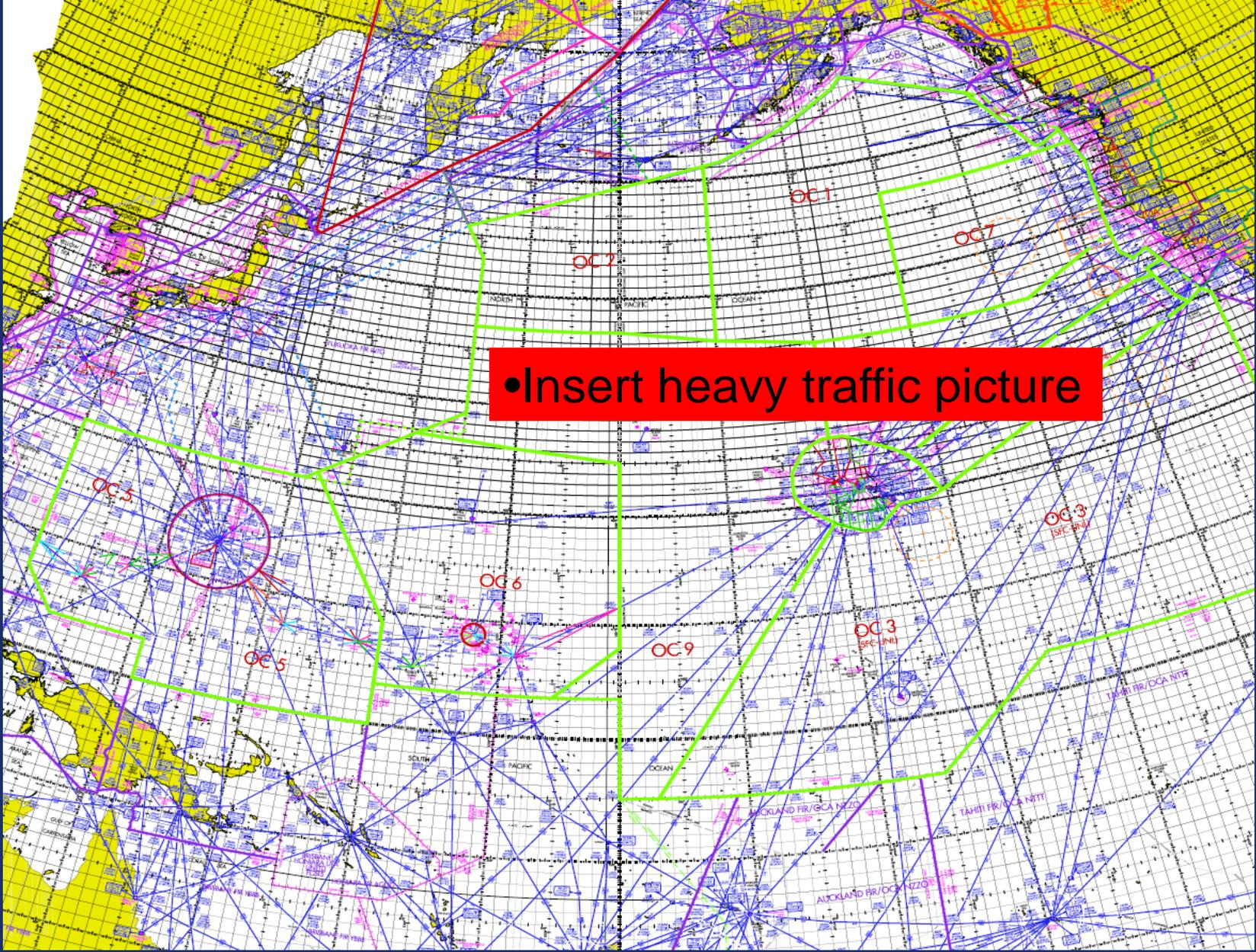


Federal Aviation  
Administration



# CEP Proposed Structure

- Discuss with HCF and propose RNP4 routes between APACK and ZIGIE



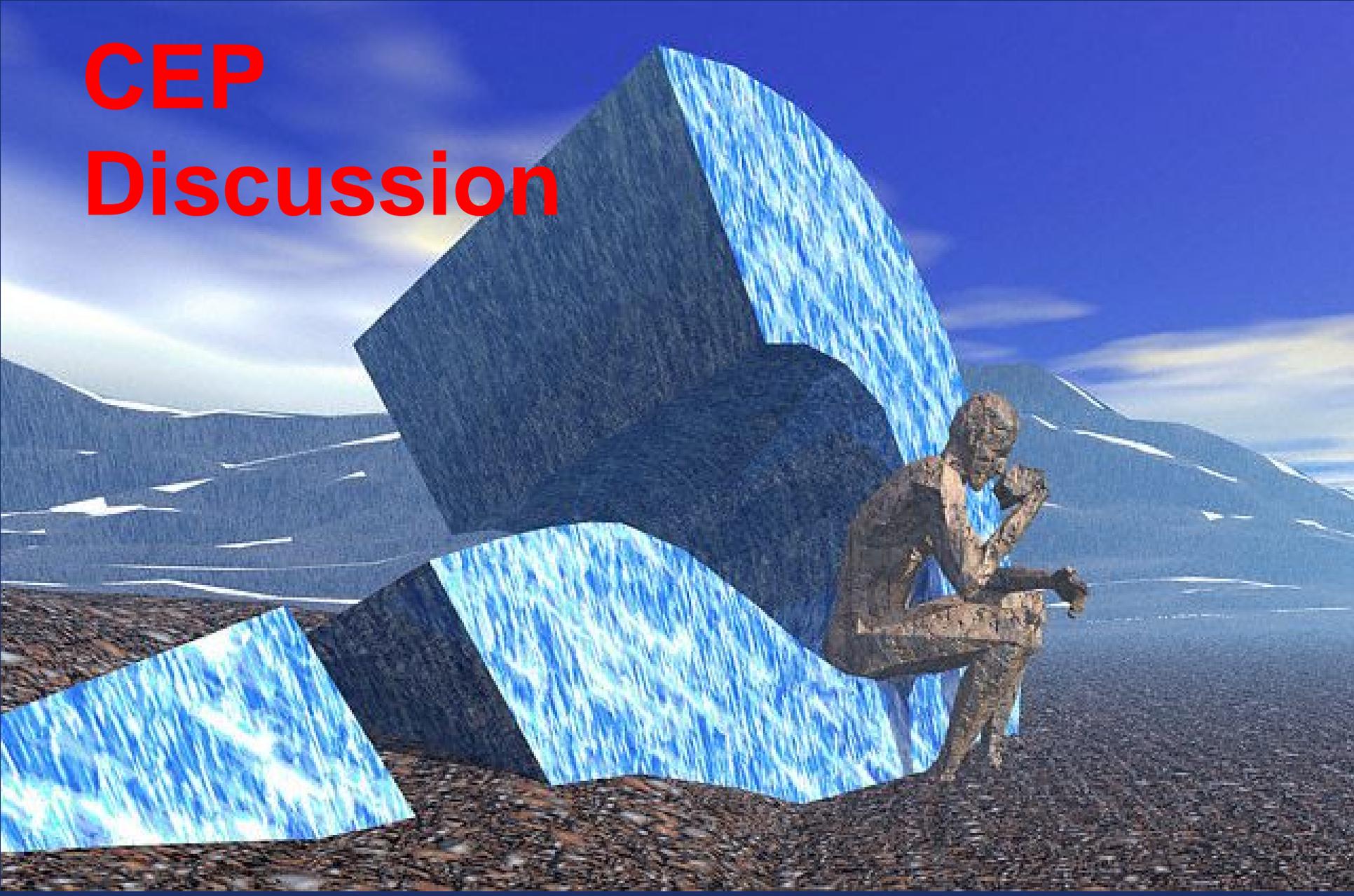
•Insert heavy traffic picture

- 
- Looked at 15 days of data on flights over APACK and ZIGIE
  - 581 total flights
  - 202 flight that NON RNP4 and FANS equipped
    - 1 AAL A321
    - 40 DAL 3 B767, 37 B757
    - 29 UAL 20 B737, 9 B757
    - 79 WJA 63 B737 16 B767
    - Note ASA B737's not counted soon to be FANS equipped

# 30nm CEP Track Discussion

- Aircraft Lifespan.
- GFT requirements.
- At a certain point it makes sense to switch to 30nm separated CEP Routes.
- Drawing a line in the sand.

# CEP Discussion



# MDA Missile Test



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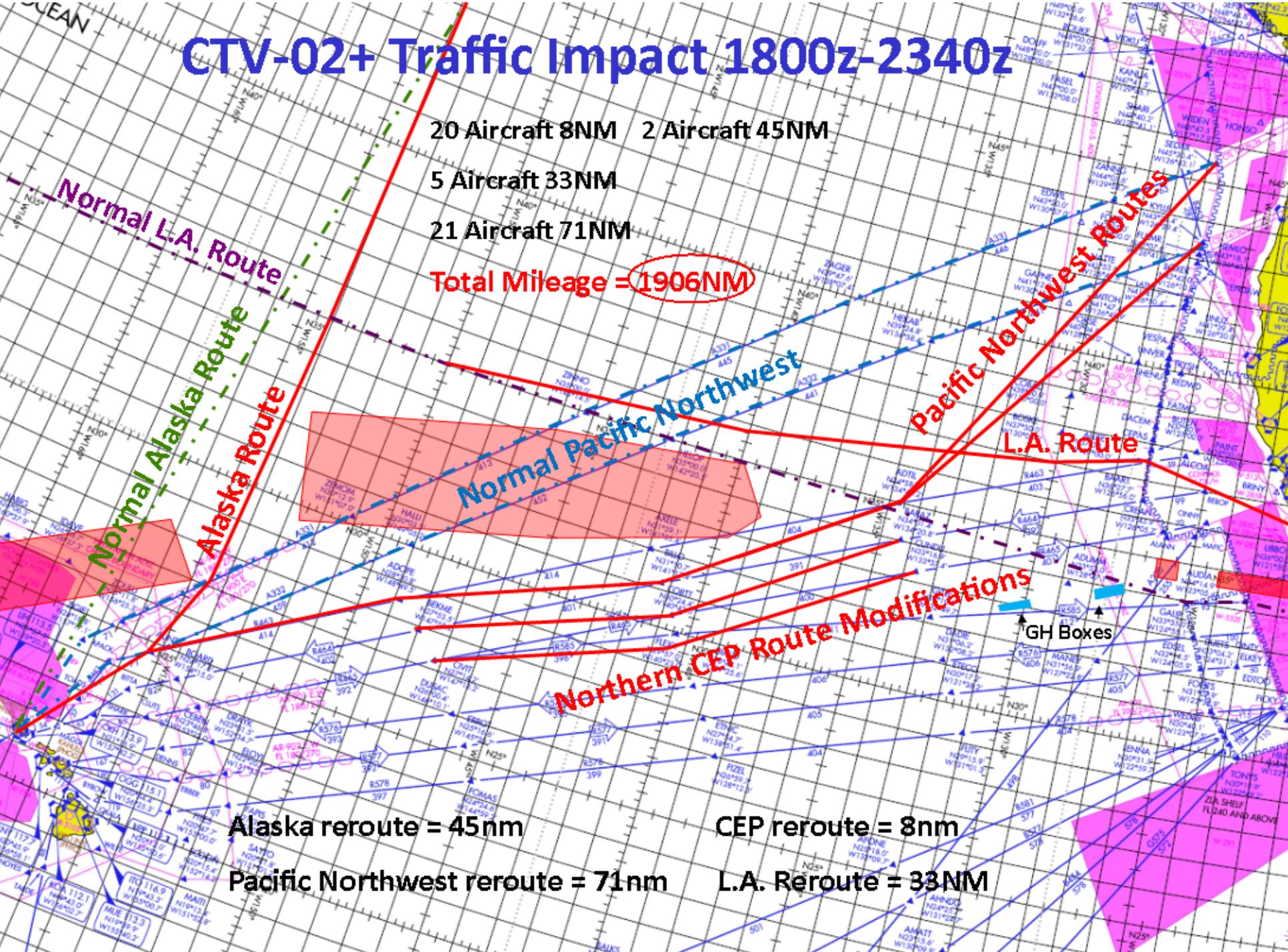
# CTV-02+ Traffic Impact 1800z-2340z

20 Aircraft 8NM    2 Aircraft 45NM

5 Aircraft 33NM

21 Aircraft 71NM

Total Mileage = **1906NM**



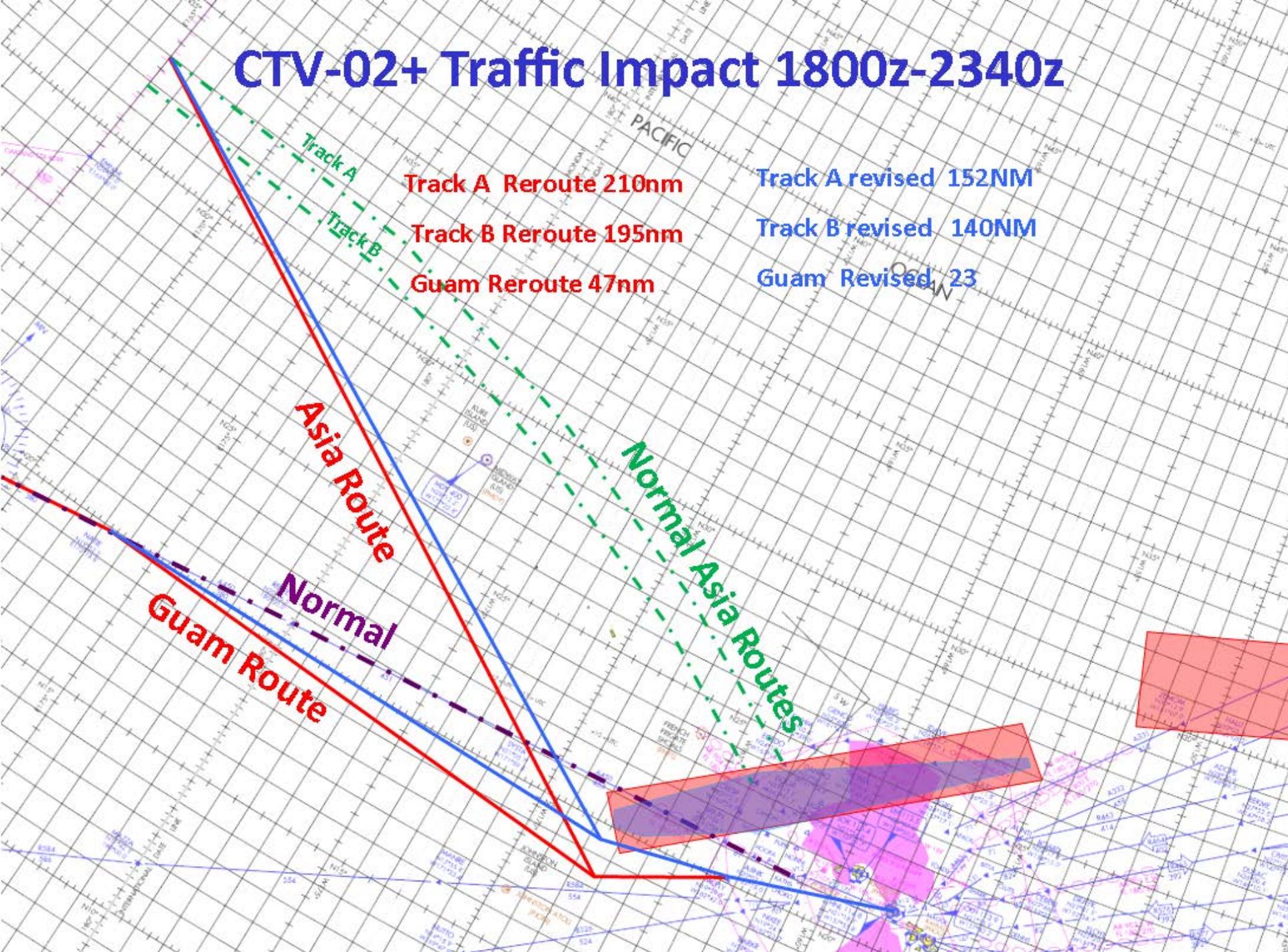
Alaska reroute = 45nm

CEP reroute = 8nm

Pacific Northwest reroute = 71nm

L.A. Reroute = 33NM

# CTV-02+ Traffic Impact 1800z-2340z



# Aircraft Affected by MDA Testing

- In total, 77 aircraft will have to be rerouted around the requested airspace adding an estimated 6,029 nautical miles to be flown.
- 48 aircraft are effected by the footprint east of Hawaii.
- 29 aircraft are effected by the footprint north northwest of Hawaii.
- As the airspace request currently stands Oakland ARTCC feels that the affect on the aviation community will potentially cause serious concerns.

# Aircraft Affected by MDA Testing

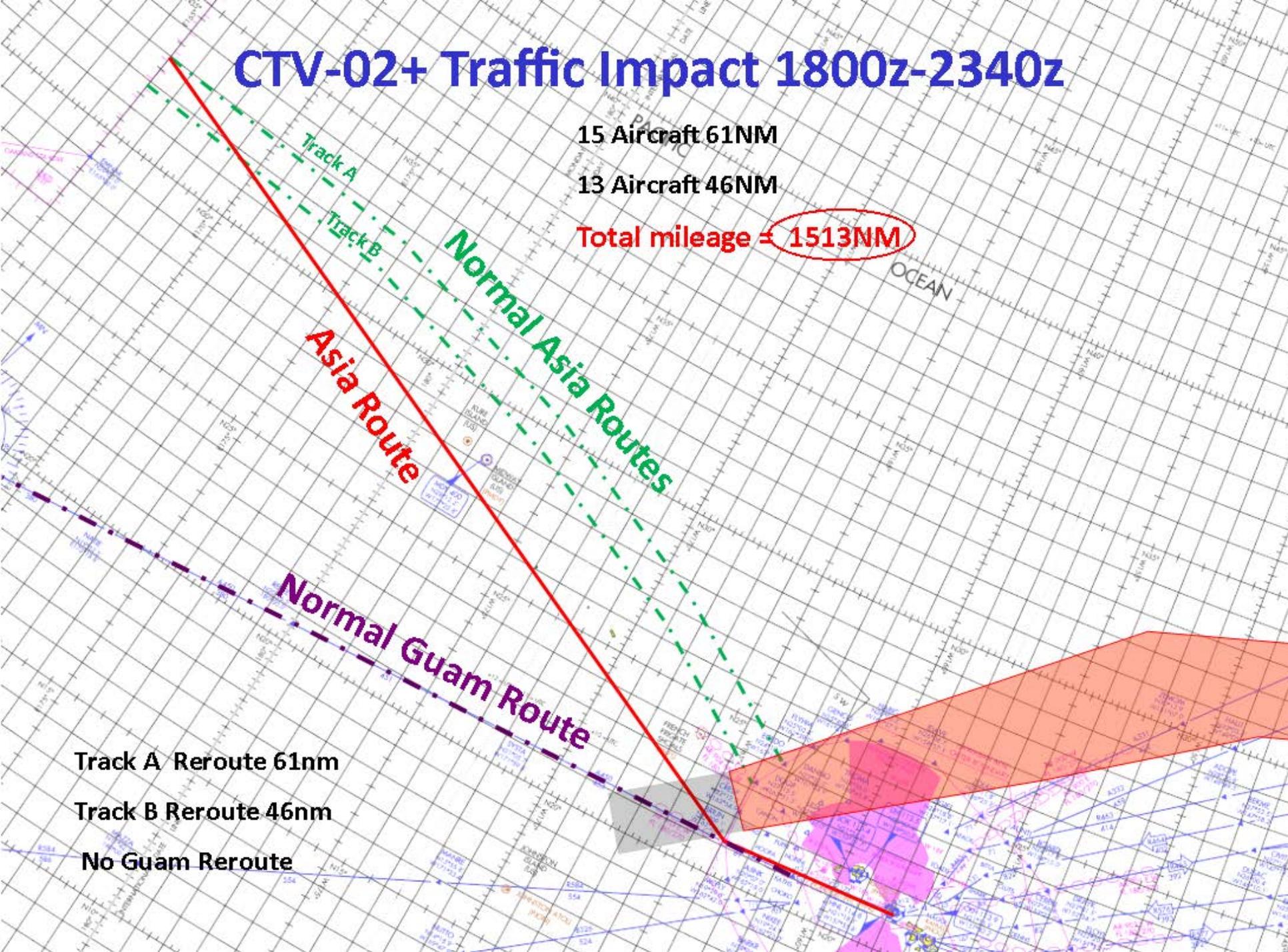
- We ask that MDA check their data and determine if there is a way to move the western most foot print east or decrease its length.
- If the MDA could move the western most footprint further to the north east (essentially connecting the two) they could save the aviation community 3,072 nautical miles in reroutes.
- An example of the proposed airspace is on the following slides.

# CTV-02+ Traffic Impact 1800z-2340z

15 Aircraft 61NM

13 Aircraft 46NM

Total mileage = 1513NM



Track A Reroute 61nm

Track B Reroute 46nm

No Guam Reroute

# Aircraft Affected by MDA Testing

- The initial request: 1800Z-2340Z
- 1<sup>st</sup> day 1800Z-2340Z with potential to decrease to a 2 hour launch window.
- Following days with a 24hr advanced notice of cancellation. 1800Z-2340Z
- No 24hr advanced notification of cancellation or use of the reservation the backup days fall to a 1800Z-2140Z reservation time.

# Discussion



BOEING 777



36120 nm

|        |                    |              |
|--------|--------------------|--------------|
| ATC    | FLIGHT INFORMATION | COMPANY      |
| REVIEW | MANAGER            | NEW MESSAGES |

2319z ATC UPLINK

AT N1400.0E17000.0 CLEARED  
 ROUTE CLEARANCE  
 ORIGIN:PGUM DEST:PHNL  
 DEPARTURE:06  
 VIA TO  
 DIRECT N1330.0W18000.0  
 DIRECT N1400.0W17400.0  
 DIRECT N1800.0W16500.0  
 DIRECT MCFLY  
 DIRECT CHOKO  
 DIRECT GECKO  
 DIRECT HNL

ACCEPT LOAD FMC PRINT DISPLAY REQUEST REJECT REASONS REJECT

RTE 2 2/3  
 VIA TO  
 DIRECT N14E170  
 DIRECT N13W180  
 DIRECT N14W174  
 DIRECT N18W165  
 DIRECT MCFLY  
 -----  
 <RTE 1 ACTIVATE>

ACT RTE 1 LEGS  
 084° 237NM  
 N14E170 .834  
 081° 583NM  
 N14W180 .833  
 071° 355NM  
 N15W174 .833  
 055° 570NM  
 N19W165 .83  
 046° 117NM  
 AJINK .83  
 -----  
 <RTE 2 LEGS R

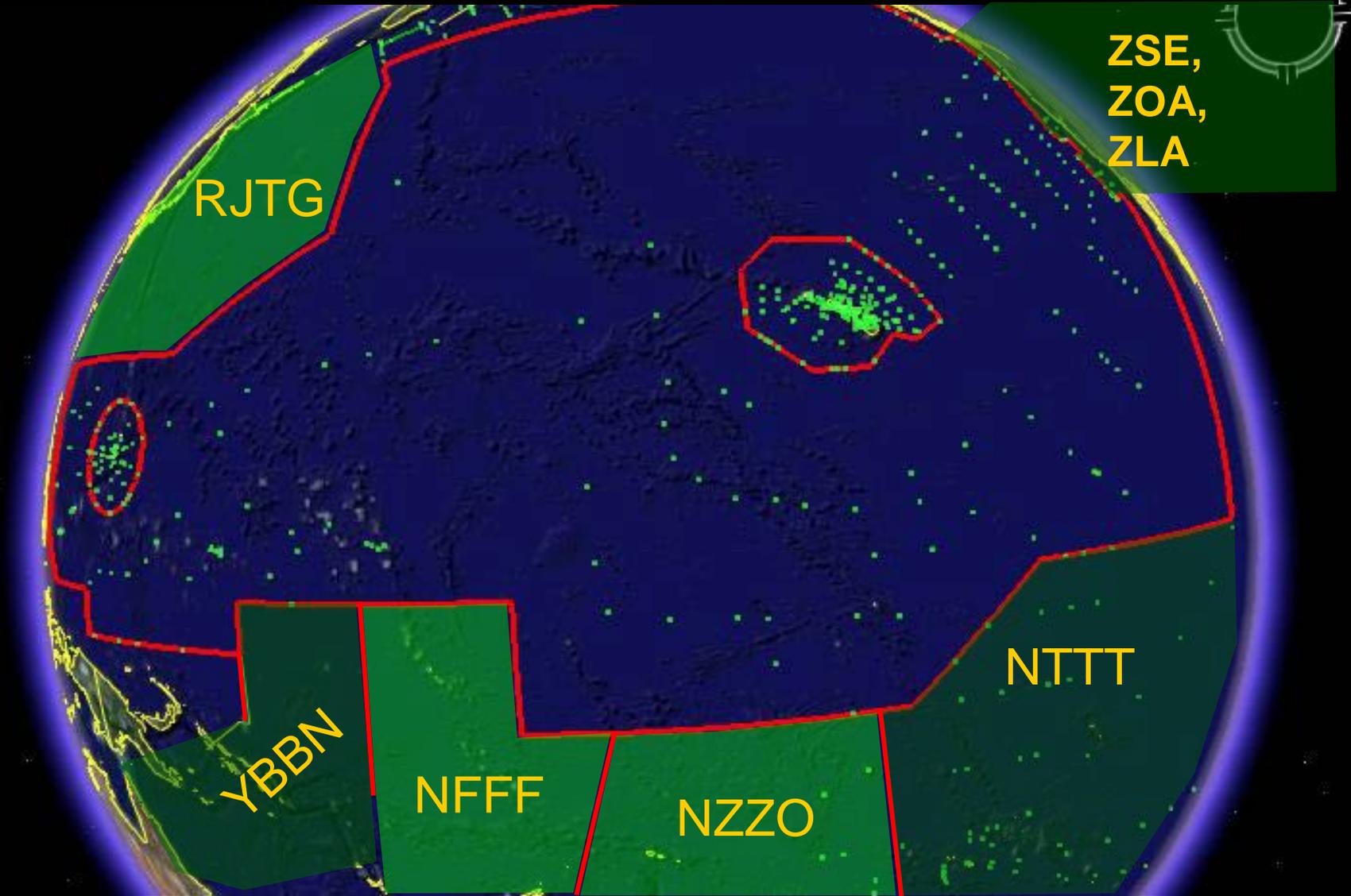
# DARPS



# Oakland FIR DARP Usage

•UPDATE

# Dynamic Airborne Reroutes



# Dynamic Airborne Reroute Procedure

- JCAB has implemented an ODP system enhancement to allow initiation of DARP clearances in Fukuoka FIR.
- JCAB had moved into limited operational testing of the DARP process in the Fukuoka FIR and is in the final stages of operational software evaluation.
- AIC Japan has been published which allows the use of DARP in the Fukuoka FIR

# DARP Guidelines

- Operators wishing to employ DARP procedures initiated in the Fukuoka FIR or initiated in the Oakland FIR from North America or Hawaii to destinations in Japan must pre-coordinate with ATMC office by email ([atmc\\_ocean@cab.mlit.go.jp](mailto:atmc_ocean@cab.mlit.go.jp)).

# DARP Guidelines

- **DARP Clearances are limited to aircraft transiting between Japan and North America or Hawaii.**
- **Operational CPDLC is required for aircraft requesting DARP.**
- **The requested routing shall remain within the Japan and United States FIRs.**

# DARP Guidelines

- **The DARP Request must be made:**
  - within Fukuoka or Oakland oceanic airspace, and:
  - the aircraft must be at or east of 145E, and:
  - the aircraft must transmit the request at least 20 minutes before the divergence waypoint to allow for processing time by ATC and the pilot, and:
  - the aircraft must transmit the request at least 1 hour prior to crossing the FIR Boundary.

# DARP Guidelines

- **Questions regarding DARP may be addressed to one of the following:**
  - Fukuoka ATMC
    - Office: [atmc\\_ocean@cab.mlit.go.jp](mailto:atmc_ocean@cab.mlit.go.jp) or TEL +81-92-608-8869
    - Oceanic Supervisor: TEL +81-92-608-8890
  - Oakland ARTCC
    - Oceanic Airspace Office: [dustin.m.byerly@faa.gov](mailto:dustin.m.byerly@faa.gov) or TEL 1-510-745-3543
    - Oceanic Supervisor: TEL 1-510-745-3342
  - *Note: Operational questions should be addressed to the Oceanic Supervisor.*

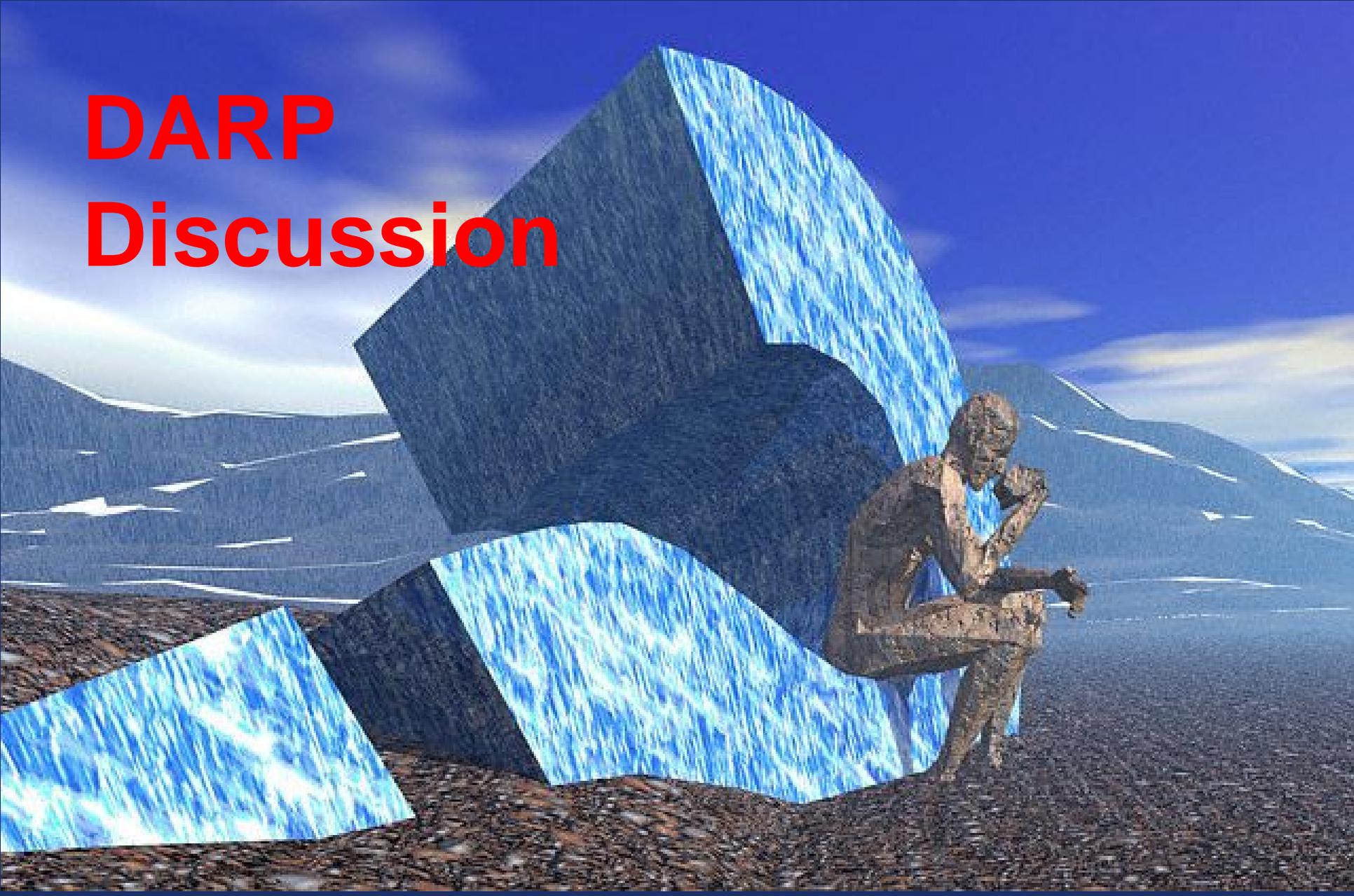
# DARP Guidelines

- Oakland ARTCC has recently implemented a flight plan interface with Vancouver ACC.
- The interface will potentially allow for DARP into the Vancouver FIR in the future.
- More testing and coordination must be completed before this expansion will be possible.
- ZOA is looking for a airline to participate in a DARP trial into CYVR

# Dynamic Airborne Reroutes

- DARP Procedure requires AIDC.
- AIDC is required between all facilities to destination.
- Do not request a DARP Reroute into FIRs that do not support the procedure.
- Request the DARP at least one hour prior to the FIR Boundary
- Be inside the KZAK FIR when requesting a DARP

# DARP Discussion



# PACOTS Track Generation



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# PACOTS Track Generation Times

- Oakland currently publishes the Westbnd PACOTS using the 00Z wind forecasts.
- Oakland proposed using the 12Z wind forecasts to generate the Westbound PACOTS, but that was rejected because the PACOTS would be published too late.
- Speculation is that utilization of the 06Z wind forecasts to generate Westbound PACOTS would produce more efficient PACOTS, but Oakland TMU staffing is an issue.

# PACOTS Track Generation Times

- Oakland ran a trial to measure the benefits of using the 06Z winds vs the 00Z wind forecasts.
- One day a week, on Monday UTC Day (November 2-23, 2015):
  - Westbound PACOTS were generated and published as normal using the 00Z winds.
  - Trial Westbound PACOTS were generated again using the 06Z wind forecast.
  - Trial Westbound 06Z PACOTS were sent to trial participants for evaluation against the published Westbound PACOTS.
  - Participating operators shared the difference in time and fuel between the PACOTS Tracks for the day.

# PACOTS Track Generation Times

- Five airlines participated
- Largest savings was 9682 LBS of fuel savings
- Average savings per flight
  - November 2 = 331LBS
  - November 9 = 1404LBS
  - November 16 = 853LBS
  - November 23 = -2285LBS
- Trial average savings = 416LBS
- Average savings without November 23 = 1316LBS

# PACOTS Track Generation Times

- **Staffing budget limitations**
- **Potential to be fully staffed by early fall late summer.**

# PACOTS TRACK DISCUSSION



# Datalink Performance

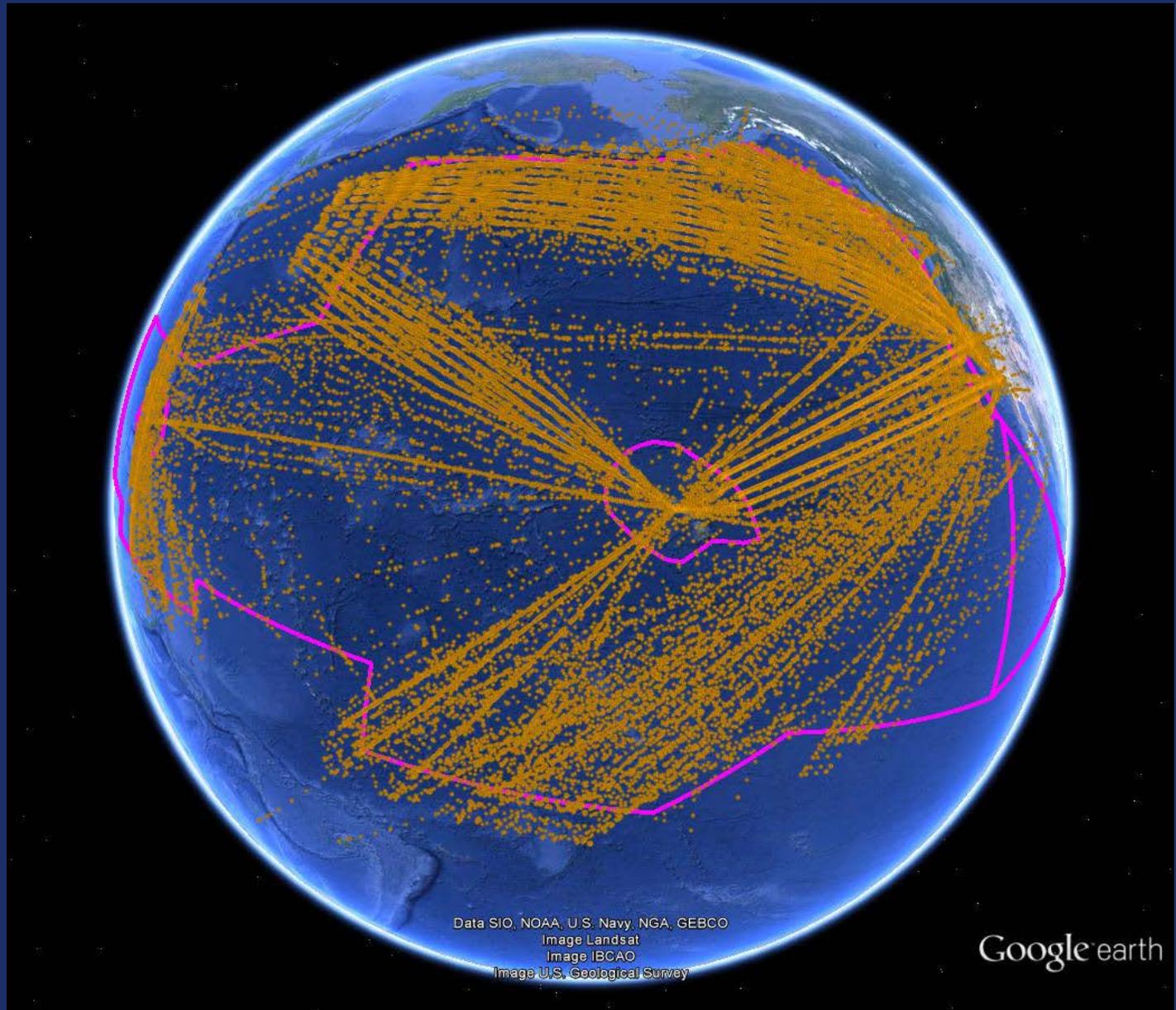


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Administration

# KZAK

ADS-C  
Position  
Reports

May 2015  
(1 week)



# KZAK – Data Link Usage

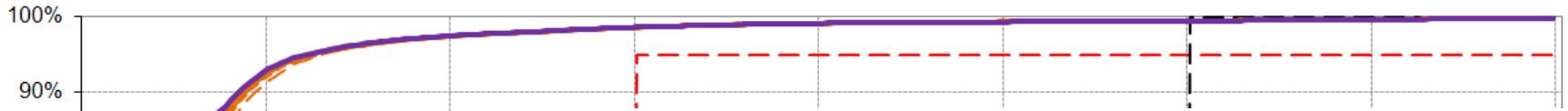
January – June 2015

|                                  |         |
|----------------------------------|---------|
| <b>Total flights</b>             | 129,195 |
| <b>% flights using data link</b> | 63%     |
| <b>% RNP4</b>                    | 60%     |

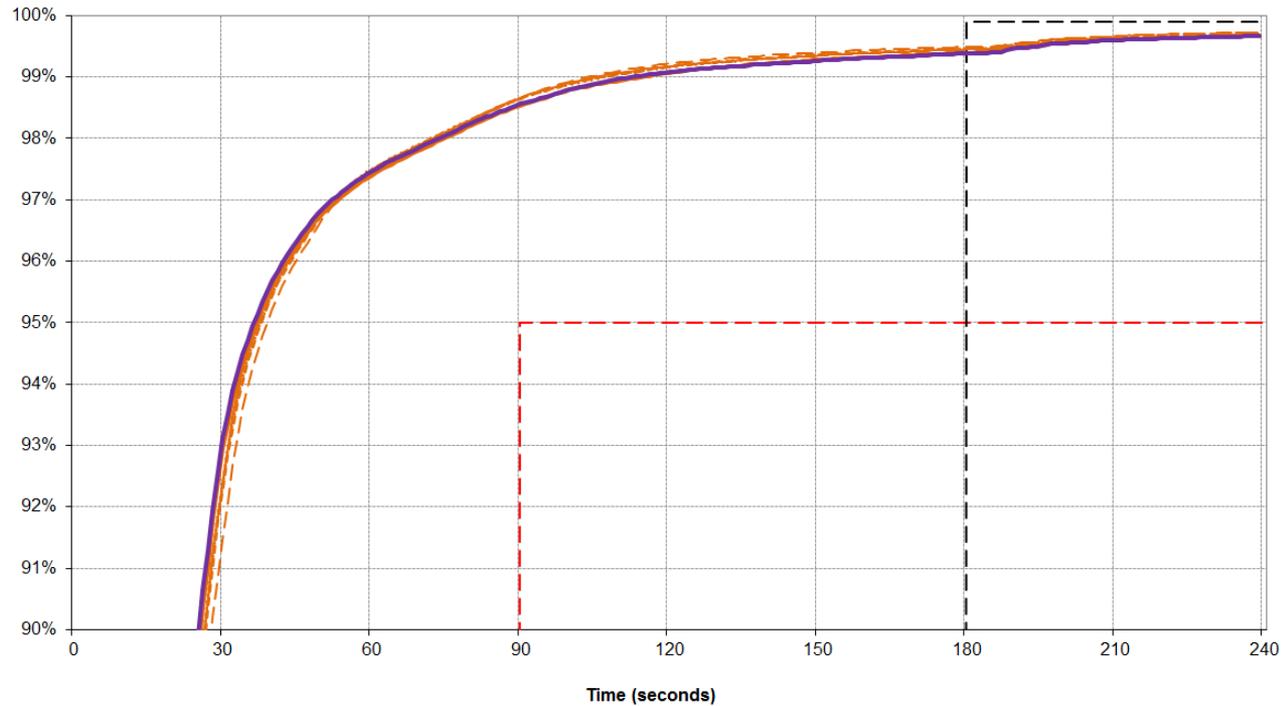
|  |     |
|--|-----|
| <b>Average data link flights per day</b> | 448 |
| <b>% using Iridium</b>                   | 7%  |
| <b>% using Inmarsat I-4</b>              | 20% |

|                                  |       |
|----------------------------------|-------|
| <b>Total data link airframes</b> | 2,368 |
| <b>% using Iridium</b>           | 8%    |
| <b>% using Inmarsat I-4</b>      | 25%   |
| <b>% using VDL mode 2</b>        | 18%   |

# Actual Surveillance Performance (ASP) Oakland FIR Aggregate

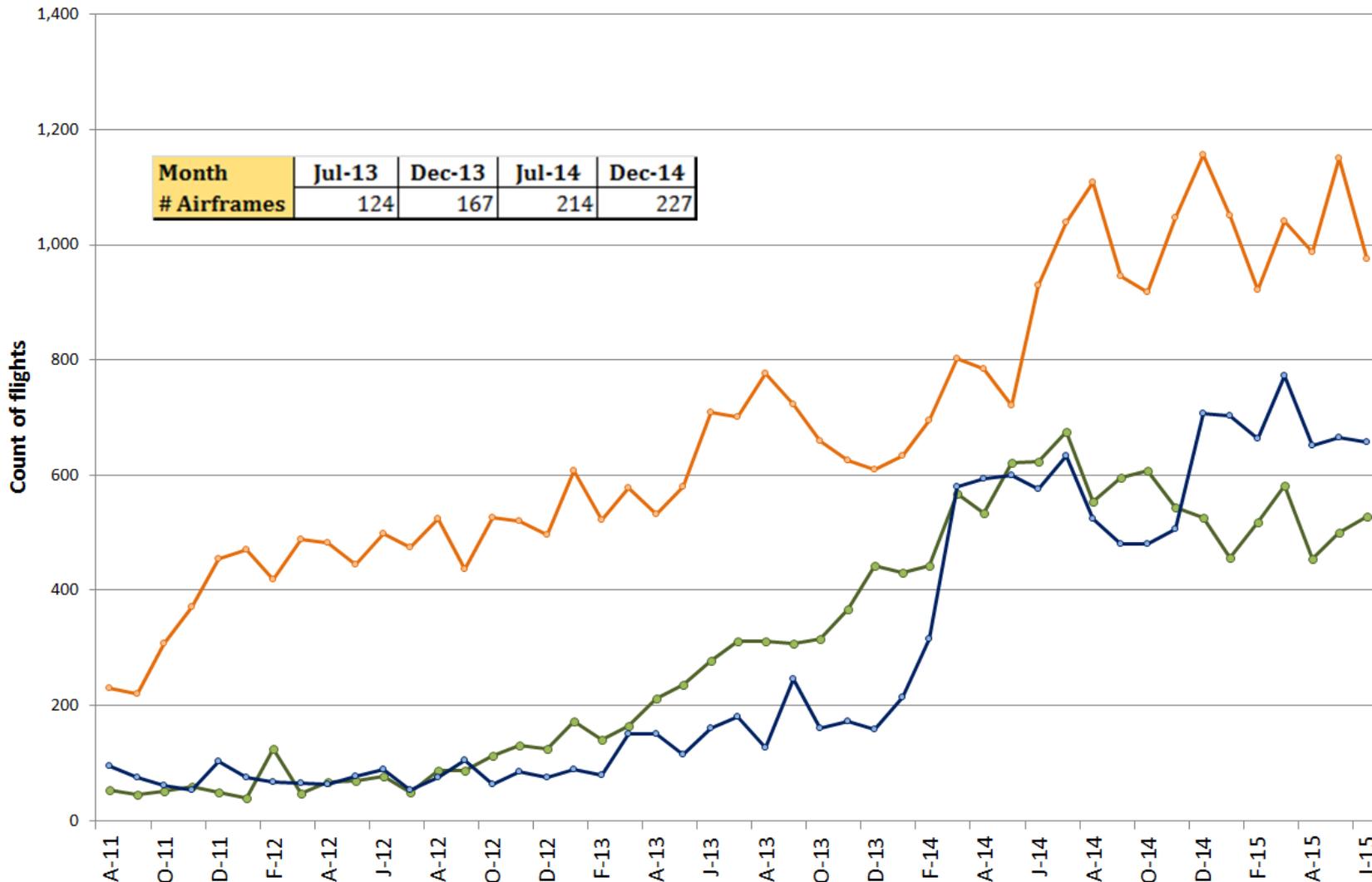


## Actual Surveillance Performance (ASP) Oakland FIR Aggregate

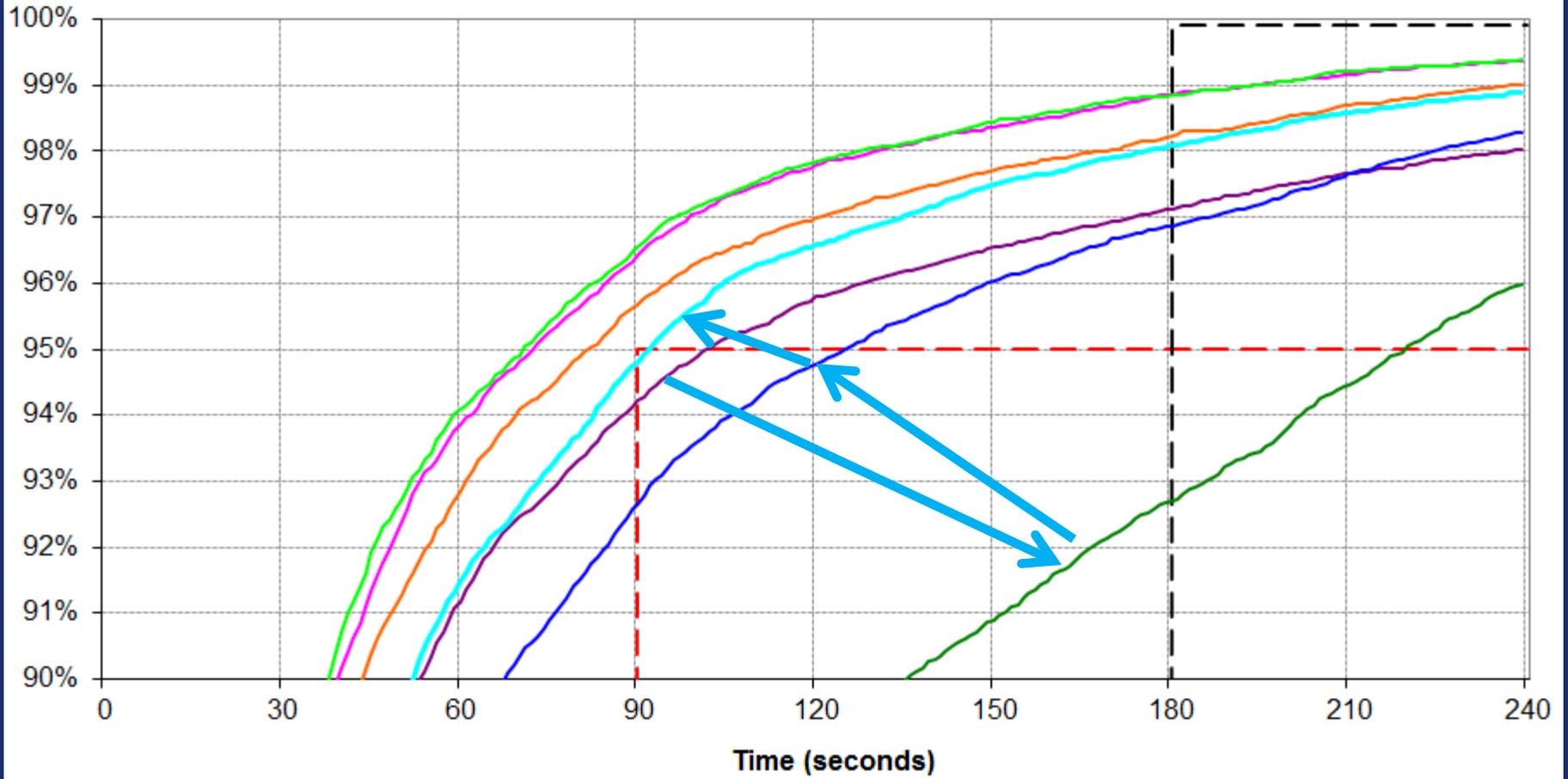


# Iridium Usage

PAZA KZAK KZNY

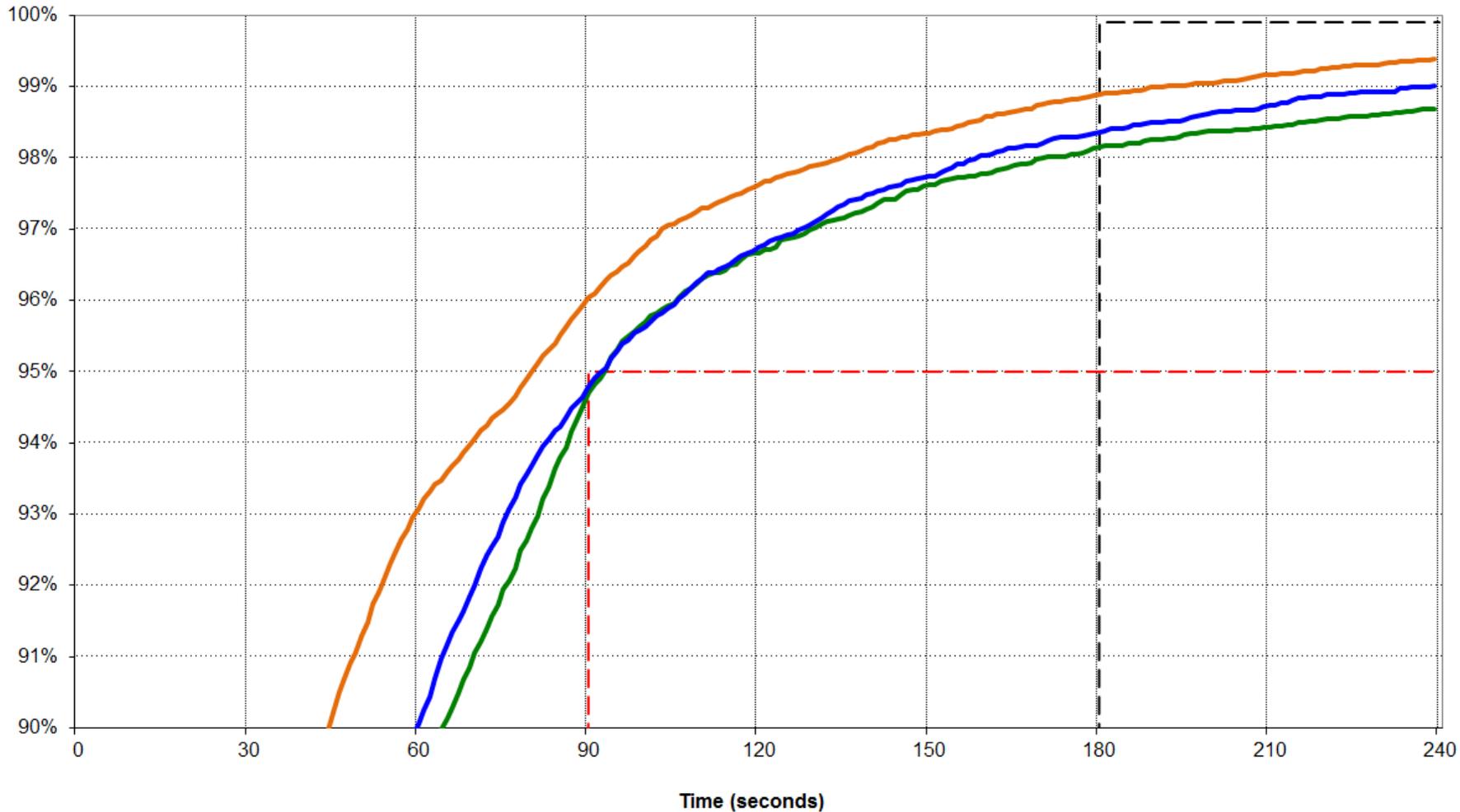


# Oakland FIR - Iridium - January to July 2014 Actual Surveillance Performance (ASP)

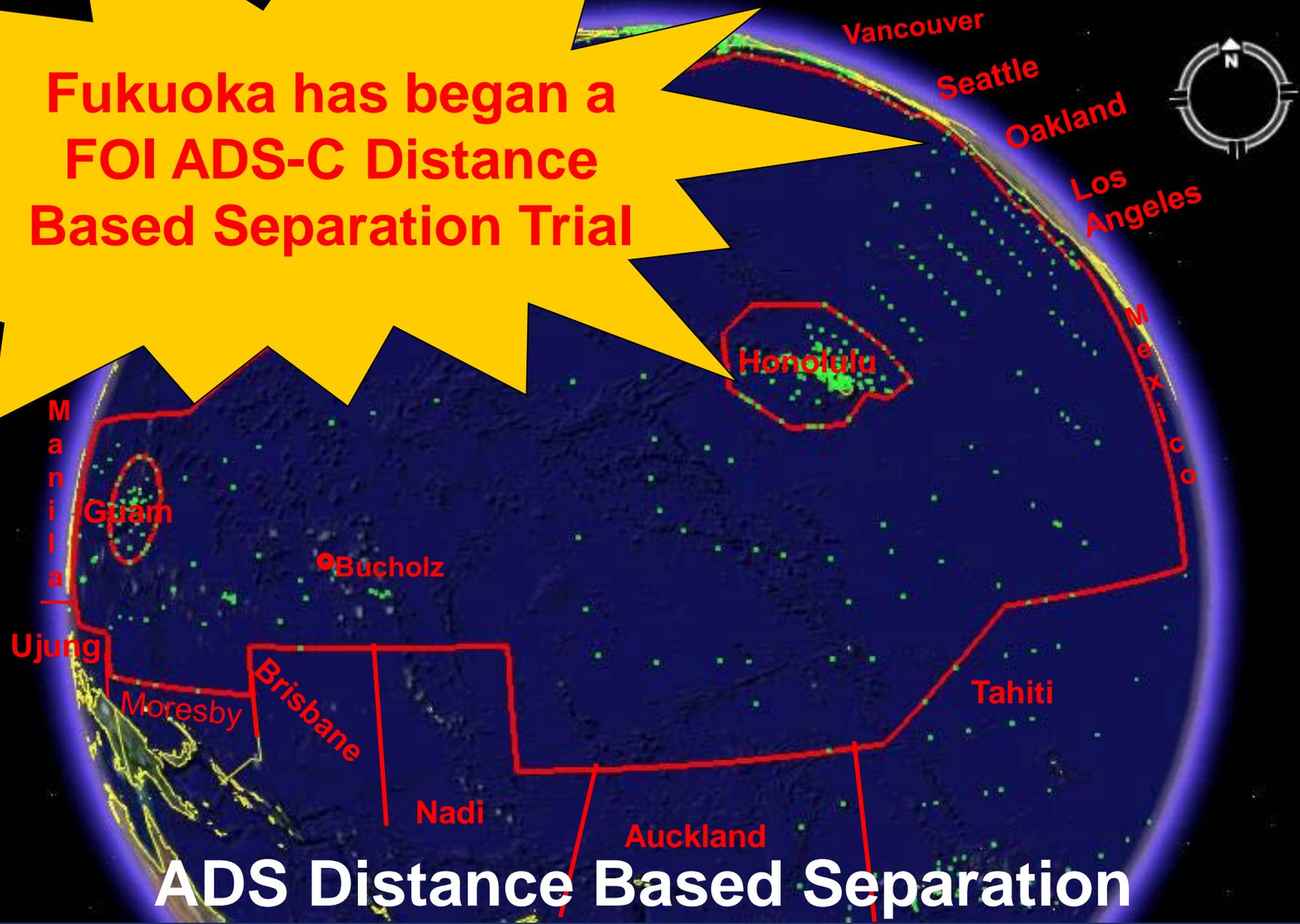


# Actual Surveillance Performance (ASP) Iridium - June 2015

— 95%    — 99.9%    — KZAK (22742)    — PAZA (9731)    — KZNY (11445)

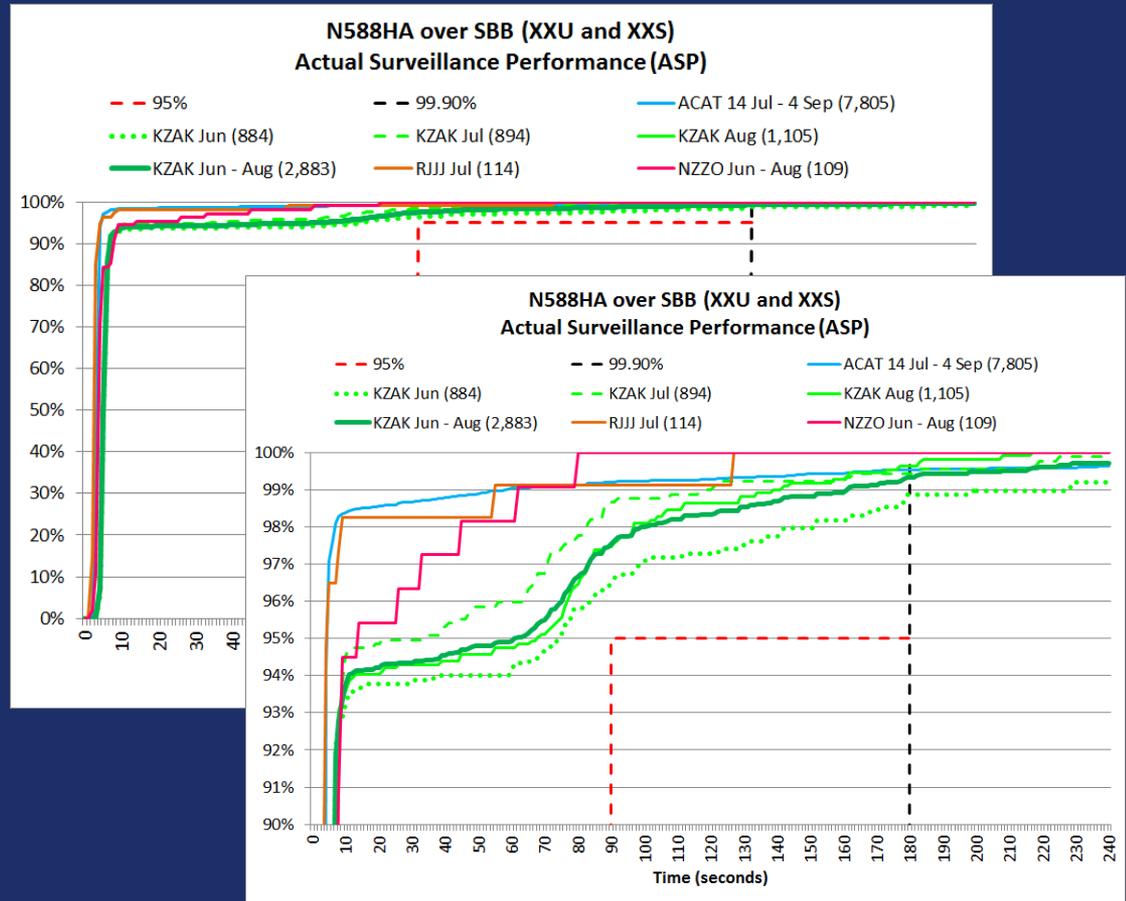
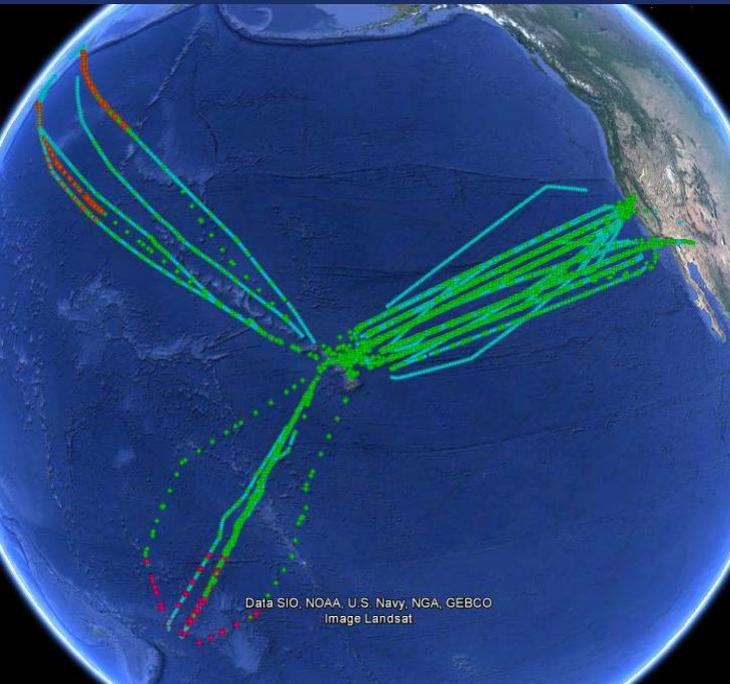


# Fukuoka has begun a FOI ADS-C Distance Based Separation Trial



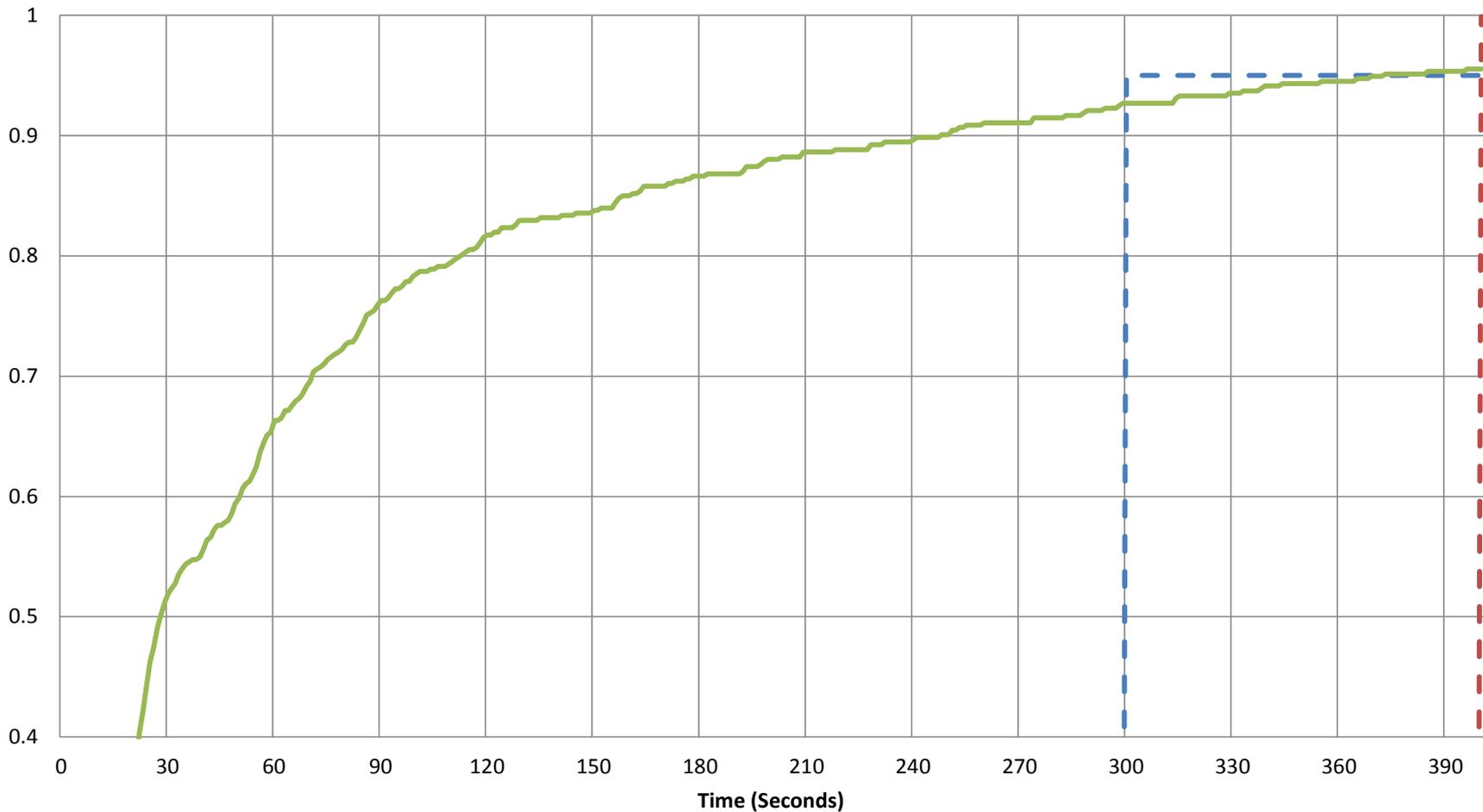
## ADS Distance Based Separation

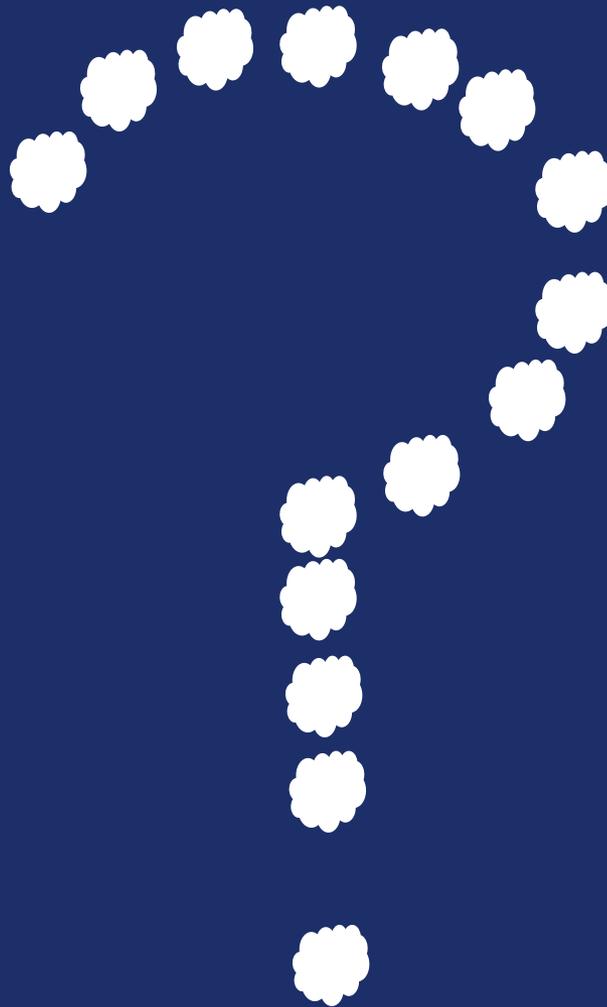
# N588HA – Actual Surveillance Performance



# Actual Surveillance Performance (ASP) HFDL

— 95.00%    - - 99.90%    — 2015 Jan-Sep (493)





# Un-Notified Variations in Airspeed



Federal Aviation  
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# Mach Speed Variation

- The FAA has presented papers at IPACG and ISPACG which outline the dangers of unannounced speed changes.
- This issue needs attention by ICAO and a Global or Regional Procedure developed.
- At the last ISPACG Meeting an agreement to reached to run a 6 month trial procedure.

# ICAO Annex 2 3.6.2.2 change

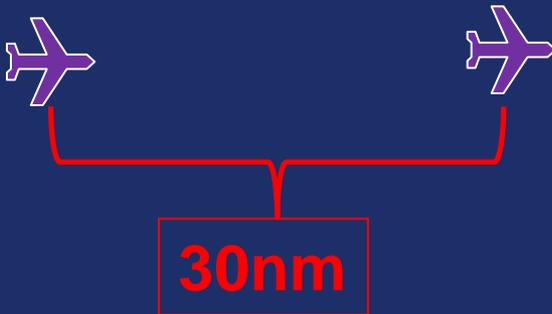
- **3.6.2.2 Inadvertent changes.** *In the event that a controlled flight inadvertently deviates from its current flight plan, the following action shall be taken:*
- **a) Deviation from track:** *if the aircraft is off track, action shall be taken forthwith to adjust the heading of the aircraft to regain track as soon as practicable.*
- **b) Variation in true airspeed:** *if the average true airspeed at cruising level between reporting points varies or is expected to vary by plus or minus 5 per cent of the true airspeed, from that given in the flight plan, the appropriate air traffic services unit shall be so informed.*
- **c) Change in time estimate:** *if the time estimate for the next applicable reporting point, flight information region boundary or destination aerodrome, whichever comes first, is found to be in error in excess of 2 minutes from that notified to air traffic services, or such other period of time as is prescribed by the appropriate ATS authority or on the basis of air navigation regional agreements, a revised estimated time shall be notified as soon as possible to the appropriate air traffic services unit.*
- 
- **3.6.2.2.1** *Additionally, when an ADS agreement is in place, the air traffic services unit shall be informed automatically via data link whenever changes occur beyond the threshold values stipulated by the ADS event contract.*

# Mach Speed Variation

- Annex 2 change fails to fully address the issue.
- An en route aircraft at 500 knots only has to inform ATC when its true airspeed changes by 25 knots or more from the speed given in the flight plan. This allows for speed changes of 48 knots without informing ATC.

# Mach Speed Variation

- ICAO ADS-C 30/30 Separation Rules, FIRs may apply 30nm longitudinal separation standard using an ADS-C reporting rate of 14 minutes. A 48 knot speed change by one aircraft could result in an 11nm closure between two aircraft between ADS-C reports.



# Speed Change NOTAM Proposal

- A1445/15 - ATTN ALL AIRCREWS-NEW PROCEDURAL REQUIREMENT FOR FLIGHTS OPERATING IN OAKLAND OCEANIC CONTROL AREA (KZAK). IN ORDER TO **SUPPORT COST INDEX OR ECON SPEEDS AND** MAINTAIN ATC SEPARATION SPACING AIRCREWS ARE REQUIRED TO USE THE FOLLOWING PROCEDURES IN THE KZAK FIR. A PILOT MUST INFORM ATIS **VIA VOICE OR CPDLC** EACH TIME THE CRUISING MACH NUMBER VARIES OR IS EXPECTED TO VARY BY A VALUE EQUAL TO OR GREATER THAN 0.02 MACH FROM:
  - (1) THE MACH NUMBER AT FIR ENTRY; OR
  - (2) ANY SUBSEQUENT SPEED CHANGE NOTIFIED TO ATC IN FLIGHT
- IF YOU HAVE ANY QUESTIONS CONTACT DENNIS ADDISON (510)745-3258. 15 APR 00:01 2015 UNTIL 15 OCT 00:01 2015.

# Speed Change Procedure

- Procedurally when an aircraft wants to change by .02 Mach number (or more), they will downlink DM18 with the requested speed (Mach number).
- If ATC requires a speed assignment for separation, an appropriate speed assignment would be assigned ie **UM106 MAINTAIN *Speed***.
- If ATC did not require a speed assignment, the following could be Uplinked:
  - **UM ROGER**
  - **UM169 Speed change to M0.84 approved**
  - **This advises the aircraft that the requested speed change is approved but no speed restriction has been assigned.**

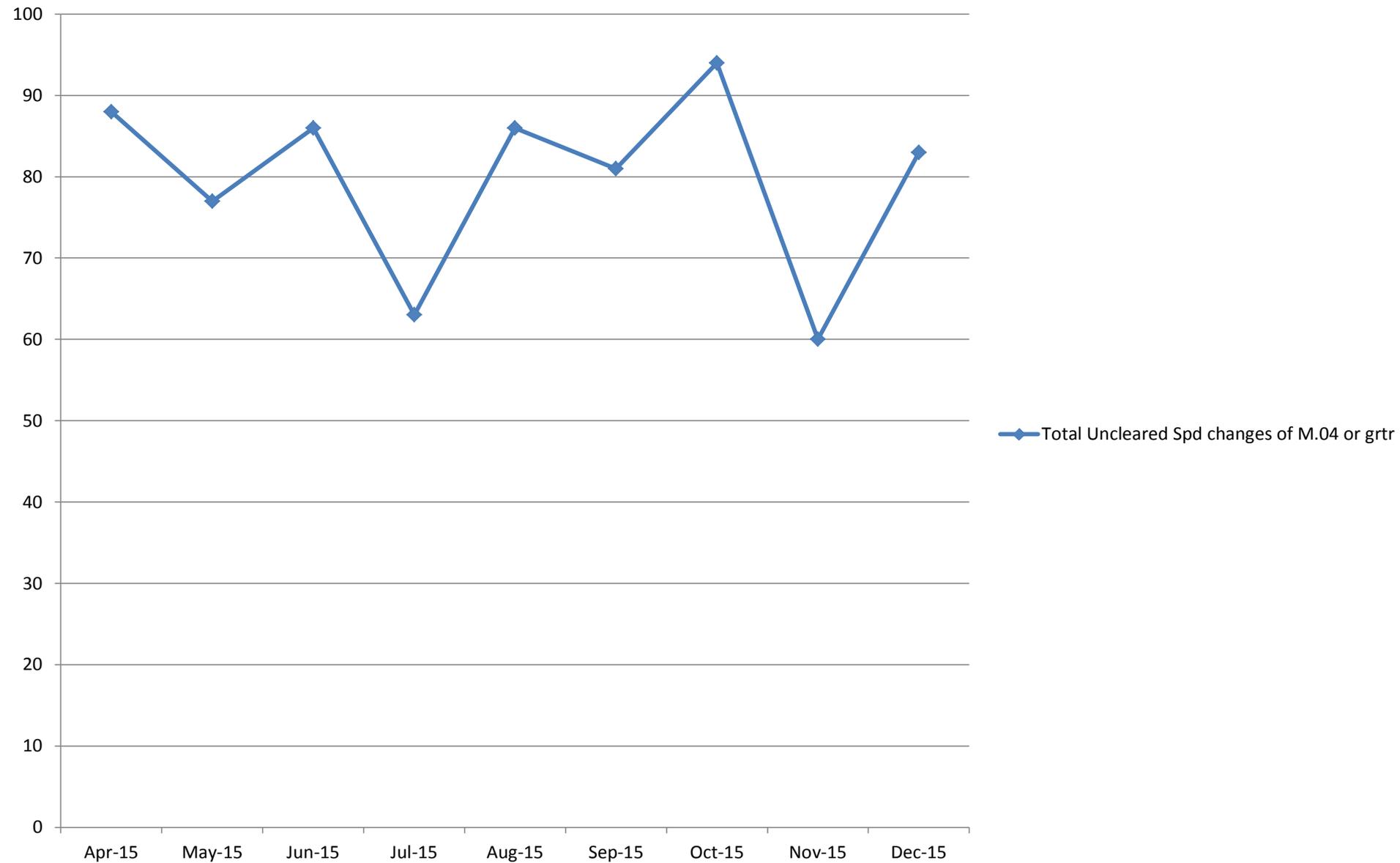
# Speed Change Procedure

- 2051Z-FDX60: REQUEST M084, DUE TO AIRCRAFT PERFORMANCE
- 2056Z- ATC: SPEED CHANGE TO M84 APPROVED
- 2056Z-FDX60: ROGER
- 2142Z-FDX60: REQUEST M080, DUE TO TURB
- 2142Z-ATC: MAINTAIN M080
- 2143Z-FDX60: WILCO
- 2242Z-FDX60: REQUEST M084
- 2244Z- ATC: SPEED CHANGE TO M84 APPROVED
- 2244Z- FDX60: ROGER

# Monitoring Trial Effectiveness

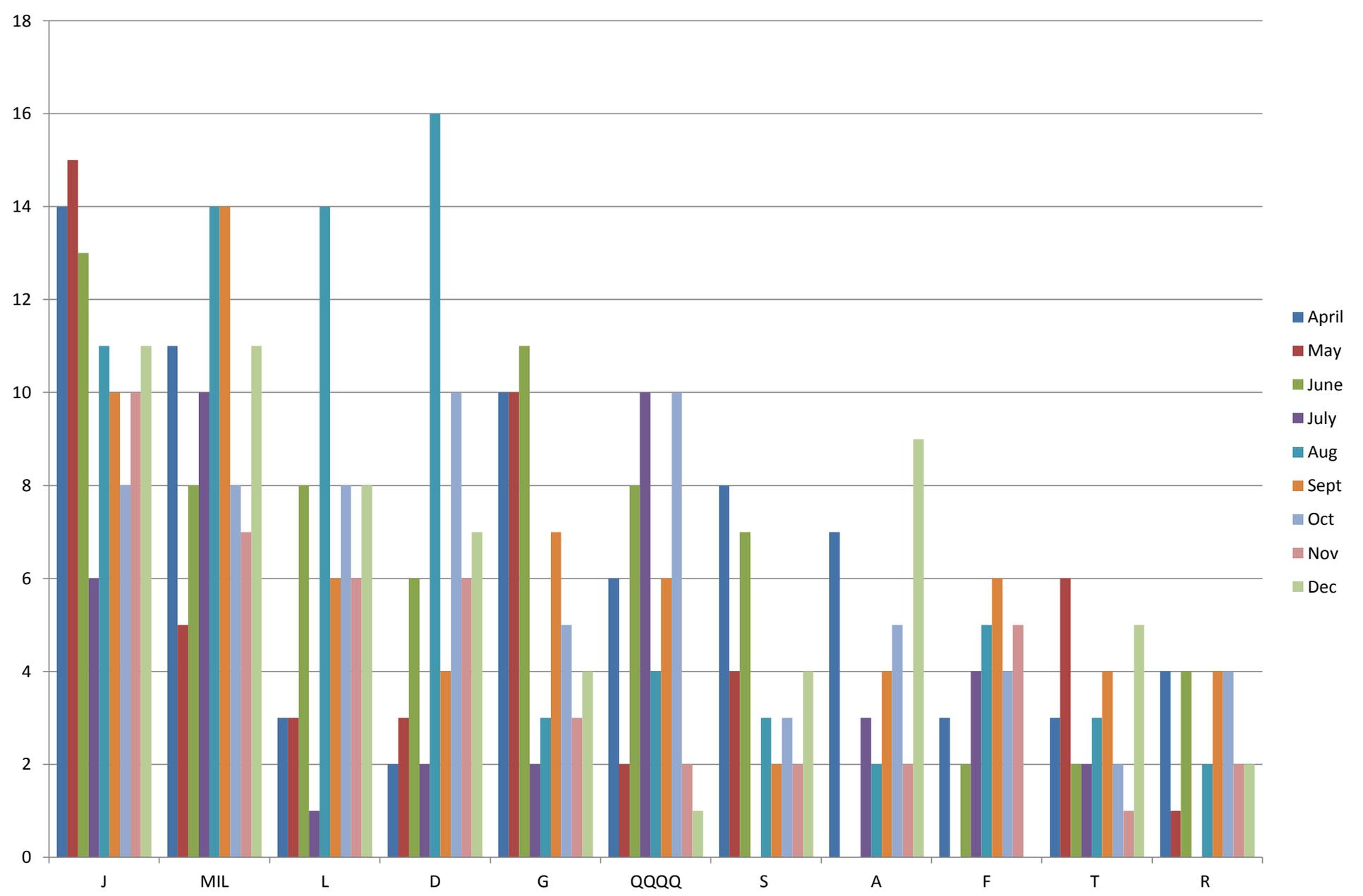
- Each Month starting in April 2015, 10 days of Mach speed change data is examined.
- Mach Speed changes of M.04 or greater are examined to see if a Mach Speed change was requested or advised.
- The July data indicated that a reduction in the number of un-announced was occurring, but in August the number increased

# Total Uncleared Spd changes of M.04 or grtr



# Monitoring Trial Effectiveness

- Several Operators are not following the procedure.
- The chart below shows the number of un-announced speed changes for the 10 days of each month.
- The data from April was collected before the Trial began to provide some baseline data.
- The codes for the operators are the same as the data link performance codes.

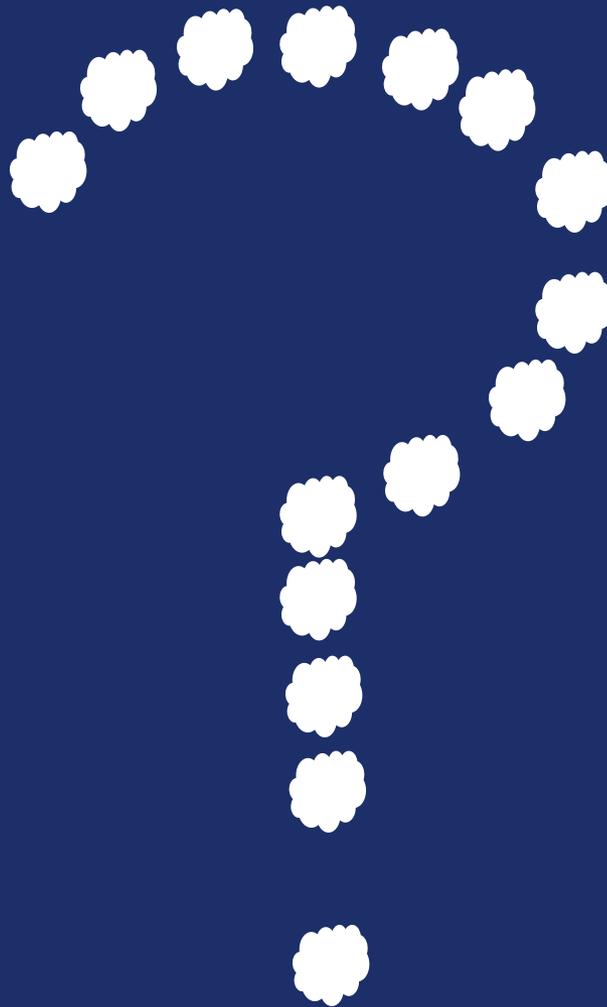


# Speed Changes associated with Wx

- **The data shows that in 19 of the 95 speed change events that occurred in December, weather was a factor for those flights.**
  - CPDLC messages in the time frame of the speed change indicate SIGMET notifications, Turbulence AIREPs or Weather Deviation requests.
- **Many Aircraft are making a CPDLC request at the time of the speed change. The aircrew should include a speed change request with their other request.**

# Conclusion

- The data so far indicates that aircrews are not fully complying with the procedure.
- Oakland will work to raise pilots' awareness and compliance with the procedure.
- The December data has been given to FAA Flight Standards, IATA and IFALPA to help gain operator compliance.
- Flight Standards Inspectors will be contacting operators to get them to comply with the procedure.
- Hopefully education will gain compliance before the issue is required to be elevated to the next level.



# Oakland Oceanic Airports

Guam

OC9

PMDY

PWAK

OC6

PKWA

OC3

PTYA

PTPN

PKMJ

PTRO

OC5

PTKK

PTSA

PLCH

# Oakland Oceanic FIR

# Space Based ADS-B Surveillance



ZOA



- The FAA is also investigating the feasibility of Space Based ADS-B Surveillance. In conjunction with CPDLC the possibility exists to reduce separation standards

# BUCHOLZ TOWER OPERATIONS AT PKWA

- Reopened on September 4, 2015
- Open Tuesday – Saturday 1900-0500UTC
- Airspace: 15nm radius AOB 4500 feet
- VFR Tower services only



# ICAO RNP2/GNSS Separation Rules



Federal Aviation  
Administration

# ICAO Doc 4444 5.4.1.2.1.6.e

**5.4.1.2.1.6** *Lateral separation of aircraft on parallel or non-intersecting tracks or ATS routes.* Within designated airspace or on designated routes, lateral separation between aircraft operating on parallel or non-intersecting tracks or ATS routes shall be established in accordance with the following:

**a)** for a minimum spacing between tracks of 93 km (50 NM) a navigational performance of RNAV 10 (RNP 10), RNP 4 or RNP 2 shall be prescribed;

**b)** for a minimum spacing between tracks of 55.5 km (30 NM) a navigational performance of RNP 4 or RNP 2 shall be prescribed;

**c)** for a minimum spacing between tracks of 27.8 km (15 NM) a navigational performance of RNP 2 or a GNSS equipage shall be prescribed. **Direct controller-pilot VHF voice communication shall be maintained** while such separation is applied;

**d)** for a minimum spacing between tracks of 13 km (7 NM), applied while one aircraft climbs/descends through the level of another aircraft, a navigational performance of RNP 2 or a GNSS equipage shall be prescribed. **Direct controller-pilot VHF voice communication shall be maintained** while such separation is applied; and

★ **e)** for a minimum spacing between tracks of 37 km (20 NM), applied while one aircraft climbs/descends through the level of another aircraft whilst using other types of communication than specified in d) above, a navigational performance of RNP 2 or a GNSS equipage shall be prescribed.

## ICAO Doc 4444 5.4.2.1.6.e

- **Almost 60% of Oakland Oceanic Traffic is RNP4 equipped.**
  - 36% chance that two aircraft will both have RNP4 capability for 30nm lateral separation.
- **95% of Oakland Oceanic flight plans contain GNSS equipment “G” in field 10a of the FPL.**
- **No new equipage is required. Most aircraft already flight plan GNSS capability in the Oakland FIR.**

## ICAO Doc 4444 5.4.2.1.6.e

- **FAA potential uses:**
- **Oceanic Enroute traffic with 20nm lateral separation requesting an altitude change to be above or below blocking traffic.**
- **Oakland conducted a study of a heavy traffic day where 229 aircraft were advised UNABLE to an altitude change request.**
- **Each UNABLE advisory was manually examined to see if GNSS 20nm lateral separation could have been used to approve an altitude change.**

# ICAO Doc 4444 5.4.2.1.6.e

- On January 3, 2015, 229 times Oakland ATC advised aircraft **UNABLE** when an altitude change was requested.
  - Small data sample so results may be skewed
- 18 times of the 229 requests (7.86%), the potential existed for the **GNSS 20nm lateral separation rule** to be applied.
- Oakland received about 270,000 altitude requests in 2014.
- About 17.4% of the time aircraft are advised **UNABLE**.
  - About 46,476 UNABLE advisories a year
- If the January 3 data sample is representative; 3,653 times, **GNSS 20nm lateral separation** could have been used in 2014 in the Oakland FIR.

# ICAO Doc 4444 5.4.2.1.6.e

- 20nm offset clearances could be used to climb aircraft through blocking traffic instead of 30nm or 50nm offset clearances

Extra distance flown

- GNSS 20nm: 11nm

- ADS-C 30nm: 16nm

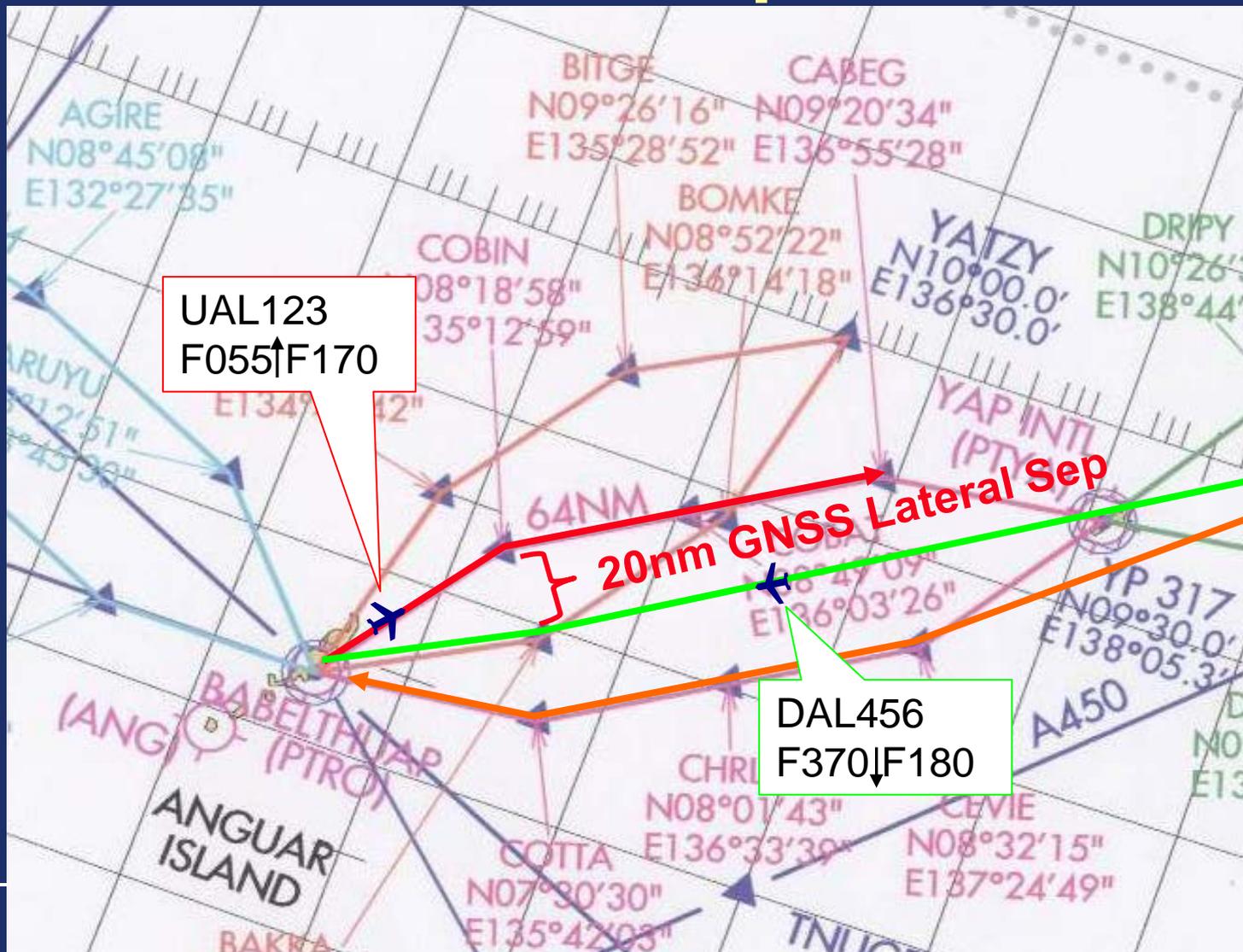
- RNP10 50nm: 27nm





# Pacific Island Possible New GNSS/RNP2 Lateral Separation

- Island Aircraft 89% "G" Equipped



## ICAO Doc 4444 5.4.2.1.6.e

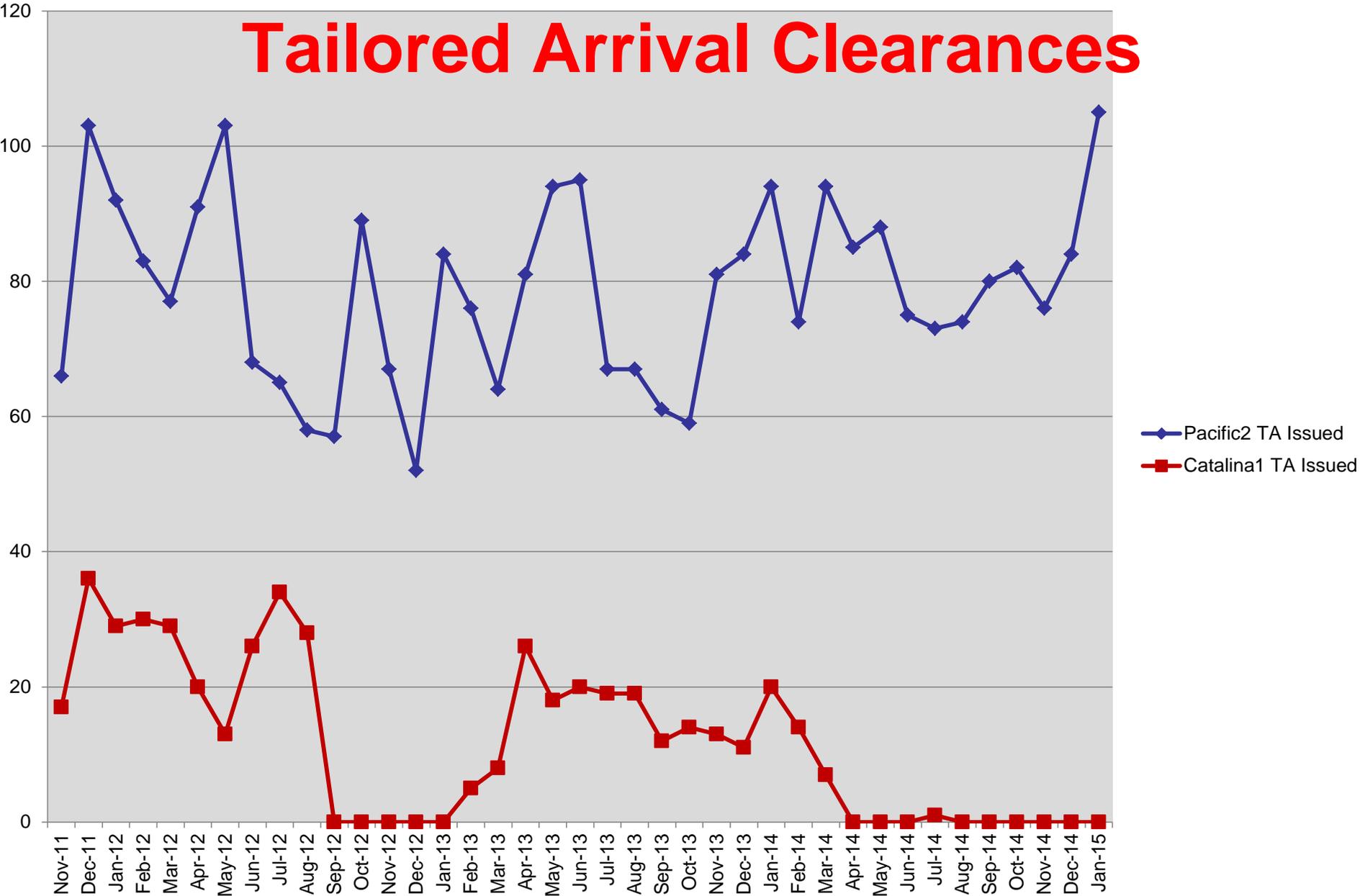
- **FAA is investigating the potential use of GNSS/RNP2 lateral separation rule to climb or descend an aircraft through the altitude of blocking traffic.**
- **Use of the rule would require careful safety study to ensure use of the rule would maintain the TLS for FAA airspace.**
- **Ocean21 software changes**
- **Considering a manual separation trial for Island Arrivals and Departures**

# Tailored Arrivals



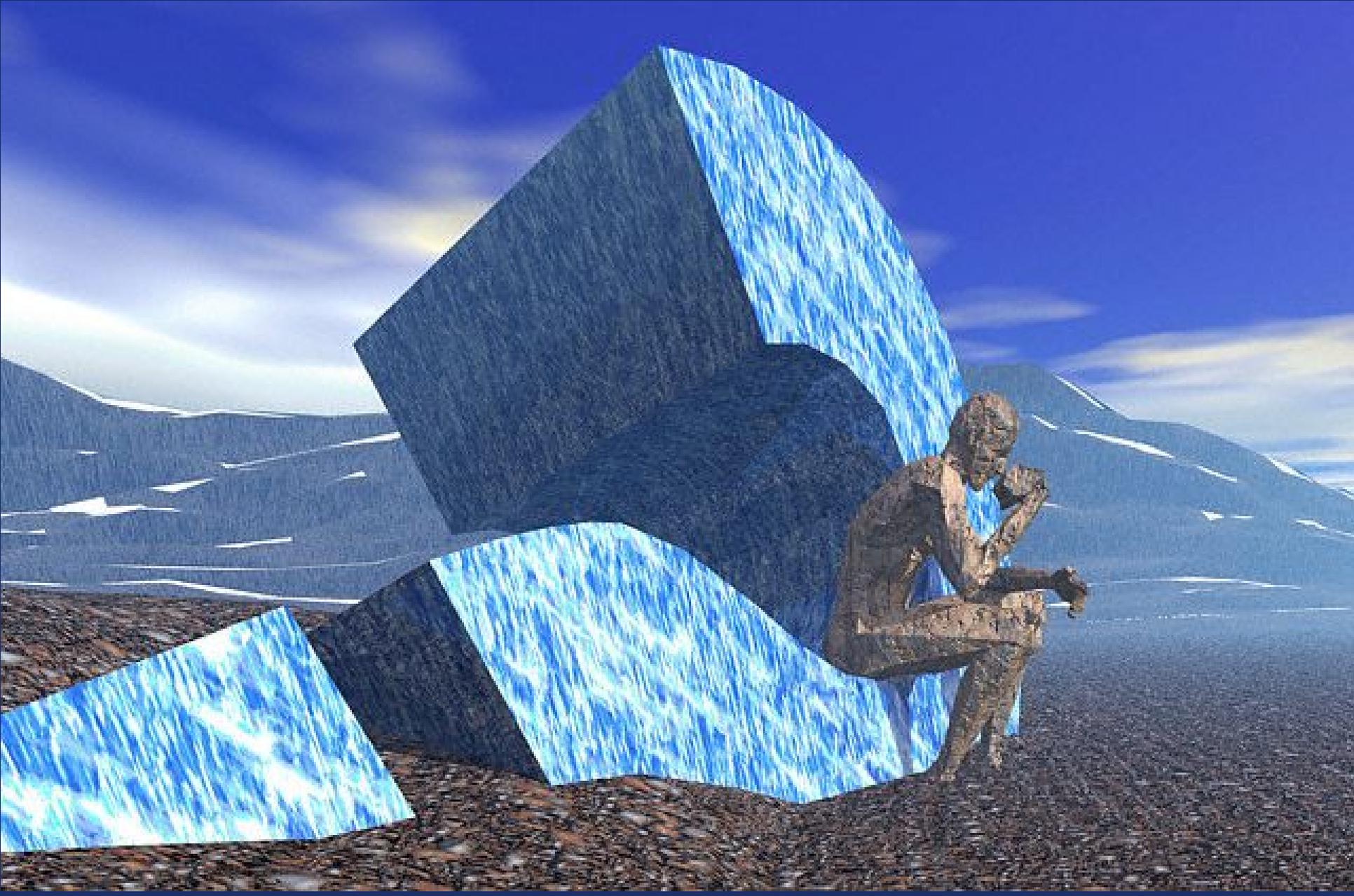
Federal Aviation  
Administration

# Tailored Arrival Clearances



# KSFO Tailored Arrivals

- A new RNAV PIRAT1 STAR is being developed to mirror the KSFO Pacific 2 TA.
- The PIRAT1 STAR would provide an OPD for non FANS aircraft.
- The Target Date for implementation is ???



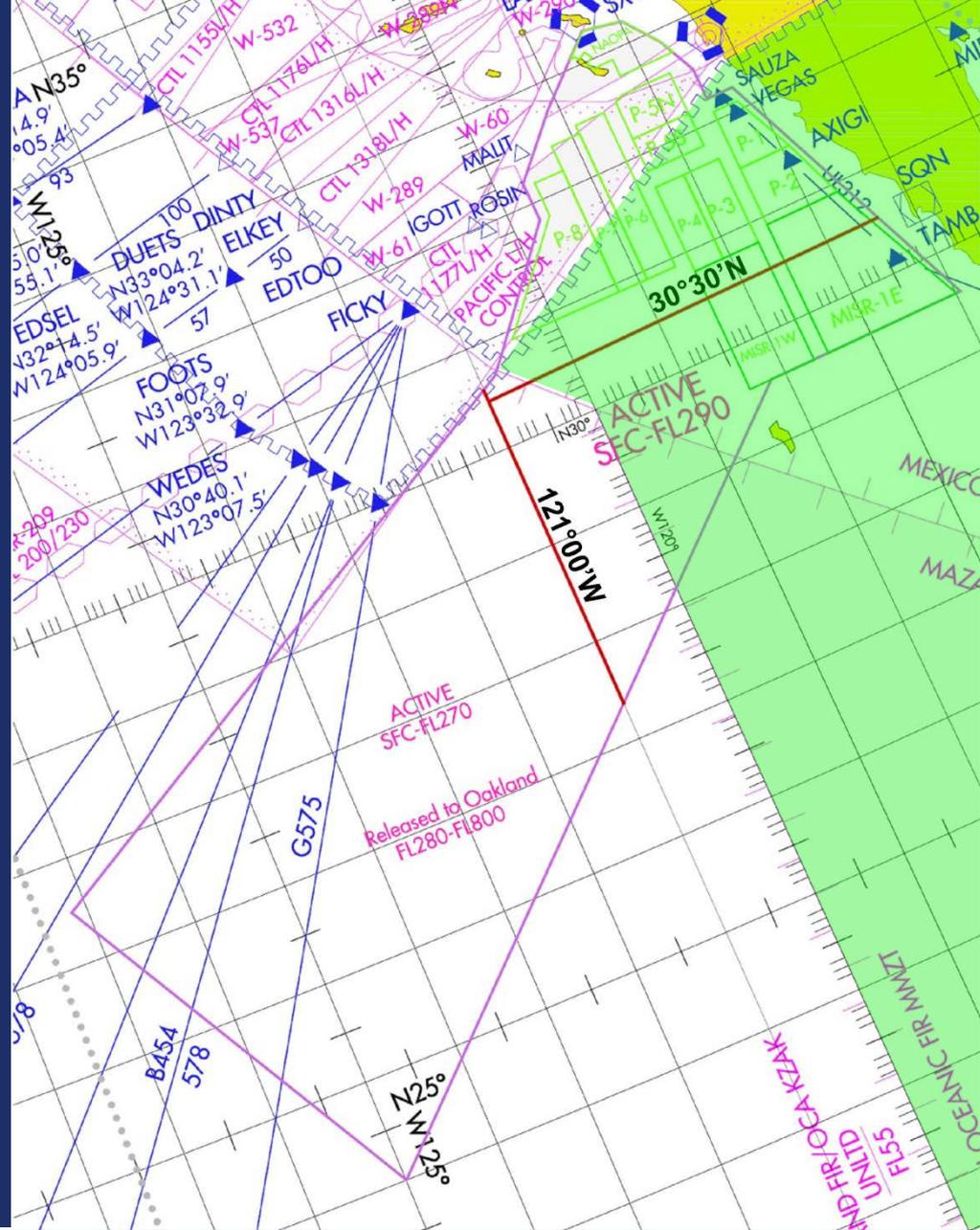
# Port Moresby 50nm RNP10 Lateral Separation

- 50nm lateral Sep began November 14, 2013
- Eastern and middle routes are targeted for implementation in May 2016



# SENEAM

- An AIDC connection between Oakland and Mazatlan was established March 2015
- Mazatlan is working on a capability to apply ATC services in their oceanic FIR



# Volcanic Ash & PACOTS



Federal Aviation  
Administration

# Volcanic Ash & PACOTS Generation

- ICAO Doc 9974 Chapter 2 states:
- THE AIRCRAFT OPERATOR
- 2.3 ICAO's generic safety risk assessment process is described in the *Safety Management Manual (SMM)* (Doc 9859). An approach, aligned with an operator's SMS, would be equally appropriate. The material in this document is designed to provide States with information to support operators in developing the safety risk assessment, within their SMS, covering the volcanic cloud hazard.
- 
- 2.4 Responsibilities
- **The operator is responsible for the safety of its operations.**
- In order to decide whether or not to operate into airspace forecast to be, or aerodromes known to be, contaminated with volcanic ash, the operator should have in place an identifiable safety risk assessment within its SMS.
- *Note.— Guidance on the production of a safety risk assessment is provided in Appendices 1 (Guidelines for completing a safety risk assessment), 2 (Procedures to be considered when conducting a safety risk assessment) and 3 (Hazards and risks to be considered by aircraft operators). Each operator should develop its own list of procedures and hazards since these have to be relevant to the specific equipment, experience and knowledge of the operator, and to the routes to be flown.*

# Volcanic Ash & PACOTS Generation

- ICAO's safety risk assessment process is described in the *Safety Management Manual (SMM)* (Doc 9859). An approach, aligned with an organization's SMS, would be equally appropriate.
- 2.10 The State is advised that the CAA exercising oversight of an operator that intends to undertake operations into airspace forecast to be, or aerodromes known to be, contaminated with volcanic ash should establish a methodology for evaluating the safety risk assessment process of the operator's SMS particular to volcanic ash. **The operator should not be prevented from operating through, under or over, airspace forecast to be affected by a VAA, VAG or SIGMET provided it has demonstrated in its SMS the capability to do so safely.** The guidance set out in Appendix 6 indicates a process that the CAA can use to achieve this outcome.

The ATC responsibilities are covered in ICAO Doc 4444 par 15.8:

## **15.8 PROCEDURES FOR AN ATC UNIT WHEN A VOLCANIC ASH CLOUD IS REPORTED OR FORECAST**

**15.8.1 If a volcanic ash cloud is reported or forecast in the FIR for which the ACC is responsible, the controller should:**

- a) relay all information available immediately to pilots whose aircraft could be affected to ensure that they are aware of the ash cloud's position and the flight levels affected;**
- b) suggest appropriate re-routing to the flight crew to avoid an area of known or forecast ash clouds;**
- c) inform pilots that volcanic ash clouds are not detected by relevant ATS surveillance systems;**
- d) if the ACC has been advised by an aircraft that it has entered a volcanic ash cloud the controller should:
  - 1) consider the aircraft to be in an emergency situation;**
  - 2) not initiate any climb clearances to turbine-powered aircraft until the aircraft has exited the ash cloud; and**
  - 3) not initiate vectoring without pilot concurrence.****

***Note.— Experience has shown that the recommended escape maneuver for an aircraft which has encountered an ash cloud is to reverse its course and begin a descent if terrain permits. The final responsibility for this decision, however, rests with the pilot.***

# Volcanic Ash CECL

- In the event of an Ash Plume:
- **Critical Event Contact List (CECL)**
  - 24 Hour Emergency Email Contact List
  - Collect Emails
  - Cell Phone #, Text Notification
- Please send an email to **[dustin.m.byerly@faa.gov](mailto:dustin.m.byerly@faa.gov)** with the email addresses that you would like to be added to the CECL list.

# Oakland VA Active PACOTS Guidance

- Plot the current affected area to determine the affected area and altitudes. Consider how the forecasted ash cloud drift (6, 12 and 18 hour forecasts) will affect traffic.
- Volcanic Ash plumes at F240 and below are not a factor for PACOTS Tracks.
- Issue a NOTAM advising of the potential risk if a PACOTS track is affected by Volcanic Ash (VA). A sample NOTAM is included in Attachment 1.

# Oakland VA Active PACOTS Guidance

- Determine if published PACOTS tracks are affected by the VA.
- If the published PACOTS are affected consult with the Oceanic FLM.
- If aircraft for the affected PACOTS are airborne it will be necessary for the controller to issue advisories of the Ash Plume to the aircraft.
- This will likely cause aircraft to request re-routes away from the VA.

# Oakland VA Active PACOTS Guidance

- If time permits, have the ATCSCC schedule a teleconference with the International Operators, Japan ATMC and Anchorage ARTCC.
- The telecon would ideally be at least 1 hour from the current time to allow the operators to get the correct personnel on the telecon, however timing may not permit advance notification to the operators.
- When conducting a Volcanic Ash Telecom send a High Priority email to the Oceanic Critical Event Contact List advising of the telecom details.

# Oakland VA Active PACOTS Guidance

- **On the telecom discuss the VA plume and options for managing the traffic. Get operator feedback and develop a plan.**
  - How will airborne aircraft be managed?
  - Do the published PACOTS need to be republished in a different location.
  - Instead of moving PACOTS Tracks an alternative is to publish an additional avoidance Track(s) and issue a NOTAM that states that certain Tracks may be affected by VA. A sample NOTAM is included in Appendix 1.

# Oakland VA PACOTS Generation Guidance

- Determine if future PACOTS tracks will be affected by the VA.
- Volcanic Ash plumes at **F240** and below are not a factor for PACOTS Tracks.
- Determine the PACOTS Track effective times and ensure the VAA ash plume forecast covers all of the effective times of the PACOTS Track. If necessary, delay PACOTS generation until the VAA forecast covers the entire effective times of the PACOTS Tracks being generated.

# Oakland VA PACOTS Generation Guidance

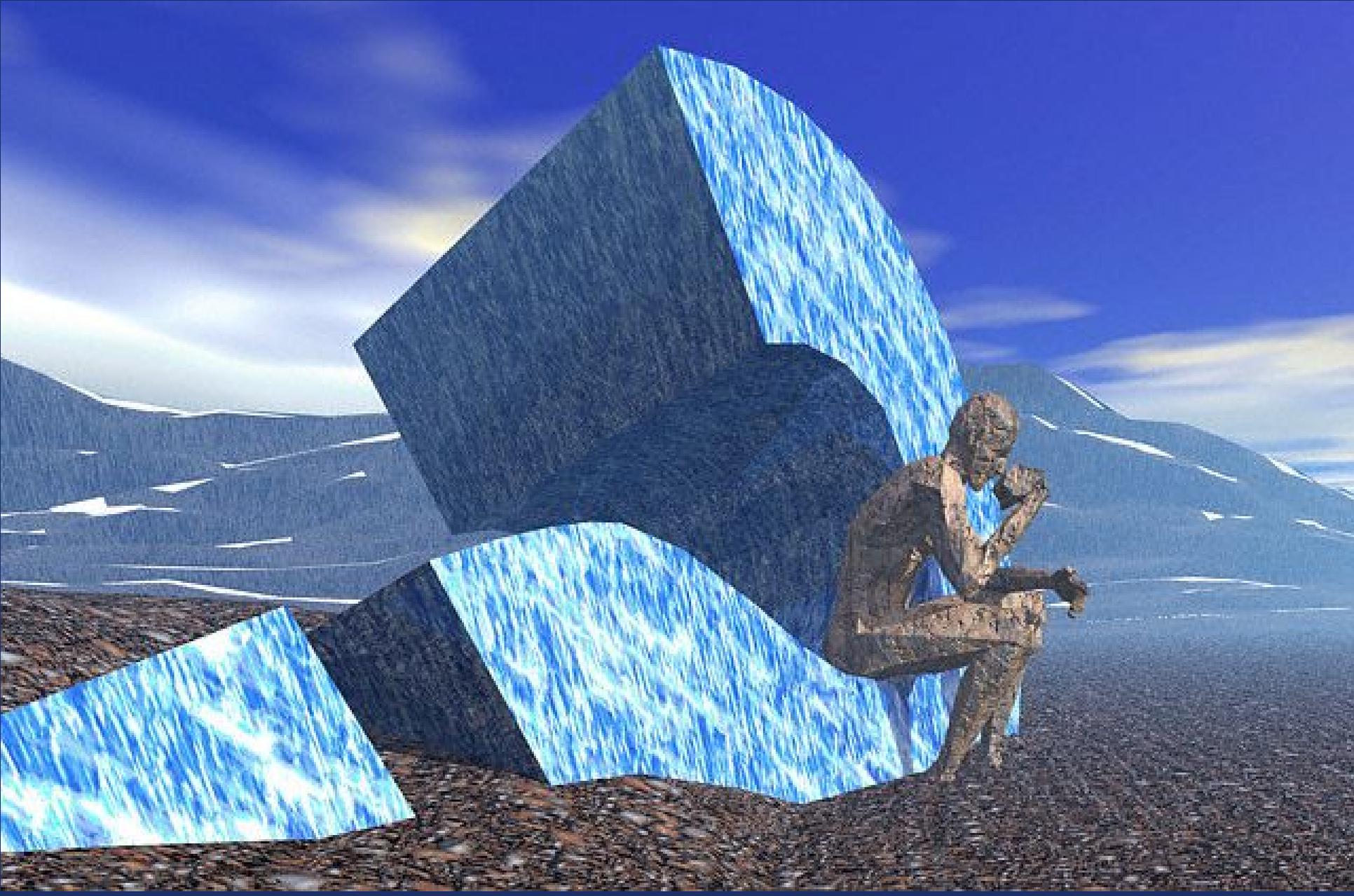
- Plot the VAA to determine the affected area and altitudes.
- Determine if PACOTS to be generated are affected by the VA.
- If the PACOTS will be affected by the VA:
  - consult with the Oceanic FLM, and:
  - TMU will coordinate with the ATCSCC to schedule a telecom with the International Operators, Japan ATMC, the (VAC) and Anchorage ARTCC. The telecom would ideally be at least 1 hour from the current time to allow the operators to get the correct personnel on the telecom.

# Oakland VA PACOTS Generation Guidance

- When conducting a Volcanic Ash Telecom TMU will send a High Priority email to the Oceanic Critical Event Contact List advising of the telecom details.
- On the telecom discuss the VA plume and options for managing the traffic.
- If the determination is made that the PACOTS Tracks will be affected, suggest on the telecom that Oakland will generate the PACOTS Tracks 25 nm clear of the VAA forecast.

# Oakland VA PACOTS Generation Guidance

- **Get operator feedback on the proposed plan and attempt to develop a consensus plan.**



# Oceanic Time Error Reports



Federal Aviation  
Administration

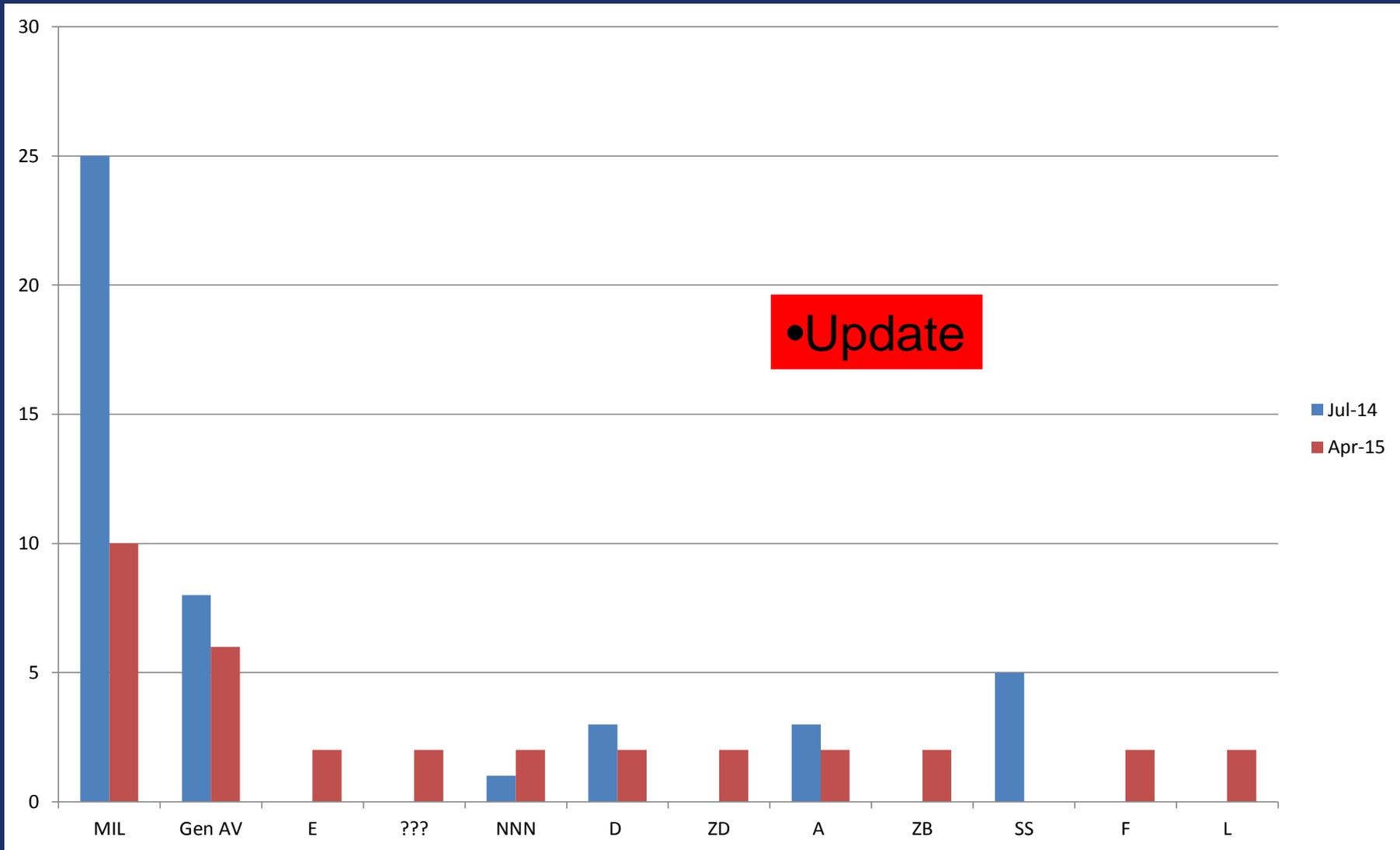
# Oceanic Error Reporting

- **FAA requires reporting of Oceanic Errors:**
  - GNE (Gross Navigation Error) 25nm or more.
  - Intervention: Aircraft on different route than ATC.
  - Height Error: 300 feet or more.
  - Time Errors: Pacific = More than 3 minutes
- **Oceanic Error Reports are forwarded to:**
  - Flight Standards
  - Technical Center, Airspace Safety Calculations.
- **Oakland has automated Time Error tracking and reporting.**

# ICAO Annex 2 3.6.2.2 change

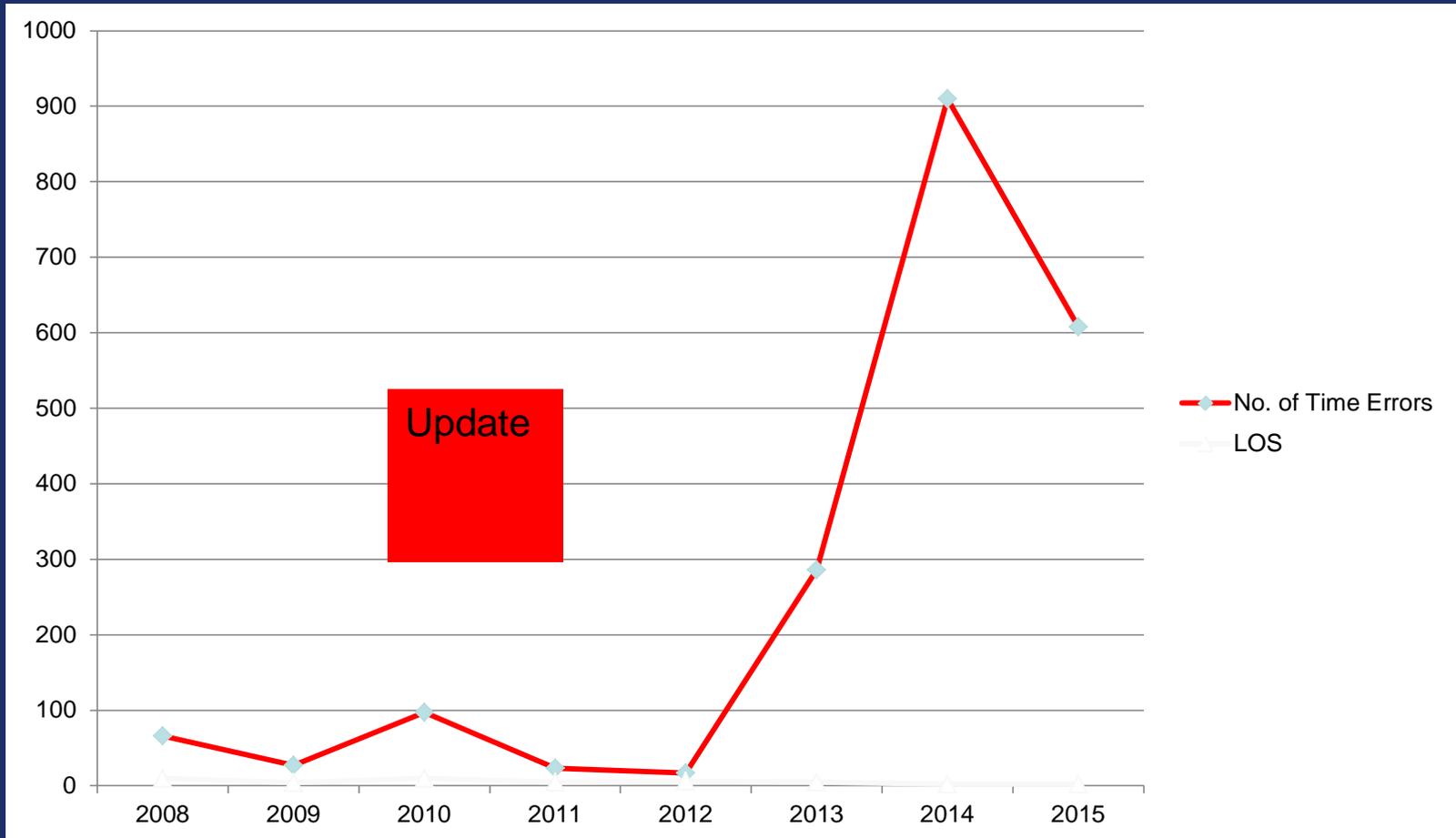
- **3.6.2.2 Inadvertent changes.** *In the event that a controlled flight inadvertently deviates from its current flight plan, the following action shall be taken:*
- **a) Deviation from track:** *if the aircraft is off track, action shall be taken forthwith to adjust the heading of the aircraft to regain track as soon as practicable.*
- **b) Variation in true airspeed:** *if the average true airspeed at cruising level between reporting points varies or is expected to vary by plus or minus 5 per cent of the true airspeed, from that given in the flight plan, the appropriate air traffic services unit shall be so informed.*
- **c) Change in time estimate:** *if the time estimate for the next applicable reporting point, flight information region boundary or destination aerodrome, whichever comes first, is found to be in error in excess of 2 minutes from that notified to air traffic services, or such other period of time as is prescribed by the appropriate ATS authority or on the basis of air navigation regional agreements, a revised estimated time shall be notified as soon as possible to the appropriate air traffic services unit.*
- 
- **3.6.2.2.1** *Additionally, when an ADS agreement is in place, the air traffic services unit shall be informed automatically via data link whenever changes occur beyond the threshold values stipulated by the ADS event contract.*

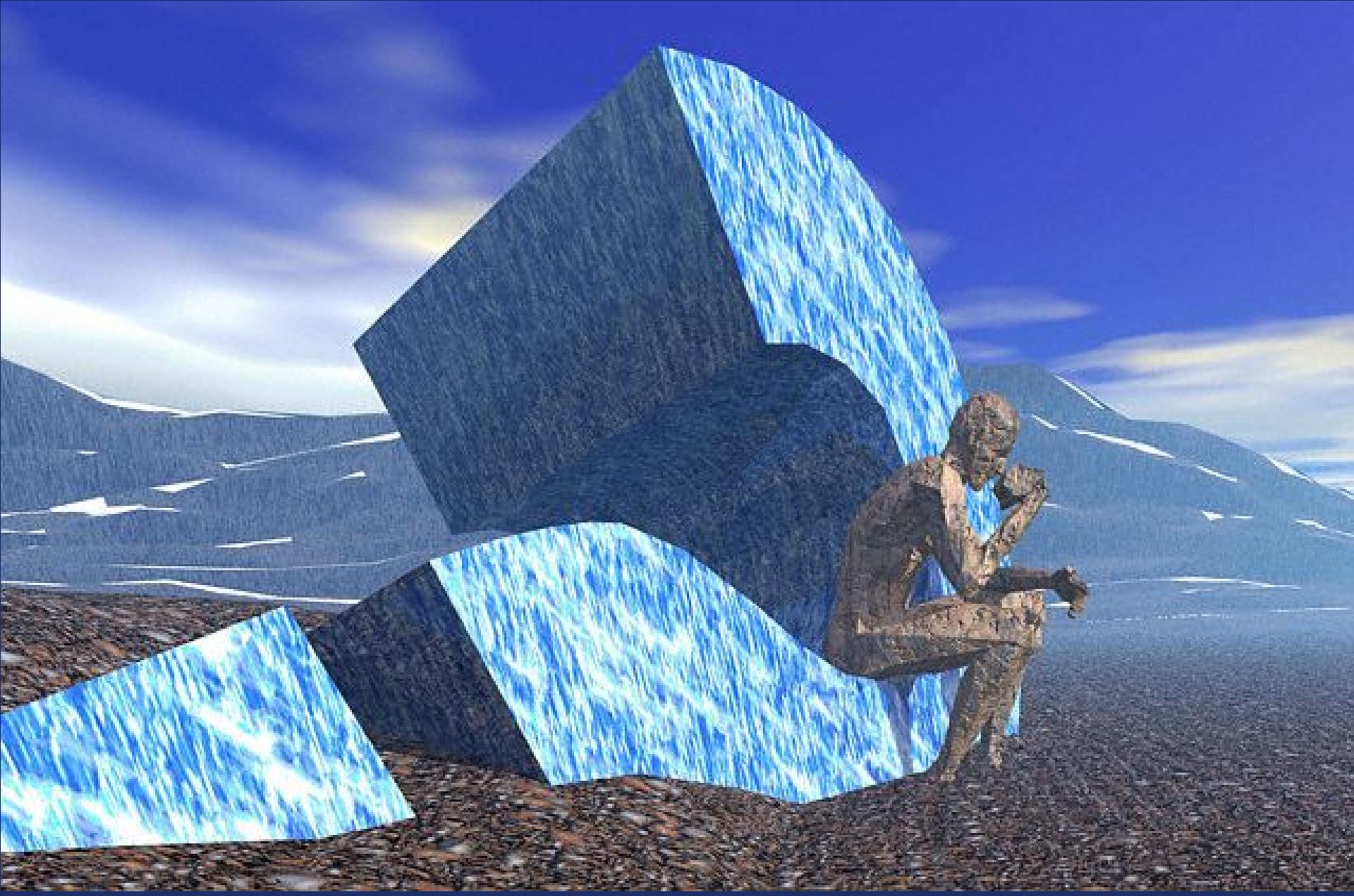
# Operator Trend Trend



# Time Events/Errors

(All Operators)





# World Record Attempts



Federal Aviation  
Administration

# Solar Impulse Round the World Flight record

- In Hawaii, replacing batteries
- Resume April 2016



Follow us to get updates about our new **LIVE** website and tests flights before the departure for our #RTW adventure.

Dustin Byerly

Support Manager

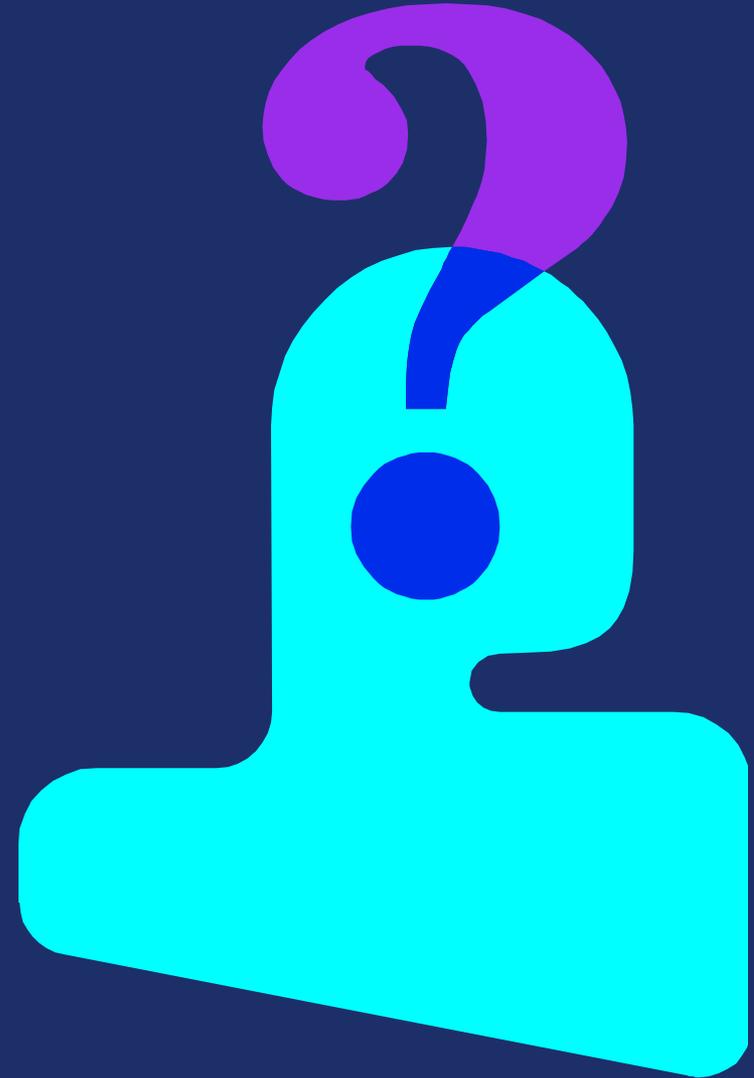
Oakland Center

Oceanic Airspace &

Procedures

510-745-3543

[dustin.m.byerly@faa.gov](mailto:dustin.m.byerly@faa.gov)





# Vancouver ACC Ocean Transition Plan



# Honolulu Control Facility

## Operations

Honolulu Control Facility



Federal Aviation  
Administration

# Oceanic and Offshore Procedures

AJV-84



Federal Aviation  
Administration

# Action Item 03-06

- OWG members to provide known status on island airport.



# Other Meetings

- **CPWG May 17-20, 2016 Paris, France**
- **ISPACG March, 2016 Gold Coast, Australia**
- **IPACG PT March 2016 Tokyo, Japan**

# Next OWG Meeting

**June 22, 2016?**