

Oceanic Work Group Meeting

Date:

September 18, 2013



Oakland Center Update

Dennis Addison

SM Oceanic Airspace and Procedures

September 18, 2013



**Federal Aviation
Administration**

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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](#)
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• http://www.faa.gov/about/office_org/headquarters_offices/ato/artcc/oakland/



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Terminal Radar Approach
Control Facilities (TRACON)

KZAK Oceanic ATC Operations



Print

- [Oakland ARTCC Oceanic Points of Contact \(MS Word\)](#)
- [User Preferred Route \(UPR\) Flight planning Guidelines \(MS Word\)](#)
- [Pacific Organized Track System \(PACOTS\) Guidelines \(MS Word\)](#)
- [Central East Pacific \(CEP\) Routes Guidelines \(MS Word\)](#)
- [Oakland Oceanic CPDLC \(MS Word\)](#)
- [Guam Area Preferential Routings \(MS Word\)](#)

Pacific Meetings

- [Informal Pacific Coordinating Group \(IPACG\)](#)
- [Informal South Pacific Coordinating Group \(ISPACG\) !\[\]\(9af74af4c481d64849a163b79a6af6d2_img.jpg\)](#)
- [Oceanic Workgroup Meeting \(OWG\)](#)



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KZAK Oceanic ATC Operations

- [Print](#)

KZAK Watch Desk (24/7):

- Oceanic Operations Supervisor
510-745-3342 (24 hours/day—7 days/week)
- Oceanic Non-RVSM Aircraft
510-745-3342
- Oceanic Operations
fax: 510-745-3414
- Oakland Oceanic AFTN
address: KZAKZQZX

KZAK Track Advisory

- Traffic Management Unit (TMU)
510-745-3771
fax: 510-745-3339

Oakland ARTCC International Airspace & Procedures Support Manager

- [Dennis Addison](#)
- 510-745-3258 (Monday through Friday business hours)

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UPR Flight Planning Guidance

UPRs

USER PREFERRED ROUTE (UPR) GUIDELINES

1. General Information

- a. Geographical Boundary. UPRs may be utilized within the specified FIRs as detailed below
- b. Where UPRs are Supported
 - (1)Oakland/Anchorage ARTCC and Japan Civil Aviation Bureau Air Traffic Management Center (JCAB ATMC) support the use of UPRs in association with PACOTS Track 1, 3, and 14/15 between Asia and North America.
 - (2)Oakland ARTCC/HCF and JCAB ATMC support the use of UPRs in association with PACOTS Track 11/12 between Japan and Hawaii.
 - (3)Oakland ARTCC/HCF and JCAB ATMC support the use of UPRs in association with PACOTS Track A/B between Hawaii and Japan.
 - (4)Oakland/Anchorage ARTCC and JCAB ATMC support the use of UPRs in association with PACOTS Track H/I and K between North America and Asia.
 - (5)Oakland ARTCC, Guam CERAP, Port Moresby ATSC, Brisbane ATSC, Nadi ATMC, Auckland OAC and JCAB ATMC support the use of UPRs between RJAA and Oceania destinations.
 - (6)Oakland ARTCC, Tahiti ACC, Auckland OAC, Nadi ATMC and Brisbane ATSC support the use of UPRs between North America/Hawaii and the South Pacific.
 - (7)Oakland ARTCC and JCAB ATMC support the use of UPRs between Asia and Koror (PTRO).
- c. Flight Planning
 - (1) The UPR must utilize a published standard departure routing where applicable.
 - (2) Operators must utilize acceptable gateways and fixed routes within Fukuoka FIR, applicable to the particular PACOTS track UPR being flown. The gateways and fixed routes authorized are contained in a JCAB Aeronautical Advisory Circular pertinent to the particular PACOTS track UPR.
 - (3) Operators must utilize acceptable transition routings when transiting Anchorage FIR.
 - (a) Eastbound transition routes.
 1. A590 transition route: PASRO A590 POWAL
 2. R591 transition route: AKISU R591 ASPIN
 3. G344 transition route:
 - a. CUTE E G344 CARTO; or
 - b. CUTE E 48N170E 49N180E (or point north of 49N180E); or
 - c. CUTE E 49N170E; or
 - d. CUTE E 50N170E
 - (b) Westbound transition routes.
 1. Join R220 at any named point at or east of NATES
 2. Join R580 at any named point at or east of ONEIL

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PACOTS Flight Planning Guidance

PACOTS

PACIFIC ORGANIZED TRACK SYSTEM (PACOTS) GUIDELINES

1. General Information

- a. Geographical Boundary. PACOTS tracks may be established within the Oakland Oceanic, Fukuoka, and Anchorage FIRs.
- b. Track Definition Message (TDM). Oakland ARTCC is using the TDM format for PACOTS track publication. Questions regarding published PACOTS tracks should be directed to Oakland ARTCC Traffic Management Unit (TMU), at (510) 745-3771.
- c. Number and Designator of PACOTS Tracks
 - (1) Oakland ARTCC or Fukuoka Air Traffic Management Center (ATMC) may develop more or fewer tracks according to user needs, military activity, significant weather, or other limitations.

(2) ROUTES

TRACK DESIGNATORS

Hawaii to Japan	A
Hawaii to Japan	B (optional)
Japan to Hawaii	11
Japan to Hawaii	12 (optional)
North American West Coast to Japan	C
North American West Coast to Japan	D (optional)
North American West Coast to Japan	E & F
Japan to North American West Coast	1, 2, & 3
Japan to North American West Coast	4 (optional)
Texas to Japan	M
Japan to Texas	8
North American West Coast to Asia	H & I (optional)
North American West Coast to Asia	J & K
Asia to North American West Coast	14
Asia to North American West Coast	15 (optional)

d. Usable Flight Levels

- (1) All IFR flight levels at or above FL290 except the Westbound North America-Japan PACOTS which also includes FL280 in the Oakland OCA/FIR. The Westbound North America-Japan PACOTS are included in the Track Advisory Program. Certain restrictions may apply for non-PACOTS traffic operating in the opposite direction to the published PACOTS system.

e. Lateral Spacing of Tracks

- (1) PACOTS Tracks are established at least 50 NM apart. Tracks are defined using latitude/longitude expressed in whole degrees or named waypoints with the possible exception of FIR crossing points.

f. Flight Planning

- (1) The following flight planning restrictions and rules only apply within the oceanic control areas of the respective FIRs. Furthermore, these restrictions do not affect aircraft filing on ATS routes in the CEP route system or the NOPAC Composite Route System unless individual routes within these systems are specifically identified as unusable in NOTAMS.

(a) Participating Aircraft

CEP Flight Planning Guidance

CENTRAL EAST PACIFIC (CEP)

1. The Central East Pacific (CEP) is the organized route system between Hawaii and California. Seven ATS routes, R463, R464, R465, R585, R576, R577, R578, and associated transition waypoints are within the CEP. Reduced Vertical Separation Minimum (RVSM) and Required Navigation Performance 10 (RNP-10) are required for aircraft operating within the CEP at FL290 through FL410. Non-approved aircraft can expect FL280 and below or FL430 and above, traffic permitting.
2. Applicable ATC procedures can be found in Order JO 7110.65 and ICAO Document 7030 - PAC/RAC.

COMPOSITE SEPARATION FOR NON-RNP10 AIRCRAFT

Composite separation is achieved by using a combination of at least 50 NM lateral and 1000 feet vertical separation. Composite separation may only be applied to aircraft established within the CEP and/or aircraft leaving/joining the CEP.

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Basic Oceanic CNS Requirements

CPDLC

CONTROLLER PILOT DATA LINK COMMUNICATIONS (CPDLC)

Oakland ARTCC has full CPDLC capability and normal service in the entire Oakland OCA/FIR for FANS-1/A capable aircraft. The Oakland OCA/FIR log-on address is "KZAK"; the facility is "OAKODYA."

1. HF Communications Requirement

Prior to entering the Oakland OCA/FIR, contact ARINC on HF and identify the flight as CPDLC equipped. Provide SELCAL, departure and destination, aircraft registration number and advise whether SATVOICE equipped. Expect to receive primary and secondary HF frequency assignments from ARINC for the entire route of flight within the Oakland OCA/FIR. Pilots must maintain HF communications capability with ARINC at all times within the Oakland OCA/FIR.

2. Log-On

- a. For aircraft departing from airports along the west coast of North America, Guam and Hawaii, Oakland Oceanic Control requires that data-link aircraft not logon to Oakland oceanic (KZAK) until after leaving 10,000' MSL. This request is made to eliminate ADS periodic reports for aircraft that are still on the ground which will assist in the transition from the domestic airspace automation environment. Additionally, this should reduce operator cost.
- b. Aircraft entering the Oakland OCA/FIR CPDLC service area from non-CPDLC airspace: Log on to CPDLC at least 15 but not more than 45 minutes prior to entering the Oakland OCA/FIR CPDLC service area. Contact ARINC on HF and inform them you are a CPDLC flight.
- c. Aircraft entering the Oakland OCA/FIR CPDLC service area from adjacent CPDLC airspace: Pilots should determine the status of the CPDLC connection. If KZAK is the active center, the pilot shall contact ARINC on HF, identify the flight as a CPDLC flight, and send a position report via CPDLC. If KZAK is not the active center, the pilot shall, within 5 minutes after the boundary is crossed, terminate the CPDLC connection, then log on to KZAK, contact ARINC on HF and inform them you are a CPDLC flight. Send a position report when CPDLC ATC COM is established.

3. CPDLC Position Report Message Format

Oakland OCA/FIR (KZAK) cannot accept position reports containing latitude and longitude (Lat/Long) in the ARINC 424 format, which is limited to five characters (e.g. 40N50). Position reports in the KZAK CPDLC service area containing Lat/Long waypoints will be accepted in complete latitude and longitude format only. Flights unable to send position reports in complete latitude and longitude format must accomplish position reporting via HF voice communications.

4. Aircraft Over-Flying Honolulu Control Facility (HCF) Airspace.

Prior to entering HCF airspace, aircraft will receive an END SERVICE message that will result in termination of CPDLC. Aircraft shall re-log on to CPDLC prior to reentering Oakland OCA/FIR (KZAK) airspace when HCF advises to contact en route communications or ARINC.

5. Aircraft Entering Guam CERAP Airspace.

Contact Guam CERAP 250 miles out on 118.7 squawk 2100.

6. Aircraft Over-Flying Guam CERAP Airspace.

The CPDLC and ADS connection with Oakland ARTCC may be terminated within the Guam CTA. If the CPDLC connection with KZAK is not terminated, do not use CPDLC for ATC COM until Guam CERAP

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Flight Planning Guidance

GUAM AREA

GUAM AREA PREFERENTIAL ROUTING

1. Due to traffic congestion within the Oakland OCA/FIR north, south and west of the airspace delegated to Guam CERAP (A 250NM radius of 13°32'N/144°55'E) preferred routings have been established. This notice applies to all turbojet aircraft at or above FL280 operating within the Oakland OCA/FIR north, south or west of the Guam CTA. The following are the Guam area preferential routings within the Oakland OCA/FIR. Aircraft operators must ensure that these preferential routes are indicated in Field 15 of the ICAO standard flight plan unless following published UPR Procedures. The acronym FPRD in the descriptions below means flight plan route to destination.
2. **Southbound aircraft en route from the Fukuoka OCA/FIR and terminating within Guam CERAP delegated airspace:**
 - a. OVER KEITH - KEITH R584 OTTRE FPRD
 - b. OVER PADKO - PAKDO G339 RIDLL FPRD
 - c. OVER MONPI - MONPI A597 REEDE FPRD
MONPI A216 RIDLL FPRD
 - d. OVER OMLET - OMLET B586 WINZR FPRD
 - e. OVER TEGOD - TEGOD G205 GUYES FPRD
TEGOD A337 SNAPP W21 HIRCH FPRD
3. **Northbound aircraft originating within Guam CERAP delegated airspace, en route to destinations within the Fukuoka OCA/FIR:**
 - a. OVER MIKYY - MIKYY R584 KEITH FPRD
 - b. OVER NATSS - NATSS G339 PAKDO FPRD
 - c. OVER OATSS - OATSS A216 MONPI FPRD
 - d. OVER RICHH - RICHH A597 MONPI FPRD
 - e. OVER TOESS - TOESS B586 OMLET FPRD
 - f. OVER TERYY - TERYY G205 TEGOD FPRD
 - g. OVER TEEDE - TEEDE A337 TEGOD FPRD

NOTE 1: Aircraft within the Oakland OCA/FIR and transiting Guam CERAP delegated airspace must flight plan to enter/exit Guam Center airspace on an appropriate ATS route(s) or other established compulsory reporting points (e.g. FATUM or JOBSS).

NOTE 2: With the exception of aircraft flight planned via Oceania UPR procedures, operators flight planning at or above FL280 with filed routes other than those described above should expect to be routed to the preferential route. Requests for alternate routes will be considered on a real-time basis as traffic conditions permit. However, aircraft should file for and be prepared to fly the entire preferential route. Aircraft operating EAST of 150E longitude will not be affected.

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Pacific Meetings

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

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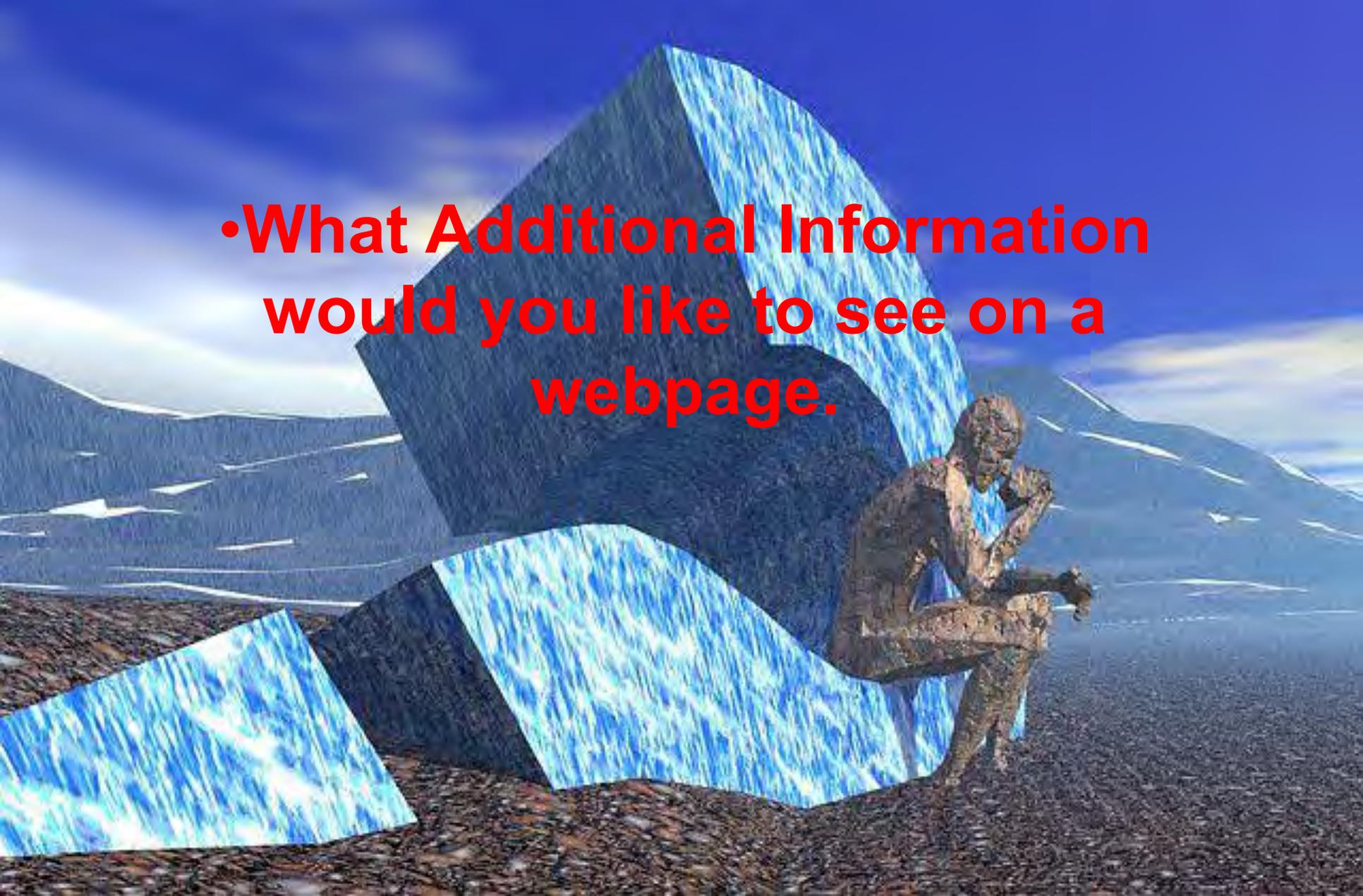


Oakland ARTCC

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

Rohitkumar Desai,
Web POC
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• http://www.faa.gov/about/office_org/headquarters_offices/ato/artcc/oakland/



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

ADS-B In Trail Procedure (ITP) Status Update



Federal Aviation
Administration

Operational Evaluation Partnership Agreement

- **Partnership**

- FAA and United Airlines agreement signed in April 2009



- Retrofit 12 UAL 747-400 aircraft with certified ITP systems
- Gather data on use of systems in SOPAC for a year starting in 2011

★ April 18, 2013 = 100 percent Pilots Trained

ADS-B ITP



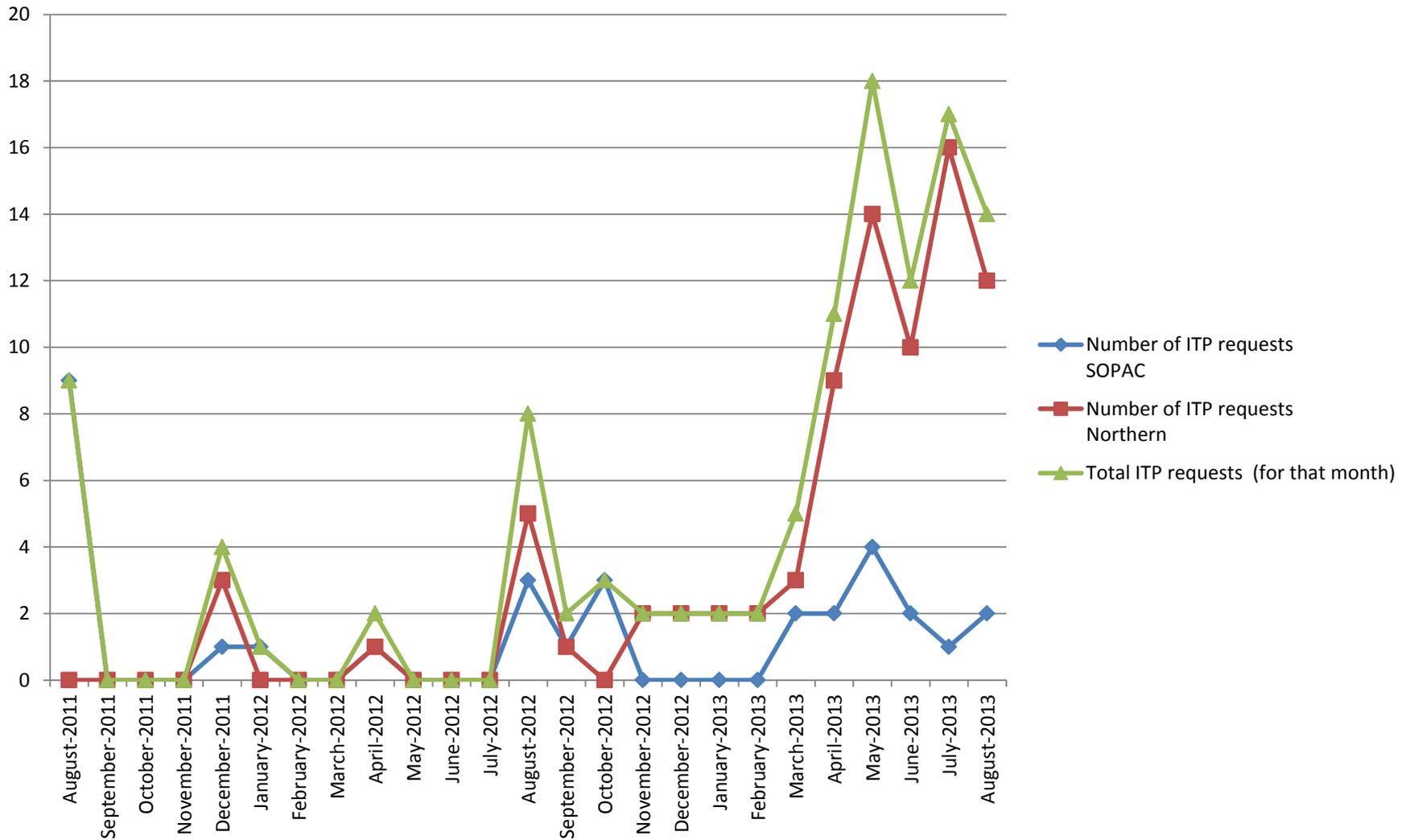
Entire Oakland FIR
December 9, 2011

South Pacific
August 15, 2011

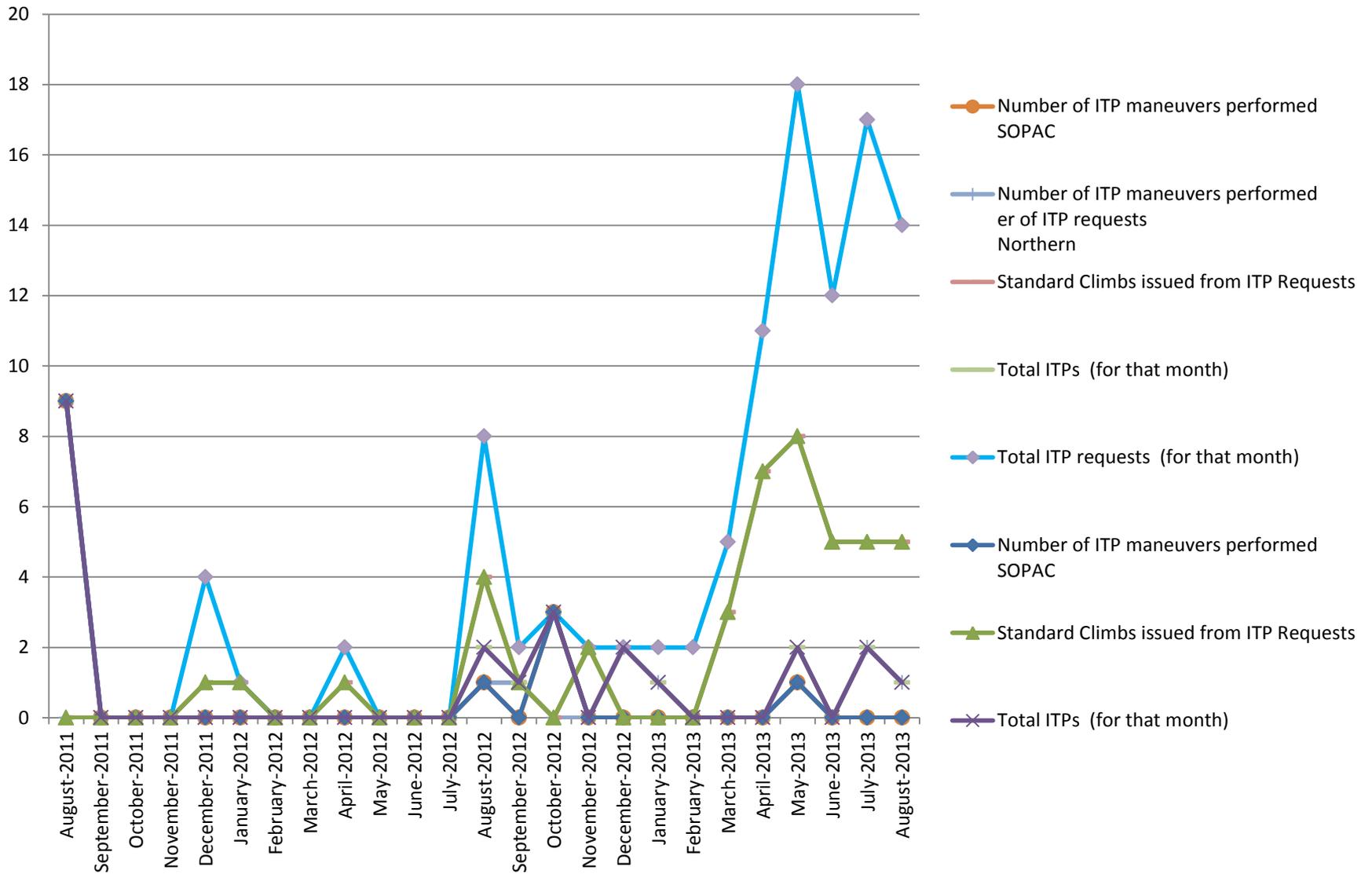
Current Trial Expired August 15, 2013

ITP Operations Resume ??????

ITP Requests



ITP Maneuvers



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-reported distance between the ITP aircraft and any referenced aircraft is at least 15nm.

Initiate probe on ITP aircraft

- 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 a route deviation
- ITP aircraft and Reference are not part of another ITP operation at the same time

Issue ITP Altitude Change Clearance

Send an uplink message containing the proper uM169 message:

ITP procedure type (number and relative position of reference aircraft)	uM169 Message Element content for ITP
ITP aircraft is behind 1 aircraft	"ITP BEHIND [Aircraft flight identification]"
ITP aircraft is ahead of 1 aircraft	"ITP AHEAD OF [Aircraft flight identification]"
ITP aircraft is behind 2 aircraft	"ITP BEHIND [Aircraft flight identification] AND BEHIND [Aircraft flight identification]"
ITP aircraft is ahead of 2 aircraft	"ITP AHEAD OF [Aircraft flight identification] AND AHEAD OF [Aircraft flight identification]"
ITP aircraft is between 2 aircraft	"ITP BEHIND [Aircraft flight identification] AND AHEAD OF [Aircraft flight identification]"

... concatenated with one of the following message elements:

uM20: **CLIMB TO AND MAINTAIN [altitude]**

uM23: **DESCEND TO AND MAINTAIN [altitude]**

uM26: **CLIMB TO REACH [altitude] BY [time]**

uM27: **CLIMB TO REACH [altitude] BY [position]**

uM28: **DESCEND TO REACH [ALTITUDE] BY [time]**

uM29: **DESCEND TO REACH [altitude] BY [position]**

Note: Copy and Paste of call signs of referenced aircraft from climb/descent request may be used when formulating message. Remember to delete mileages copied from request.

Activity Status

- ITP Expansion

- Fiji

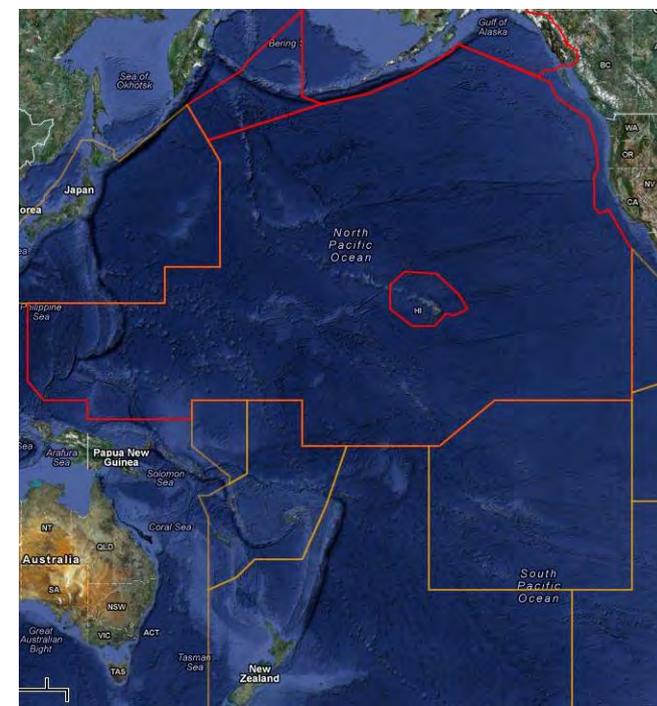
- Will begin an Operational ITP Trial on September 19, 2013

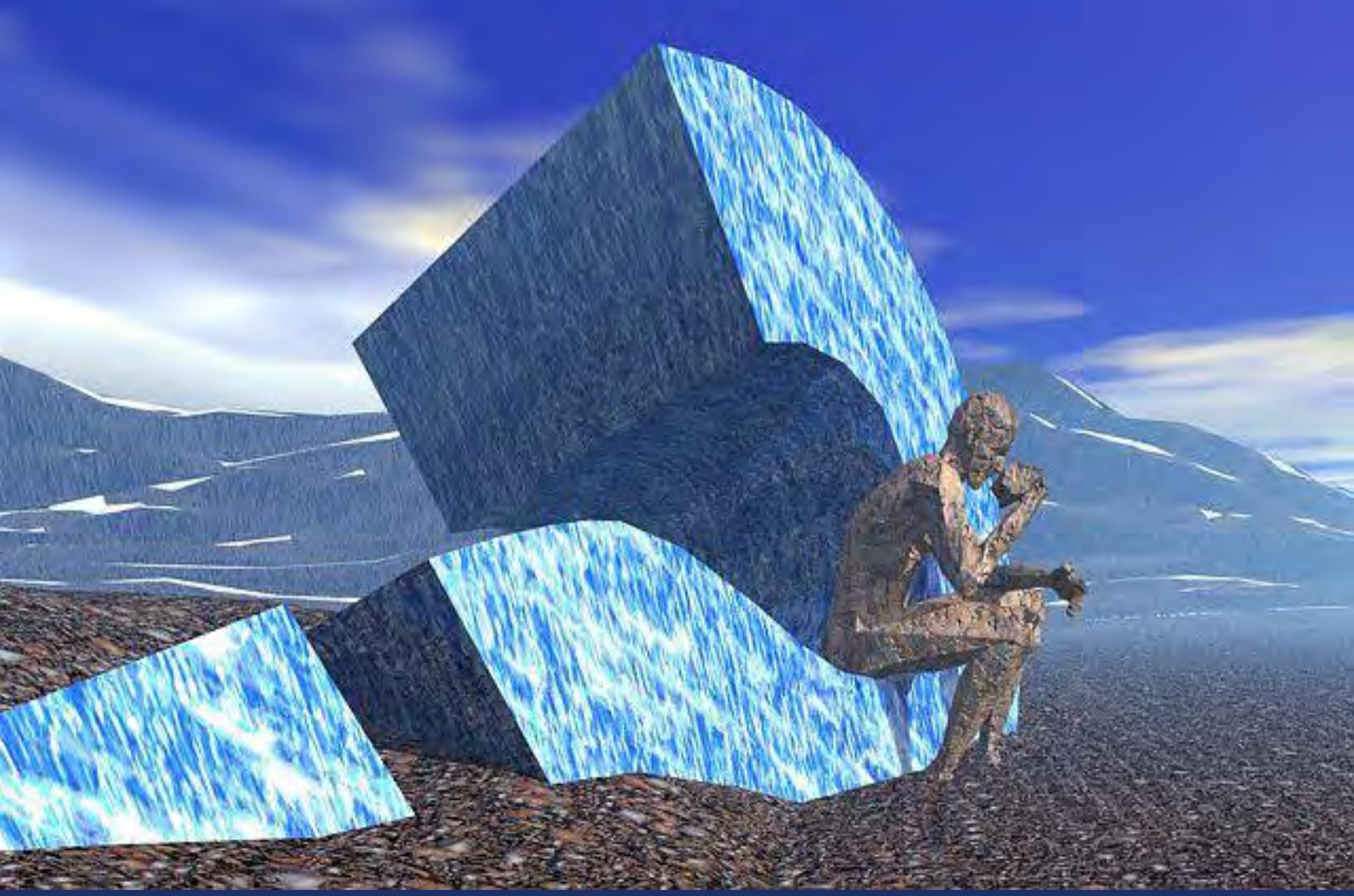
- New Zealand

- New Zealand delayed trial until Nov 2013

- Japan

- Presented ITP OpEval results; talked to Japanese about ITP plans





BOEING 777



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>

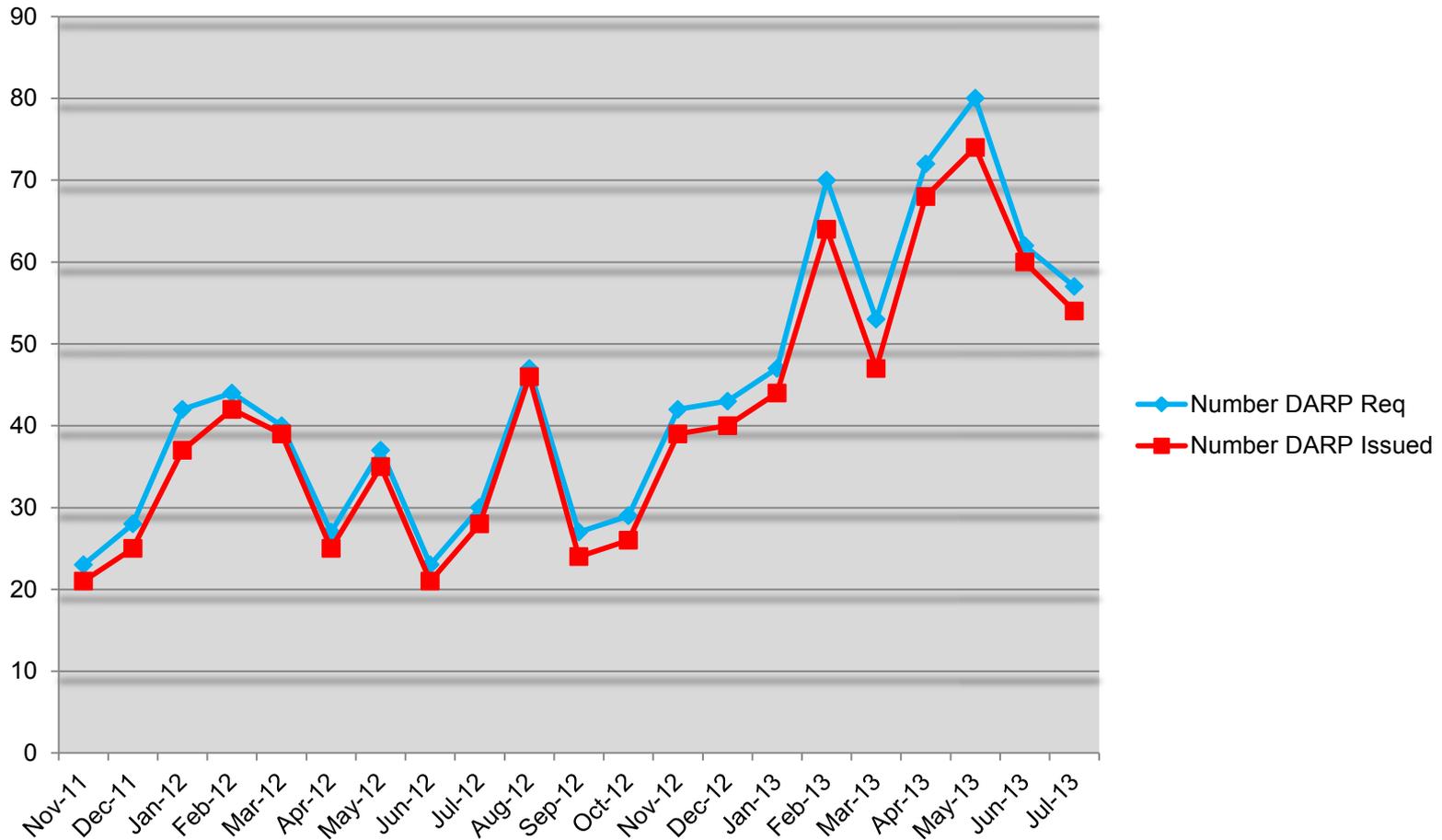
ACT RTE 1 LEGS
 084° 237NM
 N14E170 ,834
 081° 583NM
 N14W180 ,833
 071° 355NM
 N15W174 ,833
 055° 570NM
 N19W165 ,83
 046° 117NM
 AJINK ,83

 <RTE 2 LEGS R

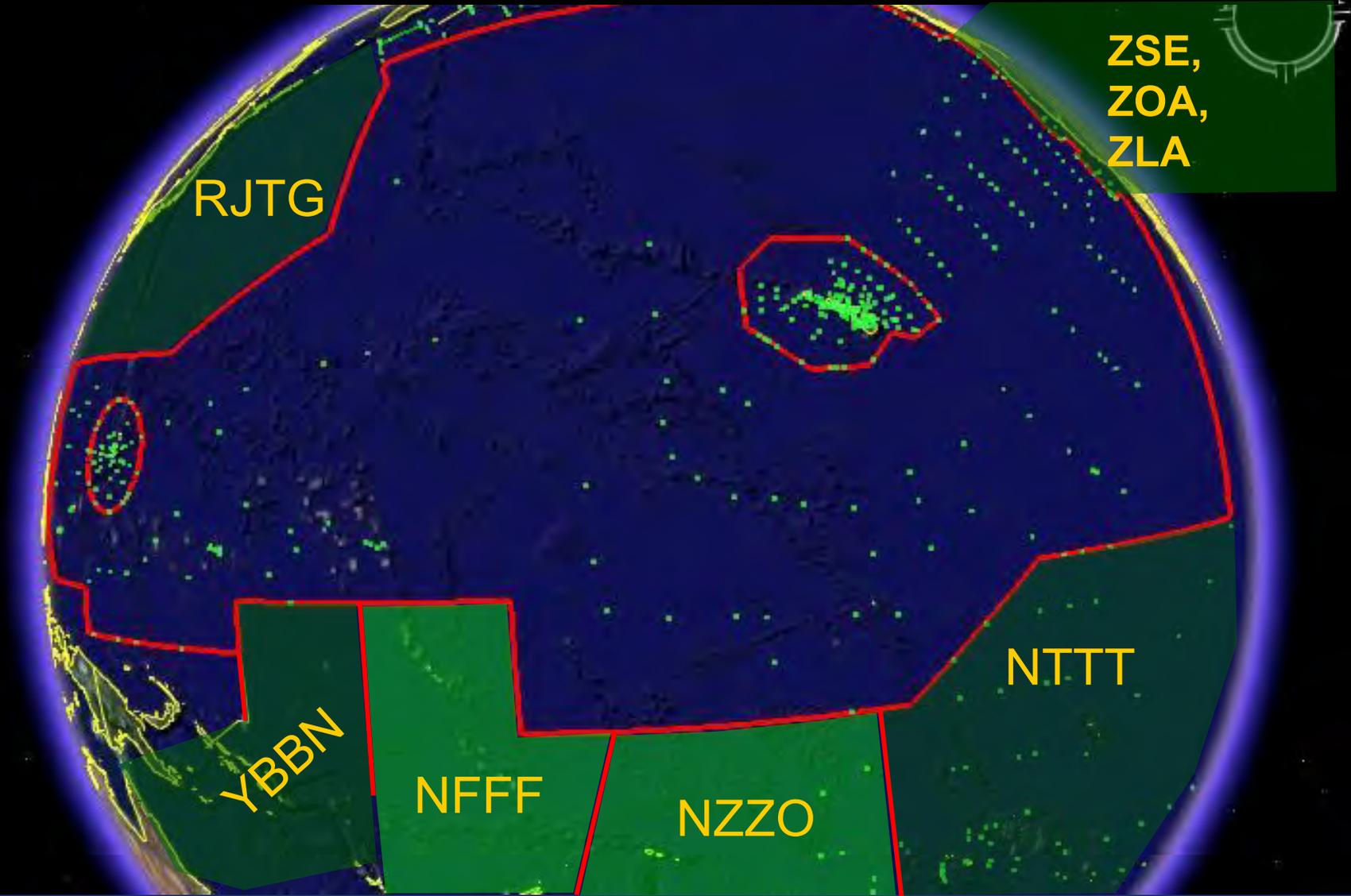
DARPS



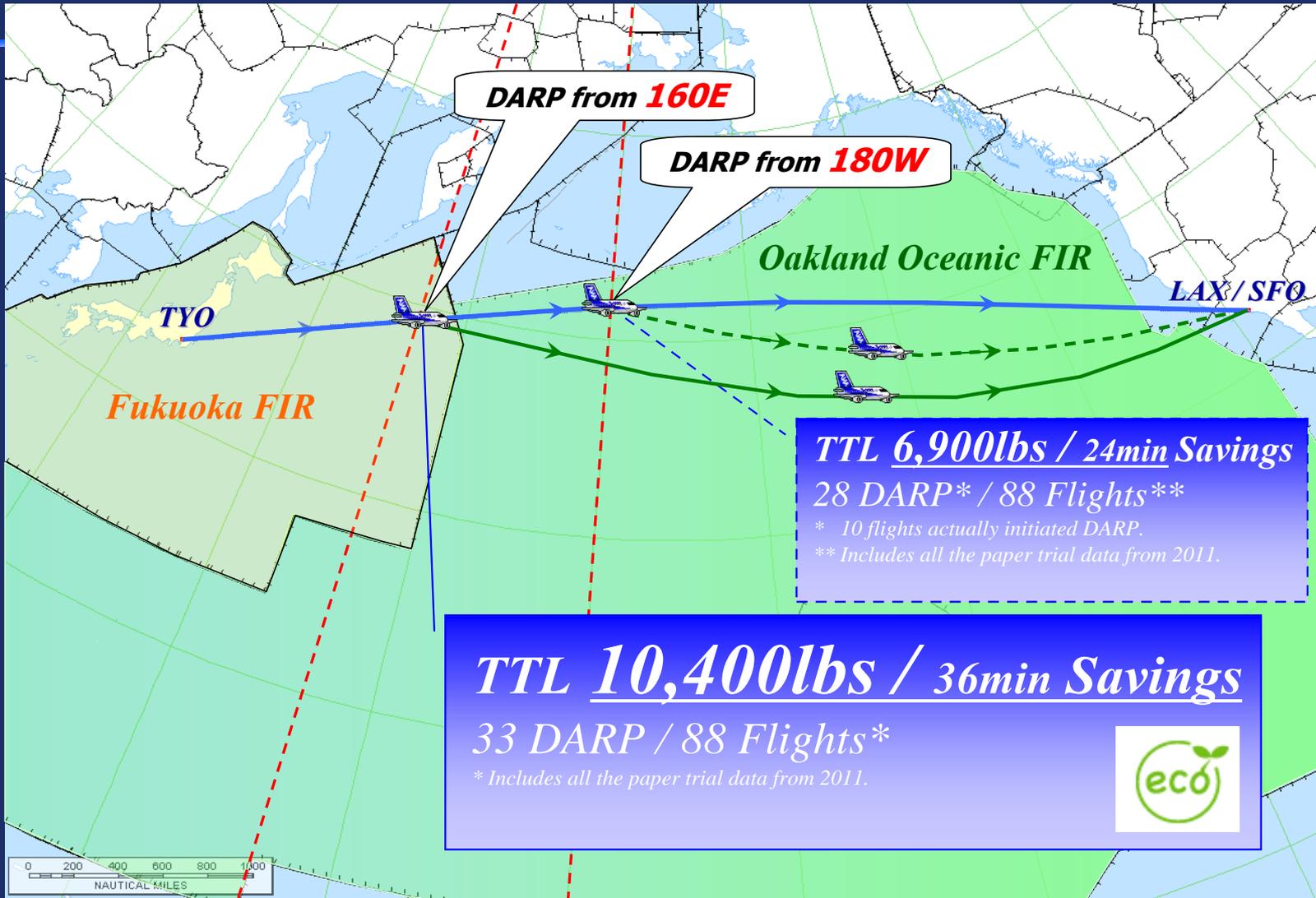
Oakland FIR DARP Usage



Dynamic Airborne Reroutes



Actual & Potential Result (TYO – LAX/SFO)



OPERATIONAL TRIAL FOR DYNAMIC AIRBORNE REROUTE PROCEDURE (DARP) IN THE FUKUOKA FIR

WEF 19 September 2013 0000UTC,

~~WEF 22 August 2013 0000UTC~~, Operational Trial for DARP issued in the Fukuoka FIR will be underway. The following procedures must be adhered to when planning DARP.

*DARP is to allow Operational Control to initiate the process for an airborne aircraft to be issued an amended route clearance by ATC.

Regardless of AIP GEN3.3.3.7.5 3), DARP request and clearance must be made via CPDLC, after the pre-coordination with Air Traffic Management Center (ATMC).

1. Operational requirements for DARP trial

- a. DARP clearance is limited to aircraft bound for Hawaii.
- b. Operational CPDLC is required for aircraft requesting DARP.
- c. DARP request must be made:
 - i. at or east of 145E.
 - ii. by the pilot at least 20 minutes before the divergence waypoint to allow processing time by ATC and pilot.
 - iii. at least 1 hour prior to crossing the Fukuoka/Oakland FIR boundary.
- d. ATMC issue clearance the identical route with the requested route from aircraft, or uplink "UNABLE". (ATMC shall not issue clearance with any modification to the requested route.)
- e. Operators wishing to employ DARP trial initiated in the Fukuoka FIR must pre-coordinate with ATMC office by email (atmc_ocean@cab.mlit.go.jp).

2. Other FIRs

For the details on DARP procedures within other FIRs, refer to aeronautical information published by the state associated with the FIR.

3. For further questions

The Fukuoka Air Traffic Management Center (The Fukuoka AMTC)

- Office atmc_ocean@cab.mlit.go.jp TEL : +81-92-608-8869
 - Oceanic supervisor TEL : +81-92-608-8890
- Note: Operational questions should be directed to the oceanic supervisor.

JCAB DARP Operations

- Requirements for DARP usage on flights to Hawaii.
- Pre-Coordinate DARP Flight Requests with ATMC:
 - atmc_ocean@cab.mlit.go.jp
- Operational CPDLC is required for aircraft requesting airborne DARP reroutes.

DARP Northern Pacific Operations

- **Requirements for DARP usage on flights to Hawaii.**
- **ATMC DARP Request must be made:**
 - at or East of 145E
 - at least 20 minutes before the divergence waypoint to allow processing time by controller and pilot.
 - At least 1 hour prior to crossing the Fukuoka/Oakland FIR Boundary.
- **ATMC issue clearance the identical route with the requested route from aircraft, or uplink “UNABLE”. (ATMC shall not issue clearance with any modification to the requested route.)**

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.

DARP Discussion



OCCAT Trial

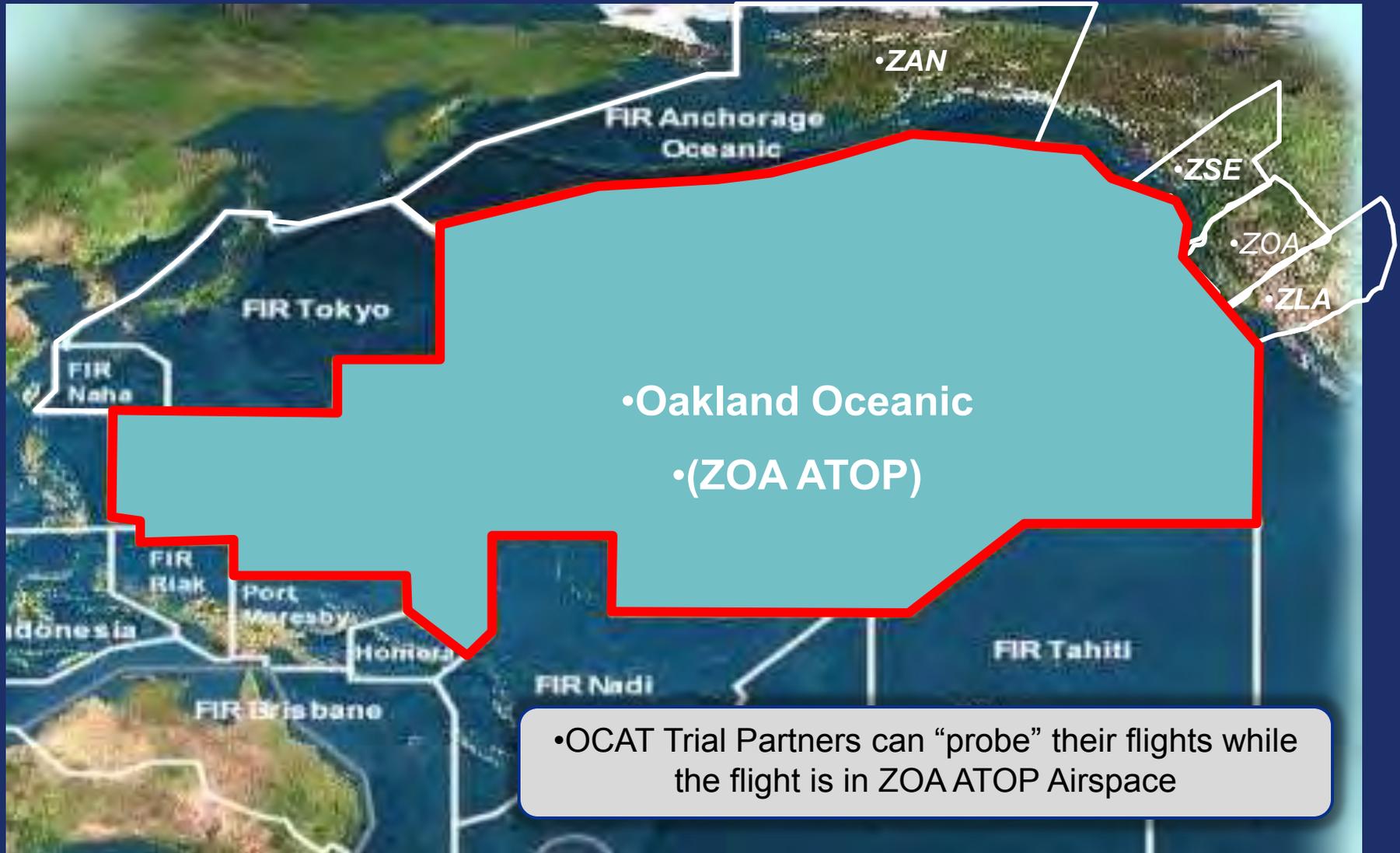


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Oceanic Conflict Advisory Trial (OCAT)

- **OCAT is a component of Oceanic Trajectory Based Operations (TBO)**
- **Enables airline Trial Partners to determine if desired oceanic flight plan amendments are conflict free**
 - DAL, UPS, QFA, UAL
 - ANZ, ANA, VOZ
- **One year trial is on-going until November 2013**

OCAAT/ Oakland FIR



You are logged in as ZOA01: [Logout](#)

HOMEPAGE

METRICS

Call Sign: Dep: Dest: [Retrieve](#) [List Flights](#)

CLEARED PROFILE ETA	
Alt	350
Speed	N0487
Route	PIKOK@1542 NZ@1632

PROPOSED PROFILE	
Alt	
Speed	
Route	

Request

[Vertical](#) [Direct](#) [ReRoute](#) [WxDev](#) [OffSet](#) [Speed](#)

VERTICAL [x](#)

	Altitude	Block?	Time/Pos	Time/Pos
<input checked="" type="radio"/> Climb	<input type="text"/>	<input type="checkbox"/>	At <input type="text"/>	By <input type="text"/>
<input type="radio"/> Descend	<input type="text"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>

Element - 1 of 5. [Probe Request](#) Extend Probe

System Response

Connection Status

Connection status : **Current**

Conflict Info

No conflicts were found

Fixes

Name	Position	Time	Reported
-	05N 146E	15:05	Yes
PIKOK	00N14609E	15:42	No
NZ	0634S14643E	16:32	No



HOMEPAGE

METRICS

Call Sign: Dep: Dest: [Retrieve](#) [List Flights](#)

CLEARED PROFILE ETA	
Alt	390
Speed	N0493
Route	42N140W@1518 38N130W@1614 ALLBE@1629 PIRAT@1649

PROPOSED PROFILE	
Alt	F390_F310B390 <i>complex</i>
Speed	N0493
Route	42N140W@1518 38N130W@1616 ALLBE@1632 PIRAT@1652

Request

[Vertical](#)
[Direct](#)
[ReRoute](#)
[WxDev](#)
[OffSet](#)
[Speed](#)

VERTICAL [X](#)

	Block?	Alt. Lower	Alt. Upper	Time/Pos
<input type="radio"/> Climb	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	By
<input checked="" type="radio"/> Descend	<input checked="" type="checkbox"/>	<input type="text" value="310"/>	<input type="text" value="390"/>	<input type="text"/>

WEATHER DEVIATION [X](#)

Distance: Time/Pos

Left
 Right
 Left/Right
 REJOIN BY:

Element - 2 of 5. [Probe Request](#) Extend Probe [Metrics](#)

System Response

Connection Status

Connection status: Current

Conflict Info

[UAL888]: Conflict with 7 aircraft, 0 airspace. IMMINENT

Aircr001 <15:37> to <16:17> [X](#)

ACID	Aircr001
AC Type	unknown
AC Speed	N0443
AC Cleared Level	F340
AC Requested Level	F340

Fixes

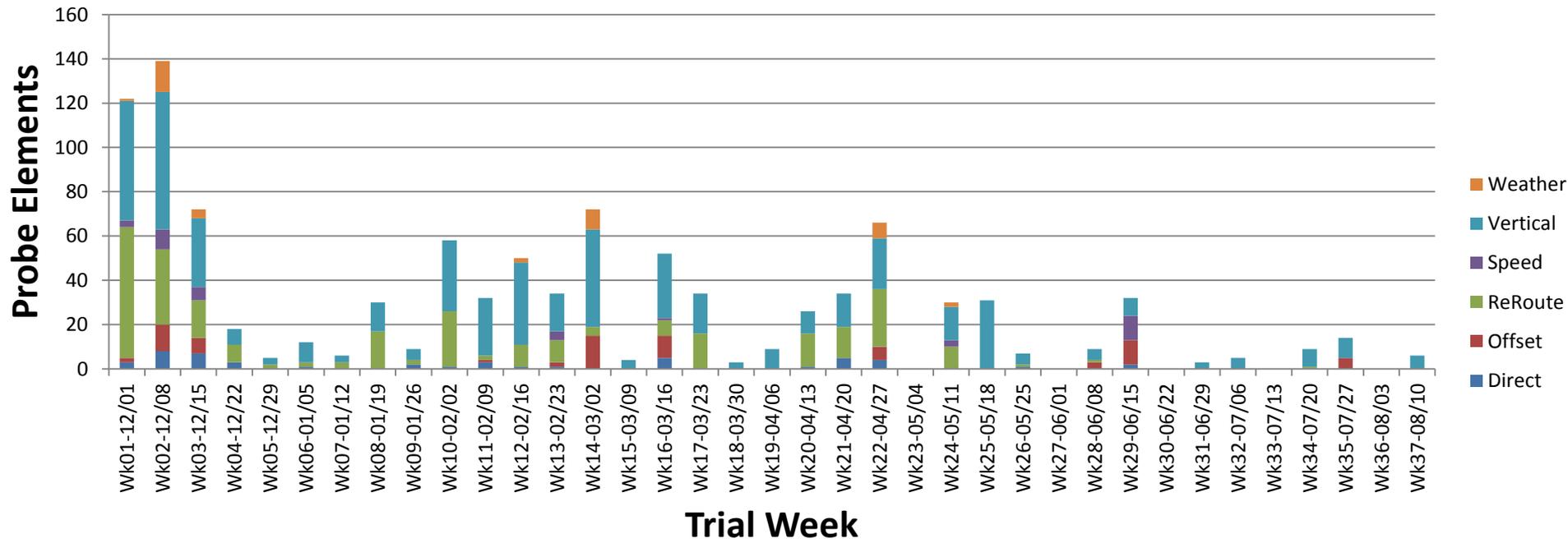
Name	Position	Time	Reported
-	42N160E	10:13	Yes
-	44N170E	11:03	Yes
-	45N180E	11:54	Yes
-	47N170W	12:47	Yes

Usage Discussion

- Overall most used probe component type (all airlines) is vertical clearance request.

Clearance Request Type	Number Since Start of Trial
Vertical	549
ReRoute	286
Offset	74
Direct	48
Speed	37
Weather Deviations	39

Weekly Probe Types



Comparison of Pre-Probed to Non-Probed for Participants

OCEAN21 GRANTED (%)	Pre-Probed					Non-Probed				
	Altitude	Altitude Wx	Speed	Deviation	Reroute	Altitude	Altitude Wx	Speed	Deviation	Reroute
December	75%	0%	0%	100%	0%	80%	83%	79%	93%	86%
January	100%	0%	0%	0%	0%	83%	77%	94%	94%	88%
February	78%	100%	0%	0%	0%	82%	79%	98%	95%	88%
March	67%	100%	0%	0%	0%	82%	79%	80%	95%	85%
April	50%	0%	0%	0%	0%	80%	79%	83%	92%	86%
May	0%	0%	0%	0%	0%	83%	84%	86%	95%	81%
June	0%	0%	0%	0%	0%	84%	83%	89%	94%	86%
July	100%	0%	0%	0%	0%	83%	85%	86%	95%	95%

Limited OCAT opportunities do not allow for statistically significant results

OCAT Trial Usage Results

- OCAT metrics are being gathered & analyzed monthly
 - Usage began strong & has been uneven after that

Summary metrics	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13
Average time from first OCAT probe to Last OCAT probe (minutes)	0:02:17	0:01:28	0:04:11	0:01:56	0:03:20	0:02:21	0:01:06	0:01:36
Average Time between OCAT probes (minutes)	0:00:49	0:01:22	0:02:06	0:01:26	0:00:55	0:01:32	0:02:45	0:02:24
Number of OCAT components	233	70	187	92	135	68	7	10
Number of OCAT probes	184	58	146	75	102	63	7	10
Number of sets	49	28	49	32	22	25	5	6
Number of OCAT sets matched to Ocean 21 Requests	9	4	10	4	3	1	0	1
Average number of Probes per set	4.76	2.50	3.82	2.88	6.14	2.72	1.40	1.67
Number of flights Probed with OCAT	45	27	39	27	19	20	5	5
Number of Participating flights that flew in Oakland Oceanic	5895	5806	5521	6351	6190	6167	4848	4655

Status on Partner Usage

- **Barriers to capability use include:**
 - Dispatcher union difficulties (1 airline partner)
 - Technical difficulties between AOC and pilot and the FMS
 - Too many screens for a dispatcher
 - Limited application in Low density airspace
 - Lack of performance information in OCAT (e.g. OCAT does not know if an aircraft is capable of the climb only that it is available)
- **Like to see ZAN or ZNY.**
- **Like to see ability to probe into other FIRs.**

User Preferred Routes

Presented By: FAA, Oakland ARTCC
Airspace and Procedures



Federal Aviation
Administration

UPRs

????
Kg An.

1.09M.
Kg An.

2.88M.
Kg An.

10M.
Kg An.

1.09 Kg
An.

Over 32.8 Mil
Kg Fuel
Savings
Annually

1017Kg
Flight

.266M.
Kg An.

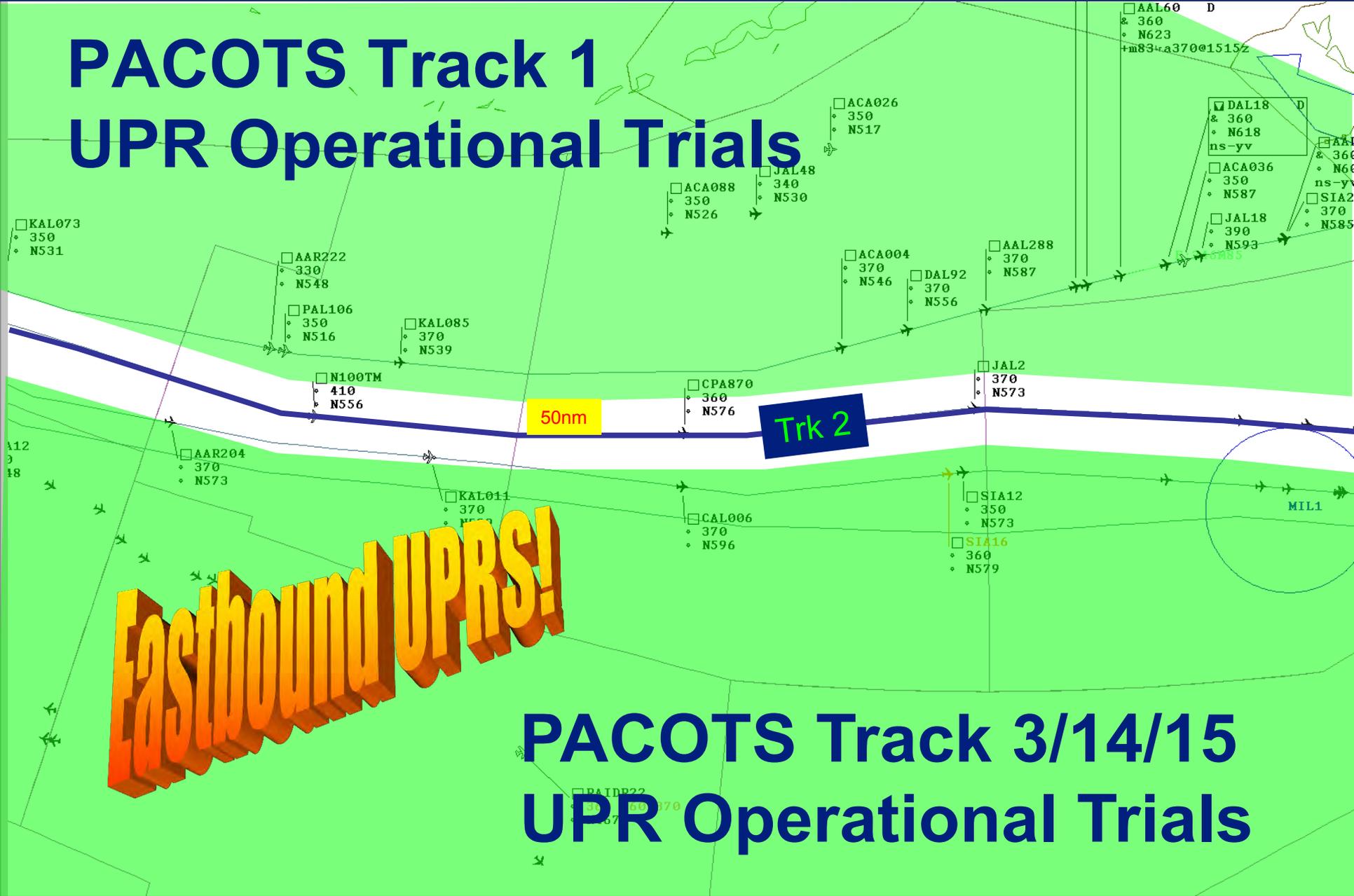
9.61M
Kg An

2.88M.
Kg An.

2.09M.
Kg An.

????
Kg An.

PACOTS Track 1 UPR Operational Trials



Eastbound UPRs!

PACOTS Track 3/14/15 UPR Operational Trials

PACOTS Track F UPR Trial

- **Operational Trial began July 25, 2013, to allow Track F UPRs at least 50nm south of PACOTS Tracks C & E.**
- **Remain 50nm South of Track E and Normal UPR Guidelines.**
- **Guidelines published in KZAK NOTAM A3212/13 and Oakland Website.**

Merging PACOTS Tracks C and E



Federal Aviation
Administration

•Merged Track C and E Paper Trial Traffic Analysis

•Merged Traffic Analysis

- Average 2.5 Conflicts
- 50 of 58 times conflict resolved with a 1000 ft altitude change
- 8 of the 58 times a 2000 ft altitude change was required

Operational Trial

- **March 13, 2013 began a 1 year operational trial of Merging Tracks C and E when it provided an advantage.**
- **Allows a look at seasonal differences.**

Procedural Proposal

- This operational trial is a hybrid of different Pacific Oceanic Procedures.
- Allow the merging of PACOTS Tracks C and E in the Oakland or Anchorage FIRs when it provides a savings advantage.
- IPACG: Only merge PACOTS when there is at least a 200 lbs fuel savings.

Track Advisory

- When PACOTS Tracks C and E are merged;
- Track Advisory is used to manage the merging traffic at the point where the routes converged.
- http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/enroute/oceanic/pacific_track_advisory

Track Advisory

- **When PACOTS Tracks C and E are not merged:**
 - Oceanic Gateway Fix is the Start of the PACOTS Track as is currently done.
- **When PACOTS Tracks C and E are merged:**
 - Oceanic Gateway Fix is the Merge point of Tracks C and E
 - If the merge point is a Waypoint, that will be the Gateway Fix.
 - If the merge point is a Lat/Long, the Gateway Fix for Track Advisory will be coded.
 - 41W40 = 41N/140W
 - The Latitude is always North and the leading 1 is dropped from the Longitude.

•Implementing Merged Track C and E Tracks

- When Track C and E are merged, the TDM will have “RMK/MERGE USE (point) FOR TRK ADVISORY GRL”

A0284/13 - (TDM TRK E 130122190001 1301221900 1301230800 BOXER FULMR FASEL 52N140W 55N150W 56N160W 56N170W ALDOZ ONEIL OPAKE OLCOT OPHET OGDEN OMOTO RTS/KSFO MOLEN BOXER KLAX RZS LIBBO BRINY BOARS BOXER OMOTO R580 OATIS **RMK/MERGE USE ONEIL FOR TRK ADVISORY GRL**).

•Implementing Merged Track C and E Tracks

A0284/13 - (TDM TRK E 130122190001 1301221900
1301230800 BOXER FULMR FASEL 52N140W
55N150W 56N160W 56N170W ALDOZ ONEIL OPAKE
OLCOT OPHET OGDEN OMOTO RTS/KSFO MOLEN
BOXER KLAX RZS LIBBO BRINY BOARS BOXER
OMOTO R580 OATIS **RMK/MERGE USE 52W40 FOR**
TRK ADVISORY GRL).

Track Advisory

- Operators flight planning a merged Track C/E from the starting point would request a Gateway reservation (TKF) prior to 1650 UTC.

Merged Track C and E Operational Trial

- OF THE FIRST 38 DAYS OF THE OPERATIONAL TRIAL;
- TRACKS C & E MERGED 14 DAYS.

- AVERAGE FUEL SAVINGS PER FLIGHT WAS 1120 LBS (10 DAYS)

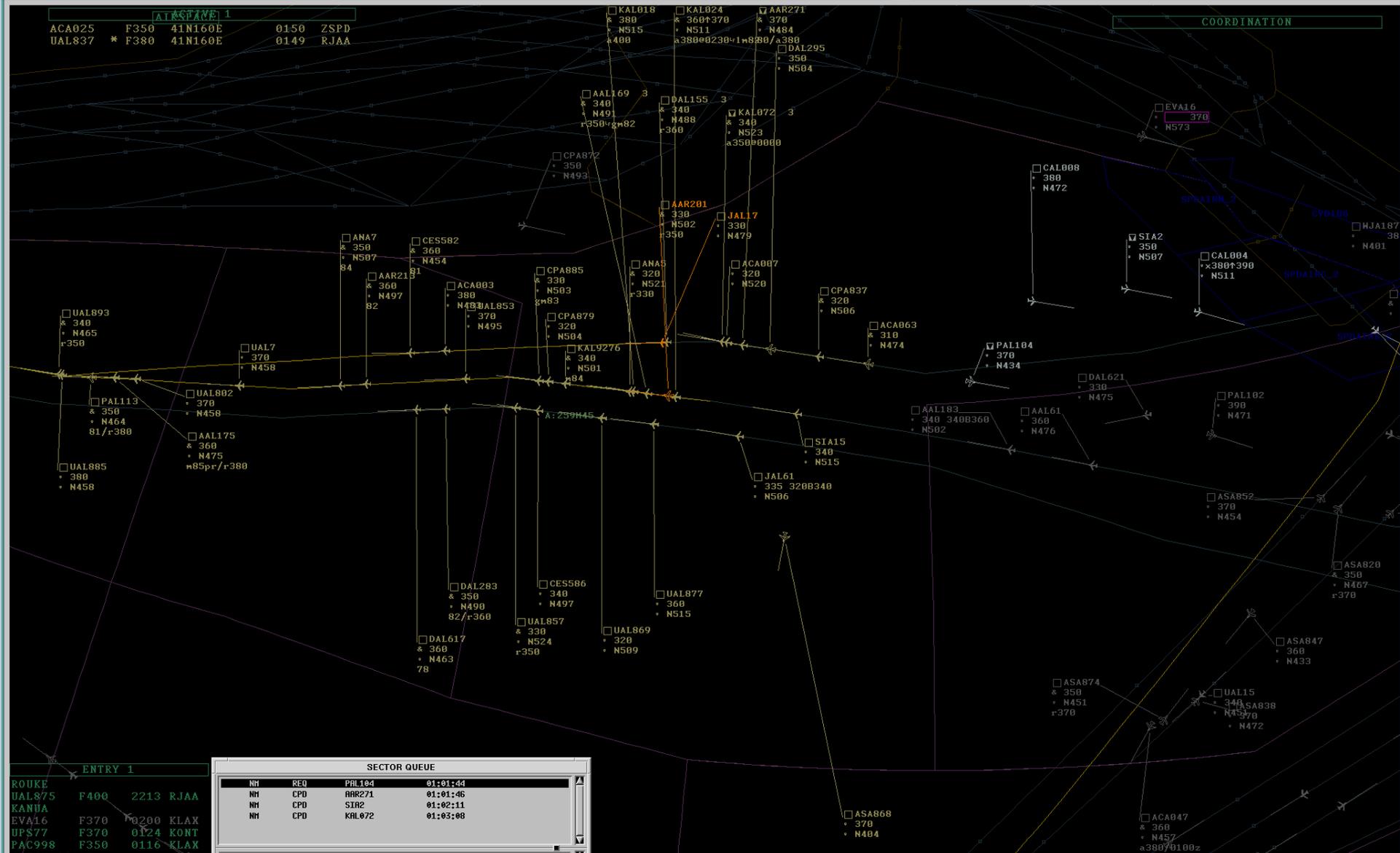
Merging Tracks C & E Difficulties

- April 22-25, 2013 Oakland encountered difficulties with merging traffic on PACOTS Tracks C and E.
- There were numerous traffic conflicts that required Oakland to negotiate with Japan and Anchorage for the use of Non-standard altitudes.
- If traffic did not permit the use on Non-standard altitudes in Anchorage or Fukuoka FIRs, altitude assignments would have been significantly affected

Merging Tracks C & E Difficulties

- On April 26, 2013, Oakland suspended the Operational Trial to merge PACOTS Tracks C and E.
- Oakland discovered several irregularities with the Track Advisory requested reservations:

4-21 Track Advisory Issues



4-22 Track Advisory Issues

- **The Average crossing time difference was 12 minutes**
- **The largest crossing time difference was 82 minutes**
- **7 Aircraft did not have a Track Advisory Gateway Reservation for the Merged C/E**
- **Only 9 of 38 aircraft met their crossing fix reservation time window.**

4-23 Track Advisory Issues

- **The Average crossing time difference was 102 minutes**
- **The largest crossing time difference was 303 minutes**
- **6 Aircraft did not have a Track Advisory Gateway Reservation for the Merged C/E**
- **Only 6 of 37 aircraft met their crossing fix reservation time window.**

4-25 Track Advisory Issues

- **The Average crossing time difference was 28 minutes**
- **The largest crossing time difference was 214 minutes**
- **1 Aircraft did not have a Track Advisory Gateway Reservation for the Merged C/E**
- **Only 10 of 29 aircraft met their crossing fix reservation time window.**

Moving Forward C/E Trial

- **Operators must be better at meeting their Gateway Fix reservation times.**
- **Merging C/E requires the use of Non-Standard Altitudes.**
 - Not an issue for NOPAC
 - Mix of Aircraft types
 - Gateway time errors

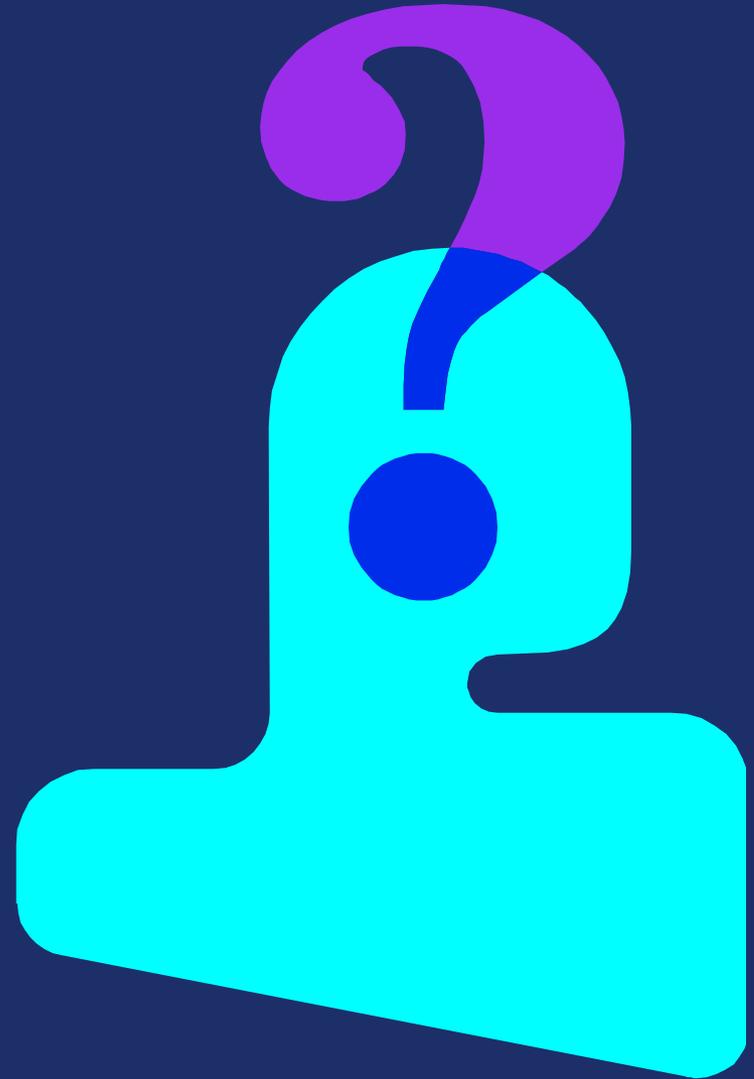
Moving Forward C/E Trial

- **When the PACOTS Tracks C and E would merge, Oakland will coordinate with the next facility for the use of Non-Standard Altitudes for the next day.**
- **If approval for the use of the necessary Non-Standard altitudes can be obtained, the tracks will be published with a merge.**
- **If approval for the use of the necessary Non-Standard altitudes cannot be obtained, the tracks will be published without a merge in the Oakland FIR.**

Moving Forward C/E Trial

- Resume Date?????????

PACOTS MERGED TRACK DISCUSSION

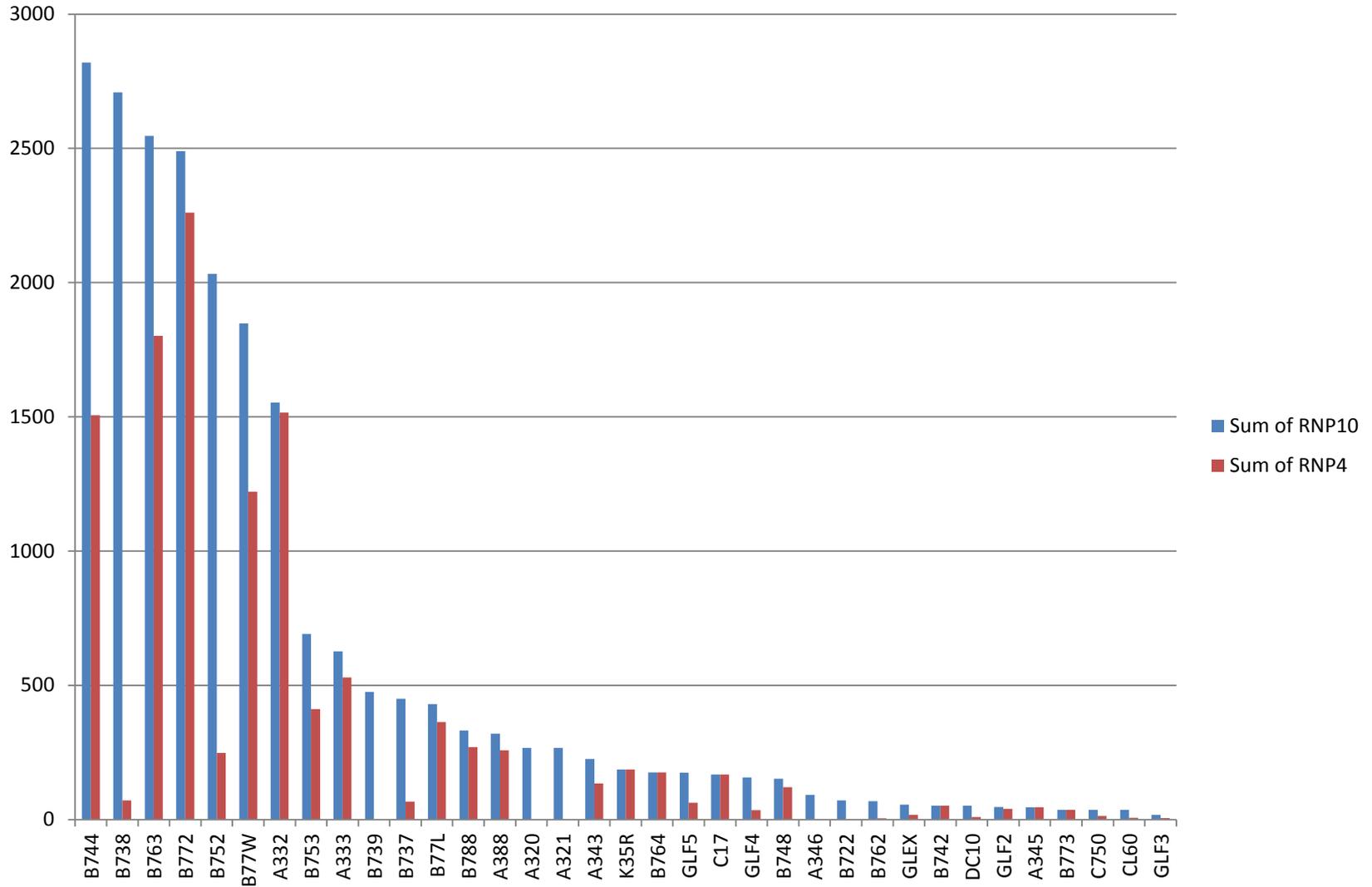


Oceanic Equipage and Separation Standards

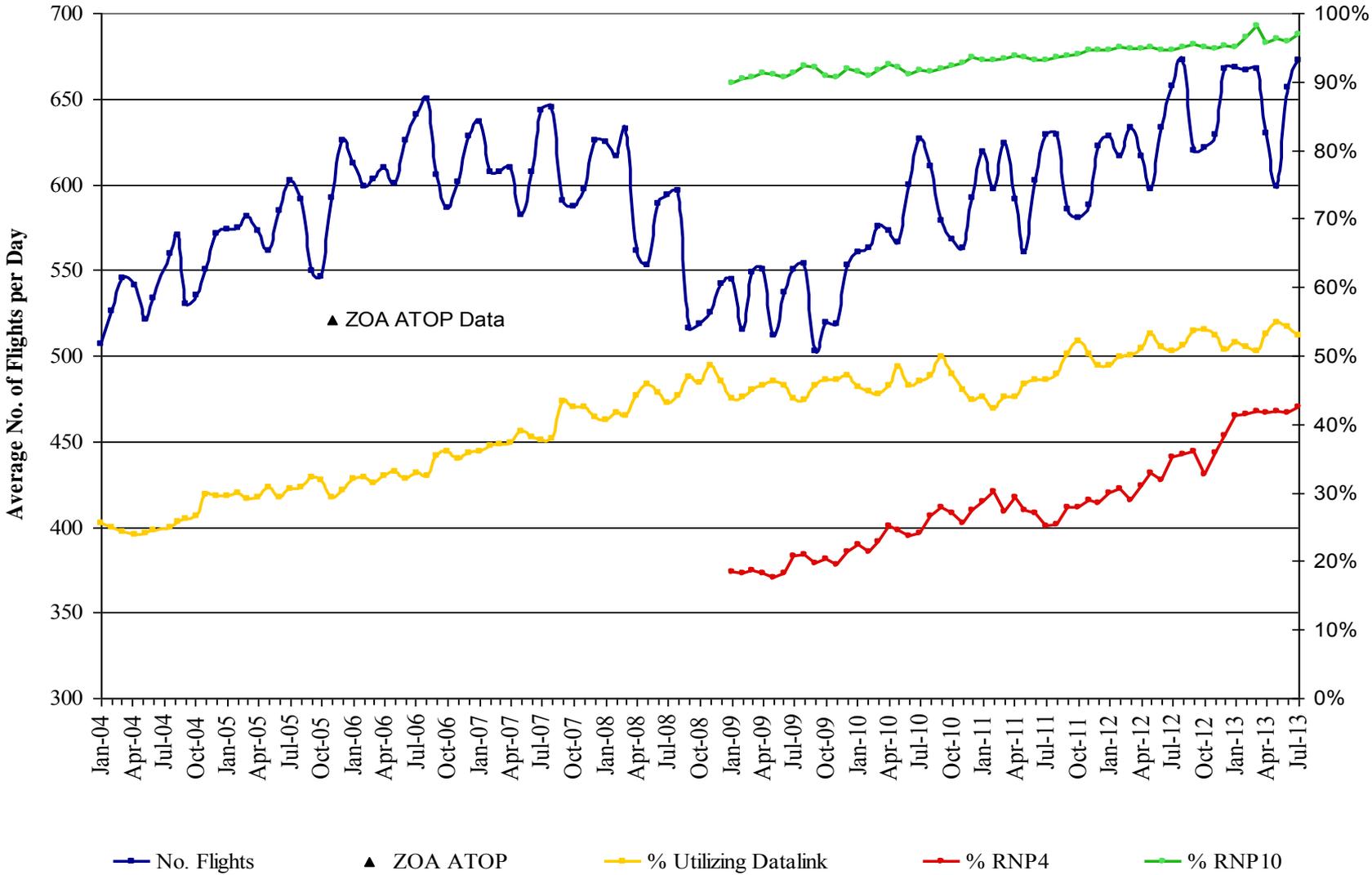


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Administration

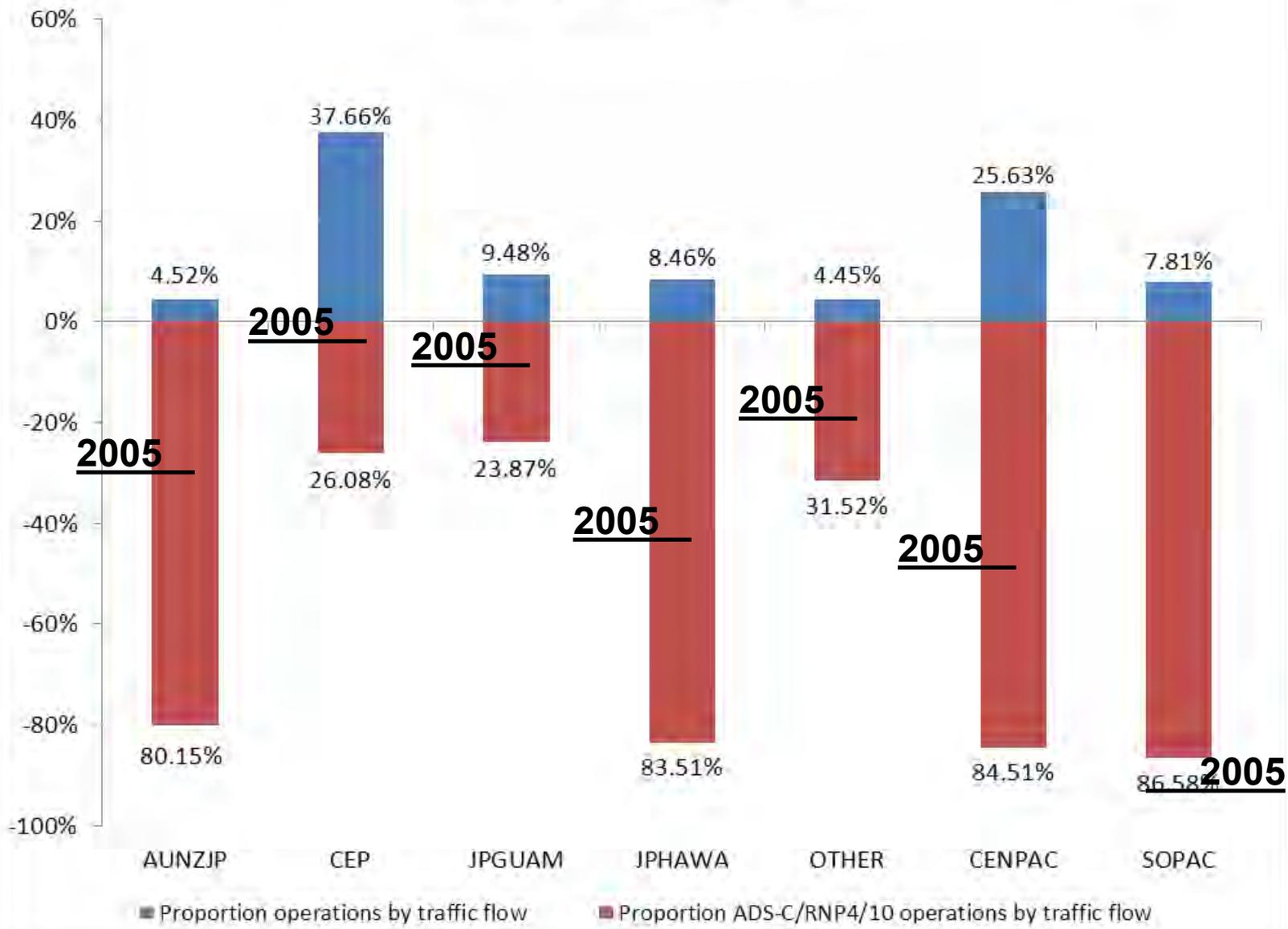
Aircraft Type and Equipage



ZOA Flights & Equipment Utilization

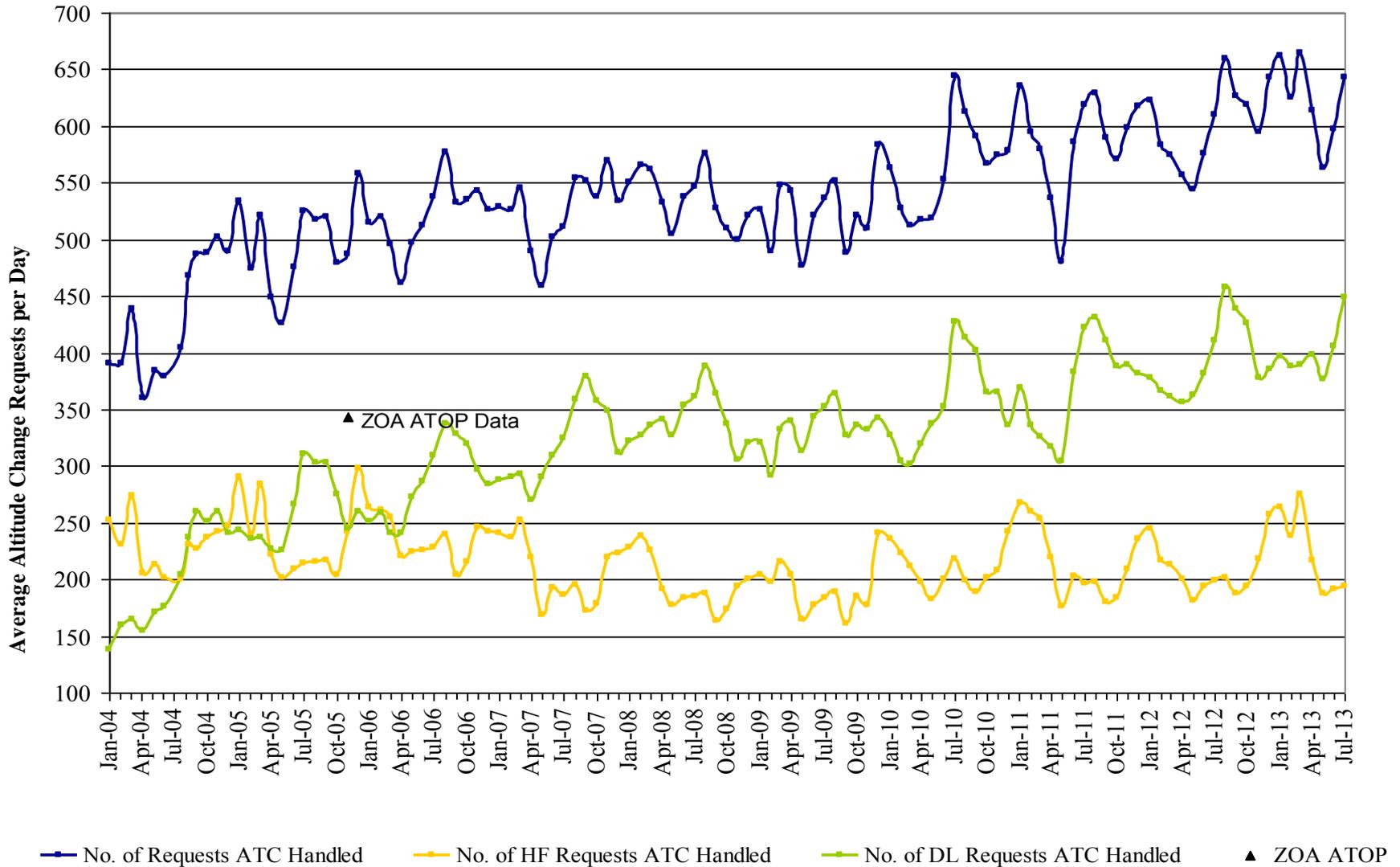


Proportion of Operations by Traffic Flow and ADS-C + RNP4/10 within Traffic Flow - Apr/May/Jul 2013

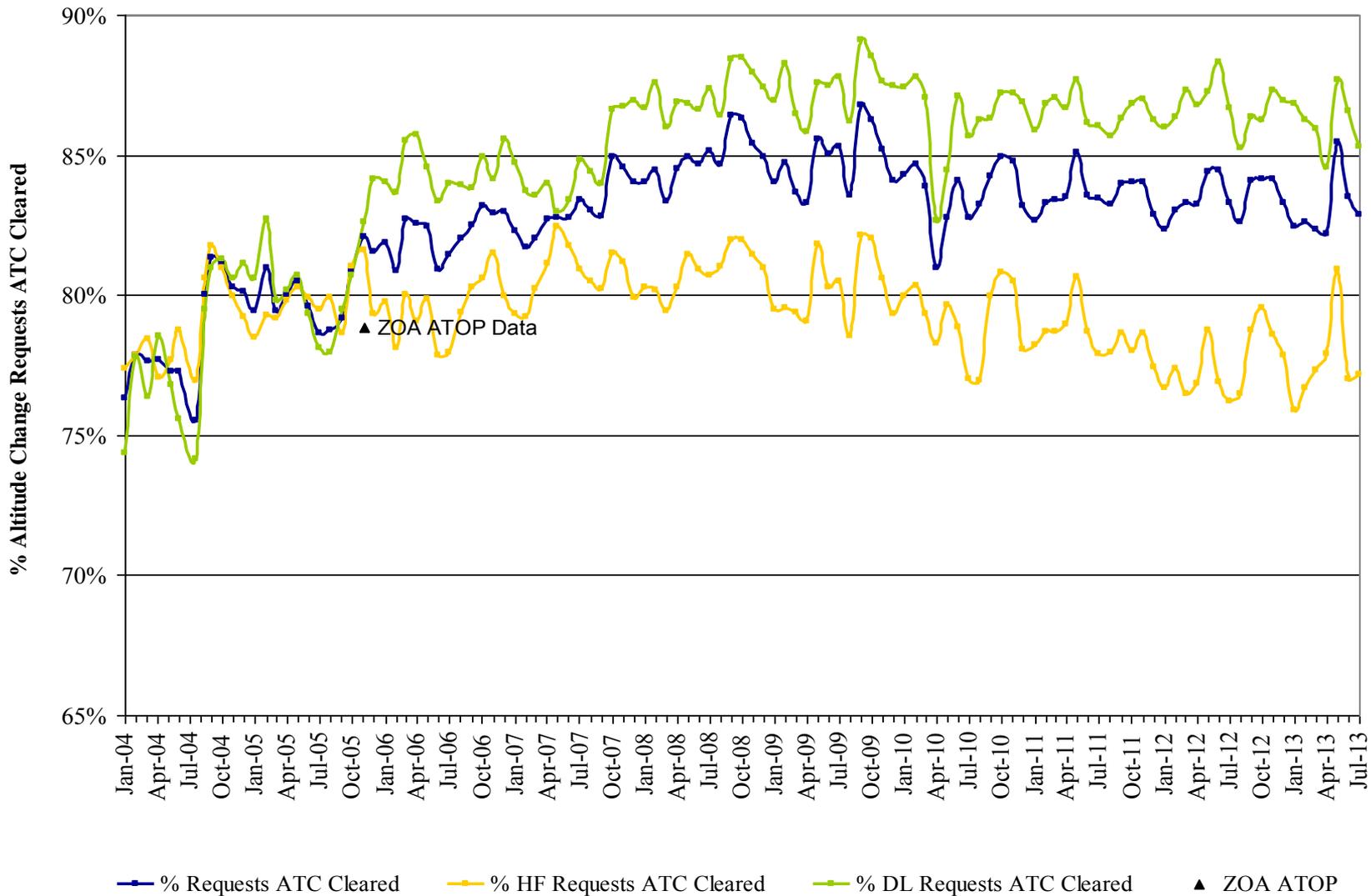


tion
on

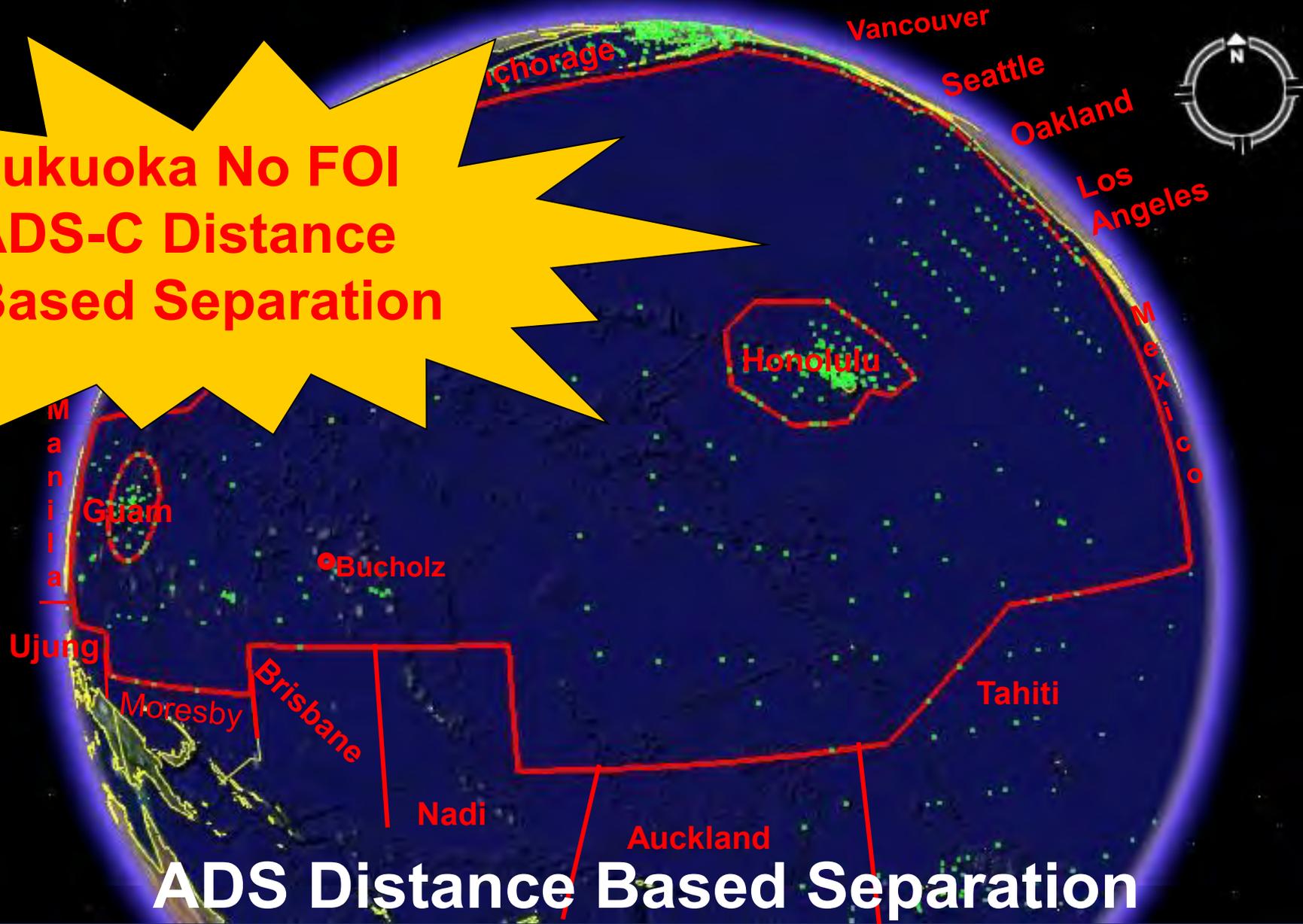
ZOA Altitude Change Requests ATC Handled



ZOA % Altitude Change Requests ATC Cleared



Fukuoka No FOI ADS-C Distance Based Separation



ADS Distance Based Separation

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 and FANS Improves efficiency

Non FANS RNP10

FANS RNP10

FANS RNP4

DAL2237
340
N457

DAL1151
390
N394

FDX3875
360
N410

DAL650 3
350
N536

051M21

N17CX
410
N522

DAL836 3
& 340↑360
N522
r360

Fuel Burn Below Optimum Altitude

- Worked with operators and IATA to develop a table of extra fuel burn when operating below optimum altitude.

- Chart is listed in Attachment A

Aircraft Type A320, Flight length 2500NM, Average weight

Altitude	Ave Additional Fuel burn per hour kg
1000 ft below optimum altitude	36
2000 ft below optimum altitude	72
3000 ft below optimum altitude	118
4000 ft below optimum altitude	172
5000 ft below optimum altitude	254
6000 ft below optimum altitude	336

No data used B757 data

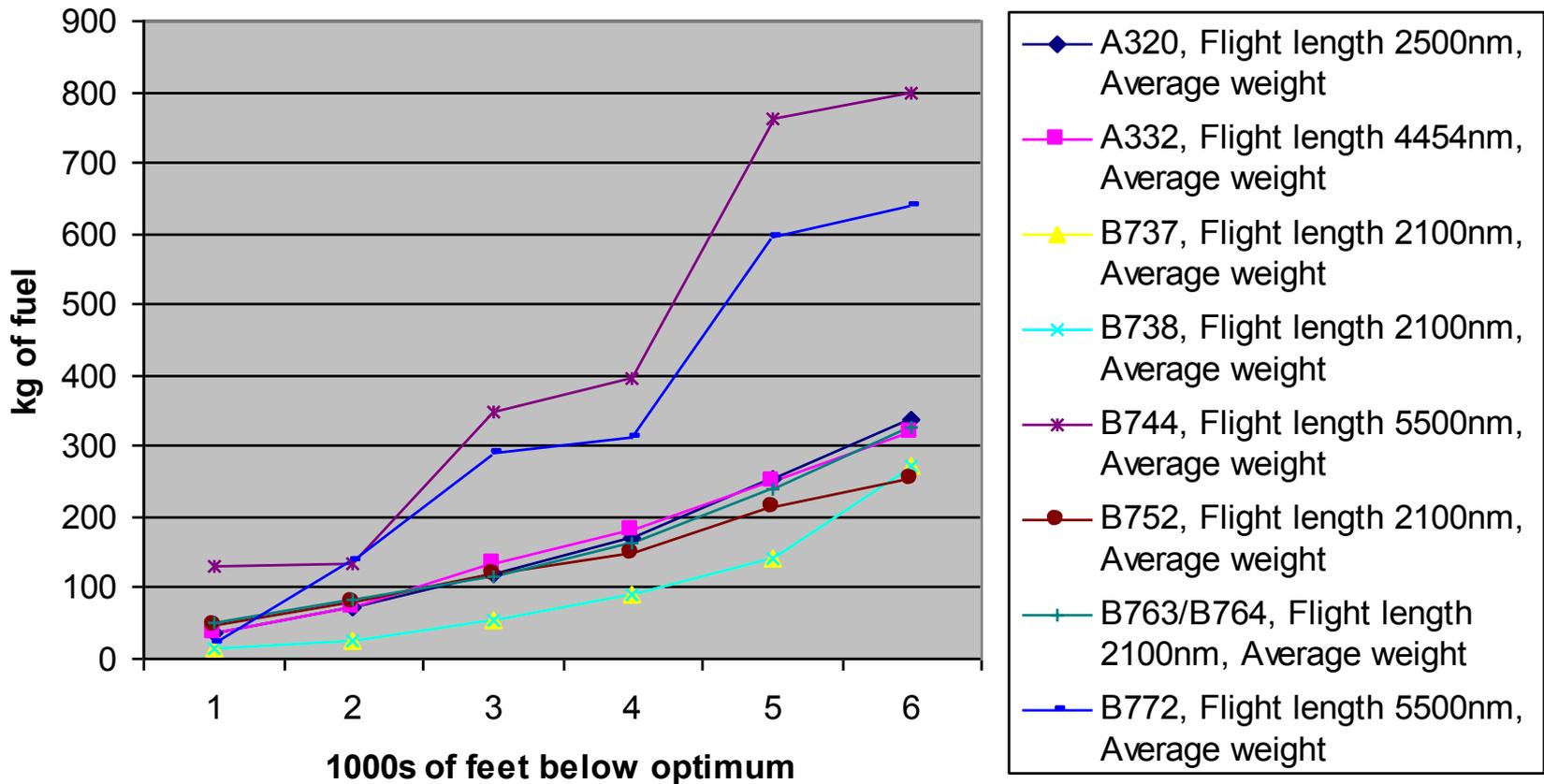
Aircraft Type A332, Flight length 4454NM, Average weight

Altitude	Ave Additional Fuel burn per hour kg
1000 ft below optimum altitude	35
2000 ft below optimum altitude	71
3000 ft below optimum altitude	136
4000 ft below optimum altitude	182
5000 ft below optimum altitude	251
6000 ft below optimum altitude	321

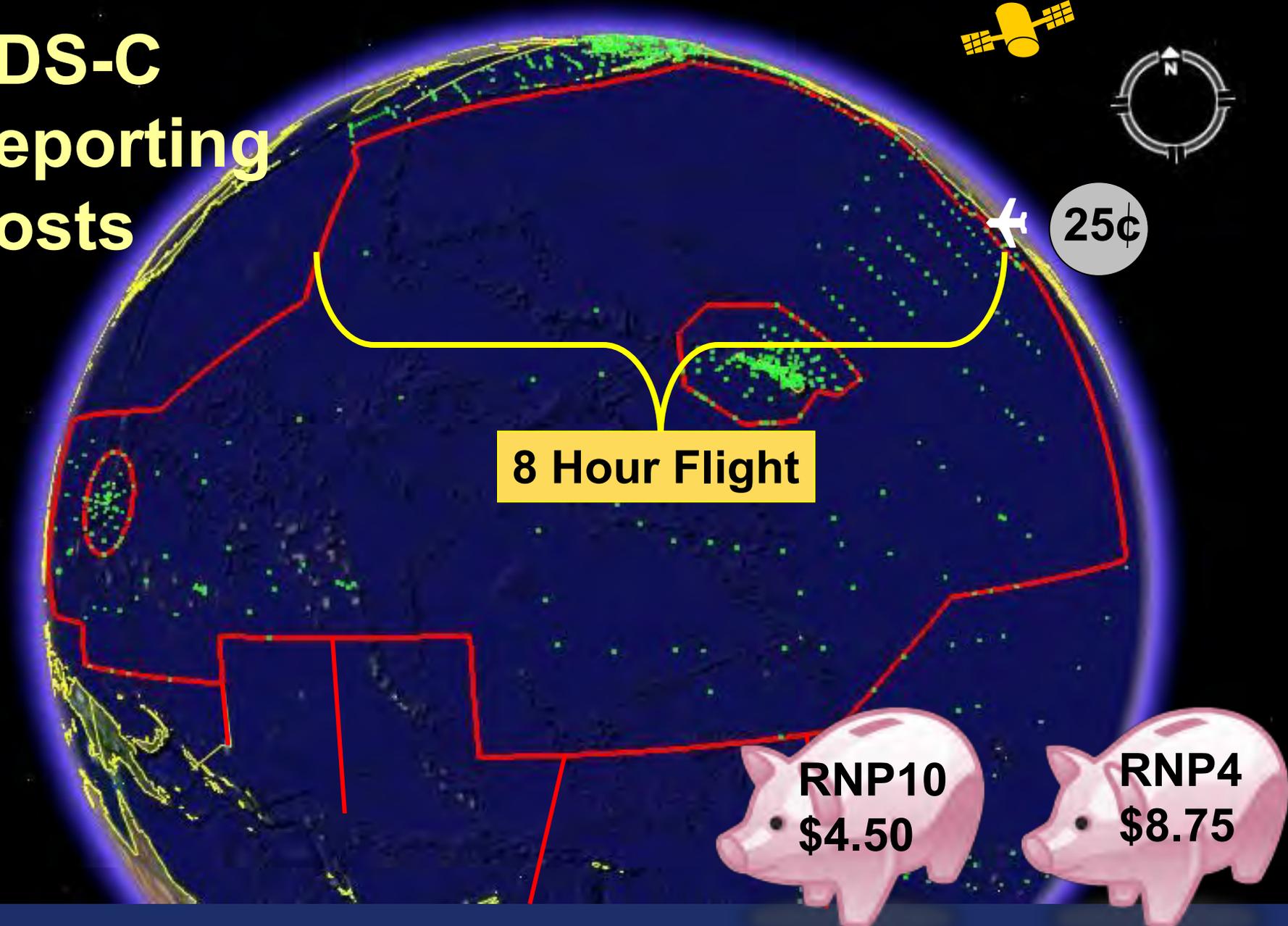
Extrapolated Data

Impact of Denied Altitude Change Requests

Fuel Burn Below Optimum Altitude



ADS-C Reporting Costs



ADS-C Reporting Costs



16
nm

Request
F330

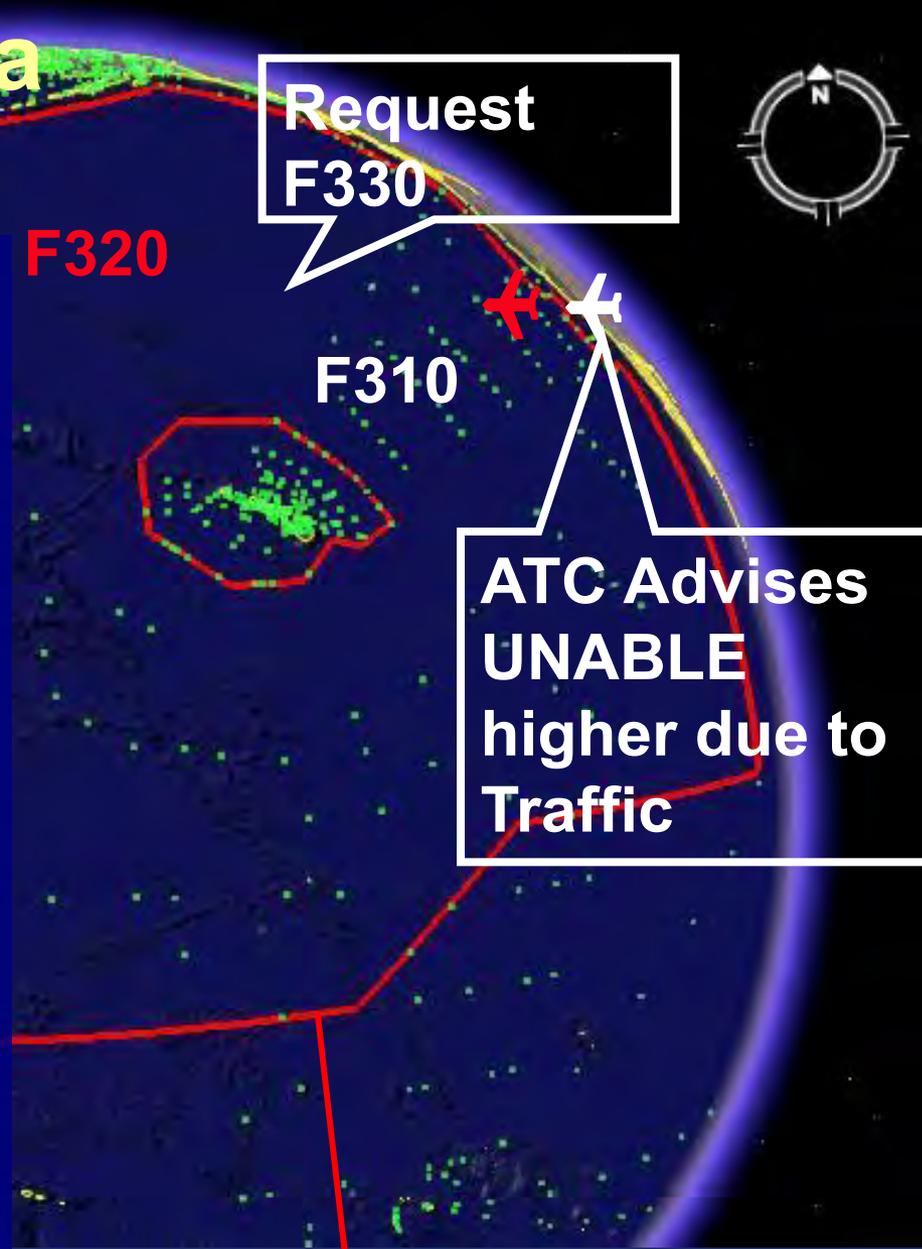
ATC Advises
UNABLE
higher due to
Traffic



ADS
Savings
\$4.25

Lack of RNP4 extra fuel burn

- ✓ Is the traffic a Same Direction Conflict?
- ✓ Is the distance between the aircraft 16nm or more?
- ✓ If the these two conditions are met; Track:
 - ✓ Aircraft type
 - ✓ Feet below optimum altitude
 - ✓ Time the altitude request was denied



**Lack of
RNP4
extra fuel
burn**

**ATC Clears
ZZZ123 Climb
and Maintain
F320**



**Request
F350**

- ✓ Calculate time from the aircraft's denied climb to optimum altitude.
- ✓ Begin new tracking if still below optimum altitude.

Lack of RNP4 extra fuel burn



✓ Aircraft ZZZ123 is a B744 that was 1.5 hours and 2000 feet below optimum altitude.

133 kg per hour

Multiplied by 1.5

Equals 199.5 kg extra fuel burn for this event



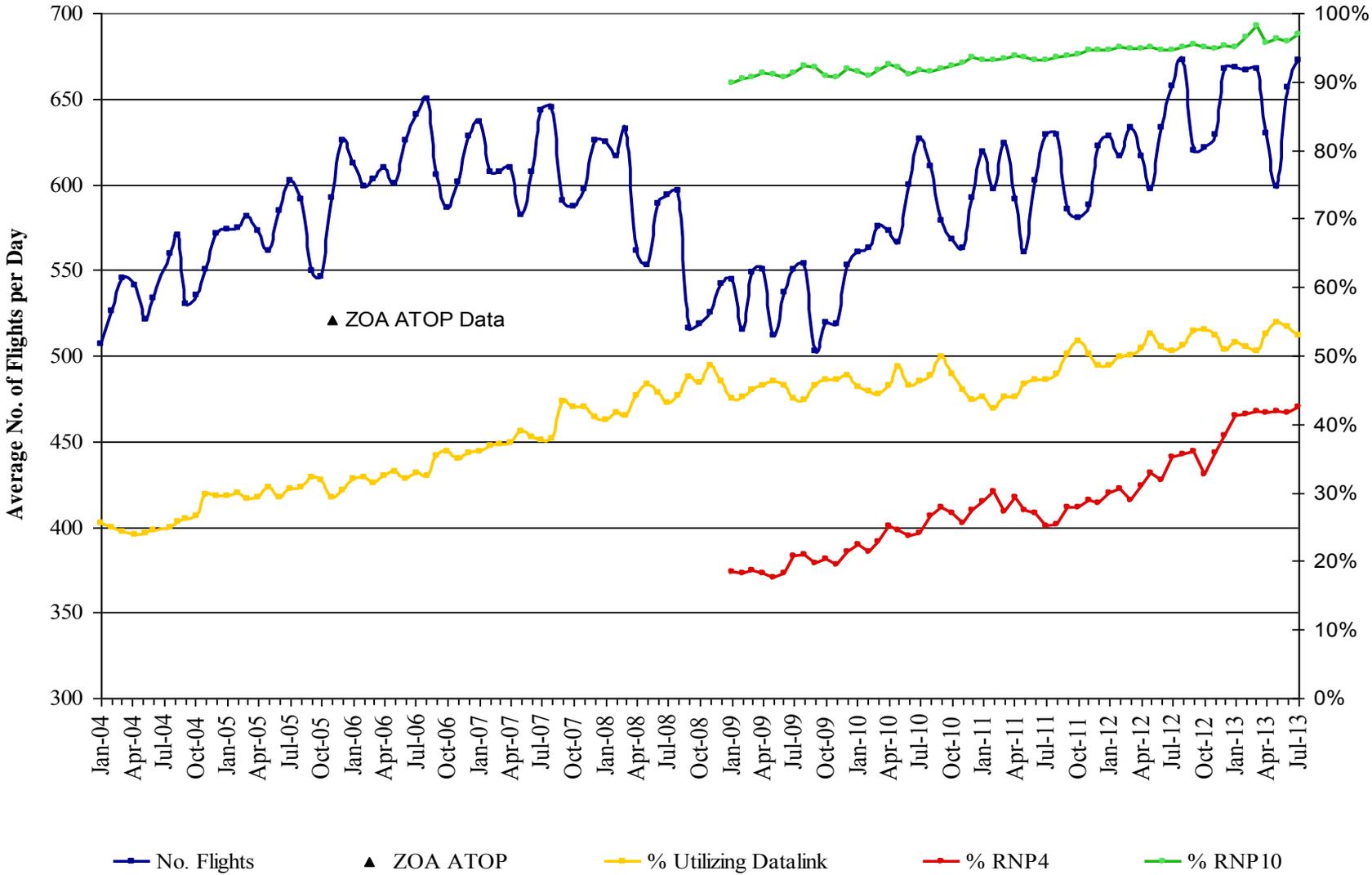
- ❖ **Data tracked for 15 days**
- ❖ **April 1-16, 2012 Extra fuel burn of 27,331kg (60,128) lbs due to lack of FANS and RNP4**
- ❖ **Sept 10-24, 2012 Extra fuel burn of 28,829kg (63,423 lbs) due to lack of FANS and RNP4**
- ❖ **Jan 6-21, 2013 Extra fuel burn of 28,858kg (63,487 lbs) due to lack of FANS and RNP4**
- ❖ **Extrapolated over a 1 year time period, an annual extra fuel burn of 702,211kg (1,544,850 lbs)**
- ❖ **Extra 4.9 million lbs of CO2 emissions**

Lack of RNP4 extra fuel burn



- ❖ Data tracked for 15 days (Sept 1-16, 2013)
- ❖ Extra fuel burn of 21,310 kilograms (kg) (46,882 lbs) due to lack of FANS and RNP4
- ❖ Extrapolated over a 1 year time period, an annual extra fuel burn of 518,543 kg (1,140,795 lbs)
- ❖ Extra 1.6 million kg of CO2 emissions

ZOA Flights & Equipment Utilization



RNP4 Aircraft extra fuel burn



- ❖ Data tracked for 15 days (Sept 1-16, 2013)
- ❖ Extra fuel burn of 13,534 kilograms (kg) (29,744 lbs) due to lack of FANS and RNP4
- ❖ Extrapolated over a 1 year time period, an annual extra fuel burn of 329,282 kg (724,420lbs)

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.**

SwiftBroadband Safety Benefits

> Low Cost Terminals

- 2 MCU SDU size with Enhanced Low Gain Antenna
- Opex expected at least 30% less than Classic Aero
- Anticipate up to 100 lbs in weight + drag savings



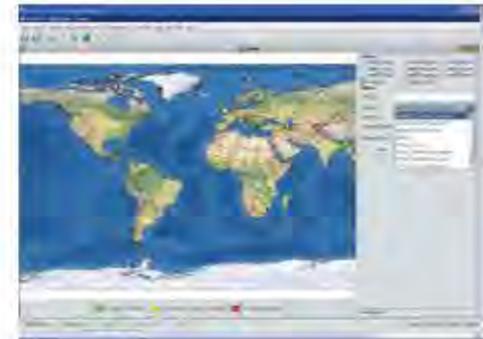
Low Cost + Light Weight Terminals

> Flight Deck Communications

- Target: Reduce ACARS data link message times
- Support for VoIP

> Advanced Features

- Aircraft Position Reporting and Tracking
 - Additional to WPR and ADS-C ACARS based messaging
 - Message rate configurable
- Private Network (from Cabin SBB/Ka/Ku Links)
- Prioritised IP link
 - EFB Applications
 - Maintains up to 200, 300, or 400 kbps (per antenna type)



SwiftBroadband Flight Tracking

Anchorage
D50, 30/30
PAZN FIR

Anchorage

Vancouver

Seattle

Oakland

Los Angeles



Vancouver
D50

Anchorage
PAZA FIR

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

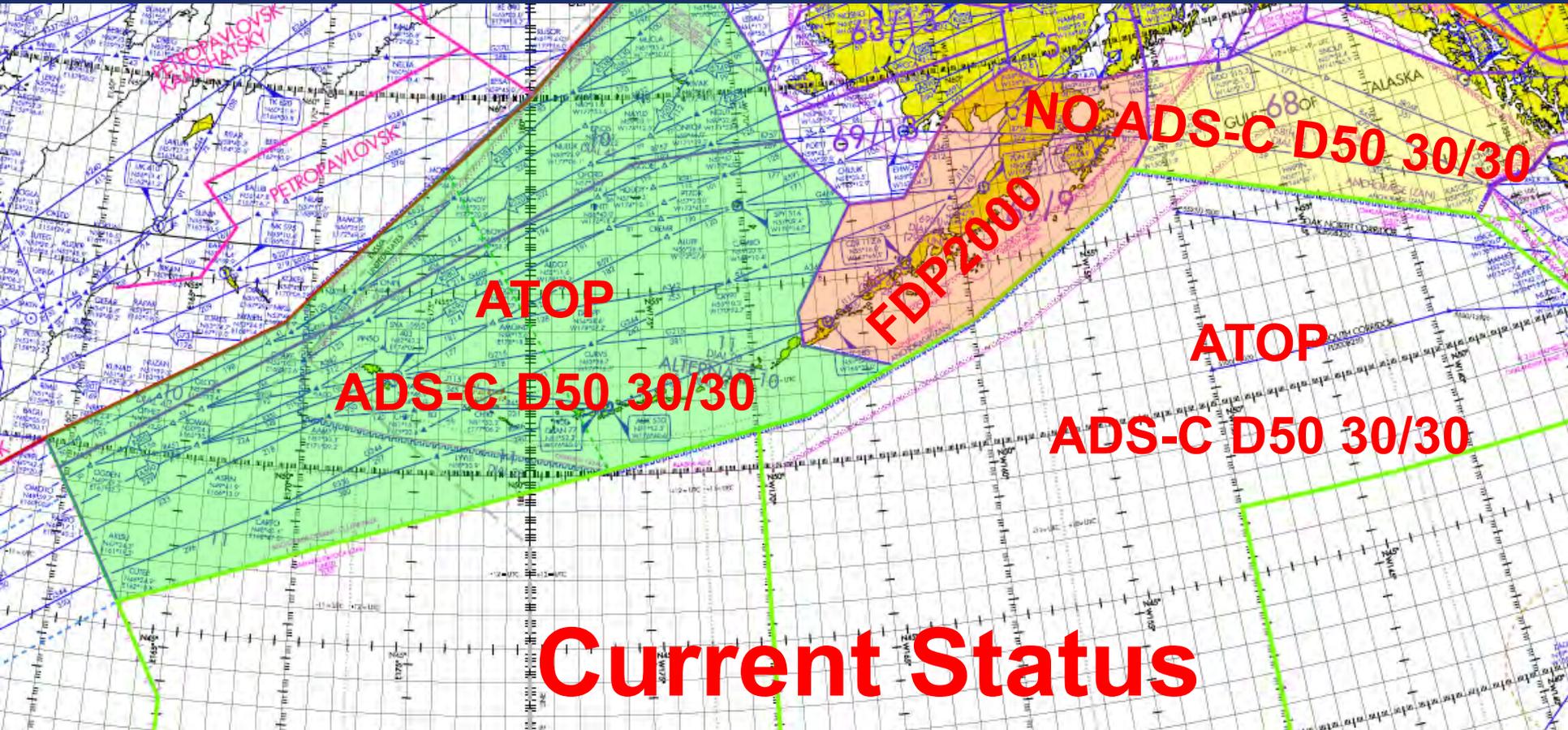
Brisbane
Nadi

Auckland
D50, 30/30

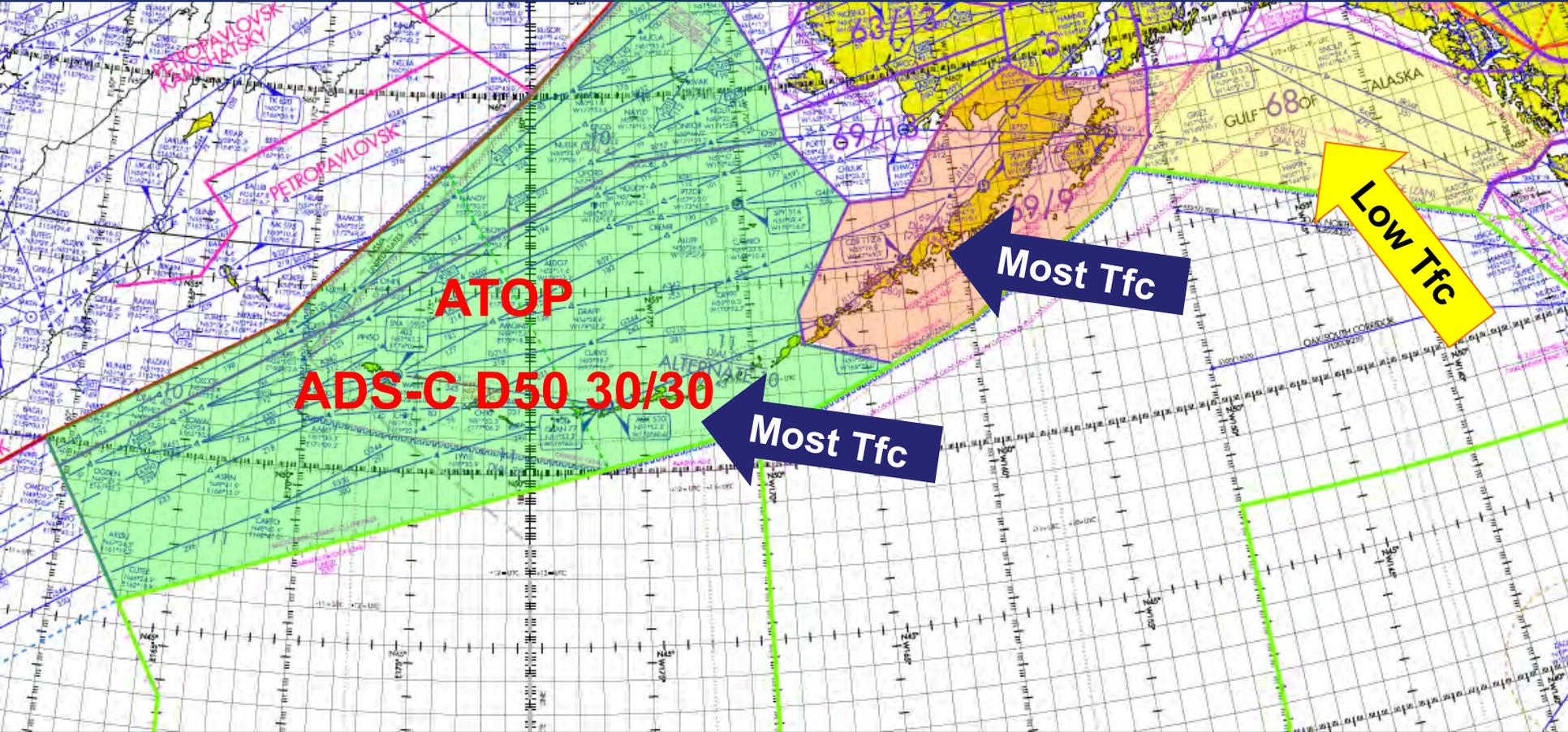
Auckland

ADS Distance Based Separation

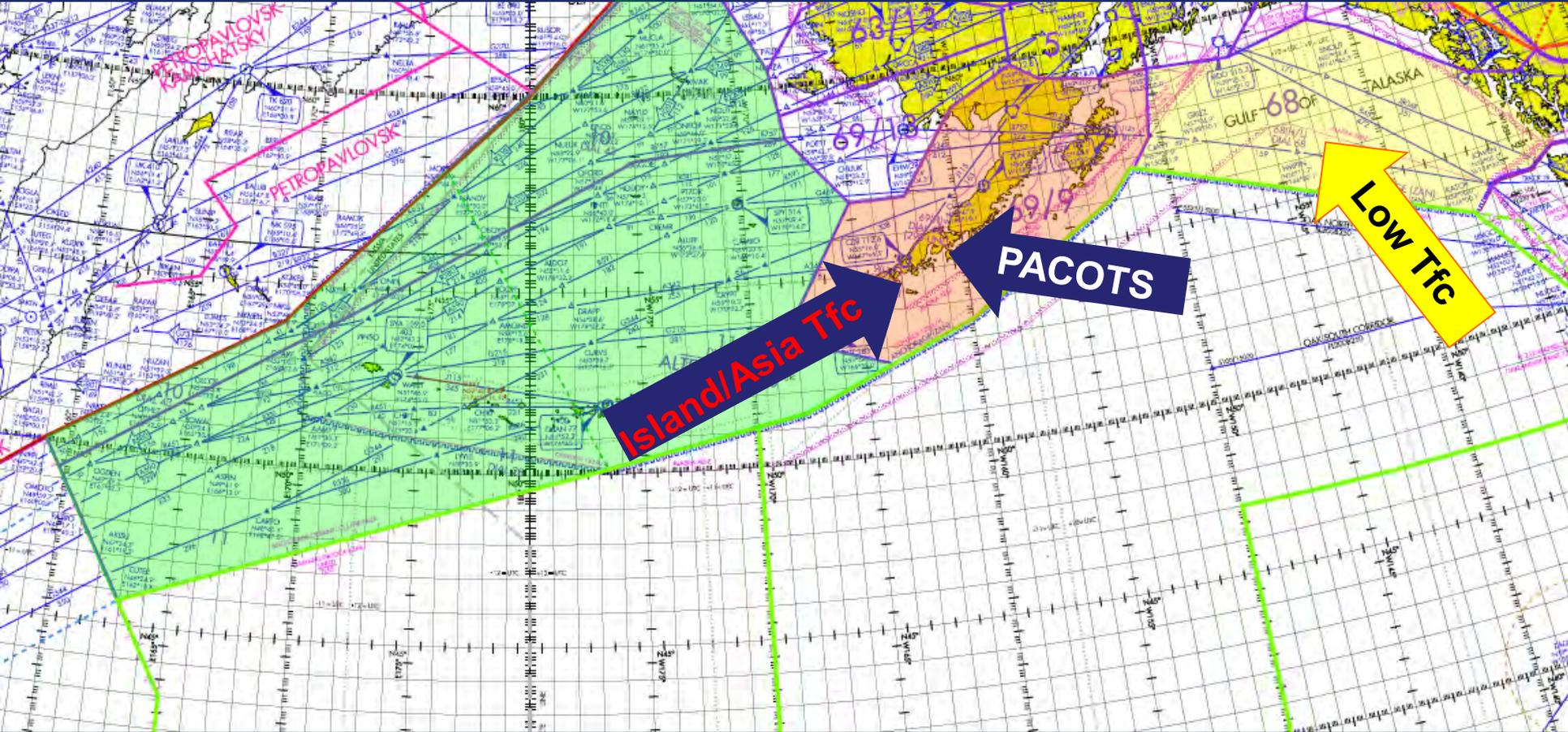
Anchorage ADS-C Distance Based Separation



Anchorage ADS-C Distance Based Separation

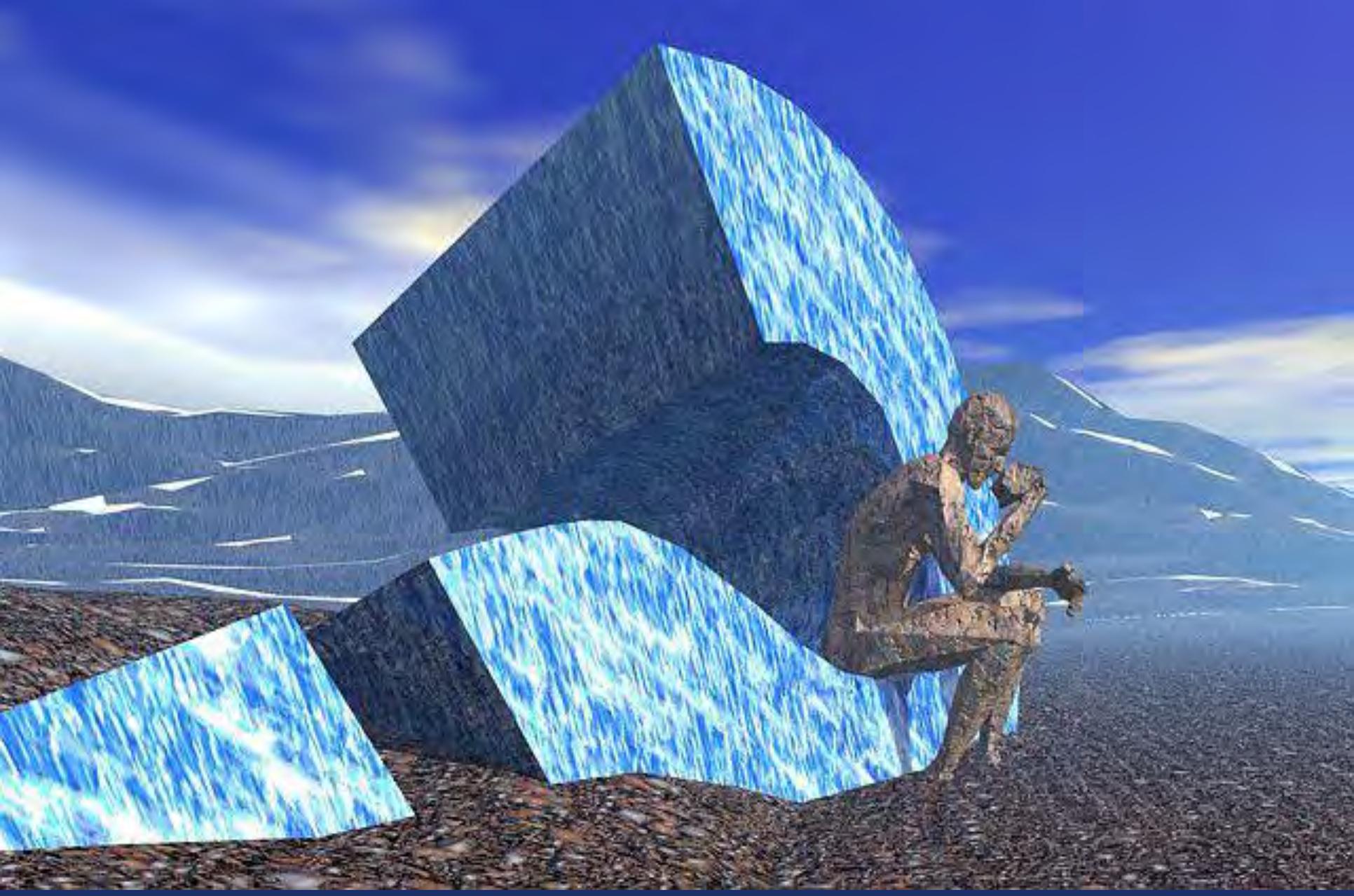


Anchorage ADS-C Distance Based Separation



Anchorage ADS-C Distance Based Separation





Flight Planned Mach Speeds



Federal Aviation
Administration

Mach Speed Variation

- **Aircrews predominantly do not monitor their flown speed versus the flight planned speed.**
- **It does not matter whether an ATC system uses the first speed in field 15 of the FPL or accounts for the speed changes imbedded in the route of flight.**

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.

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.*

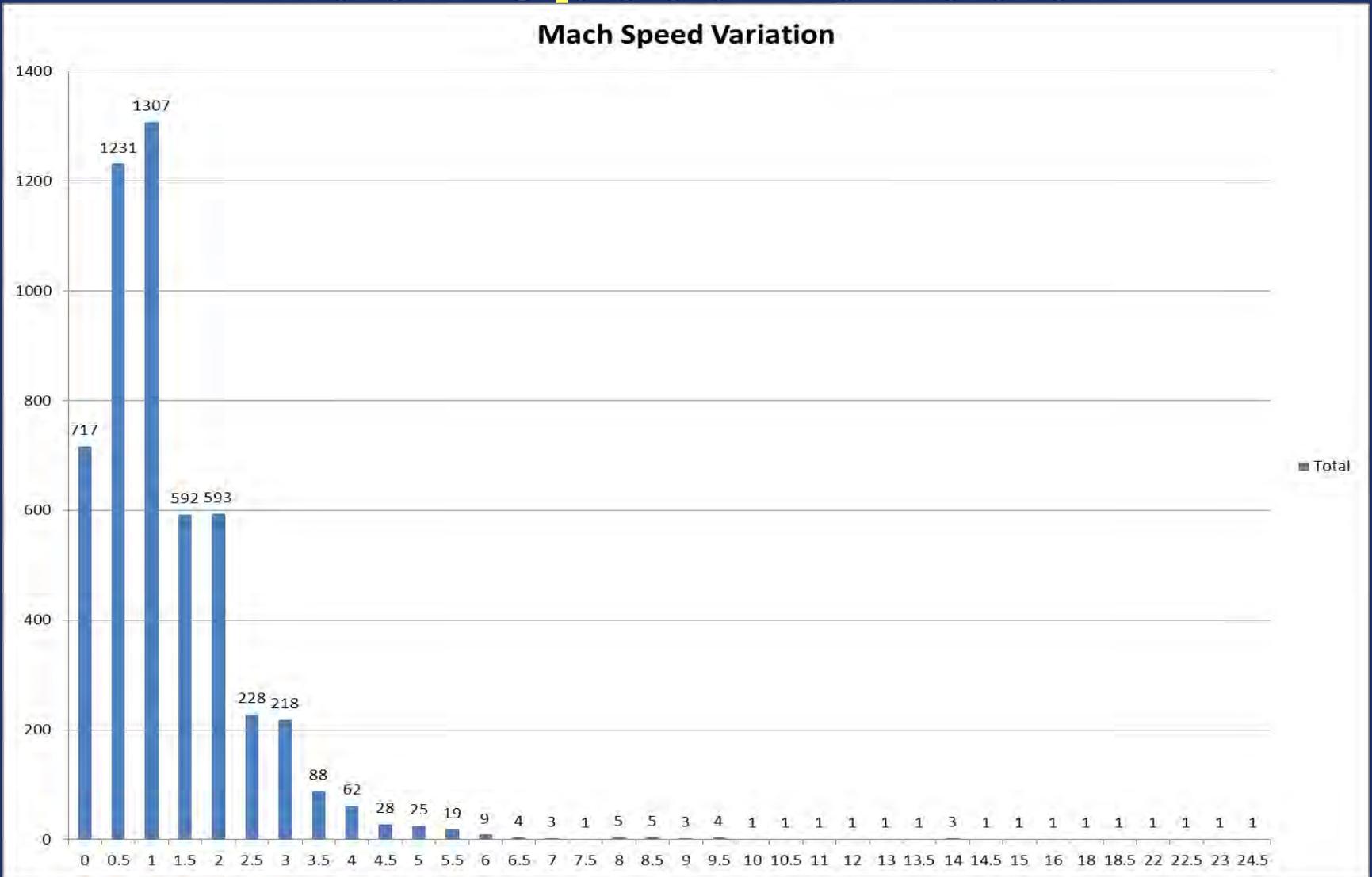
Mach Speed Variation

- **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

- In the Pacific many FIRs are applying 30nm longitudinal separation standard using an ADS-C reporting rate of 14 minutes. A 48 knot speed change by 1 aircraft could result in an 11nm closure between two aircraft between ADS-C reports.

Mach Speed Variation

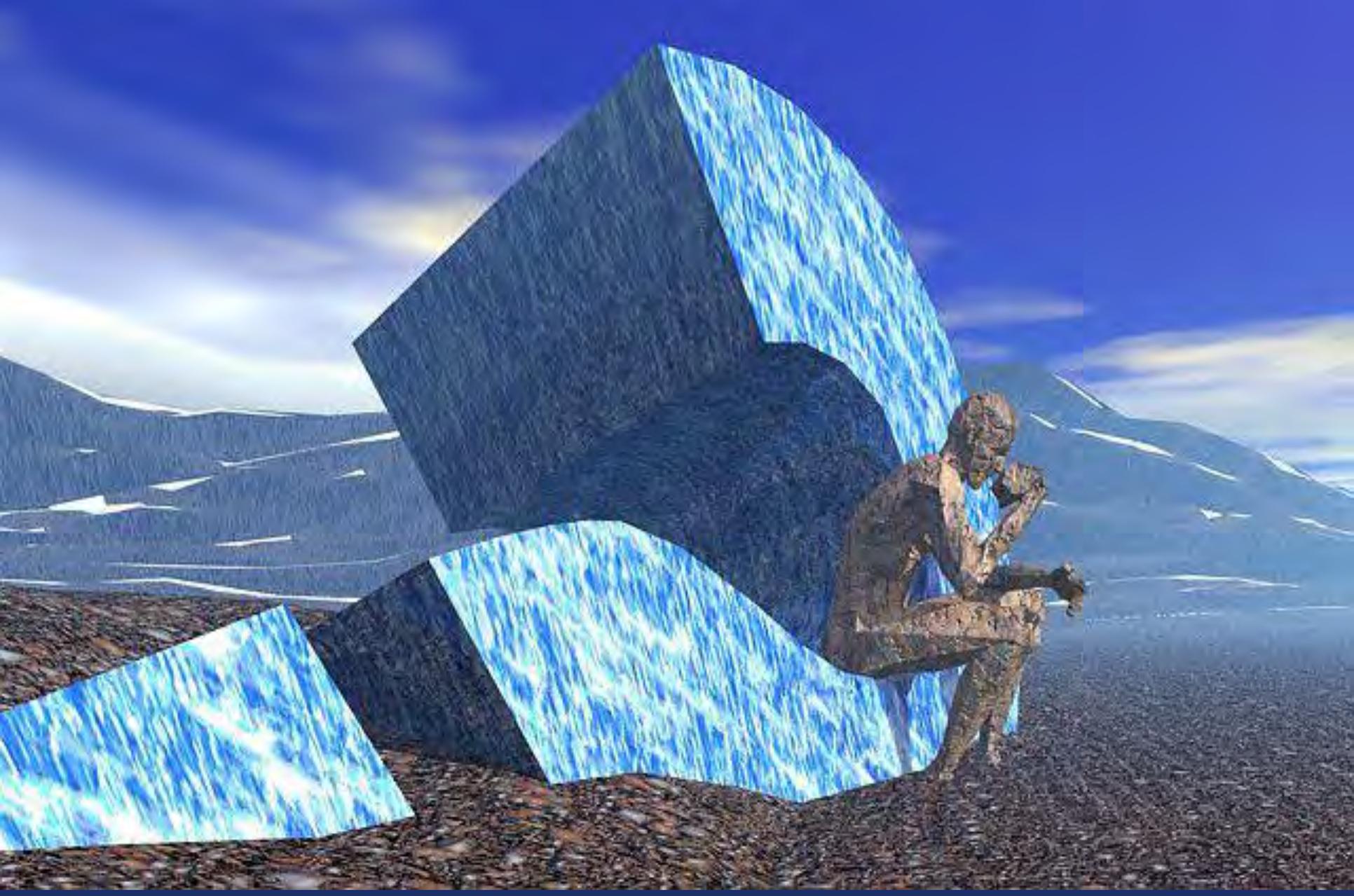


Australia AIP Amendment

- *AIP ENR 1.1 para 21:*
- *A pilot must inform ATS if the average cruising speed, either TAS or Mach whichever is applicable, between reporting points, varies or is expected to vary, by a value equal to or greater than:*
 - *a. 5% TAS*
 - *b. 0.01 Mach from that given in the flight plan.*

Speed Change Proposal

- Procedurally when an aircraft wanted to change by .01 Mach number, they could downlink DM18 with the requested speed (Mach number).
- If ATC required 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:
 - **UM169 Speed change to M0.84 approved**
 - **UM222 NO SPEED RESTRICTION**
 - This advises the aircraft that the requested speed change is approved and UM222 should close the DM message sequence.



Pacific Island Traffic



Federal Aviation
Administration

Oakland Oceanic Airports

Guam

OC9

PMDY

PWAK

OC6

PKWA

OC3

PTYA

PTPN

PKMJ

PTRO

OC5

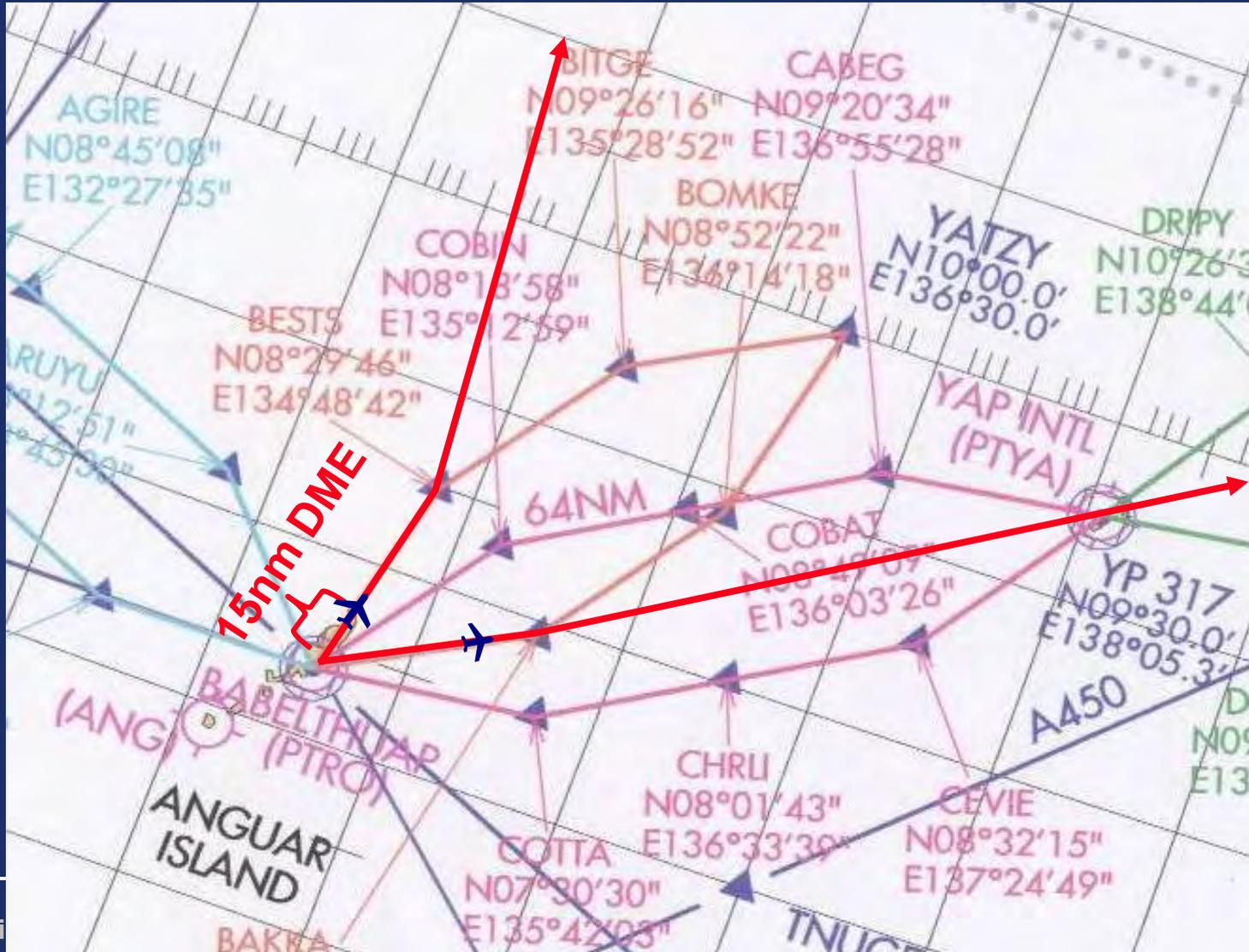
PTKK

PTSA

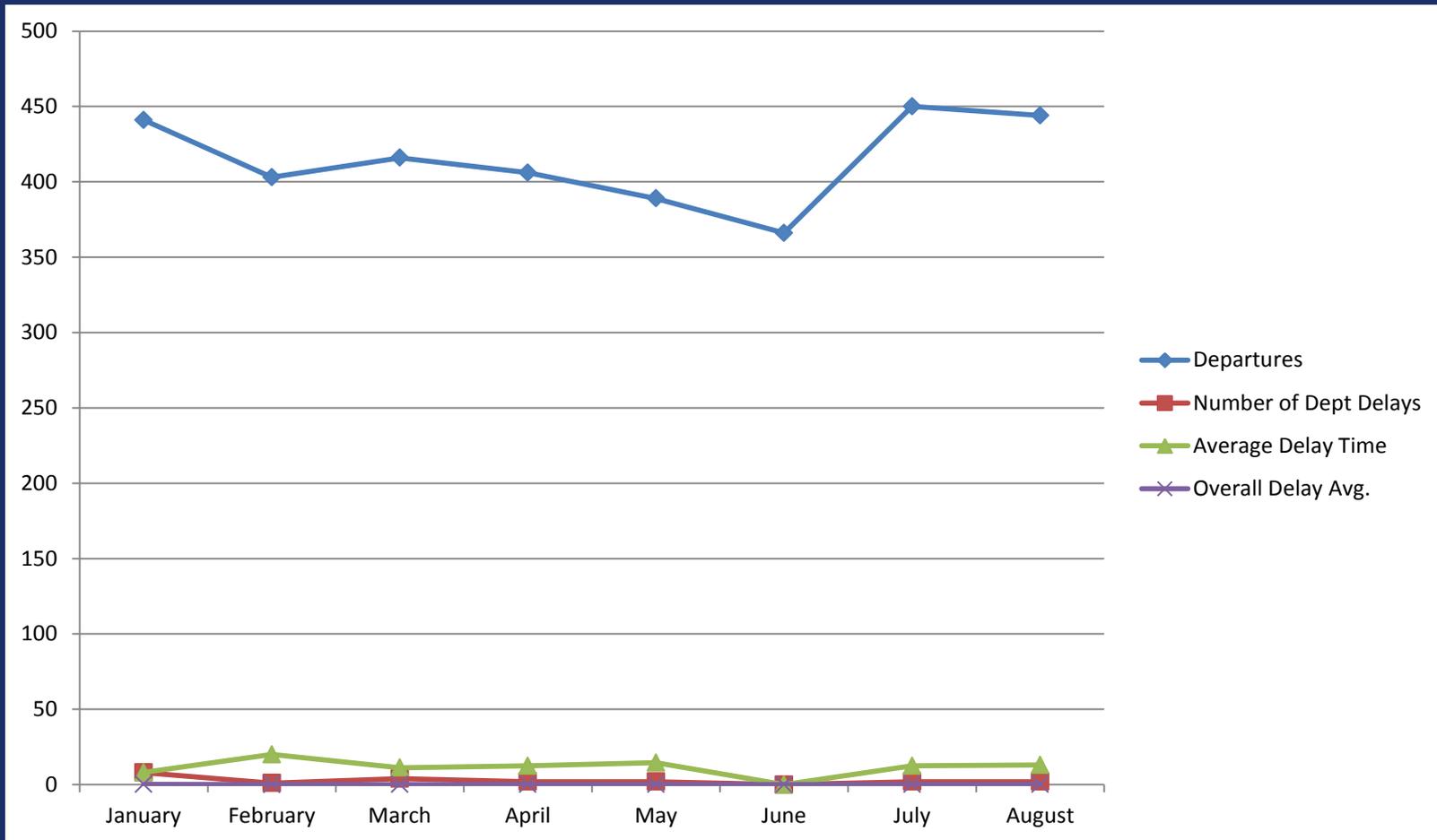
PLCH

Oakland Oceanic FIR

Pacific Island Airport Waypoints Dead Reckoning Lateral Separation



2013 Island Departure Delays

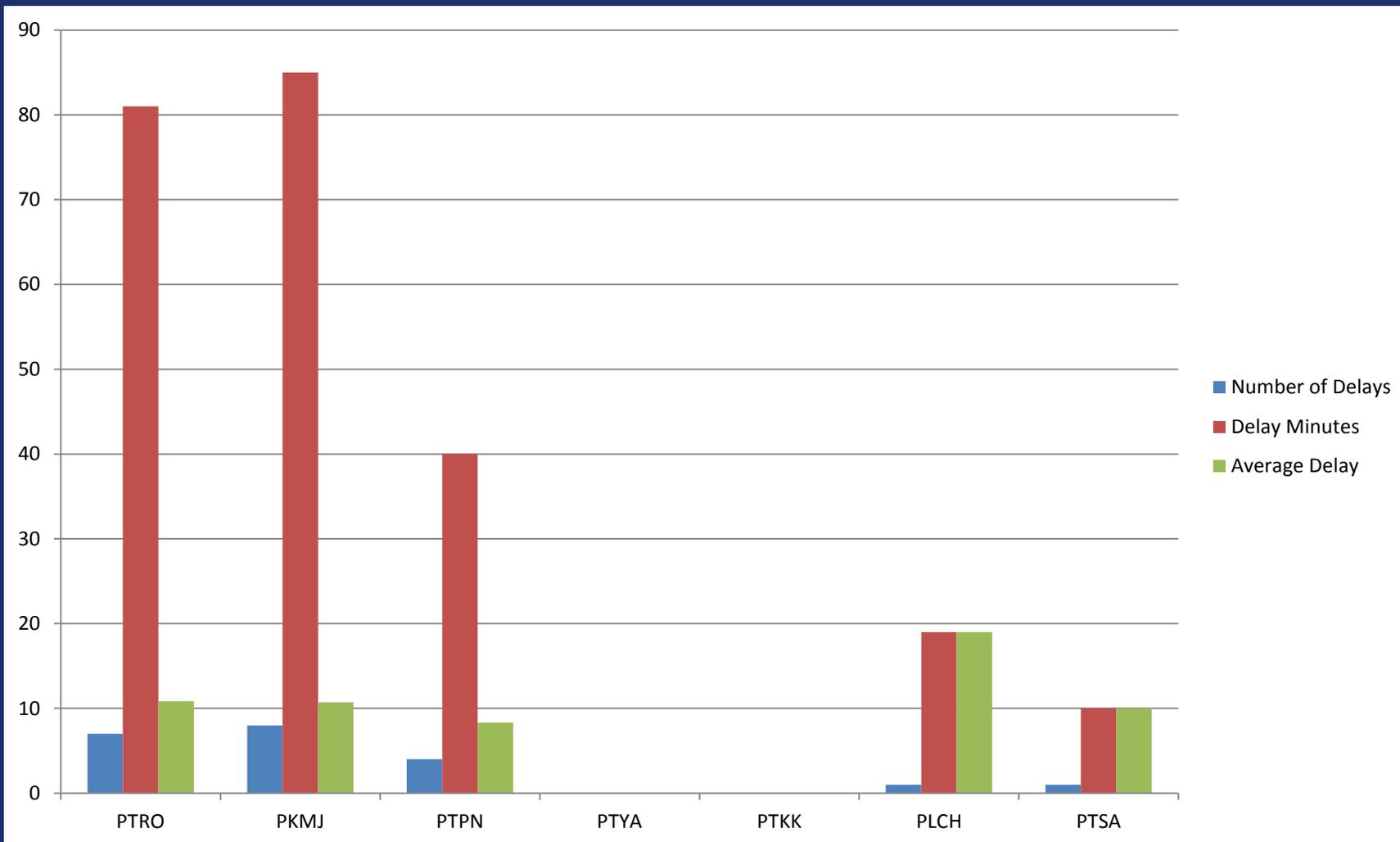


Overall average flight delay was less than a minute

Island Departure Delays

- **Departure Delays, October 2010 to March 9, 2011**
 - About 4% of departures are delayed.
 - Delayed flight average = 18 minutes
- **Departure Delays, 2013**
 - 0.006% of departures were delayed
 - Delayed flight average = 11.1 minutes

2013 Island Departure Delays

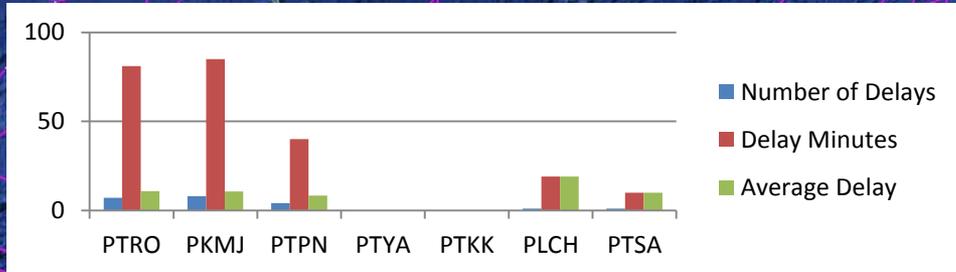
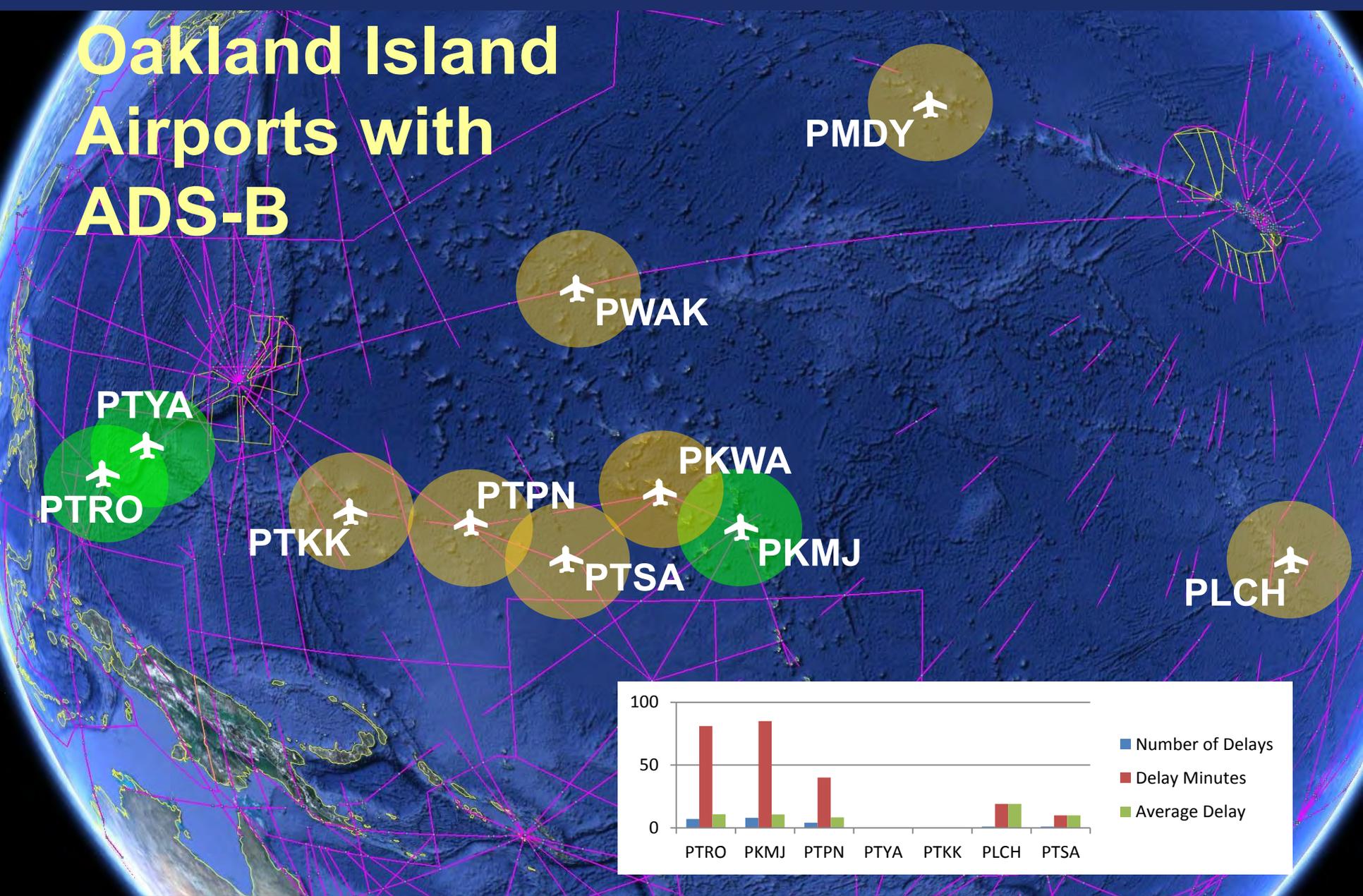


ADS-B

- The FAA is investigating the possibility of using ADS-B at selected oceanic island airports to facilitate improved aircraft operations.



Oakland Island Airports with ADS-B



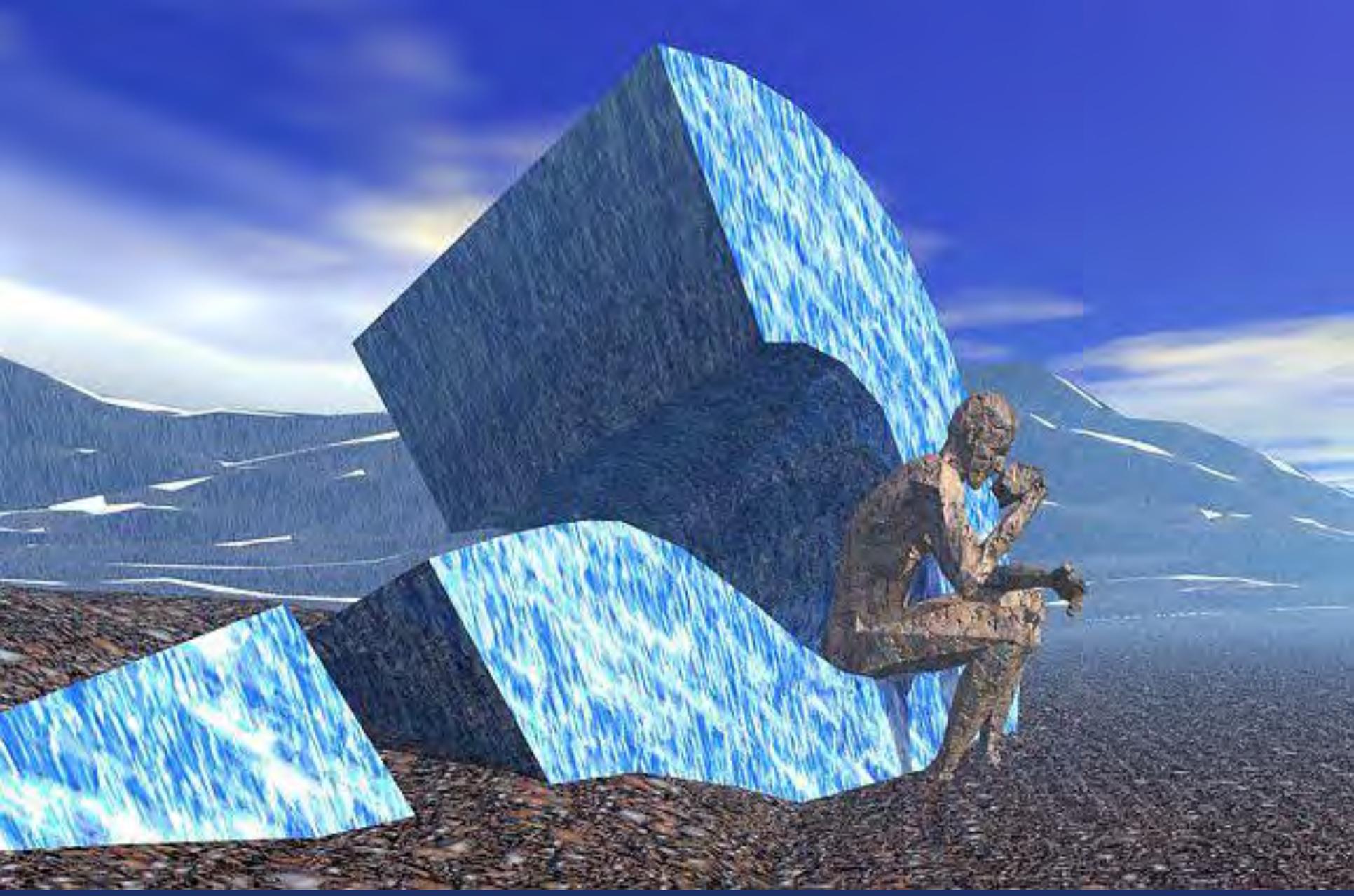
Space Based ADS-B Surveillance



ZOA



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

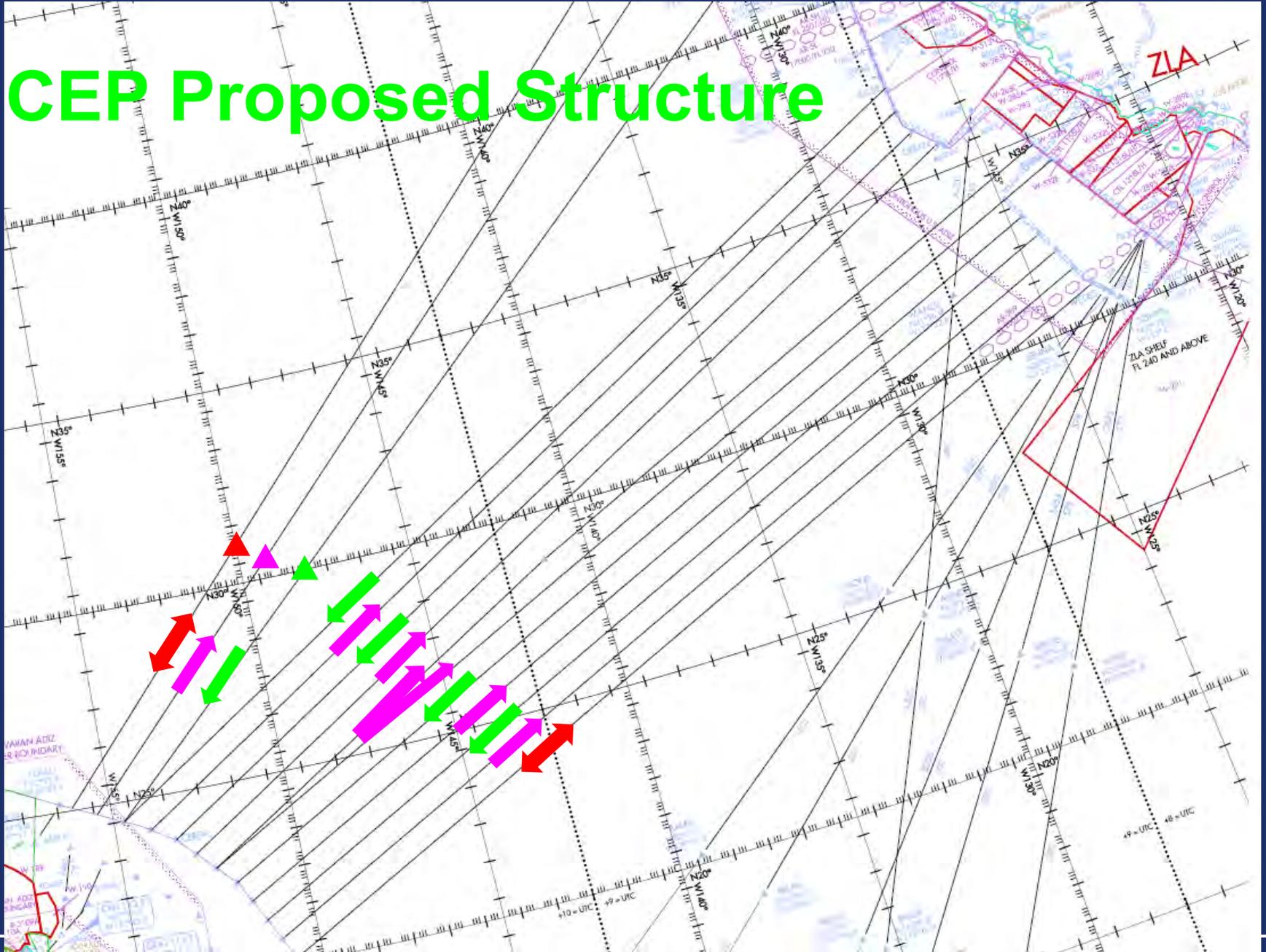


CEP Route Structure

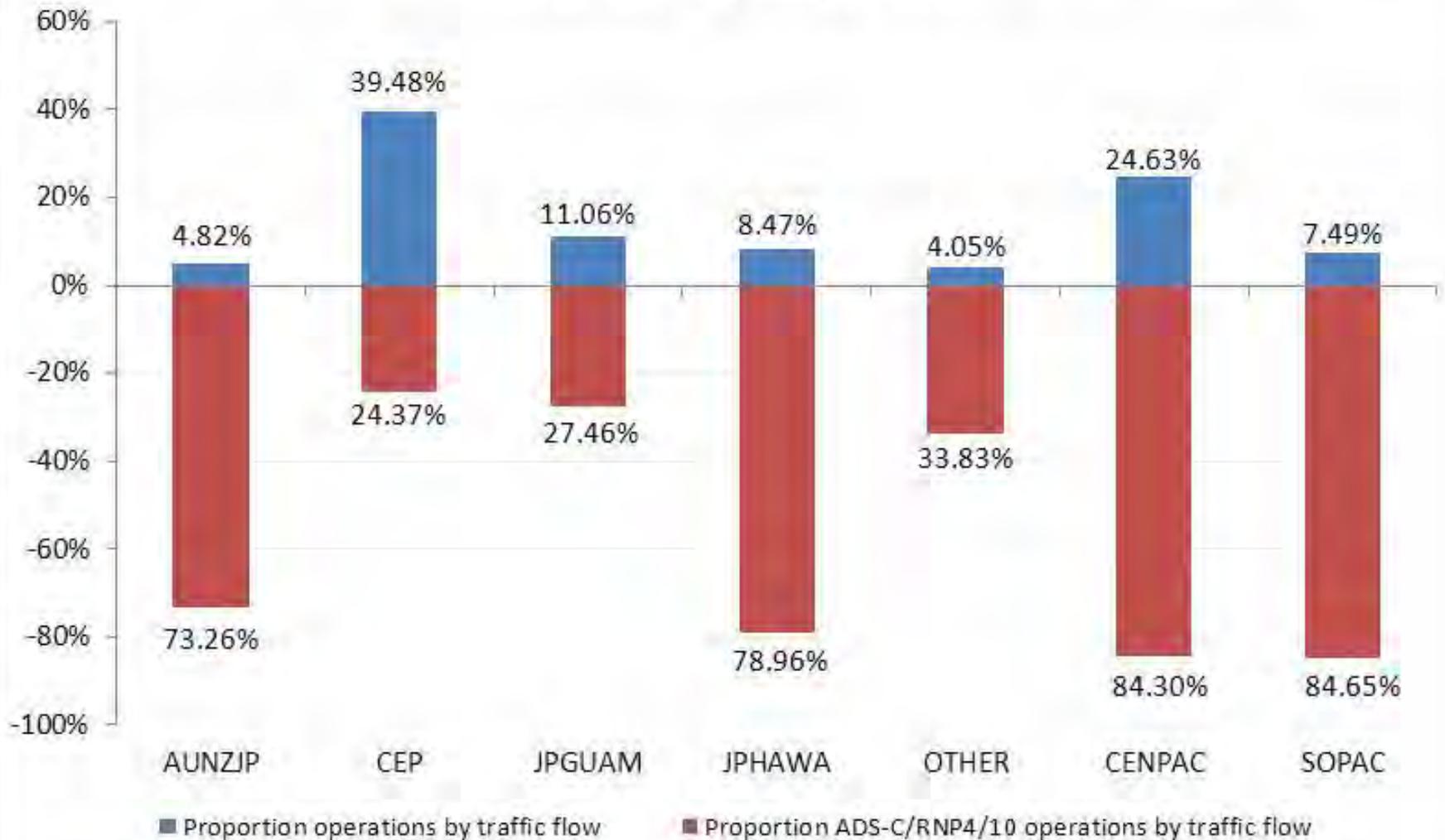


Federal Aviation
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CEP Proposed Structure



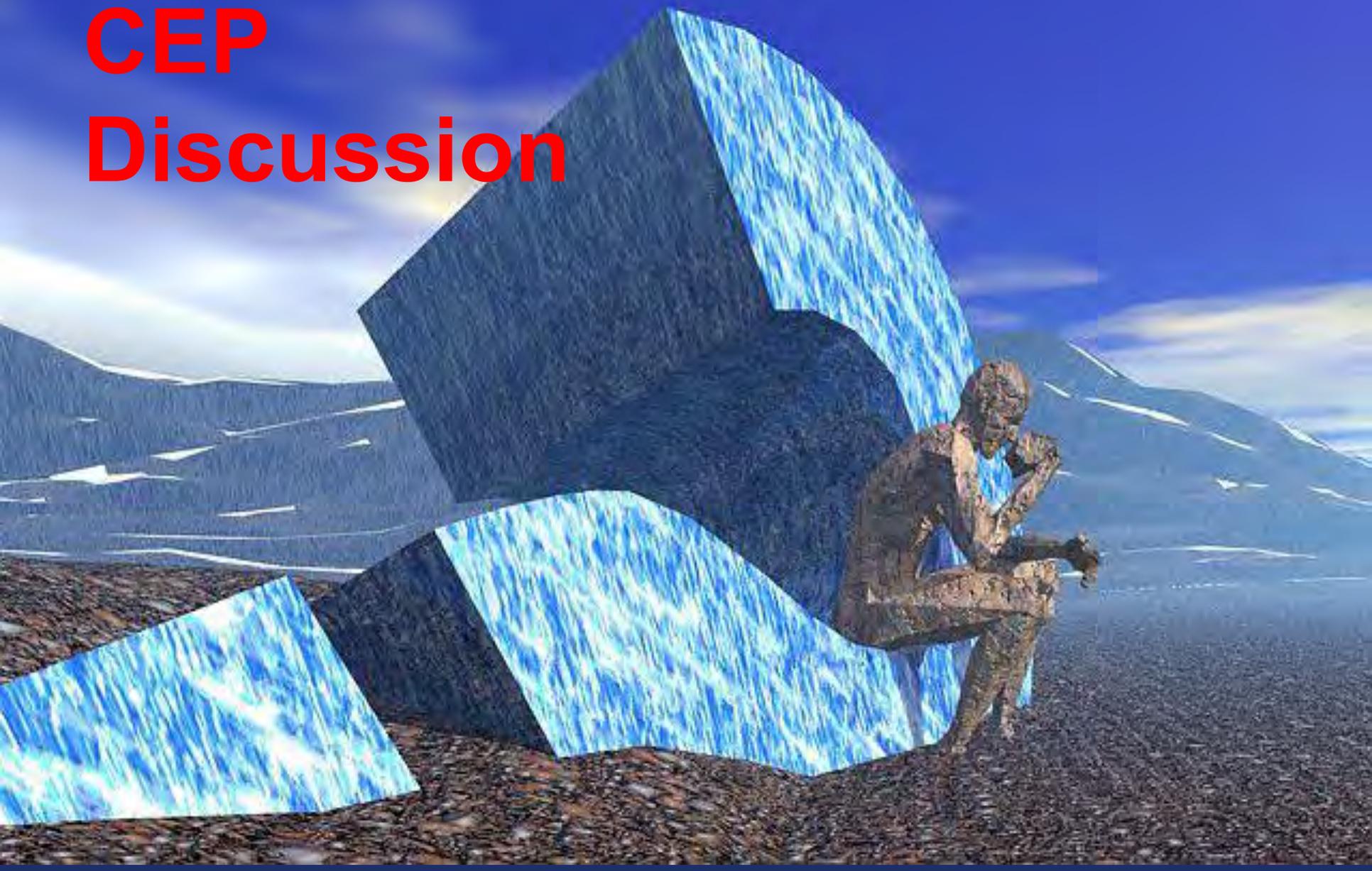
Proportion of Operations by Traffic Flow and ADS-C + RNP4/10 within Traffic Flow - Jan/Feb/Mar/Apr 2013



30nm CEP Track Discussion

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

CEP Discussion

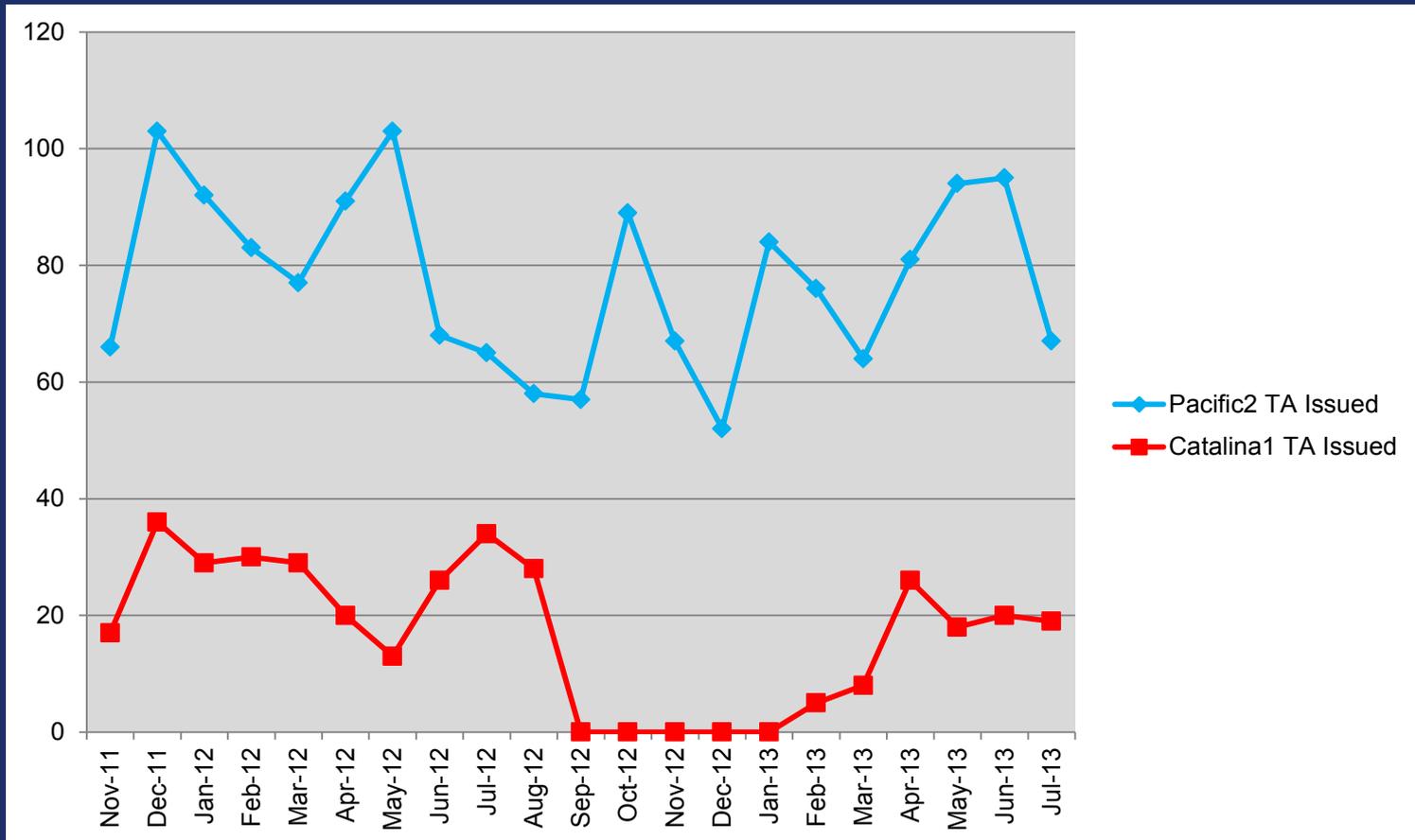


Tailored Arrivals



Federal Aviation
Administration

Tailored Arrival Clearances



KSFO Tailored Arrivals

- **KSFO Runway Safety Area completed and the KSFO ILS 28R/L approaches RTS 8/22**
- **KSFO Pacific 2 Tailored Arrival resumed using ILS28R/L approach.**

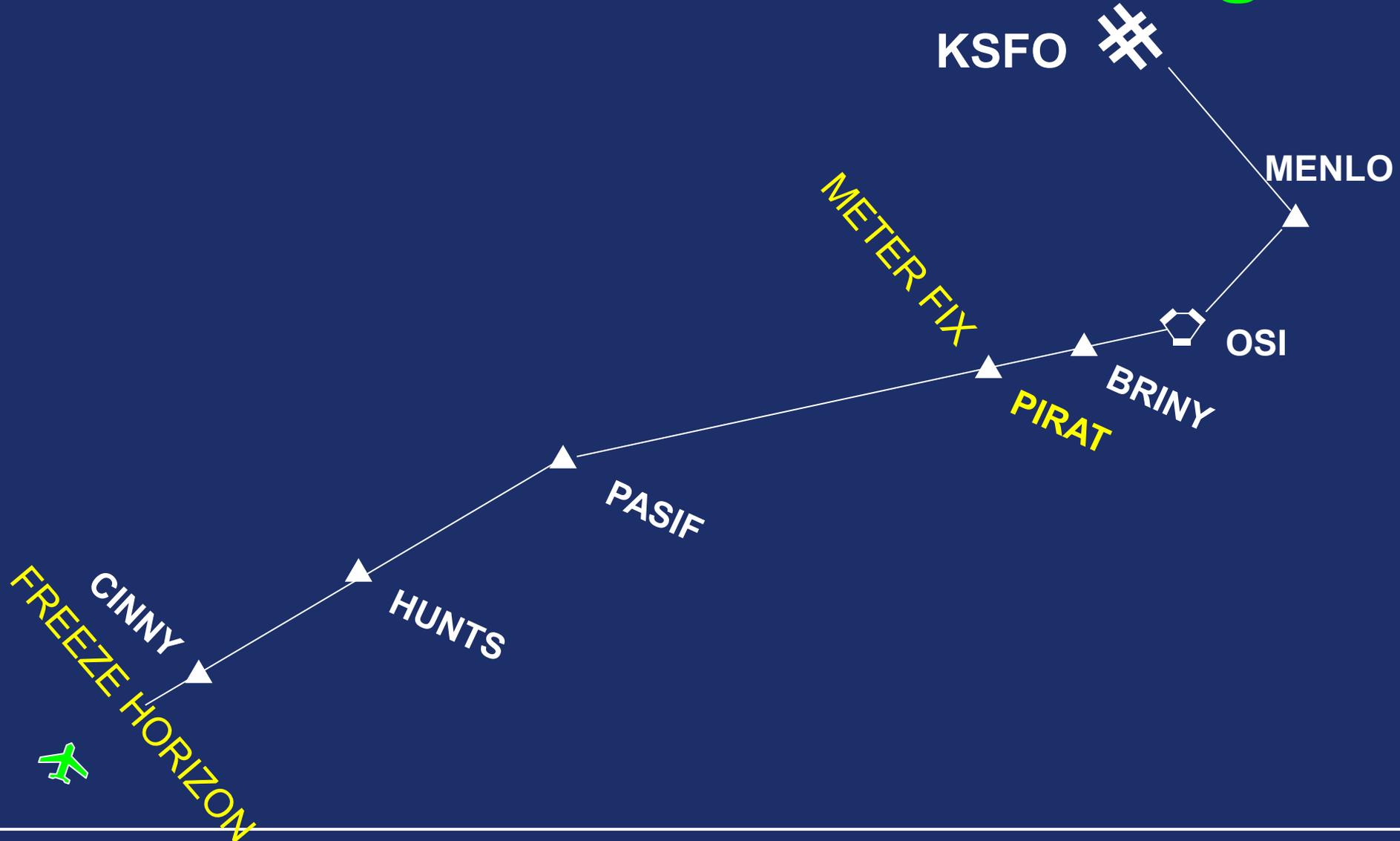
KSFO Tailored Arrivals

- 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 February 6, 2014

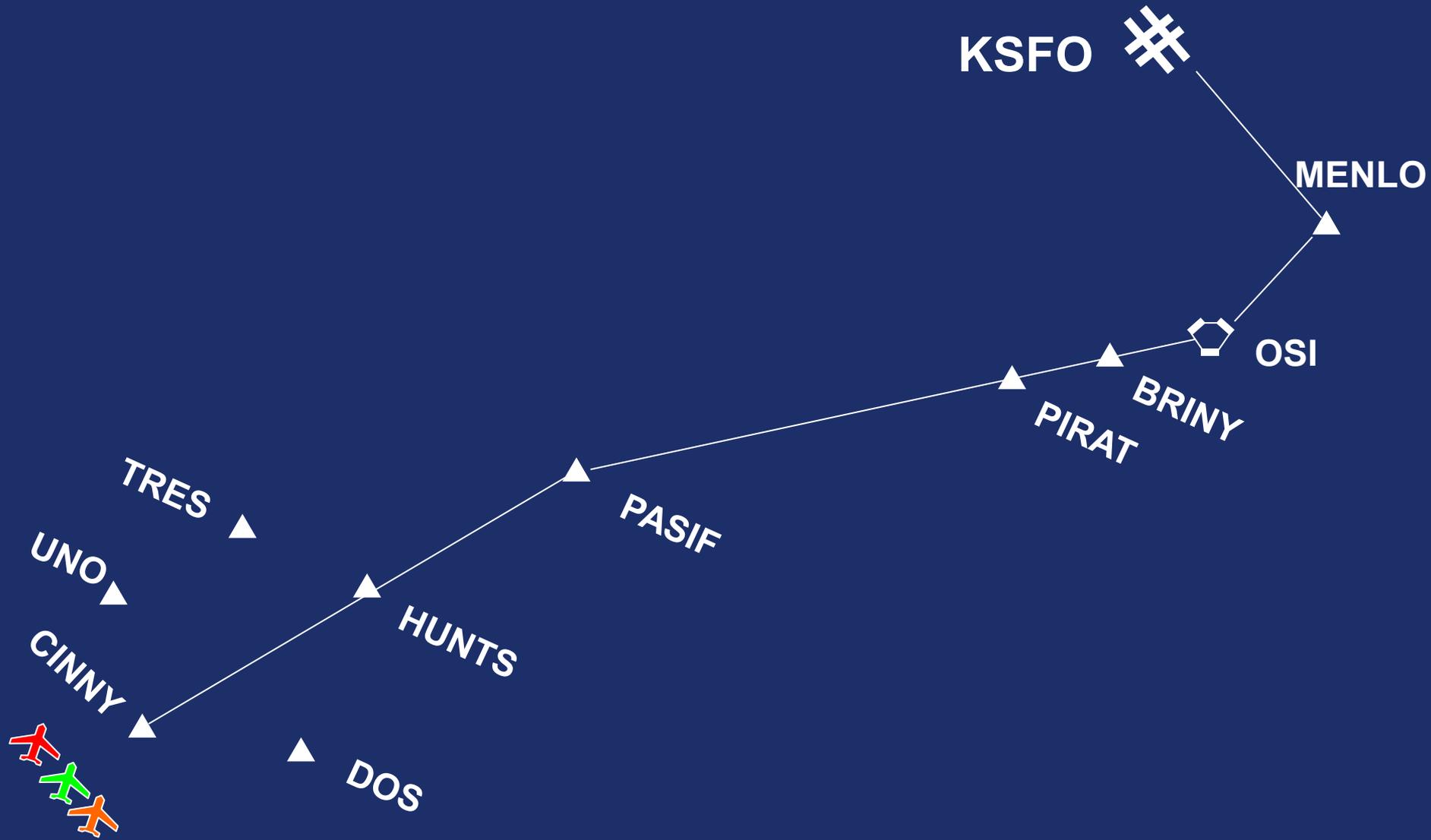
KLAX Catalina TA



KSFO Time Based Metering



“Tailored” Arrivals





ADS-C Climb/Descent Procedure (CDP)

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

ADS-C CDP Clearances

Only 8 clearances issued during the Manual Trial.

□ FDX3875
◦ 360
◦ N410

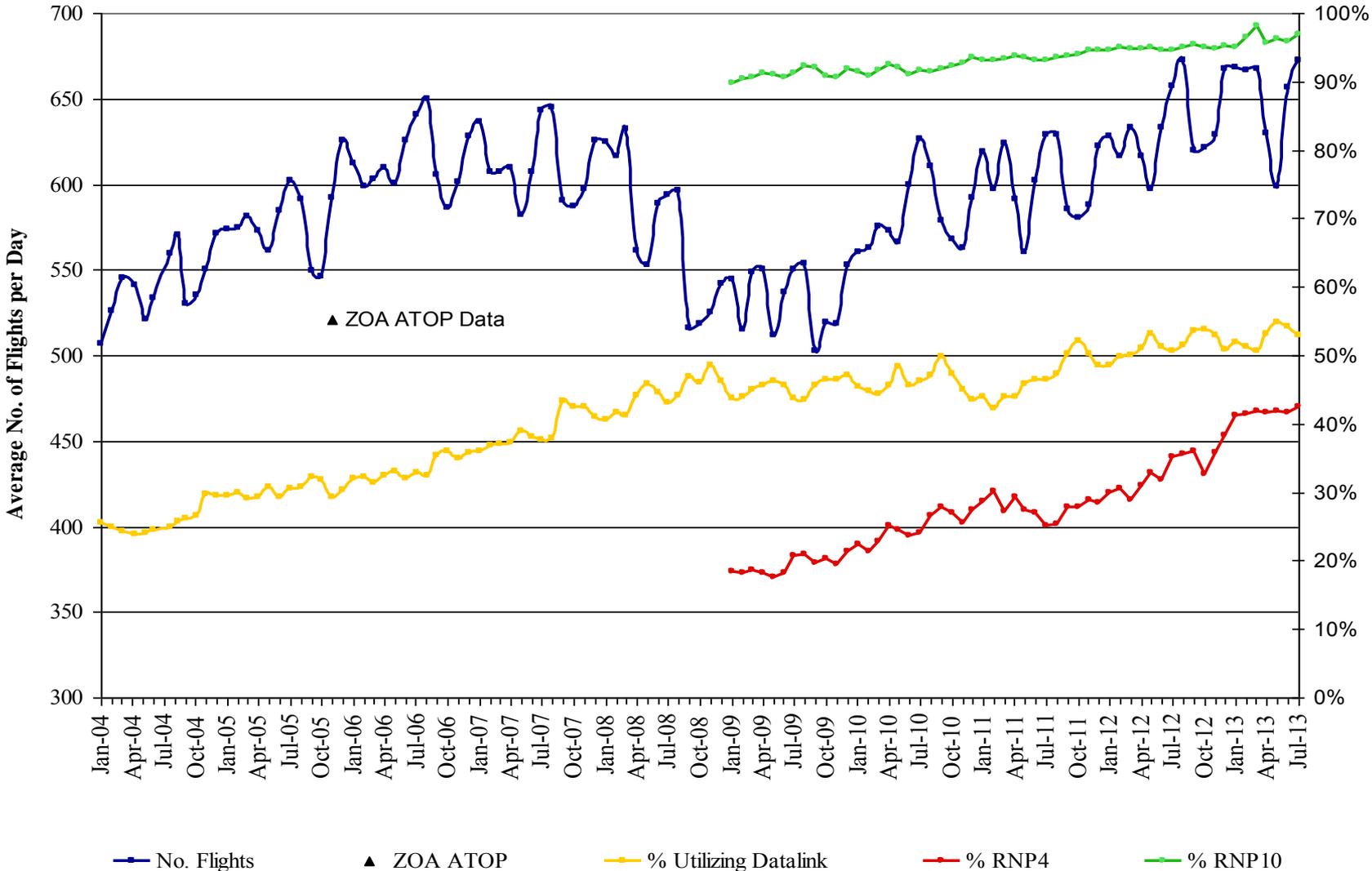
□ DAL650 3
◦ 350
◦ N536

A: 051M21

□ N170X
◦ 410
◦ N522

□ DAL896 3
& 340↑360
◦ N522
r360

ZOA Flights & Equipment Utilization



Ocean21 Automation Platform



- **Manual trial ended 2/15/2013**
- **CDP procedure is seen as a benefit.**

Automated Procedure

CWP16

ATC ADS-C CDP CHECKLIST

PRELIMINARY SCREENING CRITERIA CHECKS (STEPS 1-3)

Step #	Checklist Item	Checkmark or Insert Data
1.	AIRCRAFT CALLSIGNS: <u>ANA611A / ANA615</u>	<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. 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 (ARF) messages for either aircraft in the Sector Queue. f. Aircraft Same Direction traffic.	<input checked="" type="checkbox"/>
FINAL SCREENING CRITERIA CHECKS (STEPS 4-9)		
4.	Initiate ADS DEMAND for both Aircraft. ENTER TIME that DEMAND request was sent to Maneuvering Aircraft: <u>1245Z</u>	<input checked="" type="checkbox"/>
5.	From ADD Report, Mach Number of Maneuvering Aircraft: <u>0.79</u> Mach Number of Blocking Aircraft: <u>0.81</u>	<input checked="" type="checkbox"/>
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 <u>AT LEAST 10 MILES</u> 6b. From ASD, Both Aircraft Same Groundspeed, or FASTER Aircraft is In Front 6c. From Step # 5, Both Aircraft Same Mach Number, or FASTER Mach AIRCRAFT IN FRONT	<input checked="" type="checkbox"/> 110 <input checked="" type="checkbox"/> faster in front <input checked="" type="checkbox"/>
7.	OVERTAKE SITUATION: 7a, 7b, and 7c Must be Satisfied 7a. From Conflict Report Window, ACTUAL Longitudinal Distance Between Maneuvering and Blocking Aircraft <u>AT LEAST 10 MILES</u> 7b. From ASD, Trailing Aircraft Groundspeed Must <u>NOT</u> be More Than 10 Knots Faster 7c. From Step # 5, Trailing Aircraft is <u>NOT</u> More Than .02 Mach Faster	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
8.	Build Clearance utilizing MOPS Message 26 or 28, "CLIMB/DESCEND TO REACH (alt) BY (time)". Probe the Pending Clearance. Ensure that Time Inserted in Clearance is <u>MIN</u> 15 Minutes of Time Inserted in Step #4.	<input checked="" type="checkbox"/>
9.	8a. Append Free-Text Advisory from the Pre Formatted messages "ADS-C CDP PROCEDURE IS BEING APPLIED BY ATC". Check the 2nd Profile Conflicts of the Maneuvering Aircraft. IF THERE ARE ACTUAL OR IMMINENT CONFLICTS WITH OTHER AIRCRAFT, DO NOT EXECUTE PROCEDURE	<input checked="" type="checkbox"/>



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	Comm	Pre-Fnt								
RP	RR	climb	otime	ofix	otime	ofix	DESCND	otime	ofix	otime	ofix	CROSS	AOA	AOB	NDA	ITTA	HOLD	
		20	CLIMB TO AND MAINTAIN (alt)	F330														
		26	CLIMB TO REACH (alt)	F330		BY (time)												
		27	CLIMB TO REACH (alt)	F330		BY (pos)												
		<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 TRF SND UNABL VHF SAVE EALT DPRO COORD RCPT RELI HLP DIS

CLIMB/DESCEND PROCEDURE

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

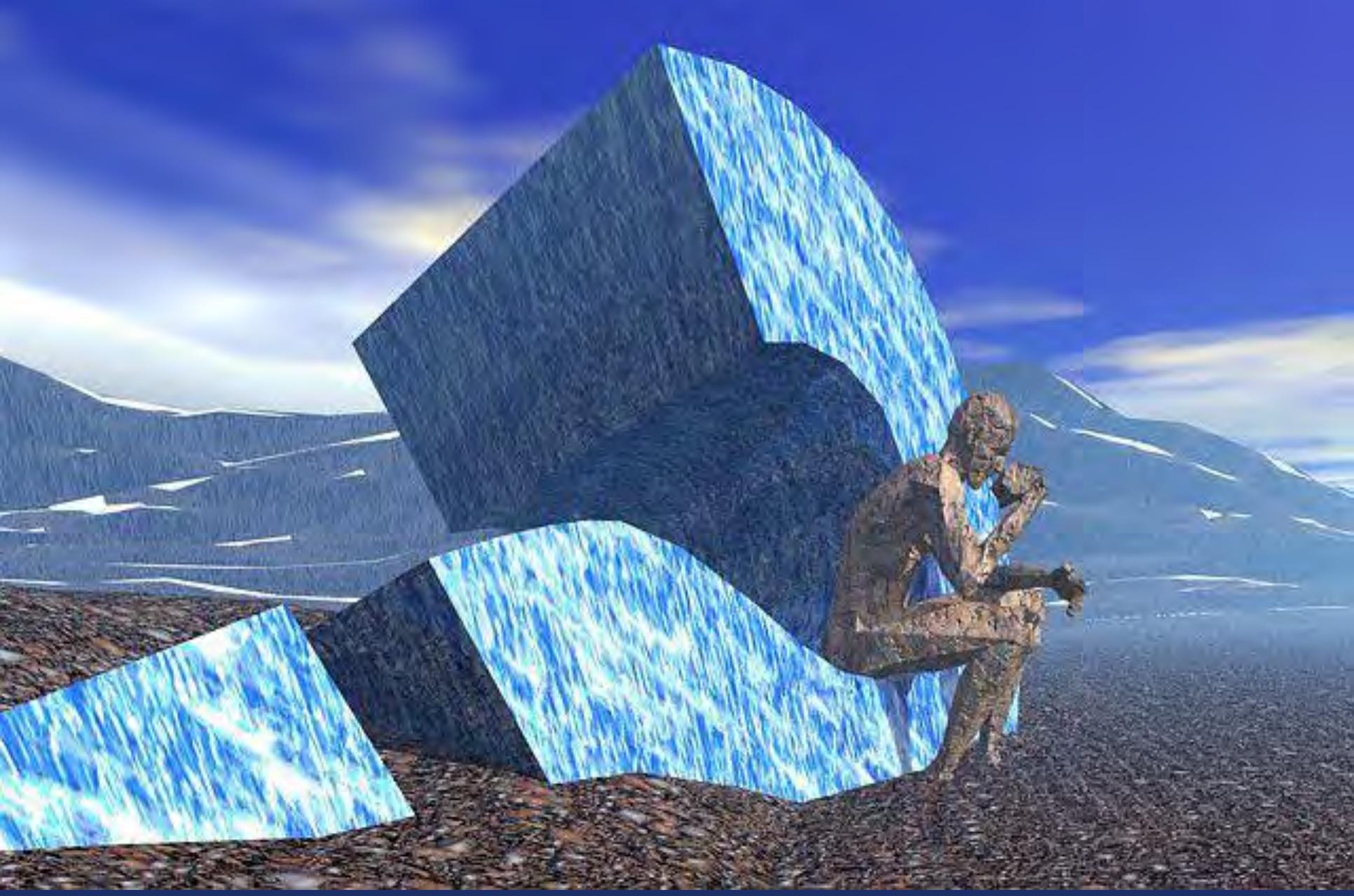
REQUESTED ALT: F330 COUNTDOWN TIMER: 14 : 26

Clearance:

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

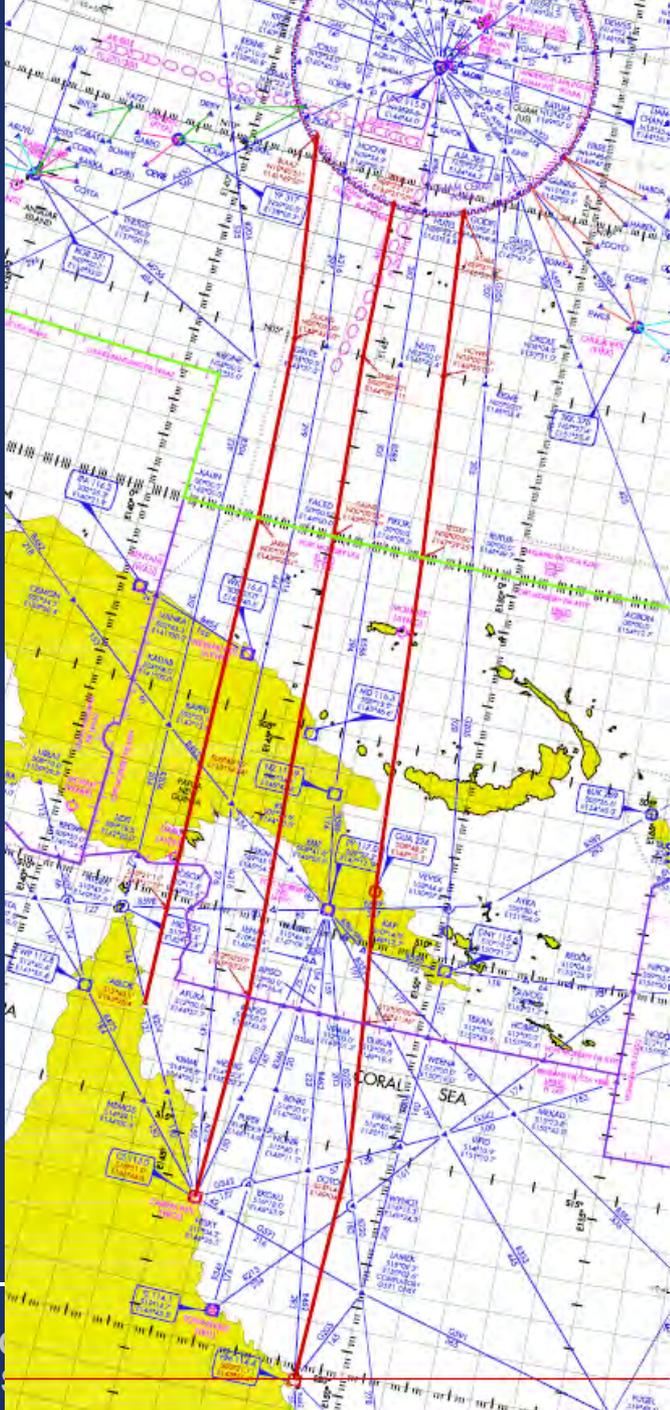
Response Area:

CDP-PROBE SEND UNABLE RESET CLOSE



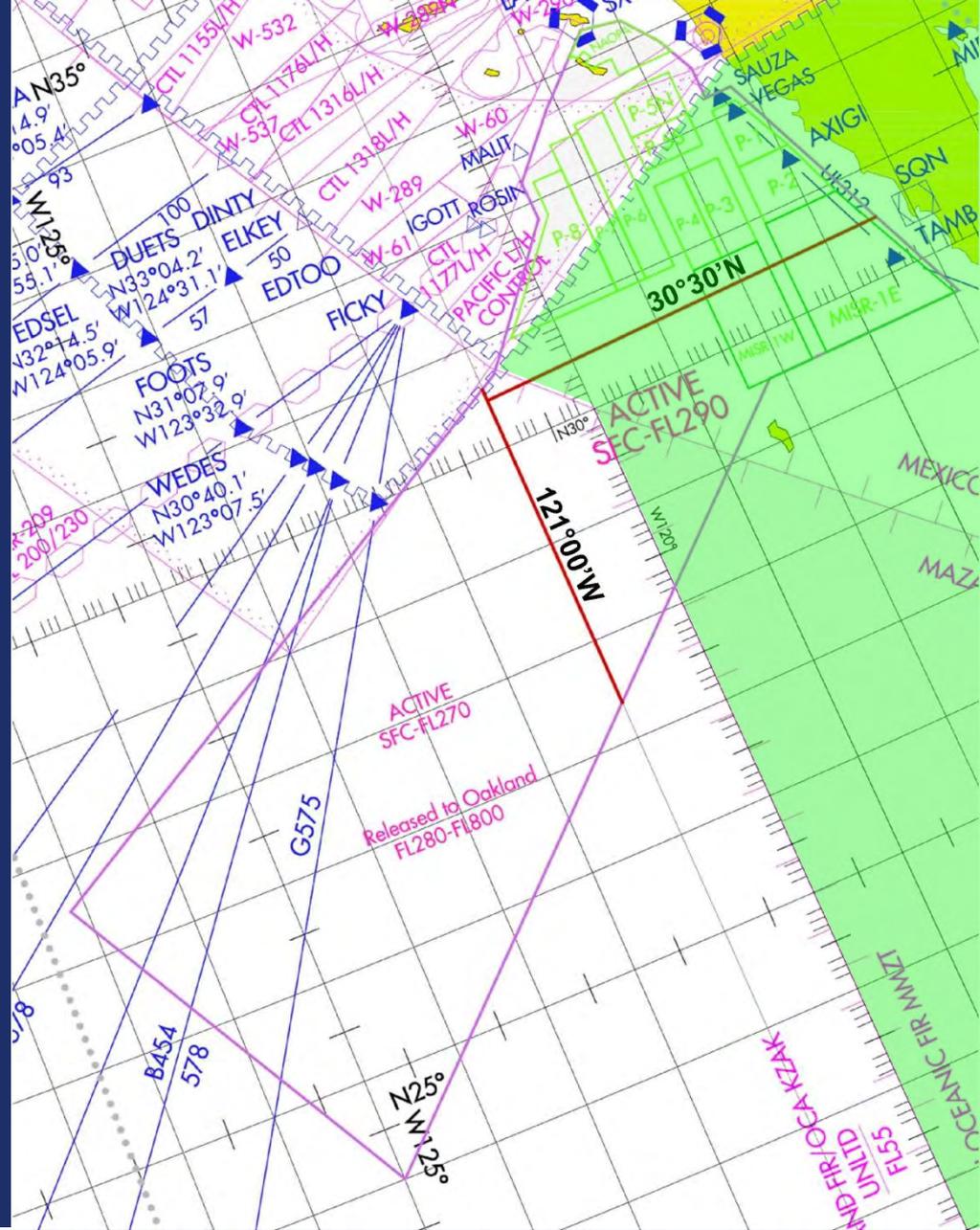
Port Moresby 50nm RNP10 Lateral Separation

- Planned to begin
November 14, 2013

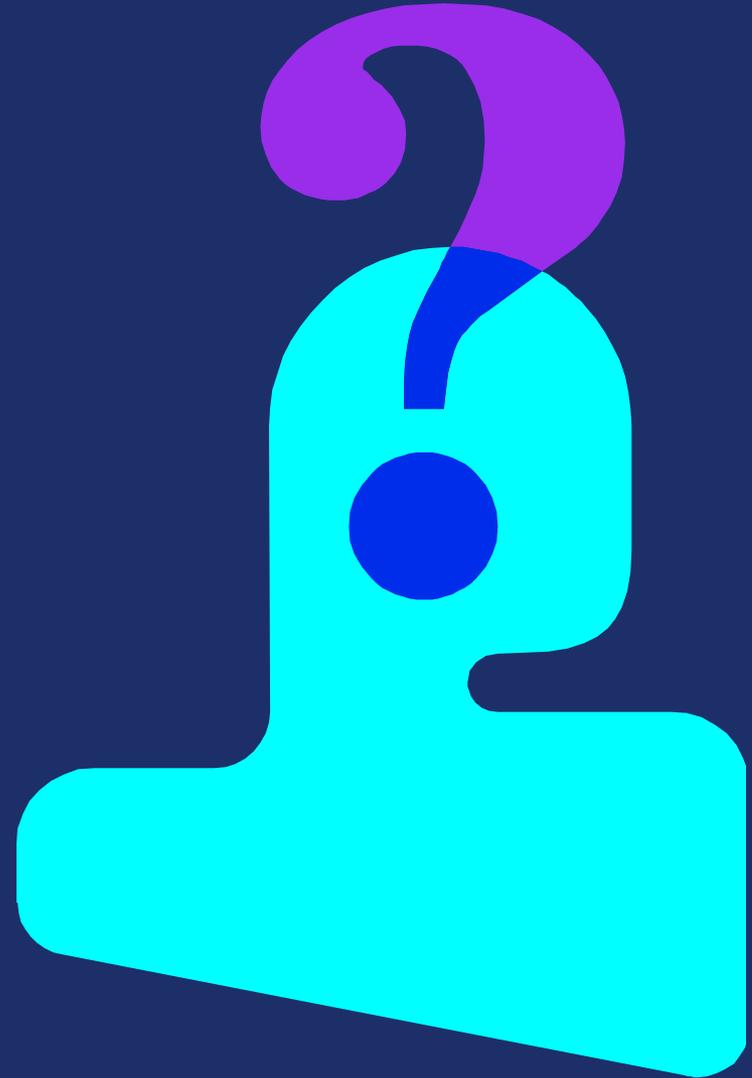


Mazatlan ACC

- FAA working to establish an AIDC connection between Oakland and Mazatlan.
- Mazatlan announced they are working to convert their Class G Airspace to Controlled Airspace.



Dennis Addison
Support Manager
Oakland Center
Oceanic Airspace &
Procedures
510-745-3258
Dennis.Addison@faa.gov



Oceanic and Offshore Operations AJE-32

Presented By: Keith Dutch and
Steve Pinkerton, FAA



Federal Aviation
Administration

CFCG

Communication Failure Coordination Group

Oceanic Work Group Meeting

Keith Dutch, AJE-32

18 September 2013



**Federal Aviation
Administration**

CFCG History

- ICAO communication failure provisions have been revised six times since the Rules of the Air and Air Traffic Control (RAC) was first introduced in October 1945.
- In 2011, ICAO Headquarters was notified by two ICAO regional offices of proposals relating to communication failure provisions.
 - The Europe and North Atlantic (EUR/NAT) Regional Office was processing proposed revisions developed by the European Air Navigation Planning Group (EANPG) Coordinating Group (COG).
 - The North American, Central American and Caribbean (NACC) Regional Office in Mexico City was processing an amendment proposal developed by the Cross Polar Working Group (CPWG).

CFCG Conflict

- The EUR proposal merges several Standards related to flight crew actions from Annex 10 Vol. II into Annex 2. It also adds new provisions for an aircraft flying in accordance with instrument flight rules choosing to continue its flight in visual meteorological conditions.
- The NAM proposal sets aside the requirement for aircraft to comply with any speed and level indications contained in the filed flight plan. The aircraft would maintain the last ATC assigned speed and level, without regard for changes filed in the flight plan, until exiting the airspace defined in the SUPPS proposal.
- The EUR proposal is being held, pending the deliberations of the CFCG.
- The NAM proposal was not supported by ICAO HQ due to conflicts with the Standards contained in Annex 2, 3.6.5.2.2 and introduction of additional divergence from other regionally agreed procedures.
- Following the submission of these two conflicting proposals, ICAO decided to undertake a comprehensive review of both proposals as well as examples of current national and regional provisions that differ from ICAO's.

CFCG Meetings

- First and only “face-to-face” meeting held in October 2012 at ICAO HQ in Montreal, Quebec, Canada.
- Representatives from five States and seven international organizations, which represented pilots and air traffic controllers.
- The group’s tasks included:
 - Reviewing differences between ICAO, regional and national communication failure provisions.
 - Clarifying the definition of “communication failure”.
 - Reviewing discrepancies with regional and national provisions.
 - Identifying communications options and availability.
 - Reviewing instances of partial and complete communication failure.
 - Identifying communications options and availability.

On-going Meetings

- The CFCG has been meeting monthly by teleconference.
- No agreements have been reached between conflicting “camps”
 - NAM and NAT representatives assert that the only method for ensuring safety and integrity is for the aircraft to continue flying by the last clearance.
 - EUR maintains that they rely on the expectation that the aircraft will change speed and altitude(s) according to the filed flight plan.
- CFCG has “taken the summer off”, but will resume its next teleconference on 18 September.
- The CFCG has requested a paper from the U.S. and Canada explaining the NAM procedure and what “expect” means, as part of a clearance.

NextGen Oceanic Operational Concept Development (NOOCD)

- **Introduction**

- Project outcome
- Stakeholders
- Flight operator requested support

Pacific Project

**Co-Chairs: Blair Cowles, IATA
Keith Dutch, FAA**



**Next Meeting – 2 Dec 2013
Ottawa, Canada**

NAV CANADA



FACSFAC San Diego



Federal Aviation
Administration

Oceanic Work Group Meeting

Anchorage ARTCC Update

OWG

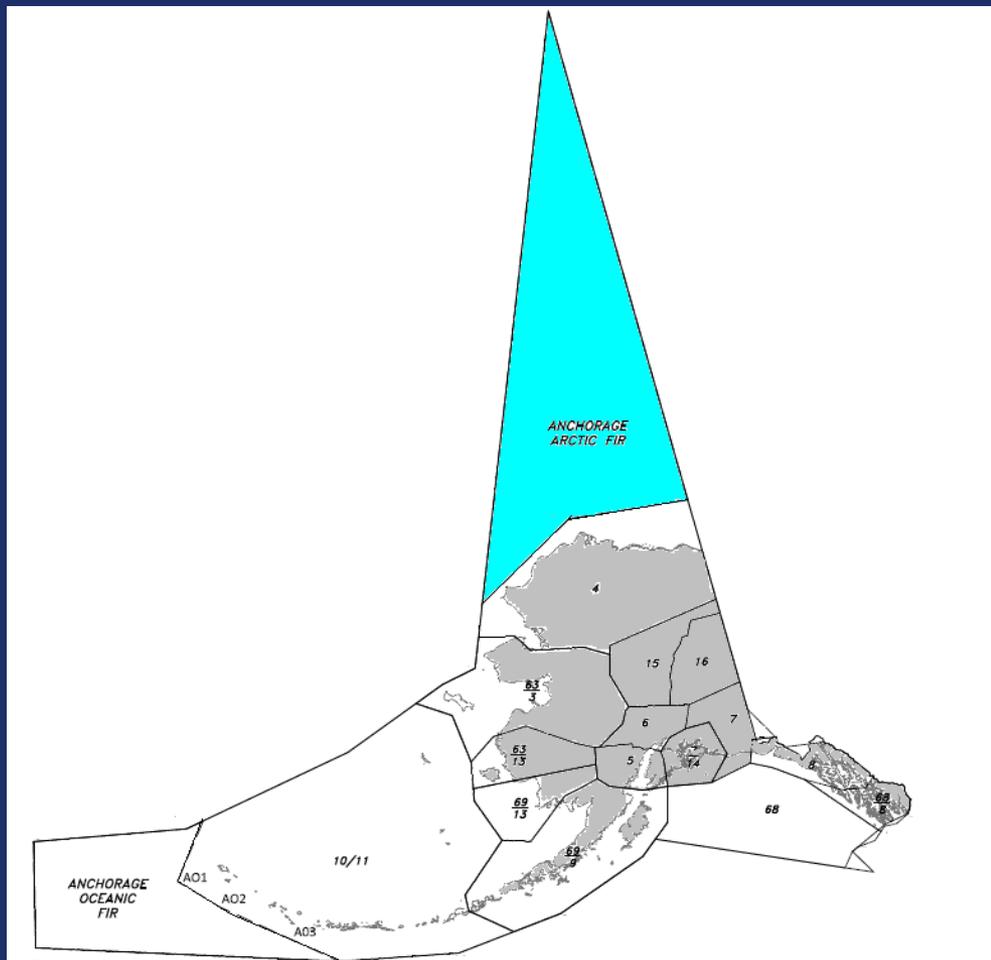
Steve Kessler, Traffic Management Officer
Anchorage ARTCC

September 18, 2013



Federal Aviation
Administration

Anchorage Arctic FIR NOTAMs



Anchorage Arctic FIR NOTAMs



Federal Aviation
Administration

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Wed, 11 Sep 2013 21:01:26 (UTC)

NOTAM Functions Tracks Tools Disclaimer

Selected NOTAMs

The following NOTAM list was selected by the user from a previous request. This list may not reflect all active NOTAMs for any of the below locations.

Data Current as of: **Wed, 11 Sep 2013 21:00:00 UTC**

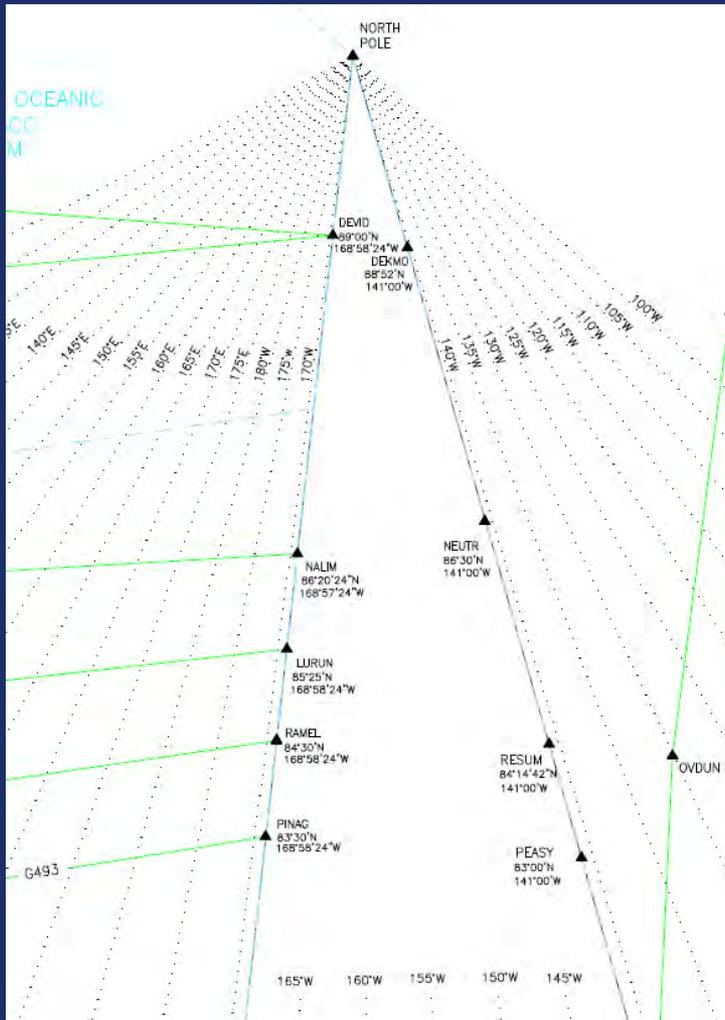
PAZA ANCHORAGE (ARTCC),AK.

A0158/13 - QPFC A REFERENCE THE ANCHORAGE ARCTIC CTA/FIR: TRANSIT OF THE ANCHORAGE ARCTIC CTA/FIR IS SUBJECT TO THE FOLLOWING MANDATORY REQUIREMENTS: A. COMMUNICATIONS. 1. ALL FLIGHTS, REGARDLESS OF CPDLC STATUS, SHALL MAKE MANDATORY POSITION REPORTS, UPON ENTERING OR EXITING THE CTA/FIR, VIA THE APPROPRIATE HF EN-ROUTE RADIO. 2. ALL FLIGHTS SHALL MAINTAIN A LISTENING WATCH ON THE CURRENT GANDER HF RADIO FREQUENCY WHILE TRANSITING THE CTA/FIR UNLESS A SATISFACTORY SELCAL CHECK HAS BEEN COMPLETED WITH GANDER RADIO UPON, OR PRIOR TO, CTA/FIR ENTRY. B. ROUTING. 1. FLIGHTS TRANSITING THE CTA/FIR SHALL FILE VIA THE FOLLOWING ROUTING PAIRS: DEVID / DEKMO; NALIM / 8630N14100W; LURUN / 8530N14100W; RAMEL / A POINT ALONG 141W OVER OR BETWEEN RESUM AND 8350N; PINAG / A POINT ALONG 141W OVER OR BETWEEN 8300N AND 8200N; NIKIN / A POINT ALONG 141W OVER OR BETWEEN COALL AND 8100N; ORVIT / OMEKA; AMATI / A POINT ALONG 141W OVER OR BETWEEN JESRU AND 7700N; PILUN / A POINT ALONG 141W OVER OR SOUTH OF 7400N (EASTBOUND TRAFFIC OVER PILUN SHALL ALSO FILE A POINT OVER OR NORTH OF 7200N15700W); LISKI / WESTBOUND FLIGHTS FILE OVER OR SOUTH OF TAYTA (EASTBOUND LISKI FLIGHTS FILE OVER OR END PART 1 OF 2. WIE UNTIL UFN. CREATED: 06 AUG 20:31 2013

A0158/13 - SOUTH OF 7100N15700W); THENCE VIA UPR. C. QUESTIONS CONCERNING REQUIREMENTS FOR COMMUNICATIONS, ROUTING, OR FLOW CONTROL SHOULD BE REFERRED TO ZAN TRAFFIC MANAGEMENT AT +1 (907) 269-1840. FL230 - UNL END PART 2 OF 2, WIE UNTIL UFN. CREATED: 06 AUG 20:31 2013

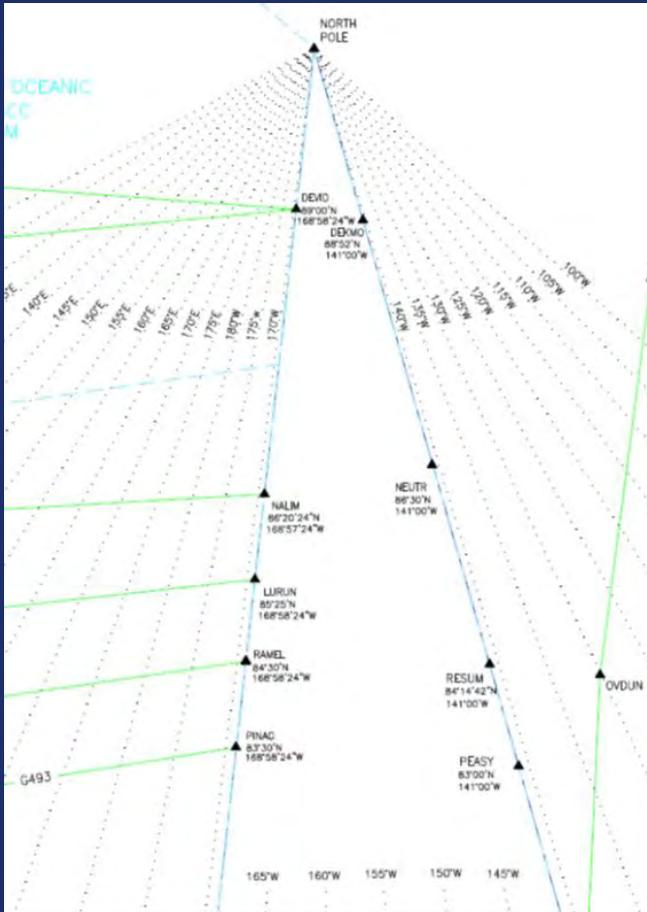
Number of NOTAMs selected: 2 End of Report

Anchorage Arctic FIR NOTAMs



- “QPFC A REFERENCE THE ANCHORAGE ARCTIC CTA/FIR”
- New NOTAM (A0158) written to simplify / reduce FIR NOTAMs
 - (1 instead of 10)
- A0158 now includes restatement of communication requirements
 - Requirements are not new
 - Included in NOTAM due to numerous missing position reports
 - both CYEG to PAZA
 - and UHMM/ULMM to PAZA

Anchorage Arctic FIR NOTAMs



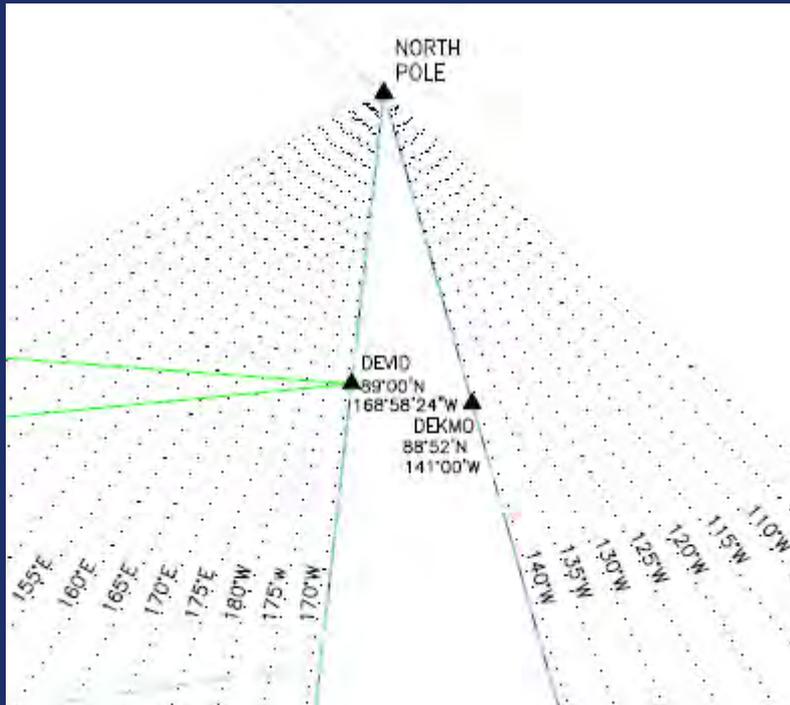
TRANSIT OF THE ANCHORAGE ARCTIC CTA/FIR IS SUBJECT TO THE FOLLOWING MANDATORY REQUIREMENTS:

A. COMMUNICATIONS.

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Anchorage Arctic FIR NOTAMs

**TRANSIT OF THE ANCHORAGE
ARCTIC CTA/FIR IS SUBJECT TO THE
FOLLOWING MANDATORY
REQUIREMENTS:**



B. ROUTING.

1. FLIGHTS TRANSITING THE CTA/FIR SHALL FILE VIA THE FOLLOWING ROUTING PAIRS:
 - DEVID / DEKMO

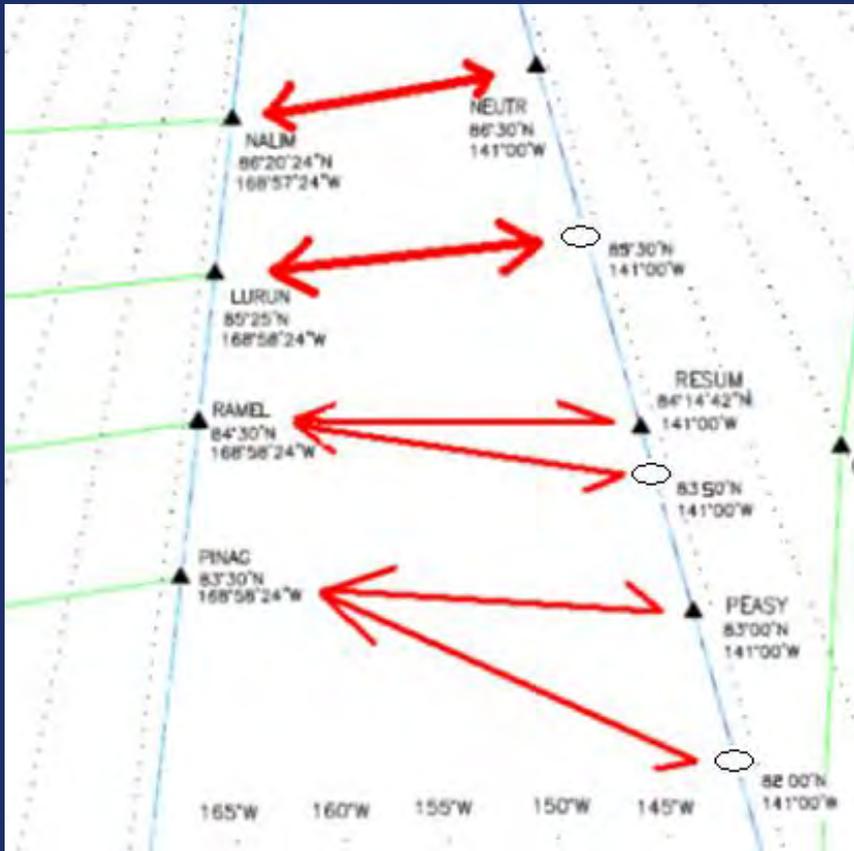
Anchorage Arctic FIR NOTAMs

TRANSIT OF THE ANCHORAGE ARCTIC CTA/FIR IS SUBJECT TO THE FOLLOWING MANDATORY REQUIREMENTS:

B. ROUTING.

1. FLIGHTS TRANSITING THE CTA/FIR SHALL FILE VIA THE FOLLOWING ROUTING PAIRS:

- NALIM / 8630N14100W
- LURUN / 8530N14100W
- RAMEL / A POINT ALONG 141W OVER OR BETWEEN RESUM AND 8350N
- PINAG / A POINT ALONG 141W OVER OR BETWEEN 8300N AND 8200N

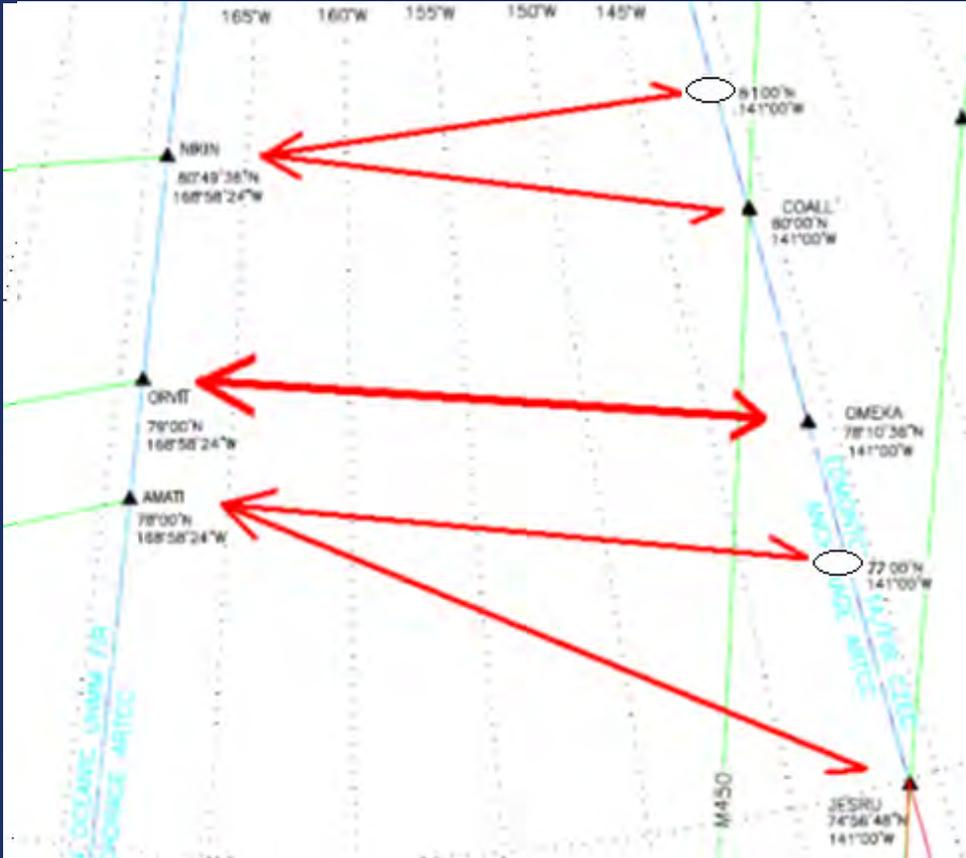


Anchorage Arctic FIR NOTAMs

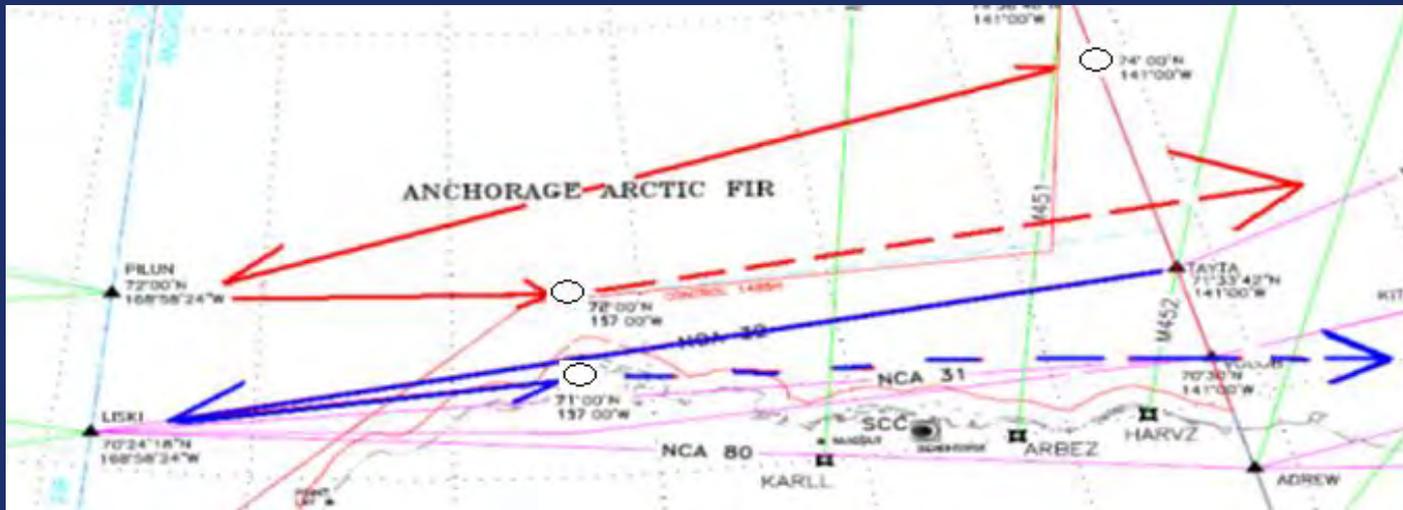
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B. ROUTING.

1. FLIGHTS TRANSITING THE CTA/FIR SHALL FILE VIA THE FOLLOWING ROUTING PAIRS:
 - NIKIN / A POINT ALONG 141W OVER OR BETWEEN COALL AND 8100N
 - ORVIT / OMEKA;
 - AMATI / A POINT ALONG 141W OVER OR BETWEEN JESRU AND 7700N



Anchorage Arctic FIR NOTAMs



TRANSIT OF THE ANCHORAGE ARCTIC CTA/FIR IS SUBJECT TO THE FOLLOWING MANDATORY REQUIREMENTS:

B. ROUTING.

1. FLIGHTS TRANSITING THE CTA/FIR SHALL FILE VIA THE FOLLOWING ROUTING PAIRS:
 - PILUN / A POINT ALONG 141W OVER OR SOUTH OF 7400N (EASTBOUND TRAFFIC OVER PILUN SHALL ALSO FILE A POINT OVER OR NORTH OF 7200N15700W)
 - LISKI / WESTBOUND FLIGHTS FILE OVER OR SOUTH OF TAYTA (EASTBOUND LISKI FLIGHTS FILE OVER OR SOUTH OF 7100N15700W)

ATOP & Sector 64

- **ATC Automation currently provided by**
 - Flight Data Processor 2000 (FDP 2000) and
 - Micro En Route Automated Radar Tracking System (MEARTS) (coverage only below 72° N.)
- **Now investigating possibility of instituting ATOP/Ocean21**
 - Only for Sector 64 (i.e. the Anchorage Arctic FIR and a small portion of domestic FIR over the Alaskan “North Slope”).

ATOP & Sector 64

Current

- Surveillance
 - Radar below 72° N
 - None above 72° N
- Navigation
 - GNSS / INS
 - No land based
- Communication
 - HF via Nav Canada's "Gander Radio"
 - CPDLC (dependent on equipage / coverage)
 - SATCOM (dependent on equipage / coverage)
- ATC Separation
 - Vertical – RVSM
 - Lateral – Based on RNAV 10 (RNP-10)
 - Longitudinal – 15' standard w/out MACH

With ATOP/Ocean21

- Surveillance
 - Radar below 72° N
 - ADS-C throughout (depending on equipage)
- Navigation
 - GNSS / INS
 - No land based
- Communication
 - HF via Nav Canada's "Gander Radio"
 - CPDLC (dependent on equipage / coverage)
 - SATCOM (dependent on equipage / coverage)
- ATC Separation
 - Vertical – RVSM
 - Lateral – Based on RNAV 10 (RNP-10)
 - Longitudinal – 15' standard w/out MACH

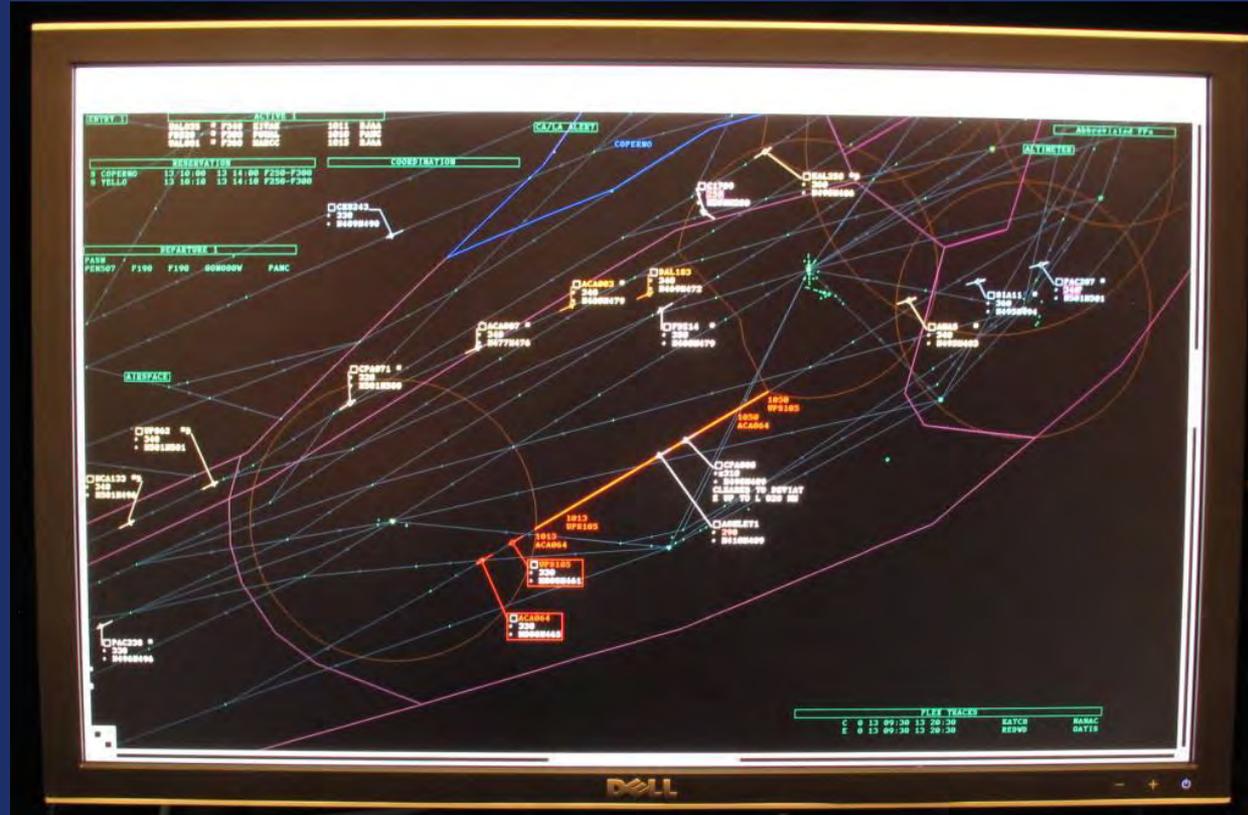
Primary benefit will be ADS-C surveillance and enhanced Controller tools – electronic situation display, route readout, conflict probe.

ATOP & Sector 64

Current



With ATOP/Ocean21





ENTRY 1

ACTIVE 1	
BAL300	F300 STAG
F300	F300 FOMAL
BAL301	F300 BANCE
2011	BAAA
2012	FANC
2013	BAAA

CAZLA ALERT

COPENHO

ABSTRACTED PPs

ACTIVITY

OBSERVATION	
8 COPENHO	13 10:06 13 14:00 F250-F300
9 YELLO	13 10:10 13 14:10 F250-F300

COORDINATION

OC2243
 330
 20000490

DEPARTURE 1

PASH
 FEN507 F190 F190 000000V FANC

AIRSPACE

OP662
 340
 20012001

OCAL33
 340
 20012000

OCAM97
 340
 20770470

OCAM91
 330
 20012000

OCAM93
 340
 20000470

OCAL183
 340
 20000472

OPNE14
 300
 20000470

OCAM95
 340
 20000490

OCAL115
 340
 20000494

OPAC97
 340
 20012001

OCAM90
 330
 20000490
 CLEARED TO REVIAT
 8 UP TO L 000 00

OCAM91
 300
 20100490

1013
 UP9105
 1013
 ACAM94

OP9105
 330
 20000440

OCAM94
 330
 20000440

OPAC308
 330
 20000490

FILE TRACKS

C	0 13 09:30	13 20:30	KATCH	NANAC
E	0 13 09:30	13 20:30	REDVD	OATIS



ATOP & Sector 64

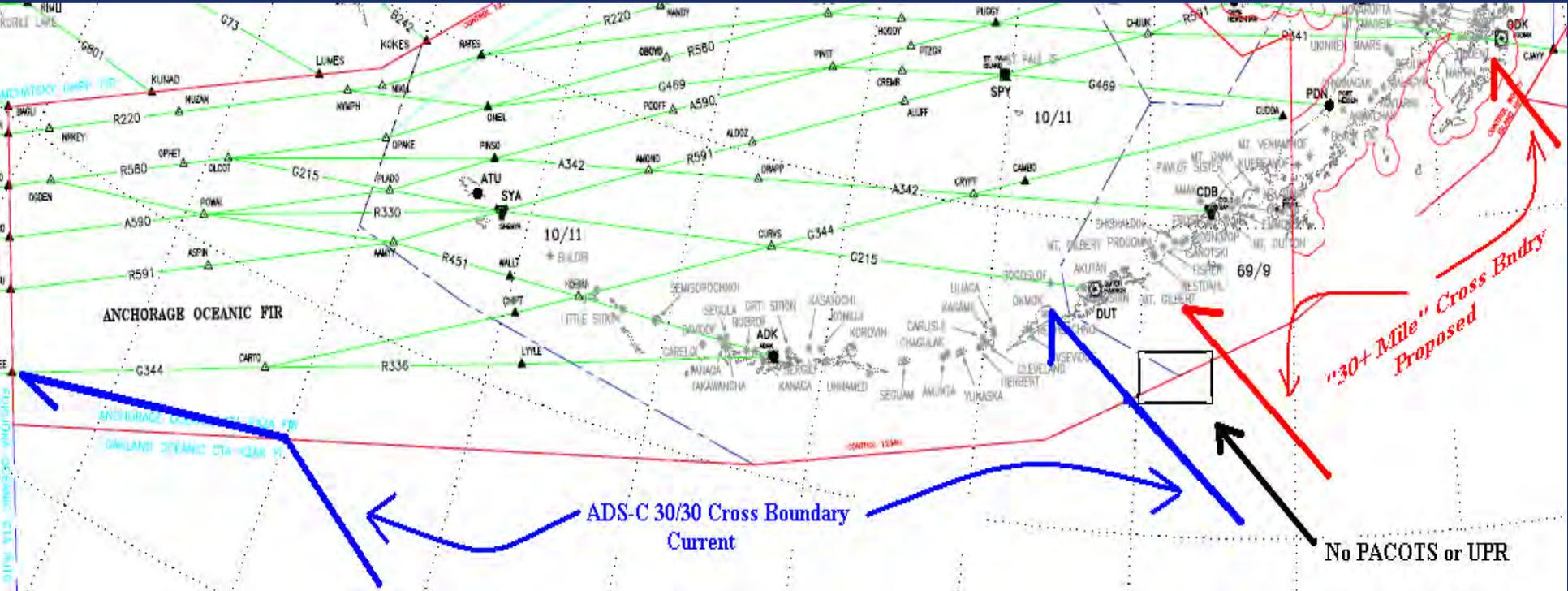
- **Implementation Date – TBD**
- **Potential impacts for airspace users**
 - Flight plan filing address change
- **Potential benefits for airspace users**
 - Near term
 - Improved Alerting Service
 - Improved access to altitude change
 - Improved routing options
 - Long term
 - Separation minima reduction

Oakland/Anchorage – Anchorage/Oakland Cross Boundary in-trail separation improvement

- Anchorage / Oakland ARTCCs currently utilize ADS-C 30/30 across common FIR boundary between 165° W and 162° 55' E.
- Work underway to devise and implement procedures permitting seamless “30+ mile”* in-trail separation between 152° W and 162° W.

*ZOA uses ADS-C 30/30 via ATOP, ZAN uses “20 RNAV mile” domestic rule until in Radar coverage.

Oakland/Anchorage – Anchorage/Oakland Cross Boundary in-trail separation improvement



Oakland/Anchorage – Anchorage/Oakland Cross Boundary in-trail separation improvement

- **Implementation – TBD**
- **Potential impacts for airspace users**
 - nil
- **Potential benefits for airspace users**
 - Improved altitude access
 - Effective for both east and westbound PACOTS

UPR Paper Trial

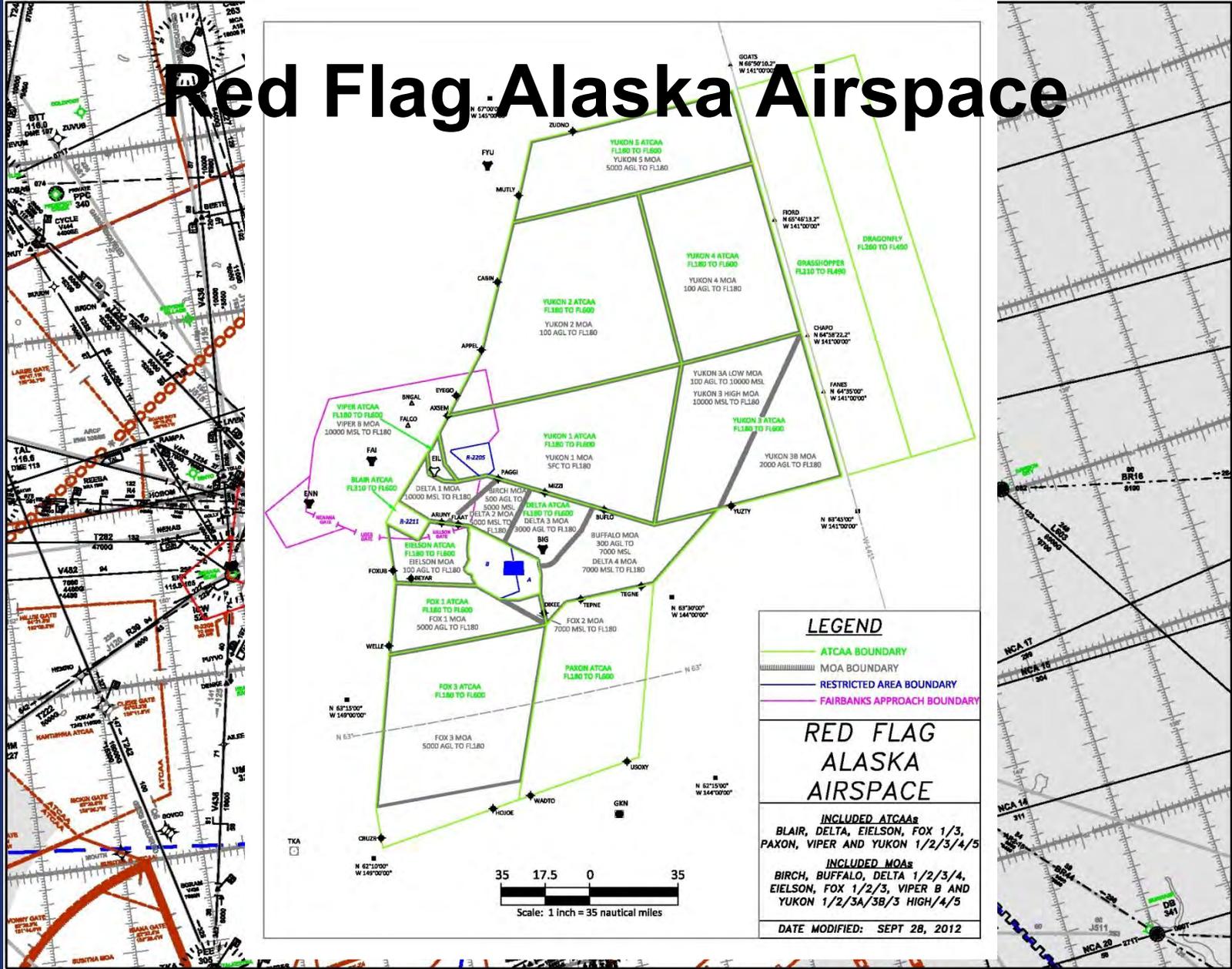
- December 4, 2013
- December 12, 2013
- December 18, 2013
- December 26, 2013



Red Flag Alaska 2014

- **May 9-23**
- **June 13-27**
- **August 8-22**
- **October 3-17**

Red Flag Alaska Airspace



Anchorage ARTCC Contact Information

Steve Kessler

907-269-1220

Steve.kessler@faa.gov



Questions?



Honolulu Control Facility

Operations

Honolulu Control Facility



Federal Aviation
Administration



Oceanic Workgroup Meeting

Ron Fischer, International Operations

Date: January 23, 2013

Action Item 03-06

- OWG members to provide known status on island airport.



Other Meetings

- **IPACG 39 October 28-November 2, 2013 Fukuoka Japan**
- **ISPACG 28 March 3-7, 2014 Tahiti**

Next OWG Meeting

January 22, 2014