Federal Aviation Administration

PBCS: ANSP Concept of Ops

UNITED STATES

NAT PBCS Workshop/3

20-21 February 2018

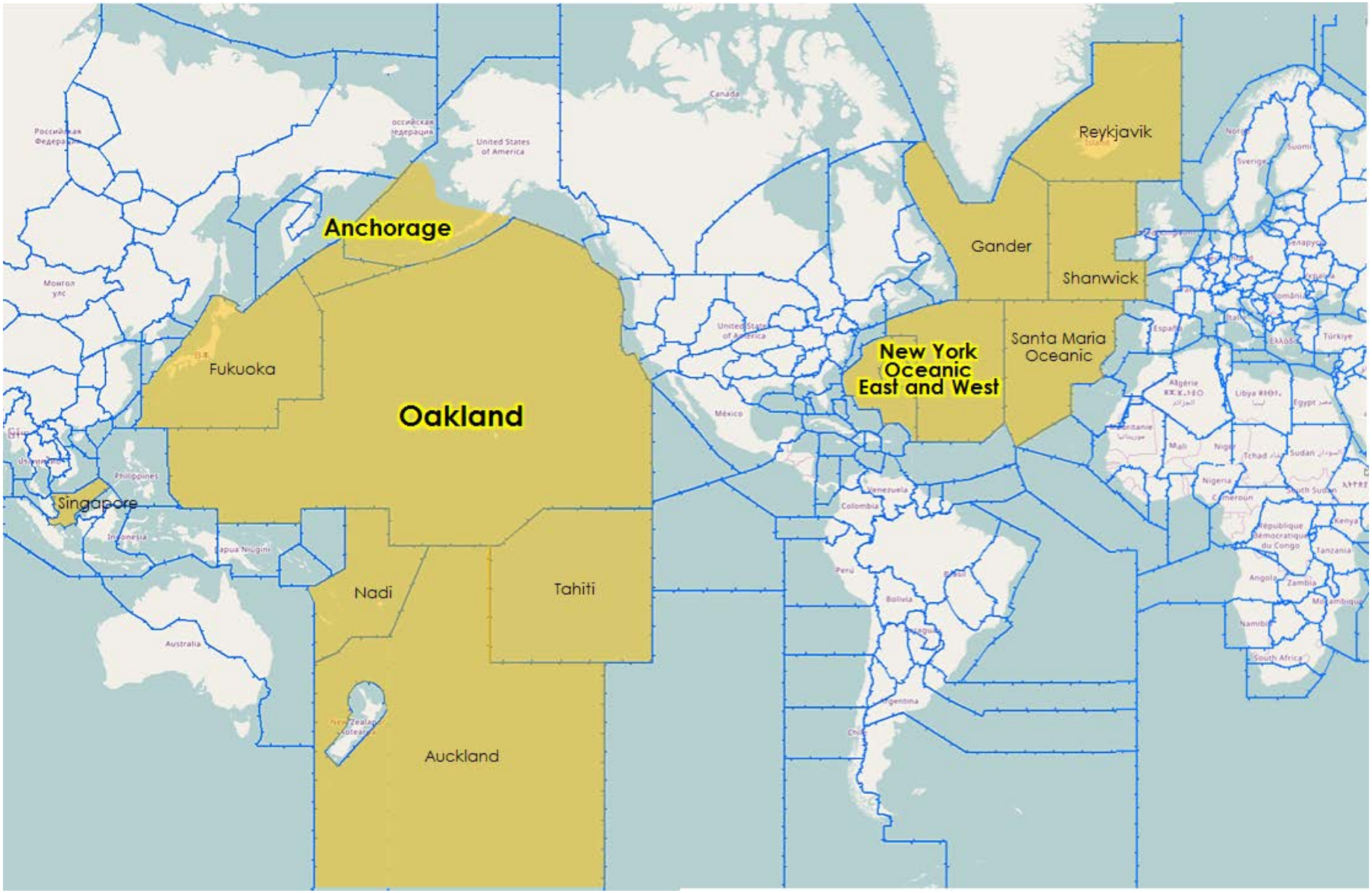
Paris, France

Overview

- Performance-based separation standards in FAA oceanic airspace
- How are performance-based standards applied in FAA oceanic airspace?
- What happens on 29 March?
- Climb and Descend Procedure (CDP)

Performance-based separation standards applicable in FAA oceanic airspace on 29 March 2018

Dimension of separation	Separation Minima	RSP requirement	RCP requirement	Associated navigation requirement
Lateral	55.5 km (30 NM)	180	240	RNP4
Performance-based Longitudinal	55.5 km (30 NM)	180	240	RNP4
Performance-based Longitudinal	93 km (50 NM)	180	240	RNP4 or RNP10


Anchorage
Fukuoka
Oakland
Singapore
Nadi
Tahiti
Auckland
Reykjavik
Gander
Shanwick
New York
Oceanic
East and West
Santa Maria
Oceanic

How are performance-based standards currently applied in FAA airspace?

Default longitudinal separation = **10min with Mach Technique else 15min**

Default lateral separation = **50nmi**

Entering FAA oceanic airspace from radar airspace

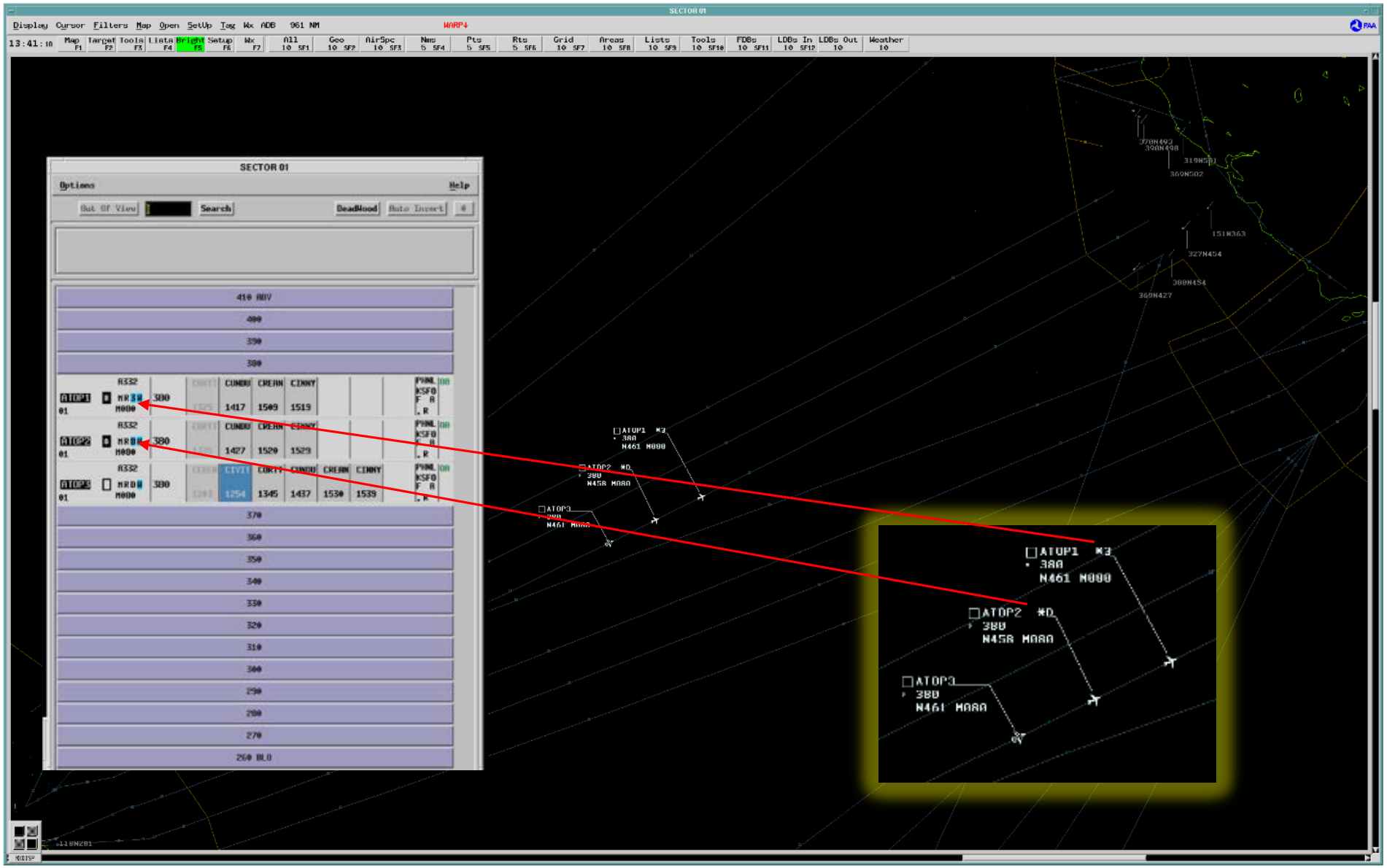
- Aircraft enter FAA oceanic airspace at default unless altitude conflict on same route
- To resolve conflicts controller will check for availability of “D” and “3” flags based on flight plan of affected aircraft and toggle on if present

En-route FAA oceanic airspace

- To resolve conflicts or accommodate pilot requests, controller will check for availability of “D” and “3” flags based on flight plan of affected aircraft and toggle on if present

Entering FAA oceanic airspace from adjacent oceanic FIRs

- Aircraft can transfer into FAA oceanic airspace using performance-based standards if an advance CPDLC connection has been established


SECTOR 01
Display Cursor Filters Map Open SetUp Tag Wx ADB 961 NM
WARP↓
Options
Help
Search
DeadBlood
Auto Invert
410 ABV
400
390
380
370
360
350
340
330
320
310
300
290
280
270
260 BLO
ATOP1
ATOP2
ATOP3
CUNDU
CREAN
CINNY
1417
1509
1519
1427
1520
1529
1254
1345
1437
1530
1539
ATOP1 *3
380
N461 M000
ATOP2 *D
380
N458 M000
ATOP3
380
N461 M000

What happens on 29 March 2018?

- **Available separations will be the same as they are today (30nmi lat, 30nmi long, 50nmi long)**
- **ATOP will check for 2 additional flight plan codes to determine eligibility**
  - Item 10b: P2
  - Item 18: SUR/RSP180
- **Separations will be applied in same manner as they are today**
  - No increases in delays are expected but impact may be observed in ability of controller to clear altitude requests en-route

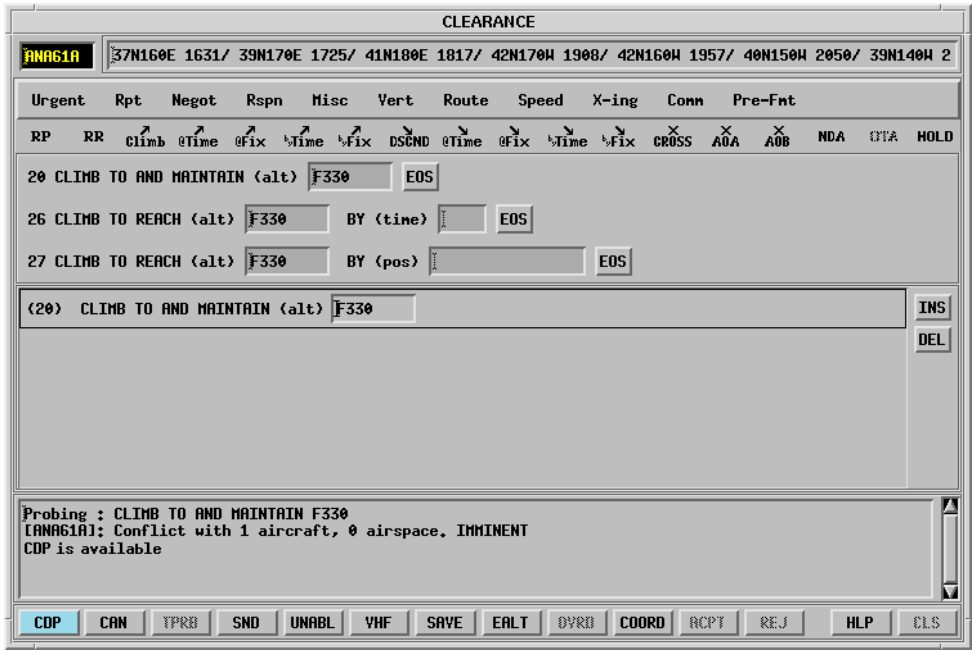
ATOP determination of eligibility for performance-based standards

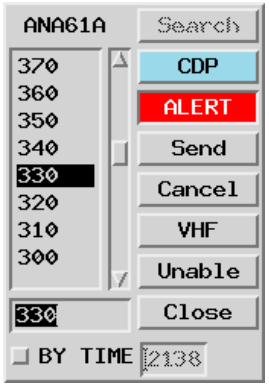
- **The system shall provide the capability to set a unique 30/30 flag for aircraft that meet the following criteria:**
  - The aircraft is a turbojet, and
  - Has an RNP qualifier (R) in Field 10A of its ICAO flight plan, and
  - Has "PBN/L1" in Field 18 of its ICAO flight plan, and
  - Has the defined RCP equipment codes in Field 10A, and
  - Has the defined "J" equipment codes in Field 10A, and
  - Has the defined RSP in Field 18 subfield SUR, and
  - Has an active CPDLC connection, and
  - Has an active ADS contract with a periodic reporting interval less than or equal to the adapted 30/30 interval, and
  - The most recently received ADS position report for the flight contain a Figure of Merit (FOM) that meets or exceeds the adapted minimum RNP4 threshold

- **The system shall provide the capability to set the D-50 flag for aircraft that meet the following criteria:**
  - The aircraft is turbojet, and
  - Has an RNP qualifier (R) in Field 10A of its ICAO flight plan, and
  - Has "PBN/A1" or "PBN/L1" in Field 18 of its ICAO flight plan, and
  - Has the defined RCP equipment codes in Field 10A, and
  - Has any of the defined "J" equipment codes in Field 10A, and
  - Has the defined RSP in Field 18 subfield SUR, and
  - Has an active CPDLC connection, and
  - Has an active ADS contract with a periodic reporting interval less than or equal to the adapted D-50 interval

Climb and Descend Procedure (CDP)

- Implemented in ATOP per PANS-ATM 5.4.2.8
- RCP240/RSP180 not required
- No automation changes are needed in ATOP for this to be available for non-PBCS approved aircraft





5.4.2.8 LONGITUDINAL SEPARATION MINIMA BASED ON DISTANCE USING ADS-C CLIMB AND DESCEND PROCEDURE (CDP)

5.4.2.8.1 When an aircraft on the same track is cleared to climb or descend through the level of another aircraft, the clearance should be issued provided the following requirements are met:

a) the longitudinal distance between the aircraft is determined by the ground automation system from near-simultaneous demand ADS-C reports which contain position accuracy of 0.25 NM or better (Figure of Merit 6 or higher);

Note.— Refer to 5.4.2.9.5 for distance calculations.

b) the longitudinal distance between the aircraft, as determined in a) above, is not less than:

1) 27.8 km (15 NM) when the preceding aircraft is at the same speed or faster than the following aircraft; or

2) 46.3 km (25 NM) when the following aircraft is not more than either 18.5 km/h (10 kt) or Mach 0.02 faster than the preceding aircraft;

c) the altitude difference between aircraft is not greater than 600 m (2 000 ft);

d) the clearance is issued with a restriction that ensures vertical separation is re-established within 15 minutes from the first demand report request; and

e) direct controller-pilot voice communications or CPDLC is maintained.

5.4.2.8.2 The application of the ADS-C climb and descend procedure (CDP) should be supported by an ongoing monitoring process.

Note.— Supporting information on ongoing monitoring is provided in Circular 342, Automatic Dependent Surveillance — Contract (ADS-C) Climb and Descend Procedure (CDP).