

Automatic Dependent Surveillance – Contract (ADS-C) Climb/Descend Procedure (CDP) Status Update

Presented to: **The Twenty Fourth Meeting
of the Informal South Pacific
ATS Coordinating Group
(ISPACG/24)**

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**Federal Aviation
Administration**



Name Change to ADS-C Climb/Descent Procedure (CDP)

- **Confusion surrounding the nomenclature of the ADS-B In-Trail Procedure (ITP) and the ADS-C In-Trail Procedure (ITP)**
 - Concern regarding probability of pilot/controller confusion when these procedures are utilized in the operational environment
 - FAA-originated ADS-C procedure will no longer use the term “I-T-P”
 - ADS-C procedure now referred to as ADS-C Climb and Descent Procedure (CDP)



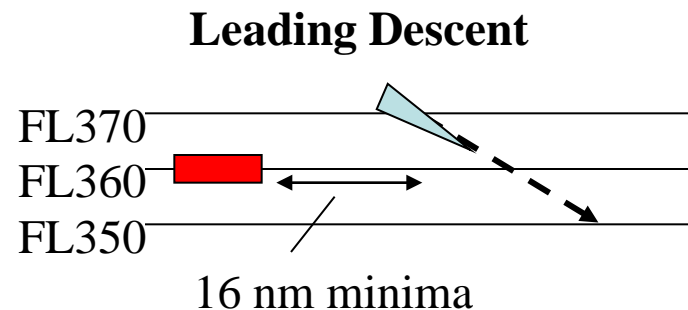
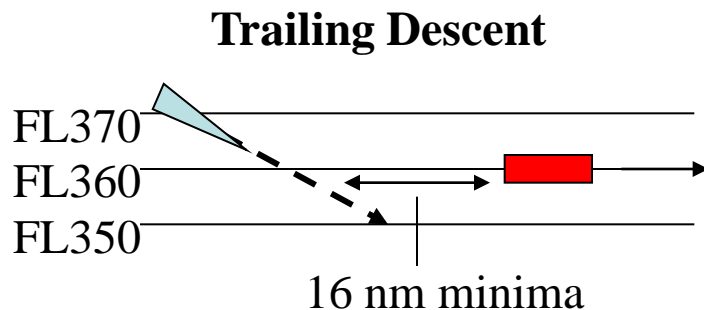
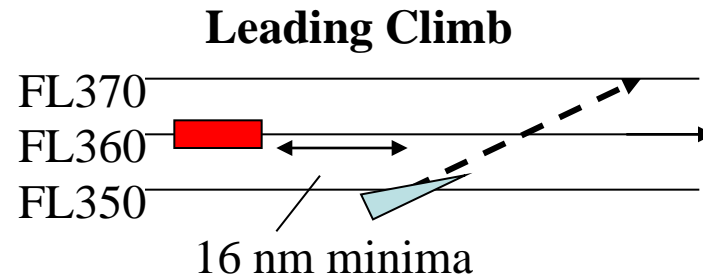
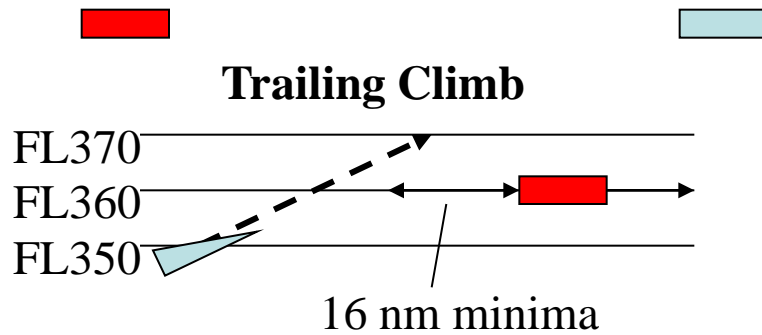
ADS-C CDP



- Procedure is based on in-trail Distance Measuring Equipment (DME) rules in ICAO Doc 4444, paragraph 5.4.2.3.2.

ADS-C CDP Concept Overview

- **Maneuvering aircraft** will execute the climb or descent if clearance is granted
- **Blocking aircraft** is 1000 feet above or below the maneuvering aircraft
- **CDP target altitude** the maneuvering aircraft will climb or descend to if clearance is granted



ADS-C CDP

- **FAA is continuing work**
- **Completed actions**
 - Business case
 - Hazards analysis
 - Procedure development
 - ICAO endorsement



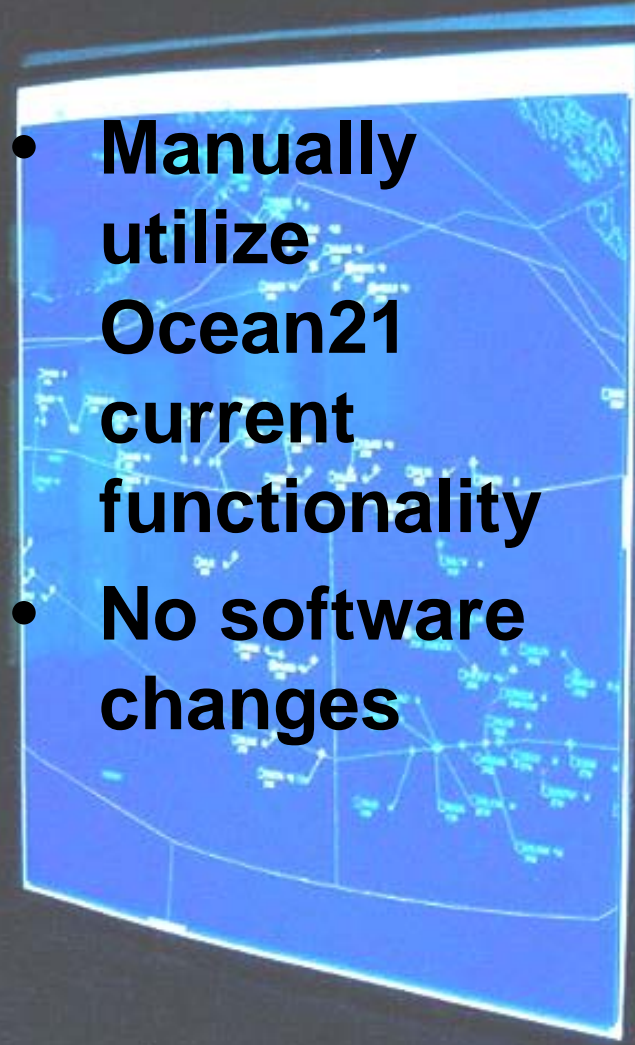
ADS-C CDP Goals

- **2010**
 - Finalize procedures
 - Complete Safety Case Documents
 - FAA approval
 - Conduct Pacific operational trials

ADS-C CDP



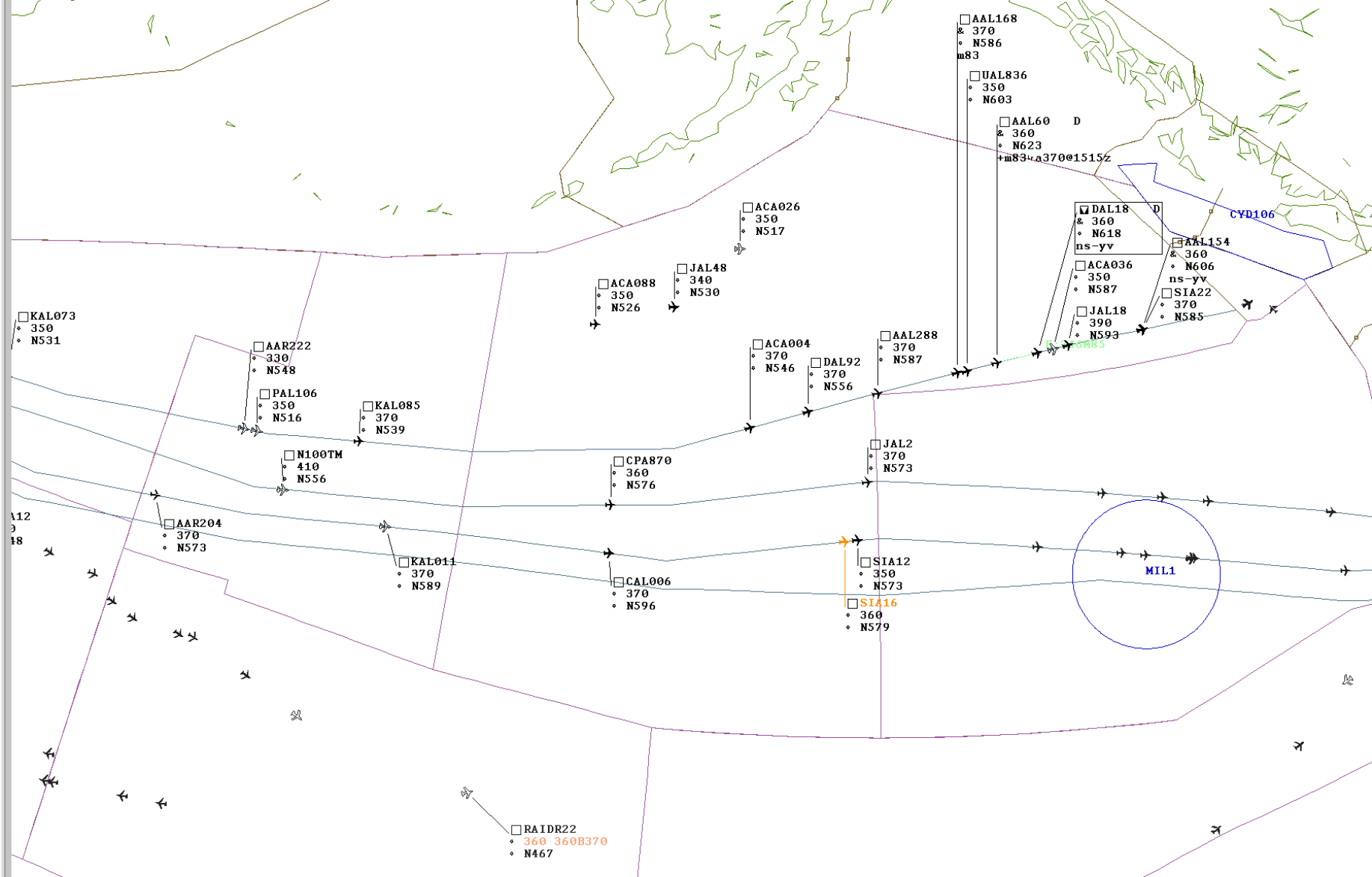
- **Manually utilize Ocean21 current functionality**
- **No software changes**





ADS-C CDP Trial Execution

- **Oakland Oceanic FIR**
- **Applied between RNP4 maneuvering and blocking aircraft pairs**
- **Controller initiated procedure after a pilot request**
- **Approximately 25 percent of ZOA ADS flights currently file RNP4**
- **Based on Oakland ARTCC traffic, with a 35% FANS equipage rate, benefits analysis projected total combined fuel savings up to 44,000 kg or 139,040 kg of CO₂ per day**





ADS-C CDP Check- list

Step #	Checklist Item	Checkmark or Insert Data		
1.	Verify Maneuvering and Blocking Aircraft are RNP-4 and CPDLC Equipped then Toggle RNP-4 Flgs to "3" for Both Aircraft	<input type="checkbox"/>		
2.	Initiate ADS DEMAND For Maneuvering and Blocking Aircraft: ENTER TIME OF ADS DEMANDS.....	<input type="text"/>		
3.	Observe Receipt of ADS Reports for Both Aircraft and Confirm that Both Reports are in Conformance (No OOC from Aircraft in Sector Queue)	<input type="checkbox"/>		
4.	If Assigned a Mach Number, write Assigned Mach Numbers in Blanks – If not, From ADD Report: Mach Number of Maneuvering Aircraft..... Mach Number of Blocking Aircraft.....	<input type="text"/> <input type="text"/>		
5.	ENTER CALLSIGN OF BLOCKING AIRCRAFT	<input type="text"/>		
6.	Probe the Climb/Descent Clearance Utilizing MOPS Message 26 or 28, "CLIMB/DESCEND TO REACH (level) BY (time). (Time Inserted in Clearance MUST be Within 15 Minutes of Time Inserted in Step # 2) If a 2 nd Profile Conflict is Generated, Open the Conflict Report Window	<input type="checkbox"/>		
7.	<u>SAME SPEED OR FASTER AIRCRAFT IN FRONT</u> - OR - <u>OVERTAKE SITUATION</u>  			
	5a, 5b and 5c Must be Satisfied:	5d, 5e and 5f Must be Satisfied:		
	5a. From Conflict Report Window, ACTUAL Longitudinal Distance Between Maneuvering and Blocking Aircraft <u>AT LEAST 16 MILES</u>	<input type="checkbox"/>	5d. From Conflict Report Window, ACTUAL Longitudinal Distance Between Maneuvering and Blocking AIRCRAFT <u>AT LEAST 26 MILES</u>	<input type="checkbox"/>
	5b. From ASD, Both Aircraft Same Groundspeed, or Faster Aircraft is in Front	<input type="checkbox"/>	5e. From ASD, Trailing Aircraft Groundspeed Must <u>NOT</u> be More Than 10 Knots Faster	<input type="checkbox"/>
	5c. From Step # 4, Both Aircraft Same Mach Number, or FASTER Mach AIRCRAFT IN FRONT	<input type="checkbox"/>	5f. From Step # 4, Trailing Aircraft is <u>NOT</u> More Than .02 Mach Faster	<input type="checkbox"/>
8.	Confirm that the Conflict is Same Direction or Same Direction Intersecting and that the Aircraft have the Appropriate Distance and Neither Aircraft is on a Course Deviation	<input type="checkbox"/>		
9.	Ensure that Blocking Aircraft is Same Aircraft as in Step # 4	<input type="checkbox"/>		
10.	Check the 2 nd Profile Conflicts of the Maneuvering Aircraft. If There are ACTUAL or IMMINENT (RED) Conflicts with other Non-ITP Aircraft at Either the Blocking or Target Altitude, Do <u>NOT</u> Execute Procedure. Ensure that OTHER Conflict(s) will be Resolved Prior to any Loss of Separation	<input type="checkbox"/>		
11.	<u>Ensure the Maneuvering Aircraft has Enough Time to Meet the Time Restriction in the Clearance. If ALL Conditions are Met, Issue Clearance</u>	<input type="checkbox"/>		

ADS-C CDP Operational Trial

- **ADS-C CDP will be evaluated during the operational trial to determine if requirements can be modified to improve operational usage**
 - Allow larger altitude changes for a CDP target altitude (allow at least a 4000 foot altitude change to CDP target altitude or possibly allow unbounded altitude change)
 - Allow a larger initial vertical separation distance between maneuvering and blocking aircraft (e.g., allow 2000 feet vertical separation)



Thank you

Comments?

Questions?

Point of Contact:

Karen Chiodini

**Specialist, Oceanic & Offshore
Operations**

karen.l.chiodini@faa.gov

(202) 385-8931



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