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WORKING PAPER

FIRST UNASSIGNED HIGH SEAS AIRSPACE SPECIAL COORDINATION MEETING (SCM/1)

Lima, Peru, 22 to 24 July 2019

Agenda Item 3: Determination of services and facilities

Summary of Air Traffic Service (ATS) capabilities within the Oakland Oceanic (KZAK) flight information region

(Presented by the United States)

SUMMARY

The Federal Aviation Administration (FAA) provides Air Traffic Services (ATS) in the Oakland Oceanic (KZAK) Flight Information Region (FIR) adjacent to the unassigned airspace. This Information Paper outlines and describes the FAA ATS capabilities within the KZAK FIR.

1. Introduction

1.1 This paper is presented to provide information about the ATS capabilities of Oakland Air Route Traffic Control Center (ARTCC) within the airspace above the Pacific Ocean. The information listed provides an overview of the equipment functionality of the Advanced Technologies and Oceanic Procedures (ATOP) air traffic management system currently in use at Oakland ARTCC. The KZAK FIR currently shares a common boundary with the unassigned airspace. For years, the FAA has promoted improvements in the efficiency of Oceanic Operations throughout the Pacific. The use of User Preferred Routes (UPRs) is common in the KZAK FIR. The FAA has led the development of new Oceanic separation minima such as Automatic Dependent Surveillance Broadcast (ADS-B) In Trail Procedure (ITP) and Automatic Dependent Surveillance Contract (ADS-C) Climb/Descent Procedure (CDP).

2. Discussion

2.1 Oakland ARTCC provides ATS over 18.7 million square miles overlying the Pacific Ocean and interfaces daily with nineteen foreign Air Navigation Service Providers (ANSPs) and domestic facilities surrounding the KZAK FIR. The ATOP system allows FAA controllers to take full advantage of the increased airframe enhancements and has allowed the FAA to adapt to the increased levels of air traffic operations transitioning throughout the KZAK FIR. The ATS capabilities of the ATOP system, outlined and described in this paper, are intended for consideration as ICAO and States discuss and develop plans for providing ATS in the unassigned airspace.

2.2 Direct Controller-Pilot Data Link Communication (CPDLC) reduces High Frequency (HF) congestion and reduces delays in air traffic requests. This functionality, in conjunction with ADS-C, enables increased use of enhanced air traffic system abilities within the KZAK FIR.

2.3 ATOP provides digital High Frequency Radio Operator (HFRO) interface. HFRO messages are automatically ingested by the ATOP system. Controller messages are digitally transmitted to the HFRO and then relayed to the aircraft.

2.4 ATOP is also equipped for use with ADS-C. This functionality allows for reduced separation when aircraft are CPDLC equipped and file in compliance with Performance-Based Communication and Surveillance (PBCS) requirements. Both D30 and D50 separation standards are available for use within KZAK FIR and supported by ATOP.

2.5 ATS Inter-Facility Data Communication (AIDC) provides an automated means of flight data exchange between Area Control Centers (ACC). AIDC is integrated into our ATOP system. Currently controllers may use AIDC to coordinate weather deviations, track offsets, Mach speed assignments, and block altitudes with neighboring ANSPs that have AIDC capabilities and Oakland is working to configure this functionality with all surrounding ANSPs. The additional coordination fields available with the use of AIDC help controllers respond to aircraft requests in a timely manner and complete required coordination using automation, reducing verbal coordination errors.

2.6 ATOP has the capability of ingesting radar, ADS-B, and ADS-C. This allows controllers to provide tactical air traffic control services which uses minimum separation standards.

2.7 ATOP utilizes electronic flight progress strips and automated processing of aircraft movement messages. Radar, ADS-B, ADS-C and HFRO position information are used to automatically update the flight profile after it passes conformance checks. Controllers are able to focus on maintaining separation and providing service.

2.8 ATOP's Conflict Probe detects aircraft to aircraft and aircraft to airspace conflicts. The separation options prompted by Conflict Probe are based on the aircraft avionics capabilities. Controllers are able to apply the most efficient separation minima allowing operators to achieve the most cost efficient movement through the airspace.

2.9 Oakland ARTCC supports UPRs and Flexible Tracks where possible to provide operators the most efficient routes.

2.10 ATOP provides a traffic load monitor feature that predicts peak traffic volume and route congestion. Controller workload can be managed through dynamic sector boundaries.

2.11 Dynamic Airborne Re-route Procedures (DARP) allows Airline Operations Centres to initiate reroute for airborne aircraft after receipt of updated en route weather forecasts or other information, where the revised route will result in economic and/or safety benefits for the airline.

2.12 ADS-C CDP are based on in-trail Distance Measuring Equipment (DME) rules in ICAO Doc 4444, paragraph 5.4.2.3.2. Aircraft pair distance verification is performed by ground flight tracking systems, using near simultaneous ADS-C demand contract reports. As with existing DME procedure, responsibility for separation assurance remains with ATC (assisted by ground automation tools such as conflict probe).

2.13 ADS-B ITP is designed for properly and similarly equipped aircraft, that are on the same course (same track). The procedure provides controllers with a climb through or descend clearance option when other standard separation such as ADS-C distanced based 50NM or 30NM longitudinal separation would not allow for a climb or descent through the altitude of another aircraft within 1,000 feet. These options allow more oceanic flights to achieve their preferred vertical profiles.

2.14 ICAO Doc 9869, Performance-based Communication and Surveillance (PBCS) Manual, Edition 2, 2017, provides guidance for States implementing PBCS. The FAA has used Doc 9869 Appendix A, PBCS Implementation Plan – Checklist, as a template for a web-based implementation project management tool and information sharing mechanism for stakeholders.

2.15 The FAA has been asked in the past to convert uncontrolled airspace to controlled airspace. Oakland ARTCC created an Upper Control Area (UTA) in the Nauru FIR to provide ATC and alerting services when changes in aircraft capabilities created a desire for operators to transit the airspace. The UTA was established and covered by agreements with the government of Nauru.

2.16 The FAA capabilities support the latest cost efficient procedures that provide aircraft operators the most efficient **movement through the airspace.**

3. Suggested action

3.1 The Meeting is invited to consider the information provided in this paper as ICAO and States discuss and develop plans for providing ATS in the unassigned airspace.

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