International Civil Aviation Organization

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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 3a: Determination of services and facilities - Airspace users outline

AIRSPACE USERS REQUEST FOR ASSIGNMENT OF CURRENTLY UNASSIGNED HIGH SEAS AIRSPACE AND THE SUBSEQUENT PROVISION OF AIR TRAFFIC CONTROL SERVICES

(Presented by the International Air Transport Association - IATA)

SUMMARY

This paper presents a request by airspace users for the assignment of currently unassigned high seas airspace located in the Pacific Ocean (hereafter referred to as "unassigned airspace") and the subsequent provision of air traffic control services to facilitate ultra-long-range flights.

Action by the meeting is in paragraph 3.

1. Introduction

1.1 The development of new ultra-long-range aircraft types means non-stop flights between the South West Pacific (primarily Australia and New Zealand) and destinations in the Midwest and southern portions of the United States are now operating on a daily basis. Flights to/from the northeast of the United States will be technically feasible in the early part of the next decade.

1.2 Such flights typically utilize efficient user preferred routes (UPRs), and often dynamic airborne rerouting procedure (DARP), through the Auckland, Tahiti and Oakland flight information regions (FIRs).

1.3 Flight plan modelling indicates that for many of these existing and future city-pairs the ideal routing would transit through a portion of the unassigned high seas airspace located in the Pacific Ocean (as depicted below) up to 25 per cent of the time.

1.4 In addition to encountering areas where communication, navigation, and surveillance capabilities are limited, airlines are currently unable to transit this unassigned airspace for safety, regulatory and insurance coverage reasons. Several airlines have independently concluded that whilst transiting the unassigned airspace would provide benefits in certain meteorological conditions, the risks involved in flying through both unassigned and uncontrolled airspace cannot be sufficiently mitigated to allow this to happen.

1.5 These risks include:

- The lack of aeronautical information in the area including information regarding ballistic launches and space debris, military activity, and other NOTAMs;
- The lack of weather information, particularly SIGMETS;
- The lack of a mandated mode S transponder requirement in the airspace, and the ensuing safety benefits this provides to TCAS equipped aircraft.

1.6 The unassigned airspace covers 7.8 million square kilometers and sits at the junction of the Asia Pacific (APAC), South American (SAM), Caribbean (CAR), and North American (NAM) ICAO regions. It is bordered by:

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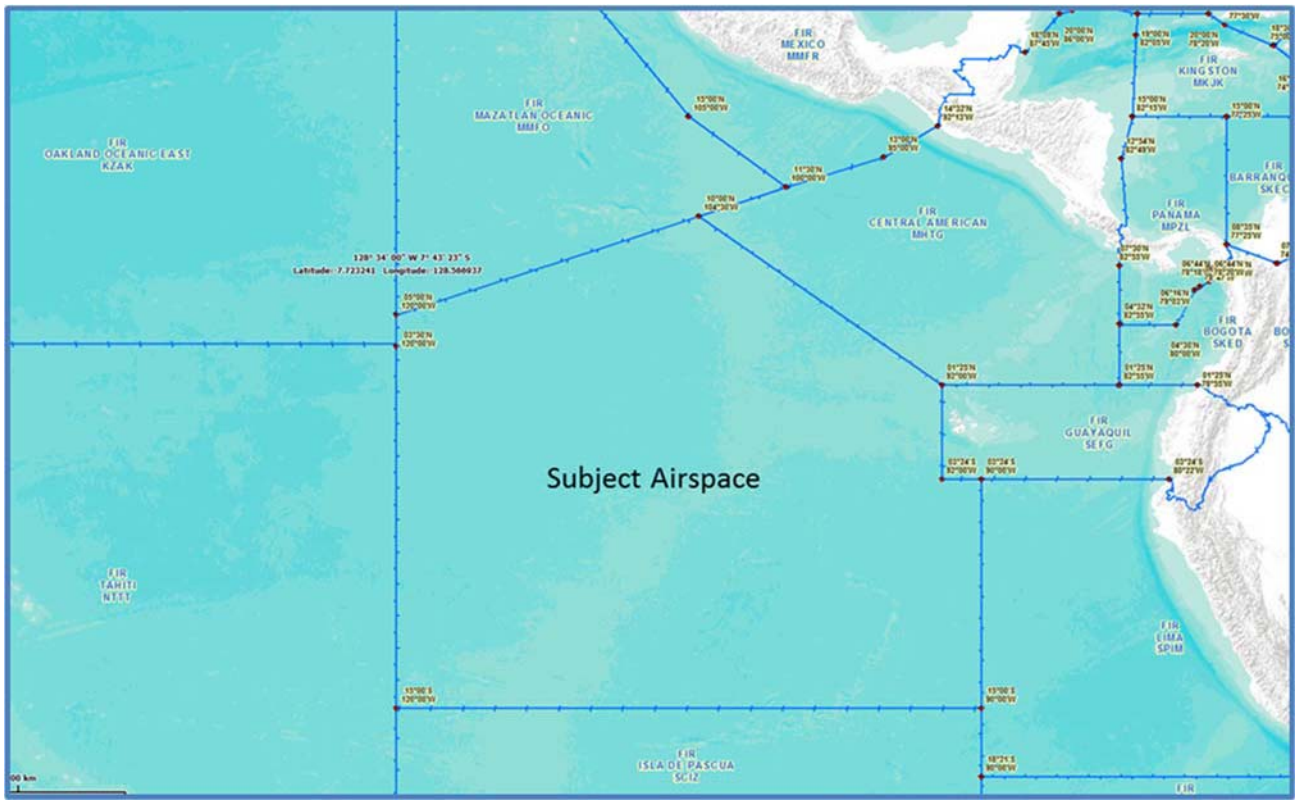
- Tahiti and Oakland FIRs to the west;
- Central American, Guayaquil and Lima FIRs to the east;
- Mazatlán FIR to the north, and;
- Easter Island FIR to the south.



1.7 IATA is seeking assignment of this airspace in order to facilitate the provision of air traffic control services, which would enable the use of this airspace for commercial air transport operations. Key considerations for airlines are that any proposed solutions are fit for purpose and address airline needs at a realistic cost. IATA believes this assignment would be key to expanding the concept of a seamless ATS service across the Pacific.

1.8 IATA understands that given the unassigned airspace in question does not fall within any one of the ICAO Regions, and that in order to appropriately consider the proposal, this special coordination meeting between affected States, as well as representatives of the airspace users community, has been convened.

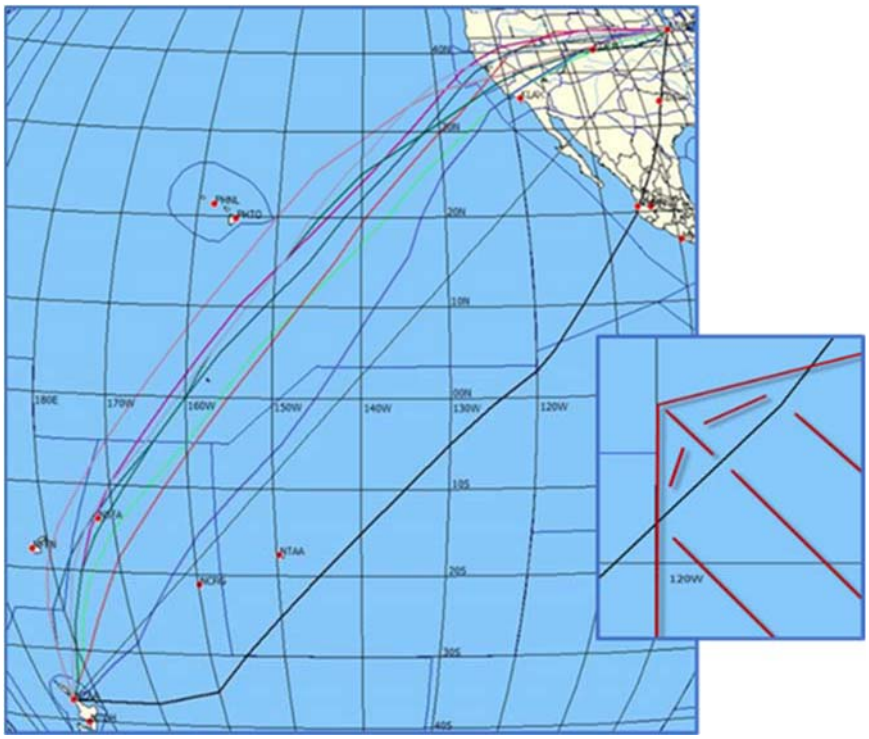
2. Discussion

2.1 Currently the most likely users of the airspace are Air New Zealand (ANZ), QANTAS (QFA) and United Airlines (UAL). All these airlines utilize flight planning systems that are capable of producing User Preferred Routes (UPR). A UPR is a route developed to provide the optimal lateral path based on the actual aircraft weight and performance data in the forecast conditions. This allows an airline to take advantage of tailwinds and avoid headwinds so that the flight plan route optimises payload, reduces fuel burn and lowers CO_2 emissions. Some airlines and ANSPs also have the capability to utilise/facilitate dynamic airborne rerouting procedure (DARP). DARPing allows airlines to evaluate the actual and near-term forecast conditions for an airborne UPR flight and adjust the flight plan accordingly. This can further reduce fuel burn and lower CO_2 emissions.

2.2 Flight plan modelling indicates that the following current city-pairs would transit the unassigned airspace in certain wind conditions whilst flying a UPR:

- Auckland – Houston – Auckland
- Sydney – Houston – Sydney
- Auckland – Chicago – Auckland

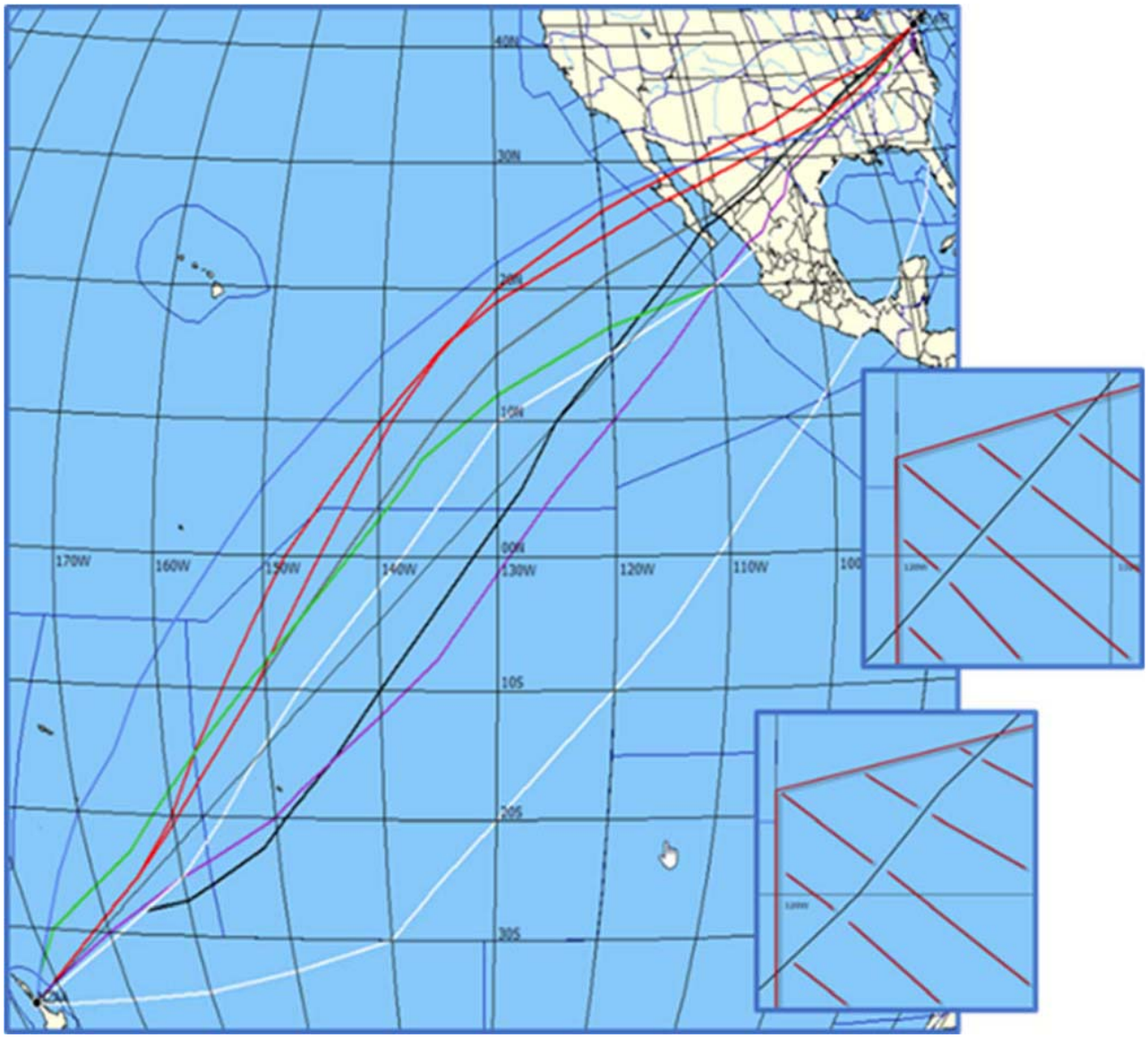
2.3 Analysis by ANZ of flight plan data over a 12-month period shows that their current ORD-AKL flight would have used the unassigned airspace 4 percent of the time, primarily through the northwest corner of the airspace.



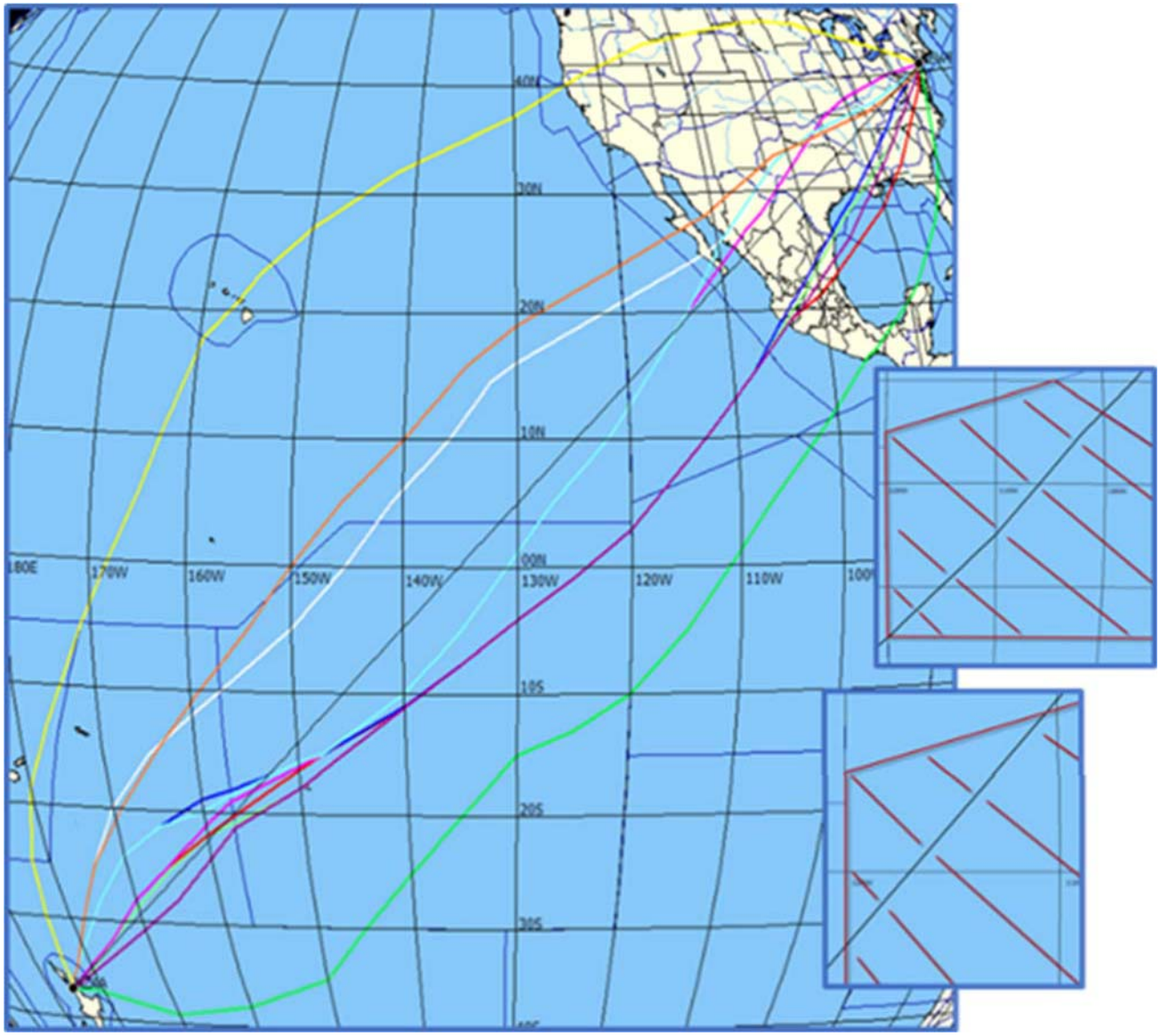
2.4 Flight plan modelling indicates that the following future city-pairs would transit the unassigned airspace in certain wind conditions whilst flying a UPR:

- Auckland – New York – Auckland (publicly acknowledged as under active consideration)
- Sydney – New York – Sydney (publicly acknowledged as under active consideration)
- Sydney – Miami – Sydney
- Tokyo – Lima/Santiago – Tokyo

2.5 Analysis by ANZ of hypothetical flight plan data over a 12-month period shows that an AKL-EWR flight would have used the unassigned airspace 14 percent of the time, primarily through the western half of the airspace.



2.6 Analysis by ANZ of hypothetical flight plan data over a 12-month period shows that an EWR-AKL flight would have used the unassigned airspace 26 percent of the time, primarily through the western half of the airspace.



2.7 There are a number of other city-pair possibilities, especially flights from Asia to Central and South America, which will likely become feasible once the next generation of ultra-long-range aircraft are available.

2.8 A key concern for IATA is that any proposed solution is fit for purpose and addresses airline needs in accordance with the principles described the ICAO's *Policies on Charges for Airports and Air Navigation Services* document.

2.9 Whilst an ATC service could be provided via HF radio and RNP10 navigation performance requirements, from an IATA perspective, key considerations for the assignment of the airspace and subsequent ATC service provision are:

- The airspace is classified Class A;
- PBCS reduced separations are available;
- To the greatest extent possible the airspace assignment is aligned with current oceanic ATC service delivery capabilities in the Pacific to facilitate seamless operations and maximize utilization of the sophisticated flight planning and avionics capabilities of the aircraft fleet that will primarily use this airspace, i.e. key efficiency enablers such as UPRs and DARPs are available;
- Any proposal for the delegation of airspace or segmenting of the unassigned airspace must be in compliance with A38-12
- ADS-C and CPDLC are utilized for surveillance and comms respectively;
- AIDC is utilized for ATC coordination;
- Existing capabilities are utilized where possible to minimize costs, i.e. to avoid unnecessary and costly infrastructure duplication it is preferred that existing CNS/ATM capabilities are used by an ANSP in an expanded contiguous airspace volume, rather than having new capabilities developed/procured;
- SAR services are provided in the normal manner;
- The Asia-Pacific Seamless ATM plan is incorporated into service delivery and future planning.

2.10 Given that the volume of traffic likely to utilize this airspace is low, IATA would like to reiterate that from a cost and quality of service perspective it would appear to make most sense to consider utilizing existing suitable CNS/ATM capabilities and avoid unnecessary and costly duplication of infrastructure.

2.11 Notwithstanding the likely low traffic volumes, the ability to transit this airspace under ATC control is a key enabler that will allow airlines to operate previously impossible ultra-long-range routes in a safe, efficient and environmentally responsible manner. It is hoped that all stakeholders can adopt a whole of system perspective and proceed with a ‘most capable – best service’ approach in terms of assigning the airspace for ATC service provision.

3. Action by the Meeting

The Meeting is invited to:

a) Consider the information in this paper and determine a plan for the assignment of this airspace, and the subsequent provision of ATC services as detailed in para 2.9, according to an agreed upon route structure and service needs, and by encouraging the implementation of these capabilities; and;

b) ensure the requirements of airspace users and the provisions of ICAO’s *Policies on Charges for Airports and Air Navigation Services* document are given due consideration, when airspace assignment and ATC service delivery plans are developed.

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