



**THE FORTY-THIRD MEETING OF THE
INFORMAL PACIFIC ATC CO-ORDINATING GROUP
(IPACG/43)**

(Tokyo, Japan 27 – 28 September 2017)

Agenda Item 6: ATM Issues

Airline Input Regarding a NOPAC Route Restructure Review
(Presented by the International Air Transport Association)

SUMMARY

This paper is submitted for consideration by the meeting in response to Action Item xx from IPACG/42 and is a consolidated airline view detailing proposals and recommendations for optimization/reorganization of the NOPAC route structure.

1. Introduction

1.1. The North Pacific (NOPAC) Route System has been in place for several decades and is comprised of five (5) fixed Air Traffic Service (ATS) routes which transit the North Pacific between Alaska and Japan.

1.2. The two (2) northern routes are used for westbound traffic. The three (3) southern routes are used primarily for eastbound traffic except that R591 or G344 may be used for westbound aircraft crossing the Fukuoka/Anchorage Flight Information Region (FIR) boundary between 0000Z and 0600Z.

1.3. The FAA notes that:

- *NOPAC traffic flows are somewhat predictable due to consumer demand, time zone differences, winds aloft and airport noise restrictions.*
- *Eastbound air traffic is heavy between 0700Z and 2100Z. Westbound air traffic is heavy between 1200Z and 1900Z, and between 2200Z and 0700Z.*
- *When the NOPAC Route System is selected as the preferred routing (for PACOTS tracks) due to winds aloft, route saturation can occur. The most critical altitudes are flight levels 310 through 390.*

1.4. At the IPACG/42 meeting held in Seattle in September 2016, the FAA presented a paper concerning the NOPAC route system titled, “Optimization of NOPAC Navigable Airspace: Suggestions for a way forward”.

1.5. The FAA’s paper included the following recommendations:

- *That the IPACG formally adopt an action item to study the reorganization of the NOPAC based upon current aircraft Communication, Navigation and Surveillance (CNS) capabilities,*
- *That the IPACG solicit input from IATA and non-affiliated operators (such as the U.S. Department of Defence) for proposals and recommendations, and*
- *That the IPACG ANSPs advise the CPWG of their intention to research the possible reorganization of the NOPAC.*

1.6. In terms of the second point above, this paper is a consolidated airline response for consideration by the meeting, detailing proposals and recommendations for optimization/reorganization of the NOPAC route structure.

1.7. The proposals and recommendations herein only relate to airspace administered by the FAA and JCAB.

2. Discussion

2.1. IATA has long advocated for unrestricted UPRs in the NOPAC airspace. User Preferred Routings (UPRs) authorize operators to join or diverge from the NOPAC airways or track route structures within the guidelines published by the respective ANSPs. A variety of ad hoc studies have consistently indicated that unrestricted UPRs in the NOPAC would generate considerable fuel and time savings for trans-Pacific operators.

2.2. In mid-2014 Anchorage ARTCC started allowing (on a trial basis) unrestricted UPRs for westbound traffic FL400 and above. Over time the lateral boundaries of this 'high level' UPR zone have expanded to include Fukuoka, Oakland and (very soon) Vancouver. The altitude boundary has dropped to FL380 and availability is expanding to include eastbound flights.

2.3. Boeing 787 aircraft, and specifically the Boeing 787 aircraft of United Airlines, are the only aircraft type currently taking advantage of this UPR zone on a regular basis. For westbound flights utilizing the zone, United has noted an average flight time reduction of 2-3 minutes and fuel savings of 136kg (300lbs) per flight.

2.4. Despite the availability of the high level UPR zone there appear to be many eligible Boeing 787 operators who are unable or do not wish to use UPRs. Operators spoken to have identified the workload for planners associated with manually generating UPR flight plans as a key factor limiting wider use of UPRs (the process can't be automated due to the complexity associated with adhering to the various restrictions and requirements).

2.5. In aviation the system generally defaults to the operational capability of the lowest common denominator. A key action item for the industry is therefore determining the current operational capability of the NOPAC operators, i.e. a consolidated summary of each NOPAC operator's current UPR capability or likelihood of future readiness/use, including any impediments and how they might be mitigated.

2.6. In the interest of improving collective system capability and performance IATA believes that it would be beneficial to organize an in-region UPR flight planning workshop targeting operators with little exposure to UPR flight planning concepts, particularly those operators new to trans-Pacific operations.

2.7. Operators acknowledge that the FAA and JCAB have limited resources to devote to resource intensive projects like a NOPAC route restructure. As such, IATA has solicited airline feedback on the issue and a consolidated set of industry recommendations/proposals that will accrue the widest range of benefits to the largest number of operators is included below.

2.8. The industry recommendations in 2.9 below:

- take into account information provided by the FAA at a NOPAC route restructure workshop held in January 2017;

- only relate to airspace administered by the FAA and JCAB;
- acknowledge that constraints imposed by the Magadan FIR boundary;
- are predicated on retention, and ultimately expansion, of the current high level UPR zone;
- are predicated on the concept of most capable – best served;
- are considered implementable in the short term (less than 24 months);
- are considered a ‘first step’ along a longer term (multi-year) restructuring pathway that will ultimately result in the availability of unrestricted UPRs;
- are based on airline feedback that lateral flexibility is more desirable than a marginal loss of ability to operate at optimal altitudes.

2.9. Recommendations for consideration:

2.9.1. Declaration of the NOPAC airspace as Required Navigation Performance 4 (RNP4) exclusive airspace

- The lateral and vertical boundaries of the ‘exclusive’ airspace volume to be determined but the aim is to facilitate the closely spaced (RNP4 23 or 30nm) bi-directional routes described below
- Regular surveys by the FAA consistently show that RNP4 equipage is above 90 percent for traffic transiting the Anchorage FIR

2.9.2. Replacement of the current NOPAC fixed route structure with a series of closely-spaced (RNP4 23 or 30nm) bi-directional routes, accompanied by additional ‘connector’ routes between the tracks

- A flight level allocation scheme (FLAS) may need to be considered to accommodate east versus west traffic flows during peak periods

2.9.3. A timeline for progressive lowering of the altitude limit of the current high level UPR zone

- A staged expansion of the UPR zone by altitude band would give ANSPs (especially operational staff) the opportunity to evaluate and manage increased UPR use incrementally in a controlled and contained environment

2.9.4. An agreement between industry and the ANSPs on the parameters (and funding) for a modelling program to determine if an OTS is the logical next step on the path to unrestricted UPR availability

- Such an evaluation could also include an assessment as whether any benefits might accrue from the deployment of rapidly developing new technology such as space-based ADS-B (acknowledging that RNP4 separations and UPRs are not dependent upon the availability of ADS-B surveillance)

3. Action by the meeting

3.1. The meeting is requested to consider recommendations 2.9.1-2.9.4 above and agree to an implementation plan, including timeline, for restructuring of the NOPAC route network.

3.2. The meeting is requested to support an in-region UPR flight planning workshop organized by IATA.